

# **ROD AND WIRE MILL INTERIM MEASURE 2020 PROGRESS REPORT**

**TRADEPOINT ATLANTIC  
SPARROWS POINT, MARYLAND**

Prepared for:



**TRADEPOINT ATLANTIC**  
1600 Sparrows Point Blvd  
Sparrows Point, MD 21219

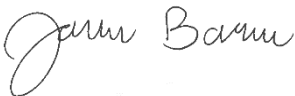
Prepared by:



**ARM GROUP LLC**  
9175 Guilford Road  
Suite 310  
Columbia, Maryland 21046  
ARM Project No. 21010103

Revision 0 – April 22, 2021

Respectfully Submitted:

A handwritten signature in black ink that reads "Joshua M. Barna".

Joshua M. Barna, G.I.T.  
Staff Geologist

QA Reviewed By:

A handwritten signature in black ink that reads "Neil Peters".

T. Neil Peters, P.E.  
Senior Vice President

**TABLE OF CONTENTS**

---

1.0	Introduction.....	1
1.1.	Tradepoint Atlantic Site Background.....	1
1.2.	Site Ownership History .....	1
1.3.	Regulatory Process.....	2
2.0	Rod and Wire Mill .....	3
2.1.	Site Description .....	3
2.1.1.	Historical RWM Industrial Activities.....	3
2.1.2.	Site Geology/Hydrogeology .....	3
2.2.	Historical Interim Measure for Groundwater Conditions .....	4
3.0	New Interim Measure and Groundwater Conditions .....	6
3.1.	Interim Measure Remedial Approach .....	6
3.2.	Groundwater Conditions After Trench Installation .....	7
3.2.1.	Performance/Focused Well Pairs J-K-L .....	7
3.2.2.	Shallow Groundwater Zone .....	8
3.2.3.	Intermediate Groundwater Zone.....	12
3.3.	Statistical Trend Evaluation .....	17
3.4.	Contaminant Reduction.....	17
4.0	Summary and Conclusions .....	19
5.0	References.....	21

**List of Figures (Following Text)**

Figure 1	Site Map & Parcel Boundaries
Figure 2	Locations of Historical Activities
Figure 3	Treatment Trench Cross-Section
Figure 4	Trench Cross-Section with June 2020 pH Measurements
Figure 5	Intermediate Zone Zinc Concentrations – June 2020
Figure 6	Intermediate Zone Zinc Concentrations – November 2020
Figure 7	RWJ-MWS, RWK-MWS, and RWL-MWS Zinc Time-Series Graph
Figure 8	RWJ-MWS, RWK-MWS, and RWL-MWS Cadmium Time-Series Graph
Figure 9	RWJ-MWI, RWK-MWI, and RWL-MWI Zinc Time-Series Graph
Figure 10	RWJ-MWI, RWK-MWI, and RWL-MWI Cadmium Time-Series Graph
Figure 11	Shallow Zone Groundwater Elevation Contours – June 2020
Figure 12	Shallow Zone Groundwater Elevation Contours – November 2020

**List of Figures (continued)**

Figure 13	Groundwater Organic PAL Exceedances
Figure 14	Shallow Zone Zinc Concentrations – June 2020
Figure 15	Shallow Zone Zinc Concentrations – November 2020
Figure 16	Shallow Perimeter Zinc (Original Wells) Time-Series Graph
Figure 17	Shallow Perimeter Zinc (Supplemental Wells) Time-Series Graph
Figure 18	Shallow Interior Zinc (Original Wells) Time-Series Graph
Figure 19	Shallow Interior Zinc (Supplemental Wells) Time-Series Graph
Figure 20	Shallow Delineation Zinc Time-Series Graph
Figure 21	Shallow Upgradient Zinc Time-Series Graph
Figure 22	Shallow Zone Cadmium Concentrations – June 2020
Figure 23	Shallow Zone Cadmium Concentrations – November 2020
Figure 24	Shallow Perimeter Cadmium (Original Wells) Time-Series Graph
Figure 25	Shallow Perimeter Cadmium (Supplemental Wells) Time-Series Graph
Figure 26	Shallow Interior Cadmium (Original Wells) Time-Series Graph
Figure 27	Shallow Interior Cadmium (Supplemental Wells) Time-Series Graph
Figure 28	Shallow Delineation Cadmium Time-Series Graph
Figure 29	Shallow Upgradient Cadmium Time-Series Graph
Figure 30	Shallow Zone pH – June 2020
Figure 31	Shallow Zone pH – November 2020
Figure 32	Intermediate Zone GW Elevation Contours – June 2020
Figure 33	Intermediate Zone GW Elevation Contours – November 2020
Figure 34	Intermediate Perimeter Zinc (Original Wells) Time-Series Graph
Figure 35	Intermediate Perimeter Zinc (Supplemental Wells) Time-Series Graph
Figure 36	Intermediate Performance Zinc (Original Wells) Time-Series Graph
Figure 37	Intermediate Performance Zinc (Supplemental Wells) Time-Series Graph
Figure 38	Intermediate Delineation Zinc Time-Series Graph
Figure 39	Intermediate Upgradient Zinc Time-Series Graph
Figure 40	Intermediate Zone Cadmium Concentrations – June 2020
Figure 41	Intermediate Zone Cadmium Concentrations – November 2020
Figure 42	Intermediate Perimeter Cadmium (Original Wells) Time-Series Graph
Figure 43	Intermediate Perimeter Cadmium (Supplemental Wells) Time-Series Graph
Figure 44	Intermediate Performance Cadmium (Original Wells) Time-Series Graph
Figure 45	Intermediate Performance Cadmium (Supplemental Wells) Time-Series Graph
Figure 46	Intermediate Delineation Cadmium Time-Series Graph
Figure 47	Intermediate Upgradient Cadmium Time-Series Graph
Figure 48	Intermediate Zone pH – June 2020
Figure 49	Intermediate Zone pH – November 2020

**List of Tables (Following Text)**

Table 1	Summary of Organics Detected in Groundwater
Table 2	Shallow Zone Zinc Concentrations – (Post-Trench)
Table 3	Shallow Zone Cadmium Concentrations – (Post-Trench)
Table 4	Intermediate Zone Zinc Concentrations – (Post-Trench)
Table 5	Intermediate Zone Cadmium Concentrations – (Post-Trench)
Table 6	Average Historical Shallow Zone Groundwater Data
Table 7	Average Historical Intermediate Zone Groundwater Data

**List of Appendices (Following Text)**

Appendix A	Laboratory Data from Recent Sampling (2020)
Appendix B	Shallow Groundwater Time-Series Graphs
Appendix C	Intermediate Groundwater Time-Series Graphs
Appendix D	Statistical Trend Test Results

**List of Electronic Attachments**

Groundwater Lab Reports (Organics)

## **1.0 INTRODUCTION**

This Progress Report for the Rod and Wire Mill Interim Measure at the Tradepoint Atlantic property has been prepared by ARM Group LLC (ARM). This report presents a brief history of the Rod and Wire Mill Area (RWM), a description of historical interim measures (IMs) that operated at the RWM, a description of additional remedial efforts that were completed in 2016 and 2017 to facilitate soil and groundwater treatment in the RWM area, the resulting changes observed in groundwater flow patterns and contaminant distribution, and an evaluation of the effectiveness of the interim measure.

### **1.1. TRADEPOINT ATLANTIC SITE BACKGROUND**

The Tradepoint Atlantic property is located in Baltimore County, Maryland at the southeastern corner of the Baltimore metropolitan area, approximately nine miles from the downtown area. The property encompasses approximately 3,100 acres located on a peninsula situated on the Patapsco River near its confluence with the Chesapeake Bay, physically positioned in the mouth of the heavily industrialized and urbanized Baltimore Harbor / Patapsco River region. A land connection to the northeast links the peninsula with the adjacent community of Edgemere.

From the late 1800s until 2012, the property was used for the production and manufacturing of steel. Iron and steel production operations and processes at the Site included raw material handling, coke production, sinter production, iron production, steel production, and semi-finished and finished product preparation. In 1970, Sparrows Point was the largest steel facility in the United States, producing hot and cold rolled sheets, coated materials, pipes, plates, and rod and wire. The steelmaking operations at the facility ceased in fall 2012, and current plans for the Site include demolition and redevelopment over the next several years. Some portions of the site have already undergone remediation and/or redevelopment.

The original topography of the peninsula was flat with elevations not exceeding 15 feet based on the North American Vertical Datum 1988 (NAVD88). The peninsula has been drastically altered since the inception of the steel manufacturing activities. Creeks have been filled in and new land has been added to various areas of the Site by building up near-shore areas of the river.

### **1.2. SITE OWNERSHIP HISTORY**

Bethlehem Steel Corporation operated an integrated steelmaking facility at the site from approximately 1916 through 2003. As a result of multiple market factors, Bethlehem Steel declared bankruptcy in 2001 and the facility was subsequently operated by a succession of owners, the last of which (RG Steel Sparrows Point, LLC) filed for bankruptcy in 2012. The site was subsequently purchased by Sparrows Point, LLC (SPLLC) at a bankruptcy sale on August 7, 2012. Sparrows Point Terminal, LLC (SPT) purchased the real property on September 18, 2014. SPT has subsequently undergone a name change and is now doing business as Tradepoint Atlantic.

### 1.3. REGULATORY PROCESS

Environmental responses for the RWM and for the site in general are being implemented pursuant to the following:

- Multi-Media Consent Decree (Decree) between Bethlehem Steel Corporation, the United States Environmental Protection Agency (EPA), and the Maryland Department of the Environment (MDE) (effective October 8, 1997); this Decree has been modified in accordance with a stipulated order entered into by Sparrows Point LLC and the respective agencies effective July 28, 2014;
- Administrative Consent Order (ACO) between Sparrows Point Terminal, LLC and the Maryland Department of the Environment (effective September 12, 2014); and,
- Settlement Agreement and Covenant Not to Sue (SA) between Sparrows Point Terminal, LLC and the United States Environmental Protection Agency (effective November 25, 2014).

The original Consent Decree for the Sparrows Point facility dealt with many issues associated with ongoing iron-making, steel-making, coking, byproduct, plating, and finishing operations. To the extent that these operations are no longer conducted, and the associated facilities no longer exist, many specific requirements of the Decree are no longer applicable and have been removed in accordance with the stipulated order implementing modifications to the Decree. The RWM is part of the acreage that remains subject to the requirements of the Decree as documented in correspondence received from EPA on September 12, 2014.

## 2.0 ROD AND WIRE MILL

### 2.1. SITE DESCRIPTION

#### 2.1.1. Historical RWM Industrial Activities

The RWM (the Site) is located in the northwestern portion of the Tradepoint Atlantic property. This area has also been given the designation of Parcel A3, as the Tradepoint Atlantic property as a whole has been divided into several separate parcels. These parcels, including Parcel A3 (the RWM), are shown on **Figure 1**.

The RWM is the location of the former mill that produced rods and wire products from the 1940s to the early 1980s. All manufacturing activities at the RWM ceased operation in the early 1980s with subsequent demolition of all structures between 1994 and 2000, based on historical aerial photos.

Manufacturing activities at the RWM included leaching of zinc ore and a subsequent treatment process to remove cadmium impurities. The leaching process was implemented in large tanks located inside the north end of the former RWM building. From the 1950s, the acidic leach residue was stored in the Northwest Pond until about 1959 when filters were utilized to dewater the residues. Dewatered sludge generated from this process was temporarily stored on the ground outside the north end of the mill in the Former Sludge Bin Storage Area. Filtrate from the dewatering process was recycled to the wire plating process. Excess filtrate was discharged to the East Pond until 1971, after which it was sent to the Humphrey Creek Wastewater Treatment Plant (HCWWTP) for treatment. These operations ended in the early 1980s when the Rod and Wire Mill was shut down. The former locations of the Northwest Pond, the Sludge Bin Storage Area, and the East Pond are shown on **Figure 2**.

#### 2.1.2. Site Geology/Hydrogeology

In general, the subsurface geology at the RWM includes slag fill materials overlying natural soils, which include fine-grained sediments (clays and silts) and coarse-grained sediments (sands). Groundwater occurrence at the Site has been segregated into three horizons identified as shallow, intermediate and deep hydrogeologic zones.

The shallow hydrogeologic zone includes recent sedimentary deposits or slag fill material and the unconfined water table at the Site. Monitoring wells and piezometers designated as shallow are screened within this uppermost, unconfined water bearing unit. The “shallow” bottom-of-screen elevations generally range from +5 to -20 feet above mean sea level (amsl). In some areas of the Site, the slag fill is directly underlain by and hydrologically connected to, the coarser-grained beds or lenses within the Talbot Formation that comprise the Upper Talbot Channel Unit. In these areas, the slag fill and Upper Talbot Channel Units form a single groundwater flow system. In much of

the investigation area, the slag fill material is underlain by finer-grained silts and clays that comprise the Talbot Clay Aquitard. In these areas, shallow groundwater flow may be separated from groundwater in any underlying coarse-grained beds or lenses.

The intermediate hydrogeologic zone was the focus of the pump and treat interim measure formerly used at the Site and is therefore also referred to as the intermediate pumping zone. The intermediate zone includes the unconfined to partially confined groundwater in the Pleistocene-aged Upper Talbot unit. The “intermediate” bottom-of-screen elevations range from approximately -20 to -50 feet amsl. The presence of clay and silt layers within the intermediate hydrogeologic zone likely retard the vertical recharge of groundwater from the upper fill material and Upper Talbot channel Unit.

The lower hydrogeologic zone includes the confined groundwater in the Lower Talbot or Upper Patapsco Sand unit. The “lower” bottom-of-screen elevations range from approximately -50 to -141 feet amsl. The lower hydrogeologic zone was not a primary focus of this groundwater investigation. Hydrogeologic zones at greater depth are known to exist based on a review of the regional geology; however, these deeper units are isolated from the upper three units and impacts associated with the former iron and steel operations have not been identified.

## **2.2. HISTORICAL INTERIM MEASURE FOR GROUNDWATER CONDITIONS**

The historical operations within the RWM resulted in releases of cadmium and zinc to soil and groundwater. In 1986, a soil and groundwater remediation program was initiated to address groundwater exhibiting elevated levels of cadmium and zinc, as well as residual soil contamination in the Sludge Bin Storage Area. Remediation initially consisted of a soil flushing program and associated pumping and treatment of groundwater from shallow and intermediate wells. The groundwater pumping was discontinued, and the treatment plant was dismantled in 1999 to support the demolition of the Rod and Wire Mill, allowing for reassessment of the interim measure. A Work Plan to re-establish interim measures was submitted to the reviewing agencies (MDE and EPA) in July 2000, and the Work Plan was approved in November 2000. Re-establishment of the interim measures included the following:

- Institutional controls for soils were established to provide a “Restricted Work Area” to control the exposure of onsite workers to soils in the Former Sludge Bin Storage Area.
- A groundwater monitoring network consisting of 31 wells was installed to monitor the performance of the groundwater pump and treat system. This monitoring network was used to collect water level and groundwater quality data.
- A groundwater pump and treat system was operated and maintained, which consisted of two intermediate zone recovery wells (RW10-PZM020 and RW15-PZM020) that removed water at a rate of between 5 and 12 gallons per minute (gpm). The expected normal operating rate for the treatment system was set at a combined rate of 8 to 12 gpm, with a maximum design flow of 25 gpm.



- Recovered groundwater was transported via a pipeline to the HCWWTP for subsequent treatment and discharge in accordance with the NPDES permit requirements for the facility.

The pumping and treatment of groundwater resumed in September 2001. This IM was subsequently discontinued in 2017 so that additional remedial work could be performed at the RWM.

### 3.0 NEW INTERIM MEASURE AND GROUNDWATER CONDITIONS

#### 3.1. INTERIM MEASURE REMEDIAL APPROACH

EnviroAnalytics Group contracted Advanced GeoServices (AGS) to design and install remediation trenches to serve as the new interim measure for remediating groundwater at the RWM. The full details of the remediation design are presented in the AGS Work Plan, *Interim Measure Work Plan In-Situ Groundwater Treatment* (AGS, 2016). The primary purpose of this new interim measure, which focused on groundwater in the intermediate zone, was to reduce concentrations of dissolved metals and to minimize contaminant discharges from this zone to surface water. Groundwater in the shallow zone was noted to have a higher pH (with a 2020 average of 7.5 compared to 6.4 for the intermediate zone) due to the presence of slag fill, and as a result, the distribution of metals in the shallow zone groundwater indicates very limited mobility (i.e., lack of migration). Therefore, the intermediate zone was the primary focus of the new interim measure.

Groundwater extraction from the pumping wells ceased in September 2016 to support the construction of the remediation trenches. The approach for addressing the elevated dissolved cadmium and zinc in the intermediate groundwater zone was to precipitate the dissolved metals in-situ by raising the groundwater pH from approximately 4 to approximately 9.5 to 10 through the addition of alkaline reagents into the intermediate groundwater zone at select high concentration areas. To accomplish this, excavated soils were replaced with alkaline charges that react with acidic groundwater to create alkaline conditions within the aquifer and remove the dissolved cadmium and zinc from solution. The alkaline charges utilized a combination of fast acting TerrabondMG (40% by weight) in conjunction with limestone aggregate (60% by weight). The reagents were placed in trenches in a staggered/offset alignment perpendicular to the anticipated groundwater flow. A typical cross-section of a remediation trench is provided as **Figure 3** and the approximate locations of the trenches are shown on the various maps provided as part of this report. Groundwater flow velocities were calculated based on groundwater level measurements in May 2019. Groundwater flow velocity was calculated at 33.8 ft/year in the shallow zone and 4.94 ft/year in the intermediate zone. Details of these calculations can be found in the Rod and Wire Mill Interim Measure Supplemental Investigation Report (Revision 1 dated April 8, 2020)

Approximately 2,392 cubic yards of contaminated soil were removed from the RWM during construction of the trenches and disposed of at an offsite facility. Construction of the trenches was completed in January 2017.

The interim groundwater treatment goals are to increase the pH in the intermediate groundwater zone in order to precipitate the dissolved metals and achieve a reduction in dissolved concentrations of cadmium and zinc within the source areas. Ultimately the treatment goal is to

demonstrate that the concentrations of the primary contaminants (cadmium and zinc) in groundwater discharging at the shoreline/property boundary are acceptable.

Several new groundwater wells were installed at the RWM in April 2019 as described in the *Rod and Wire Mill Interim Measure Supplemental Investigation Report – Revision 1 (April 8, 2020)*. The purpose of these wells was to improve the delineation of cadmium and zinc concentrations in the shallow and intermediate zones. Sampling at these locations began during the May 2019 sampling event, and has continued through the quarterly 2020 events.

### **3.2. GROUNDWATER CONDITIONS AFTER TRENCH INSTALLATION**

For the purposes of evaluating trends in groundwater, monitoring wells were installed as part of this program and have been categorized into four groups:

- The “Perimeter” wells are generally located farthest to west (downgradient).
- The “Performance/Focused” shallow wells are located in the central portion of the site. The Focused wells were specifically installed directly adjacent to one of the trenches to help assess the trench performance. Proximity was very important due to the rather slow ground water velocity calculated for the site.
- The “Delineation” wells are located along the northern boundary of the site.
- The “Upgradient” wells are located farthest upgradient, generally farthest to the east.

Groundwater samples were collected from wells on a monthly basis starting in February 2017 up to January 2018. Following the January 2018 sampling event, groundwater samples were collected on a quarterly basis. This report summarizes groundwater conditions following trench installation, with particular focus on the results of the four quarterly sampling events carried out in 2020.

#### **3.2.1. Performance/Focused Well Pairs J-K-L**

Following the installation of the treatment trenches and as part of a Supplemental Investigation, well pairs J – K – L were installed in close proximity to the western most trench in order to evaluate the trench performance. Well pair RWJ was installed directly adjacent to the trench. The other two well pairs (RWK and RWL) were installed progressively further from the RWJ pair in the southwestern direction, with the RWK pair approximately 10 feet away and the RWL pair approximately 25 feet away. These three well pairs, along with the RW12 well pair (located immediately upgradient of the western-most trench and approximately colinear with the J-K-L pairs) were installed in this spatial arrangement to assess the near-field effect of the remediation trenches.

**Figure 4** presents a cross-section view of pH values in both the shallow and intermediate zones in close proximity to the trench. This cross-section shows that the alkaline charge has had some

effect on the intermediate groundwater outside the trench. Compared to the surrounding wells, the pH of the groundwater in the vicinity of the trench is clearly elevated due the alkaline charge.

**Figure 5** and **Figure 6** show the locations of these wells relative to the trench, along with the intermediate zinc concentrations. As indicated in the figures, intermediate groundwater upgradient of the trench in well RW12-MWI contains over 80,000 µg/L dissolved zinc. The zinc concentration in RWJ-MWI, immediately adjacent and downgradient of the trench, was 805 µg/L in June 2020 and 1,060 µg/L in November 2020. As the distance downgradient from the trench increased, the zinc concentration was observed to increase such that the zinc concentration was back above 80,000 µg/L at RWL-MWI. The same pattern appears in the intermediate zone for cadmium concentrations. This suggests that the permeable reactive barrier treatment technology and the reagent appears to be effective in raising the pH of the groundwater and removing the zinc concentrations. Based on the groundwater flow velocity it appears that the treated groundwater has yet to reach RWL-MWI.

The time-series graph included as **Figure 7** shows that the zinc concentrations in the shallow zone downgradient wells RWK-MWS and RWL-MWS are several orders of magnitude greater than that of RWJ-MWS which is in close proximity to the trench. As shown on **Figure 8**, there is barely any cadmium detected in these three shallow wells. These graphs also show that the shallow zone zinc and cadmium concentrations have remained relatively stable over 2019 and 2020. **Figure 9** illustrates zinc concentrations for the three locations in the intermediate zone. This figure shows relatively stable zinc concentrations over 2019 and 2020 for wells RWK-MWI and RWL-MWI with RWJ-MWI exhibiting an overall decrease. These Performance/Focused wells were not installed until 2019, which was over two years following the trench installation. Based on concentrations upgradient from the trench, the data suggest that zinc concentration at RWJ-MWI have significantly decreased. Furthermore, the large difference between zinc levels in these wells (shown on the graph) corresponds to their distance away from the trench, with the closest well of the three (RWJ-MWI) having the lowest zinc concentration and the farthest well of the three (RWL-MWI) having the highest zinc concentration. The pattern can also be seen on **Figure 10** with the time-series graphs of cadmium concentration in these three intermediate wells, although there is not as much of a difference between the levels of RWJ-MWI and RWK-MWI as there is for zinc.

These wells will continue to be sampled and the zinc and cadmium trends will be evaluated to assess the treatment trench performance over time.

### 3.2.2. Shallow Groundwater Zone

A synoptic round of groundwater level measurements was collected for each of the quarterly sampling events conducted in March, June, September, and November 2020. Based on the field measurements, groundwater potentiometric surface maps were constructed for the shallow zone for the June and November events and are included as **Figure 11** and **Figure 12**, respectively. In

the shallow zone, the predominant flow directions are to the west, northwest and southwest radially away from a mound-like feature extending from east to west. In the northern portion of the Site near the former Northwest Pond groundwater flow is to the north.

At MDE request, groundwater samples collected during June, September, and November 2020 from locations RW21-MWS and RW21-MWP (a perched zone piezometer) were analyzed for organic constituents (in addition to the usual cadmium and zinc analyses) in order to assess potential dissolved phase contaminant migration associated with known non-aqueous phase liquid (NAPL) impacts in the area. A summary of organic parameters detected in groundwater within these monitoring wells is provided as **Table 1. Figure 13** shows Project Action Limit (PAL) exceedances at these locations. Lab reports with the analytical results for these samples are included as electronic attachments. Benzene and naphthalene concentrations increased from June 2020 to November 2020 in the shallow zone. Naphthalene was also detected above its PAL in the perched zone during the September sampling event, but not during the other two events.

*1.1.1.1 Well Categories*

For the purposes of evaluating trends in groundwater, shallow zone wells have been categorized into four groups:

- The “Perimeter” wells are generally located farthest to west (downgradient).
- The “Performance/Focused” shallow wells are located in the central portion of the site.
- The “Delineation” wells are located along the northern boundary of the site.
- The “Upgradient” wells are located farthest upgradient, generally farthest to the east.

Well categories are shown in the table below.

<b>Shallow Zone Well Categories</b>			
<b>Perimeter</b>	<b>Performance/Focused</b>	<b>Delineation</b>	<b>Upgradient</b>
RW01-MWS	RW09-MWS	RW21-MWS	RW19-MWS
RW02-MWS	RW11-MWS	RWH-MWS	RWR-MWS
RW03-MWS	RW12-MWS	RWI-MWS	RWS-MWS
RW04-MWS	RW14-MWS	RWO-MWS	
RW05-MWS	RW15-MWS	RWQ-MWS	
RW06R-MWS	RW16-MWS		
RW07-MWS	RW18-MWS		
RW08-MWS	RW23-MWS		
RW22R-MWS	RW24-MWS		
RWA-MWS	RW25-MWS		
RWB-MWS	RWJ-MWS		
RWD-MWS	RWK-MWS		
RWE-MWS	RWL-MWS		
RWF-MWS	RWM-MWS		
RWG-MWS	RWN-MWS		

### 1.1.1.2 Zinc

**Figure 14** displays the distribution of zinc concentrations in the shallow zone during the June event. The highest measured concentration was at RWS-MWS (954,000 µg/L), which, as shown on **Table 2**, is significantly higher than any previous zinc concentration from this location. This well is located upgradient of the remediation trenches. RWN-MWS, located upgradient of the western-most remediation trench and within the former Sludge Bin Storage Area, also exhibited high zinc concentrations relative to other shallow well concentrations during this event at 884,000 µg/L. In addition, zinc was measured in high concentrations (compared to other shallow well concentrations during this event) north of the remediation trenches in well RW21-MWS (268,000 µg/L) and well RW22R-MWS (217,000 µg/L).

**Figure 15** displays the distribution of zinc concentrations in the shallow zone during the November event. The zinc distribution is similar to that of the June event. The highest measured concentration was also at RWN-MWS (709,000 µg/L), with additional elevated concentrations compared to other shallow well concentrations from this event north of the remediation trenches in well RW21-MWS (325,000 µg/L).

Results for perimeter shallow zone wells show that zinc decreased from December 2018 levels or stayed relatively the same over the course of 2020. The only exception was the concentration in RWE-MWS. The zinc in this well increased from the March event to the September event. It has subsequently exhibited a decrease to the lowest concentration observed at this location during the November 2020 event. During the November 2020 sampling event, concentrations of zinc in perimeter shallow wells were below the relevant surface water criterion of 81 µg/L in wells RWA-MWS (52.1 µg/L), RWB-MWS (11.9 µg/L), RWD-MWS (3 µg/L), RWG-MWS (10 µg/L), RW06R-MWS (5 µg/L), RW04-MWS (54.6 µg/L), and RW05-MWS (9.8 µg/L). Time-series graphs of zinc concentrations in shallow perimeter wells are included as **Figure 16** (original wells) and **Figure 17** (supplemental wells).

Results for interior shallow zone wells show that, while wells RWN-MWS and RW14-MWS had the highest levels of zinc in the shallow zone, these levels remained relatively stable over 2020. Zinc concentrations in most other shallow interior wells remained relatively stable over the year, except for wells RW09-MWS and RW11-MWS, which exhibited increases over the year. The concentration of zinc in well RW25-MWS exhibited a notable decrease in 2019 but has remained relatively constant in 2020. Time-series graphs of zinc concentrations in shallow interior wells are included as **Figure 18** (original wells) and **Figure 19** (supplemental wells).

Zinc concentrations in delineation wells generally remained stable or decreased in 2020. Well RWH-MWS has fluctuated significantly since its installation in April 2019. Well RW21-MWS has constantly exhibited relatively stable higher zinc concentrations since sampling at this location began. A time-series graph displaying zinc concentrations for the delineation wells is included as **Figure 20**.

Zinc concentrations in upgradient shallow zone well RWS-MWS increased significantly to a peak of 954,000 µg/L during the June 2020 sampling event, but then decreased back to near 2019 levels. Well RWR-MWS has continued to exhibit elevated zinc levels that appear to be relatively stable. A time-series graph of the zinc concentrations over time in the shallow upgradient wells is included as **Figure 21**. Results for zinc concentrations in shallow wells are shown in **Table 2**. Laboratory reports for samples collected during 2020 are included as **Appendix A**.

#### 1.1.1.3 Cadmium

**Figure 22** displays the distribution of cadmium concentrations in the shallow zone during the June event. RWN-MWS had the highest detected concentration of cadmium at 6,810 µg/L. All cadmium concentrations downgradient of the western-most remediation trench in the shallow zone were below 15 µg/L. North of the trenches, cadmium concentrations were all measured below 100 µg/L except RW21-MWS in the former Northwest Pond area.

**Figure 23** displays the distribution of cadmium concentrations in the shallow zone during the November event. Like the June event, RWN-MWS had the highest detected concentration of cadmium (6,260 µg/L) and all cadmium concentrations downgradient of the western-most remediation trench were below 15 µg/L. Cadmium in RW21-MWS in the former Northwest Pond area was still elevated compared to the other shallow wells north of the trenches.

Results for perimeter shallow zone wells show that cadmium concentrations decreased or stayed relatively stable during the 2020 events. During the November 2020 sampling event, concentrations of cadmium in perimeter shallow wells were below the relevant surface water criterion of 7.9 µg/L, except for RW22R-MWS (30.7 µg/L). Cadmium was not detected in several of the shallow perimeter wells during the 2020 events. Since February 2017, cadmium concentrations in perimeter wells generally seem to be remaining stable or decreasing over time. Time-series graphs of cadmium concentrations in shallow perimeter wells are included as **Figure 24** (original wells) and **Figure 25** (supplemental wells).

Sampling results for interior shallow zone wells show that total cadmium was generally below 20 µg/L during 2020, except for in RW14-MWS and RWN-MWS. Both of these wells are located within the former Sludge Bin Storage Area. Well RWN-MWS has the highest levels of cadmium in the shallow zone, with a concentration that was three orders of magnitude greater than concentrations in the majority of shallow zone wells. The second highest concentration (lower but elevated compared to other shallow zone wells) was nearby at RW14-MWS (3,020 µg/L during the November 2020 sampling event). Time-series graphs of cadmium concentrations in shallow interior wells are included as **Figure 26** (original wells) and **Figure 27** (supplemental wells).

Cadmium concentrations in delineation wells generally remained stable or decreased since sampling began at these locations in May 2019. A time-series graph displaying cadmium concentrations for the delineation wells is included as **Figure 28**.

Cadmium was generally not detected in upgradient shallow zone wells RW19-MWS and RWS-MWS during 2020 but was detected in the supplemental well RWR-MWS. However, this well exhibits an overall concentration decrease since sampling has begun. A time-series graph of cadmium concentrations in shallow upgradient wells is included as **Figure 29**. Cadmium concentrations in shallow wells are shown in **Table 3**. Laboratory reports for samples collected during 2020 are included as **Appendix A**.

Individual time-series graphs for each shallow zone monitoring well are presented in **Appendix B**. The time-series graphs illustrate the dramatic fluctuations in groundwater concentrations from quarter to quarter within some wells.

#### *1.1.1.4 pH*

Measurements of pH in the shallow groundwater zone from the June event, shown on **Figure 30**, ranged from 4.68 to 11.62. Values of pH were generally higher in wells near the shoreline and closest to the remediation trenches. Groundwater pH at the two locations closest to a remediation trench, RWJ-MWS and RW24-MWS, was among the highest measured pH values, (11.62 and 11.12 respectively). Additionally, RW16-MWS, RW18-MWS, and RWI-MWS have relatively high pH values and are located downgradient of trenches. The lowest measured pH value (4.68) was at RWF-MWS, located to the south of the trenches.

Measurements of pH in the shallow zone from the November event, shown on **Figure 31**, ranged from 4.70 to 12.83. Like the June event, values of pH were generally higher in wells near the shoreline and closest to the remediation trenches. The highest pH value was measured in RWJ-MWS. Wells RW16-MWS, RW24-MWS, and RW18-MWS also had relatively high pH values. During the November event, the lowest pH value was measured in RWF-MWS (4.70), located south of the remediation trenches.

### **3.2.3. Intermediate Groundwater Zone**

A synoptic round of groundwater level measurements was collected for each of the quarterly sampling events conducted in March, June, September, and November 2020. Based on these field measurements, groundwater potentiometric surface maps were constructed for the intermediate zone for the June and November events (included as **Figure 32** and **Figure 33**, respectively). The potentiometric surface in the intermediate zone is nearly flat, with hardly any variation (less than a half foot of difference) amongst most calculated groundwater elevations across the Site. Well RW09-MWI had a notably higher groundwater elevation in the November event than in the June event. Well RW18-MWI had a notably higher groundwater elevation in the June event than in the



November event. Groundwater elevations in the intermediate zone are generally lower than in the shallow zone, indicating a downward vertical gradient. The only exception was during the June 2020 event when RW18-MWI had a significantly higher water level than RW18-MWS, indicating an upward gradient in this area.

*1.1.1.5 Well Categories*

For the purposes of evaluating trends in groundwater, intermediate zone wells have been categorized into four groups based on their location:

- The “Perimeter” wells are generally located farthest to west.
- The “Performance’/Focused” wells are located in the central portion of the site.
- The “Delineation” wells are located along the northern boundary of the site, north of the remediation trenches.
- The “Upgradient” wells are located farthest upgradient, generally farthest to the east.

Well categories are shown in the table below.

<b>Intermediate Zone Well Categories</b>			
<b>Perimeter</b>	<b>Performance/Focused</b>	<b>Delineation</b>	<b>Upgradient</b>
RW01-MWI	RW09-MWI	RW21-MWI	RW19-MWI
RW02-MWI	RW10-MWI	RWH-MWI	RWR-MWI
RW03-MWI	RW11-MWI	RWI-MWI	RWS-MWI
RW05R-MWI	RW12-MWI	RWO-MWI	
RW06-MWI	RW13-MWI	RWP-MWI	
RW07-MWI	RW15-MWI	RWQ-MWI	
RW08-MWI	RW16-MWI		
RW22R-MWI	RW18-MWI		
RWA-MWI	RW23-MWI		
RWB-MWI	RW24-MWI		
RWD-MWI	RW25-MWI		
RWE-MWI	RWJ-MWI		
RWF-MWI	RWK-MWI		
RWG-MWI	RWL-MWI		
	RWM-MWI		

*1.1.1.6 Zinc*

Intermediate groundwater zinc concentrations during the June 2020 event, mapped spatially on **Figure 5**, generally decrease from east to west across the Site. Zinc concentration was highest in and around the former East Pond source area, with RW19-MWI measuring 6,450,000 µg/L. Zinc concentration is above 600,000 µg/L in RWI-MWI, which indicates that the contaminant plume in the intermediate zone extends beyond the northern limits of the treatment trenches and that the

former Northwest Pond area may have acted as a source of contaminant mass to the intermediate zone groundwater. The concentration observed in RWA-MWI was also elevated compared to other intermediate wells during this event. Based on the low concentration in RW22R-MWI, the relatively high zinc concentration in RWA-MWI appears to be an isolated plume separated from the high concentrations observed around the former Northwest Pond area. At RWJ-MWI, the zinc concentration is relatively low (805 µg/L) relative to other intermediate wells nearby, except RW13-MWI. However, concentrations of zinc near 100,000 µg/L extend westward along an axis from RWL-MWI, downgradient of the westernmost treatment trench, to RWE-MWI. Zinc levels above 1,000 µg/L in perimeter wells along the shoreline are bounded to the south by a low concentration observed in RWG-MWI (465 µg/L).

Intermediate zone groundwater zinc concentrations during the November 2020 event, shown on **Figure 6**, reveal nearly the same distribution of zinc as the June 2020 event. Zinc concentration was still the highest in the former East Pond source area at RW19-MWI, but RWR-MWI (to the south) exhibited a somewhat lower concentration during this event. Concentrations around the former Northwest Pond area (RW21-MWI and RWH-MWI) were higher than those in the June 2020 event and still above 500,000 µg/L. The isolated plume in the northwest corner near RWA-MWI persists, as well as the axis of concentrations near 100,000 µg/L extending from RWL-MWI eastward to RWE-MWI. Zinc levels above 1,000 µg/L in the perimeter wells along the shoreline are still bounded to the south by a low concentration observed in RWG-MWI during the November 2020 event.

While concentrations of zinc in some perimeter wells remained stable over 2020, concentrations in the majority of perimeter wells exhibited overall increases over the course of 2020. Furthermore, concentrations in RW02-MWI and RW03-MWI exhibited notable increases compared to concentrations measured in 2017. In contrast, zinc in RW06-MWI and RW07-MWI decreased significantly during their final sampling event of 2020. Zinc in RW01-MWI fluctuated significantly during the 2020 sampling events, dropping to a value of 3.7 µg/L in the September 2020 sampling event but then rebounding to 15,200 µg/L in the November 2020 event. During the November 2020 sampling event, zinc concentrations in the perimeter intermediate wells were below the relevant surface water criterion of 81 µg/L in RWB-MWI (13.5 µg/L), RW06-MWI (79.7 µg/L), and RW08-MWI (28.3 µg/L) and above the criterion in the all other perimeter wells. The highest zinc concentration amongst perimeter wells in 2020 was consistently measured in well RWA-MWI. Time-series graphs of zinc concentrations in intermediate perimeter wells are included as **Figure 34** (original wells) and **Figure 35** (supplemental wells).

Results for performance intermediate zone wells showed that zinc concentrations fluctuated the most in 2020 in wells RW13-MWI and RW15-MWI. The supplemental wells have generally been relatively stable over 2020. Concentrations of zinc in RW09-MWI and RW18-MWI in 2020 are slightly higher than average concentrations from 2017. In wells RW10-MWI, RW11-MWI, RW12-MWI, and RW16-MWI, concentrations in 2020 were notably lower than they were in 2017.

Time-series graphs of zinc concentrations in intermediate performance wells are included as **Figure 36** (original wells) and **Figure 37** (supplemental wells).

Zinc concentrations in delineation wells have been mostly stable since their installation in March 2019. However, the levels observed in RWH-MWI are slowly trending upwards. A time-series graph of zinc concentrations in intermediate delineation wells is included as **Figure 38**.

The zinc concentration in upgradient intermediate zone well RW19-MWI fluctuated over 2020 but has generally remained relatively the same concentration since February 2017. The supplemental upgradient well RWR-MWI zinc concentration has generally decreased since its installation, while RWS-MWI decreased significantly during the June sampling event but has rebounded in the following two sampling events. RW19-MWI well typically had the highest zinc concentration of all upgradient intermediate wells. A time-series graph of the zinc concentration over time in the intermediate upgradient well is included as **Figure 39**. All intermediate well zinc results are included in **Table 4**. Laboratory reports for samples collected during 2020 are included as **Appendix A**.

#### *1.1.1.7 Cadmium*

Intermediate zone cadmium concentrations during the June event, shown on **Figure 40**, vary significantly across the Site. The highest cadmium concentration was measured in RWI-MWI, located to the north of the western-most remediation trench, within the former Northwest Pond area. There are also relatively high concentrations (compared to other intermediate well concentrations during this event) southwest of the western-most trench at RW23-MWI (2,740 µg/L), RWF-MWI (2,580 µg/L), and RW05R-MWI (1,930 µg/L). The extent of the elevated cadmium is limited to the south by relatively low concentrations observed in wells RW01-MWI and RWG-MWI. As with zinc, the high cadmium detection at the northwestern-most corner of the Site at RWA-MWI (10,200 µg/L) appears to be isolated from the known source areas.

Intermediate zone cadmium concentrations during the November event, shown on **Figure 41**, are similar to those observed during the June event. Relatively high concentrations (compared to the other intermediate well concentrations) southwest of the western-most trench at RW23-MWI, RWF-MWI, and RW05R-MWI persisted to the November event, as well as the isolated plume in the northwest corner at RWA-MWI.

Concentrations of cadmium in perimeter wells generally remained relatively stable or decreased over the course of 2020. Concentrations of cadmium in perimeter intermediate wells were below the relevant surface water criterion of 7.9 µg/L in wells RWB-MWI, RW22R-MWI, RW06-MWI, and RW08-MWI. The highest cadmium concentration in perimeter wells in 2020 was consistently measured in well RWA-MWI. Wells RW01-MWI and RW02-MWI, exhibited notable decreases in cadmium in September 2020 while RW06-MWI exhibited a notable decrease in November

2020. Time-series graphs of cadmium concentrations in intermediate perimeter wells are included as **Figure 42** (original wells) and **Figure 43** (supplemental wells).

While concentrations of cadmium in a few intermediate performance wells remained relatively stable, several of concentrations in performance wells exhibited increases during 2020. Well RW13-MWI had the highest level of cadmium in the intermediate performance wells in the March and September events, but had much lower concentrations during the November and June events, comparable or lower than those of other intermediate performance wells. Significant fluctuations in the well have been historically common. Cadmium concentrations were 13.9 µg/L or below in RW09-MWI, RW10-MWI, RW13-MWI, RW15-MWI, and RW16-MWI during the November 2020. The cadmium concentrations in RW11-MWI were notably higher in November 2020 than levels observed in recent sampling events. Time-series graphs of cadmium concentrations in intermediate performance wells are included as **Figure 44** (original wells) and **Figure 45** (supplemental wells).

Cadmium concentrations in intermediate delineation wells remained relatively stable during the 2020 sampling events. Well RWH-MWI has exhibited a steady increase in concentration since sampling began at this location. A time-series graph of cadmium concentrations in intermediate delineation wells is included as **Figure 46**.

Cadmium concentrations in all upgradient intermediate zone wells remained relatively stable over the course of 2020. Well RW19-MWI exhibited a significant increase in cadmium concentration during the June 2020 sampling event; however, concentrations decreased during the following two events. Concentrations in supplemental upgradient well RWR-MWI also remained relatively stable, although at a lower concentration than RW19-MWI. Cadmium was typically not detected in well RWS-MWI in 2020. A time-series graph of the cadmium concentrations in intermediate upgradient wells is included as **Figure 47**. Cadmium results for all samples from the intermediate zone are included in **Table 5**.

Individual time-series graphs for each intermediate zone monitoring well are presented in **Appendix C**. The time-series graphs illustrate the dramatic fluctuations in groundwater concentrations from quarter to quarter within some wells.

#### *1.1.1.8 pH*

Measurements of pH within the intermediate zone during the June event, as shown on **Figure 48**, are generally less variable in comparison to the shallow zone but exhibit a similar spatial distribution. The two highest pH values (9.03 and 8.87) are located at RW15-MWI and RW16-MWI. Both wells are located directly downgradient of remediation trenches. The lowest pH value (4.69) was measured at RW09-MWI, located downgradient of the former Northwest Pond area.

Measurements of pH within the intermediate zone during the November event, as shown on **Figure 49**, were generally similar to those measured during the June event, with a few exceptions. The two locations that had the highest pH values in the June event, RW15-MWI and RW16-MWI, had slightly lower pH values during the November event. RW13-MWI had the highest pH value (11.05) during the November event. The lowest pH value during this event, 4.84, was measured at RWP-MWI.

### 3.3. STATISTICAL TREND EVALUATION

Data for cadmium, zinc, and pH from intermediate zone wells were analyzed using the Mann-Kendall trend analysis. Statistically significant upward trends were identified for the following:

- pH: RW08-MWI, RW12-MWI, RW18-MWI, RW23-MWI, RW24-MWI, RWO-MWI, RWQ-MWI, and RWS-MWI
- cadmium: RW02-MWI, RW03-MWI, RW07-MWI, RWF-MWI, RWG-MWI, and RWH-MWI
- zinc: RW02-MWI, RW03-MWI, RW06-MWI, RW07-MWI, RW09-MWI, RWD-MWI, RWF-MWI, RWG-MWI, and RWH-MWI

Statistically significant downward trends were identified for the following:

- pH: RW01-MWI, RW02-MWI, RW10-MWI, and RWJ-MWI
- cadmium: RW10-MWI, RW11-MWI, RW12-MWI, RW16-MWI, RW18-MWI, RW19-MWI, RW21-MWI, RW24-MWI, and RWE-MWI
- zinc: RW08-MWI, RW10-MWI, RW11-MWI, RW12-MWI, RW16-MWI, RW24-MWI, and RWM-MWI

Most of the wells with statistically significant upward trends in cadmium/zinc are perimeter wells. Most of the wells with statistically significant downward trends in cadmium/zinc are performance wells. The results of all trend tests are included in **Appendix D**.

### 3.4. CONTAMINANT REDUCTION

The interim groundwater treatment goals are to increase the pH in the intermediate groundwater zone in order to precipitate the dissolved metals and achieve a reduction in dissolved concentrations of cadmium and zinc within the source areas.

The time-series graphs show that the cadmium and zinc concentrations have, in some cases, fluctuated by orders of magnitude from quarter to quarter. As a result, the comparison of individual quarterly values for some wells can indicate an increase or decrease depending on which specific quarterly values are compared. For ease in visualizing overall trends and magnitude of reductions, annual average concentrations of cadmium and zinc were calculated for each well for which

multiple years of data are available. Values for total and dissolved metals were used interchangeably in the calculations based on previous observations that nearly all of the total metals concentrations are accounted for by the dissolved fraction.

**Table 6** summarizes average annual groundwater cadmium and zinc concentrations at each shallow zone well installed before the remediation trenches. With the exception of RW14-MWS, the average cadmium concentrations in the shallow zone wells in 2020 are close to the ambient water quality criterion of 7.9 ug/L, and most have shown decreases over the observed time period. Well RW14-MWS, located within the former Sludge Bin Storage source area, is the only shallow well with cadmium values significantly higher than the ambient water quality criterion. The levels in this well have increased since 2017. Cadmium values at perimeter well RW03-MWS have increased since 2017 but are not significantly above the ambient water quality criterion.

Zinc concentrations in the easternmost interior shallow zone wells (RW15-MWS and RW18-MWS) showed reductions of approximately 100% since 2015. However, zinc concentrations increased from 2015 to 2020 at the more western interior wells RW09-MWS, RW11-MWS, RW12-MWS, and RW14-MWS. The largest percent increase (225%) was observed at interior well RW11-MWS, where the zinc concentration increased from an average of 12,933 µg/L in 2017 to an average of 41,975 µg/L in 2020. Zinc concentrations in perimeter wells RW04-MWS and RW05-MWS decreased by over 95% since these wells were installed. When compared to 2017 concentrations, zinc concentrations showed an increase in RW02-MWS, RW03-MWS, RW07-MWS, and RW08-MWS.

**Table 7** summarizes average annual groundwater cadmium and zinc concentrations at each intermediate zone well installed before the remediation trenches. Nearly all intermediate zone performance wells for which historical cadmium concentration data are available showed average decreases from the earliest yearly average to the 2020 yearly average, except for RW09-MWI. The most significant cadmium concentration decreases were observed at RW10-MWI, RW11-MWI, and RW12-MWI, with values decreasing by over 90%. Intermediate zone cadmium concentrations have generally increased within the perimeter well group. Except for well RW08-MWI, all cadmium concentration measurements increased over this time period. The most notable increase is at well RW06-MWI, where average cadmium concentration increased from 34.8 µg/L in 2015 to 451 µg/L in 2020; however, this is a decrease from the 2019 average concentration.

Within the intermediate zone, most performance group wells showed significant decreases in zinc concentrations from the earliest yearly average to the 2020 yearly average. Performance well RW18-MWI remained relatively unchanged, and well RW15-MWI showed a return to 2017 average zinc concentrations after an anomalous increase in zinc concentration in 2020 (compared to other performance wells). All but one of the intermediate zone perimeter wells (RW08-MWI) showed historical average zinc concentration increase.

## 4.0 SUMMARY AND CONCLUSIONS

The current approach for addressing the elevated dissolved cadmium and zinc in the intermediate groundwater zone is to precipitate the dissolved metals in-situ by raising the groundwater pH above 7. This approach relies on groundwater movement to distribute the reagent to increase pH and to intercept the migration of metals contaminants in the intermediate zone. Therefore, the effectiveness of the new interim measure is expected to be observed first in the intermediate zone wells closest to the trenches and, due to the relatively slow groundwater velocity (less than 5 ft/year), may not be apparent in downgradient wells for multiple years.

Three well pairs (Performance/Focused) wells J -K- L were installed immediately adjacent to the western most treatment trench to help evaluate the overall trench performance. A review of the data indicates that the well RWJ-MWI located closest to the trench has exhibited elevated pH values and most notably a declining zinc concentration when compared to the upgradient ground water concentrations relative to the trench. It is still early on in the generation and evaluation of the data especially due to the relatively flat ground water gradient resulting in a relatively slow groundwater flow velocity which effects the treatment of the groundwater as it moves through the treatment cell. This data and the overall trend will continue to be monitored and evaluated to assess the effectiveness of the treatment trenches in precipitating the dissolved metals from the affected groundwater.

Groundwater in the shallow zone is monitored, although it is not the focus of the interim measure. As noted, with the exception of well RW14-MWS, concentrations of cadmium in the interior wells are near the ambient water quality criterion, and zinc concentrations have decreased significantly in the easternmost interior wells. Cadmium and zinc have increased notably above 2017 levels in well RW14-MWS, which is located within the boundary of the former Sludge Bin Storage source area. Zinc concentrations have also increased, to a lesser extent, in the western interior wells. The interior wells are all located within or very close to the area that has been paved as part of the new building construction. Stormwater from the paved area is now directed to the lined stormwater pond. As a result, fresh recharge to the shallow zone from direct precipitation has been cut off within this area and groundwater elevations in the shallow zone within the interior area have dropped several feet from the pre-trench conditions. It is also likely that groundwater levels in the shallow zone have dropped as a result of some shallow groundwater draining through the remediation trenches. This has caused flattening of hydraulic gradients and a corresponding reduction in groundwater velocities in the shallow groundwater zone. This slower groundwater velocity is likely to have contributed to a rebound effect in dissolved metal concentrations due to greater contact time and equilibration between the shallow groundwater with residual contamination in the shallow aquifer matrix.

In the perimeter shallow zone wells, cadmium concentrations in all wells are below the ambient water quality criterion. Zinc concentrations are below the ambient surface water quality criterion

(81 µg/L) in the northern wells but still exceed the criterion in the southwestern wells. Zinc concentrations in southwestern perimeter wells RW02-MWS and RW03-MWS are slightly higher than the levels observed in these wells in 2017, while RW01-MWS has decreased slightly from previous yearly averages. Therefore, the levels in the perimeter wells overall are relatively unchanged from 2017. This is consistent with the IM design basis that noted limited migration due to the presence of the alkaline slag in the shallow zone.

In the intermediate zone, the cadmium and zinc concentrations in the performance wells have generally exhibited decreases, with the notable exception of RW09-MWI. In RW09-MWI, concentrations have been generally increasing slowly since 2017. In general, the wells for which there are several years of data indicate that mitigation progress is being made in the intermediate zone. However, the supplemental wells have identified elevated concentrations at additional locations outside the area of influence of the current IM.

In the intermediate zone perimeter wells, both the zinc and cadmium concentrations generally continued to show increases in 2020. In the IM design, the groundwater velocities were expected to be slow, in the range of 5 to 10 feet per year. Paving in the area has reduced aquifer recharge from precipitation, causing the hydraulic gradient in the intermediate zone and therefore the groundwater velocity to decrease over time. Therefore, the increases observed in the perimeter wells and the elevated levels identified in some of the new perimeter wells would not be expected to be the result of increased migration from the upgradient source areas. Rather, the reduction in aquifer recharge allows for greater equilibration between the groundwater and residual contamination already present in the aquifer matrix downgradient of the IM area due to reduced groundwater velocity and greater contact time.

On March 9, 2021, ARM submitted a Monitoring Network Update Letter for the former Rod and Wire Mill that adjusted the proposed sampling plan. Following Agency approval, this plan will be implemented to continue in the assessment of the overall performance and effectiveness of the remediation trenches.

The RWM IM Supplemental Investigation Report (ARM 2019) identified some areas that may be outside the intended effective zone of the remediation trenches. The long-term effectiveness of the interim measure and the need for additional or alternative remedial measures will be evaluated further as described in the Rod and Wire Mill Groundwater Corrective Measures Study Work Plan (Revision 1, dated January 14, 2021).

Direct injections of alkaline reagents were identified in the IM design report as a potential contingency measure. Based on the concentrations observed in 2020, a treatability study to support the evaluation of this alternative has been proposed as part of the Corrective Measures Study. This study was proposed in the Alkaline Injection Proof of Concept Treatability Test Work Plan (Revision 3, dated February 2021).



## 5.0 REFERENCES

Advanced GeoServices Corp. (2016). *Interim Measure Work Plan In-Situ Groundwater Treatment*. Revised August 22, 2016.

Advanced GeoServices Corp. (2018). *Interim Measures Construction Report In-Situ Groundwater Treatment*. January 25, 2018

ARM Group, Inc. (2016). *Phase II Investigation Work Plan Area A: Parcel A3*. Revision 0 - June 10, 2016.

ARM Group, Inc. (2016). *Pre-Design Investigation Rod and Wire Mill Area Characterization Report Area A: Parcel A3*. Revision 0 – June 10, 2016.

ARM Group LLC (2020). *RWM Interim Measure Supplemental Investigation Work Plan*. Revision 1—April 8, 2020.

ARM Group LLC (2020). *RWM Interim Measure Supplemental Investigation Report*. Revision 1—April 8, 2020.

ARM Group LLC (2020). *RWM Interim Measure Supplemental Investigation Report Comment Response Letter*. November 4, 2020.

ARM Group LLC (2021). *RWM Groundwater Corrective Measures Study Work Plan*. Revision 1—January 14, 2021

ARM Group LLC (2021). *Alkalinity Injection Proof of Concept Treatability Test Work Plan*. Revision 3—February 2021

---

---

## **FIGURES**

---

---

 Property Boundary  
 Rod & Wire Mill (RWM)






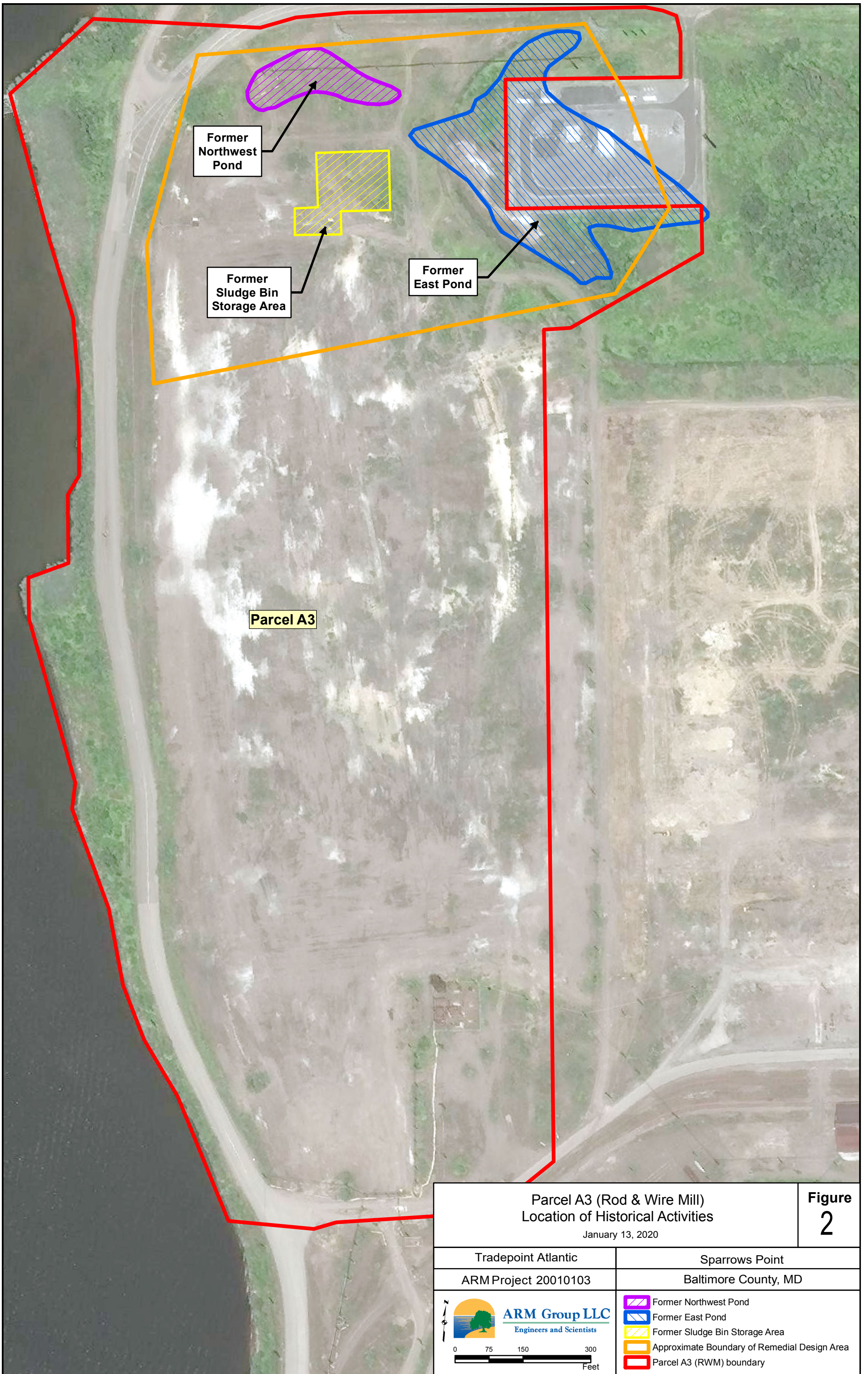






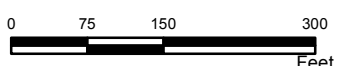
Trade Point Atlantic   
 Y ǎ^ǎ ǎ Location Map  
 March 30, 2021

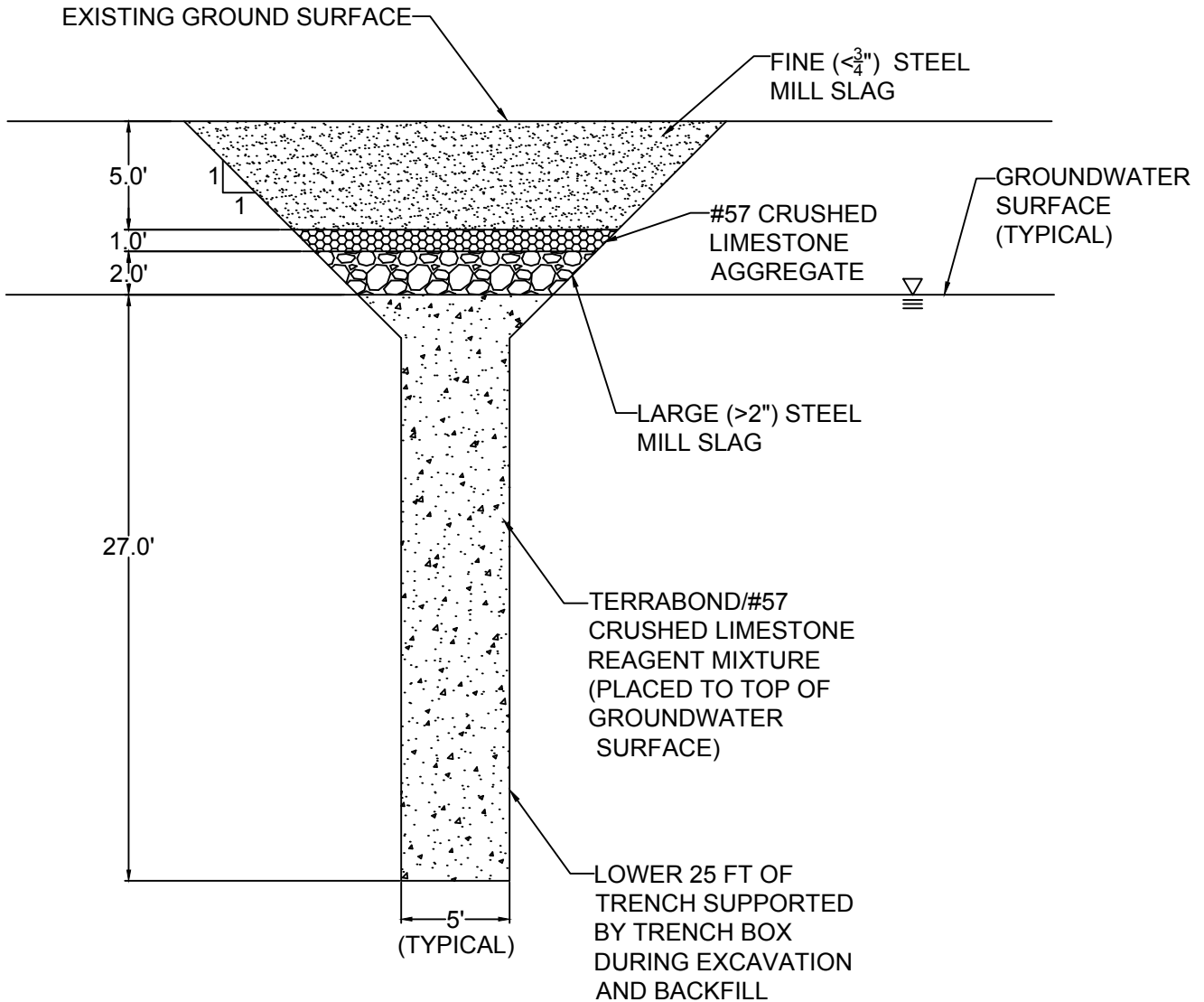
Figure  
 1

  <b>ARM Group LLC</b> Engineers and Scientists	Tradepoint Atlantic
	Sparrows Point
	Baltimore County, MD
	ARM Project 20010103

0 500 1,000 2,000  
 Feet



<b>Parcel A3 (Rod &amp; Wire Mill)</b> <b>Location of Historical Activities</b> January 13, 2020		<b>Figure</b> <b>2</b>
Tradepoint Atlantic	Sparrows Point	
ARM Project 20010103	Baltimore County, MD	
 <b>ARM Group LLC</b> Engineers and Scientists	<ul style="list-style-type: none"> <li> Former Northwest Pond</li> <li> Former East Pond</li> <li> Former Sludge Bin Storage Area</li> <li> Approximate Boundary of Remedial Design Area</li> <li> Parcel A3 (RWM) boundary</li> </ul>	
 0 75 150 300 Feet		



Engineering for the Environment. Planning for People.™

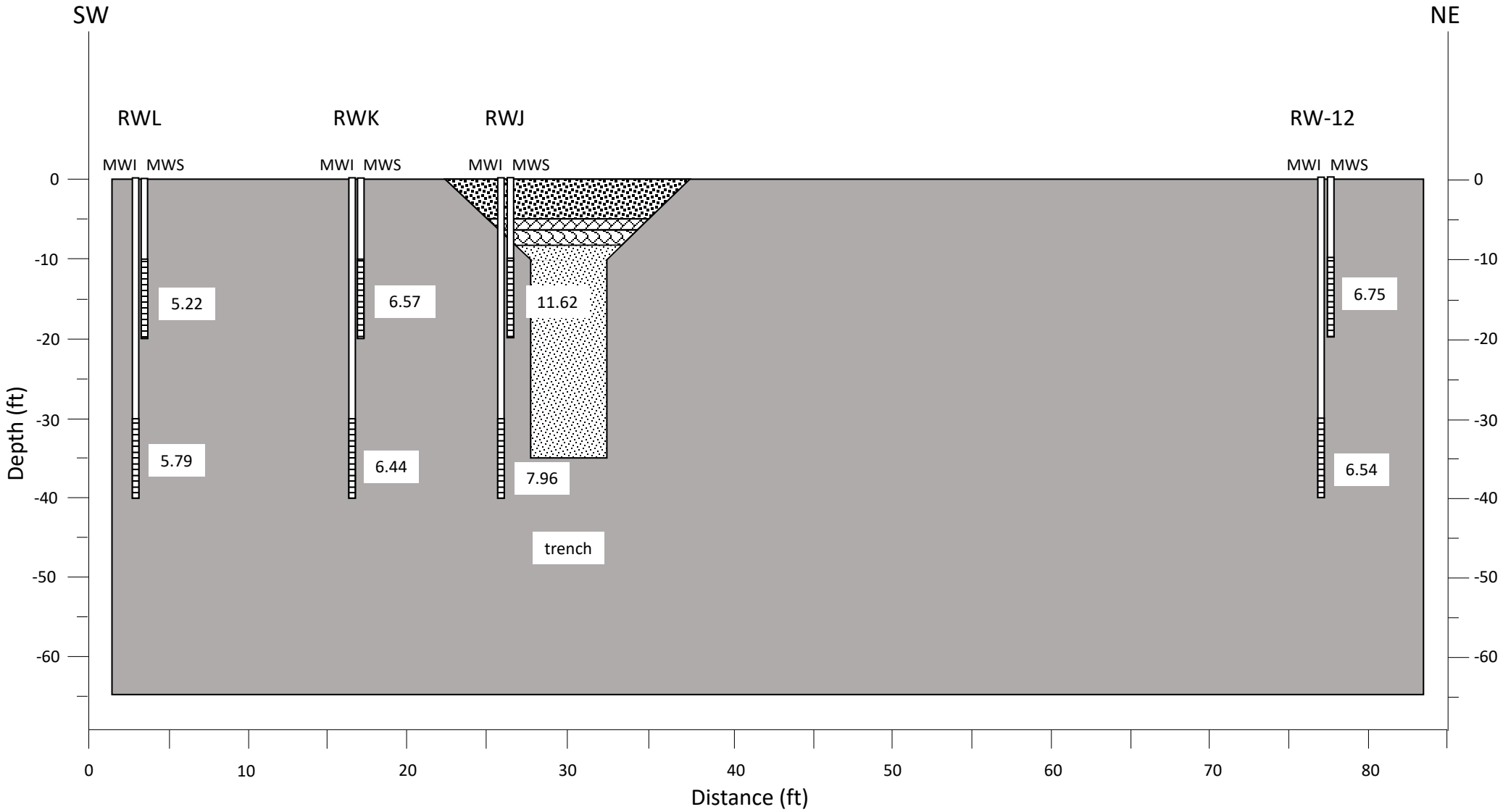
1055 ANDREW DRIVE, SUITE A, WEST CHESTER PA, 19380  
 tel 610.840.9100, fax 610.840.9199, www.advancedgeoservices.com

INTERIM REMEDIAL MEASURES  
 FORMER ROD AND WIRE MILL AREA  
 SPARROWS POINT, MD

TYPICAL TREATMENT TRENCH BACKFILL PROFILE SECTION VIEW





PROJECT ENGINEER:	JSD	SCALE:	1" = 8'
CHECKED BY:		PROJECT NUMBER:	2016-3421
DRAWN BY:	EEE	DATE:	3/23/2017
		FIGURE:	3

Figure 4 - Rod and Wire Mill Cross Section - pH Values

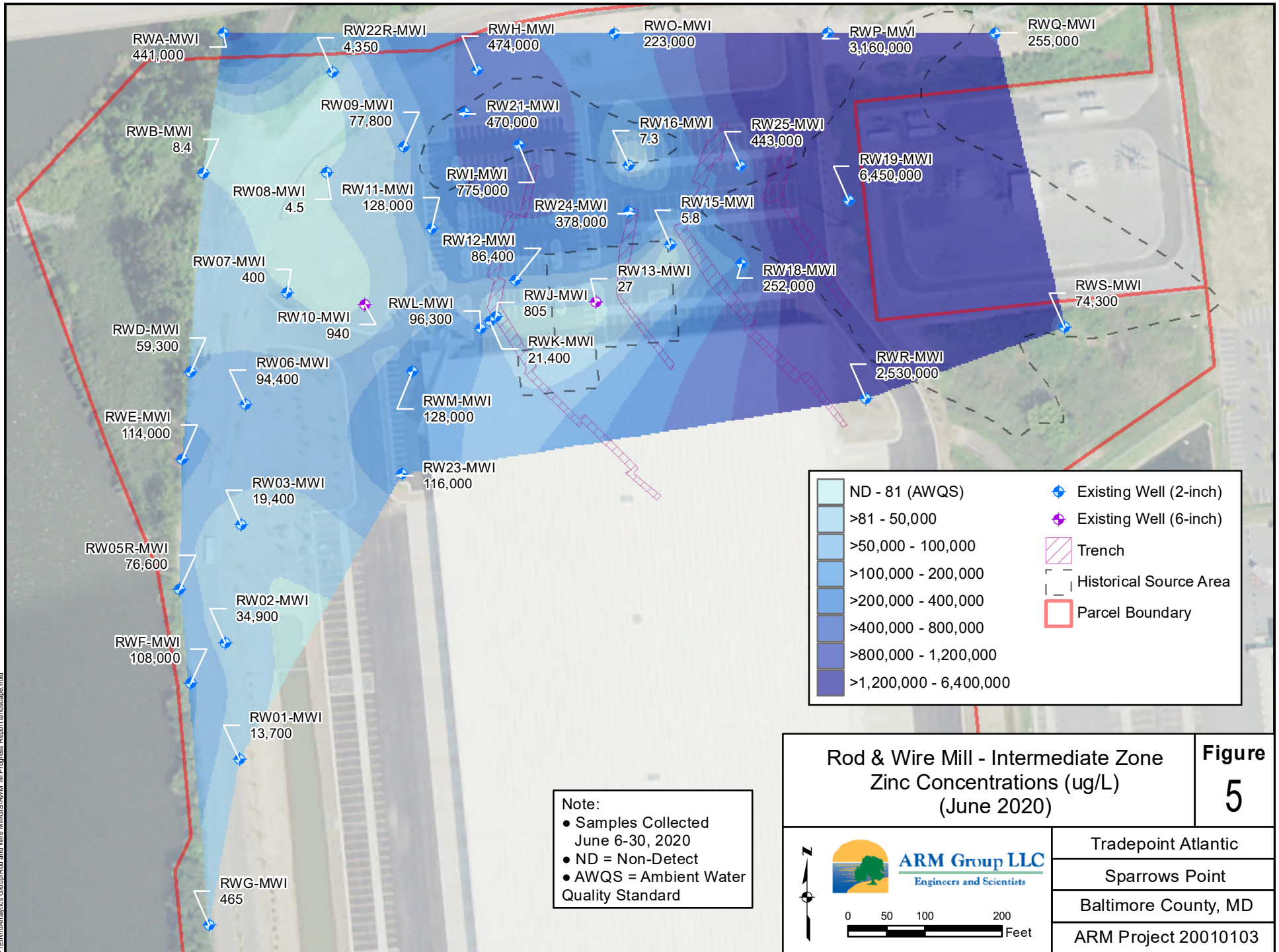


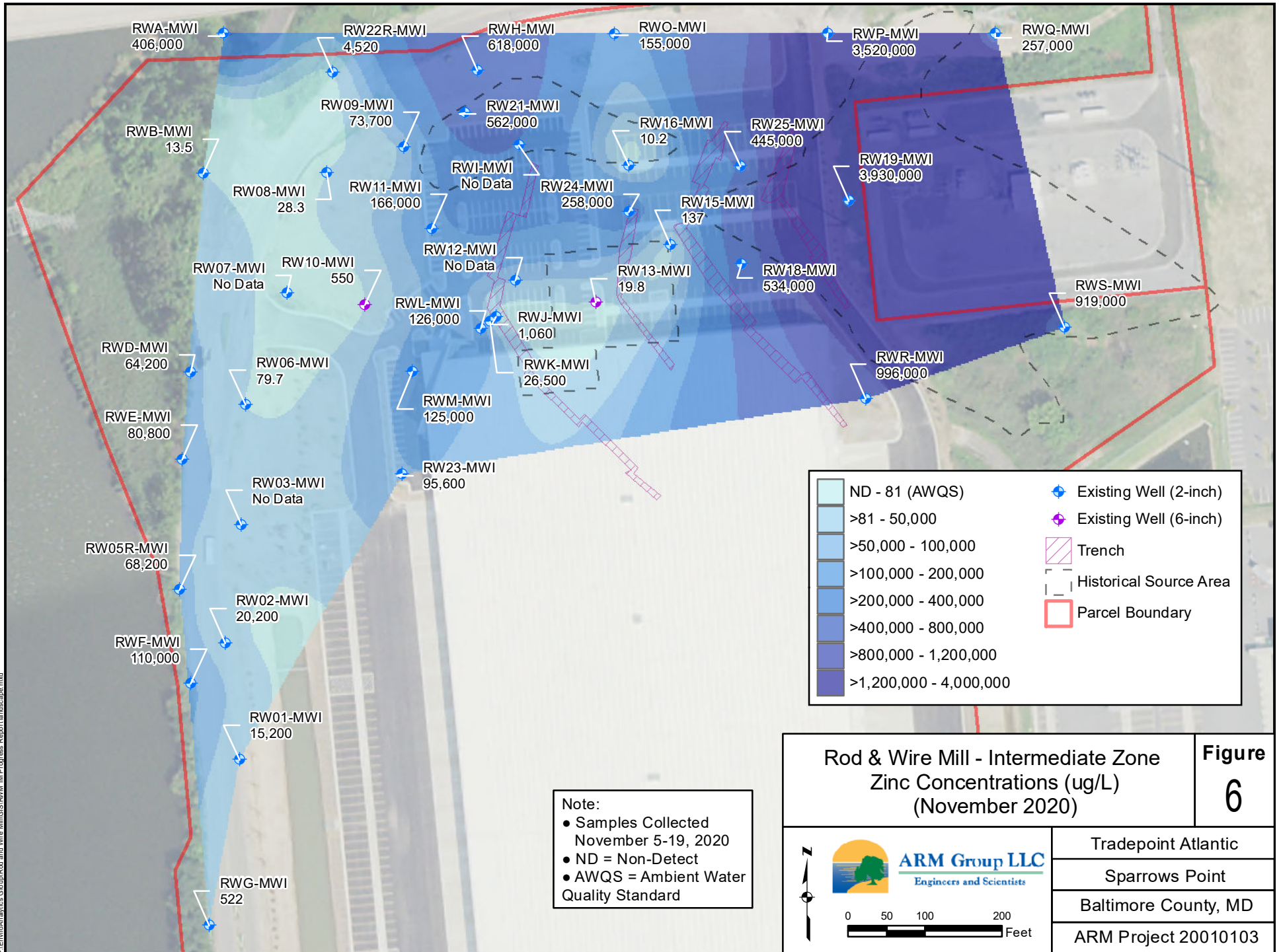
Notes:

- Assumption of flat ground surface; actual ground surface varies by a few feet
- Diagram is horizontally exaggerated

-  Fine (<math><3/4\text{''}</math>) steel mill slag
-  #57 Crushed limestone aggregate
-  Large (>2'') steel mill slag
-  Terrabond/#57 Crushed limestone reagent mixture

pH  
June 2020





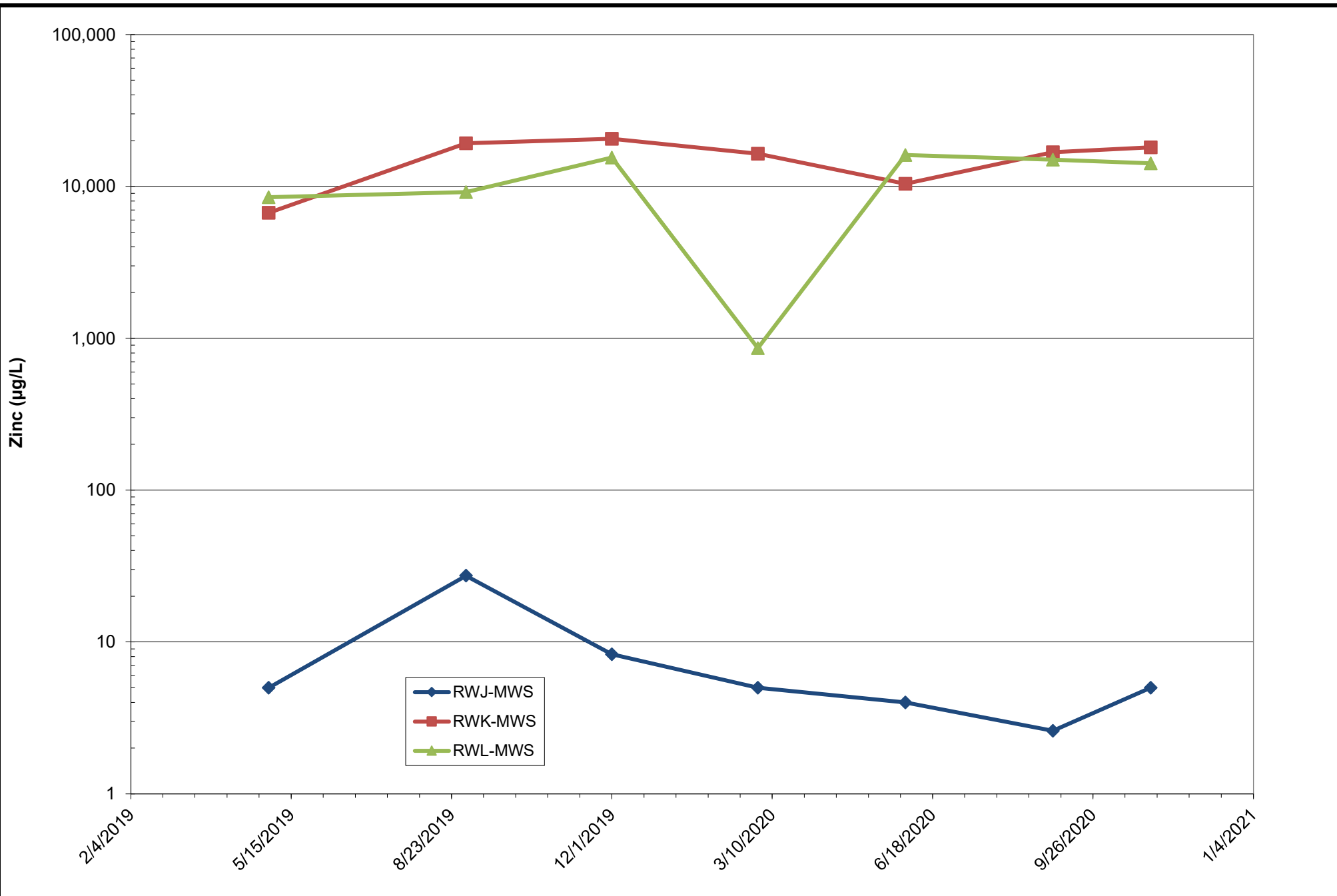
Rod & Wire Mill - Intermediate Zone  
Zinc Concentrations (ug/L)  
(November 2020)

Figure  
6

**ARM Group LLC**  
Engineers and Scientists

Tradepoint Atlantic  
Sparrows Point  
Baltimore County, MD  
ARM Project 20010103





**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

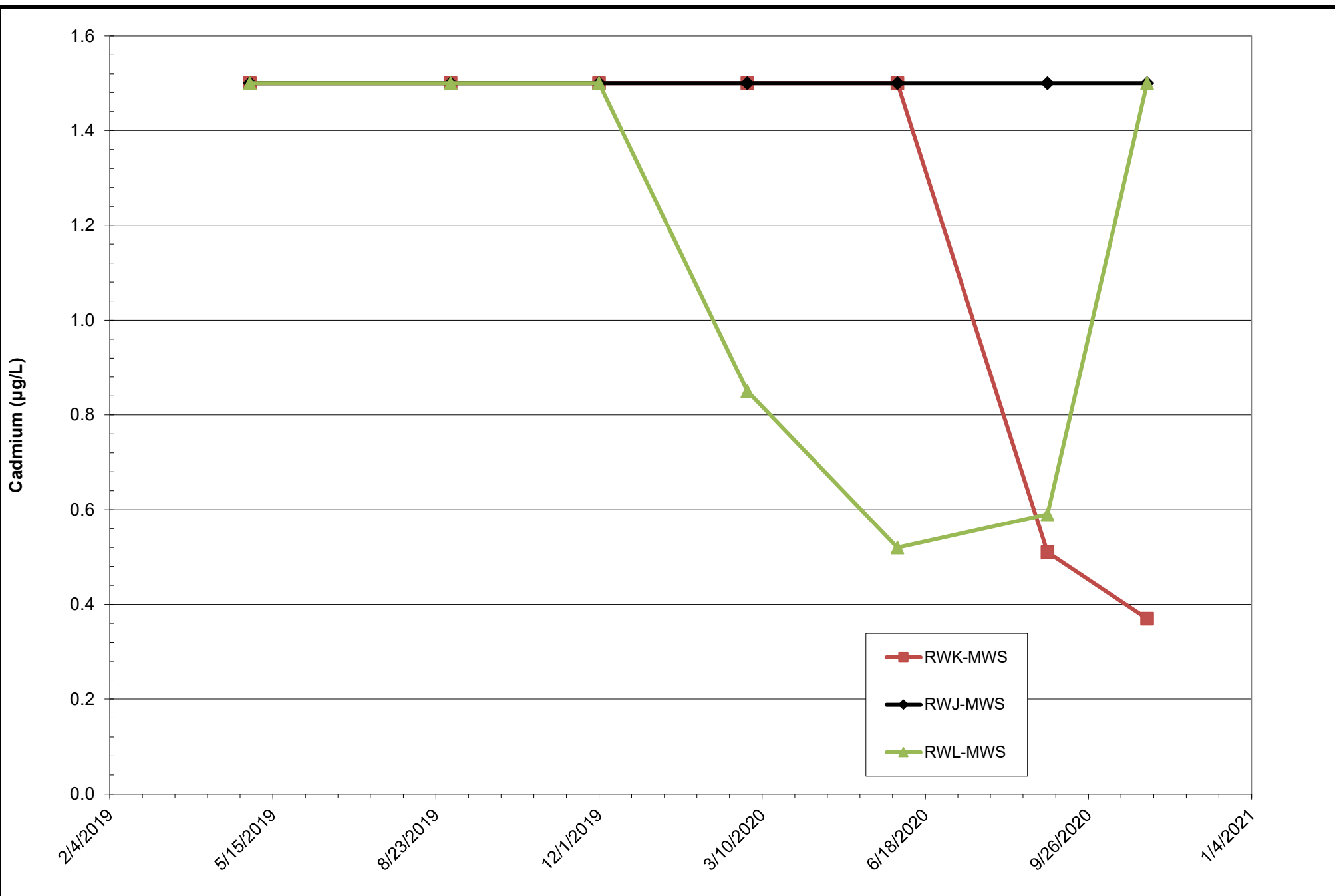
Sparrows Point, Maryland

**RWJ-MWS, RWK-MWS, and RWL-MWS  
Zinc Concentrations**

January 27, 2021

**Figure**

**7**



**ARM Group LLC**  
Engineers and Scientists

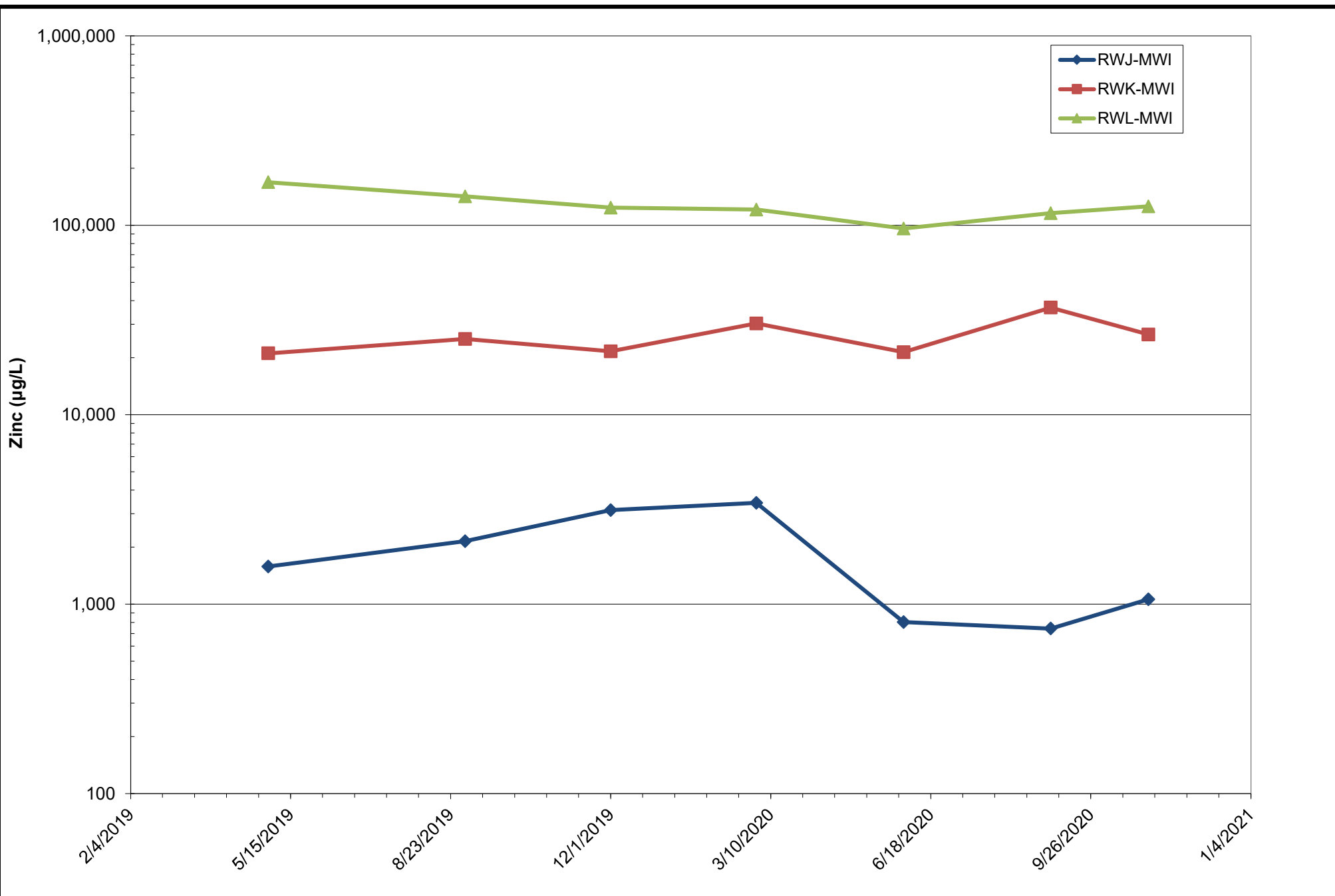
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWJ-MWS, RWK-MWS, and RWL-MWS  
Cadmium Concentrations**

January 27, 2021

**Figure  
8**



**ARM Group LLC**  
Engineers and Scientists

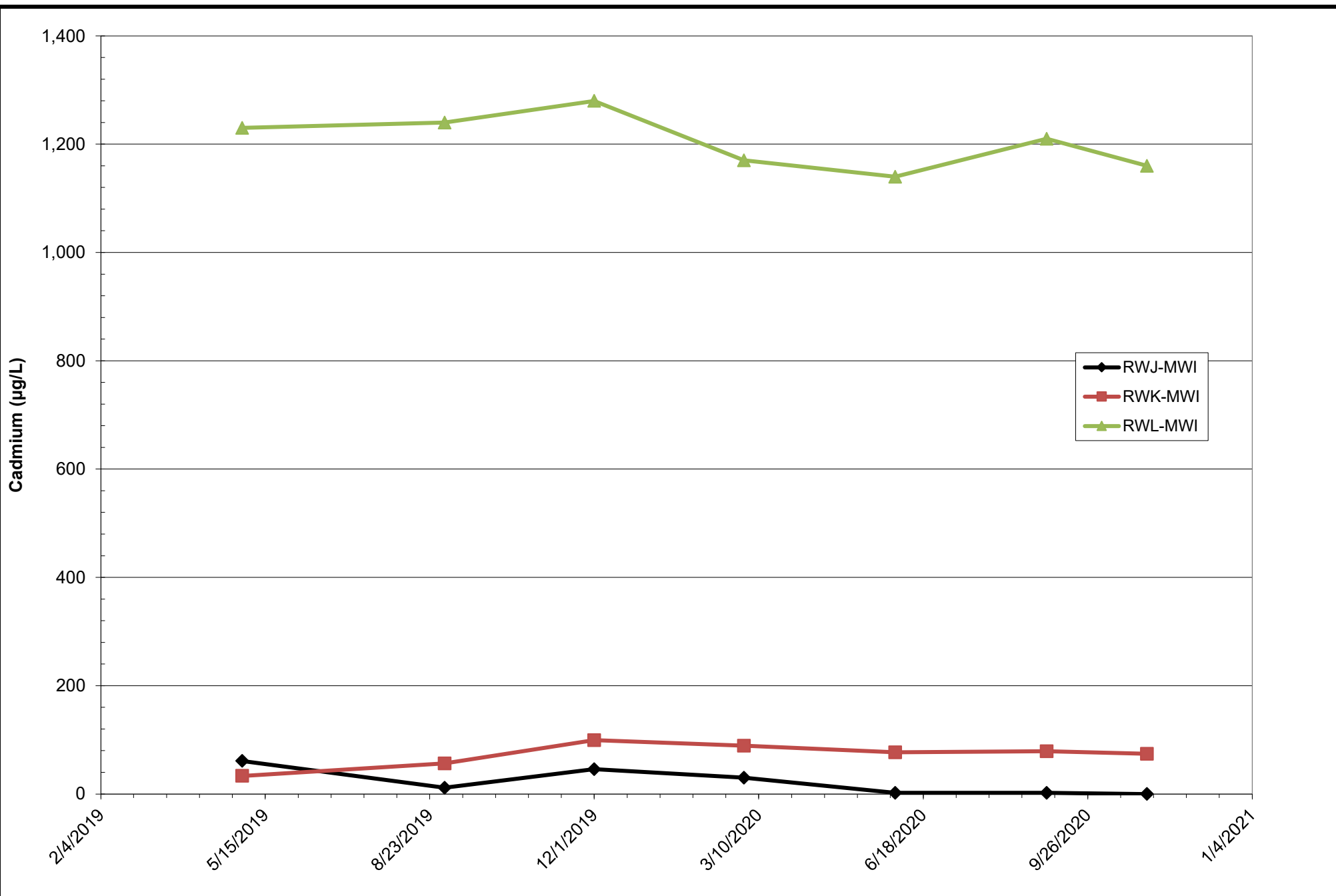
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWJ-MWI, RWK-MWI, and RWL-MWI  
Zinc Concentrations**

January 27, 2021

**Figure  
9**



**ARM Group LLC**  
Engineers and Scientists

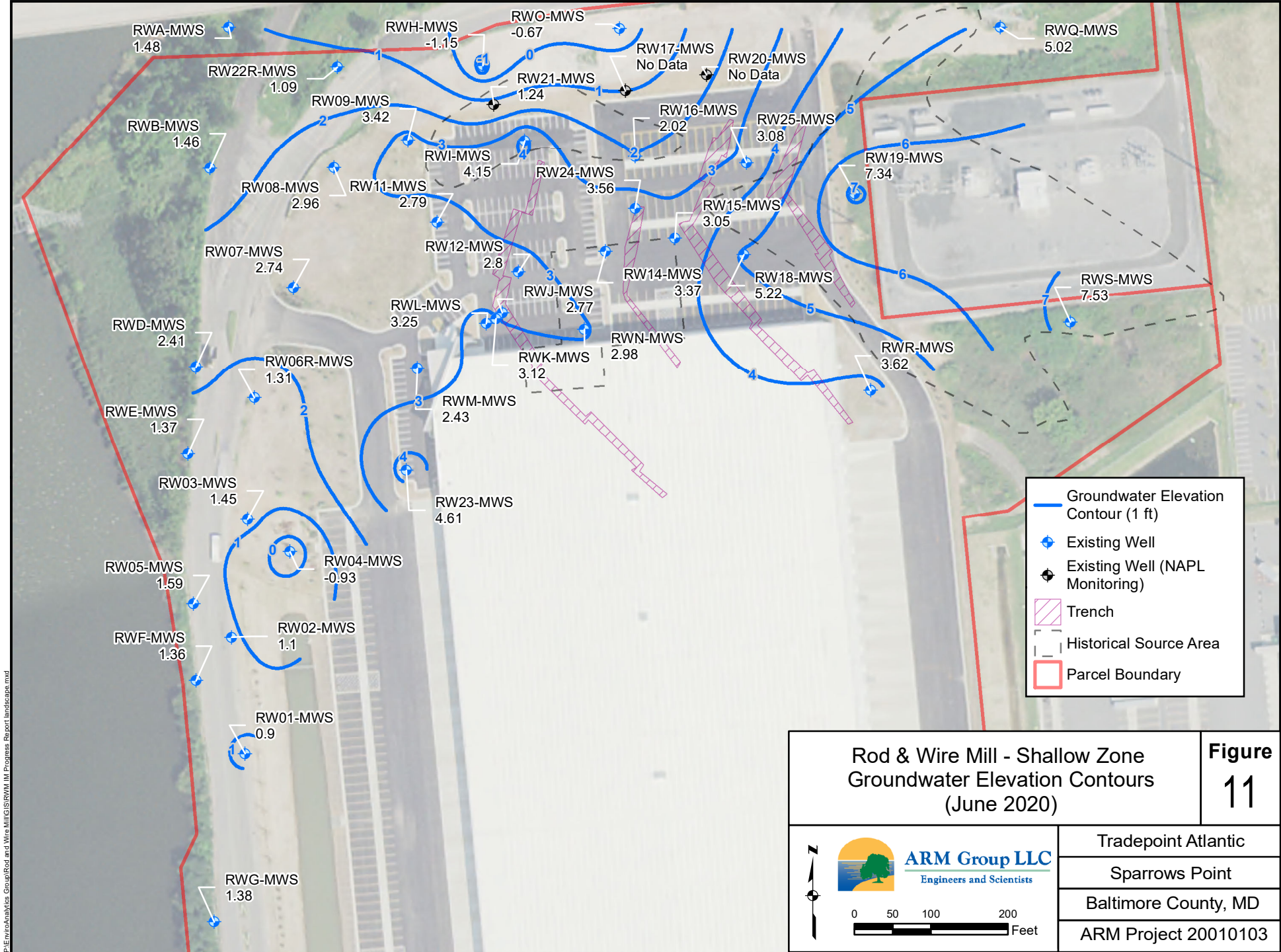
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

RWJ-MWI, RWK-MWI, and RWL-MWI  
Cadmium Concentrations



January 27, 2021

**Figure**  
**10**



Rod & Wire Mill - Shallow Zone  
Groundwater Elevation Contours  
(June 2020)

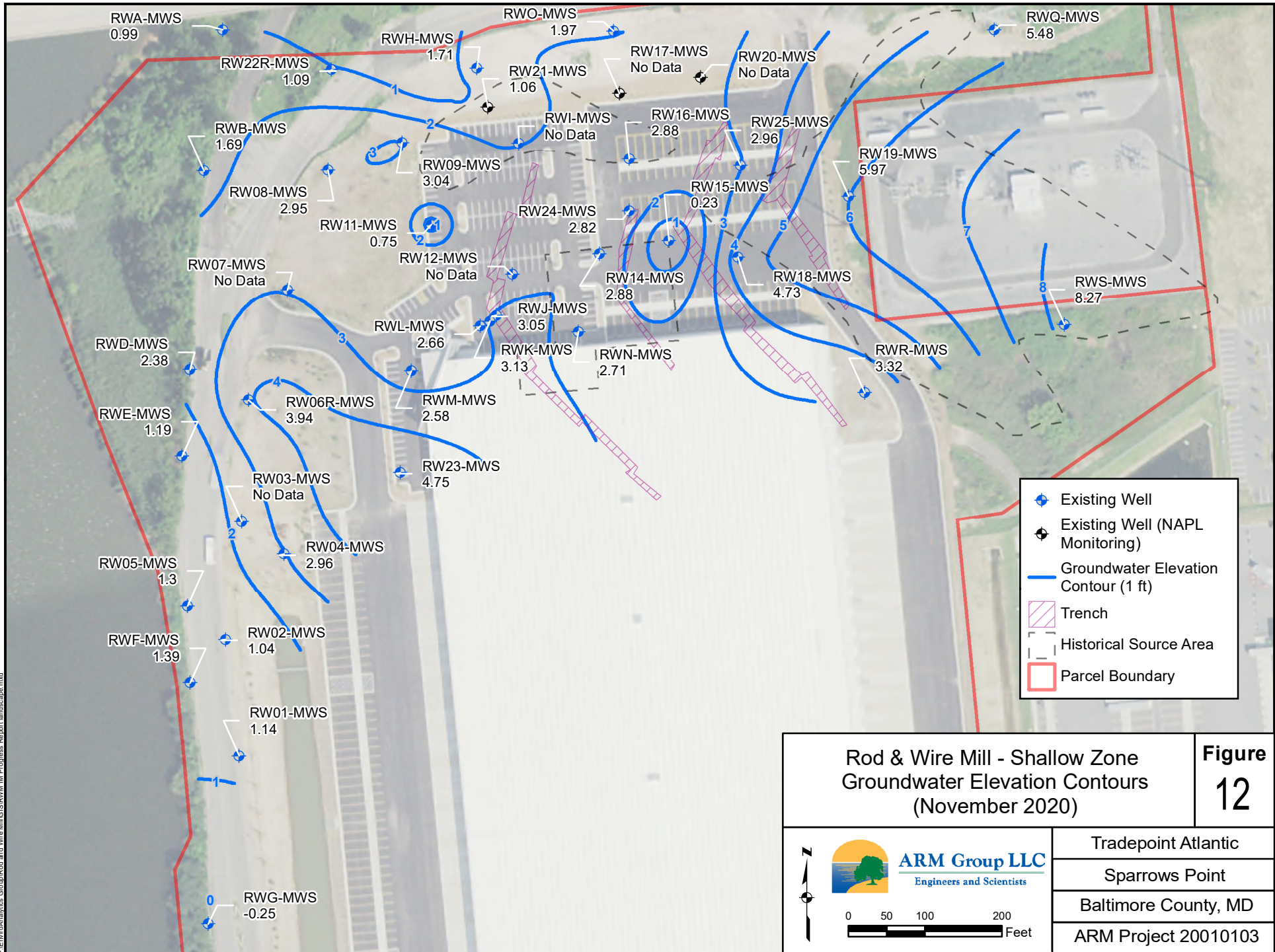
**Figure**  
**11**



**ARM Group LLC**  
 Engineers and Scientists







0 50 100 200 Feet

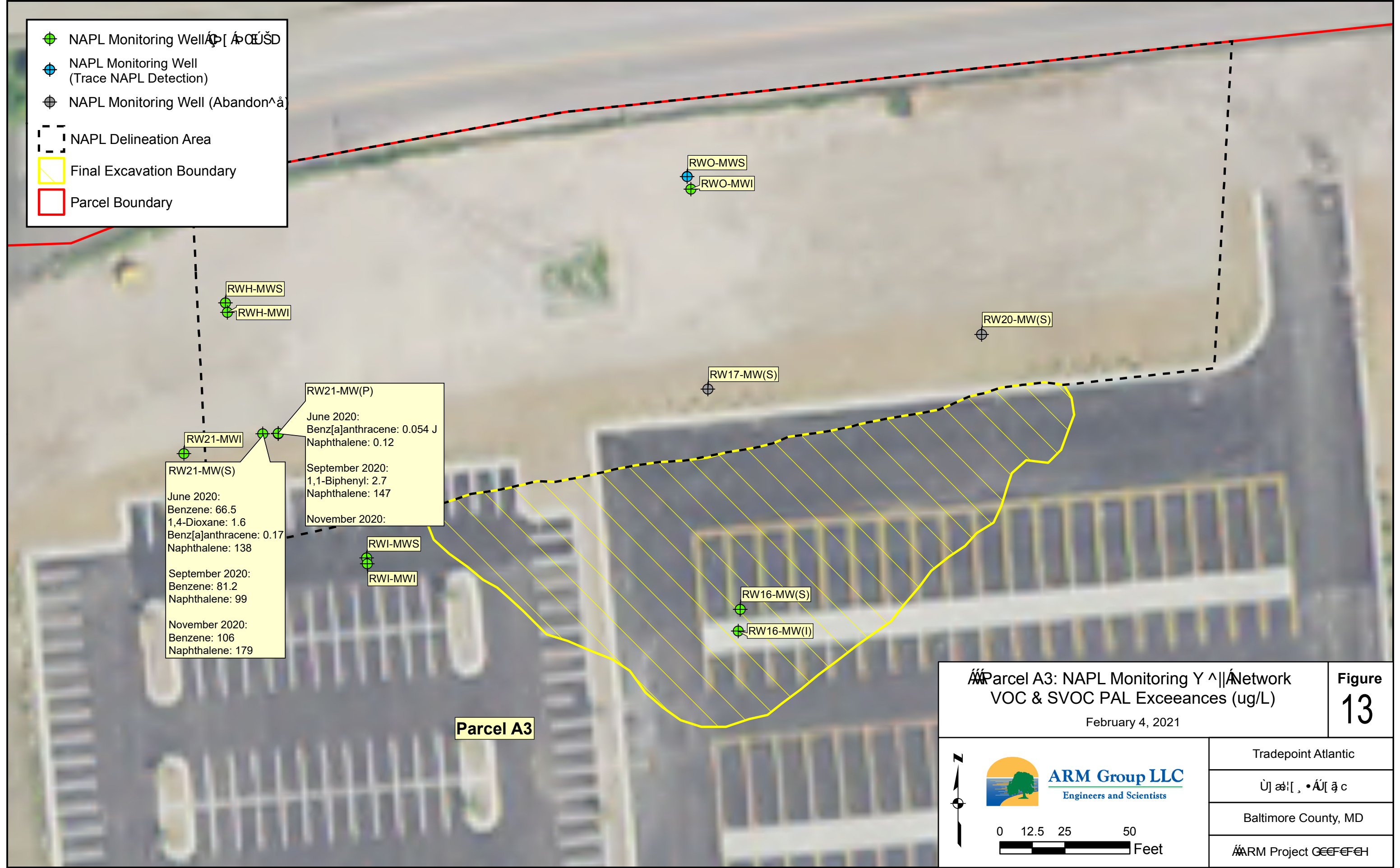
Tradepoint Atlantic  
 Sparrows Point  
 Baltimore County, MD  
 ARM Project 20010103

P:\E\envo\Analytics\_Group\Rod and Wire Mills\GIS\RWML\IM Progress\_Report\_Landscape.mxd



P:\E\envo\Analytics\_Group\Rod and Wire Mills\GIS\RWML IM Progress\_Report\_Landscape.mxd

-  NAPL Monitoring Well (Active)
-  NAPL Monitoring Well (Trace NAPL Detection)
-  NAPL Monitoring Well (Abandoned)
-  NAPL Delineation Area
-  Final Excavation Boundary
-  Parcel Boundary



**RW21-MW(S)**  
 June 2020:  
 Benzene: 66.5  
 1,4-Dioxane: 1.6  
 Benz[a]anthracene: 0.17  
 Naphthalene: 138



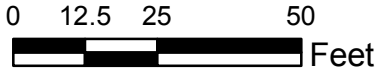
**RW21-MW(P)**  
 June 2020:  
 Benz[a]anthracene: 0.054  
 Naphthalene: 0.12

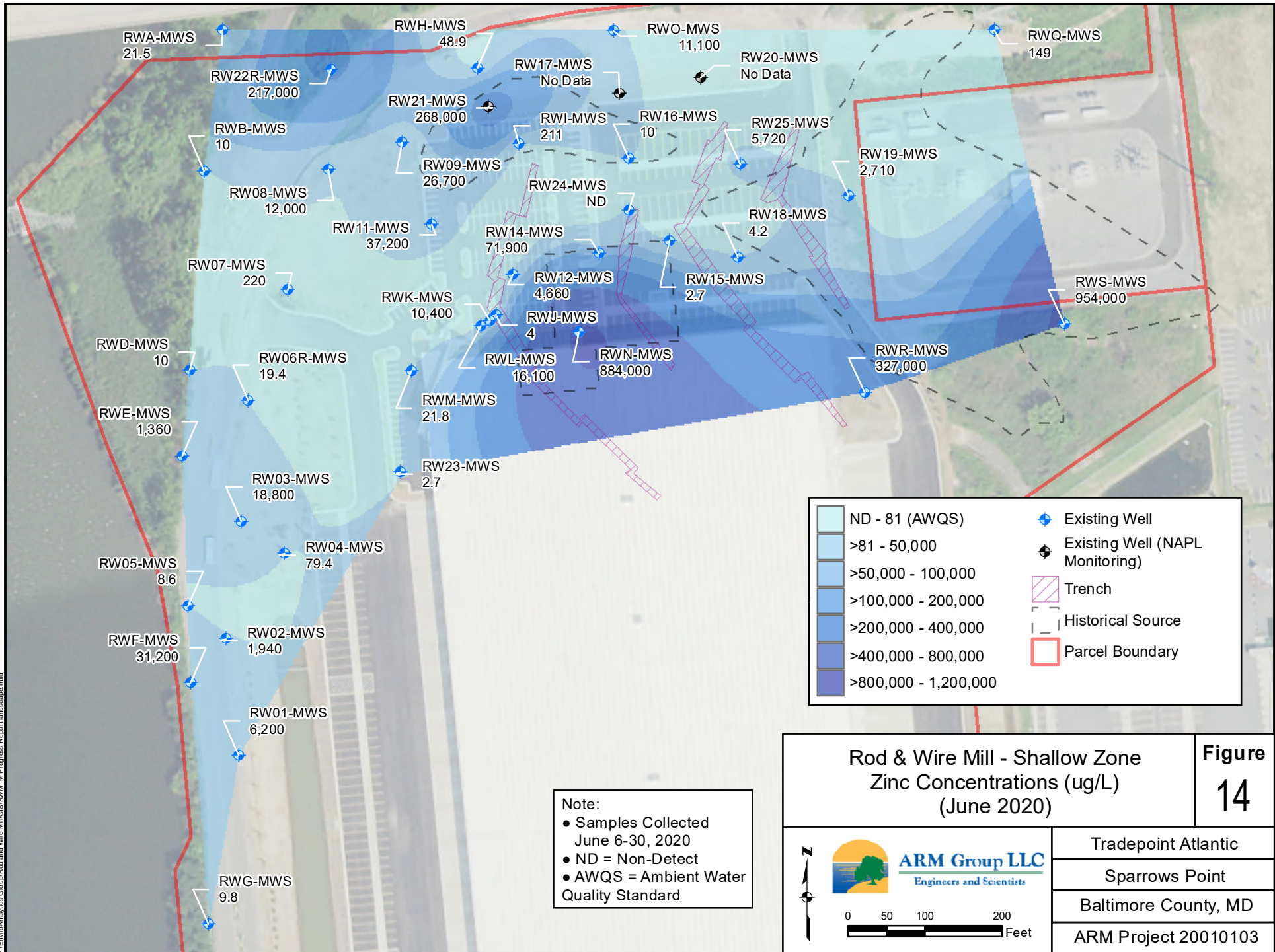
**RW21-MWI**  
 September 2020:  
 1,1-Biphenyl: 2.7  
 Naphthalene: 147

**November 2020:**  
 Benzene: 81.2  
 Naphthalene: 99

**November 2020:**  
 Benzene: 106  
 Naphthalene: 179

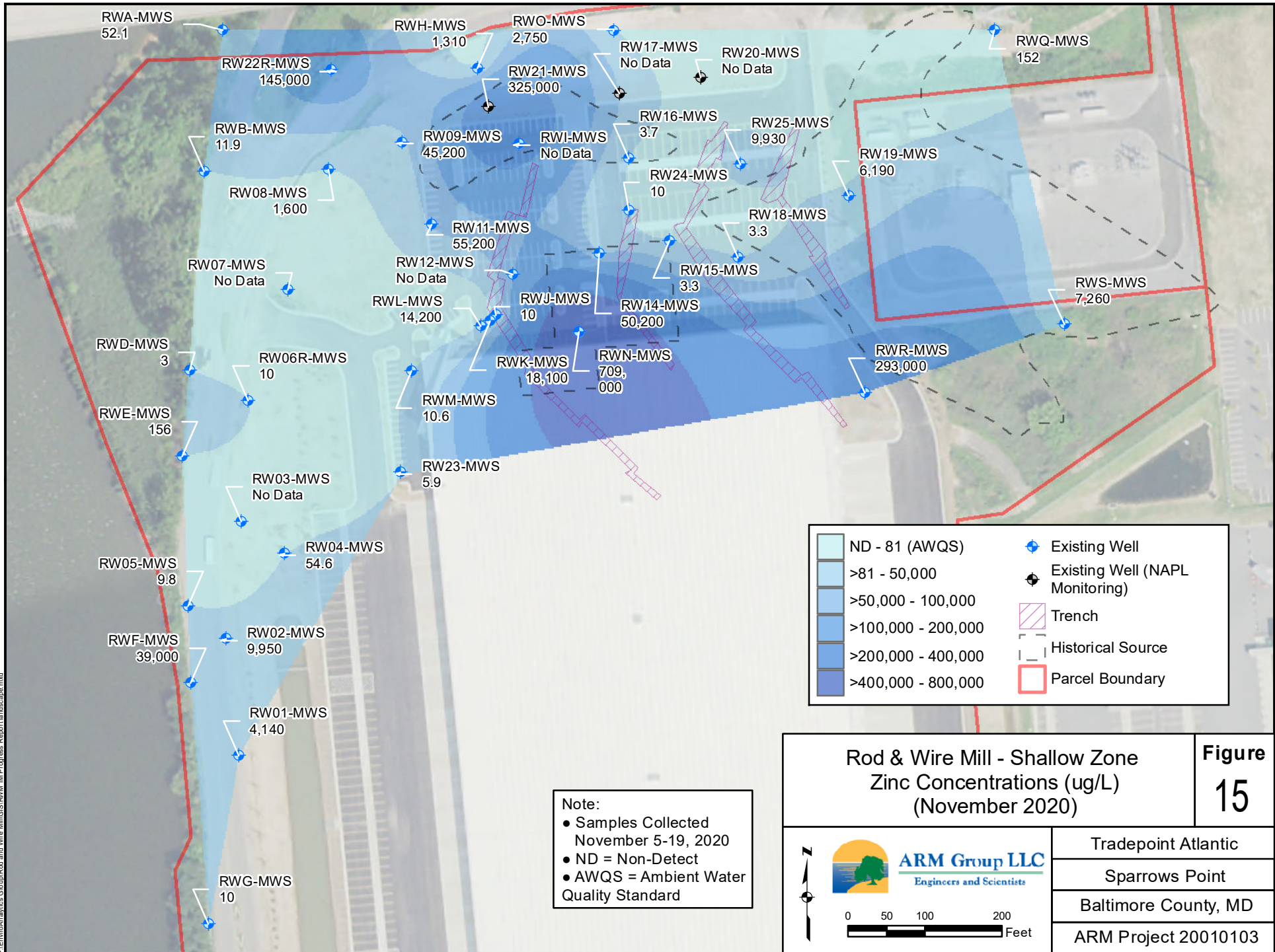
**Parcel A3**

<b>Parcel A3: NAPL Monitoring Network</b> <b>VOC &amp; SVOC PAL Exceedances (ug/L)</b> February 4, 2021		<b>Figure 13</b>
  <b>ARM Group LLC</b> Engineers and Scientists	Tradepoint Atlantic 1000 North Point Blvd Baltimore County, MD	
		
	ARM Project 00000000	




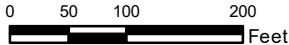
RWA-MWS 21.5	RWH-MWS 48.9	RWO-MWS 11,100	RWQ-MWS 149
RW22R-MWS 217,000	RW17-MWS No Data	RW20-MWS No Data	
RWB-MWS 10	RW21-MWS 268,000	RW1-MWS 211	RW16-MWS 10
RW08-MWS 12,000	RW09-MWS 26,700	RW25-MWS 5,720	RW19-MWS 2,710
RW11-MWS 37,200	RW24-MWS ND	RW18-MWS 4.2	
RW07-MWS 220	RW14-MWS 71,900	RW15-MWS 2.7	
RWD-MWS 10	RW12-MWS 4,660	RWJ-MWS 4	RWS-MWS 954,000
RWE-MWS 1,360	RW06R-MWS 19.4	RWL-MWS 16,100	RWR-MWS 327,000
RW05-MWS 8.6	RW03-MWS 18,800	RWN-MWS 884,000	
RWF-MWS 31,200	RW04-MWS 79.4	RWM-MWS 21.8	
RW02-MWS 1,940	RW23-MWS 2.7		
RW01-MWS 6,200			
RWG-MWS 9.8			

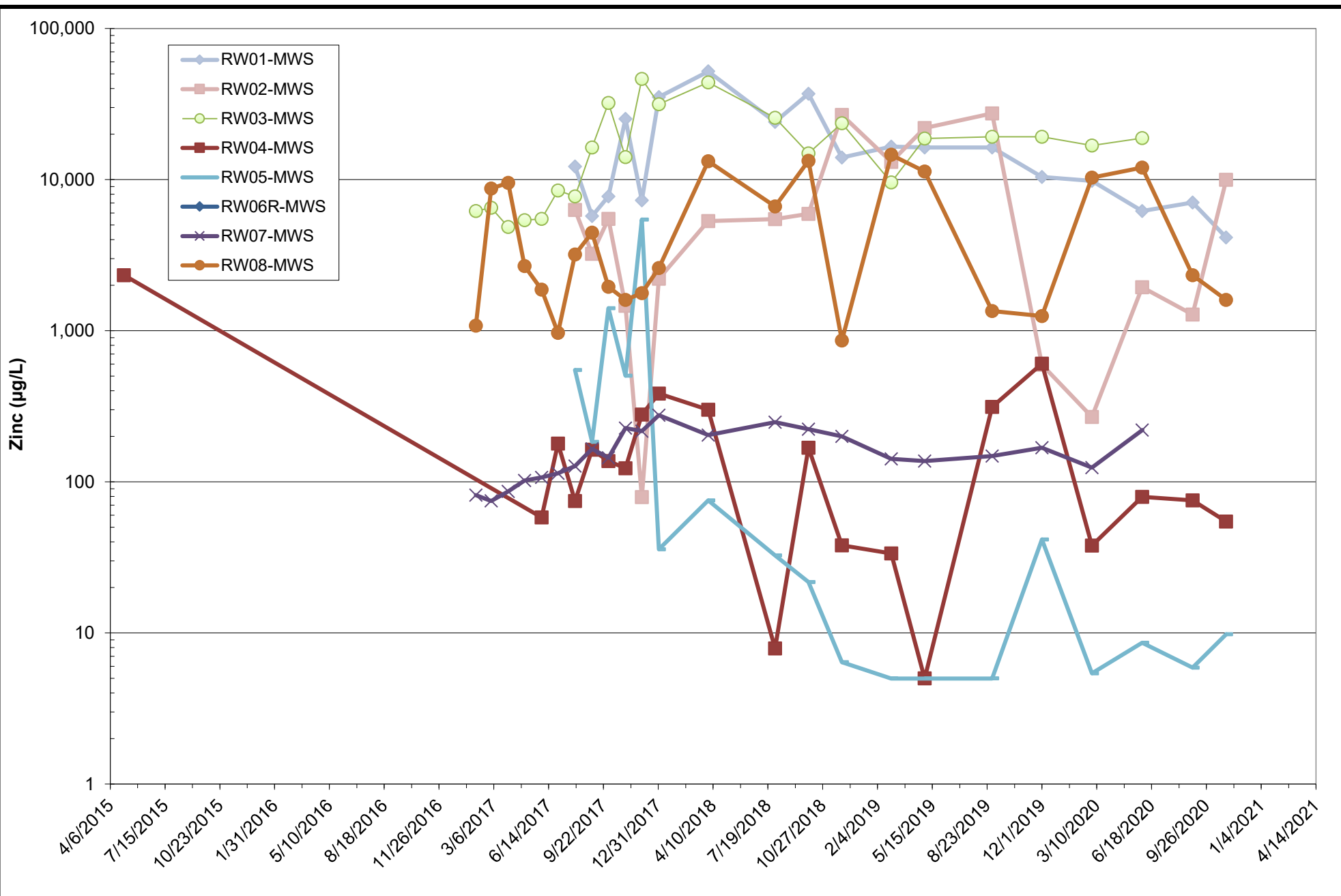




Note:  
 • Samples Collected November 5-19, 2020  
 • ND = Non-Detect  
 • AWQS = Ambient Water Quality Standard

Lightest Blue	ND - 81 (AWQS)	Blue Diamond	Existing Well
Light Blue	>81 - 50,000	Black Diamond	Existing Well (NAPL Monitoring)
Medium Light Blue	>50,000 - 100,000	Red Hatched Box	Trench
Medium Blue	>100,000 - 200,000	Dashed Line	Historical Source
Dark Blue	>200,000 - 400,000	Red Outline Box	Parcel Boundary
Very Dark Blue	>400,000 - 800,000		

<b>Rod &amp; Wire Mill - Shallow Zone</b> <b>Zinc Concentrations (ug/L)</b> <b>(November 2020)</b>		<b>Figure</b> <span style="font-size: 2em;">15</span>
 <b>ARM Group LLC</b> Engineers and Scientists		Tradepoint Atlantic Sparrows Point Baltimore County, MD ARM Project 20010103
		



**ARM Group LLC**  
Engineers and Scientists

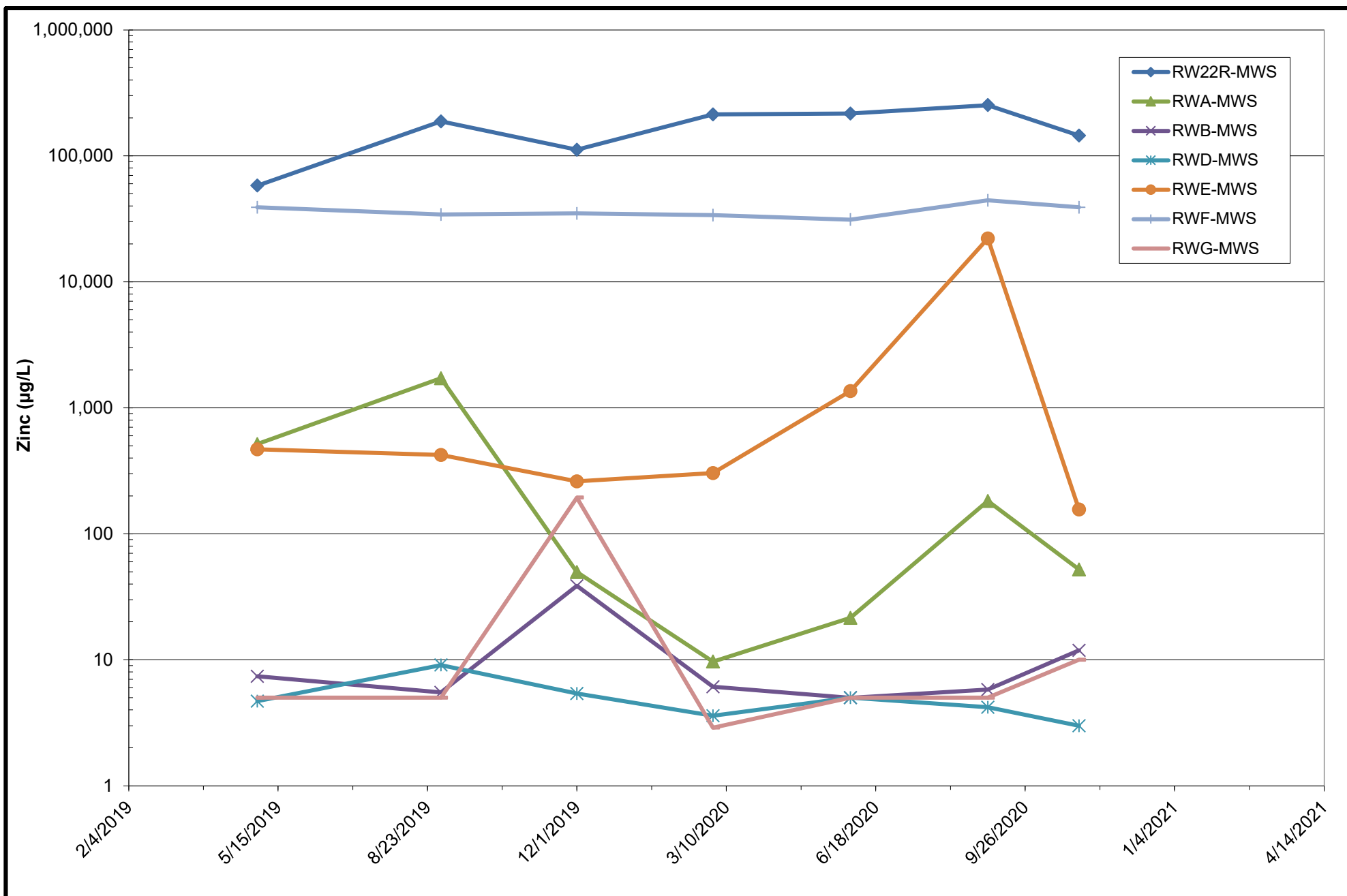
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### Shallow Perimeter Zinc Concentrations (Original Wells)

January 27, 2021

**Figure  
16**



**ARM Group LLC**  
Engineers and Scientists

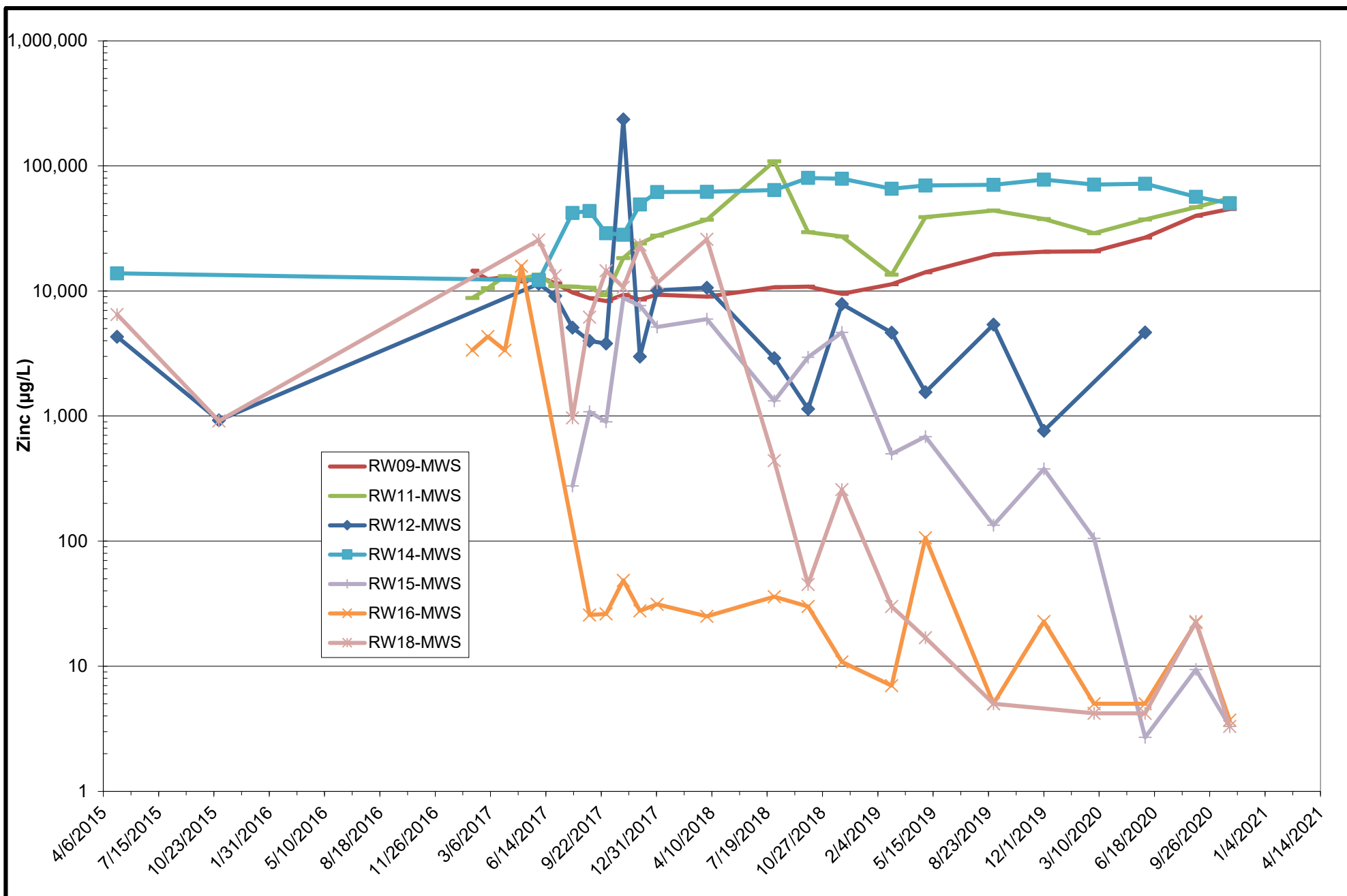
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### Shallow Perimeter Zinc Concentrations (Supplemental Wells)

January 27, 2021

**Figure  
17**



**ARM Group LLC**  
Engineers and Scientists

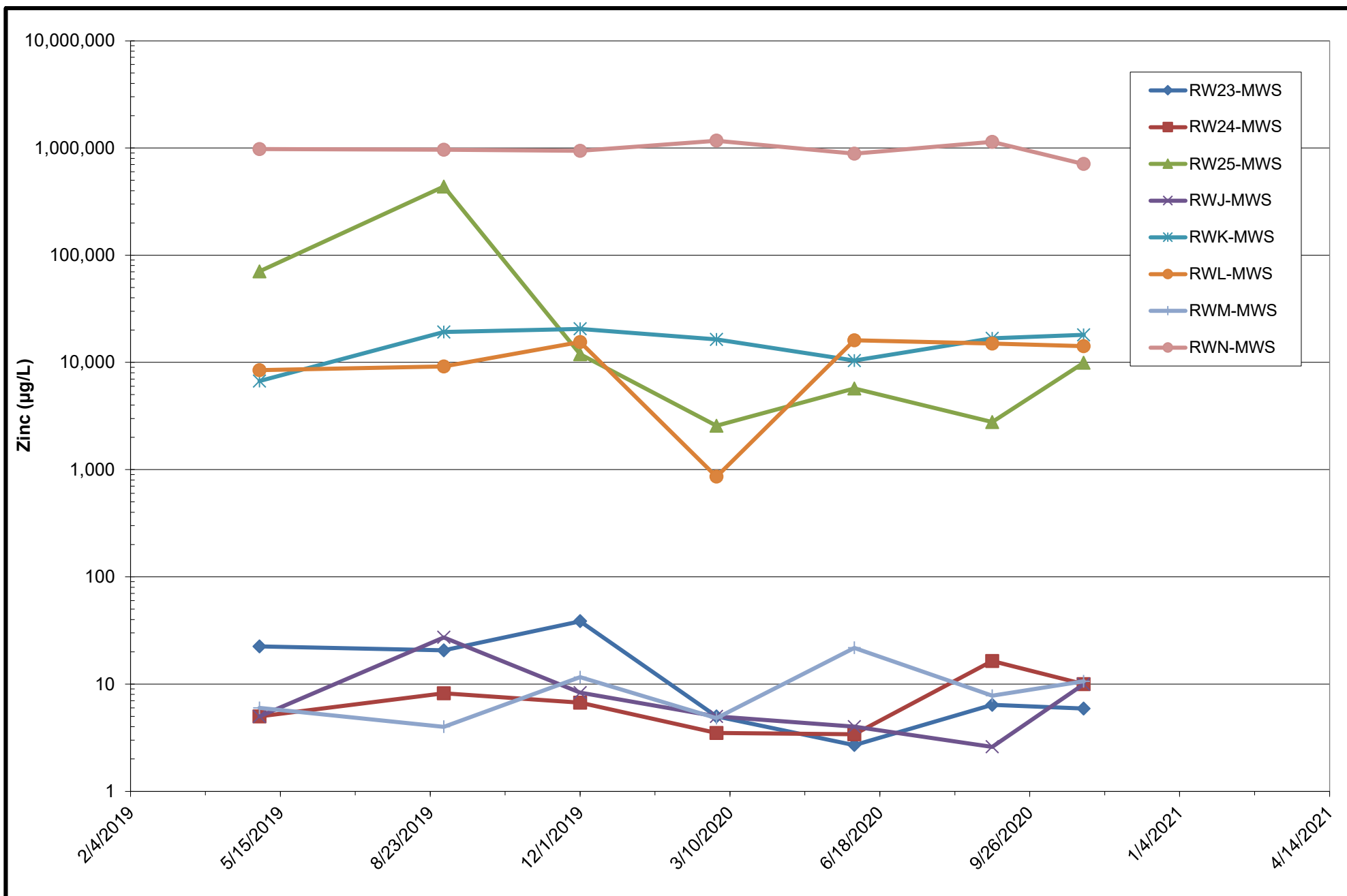
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

## Shallow Interior Zinc Concentrations (Original Wells)

January 27, 2021

**Figure 18**



**ARM Group LLC**  
Engineers and Scientists

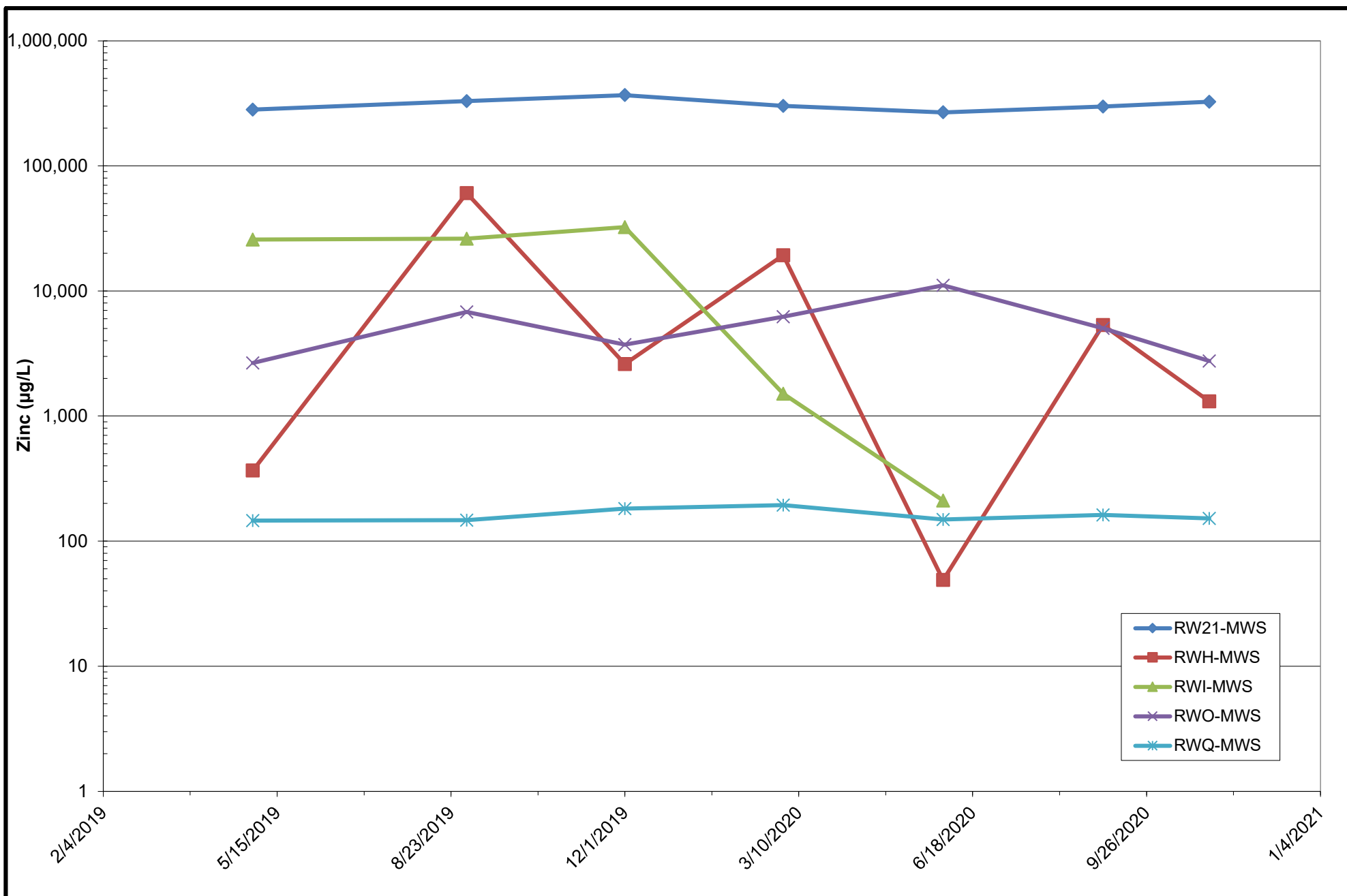
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

## Shallow Interior Zinc Concentrations (Supplemental Wells)

January 27, 2021

**Figure  
19**



**ARM Group LLC**  
Engineers and Scientists

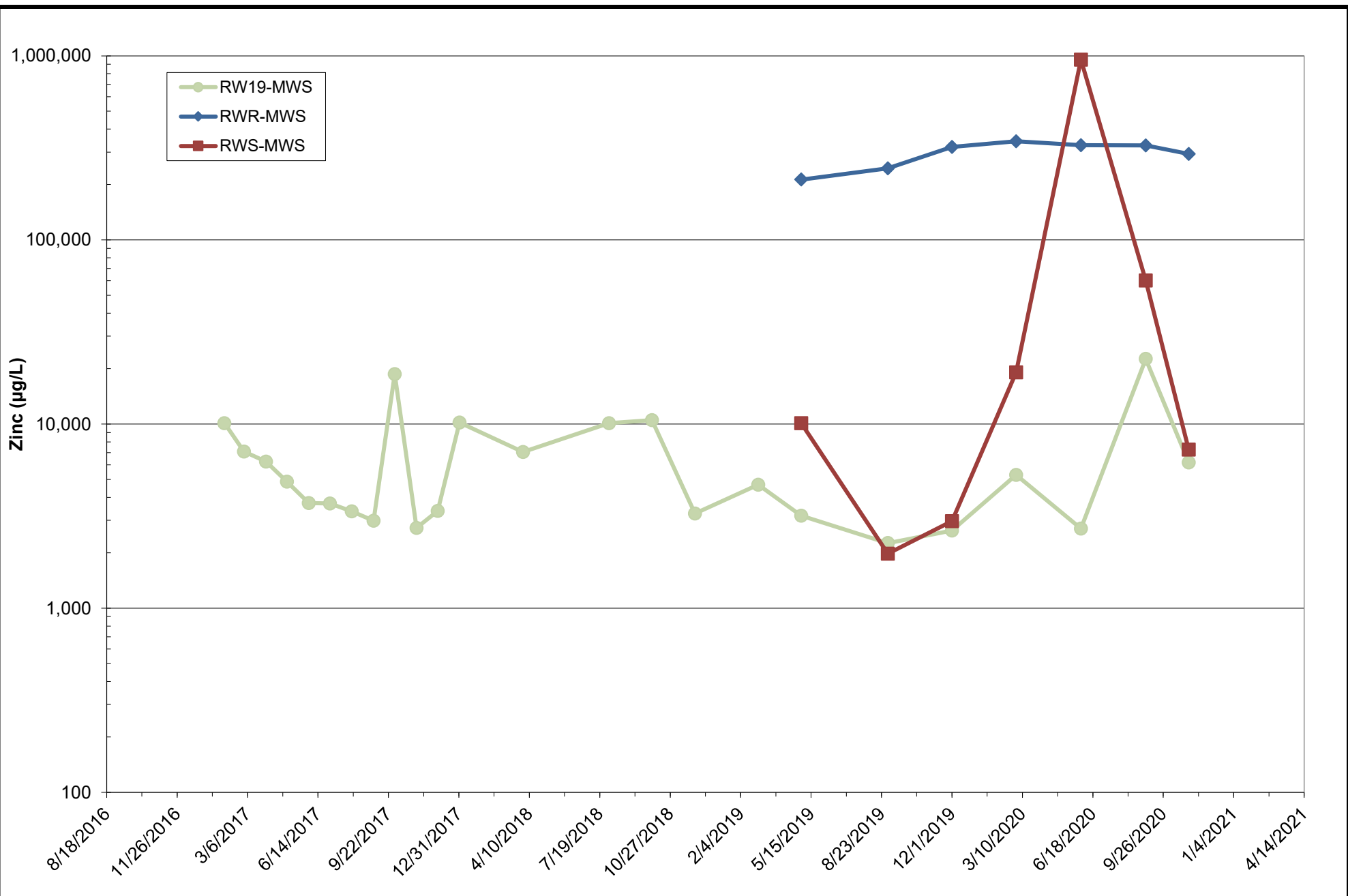
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

## Shallow Delineation Wells Zinc Concentrations

January 27, 2021

**Figure  
20**



**ARM Group LLC**  
Engineers and Scientists

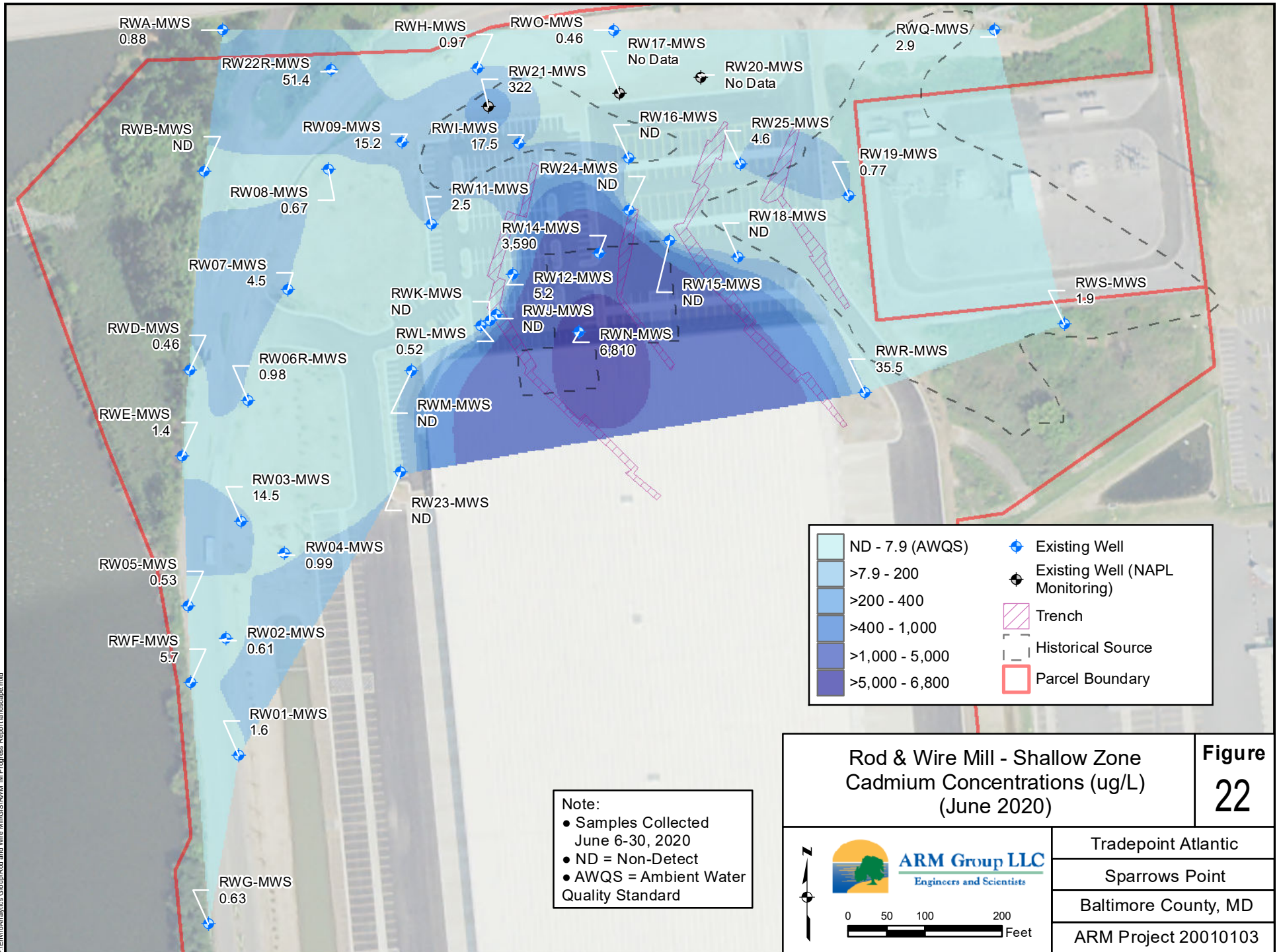
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

## Shallow Upgradient Zinc Concentrations


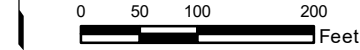
January 27, 2021

**Figure  
21**

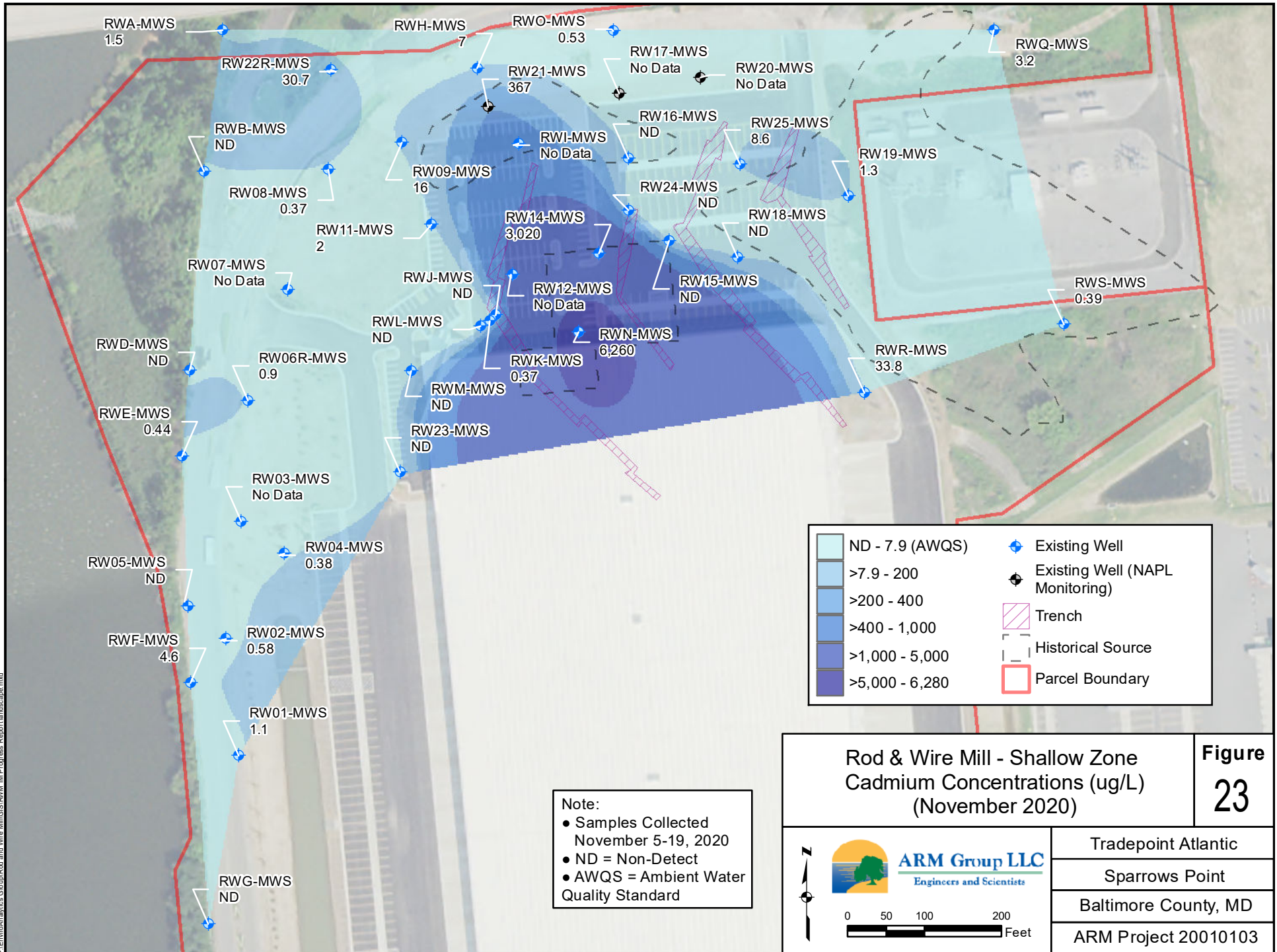


Note:  
 ● Samples Collected June 6-30, 2020  
 ● ND = Non-Detect  
 ● AWQS = Ambient Water Quality Standard

Light Blue	ND - 7.9 (AWQS)	Blue Diamond	Existing Well
Light Blue	>7.9 - 200	Black Diamond	Existing Well (NAPL Monitoring)
Medium Blue	>200 - 400	Red Hatched Box	Trench
Dark Blue	>400 - 1,000	Dashed Box	Historical Source
Very Dark Blue	>1,000 - 5,000	Red Outline Box	Parcel Boundary
Dark Purple	>5,000 - 6,800		

<b>Rod &amp; Wire Mill - Shallow Zone Cadmium Concentrations (ug/L) (June 2020)</b>		<b>Figure 22</b>
		
		Tradepoint Atlantic Sparrows Point Baltimore County, MD ARM Project 20010103

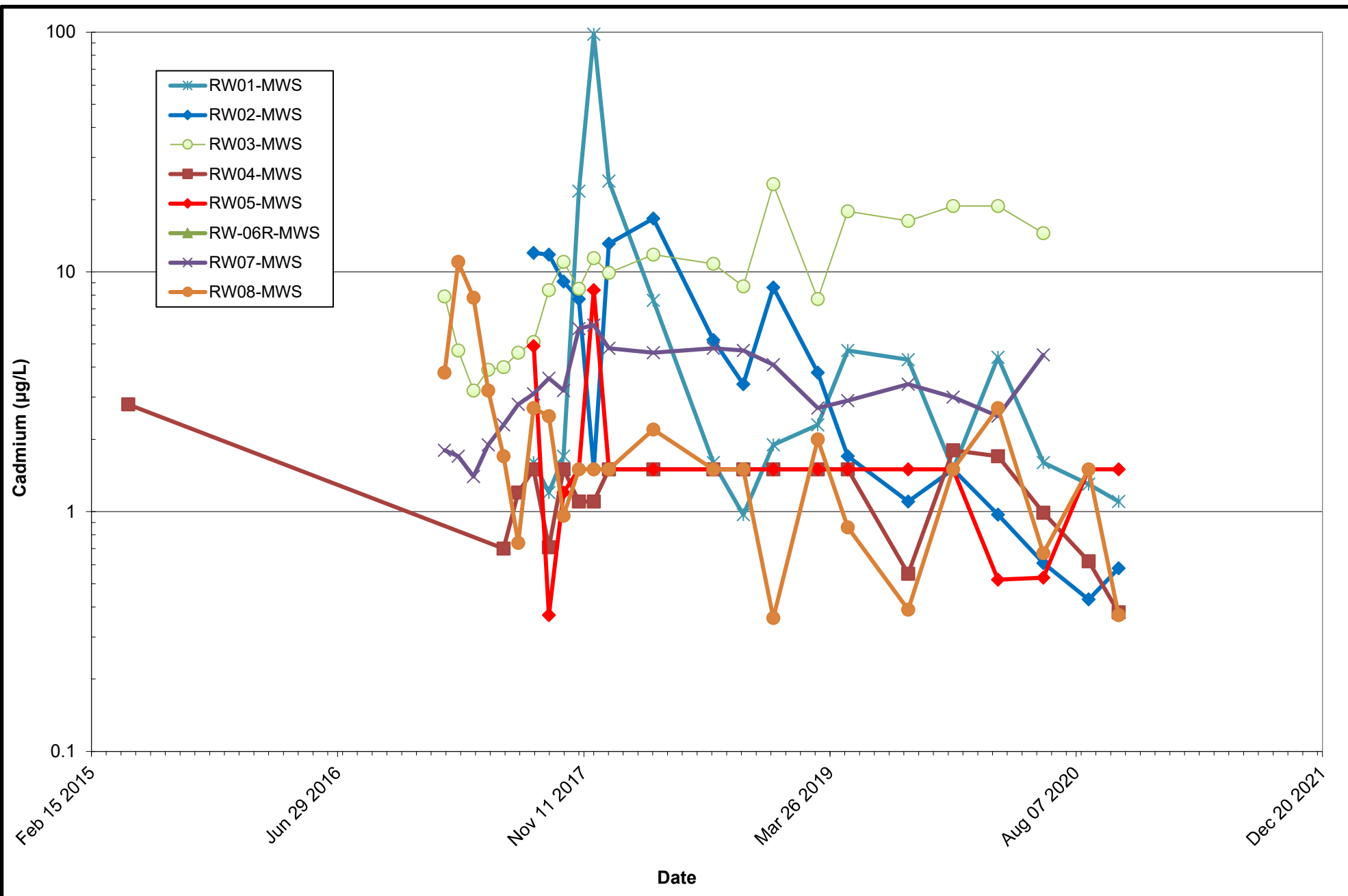




	ND - 7.9 (AWQS)		Existing Well
	>7.9 - 200		Existing Well (NAPL Monitoring)
	>200 - 400		Trench
	>400 - 1,000		Historical Source
	>1,000 - 5,000		Parcel Boundary
	>5,000 - 6,280		

Note:  
 • Samples Collected November 5-19, 2020  
 • ND = Non-Detect  
 • AWQS = Ambient Water Quality Standard

<b>Rod &amp; Wire Mill - Shallow Zone                  Cadmium Concentrations (ug/L)                  (November 2020)</b>		<b>Figure                  23</b>
		Tradepoint Atlantic Sparrows Point Baltimore County, MD ARM Project 20010103



**ARM Group LLC**  
Engineers and Scientists

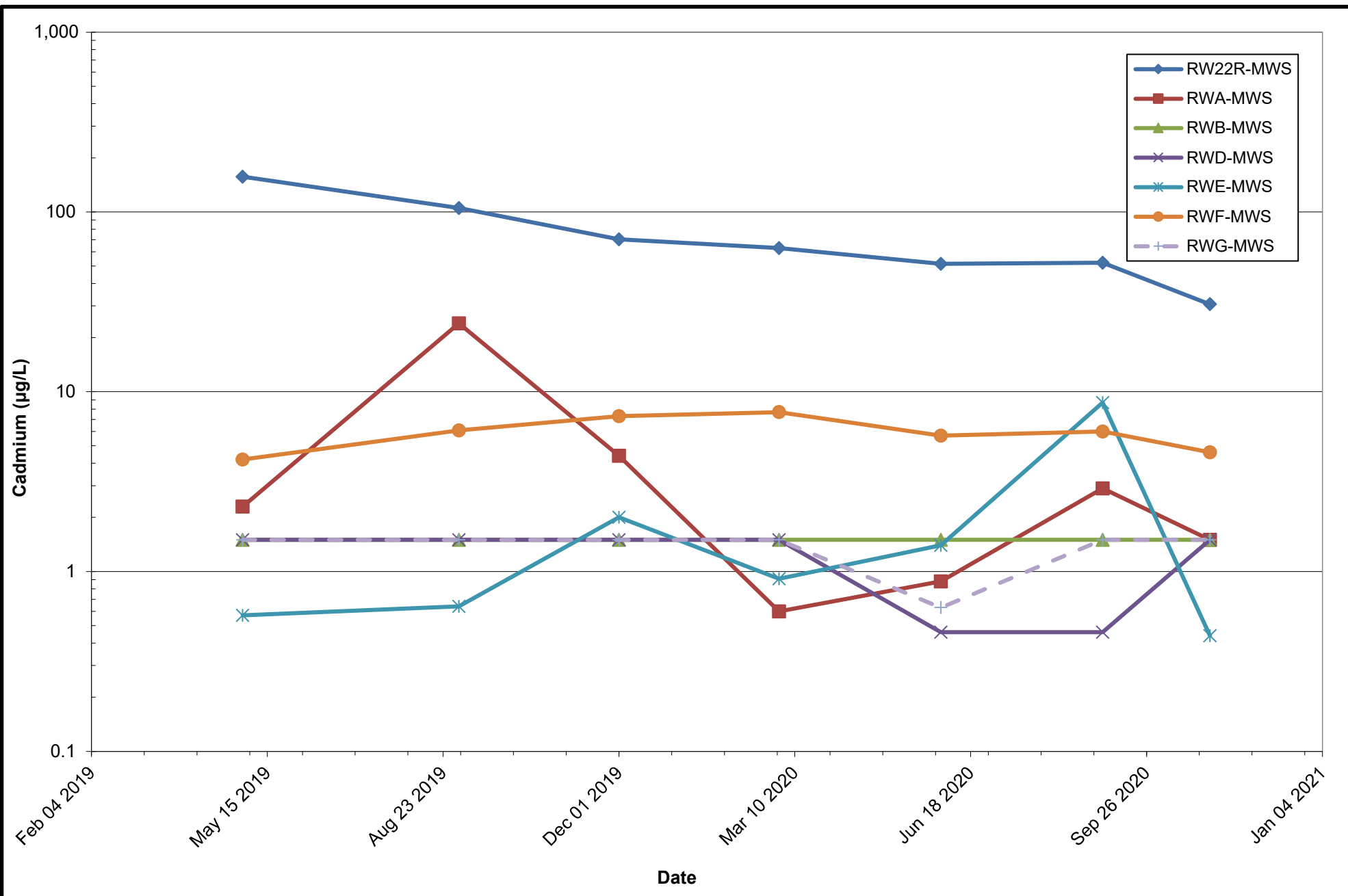
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### Shallow Perimeter Cadmium Concentrations (Original Wells)

January 27, 2021

**Figure  
24**



**ARM Group LLC**  
Engineers and Scientists

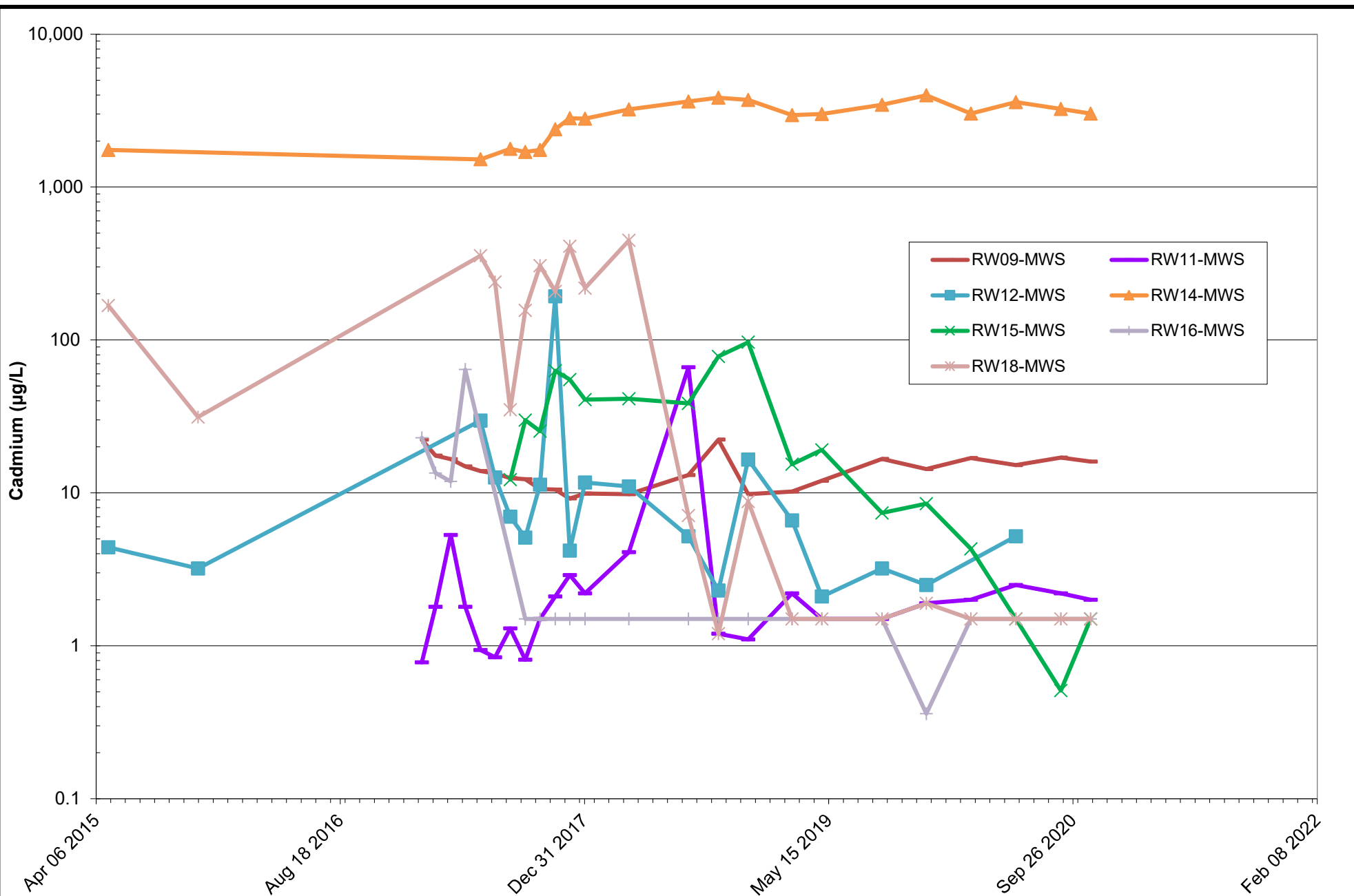
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### Shallow Perimeter Cadmium Concentrations (Supplemental Wells)

January 27, 2021

**Figure  
25**



**ARM Group LLC**  
Engineers and Scientists

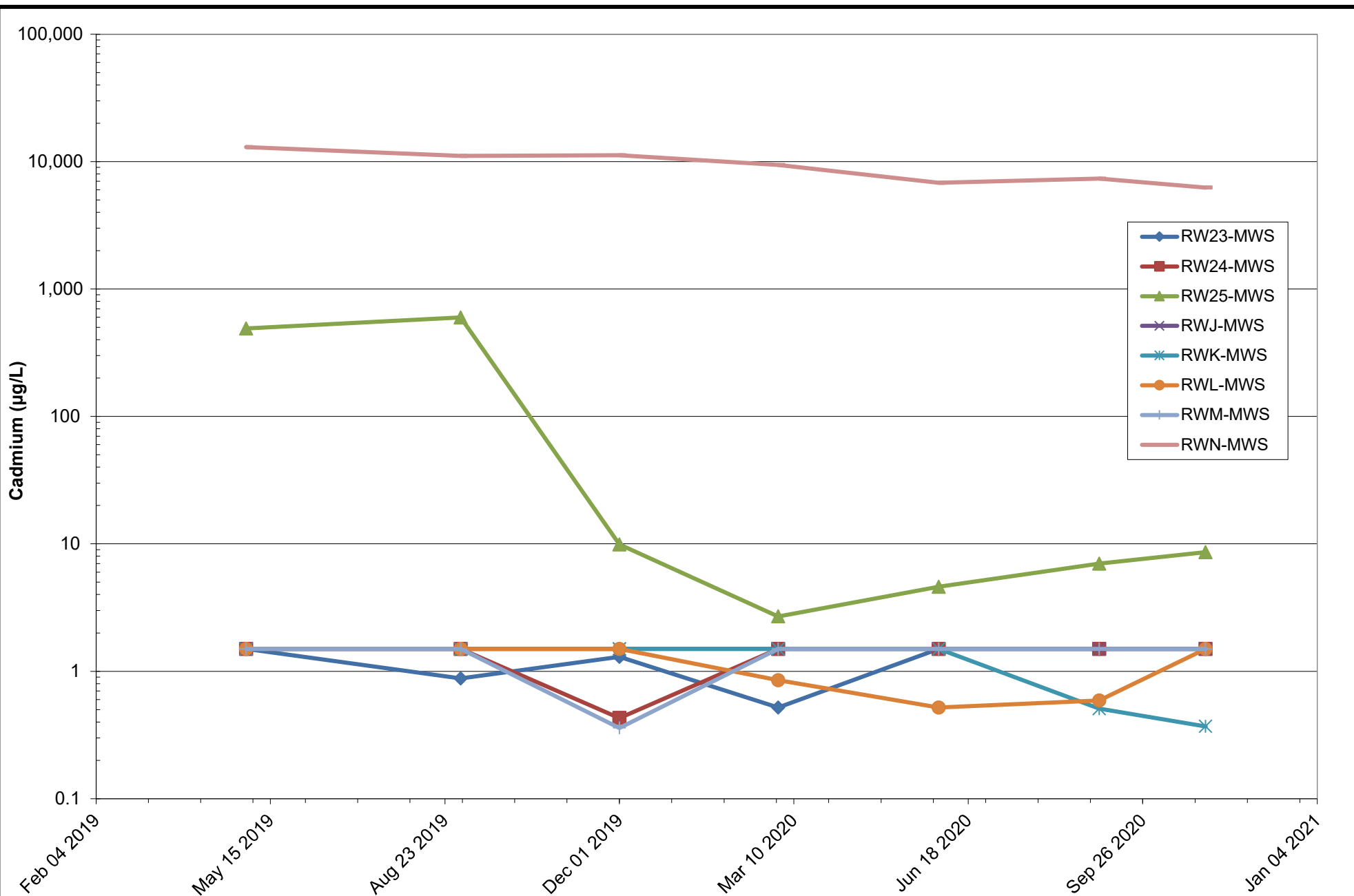
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

Shallow Interior Cadmium  
Concentrations (Original Wells)

January 27, 2021

**Figure  
26**



**ARM Group LLC**  
Engineers and Scientists

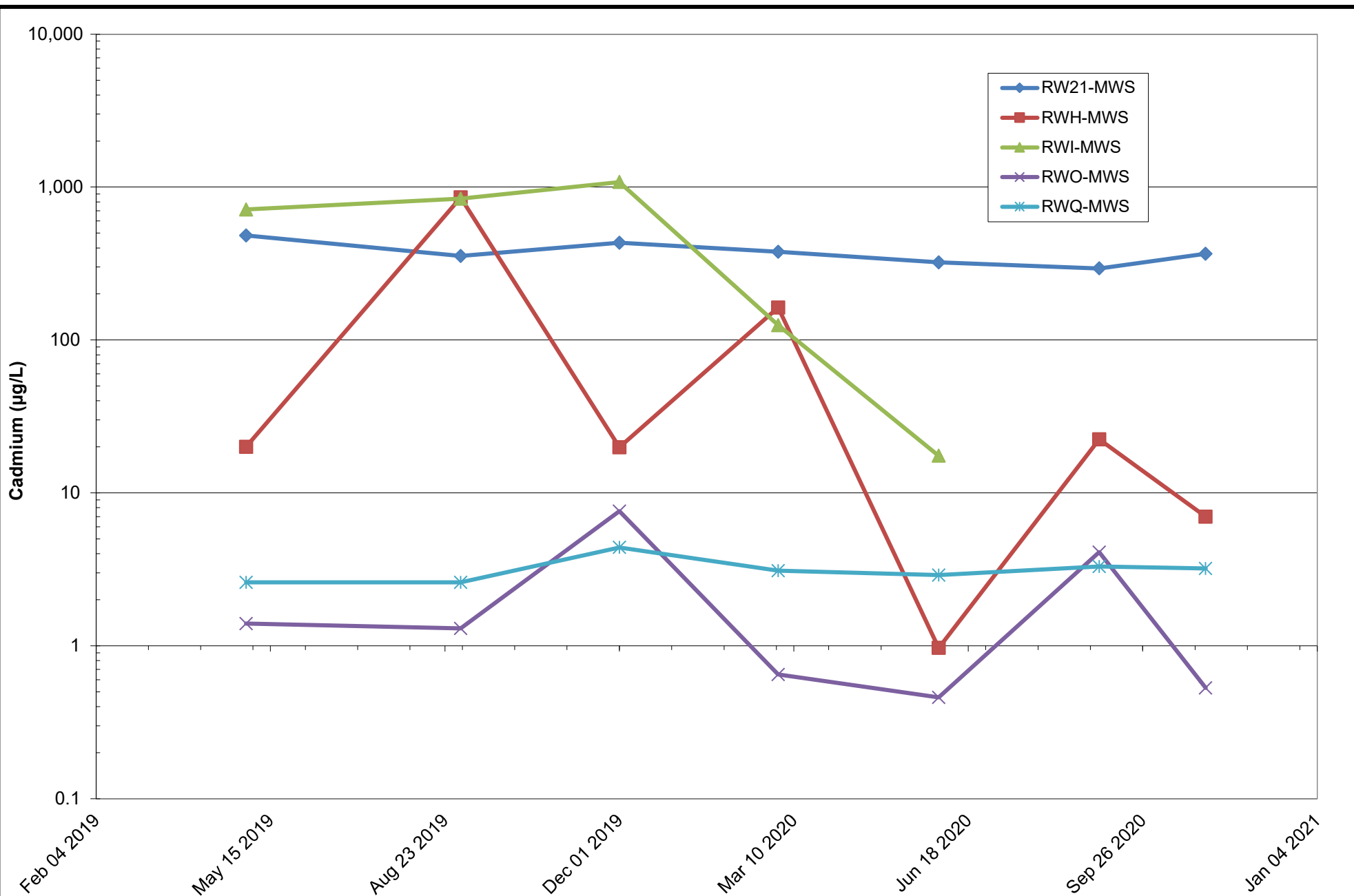
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### Shallow Interior Cadmium Concentrations (Supplemental Wells)

January 27, 2021

**Figure  
27**



**ARM Group LLC**  
Engineers and Scientists

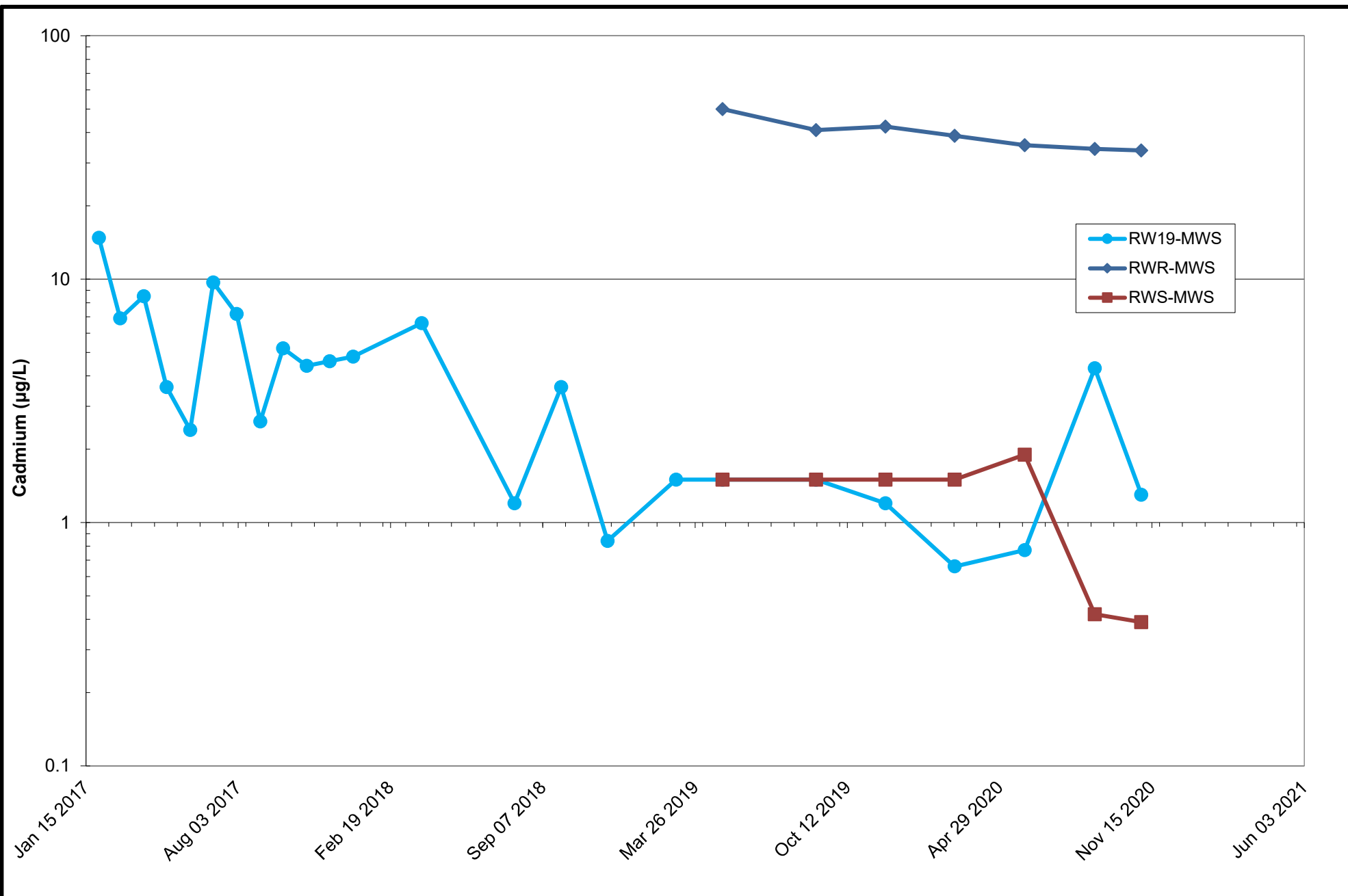
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### Shallow Delineation Cadmium Concentrations

January 27, 2021

**Figure  
28**



**ARM Group LLC**  
Engineers and Scientists

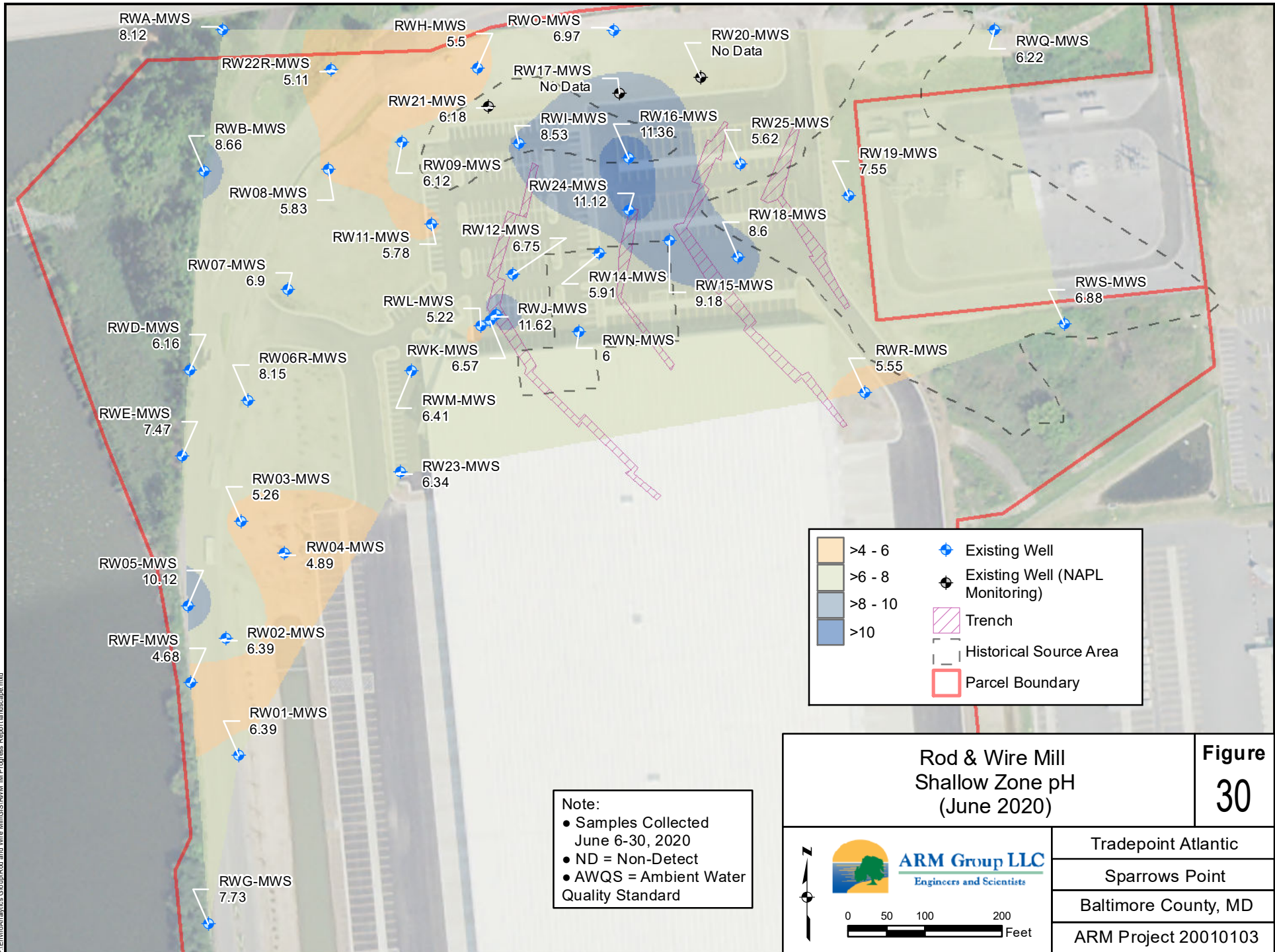
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### Shallow Upgradient Cadmium Concentration

January 27, 2021

**Figure  
29**



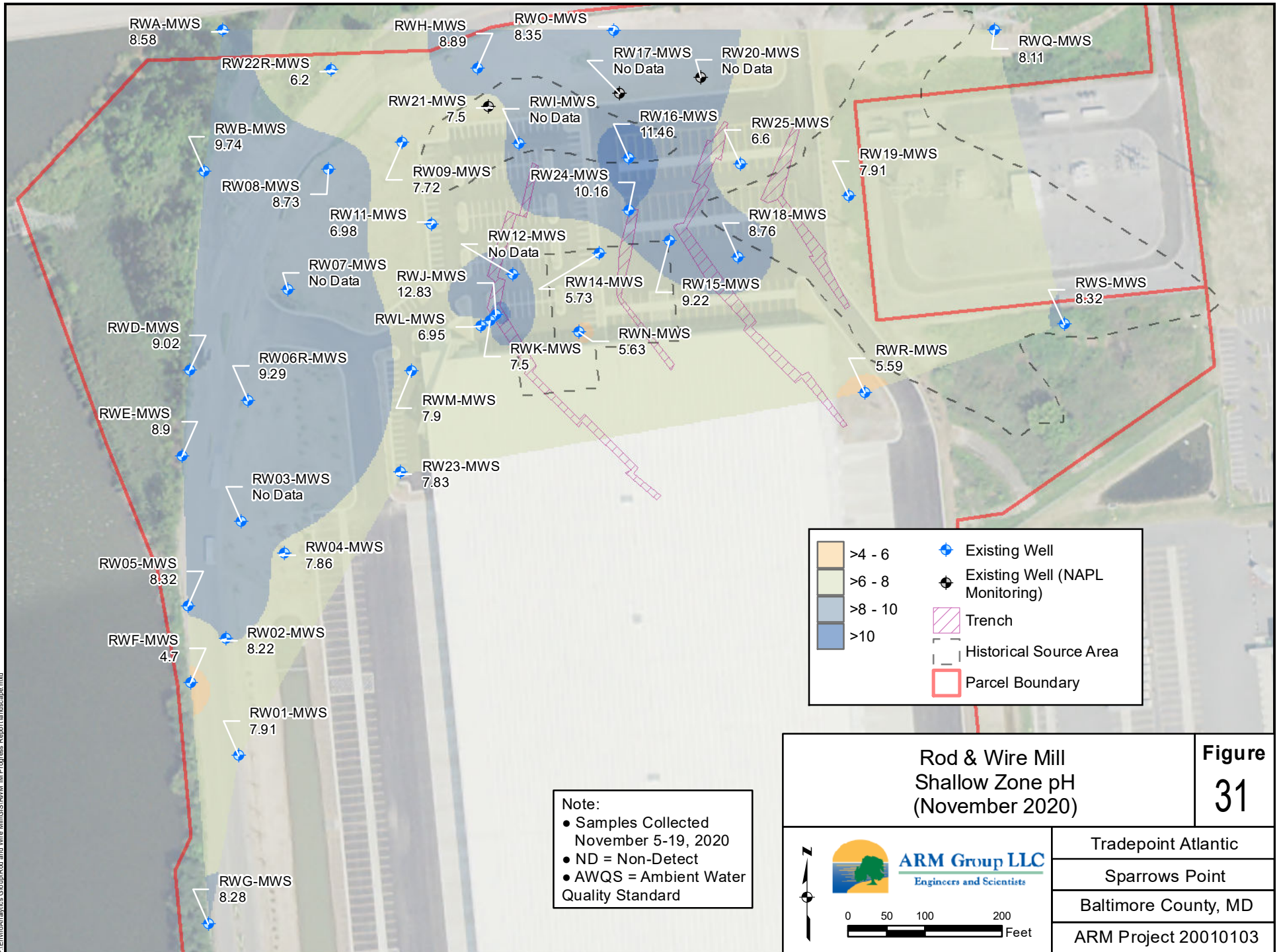
**Note:**

- Samples Collected June 6-30, 2020
- ND = Non-Detect
- AWQS = Ambient Water Quality Standard

	>4 - 6		Existing Well
	>6 - 8		Existing Well (NAPL Monitoring)
	>8 - 10		Trench
	>10		Historical Source Area
			Parcel Boundary

<b>Rod &amp; Wire Mill Shallow Zone pH (June 2020)</b>		<b>Figure 30</b>
 <b>ARM Group LLC</b> Engineers and Scientists		Tradepoint Atlantic Sparrows Point Baltimore County, MD ARM Project 20010103





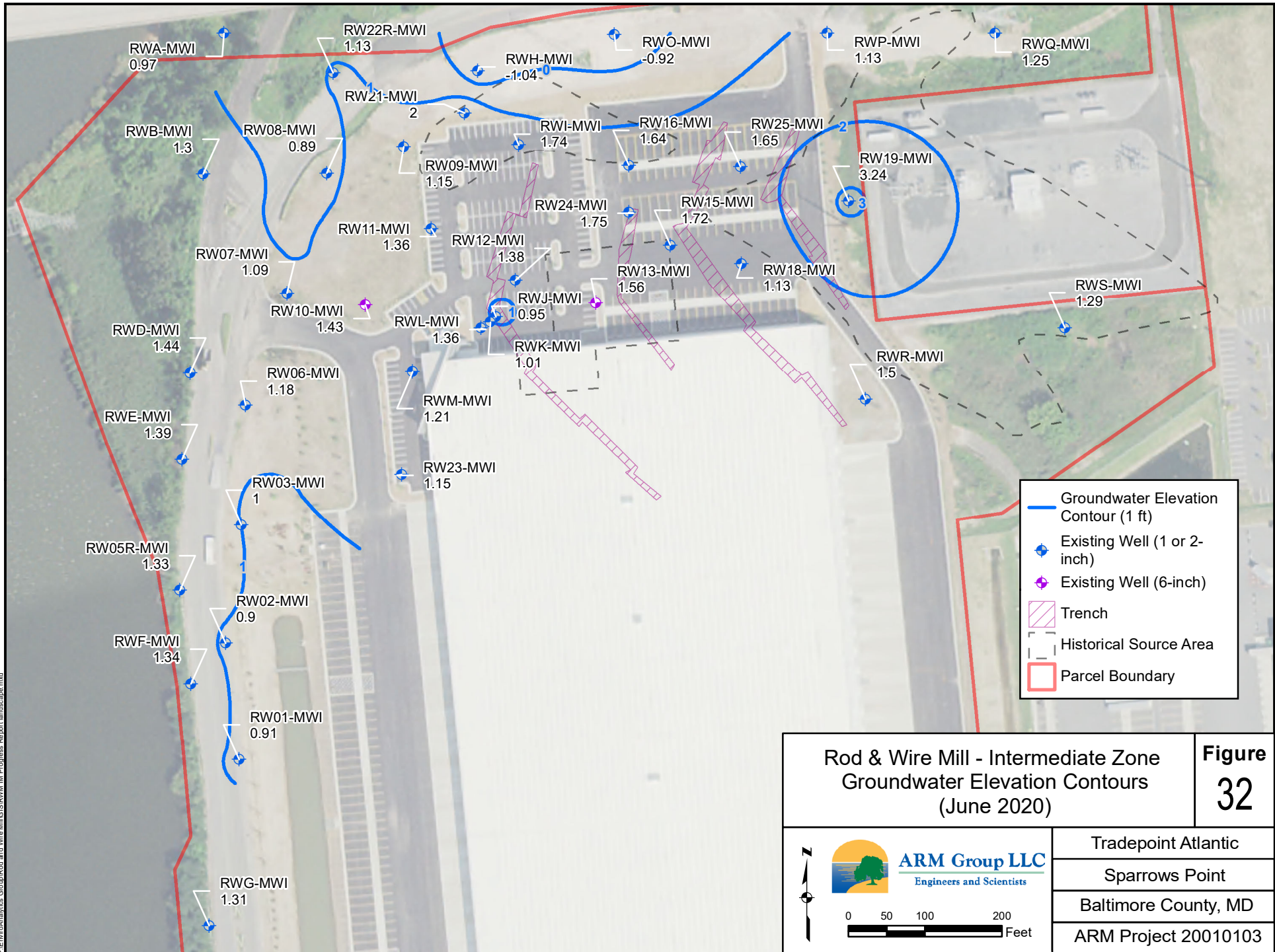
**Note:**

- Samples Collected November 5-19, 2020
- ND = Non-Detect
- AWQS = Ambient Water Quality Standard

	>4 - 6		Existing Well
	>6 - 8		Existing Well (NAPL Monitoring)
	>8 - 10		Trench
	>10		Historical Source Area
			Parcel Boundary

<b>Rod &amp; Wire Mill Shallow Zone pH (November 2020)</b>		<b>Figure 31</b>
		Tradepoint Atlantic
Sparrows Point		Baltimore County, MD
0 50 100 200 Feet		ARM Project 20010103

P:\E\envo\Analytics\_Group\Flood and Wire Mills\GIS\RWMI\IM Progress\_Report\_Landscape.mxd

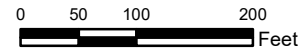


Rod & Wire Mill - Intermediate Zone  
Groundwater Elevation Contours  
(June 2020)

Figure  
32



**ARM Group LLC**  
Engineers and Scientists

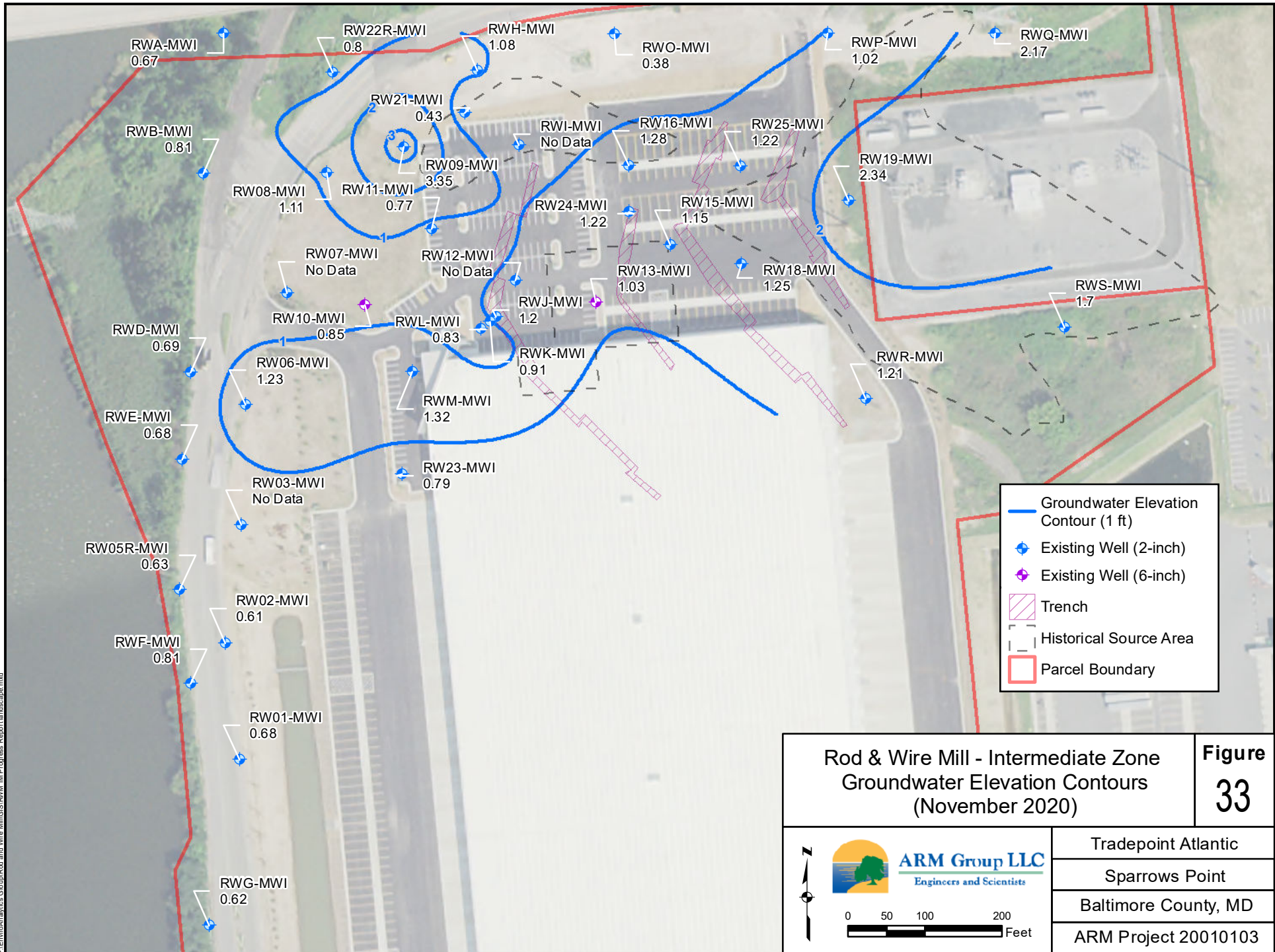


Tradepoint Atlantic

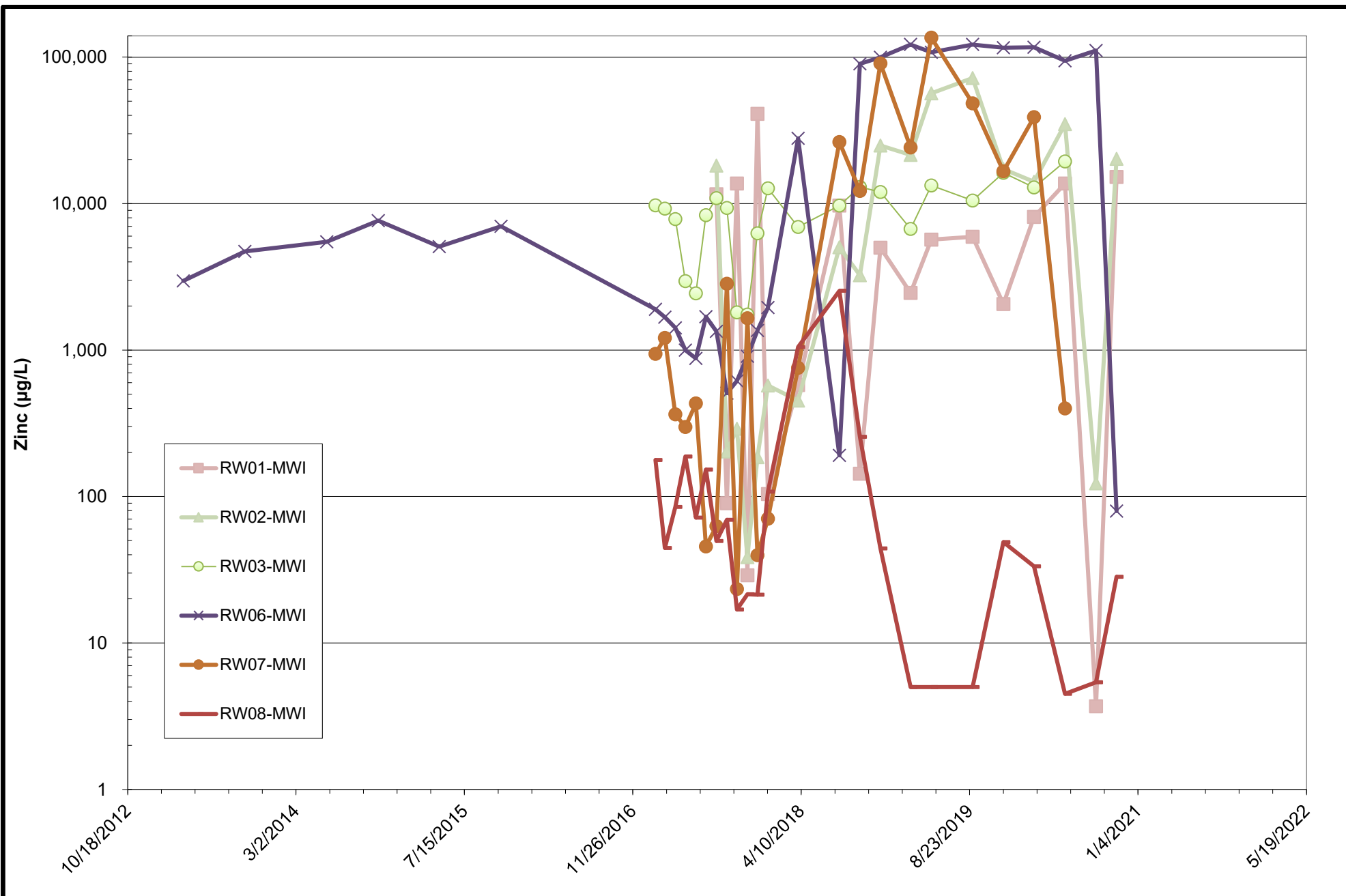
Sparrows Point

Baltimore County, MD

ARM Project 20010103



<b>Rod &amp; Wire Mill - Intermediate Zone Groundwater Elevation Contours (November 2020)</b>		<b>Figure 33</b>
		Tradepoint Atlantic
		Sparrows Point
		Baltimore County, MD
		ARM Project 20010103



**ARM Group LLC**  
Engineers and Scientists

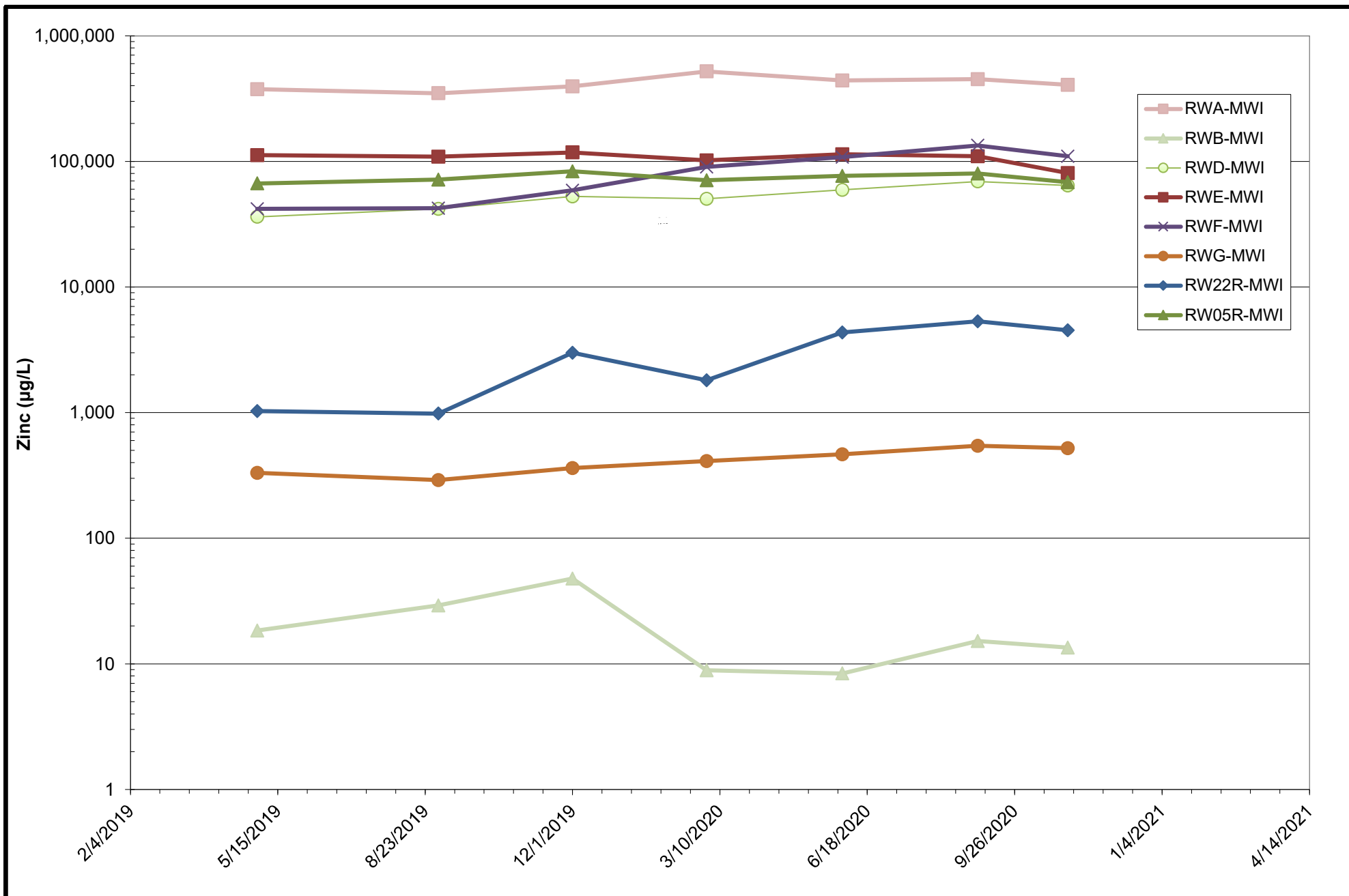
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### Intermediate Perimeter Zinc Concentrations (Original Wells)

January 27, 2021

**Figure  
34**



**ARM Group LLC**  
Engineers and Scientists

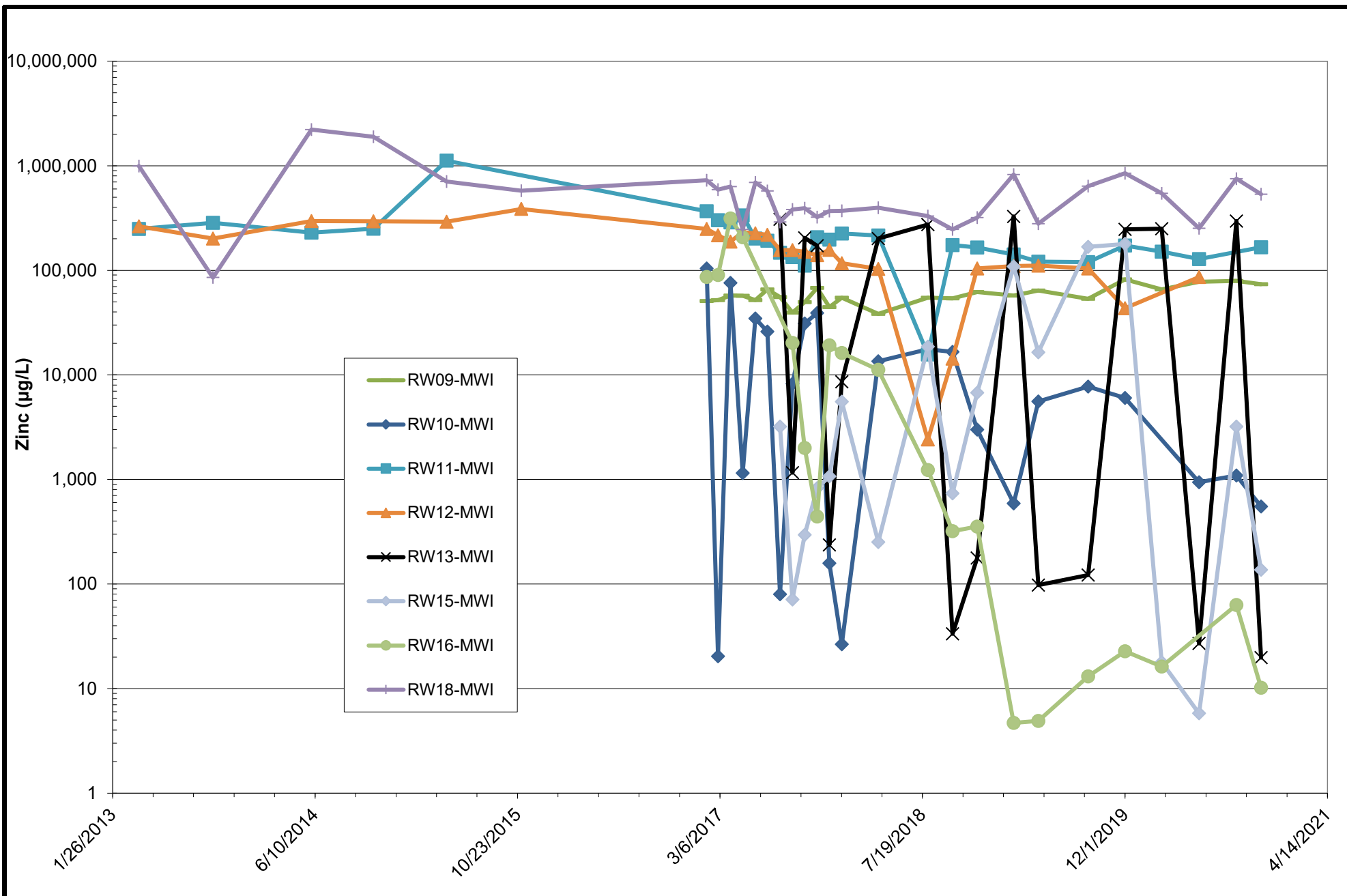
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### Intermediate Perimeter Zinc Concentrations (Supplemental Wells)

January 27, 2021

**Figure  
35**



**ARM Group LLC**  
Engineers and Scientists

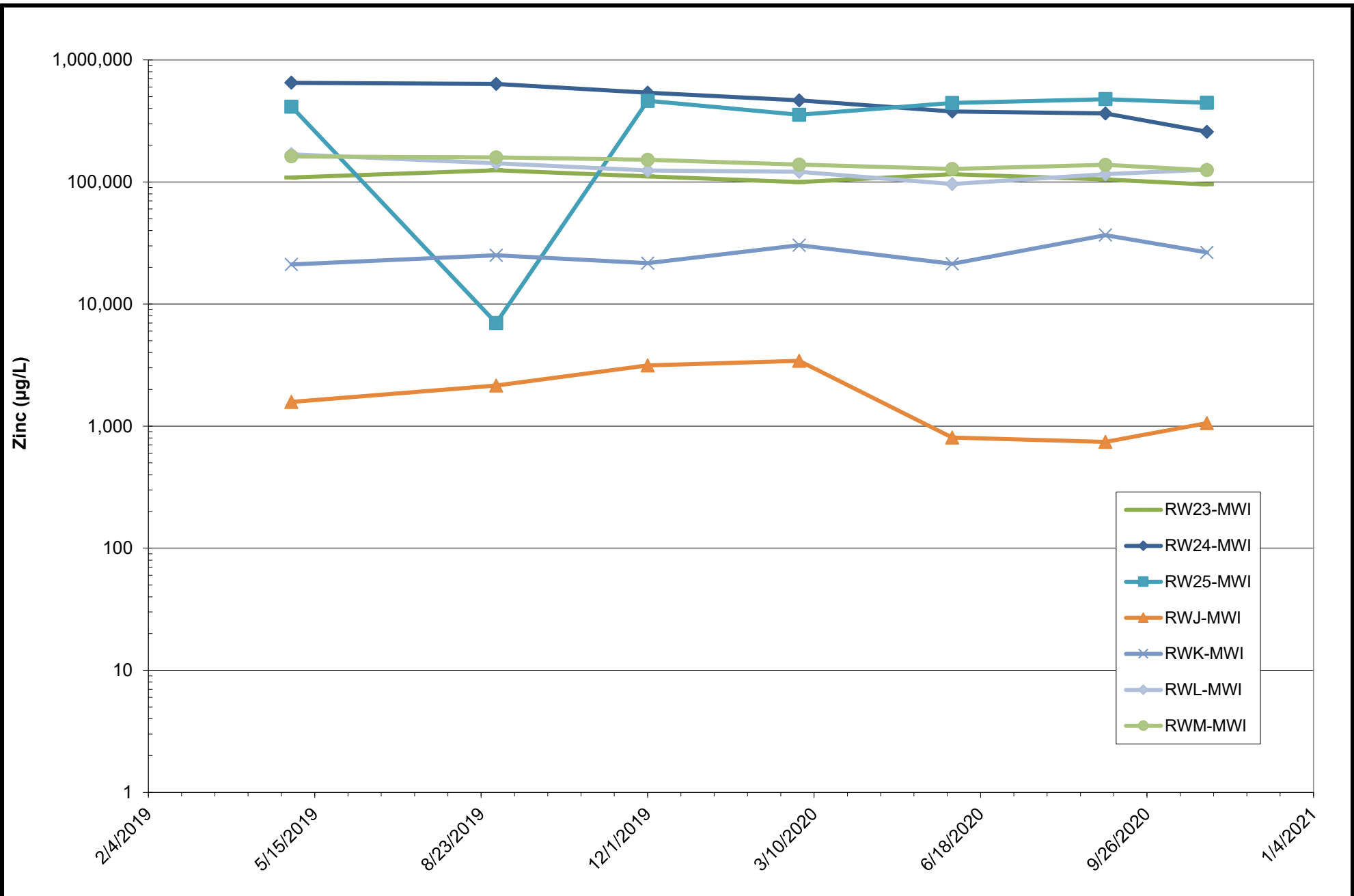
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

Intermediate Performance Zinc  
Concentrations (Original Wells)

January 27, 2021

**Figure  
36**



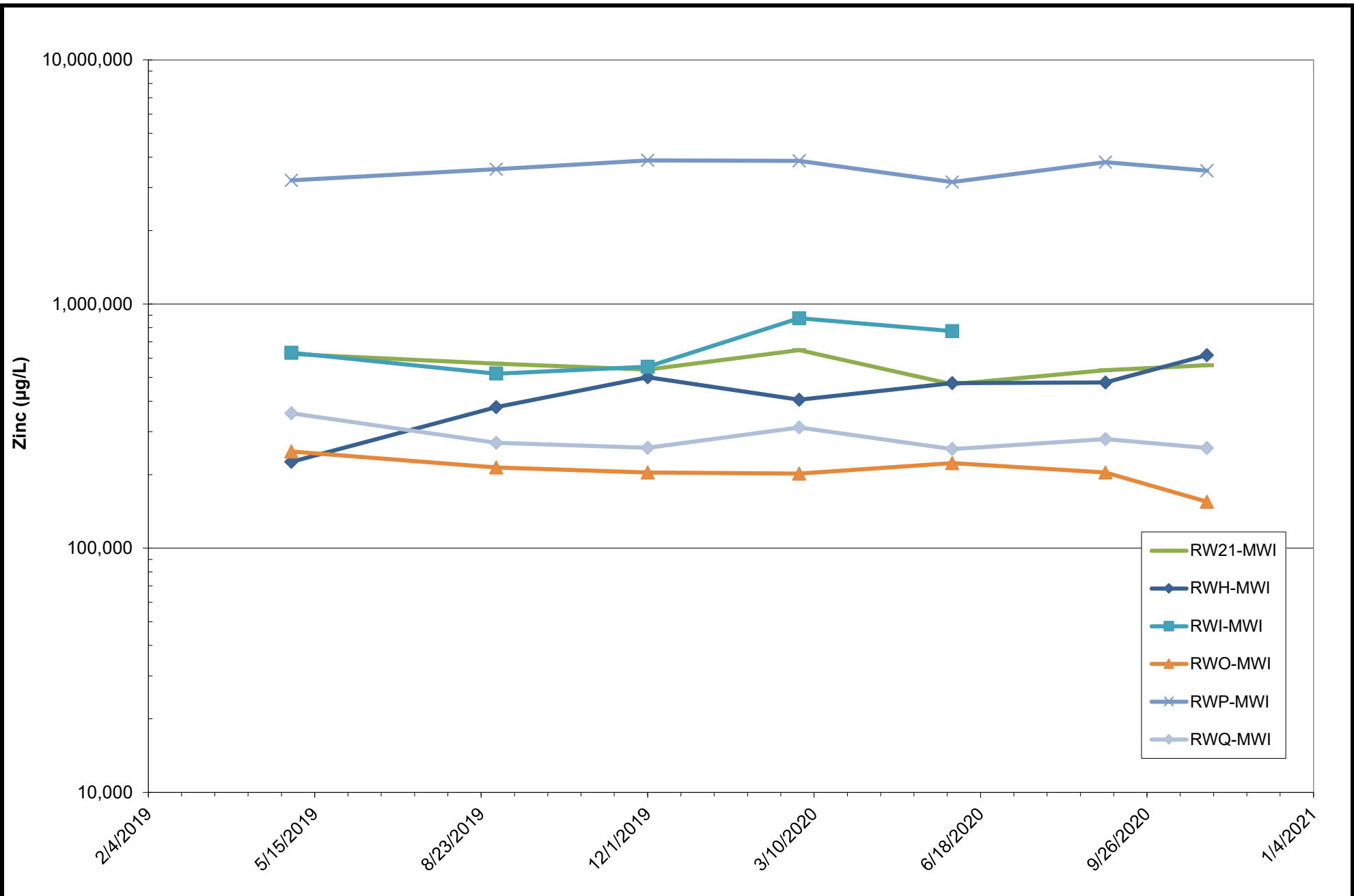
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### Intermediate Performance Zinc Concentrations (Supplemental Wells)

January 27, 2021

**Figure 37**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

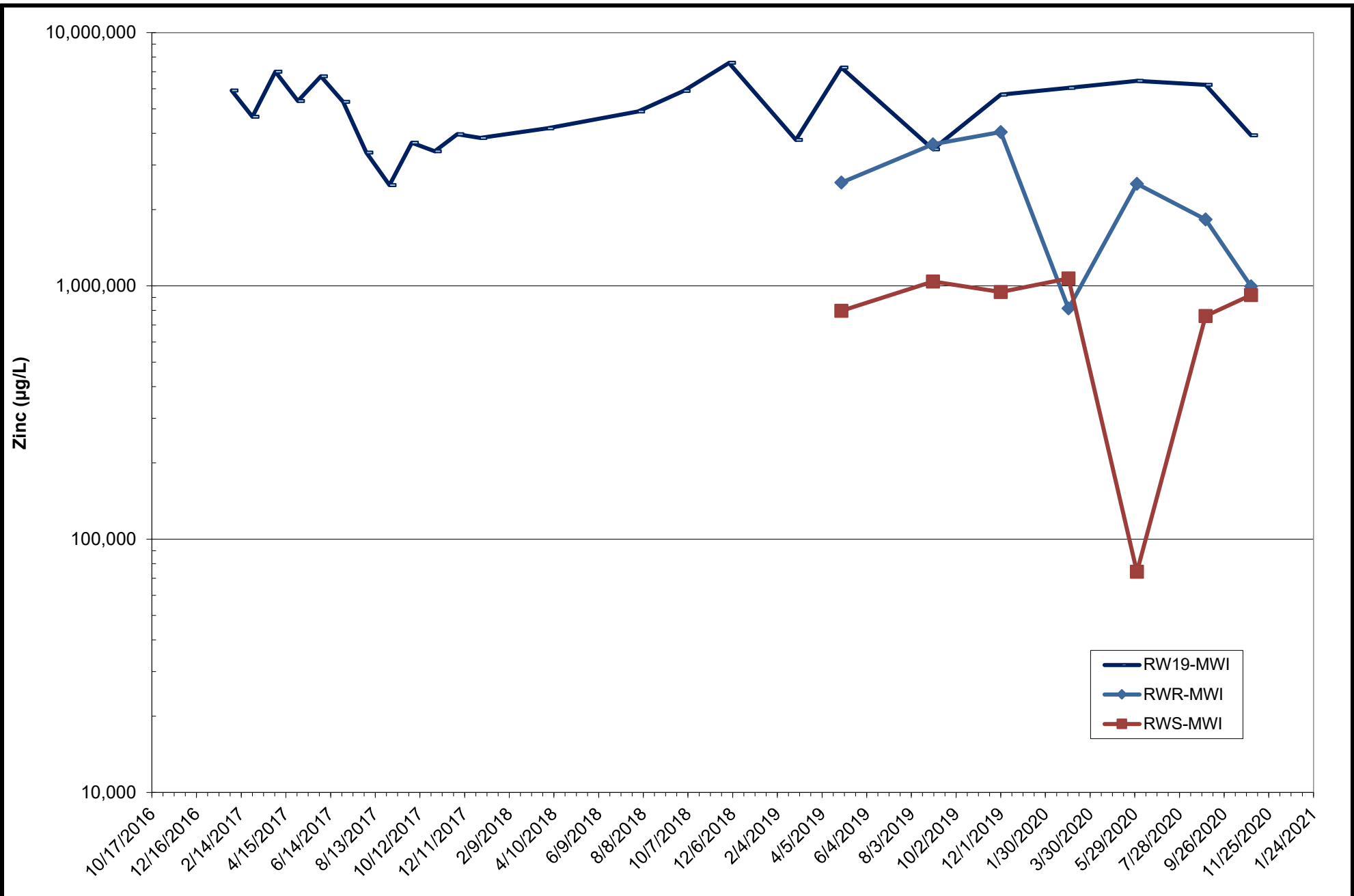
Sparrows Point, Maryland

**Intermediate Delineation Wells  
Zinc Concentrations**

January 27, 2021

**Figure  
38**





**ARM Group LLC**  
Engineers and Scientists

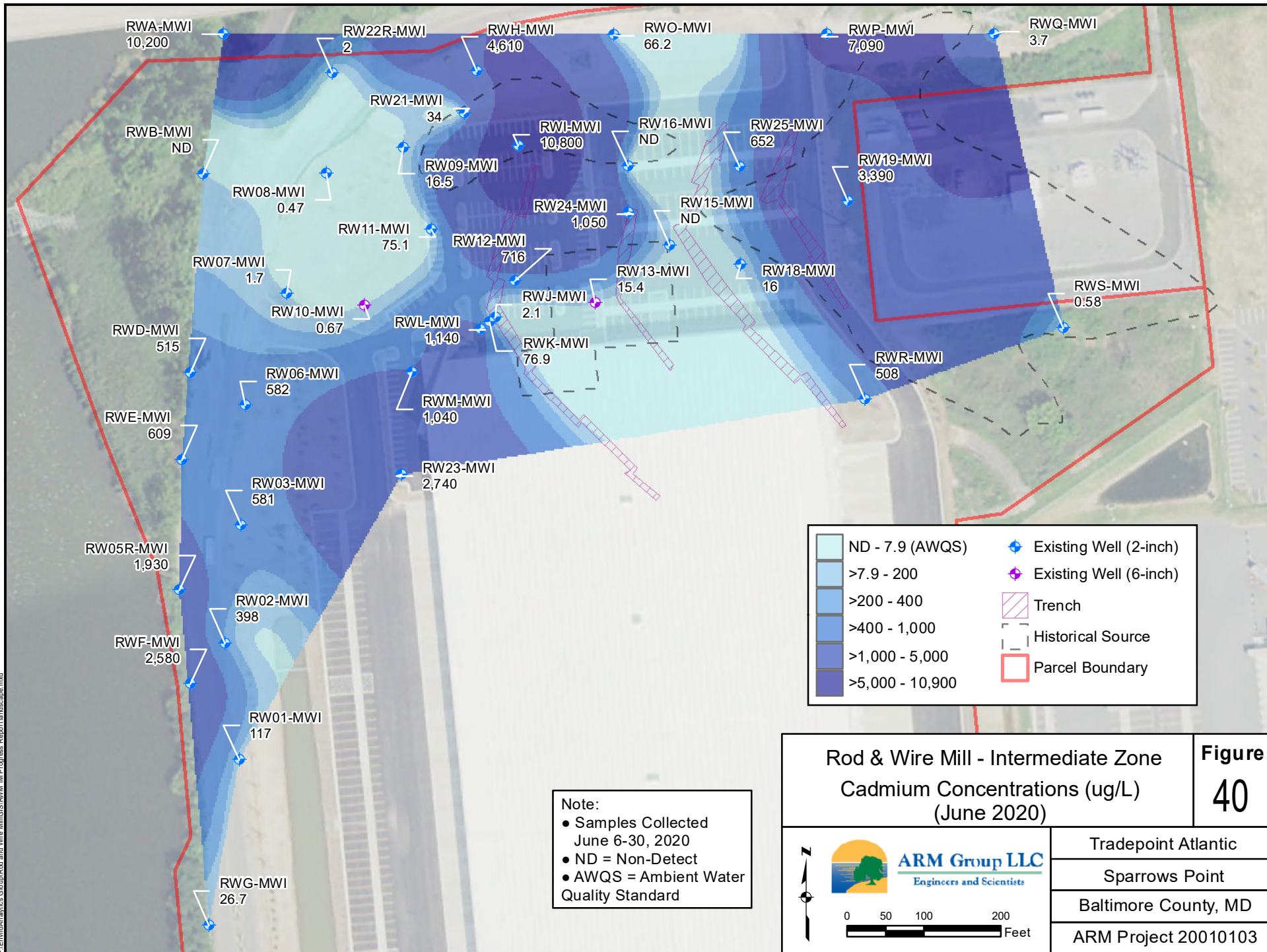
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**Intermediate Upgradient  
Zinc Concentrations**

January 27, 2021

**Figure  
39**

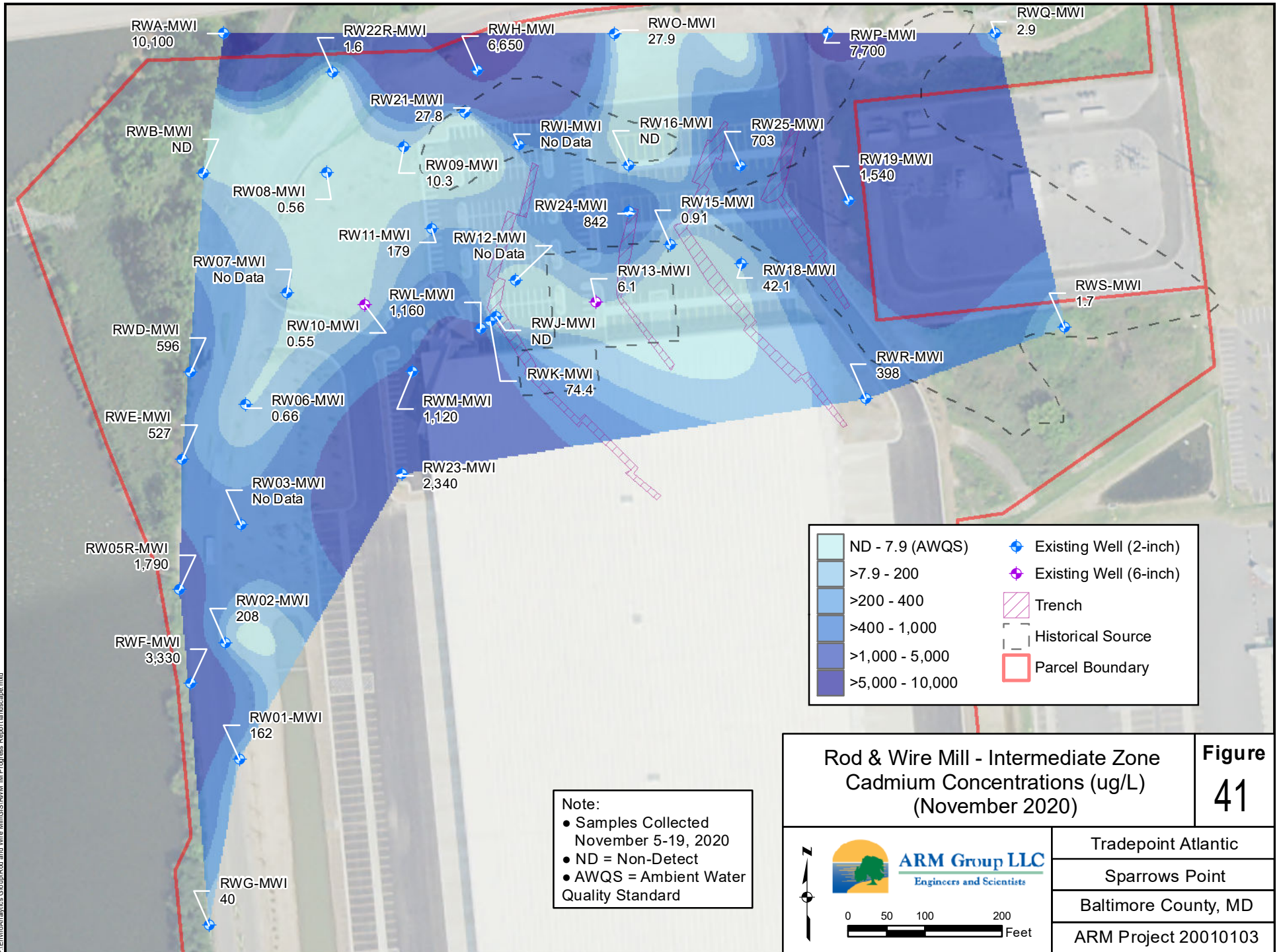


	ND - 7.9 (AWQS)		Existing Well (2-inch)
	>7.9 - 200		Existing Well (6-inch)
	>200 - 400		Trench
	>400 - 1,000		Historical Source
	>1,000 - 5,000		Parcel Boundary
	>5,000 - 10,900		

Note:

- Samples Collected June 6-30, 2020
- ND = Non-Detect
- AWQS = Ambient Water Quality Standard

<b>Rod &amp; Wire Mill - Intermediate Zone</b> <b>Cadmium Concentrations (ug/L)</b> <b>(June 2020)</b>		<b>Figure</b> <span style="font-size: 2em;">40</span>
 <b>ARM Group LLC</b> Engineers and Scientists		Tradepoint Atlantic Sparrows Point Baltimore County, MD ARM Project 20010103

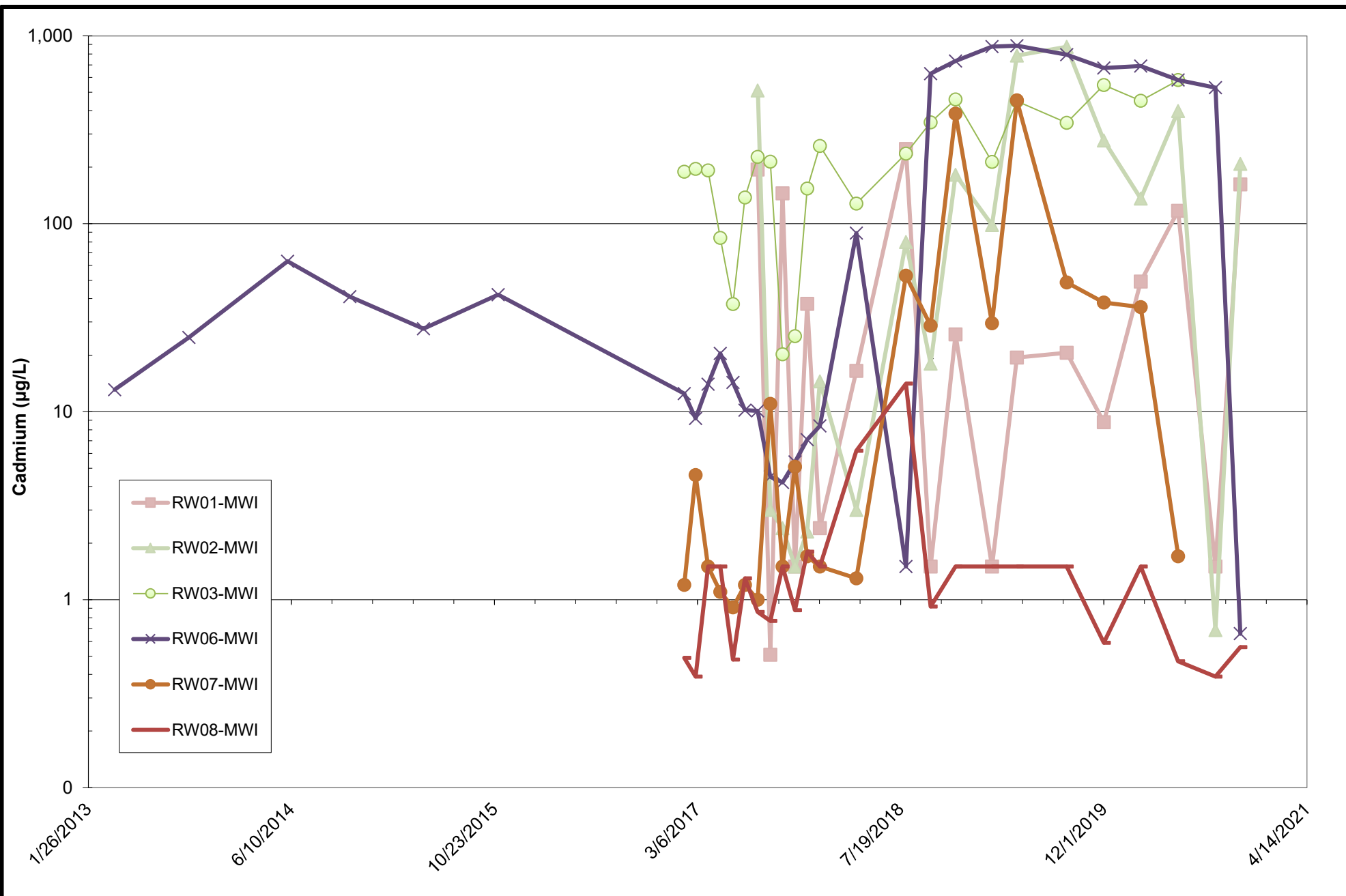


	ND - 7.9 (AWQS)		Existing Well (2-inch)
	>7.9 - 200		Existing Well (6-inch)
	>200 - 400		Trench
	>400 - 1,000		Historical Source
	>1,000 - 5,000		Parcel Boundary
	>5,000 - 10,000		

Note:

- Samples Collected November 5-19, 2020
- ND = Non-Detect
- AWQS = Ambient Water Quality Standard

<b>Rod &amp; Wire Mill - Intermediate Zone</b> <b>Cadmium Concentrations (ug/L)</b> <b>(November 2020)</b>		<b>Figure</b> <span style="font-size: 2em;">41</span>
 <b>ARM Group LLC</b> Engineers and Scientists		Tradepoint Atlantic Sparrows Point Baltimore County, MD ARM Project 20010103



**ARM Group LLC**  
Engineers and Scientists

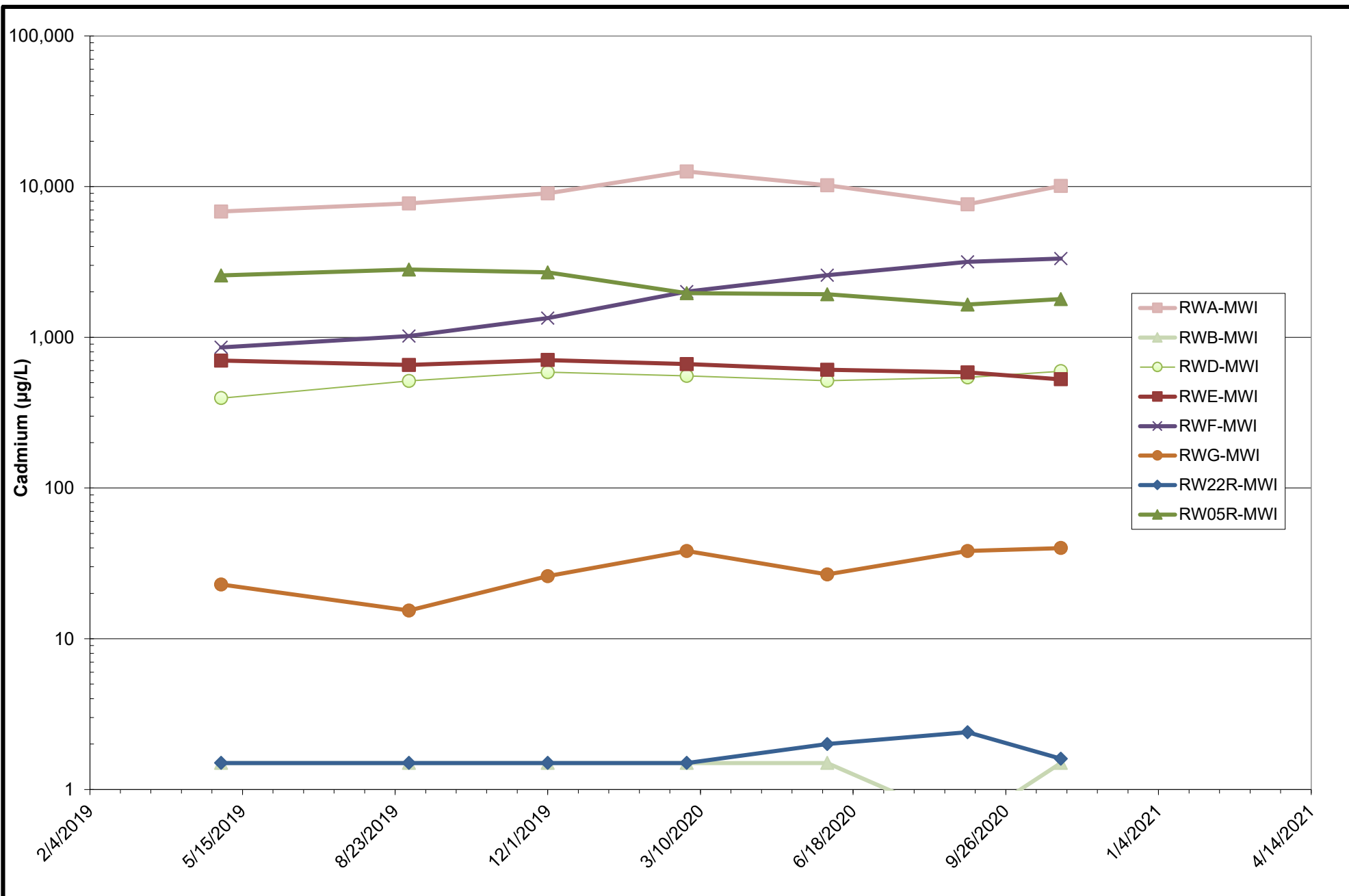
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### Intermediate Perimeter Cadmium Concentrations (Original Wells)

January 27, 2021

**Figure  
42**



**ARM Group LLC**  
Engineers and Scientists

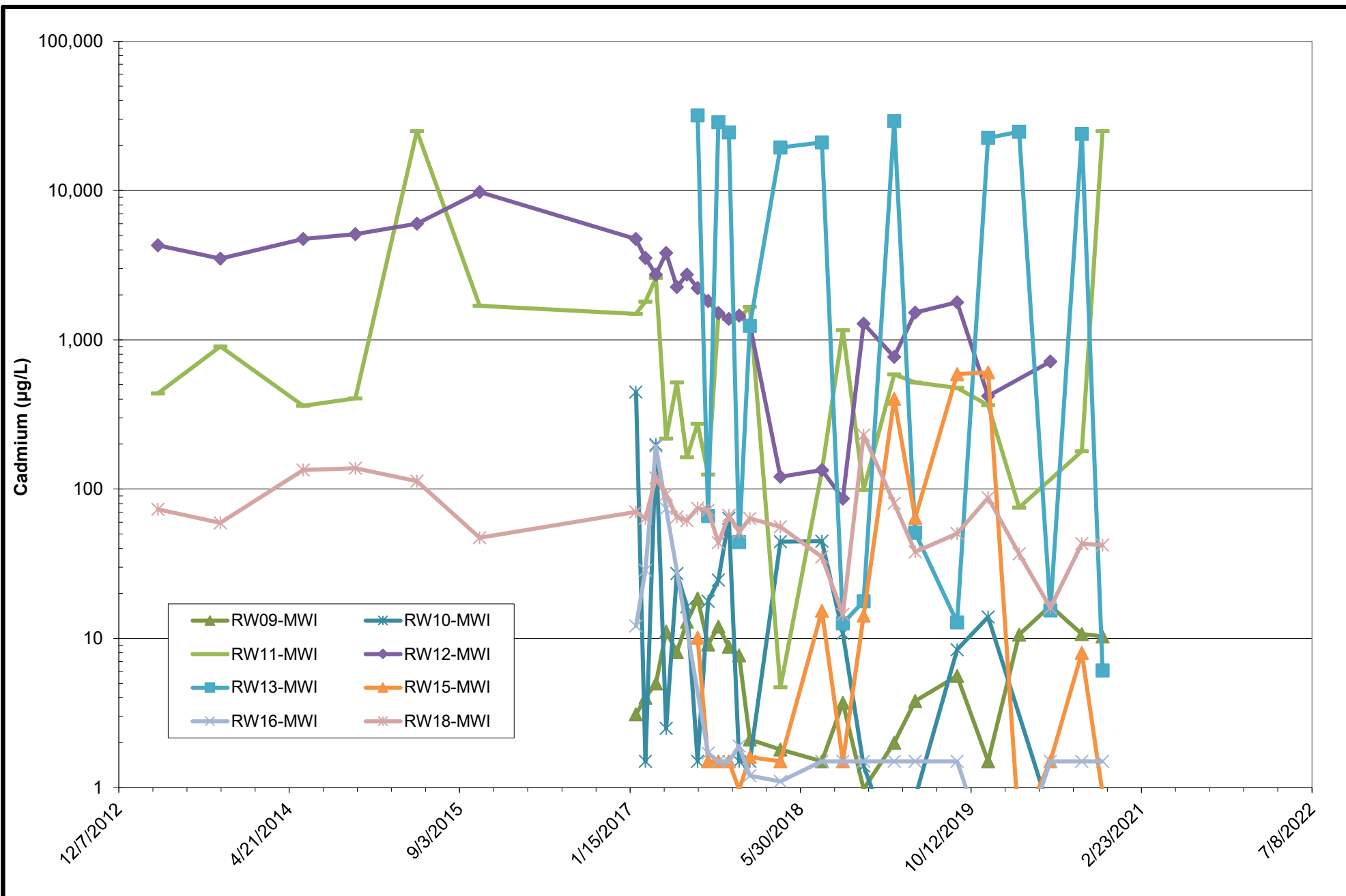
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### Intermediate Perimeter Cadmium Concentrations (Supplemental Wells)

January 27, 2021

**Figure  
43**



**ARM Group LLC**  
Engineers and Scientists

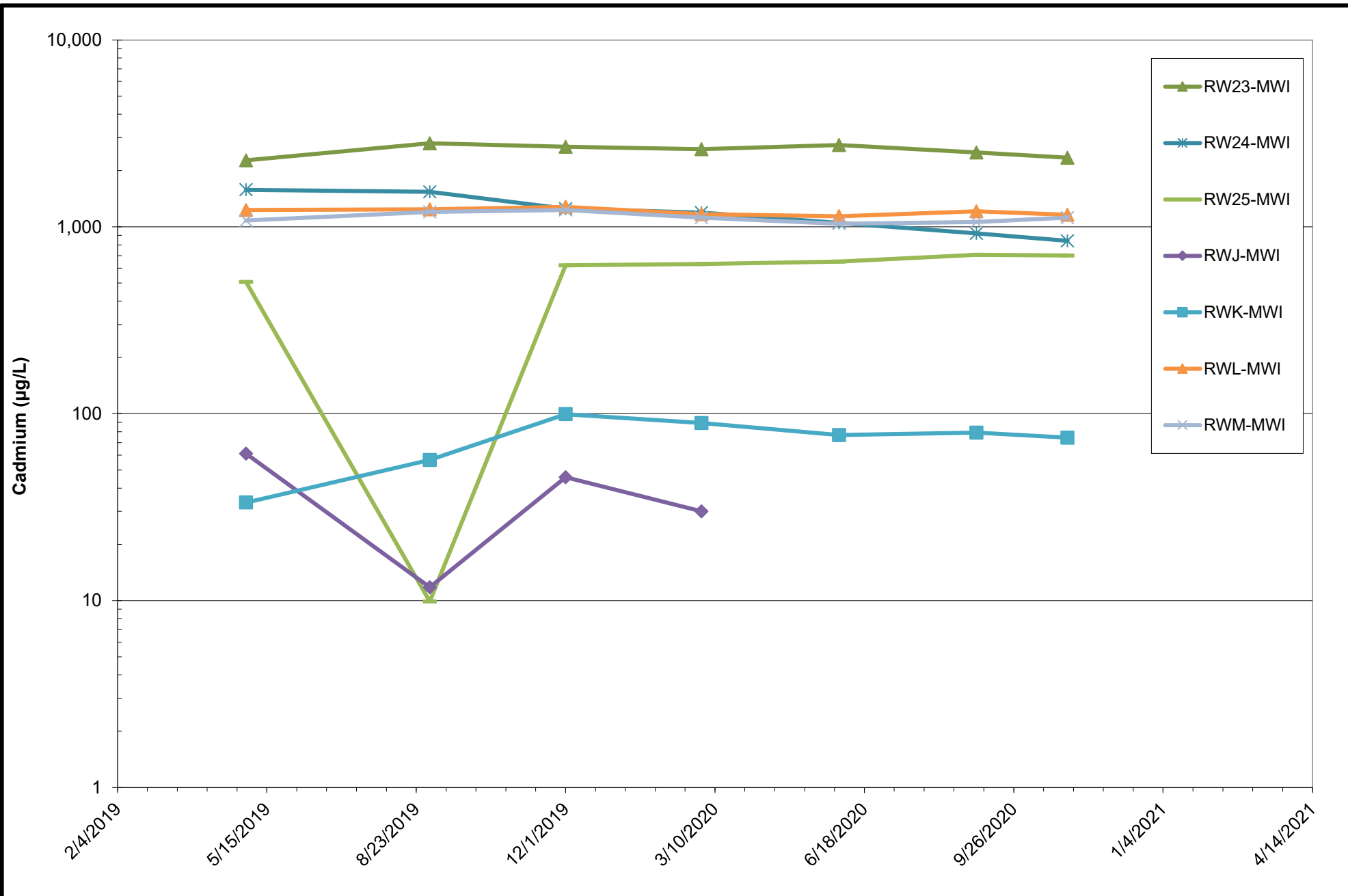
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**Intermediate Performance Cadmium  
Concentrations (Original Wells)**

January 27, 2021

**Figure  
44**



**ARM Group LLC**  
Engineers and Scientists

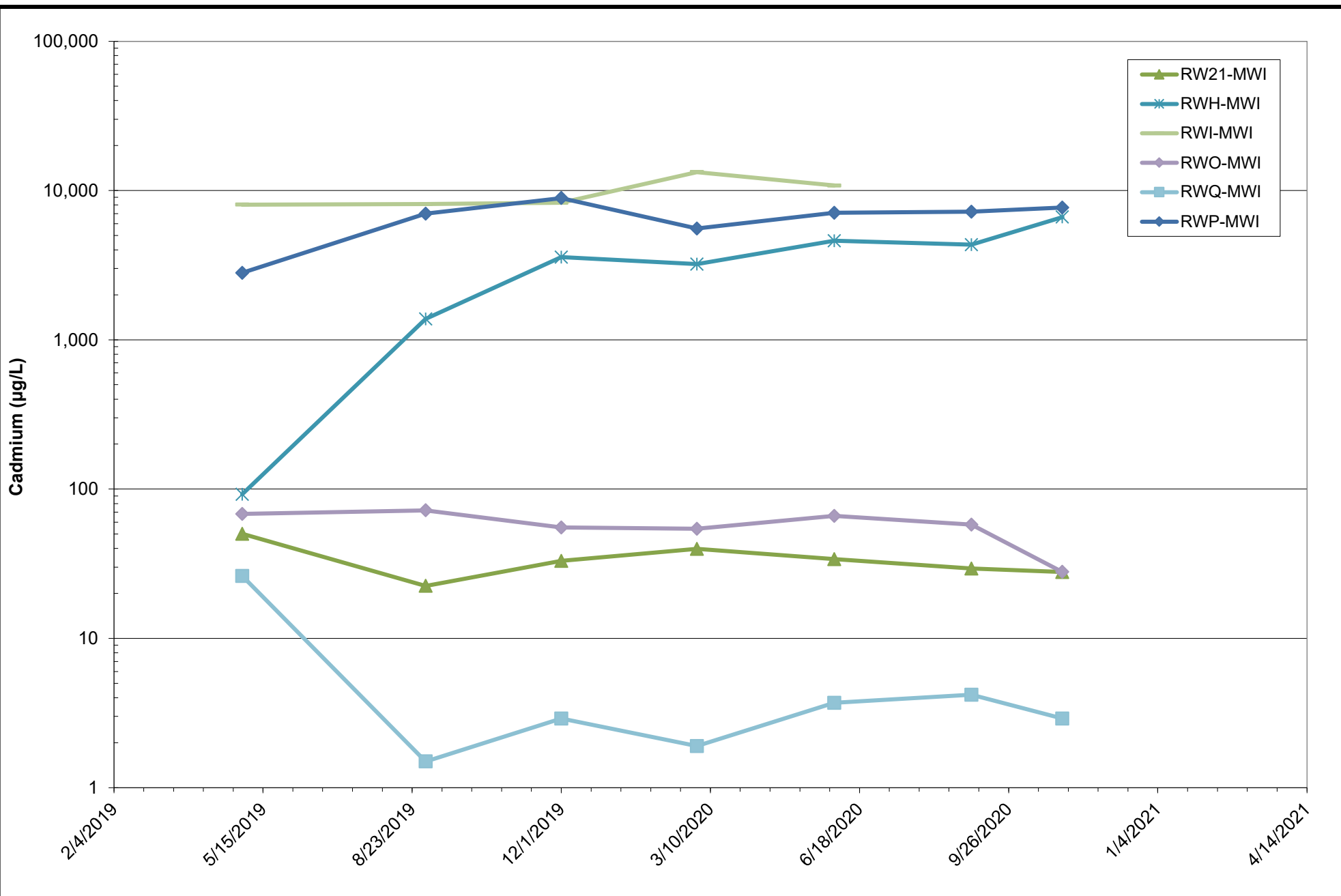
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### Intermediate Performance Cadmium Concentrations (Supplemental Wells)

January 27, 2021

**Figure 45**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

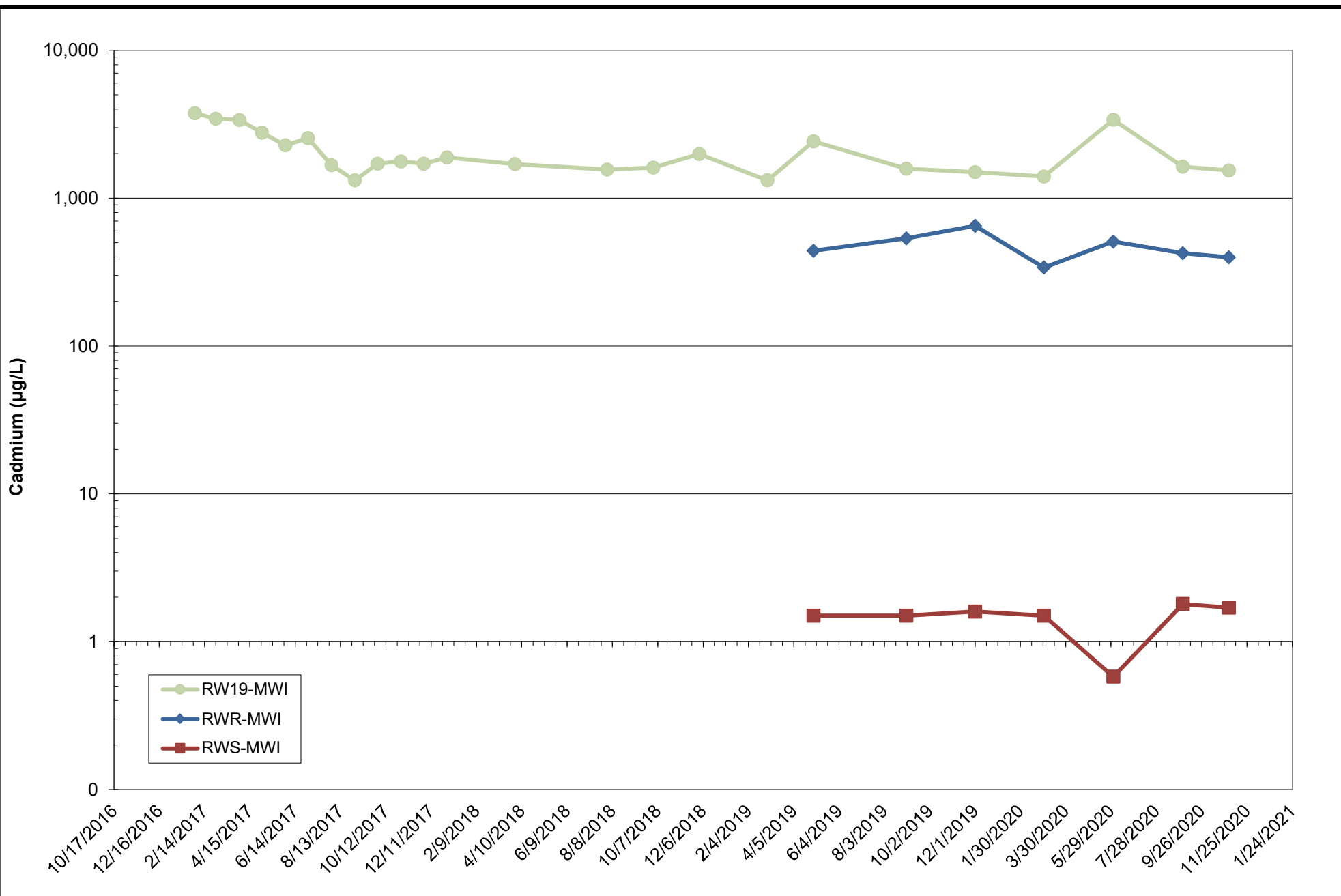
Sparrows Point, Maryland

### Intermediate Delineation Wells Cadmium Concentrations

January 27, 2021

**Figure  
46**





**ARM Group LLC**  
Engineers and Scientists

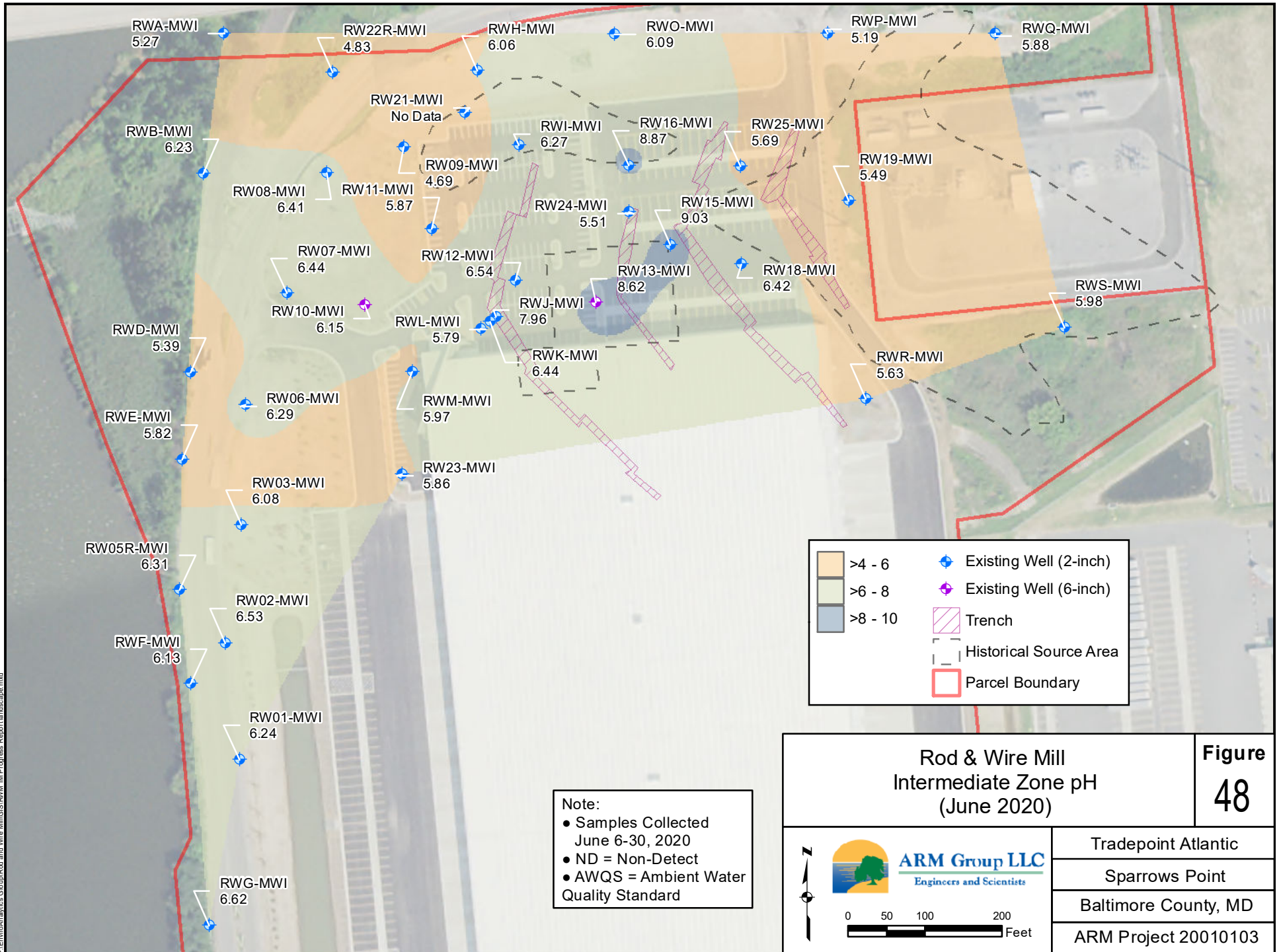
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**Intermediate Upgradient  
Cadmium Concentrations**

January 27, 2021

**Figure  
47**



Rod & Wire Mill  
Intermediate Zone pH  
(June 2020)

Figure  
48

ARM Group LLC  
Engineers and Scientists

Tradepoint Atlantic  
Sparrows Point  
Baltimore County, MD  
ARM Project 20010103



---

---

## **TABLES**

---

---

**Table 1 - Parcel A3**  
**Summary of Organics Detected in Groundwater**

Parameter	Units	PAL	RW21-MWP*	RW21-MWP*	RW21-MWP*	RW21-MWS*	RW21-MWS*	RW21-MWS*
			6/17/2020	9/21/2020	11/18/2020	6/17/2020	9/21/2020	11/18/2020
<b>Volatile Organic Compounds</b>								
1,1,1-Trichloroethane	µg/L	200	1 U	1 U	1 U	1 U	1	1 U
1,1-Dichloroethane	µg/L	2.7	1 U	1 U	<b>0.49 J</b>	1 U	1 U	<b>2.3</b>
1,2-Dichloroethane (Total)	µg/L	70	<b>2</b>	2 U	2 U	2 U	2 U	2 U
Benzene	µg/L	5	<b>1.5</b>	<b>2.9</b>	1 U	<b>66.5</b>	<b>81.2</b>	<b>106</b>
Chloroethane	µg/L	21,000	1 U	1 U	1 U	1 U	<b>2.1</b>	1 U
cis-1,2-Dichloroethene	µg/L	70	1 U	1 U	1 U	1 U	1 U	<b>0.6 J</b>
Ethylbenzene	µg/L	700	1 U	1 U	1 U	<b>3.3</b>	<b>3.2</b>	<b>4</b>
Styrene	µg/L	100	1 U	1 U	1 U	<b>2.4</b>	<b>2.7</b>	<b>2.1</b>
Toluene	µg/L	1,000	1 U	<b>0.45 J</b>	1 U	<b>4.4</b>	<b>4.4</b>	<b>5.4</b>
Xylenes	µg/L	10,000	3 U	3 U	3 U	<b>21.3</b>	<b>19.6</b>	<b>23.9</b>
<b>Semi-Volatile Organic Compounds<sup>^</sup></b>								
1,1-Biphenyl	µg/L	0.83	0.99 U	<b>2.7</b>	0.99 U	1 U	1 U	0.99 U
1,4-Dioxane	µg/L	0.46	0.099 U	N/A	N/A	<b>1.6</b>	N/A	N/A
2,4-Dimethylphenol	µg/L	360	<b>0.49 J</b>	<b>0.76 J</b>	<b>1</b>	<b>6.3</b>	<b>8.6</b>	<b>14.1</b>
2,4-Dinitrophenol	µg/L	39	<b>0.94 J</b>	2.5 U	2.5 U	<b>0.96 J</b>	2.5 U	2.5 U
2-Methylnaphthalene	µg/L	36	<b>0.057 J</b>	<b>4.9</b>	0.99 U	<b>1.4</b>	<b>0.54 J</b>	<b>0.96 J</b>
2-Methylphenol	µg/L	930	<b>0.45 J</b>	1 U	<b>0.6 J</b>	1 U	1 U	0.99 U
Acenaphthene	µg/L	530	<b>0.34</b>	<b>2.2</b>	0.99 U	<b>0.24</b>	1 U	0.99 U
Acenaphthylene	µg/L	530	<b>0.35</b>	<b>3.7</b>	0.99 U	<b>0.52</b>	1 U	0.99 U
Anthracene	µg/L	1,800	<b>0.28</b>	<b>1.8</b>	0.99 U	<b>0.36</b>	1 U	0.99 U
Benzo[a]anthracene	µg/L	0.03	<b>0.054 J</b>	1 U	0.99 U	<b>0.17</b>	1 U	0.99 U
Benzo[a]pyrene	µg/L	0.2	0.099 U	1 U	0.99 U	<b>0.091 J</b>	1 U	0.99 U
Benzo[b]fluoranthene	µg/L	0.25	0.099 U	1 U	0.99 U	<b>0.12</b>	1 U	0.99 U
Benzo[g,h,i]perylene	µg/L		0.099 U	1 U	0.99 U	<b>0.043 J</b>	1 U	0.99 U
Benzo[k]fluoranthene	µg/L	2.5	0.099 U	1 U	0.99 U	<b>0.048 J</b>	1 U	0.99 U
bis(2-Ethylhexyl)phthalate	µg/L	6	<b>0.44 J</b>	1 U	0.99 U	1 U	1 U	<b>0.41 J</b>
Carbazole	µg/L		<b>0.72 J</b>	<b>28.1</b>	<b>0.48 J</b>	<b>1.6</b>	<b>1.2</b>	<b>1.2</b>
Chrysene	µg/L	25	0.099 U	1 U	0.99 U	<b>0.13</b>	1 U	0.99 U
Di-n-butylphthalate	µg/L	900	<b>1.1</b>	1 U	0.99 U	1 U	1 U	0.4 B
Di-n-octylphthalate	µg/L	200	<b>0.6 J</b>	1 U	0.99 U	<b>0.61 J</b>	1 U	0.99 U
Fluoranthene	µg/L	800	<b>0.5</b>	<b>1.7</b>	<b>0.71 J</b>	<b>0.89</b>	<b>0.34 J</b>	<b>0.62 J</b>
Fluorene	µg/L	290	<b>0.78</b>	<b>6.3</b>	0.99 U	<b>0.14</b>	1 U	0.99 U
Indeno[1,2,3-c,d]pyrene	µg/L	0.25	0.099 U	1 U	0.99 U	<b>0.04 J</b>	1 U	0.99 U
Naphthalene	µg/L	0.12	<b>0.12</b>	<b>147</b>	0.99 U	<b>138</b>	<b>99</b>	<b>179</b>
Phenanthrene	µg/L		<b>1.2</b>	<b>10.9</b>	0.99 U	<b>1.6</b>	<b>0.59 J</b>	<b>0.94 J</b>
Pyrene	µg/L	120	<b>0.32</b>	<b>0.99 J</b>	<b>0.46 J</b>	<b>0.57</b>	1 U	<b>0.37 J</b>

**Detections in bold**

**Values in red indicate an exceedance of the Project Action Limit (PAL)**

\*indicates non-validated data

SVOCs analyzed via SIM

N/A = Sample not analyzed for parameter

U: This analyte was not detected in the sample. The numeric value represents the sample. quantitation/detection limit

J: The positive result reported for this analyte is a quantitative estimate.

B: This analyte was not detected substantially above the level of the associated method blank or field blank.

**TABLE 2**  
**Shallow Zinc Concentrations**  
**Rod Wire Mill Interim Measures Progress Report**

Sampling Dates	Units	RW01-MWS	RW02-MWS	RW03-MWS	RW04-MWS	RW05-MWS	RW06R-MWS	RW07-MWS	RW08-MWS	RW09-MWS	RW11-MWS
2/10/2017-2/14/2017	µg/L	NS	NS	<b>6,200</b>	NS	NS	NS	<b>81.6</b>	<b>1,080</b>	<b>14,500</b>	<b>8,790</b>
3/28/2017-3/29/2017	µg/L	NS	NS	<b>6,510</b>	NS	NS	NS	<b>74.8</b>	<b>8,710</b>	<b>12,400</b>	<b>10,500</b>
4/25/2017-4/27/2017	µg/L	NS	NS	<b>4,860</b>	NS	NS	NS	<b>86.4</b>	<b>9,520</b>	<b>12,900</b>	<b>13,100</b>
5/22/2017-5/24/2017	µg/L	NS	NS	<b>5,380</b>	NS	NS	NS	<b>102</b>	<b>2,680</b>	<b>11,900</b>	<b>12,500</b>
6/5/2017-6/8/2017	µg/L	NS	NS	<b>5,500</b>	<b>58.2</b>	NS	NS	<b>107</b>	<b>1,870</b>	<b>13,000</b>	<b>13,500</b>
7/10/2017-7/12/2017	µg/L	NS	NS	<b>8,460</b>	<b>179</b>	NS	NS	<b>114</b>	<b>968</b>	<b>11,500</b>	<b>10,900</b>
8/7/2017-8/10/2017	µg/L	<b>12,200</b>	<b>6,290</b>	<b>7,730</b>	<b>74.7</b>	<b>550</b>	NS	<b>127</b>	<b>3,190</b>	<b>9,700</b>	<b>10,800</b>
9/1/2017-9/8/2017	µg/L	<b>5,730</b>	<b>3,220</b>	<b>16,300</b>	<b>163</b>	<b>184</b>	NS	<b>165</b>	<b>4,460</b>	<b>8,750</b>	<b>10,600</b>
10/2/2017-10/6/2017	µg/L	<b>7,730</b>	<b>5,490</b>	<b>32,100</b>	<b>137</b>	<b>1,410</b>	NS	<b>144</b>	<b>1,950</b>	<b>8,310 ML</b>	<b>9,270</b>
11/3/2017-11/13/2017	µg/L	<b>25,200</b>	<b>1,460</b>	<b>14,100</b>	<b>123</b>	<b>503</b>	NS	<b>227</b>	<b>1,600</b>	<b>9,290</b>	<b>18,300</b>
12/4/2017-12/8/2017	µg/L	<b>7,300</b>	<b>79.3</b>	<b>46,400</b>	<b>279</b>	<b>5,440</b>	NS	<b>216</b>	<b>1,770</b>	<b>8,550</b>	<b>24,000</b>
1/2/2018-1/9/2018	µg/L	<b>35,200</b>	<b>2,210</b>	<b>31,500</b>	<b>384</b>	<b>35.7</b>	NS	<b>276</b>	<b>2,600</b>	<b>9,310</b>	<b>27,700</b>
4/8/2018-4/13/2018	µg/L	<b>52,000</b>	<b>5,320</b>	<b>44,000</b>	<b>300</b>	<b>75.3</b>	NS	<b>204</b>	<b>13,200</b>	<b>8,980</b>	<b>37,100</b>
7/30/2018-8/3/2018	µg/L	<b>24,100</b>	<b>5,470</b>	<b>25,600</b>	7.9 J	<b>32.6</b>	<b>22</b>	<b>248</b>	<b>6,640</b>	<b>10,700</b>	<b>109,000</b>
10/1/2018-10/5/2018	µg/L	<b>37,000</b>	<b>5,930</b>	<b>14,900</b>	<b>168</b>	<b>21.7</b>	3.7 J	<b>223</b>	<b>13,300</b>	<b>10,800</b>	<b>29,500</b>
12/10/2018-12/14/2018*	µg/L	<b>13,700</b>	<b>27,400</b>	<b>23,300</b>	<b>23.5</b>	<i>10 U</i>	<i>10 U</i>	<b>176</b>	<b>931</b>	<b>9,200</b>	<b>28,900</b>
3/12/2019-3/19/2019*	µg/L	<b>16,500</b>	<b>13,100</b>	<b>9,570</b>	<b>33.6</b>	<i>10 U</i>	<i>10 U</i>	<b>142</b>	<b>14,600</b>	<b>11,300</b>	<b>13,500</b>
5/3/2019-6/7/2019*	µg/L	<b>16,300</b>	<b>21,900</b>	<b>18,700</b>	<i>10 U</i>	<i>10 U</i>	<b>20.7</b>	<b>137</b>	<b>11,300</b>	<b>14,100</b>	<b>38,900</b>
9/10/2019-9/23/2019*	µg/L	<b>16,300</b>	<b>27,400</b>	<b>19,200</b>	<b>313</b>	<i>8.3 B</i>	<i>4.1 B</i>	<b>148</b>	<b>1,350</b>	<b>19,600</b>	<b>44,000</b>
12/3/2019-12/11/2019	µg/L	<b>10,400</b>	<b>594</b>	<b>19,200</b>	<b>604</b>	<b>41.6</b>	4.3 J	<b>168</b>	<b>1,250</b>	<b>20,600</b>	<b>37,500</b>
3/11/20-3/23/20*	µg/L	<b>9,810</b>	<b>269</b>	<b>16,800</b>	<b>37.8</b>	5.4 J	4.1 J	<b>124</b>	<b>10,300</b>	<b>20,700</b>	<b>28,900</b>
6/8/20-6/30/20*	µg/L	<b>6,200</b>	<b>1,940</b>	<b>18,800</b>	<b>79.4</b>	8.6 J	<b>19.4</b>	<b>220</b>	<b>12,000</b>	<b>26,700</b>	<b>37,200</b>
9/9/20-9/29/20*	µg/L	<b>7,050</b>	<b>1,280</b>	NS	<b>75.4</b>	5.9 J	8 J	NS	<b>2,330</b>	<b>39,900</b>	<b>46,600</b>
11/5/20-11/19/20*	µg/L	<b>4,140</b>	<b>9,950</b>	NS	<b>54.6</b>	9.8 J	<i>10 U</i>	NS	<b>1,600</b>	<b>45,200</b>	<b>55,200</b>

**Bold indicates detection above the reporting limit**

NS = Not Sampled

DNE = Did Not Exist

\*Indicates concentrations are for dissolved metals. All other events show total metals.

**TABLE 2**  
**Shallow Zinc Concentrations**  
**Rod Wire Mill Interim Measures Progress Report**

Sampling Dates	Units	RW12-MWS	RW14-MWS	RW15-MWS	RW16-MWS	RW18-MWS	RW19-MWS	RW21-MWS	RW22R-MWS	RW23-MWS	RW24-MWS
2/10/2017-2/14/2017	µg/L	NS	NS	NS	NS	NS	<b>10,100</b>	DNE	DNE	DNE	DNE
3/28/2017-3/29/2017	µg/L	NS	NS	NS	NS	NS	<b>7,100</b>	DNE	DNE	DNE	DNE
4/25/2017-4/27/2017	µg/L	NS	NS	NS	NS	NS	<b>6,260</b>	DNE	DNE	DNE	DNE
5/22/2017-5/24/2017	µg/L	NS	NS	NS	NS	NS	<b>4,860</b>	DNE	DNE	DNE	DNE
6/5/2017-6/8/2017	µg/L	<b>11,400</b>	NS	NS	NS	<b>25,500</b>	<b>3,720</b>	DNE	DNE	DNE	DNE
7/10/2017-7/12/2017	µg/L	<b>9,090</b>	NS	NS	NS	<b>13,300</b>	<b>3,700</b>	DNE	DNE	DNE	DNE
8/7/2017-8/10/2017	µg/L	<b>5,090</b>	<b>42,000</b>	<b>276</b>	NS	<b>964</b>	<b>3,360</b>	DNE	DNE	DNE	DNE
9/1/2017-9/8/2017	µg/L	<b>3,980</b>	<b>43,500</b>	<b>1,080</b>	<b>25.6</b>	<b>6,160</b>	<b>2,990</b>	DNE	DNE	DNE	DNE
10/2/2017-10/6/2017	µg/L	<b>3,790</b>	<b>28,900</b>	<b>900</b>	<b>26.2</b>	<b>14,500</b>	<b>18,700</b>	DNE	DNE	DNE	DNE
11/3/2017-11/13/2017	µg/L	<b>235,000</b>	<b>28,100</b>	<b>8,800</b>	<b>48.6</b>	<b>10,700</b>	<b>2,730</b>	DNE	DNE	DNE	DNE
12/4/2017-12/8/2017	µg/L	<b>2,980</b>	<b>49,200</b>	<b>7,630</b>	<b>27.7</b>	<b>23,400</b>	<b>3,380</b>	DNE	DNE	DNE	DNE
1/2/2018-1/9/2018	µg/L	<b>10,100</b>	<b>61,800</b>	<b>5,150</b>	<b>31.2</b>	<b>11,600</b>	<b>10,200</b>	DNE	DNE	DNE	DNE
4/8/2018-4/13/2018	µg/L	<b>10,600</b>	<b>62,100</b>	<b>5,940</b>	<b>25</b>	<b>25,900</b>	<b>7,060</b>	DNE	DNE	DNE	DNE
7/30/2018-8/3/2018	µg/L	<b>2,900</b>	<b>64,100</b>	<b>1,320</b>	<b>35.9</b>	<b>439</b>	<b>10,100</b>	DNE	DNE	DNE	DNE
10/1/2018-10/5/2018	µg/L	<b>1,140</b>	<b>80,100</b>	<b>2,950</b>	<b>30.0</b>	<b>44.9</b>	<b>10,500</b>	DNE	DNE	DNE	DNE
12/10/2018-12/14/2018*	µg/L	<b>8,570</b>	<b>79,200</b>	<b>4,380</b>	5.5 J	<b>12.7</b>	<b>3,390</b>	DNE	DNE	DNE	DNE
3/12/2019-3/19/2019*	µg/L	<b>4,640</b>	<b>65,700</b>	<b>499</b>	7 J	<b>30</b>	<b>4,680</b>	DNE	DNE	DNE	DNE
5/3/2019-6/7/2019*	µg/L	<b>1,550</b>	<b>69,600</b>	<b>684</b>	<b>106</b>	<b>16.9</b>	<b>3,180</b>	<b>282,000</b>	<b>58,100</b>	<b>22.4</b>	5 J
9/10/2019-9/23/2019*	µg/L	<b>5,390</b>	<b>70,500</b>	<b>134</b>	10.0 U	4.3 B	<b>2,260</b>	<b>330,000</b>	<b>188,000</b>	<b>20.6</b>	8.2 J
12/3/2019-12/11/2019	µg/L	<b>763</b>	<b>77,500</b>	<b>378</b>	<b>22.7</b>	<b>15.2</b>	<b>2,640</b>	<b>368,000</b>	<b>112,000</b>	<b>38.6</b>	6.7 J
3/11/20-3/23/20*	µg/L	NS	<b>70,800</b>	<b>105</b>	10 U	4.2 J	<b>5,300</b>	<b>301,000</b>	<b>213,000</b>	5 J	3.5 J
6/8/20-6/30/20*	µg/L	<b>4,660</b>	<b>71,900</b>	2.7 J	10 U	4.2 J	<b>2,710</b>	<b>268,000</b>	<b>217,000</b>	2.7 J	3.4 J
9/9/20-9/29/20*	µg/L	NS	<b>56,600</b>	9.4 J	<b>22.3</b>	<b>22.7</b>	<b>22,600</b>	<b>298,000</b>	<b>253,000</b>	6.4 J	<b>16.4</b>
11/5/20-11/19/20*	µg/L	NS	<b>50,200</b>	3.3 J	3.7 J	3.3 J	<b>6,190</b>	<b>325,000</b>	<b>145,000</b>	5.9 J	10 U

**Bold indicates detection above the reporting limit**

NS = Not Sampled

DNE = Did Not Exist

\*Indicates concentrations are for dissolved metals. All other events show total metals.

**TABLE 2**  
**Shallow Zinc Concentrations**  
**Rod Wire Mill Interim Measures Progress Report**

Sampling Dates	Units	RW25-MWS	RWA-MWS	RWB-MWS	RWD-MWS	RWE-MWS	RWF-MWS	RWG-MWS	RWH-MWS	RWI-MWS	RWJ-MWS
2/10/2017-2/14/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
3/28/2017-3/29/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
4/25/2017-4/27/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
5/22/2017-5/24/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
6/5/2017-6/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
7/10/2017-7/12/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
8/7/2017-8/10/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
9/1/2017-9/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
10/2/2017-10/6/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
11/3/2017-11/13/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
12/4/2017-12/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
1/2/2018-1/9/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
4/8/2018-4/13/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
7/30/2018-8/3/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
10/1/2018-10/5/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
12/10/2018-12/14/2018*	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
3/12/2019-3/19/2019*	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
5/3/2019-6/7/2019*	µg/L	<b>70,500</b>	<b>516</b>	7.4 J	4.7 J	<b>468</b>	<b>39,100</b>	10 U	<b>367</b>	<b>25,800</b>	10 U
9/10/2019-9/23/2019*	µg/L	<b>437,000</b>	<b>1,720</b>	5.5 J	9.1 J	<b>422</b>	<b>34,300</b>	10.0 U	<b>60,600</b>	<b>26,200</b>	<b>27</b>
12/3/2019-12/11/2019	µg/L	<b>11,900</b>	<b>49.7</b>	<b>38.7</b>	5.4 J	<b>261</b>	<b>35,000</b>	<b>194</b>	<b>2,600</b>	<b>32,400</b>	8.3 J
3/11/20-3/23/20*	µg/L	<b>2,570</b>	9.7 J	6.1 J	3.6 J	<b>303</b>	<b>33,900</b>	2.9 J	<b>19,300</b>	<b>1,510</b>	10 U
6/8/20-6/30/20*	µg/L	<b>5,720</b>	<b>21.5</b>	10 U	10 U	<b>1,360</b>	<b>31,200</b>	9.8 J	<b>48.9</b>	<b>211</b>	4 J
9/9/20-9/29/20*	µg/L	<b>2,780</b>	<b>182</b>	5.8 J	4.2 J	<b>22,100</b>	<b>44,400</b>	10 U	<b>5,330</b>	NS	2.6 J
11/5/20-11/19/20*	µg/L	<b>9,930</b>	<b>52.1</b>	<b>11.9</b>	3 J	<b>156</b>	<b>39,000</b>	10 U	<b>1,310</b>	NS	10 U

**Bold indicates detection above the reporting limit**

NS = Not Sampled

DNE = Did Not Exist

\*Indicates concentrations are for dissolved metals. All other events show total metals.



**TABLE 2**  
**Shallow Zinc Concentrations**  
**Rod Wire Mill Interim Measures Progress Report**

Sampling Dates	Units	RWK-MWS	RWL-MWS	RWM-MWS	RWN-MWS	RWO-MWS	RWQ-MWS	RWR-MWS	RWS-MWS
2/10/2017-2/14/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
3/28/2017-3/29/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
4/25/2017-4/27/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
5/22/2017-5/24/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
6/5/2017-6/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
7/10/2017-7/12/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
8/7/2017-8/10/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
9/1/2017-9/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
10/2/2017-10/6/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
11/3/2017-11/13/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
12/4/2017-12/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
1/2/2018-1/9/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
4/8/2018-4/13/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
7/30/2018-8/3/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
10/1/2018-10/5/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
12/10/2018-12/14/2018*	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
3/12/2019-3/19/2019*	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
5/3/2019-6/7/2019*	µg/L	<b>6,710</b>	<b>8,480</b>	6 J	<b>978,000</b>	<b>2,660</b>	<b>146</b>	<b>213,000</b>	<b>10,100</b>
9/10/2019-9/23/2019*	µg/L	<b>19,200</b>	<b>9,180</b>	4.0 J	<b>964,000</b>	<b>6,790</b>	<b>147</b>	<b>245,000</b>	<b>1,980</b>
12/3/2019-12/11/2019	µg/L	<b>20,600</b>	<b>15,500</b>	<b>11.6</b>	<b>943,000</b>	<b>3,720</b>	<b>182</b>	<b>320,000</b>	<b>2,970</b>
3/11/20-3/23/20*	µg/L	<b>16,400</b>	<b>861</b>	4.8 J	<b>1,170,000</b>	<b>6,220</b>	<b>194</b>	<b>344,000</b>	<b>19,100</b>
6/8/20-6/30/20*	µg/L	<b>10,400</b>	<b>16,100</b>	<b>21.8</b>	<b>884,000</b>	<b>11,100</b>	<b>149</b>	<b>327,000</b>	<b>954,000</b>
9/9/20-9/29/20*	µg/L	<b>16,800</b>	<b>15,000</b>	7.8 J	<b>1,140,000</b>	<b>5,030</b>	<b>162</b>	<b>326,000</b>	<b>60,300</b>
11/5/20-11/19/20*	µg/L	<b>18,100</b>	<b>14,200</b>	<b>10.6</b>	<b>709,000</b>	<b>2,750</b>	<b>152</b>	<b>293,000</b>	<b>7,260</b>

**Bold indicates detection above the reporting limit**

NS = Not Sampled

DNE = Did Not Exist

\*Indicates concentrations are for dissolved metals. All other events show total metals.

**TABLE 3**  
**Shallow Cadmium Concentrations**  
**Rod Wire Mill Interim Measures Progress Report**

Sampling Dates	Units	RW01-MWS	RW02-MWS	RW03-MWS	RW04-MWS	RW05-MWS	RW06R-MWS	RW07-MWS	RW08-MWS	RW09-MWS	RW11-MWS
2/10/2017-2/14/2017	µg/L	NS	NS	<b>7.9</b>	NS	NS	NS	1.8 J	<b>3.8</b>	<b>22.3</b>	0.78 J
3/28/2017-3/29/2017	µg/L	NS	NS	<b>4.7</b>	NS	NS	NS	1.7 J	<b>11</b>	<b>17.5</b>	1.8 J
4/25/2017-4/27/2017	µg/L	NS	NS	<b>3.2</b>	NS	NS	NS	1.4 J	<b>7.8</b>	<b>16.6</b>	<b>5.3</b>
5/22/2017-5/24/2017	µg/L	NS	NS	<b>3.9</b>	NS	NS	NS	1.9 J	<b>3.2</b>	<b>14.9</b>	1.8 J
6/5/2017-6/8/2017	µg/L	NS	NS	<b>4</b>	0.7 J	NS	NS	2.3 J	1.7 J	<b>13.9</b>	0.94 J
7/10/2017-7/12/2017	µg/L	NS	NS	<b>4.6</b>	1.2 J	NS	NS	2.8 J	0.74 J	<b>13.4</b>	0.84 J
8/7/2017-8/10/2017	µg/L	1.6 J	<b>12</b>	<b>5.1</b>	3 U	<b>4.9</b>	NS	<b>3.1</b>	2.7 J	<b>12.5</b>	1.3 J
9/1/2017-9/8/2017	µg/L	1.2 J	<b>11.8</b>	<b>8.4</b>	0.71 J	0.37 J	NS	<b>3.6</b>	2.5 J	<b>12.3</b>	0.81 J
10/2/2017-10/6/2017	µg/L	1.7 J	<b>9.1</b>	<b>11</b>	3 U	1.2 J	NS	<b>3.2</b>	0.96 J	<b>10.6</b>	3 U
11/3/2017-11/13/2017	µg/L	<b>21.7</b>	<b>7.7</b>	<b>8.5</b>	1.1 J	3 U	NS	<b>5.8</b>	3 U	<b>10.5</b>	2.1 J
12/4/2017-12/8/2017	µg/L	<b>98</b>	3 U	<b>11.4</b>	1.1 J	<b>8.4</b>	NS	<b>6</b>	3 U	<b>9.2</b>	2.9 J
1/2/2018-1/9/2018	µg/L	<b>23.9</b>	<b>13.1</b>	<b>9.9</b>	3 U	3 U	NS	<b>4.8</b>	3 U	<b>9.9</b>	2.2 J
4/8/2018-4/13/2018	µg/L	<b>7.6</b>	<b>16.7</b>	<b>11.8</b>	3 U	3 U	NS	<b>4.6</b>	2.2 J	<b>9.8</b>	<b>4.1</b>
7/30/2018-8/3/2018	µg/L	1.6 J	<b>5.2</b>	<b>10.8</b>	3 U	3 U	3 U	<b>4.8</b>	3 U	<b>13.1</b>	<b>66.3</b>
10/1/2018-10/5/2018	µg/L	0.97 J	<b>3.4</b>	<b>8.7</b>	3 U	3 U	3 U	<b>4.7</b>	3 U	<b>22.3</b>	1.2 J
12/10/2018-12/14/2018*	µg/L	1.8 J	<b>9</b>	<b>24</b>	3 U	3 U	0.56 J	<b>4.1</b>	3 U	<b>9.3</b>	0.81 J
3/12/2019-3/19/2019*	µg/L	2.3 J	<b>3.8</b>	<b>7.7</b>	3 U	3 U	3 U	2.7 J	2 J	<b>10.2</b>	2.2 J
5/3/2019-6/7/2019*	µg/L	<b>4.7</b>	1.7 J	<b>17.9</b>	3 U	3 U	3 U	2.9 J	0.86 J	<b>12</b>	1.1 B
9/10/2019-9/23/2019*	µg/L	<b>4.3</b>	1.1 J	<b>16.3</b>	0.55 J	3.0 U	3.0 U	<b>3.4</b>	0.39 J	<b>16.7</b>	3.0 U
12/3/2019-12/11/2019	µg/L	3.9 B	0.55 B	<b>18.8</b>	1.8 J	3.0 U	3.0 U	3.0 J	3.0 U	<b>14.3</b>	1.9 J
3/11/20-3/23/20*	µg/L	<b>4.4</b>	0.97 J	<b>18.8</b>	1.7 J	0.52 J	3 U	2.5 J	2.7 J	<b>16.9</b>	2 J
6/8/20-6/30/20*	µg/L	1.6 J	0.61 J	<b>14.5</b>	0.99 J	0.53 J	0.98 J	<b>4.5</b>	0.67 J	<b>15.2</b>	2.5 J
9/9/20-9/29/20*	µg/L	1.3 J	0.43 J	NS	0.62 J	3 U	0.69 J	NS	3 U	<b>17</b>	2.2 J
11/5/20-11/19/20*	µg/L	1.1 J	0.58 J	NS	0.38 J	3 U	0.9 J	NS	0.37 J	<b>16</b>	2 J

**Bold indicates detection above the reporting limit**

NS = Not Sampled

DNE = Did Not Exist

\*Indicates concentrations are for dissolved metals. All other events show total metals.

**TABLE 3**  
**Shallow Cadmium Concentrations**  
**Rod Wire Mill Interim Measures Progress Report**

Sampling Dates	Units	RW12-MWS	RW14-MWS	RW15-MWS	RW16-MWS	RW18-MWS	RW19-MWS	RW21-MWS	RW22R-MWS	RW23-MWS	RW24-MWS
2/10/2017-2/14/2017	µg/L	NS	NS	NS	NS	NS	<b>14.8</b>	DNE	DNE	DNE	DNE
3/28/2017-3/29/2017	µg/L	NS	NS	NS	NS	NS	<b>6.9</b>	DNE	DNE	DNE	DNE
4/25/2017-4/27/2017	µg/L	NS	NS	NS	NS	NS	<b>8.5</b>	DNE	DNE	DNE	DNE
5/22/2017-5/24/2017	µg/L	NS	NS	NS	NS	NS	<b>3.6</b>	DNE	DNE	DNE	DNE
6/5/2017-6/8/2017	µg/L	<b>29.7</b>	NS	NS	NS	<b>356</b>	2.4 J	DNE	DNE	DNE	DNE
7/10/2017-7/12/2017	µg/L	<b>12.6</b>	NS	NS	NS	<b>240</b>	<b>9.7</b>	DNE	DNE	DNE	DNE
8/7/2017-8/10/2017	µg/L	<b>7</b>	<b>1,780</b>	<b>12.2</b>	NS	<b>34.9</b>	<b>7.2</b>	DNE	DNE	DNE	DNE
9/1/2017-9/8/2017	µg/L	<b>5.1</b>	<b>1,700</b>	<b>29.9</b>	3 U	<b>156</b>	2.6 J	DNE	DNE	DNE	DNE
10/2/2017-10/6/2017	µg/L	<b>11.3</b>	<b>1,750</b>	<b>25.3</b>	3 U	<b>306</b>	<b>5.2</b>	DNE	DNE	DNE	DNE
11/3/2017-11/13/2017	µg/L	<b>193</b>	<b>2,390</b>	<b>63</b>	3 U	<b>208</b>	<b>4.4</b>	DNE	DNE	DNE	DNE
12/4/2017-12/8/2017	µg/L	<b>4.2</b>	<b>2,820</b>	<b>55</b>	3 U	<b>410</b>	<b>4.6</b>	DNE	DNE	DNE	DNE
1/2/2018-1/9/2018	µg/L	<b>11.7</b>	<b>2,800</b>	<b>40.7</b>	3 U	<b>218</b>	<b>4.8</b>	DNE	DNE	DNE	DNE
4/8/2018-4/13/2018	µg/L	<b>11</b>	<b>3,220</b>	<b>41.2</b>	3 U	<b>448</b>	<b>6.6</b>	DNE	DNE	DNE	DNE
7/30/2018-8/3/2018	µg/L	<b>5.2</b>	<b>3,630</b>	<b>38.5</b>	3 U	<b>7.1</b>	1.2 J	DNE	DNE	DNE	DNE
10/1/2018-10/5/2018	µg/L	2.3 J	<b>3840</b>	<b>78.1</b>	3 U	1.2 J	<b>3.6</b>	DNE	DNE	DNE	DNE
12/10/2018-12/14/2018*	µg/L	<b>15.3</b>	<b>3730</b>	<b>94.4</b>	3 U	1.5 J	3 U	DNE	DNE	DNE	DNE
3/12/2019-3/19/2019*	µg/L	<b>6.6</b>	<b>2,960</b>	<b>15.4</b>	3 U	3 U	3 U	DNE	DNE	DNE	DNE
5/3/2019-6/7/2019*	µg/L	2.1 J	<b>3,000</b>	<b>19.1</b>	3 U	3 U	3 U	<b>483</b>	<b>157</b>	3 U	3 U
9/10/2019-9/23/2019*	µg/L	<b>3.2</b>	<b>3,450</b>	<b>7.4</b>	3.0 U	3.0 U	3.0 U	<b>354</b>	<b>105</b>	0.88 J	3.0 U
12/3/2019-12/11/2019	µg/L	2.5 J	<b>3,990</b>	<b>8.5</b>	0.36 J	1.9 J	1.2 J	<b>433</b>	<b>70.4</b>	1.3 J	<b>0.43 J</b>
3/11/20-3/23/20*	µg/L	NS	<b>3,020</b>	<b>4.3</b>	3 U	3 U	0.66 J	<b>378</b>	<b>62.9</b>	0.52 J	3 U
6/8/20-6/30/20*	µg/L	<b>5.2</b>	<b>3,590</b>	3 U	3 U	3 U	0.77 J	<b>322</b>	<b>51.4</b>	3 U	3 U
9/9/20-9/29/20*	µg/L	NS	<b>3,240</b>	0.51 J	3 U	3 U	<b>4.3</b>	<b>294</b>	<b>52.1</b>	3 U	3 U
11/5/20-11/19/20*	µg/L	NS	<b>3,020</b>	3 U	3 U	3 U	1.3 J	<b>367</b>	<b>30.7</b>	3 U	3 U

**Bold indicates detection above the reporting limit**

NS = Not Sampled

DNE = Did Not Exist

\*Indicates concentrations are for dissolved metals. All other events show total metals.

**TABLE 3**  
**Shallow Cadmium Concentrations**  
**Rod Wire Mill Interim Measures Progress Report**

Sampling Dates	Units	RW25-MWS	RWA-MWS	RWB-MWS	RWD-MWS	RWE-MWS	RWF-MWS	RWG-MWS	RWH-MWS	RWI-MWS	RWJ-MWS
2/10/2017-2/14/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
3/28/2017-3/29/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
4/25/2017-4/27/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
5/22/2017-5/24/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
6/5/2017-6/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
7/10/2017-7/12/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
8/7/2017-8/10/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
9/1/2017-9/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
10/2/2017-10/6/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
11/3/2017-11/13/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
12/4/2017-12/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
1/2/2018-1/9/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
4/8/2018-4/13/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
7/30/2018-8/3/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
10/1/2018-10/5/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
12/10/2018-12/14/2018*	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
3/12/2019-3/19/2019*	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
5/3/2019-6/7/2019*	µg/L	<b>491</b>	2.3 J	3 U	3 U	0.57 J	<b>4.2</b>	3 U	<b>20</b>	<b>714</b>	3 U
9/10/2019-9/23/2019*	µg/L	<b>599</b>	<b>24</b>	3.0 U	3.0 U	0.64 J	<b>6.1</b>	3.0 U	<b>856</b>	<b>840</b>	3.0 U
12/3/2019-12/11/2019	µg/L	<b>9.9</b>	<b>4.4</b>	3.0 U	3.0 U	2.0 J	<b>7.3</b>	3.0 U	<b>19.9</b>	<b>1,080</b>	3.0 U
3/11/20-3/23/20*	µg/L	2.7 J	0.6 J	3 U	3 U	0.91 J	<b>7.7</b>	3 U	<b>163</b>	<b>125</b>	3 U
6/8/20-6/30/20*	µg/L	<b>4.6</b>	0.88 J	3 U	0.46 J	1.4 J	<b>5.7</b>	0.63 J	0.97 J	<b>17.5</b>	3 U
9/9/20-9/29/20*	µg/L	<b>7</b>	2.9 J	3 U	0.46 J	<b>8.7</b>	<b>6</b>	3 U	<b>22.4</b>	NS	3 U
11/5/20-11/19/20*	µg/L	<b>8.6</b>	1.5 J	3 U	3 U	0.44 J	<b>4.6</b>	3 U	<b>7</b>	NS	3 U

**Bold indicates detection above the reporting limit**

NS = Not Sampled

DNE = Did Not Exist

\*Indicates concentrations are for dissolved metals. All other events show total metals.

**TABLE 3**  
**Shallow Cadmium Concentrations**  
**Rod Wire Mill Interim Measures Progress Report**

Sampling Dates	Units	RWK-MWS	RWL-MWS	RWM-MWS	RWN-MWS	RWO-MWS	RWQ-MWS	RWR-MWS	RWS-MWS
2/10/2017-2/14/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
3/28/2017-3/29/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
4/25/2017-4/27/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
5/22/2017-5/24/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
6/5/2017-6/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
7/10/2017-7/12/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
8/7/2017-8/10/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
9/1/2017-9/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
10/2/2017-10/6/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
11/3/2017-11/13/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
12/4/2017-12/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
1/2/2018-1/9/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
4/8/2018-4/13/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
7/30/2018-8/3/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
10/1/2018-10/5/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
12/10/2018-12/14/2018*	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
3/12/2019-3/19/2019*	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
5/3/2019-6/7/2019*	µg/L	3 U	3 U	3 U	<b>13,000</b>	1.4 J	2.6 J	<b>50</b>	3 U
9/10/2019-9/23/2019*	µg/L	3.0 U	3.0 U	3.0 U	<b>11,100</b>	1.3 J	2.6 J	<b>41</b>	3.0 U
12/3/2019-12/11/2019	µg/L	3.0 U	3.0 U	0.36 J	<b>11200</b>	<b>7.6</b>	<b>4.4</b>	<b>42.3</b>	3.0 U
3/11/20-3/23/20*	µg/L	3 U	0.85 J	3 U	<b>9,420</b>	0.65 J	<b>3.1</b>	<b>38.8</b>	3 U
6/8/20-6/30/20*	µg/L	3 U	0.52 J	3 U	<b>6,810</b>	0.46 J	2.9 J	<b>35.5</b>	1.9 J
9/9/20-9/29/20*	µg/L	0.51 J	0.59 J	3 U	<b>7,350</b>	<b>4.1</b>	<b>3.3</b>	<b>34.3</b>	0.42 J
11/5/20-11/19/20*	µg/L	0.37 J	3 U	3 U	<b>6,260</b>	0.53 J	<b>3.2</b>	<b>33.8</b>	0.39 J

**Bold indicates detection above the reporting limit**

NS = Not Sampled

DNE = Did Not Exist

\*Indicates concentrations are for dissolved metals. All other events show total metals.

**TABLE 4**  
**Intermediate Zinc Concentrations**  
**Rod Wire Mill Interim Measures Progress Report**

Sampling Dates	Units	RW01-MWI	RW02-MWI	RW03-MWI	RW05-MWI	RW05R-MWI	RW06-MWI	RW07-MWI	RW08-MWI	RW09-MWI	RW10-MWI
2/10/2017-2/16/2017	µg/L	NS	NS	9,740	NS	DNE	1,900	944	178	51,000	104,000
3/27/2017-3/30/2017	µg/L	NS	NS	9,240	NS	DNE	1,680	1,210	44.6	51,900	20.4
4/25/2017-4/28/2017	µg/L	NS	NS	7,830	NS	DNE	1,420	364	85	57,500	75,800
5/22/2017-5/24/2017	µg/L	NS	NS	2,960	NS	DNE	999	298	188	57,200	1,150
6/5/2017-6/9/2017	µg/L	NS	NS	2,440	374	DNE	876	432	71.9	51,900	34,600
7/10/2017-7/13/2017	µg/L	NS	NS	8,330	1,730	DNE	1,690	45.7	153	65,600	25,900
8/7/2017-8/10/2017	µg/L	11,600	18,200	10,900	1,730	DNE	1,340	62.7	49.8	55,500	79.7
9/1/2017-9/8/2017	µg/L	90	203	9,340	328	DNE	508	2,840	69.4	39,400	8,220
10/2/2017-10/9/2017	µg/L	13,700	290	1,810	349	DNE	615	23.4	16.9	49,700	31,000
11/3/2017-11/13/2017	µg/L	29	38.6	1,750	502	DNE	909	1,650	21.5	67,900	39,000
12/4/2017-12/8/2017	µg/L	41,000	186	6,270	205	DNE	1,360	39.8	21.4	44,500	158
1/2/2018-1/9/2018	µg/L	104	573	12,700	173	DNE	1,950	70.6	108	54,700	26.5
4/8/2018-4/13/2018	µg/L	576	452	6,920	402	DNE	27,900	756	1,050	38,400	13,500
7/30/2018-8/3/2018	µg/L	9,710	5,030	9,710	282	DNE	191	26,300	2,540	54,700	17,600
10/1/2018-10/5/2018	µg/L	143	3,240	13,000	110	DNE	90,100	12,200	256	53,800	16,600
12/10/2018-12/14/2018*	µg/L	3,880	25,300	14,900	177	DNE	99,600	86,000	11	66,600	2,520
3/12/2019-3/19/2019*	µg/L	2,460	21,500	6,720	7.5 J	DNE	122,000	24,200	10 U	57,500	591
5/3/2019-6/7/2019*	µg/L	5,670	56,600	13,300	NS	66,800	108,000	136,000	10 U	64,200	5,560
9/10/2019-9/23/2019*	µg/L	5,940	72,000	10,500	NS	71,700	122,000	48,300	11.2 B	53,300	7,730
12/3/2019-12/11/2019	µg/L	2,060	17,200	16,200	NS	83,400	116,000	16,600	48.9	82,000	6,020
3/11/20-3/23/20*	µg/L	8,120	14,100	12,900	NS	70,700	117,000	39,000	33.4	65,600	NS
6/8/20-6/30/20*	µg/L	13,700	34,900	19,400	NS	76,600	94,400	400	4.5 J	77,800	940
9/9/20-9/29/20*	µg/L	3.7 J	123	NS	NS	80,000	111,000	NS	5.4 J	79,100	1,090
11/5/20-11/19/20*	µg/L	15,200	20,200	NS	NS	68,200	79.7	NS	28.3	73,700	550

**Bold indicates detection above the reporting limit**

NS = Not Sampled

DNE = Did Not Exist

\*Indicates concentrations are for dissolved metals. All other events show total metals.

**TABLE 4**  
**Intermediate Zinc Concentrations**  
**Rod Wire Mill Interim Measures Progress Report**

Sampling Dates	Units	RW11-MWI	RW12-MWI	RW13-MWI	RW15-MWI	RW16-MWI	RW18-MWI	RW19-MWI	RW21-MWI	RW22-MWI	RW22R-MWI
2/10/2017-2/16/2017	µg/L	<b>368,000</b>	<b>249,000</b>	NS	NS	NS	<b>728,000</b>	<b>5,900,000</b>	DNE	NS	DNE
3/27/2017-3/30/2017	µg/L	<b>301,000</b>	<b>216,000</b>	NS	NS	NS	<b>592,000</b>	<b>4,650,000</b>	DNE	NS	DNE
4/25/2017-4/28/2017	µg/L	<b>288,000</b>	<b>188,000</b>	NS	NS	NS	<b>633,000</b>	<b>7,010,000</b>	DNE	NS	DNE
5/22/2017-5/24/2017	µg/L	<b>336,000</b>	<b>232,000</b>	NS	NS	NS	<b>246,000</b>	<b>5,370,000</b>	DNE	NS	DNE
6/5/2017-6/9/2017	µg/L	<b>201,000</b>	<b>226,000</b>	NS	NS	NS	<b>694,000</b>	<b>6,720,000</b>	DNE	<b>303</b>	DNE
7/10/2017-7/13/2017	µg/L	<b>192,000</b>	<b>219,000</b>	NS	NS	NS	<b>575,000</b>	<b>5,330,000</b>	DNE	<b>103</b>	DNE
8/7/2017-8/10/2017	µg/L	<b>147,000</b>	<b>156,000</b>	<b>308,000</b>	<b>3,210</b>	NS	<b>290,000</b>	<b>3,360,000</b>	DNE	NS	DNE
9/1/2017-9/8/2017	µg/L	<b>134,000</b>	<b>156,000</b>	<b>1,160</b>	<b>71.1</b>	<b>20,200</b>	<b>382,000</b>	<b>2,500,000</b>	DNE	<b>43,000</b>	DNE
10/2/2017-10/9/2017	µg/L	<b>111,000</b>	<b>150,000</b>	<b>204,000</b>	<b>295</b>	<b>2,000</b>	<b>393,000</b>	<b>3,670,000</b>	DNE	<b>16,100</b>	DNE
11/3/2017-11/13/2017	µg/L	<b>207,000</b>	<b>140,000</b>	<b>172,000</b>	<b>825</b>	<b>441</b>	<b>323,000</b>	<b>3,400,000</b>	DNE	<b>3,700</b>	DNE
12/4/2017-12/8/2017	µg/L	<b>197,000</b>	<b>157,000</b>	<b>237</b>	<b>1,070</b>	<b>19,200</b>	<b>369,000</b>	<b>3,970,000</b>	DNE	<b>19,500</b>	DNE
1/2/2018-1/9/2018	µg/L	<b>225,000</b>	<b>117,000</b>	<b>8,600</b>	<b>5,540</b>	<b>16,200</b>	<b>370,000</b>	<b>3,840,000</b>	DNE	<b>27,200</b>	DNE
4/8/2018-4/13/2018	µg/L	<b>215,000</b>	<b>103,000</b>	<b>201,000</b>	<b>252</b>	<b>11,200</b>	<b>396,000</b>	<b>4,190,000</b>	DNE	<b>44,700</b>	DNE
7/30/2018-8/3/2018	µg/L	<b>15,700</b>	<b>2,410</b>	<b>274,000</b>	<b>18,600</b>	<b>1,230</b>	<b>330,000</b>	<b>4,880,000</b>	DNE	<b>73,300</b>	DNE
10/1/2018-10/5/2018	µg/L	<b>174,000</b>	<b>14,300</b>	<b>33.4</b>	<b>736</b>	<b>320</b>	<b>247,000</b>	<b>5,880,000</b>	DNE	<b>47,100</b>	DNE
12/10/2018-12/14/2018*	µg/L	<b>176,000</b>	<b>109,000</b>	<b>116</b>	<b>6,540</b>	<b>6 J</b>	<b>318,000</b>	<b>7,580,000</b>	DNE	<b>68,100</b>	DNE
3/12/2019-3/19/2019*	µg/L	<b>142,000</b>	<b>110,000</b>	<b>328,000</b>	<b>109,000</b>	<b>4.7 J</b>	<b>822,000</b>	<b>3,770,000</b>	DNE	<b>81,100</b>	DNE
5/3/2019-6/7/2019*	µg/L	<b>121,000</b>	<b>111,000</b>	<b>97.7</b>	<b>16,400</b>	<b>4.9 J</b>	<b>279,000</b>	<b>7,280,000</b>	<b>624,000</b>	NS	<b>1,030</b>
9/10/2019-9/23/2019*	µg/L	<b>120,000</b>	<b>104,000</b>	<b>122</b>	<b>168,000</b>	<b>13.1</b>	<b>640,000</b>	<b>3,460,000</b>	<b>570,000</b>	NS	<b>983</b>
12/3/2019-12/11/2019	µg/L	<b>173,000</b>	<b>43,500</b>	<b>246,000</b>	<b>179,000</b>	<b>22.7</b>	<b>849,000</b>	<b>5,690,000</b>	<b>539,000</b>	NS	<b>3,000</b>
3/11/20-3/23/20*	µg/L	<b>151,000</b>	NS	<b>250,000</b>	<b>17.9</b>	<b>16.2</b>	<b>545,000</b>	<b>6,050,000</b>	<b>648,000</b>	NS	<b>1,810</b>
6/8/20-6/30/20*	µg/L	<b>128,000</b>	<b>86,400</b>	<b>27</b>	<b>5.8 J</b>	<b>7.3 J</b>	<b>252,000</b>	<b>6,450,000</b>	<b>470,000</b>	NS	<b>4,350</b>
9/9/20-9/29/20*	µg/L	NS	NS	<b>296,000</b>	<b>3,210</b>	<b>63.1</b>	<b>753,000</b>	<b>6,220,000</b>	<b>536,000</b>	NS	<b>5,340</b>
11/5/20-11/19/20*	µg/L	<b>166,000</b>	NS	<b>19.8</b>	<b>137</b>	<b>10.2</b>	<b>534,000</b>	<b>3,930,000</b>	<b>562,000</b>	NS	<b>4,520</b>

**Bold indicates detection above the reporting limit**

NS = Not Sampled

DNE = Did Not Exist

\*Indicates concentrations are for dissolved metals. All other events show total metals.

**TABLE 4**  
**Intermediate Zinc Concentrations**  
**Rod Wire Mill Interim Measures Progress Report**

Sampling Dates	Units	RW23-MWI	RW24-MWI	RW25-MWI	RWA-MWI	RWB-MWI	RWD-MWI	RWE-MWI	RWF-MWI	RWG-MWI	RWH-MWI
2/10/2017-2/16/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
3/27/2017-3/30/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
4/25/2017-4/28/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
5/22/2017-5/24/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
6/5/2017-6/9/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
7/10/2017-7/13/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
8/7/2017-8/10/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
9/1/2017-9/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
10/2/2017-10/9/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
11/3/2017-11/13/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
12/4/2017-12/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
1/2/2018-1/9/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
4/8/2018-4/13/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
7/30/2018-8/3/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
10/1/2018-10/5/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
12/10/2018-12/14/2018*	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
3/12/2019-3/19/2019*	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
5/3/2019-6/7/2019*	µg/L	<b>109,000</b>	<b>650,000</b>	<b>413,000</b>	<b>375,000</b>	<b>18</b>	<b>36,200</b>	<b>112,000</b>	<b>41,900</b>	<b>332</b>	<b>226,000</b>
9/10/2019-9/23/2019*	µg/L	<b>125,000</b>	<b>635,000</b>	<b>7,000</b>	<b>349,000</b>	<b>29.2</b>	<b>41,900</b>	<b>109,000</b>	<b>42,300</b>	<b>291</b>	<b>378,000</b>
12/3/2019-12/11/2019	µg/L	<b>111,000</b>	<b>538,000</b>	<b>462,000</b>	<b>396,000</b>	<b>47.8</b>	<b>52,600</b>	<b>118,000</b>	<b>58,800</b>	<b>362</b>	<b>502,000</b>
3/11/20-3/23/20*	µg/L	<b>100,000</b>	<b>466,000</b>	<b>355,000</b>	<b>521,000</b>	8.9 J	<b>50,400</b>	<b>102,000</b>	<b>90,400</b>	<b>411</b>	<b>406,000</b>
6/8/20-6/30/20*	µg/L	<b>116,000</b>	<b>378,000</b>	<b>443,000</b>	<b>441,000</b>	8.4 J	<b>59,300</b>	<b>114,000</b>	<b>108,000</b>	<b>465</b>	<b>474,000</b>
9/9/20-9/29/20*	µg/L	<b>105,000</b>	<b>364,000</b>	<b>477,000</b>	<b>452,000</b>	<b>15.2</b>	<b>69,300</b>	<b>110,000</b>	<b>134,000</b>	<b>545</b>	<b>477,000</b>
11/5/20-11/19/20*	µg/L	<b>95,600</b>	<b>258,000</b>	<b>445,000</b>	<b>406,000</b>	<b>13.5</b>	<b>64,200</b>	<b>80,800</b>	<b>110,000</b>	<b>522</b>	<b>618,000</b>

**Bold indicates detection above the reporting limit**

NS = Not Sampled

DNE = Did Not Exist

\*Indicates concentrations are for dissolved metals. All other events show total metals.



**TABLE 4**  
**Intermediate Zinc Concentrations**  
**Rod Wire Mill Interim Measures Progress Report**

Sampling Dates	Units	RWI-MWI	RWJ-MWI	RWK-MWI	RWL-MWI	RWM-MWI	RWO-MWI	RWP-MWI	RWQ-MWI	RWR-MWI	RWS-MWI
2/10/2017-2/16/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
3/27/2017-3/30/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
4/25/2017-4/28/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
5/22/2017-5/24/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
6/5/2017-6/9/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
7/10/2017-7/13/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
8/7/2017-8/10/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
9/1/2017-9/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
10/2/2017-10/9/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
11/3/2017-11/13/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
12/4/2017-12/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
1/2/2018-1/9/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
4/8/2018-4/13/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
7/30/2018-8/3/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
10/1/2018-10/5/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
12/10/2018-12/14/2018*	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
3/12/2019-3/19/2019*	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
5/3/2019-6/7/2019*	µg/L	<b>632,000</b>	<b>1,580</b>	<b>21,100</b>	<b>169,000</b>	<b>162,000</b>	<b>249,000</b>	<b>3,210,000</b>	<b>357,000</b>	<b>2,560,000</b>	<b>797,000</b>
9/10/2019-9/23/2019*	µg/L	<b>519,000</b>	<b>2,150</b>	<b>25,100</b>	<b>142,000</b>	<b>159,000</b>	<b>214,000</b>	<b>3,570,000</b>	<b>270,000</b>	<b>3,620,000</b>	<b>1,040,000</b>
12/3/2019-12/11/2019	µg/L	<b>554,000</b>	<b>3,140</b>	<b>21,600</b>	<b>124,000</b>	<b>152,000</b>	<b>204,000</b>	<b>3,880,000</b>	<b>258,000</b>	<b>4,050,000</b>	<b>946,000</b>
3/11/20-3/23/20*	µg/L	<b>875,000</b>	<b>3,430</b>	<b>30,300</b>	<b>121,000</b>	<b>139,000</b>	<b>202,000</b>	<b>3,860,000</b>	<b>312,000</b>	<b>814,000</b>	<b>1,070,000</b>
6/8/20-6/30/20*	µg/L	<b>775,000</b>	<b>805</b>	<b>21,400</b>	<b>96,300</b>	<b>128,000</b>	<b>223,000</b>	<b>3,160,000</b>	<b>255,000</b>	<b>2,530,000</b>	<b>74,300</b>
9/9/20-9/29/20*	µg/L	NS	<b>744</b>	<b>36,800</b>	<b>116,000</b>	<b>138,000</b>	<b>204,000</b>	<b>3,810,000</b>	<b>280,000</b>	<b>1,830,000</b>	<b>760,000</b>
11/5/20-11/19/20*	µg/L	NS	<b>1,060</b>	<b>26,500</b>	<b>126,000</b>	<b>125,000</b>	<b>155,000</b>	<b>3,520,000</b>	<b>257,000</b>	<b>996,000</b>	<b>919,000</b>

**Bold indicates detection above the reporting limit**

NS = Not Sampled

DNE = Did Not Exist

\*Indicates concentrations are for dissolved metals. All other events show total metals.

**TABLE 5**  
**Intermediate Cadmium Concentrations**  
**Rod Wire Mill Interim Measures Progress Report**

Sampling Dates	Units	RW01-MWI	RW02-MWI	RW03-MWI	RW05-MWI	RW05R-MWI	RW06-MWI	RW07-MWI	RW08-MWI	RW09-MWI	RW10-MWI
2/10/2017-2/16/2017	µg/L	NS	NS	<b>189</b>	NS	DNE	<b>12.5</b>	1.2 J	0.49 J	<b>3.1</b>	<b>446</b>
3/27/2017-3/30/2017	µg/L	NS	NS	<b>196</b>	NS	DNE	<b>9.2</b>	<b>4.6</b>	0.39 J	<b>4</b>	3 U
4/25/2017-4/28/2017	µg/L	NS	NS	<b>192</b>	NS	DNE	<b>14</b>	3 U	3 U	<b>5</b>	<b>198</b>
5/22/2017-5/24/2017	µg/L	NS	NS	<b>84</b>	NS	DNE	<b>20.4</b>	1.1 J	1.5 J	<b>11.1</b>	2.5 J
6/5/2017-6/9/2017	µg/L	NS	NS	<b>37.4</b>	1.9 J	DNE	<b>14.3</b>	0.91 J	0.48 J	<b>8.1</b>	<b>27.2</b>
7/10/2017-7/13/2017	µg/L	NS	NS	<b>138</b>	<b>17.5</b>	DNE	<b>10.2</b>	1.2 J	1.3 J	<b>12.9</b>	<b>16.3</b>
8/7/2017-8/10/2017	µg/L	<b>194</b>	<b>511</b>	<b>227</b>	<b>19.3</b>	DNE	<b>10.1</b>	1 J	0.86 J	<b>18.5</b>	3 U
9/1/2017-9/8/2017	µg/L	0.51 J	3 J	<b>214</b>	<b>3.7</b>	DNE	<b>4.5</b>	<b>11</b>	0.77 J	<b>9.1</b>	<b>17.7</b>
10/2/2017-10/9/2017	µg/L	<b>145</b>	2.4 J	<b>20.2</b>	<b>4.2</b>	DNE	<b>4.2</b>	3 U	3 U	<b>12</b>	<b>24.6</b>
11/3/2017-11/13/2017	µg/L	3 U	3 U	<b>25.2</b>	<b>4.9</b>	DNE	<b>5.4</b>	<b>5.1</b>	0.88 J	<b>8.8</b>	<b>63.7</b>
12/4/2017-12/8/2017	µg/L	<b>37.5</b>	2.3 J	<b>154</b>	2.7 J	DNE	<b>7.1</b>	1.7 J	1.8 J	<b>7.7</b>	3 U
1/2/2018-1/9/2018	µg/L	2.4 J	<b>14.5</b>	<b>259</b>	2.2 J	DNE	<b>8.4</b>	3 U	3 U	2.1 J	3 U
4/8/2018-4/13/2018	µg/L	<b>16.5</b>	<b>3</b>	<b>128</b>	2.6 J	DNE	<b>89.2</b>	1.3 J	<b>6.2</b>	1.8 J	<b>44.4</b>
7/30/2018-8/3/2018	µg/L	<b>250</b>	<b>79.9</b>	<b>236</b>	1.3 J	DNE	3 U	<b>52.9</b>	<b>14.1</b>	3 U	<b>44.7</b>
10/1/2018-10/5/2018	µg/L	3 U	<b>18</b>	<b>346</b>	3 U	DNE	<b>629</b>	<b>28.7</b>	0.92 J	<b>3.7</b>	<b>10.8</b>
12/10/2018-12/14/2018*	µg/L	<b>9.3</b>	<b>191</b>	<b>342</b>	0.76 J	DNE	<b>752</b>	<b>344</b>	3 U	0.96 J	3 U
3/12/2019-3/19/2019*	µg/L	3 U	<b>98.3</b>	<b>213</b>	3 U	DNE	<b>876</b>	<b>29.5</b>	3 U	2 J	0.38 J
5/3/2019-6/7/2019*	µg/L	<b>19.4</b>	<b>785</b>	<b>449</b>	NS	<b>2,570</b>	<b>885</b>	<b>453</b>	3 U	<b>3.8</b>	0.86 J
9/10/2019-9/23/2019*	µg/L	<b>20.6</b>	<b>873</b>	<b>344</b>	NS	<b>2,820</b>	<b>793</b>	<b>48.7</b>	3.0 U	<b>5.6</b>	<b>8.4</b>
12/3/2019-12/11/2019	µg/L	<b>8.8</b>	<b>277</b>	<b>546</b>	NS	<b>2,700</b>	<b>673</b>	<b>38.1</b>	0.59 J	4.2 B	<b>13.9</b>
3/11/20-3/23/20*	µg/L	<b>49.3</b>	<b>136</b>	<b>451</b>	NS	<b>1,960</b>	<b>690</b>	<b>36</b>	3 U	<b>10.6</b>	NS
6/8/20-6/30/20*	µg/L	<b>117</b>	<b>398</b>	<b>581</b>	NS	<b>1,930</b>	<b>582</b>	1.7 J	0.47 J	<b>16.5</b>	0.67 J
9/9/20-9/29/20*	µg/L	3 U	0.69 J	NS	NS	<b>1,650</b>	<b>530</b>	NS	0.39 J	<b>10.7</b>	0.77 J
11/5/20-11/19/20*	µg/L	<b>162</b>	<b>208</b>	NS	NS	<b>1,790</b>	0.66 J	NS	0.56 J	<b>10.3</b>	0.55 J

**Bold indicates detection above the reporting limit**

NS = Not Sampled

DNE = Did Not Exist

\*Indicates concentrations are for dissolved metals. All other events show total metals.

**TABLE 5**  
**Intermediate Cadmium Concentrations**  
**Rod Wire Mill Interim Measures Progress Report**

Sampling Dates	Units	RW11-MWI	RW12-MWI	RW13-MWI	RW15-MWI	RW16-MWI	RW18-MWI	RW19-MWI	RW21-MWI	RW22-MWI	RW22R-MWI
2/10/2017-2/16/2017	µg/L	<b>1,690</b>	<b>4,740</b>	NS	NS	NS	<b>70.3</b>	<b>3,760</b>	DNE	NS	DNE
3/27/2017-3/30/2017	µg/L	<b>1,490</b>	<b>3,530</b>	NS	NS	NS	<b>63.8</b>	<b>3,450</b>	DNE	NS	DNE
4/25/2017-4/28/2017	µg/L	<b>1,800</b>	<b>2,730</b>	NS	NS	NS	<b>119</b>	<b>3,380</b>	DNE	NS	DNE
5/22/2017-5/24/2017	µg/L	<b>2,600</b>	<b>3,820</b>	NS	NS	NS	<b>92</b>	<b>2,770</b>	DNE	NS	DNE
6/5/2017-6/9/2017	µg/L	<b>218</b>	<b>2,260</b>	NS	NS	NS	<b>65.1</b>	<b>2,280</b>	DNE	0.35 J	DNE
7/10/2017-7/13/2017	µg/L	<b>518</b>	<b>2,730</b>	NS	NS	NS	<b>61.7</b>	<b>2,550</b>	DNE	3 U	DNE
8/7/2017-8/10/2017	µg/L	<b>163</b>	<b>2,220</b>	<b>31,800</b>	<b>10.1</b>	NS	<b>74.4</b>	<b>1,670</b>	DNE	NS	DNE
9/1/2017-9/8/2017	µg/L	<b>274</b>	<b>1,820</b>	<b>66</b>	3 U	1.7 J	<b>72.2</b>	<b>1,320</b>	DNE	2.3 J	DNE
10/2/2017-10/9/2017	µg/L	<b>125</b>	<b>1,510</b>	<b>28,700</b>	3 U	3 U	<b>43.7</b>	<b>1,710</b>	DNE	3 U	DNE
11/3/2017-11/13/2017	µg/L	<b>1,460</b>	<b>1,380</b>	<b>24,500</b>	3 U	3 U	<b>66.6</b>	<b>1,770</b>	DNE	<b>3.8</b>	DNE
12/4/2017-12/8/2017	µg/L	<b>1,380</b>	<b>1,450</b>	<b>44.2</b>	0.97 J	1.9 J	<b>51.5</b>	<b>1,710</b>	DNE	<b>15.2</b>	DNE
1/2/2018-1/9/2018	µg/L	<b>1,400</b>	<b>1,270</b>	<b>1,240</b>	1.6 J	1.2 J	<b>63.5</b>	<b>1,880</b>	DNE	<b>4.1</b>	DNE
4/8/2018-4/13/2018	µg/L	<b>1,660</b>	<b>121</b>	<b>19,400</b>	3 U	1.1 J	<b>55.8</b>	<b>1,700</b>	DNE	3 U	DNE
7/30/2018-8/3/2018	µg/L	<b>4.7</b>	<b>134</b>	<b>21,000</b>	<b>15.3</b>	3 U	<b>35.1</b>	<b>1,560</b>	DNE	3 U	DNE
10/1/2018-10/5/2018	µg/L	<b>133</b>	<b>86.3</b>	<b>12.6</b>	3 U	3 U	<b>14.5</b>	<b>1,610</b>	DNE	3 U	DNE
12/10/2018-12/14/2018*	µg/L	<b>1,160</b>	<b>1,220</b>	<b>3.2</b>	<b>12.9</b>	3 U	<b>44.7</b>	<b>1,900</b>	DNE	3 U	DNE
3/12/2019-3/19/2019*	µg/L	<b>98.9</b>	<b>768</b>	<b>29,200</b>	<b>402</b>	3 U	<b>80.3</b>	<b>1,320</b>	DNE	3 U	DNE
5/3/2019-6/7/2019*	µg/L	<b>586</b>	<b>1,520</b>	<b>51.1</b>	<b>64.2</b>	3 U	<b>38.0</b>	<b>2,420</b>	<b>50.2</b>	NS	3 U
9/10/2019-9/23/2019*	µg/L	<b>517</b>	<b>1,780</b>	<b>12.8</b>	<b>589</b>	3.0 U	<b>50.4</b>	<b>1,580</b>	<b>23</b>	NS	3.0 U
12/3/2019-12/11/2019	µg/L	<b>476</b>	<b>420</b>	<b>22,500</b>	<b>605</b>	0.36 J	<b>87.6</b>	<b>1,500</b>	<b>33.1</b>	NS	3.0 U
3/11/20-3/23/20*	µg/L	<b>365</b>	NS	<b>24,700</b>	0.5 J	0.36 J	<b>36.8</b>	<b>1,400</b>	<b>39.8</b>	NS	3 U
6/8/20-6/30/20*	µg/L	<b>75.1</b>	<b>716</b>	<b>15.4</b>	3 U	3 U	<b>16</b>	<b>3,390</b>	<b>34</b>	NS	2 J
9/9/20-9/29/20*	µg/L	NS	NS	<b>23,900</b>	<b>8</b>	3 U	<b>43.1</b>	<b>1,630</b>	<b>29.4</b>	NS	2.4 J
11/5/20-11/19/20*	µg/L	<b>179</b>	NS	<b>6.1</b>	0.91 J	3 U	<b>42.1</b>	<b>1,540</b>	<b>27.8</b>	NS	1.6 J

**Bold indicates detection above the reporting limit**

NS = Not Sampled

DNE = Did Not Exist

\*Indicates concentrations are for dissolved metals. All other events show total metals.

**TABLE 5**  
**Intermediate Cadmium Concentrations**  
**Rod Wire Mill Interim Measures Progress Report**

Sampling Dates	Units	RW23-MWI	RW24-MWI	RW25-MWI	RWA-MWI	RWB-MWI	RWD-MWI	RWE-MWI	RWF-MWI	RWG-MWI	RWH-MWI
2/10/2017-2/16/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
3/27/2017-3/30/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
4/25/2017-4/28/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
5/22/2017-5/24/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
6/5/2017-6/9/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
7/10/2017-7/13/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
8/7/2017-8/10/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
9/1/2017-9/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
10/2/2017-10/9/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
11/3/2017-11/13/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
12/4/2017-12/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
1/2/2018-1/9/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
4/8/2018-4/13/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
7/30/2018-8/3/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
10/1/2018-10/5/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
12/10/2018-12/14/2018*	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
3/12/2019-3/19/2019*	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
5/3/2019-6/7/2019*	µg/L	<b>2,270</b>	<b>1,580</b>	<b>507</b>	<b>6,830</b>	3 U	<b>395</b>	<b>700</b>	<b>859</b>	<b>23</b>	<b>92</b>
9/10/2019-9/23/2019*	µg/L	<b>2,800</b>	<b>1,540</b>	<b>9.9</b>	<b>7,740</b>	3.0 U	<b>514</b>	<b>656</b>	<b>1,020</b>	<b>15.4</b>	<b>1,380</b>
12/3/2019-12/11/2019	µg/L	<b>2,680</b>	<b>1,250</b>	<b>622</b>	<b>9,020</b>	3.0 U	<b>586</b>	<b>707</b>	<b>1,340</b>	<b>26.0</b>	<b>3,580</b>
3/11/20-3/23/20*	µg/L	<b>2,600</b>	<b>1,190</b>	<b>633</b>	<b>12,600</b>	3 U	<b>555</b>	<b>664</b>	<b>2,010</b>	<b>38.2</b>	<b>3,210</b>
6/8/20-6/30/20*	µg/L	<b>2,740</b>	<b>1,050</b>	<b>652</b>	<b>10,200</b>	3 U	<b>515</b>	<b>609</b>	<b>2,580</b>	<b>26.7</b>	<b>4,610</b>
9/9/20-9/29/20*	µg/L	<b>2,500</b>	<b>922</b>	<b>708</b>	<b>7,630</b>	0.59 J	<b>541</b>	<b>584</b>	<b>3,170</b>	<b>38.2</b>	<b>4,330</b>
11/5/20-11/19/20*	µg/L	<b>2,340</b>	<b>842</b>	<b>703</b>	<b>10,100</b>	3 U	<b>596</b>	<b>527</b>	<b>3,330</b>	<b>40.0</b>	<b>6,650</b>

**Bold indicates detection above the reporting limit**

NS = Not Sampled

DNE = Did Not Exist

\*Indicates concentrations are for dissolved metals. All other events show total metals.

**TABLE 5**  
**Intermediate Cadmium Concentrations**  
**Rod Wire Mill Interim Measures Progress Report**

Sampling Dates	Units	RWI-MWI	RWJ-MWI	RWK-MWI	RWL-MWI	RWM-MWI	RWO-MWI	RWP-MWI	RWQ-MWI	RWR-MWI	RWS-MWI
2/10/2017-2/16/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
3/27/2017-3/30/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
4/25/2017-4/28/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
5/22/2017-5/24/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
6/5/2017-6/9/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
7/10/2017-7/13/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
8/7/2017-8/10/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
9/1/2017-9/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
10/2/2017-10/9/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
11/3/2017-11/13/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
12/4/2017-12/8/2017	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
1/2/2018-1/9/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
4/8/2018-4/13/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
7/30/2018-8/3/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
10/1/2018-10/5/2018	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
12/10/2018-12/14/2018*	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
3/12/2019-3/19/2019*	µg/L	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE
5/3/2019-6/7/2019*	µg/L	<b>8,050</b>	<b>61.2</b>	<b>33.5</b>	<b>1,230</b>	<b>1,080</b>	<b>68</b>	<b>2,810</b>	<b>26.2</b>	<b>440</b>	3 U
9/10/2019-9/23/2019*	µg/L	<b>8,120</b>	<b>11.8</b>	<b>56.5</b>	<b>1,240</b>	<b>1,200</b>	<b>72.1</b>	<b>6,990</b>	3.0 U	<b>535</b>	3.0 U
12/3/2019-12/11/2019	µg/L	<b>8,270</b>	<b>45.7</b>	<b>99.5</b>	<b>1,280</b>	<b>1,230</b>	<b>55.4</b>	<b>8,910</b>	2.9 J	<b>650</b>	1.6 J
3/11/20-3/23/20*	µg/L	<b>13,300</b>	<b>30.0</b>	<b>89.1</b>	<b>1,170</b>	<b>1,120</b>	<b>54.3</b>	<b>5,560</b>	1.9 J	<b>340</b>	3 U
6/8/20-6/30/20*	µg/L	<b>10,800</b>	2.1 J	<b>76.9</b>	<b>1,140</b>	<b>1,040</b>	<b>66.2</b>	<b>7,090</b>	<b>3.7</b>	<b>508</b>	0.58 J
9/9/20-9/29/20*	µg/L	NS	2.3 J	<b>79.1</b>	<b>1,210</b>	<b>1,060</b>	<b>57.8</b>	<b>7,220</b>	<b>4.2</b>	<b>425</b>	1.8 J
11/5/20-11/19/20*	µg/L	NS	2.4 J	<b>74.4</b>	<b>1,160</b>	<b>1,120</b>	<b>27.9</b>	<b>7,700</b>	2.9 J	<b>398</b>	1.7 J

**Bold indicates detection above the reporting limit**

NS = Not Sampled

DNE = Did Not Exist

\*Indicates concentrations are for dissolved metals. All other events show total metals.

**TABLE 6**  
**Average Historical Shallow Zone Groundwater Data**  
 Rod Wire Mill Interim Measure Progress Report

Shallow Zone Cadmium Concentration (µg/L)							
Well Group	Well	2015	2017	2018	2019	2020	% Change from Earliest Yearly Average
Upgradient	RW19-MWS	NA	6.4	3.4	1.4	1.8	-72%
Interior	RW09-MWS	NA	14.0	13.0	13.3	16.3	16%
	RW11-MWS	NA	1.8	15.0	1.8	2.2	19%
	RW12-MWS	3.8	37.6	9.3	3.6	5.2	37%
	RW14-MWS	NA	2,088	3,440	3,350	3,218	54%
	RW15-MWS	NA	37.1	59.1	12.6	2.0	-95%
	RW16-MWS	NA	1.5	1.5	1.2	1.5	0%
	RW18-MWS	100	244	137	1.6	1.5	-98%
Perimeter	RW01-MWS	NA	24.8	7.2	3.2	2.1	-92%
	RW02-MWS	NA	8.4	9.4	2.0	0.6	-92%
	RW03-MWS	NA	6.6	12.9	15.2	16.7	152%
	RW04-MWS	2.8	1.1	1.5	1.3	0.9	-67%
	RW05-MWS	NA	3.3	1.5	1.5	1.0	-69%
	RW06R-MWS	NA	NA	1.2	1.5	1.0	-13%
	RW07-MWS	NA	3.1	4.6	3.0	3.5	15%
	RW08-MWS	NA	3.4	1.4	1.2	1.3	-61%

Shallow Zone Zinc Concentration (µg/L)							
Well Group	Well	2015	2017	2018	2019	2020	% Change from Earliest Yearly Average
Upgradient	RW19-MWS	NA	6,082	8,226	3,190	9,200	51%
Interior	RW09-MWS	NA	10,982	9,856	16,400	33,125	202%
	RW11-MWS	NA	12,933	46,100	33,475	41,975	225%
	RW12-MWS	2,608	38,761	6,516	3,086	4,660	79%
	RW14-MWS	NA	38,340	69,380	70,825	62,375	63%
	RW15-MWS	NA	3,737	4,002	424	30	-99%
	RW16-MWS	NA	32	26.6	35.2	9.0	-72%
	RW18-MWS	3,691	13,503	7,648	17.3	8.6	-100%
Perimeter	RW01-MWS	NA	11,632	32,460	14,875	6,800	-42%
	RW02-MWS	NA	3,308	9,146	15,749	3,360	2%
	RW03-MWS	NA	13,958	27,920	16,668	17,800	28%
	RW04-MWS	2,330	145	180	239	62	-97%
	RW05-MWS	NA	1,617	34.3	14.2	7.4	-100%
	RW06R-MWS	NA	NA	9.9	8.8	9.1	-8%
	RW07-MWS	NA	131	230	149	172	31%
	RW08-MWS	NA	3,436	7,320	7,125	6,558	91%

Positive % change  
 Negative % change  
 NA = Not Applicable

**TABLE 7**  
**Average Historical Intermediate Zone Groundwater Data**  
 Rod Wire Mill Interim Measure Progress Report

Average Cadmium Concentration (µg/L)							
Well Group	Well	2015	2017	2018	2019	2020	% Change from Earliest Yearly Average
Upgradient	RW19-MWI	NA	2,397	1,748	1,705	1,990	-17%
Performance	RW09-MWI	NA	9.1	2.0	3.2	12.0	32%
	RW10-MWI	NA	72.8	20.6	5.9	0.7	-99%
	RW11-MWI	25,000	1,065	872	419	206	-99%
	RW12-MWI	7,890	2,563	578	1,122	716	-91%
	RW13-MWI	44,500	17,022	8,334	12,941	12,155	-73%
	RW15-MWI	NA	3.1	6.8	415	2.7	-12%
	RW16-MWI	NA	1.7	1.4	1.2	1.2	-26%
	RW18-MWI	80.1	70.9	79.8	64.1	34.5	-57%
Perimeter	RW01-MWI	NA	75.7	59.2	12.6	82.5	9%
	RW02-MWI	NA	104	59.5	508	186	78%
	RW03-MWI	NA	134	285	388	516	284%
	RW06-MWI	34.8	10.2	292	807	451	1197%
	RW07-MWI	NA	2.8	93.9	142	18.9	573%
	RW08-MWI	NA	1.0	4.8	1.3	0.7	-30%

Average Zinc Concentration (µg/L)							
Well Group	Well	2015	2017	2018	2019	2020	% Change from Earliest Yearly Average
Upgradient	RW19-MWI	NA	4,716,364	5,278,000	5,050,000	5,662,500	20%
Performance	RW09-MWI	NA	53,827	52,740	64,250	74,050	38%
	RW10-MWI	NA	29,084	10,143	4,975	860	-97%
	RW11-MWI	1,120,000	225,636	158,940	139,000	148,333	-87%
	RW12-MWI	339,000	189,909	68,142	92,125	86,400	-75%
	RW13-MWI	658,000	137,079	96,762	143,555	136,512	-79%
	RW15-MWI	NA	1,094	6,374	118,100	843	-23%
	RW16-MWI	NA	10,460	5,861	11.4	29.8	-100%
	RW18-MWI	642,000	475,000	332,400	647,500	521,000	-19%
Perimeter	RW01-MWI	NA	13,284	3,107	4,033	9,256	-30%
	RW02-MWI	NA	3,784	6,839	41,825	17,331	358%
	RW03-MWI	NA	6,419	10,866	11,680	16,150	152%
	RW06-MWI	6,045	1,209	43,988	117,000	80,620	1234%
	RW07-MWI	NA	719	25,985	56,275	19,700	2640%
	RW08-MWI	NA	81.8	800	16.0	17.9	-78%

Positive % change  
 Negative % change  
 NA = Not Applicable

The RW13-MWI concentrations for 2015 are actually results for a sample from RW-057-PZ, a PDI piezometer existing in November 2015 at a location within a few feet of the current location of RW13-MWI.

---

---

## **APPENDIX A**

---

---



March 18, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM Direct Support  
Pace Project No.: 30354260

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on March 12, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM Direct Support  
Pace Project No.: 30354260

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM Direct Support  
Pace Project No.: 30354260

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30354260001	RWB-MWI	Water	03/11/20 12:30	03/12/20 03:00
30354260002	RWG-MWS	Water	03/11/20 13:14	03/12/20 03:00
30354260003	RWG-MWI	Water	03/11/20 13:36	03/12/20 03:00
30354260004	RWF-MWS	Water	03/11/20 14:21	03/12/20 03:00
30354260005	RWF-MWI	Water	03/11/20 14:45	03/12/20 03:00

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM Direct Support  
Pace Project No.: 30354260

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30354260001	RWB-MWI	EPA 6010C	KAS	2	PASI-PA
30354260002	RWG-MWS	EPA 6010C	KAS	2	PASI-PA
30354260003	RWG-MWI	EPA 6010C	KAS	2	PASI-PA
30354260004	RWF-MWS	EPA 6010C	KAS	2	PASI-PA
30354260005	RWF-MWI	EPA 6010C	KAS	2	PASI-PA

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354260

---

**Sample: RWB-MWI**      **Lab ID: 30354260001**      Collected: 03/11/20 12:30      Received: 03/12/20 03:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	03/16/20 07:41	03/17/20 19:35	7440-43-9	
Zinc	<b>8.9J</b>	ug/L	10.0	2.4	1	03/16/20 07:41	03/17/20 19:35	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354260

**Sample: RWG-MWS**      **Lab ID: 30354260002**      Collected: 03/11/20 13:14      Received: 03/12/20 03:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	03/16/20 07:41	03/17/20 19:49	7440-43-9	
Zinc	<b>2.9J</b>	ug/L	10.0	2.4	1	03/16/20 07:41	03/17/20 19:49	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354260

---

**Sample: RWG-MWI**      **Lab ID: 30354260003**      Collected: 03/11/20 13:36      Received: 03/12/20 03:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Cadmium	<b>38.2</b>	ug/L	3.0	0.34	1	03/16/20 07:41	03/17/20 19:52	7440-43-9	
Zinc	<b>411</b>	ug/L	10.0	2.4	1	03/16/20 07:41	03/17/20 19:52	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354260

Sample: RWF-MWS		Lab ID: 30354260004		Collected: 03/11/20 14:21		Received: 03/12/20 03:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	7.7	ug/L	3.0	0.34	1	03/16/20 07:41	03/17/20 20:03	7440-43-9	
Zinc	33900	ug/L	1000	238	100	03/16/20 07:41	03/17/20 21:42	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354260

Sample: RWF-MWI		Lab ID: 30354260005		Collected: 03/11/20 14:45		Received: 03/12/20 03:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>2010</b>	ug/L	3.0	0.34	1	03/16/20 07:41	03/17/20 20:05	7440-43-9	
Zinc	<b>90400</b>	ug/L	1000	238	100	03/16/20 07:41	03/17/20 21:45	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM Direct Support  
Pace Project No.: 30354260

QC Batch: 388065 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET  
Associated Lab Samples: 30354260001, 30354260002, 30354260003, 30354260004, 30354260005

METHOD BLANK: 1880076 Matrix: Water  
Associated Lab Samples: 30354260001, 30354260002, 30354260003, 30354260004, 30354260005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium	ug/L	3.0 U	3.0	0.34	03/17/20 19:30	
Zinc	ug/L	10.0 U	10.0	2.4	03/17/20 19:30	

LABORATORY CONTROL SAMPLE: 1880077

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	500	511	102	80-120	
Zinc	ug/L	500	494	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1880079 1880080

Parameter	Units	30354260001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium	ug/L	3.0 U	500	500	516	531	103	106	75-125	3	20	
Zinc	ug/L	8.9J	500	500	495	510	97	100	75-125	3	20	

MATRIX SPIKE SAMPLE: 1880082

Parameter	Units	30354521006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	9420	500	10100	129	75-125 MH	
Zinc	ug/L	1170000	500	1140000	-5400	75-125 ML	

SAMPLE DUPLICATE: 1880078

Parameter	Units	30354260001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium	ug/L	3.0 U	3.0 U		20	
Zinc	ug/L	8.9J	9.4J		20	

SAMPLE DUPLICATE: 1880081

Parameter	Units	30354521006 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium	ug/L	9420	9630	2	20	
Zinc	ug/L	1170000	1170000	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM Direct Support

Pace Project No.: 30354260

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

### ANALYTE QUALIFIERS

MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM Direct Support  
Pace Project No.: 30354260

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30354260001	RWB-MWI	EPA 3005A	388065	EPA 6010C	388209
30354260002	RWG-MWS	EPA 3005A	388065	EPA 6010C	388209
30354260003	RWG-MWI	EPA 3005A	388065	EPA 6010C	388209
30354260004	RWF-MWS	EPA 3005A	388065	EPA 6010C	388209
30354260005	RWF-MWI	EPA 3005A	388065	EPA 6010C	388209

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

<b>Section A</b> Required Client Information:		<b>Section B</b> Required Project Information:		<b>Section C</b> Invoice Information:	
Company: <b>EnviroAnalytics Group</b>		Report To: <b>James Calenda</b>		Attention: <b>Laura Sargent</b>	
Address: <b>1430 Sparrows Point Blvd</b>		Copy To:		Company Name: <b>EnviroAnalytics Group</b>	
<b>Sparrows Point, MD 21219</b>		PO Number: <b>EAG-SPT-6452</b>		Address: <b>1650 Des Peres Road, Suite 303 St. Louis, MO 63131</b>	
Email To: <b>jcalenda@enviroanalyticsgroup.com</b>		Project Name: <b>R/W Direct Support</b>		Pace Quote Reference: <b>MD</b>	
Phone: <b>314-620-3056</b>		Project Number: <b>20010103-1-1</b>		Pace Project Manager: <b>Samantha Bayura</b>	
Requested Due Date/TAT: <b>5-20-07</b>				Pace Profile #:	

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE DW DRINKING WATER WT WASTE WATER WW WASTE WATER PRODUCT P SOIL/SOLID SL SOIL/SOLID OL OIL WP WIFE WP WIFE AR AIR OT OTHER TS TISSUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test	VOLUME	Requester/Analyst/Inspector/Reviewer	Pace Project No./ Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB							
1			WT G	G		3/1/20	1230	1	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	X		001
2			WT G	G		3/1/20	1314	1	Unpreserved	HNO <sub>3</sub>	X		002
3			WT G	G		3/1/20	1336	1	Unpreserved	HCl	X		003
4			WT G	G		3/1/20	1431	1	Unpreserved	NaOH	X		004
5			WT G	G		3/1/20	1445	1	Unpreserved	Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub>	X		005
6													
7													
8													
9													
AD													
10													
11													

**WO#: 30354260**



30354260

ADDITIONAL COMMENTS	DATE	TIME	ACCEPTED BY/AFFILIATION	DATE	TIME	SAMPLE CONDITIONS		
						Temp in °C	Received on Ice (Y/N)	Custody Sealed (Y/N)
Jim Bow ARX 3/1/20 1525 David E. H. Johnson Pace 03/1/20 1535	3/1/20	1525	David E. H. Johnson Pace	03/1/20	1535			
David H. Johnson Pace 3/1/20 1810 RDS FACE	3/1/20	1810	RDS FACE	3/1/20	1835	Y		
RDS FACE 3/1/20 0300 RDS FACE	3/1/20	0300	RDS FACE	3/1/20	0300	Y	N	Y

**SAMPLER NAME AND SIGNATURE:**

PRINT Name of SAMPLER: **Joshua Barner** DATE Signed (MM/DD/YYYY): **03/1/20**

SIGNATURE of SAMPLER: *Jim Bow*

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics

Project # 30354260

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Label	<u>BLM</u>
LIMS Login	<u>BLM</u>

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no      Seals intact:  yes  no

Thermometer Used 9      Type of Ice:  Wet  Blue  None

Cooler Temperature      Observed Temp 3.2 °C      Correction Factor: 0 °C      Final Temp: 3.2 °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
				<u>10B2141</u>	<u>BLM 3-19-2020</u>
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Includes date/time/ID      Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed <u>BLM</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

March 18, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM Direct Support  
Pace Project No.: 30354521

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on March 12, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM Direct Support  
Pace Project No.: 30354521

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## SAMPLE SUMMARY

Project: RWM Direct Support  
Pace Project No.: 30354521

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30354521001	RWJ-MWS	Water	03/12/20 09:45	03/12/20 23:00
30354521002	RWJ-MWI	Water	03/12/20 10:08	03/12/20 23:00
30354521003	RWK-MWS	Water	03/12/20 10:50	03/12/20 23:00
30354521004	RWK-MWI	Water	03/12/20 11:11	03/12/20 23:00
30354521005	RWL-MWI	Water	03/12/20 11:54	03/12/20 23:00
30354521006	RWN-MWS	Water	03/12/20 12:42	03/12/20 23:00
30354521007	RW14-MWS	Water	03/12/20 13:19	03/12/20 23:00
30354521008	RW24-MWS	Water	03/12/20 13:51	03/12/20 23:00
30354521009	RW24-MWI	Water	03/12/20 14:22	03/12/20 23:00
30354521010	RWB-MWS	Water	03/12/20 14:30	03/12/20 23:00

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM Direct Support  
Pace Project No.: 30354521

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30354521001	RWJ-MWS	EPA 6010C	KAS	2	PASI-PA
30354521002	RWJ-MWI	EPA 6010C	KAS	2	PASI-PA
30354521003	RWK-MWS	EPA 6010C	KAS	2	PASI-PA
30354521004	RWK-MWI	EPA 6010C	KAS	2	PASI-PA
30354521005	RWL-MWI	EPA 6010C	KAS	2	PASI-PA
30354521006	RWN-MWS	EPA 6010C	KAS	2	PASI-PA
30354521007	RW14-MWS	EPA 6010C	KAS	2	PASI-PA
30354521008	RW24-MWS	EPA 6010C	KAS	2	PASI-PA
30354521009	RW24-MWI	EPA 6010C	KAS	2	PASI-PA
30354521010	RWB-MWS	EPA 6010C	KAS	2	PASI-PA

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354521

Sample: RWJ-MWS		Lab ID: 30354521001		Collected: 03/12/20 09:45	Received: 03/12/20 23:00	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A								
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	03/16/20 07:41	03/17/20 20:09	7440-43-9		
Zinc	<b>10.0 U</b>	ug/L	10.0	2.4	1	03/16/20 07:41	03/17/20 20:09	7440-66-6		

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354521

Sample: RWJ-MWI		Lab ID: 30354521002		Collected: 03/12/20 10:08		Received: 03/12/20 23:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>30.0</b>	ug/L	3.0	0.34	1	03/16/20 07:41	03/17/20 20:12	7440-43-9	
Zinc	<b>3430</b>	ug/L	10.0	2.4	1	03/16/20 07:41	03/17/20 20:12	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354521

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWK-MWS</b>									
<b>Lab ID: 30354521003</b>									
Collected: 03/12/20 10:50    Received: 03/12/20 23:00    Matrix: Water									
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	03/16/20 07:41	03/17/20 20:14	7440-43-9	
Zinc	<b>16400</b>	ug/L	1000	238	100	03/16/20 07:41	03/17/20 21:47	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support  
Pace Project No.: 30354521

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWK-MWI</b>									
<b>Lab ID: 30354521004</b>									
Collected: 03/12/20 11:11    Received: 03/12/20 23:00    Matrix: Water									
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Cadmium	<b>89.1</b>	ug/L	3.0	0.34	1	03/16/20 07:41	03/17/20 20:17	7440-43-9	
Zinc	<b>30300</b>	ug/L	1000	238	100	03/16/20 07:41	03/17/20 21:50	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354521

Sample: <b>RWL-MWI</b>		Lab ID: <b>30354521005</b>		Collected: 03/12/20 11:54		Received: 03/12/20 23:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>1170</b>	ug/L	3.0	0.34	1	03/16/20 07:41	03/17/20 20:19	7440-43-9	
Zinc	<b>121000</b>	ug/L	1000	238	100	03/16/20 07:41	03/17/20 21:52	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354521

Sample: RWN-MWS		Lab ID: 30354521006		Collected: 03/12/20 12:42		Received: 03/12/20 23:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>9420</b>	ug/L	300	34.0	100	03/16/20 07:41	03/17/20 21:55	7440-43-9	MH
Zinc	<b>1170000</b>	ug/L	10000	2380	1000	03/16/20 07:41	03/17/20 22:10	7440-66-6	ML

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354521

<b>Sample: RW14-MWS</b>		<b>Lab ID: 30354521007</b>		Collected: 03/12/20 13:19	Received: 03/12/20 23:00	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>3020</b>	ug/L	3.0	0.34	1	03/16/20 07:41	03/17/20 21:30	7440-43-9	
Zinc	<b>70800</b>	ug/L	1000	238	100	03/16/20 07:41	03/17/20 22:17	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354521

---

**Sample: RW24-MWS**      **Lab ID: 30354521008**      Collected: 03/12/20 13:51      Received: 03/12/20 23:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	03/16/20 07:41	03/17/20 21:33	7440-43-9	
Zinc	<b>3.5J</b>	ug/L	10.0	2.4	1	03/16/20 07:41	03/17/20 21:33	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354521

Sample: RW24-MWI		Lab ID: 30354521009		Collected: 03/12/20 14:22		Received: 03/12/20 23:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>1190</b>	ug/L	3.0	0.34	1	03/16/20 07:41	03/17/20 21:35	7440-43-9	
Zinc	<b>466000</b>	ug/L	10000	2380	1000	03/16/20 07:41	03/17/20 22:20	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support  
Pace Project No.: 30354521

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWB-MWS</b>									
<b>Lab ID: 30354521010</b>									
Collected: 03/12/20 14:30    Received: 03/12/20 23:00    Matrix: Water									
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	03/16/20 07:41	03/17/20 21:40	7440-43-9	
Zinc	<b>6.1J</b>	ug/L	10.0	2.4	1	03/16/20 07:41	03/17/20 21:40	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM Direct Support  
Pace Project No.: 30354521

QC Batch: 388065 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET  
Associated Lab Samples: 30354521001, 30354521002, 30354521003, 30354521004, 30354521005, 30354521006, 30354521007, 30354521008, 30354521009, 30354521010

METHOD BLANK: 1880076 Matrix: Water  
Associated Lab Samples: 30354521001, 30354521002, 30354521003, 30354521004, 30354521005, 30354521006, 30354521007, 30354521008, 30354521009, 30354521010

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium	ug/L	3.0 U	3.0	0.34	03/17/20 19:30	
Zinc	ug/L	10.0 U	10.0	2.4	03/17/20 19:30	

LABORATORY CONTROL SAMPLE: 1880077

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	500	511	102	80-120	
Zinc	ug/L	500	494	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1880079 1880080

Parameter	Units	30354260001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium	ug/L	3.0 U	500	500	516	531	103	106	75-125	3	20	
Zinc	ug/L	8.9J	500	500	495	510	97	100	75-125	3	20	

MATRIX SPIKE SAMPLE: 1880082

Parameter	Units	30354521006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	9420	500	10100	129	75-125	MH
Zinc	ug/L	1170000	500	1140000	-5400	75-125	ML

SAMPLE DUPLICATE: 1880078

Parameter	Units	30354260001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium	ug/L	3.0 U	3.0 U		20	
Zinc	ug/L	8.9J	9.4J		20	

SAMPLE DUPLICATE: 1880081

Parameter	Units	30354521006 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium	ug/L	9420	9630	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA**

Project: RWM Direct Support  
Pace Project No.: 30354521

SAMPLE DUPLICATE: 1880081

Parameter	Units	30354521006 Result	Dup Result	RPD	Max RPD	Qualifiers
Zinc	ug/L	1170000	1170000	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM Direct Support

Pace Project No.: 30354521

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

### ANALYTE QUALIFIERS

MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM Direct Support  
Pace Project No.: 30354521

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30354521001	RWJ-MWS	EPA 3005A	388065	EPA 6010C	388209
30354521002	RWJ-MWI	EPA 3005A	388065	EPA 6010C	388209
30354521003	RWK-MWS	EPA 3005A	388065	EPA 6010C	388209
30354521004	RWK-MWI	EPA 3005A	388065	EPA 6010C	388209
30354521005	RWL-MWI	EPA 3005A	388065	EPA 6010C	388209
30354521006	RWN-MWS	EPA 3005A	388065	EPA 6010C	388209
30354521007	RW14-MWS	EPA 3005A	388065	EPA 6010C	388209
30354521008	RW24-MWS	EPA 3005A	388065	EPA 6010C	388209
30354521009	RW24-MWI	EPA 3005A	388065	EPA 6010C	388209
30354521010	RWB-MWS	EPA 3005A	388065	EPA 6010C	388209

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.





**CHAIN-OF-CUSTODY / ANALYTICAL REQUEST DOCUMENT**  
 The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accu

NO# : 30354521



<b>Section A</b> Required Client Information:	<b>Section B</b> Required Project Information:	<b>Section C</b> Invoice Information:
Company: <b>EnviroAnalytics Group</b>	Report To: <b>James Calenda</b>	Attention: <b>Laura Sargent</b>
Address: <b>1430 Sparrows Point Blvd</b>	Copy To:	Company Name: <b>EnviroAnalytics Group</b>
<b>Sparrows Point, MD 21219</b>	PO Number: <b>EAG-SPT-6452</b>	Address: <b>1650 Des Peres Road, Suite 303 St. Louis, MO 63131</b>
Email To: <b>jcalenda@enviroanalyticalgroup.com</b>	Project Name: <b>RWM Dired Support</b>	Pace Quote Reference: <b>Samantha Bayura</b>
Phone: <b>314-620-3056</b>	Project Number: <b>2010103-1-1</b>	Pace Profile #:
Requested Due Date/TAT: <b>5-day</b>		

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW PRODUCT P SOILSOLID S OIL OL WIFE WF AIR AR OTHER OT TISSUE TS	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	Preservatives	Analysis Test	SAMPLER TEMP AT COLLECTION		DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLER NAME AND SIGNATURE	PRINT Name of SAMPLER	SIGNATURE OF SAMPLER	DATE Signed (MM/DD/YYYY)	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)	
			COMPOSITE START	COMPOSITE END/GRAB				DATE	TIME														DATE
1	RWS-MNWS	G	3/12/20	0945	1	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub> Methanol DI Water	VOC/8260B SVOC 8270D DRO/8015B GRO/8015B METALS/6010CG/24 Mercury/7474A or 7470A Hexavalent Chromium/7196A Total Cyanide/9012A PCB/8082 (soil) Oil and Grease/1664A (aq) Oil and Grease/9071B (soil) Residual Chlorine (Y/N)	1515	1515	ARM	3/12/20	1515	David F. Williams / Pace	3/12/20	1515	Joshua Barner	03/12/20						
2	RWT-MNWI	G	3/12/20	1008	1																		
3	RWK-MNWS	G	3/12/20	1050	1																		
4	RWL-MNWI	G	3/12/20	1111	1																		
5	RWN-MNWS	G	3/12/20	1154	1																		
6	RWI-MNWS	G	3/12/20	1319	1																		
7	RWY-MNWS	G	3/12/20	1351	1																		
8	RWZ-MNWS	G	3/12/20	1422	1																		
9	RWB-MNWS	G	3/12/20	1430	1																		
10																							
11																							
12																							

<b>ADDITIONAL COMMENTS:</b>	<b>RECEIVED BY / AFFILIATION:</b>	<b>DATE:</b>	<b>TIME:</b>	<b>ACCEPTED BY / AFFILIATION:</b>	<b>DATE:</b>	<b>TIME:</b>	<b>SAMPLE CONDITIONS</b>
Data Package Required? (Y/N): No	ARM	3/12/20	1515	David F. Williams / Pace	3/12/20	1515	
Data Validation Required? (Y/N): No	David F. Williams / Pace	3/12/20	1950	RDS / Pace	3/12/20	1950	Y
If data package is required, attach data package checklist.	RDS / Pace	3-12-20	2300	Miriam J. Wang	3-12-20	2300	Y N Y

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics Group

Project # # 30354521

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>mll</u>
LIMS Login	<u>mll</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 9 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 25 °C Correction Factor: 0 °C Final Temp: 25 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:	
	Yes	No	N/A		
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1002191 mll 3/13/2020	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Includes date/time/ID Matrix: <u>WT</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Short Hold Time Analysis (<72hr remaining):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>mll</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.	
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.	
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

March 19, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM Direct Support  
Pace Project No.: 30354746

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on March 13, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM Direct Support  
Pace Project No.: 30354746

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM Direct Support  
Pace Project No.: 30354746

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30354746001	RWL-MWS	Water	03/13/20 08:40	03/13/20 23:00
30354746002	RW16-MWI	Water	03/13/20 09:37	03/13/20 23:00
30354746003	RW16-MWS	Water	03/13/20 10:02	03/13/20 23:00
30354746004	RW25-MWS	Water	03/13/20 10:37	03/13/20 23:00
30354746005	RW25-MWI	Water	03/13/20 10:59	03/13/20 23:00
30354746006	RW11-MWS	Water	03/13/20 11:34	03/13/20 23:00
30354746007	RW11-MWI	Water	03/13/20 12:14	03/13/20 23:00
30354746008	RW09-MWS	Water	03/13/20 13:16	03/13/20 23:00
30354746009	RW09-MWI	Water	03/13/20 13:46	03/13/20 23:00

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM Direct Support  
Pace Project No.: 30354746

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30354746001	RWL-MWS	EPA 6010C	CTS	2	PASI-PA
30354746002	RW16-MWI	EPA 6010C	CTS	2	PASI-PA
30354746003	RW16-MWS	EPA 6010C	CTS	2	PASI-PA
30354746004	RW25-MWS	EPA 6010C	CTS	2	PASI-PA
30354746005	RW25-MWI	EPA 6010C	CTS	2	PASI-PA
30354746006	RW11-MWS	EPA 6010C	CTS	2	PASI-PA
30354746007	RW11-MWI	EPA 6010C	CTS	2	PASI-PA
30354746008	RW09-MWS	EPA 6010C	CTS	2	PASI-PA
30354746009	RW09-MWI	EPA 6010C	CTS	2	PASI-PA

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354746

Sample: <b>RWL-MWS</b>		Lab ID: <b>30354746001</b>	Collected: 03/13/20 08:40	Received: 03/13/20 23:00	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>0.85J</b>	ug/L	3.0	0.34	1	03/17/20 05:20	03/19/20 10:35	7440-43-9	
Zinc	<b>861</b>	ug/L	10.0	2.4	1	03/17/20 05:20	03/19/20 10:35	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354746

---

**Sample: RW16-MWI**      **Lab ID: 30354746002**      Collected: 03/13/20 09:37      Received: 03/13/20 23:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>0.36J</b>	ug/L	3.0	0.34	1	03/17/20 05:20	03/19/20 10:48	7440-43-9	
Zinc	<b>16.2</b>	ug/L	10.0	2.4	1	03/17/20 05:20	03/19/20 10:48	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM Direct Support  
Pace Project No.: 30354746

Sample: RW16-MWS		Lab ID: 30354746003		Collected: 03/13/20 10:02		Received: 03/13/20 23:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	03/17/20 05:20	03/19/20 10:50	7440-43-9	
Zinc	<b>10.0 U</b>	ug/L	10.0	2.4	1	03/17/20 05:20	03/19/20 10:50	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354746

---

**Sample: RW25-MWS**      **Lab ID: 30354746004**      Collected: 03/13/20 10:37      Received: 03/13/20 23:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>2.7J</b>	ug/L	3.0	0.34	1	03/17/20 05:20	03/19/20 10:57	7440-43-9	
Zinc	<b>2570</b>	ug/L	10.0	2.4	1	03/17/20 05:20	03/19/20 10:57	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354746

Sample: RW25-MWI		Lab ID: 30354746005		Collected: 03/13/20 10:59		Received: 03/13/20 23:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>633</b>	ug/L	3.0	0.34	1	03/17/20 05:20	03/19/20 10:59	7440-43-9	
Zinc	<b>355000</b>	ug/L	10000	2380	1000	03/17/20 05:20	03/19/20 11:30	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354746

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW11-MWS</b> <b>Lab ID: 30354746006</b> Collected: 03/13/20 11:34      Received: 03/13/20 23:00      Matrix: Water									
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>2.0J</b>	ug/L	3.0	0.34	1	03/17/20 05:20	03/19/20 11:01	7440-43-9	
Zinc	<b>28900</b>	ug/L	1000	238	100	03/17/20 05:20	03/19/20 11:18	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354746

---

**Sample: RW11-MWI**      **Lab ID: 30354746007**      Collected: 03/13/20 12:14      Received: 03/13/20 23:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>365</b>	ug/L	3.0	0.34	1	03/17/20 05:20	03/19/20 11:03	7440-43-9	
Zinc	<b>151000</b>	ug/L	1000	238	100	03/17/20 05:20	03/19/20 11:20	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354746

Sample: RW09-MWS		Lab ID: 30354746008		Collected: 03/13/20 13:16		Received: 03/13/20 23:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>16.9</b>	ug/L	3.0	0.34	1	03/17/20 05:20	03/19/20 11:05	7440-43-9	
Zinc	<b>20700</b>	ug/L	1000	238	100	03/17/20 05:20	03/19/20 11:22	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30354746

**Sample: RW09-MWI**      **Lab ID: 30354746009**      Collected: 03/13/20 13:46      Received: 03/13/20 23:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>10.6</b>	ug/L	3.0	0.34	1	03/17/20 05:20	03/19/20 11:08	7440-43-9	
Zinc	<b>65600</b>	ug/L	1000	238	100	03/17/20 05:20	03/19/20 11:24	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM Direct Support  
Pace Project No.: 30354746

QC Batch: 388275 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET  
Associated Lab Samples: 30354746001, 30354746002, 30354746003, 30354746004, 30354746005, 30354746006, 30354746007, 30354746008, 30354746009

METHOD BLANK: 1880861 Matrix: Water  
Associated Lab Samples: 30354746001, 30354746002, 30354746003, 30354746004, 30354746005, 30354746006, 30354746007, 30354746008, 30354746009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium	ug/L	3.0 U	3.0	0.34	03/19/20 10:31	
Zinc	ug/L	10.0 U	10.0	2.4	03/19/20 10:31	

LABORATORY CONTROL SAMPLE: 1880862

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	500	505	101	80-120	
Zinc	ug/L	500	491	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1880864 1880865

Parameter	Units	30354746001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium	ug/L	0.85J	500	500	536	535	107	107	75-125	0	20	
Zinc	ug/L	861	500	500	1340	1340	97	96	75-125	0	20	

SAMPLE DUPLICATE: 1880863

Parameter	Units	30354746001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium	ug/L	0.85J	0.92J		20	
Zinc	ug/L	861	880	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## QUALIFIERS

Project: RWM Direct Support  
Pace Project No.: 30354746

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: RWM Direct Support  
Pace Project No.: 30354746

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30354746001	RWL-MWS	EPA 3005A	388275	EPA 6010C	388373
30354746002	RW16-MWI	EPA 3005A	388275	EPA 6010C	388373
30354746003	RW16-MWS	EPA 3005A	388275	EPA 6010C	388373
30354746004	RW25-MWS	EPA 3005A	388275	EPA 6010C	388373
30354746005	RW25-MWI	EPA 3005A	388275	EPA 6010C	388373
30354746006	RW11-MWS	EPA 3005A	388275	EPA 6010C	388373
30354746007	RW11-MWI	EPA 3005A	388275	EPA 6010C	388373
30354746008	RW09-MWS	EPA 3005A	388275	EPA 6010C	388373
30354746009	RW09-MWI	EPA 3005A	388275	EPA 6010C	388373

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



**Section A**  
Required Client Information:

Company: EnviroAnalytics Group  
Address: 1430 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To: jcalenda@enviroanalyticsgroup.com  
Phone: 314-620-3056  
Requested Due Date/TAT: 6-20-04

**Section B**  
Required Project Information:

Report To: James Calenda  
Copy To:  
PO Number: EAG-SPT-0152  
Project Name: RWM Direct Sample  
Project Number: 20010103-1-1

Attention: Laura Sargent  
Company Name: EnviroAnalytics Group  
Address: 1650 Des Peres Road, Suite 303 St. Louis, MO 63131  
Pace Quote Reference:  
Pace Project Manager: Samantha Bayara  
Pace Profile #:

REGULATED BY AGENCY:  NPDES  GROUND WATER  DRINKING WATER  OTHER   
 UST  RCRA  MD  
 Site Location:

**Section D**  
Required Client Information

**SAMPLE ID**  
(A-Z, 0-9 / -)  
Sample IDs MUST BE UNIQUE

Valid Matrix Codes  
MATRIX DRINKING WATER  
WATER WASTE WATER  
PRODUCT P  
SOIL/SOLID  
OIL WIFE  
AIR AIR  
OTHER  
TSSUE

MATRIX CODE (see valid codes to left)  
SAMPLE TYPE (G=GRAB C=COMP)  
COLLECTED  
COMPOSITE START DATE TIME  
COMPOSITE END/GRAB DATE TIME  
SAMPLE TEMP AT COLLECTION

ITEM #	Valid Matrix Codes	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		DATE	TIME	DATE	TIME	ACCEPTED BY/AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
				COMPOSITE START	COMPOSITE END/GRAB								
1	RWL-MNS	WT G	G	3/13/02	0840	3/13/02	0840						
2	RWL6-MNI	WT G	G	3/13/02	0937	3/13/02	0937						
3	RWL6-MNS	WT G	G	3/13/02	1002	3/13/02	1002						
4	RWB5-MNS	WT G	G	3/13/02	1037	3/13/02	1037						
5	RWB5-MNI	WT G	G	3/13/02	1059	3/13/02	1059						
6	RW11-MNS	WT G	G	3/13/02	1134	3/13/02	1134						
7	RW11-MNI	WT G	G	3/13/02	1214	3/13/02	1214						
8	RW09-MNS	WT G	G	3/13/02	1316	3/13/02	1316						
9	RW09-MNI	WT G	G	3/13/02	1346	3/13/02	1346						
10													
11													
12													

Preservatives  
Unpreserved  
H2SO4  
HNO3  
HCl  
NaOH  
Na2O3  
Methanol  
DI Water

↑ Analysis Test  
VOC/826B  
SVOC 8270D  
DRO/8015B  
GRO/8015B  
METALS/6010CC12  
Mercury/7471A or 7470A  
Hexavalent Chromium/7196A  
Total Cyanide/9012A  
PCB/8082 (soil)  
Oil and Grease/1664A (soil)  
Oil and Grease/9071B (soil)  
Residual Chlorine (Y/N)

# OF CONTAINERS  
Pace Project No./ Lab I.D.  
001  
002  
003  
004  
005  
006  
007  
008  
009

**Section E**  
Additional Comments

Data Package Required? (Y/N): No  
Data Validation Required? (Y/N): No  
If data package is required, attach data package checklist.

DATE INQUIRED BY/AFFILIATION: JMM/Benn  
DATE: 3/13/02  
TIME: 1500  
ACCEPTED BY/AFFILIATION: JMM/Benn  
DATE: 3/13/02  
TIME: 1500  
DATE SIGNED (MM/DD/YY): 03/13/02

Temp in °C	Received on	Ice (Y/N)	Custody Sealed	Cooler (Y/N)	Samples Intact
3.6	Y	Y	N	Y	Y

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics

Project # 30354746

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Label BLM  
LIMS Login BLM

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no      Seals intact:  yes  no

Thermometer Used 10      Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 3.6 °C      Correction Factor: 0 °C      Final Temp: 3.6 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents: <u>BLM 3-14-2020</u>
	Yes	No	N/A	
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:	/			4.
Sample Labels match COC:	/			5.
-Includes date/time/ID      Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):		/		7.
Rush Turn Around Time Requested:	/			8.
Sufficient Volume:	/			9.
Correct Containers Used:	/			10.
-Pace Containers Used:	/			
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Hex Cr Aqueous sample field filtered			/	13.
Organic Samples checked for dechlorination:			/	14.
Filtered volume received for Dissolved tests			/	15.
All containers have been checked for preservation.	/			16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	/			Initial when completed <u>BLM</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):			/	17.
Trip Blank Present:			/	18.
Trip Blank Custody Seals Present			/	
Rad Samples Screened < 0.5 mrem/hr			/	Initial when completed:      Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

March 23, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: EAG-SPT-6452  
Pace Project No.: 30354891

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on March 16, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: EAG-SPT-6452

Pace Project No.: 30354891

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: EAG-SPT-6452  
Pace Project No.: 30354891

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30354891001	RWI-MWS	Water	03/16/20 09:19	03/16/20 22:45
30354891002	RWI-MWI	Water	03/16/20 09:47	03/16/20 22:45
30354891003	RW21-MWI	Water	03/16/20 10:18	03/16/20 22:45
30354891004	RW15-MWS	Water	03/16/20 10:53	03/16/20 22:45
30354891005	RW15-MWI	Water	03/16/20 11:17	03/16/20 22:45
30354891006	RW18-MWS	Water	03/16/20 12:16	03/16/20 22:45
30354891007	RW18-MWI	Water	03/16/20 13:02	03/16/20 22:45
30354891008	RWA-MWS	Water	03/16/20 13:51	03/16/20 22:45
30354891009	RWA-MWI	Water	03/16/20 14:22	03/16/20 22:45

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: EAG-SPT-6452

Pace Project No.: 30354891

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30354891001	RWI-MWS	EPA 6010C	CTS	2	PASI-PA
30354891002	RWI-MWI	EPA 6010C	CTS	2	PASI-PA
30354891003	RW21-MWI	EPA 6010C	CTS	2	PASI-PA
30354891004	RW15-MWS	EPA 6010C	CTS	2	PASI-PA
30354891005	RW15-MWI	EPA 6010C	CTS	2	PASI-PA
30354891006	RW18-MWS	EPA 6010C	CTS	2	PASI-PA
30354891007	RW18-MWI	EPA 6010C	CTS	2	PASI-PA
30354891008	RWA-MWS	EPA 6010C	CTS	2	PASI-PA
30354891009	RWA-MWI	EPA 6010C	CTS	2	PASI-PA

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: EAG-SPT-6452

Pace Project No.: 30354891

**Sample: RWI-MWS**      **Lab ID: 30354891001**      Collected: 03/16/20 09:19      Received: 03/16/20 22:45      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>125</b>	ug/L	3.0	0.34	1	03/19/20 05:52	03/20/20 10:07	7440-43-9	
Zinc	<b>1510</b>	ug/L	10.0	2.4	1	03/19/20 05:52	03/20/20 10:07	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: EAG-SPT-6452  
Pace Project No.: 30354891

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWI-MWI</b>									
<b>Lab ID: 30354891002</b>									
Collected: 03/16/20 09:47    Received: 03/16/20 22:45    Matrix: Water									
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Cadmium	<b>13300</b>	ug/L	3000	340	1000	03/19/20 05:52	03/20/20 13:48	7440-43-9	
Zinc	<b>875000</b>	ug/L	100000	23800	10000	03/19/20 05:52	03/23/20 08:22	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: EAG-SPT-6452

Pace Project No.: 30354891

Sample: RW21-MWI		Lab ID: 30354891003	Collected: 03/16/20 10:18	Received: 03/16/20 22:45	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>39.8</b>	ug/L	3.0	0.34	1	03/19/20 05:52	03/20/20 10:24	7440-43-9	
Zinc	<b>648000</b>	ug/L	10000	2380	1000	03/19/20 05:52	03/20/20 13:50	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: EAG-SPT-6452

Pace Project No.: 30354891

---

**Sample: RW15-MWS**      **Lab ID: 30354891004**      Collected: 03/16/20 10:53      Received: 03/16/20 22:45      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>4.3</b>	ug/L	3.0	0.34	1	03/19/20 05:52	03/20/20 11:01	7440-43-9	
Zinc	<b>105</b>	ug/L	10.0	2.4	1	03/19/20 05:52	03/20/20 11:01	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: EAG-SPT-6452

Pace Project No.: 30354891

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW15-MWI</b>									
<b>Lab ID: 30354891005</b>									
Collected: 03/16/20 11:17    Received: 03/16/20 22:45    Matrix: Water									
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Cadmium	<b>0.50J</b>	ug/L	3.0	0.34	1	03/19/20 05:52	03/20/20 11:04	7440-43-9	
Zinc	<b>17.9</b>	ug/L	10.0	2.4	1	03/19/20 05:52	03/20/20 11:04	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: EAG-SPT-6452

Pace Project No.: 30354891

Sample: RW18-MWS		Lab ID: 30354891006		Collected: 03/16/20 12:16		Received: 03/16/20 22:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	03/19/20 05:52	03/20/20 11:06	7440-43-9	
Zinc	<b>4.2J</b>	ug/L	10.0	2.4	1	03/19/20 05:52	03/20/20 11:06	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: EAG-SPT-6452

Pace Project No.: 30354891

Sample: RW18-MWI		Lab ID: 30354891007		Collected: 03/16/20 13:02		Received: 03/16/20 22:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>36.8</b>	ug/L	3.0	0.34	1	03/19/20 05:52	03/20/20 11:09	7440-43-9	
Zinc	<b>545000</b>	ug/L	10000	2380	1000	03/19/20 05:52	03/20/20 13:53	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: EAG-SPT-6452

Pace Project No.: 30354891

Sample: RWA-MWS		Lab ID: 30354891008	Collected: 03/16/20 13:51	Received: 03/16/20 22:45	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>0.60J</b>	ug/L	3.0	0.34	1	03/19/20 05:52	03/20/20 13:55	7440-43-9	
Zinc	<b>9.7J</b>	ug/L	10.0	2.4	1	03/19/20 05:52	03/20/20 13:55	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: EAG-SPT-6452

Pace Project No.: 30354891

Sample: RWA-MWI		Lab ID: 30354891009		Collected: 03/16/20 14:22		Received: 03/16/20 22:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>12600</b>	ug/L	3000	340	1000	03/19/20 05:52	03/20/20 13:58	7440-43-9	
Zinc	<b>521000</b>	ug/L	10000	2380	1000	03/19/20 05:52	03/20/20 13:58	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: EAG-SPT-6452  
Pace Project No.: 30354891

QC Batch: 388758 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET  
Associated Lab Samples: 30354891001, 30354891002, 30354891003, 30354891004, 30354891005, 30354891006, 30354891007, 30354891008, 30354891009

METHOD BLANK: 1883128 Matrix: Water  
Associated Lab Samples: 30354891001, 30354891002, 30354891003, 30354891004, 30354891005, 30354891006, 30354891007, 30354891008, 30354891009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium	ug/L	3.0 U	3.0	0.34	03/20/20 10:03	
Zinc	ug/L	10.0 U	10.0	2.4	03/20/20 10:03	

LABORATORY CONTROL SAMPLE: 1883129

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	500	525	105	80-120	
Zinc	ug/L	500	513	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1883131 1883132

Parameter	Units	30354891001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium	ug/L	125	500	500	685	667	112	108	75-125	3	20	
Zinc	ug/L	1510	500	500	1970	1960	93	91	75-125	1	20	

MATRIX SPIKE SAMPLE: 1883134

Parameter	Units	30355173002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L		1400	500	1930	106	75-125
Zinc	ug/L		6050000	500	6000000	-10200	75-125 ML

SAMPLE DUPLICATE: 1883130

Parameter	Units	30354891001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium	ug/L	125	127	2	20	
Zinc	ug/L	1510	1530	1	20	

SAMPLE DUPLICATE: 1883133

Parameter	Units	30355173002 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium	ug/L	1400	1400	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: EAG-SPT-6452

Pace Project No.: 30354891

---

SAMPLE DUPLICATE: 1883133

Parameter	Units	30355173002 Result	Dup Result	RPD	Max RPD	Qualifiers
Zinc	ug/L	6050000	6080000	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: EAG-SPT-6452

Pace Project No.: 30354891

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

### ANALYTE QUALIFIERS

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: EAG-SPT-6452

Pace Project No.: 30354891

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30354891001	RWI-MWS	EPA 3005A	388758	EPA 6010C	388907
30354891002	RWI-MWI	EPA 3005A	388758	EPA 6010C	388907
30354891003	RW21-MWI	EPA 3005A	388758	EPA 6010C	388907
30354891004	RW15-MWS	EPA 3005A	388758	EPA 6010C	388907
30354891005	RW15-MWI	EPA 3005A	388758	EPA 6010C	388907
30354891006	RW18-MWS	EPA 3005A	388758	EPA 6010C	388907
30354891007	RW18-MWI	EPA 3005A	388758	EPA 6010C	388907
30354891008	RWA-MWS	EPA 3005A	388758	EPA 6010C	388907
30354891009	RWA-MWI	EPA 3005A	388758	EPA 6010C	388907

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



**Section A**  
Required Client Information:  
Company: EnviroAnalytics Group  
Address: 1430 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To: jcalenda@enviroanalyticsgroup.com  
Phone: 314-620-3056  
Requested Due Date/TAT: 5-day

**Section B**  
Required Project Information:  
Report To: James Calenda  
Copy To:  
PO Number: EAG-SPT-6452  
Project Name: RWA-ANN Direct Support  
Project Number: 20010103-1-1

**Section C**  
Invoice Information:  
Attention: Laura Sargent  
Company Name: EnviroAnalytics Group  
Address: 1650 Dee Pares Road, Suite 303 St. Louis, MO 63131  
Pace Quote Reference:  
Pace Project Manager: Samantha Bayura  
Pace Profile #:

**REGULATORY AGENCY:**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER  
Site Location: MD

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE	MATRIX CODE (see valid codes to left)	COLLECTED		# OF CONTAINERS	Preservatives	Analysis Test	Requested Analytes/Parameters (P/P)	Pace Project No./ Lab I.D.
				COMPOSITE START	COMPOSITE END/GRAB					
1	RWI-ANN'S	DRINKING WATER	WT G	3/16/20	0919		Unpreserved	H <sub>2</sub> O <sub>4</sub>		
2	RWI-MWI	WASTE WATER	WT G	3/16/20	0947		HCl	Hexavalent Chromium/7196A		
3	RW21-MWI	WASTE WATER	WT G	3/16/20	1018		NaOH	Mercury/7471A or 7470A		
4	RW15-MW'S	WASTE WATER	WT G	3/16/20	1053		Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Total Cyanide/9012A		
5	RW15-MWI	WASTE WATER	WT G	3/16/20	1117		HNO <sub>3</sub>	Oil and Grease/1664A (soil)		
6	RW18-MW'S	WASTE WATER	WT G	3/16/20	1216		DI Water	Oil and Grease/9071B (soil)		
7	RW18-MWI	WASTE WATER	WT G	3/16/20	1302		Methanol	PB/8082 (soil)		
8	RWA-ANN'S	WASTE WATER	WT G	3/16/20	1351		Unpreserved	Residual Chlorine (Y/N)		
9	RWA-MWI	WASTE WATER	WT G	3/16/20	1422		Unpreserved	Residual Chlorine (Y/N)		

ADDITIONAL COMMENTS	REQUISITIONER/AFFILIATION	DATE	TIME	ACCEPTED BY/AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Data Package Required? (Y/N): No	Ann Bann ARM	3/16/2020	1500	David FH	3/16/20	1735	
Data Validation Required? (Y/N): No	David FH	3/16/20	1500	RD5	3/16/20	2005	Y
If data package is required, attach data package checklist.	RD5	3/16/20	2245	Morgan J	3/16/20	2245	Y

**SAMPLER NAME AND SIGNATURE:**  
PRINT Name of SAMPLER: *Joshua Bann*  
SIGNATURE of SAMPLER: *Ann Bann*  
DATE Signed (MM/DD/YY): 03/16/20

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics Group

Project # #-30354891

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>MLC</u>
LIMS Login	<u>MLC</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used ID Type of Ice: Wet Blue None

Cooler Temperature Observed Temp 38 °C Correction Factor: 3 °C Final Temp: 3.5 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:
	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. <u>100C191</u>
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC: -Includes date/time/ID Matrix: <u>WT</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used: -Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>MLC</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed: _____ Date: _____

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

March 23, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM Direct Support  
Pace Project No.: 30355173

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on March 17, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## CERTIFICATIONS

Project: RWM Direct Support  
Pace Project No.: 30355173

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM Direct Support  
Pace Project No.: 30355173

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30355173001	RW19-MWS	Water	03/17/20 09:15	03/17/20 22:30
30355173002	RW19-MWI	Water	03/17/20 09:53	03/17/20 22:30
30355173003	RWQ-MWS	Water	03/17/20 10:48	03/17/20 22:30
30355173004	RWQ-MWI	Water	03/17/20 11:13	03/17/20 22:30
30355173005	RWP-MWI	Water	03/17/20 12:20	03/17/20 22:30
30355173006	RWS-MWS	Water	03/17/20 13:03	03/17/20 22:30
30355173007	RWS-MWI	Water	03/17/20 13:29	03/17/20 22:30
30355173008	RW22R-MWS	Water	03/17/20 14:25	03/17/20 22:30
30355173009	RW22R-MWI	Water	03/17/20 14:46	03/17/20 22:30

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM Direct Support  
Pace Project No.: 30355173

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30355173001	RW19-MWS	EPA 6010C	CTS	2	PASI-PA
30355173002	RW19-MWI	EPA 6010C	CTS	2	PASI-PA
30355173003	RWQ-MWS	EPA 6010C	CTS	2	PASI-PA
30355173004	RWQ-MWI	EPA 6010C	CTS	2	PASI-PA
30355173005	RWP-MWI	EPA 6010C	CTS	2	PASI-PA
30355173006	RWS-MWS	EPA 6010C	CTS	2	PASI-PA
30355173007	RWS-MWI	EPA 6010C	CTS	2	PASI-PA
30355173008	RW22R-MWS	EPA 6010C	CTS	2	PASI-PA
30355173009	RW22R-MWI	EPA 6010C	CTS	2	PASI-PA

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support  
Pace Project No.: 30355173

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW19-MWS      Lab ID: 30355173001      Collected: 03/17/20 09:15      Received: 03/17/20 22:30      Matrix: Water</b>									
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>0.66J</b>	ug/L	3.0	0.34	1	03/19/20 05:52	03/20/20 11:16	7440-43-9	
Zinc	<b>5300</b>	ug/L	100	23.8	10	03/19/20 05:52	03/20/20 14:00	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support  
Pace Project No.: 30355173

Sample: RW19-MWI		Lab ID: 30355173002		Collected: 03/17/20 09:53		Received: 03/17/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>1400</b>	ug/L	30.0	3.4	10	03/19/20 05:52	03/20/20 14:03	7440-43-9	
Zinc	<b>6050000</b>	ug/L	1000000	238000	10000	03/19/20 05:52	03/23/20 08:14	7440-66-6	ML
					0				

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355173

Sample: RWQ-MWS		Lab ID: 30355173003		Collected: 03/17/20 10:48		Received: 03/17/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>3.1</b>	ug/L	3.0	0.34	1	03/19/20 05:52	03/20/20 12:59	7440-43-9	
Zinc	<b>194</b>	ug/L	10.0	2.4	1	03/19/20 05:52	03/20/20 12:59	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355173

---

**Sample: RWQ-MWI**      **Lab ID: 30355173004**      Collected: 03/17/20 11:13      Received: 03/17/20 22:30      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>1.9J</b>	ug/L	3.0	0.34	1	03/19/20 05:52	03/20/20 13:01	7440-43-9	
Zinc	<b>312000</b>	ug/L	10000	2380	1000	03/19/20 05:52	03/20/20 14:26	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355173

Sample: RWP-MWI		Lab ID: 30355173005		Collected: 03/17/20 12:20		Received: 03/17/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>5560</b>	ug/L	30.0	3.4	10	03/19/20 05:52	03/20/20 14:29	7440-43-9	
Zinc	<b>3860000</b>	ug/L	10000	2380	1000	03/19/20 05:52	03/20/20 14:31	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355173

---

**Sample: RWS-MWS**      **Lab ID: 30355173006**      Collected: 03/17/20 13:03      Received: 03/17/20 22:30      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	03/19/20 05:52	03/20/20 13:06	7440-43-9	
Zinc	<b>19100</b>	ug/L	10000	2380	1000	03/19/20 05:52	03/20/20 14:34	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355173

Sample: RWS-MWI		Lab ID: 30355173007		Collected: 03/17/20 13:29		Received: 03/17/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	03/19/20 05:52	03/20/20 13:08	7440-43-9	
Zinc	<b>1070000</b>	ug/L	10000	2380	1000	03/19/20 05:52	03/20/20 14:36	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support  
Pace Project No.: 30355173

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW22R-MWS      Lab ID: 30355173008      Collected: 03/17/20 14:25      Received: 03/17/20 22:30      Matrix: Water</b>									
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>62.9</b>	ug/L	3.0	0.34	1	03/19/20 05:52	03/20/20 13:11	7440-43-9	
Zinc	<b>213000</b>	ug/L	10000	2380	1000	03/19/20 05:52	03/20/20 14:39	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355173

---

**Sample: RW22R-MWI**      **Lab ID: 30355173009**      Collected: 03/17/20 14:46      Received: 03/17/20 22:30      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	03/19/20 05:52	03/20/20 13:13	7440-43-9	
Zinc	<b>1810</b>	ug/L	10.0	2.4	1	03/19/20 05:52	03/20/20 13:13	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM Direct Support

Pace Project No.: 30355173

QC Batch: 388758 Analysis Method: EPA 6010C  
 QC Batch Method: EPA 3005A Analysis Description: 6010C MET  
 Associated Lab Samples: 30355173001, 30355173002, 30355173003, 30355173004, 30355173005, 30355173006, 30355173007, 30355173008, 30355173009

METHOD BLANK: 1883128 Matrix: Water  
 Associated Lab Samples: 30355173001, 30355173002, 30355173003, 30355173004, 30355173005, 30355173006, 30355173007, 30355173008, 30355173009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium	ug/L	3.0 U	3.0	0.34	03/20/20 10:03	
Zinc	ug/L	10.0 U	10.0	2.4	03/20/20 10:03	

LABORATORY CONTROL SAMPLE: 1883129

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	500	525	105	80-120	
Zinc	ug/L	500	513	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1883131 1883132

Parameter	Units	30354891001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium	ug/L	125	500	500	685	667	112	108	75-125	3	20	
Zinc	ug/L	1510	500	500	1970	1960	93	91	75-125	1	20	

MATRIX SPIKE SAMPLE: 1883134

Parameter	Units	30355173002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	1400	500	1930	106	75-125	
Zinc	ug/L	6050000	500	6000000	-10200	75-125 ML	

SAMPLE DUPLICATE: 1883130

Parameter	Units	30354891001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium	ug/L	125	127	2	20	
Zinc	ug/L	1510	1530	1	20	

SAMPLE DUPLICATE: 1883133

Parameter	Units	30355173002 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium	ug/L	1400	1400	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM Direct Support

Pace Project No.: 30355173

SAMPLE DUPLICATE: 1883133

Parameter	Units	30355173002 Result	Dup Result	RPD	Max RPD	Qualifiers
Zinc	ug/L	6050000	6080000	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM Direct Support

Pace Project No.: 30355173

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

### ANALYTE QUALIFIERS

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM Direct Support  
Pace Project No.: 30355173

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30355173001	RW19-MWS	EPA 3005A	388758	EPA 6010C	388907
30355173002	RW19-MWI	EPA 3005A	388758	EPA 6010C	388907
30355173003	RWQ-MWS	EPA 3005A	388758	EPA 6010C	388907
30355173004	RWQ-MWI	EPA 3005A	388758	EPA 6010C	388907
30355173005	RWP-MWI	EPA 3005A	388758	EPA 6010C	388907
30355173006	RWS-MWS	EPA 3005A	388758	EPA 6010C	388907
30355173007	RWS-MWI	EPA 3005A	388758	EPA 6010C	388907
30355173008	RW22R-MWS	EPA 3005A	388758	EPA 6010C	388907
30355173009	RW22R-MWI	EPA 3005A	388758	EPA 6010C	388907

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



**CHAIN-OF-CUSTODY / Analytical Request Document**  
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed

WO#: 30355173



30355173

<b>Section A</b>		<b>Section B</b>		<b>Section C</b>	
Required Client Information:		Required Project Information:		Invoice Information:	
Company:	EnviroAnalytics Group	Report To:	James Calenda	Attention:	Laura Sargent
Address:	1430 Sparrows Point Blvd Sparrows Point, MD 21219	Copy To:		Company Name:	EnviroAnalytics Group
Email To:	jcagenda@enviroanalyticalgroup.com	PO Number:	EAG-SPT-6452	Address:	1850 Doe Pines Road, Suite 303 St. Louis, MO 63131
Phone:	314-620-3056	Project Name:	RWM Direct Support	Regulatory Agency:	MD
Requested Due Date/TAT:	5-day	Project Number:	20010103-1-1	NPDES	<input type="checkbox"/>
				UST	<input type="checkbox"/>
				RCRA	<input type="checkbox"/>
				OTHER	<input type="checkbox"/>

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WW WASTE WATER P PRODUCT SOL/SOLID OIL SL W/PE AIR OTHER TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	Preservatives	Requested Analytical Parameters (MPN)	Pace Project No./ Lab ID.
				COMPOSITE START	COMPOSITE END/GRAB				
1		WT G	G	3/17/20 0915			Unpreserved H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Methanol DI Water	Oil and Grease/1664A (soil) Oil and Grease/9071B (soil) Residual Chlorine (Y/N)	
2	RW19-MNLS	WT G	G	3/17/20 0953				001	
3	RW19-MNLI	WT G	G	3/17/20 1048				002	
4	RWB-MNLS	WT G	G	3/17/20 1113				003	
5	RWB-MNLI	WT G	G	3/17/20 1228				004	
6	RWP-MNLI	WT G	G	3/17/20 1303				005	
7	RWS-MNLS	WT G	G	3/17/20 1329				006	
8	RWS-MNLI	WT G	G	3/17/20 1436				007	
9	RWB-R-MNLS	WT G	G	3/17/20 1446				008	
10	RWB-R-MNLI	WT G	G					009	
11									
12									

ADDITIONAL COMMENTS	REQUISITIONER/AFFILIATION	DATE	TIME	ACCEPTED BY/AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Data Package Required? (Y/N): No	Anna Bonn	03/17/20	1500	David Hill	03/17/20	1550	
Data Validation Required? (Y/N): No	David Hill	03/17/20	1930	RDS	3/17/20	1935	Y
If data package is required, attach data package checklist.	RDS	3-17-20	2230	Manish J (log)	3/17/20	2230	Y U

**SAMPLER NAME AND SIGNATURE:**  
PRINT Name of SAMPLER: Joshua Bonn  
SIGNATURE of SAMPLER: Anna Bonn  
DATE Signed (MM/DD/YYYY): 03/17/20

Temp in °C: \_\_\_\_\_  
Received on Ice (Y/N): \_\_\_\_\_  
Custody Sealed (Y/N): \_\_\_\_\_  
Samples Intact (Y/N): \_\_\_\_\_

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics Group Project # \_\_\_\_\_

# 30355173

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>MLC</u>
LIMS Login	<u>MLC</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used ID Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 3.1 °C Correction Factor: .3 °C Final Temp: 28 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents	
	Yes	No	N/A	<u>1052191</u>	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>MLC 3/18/20</u>	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Includes date/time/ID Matrix: <u>WT</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Short Hold Time Analysis (<72hr remaining):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>MLC</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

March 25, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM Direct Support  
Pace Project No.: 30355379

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on March 18, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM Direct Support  
Pace Project No.: 30355379

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM Direct Support

Pace Project No.: 30355379

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30355379001	RWM-MWS	Water	03/18/20 09:10	03/18/20 22:00
30355379002	RWM-MWI	Water	03/18/20 09:43	03/18/20 22:00
30355379003	RWH-MWS	Water	03/18/20 10:34	03/18/20 22:00
30355379004	RWH-MWI	Water	03/18/20 10:56	03/18/20 22:00
30355379005	RWR-MWS	Water	03/18/20 12:06	03/18/20 22:00
30355379006	RWR-MWI	Water	03/18/20 12:54	03/18/20 22:00
30355379007	RW08-MWS	Water	03/18/20 13:53	03/18/20 22:00
30355379008	RW08-MWI	Water	03/18/20 14:17	03/18/20 22:00
30355379009	RWD-MWS	Water	03/18/20 09:55	03/18/20 22:00
30355379010	RWD-MWI	Water	03/18/20 10:45	03/18/20 22:00
30355379011	RW07-MWS	Water	03/18/20 11:40	03/18/20 22:00
30355379012	RW07-MWI	Water	03/18/20 12:20	03/18/20 22:00
30355379013	RW06-MWI	Water	03/18/20 13:25	03/18/20 22:00
30355379014	RW06-MWD	Water	03/18/20 14:00	03/18/20 22:00
30355379015	RW06R-MWS	Water	03/18/20 14:30	03/18/20 22:00

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM Direct Support  
Pace Project No.: 30355379

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30355379001	RWM-MWS	EPA 6010C	KAS	2	PASI-PA
30355379002	RWM-MWI	EPA 6010C	KAS	2	PASI-PA
30355379003	RWH-MWS	EPA 6010C	KAS	2	PASI-PA
30355379004	RWH-MWI	EPA 6010C	KAS	2	PASI-PA
30355379005	RWR-MWS	EPA 6010C	KAS	2	PASI-PA
30355379006	RWR-MWI	EPA 6010C	KAS	2	PASI-PA
30355379007	RW08-MWS	EPA 6010C	KAS	2	PASI-PA
30355379008	RW08-MWI	EPA 6010C	KAS	2	PASI-PA
30355379009	RWD-MWS	EPA 6010C	KAS	2	PASI-PA
30355379010	RWD-MWI	EPA 6010C	KAS	2	PASI-PA
30355379011	RW07-MWS	EPA 6010C	KAS	2	PASI-PA
30355379012	RW07-MWI	EPA 6010C	KAS	2	PASI-PA
30355379013	RW06-MWI	EPA 6010C	KAS	2	PASI-PA
30355379014	RW06-MWD	EPA 6010C	KAS	2	PASI-PA
30355379015	RW06R-MWS	EPA 6010C	KAS	2	PASI-PA

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355379

---

**Sample: RWM-MWS**      **Lab ID: 30355379001**      Collected: 03/18/20 09:10      Received: 03/18/20 22:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	03/23/20 05:27	03/24/20 15:00	7440-43-9	
Zinc	<b>4.8J</b>	ug/L	10.0	2.4	1	03/23/20 05:27	03/24/20 15:00	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355379

Sample: RWM-MWI		Lab ID: 30355379002		Collected: 03/18/20 09:43		Received: 03/18/20 22:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>1120</b>	ug/L	3.0	0.34	1	03/23/20 05:27	03/24/20 15:14	7440-43-9	
Zinc	<b>139000</b>	ug/L	1000	238	100	03/23/20 05:27	03/24/20 16:21	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355379

Sample: RWH-MWS		Lab ID: 30355379003		Collected: 03/18/20 10:34		Received: 03/18/20 22:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>163</b>	ug/L	3.0	0.34	1	03/23/20 05:27	03/24/20 15:19	7440-43-9	
Zinc	<b>19300</b>	ug/L	1000	238	100	03/23/20 05:27	03/24/20 16:23	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355379

Sample: RWH-MWI		Lab ID: 30355379004		Collected: 03/18/20 10:56		Received: 03/18/20 22:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>3210</b>	ug/L	3.0	0.34	1	03/23/20 05:27	03/24/20 15:29	7440-43-9	
Zinc	<b>406000</b>	ug/L	10000	2380	1000	03/23/20 05:27	03/24/20 16:26	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355379

<b>Sample: RWR-MWS</b>		<b>Lab ID: 30355379005</b>		Collected: 03/18/20 12:06	Received: 03/18/20 22:00	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>38.8</b>	ug/L	3.0	0.34	1	03/23/20 05:27	03/24/20 15:31	7440-43-9	
Zinc	<b>344000</b>	ug/L	10000	2380	1000	03/23/20 05:27	03/24/20 16:28	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355379

Sample: RWR-MWI		Lab ID: 30355379006		Collected: 03/18/20 12:54		Received: 03/18/20 22:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>340</b>	ug/L	3.0	0.34	1	03/23/20 05:27	03/24/20 15:35	7440-43-9	
Zinc	<b>814000</b>	ug/L	10000	2380	1000	03/23/20 05:27	03/24/20 16:50	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355379

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW08-MWS</b>									
<b>Lab ID: 30355379007</b>									
Collected: 03/18/20 13:53    Received: 03/18/20 22:00    Matrix: Water									
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Cadmium	<b>2.7J</b>	ug/L	3.0	0.34	1	03/23/20 05:27	03/24/20 15:41	7440-43-9	
Zinc	<b>10300</b>	ug/L	1000	238	100	03/23/20 05:27	03/24/20 16:33	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355379

---

**Sample: RW08-MWI**      **Lab ID: 30355379008**      Collected: 03/18/20 14:17      Received: 03/18/20 22:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	03/23/20 05:27	03/24/20 15:44	7440-43-9	
Zinc	<b>33.4</b>	ug/L	10.0	2.4	1	03/23/20 05:27	03/24/20 15:44	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355379

Sample: RWD-MWS		Lab ID: 30355379009		Collected: 03/18/20 09:55		Received: 03/18/20 22:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	03/23/20 05:27	03/24/20 15:46	7440-43-9	
Zinc	<b>3.6J</b>	ug/L	10.0	2.4	1	03/23/20 05:27	03/24/20 15:46	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355379

Sample: RWD-MWI		Lab ID: 30355379010		Collected: 03/18/20 10:45		Received: 03/18/20 22:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>555</b>	ug/L	3.0	0.34	1	03/23/20 05:27	03/24/20 15:49	7440-43-9	
Zinc	<b>50400</b>	ug/L	1000	238	100	03/23/20 05:27	03/24/20 16:42	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355379

---

**Sample: RW07-MWS**      **Lab ID: 30355379011**      Collected: 03/18/20 11:40      Received: 03/18/20 22:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>2.5J</b>	ug/L	3.0	0.34	1	03/23/20 05:27	03/24/20 15:54	7440-43-9	
Zinc	<b>124</b>	ug/L	10.0	2.4	1	03/23/20 05:27	03/24/20 15:54	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355379

Sample: RW07-MWI		Lab ID: 30355379012		Collected: 03/18/20 12:20		Received: 03/18/20 22:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>36.0</b>	ug/L	3.0	0.34	1	03/23/20 05:27	03/24/20 16:09	7440-43-9	
Zinc	<b>39000</b>	ug/L	1000	238	100	03/23/20 05:27	03/24/20 16:45	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355379

---

**Sample: RW06-MWI**      **Lab ID: 30355379013**      Collected: 03/18/20 13:25      Received: 03/18/20 22:00      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>690</b>	ug/L	3.0	0.34	1	03/23/20 05:27	03/24/20 16:12	7440-43-9	
Zinc	<b>117000</b>	ug/L	1000	238	100	03/23/20 05:27	03/24/20 16:47	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355379

---

**Sample: RW06-MWD**      **Lab ID: 30355379014**      Collected: 03/18/20 14:00      Received: 03/18/20 22:00      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	03/23/20 05:27	03/24/20 16:15	7440-43-9	
Zinc	<b>11.9</b>	ug/L	10.0	2.4	1	03/23/20 05:27	03/24/20 16:15	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM Direct Support

Pace Project No.: 30355379

Sample: RW06R-MWS		Lab ID: 30355379015		Collected: 03/18/20 14:30		Received: 03/18/20 22:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	03/23/20 05:27	03/24/20 16:18	7440-43-9	
Zinc	<b>4.1J</b>	ug/L	10.0	2.4	1	03/23/20 05:27	03/24/20 16:18	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM Direct Support  
Pace Project No.: 30355379

QC Batch: 389200 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET  
Associated Lab Samples: 30355379001, 30355379002, 30355379003, 30355379004, 30355379005, 30355379006, 30355379007, 30355379008, 30355379009, 30355379010, 30355379011, 30355379012, 30355379013, 30355379014, 30355379015

METHOD BLANK: 1885564 Matrix: Water  
Associated Lab Samples: 30355379001, 30355379002, 30355379003, 30355379004, 30355379005, 30355379006, 30355379007, 30355379008, 30355379009, 30355379010, 30355379011, 30355379012, 30355379013, 30355379014, 30355379015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium	ug/L	3.0 U	3.0	0.34	03/24/20 14:55	
Zinc	ug/L	10.0 U	10.0	2.4	03/24/20 14:55	

LABORATORY CONTROL SAMPLE: 1885565

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	500	517	103	80-120	
Zinc	ug/L	500	513	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1885567 1885568

Parameter	Units	30355379001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium	ug/L	3.0 U	500	500	520	512	104	102	75-125	2	20	
Zinc	ug/L	4.8J	500	500	511	501	101	99	75-125	2	20	

MATRIX SPIKE SAMPLE: 1885570

Parameter	Units	30355379011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	2.5J	500	556	111	75-125	
Zinc	ug/L	124	500	644	104	75-125	

SAMPLE DUPLICATE: 1885566

Parameter	Units	30355379001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium	ug/L	3.0 U	3.0 U		20	
Zinc	ug/L	4.8J	5.0J		20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM Direct Support

Pace Project No.: 30355379

SAMPLE DUPLICATE: 1885569

Parameter	Units	30355379011 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium	ug/L	2.5J	2.6J		20	
Zinc	ug/L	124	122	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM Direct Support

Pace Project No.: 30355379

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM Direct Support  
Pace Project No.: 30355379

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30355379001	RWM-MWS	EPA 3005A	389200	EPA 6010C	389325
30355379002	RWM-MWI	EPA 3005A	389200	EPA 6010C	389325
30355379003	RWH-MWS	EPA 3005A	389200	EPA 6010C	389325
30355379004	RWH-MWI	EPA 3005A	389200	EPA 6010C	389325
30355379005	RWR-MWS	EPA 3005A	389200	EPA 6010C	389325
30355379006	RWR-MWI	EPA 3005A	389200	EPA 6010C	389325
30355379007	RW08-MWS	EPA 3005A	389200	EPA 6010C	389325
30355379008	RW08-MWI	EPA 3005A	389200	EPA 6010C	389325
30355379009	RWD-MWS	EPA 3005A	389200	EPA 6010C	389325
30355379010	RWD-MWI	EPA 3005A	389200	EPA 6010C	389325
30355379011	RW07-MWS	EPA 3005A	389200	EPA 6010C	389325
30355379012	RW07-MWI	EPA 3005A	389200	EPA 6010C	389325
30355379013	RW06-MWI	EPA 3005A	389200	EPA 6010C	389325
30355379014	RW06-MWD	EPA 3005A	389200	EPA 6010C	389325
30355379015	RW06R-MWS	EPA 3005A	389200	EPA 6010C	389325

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



# CHAIN-OF-CUSTODY / Analytical Request Document

NO#: 30355379

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed.



30355379

<b>Section A</b> Required Client Information:		<b>Section B</b> Required Project Information:		<b>Section C</b> Invoice Information:	
Company: EnviroAnalytics Group	Report To: James Calenda	Company Name: EnviroAnalytics Group	Attention: Laura Sargent	REGULATORY AGENCY:	
Address: 1430 Sparrows Point Blvd	Copy To:	Address: 1650 Des Peres Road, Suite 303 St. Louis, MO 63131		<input type="checkbox"/> NPDES	<input type="checkbox"/> GROUND WATER
				<input type="checkbox"/> UST	<input type="checkbox"/> RCRA
				<input type="checkbox"/> DRINKING WATER	<input type="checkbox"/> OTHER
Email To: jcalenda@enviroanalyticalgroup.com	PO Number: EAG-SPT-6452	Pace Quote Reference:		Alt. Location: MD	
Phone: 314-620-3056	Project Name: RWM Direct Support	Pace Project Manager:		Requested Analysis/Retransmit (Y/N)	
Requested Due Date/TAT: 5 days	Project Number: 20010103-1-1	Pace Profile #:			

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WT WASTE WATER PRODUCT P SOIL/SOLID SL OIL OL WIFE WR AIR AR OTHER OT TISSUE TS	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Preservatives	Analysis Test	ACCEPTED BY/AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
			COMPOSITE START	COMPOSITE END/GRAB									
1	RWM-MWS				WT G		1	Unpreserved	DI Water		3/18/20	0910	
2	RWM-MWI				WT G		1	H2SO4	Methanol		3/18/20	0943	
3	RWH-MWS				WT G		1	HNO3	Na2S2O3		3/18/20	1031	
4	RWA-MWI				WT G		1	HCl	NaOH		3/18/20	1056	
5	RWR-MWS				WT G		1	Unpreserved			3/18/20	1006	
6	RWR-MWI				WT G		1	H2SO4			3/18/20	1254	
7	RW08-MWS				WT G		1	HNO3			3/18/20	1353	
8	RW08-MWI				WT G		1	HCl			3/18/20	1417	
9	RWD-MWS				WT G		1	Unpreserved			3/18/20	0955	
10	RWD-MWI				WT G		1	H2SO4			3/18/20	1045	
11	RW07-MWS				WT G		1	HNO3			3/18/20	1140	
12	RW07-MWI				WT G		1	HCl			3/18/20	1220	

Data Package Required? (Y/N): No Data Validation Required? (Y/N): No If data package is required, attach data package checklist.		REQUISITION BY/AFFILIATION: DMW Bmw ARM DATE: 3/18/20 TIME: 1500	ACCEPTED BY/AFFILIATION: DMW Bmw ARM DATE: 3/18/20 TIME: 1500	TEMP IN °C: 13/16 Received on Ice (Y/N): Y Custody Sealed Cooler (Y/N): Y Samples Intact (Y/N): Y
ADDITIONAL COMMENTS: DMW Bmw ARM DMW Bmw ARM DMW Bmw ARM		SAMPLER NAME AND SIGNATURE: PRINT Name of SAMPLER: Joshua Boney/Lisa Perera SIGNATURE of SAMPLER: DMW Bmw ARM DATE SIGNED (MM/DD/YYYY): 03/19/20		

**Section A**  
Required Client Information:  
Company: **EnviroAnalytics Group**  
Address: **1600 Sparrows Point Blvd, Suite B2 Sparrows Point, MD 21219**  
Email To: **iscalend@enviroanalyticsgroup.com**  
Phone: **314-620-3056** Fax:  
Requested Due Date/TAT: **5 Day**

**Section B**  
Required Project Information:  
Report To: **James Calenda**  
Copy To: **Stewart Kabis**  
Purchase Order No.: **EAG-SPT-6452**  
Project Name: **RWM GW Sampling**  
Project Number: **20010103-1-1**

**Section C**  
Invoice Information:  
Attention: **Laura Sargent**  
Company Name: **EnviroAnalytics Group**  
Address: **1650 Des Peres Road, Suite 303 St. Louis, MO 63131**  
Pace Quote Reference:  
Pace Project Manager: **Samantha Bayura**  
Pace Profile #:  
REGULATORY AGENCY  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER  
Site Location: **MD**

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OL WIPE WIP AIR AIR OTHER OT TISSUE TS	SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Methanol Other	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
			DATE	TIME							
1		Rw06-mwE	3/18/20	1325	WTG		1		Y		013
2		Rw06-mwD	3/18/20	1400	WTG		1		Y		014
3		Rw06R-mwS	3/18/20	1430	WTG		1		Y		015
4											
5											
6											
7											
8											
9											
10											
11											
12											

**ADDITIONAL COMMENTS**  
Data pgs 10  
Validation Q

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Mw Bann ARM	3/18/20	1300	Mw Bann / Pace	3/18/20	1335	
Mw Bann / Pace	3/18/20	1800	Mw Bann / Pace	3/18/20	1815	Y
RWS FACs	3/18/20	2200	Mw Bann / Pace	3/18/20	2200	Y

Temp in °C: 13.1  
Received on Ice (Y/N): Y  
Custody Sealed Cooler (Y/N): N  
Samples Intact (Y/N): Y

**SAMPLER NAME AND SIGNATURE**  
PRINT Name of SAMPLER: **Doshna Bann / Lisa Perrin**  
SIGNATURE OF SAMPLER: **Mw Bann**  
DATE SIGNED (MM/DD/YYYY): **03/18/20**

Pittsburgh Lab Sample Condition Upon Receipt

# 30355379



Client Name: EnviroAnalytics Group Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Label	<u>MLL</u>
LIMS Login	<u>MLL</u>

Tracking #: NIVE

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 10 Type of Ice: Wet Blue None

Cooler Temperature Observed Temp 1.6/32 °C Correction Factor: .3 °C Final Temp: 1.3/32 °C  
Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents
				<u>1002191</u>	<u>MLL 3/19/2020</u>
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.	
Sample Labels match COC: -Includes date/time/ID Matrix: <u>WT</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5.	<u>Sample RW06-MWD had no time on sample label</u>
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.	
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.	
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.	
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.	
Correct Containers Used: -Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.	
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.	
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.	
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.	
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.	
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.	
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.	
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.	
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

March 26, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30355629

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on March 19, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30355629

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Florida: Cert E871149 SEKS WET  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30355629

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30355629001	RW01-MWS	Water	03/19/20 09:18	03/19/20 22:15
30355629002	RW01-MWI	Water	03/19/20 09:47	03/19/20 22:15
30355629003	RW02-MWS	Water	03/19/20 10:33	03/19/20 22:15
30355629004	RW02-MWI	Water	03/19/20 11:35	03/19/20 22:15
30355629005	RW03-MWS	Water	03/19/20 12:53	03/19/20 22:15
30355629006	RW03-MWI	Water	03/19/20 13:15	03/19/20 22:15
30355629007	RWE-MWS	Water	03/19/20 13:57	03/19/20 22:15
30355629008	RWE-MWI	Water	03/19/20 14:19	03/19/20 22:15

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30355629

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30355629001	RW01-MWS	EPA 6010C	KAS	2	PASI-PA
30355629002	RW01-MWI	EPA 6010C	KAS	2	PASI-PA
30355629003	RW02-MWS	EPA 6010C	KAS	2	PASI-PA
30355629004	RW02-MWI	EPA 6010C	KAS	2	PASI-PA
30355629005	RW03-MWS	EPA 6010C	KAS	2	PASI-PA
30355629006	RW03-MWI	EPA 6010C	KAS	2	PASI-PA
30355629007	RWE-MWS	EPA 6010C	KAS	2	PASI-PA
30355629008	RWE-MWI	EPA 6010C	KAS	2	PASI-PA

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30355629

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW01-MWS      Lab ID: 30355629001      Collected: 03/19/20 09:18      Received: 03/19/20 22:15      Matrix: Water</b>									
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>4.4</b>	ug/L	3.0	0.34	1	03/23/20 05:28	03/24/20 20:29	7440-43-9	
Zinc	<b>9810</b>	ug/L	1000	238	100	03/23/20 05:28	03/24/20 21:35	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30355629

Sample: RW01-MWI		Lab ID: 30355629002		Collected: 03/19/20 09:47		Received: 03/19/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>49.3</b>	ug/L	3.0	0.34	1	03/23/20 05:28	03/24/20 20:31	7440-43-9	
Zinc	<b>8120</b>	ug/L	1000	238	100	03/23/20 05:28	03/24/20 21:37	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30355629

**Sample: RW02-MWS**      **Lab ID: 30355629003**      Collected: 03/19/20 10:33      Received: 03/19/20 22:15      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>0.97J</b>	ug/L	3.0	0.34	1	03/23/20 05:28	03/24/20 20:34	7440-43-9	
Zinc	<b>269</b>	ug/L	10.0	2.4	1	03/23/20 05:28	03/24/20 20:34	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30355629

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW02-MWI</b>									
<b>Lab ID: 30355629004</b>									
Collected: 03/19/20 11:35    Received: 03/19/20 22:15    Matrix: Water									
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Cadmium	<b>136</b>	ug/L	3.0	0.34	1	03/23/20 05:28	03/24/20 20:36	7440-43-9	
Zinc	<b>14100</b>	ug/L	1000	238	100	03/23/20 05:28	03/24/20 21:39	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30355629

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW03-MWS</b>									
<b>Lab ID: 30355629005</b>									
Collected: 03/19/20 12:53    Received: 03/19/20 22:15    Matrix: Water									
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Cadmium	<b>18.8</b>	ug/L	3.0	0.34	1	03/23/20 05:28	03/24/20 20:38	7440-43-9	
Zinc	<b>16800</b>	ug/L	1000	238	100	03/23/20 05:28	03/24/20 21:42	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30355629

<b>Sample: RW03-MWI</b>		<b>Lab ID: 30355629006</b>		Collected: 03/19/20 13:15	Received: 03/19/20 22:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>451</b>	ug/L	3.0	0.34	1	03/23/20 05:28	03/24/20 20:40	7440-43-9	
Zinc	<b>12900</b>	ug/L	1000	238	100	03/23/20 05:28	03/24/20 21:44	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30355629

Sample: RWE-MWS		Lab ID: 30355629007		Collected: 03/19/20 13:57		Received: 03/19/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>0.91J</b>	ug/L	3.0	0.34	1	03/23/20 05:28	03/24/20 20:43	7440-43-9	
Zinc	<b>303</b>	ug/L	10.0	2.4	1	03/23/20 05:28	03/24/20 20:43	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30355629

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWE-MWI</b>									
<b>Lab ID: 30355629008</b>									
Collected: 03/19/20 14:19    Received: 03/19/20 22:15    Matrix: Water									
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Cadmium	<b>664</b>	ug/L	3.0	0.34	1	03/23/20 05:28	03/24/20 20:45	7440-43-9	
Zinc	<b>102000</b>	ug/L	1000	238	100	03/23/20 05:28	03/24/20 21:46	7440-66-6	ML

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30355629

QC Batch: 389201 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET  
Associated Lab Samples: 30355629001, 30355629002, 30355629003, 30355629004, 30355629005, 30355629006, 30355629007, 30355629008

METHOD BLANK: 1885571 Matrix: Water  
Associated Lab Samples: 30355629001, 30355629002, 30355629003, 30355629004, 30355629005, 30355629006, 30355629007, 30355629008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium	ug/L	3.0 U	3.0	0.34	03/24/20 20:02	
Zinc	ug/L	10.0 U	10.0	2.4	03/24/20 20:02	

LABORATORY CONTROL SAMPLE: 1885572

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	500	527	105	80-120	
Zinc	ug/L	500	520	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1885574 1885575

Parameter	Units	30355628002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium	ug/L	3.0 U	500	500	531	545	106	109	75-125	3	20	
Zinc	ug/L	10.0 U	500	500	507	515	101	103	75-125	2	20	

MATRIX SPIKE SAMPLE: 1885577

Parameter	Units	30355629008 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	664	500	1200	107	75-125	
Zinc	ug/L	102000	500	99200	-650	75-125 ML	

SAMPLE DUPLICATE: 1885573

Parameter	Units	30355628002 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium	ug/L	3.0 U	0.40J		20	
Zinc	ug/L	10.0 U	10.0 U		20	

SAMPLE DUPLICATE: 1885576

Parameter	Units	30355629008 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium	ug/L	664	673	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA**

Project: RWM GW Sampling  
Pace Project No.: 30355629

SAMPLE DUPLICATE: 1885576

Parameter	Units	30355629008 Result	Dup Result	RPD	Max RPD	Qualifiers
Zinc	ug/L	102000	108000	5	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling  
Pace Project No.: 30355629

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

### ANALYTE QUALIFIERS

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling

Pace Project No.: 30355629

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30355629001	RW01-MWS	EPA 3005A	389201	EPA 6010C	389326
30355629002	RW01-MWI	EPA 3005A	389201	EPA 6010C	389326
30355629003	RW02-MWS	EPA 3005A	389201	EPA 6010C	389326
30355629004	RW02-MWI	EPA 3005A	389201	EPA 6010C	389326
30355629005	RW03-MWS	EPA 3005A	389201	EPA 6010C	389326
30355629006	RW03-MWI	EPA 3005A	389201	EPA 6010C	389326
30355629007	RWE-MWS	EPA 3005A	389201	EPA 6010C	389326
30355629008	RWE-MWI	EPA 3005A	389201	EPA 6010C	389326

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



<b>Section A</b> Required Client Information:		<b>Section B</b> Required Project Information:		<b>Section C</b> Invoice Information:	
Company:	EnviroAnalytics Group	Report To:	James Calenda	Attention:	Laura Sargent
Address:	1600 Sparrows Point Blvd, Suite B2	Copy To:	Stewart Kabis	Company Name:	EnviroAnalytics Group
Mail To:	Sparrows Point, MD 21219	Purchase Order No.:	EAG-SPT-6452	Address:	1650 Des Peres Road, Suite 303 St. Louis, MO 63131
Phone:	314-620-3056	Project Name:	RWM GW Sampling	Pace Quote Reference:	
Requested Due Date/TAT:	5 Day	Project Number:	20010103-1-1	Pace Project Manager:	Samantha Bayura
				Pace Profile #:	

**REGULATORY AGENCY**

NPDES  GROUND WATER  DRINKING WATER

UST  RCRA  OTHER

Site Location: \_\_\_\_\_ STATE: MD

ITEM #	Valid Matrix Codes	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analysis Test ↑	Temp in °C	Received on	Custody Sealed	Samples Intact
			COMPOSITE START	COMPOSITE END/GRAB			H2SO4	HNO3	HCl	NaOH	Na2S2O8	Methanol					
1	RW01-MNS	WT G	3/19/20 0919	3/19/20 0919	1	1	X										
2	RW01-MWI	WT G	3/19/20 0917	3/19/20 0917	1	1	X										
3	RW02-MNS	WT G	3/19/20 1033	3/19/20 1033	1	1	X										
4	RW02-MWI	WT G	3/19/20 1135	3/19/20 1135	1	1	X										
5	RW03-MNS	WT G	3/19/20 1253	3/19/20 1253	1	1	X										
6	RW03-MWI	WT G	3/19/20 1315	3/19/20 1315	1	1	X										
7	RWE-MNS	WT G	3/19/20 1357	3/19/20 1357	1	1	X										
8	RWE-MWI	WT G	3/19/20 1419	3/19/20 1419	1	1	X										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
No package	AMU BOMM ARM	3/19/20	1900	AMU BOMM	3/19/20	1600	
No validation	AMU BOMM	3/19/20	18:50	AMU BOMM	3/19/20	1900	
	RDS FACE	3/19/20	2015	Magnus J (Amg)	3/19/20	2015	

**SAMPLER NAME AND SIGNATURE**

PRINT Name of SAMPLER: Joshua Barbo

SIGNATURE of SAMPLER: *[Signature]*

DATE Signed (MM/DD/YYYY): 03/19/20

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to rate changes of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Enviro Analytics Group Project # 30355629

# 30355629

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>MLL</u>
LIMS Login	<u>MLL</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 10 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 3.5 °C Correction Factor: 3 °C Final Temp: 3.2 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:	
	Yes	No	N/A		
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>1002191</u>	<u>MLL 3/20/2020</u>
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Includes date/time/ID Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed <u>MLL</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

March 27, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30355896

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on March 20, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30355896

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30355896

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30355896001	RW23-MWS	Water	03/20/20 08:48	03/20/20 22:00
30355896002	RW23-MWI	Water	03/20/20 09:10	03/20/20 22:00
30355896003	RW13-MWI	Water	03/20/20 09:44	03/20/20 22:00
30355896004	RW21-MWS	Water	03/20/20 10:28	03/20/20 22:00
30355896005	RWO5R-MWI	Water	03/20/20 11:24	03/20/20 22:00
30355896006	RWO5-MWS	Water	03/20/20 12:28	03/20/20 22:00

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30355896

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30355896001	RW23-MWS	EPA 6010C	KAS	2	PASI-PA
30355896002	RW23-MWI	EPA 6010C	KAS	2	PASI-PA
30355896003	RW13-MWI	EPA 6010C	KAS	2	PASI-PA
30355896004	RW21-MWS	EPA 6010C	KAS	2	PASI-PA
30355896005	RWO5R-MWI	EPA 6010C	KAS	2	PASI-PA
30355896006	RWO5-MWS	EPA 6010C	KAS	2	PASI-PA

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30355896

---

**Sample: RW23-MWS**      **Lab ID: 30355896001**      Collected: 03/20/20 08:48      Received: 03/20/20 22:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>0.52J</b>	ug/L	3.0	0.34	1	03/26/20 06:03	03/26/20 18:57	7440-43-9	
Zinc	<b>5.0J</b>	ug/L	10.0	2.4	1	03/26/20 06:03	03/26/20 18:57	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30355896

---

**Sample: RW23-MWI**      **Lab ID: 30355896002**      Collected: 03/20/20 09:10      Received: 03/20/20 22:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>2600</b>	ug/L	3.0	0.34	1	03/26/20 06:03	03/26/20 19:09	7440-43-9	
Zinc	<b>100000</b>	ug/L	1000	238	100	03/26/20 06:03	03/26/20 19:45	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30355896

---

**Sample: RW13-MWI**      **Lab ID: 30355896003**      Collected: 03/20/20 09:44      Received: 03/20/20 22:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Cadmium	<b>24700</b>	ug/L	300	34.0	100	03/26/20 06:03	03/26/20 19:47	7440-43-9	
Zinc	<b>250000</b>	ug/L	1000	238	100	03/26/20 06:03	03/26/20 19:47	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30355896

Sample: RW21-MWS		Lab ID: 30355896004		Collected: 03/20/20 10:28		Received: 03/20/20 22:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>378</b>	ug/L	3.0	0.34	1	03/26/20 06:03	03/26/20 19:23	7440-43-9	
Zinc	<b>301000</b>	ug/L	1000	238	100	03/26/20 06:03	03/26/20 19:50	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30355896

Sample: RWO5R-MWI		Lab ID: 30355896005		Collected: 03/20/20 11:24		Received: 03/20/20 22:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>1960</b>	ug/L	3.0	0.34	1	03/26/20 06:03	03/26/20 19:27	7440-43-9	
Zinc	<b>70700</b>	ug/L	1000	238	100	03/26/20 06:03	03/26/20 19:52	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30355896

**Sample: RWO5-MWS**      **Lab ID: 30355896006**      Collected: 03/20/20 12:28      Received: 03/20/20 22:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C      Preparation Method: EPA 3005A									
Cadmium	<b>0.52J</b>	ug/L	3.0	0.34	1	03/26/20 06:03	03/26/20 19:32	7440-43-9	
Zinc	<b>5.4J</b>	ug/L	10.0	2.4	1	03/26/20 06:03	03/26/20 19:32	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30355896

QC Batch: 389839 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET  
Associated Lab Samples: 30355896001, 30355896002, 30355896003, 30355896004, 30355896005, 30355896006

METHOD BLANK: 1888120 Matrix: Water  
Associated Lab Samples: 30355896001, 30355896002, 30355896003, 30355896004, 30355896005, 30355896006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium	ug/L	3.0 U	3.0	0.34	03/26/20 18:52	
Zinc	ug/L	10.0 U	10.0	2.4	03/26/20 18:52	

LABORATORY CONTROL SAMPLE: 1888121

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	500	519	104	80-120	
Zinc	ug/L	500	518	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1888123 1888124

Parameter	Units	30355896001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium	ug/L	0.52J	500	500	517	519	103	104	75-125	0	20	
Zinc	ug/L	5.0J	500	500	503	502	100	99	75-125	0	20	

SAMPLE DUPLICATE: 1888122

Parameter	Units	30355896001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium	ug/L	0.52J	0.39J		20	
Zinc	ug/L	5.0J	4.1J		20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30355896

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: RWM GW Sampling  
Pace Project No.: 30355896

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30355896001	RW23-MWS	EPA 3005A	389839	EPA 6010C	389951
30355896002	RW23-MWI	EPA 3005A	389839	EPA 6010C	389951
30355896003	RW13-MWI	EPA 3005A	389839	EPA 6010C	389951
30355896004	RW21-MWS	EPA 3005A	389839	EPA 6010C	389951
30355896005	RW05R-MWI	EPA 3005A	389839	EPA 6010C	389951
30355896006	RW05-MWS	EPA 3005A	389839	EPA 6010C	389951

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**Section A**  
Required Client Information:  
Company: **EnviroAnalytics Group**  
Address: **1600 Sparrows Point Blvd, Suite B2**  
City: **Sparrows Point, MD 21219**  
Phone: **314-620-3056** Fax: \_\_\_\_\_  
Email: **jcalenda@enviroanalyticsgroup.com**  
Requested Due Date/TAT: **5 Day**

**Section B**  
Required Project Information:  
Report To: **James Calenda**  
Copy To: **Stewart Kabis**  
Purchase Order No.: **EAG-SPT-6452**  
Project Name: **RWM GW Sampling**  
Project Number: **20010103-1-1**

**Section C**  
Invoice Information:  
Attention: **Laura Sargent**  
Company Name: **EnviroAnalytics Group**  
Address: **1650 Des Peres Road, Suite 303 St. Louis, MO 63131**  
Pace Quote Reference: \_\_\_\_\_  
Pace Project Manager: **Samantha Bayura**  
Pace Profile #: \_\_\_\_\_

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER \_\_\_\_\_

Site Location: \_\_\_\_\_ STATE: **MD**

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OL WIFE WP AIR AR OTHER OT TISSUE TS	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> O <sub>3</sub> Methanol Other	Preservatives	Y/N	Analysis Test ↑	Total Cadmium 6010	Total Zinc 6010	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
			DATE	TIME											
1	RW23-MWS		3/20/20	09:48	G	1	1	X			X	X		001	
2	RW23-MWI		3/20/20	09:10	G	1	1	X			X	X		000	
3	RW13-MWI		3/20/20	09:44	G	1	1	X			X	X		003	
4	RW21-MWS		3/20/20	10:28	G	1	1	X			X	X		004	
5	RW05R-MWI		3/20/20	11:24	G	1	1	X			X	X		005	
6	RW05-MWS		3/20/20	12:29	G	1	1	X			X	X		1106	

**WO#: 30355896**

30355896

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	RECEIVED ON	Temp In °C	Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
No package	AMU BAWY ARM	3/20/20	14:20	CMWB/Pace	3/20/20	15:45						
No validation	CMWB/Pace	3/20/20	18:50	DS Face	3/20/20	19:00			Y			
	DS Face	3/20/20	18:40	DS Face	3/20/20	20:00		3.3	Y			Y

**SAMPLER NAME AND SIGNATURE**  
PRINT Name of SAMPLER: **Joshua Bayura**  
SIGNATURE of SAMPLER: *AMU BAWY*  
DATE Signed (MM/DD/YY): **03/20/20**

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics

Project # #-30355896

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: \_\_\_\_\_

Label	<u>JSM</u>
LIMS Login	<u>JSM</u>

Custody Seal on Cooler/Box Present:  yes  no      Seals intact:  yes  no

Thermometer Used 9      Type of Ice: Wet Blue None

Cooler Temperature Observed Temp 3.3 °C      Correction Factor: -0.5 °C      Final Temp: 2.8 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents: <u>JSM 3/21/2020</u>
	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID      Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>JSM</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed: <u>JSM</u> Date: <u>3/21/2020</u>

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

March 27, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30356046

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on March 23, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Trip blank was received, but not needed for the testing requested

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30356046

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30356046

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30356046001	RW04-MWS	Water	03/23/20 09:45	03/23/20 21:30
30356046002	RW0-MWI	Water	03/23/20 11:00	03/23/20 21:30
30356046003	RW0-MWS	Water	03/23/20 13:00	03/23/20 21:30

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30356046

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30356046001	RW04-MWS	EPA 6010C	KAS	2	PASI-PA
30356046002	RW0-MWI	EPA 6010C	KAS	2	PASI-PA
30356046003	RW0-MWS	EPA 6010C	KAS	2	PASI-PA

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30356046

Sample: RW04-MWS		Lab ID: 30356046001		Collected: 03/23/20 09:45		Received: 03/23/20 21:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>1.7J</b>	ug/L	3.0	0.34	1	03/26/20 06:03	03/26/20 19:34	7440-43-9	
Zinc	<b>37.8</b>	ug/L	10.0	2.4	1	03/26/20 06:03	03/26/20 19:34	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30356046

Sample: RW0-MWI		Lab ID: 30356046002		Collected: 03/23/20 11:00		Received: 03/23/20 21:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>54.3</b>	ug/L	3.0	0.34	1	03/26/20 06:03	03/26/20 19:36	7440-43-9	
Zinc	<b>202000</b>	ug/L	1000	238	100	03/26/20 06:03	03/26/20 20:00	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30356046

Sample: RW0-MWS		Lab ID: 30356046003		Collected: 03/23/20 13:00		Received: 03/23/20 21:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A							
Cadmium	<b>0.65J</b>	ug/L	3.0	0.34	1	03/26/20 06:03	03/26/20 19:42	7440-43-9	
Zinc	<b>6220</b>	ug/L	1000	238	100	03/26/20 06:03	03/26/20 20:02	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling

Pace Project No.: 30356046

QC Batch: 389839 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET  
Associated Lab Samples: 30356046001, 30356046002, 30356046003

METHOD BLANK: 1888120 Matrix: Water

Associated Lab Samples: 30356046001, 30356046002, 30356046003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium	ug/L	3.0 U	3.0	0.34	03/26/20 18:52	
Zinc	ug/L	10.0 U	10.0	2.4	03/26/20 18:52	

LABORATORY CONTROL SAMPLE: 1888121

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium	ug/L	500	519	104	80-120	
Zinc	ug/L	500	518	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1888123 1888124

Parameter	Units	30355896001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium	ug/L	0.52J	500	500	517	519	103	104	75-125	0	20	
Zinc	ug/L	5.0J	500	500	503	502	100	99	75-125	0	20	

SAMPLE DUPLICATE: 1888122

Parameter	Units	30355896001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium	ug/L	0.52J	0.39J		20	
Zinc	ug/L	5.0J	4.1J		20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30356046

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: RWM GW Sampling  
Pace Project No.: 30356046

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30356046001	RW04-MWS	EPA 3005A	389839	EPA 6010C	389951
30356046002	RW0-MWI	EPA 3005A	389839	EPA 6010C	389951
30356046003	RW0-MWS	EPA 3005A	389839	EPA 6010C	389951

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**NO# : 30356046**



30356046

**Section A**

**Section B**

**Section C**

**Section D**

**Client Information:**  
 Company: EnviroAnalytics Group  
 Address: 1600 Sparrows Point Blvd, Suite B2  
 Sparrows Point, MD 21219  
 Contact: icalenda@enviroanalyticsgroup.com  
 Phone: 314-620-3056  
 Fax: [Blank]  
 Requested Due Date/TAT: 5 Day

**Project Information:**  
 Report To: James Calenda  
 Copy To: Stewart Kabis  
 Purchase Order No.: EAG-SPT-6452  
 Project Name: RWM GW Sampling  
 Project Number: 200103-H

**Invoice Information:**  
 Attention: Laura Sargent  
 Company Name: EnviroAnalytics Group  
 Address: 1650 Des Peres Road, Suite 303 St. Louis, MO 63131  
 Pace Quote Reference: [Blank]  
 Pace Project Manager: Samantha Bayura  
 Pace Profile #: [Blank]

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER  
 Site Location: [Blank] STATE: MD

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER (DW) WASTE WATER (WW) PRODUCT (P) SOIL/SOLID (SL) OIL (OL) WIFE (WF) AIR (AR) OTHER (OT) TISSUE (TS)	SAMPLE ID (A-Z, 0-9 / , / ) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Methanol Other	Preservatives	Requested Analysis Filtered (Y/N)	Y/N	Analysis Test	Total Cadmium 6010	Total Zinc 6010	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB											
1		RW04-MWS	WT-6	G	DATE	TIME	DATE	TIME									001
2		RW0-MWIE	WT-6	G	DATE	TIME	DATE	TIME									002
3		RW0-MWS	WT-6	G	DATE	TIME	DATE	TIME									003
4																	001-1B
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Data pgs	AMB/face	3/23/20	15:15	AMB/face	3/23/20	15:30	
	AMB/face	3/23/20	18:00	RDS/face	3/23/20	18:00	Y
	RDS/face	3/23/20	2:30	Manow J. Law	3/23/20	2:30	Y
							N
							Y

Temp in °C  
 Received on Ice (Y/N)  
 Custody Sealed Cooler (Y/N)  
 Samples Intact (Y/N)

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Usa Perrin  
 SIGNATURE of SAMPLER: [Signature]  
 DATE Signed (MM/DD/YYYY): 3/23/20

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to the charges of 1.5% per month for any invoices not paid within 30 days.



Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics Group

Project # # 30356046

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>MLC</u>
LIMS Login	<u>MLC</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 10 Type of Ice: Wet Blue None

Cooler Temperature Observed Temp 2.5 °C Correction Factor: .3 °C Final Temp: 2.2 °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents
				<u>10D2191</u>	<u>MLC 3/23/2020</u>
Chain of Custody Present:	/			1.	
Chain of Custody Filled Out:	/			2.	
Chain of Custody Relinquished:	/			3.	
Sampler Name & Signature on COC:	/			4.	
Sample Labels match COC:	/			5.	
-Includes date/time/ID Matrix: <u>NT</u>					
Samples Arrived within Hold Time:	/			6.	
Short Hold Time Analysis (<72hr remaining):	/			7.	
Rush Turn Around Time Requested:	/			8.	
Sufficient Volume:	/			9.	
Correct Containers Used:	/			10.	
-Pace Containers Used:	/				
Containers Intact:	/			11.	
Orthophosphate field filtered			/	12.	
Hex Cr Aqueous sample field filtered			/	13.	
Organic Samples checked for dechlorination:			/	14.	
Filtered volume received for Dissolved tests			/	15.	
All containers have been checked for preservation.	/			16.	
exceptions: <u>VOA</u> , coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	/			Initial when completed	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	/			17.	
Trip Blank Present:	/			18.	
Trip Blank Custody Seals Present	/				
Rad Samples Screened < 0.5 mrem/hr	/			Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)  
 \*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

April 14, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: Rod & Wire Mill  
Pace Project No.: 30357639

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on April 06, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: Rod & Wire Mill  
Pace Project No.: 30357639

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: Rod & Wire Mill  
Pace Project No.: 30357639

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30357639001	RWF-MWI	Water	04/02/20 09:09	04/06/20 21:15
30357639002	RWF-MWS	Water	04/02/20 10:44	04/06/20 21:15
30357639003	RW05-MWS	Water	04/02/20 11:45	04/06/20 21:15
30357639004	RW05R-MWI	Water	04/02/20 12:10	04/06/20 21:15
30357639005	RWE-MWS	Water	04/02/20 12:47	04/06/20 21:15
30357639006	RWE-MWI	Water	04/02/20 13:10	04/06/20 21:15
30357639007	RW04-MWS	Water	04/02/20 08:00	04/06/20 21:15
30357639008	RW03-MWI	Water	04/02/20 08:48	04/06/20 21:15
30357639009	RW03-MWS	Water	04/02/20 09:15	04/06/20 21:15
30357639010	RW01-MWS	Water	04/02/20 10:32	04/06/20 21:15
30357639011	RW01-MWI	Water	04/02/20 11:07	04/06/20 21:15
30357639012	RW02-MWS	Water	04/02/20 12:05	04/06/20 21:15
30357639013	RW02-MWI	Water	04/02/20 12:31	04/06/20 21:15
30357639014	RW23-MWS	Water	04/02/20 13:27	04/06/20 21:15
30357639015	RW23-MWI	Water	04/02/20 14:00	04/06/20 21:15

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: Rod & Wire Mill  
Pace Project No.: 30357639

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30357639001	RWF-MWI	EPA 6010C	KAS	1	PASI-PA
		SM 2320B-2011	AJM	2	PASI-PA
		ASTM D516-11	RTB	1	PASI-PA
30357639002	RWF-MWS	EPA 6010C	KAS	1	PASI-PA
		SM 2320B-2011	AJM	2	PASI-PA
		ASTM D516-11	RTB	1	PASI-PA
30357639003	RW05-MWS	EPA 6010C	KAS	1	PASI-PA
		SM 2320B-2011	AJM	2	PASI-PA
		ASTM D516-11	RTB	1	PASI-PA
30357639004	RW05R-MWI	EPA 6010C	KAS	1	PASI-PA
		SM 2320B-2011	AJM	2	PASI-PA
		ASTM D516-11	RTB	1	PASI-PA
30357639005	RWE-MWS	EPA 6010C	KAS	1	PASI-PA
		SM 2320B-2011	AJM	2	PASI-PA
		ASTM D516-11	RTB	1	PASI-PA
30357639006	RWE-MWI	EPA 6010C	KAS	1	PASI-PA
		SM 2320B-2011	AJM	2	PASI-PA
		ASTM D516-11	RTB	1	PASI-PA
30357639007	RW04-MWS	EPA 6010C	KAS	1	PASI-PA
		SM 2320B-2011	AJM	2	PASI-PA
		ASTM D516-11	RTB	1	PASI-PA
30357639008	RW03-MWI	EPA 6010C	KAS	1	PASI-PA
		SM 2320B-2011	AJM	2	PASI-PA
		ASTM D516-11	RTB	1	PASI-PA
30357639009	RW03-MWS	EPA 6010C	KAS	1	PASI-PA
		SM 2320B-2011	AJM	2	PASI-PA
		ASTM D516-11	RTB	1	PASI-PA
30357639010	RW01-MWS	EPA 6010C	KAS	1	PASI-PA
		SM 2320B-2011	AJM	2	PASI-PA
		ASTM D516-11	RTB	1	PASI-PA
30357639011	RW01-MWI	EPA 6010C	KAS	1	PASI-PA
		SM 2320B-2011	AJM	2	PASI-PA
		ASTM D516-11	RTB	1	PASI-PA
30357639012	RW02-MWS	EPA 6010C	KAS	1	PASI-PA
		SM 2320B-2011	AJM	2	PASI-PA
		ASTM D516-11	RTB	1	PASI-PA
30357639013	RW02-MWI	EPA 6010C	KAS	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: Rod & Wire Mill  
Pace Project No.: 30357639

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30357639014	RW23-MWS	SM 2320B-2011	AJM	2	PASI-PA
		ASTM D516-11	RTB	1	PASI-PA
		EPA 6010C	KAS	1	PASI-PA
		SM 2320B-2011	AJM	2	PASI-PA
30357639015	RW23-MWI	ASTM D516-11	RTB	1	PASI-PA
		EPA 6010C	KAS	1	PASI-PA
		SM 2320B-2011	AJM	2	PASI-PA
		ASTM D516-11	RTB	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: Rod & Wire Mill

Pace Project No.: 30357639

Sample: RWF-MWI		Lab ID: 30357639001		Collected: 04/02/20 09:09	Received: 04/06/20 21:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Total Hardness by SM2340B-2011	<b>1310000</b>	ug/L	33000	3680	10	04/09/20 07:04	04/09/20 19:24		
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B-2011 Pace Analytical Services - Greensburg							
Alkalinity, Bicarbonate (pH4.5)	<b>26.0</b>	mg/L	10.0	10.0	1		04/14/20 14:48		
Alkalinity, Carbonate (pH4.5)	<b>10.0 U</b>	mg/L	10.0	10.0	1		04/14/20 14:48		
<b>ASTM D516 Sulfate Water</b>		Analytical Method: ASTM D516-11 Pace Analytical Services - Greensburg							
Sulfate	<b>1570</b>	mg/L	300	140	30		04/09/20 18:53	14808-79-8	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: Rod & Wire Mill

Pace Project No.: 30357639

<b>Sample: RWF-MWS</b>		<b>Lab ID: 30357639002</b>		Collected: 04/02/20 10:44	Received: 04/06/20 21:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Total Hardness by SM2340B-2011	<b>322000</b>	ug/L	33000	3680	10	04/09/20 07:04	04/09/20 19:42		
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B-2011 Pace Analytical Services - Greensburg							
Alkalinity, Bicarbonate (pH4.5)	<b>10.0 U</b>	mg/L	10.0	10.0	1		04/14/20 14:51		
Alkalinity, Carbonate (pH4.5)	<b>10.0 U</b>	mg/L	10.0	10.0	1		04/14/20 14:51		
<b>ASTM D516 Sulfate Water</b>		Analytical Method: ASTM D516-11 Pace Analytical Services - Greensburg							
Sulfate	<b>387</b>	mg/L	50.0	23.4	5		04/08/20 20:25	14808-79-8	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: Rod & Wire Mill

Pace Project No.: 30357639

Sample: RW05-MWS		Lab ID: 30357639003		Collected: 04/02/20 11:45	Received: 04/06/20 21:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Total Hardness by SM2340B-2011	<b>91200</b>	ug/L	3300	368	1	04/09/20 07:04	04/09/20 18:41		
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B-2011 Pace Analytical Services - Greensburg							
Alkalinity, Bicarbonate (pH4.5)	<b>74.0</b>	mg/L	10.0	10.0	1		04/14/20 14:53		
Alkalinity, Carbonate (pH4.5)	<b>20.0</b>	mg/L	10.0	10.0	1		04/14/20 14:53		
<b>ASTM D516 Sulfate Water</b>		Analytical Method: ASTM D516-11 Pace Analytical Services - Greensburg							
Sulfate	<b>29.7</b>	mg/L	10.0	4.7	1		04/08/20 19:41	14808-79-8	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: Rod & Wire Mill  
Pace Project No.: 30357639

Sample: RW05R-MWI		Lab ID: 30357639004		Collected: 04/02/20 12:10		Received: 04/06/20 21:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Total Hardness by SM2340B-2011	<b>877000</b>	ug/L	33000	3680	10	04/09/20 07:04	04/09/20 19:44		
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B-2011 Pace Analytical Services - Greensburg							
Alkalinity, Bicarbonate (pH4.5)	<b>40.0</b>	mg/L	10.0	10.0	1		04/14/20 14:56		
Alkalinity, Carbonate (pH4.5)	<b>10.0 U</b>	mg/L	10.0	10.0	1		04/14/20 14:56		
<b>ASTM D516 Sulfate Water</b>		Analytical Method: ASTM D516-11 Pace Analytical Services - Greensburg							
Sulfate	<b>939</b>	mg/L	300	140	30		04/09/20 18:55	14808-79-8	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: Rod & Wire Mill

Pace Project No.: 30357639

Sample: RWE-MWS		Lab ID: 30357639005		Collected: 04/02/20 12:47	Received: 04/06/20 21:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Total Hardness by SM2340B-2011	<b>586000</b>	ug/L	33000	3680	10	04/09/20 07:04	04/09/20 19:46		
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B-2011 Pace Analytical Services - Greensburg							
Alkalinity, Bicarbonate (pH4.5)	<b>218</b>	mg/L	10.0	10.0	1		04/14/20 14:57		
Alkalinity, Carbonate (pH4.5)	<b>10.0 U</b>	mg/L	10.0	10.0	1		04/14/20 14:57		
<b>ASTM D516 Sulfate Water</b>		Analytical Method: ASTM D516-11 Pace Analytical Services - Greensburg							
Sulfate	<b>327</b>	mg/L	50.0	23.4	5		04/08/20 20:28	14808-79-8	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: Rod & Wire Mill

Pace Project No.: 30357639

Sample: RWE-MWI		Lab ID: 30357639006		Collected: 04/02/20 13:10	Received: 04/06/20 21:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Total Hardness by SM2340B-2011	<b>788000</b>	ug/L	33000	3680	10	04/09/20 07:04	04/09/20 19:49		
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B-2011 Pace Analytical Services - Greensburg							
Alkalinity, Bicarbonate (pH4.5)	<b>10.0 U</b>	mg/L	10.0	10.0	1		04/14/20 14:59		
Alkalinity, Carbonate (pH4.5)	<b>10.0 U</b>	mg/L	10.0	10.0	1		04/14/20 14:59		
<b>ASTM D516 Sulfate Water</b>		Analytical Method: ASTM D516-11 Pace Analytical Services - Greensburg							
Sulfate	<b>1290</b>	mg/L	300	140	30		04/09/20 18:55	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: Rod & Wire Mill  
Pace Project No.: 30357639

<b>Sample: RW04-MWS</b>		<b>Lab ID: 30357639007</b>		Collected: 04/02/20 08:00	Received: 04/06/20 21:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Total Hardness by SM2340B-2011	<b>198000</b>	ug/L	33000	3680	10	04/09/20 07:04	04/09/20 19:51		
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B-2011 Pace Analytical Services - Greensburg							
Alkalinity, Bicarbonate (pH4.5)	<b>86.0</b>	mg/L	10.0	10.0	1		04/14/20 15:00		
Alkalinity, Carbonate (pH4.5)	<b>10.0 U</b>	mg/L	10.0	10.0	1		04/14/20 15:00		
<b>ASTM D516 Sulfate Water</b>		Analytical Method: ASTM D516-11 Pace Analytical Services - Greensburg							
Sulfate	<b>108</b>	mg/L	50.0	23.4	5		04/08/20 20:30	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: Rod & Wire Mill

Pace Project No.: 30357639

Sample: RW03-MWI		Lab ID: 30357639008		Collected: 04/02/20 08:48	Received: 04/06/20 21:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Total Hardness by SM2340B-2011	<b>946000</b>	ug/L	33000	3680	10	04/09/20 07:04	04/09/20 19:53		
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B-2011 Pace Analytical Services - Greensburg							
Alkalinity, Bicarbonate (pH4.5)	<b>44.0</b>	mg/L	10.0	10.0	1		04/14/20 15:03		
Alkalinity, Carbonate (pH4.5)	<b>10.0 U</b>	mg/L	10.0	10.0	1		04/14/20 15:03		
<b>ASTM D516 Sulfate Water</b>		Analytical Method: ASTM D516-11 Pace Analytical Services - Greensburg							
Sulfate	<b>681</b>	mg/L	300	140	30		04/09/20 18:57	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: Rod & Wire Mill

Pace Project No.: 30357639

Sample: RW03-MWS		Lab ID: 30357639009		Collected: 04/02/20 09:15	Received: 04/06/20 21:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Total Hardness by SM2340B-2011	<b>160000</b>	ug/L	3300	368	1	04/09/20 07:04	04/09/20 18:59		
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B-2011 Pace Analytical Services - Greensburg							
Alkalinity, Bicarbonate (pH4.5)	<b>10.0 U</b>	mg/L	10.0	10.0	1		04/14/20 15:04		
Alkalinity, Carbonate (pH4.5)	<b>10.0 U</b>	mg/L	10.0	10.0	1		04/14/20 15:04		
<b>ASTM D516 Sulfate Water</b>		Analytical Method: ASTM D516-11 Pace Analytical Services - Greensburg							
Sulfate	<b>199</b>	mg/L	50.0	23.4	5		04/08/20 20:32	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: Rod & Wire Mill  
Pace Project No.: 30357639

Sample: RW01-MWS		Lab ID: 30357639010		Collected: 04/02/20 10:32	Received: 04/06/20 21:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Total Hardness by SM2340B-2011	<b>275000</b>	ug/L	33000	3680	10	04/09/20 07:04	04/09/20 19:55		
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B-2011 Pace Analytical Services - Greensburg							
Alkalinity, Bicarbonate (pH4.5)	<b>64.0</b>	mg/L	10.0	10.0	1		04/14/20 15:06		
Alkalinity, Carbonate (pH4.5)	<b>10.0 U</b>	mg/L	10.0	10.0	1		04/14/20 15:06		
<b>ASTM D516 Sulfate Water</b>		Analytical Method: ASTM D516-11 Pace Analytical Services - Greensburg							
Sulfate	<b>185</b>	mg/L	50.0	23.4	5		04/08/20 20:34	14808-79-8	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: Rod & Wire Mill

Pace Project No.: 30357639

<b>Sample: RW01-MWI</b>		<b>Lab ID: 30357639011</b>		Collected: 04/02/20 11:07	Received: 04/06/20 21:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Total Hardness by SM2340B-2011	<b>993000</b>	ug/L	33000	3680	10	04/09/20 07:04	04/09/20 19:57		
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B-2011 Pace Analytical Services - Greensburg							
Alkalinity, Bicarbonate (pH4.5)	<b>30.0</b>	mg/L	10.0	10.0	1		04/14/20 15:06		
Alkalinity, Carbonate (pH4.5)	<b>10.0 U</b>	mg/L	10.0	10.0	1		04/14/20 15:06		
<b>ASTM D516 Sulfate Water</b>		Analytical Method: ASTM D516-11 Pace Analytical Services - Greensburg							
Sulfate	<b>51.6</b>	mg/L	10.0	4.7	1		04/08/20 19:50	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: Rod & Wire Mill  
Pace Project No.: 30357639

Sample: RW02-MWS		Lab ID: 30357639012		Collected: 04/02/20 12:05	Received: 04/06/20 21:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Total Hardness by SM2340B-2011	<b>129000</b>	ug/L	3300	368	1	04/09/20 07:04	04/09/20 19:15		
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B-2011 Pace Analytical Services - Greensburg							
Alkalinity, Bicarbonate (pH4.5)	<b>90.0</b>	mg/L	10.0	10.0	1		04/14/20 15:08		
Alkalinity, Carbonate (pH4.5)	<b>10.0 U</b>	mg/L	10.0	10.0	1		04/14/20 15:08		
<b>ASTM D516 Sulfate Water</b>		Analytical Method: ASTM D516-11 Pace Analytical Services - Greensburg							
Sulfate	<b>72.4</b>	mg/L	10.0	4.7	1		04/08/20 19:52	14808-79-8	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: Rod & Wire Mill

Pace Project No.: 30357639

<b>Sample: RW02-MWI</b>		<b>Lab ID: 30357639013</b>		Collected: 04/02/20 12:31	Received: 04/06/20 21:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Total Hardness by SM2340B-2011	<b>113000</b>	ug/L	3300	368	1	04/09/20 07:04	04/09/20 19:18		
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B-2011 Pace Analytical Services - Greensburg							
Alkalinity, Bicarbonate (pH4.5)	<b>38.0</b>	mg/L	10.0	10.0	1		04/14/20 15:09		
Alkalinity, Carbonate (pH4.5)	<b>20.0</b>	mg/L	10.0	10.0	1		04/14/20 15:09		
<b>ASTM D516 Sulfate Water</b>		Analytical Method: ASTM D516-11 Pace Analytical Services - Greensburg							
Sulfate	<b>16.8</b>	mg/L	10.0	4.7	1		04/08/20 19:52	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: Rod & Wire Mill

Pace Project No.: 30357639

Sample: RW23-MWS		Lab ID: 30357639014		Collected: 04/02/20 13:27	Received: 04/06/20 21:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Total Hardness by SM2340B-2011	<b>202000</b>	ug/L	33000	3680	10	04/09/20 07:04	04/09/20 20:08		
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B-2011 Pace Analytical Services - Greensburg							
Alkalinity, Bicarbonate (pH4.5)	<b>52.0</b>	mg/L	10.0	10.0	1		04/14/20 15:11		
Alkalinity, Carbonate (pH4.5)	<b>10.0 U</b>	mg/L	10.0	10.0	1		04/14/20 15:11		
<b>ASTM D516 Sulfate Water</b>		Analytical Method: ASTM D516-11 Pace Analytical Services - Greensburg							
Sulfate	<b>219</b>	mg/L	50.0	23.4	5		04/08/20 20:36	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: Rod & Wire Mill  
Pace Project No.: 30357639

Sample: RW23-MWI		Lab ID: 30357639015		Collected: 04/02/20 14:00	Received: 04/06/20 21:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Total Hardness by SM2340B-2011	<b>635000</b>	ug/L	33000	3680	10	04/09/20 07:04	04/09/20 20:10		
<b>2320B Alkalinity</b>		Analytical Method: SM 2320B-2011 Pace Analytical Services - Greensburg							
Alkalinity, Bicarbonate (pH4.5)	<b>26.0</b>	mg/L	10.0	10.0	1		04/14/20 15:12		
Alkalinity, Carbonate (pH4.5)	<b>10.0 U</b>	mg/L	10.0	10.0	1		04/14/20 15:12		
<b>ASTM D516 Sulfate Water</b>		Analytical Method: ASTM D516-11 Pace Analytical Services - Greensburg							
Sulfate	<b>1070</b>	mg/L	300	140	30		04/08/20 19:54	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: Rod & Wire Mill  
Pace Project No.: 30357639

QC Batch: 391654 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30357639001, 30357639002, 30357639003, 30357639004, 30357639005, 30357639006, 30357639007, 30357639008, 30357639009, 30357639010, 30357639011, 30357639012, 30357639013, 30357639014, 30357639015

METHOD BLANK: 1896141 Matrix: Water  
Associated Lab Samples: 30357639001, 30357639002, 30357639003, 30357639004, 30357639005, 30357639006, 30357639007, 30357639008, 30357639009, 30357639010, 30357639011, 30357639012, 30357639013, 30357639014, 30357639015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Hardness by SM2340B-2011	ug/L	3300 U	3300	368	04/09/20 18:21	

LABORATORY CONTROL SAMPLE: 1896142

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Hardness by SM2340B-2011	ug/L		33700			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1896144 1896145

Parameter	Units	30357639001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Hardness by SM2340B-2011	ug/L	1310000			1340000	1350000					0	

MATRIX SPIKE SAMPLE: 1896147

Parameter	Units	30357639011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Hardness by SM2340B-2011	ug/L	993000		1070000			

SAMPLE DUPLICATE: 1896143

Parameter	Units	30357639001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Hardness by SM2340B-2011	ug/L	1310000	1320000	1		

SAMPLE DUPLICATE: 1896146

Parameter	Units	30357639011 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Hardness by SM2340B-2011	ug/L	993000	1080000	8		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: Rod & Wire Mill

Pace Project No.: 30357639

QC Batch: 392099

Analysis Method: SM 2320B-2011

QC Batch Method: SM 2320B-2011

Analysis Description: 2320B Alkalinity

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30357639001, 30357639002, 30357639003, 30357639004, 30357639005, 30357639006, 30357639007, 30357639008, 30357639009, 30357639010, 30357639011, 30357639012, 30357639013, 30357639014, 30357639015

METHOD BLANK: 1898552

Matrix: Water

Associated Lab Samples: 30357639001, 30357639002, 30357639003, 30357639004, 30357639005, 30357639006, 30357639007, 30357639008, 30357639009, 30357639010, 30357639011, 30357639012, 30357639013, 30357639014, 30357639015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Carbonate (pH4.5)	mg/L	10.0 U	10.0	10.0	04/14/20 14:46	
Alkalinity,Bicarbonate (pH4.5)	mg/L	10.0 U	10.0	10.0	04/14/20 14:46	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: Rod & Wire Mill

Pace Project No.: 30357639

QC Batch:	391603	Analysis Method:	ASTM D516-11
QC Batch Method:	ASTM D516-11	Analysis Description:	ASTM D516-11, Sulfate Water
		Laboratory:	Pace Analytical Services - Greensburg
Associated Lab Samples:	30357639002, 30357639003, 30357639005, 30357639007, 30357639009, 30357639010, 30357639011, 30357639012, 30357639013, 30357639014, 30357639015		

METHOD BLANK:	1895844	Matrix:	Water
Associated Lab Samples:	30357639002, 30357639003, 30357639005, 30357639007, 30357639009, 30357639010, 30357639011, 30357639012, 30357639013, 30357639014, 30357639015		

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	10.0 U	10.0	4.7	04/08/20 19:38	

LABORATORY CONTROL SAMPLE: 1895845

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	30	30.3	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1895846 1895847

Parameter	Units	30357639015 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	1070	600	600	1680	1660	102	98	85-115	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA

Project: Rod & Wire Mill

Pace Project No.: 30357639

---

QC Batch:	391785	Analysis Method:	ASTM D516-11
QC Batch Method:	ASTM D516-11	Analysis Description:	ASTM D516-11, Sulfate Water
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30357639001, 30357639004, 30357639006, 30357639008

---

METHOD BLANK: 1896609 Matrix: Water  
Associated Lab Samples: 30357639001, 30357639004, 30357639006, 30357639008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	10.0 U	10.0	4.7	04/09/20 18:52	

---

LABORATORY CONTROL SAMPLE: 1896610

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	30	30.2	101	85-115	

---

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1896611 1896612

Parameter	Units	30357993001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	11.9	20	20	32.4	32.0	103	101	85-115	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: Rod & Wire Mill  
Pace Project No.: 30357639

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Rod & Wire Mill  
Pace Project No.: 30357639

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30357639001	RWF-MWI	EPA 3005A	391654	EPA 6010C	391778
30357639002	RWF-MWS	EPA 3005A	391654	EPA 6010C	391778
30357639003	RW05-MWS	EPA 3005A	391654	EPA 6010C	391778
30357639004	RW05R-MWI	EPA 3005A	391654	EPA 6010C	391778
30357639005	RWE-MWS	EPA 3005A	391654	EPA 6010C	391778
30357639006	RWE-MWI	EPA 3005A	391654	EPA 6010C	391778
30357639007	RW04-MWS	EPA 3005A	391654	EPA 6010C	391778
30357639008	RW03-MWI	EPA 3005A	391654	EPA 6010C	391778
30357639009	RW03-MWS	EPA 3005A	391654	EPA 6010C	391778
30357639010	RW01-MWS	EPA 3005A	391654	EPA 6010C	391778
30357639011	RW01-MWI	EPA 3005A	391654	EPA 6010C	391778
30357639012	RW02-MWS	EPA 3005A	391654	EPA 6010C	391778
30357639013	RW02-MWI	EPA 3005A	391654	EPA 6010C	391778
30357639014	RW23-MWS	EPA 3005A	391654	EPA 6010C	391778
30357639015	RW23-MWI	EPA 3005A	391654	EPA 6010C	391778
30357639001	RWF-MWI	SM 2320B-2011	392099		
30357639002	RWF-MWS	SM 2320B-2011	392099		
30357639003	RW05-MWS	SM 2320B-2011	392099		
30357639004	RW05R-MWI	SM 2320B-2011	392099		
30357639005	RWE-MWS	SM 2320B-2011	392099		
30357639006	RWE-MWI	SM 2320B-2011	392099		
30357639007	RW04-MWS	SM 2320B-2011	392099		
30357639008	RW03-MWI	SM 2320B-2011	392099		
30357639009	RW03-MWS	SM 2320B-2011	392099		
30357639010	RW01-MWS	SM 2320B-2011	392099		
30357639011	RW01-MWI	SM 2320B-2011	392099		
30357639012	RW02-MWS	SM 2320B-2011	392099		
30357639013	RW02-MWI	SM 2320B-2011	392099		
30357639014	RW23-MWS	SM 2320B-2011	392099		
30357639015	RW23-MWI	SM 2320B-2011	392099		
30357639001	RWF-MWI	ASTM D516-11	391785		
30357639002	RWF-MWS	ASTM D516-11	391603		
30357639003	RW05-MWS	ASTM D516-11	391603		
30357639004	RW05R-MWI	ASTM D516-11	391785		
30357639005	RWE-MWS	ASTM D516-11	391603		
30357639006	RWE-MWI	ASTM D516-11	391785		
30357639007	RW04-MWS	ASTM D516-11	391603		
30357639008	RW03-MWI	ASTM D516-11	391785		
30357639009	RW03-MWS	ASTM D516-11	391603		
30357639010	RW01-MWS	ASTM D516-11	391603		
30357639011	RW01-MWI	ASTM D516-11	391603		
30357639012	RW02-MWS	ASTM D516-11	391603		
30357639013	RW02-MWI	ASTM D516-11	391603		
30357639014	RW23-MWS	ASTM D516-11	391603		

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Rod & Wire Mill  
Pace Project No.: 30357639

---

<b>Lab ID</b>	<b>Sample ID</b>	<b>QC Batch Method</b>	<b>QC Batch</b>	<b>Analytical Method</b>	<b>Analytical Batch</b>
30357639015	RW23-MWI	ASTM D516-11	391603		

---

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

WO#: 30357639



CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company: **EnviroAnalytics Group**  
 Billing information: **Laura Sargent**  
**EAG 1650 Des Peres Rd,**  
**Suite 303 St. Louis MO 63103**  
 Report To: **James Calender**  
 Email To: **jcalender@enviroanalytics.com**  
 Site Collection Info/Address: **1600 Sparrows Point Blvd**  
**MD - Sparrows Pt**  
 State: **MD** County/City: **Sparrows Pt** Time Zone Collected: **PT**  **MT**  **CT**  **ET**

Site/Facility ID #: **EAG Sparrows Pt / RUM**  
 Purchase Order #: **EAG Sparrows Pt**  
 Quote #: **EAG Sparrows Pt**  
 Turnaround Date Required: **EAG Normal**  
 RUSH:  Same Day  Next Day  3 Day  5 Day (Expedite Charges Apply)  
 Field Filtered (if applicable):  Yes  No  
 Analysis: \_\_\_\_\_  
 \* Matrix Codes (Insert in Matrix box below): Drinking Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End	Res Cl	# of Ctns
			Date	Time			
RWF-MWI	GW	G	4/20/20	0909			3
RWF-MWS	GW	G	4/20/20	1044			3
RW05-MWS	GW	G	4/20/20	1145			3
RW05R-MWI	GW	G	4/20/20	1310			3
RWE-MWS	GW	G	4/20/20	1347			3
RWE-MWI	GW	G	4/20/20	1310			3
RW04-MWS	GW	G	4/20/20	0800			3
RW03-MWI	GW	G	4/16/20	0848			3
RW03-MWS	GW	G	4/16/20	0915			3
RW01-MWS	GW	G	4/16/20	1032			3

Customer Remarks / Special Conditions / Possible Hazards:  
**please ensure holding times**  
 Type of Ice Used:  Wet  Blue  Dry  None  
 Packing Material Used: **NONE**  
 Radchem sample(s) screened (<500 cpm): Y N NA  
 Received by/Company: (Signature) **AMU Bann** ARAM Group Date/Time: **4/6/20 1440**  
 Received by/Company: (Signature) **AMU Bann** ARAM Group Date/Time: **4/6/20 1730**  
 Received by/Company: (Signature) **RD5 PAC** Date/Time: **4-6-20 1100**  
 Received by/Company: (Signature) **AMU Bann** ARAM Group Date/Time: **4-6-20 2115**

LAB USE

Container Preservation Type: \_\_\_\_\_

Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses	Y	N	NA
ALUMINUM - BICARBONATE	X		
HARDNESS TOTAL	X		
SULFIDE	X		
CHLORINE	X		
AMMONIUM	X		
PHOSPHORUS	X		
IRON	X		
COPPER	X		
ZINC	X		
LEAD	X		
CADMIUM	X		
CHROMIUM	X		
COBALT	X		
ANTHRACENE	X		
FLUORENTHENE	X		
PHENANTHRENE	X		
FLUORANTHENE	X		
BENZOPHENANTHRENE	X		
PERYLENE	X		
BENZOPYRENE	X		
INDENOPYRENE	X		
1-METHYLNAPHTHALENE	X		
2-METHYLNAPHTHALENE	X		
3-METHYLNAPHTHALENE	X		
4-METHYLNAPHTHALENE	X		
5-METHYLNAPHTHALENE	X		
6-METHYLNAPHTHALENE	X		
1,2,3,4-TETRAMETHYLNAPHTHALENE	X		
1,2,3,4,6-PENTAMETHYLNAPHTHALENE	X		
1,2,3,4,6,7,8-HEPTAMETHYLNAPHTHALENE	X		
1,2,3,4,6,7,8,9-OCTAMETHYLNAPHTHALENE	X		
1,2,3,4,6,7,8,9,10-NONAMETHYLNAPHTHALENE	X		
1,2,3,4,6,7,8,9,10,11-DECAMETHYLNAPHTHALENE	X		
1,2,3,4,6,7,8,9,10,11,12-UNDECAMETHYLNAPHTHALENE	X		
1,2,3,4,6,7,8,9,10,11,12,13-DODECAMETHYLNAPHTHALENE	X		
1,2,3,4,6,7,8,9,10,11,12,13,14-TETRADECAMETHYLNAPHTHALENE	X		
1,2,3,4,6,7,8,9,10,11,12,13,14,15-PENTADECAMETHYLNAPHTHALENE	X		
1,2,3,4,6,7,8,9,10,11,12,13,14,15,16-HEXADECAMETHYLNAPHTHALENE	X		
1,2,3,4,6,7,8,9,10,11,12,13,14,15,16,17-HEPTADECAMETHYLNAPHTHALENE	X		
1,2,3,4,6,7,8,9,10,11,12,13,14,15,16,17,18-OCTADECAMETHYLNAPHTHALENE	X		
1,2,3,4,6,7,8,9,10,11,12,13,14,15,16,17,18,19-NONADECAMETHYLNAPHTHALENE	X		
1,2,3,4,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20-EICOSADECAMETHYLNAPHTHALENE	X		

Lab Profile/Line:	Y	N	NA
Custody Seals Present/Intact	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Custody Signatures Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Collector Signature Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bottles Intact	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correct Bottles	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sufficient Volume	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples Received on Ice	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VOA - Headspace Acceptable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
USDA regulated Soils	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples in Holding Time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Residual Chlorine Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cl Strips:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample pH Acceptable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PH Strips: 100/100	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sulfide Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lead Acetate Strips:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LAB USE ONLY:			
Lab Sample # / Comments:	MCC/MCC		

Lab Sample Temperature Info:  
 Temp Blank Received:  Y  N  NA  
 Therm ID#: **10**  
 Cooler 1 Temp Upon Receipt: **24.0C**  
 Cooler 1 Therm Corr. Factor: **-0.30C**  
 Cooler 1 Corrected Temp: **23.70C**  
 Comments: **MCC 4-6-2020**  
 Trip Blank Received:  Y  N  NA  
 HCL MeOH TSP Other  
 Non Conformance(s):  YES  NO  
 Page: **1** of **2**



# CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company: **Enviroanalytic's Group**  
 Billing Information: **Laura Sarment**  
**BAG 1600 Des Peres Rd,**  
**Address: 1600 Sparrows Point Blvd Suite 303, St. Louis MO 63131**  
 Report To: **James Calenda**  
 Email To: **jcalenda@enviroanalyticgroup.com**  
 Copy To: **chenmilten@cmgroup.net**  
 Site Collection Info/Address: **1600 Sparrows Point Blvd**  
 State: **MD / Sparrows PT** [ ] PT [ ] MT [ ] CT [ ] ET

Customer Project Name/Number:  
 Phone: **Site/Facility ID #: BAG Sparrows PT RWM**  
 Email: **Purchase Order #: Turnaround Date Required: BAG normal**  
 Collected By (print): **Jessie Barron**  
 Collected By (signature): **GNW Barron**  
 Sample Disposal: **[ ] Same Day [ ] Next Day**  
**[ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day**  
**[ ] 12 Day [ ] 15 Day**  
 \* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Res Cl	# of Ctns
			Date	Time		
RW01-MWI	GW	G	4/6/20	1107	-	3
RW02-MNS	GW	G	4/6/20	1205	-	3
RW02-MWI	GW	G	4/6/20	1231	-	3
RW03-MNS	GW	G	4/6/20	1327	-	3
RW03-MWI	GW	G	4/6/20	1400	-	3

Customer Remarks / Special Conditions / Possible Hazards:  
 please ensure holding times  
 Type of Ice Used: **None**  
 Packing Material Used:  
 Radchem sample(s) screened (<500 cpm): Y N **NA**  
 Received by/Company: (Signature) **GNW Barron ARM-Group** Date/Time: **4/6/20 1440**  
 Relinquished by/Company: (Signature) **GNW Barron** Date/Time: **4/6/20 17:30**  
 Relinquished by/Company: (Signature) **RDS JACE** Date/Time: **4/6/20 2115**

# NO#: 30357639

PM: **SMB** Due Date: **04/14/20**  
CLIENT: **ENVIROANLYTC**

Container Preservation: **LY**

1					
---	--	--	--	--	--

\*\* Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses

Lab Sample Receipt Checklist:	Y	N	NA
Custody Seals Present/Intact	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Custody Signatures Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Collector Signature Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bottles Intact	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correct Bottles	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sufficient Volume	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples Received on Ice	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VOA - Headspace Acceptable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
USDA Regulated Soils	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples in Holding Time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Residual Chlorine Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cl Strips:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample pH Acceptable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
pH Strips: <b>6.0-7.9</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sulfide Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lead Acetate Strips:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LAB USE ONLY:			
Lab Sample # / Comments:	<b>MCC   MLC</b>		

Lab Sample Temperature Info:  
 Temp Blank Received: **Y**  **NA**  
 Therm ID#: **10**  
 Cooler 1 Temp Upon Receipt: **24.0C**  
 Cooler 1 Therm Corr. Factor: **3.0C**  
 Cooler 1 Corrected Temp: **21.0C**  
 Comments: **MCC 4-6-2020**  
 Trip Blank Received: **Y**  **NA**  
 HCL MeOH TSP Other  
 Non Conformance(s): **YES / NO** Page: **2** of: **2**

LAB

LAB	SHORT HOLDS PRESENT (<72 hours):	Y	N	NA
Alkalinity - Carbonate 0320B	<input checked="" type="checkbox"/>			
Alkalinity - Bicarbonate 0320B	<input checked="" type="checkbox"/>			
Hardness total 130.2	<input checked="" type="checkbox"/>			
Sulfate 100.2	<input checked="" type="checkbox"/>			

Lab Tracking #: **N/A 2357857**

Samples received via:	FEDEX	UPS	Client	Courier	Package
Date/Time:	<b>4/6/2020</b>	<b>13:30</b>			<b>MTJL LAB USE ONLY</b>
Date/Time:	<b>4-6-20 18:00</b>				
Date/Time:					



Sample Receiving Non-Conformance Form (NCF)

Date: 4/6/2020	Evaluated by: MLC
Client: EnviroAnalytics Group	

WO#: 30357639

PM: SMB Due Date: 04/14/20  
CLIENT: ENVIROANLYTC

Pace  
per

1. If Chain-of-Custody (COC) is not received: contact client and if necessary, fill out a COC and indicate that it was filled out by lab personnel. Note issues on this NCF.

2. If COC is incomplete, check applicable issues below and add details where appropriate:

<input checked="" type="checkbox"/> Collection date/time missing or incorrect	Analyses or analytes: missing or clarification needed	Samples listed on COC do not match samples received (missing, additional, etc.)
Sample IDs on COC do not match sample labels	Required trip blanks were not received	Required signatures are missing

Comments/Details/Other Issues not listed above: One BP30 sample for RWF-MWS has no time on sample label

3. Sample integrity issues: check applicable issues below and add details where appropriate:

Samples: Past holding time	Samples: Condition needs to be brought to lab personnel's attention (details below)	Preservation: Improper
Samples: Not field filtered	Containers: Broken or compromised	Temperature: not within acceptance criteria (typically 0-6C)
Samples: Insufficient volume received	Containers: Incorrect	Temperature: Samples arrived frozen
Samples: Cooler damaged or compromised	Custody Seals: Missing or compromised on samples, trip blanks or coolers	Vials received with improper headspace
Samples: contain chlorine or sulfides	Packing Material: Insufficient/Improper	Other:

Comments/Details:

4. If Samples not preserved properly and Sample Receiving adjusts pH, add details below:

Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:

5. Client Contact: If client is contacted for any issue listed above, fill in details below:

Client:	Contacted per:
PM Initials:	Date/Time:

Client Comments/Instructions:

June 16, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: B9 Phase II  
Pace Project No.: 30365510

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on May 29, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses were subcontracted outside of the Pace Network. The test report from the external subcontractor is attached to this report in its entirety.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

This project follows the April 5, 2016 revision 3 Quality Assurance Project Plan for Sparrows Point Terminal Site, Sparrows Point, MD prepared for EnviroAnalytics Group and is not for PA DEP compliance reporting.

The samples were subcontracted to EMSL., 3410 Winnetka Avenue North, New Hope MN 55427 for Asbestos analysis. Results of the analysis are reported on the EMSL Minnesota data tables.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.

Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## CERTIFICATIONS

Project: B9 Phase II  
Pace Project No.: 30365510

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Florida: Cert E871149 SEKS WET  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: B9 Phase II  
Pace Project No.: 30365510

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30365510001	B9-006-SB-1	Solid	05/29/20 10:40	05/29/20 23:15
30365510002	B9-006-SB-8	Solid	05/29/20 10:45	05/29/20 23:15
30365510003	B9-005-SB-1	Solid	05/29/20 11:10	05/29/20 23:15
30365510004	B9-005-SB-4	Solid	05/29/20 11:15	05/29/20 23:15
30365510005	B9-003-SB-1	Solid	05/29/20 11:40	05/29/20 23:15
30365510006	B9-003-SB-5	Solid	05/29/20 11:45	05/29/20 23:15
30365510007	B9-004-SB-1	Solid	05/29/20 12:00	05/29/20 23:15
30365510008	B9-004-SB-5	Solid	05/29/20 12:05	05/29/20 23:15
30365510009	B9-001-SB-1	Solid	05/29/20 13:35	05/29/20 23:15
30365510010	B9-001-SB-5	Solid	05/29/20 13:40	05/29/20 23:15
30365510011	B9-002-SB-1.5	Solid	05/29/20 14:00	05/29/20 23:15
30365510012	B9-002-SB-5	Solid	05/29/20 14:05	05/29/20 23:15
30365510013	duplicate	Solid	05/29/20 00:01	05/29/20 23:15
30365510014	TB1	Water	05/29/20 00:01	05/29/20 23:15
30365510015	TB1	Solid	05/29/20 00:01	05/29/20 23:15
30365510016	field blank	Water	05/29/20 15:00	05/29/20 23:15
30365510017	EQ blank	Water	05/29/20 15:05	05/29/20 23:15

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: B9 Phase II  
Pace Project No.: 30365510

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory		
30365510001	B9-006-SB-1	EPA 8015B	SEL	2	PASI-PA		
		EPA 8082	CWB	12	PASI-PA		
		EPA 8015B	ARG	3	PASI-PA		
		EPA 6010C	KAS	18	PASI-PA		
		EPA 7471A	KAS	1	PASI-PA		
		EPA 8270D	EAC	62	PASI-PA		
		EPA 8260B	JEW	54	PASI-PA		
		ASTM D2974-87	TJW	1	PASI-PA		
		EPA 7196A	EKM	1	PASI-PA		
		EPA 9045D	AJM	1	PASI-PA		
		EPA 9071B	EKM	1	PASI-PA		
		EPA 9012B	EKM	1	PASI-PA		
		30365510002	B9-006-SB-8	EPA 8015B	SEL	2	PASI-PA
EPA 8015B	ARG			3	PASI-PA		
EPA 6010C	KAS			18	PASI-PA		
EPA 7471A	KAS			1	PASI-PA		
EPA 8270D	EAC			62	PASI-PA		
EPA 8260B	JEW			54	PASI-PA		
ASTM D2974-87	TJW			1	PASI-PA		
EPA 7196A	EKM			1	PASI-PA		
EPA 9045D	AJM			1	PASI-PA		
EPA 9071B	EKM			1	PASI-PA		
EPA 9012B	EKM			1	PASI-PA		
30365510003	B9-005-SB-1			EPA 8015B	SEL	2	PASI-PA
				EPA 8082	CWB	12	PASI-PA
		EPA 8015B	ARG	3	PASI-PA		
		EPA 6010C	KAS	18	PASI-PA		
		EPA 7471A	KAS	1	PASI-PA		
		EPA 8270D	EAC	62	PASI-PA		
		ASTM D2974-87	TJW	1	PASI-PA		
		EPA 7196A	EKM	1	PASI-PA		
		EPA 9045D	AJM	1	PASI-PA		
		EPA 9071B	EKM	1	PASI-PA		
		EPA 9012B	EKM	1	PASI-PA		
		30365510004	B9-005-SB-4	EPA 8015B	SEL	2	PASI-PA
				EPA 8015B	ARG	3	PASI-PA
EPA 6010C	KAS			18	PASI-PA		

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: B9 Phase II  
Pace Project No.: 30365510

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 7471A	KAS	1	PASI-PA
		EPA 8270D	EAC	62	PASI-PA
		EPA 8260B	JEW	54	PASI-PA
		ASTM D2974-87	TJW	1	PASI-PA
		EPA 7196A	EKM	1	PASI-PA
		EPA 9045D	AJM	1	PASI-PA
		EPA 9071B	EKM	1	PASI-PA
		EPA 9012B	EKM	1	PASI-PA
<b>30365510005</b>	<b>B9-003-SB-1</b>	EPA 8015B	SEL	2	PASI-PA
		EPA 8082	CWB	12	PASI-PA
		EPA 8015B	ARG	3	PASI-PA
		EPA 6010C	KAS	18	PASI-PA
		EPA 7471A	KAS	1	PASI-PA
		EPA 8270D	EAC	62	PASI-PA
		ASTM D2974-87	TJW	1	PASI-PA
		EPA 7196A	EKM	1	PASI-PA
		EPA 9045D	AJM	1	PASI-PA
		EPA 9071B	EKM	1	PASI-PA
		EPA 9012B	EKM	1	PASI-PA
<b>30365510006</b>	<b>B9-003-SB-5</b>	EPA 8015B	SEL	2	PASI-PA
		EPA 8015B	ARG	3	PASI-PA
		EPA 6010C	KAS	18	PASI-PA
		EPA 7471A	KAS	1	PASI-PA
		EPA 8270D	EAC	62	PASI-PA
		ASTM D2974-87	TJW	1	PASI-PA
		EPA 7196A	EKM	1	PASI-PA
		EPA 9045D	AJM	1	PASI-PA
		EPA 9071B	EKM	1	PASI-PA
		EPA 9012B	EKM	1	PASI-PA
<b>30365510007</b>	<b>B9-004-SB-1</b>	EPA 8015B	SEL	2	PASI-PA
		EPA 8082	CWB	12	PASI-PA
		EPA 8015B	ARG	3	PASI-PA
		EPA 6010C	KAS	18	PASI-PA
		EPA 7471A	KAS	1	PASI-PA
		EPA 8270D	EAC	62	PASI-PA
		ASTM D2974-87	TJW	1	PASI-PA
		EPA 7196A	EKM	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: B9 Phase II  
Pace Project No.: 30365510

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30365510008	B9-004-SB-5	EPA 9045D	AJM	1	PASI-PA
		EPA 9071B	EKM	1	PASI-PA
		EPA 9012B	EKM	1	PASI-PA
		EPA 8015B	SEL	2	PASI-PA
		EPA 8015B	ARG	3	PASI-PA
		EPA 6010C	KAS	18	PASI-PA
		EPA 7471A	KAS	1	PASI-PA
		EPA 8270D	EAC	62	PASI-PA
		ASTM D2974-87	TJW	1	PASI-PA
		EPA 7196A	EKM	1	PASI-PA
30365510009	B9-001-SB-1	EPA 9045D	AJM	1	PASI-PA
		EPA 9071B	EKM	1	PASI-PA
		EPA 9012B	EKM	1	PASI-PA
		EPA 8015B	SEL	2	PASI-PA
		EPA 8082	CWB	12	PASI-PA
		EPA 8015B	ARG	3	PASI-PA
		EPA 6010C	KAS	18	PASI-PA
		EPA 7471A	KAS	1	PASI-PA
		EPA 8270D	EAC	62	PASI-PA
		ASTM D2974-87	TJW	1	PASI-PA
30365510010	B9-001-SB-5	EPA 7196A	EKM	1	PASI-PA
		EPA 9045D	AJM	1	PASI-PA
		EPA 9071B	EKM	1	PASI-PA
		EPA 9012B	EKM	1	PASI-PA
		EPA 8015B	SEL	2	PASI-PA
		EPA 8015B	ARG	3	PASI-PA
		EPA 6010C	KAS	18	PASI-PA
		EPA 7471A	KAS	1	PASI-PA
		EPA 8270D	EAC	62	PASI-PA
		ASTM D2974-87	TJW	1	PASI-PA
30365510011	B9-002-SB-1.5	EPA 7196A	EKM	1	PASI-PA
		EPA 9045D	AJM	1	PASI-PA
		EPA 9071B	EKM	1	PASI-PA
		EPA 9012B	EKM	1	PASI-PA
		EPA 8015B	SEL	2	PASI-PA
		EPA 8082	CWB	12	PASI-PA
		EPA 8015B	ARG	3	PASI-PA

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: B9 Phase II  
Pace Project No.: 30365510

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6010C	KAS	18	PASI-PA
		EPA 7471A	KAS	1	PASI-PA
		EPA 8270D	EAC	62	PASI-PA
		ASTM D2974-87	TJW	1	PASI-PA
		EPA 7196A	EKM	1	PASI-PA
		EPA 9045D	AJM	1	PASI-PA
		EPA 9071B	EKM	1	PASI-PA
		EPA 9012B	EKM	1	PASI-PA
<b>30365510012</b>	<b>B9-002-SB-5</b>	EPA 8015B	SEL	2	PASI-PA
		EPA 8015B	ARG	3	PASI-PA
		EPA 6010C	KAS	18	PASI-PA
		EPA 7471A	KAS	1	PASI-PA
		EPA 8270D	EAC	62	PASI-PA
		ASTM D2974-87	TJW	1	PASI-PA
		EPA 7196A	EKM	1	PASI-PA
		EPA 9045D	AJM	1	PASI-PA
		EPA 9071B	EKM	1	PASI-PA
		EPA 9012B	EKM	1	PASI-PA
<b>30365510013</b>	<b>duplicate</b>	EPA 8015B	SEL	2	PASI-PA
		EPA 8082	CWB	12	PASI-PA
		EPA 8015B	ARG	3	PASI-PA
		EPA 6010C	KAS	18	PASI-PA
		EPA 7471A	KAS	1	PASI-PA
		EPA 8270D	EAC	62	PASI-PA
		ASTM D2974-87	TJW	1	PASI-PA
		EPA 7196A	EKM	1	PASI-PA
		EPA 9045D	AJM	1	PASI-PA
		EPA 9071B	EKM	1	PASI-PA
		EPA 9012B	EKM	1	PASI-PA
<b>30365510014</b>	<b>TB1</b>	EPA 5030/8015B	ARG	3	PASI-PA
		EPA 8260B	LEL	55	PASI-PA
<b>30365510015</b>	<b>TB1</b>	EPA 8015B	ARG	3	PASI-PA
		EPA 8260B	JEW	54	PASI-PA
<b>30365510016</b>	<b>field blank</b>	EPA 8015B	SEL	2	PASI-PA
		EPA 5030/8015B	ARG	3	PASI-PA
		EPA 6010C	KAS	18	PASI-PA
		EPA 7470A	KAS	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: B9 Phase II

Pace Project No.: 30365510

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8270D	EAC	62	PASI-PA
		EPA 8260B	LEL	55	PASI-PA
		EPA 1664A	SEF	1	PASI-PA
		EPA 7196A	PAS	1	PASI-PA
		EPA 9012B	EKM	1	PASI-PA
30365510017	EQ blank	EPA 8015B	SEL	2	PASI-PA
		EPA 5030/8015B	ARG	3	PASI-PA
		EPA 6010C	KAS	18	PASI-PA
		EPA 7470A	KAS	1	PASI-PA
		EPA 8270D	EAC	62	PASI-PA
		EPA 8260B	LEL	55	PASI-PA
		EPA 1664A	SEF	1	PASI-PA
		EPA 7196A	PAS	1	PASI-PA
		EPA 9012B	EKM	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 8015B  
**Description:** 8015 TPH Microwave  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

### General Information:

13 samples were analyzed for EPA 8015B by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 400233

S8: Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-extraction and/or re-analysis)

- B9-001-SB-5 (Lab ID: 30365510010)
  - o-Terphenyl (S)
- duplicate (Lab ID: 30365510013)
  - o-Terphenyl (S)

SR: Surrogate recovery was below laboratory control limits. Results may be biased low.

- B9-001-SB-5 (Lab ID: 30365510010)
  - o-Terphenyl (S)
- BLANK (Lab ID: 1938011)
  - o-Terphenyl (S)
- duplicate (Lab ID: 30365510013)
  - o-Terphenyl (S)

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 400233

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- LCS (Lab ID: 1938012)

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 8015B

**Description:** 8015 TPH Microwave

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

QC Batch: 400233

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- TPH (C10-C28)

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 400233

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30365510002

ML: Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

- MS (Lab ID: 1938013)
- TPH (C10-C28)

### Additional Comments:

Analyte Comments:

QC Batch: 400233

7c: Solid LCS-Data accepted based upon Pace-Pittsburgh's in house control limits of 51-106%

- LCS (Lab ID: 1938012)
- TPH (C10-C28)

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 8015B  
**Description:** 8015 TPH  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

### General Information:

2 samples were analyzed for EPA 8015B by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3510C with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 398849

S8: Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-extraction and/or re-analysis)

- EQ blank (Lab ID: 30365510017)
  - o-Terphenyl (S)
- field blank (Lab ID: 30365510016)
  - o-Terphenyl (S)

SR: Surrogate recovery was below laboratory control limits. Results may be biased low.

- BLANK (Lab ID: 1931643)
  - o-Terphenyl (S)
- EQ blank (Lab ID: 30365510017)
  - o-Terphenyl (S)
- field blank (Lab ID: 30365510016)
  - o-Terphenyl (S)

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 8015B

**Description:** 8015 TPH

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

QC Batch: 398849

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

### Additional Comments:

Analyte Comments:

QC Batch: 398849

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- EQ blank (Lab ID: 30365510017)
  - TPH (C10-C28)
- field blank (Lab ID: 30365510016)
  - TPH (C10-C28)

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 8082  
**Description:** 8082 GCS PCB  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

### General Information:

7 samples were analyzed for EPA 8082 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

ED: Due to the extract's physical characteristics, the analysis was performed at dilution.

- B9-001-SB-1 (Lab ID: 30365510009)
- B9-002-SB-1.5 (Lab ID: 30365510011)
- B9-003-SB-1 (Lab ID: 30365510005)
- B9-004-SB-1 (Lab ID: 30365510007)
- B9-006-SB-1 (Lab ID: 30365510001)

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 400732

CL: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

- BLANK (Lab ID: 1940147)
- Decachlorobiphenyl (S)

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 400732

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30365302001,30365302003

MH: Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

- MS (Lab ID: 1940152)

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 8082

**Description:** 8082 GCS PCB

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

QC Batch: 400732

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30365302001,30365302003

MH: Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

- PCB-1232 (Aroclor 1232)

### Additional Comments:

Analyte Comments:

QC Batch: 400732

C2: Relative percent difference between results from each column was greater than 40%. The lower of the two results was reported.

- B9-005-SB-1 (Lab ID: 30365510003)
  - PCB-1260 (Aroclor 1260)
- duplicate (Lab ID: 30365510013)
  - PCB-1260 (Aroclor 1260)

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 8015B

**Description:** Gasoline Range Organics

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

**General Information:**

14 samples were analyzed for EPA 8015B by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 5035A/5030B with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 399389

S2: Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).

- B9-003-SB-5 (Lab ID: 30365510006)
  - a,a,a-Trifluorotoluene (S)
- MS (Lab ID: 1934022)
  - a,a,a-Trifluorotoluene (S)
- MSD (Lab ID: 1934023)
  - a,a,a-Trifluorotoluene (S)

SR: Surrogate recovery was below laboratory control limits. Results may be biased low.

- B9-003-SB-5 (Lab ID: 30365510006)
  - a,a,a-Trifluorotoluene (S)
- MS (Lab ID: 1934022)
  - a,a,a-Trifluorotoluene (S)
- MSD (Lab ID: 1934023)
  - a,a,a-Trifluorotoluene (S)

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 8015B

**Description:** Gasoline Range Organics

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 5030/8015B

**Description:** Gasoline Range Organics

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

### General Information:

3 samples were analyzed for EPA 5030/8015B by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 398943

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- BLANK (Lab ID: 1931949)
  - TPH (C06-C10)
  - a,a,a-Trifluorotoluene (S)
- EQ blank (Lab ID: 30365510017)
  - TPH (C06-C10)
  - a,a,a-Trifluorotoluene (S)
- LCS (Lab ID: 1931950)
  - TPH (C06-C10)
  - a,a,a-Trifluorotoluene (S)
- TB1 (Lab ID: 30365510014)
  - TPH (C06-C10)
  - a,a,a-Trifluorotoluene (S)
- field blank (Lab ID: 30365510016)
  - TPH (C06-C10)
  - a,a,a-Trifluorotoluene (S)

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 5030/8015B

**Description:** Gasoline Range Organics

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 6010C  
**Description:** 6010C MET ICP  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

### General Information:

15 samples were analyzed for EPA 6010C by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3050B with any exceptions noted below.  
The samples were prepared in accordance with EPA 3005A with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 399081

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30365510002

MH: Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

- MS (Lab ID: 1932671)
  - Aluminum
  - Barium
  - Manganese
  - Thallium
  - Vanadium
- MSD (Lab ID: 1932672)
  - Aluminum
  - Barium
  - Copper
  - Lead
  - Manganese

ML: Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

- MS (Lab ID: 1932671)

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 6010C

**Description:** 6010C MET ICP

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

QC Batch: 399081

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30365510002

ML: Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

- Antimony
- Iron
- Selenium
- Zinc
- MSD (Lab ID: 1932672)
  - Antimony
  - Iron
  - Zinc

R1: RPD value was outside control limits.

- MSD (Lab ID: 1932672)
  - Aluminum
  - Copper
  - Lead
  - Manganese
  - Thallium

### Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

### Additional Comments:

Batch Comments:

The CRDL standard exceeded the 30% criteria for Cu. Sample was above the linear range, therefore diluted elevating the reporting limits.

- QC Batch: 399205

The PDS failed for Fe and Mn

- QC Batch: 399205

Analyte Comments:

QC Batch: 399081

10c: The PDS failed for Fe and Mn

- B9-001-SB-1 (Lab ID: 30365510009)
  - Silver
  - Aluminum
  - Arsenic
  - Barium
  - Beryllium
  - Cadmium
  - Cobalt
  - Chromium
  - Copper
  - Iron

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 6010C

**Description:** 6010C MET ICP

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

Analyte Comments:

QC Batch: 399081

10c: The PDS failed for Fe and Mn

- B9-001-SB-1 (Lab ID: 30365510009)
  - Manganese
  - Nickel
  - Lead
  - Antimony
  - Selenium
  - Thallium
  - Vanadium
  - Zinc
- B9-001-SB-5 (Lab ID: 30365510010)
  - Silver
  - Aluminum
  - Arsenic
  - Barium
  - Beryllium
  - Cadmium
  - Cobalt
  - Chromium
  - Copper
  - Iron
  - Manganese
  - Nickel
  - Lead
  - Antimony
  - Selenium
  - Thallium
  - Vanadium
  - Zinc
- B9-002-SB-1.5 (Lab ID: 30365510011)
  - Silver
  - Aluminum
  - Arsenic
  - Barium
  - Beryllium
  - Cadmium
  - Cobalt
  - Chromium
  - Copper
  - Iron
  - Manganese
  - Nickel
  - Lead
  - Antimony

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 6010C  
**Description:** 6010C MET ICP  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

Analyte Comments:

QC Batch: 399081

10c: The PDS failed for Fe and Mn

- B9-002-SB-1.5 (Lab ID: 30365510011)
  - Selenium
  - Thallium
  - Vanadium
  - Zinc
- B9-002-SB-5 (Lab ID: 30365510012)
  - Silver
  - Aluminum
  - Arsenic
  - Barium
  - Beryllium
  - Cadmium
  - Cobalt
  - Chromium
  - Copper
  - Iron
  - Manganese
  - Nickel
  - Lead
  - Antimony
  - Selenium
  - Thallium
  - Vanadium
  - Zinc
- B9-003-SB-1 (Lab ID: 30365510005)
  - Silver
  - Aluminum
  - Arsenic
  - Barium
  - Beryllium
  - Cadmium
  - Cobalt
  - Chromium
  - Copper
  - Iron
  - Manganese
  - Nickel
  - Lead
  - Antimony
  - Selenium
  - Thallium
  - Vanadium
  - Zinc

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 6010C  
**Description:** 6010C MET ICP  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

Analyte Comments:

QC Batch: 399081

10c: The PDS failed for Fe and Mn

- B9-003-SB-5 (Lab ID: 30365510006)
  - Silver
  - Aluminum
  - Arsenic
  - Barium
  - Beryllium
  - Cadmium
  - Cobalt
  - Chromium
  - Copper
  - Iron
  - Manganese
  - Nickel
  - Lead
  - Antimony
  - Selenium
  - Thallium
  - Vanadium
  - Zinc
- B9-004-SB-1 (Lab ID: 30365510007)
  - Silver
  - Aluminum
  - Arsenic
  - Barium
  - Beryllium
  - Cadmium
  - Cobalt
  - Chromium
  - Copper
  - Iron
  - Manganese
  - Nickel
  - Lead
  - Antimony
  - Selenium
  - Thallium
  - Vanadium
  - Zinc
- B9-004-SB-5 (Lab ID: 30365510008)
  - Silver
  - Aluminum
  - Arsenic
  - Barium

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 6010C

**Description:** 6010C MET ICP

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

Analyte Comments:

QC Batch: 399081

10c: The PDS failed for Fe and Mn

• B9-004-SB-5 (Lab ID: 30365510008)

- Beryllium
- Cadmium
- Cobalt
- Chromium
- Copper
- Iron
- Manganese
- Nickel
- Lead
- Antimony
- Selenium
- Thallium
- Vanadium
- Zinc

• B9-005-SB-1 (Lab ID: 30365510003)

- Silver
- Aluminum
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt
- Chromium
- Copper
- Iron
- Manganese
- Nickel
- Lead
- Antimony
- Selenium
- Thallium
- Vanadium
- Zinc

• B9-005-SB-4 (Lab ID: 30365510004)

- Silver
- Aluminum
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt
- Chromium

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 6010C

**Description:** 6010C MET ICP

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

Analyte Comments:

QC Batch: 399081

10c: The PDS failed for Fe and Mn

• B9-005-SB-4 (Lab ID: 30365510004)

- Copper
- Iron
- Manganese
- Nickel
- Lead
- Antimony
- Selenium
- Thallium
- Vanadium
- Zinc

• B9-006-SB-1 (Lab ID: 30365510001)

- Silver
- Aluminum
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt
- Chromium
- Copper
- Iron
- Manganese
- Nickel
- Lead
- Antimony
- Selenium
- Thallium
- Vanadium
- Zinc

• B9-006-SB-8 (Lab ID: 30365510002)

- Silver
- Aluminum
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt
- Chromium
- Copper
- Iron
- Manganese
- Nickel

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 6010C

**Description:** 6010C MET ICP

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

Analyte Comments:

QC Batch: 399081

10c: The PDS failed for Fe and Mn

- B9-006-SB-8 (Lab ID: 30365510002)

- Lead
- Antimony
- Selenium
- Thallium
- Vanadium
- Zinc

- BLANK (Lab ID: 1932669)

- Silver
- Aluminum
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt
- Chromium
- Copper
- Iron
- Manganese
- Nickel
- Lead
- Antimony
- Selenium
- Thallium
- Vanadium
- Zinc

- LCS (Lab ID: 1932670)

- Silver
- Aluminum
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt
- Chromium
- Copper
- Iron
- Manganese
- Nickel
- Lead
- Antimony
- Selenium
- Thallium

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 6010C  
**Description:** 6010C MET ICP  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

Analyte Comments:

QC Batch: 399081

10c: The PDS failed for Fe and Mn

- LCS (Lab ID: 1932670)
  - Vanadium
  - Zinc
- MS (Lab ID: 1932671)
  - Silver
  - Aluminum
  - Arsenic
  - Barium
  - Beryllium
  - Cadmium
  - Cobalt
  - Chromium
  - Copper
  - Iron
  - Manganese
  - Nickel
  - Lead
  - Antimony
  - Selenium
  - Thallium
  - Vanadium
  - Zinc
- MSD (Lab ID: 1932672)
  - Silver
  - Aluminum
  - Arsenic
  - Barium
  - Beryllium
  - Cadmium
  - Cobalt
  - Chromium
  - Copper
  - Iron
  - Manganese
  - Nickel
  - Lead
  - Antimony
  - Selenium
  - Thallium
  - Vanadium
  - Zinc
- duplicate (Lab ID: 30365510013)
  - Silver

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 6010C  
**Description:** 6010C MET ICP  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

Analyte Comments:

QC Batch: 399081

10c: The PDS failed for Fe and Mn

- duplicate (Lab ID: 30365510013)
  - Aluminum
  - Arsenic
  - Barium
  - Beryllium
  - Cadmium
  - Cobalt
  - Chromium
  - Copper
  - Iron
  - Manganese
  - Nickel
  - Lead
  - Antimony
  - Selenium
  - Thallium
  - Vanadium
  - Zinc

12c: The PDS recovery was outside of the laboratory control limits. Result may be biased low

- B9-006-SB-8 (Lab ID: 30365510002)
  - Iron
  - Manganese

9c: The CRDL standard exceeded the 30% criteria for Cu. Sample was above the linear range, therefore diluted elevating the reporting limits.

- B9-001-SB-1 (Lab ID: 30365510009)
  - Silver
  - Aluminum
  - Arsenic
  - Barium
  - Beryllium
  - Cadmium
  - Cobalt
  - Chromium
  - Copper
  - Iron
  - Manganese
  - Nickel
  - Lead
  - Antimony
  - Selenium
  - Thallium
  - Vanadium

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 6010C

**Description:** 6010C MET ICP

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

Analyte Comments:

QC Batch: 399081

9c: The CRDL standard exceeded the 30% criteria for Cu. Sample was above the linear range, therefore diluted elevating the reporting limits.

- B9-001-SB-1 (Lab ID: 30365510009)
  - Zinc
- B9-001-SB-5 (Lab ID: 30365510010)
  - Silver
  - Aluminum
  - Arsenic
  - Barium
  - Beryllium
  - Cadmium
  - Cobalt
  - Chromium
  - Copper
  - Iron
  - Manganese
  - Nickel
  - Lead
  - Antimony
  - Selenium
  - Thallium
  - Vanadium
  - Zinc
- B9-002-SB-1.5 (Lab ID: 30365510011)
  - Silver
  - Aluminum
  - Arsenic
  - Barium
  - Beryllium
  - Cadmium
  - Cobalt
  - Chromium
  - Copper
  - Iron
  - Manganese
  - Nickel
  - Lead
  - Antimony
  - Selenium
  - Thallium
  - Vanadium
  - Zinc
- B9-002-SB-5 (Lab ID: 30365510012)
  - Silver

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 6010C

**Description:** 6010C MET ICP

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

Analyte Comments:

QC Batch: 399081

9c: The CRDL standard exceeded the 30% criteria for Cu. Sample was above the linear range, therefore diluted elevating the reporting limits.

- B9-002-SB-5 (Lab ID: 30365510012)

- Aluminum
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt
- Chromium
- Copper
- Iron
- Manganese
- Nickel
- Lead
- Antimony
- Selenium
- Thallium
- Vanadium
- Zinc

- B9-003-SB-1 (Lab ID: 30365510005)

- Silver
- Aluminum
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt
- Chromium
- Copper
- Iron
- Manganese
- Nickel
- Lead
- Antimony
- Selenium
- Thallium
- Vanadium
- Zinc

- B9-003-SB-5 (Lab ID: 30365510006)

- Silver
- Aluminum
- Arsenic
- Barium

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 6010C

**Description:** 6010C MET ICP

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

Analyte Comments:

QC Batch: 399081

9c: The CRDL standard exceeded the 30% criteria for Cu. Sample was above the linear range, therefore diluted elevating the reporting limits.

- B9-003-SB-5 (Lab ID: 30365510006)

- Beryllium
- Cadmium
- Cobalt
- Chromium
- Copper
- Iron
- Manganese
- Nickel
- Lead
- Antimony
- Selenium
- Thallium
- Vanadium
- Zinc

- B9-004-SB-1 (Lab ID: 30365510007)

- Silver
- Aluminum
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt
- Chromium
- Copper
- Iron
- Manganese
- Nickel
- Lead
- Antimony
- Selenium
- Thallium
- Vanadium
- Zinc

- B9-004-SB-5 (Lab ID: 30365510008)

- Silver
- Aluminum
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 6010C

**Description:** 6010C MET ICP

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

Analyte Comments:

QC Batch: 399081

9c: The CRDL standard exceeded the 30% criteria for Cu. Sample was above the linear range, therefore diluted elevating the reporting limits.

- B9-004-SB-5 (Lab ID: 30365510008)

- Chromium
- Copper
- Iron
- Manganese
- Nickel
- Lead
- Antimony
- Selenium
- Thallium
- Vanadium
- Zinc

- B9-005-SB-1 (Lab ID: 30365510003)

- Silver
- Aluminum
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt
- Chromium
- Copper
- Iron
- Manganese
- Nickel
- Lead
- Antimony
- Selenium
- Thallium
- Vanadium
- Zinc

- B9-005-SB-4 (Lab ID: 30365510004)

- Silver
- Aluminum
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt
- Chromium
- Copper
- Iron

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 6010C

**Description:** 6010C MET ICP

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

Analyte Comments:

QC Batch: 399081

9c: The CRDL standard exceeded the 30% criteria for Cu. Sample was above the linear range, therefore diluted elevating the reporting limits.

- B9-005-SB-4 (Lab ID: 30365510004)

- Manganese
- Nickel
- Lead
- Antimony
- Selenium
- Thallium
- Vanadium
- Zinc

- B9-006-SB-1 (Lab ID: 30365510001)

- Silver
- Aluminum
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt
- Chromium
- Copper
- Iron
- Manganese
- Nickel
- Lead
- Antimony
- Selenium
- Thallium
- Vanadium
- Zinc

- B9-006-SB-8 (Lab ID: 30365510002)

- Silver
- Aluminum
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt
- Chromium
- Copper
- Iron
- Manganese
- Nickel
- Lead

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 6010C  
**Description:** 6010C MET ICP  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

Analyte Comments:

QC Batch: 399081

9c: The CRDL standard exceeded the 30% criteria for Cu. Sample was above the linear range, therefore diluted elevating the reporting limits.

- B9-006-SB-8 (Lab ID: 30365510002)

- Antimony
- Selenium
- Thallium
- Vanadium
- Zinc

- BLANK (Lab ID: 1932669)

- Silver
- Aluminum
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt
- Chromium
- Copper
- Iron
- Manganese
- Nickel
- Lead
- Antimony
- Selenium
- Thallium
- Vanadium
- Zinc

- LCS (Lab ID: 1932670)

- Silver
- Aluminum
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt
- Chromium
- Copper
- Iron
- Manganese
- Nickel
- Lead
- Antimony
- Selenium
- Thallium

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 6010C

**Description:** 6010C MET ICP

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

Analyte Comments:

QC Batch: 399081

9c: The CRDL standard exceeded the 30% criteria for Cu. Sample was above the linear range, therefore diluted elevating the reporting limits.

- LCS (Lab ID: 1932670)

- Vanadium

- Zinc

- MS (Lab ID: 1932671)

- Silver

- Aluminum

- Arsenic

- Barium

- Beryllium

- Cadmium

- Cobalt

- Chromium

- Copper

- Iron

- Manganese

- Nickel

- Lead

- Antimony

- Selenium

- Thallium

- Vanadium

- Zinc

- MSD (Lab ID: 1932672)

- Silver

- Aluminum

- Arsenic

- Barium

- Beryllium

- Cadmium

- Cobalt

- Chromium

- Copper

- Iron

- Manganese

- Nickel

- Lead

- Antimony

- Selenium

- Thallium

- Vanadium

- Zinc

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 6010C

**Description:** 6010C MET ICP

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

Analyte Comments:

QC Batch: 399081

9c: The CRDL standard exceeded the 30% criteria for Cu. Sample was above the linear range, therefore diluted elevating the reporting limits.

• duplicate (Lab ID: 30365510013)

- Silver
- Aluminum
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt
- Chromium
- Copper
- Iron
- Manganese
- Nickel
- Lead
- Antimony
- Selenium
- Thallium
- Vanadium
- Zinc

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 7470A  
**Description:** 7470 Mercury  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

**General Information:**

2 samples were analyzed for EPA 7470A by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470A with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Duplicate Sample:**

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

**Additional Comments:**

Analyte Comments:

QC Batch: 398787

11c: The PDS recovery was outside of the laboratory control limits. Result may be biased high

- EQ blank (Lab ID: 30365510017)
  - Mercury

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 7471A

**Description:** 7471 Mercury

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

**General Information:**

13 samples were analyzed for EPA 7471A by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7471A with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Duplicate Sample:**

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 8270D  
**Description:** 8270D MSSV Microwave  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

### General Information:

13 samples were analyzed for EPA 8270D by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

ED: Due to the extract's physical characteristics, the analysis was performed at dilution.

- B9-001-SB-1 (Lab ID: 30365510009)
- B9-002-SB-1.5 (Lab ID: 30365510011)
- B9-003-SB-1 (Lab ID: 30365510005)
- B9-005-SB-1 (Lab ID: 30365510003)
- duplicate (Lab ID: 30365510013)

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 400234

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- B9-001-SB-1 (Lab ID: 30365510009)
  - bis(2-Chloroisopropyl) ether
- B9-001-SB-5 (Lab ID: 30365510010)
  - bis(2-Chloroisopropyl) ether
- B9-002-SB-1.5 (Lab ID: 30365510011)
  - bis(2-Chloroisopropyl) ether
- B9-002-SB-5 (Lab ID: 30365510012)
  - bis(2-Chloroisopropyl) ether
- B9-003-SB-1 (Lab ID: 30365510005)
  - bis(2-Chloroisopropyl) ether
- B9-003-SB-5 (Lab ID: 30365510006)
  - bis(2-Chloroisopropyl) ether
- B9-004-SB-1 (Lab ID: 30365510007)
  - bis(2-Chloroisopropyl) ether
- B9-004-SB-5 (Lab ID: 30365510008)
  - bis(2-Chloroisopropyl) ether
- B9-005-SB-1 (Lab ID: 30365510003)
  - bis(2-Chloroisopropyl) ether
- B9-005-SB-4 (Lab ID: 30365510004)
  - bis(2-Chloroisopropyl) ether

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 8270D

**Description:** 8270D MSSV Microwave

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

QC Batch: 400234

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- B9-006-SB-1 (Lab ID: 30365510001)
  - bis(2-Chloroisopropyl) ether
- B9-006-SB-8 (Lab ID: 30365510002)
  - bis(2-Chloroisopropyl) ether
- BLANK (Lab ID: 1938015)
  - bis(2-Chloroisopropyl) ether
- LCS (Lab ID: 1938016)
  - bis(2-Chloroisopropyl) ether
- MS (Lab ID: 1938017)
  - bis(2-Chloroisopropyl) ether
- MSD (Lab ID: 1938018)
  - bis(2-Chloroisopropyl) ether
- duplicate (Lab ID: 30365510013)
  - bis(2-Chloroisopropyl) ether

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 400234

S4: Surrogate recovery not evaluated against control limits due to sample dilution.

- B9-002-SB-1.5 (Lab ID: 30365510011)
  - 2-Fluorobiphenyl (S)
  - 2-Fluorophenol (S)
  - Nitrobenzene-d5 (S)
  - Phenol-d6 (S)
  - Terphenyl-d14 (S)

SR: Surrogate recovery was below laboratory control limits. Results may be biased low.

- B9-006-SB-1 (Lab ID: 30365510001)
  - 2,4,6-Tribromophenol (S)
  - 2-Fluorophenol (S)

ST: Surrogate recovery was above laboratory control limits. Results may be biased high.

- B9-001-SB-5 (Lab ID: 30365510010)
  - Nitrobenzene-d5 (S)
  - Phenol-d6 (S)
  - Terphenyl-d14 (S)
- B9-002-SB-5 (Lab ID: 30365510012)
  - 2,4,6-Tribromophenol (S)
  - 2-Fluorobiphenyl (S)
  - 2-Fluorophenol (S)
  - Nitrobenzene-d5 (S)

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 8270D  
**Description:** 8270D MSSV Microwave  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

QC Batch: 400234

ST: Surrogate recovery was above laboratory control limits. Results may be biased high.

- Phenol-d6 (S)
- Terphenyl-d14 (S)

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 400234

L1: Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

- LCS (Lab ID: 1938016)
  - Benzaldehyde

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- LCS (Lab ID: 1938016)
  - 3,3'-Dichlorobenzidine

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 400234

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30365510002

ML: Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

- MS (Lab ID: 1938017)
  - 3,3'-Dichlorobenzidine
- MSD (Lab ID: 1938018)
  - 3,3'-Dichlorobenzidine

R1: RPD value was outside control limits.

- MSD (Lab ID: 1938018)
  - 4-Chloroaniline
  - Benzaldehyde

### Additional Comments:

Analyte Comments:

QC Batch: 400234

13c: The read back of the low concentration calibration standard for this compound is not within 30% of the true value. The results may be biased low and should be considered estimated.

- B9-001-SB-1 (Lab ID: 30365510009)
  - 2,4-Dinitrophenol

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 8270D

**Description:** 8270D MSSV Microwave

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

Analyte Comments:

QC Batch: 400234

13c: The read back of the low concentration calibration standard for this compound is not within 30% of the true value. The results may be biased low and should be considered estimated.

- B9-001-SB-5 (Lab ID: 30365510010)
  - 2,4-Dinitrophenol
- B9-002-SB-1.5 (Lab ID: 30365510011)
  - 2,4-Dinitrophenol
- B9-002-SB-5 (Lab ID: 30365510012)
  - 2,4-Dinitrophenol
- B9-003-SB-1 (Lab ID: 30365510005)
  - 2,4-Dinitrophenol
- B9-003-SB-5 (Lab ID: 30365510006)
  - 2,4-Dinitrophenol
- B9-004-SB-1 (Lab ID: 30365510007)
  - 2,4-Dinitrophenol
- B9-004-SB-5 (Lab ID: 30365510008)
  - 2,4-Dinitrophenol
- B9-005-SB-1 (Lab ID: 30365510003)
  - 2,4-Dinitrophenol
- B9-005-SB-4 (Lab ID: 30365510004)
  - 2,4-Dinitrophenol
- B9-006-SB-1 (Lab ID: 30365510001)
  - 2,4-Dinitrophenol
- B9-006-SB-8 (Lab ID: 30365510002)
  - 2,4-Dinitrophenol
- BLANK (Lab ID: 1938015)
  - 2,4-Dinitrophenol
- LCS (Lab ID: 1938016)
  - 2,4-Dinitrophenol
- MS (Lab ID: 1938017)
  - 2,4-Dinitrophenol
- MSD (Lab ID: 1938018)
  - 2,4-Dinitrophenol
- duplicate (Lab ID: 30365510013)
  - 2,4-Dinitrophenol

8c: Surrogate recovery is outside control limits due to matrix interferences (sample pH > 10). Samples from this site have been re-extracted to confirm that surrogate failure is due to matrix. Therefore, this sample was not re-extracted.

- B9-006-SB-1 (Lab ID: 30365510001)
  - 2,4,6-Tribromophenol (S)
  - 2-Fluorophenol (S)

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 8270D  
**Description:** 8270D MSSV Organics  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

### General Information:

2 samples were analyzed for EPA 8270D by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3510C with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 398665

B: Analyte was detected in the associated method blank.

- BLANK for HBN 398665 [OEXT/412 (Lab ID: 1931006)
- Di-n-butylphthalate

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 398665

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- LCS (Lab ID: 1931007)
- 3,3'-Dichlorobenzidine

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 8270D  
**Description:** 8270D MSSV Organics  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

QC Batch: 398665

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30365303002

ML: Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

- MS (Lab ID: 1931008)
  - 3,3'-Dichlorobenzidine
- MSD (Lab ID: 1931009)
  - 3,3'-Dichlorobenzidine

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 8260B

**Description:** 8260B MSV 5035 Low Level

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

### General Information:

4 samples were analyzed for EPA 8260B by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 5035A with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

QC Batch: 399557

IH: This analyte exceeded secondary source verification criteria high for the initial calibration. The reported results should be considered an estimated value.

- B9-005-SB-4 (Lab ID: 30365510004)
  - 1,2,3-Trichlorobenzene
  - 1,4-Dioxane (p-Dioxane)
  - Dichlorodifluoromethane
- B9-006-SB-1 (Lab ID: 30365510001)
  - 1,2,3-Trichlorobenzene
  - 1,4-Dioxane (p-Dioxane)
  - Dichlorodifluoromethane
- B9-006-SB-8 (Lab ID: 30365510002)
  - 1,2,3-Trichlorobenzene
  - 1,4-Dioxane (p-Dioxane)
  - Dichlorodifluoromethane
- BLANK (Lab ID: 1935081)
  - 1,2,3-Trichlorobenzene
  - 1,4-Dioxane (p-Dioxane)
  - Dichlorodifluoromethane
- LCS (Lab ID: 1935082)
  - 1,2,3-Trichlorobenzene
  - 1,4-Dioxane (p-Dioxane)
  - Dichlorodifluoromethane
- MS (Lab ID: 1935083)
  - 1,2,3-Trichlorobenzene
  - 1,4-Dioxane (p-Dioxane)
  - Dichlorodifluoromethane
- MSD (Lab ID: 1935084)
  - 1,2,3-Trichlorobenzene
  - 1,4-Dioxane (p-Dioxane)
  - Dichlorodifluoromethane
- TB1 (Lab ID: 30365510015)

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 8260B  
**Description:** 8260B MSV 5035 Low Level  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

QC Batch: 399557

IH: This analyte exceeded secondary source verification criteria high for the initial calibration. The reported results should be considered an estimated value.

- 1,2,3-Trichlorobenzene
- 1,4-Dioxane (p-Dioxane)
- Dichlorodifluoromethane

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 399557

SR: Surrogate recovery was below laboratory control limits. Results may be biased low.

- B9-006-SB-1 (Lab ID: 30365510001)
- Dibromofluoromethane (S)

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

QC Batch: 399557

B: Analyte was detected in the associated method blank.

- BLANK for HBN 399557 [MSV/5014 (Lab ID: 1935081)
- Acetone

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 399557

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30365510002

MH: Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

- MS (Lab ID: 1935083)
- Benzene
- Carbon disulfide

R1: RPD value was outside control limits.

- MSD (Lab ID: 1935084)
- 1,2-Dibromoethane (EDB)
- 1,4-Dioxane (p-Dioxane)

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 8260B

**Description:** 8260B MSV 5035 Low Level

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

QC Batch: 399557

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30365510002

R1: RPD value was outside control limits.

- 2-Butanone (MEK)
- 2-Hexanone
- Acetone
- Benzene
- Bromomethane
- Carbon disulfide
- Carbon tetrachloride
- Chloroethane
- Chloromethane
- Dichlorodifluoromethane
- Methyl-tert-butyl ether
- Toluene
- Trichlorofluoromethane

### Additional Comments:

Analyte Comments:

QC Batch: 399557

6c: RF below method recommended limit.

- B9-005-SB-4 (Lab ID: 30365510004)
  - 1,4-Dioxane (p-Dioxane)
- B9-006-SB-1 (Lab ID: 30365510001)
  - 1,4-Dioxane (p-Dioxane)
- B9-006-SB-8 (Lab ID: 30365510002)
  - 1,4-Dioxane (p-Dioxane)
- BLANK (Lab ID: 1935081)
  - 1,4-Dioxane (p-Dioxane)
- LCS (Lab ID: 1935082)
  - 1,4-Dioxane (p-Dioxane)
- MS (Lab ID: 1935083)
  - 1,4-Dioxane (p-Dioxane)
- MSD (Lab ID: 1935084)
  - 1,4-Dioxane (p-Dioxane)
- TB1 (Lab ID: 30365510015)
  - 1,4-Dioxane (p-Dioxane)

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 8260B

**Description:** 8260B MSV

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

### General Information:

3 samples were analyzed for EPA 8260B by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

QC Batch: 398934

IH: This analyte exceeded secondary source verification criteria high for the initial calibration. The reported results should be considered an estimated value.

- BLANK (Lab ID: 1931928)
  - Dichlorodifluoromethane
- EQ blank (Lab ID: 30365510017)
  - Dichlorodifluoromethane
- LCS (Lab ID: 1931929)
  - Dichlorodifluoromethane
- MS (Lab ID: 1931930)
  - Dichlorodifluoromethane
- MSD (Lab ID: 1931931)
  - Dichlorodifluoromethane
- TB1 (Lab ID: 30365510014)
  - Dichlorodifluoromethane
- field blank (Lab ID: 30365510016)
  - Dichlorodifluoromethane

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: 398934

CL: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

- BLANK (Lab ID: 1931928)
  - Bromomethane
- EQ blank (Lab ID: 30365510017)
  - Bromomethane
- LCS (Lab ID: 1931929)
  - Bromomethane
- MS (Lab ID: 1931930)
  - Bromomethane
- MSD (Lab ID: 1931931)
  - Bromomethane
- TB1 (Lab ID: 30365510014)
  - Bromomethane

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 8260B  
**Description:** 8260B MSV  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

QC Batch: 398934

CL: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

- field blank (Lab ID: 30365510016)
- Bromomethane

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 398934

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30365303002

ML: Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

- MS (Lab ID: 1931930)
- Bromomethane

### Additional Comments:

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 1664A

**Description:** HEM, Oil and Grease

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

**General Information:**

2 samples were analyzed for EPA 1664A by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 7196A  
**Description:** 7196 Chromium, Hexavalent  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

### General Information:

15 samples were analyzed for EPA 7196A by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3060A with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 398841

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30365510002

ML: Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

- MS (Lab ID: 1931605)
  - Chromium, Hexavalent
- MSD (Lab ID: 1931606)
  - Chromium, Hexavalent

### Additional Comments:

Batch Comments:

Due to limited volume for MS/MSD, LCSD was analyzed

- QC Batch: 398626

ORP: 276 mV at 20.8 deg C; Spike samples have a tendency to reduce, see Figure 2.

- QC Batch: 399259

LCR: 92%; PDS: 111.62%

- QC Batch: 399259

Analyte Comments:

QC Batch: 398626

2c: Due to limited volume for MS/MSD, LCSD was analyzed

- BLANK (Lab ID: 1930684)
  - Chromium, Hexavalent

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 7196A

**Description:** 7196 Chromium, Hexavalent

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

Analyte Comments:

QC Batch: 398626

2c: Due to limited volume for MS/MSD, LCSD was analyzed

- EQ blank (Lab ID: 30365510017)
  - Chromium, Hexavalent
- LCS (Lab ID: 1930685)
  - Chromium, Hexavalent
- LCSD (Lab ID: 1930686)
  - Chromium, Hexavalent
- field blank (Lab ID: 30365510016)
  - Chromium, Hexavalent

QC Batch: 398841

4c: LCR: 92%; PDS: 111.62%

- B9-001-SB-1 (Lab ID: 30365510009)
  - Chromium, Hexavalent
- B9-001-SB-5 (Lab ID: 30365510010)
  - Chromium, Hexavalent
- B9-002-SB-1.5 (Lab ID: 30365510011)
  - Chromium, Hexavalent
- B9-002-SB-5 (Lab ID: 30365510012)
  - Chromium, Hexavalent
- B9-003-SB-1 (Lab ID: 30365510005)
  - Chromium, Hexavalent
- B9-003-SB-5 (Lab ID: 30365510006)
  - Chromium, Hexavalent
- B9-004-SB-1 (Lab ID: 30365510007)
  - Chromium, Hexavalent
- B9-004-SB-5 (Lab ID: 30365510008)
  - Chromium, Hexavalent
- B9-005-SB-1 (Lab ID: 30365510003)
  - Chromium, Hexavalent
- B9-005-SB-4 (Lab ID: 30365510004)
  - Chromium, Hexavalent
- B9-006-SB-1 (Lab ID: 30365510001)
  - Chromium, Hexavalent
- B9-006-SB-8 (Lab ID: 30365510002)
  - Chromium, Hexavalent
- BLANK (Lab ID: 1931603)
  - Chromium, Hexavalent
- LCS (Lab ID: 1931604)
  - Chromium, Hexavalent
- MS (Lab ID: 1931605)
  - Chromium, Hexavalent
- MS (Lab ID: 1931607)
  - Chromium, Hexavalent

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II  
Pace Project No.: 30365510

---

**Method:** EPA 7196A  
**Description:** 7196 Chromium, Hexavalent  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

Analyte Comments:

QC Batch: 398841

4c: LCR: 92%; PDS: 111.62%

- MSD (Lab ID: 1931606)
  - Chromium, Hexavalent
- duplicate (Lab ID: 30365510013)
  - Chromium, Hexavalent

5c: ORP: 276 mV at 20.8 deg C; Spike samples have a tendency to reduce, see Figure 2.

- B9-001-SB-1 (Lab ID: 30365510009)
  - Chromium, Hexavalent
- B9-001-SB-5 (Lab ID: 30365510010)
  - Chromium, Hexavalent
- B9-002-SB-1.5 (Lab ID: 30365510011)
  - Chromium, Hexavalent
- B9-002-SB-5 (Lab ID: 30365510012)
  - Chromium, Hexavalent
- B9-003-SB-1 (Lab ID: 30365510005)
  - Chromium, Hexavalent
- B9-003-SB-5 (Lab ID: 30365510006)
  - Chromium, Hexavalent
- B9-004-SB-1 (Lab ID: 30365510007)
  - Chromium, Hexavalent
- B9-004-SB-5 (Lab ID: 30365510008)
  - Chromium, Hexavalent
- B9-005-SB-1 (Lab ID: 30365510003)
  - Chromium, Hexavalent
- B9-005-SB-4 (Lab ID: 30365510004)
  - Chromium, Hexavalent
- B9-006-SB-1 (Lab ID: 30365510001)
  - Chromium, Hexavalent
- B9-006-SB-8 (Lab ID: 30365510002)
  - Chromium, Hexavalent
- BLANK (Lab ID: 1931603)
  - Chromium, Hexavalent
- LCS (Lab ID: 1931604)
  - Chromium, Hexavalent
- MS (Lab ID: 1931605)
  - Chromium, Hexavalent
- MS (Lab ID: 1931607)
  - Chromium, Hexavalent
- MSD (Lab ID: 1931606)
  - Chromium, Hexavalent
- duplicate (Lab ID: 30365510013)
  - Chromium, Hexavalent

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 9045D

**Description:** 9045D pH Soil

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

### General Information:

13 samples were analyzed for EPA 9045D by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

H3: Sample was received or analysis requested beyond the recognized method holding time.

- B9-001-SB-1 (Lab ID: 30365510009)
- B9-001-SB-5 (Lab ID: 30365510010)
- B9-002-SB-1.5 (Lab ID: 30365510011)
- B9-002-SB-5 (Lab ID: 30365510012)
- B9-003-SB-1 (Lab ID: 30365510005)
- B9-003-SB-5 (Lab ID: 30365510006)
- B9-004-SB-1 (Lab ID: 30365510007)
- B9-004-SB-5 (Lab ID: 30365510008)
- B9-005-SB-1 (Lab ID: 30365510003)
- B9-005-SB-4 (Lab ID: 30365510004)
- B9-006-SB-1 (Lab ID: 30365510001)
- B9-006-SB-8 (Lab ID: 30365510002)
- duplicate (Lab ID: 30365510013)

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

### Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

### Additional Comments:

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 9071B

**Description:** 9071 Oil and Grease/TPH

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

**General Information:**

13 samples were analyzed for EPA 9071B by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 9071B with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

Analyte Comments:

QC Batch: 399083

3c: Initial sample volume reduced-clay.

- B9-002-SB-5 (Lab ID: 30365510012)
  - Oil and Grease
- B9-003-SB-1 (Lab ID: 30365510005)
  - Oil and Grease
- B9-003-SB-5 (Lab ID: 30365510006)
  - Oil and Grease

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 9012B

**Description:** 9012B Cyanide, Total

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

### General Information:

13 samples were analyzed for EPA 9012B by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 9012B with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 398767

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30365510002,30365510011

MH: Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

- MSD (Lab ID: 1931280)
  - Cyanide

ML: Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

- MS (Lab ID: 1931281)
  - Cyanide

R1: RPD value was outside control limits.

- MSD (Lab ID: 1931282)
  - Cyanide

### Additional Comments:

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: B9 Phase II

Pace Project No.: 30365510

---

**Method:** EPA 9012B

**Description:** 9012B Cyanide, Total

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

**General Information:**

2 samples were analyzed for EPA 9012B by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 9012B with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-006-SB-1**      **Lab ID: 30365510001**      Collected: 05/29/20 10:40      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 TPH Microwave</b>									
Analytical Method: EPA 8015B Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
TPH (C10-C28)	<b>73.5</b>	mg/kg	7.3	4.1	1	06/12/20 08:37	06/12/20 16:48		L2
<b>Surrogates</b>									
o-Terphenyl (S)	64	%	60-125		1	06/12/20 08:37	06/12/20 16:48	84-15-1	
<b>8082 GCS PCB</b>									
Analytical Method: EPA 8082 Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
PCB-1016 (Aroclor 1016)	<b>0.091 U</b>	mg/kg	0.091	0.0082	5	06/15/20 08:49	06/15/20 23:25	12674-11-2	ED
PCB-1221 (Aroclor 1221)	<b>0.091 U</b>	mg/kg	0.091	0.045	5	06/15/20 08:49	06/15/20 23:25	11104-28-2	ED
PCB-1232 (Aroclor 1232)	<b>0.091 U</b>	mg/kg	0.091	0.045	5	06/15/20 08:49	06/15/20 23:25	11141-16-5	ED
PCB-1242 (Aroclor 1242)	<b>0.091 U</b>	mg/kg	0.091	0.013	5	06/15/20 08:49	06/15/20 23:25	53469-21-9	ED
PCB-1248 (Aroclor 1248)	<b>0.091 U</b>	mg/kg	0.091	0.042	5	06/15/20 08:49	06/15/20 23:25	12672-29-6	ED
PCB-1254 (Aroclor 1254)	<b>0.091 U</b>	mg/kg	0.091	0.018	5	06/15/20 08:49	06/15/20 23:25	11097-69-1	ED
PCB-1260 (Aroclor 1260)	<b>0.023J</b>	mg/kg	0.091	0.0084	5	06/15/20 08:49	06/15/20 23:25	11096-82-5	ED
PCB-1262 (Aroclor 1262)	<b>0.091 U</b>	mg/kg	0.091	0.028	5	06/15/20 08:49	06/15/20 23:25	37324-23-5	ED
PCB-1268 (Aroclor 1268)	<b>0.091 U</b>	mg/kg	0.091	0.028	5	06/15/20 08:49	06/15/20 23:25	11100-14-4	ED
PCB, Total	<b>0.82 U</b>	mg/kg	0.82	0.24	5	06/15/20 08:49	06/15/20 23:25	1336-36-3	
<b>Surrogates</b>									
Tetrachloro-m-xylene (S)	78	%	34-114		5	06/15/20 08:49	06/15/20 23:25	877-09-8	
Decachlorobiphenyl (S)	84	%	38-139		5	06/15/20 08:49	06/15/20 23:25	2051-24-3	
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015B Preparation Method: EPA 5035A/5030B									
Pace Analytical Services - Greensburg									
TPH (C06-C10)	<b>11.7 U</b>	mg/kg	11.7	6.5	1	06/04/20 11:30	06/05/20 07:32		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	60	%	60-125		1	06/04/20 11:30	06/05/20 07:32	98-08-8	
4-Bromofluorobenzene (S)	95	%	60-125		1	06/04/20 11:30	06/05/20 07:32	460-00-4	
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Aluminum	<b>29700</b>	mg/kg	42.4	10.6	5	06/03/20 07:18	06/04/20 11:01	7429-90-5	10c,9c
Antimony	<b>2.5 U</b>	mg/kg	2.5	2.0	5	06/03/20 07:18	06/04/20 11:01	7440-36-0	10c,9c
Arsenic	<b>4.5</b>	mg/kg	2.1	2.0	5	06/03/20 07:18	06/04/20 11:01	7440-38-2	10c,9c
Barium	<b>244</b>	mg/kg	8.5	0.40	5	06/03/20 07:18	06/04/20 11:01	7440-39-3	10c,9c
Beryllium	<b>5.6</b>	mg/kg	0.85	0.13	5	06/03/20 07:18	06/04/20 11:01	7440-41-7	10c,9c
Cadmium	<b>0.51J</b>	mg/kg	1.3	0.26	5	06/03/20 07:18	06/04/20 11:01	7440-43-9	10c,9c
Chromium	<b>129</b>	mg/kg	2.1	0.39	5	06/03/20 07:18	06/04/20 11:01	7440-47-3	10c,9c
Cobalt	<b>1.8J</b>	mg/kg	4.2	0.45	5	06/03/20 07:18	06/04/20 11:01	7440-48-4	10c,9c
Copper	<b>17.2</b>	mg/kg	4.2	2.5	5	06/03/20 07:18	06/04/20 11:01	7440-50-8	10c,9c
Iron	<b>27200</b>	mg/kg	42.4	4.9	5	06/03/20 07:18	06/04/20 11:01	7439-89-6	10c,9c
Lead	<b>48.3</b>	mg/kg	2.1	2.1	5	06/03/20 07:18	06/04/20 11:01	7439-92-1	10c,9c
Manganese	<b>6180</b>	mg/kg	84.9	8.5	100	06/03/20 07:18	06/04/20 12:13	7439-96-5	10c,9c
Nickel	<b>13.5</b>	mg/kg	8.5	1.1	5	06/03/20 07:18	06/04/20 11:01	7440-02-0	10c,9c
Selenium	<b>3.4 U</b>	mg/kg	3.4	2.5	5	06/03/20 07:18	06/04/20 11:01	7782-49-2	10c,9c
Silver	<b>2.5 U</b>	mg/kg	2.5	0.41	5	06/03/20 07:18	06/04/20 11:01	7440-22-4	10c,9c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-006-SB-1**      **Lab ID: 30365510001**      Collected: 05/29/20 10:40      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Thallium	<b>8.5 U</b>	mg/kg	8.5	2.6	5	06/03/20 07:18	06/04/20 11:01	7440-28-0	10c,9c
Vanadium	<b>80.5</b>	mg/kg	4.2	0.35	5	06/03/20 07:18	06/04/20 11:01	7440-62-2	10c,9c
Zinc	<b>109</b>	mg/kg	4.2	0.71	5	06/03/20 07:18	06/04/20 11:01	7440-66-6	10c,9c
<b>7471 Mercury</b>									
Analytical Method: EPA 7471A    Preparation Method: EPA 7471A									
Pace Analytical Services - Greensburg									
Mercury	<b>0.14</b>	mg/kg	0.10	0.0050	1	06/03/20 10:48	06/04/20 06:10	7439-97-6	
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Acenaphthene	<b>0.072 U</b>	mg/kg	0.072	0.016	1	06/12/20 08:59	06/12/20 23:16	83-32-9	
Acenaphthylene	<b>0.072 U</b>	mg/kg	0.072	0.016	1	06/12/20 08:59	06/12/20 23:16	208-96-8	
Acetophenone	<b>0.072 U</b>	mg/kg	0.072	0.017	1	06/12/20 08:59	06/12/20 23:16	98-86-2	
Anthracene	<b>0.072 U</b>	mg/kg	0.072	0.017	1	06/12/20 08:59	06/12/20 23:16	120-12-7	
Benzaldehyde	<b>0.072 U</b>	mg/kg	0.072	0.016	1	06/12/20 08:59	06/12/20 23:16	100-52-7	L1
Benzo(a)anthracene	<b>0.046J</b>	mg/kg	0.072	0.014	1	06/12/20 08:59	06/12/20 23:16	56-55-3	
Benzo(a)pyrene	<b>0.049J</b>	mg/kg	0.072	0.011	1	06/12/20 08:59	06/12/20 23:16	50-32-8	
Benzo(b)fluoranthene	<b>0.077</b>	mg/kg	0.072	0.014	1	06/12/20 08:59	06/12/20 23:16	205-99-2	
Benzo(g,h,i)perylene	<b>0.072 U</b>	mg/kg	0.072	0.014	1	06/12/20 08:59	06/12/20 23:16	191-24-2	
Benzo(k)fluoranthene	<b>0.061J</b>	mg/kg	0.072	0.014	1	06/12/20 08:59	06/12/20 23:16	207-08-9	
Biphenyl (Diphenyl)	<b>0.072 U</b>	mg/kg	0.072	0.015	1	06/12/20 08:59	06/12/20 23:16	92-52-4	
Caprolactam	<b>0.18 U</b>	mg/kg	0.18	0.020	1	06/12/20 08:59	06/12/20 23:16	105-60-2	
Carbazole	<b>0.072 U</b>	mg/kg	0.072	0.017	1	06/12/20 08:59	06/12/20 23:16	86-74-8	
4-Chloroaniline	<b>0.072 U</b>	mg/kg	0.072	0.016	1	06/12/20 08:59	06/12/20 23:16	106-47-8	
bis(2-Chloroethoxy)methane	<b>0.072 U</b>	mg/kg	0.072	0.016	1	06/12/20 08:59	06/12/20 23:16	111-91-1	
bis(2-Chloroethyl) ether	<b>0.072 U</b>	mg/kg	0.072	0.017	1	06/12/20 08:59	06/12/20 23:16	111-44-4	
bis(2-Chloroisopropyl) ether	<b>0.072 U</b>	mg/kg	0.072	0.018	1	06/12/20 08:59	06/12/20 23:16	108-60-1	CH
2-Chloronaphthalene	<b>0.072 U</b>	mg/kg	0.072	0.015	1	06/12/20 08:59	06/12/20 23:16	91-58-7	
2-Chlorophenol	<b>0.072 U</b>	mg/kg	0.072	0.017	1	06/12/20 08:59	06/12/20 23:16	95-57-8	
Chrysene	<b>0.074</b>	mg/kg	0.072	0.015	1	06/12/20 08:59	06/12/20 23:16	218-01-9	
Dibenz(a,h)anthracene	<b>0.072 U</b>	mg/kg	0.072	0.013	1	06/12/20 08:59	06/12/20 23:16	53-70-3	
3,3'-Dichlorobenzidine	<b>0.072 U</b>	mg/kg	0.072	0.014	1	06/12/20 08:59	06/12/20 23:16	91-94-1	L2
2,4-Dichlorophenol	<b>0.072 U</b>	mg/kg	0.072	0.019	1	06/12/20 08:59	06/12/20 23:16	120-83-2	
Diethylphthalate	<b>0.072 U</b>	mg/kg	0.072	0.015	1	06/12/20 08:59	06/12/20 23:16	84-66-2	
2,4-Dimethylphenol	<b>0.072 U</b>	mg/kg	0.072	0.014	1	06/12/20 08:59	06/12/20 23:16	105-67-9	
Di-n-butylphthalate	<b>0.072 U</b>	mg/kg	0.072	0.017	1	06/12/20 08:59	06/12/20 23:16	84-74-2	
2,4-Dinitrophenol	<b>0.18 U</b>	mg/kg	0.18	0.037	1	06/12/20 08:59	06/12/20 23:16	51-28-5	13c
2,4-Dinitrotoluene	<b>0.072 U</b>	mg/kg	0.072	0.017	1	06/12/20 08:59	06/12/20 23:16	121-14-2	
2,6-Dinitrotoluene	<b>0.072 U</b>	mg/kg	0.072	0.018	1	06/12/20 08:59	06/12/20 23:16	606-20-2	
Di-n-octylphthalate	<b>0.072 U</b>	mg/kg	0.072	0.020	1	06/12/20 08:59	06/12/20 23:16	117-84-0	
bis(2-Ethylhexyl)phthalate	<b>0.072 U</b>	mg/kg	0.072	0.015	1	06/12/20 08:59	06/12/20 23:16	117-81-7	
Fluoranthene	<b>0.094</b>	mg/kg	0.072	0.017	1	06/12/20 08:59	06/12/20 23:16	206-44-0	
Fluorene	<b>0.072 U</b>	mg/kg	0.072	0.017	1	06/12/20 08:59	06/12/20 23:16	86-73-7	
Hexachloro-1,3-butadiene	<b>0.072 U</b>	mg/kg	0.072	0.017	1	06/12/20 08:59	06/12/20 23:16	87-68-3	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-006-SB-1**      **Lab ID: 30365510001**      Collected: 05/29/20 10:40      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Hexachlorobenzene	<b>0.072 U</b>	mg/kg	0.072	0.017	1	06/12/20 08:59	06/12/20 23:16	118-74-1	
Hexachlorocyclopentadiene	<b>0.072 U</b>	mg/kg	0.072	0.013	1	06/12/20 08:59	06/12/20 23:16	77-47-4	
Hexachloroethane	<b>0.072 U</b>	mg/kg	0.072	0.016	1	06/12/20 08:59	06/12/20 23:16	67-72-1	
Indeno(1,2,3-cd)pyrene	<b>0.014J</b>	mg/kg	0.072	0.013	1	06/12/20 08:59	06/12/20 23:16	193-39-5	
Isophorone	<b>0.072 U</b>	mg/kg	0.072	0.020	1	06/12/20 08:59	06/12/20 23:16	78-59-1	
2-Methylnaphthalene	<b>0.016J</b>	mg/kg	0.072	0.015	1	06/12/20 08:59	06/12/20 23:16	91-57-6	
2-Methylphenol(o-Cresol)	<b>0.072 U</b>	mg/kg	0.072	0.014	1	06/12/20 08:59	06/12/20 23:16	95-48-7	
3&4-Methylphenol(m&p Cresol)	<b>0.14 U</b>	mg/kg	0.14	0.018	1	06/12/20 08:59	06/12/20 23:16		
Naphthalene	<b>0.030J</b>	mg/kg	0.072	0.016	1	06/12/20 08:59	06/12/20 23:16	91-20-3	
2-Nitroaniline	<b>0.18 U</b>	mg/kg	0.18	0.016	1	06/12/20 08:59	06/12/20 23:16	88-74-4	
4-Nitroaniline	<b>0.18 U</b>	mg/kg	0.18	0.026	1	06/12/20 08:59	06/12/20 23:16	100-01-6	
Nitrobenzene	<b>0.072 U</b>	mg/kg	0.072	0.018	1	06/12/20 08:59	06/12/20 23:16	98-95-3	
N-Nitroso-di-n-propylamine	<b>0.072 U</b>	mg/kg	0.072	0.017	1	06/12/20 08:59	06/12/20 23:16	621-64-7	
N-Nitrosodiphenylamine	<b>0.072 U</b>	mg/kg	0.072	0.014	1	06/12/20 08:59	06/12/20 23:16	86-30-6	
Pentachlorophenol	<b>0.18 U</b>	mg/kg	0.18	0.034	1	06/12/20 08:59	06/12/20 23:16	87-86-5	
Phenanthrene	<b>0.050J</b>	mg/kg	0.072	0.017	1	06/12/20 08:59	06/12/20 23:16	85-01-8	
Phenol	<b>0.072 U</b>	mg/kg	0.072	0.017	1	06/12/20 08:59	06/12/20 23:16	108-95-2	
Pyrene	<b>0.077</b>	mg/kg	0.072	0.019	1	06/12/20 08:59	06/12/20 23:16	129-00-0	
1,2,4,5-Tetrachlorobenzene	<b>0.072 U</b>	mg/kg	0.072	0.016	1	06/12/20 08:59	06/12/20 23:16	95-94-3	
2,3,4,6-Tetrachlorophenol	<b>0.072 U</b>	mg/kg	0.072	0.015	1	06/12/20 08:59	06/12/20 23:16	58-90-2	
2,4,5-Trichlorophenol	<b>0.18 U</b>	mg/kg	0.18	0.016	1	06/12/20 08:59	06/12/20 23:16	95-95-4	
2,4,6-Trichlorophenol	<b>0.072 U</b>	mg/kg	0.072	0.018	1	06/12/20 08:59	06/12/20 23:16	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	68	%	26-95		1	06/12/20 08:59	06/12/20 23:16	4165-60-0	
2-Fluorobiphenyl (S)	66	%	36-98		1	06/12/20 08:59	06/12/20 23:16	321-60-8	
Terphenyl-d14 (S)	79	%	59-116		1	06/12/20 08:59	06/12/20 23:16	1718-51-0	
Phenol-d6 (S)	45	%	34-98		1	06/12/20 08:59	06/12/20 23:16	13127-88-3	
2-Fluorophenol (S)	13	%	29-96		1	06/12/20 08:59	06/12/20 23:16	367-12-4	8c,SR
2,4,6-Tribromophenol (S)	2	%	30-113		1	06/12/20 08:59	06/12/20 23:16	118-79-6	8c,SR
<b>8260B MSV 5035 Low Level</b>									
Analytical Method: EPA 8260B    Preparation Method: EPA 5035A									
Pace Analytical Services - Greensburg									
Acetone	<b>0.0055J</b>	mg/kg	0.010	0.0033	1	06/05/20 09:35	06/05/20 13:59	67-64-1	
Benzene	<b>0.0051 U</b>	mg/kg	0.0051	0.00089	1	06/05/20 09:35	06/05/20 13:59	71-43-2	
Bromodichloromethane	<b>0.0051 U</b>	mg/kg	0.0051	0.0011	1	06/05/20 09:35	06/05/20 13:59	75-27-4	
Bromoform	<b>0.0051 U</b>	mg/kg	0.0051	0.00068	1	06/05/20 09:35	06/05/20 13:59	75-25-2	
Bromomethane	<b>0.0051 U</b>	mg/kg	0.0051	0.0019	1	06/05/20 09:35	06/05/20 13:59	74-83-9	
2-Butanone (MEK)	<b>0.010 U</b>	mg/kg	0.010	0.00093	1	06/05/20 09:35	06/05/20 13:59	78-93-3	
Carbon disulfide	<b>0.0051 U</b>	mg/kg	0.0051	0.0015	1	06/05/20 09:35	06/05/20 13:59	75-15-0	
Carbon tetrachloride	<b>0.0051 U</b>	mg/kg	0.0051	0.0018	1	06/05/20 09:35	06/05/20 13:59	56-23-5	
Chlorobenzene	<b>0.0051 U</b>	mg/kg	0.0051	0.00080	1	06/05/20 09:35	06/05/20 13:59	108-90-7	
Chloroethane	<b>0.0051 U</b>	mg/kg	0.0051	0.0021	1	06/05/20 09:35	06/05/20 13:59	75-00-3	
Chloroform	<b>0.0051 U</b>	mg/kg	0.0051	0.0015	1	06/05/20 09:35	06/05/20 13:59	67-66-3	
Chloromethane	<b>0.0051 U</b>	mg/kg	0.0051	0.0017	1	06/05/20 09:35	06/05/20 13:59	74-87-3	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-006-SB-1**      **Lab ID: 30365510001**      Collected: 05/29/20 10:40      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260B MSV 5035 Low Level</b>									
Analytical Method: EPA 8260B    Preparation Method: EPA 5035A									
Pace Analytical Services - Greensburg									
Cyclohexane	<b>0.010 U</b>	mg/kg	0.010	0.0019	1	06/05/20 09:35	06/05/20 13:59	110-82-7	
1,2-Dibromo-3-chloropropane	<b>0.0051 U</b>	mg/kg	0.0051	0.0012	1	06/05/20 09:35	06/05/20 13:59	96-12-8	
Dibromochloromethane	<b>0.0051 U</b>	mg/kg	0.0051	0.00081	1	06/05/20 09:35	06/05/20 13:59	124-48-1	
1,2-Dibromoethane (EDB)	<b>0.0051 U</b>	mg/kg	0.0051	0.00082	1	06/05/20 09:35	06/05/20 13:59	106-93-4	
1,2-Dichlorobenzene	<b>0.0051 U</b>	mg/kg	0.0051	0.00061	1	06/05/20 09:35	06/05/20 13:59	95-50-1	
1,3-Dichlorobenzene	<b>0.0051 U</b>	mg/kg	0.0051	0.00067	1	06/05/20 09:35	06/05/20 13:59	541-73-1	
1,4-Dichlorobenzene	<b>0.0051 U</b>	mg/kg	0.0051	0.00073	1	06/05/20 09:35	06/05/20 13:59	106-46-7	
Dichlorodifluoromethane	<b>0.0051 U</b>	mg/kg	0.0051	0.0028	1	06/05/20 09:35	06/05/20 13:59	75-71-8	IH
1,1-Dichloroethane	<b>0.0051 U</b>	mg/kg	0.0051	0.0013	1	06/05/20 09:35	06/05/20 13:59	75-34-3	
1,2-Dichloroethane	<b>0.0051 U</b>	mg/kg	0.0051	0.0013	1	06/05/20 09:35	06/05/20 13:59	107-06-2	
1,2-Dichloroethene (Total)	<b>0.010 U</b>	mg/kg	0.010	0.0025	1	06/05/20 09:35	06/05/20 13:59	540-59-0	
1,1-Dichloroethene	<b>0.0051 U</b>	mg/kg	0.0051	0.0019	1	06/05/20 09:35	06/05/20 13:59	75-35-4	
cis-1,2-Dichloroethene	<b>0.0051 U</b>	mg/kg	0.0051	0.0012	1	06/05/20 09:35	06/05/20 13:59	156-59-2	
trans-1,2-Dichloroethene	<b>0.0051 U</b>	mg/kg	0.0051	0.0013	1	06/05/20 09:35	06/05/20 13:59	156-60-5	
1,2-Dichloropropane	<b>0.0051 U</b>	mg/kg	0.0051	0.00074	1	06/05/20 09:35	06/05/20 13:59	78-87-5	
cis-1,3-Dichloropropene	<b>0.0051 U</b>	mg/kg	0.0051	0.00051	1	06/05/20 09:35	06/05/20 13:59	10061-01-5	
trans-1,3-Dichloropropene	<b>0.0051 U</b>	mg/kg	0.0051	0.0011	1	06/05/20 09:35	06/05/20 13:59	10061-02-6	
1,4-Dioxane (p-Dioxane)	<b>0.10 U</b>	mg/kg	0.10	0.042	1	06/05/20 09:35	06/05/20 13:59	123-91-1	6c, IH
Ethylbenzene	<b>0.0051 U</b>	mg/kg	0.0051	0.0011	1	06/05/20 09:35	06/05/20 13:59	100-41-4	
2-Hexanone	<b>0.010 U</b>	mg/kg	0.010	0.0010	1	06/05/20 09:35	06/05/20 13:59	591-78-6	
Isopropylbenzene (Cumene)	<b>0.0051 U</b>	mg/kg	0.0051	0.0012	1	06/05/20 09:35	06/05/20 13:59	98-82-8	
Methyl acetate	<b>0.051 U</b>	mg/kg	0.051	0.0011	1	06/05/20 09:35	06/05/20 13:59	79-20-9	
Methylene Chloride	<b>0.0051 U</b>	mg/kg	0.0051	0.0043	1	06/05/20 09:35	06/05/20 13:59	75-09-2	
4-Methyl-2-pentanone (MIBK)	<b>0.010 U</b>	mg/kg	0.010	0.0011	1	06/05/20 09:35	06/05/20 13:59	108-10-1	
Methyl-tert-butyl ether	<b>0.0051 U</b>	mg/kg	0.0051	0.00069	1	06/05/20 09:35	06/05/20 13:59	1634-04-4	
Styrene	<b>0.0051 U</b>	mg/kg	0.0051	0.0015	1	06/05/20 09:35	06/05/20 13:59	100-42-5	
1,1,1,2-Tetrachloroethane	<b>0.0051 U</b>	mg/kg	0.0051	0.00061	1	06/05/20 09:35	06/05/20 13:59	79-34-5	
Tetrachloroethene	<b>0.0051 U</b>	mg/kg	0.0051	0.0018	1	06/05/20 09:35	06/05/20 13:59	127-18-4	
Toluene	<b>0.0051 U</b>	mg/kg	0.0051	0.0010	1	06/05/20 09:35	06/05/20 13:59	108-88-3	
1,2,3-Trichlorobenzene	<b>0.0051 U</b>	mg/kg	0.0051	0.00097	1	06/05/20 09:35	06/05/20 13:59	87-61-6	IH
1,2,4-Trichlorobenzene	<b>0.0051 U</b>	mg/kg	0.0051	0.0013	1	06/05/20 09:35	06/05/20 13:59	120-82-1	
1,1,1-Trichloroethane	<b>0.0051 U</b>	mg/kg	0.0051	0.0015	1	06/05/20 09:35	06/05/20 13:59	71-55-6	
1,1,1,2-Trichloroethane	<b>0.0051 U</b>	mg/kg	0.0051	0.0010	1	06/05/20 09:35	06/05/20 13:59	79-00-5	
Trichloroethene	<b>0.0051 U</b>	mg/kg	0.0051	0.0015	1	06/05/20 09:35	06/05/20 13:59	79-01-6	
Trichlorofluoromethane	<b>0.0051 U</b>	mg/kg	0.0051	0.0022	1	06/05/20 09:35	06/05/20 13:59	75-69-4	
1,1,1,2-Trichlorotrifluoroethane	<b>0.051 U</b>	mg/kg	0.051	0.0022	1	06/05/20 09:35	06/05/20 13:59	76-13-1	
Vinyl chloride	<b>0.0051 U</b>	mg/kg	0.0051	0.0022	1	06/05/20 09:35	06/05/20 13:59	75-01-4	
Xylene (Total)	<b>0.015 U</b>	mg/kg	0.015	0.0033	1	06/05/20 09:35	06/05/20 13:59	1330-20-7	
<b>Surrogates</b>									
Toluene-d8 (S)	98	%	70-130		1	06/05/20 09:35	06/05/20 13:59	2037-26-5	
4-Bromofluorobenzene (S)	99	%	70-130		1	06/05/20 09:35	06/05/20 13:59	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	70-130		1	06/05/20 09:35	06/05/20 13:59	17060-07-0	
Dibromofluoromethane (S)	57	%	70-130		1	06/05/20 09:35	06/05/20 13:59	1868-53-7	SR

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II

Pace Project No.: 30365510

**Sample: B9-006-SB-1**      **Lab ID: 30365510001**      Collected: 05/29/20 10:40      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Percent Moisture</b>	Analytical Method: ASTM D2974-87 Pace Analytical Services - Greensburg								
Percent Moisture	<b>9.4</b>	%	0.10	0.10	1		06/02/20 09:55		
<b>7196 Chromium, Hexavalent</b>	Analytical Method: EPA 7196A      Preparation Method: EPA 3060A Pace Analytical Services - Greensburg								
Chromium, Hexavalent	<b>1.1 U</b>	mg/kg	1.1	0.70	1	06/02/20 10:22	06/03/20 16:06	18540-29-9	4c,5c
<b>9045D pH Soil</b>	Analytical Method: EPA 9045D Pace Analytical Services - Greensburg								
pH in water at 25 degrees C	<b>11.1</b>	Std. Units	2.0	2.0	1		05/31/20 17:32		H3
<b>9071 Oil and Grease/TPH</b>	Analytical Method: EPA 9071B      Preparation Method: EPA 9071B Pace Analytical Services - Greensburg								
Oil and Grease	<b>1700</b>	mg/kg	220	99.1	1	06/03/20 12:08	06/04/20 07:35		
<b>9012B Cyanide, Total</b>	Analytical Method: EPA 9012B      Preparation Method: EPA 9012B Pace Analytical Services - Greensburg								
Cyanide	<b>2.3</b>	mg/kg	1.1	0.14	1	06/02/20 08:00	06/02/20 11:16	57-12-5	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-006-SB-8**      **Lab ID: 30365510002**      Collected: 05/29/20 10:45      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 TPH Microwave</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
TPH (C10-C28)	<b>30.1</b>	mg/kg	7.3	4.2	1	06/12/20 08:37	06/12/20 17:01		L2,ML
<b>Surrogates</b>									
o-Terphenyl (S)	64	%	60-125		1	06/12/20 08:37	06/12/20 17:01	84-15-1	
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 5035A/5030B									
Pace Analytical Services - Greensburg									
TPH (C06-C10)	<b>16.3 U</b>	mg/kg	16.3	9.0	1	06/04/20 11:30	06/04/20 20:15		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	66	%	60-125		1	06/04/20 11:30	06/04/20 20:15	98-08-8	
4-Bromofluorobenzene (S)	95	%	60-125		1	06/04/20 11:30	06/04/20 20:15	460-00-4	
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Aluminum	<b>8320</b>	mg/kg	42.6	10.6	5	06/03/20 07:18	06/04/20 10:50	7429-90-5	10c,9c, MH,R1
Antimony	<b>3.1</b>	mg/kg	2.6	2.1	5	06/03/20 07:18	06/04/20 10:50	7440-36-0	10c,9c, ML
Arsenic	<b>16.0</b>	mg/kg	2.1	2.0	5	06/03/20 07:18	06/04/20 10:50	7440-38-2	10c,9c
Barium	<b>148</b>	mg/kg	8.5	0.40	5	06/03/20 07:18	06/04/20 10:50	7440-39-3	10c,9c, MH
Beryllium	<b>0.90</b>	mg/kg	0.85	0.13	5	06/03/20 07:18	06/04/20 10:50	7440-41-7	10c,9c
Cadmium	<b>2.2</b>	mg/kg	1.3	0.26	5	06/03/20 07:18	06/04/20 10:50	7440-43-9	10c,9c
Chromium	<b>12.3</b>	mg/kg	2.1	0.39	5	06/03/20 07:18	06/04/20 10:50	7440-47-3	10c,9c
Cobalt	<b>16.9</b>	mg/kg	4.3	0.45	5	06/03/20 07:18	06/04/20 10:50	7440-48-4	10c,9c
Copper	<b>153</b>	mg/kg	4.3	2.5	5	06/03/20 07:18	06/04/20 10:50	7440-50-8	10c,9c, MH,R1
Iron	<b>162000</b>	mg/kg	852	99.0	100	06/03/20 07:18	06/04/20 12:00	7439-89-6	10c, 12c,9c, ML
Lead	<b>57.6</b>	mg/kg	2.1	2.1	5	06/03/20 07:18	06/04/20 10:50	7439-92-1	10c,9c, MH,R1
Manganese	<b>29100</b>	mg/kg	85.2	8.5	100	06/03/20 07:18	06/04/20 12:00	7439-96-5	10c, 12c,9c, MH,R1
Nickel	<b>32.6</b>	mg/kg	8.5	1.1	5	06/03/20 07:18	06/04/20 10:50	7440-02-0	10c,9c
Selenium	<b>3.4 U</b>	mg/kg	3.4	2.5	5	06/03/20 07:18	06/04/20 10:50	7782-49-2	10c,9c, ML
Silver	<b>1.3J</b>	mg/kg	2.6	0.41	5	06/03/20 07:18	06/04/20 10:50	7440-22-4	10c,9c
Thallium	<b>4.4J</b>	mg/kg	8.5	2.6	5	06/03/20 07:18	06/04/20 10:50	7440-28-0	10c,9c, MH,R1
Vanadium	<b>35.2</b>	mg/kg	4.3	0.35	5	06/03/20 07:18	06/04/20 10:50	7440-62-2	10c,9c, MH
Zinc	<b>517</b>	mg/kg	4.3	0.71	5	06/03/20 07:18	06/04/20 10:50	7440-66-6	10c,9c, ML
<b>7471 Mercury</b>									
Analytical Method: EPA 7471A    Preparation Method: EPA 7471A									
Pace Analytical Services - Greensburg									
Mercury	<b>0.11 U</b>	mg/kg	0.11	0.0054	1	06/03/20 10:48	06/04/20 06:00	7439-97-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-006-SB-8**      **Lab ID: 30365510002**      Collected: 05/29/20 10:45      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>		Analytical Method: EPA 8270D    Preparation Method: EPA 3546 Pace Analytical Services - Greensburg							
Acenaphthene	<b>0.074 U</b>	mg/kg	0.074	0.017	1	06/12/20 08:59	06/12/20 18:21	83-32-9	
Acenaphthylene	<b>0.074 U</b>	mg/kg	0.074	0.016	1	06/12/20 08:59	06/12/20 18:21	208-96-8	
Acetophenone	<b>0.074 U</b>	mg/kg	0.074	0.018	1	06/12/20 08:59	06/12/20 18:21	98-86-2	
Anthracene	<b>0.074 U</b>	mg/kg	0.074	0.017	1	06/12/20 08:59	06/12/20 18:21	120-12-7	
Benzaldehyde	<b>0.074 U</b>	mg/kg	0.074	0.016	1	06/12/20 08:59	06/12/20 18:21	100-52-7	L1,R1
Benzo(a)anthracene	<b>0.017J</b>	mg/kg	0.074	0.014	1	06/12/20 08:59	06/12/20 18:21	56-55-3	
Benzo(a)pyrene	<b>0.016J</b>	mg/kg	0.074	0.011	1	06/12/20 08:59	06/12/20 18:21	50-32-8	
Benzo(b)fluoranthene	<b>0.026J</b>	mg/kg	0.074	0.014	1	06/12/20 08:59	06/12/20 18:21	205-99-2	
Benzo(g,h,i)perylene	<b>0.022J</b>	mg/kg	0.074	0.015	1	06/12/20 08:59	06/12/20 18:21	191-24-2	
Benzo(k)fluoranthene	<b>0.018J</b>	mg/kg	0.074	0.014	1	06/12/20 08:59	06/12/20 18:21	207-08-9	
Biphenyl (Diphenyl)	<b>0.074 U</b>	mg/kg	0.074	0.015	1	06/12/20 08:59	06/12/20 18:21	92-52-4	
Caprolactam	<b>0.023J</b>	mg/kg	0.18	0.021	1	06/12/20 08:59	06/12/20 18:21	105-60-2	
Carbazole	<b>0.074 U</b>	mg/kg	0.074	0.017	1	06/12/20 08:59	06/12/20 18:21	86-74-8	
4-Chloroaniline	<b>0.074 U</b>	mg/kg	0.074	0.017	1	06/12/20 08:59	06/12/20 18:21	106-47-8	R1
bis(2-Chloroethoxy)methane	<b>0.074 U</b>	mg/kg	0.074	0.016	1	06/12/20 08:59	06/12/20 18:21	111-91-1	
bis(2-Chloroethyl) ether	<b>0.074 U</b>	mg/kg	0.074	0.017	1	06/12/20 08:59	06/12/20 18:21	111-44-4	
bis(2-Chloroisopropyl) ether	<b>0.074 U</b>	mg/kg	0.074	0.018	1	06/12/20 08:59	06/12/20 18:21	108-60-1	CH
2-Chloronaphthalene	<b>0.074 U</b>	mg/kg	0.074	0.015	1	06/12/20 08:59	06/12/20 18:21	91-58-7	
2-Chlorophenol	<b>0.074 U</b>	mg/kg	0.074	0.018	1	06/12/20 08:59	06/12/20 18:21	95-57-8	
Chrysene	<b>0.023J</b>	mg/kg	0.074	0.015	1	06/12/20 08:59	06/12/20 18:21	218-01-9	
Dibenz(a,h)anthracene	<b>0.074 U</b>	mg/kg	0.074	0.013	1	06/12/20 08:59	06/12/20 18:21	53-70-3	
3,3'-Dichlorobenzidine	<b>0.074 U</b>	mg/kg	0.074	0.014	1	06/12/20 08:59	06/12/20 18:21	91-94-1	L2,ML
2,4-Dichlorophenol	<b>0.074 U</b>	mg/kg	0.074	0.020	1	06/12/20 08:59	06/12/20 18:21	120-83-2	
Diethylphthalate	<b>0.074 U</b>	mg/kg	0.074	0.015	1	06/12/20 08:59	06/12/20 18:21	84-66-2	
2,4-Dimethylphenol	<b>0.074 U</b>	mg/kg	0.074	0.015	1	06/12/20 08:59	06/12/20 18:21	105-67-9	
Di-n-butylphthalate	<b>0.074 U</b>	mg/kg	0.074	0.017	1	06/12/20 08:59	06/12/20 18:21	84-74-2	
2,4-Dinitrophenol	<b>0.18 U</b>	mg/kg	0.18	0.038	1	06/12/20 08:59	06/12/20 18:21	51-28-5	13c
2,4-Dinitrotoluene	<b>0.074 U</b>	mg/kg	0.074	0.017	1	06/12/20 08:59	06/12/20 18:21	121-14-2	
2,6-Dinitrotoluene	<b>0.074 U</b>	mg/kg	0.074	0.019	1	06/12/20 08:59	06/12/20 18:21	606-20-2	
Di-n-octylphthalate	<b>0.074 U</b>	mg/kg	0.074	0.020	1	06/12/20 08:59	06/12/20 18:21	117-84-0	
bis(2-Ethylhexyl)phthalate	<b>0.074 U</b>	mg/kg	0.074	0.015	1	06/12/20 08:59	06/12/20 18:21	117-81-7	
Fluoranthene	<b>0.018J</b>	mg/kg	0.074	0.017	1	06/12/20 08:59	06/12/20 18:21	206-44-0	
Fluorene	<b>0.074 U</b>	mg/kg	0.074	0.017	1	06/12/20 08:59	06/12/20 18:21	86-73-7	
Hexachloro-1,3-butadiene	<b>0.074 U</b>	mg/kg	0.074	0.018	1	06/12/20 08:59	06/12/20 18:21	87-68-3	
Hexachlorobenzene	<b>0.074 U</b>	mg/kg	0.074	0.017	1	06/12/20 08:59	06/12/20 18:21	118-74-1	
Hexachlorocyclopentadiene	<b>0.074 U</b>	mg/kg	0.074	0.013	1	06/12/20 08:59	06/12/20 18:21	77-47-4	
Hexachloroethane	<b>0.074 U</b>	mg/kg	0.074	0.016	1	06/12/20 08:59	06/12/20 18:21	67-72-1	
Indeno(1,2,3-cd)pyrene	<b>0.017J</b>	mg/kg	0.074	0.014	1	06/12/20 08:59	06/12/20 18:21	193-39-5	
Isophorone	<b>0.074 U</b>	mg/kg	0.074	0.020	1	06/12/20 08:59	06/12/20 18:21	78-59-1	
2-Methylnaphthalene	<b>0.021J</b>	mg/kg	0.074	0.015	1	06/12/20 08:59	06/12/20 18:21	91-57-6	
2-Methylphenol(o-Cresol)	<b>0.074 U</b>	mg/kg	0.074	0.014	1	06/12/20 08:59	06/12/20 18:21	95-48-7	
3&4-Methylphenol(m&p Cresol)	<b>0.15 U</b>	mg/kg	0.15	0.018	1	06/12/20 08:59	06/12/20 18:21		
Naphthalene	<b>0.020J</b>	mg/kg	0.074	0.016	1	06/12/20 08:59	06/12/20 18:21	91-20-3	
2-Nitroaniline	<b>0.18 U</b>	mg/kg	0.18	0.016	1	06/12/20 08:59	06/12/20 18:21	88-74-4	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-006-SB-8**      **Lab ID: 30365510002**      Collected: 05/29/20 10:45      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
4-Nitroaniline	<b>0.18 U</b>	mg/kg	0.18	0.026	1	06/12/20 08:59	06/12/20 18:21	100-01-6	
Nitrobenzene	<b>0.074 U</b>	mg/kg	0.074	0.018	1	06/12/20 08:59	06/12/20 18:21	98-95-3	
N-Nitroso-di-n-propylamine	<b>0.074 U</b>	mg/kg	0.074	0.017	1	06/12/20 08:59	06/12/20 18:21	621-64-7	
N-Nitrosodiphenylamine	<b>0.074 U</b>	mg/kg	0.074	0.015	1	06/12/20 08:59	06/12/20 18:21	86-30-6	
Pentachlorophenol	<b>0.18 U</b>	mg/kg	0.18	0.035	1	06/12/20 08:59	06/12/20 18:21	87-86-5	
Phenanthrene	<b>0.035J</b>	mg/kg	0.074	0.017	1	06/12/20 08:59	06/12/20 18:21	85-01-8	
Phenol	<b>0.074 U</b>	mg/kg	0.074	0.018	1	06/12/20 08:59	06/12/20 18:21	108-95-2	
Pyrene	<b>0.020J</b>	mg/kg	0.074	0.020	1	06/12/20 08:59	06/12/20 18:21	129-00-0	
1,2,4,5-Tetrachlorobenzene	<b>0.074 U</b>	mg/kg	0.074	0.016	1	06/12/20 08:59	06/12/20 18:21	95-94-3	
2,3,4,6-Tetrachlorophenol	<b>0.074 U</b>	mg/kg	0.074	0.016	1	06/12/20 08:59	06/12/20 18:21	58-90-2	
2,4,5-Trichlorophenol	<b>0.18 U</b>	mg/kg	0.18	0.016	1	06/12/20 08:59	06/12/20 18:21	95-95-4	
2,4,6-Trichlorophenol	<b>0.074 U</b>	mg/kg	0.074	0.018	1	06/12/20 08:59	06/12/20 18:21	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	66	%	26-95		1	06/12/20 08:59	06/12/20 18:21	4165-60-0	
2-Fluorobiphenyl (S)	63	%	36-98		1	06/12/20 08:59	06/12/20 18:21	321-60-8	
Terphenyl-d14 (S)	66	%	59-116		1	06/12/20 08:59	06/12/20 18:21	1718-51-0	
Phenol-d6 (S)	42	%	34-98		1	06/12/20 08:59	06/12/20 18:21	13127-88-3	
2-Fluorophenol (S)	37	%	29-96		1	06/12/20 08:59	06/12/20 18:21	367-12-4	
2,4,6-Tribromophenol (S)	57	%	30-113		1	06/12/20 08:59	06/12/20 18:21	118-79-6	
<b>8260B MSV 5035 Low Level</b>									
Analytical Method: EPA 8260B    Preparation Method: EPA 5035A									
Pace Analytical Services - Greensburg									
Acetone	<b>0.013 U</b>	mg/kg	0.013	0.0043	1	06/05/20 09:35	06/05/20 11:08	67-64-1	R1
Benzene	<b>0.0067 U</b>	mg/kg	0.0067	0.0012	1	06/05/20 09:35	06/05/20 11:08	71-43-2	MH,R1
Bromodichloromethane	<b>0.0067 U</b>	mg/kg	0.0067	0.0015	1	06/05/20 09:35	06/05/20 11:08	75-27-4	
Bromoform	<b>0.0067 U</b>	mg/kg	0.0067	0.00088	1	06/05/20 09:35	06/05/20 11:08	75-25-2	
Bromomethane	<b>0.0067 U</b>	mg/kg	0.0067	0.0025	1	06/05/20 09:35	06/05/20 11:08	74-83-9	R1
2-Butanone (MEK)	<b>0.013 U</b>	mg/kg	0.013	0.0012	1	06/05/20 09:35	06/05/20 11:08	78-93-3	R1
Carbon disulfide	<b>0.0067 U</b>	mg/kg	0.0067	0.0019	1	06/05/20 09:35	06/05/20 11:08	75-15-0	MH,R1
Carbon tetrachloride	<b>0.0067 U</b>	mg/kg	0.0067	0.0023	1	06/05/20 09:35	06/05/20 11:08	56-23-5	R1
Chlorobenzene	<b>0.0067 U</b>	mg/kg	0.0067	0.0010	1	06/05/20 09:35	06/05/20 11:08	108-90-7	
Chloroethane	<b>0.0067 U</b>	mg/kg	0.0067	0.0028	1	06/05/20 09:35	06/05/20 11:08	75-00-3	R1
Chloroform	<b>0.0067 U</b>	mg/kg	0.0067	0.0020	1	06/05/20 09:35	06/05/20 11:08	67-66-3	
Chloromethane	<b>0.0067 U</b>	mg/kg	0.0067	0.0023	1	06/05/20 09:35	06/05/20 11:08	74-87-3	R1
Cyclohexane	<b>0.013 U</b>	mg/kg	0.013	0.0025	1	06/05/20 09:35	06/05/20 11:08	110-82-7	
1,2-Dibromo-3-chloropropane	<b>0.0067 U</b>	mg/kg	0.0067	0.0016	1	06/05/20 09:35	06/05/20 11:08	96-12-8	
Dibromochloromethane	<b>0.0067 U</b>	mg/kg	0.0067	0.0011	1	06/05/20 09:35	06/05/20 11:08	124-48-1	
1,2-Dibromoethane (EDB)	<b>0.0067 U</b>	mg/kg	0.0067	0.0011	1	06/05/20 09:35	06/05/20 11:08	106-93-4	R1
1,2-Dichlorobenzene	<b>0.0067 U</b>	mg/kg	0.0067	0.00079	1	06/05/20 09:35	06/05/20 11:08	95-50-1	
1,3-Dichlorobenzene	<b>0.0067 U</b>	mg/kg	0.0067	0.00087	1	06/05/20 09:35	06/05/20 11:08	541-73-1	
1,4-Dichlorobenzene	<b>0.0067 U</b>	mg/kg	0.0067	0.00095	1	06/05/20 09:35	06/05/20 11:08	106-46-7	
Dichlorodifluoromethane	<b>0.0067 U</b>	mg/kg	0.0067	0.0036	1	06/05/20 09:35	06/05/20 11:08	75-71-8	IH,R1
1,1-Dichloroethane	<b>0.0067 U</b>	mg/kg	0.0067	0.0017	1	06/05/20 09:35	06/05/20 11:08	75-34-3	
1,2-Dichloroethane	<b>0.0067 U</b>	mg/kg	0.0067	0.0017	1	06/05/20 09:35	06/05/20 11:08	107-06-2	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-006-SB-8**      **Lab ID: 30365510002**      Collected: 05/29/20 10:45      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260B MSV 5035 Low Level</b>									
Analytical Method: EPA 8260B    Preparation Method: EPA 5035A									
Pace Analytical Services - Greensburg									
1,2-Dichloroethene (Total)	<b>0.013 U</b>	mg/kg	0.013	0.0032	1	06/05/20 09:35	06/05/20 11:08	540-59-0	
1,1-Dichloroethene	<b>0.0067 U</b>	mg/kg	0.0067	0.0025	1	06/05/20 09:35	06/05/20 11:08	75-35-4	
cis-1,2-Dichloroethene	<b>0.0067 U</b>	mg/kg	0.0067	0.0016	1	06/05/20 09:35	06/05/20 11:08	156-59-2	
trans-1,2-Dichloroethene	<b>0.0067 U</b>	mg/kg	0.0067	0.0017	1	06/05/20 09:35	06/05/20 11:08	156-60-5	
1,2-Dichloropropane	<b>0.0067 U</b>	mg/kg	0.0067	0.00096	1	06/05/20 09:35	06/05/20 11:08	78-87-5	
cis-1,3-Dichloropropene	<b>0.0067 U</b>	mg/kg	0.0067	0.00067	1	06/05/20 09:35	06/05/20 11:08	10061-01-5	
trans-1,3-Dichloropropene	<b>0.0067 U</b>	mg/kg	0.0067	0.0014	1	06/05/20 09:35	06/05/20 11:08	10061-02-6	
1,4-Dioxane (p-Dioxane)	<b>0.13 U</b>	mg/kg	0.13	0.054	1	06/05/20 09:35	06/05/20 11:08	123-91-1	6c, IH, R1
Ethylbenzene	<b>0.0067 U</b>	mg/kg	0.0067	0.0014	1	06/05/20 09:35	06/05/20 11:08	100-41-4	
2-Hexanone	<b>0.013 U</b>	mg/kg	0.013	0.0013	1	06/05/20 09:35	06/05/20 11:08	591-78-6	R1
Isopropylbenzene (Cumene)	<b>0.0067 U</b>	mg/kg	0.0067	0.0016	1	06/05/20 09:35	06/05/20 11:08	98-82-8	
Methyl acetate	<b>0.067 U</b>	mg/kg	0.067	0.0015	1	06/05/20 09:35	06/05/20 11:08	79-20-9	
Methylene Chloride	<b>0.0067 U</b>	mg/kg	0.0067	0.0056	1	06/05/20 09:35	06/05/20 11:08	75-09-2	
4-Methyl-2-pentanone (MIBK)	<b>0.013 U</b>	mg/kg	0.013	0.0015	1	06/05/20 09:35	06/05/20 11:08	108-10-1	
Methyl-tert-butyl ether	<b>0.0067 U</b>	mg/kg	0.0067	0.00090	1	06/05/20 09:35	06/05/20 11:08	1634-04-4	R1
Styrene	<b>0.0067 U</b>	mg/kg	0.0067	0.0019	1	06/05/20 09:35	06/05/20 11:08	100-42-5	
1,1,2,2-Tetrachloroethane	<b>0.0067 U</b>	mg/kg	0.0067	0.00079	1	06/05/20 09:35	06/05/20 11:08	79-34-5	
Tetrachloroethene	<b>0.0067 U</b>	mg/kg	0.0067	0.0023	1	06/05/20 09:35	06/05/20 11:08	127-18-4	
Toluene	<b>0.0067 U</b>	mg/kg	0.0067	0.0013	1	06/05/20 09:35	06/05/20 11:08	108-88-3	R1
1,2,3-Trichlorobenzene	<b>0.0067 U</b>	mg/kg	0.0067	0.0013	1	06/05/20 09:35	06/05/20 11:08	87-61-6	IH
1,2,4-Trichlorobenzene	<b>0.0067 U</b>	mg/kg	0.0067	0.0017	1	06/05/20 09:35	06/05/20 11:08	120-82-1	
1,1,1-Trichloroethane	<b>0.0067 U</b>	mg/kg	0.0067	0.0020	1	06/05/20 09:35	06/05/20 11:08	71-55-6	
1,1,2-Trichloroethane	<b>0.0067 U</b>	mg/kg	0.0067	0.0013	1	06/05/20 09:35	06/05/20 11:08	79-00-5	
Trichloroethene	<b>0.0067 U</b>	mg/kg	0.0067	0.0020	1	06/05/20 09:35	06/05/20 11:08	79-01-6	
Trichlorofluoromethane	<b>0.0067 U</b>	mg/kg	0.0067	0.0029	1	06/05/20 09:35	06/05/20 11:08	75-69-4	R1
1,1,2-Trichlorotrifluoroethane	<b>0.067 U</b>	mg/kg	0.067	0.0029	1	06/05/20 09:35	06/05/20 11:08	76-13-1	
Vinyl chloride	<b>0.0067 U</b>	mg/kg	0.0067	0.0029	1	06/05/20 09:35	06/05/20 11:08	75-01-4	
Xylene (Total)	<b>0.020 U</b>	mg/kg	0.020	0.0042	1	06/05/20 09:35	06/05/20 11:08	1330-20-7	
<b>Surrogates</b>									
Toluene-d8 (S)	100	%	70-130		1	06/05/20 09:35	06/05/20 11:08	2037-26-5	
4-Bromofluorobenzene (S)	97	%	70-130		1	06/05/20 09:35	06/05/20 11:08	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	70-130		1	06/05/20 09:35	06/05/20 11:08	17060-07-0	
Dibromofluoromethane (S)	102	%	70-130		1	06/05/20 09:35	06/05/20 11:08	1868-53-7	

**Percent Moisture**

Analytical Method: ASTM D2974-87  
Pace Analytical Services - Greensburg

Percent Moisture	<b>9.7</b>	%	0.10	0.10	1		06/02/20 09:55		D6
------------------	------------	---	------	------	---	--	----------------	--	----

**7196 Chromium, Hexavalent**

Analytical Method: EPA 7196A    Preparation Method: EPA 3060A  
Pace Analytical Services - Greensburg

Chromium, Hexavalent	<b>1.1 U</b>	mg/kg	1.1	0.67	1	06/02/20 10:22	06/03/20 16:06	18540-29-9	4c,5c, ML
----------------------	--------------	-------	-----	------	---	----------------	----------------	------------	-----------

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II

Pace Project No.: 30365510

**Sample: B9-006-SB-8**      **Lab ID: 30365510002**      Collected: 05/29/20 10:45      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>9045D pH Soil</b>	Analytical Method: EPA 9045D Pace Analytical Services - Greensburg								
pH in water at 25 degrees C	<b>9.6</b>	Std. Units	2.0	2.0	1		05/31/20 17:33		H3
<b>9071 Oil and Grease/TPH</b>	Analytical Method: EPA 9071B      Preparation Method: EPA 9071B Pace Analytical Services - Greensburg								
Oil and Grease	<b>222 U</b>	mg/kg	222	100	1	06/03/20 12:08	06/04/20 07:35		
<b>9012B Cyanide, Total</b>	Analytical Method: EPA 9012B      Preparation Method: EPA 9012B Pace Analytical Services - Greensburg								
Cyanide	<b>1.1</b>	mg/kg	0.96	0.12	1	06/02/20 08:00	06/02/20 11:13	57-12-5	MH

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-005-SB-1**      **Lab ID: 30365510003**      Collected: 05/29/20 11:10      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 TPH Microwave</b>									
Analytical Method: EPA 8015B Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
TPH (C10-C28)	<b>338</b>	mg/kg	73.1	41.6	10	06/12/20 08:37	06/15/20 14:52		L2
<b>Surrogates</b>									
o-Terphenyl (S)	61	%	60-125		10	06/12/20 08:37	06/15/20 14:52	84-15-1	
<b>8082 GCS PCB</b>									
Analytical Method: EPA 8082 Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
PCB-1016 (Aroclor 1016)	<b>0.092 U</b>	mg/kg	0.092	0.0083	5	06/15/20 08:49	06/15/20 23:42	12674-11-2	
PCB-1221 (Aroclor 1221)	<b>0.092 U</b>	mg/kg	0.092	0.046	5	06/15/20 08:49	06/15/20 23:42	11104-28-2	
PCB-1232 (Aroclor 1232)	<b>0.092 U</b>	mg/kg	0.092	0.045	5	06/15/20 08:49	06/15/20 23:42	11141-16-5	
PCB-1242 (Aroclor 1242)	<b>0.092 U</b>	mg/kg	0.092	0.013	5	06/15/20 08:49	06/15/20 23:42	53469-21-9	
PCB-1248 (Aroclor 1248)	<b>0.092 U</b>	mg/kg	0.092	0.043	5	06/15/20 08:49	06/15/20 23:42	12672-29-6	
PCB-1254 (Aroclor 1254)	<b>0.20</b>	mg/kg	0.092	0.018	5	06/15/20 08:49	06/15/20 23:42	11097-69-1	
PCB-1260 (Aroclor 1260)	<b>0.18</b>	mg/kg	0.092	0.0085	5	06/15/20 08:49	06/15/20 23:42	11096-82-5	C2
PCB-1262 (Aroclor 1262)	<b>0.092 U</b>	mg/kg	0.092	0.028	5	06/15/20 08:49	06/15/20 23:42	37324-23-5	
PCB-1268 (Aroclor 1268)	<b>0.092 U</b>	mg/kg	0.092	0.028	5	06/15/20 08:49	06/15/20 23:42	11100-14-4	
PCB, Total	<b>0.37J</b>	mg/kg	0.83	0.24	5	06/15/20 08:49	06/15/20 23:42	1336-36-3	
<b>Surrogates</b>									
Tetrachloro-m-xylene (S)	78	%	34-114		5	06/15/20 08:49	06/15/20 23:42	877-09-8	
Decachlorobiphenyl (S)	97	%	38-139		5	06/15/20 08:49	06/15/20 23:42	2051-24-3	
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015B Preparation Method: EPA 5035A/5030B									
Pace Analytical Services - Greensburg									
TPH (C06-C10)	<b>15.9 U</b>	mg/kg	15.9	8.8	1	06/04/20 11:30	06/04/20 21:09		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	77	%	60-125		1	06/04/20 11:30	06/04/20 21:09	98-08-8	
4-Bromofluorobenzene (S)	97	%	60-125		1	06/04/20 11:30	06/04/20 21:09	460-00-4	
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Aluminum	<b>13000</b>	mg/kg	44.2	11.0	5	06/03/20 07:18	06/04/20 11:03	7429-90-5	10c,9c
Antimony	<b>2.6 U</b>	mg/kg	2.6	2.1	5	06/03/20 07:18	06/04/20 11:03	7440-36-0	10c,9c
Arsenic	<b>15.8</b>	mg/kg	2.2	2.1	5	06/03/20 07:18	06/04/20 11:03	7440-38-2	10c,9c
Barium	<b>232</b>	mg/kg	8.8	0.41	5	06/03/20 07:18	06/04/20 11:03	7440-39-3	10c,9c
Beryllium	<b>1.7</b>	mg/kg	0.88	0.13	5	06/03/20 07:18	06/04/20 11:03	7440-41-7	10c,9c
Cadmium	<b>5.1</b>	mg/kg	1.3	0.27	5	06/03/20 07:18	06/04/20 11:03	7440-43-9	10c,9c
Chromium	<b>291</b>	mg/kg	2.2	0.41	5	06/03/20 07:18	06/04/20 11:03	7440-47-3	10c,9c
Cobalt	<b>15.4</b>	mg/kg	4.4	0.47	5	06/03/20 07:18	06/04/20 11:03	7440-48-4	10c,9c
Copper	<b>67.8</b>	mg/kg	4.4	2.6	5	06/03/20 07:18	06/04/20 11:03	7440-50-8	10c,9c
Iron	<b>75000</b>	mg/kg	883	103	100	06/03/20 07:18	06/04/20 12:15	7439-89-6	10c,9c
Lead	<b>225</b>	mg/kg	2.2	2.2	5	06/03/20 07:18	06/04/20 11:03	7439-92-1	10c,9c
Manganese	<b>15500</b>	mg/kg	88.3	8.8	100	06/03/20 07:18	06/04/20 12:15	7439-96-5	10c,9c
Nickel	<b>64.4</b>	mg/kg	8.8	1.1	5	06/03/20 07:18	06/04/20 11:03	7440-02-0	10c,9c
Selenium	<b>3.5 U</b>	mg/kg	3.5	2.6	5	06/03/20 07:18	06/04/20 11:03	7782-49-2	10c,9c
Silver	<b>2.6 U</b>	mg/kg	2.6	0.43	5	06/03/20 07:18	06/04/20 11:03	7440-22-4	10c,9c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-005-SB-1**      **Lab ID: 30365510003**      Collected: 05/29/20 11:10      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Thallium	<b>18.2</b>	mg/kg	8.8	2.7	5	06/03/20 07:18	06/04/20 11:03	7440-28-0	10c,9c
Vanadium	<b>1440</b>	mg/kg	4.4	0.36	5	06/03/20 07:18	06/04/20 11:03	7440-62-2	10c,9c
Zinc	<b>2750</b>	mg/kg	4.4	0.74	5	06/03/20 07:18	06/04/20 11:03	7440-66-6	10c,9c
<b>7471 Mercury</b>									
Analytical Method: EPA 7471A    Preparation Method: EPA 7471A									
Pace Analytical Services - Greensburg									
Mercury	<b>0.50</b>	mg/kg	0.11	0.0055	1	06/03/20 10:48	06/04/20 06:11	7439-97-6	
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Acenaphthene	<b>0.73 U</b>	mg/kg	0.73	0.16	10	06/12/20 08:59	06/12/20 21:00	83-32-9	ED
Acenaphthylene	<b>0.73 U</b>	mg/kg	0.73	0.16	10	06/12/20 08:59	06/12/20 21:00	208-96-8	ED
Acetophenone	<b>0.73 U</b>	mg/kg	0.73	0.18	10	06/12/20 08:59	06/12/20 21:00	98-86-2	ED
Anthracene	<b>0.73 U</b>	mg/kg	0.73	0.17	10	06/12/20 08:59	06/12/20 21:00	120-12-7	ED
Benzaldehyde	<b>0.73 U</b>	mg/kg	0.73	0.16	10	06/12/20 08:59	06/12/20 21:00	100-52-7	ED,L1
Benzo(a)anthracene	<b>0.16J</b>	mg/kg	0.73	0.14	10	06/12/20 08:59	06/12/20 21:00	56-55-3	ED
Benzo(a)pyrene	<b>0.24J</b>	mg/kg	0.73	0.11	10	06/12/20 08:59	06/12/20 21:00	50-32-8	ED
Benzo(b)fluoranthene	<b>0.30J</b>	mg/kg	0.73	0.14	10	06/12/20 08:59	06/12/20 21:00	205-99-2	ED
Benzo(g,h,i)perylene	<b>0.73 U</b>	mg/kg	0.73	0.14	10	06/12/20 08:59	06/12/20 21:00	191-24-2	ED
Benzo(k)fluoranthene	<b>0.27J</b>	mg/kg	0.73	0.14	10	06/12/20 08:59	06/12/20 21:00	207-08-9	ED
Biphenyl (Diphenyl)	<b>0.73 U</b>	mg/kg	0.73	0.15	10	06/12/20 08:59	06/12/20 21:00	92-52-4	ED
Caprolactam	<b>1.8 U</b>	mg/kg	1.8	0.20	10	06/12/20 08:59	06/12/20 21:00	105-60-2	ED
Carbazole	<b>0.73 U</b>	mg/kg	0.73	0.17	10	06/12/20 08:59	06/12/20 21:00	86-74-8	ED
4-Chloroaniline	<b>0.73 U</b>	mg/kg	0.73	0.16	10	06/12/20 08:59	06/12/20 21:00	106-47-8	ED
bis(2-Chloroethoxy)methane	<b>0.73 U</b>	mg/kg	0.73	0.16	10	06/12/20 08:59	06/12/20 21:00	111-91-1	ED
bis(2-Chloroethyl) ether	<b>0.73 U</b>	mg/kg	0.73	0.17	10	06/12/20 08:59	06/12/20 21:00	111-44-4	ED
bis(2-Chloroisopropyl) ether	<b>0.73 U</b>	mg/kg	0.73	0.18	10	06/12/20 08:59	06/12/20 21:00	108-60-1	CH,ED
2-Chloronaphthalene	<b>0.73 U</b>	mg/kg	0.73	0.15	10	06/12/20 08:59	06/12/20 21:00	91-58-7	ED
2-Chlorophenol	<b>0.73 U</b>	mg/kg	0.73	0.18	10	06/12/20 08:59	06/12/20 21:00	95-57-8	ED
Chrysene	<b>0.23J</b>	mg/kg	0.73	0.15	10	06/12/20 08:59	06/12/20 21:00	218-01-9	ED
Dibenz(a,h)anthracene	<b>0.73 U</b>	mg/kg	0.73	0.13	10	06/12/20 08:59	06/12/20 21:00	53-70-3	ED
3,3'-Dichlorobenzidine	<b>0.73 U</b>	mg/kg	0.73	0.14	10	06/12/20 08:59	06/12/20 21:00	91-94-1	ED,L2
2,4-Dichlorophenol	<b>0.73 U</b>	mg/kg	0.73	0.19	10	06/12/20 08:59	06/12/20 21:00	120-83-2	ED
Diethylphthalate	<b>0.73 U</b>	mg/kg	0.73	0.15	10	06/12/20 08:59	06/12/20 21:00	84-66-2	ED
2,4-Dimethylphenol	<b>0.73 U</b>	mg/kg	0.73	0.14	10	06/12/20 08:59	06/12/20 21:00	105-67-9	ED
Di-n-butylphthalate	<b>0.73 U</b>	mg/kg	0.73	0.17	10	06/12/20 08:59	06/12/20 21:00	84-74-2	ED
2,4-Dinitrophenol	<b>1.8 U</b>	mg/kg	1.8	0.37	10	06/12/20 08:59	06/12/20 21:00	51-28-5	13c,ED
2,4-Dinitrotoluene	<b>0.73 U</b>	mg/kg	0.73	0.17	10	06/12/20 08:59	06/12/20 21:00	121-14-2	ED
2,6-Dinitrotoluene	<b>0.73 U</b>	mg/kg	0.73	0.18	10	06/12/20 08:59	06/12/20 21:00	606-20-2	ED
Di-n-octylphthalate	<b>0.73 U</b>	mg/kg	0.73	0.20	10	06/12/20 08:59	06/12/20 21:00	117-84-0	ED
bis(2-Ethylhexyl)phthalate	<b>0.73 U</b>	mg/kg	0.73	0.15	10	06/12/20 08:59	06/12/20 21:00	117-81-7	ED
Fluoranthene	<b>0.19J</b>	mg/kg	0.73	0.17	10	06/12/20 08:59	06/12/20 21:00	206-44-0	ED
Fluorene	<b>0.73 U</b>	mg/kg	0.73	0.17	10	06/12/20 08:59	06/12/20 21:00	86-73-7	ED
Hexachloro-1,3-butadiene	<b>0.73 U</b>	mg/kg	0.73	0.18	10	06/12/20 08:59	06/12/20 21:00	87-68-3	ED

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-005-SB-1**      **Lab ID: 30365510003**      Collected: 05/29/20 11:10      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Hexachlorobenzene	<b>0.73 U</b>	mg/kg	0.73	0.17	10	06/12/20 08:59	06/12/20 21:00	118-74-1	ED
Hexachlorocyclopentadiene	<b>0.73 U</b>	mg/kg	0.73	0.13	10	06/12/20 08:59	06/12/20 21:00	77-47-4	ED
Hexachloroethane	<b>0.73 U</b>	mg/kg	0.73	0.16	10	06/12/20 08:59	06/12/20 21:00	67-72-1	ED
Indeno(1,2,3-cd)pyrene	<b>0.73 U</b>	mg/kg	0.73	0.14	10	06/12/20 08:59	06/12/20 21:00	193-39-5	ED
Isophorone	<b>0.73 U</b>	mg/kg	0.73	0.20	10	06/12/20 08:59	06/12/20 21:00	78-59-1	ED
2-Methylnaphthalene	<b>0.19J</b>	mg/kg	0.73	0.15	10	06/12/20 08:59	06/12/20 21:00	91-57-6	ED
2-Methylphenol(o-Cresol)	<b>0.73 U</b>	mg/kg	0.73	0.14	10	06/12/20 08:59	06/12/20 21:00	95-48-7	ED
3&4-Methylphenol(m&p Cresol)	<b>1.5 U</b>	mg/kg	1.5	0.18	10	06/12/20 08:59	06/12/20 21:00		ED
Naphthalene	<b>0.73 U</b>	mg/kg	0.73	0.16	10	06/12/20 08:59	06/12/20 21:00	91-20-3	ED
2-Nitroaniline	<b>1.8 U</b>	mg/kg	1.8	0.16	10	06/12/20 08:59	06/12/20 21:00	88-74-4	ED
4-Nitroaniline	<b>1.8 U</b>	mg/kg	1.8	0.26	10	06/12/20 08:59	06/12/20 21:00	100-01-6	ED
Nitrobenzene	<b>0.73 U</b>	mg/kg	0.73	0.18	10	06/12/20 08:59	06/12/20 21:00	98-95-3	ED
N-Nitroso-di-n-propylamine	<b>0.73 U</b>	mg/kg	0.73	0.17	10	06/12/20 08:59	06/12/20 21:00	621-64-7	ED
N-Nitrosodiphenylamine	<b>0.73 U</b>	mg/kg	0.73	0.14	10	06/12/20 08:59	06/12/20 21:00	86-30-6	ED
Pentachlorophenol	<b>1.8 U</b>	mg/kg	1.8	0.34	10	06/12/20 08:59	06/12/20 21:00	87-86-5	ED
Phenanthrene	<b>0.25J</b>	mg/kg	0.73	0.17	10	06/12/20 08:59	06/12/20 21:00	85-01-8	ED
Phenol	<b>0.73 U</b>	mg/kg	0.73	0.17	10	06/12/20 08:59	06/12/20 21:00	108-95-2	ED
Pyrene	<b>0.21J</b>	mg/kg	0.73	0.19	10	06/12/20 08:59	06/12/20 21:00	129-00-0	ED
1,2,4,5-Tetrachlorobenzene	<b>0.73 U</b>	mg/kg	0.73	0.16	10	06/12/20 08:59	06/12/20 21:00	95-94-3	ED
2,3,4,6-Tetrachlorophenol	<b>0.73 U</b>	mg/kg	0.73	0.15	10	06/12/20 08:59	06/12/20 21:00	58-90-2	ED
2,4,5-Trichlorophenol	<b>1.8 U</b>	mg/kg	1.8	0.16	10	06/12/20 08:59	06/12/20 21:00	95-95-4	ED
2,4,6-Trichlorophenol	<b>0.73 U</b>	mg/kg	0.73	0.18	10	06/12/20 08:59	06/12/20 21:00	88-06-2	ED
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	68	%	26-95		10	06/12/20 08:59	06/12/20 21:00	4165-60-0	
2-Fluorobiphenyl (S)	67	%	36-98		10	06/12/20 08:59	06/12/20 21:00	321-60-8	
Terphenyl-d14 (S)	62	%	59-116		10	06/12/20 08:59	06/12/20 21:00	1718-51-0	
Phenol-d6 (S)	59	%	34-98		10	06/12/20 08:59	06/12/20 21:00	13127-88-3	
2-Fluorophenol (S)	52	%	29-96		10	06/12/20 08:59	06/12/20 21:00	367-12-4	
2,4,6-Tribromophenol (S)	53	%	30-113		10	06/12/20 08:59	06/12/20 21:00	118-79-6	
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Pace Analytical Services - Greensburg									
Percent Moisture	<b>10.1</b>	%	0.10	0.10	1		06/02/20 09:55		
<b>7196 Chromium, Hexavalent</b>									
Analytical Method: EPA 7196A    Preparation Method: EPA 3060A									
Pace Analytical Services - Greensburg									
Chromium, Hexavalent	<b>1.1 U</b>	mg/kg	1.1	0.69	1	06/02/20 10:22	06/03/20 16:08	18540-29-9	4c,5c
<b>9045D pH Soil</b>									
Analytical Method: EPA 9045D									
Pace Analytical Services - Greensburg									
pH in water at 25 degrees C	<b>9.4</b>	Std. Units	2.0	2.0	1		05/31/20 17:34		H3

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II

Pace Project No.: 30365510

---

**Sample: B9-005-SB-1**      **Lab ID: 30365510003**      Collected: 05/29/20 11:10      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>9071 Oil and Grease/TPH</b>									
Analytical Method: EPA 9071B    Preparation Method: EPA 9071B Pace Analytical Services - Greensburg									
Oil and Grease	<b>10700</b>	mg/kg	223	100	1	06/03/20 12:08	06/04/20 07:37		
<b>9012B Cyanide, Total</b>									
Analytical Method: EPA 9012B    Preparation Method: EPA 9012B Pace Analytical Services - Greensburg									
Cyanide	<b>1.4</b>	mg/kg	1.1	0.13	1	06/02/20 08:00	06/02/20 11:17	57-12-5	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-005-SB-4**      **Lab ID: 30365510004**      Collected: 05/29/20 11:15      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 TPH Microwave</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
TPH (C10-C28)	<b>31.1</b>	mg/kg	7.2	4.1	1	06/12/20 08:37	06/12/20 17:33		L2
<b>Surrogates</b>									
o-Terphenyl (S)	62	%	60-125		1	06/12/20 08:37	06/12/20 17:33	84-15-1	
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 5035A/5030B									
Pace Analytical Services - Greensburg									
TPH (C06-C10)	<b>17.1 U</b>	mg/kg	17.1	9.4	1	06/04/20 11:30	06/04/20 21:27		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	61	%	60-125		1	06/04/20 11:30	06/04/20 21:27	98-08-8	
4-Bromofluorobenzene (S)	95	%	60-125		1	06/04/20 11:30	06/04/20 21:27	460-00-4	
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Aluminum	<b>29400</b>	mg/kg	42.0	10.5	5	06/03/20 07:18	06/04/20 11:05	7429-90-5	10c,9c
Antimony	<b>2.5 U</b>	mg/kg	2.5	2.0	5	06/03/20 07:18	06/04/20 11:05	7440-36-0	10c,9c
Arsenic	<b>3.0</b>	mg/kg	2.1	2.0	5	06/03/20 07:18	06/04/20 11:05	7440-38-2	10c,9c
Barium	<b>523</b>	mg/kg	8.4	0.39	5	06/03/20 07:18	06/04/20 11:05	7440-39-3	10c,9c
Beryllium	<b>3.3</b>	mg/kg	0.84	0.13	5	06/03/20 07:18	06/04/20 11:05	7440-41-7	10c,9c
Cadmium	<b>0.72J</b>	mg/kg	1.3	0.25	5	06/03/20 07:18	06/04/20 11:05	7440-43-9	10c,9c
Chromium	<b>455</b>	mg/kg	2.1	0.39	5	06/03/20 07:18	06/04/20 11:05	7440-47-3	10c,9c
Cobalt	<b>3.5J</b>	mg/kg	4.2	0.44	5	06/03/20 07:18	06/04/20 11:05	7440-48-4	10c,9c
Copper	<b>23.7</b>	mg/kg	4.2	2.4	5	06/03/20 07:18	06/04/20 11:05	7440-50-8	10c,9c
Iron	<b>41100</b>	mg/kg	840	97.6	100	06/03/20 07:18	06/04/20 12:17	7439-89-6	10c,9c
Lead	<b>24.4</b>	mg/kg	2.1	2.1	5	06/03/20 07:18	06/04/20 11:05	7439-92-1	10c,9c
Manganese	<b>21400</b>	mg/kg	84.0	8.4	100	06/03/20 07:18	06/04/20 12:17	7439-96-5	10c,9c
Nickel	<b>13.8</b>	mg/kg	8.4	1.0	5	06/03/20 07:18	06/04/20 11:05	7440-02-0	10c,9c
Selenium	<b>3.4 U</b>	mg/kg	3.4	2.5	5	06/03/20 07:18	06/04/20 11:05	7782-49-2	10c,9c
Silver	<b>2.5 U</b>	mg/kg	2.5	0.41	5	06/03/20 07:18	06/04/20 11:05	7440-22-4	10c,9c
Thallium	<b>23.1</b>	mg/kg	8.4	2.6	5	06/03/20 07:18	06/04/20 11:05	7440-28-0	10c,9c
Vanadium	<b>1930</b>	mg/kg	4.2	0.34	5	06/03/20 07:18	06/04/20 11:05	7440-62-2	10c,9c
Zinc	<b>252</b>	mg/kg	4.2	0.70	5	06/03/20 07:18	06/04/20 11:05	7440-66-6	10c,9c
<b>7471 Mercury</b>									
Analytical Method: EPA 7471A    Preparation Method: EPA 7471A									
Pace Analytical Services - Greensburg									
Mercury	<b>0.47</b>	mg/kg	0.10	0.0051	1	06/03/20 10:48	06/04/20 06:17	7439-97-6	
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Acenaphthene	<b>0.071 U</b>	mg/kg	0.071	0.016	1	06/12/20 08:59	06/12/20 19:29	83-32-9	
Acenaphthylene	<b>0.071 U</b>	mg/kg	0.071	0.015	1	06/12/20 08:59	06/12/20 19:29	208-96-8	
Acetophenone	<b>0.071 U</b>	mg/kg	0.071	0.017	1	06/12/20 08:59	06/12/20 19:29	98-86-2	
Anthracene	<b>0.071 U</b>	mg/kg	0.071	0.017	1	06/12/20 08:59	06/12/20 19:29	120-12-7	
Benzaldehyde	<b>0.071 U</b>	mg/kg	0.071	0.016	1	06/12/20 08:59	06/12/20 19:29	100-52-7	L1
Benzo(a)anthracene	<b>0.044J</b>	mg/kg	0.071	0.014	1	06/12/20 08:59	06/12/20 19:29	56-55-3	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-005-SB-4**      **Lab ID: 30365510004**      Collected: 05/29/20 11:15      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Benzo(a)pyrene	<b>0.057J</b>	mg/kg	0.071	0.010	1	06/12/20 08:59	06/12/20 19:29	50-32-8	
Benzo(b)fluoranthene	<b>0.044J</b>	mg/kg	0.071	0.013	1	06/12/20 08:59	06/12/20 19:29	205-99-2	
Benzo(g,h,i)perylene	<b>0.032J</b>	mg/kg	0.071	0.014	1	06/12/20 08:59	06/12/20 19:29	191-24-2	
Benzo(k)fluoranthene	<b>0.050J</b>	mg/kg	0.071	0.014	1	06/12/20 08:59	06/12/20 19:29	207-08-9	
Biphenyl (Diphenyl)	<b>0.071 U</b>	mg/kg	0.071	0.015	1	06/12/20 08:59	06/12/20 19:29	92-52-4	
Caprolactam	<b>0.18 U</b>	mg/kg	0.18	0.020	1	06/12/20 08:59	06/12/20 19:29	105-60-2	
Carbazole	<b>0.071 U</b>	mg/kg	0.071	0.017	1	06/12/20 08:59	06/12/20 19:29	86-74-8	
4-Chloroaniline	<b>0.071 U</b>	mg/kg	0.071	0.016	1	06/12/20 08:59	06/12/20 19:29	106-47-8	
bis(2-Chloroethoxy)methane	<b>0.071 U</b>	mg/kg	0.071	0.016	1	06/12/20 08:59	06/12/20 19:29	111-91-1	
bis(2-Chloroethyl) ether	<b>0.071 U</b>	mg/kg	0.071	0.017	1	06/12/20 08:59	06/12/20 19:29	111-44-4	
bis(2-Chloroisopropyl) ether	<b>0.071 U</b>	mg/kg	0.071	0.017	1	06/12/20 08:59	06/12/20 19:29	108-60-1	CH
2-Chloronaphthalene	<b>0.071 U</b>	mg/kg	0.071	0.014	1	06/12/20 08:59	06/12/20 19:29	91-58-7	
2-Chlorophenol	<b>0.071 U</b>	mg/kg	0.071	0.017	1	06/12/20 08:59	06/12/20 19:29	95-57-8	
Chrysene	<b>0.047J</b>	mg/kg	0.071	0.014	1	06/12/20 08:59	06/12/20 19:29	218-01-9	
Dibenz(a,h)anthracene	<b>0.013J</b>	mg/kg	0.071	0.012	1	06/12/20 08:59	06/12/20 19:29	53-70-3	
3,3'-Dichlorobenzidine	<b>0.071 U</b>	mg/kg	0.071	0.014	1	06/12/20 08:59	06/12/20 19:29	91-94-1	L2
2,4-Dichlorophenol	<b>0.071 U</b>	mg/kg	0.071	0.019	1	06/12/20 08:59	06/12/20 19:29	120-83-2	
Diethylphthalate	<b>0.071 U</b>	mg/kg	0.071	0.014	1	06/12/20 08:59	06/12/20 19:29	84-66-2	
2,4-Dimethylphenol	<b>0.071 U</b>	mg/kg	0.071	0.014	1	06/12/20 08:59	06/12/20 19:29	105-67-9	
Di-n-butylphthalate	<b>0.071 U</b>	mg/kg	0.071	0.017	1	06/12/20 08:59	06/12/20 19:29	84-74-2	
2,4-Dinitrophenol	<b>0.18 U</b>	mg/kg	0.18	0.036	1	06/12/20 08:59	06/12/20 19:29	51-28-5	13c
2,4-Dinitrotoluene	<b>0.071 U</b>	mg/kg	0.071	0.016	1	06/12/20 08:59	06/12/20 19:29	121-14-2	
2,6-Dinitrotoluene	<b>0.071 U</b>	mg/kg	0.071	0.018	1	06/12/20 08:59	06/12/20 19:29	606-20-2	
Di-n-octylphthalate	<b>0.071 U</b>	mg/kg	0.071	0.019	1	06/12/20 08:59	06/12/20 19:29	117-84-0	
bis(2-Ethylhexyl)phthalate	<b>0.071 U</b>	mg/kg	0.071	0.014	1	06/12/20 08:59	06/12/20 19:29	117-81-7	
Fluoranthene	<b>0.062J</b>	mg/kg	0.071	0.017	1	06/12/20 08:59	06/12/20 19:29	206-44-0	
Fluorene	<b>0.071 U</b>	mg/kg	0.071	0.016	1	06/12/20 08:59	06/12/20 19:29	86-73-7	
Hexachloro-1,3-butadiene	<b>0.071 U</b>	mg/kg	0.071	0.017	1	06/12/20 08:59	06/12/20 19:29	87-68-3	
Hexachlorobenzene	<b>0.071 U</b>	mg/kg	0.071	0.016	1	06/12/20 08:59	06/12/20 19:29	118-74-1	
Hexachlorocyclopentadiene	<b>0.071 U</b>	mg/kg	0.071	0.013	1	06/12/20 08:59	06/12/20 19:29	77-47-4	
Hexachloroethane	<b>0.071 U</b>	mg/kg	0.071	0.016	1	06/12/20 08:59	06/12/20 19:29	67-72-1	
Indeno(1,2,3-cd)pyrene	<b>0.028J</b>	mg/kg	0.071	0.013	1	06/12/20 08:59	06/12/20 19:29	193-39-5	
Isophorone	<b>0.071 U</b>	mg/kg	0.071	0.019	1	06/12/20 08:59	06/12/20 19:29	78-59-1	
2-Methylnaphthalene	<b>0.016J</b>	mg/kg	0.071	0.015	1	06/12/20 08:59	06/12/20 19:29	91-57-6	
2-Methylphenol(o-Cresol)	<b>0.071 U</b>	mg/kg	0.071	0.014	1	06/12/20 08:59	06/12/20 19:29	95-48-7	
3&4-Methylphenol(m&p Cresol)	<b>0.14 U</b>	mg/kg	0.14	0.017	1	06/12/20 08:59	06/12/20 19:29		
Naphthalene	<b>0.017J</b>	mg/kg	0.071	0.015	1	06/12/20 08:59	06/12/20 19:29	91-20-3	
2-Nitroaniline	<b>0.18 U</b>	mg/kg	0.18	0.016	1	06/12/20 08:59	06/12/20 19:29	88-74-4	
4-Nitroaniline	<b>0.18 U</b>	mg/kg	0.18	0.025	1	06/12/20 08:59	06/12/20 19:29	100-01-6	
Nitrobenzene	<b>0.071 U</b>	mg/kg	0.071	0.018	1	06/12/20 08:59	06/12/20 19:29	98-95-3	
N-Nitroso-di-n-propylamine	<b>0.071 U</b>	mg/kg	0.071	0.017	1	06/12/20 08:59	06/12/20 19:29	621-64-7	
N-Nitrosodiphenylamine	<b>0.071 U</b>	mg/kg	0.071	0.014	1	06/12/20 08:59	06/12/20 19:29	86-30-6	
Pentachlorophenol	<b>0.18 U</b>	mg/kg	0.18	0.033	1	06/12/20 08:59	06/12/20 19:29	87-86-5	
Phenanthrene	<b>0.045J</b>	mg/kg	0.071	0.016	1	06/12/20 08:59	06/12/20 19:29	85-01-8	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-005-SB-4**      **Lab ID: 30365510004**      Collected: 05/29/20 11:15      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Phenol	<b>0.071 U</b>	mg/kg	0.071	0.017	1	06/12/20 08:59	06/12/20 19:29	108-95-2	
Pyrene	<b>0.056J</b>	mg/kg	0.071	0.019	1	06/12/20 08:59	06/12/20 19:29	129-00-0	
1,2,4,5-Tetrachlorobenzene	<b>0.071 U</b>	mg/kg	0.071	0.016	1	06/12/20 08:59	06/12/20 19:29	95-94-3	
2,3,4,6-Tetrachlorophenol	<b>0.071 U</b>	mg/kg	0.071	0.015	1	06/12/20 08:59	06/12/20 19:29	58-90-2	
2,4,5-Trichlorophenol	<b>0.18 U</b>	mg/kg	0.18	0.016	1	06/12/20 08:59	06/12/20 19:29	95-95-4	
2,4,6-Trichlorophenol	<b>0.071 U</b>	mg/kg	0.071	0.017	1	06/12/20 08:59	06/12/20 19:29	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	60	%	26-95		1	06/12/20 08:59	06/12/20 19:29	4165-60-0	
2-Fluorobiphenyl (S)	58	%	36-98		1	06/12/20 08:59	06/12/20 19:29	321-60-8	
Terphenyl-d14 (S)	71	%	59-116		1	06/12/20 08:59	06/12/20 19:29	1718-51-0	
Phenol-d6 (S)	61	%	34-98		1	06/12/20 08:59	06/12/20 19:29	13127-88-3	
2-Fluorophenol (S)	56	%	29-96		1	06/12/20 08:59	06/12/20 19:29	367-12-4	
2,4,6-Tribromophenol (S)	70	%	30-113		1	06/12/20 08:59	06/12/20 19:29	118-79-6	
<b>8260B MSV 5035 Low Level</b>									
Analytical Method: EPA 8260B    Preparation Method: EPA 5035A									
Pace Analytical Services - Greensburg									
Acetone	<b>0.012 U</b>	mg/kg	0.012	0.0037	1	06/05/20 09:35	06/05/20 14:20	67-64-1	
Benzene	<b>0.0059 U</b>	mg/kg	0.0059	0.0010	1	06/05/20 09:35	06/05/20 14:20	71-43-2	
Bromodichloromethane	<b>0.0059 U</b>	mg/kg	0.0059	0.0013	1	06/05/20 09:35	06/05/20 14:20	75-27-4	
Bromoform	<b>0.0059 U</b>	mg/kg	0.0059	0.00078	1	06/05/20 09:35	06/05/20 14:20	75-25-2	
Bromomethane	<b>0.0059 U</b>	mg/kg	0.0059	0.0022	1	06/05/20 09:35	06/05/20 14:20	74-83-9	
2-Butanone (MEK)	<b>0.012 U</b>	mg/kg	0.012	0.0011	1	06/05/20 09:35	06/05/20 14:20	78-93-3	
Carbon disulfide	<b>0.0020J</b>	mg/kg	0.0059	0.0017	1	06/05/20 09:35	06/05/20 14:20	75-15-0	
Carbon tetrachloride	<b>0.0059 U</b>	mg/kg	0.0059	0.0020	1	06/05/20 09:35	06/05/20 14:20	56-23-5	
Chlorobenzene	<b>0.0059 U</b>	mg/kg	0.0059	0.00092	1	06/05/20 09:35	06/05/20 14:20	108-90-7	
Chloroethane	<b>0.0059 U</b>	mg/kg	0.0059	0.0025	1	06/05/20 09:35	06/05/20 14:20	75-00-3	
Chloroform	<b>0.0059 U</b>	mg/kg	0.0059	0.0018	1	06/05/20 09:35	06/05/20 14:20	67-66-3	
Chloromethane	<b>0.0059 U</b>	mg/kg	0.0059	0.0020	1	06/05/20 09:35	06/05/20 14:20	74-87-3	
Cyclohexane	<b>0.012 U</b>	mg/kg	0.012	0.0022	1	06/05/20 09:35	06/05/20 14:20	110-82-7	
1,2-Dibromo-3-chloropropane	<b>0.0059 U</b>	mg/kg	0.0059	0.0014	1	06/05/20 09:35	06/05/20 14:20	96-12-8	
Dibromochloromethane	<b>0.0059 U</b>	mg/kg	0.0059	0.00093	1	06/05/20 09:35	06/05/20 14:20	124-48-1	
1,2-Dibromoethane (EDB)	<b>0.0059 U</b>	mg/kg	0.0059	0.00094	1	06/05/20 09:35	06/05/20 14:20	106-93-4	
1,2-Dichlorobenzene	<b>0.0059 U</b>	mg/kg	0.0059	0.00070	1	06/05/20 09:35	06/05/20 14:20	95-50-1	
1,3-Dichlorobenzene	<b>0.0059 U</b>	mg/kg	0.0059	0.00077	1	06/05/20 09:35	06/05/20 14:20	541-73-1	
1,4-Dichlorobenzene	<b>0.0059 U</b>	mg/kg	0.0059	0.00084	1	06/05/20 09:35	06/05/20 14:20	106-46-7	
Dichlorodifluoromethane	<b>0.0059 U</b>	mg/kg	0.0059	0.0032	1	06/05/20 09:35	06/05/20 14:20	75-71-8	IH
1,1-Dichloroethane	<b>0.0059 U</b>	mg/kg	0.0059	0.0015	1	06/05/20 09:35	06/05/20 14:20	75-34-3	
1,2-Dichloroethane	<b>0.0059 U</b>	mg/kg	0.0059	0.0015	1	06/05/20 09:35	06/05/20 14:20	107-06-2	
1,2-Dichloroethene (Total)	<b>0.012 U</b>	mg/kg	0.012	0.0029	1	06/05/20 09:35	06/05/20 14:20	540-59-0	
1,1-Dichloroethene	<b>0.0059 U</b>	mg/kg	0.0059	0.0022	1	06/05/20 09:35	06/05/20 14:20	75-35-4	
cis-1,2-Dichloroethene	<b>0.0059 U</b>	mg/kg	0.0059	0.0014	1	06/05/20 09:35	06/05/20 14:20	156-59-2	
trans-1,2-Dichloroethene	<b>0.0059 U</b>	mg/kg	0.0059	0.0015	1	06/05/20 09:35	06/05/20 14:20	156-60-5	
1,2-Dichloropropane	<b>0.0059 U</b>	mg/kg	0.0059	0.00085	1	06/05/20 09:35	06/05/20 14:20	78-87-5	
cis-1,3-Dichloropropene	<b>0.0059 U</b>	mg/kg	0.0059	0.00059	1	06/05/20 09:35	06/05/20 14:20	10061-01-5	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-005-SB-4**      **Lab ID: 30365510004**      Collected: 05/29/20 11:15      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260B MSV 5035 Low Level</b>									
Analytical Method: EPA 8260B Preparation Method: EPA 5035A									
Pace Analytical Services - Greensburg									
trans-1,3-Dichloropropene	<b>0.0059 U</b>	mg/kg	0.0059	0.0012	1	06/05/20 09:35	06/05/20 14:20	10061-02-6	
1,4-Dioxane (p-Dioxane)	<b>0.12 U</b>	mg/kg	0.12	0.048	1	06/05/20 09:35	06/05/20 14:20	123-91-1	6c,IH
Ethylbenzene	<b>0.0059 U</b>	mg/kg	0.0059	0.0013	1	06/05/20 09:35	06/05/20 14:20	100-41-4	
2-Hexanone	<b>0.012 U</b>	mg/kg	0.012	0.0012	1	06/05/20 09:35	06/05/20 14:20	591-78-6	
Isopropylbenzene (Cumene)	<b>0.0059 U</b>	mg/kg	0.0059	0.0014	1	06/05/20 09:35	06/05/20 14:20	98-82-8	
Methyl acetate	<b>0.059 U</b>	mg/kg	0.059	0.0013	1	06/05/20 09:35	06/05/20 14:20	79-20-9	
Methylene Chloride	<b>0.0059 U</b>	mg/kg	0.0059	0.0049	1	06/05/20 09:35	06/05/20 14:20	75-09-2	
4-Methyl-2-pentanone (MIBK)	<b>0.012 U</b>	mg/kg	0.012	0.0013	1	06/05/20 09:35	06/05/20 14:20	108-10-1	
Methyl-tert-butyl ether	<b>0.0059 U</b>	mg/kg	0.0059	0.00079	1	06/05/20 09:35	06/05/20 14:20	1634-04-4	
Styrene	<b>0.0059 U</b>	mg/kg	0.0059	0.0017	1	06/05/20 09:35	06/05/20 14:20	100-42-5	
1,1,2,2-Tetrachloroethane	<b>0.0059 U</b>	mg/kg	0.0059	0.00070	1	06/05/20 09:35	06/05/20 14:20	79-34-5	
Tetrachloroethene	<b>0.0059 U</b>	mg/kg	0.0059	0.0020	1	06/05/20 09:35	06/05/20 14:20	127-18-4	
Toluene	<b>0.0059 U</b>	mg/kg	0.0059	0.0012	1	06/05/20 09:35	06/05/20 14:20	108-88-3	
1,2,3-Trichlorobenzene	<b>0.0059 U</b>	mg/kg	0.0059	0.0011	1	06/05/20 09:35	06/05/20 14:20	87-61-6	IH
1,2,4-Trichlorobenzene	<b>0.0059 U</b>	mg/kg	0.0059	0.0015	1	06/05/20 09:35	06/05/20 14:20	120-82-1	
1,1,1-Trichloroethane	<b>0.0059 U</b>	mg/kg	0.0059	0.0018	1	06/05/20 09:35	06/05/20 14:20	71-55-6	
1,1,2-Trichloroethane	<b>0.0059 U</b>	mg/kg	0.0059	0.0012	1	06/05/20 09:35	06/05/20 14:20	79-00-5	
Trichloroethene	<b>0.0059 U</b>	mg/kg	0.0059	0.0017	1	06/05/20 09:35	06/05/20 14:20	79-01-6	
Trichlorofluoromethane	<b>0.0059 U</b>	mg/kg	0.0059	0.0025	1	06/05/20 09:35	06/05/20 14:20	75-69-4	
1,1,2-Trichlorotrifluoroethane	<b>0.059 U</b>	mg/kg	0.059	0.0025	1	06/05/20 09:35	06/05/20 14:20	76-13-1	
Vinyl chloride	<b>0.0059 U</b>	mg/kg	0.0059	0.0025	1	06/05/20 09:35	06/05/20 14:20	75-01-4	
Xylene (Total)	<b>0.018 U</b>	mg/kg	0.018	0.0037	1	06/05/20 09:35	06/05/20 14:20	1330-20-7	
<b>Surrogates</b>									
Toluene-d8 (S)	98	%	70-130		1	06/05/20 09:35	06/05/20 14:20	2037-26-5	
4-Bromofluorobenzene (S)	104	%	70-130		1	06/05/20 09:35	06/05/20 14:20	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	70-130		1	06/05/20 09:35	06/05/20 14:20	17060-07-0	
Dibromofluoromethane (S)	104	%	70-130		1	06/05/20 09:35	06/05/20 14:20	1868-53-7	
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Pace Analytical Services - Greensburg									
Percent Moisture	<b>8.4</b>	%	0.10	0.10	1		06/02/20 09:55		
<b>7196 Chromium, Hexavalent</b>									
Analytical Method: EPA 7196A Preparation Method: EPA 3060A									
Pace Analytical Services - Greensburg									
Chromium, Hexavalent	<b>0.70J</b>	mg/kg	1.1	0.67	1	06/02/20 10:22	06/03/20 16:08	18540-29-9	4c,5c
<b>9045D pH Soil</b>									
Analytical Method: EPA 9045D									
Pace Analytical Services - Greensburg									
pH in water at 25 degrees C	<b>9.6</b>	Std. Units	2.0	2.0	1		05/31/20 17:35		H3
<b>9071 Oil and Grease/TPH</b>									
Analytical Method: EPA 9071B Preparation Method: EPA 9071B									
Pace Analytical Services - Greensburg									
Oil and Grease	<b>147J</b>	mg/kg	218	98.0	1	06/03/20 12:08	06/04/20 07:38		

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II

Pace Project No.: 30365510

---

**Sample: B9-005-SB-4**      **Lab ID: 30365510004**      Collected: 05/29/20 11:15      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>9012B Cyanide, Total</b> Analytical Method: EPA 9012B      Preparation Method: EPA 9012B Pace Analytical Services - Greensburg									
Cyanide	<b>1.4</b>	mg/kg	1.1	0.14	1	06/02/20 08:00	06/02/20 11:18	57-12-5	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-003-SB-1**      **Lab ID: 30365510005**      Collected: 05/29/20 11:40      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 TPH Microwave</b>									
Analytical Method: EPA 8015B Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
TPH (C10-C28)	<b>98.6</b>	mg/kg	15.8	9.0	2	06/12/20 08:37	06/12/20 17:39		L2
<b>Surrogates</b>									
o-Terphenyl (S)	78	%	60-125		2	06/12/20 08:37	06/12/20 17:39	84-15-1	
<b>8082 GCS PCB</b>									
Analytical Method: EPA 8082 Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
PCB-1016 (Aroclor 1016)	<b>0.096 U</b>	mg/kg	0.096	0.0086	5	06/15/20 08:49	06/15/20 23:50	12674-11-2	ED
PCB-1221 (Aroclor 1221)	<b>0.096 U</b>	mg/kg	0.096	0.048	5	06/15/20 08:49	06/15/20 23:50	11104-28-2	ED
PCB-1232 (Aroclor 1232)	<b>0.096 U</b>	mg/kg	0.096	0.047	5	06/15/20 08:49	06/15/20 23:50	11141-16-5	ED
PCB-1242 (Aroclor 1242)	<b>0.096 U</b>	mg/kg	0.096	0.014	5	06/15/20 08:49	06/15/20 23:50	53469-21-9	ED
PCB-1248 (Aroclor 1248)	<b>0.096 U</b>	mg/kg	0.096	0.044	5	06/15/20 08:49	06/15/20 23:50	12672-29-6	ED
PCB-1254 (Aroclor 1254)	<b>0.096 U</b>	mg/kg	0.096	0.019	5	06/15/20 08:49	06/15/20 23:50	11097-69-1	ED
PCB-1260 (Aroclor 1260)	<b>0.096 U</b>	mg/kg	0.096	0.0089	5	06/15/20 08:49	06/15/20 23:50	11096-82-5	ED
PCB-1262 (Aroclor 1262)	<b>0.096 U</b>	mg/kg	0.096	0.029	5	06/15/20 08:49	06/15/20 23:50	37324-23-5	ED
PCB-1268 (Aroclor 1268)	<b>0.096 U</b>	mg/kg	0.096	0.029	5	06/15/20 08:49	06/15/20 23:50	11100-14-4	ED
PCB, Total	<b>0.87 U</b>	mg/kg	0.87	0.25	5	06/15/20 08:49	06/15/20 23:50	1336-36-3	
<b>Surrogates</b>									
Tetrachloro-m-xylene (S)	73	%	34-114		5	06/15/20 08:49	06/15/20 23:50	877-09-8	
Decachlorobiphenyl (S)	107	%	38-139		5	06/15/20 08:49	06/15/20 23:50	2051-24-3	
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015B Preparation Method: EPA 5035A/5030B									
Pace Analytical Services - Greensburg									
TPH (C06-C10)	<b>11.3 U</b>	mg/kg	11.3	6.2	1	06/04/20 11:30	06/04/20 22:03		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	67	%	60-125		1	06/04/20 11:30	06/04/20 22:03	98-08-8	
4-Bromofluorobenzene (S)	98	%	60-125		1	06/04/20 11:30	06/04/20 22:03	460-00-4	
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Aluminum	<b>14200</b>	mg/kg	49.4	12.4	5	06/03/20 07:18	06/04/20 11:15	7429-90-5	10c,9c
Antimony	<b>3.0 U</b>	mg/kg	3.0	2.4	5	06/03/20 07:18	06/04/20 11:15	7440-36-0	10c,9c
Arsenic	<b>8.5</b>	mg/kg	2.5	2.4	5	06/03/20 07:18	06/04/20 11:15	7440-38-2	10c,9c
Barium	<b>179</b>	mg/kg	9.9	0.46	5	06/03/20 07:18	06/04/20 11:15	7440-39-3	10c,9c
Beryllium	<b>1.1</b>	mg/kg	0.99	0.15	5	06/03/20 07:18	06/04/20 11:15	7440-41-7	10c,9c
Cadmium	<b>2.3</b>	mg/kg	1.5	0.30	5	06/03/20 07:18	06/04/20 11:15	7440-43-9	10c,9c
Chromium	<b>199</b>	mg/kg	2.5	0.45	5	06/03/20 07:18	06/04/20 11:15	7440-47-3	10c,9c
Cobalt	<b>12.6</b>	mg/kg	4.9	0.52	5	06/03/20 07:18	06/04/20 11:15	7440-48-4	10c,9c
Copper	<b>74.3</b>	mg/kg	4.9	2.9	5	06/03/20 07:18	06/04/20 11:15	7440-50-8	10c,9c
Iron	<b>87400</b>	mg/kg	988	115	100	06/03/20 07:18	06/04/20 12:19	7439-89-6	10c,9c
Lead	<b>205</b>	mg/kg	2.5	2.4	5	06/03/20 07:18	06/04/20 11:15	7439-92-1	10c,9c
Manganese	<b>6050</b>	mg/kg	98.8	9.9	100	06/03/20 07:18	06/04/20 12:19	7439-96-5	10c,9c
Nickel	<b>60.6</b>	mg/kg	9.9	1.2	5	06/03/20 07:18	06/04/20 11:15	7440-02-0	10c,9c
Selenium	<b>4.0 U</b>	mg/kg	4.0	2.9	5	06/03/20 07:18	06/04/20 11:15	7782-49-2	10c,9c
Silver	<b>3.0 U</b>	mg/kg	3.0	0.48	5	06/03/20 07:18	06/04/20 11:15	7440-22-4	10c,9c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-003-SB-1**      **Lab ID: 30365510005**      Collected: 05/29/20 11:40      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Thallium	<b>7.2J</b>	mg/kg	9.9	3.0	5	06/03/20 07:18	06/04/20 11:15	7440-28-0	10c,9c
Vanadium	<b>406</b>	mg/kg	4.9	0.40	5	06/03/20 07:18	06/04/20 11:15	7440-62-2	10c,9c
Zinc	<b>816</b>	mg/kg	4.9	0.83	5	06/03/20 07:18	06/04/20 11:15	7440-66-6	10c,9c
<b>7471 Mercury</b>									
Analytical Method: EPA 7471A    Preparation Method: EPA 7471A									
Pace Analytical Services - Greensburg									
Mercury	<b>0.33</b>	mg/kg	0.12	0.0058	1	06/03/20 10:48	06/04/20 06:19	7439-97-6	
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Acenaphthene	<b>0.78 U</b>	mg/kg	0.78	0.18	10	06/12/20 08:59	06/12/20 21:23	83-32-9	ED
Acenaphthylene	<b>0.20J</b>	mg/kg	0.78	0.17	10	06/12/20 08:59	06/12/20 21:23	208-96-8	ED
Acetophenone	<b>0.78 U</b>	mg/kg	0.78	0.19	10	06/12/20 08:59	06/12/20 21:23	98-86-2	ED
Anthracene	<b>0.30J</b>	mg/kg	0.78	0.18	10	06/12/20 08:59	06/12/20 21:23	120-12-7	ED
Benzaldehyde	<b>0.78 U</b>	mg/kg	0.78	0.17	10	06/12/20 08:59	06/12/20 21:23	100-52-7	ED,L1
Benzo(a)anthracene	<b>2.2</b>	mg/kg	0.78	0.15	10	06/12/20 08:59	06/12/20 21:23	56-55-3	ED
Benzo(a)pyrene	<b>2.1</b>	mg/kg	0.78	0.11	10	06/12/20 08:59	06/12/20 21:23	50-32-8	ED
Benzo(b)fluoranthene	<b>2.0</b>	mg/kg	0.78	0.15	10	06/12/20 08:59	06/12/20 21:23	205-99-2	ED
Benzo(g,h,i)perylene	<b>0.80</b>	mg/kg	0.78	0.15	10	06/12/20 08:59	06/12/20 21:23	191-24-2	ED
Benzo(k)fluoranthene	<b>2.3</b>	mg/kg	0.78	0.15	10	06/12/20 08:59	06/12/20 21:23	207-08-9	ED
Biphenyl (Diphenyl)	<b>0.78 U</b>	mg/kg	0.78	0.16	10	06/12/20 08:59	06/12/20 21:23	92-52-4	ED
Caprolactam	<b>1.9 U</b>	mg/kg	1.9	0.22	10	06/12/20 08:59	06/12/20 21:23	105-60-2	ED
Carbazole	<b>0.78 U</b>	mg/kg	0.78	0.18	10	06/12/20 08:59	06/12/20 21:23	86-74-8	ED
4-Chloroaniline	<b>0.78 U</b>	mg/kg	0.78	0.18	10	06/12/20 08:59	06/12/20 21:23	106-47-8	ED
bis(2-Chloroethoxy)methane	<b>0.78 U</b>	mg/kg	0.78	0.17	10	06/12/20 08:59	06/12/20 21:23	111-91-1	ED
bis(2-Chloroethyl) ether	<b>0.78 U</b>	mg/kg	0.78	0.18	10	06/12/20 08:59	06/12/20 21:23	111-44-4	ED
bis(2-Chloroisopropyl) ether	<b>0.78 U</b>	mg/kg	0.78	0.19	10	06/12/20 08:59	06/12/20 21:23	108-60-1	CH,ED
2-Chloronaphthalene	<b>0.78 U</b>	mg/kg	0.78	0.16	10	06/12/20 08:59	06/12/20 21:23	91-58-7	ED
2-Chlorophenol	<b>0.78 U</b>	mg/kg	0.78	0.19	10	06/12/20 08:59	06/12/20 21:23	95-57-8	ED
Chrysene	<b>2.1</b>	mg/kg	0.78	0.16	10	06/12/20 08:59	06/12/20 21:23	218-01-9	ED
Dibenz(a,h)anthracene	<b>0.33J</b>	mg/kg	0.78	0.14	10	06/12/20 08:59	06/12/20 21:23	53-70-3	ED
3,3'-Dichlorobenzidine	<b>0.78 U</b>	mg/kg	0.78	0.15	10	06/12/20 08:59	06/12/20 21:23	91-94-1	ED,L2
2,4-Dichlorophenol	<b>0.78 U</b>	mg/kg	0.78	0.21	10	06/12/20 08:59	06/12/20 21:23	120-83-2	ED
Diethylphthalate	<b>0.78 U</b>	mg/kg	0.78	0.16	10	06/12/20 08:59	06/12/20 21:23	84-66-2	ED
2,4-Dimethylphenol	<b>0.78 U</b>	mg/kg	0.78	0.15	10	06/12/20 08:59	06/12/20 21:23	105-67-9	ED
Di-n-butylphthalate	<b>0.78 U</b>	mg/kg	0.78	0.18	10	06/12/20 08:59	06/12/20 21:23	84-74-2	ED
2,4-Dinitrophenol	<b>1.9 U</b>	mg/kg	1.9	0.40	10	06/12/20 08:59	06/12/20 21:23	51-28-5	13c,ED
2,4-Dinitrotoluene	<b>0.78 U</b>	mg/kg	0.78	0.18	10	06/12/20 08:59	06/12/20 21:23	121-14-2	ED
2,6-Dinitrotoluene	<b>0.78 U</b>	mg/kg	0.78	0.20	10	06/12/20 08:59	06/12/20 21:23	606-20-2	ED
Di-n-octylphthalate	<b>0.78 U</b>	mg/kg	0.78	0.21	10	06/12/20 08:59	06/12/20 21:23	117-84-0	ED
bis(2-Ethylhexyl)phthalate	<b>0.78 U</b>	mg/kg	0.78	0.16	10	06/12/20 08:59	06/12/20 21:23	117-81-7	ED
Fluoranthene	<b>3.1</b>	mg/kg	0.78	0.18	10	06/12/20 08:59	06/12/20 21:23	206-44-0	ED
Fluorene	<b>0.78 U</b>	mg/kg	0.78	0.18	10	06/12/20 08:59	06/12/20 21:23	86-73-7	ED
Hexachloro-1,3-butadiene	<b>0.78 U</b>	mg/kg	0.78	0.19	10	06/12/20 08:59	06/12/20 21:23	87-68-3	ED

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-003-SB-1**      **Lab ID: 30365510005**      Collected: 05/29/20 11:40      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Hexachlorobenzene	<b>0.78 U</b>	mg/kg	0.78	0.18	10	06/12/20 08:59	06/12/20 21:23	118-74-1	ED
Hexachlorocyclopentadiene	<b>0.78 U</b>	mg/kg	0.78	0.14	10	06/12/20 08:59	06/12/20 21:23	77-47-4	ED
Hexachloroethane	<b>0.78 U</b>	mg/kg	0.78	0.17	10	06/12/20 08:59	06/12/20 21:23	67-72-1	ED
Indeno(1,2,3-cd)pyrene	<b>0.87</b>	mg/kg	0.78	0.14	10	06/12/20 08:59	06/12/20 21:23	193-39-5	ED
Isophorone	<b>0.78 U</b>	mg/kg	0.78	0.21	10	06/12/20 08:59	06/12/20 21:23	78-59-1	ED
2-Methylnaphthalene	<b>0.78 U</b>	mg/kg	0.78	0.16	10	06/12/20 08:59	06/12/20 21:23	91-57-6	ED
2-Methylphenol(o-Cresol)	<b>0.78 U</b>	mg/kg	0.78	0.15	10	06/12/20 08:59	06/12/20 21:23	95-48-7	ED
3&4-Methylphenol(m&p Cresol)	<b>1.6 U</b>	mg/kg	1.6	0.19	10	06/12/20 08:59	06/12/20 21:23		ED
Naphthalene	<b>0.78 U</b>	mg/kg	0.78	0.17	10	06/12/20 08:59	06/12/20 21:23	91-20-3	ED
2-Nitroaniline	<b>1.9 U</b>	mg/kg	1.9	0.17	10	06/12/20 08:59	06/12/20 21:23	88-74-4	ED
4-Nitroaniline	<b>1.9 U</b>	mg/kg	1.9	0.27	10	06/12/20 08:59	06/12/20 21:23	100-01-6	ED
Nitrobenzene	<b>0.78 U</b>	mg/kg	0.78	0.19	10	06/12/20 08:59	06/12/20 21:23	98-95-3	ED
N-Nitroso-di-n-propylamine	<b>0.78 U</b>	mg/kg	0.78	0.18	10	06/12/20 08:59	06/12/20 21:23	621-64-7	ED
N-Nitrosodiphenylamine	<b>0.78 U</b>	mg/kg	0.78	0.15	10	06/12/20 08:59	06/12/20 21:23	86-30-6	ED
Pentachlorophenol	<b>1.9 U</b>	mg/kg	1.9	0.36	10	06/12/20 08:59	06/12/20 21:23	87-86-5	ED
Phenanthrene	<b>1.0</b>	mg/kg	0.78	0.18	10	06/12/20 08:59	06/12/20 21:23	85-01-8	ED
Phenol	<b>0.78 U</b>	mg/kg	0.78	0.19	10	06/12/20 08:59	06/12/20 21:23	108-95-2	ED
Pyrene	<b>2.6</b>	mg/kg	0.78	0.21	10	06/12/20 08:59	06/12/20 21:23	129-00-0	ED
1,2,4,5-Tetrachlorobenzene	<b>0.78 U</b>	mg/kg	0.78	0.17	10	06/12/20 08:59	06/12/20 21:23	95-94-3	ED
2,3,4,6-Tetrachlorophenol	<b>0.78 U</b>	mg/kg	0.78	0.17	10	06/12/20 08:59	06/12/20 21:23	58-90-2	ED
2,4,5-Trichlorophenol	<b>1.9 U</b>	mg/kg	1.9	0.17	10	06/12/20 08:59	06/12/20 21:23	95-95-4	ED
2,4,6-Trichlorophenol	<b>0.78 U</b>	mg/kg	0.78	0.19	10	06/12/20 08:59	06/12/20 21:23	88-06-2	ED
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	51	%	26-95		10	06/12/20 08:59	06/12/20 21:23	4165-60-0	
2-Fluorobiphenyl (S)	54	%	36-98		10	06/12/20 08:59	06/12/20 21:23	321-60-8	
Terphenyl-d14 (S)	77	%	59-116		10	06/12/20 08:59	06/12/20 21:23	1718-51-0	
Phenol-d6 (S)	49	%	34-98		10	06/12/20 08:59	06/12/20 21:23	13127-88-3	
2-Fluorophenol (S)	43	%	29-96		10	06/12/20 08:59	06/12/20 21:23	367-12-4	
2,4,6-Tribromophenol (S)	56	%	30-113		10	06/12/20 08:59	06/12/20 21:23	118-79-6	
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Pace Analytical Services - Greensburg									
Percent Moisture	<b>15.7</b>	%	0.10	0.10	1		06/02/20 09:56		
<b>7196 Chromium, Hexavalent</b>									
Analytical Method: EPA 7196A    Preparation Method: EPA 3060A									
Pace Analytical Services - Greensburg									
Chromium, Hexavalent	<b>1.2 U</b>	mg/kg	1.2	0.74	1	06/02/20 10:22	06/03/20 16:09	18540-29-9	4c,5c
<b>9045D pH Soil</b>									
Analytical Method: EPA 9045D									
Pace Analytical Services - Greensburg									
pH in water at 25 degrees C	<b>9.6</b>	Std. Units	2.0	2.0	1		05/31/20 17:36		H3

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II

Pace Project No.: 30365510

**Sample: B9-003-SB-1**      **Lab ID: 30365510005**      Collected: 05/29/20 11:40      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>9071 Oil and Grease/TPH</b>	Analytical Method: EPA 9071B    Preparation Method: EPA 9071B Pace Analytical Services - Greensburg								
Oil and Grease	<b>367J</b>	mg/kg	473	213	1	06/03/20 12:08	06/04/20 07:38		3c
<b>9012B Cyanide, Total</b>	Analytical Method: EPA 9012B    Preparation Method: EPA 9012B Pace Analytical Services - Greensburg								
Cyanide	<b>1.6</b>	mg/kg	1.1	0.14	1	06/02/20 08:00	06/02/20 11:19	57-12-5	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-003-SB-5**      **Lab ID: 30365510006**      Collected: 05/29/20 11:45      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 TPH Microwave</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
TPH (C10-C28)	<b>65.8</b>	mg/kg	7.6	4.4	1	06/12/20 08:37	06/12/20 17:51		L2
<b>Surrogates</b>									
o-Terphenyl (S)	67	%	60-125		1	06/12/20 08:37	06/12/20 17:51	84-15-1	
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 5035A/5030B									
Pace Analytical Services - Greensburg									
TPH (C06-C10)	<b>11.8 U</b>	mg/kg	11.8	6.6	1	06/04/20 11:30	06/05/20 07:50		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	53	%	60-125		1	06/04/20 11:30	06/05/20 07:50	98-08-8	S2,SR
4-Bromofluorobenzene (S)	96	%	60-125		1	06/04/20 11:30	06/05/20 07:50	460-00-4	
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Aluminum	<b>11700</b>	mg/kg	47.9	12.0	5	06/03/20 07:18	06/04/20 11:18	7429-90-5	10c,9c
Antimony	<b>2.9 U</b>	mg/kg	2.9	2.3	5	06/03/20 07:18	06/04/20 11:18	7440-36-0	10c,9c
Arsenic	<b>5.8</b>	mg/kg	2.4	2.3	5	06/03/20 07:18	06/04/20 11:18	7440-38-2	10c,9c
Barium	<b>145</b>	mg/kg	9.6	0.45	5	06/03/20 07:18	06/04/20 11:18	7440-39-3	10c,9c
Beryllium	<b>0.97</b>	mg/kg	0.96	0.15	5	06/03/20 07:18	06/04/20 11:18	7440-41-7	10c,9c
Cadmium	<b>1.6</b>	mg/kg	1.4	0.29	5	06/03/20 07:18	06/04/20 11:18	7440-43-9	10c,9c
Chromium	<b>430</b>	mg/kg	2.4	0.44	5	06/03/20 07:18	06/04/20 11:18	7440-47-3	10c,9c
Cobalt	<b>8.8</b>	mg/kg	4.8	0.51	5	06/03/20 07:18	06/04/20 11:18	7440-48-4	10c,9c
Copper	<b>71.8</b>	mg/kg	4.8	2.8	5	06/03/20 07:18	06/04/20 11:18	7440-50-8	10c,9c
Iron	<b>59300</b>	mg/kg	958	111	100	06/03/20 07:18	06/04/20 12:26	7439-89-6	10c,9c
Lead	<b>174</b>	mg/kg	2.4	2.3	5	06/03/20 07:18	06/04/20 11:18	7439-92-1	10c,9c
Manganese	<b>9170</b>	mg/kg	95.8	9.6	100	06/03/20 07:18	06/04/20 12:26	7439-96-5	10c,9c
Nickel	<b>25.9</b>	mg/kg	9.6	1.2	5	06/03/20 07:18	06/04/20 11:18	7440-02-0	10c,9c
Selenium	<b>3.8 U</b>	mg/kg	3.8	2.8	5	06/03/20 07:18	06/04/20 11:18	7782-49-2	10c,9c
Silver	<b>2.9 U</b>	mg/kg	2.9	0.46	5	06/03/20 07:18	06/04/20 11:18	7440-22-4	10c,9c
Thallium	<b>19.2</b>	mg/kg	9.6	2.9	5	06/03/20 07:18	06/04/20 11:18	7440-28-0	10c,9c
Vanadium	<b>1700</b>	mg/kg	4.8	0.39	5	06/03/20 07:18	06/04/20 11:18	7440-62-2	10c,9c
Zinc	<b>619</b>	mg/kg	4.8	0.80	5	06/03/20 07:18	06/04/20 11:18	7440-66-6	10c,9c
<b>7471 Mercury</b>									
Analytical Method: EPA 7471A    Preparation Method: EPA 7471A									
Pace Analytical Services - Greensburg									
Mercury	<b>0.19</b>	mg/kg	0.12	0.0057	1	06/03/20 10:48	06/04/20 06:21	7439-97-6	
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Acenaphthene	<b>0.078 U</b>	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 23:38	83-32-9	
Acenaphthylene	<b>0.076J</b>	mg/kg	0.078	0.017	1	06/12/20 08:59	06/12/20 23:38	208-96-8	
Acetophenone	<b>0.078 U</b>	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 23:38	98-86-2	
Anthracene	<b>0.093</b>	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 23:38	120-12-7	
Benzaldehyde	<b>0.078 U</b>	mg/kg	0.078	0.017	1	06/12/20 08:59	06/12/20 23:38	100-52-7	L1
Benzo(a)anthracene	<b>0.62</b>	mg/kg	0.078	0.015	1	06/12/20 08:59	06/12/20 23:38	56-55-3	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-003-SB-5**      **Lab ID: 30365510006**      Collected: 05/29/20 11:45      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Benzo(a)pyrene	<b>0.67</b>	mg/kg	0.078	0.011	1	06/12/20 08:59	06/12/20 23:38	50-32-8	
Benzo(b)fluoranthene	<b>0.78</b>	mg/kg	0.078	0.015	1	06/12/20 08:59	06/12/20 23:38	205-99-2	
Benzo(g,h,i)perylene	<b>0.11</b>	mg/kg	0.078	0.015	1	06/12/20 08:59	06/12/20 23:38	191-24-2	
Benzo(k)fluoranthene	<b>0.70</b>	mg/kg	0.078	0.015	1	06/12/20 08:59	06/12/20 23:38	207-08-9	
Biphenyl (Diphenyl)	<b>0.078 U</b>	mg/kg	0.078	0.016	1	06/12/20 08:59	06/12/20 23:38	92-52-4	
Caprolactam	<b>0.19 U</b>	mg/kg	0.19	0.022	1	06/12/20 08:59	06/12/20 23:38	105-60-2	
Carbazole	<b>0.033J</b>	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 23:38	86-74-8	
4-Chloroaniline	<b>0.078 U</b>	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 23:38	106-47-8	
bis(2-Chloroethoxy)methane	<b>0.078 U</b>	mg/kg	0.078	0.017	1	06/12/20 08:59	06/12/20 23:38	111-91-1	
bis(2-Chloroethyl) ether	<b>0.078 U</b>	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 23:38	111-44-4	
bis(2-Chloroisopropyl) ether	<b>0.078 U</b>	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 23:38	108-60-1	CH
2-Chloronaphthalene	<b>0.078 U</b>	mg/kg	0.078	0.016	1	06/12/20 08:59	06/12/20 23:38	91-58-7	
2-Chlorophenol	<b>0.078 U</b>	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 23:38	95-57-8	
Chrysene	<b>0.56</b>	mg/kg	0.078	0.016	1	06/12/20 08:59	06/12/20 23:38	218-01-9	
Dibenz(a,h)anthracene	<b>0.057J</b>	mg/kg	0.078	0.014	1	06/12/20 08:59	06/12/20 23:38	53-70-3	
3,3'-Dichlorobenzidine	<b>0.078 U</b>	mg/kg	0.078	0.015	1	06/12/20 08:59	06/12/20 23:38	91-94-1	L2
2,4-Dichlorophenol	<b>0.078 U</b>	mg/kg	0.078	0.021	1	06/12/20 08:59	06/12/20 23:38	120-83-2	
Diethylphthalate	<b>0.078 U</b>	mg/kg	0.078	0.016	1	06/12/20 08:59	06/12/20 23:38	84-66-2	
2,4-Dimethylphenol	<b>0.078 U</b>	mg/kg	0.078	0.015	1	06/12/20 08:59	06/12/20 23:38	105-67-9	
Di-n-butylphthalate	<b>0.035J</b>	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 23:38	84-74-2	
2,4-Dinitrophenol	<b>0.19 U</b>	mg/kg	0.19	0.040	1	06/12/20 08:59	06/12/20 23:38	51-28-5	13c
2,4-Dinitrotoluene	<b>0.078 U</b>	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 23:38	121-14-2	
2,6-Dinitrotoluene	<b>0.078 U</b>	mg/kg	0.078	0.020	1	06/12/20 08:59	06/12/20 23:38	606-20-2	
Di-n-octylphthalate	<b>0.078 U</b>	mg/kg	0.078	0.021	1	06/12/20 08:59	06/12/20 23:38	117-84-0	
bis(2-Ethylhexyl)phthalate	<b>0.078 U</b>	mg/kg	0.078	0.016	1	06/12/20 08:59	06/12/20 23:38	117-81-7	
Fluoranthene	<b>0.87</b>	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 23:38	206-44-0	
Fluorene	<b>0.078 U</b>	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 23:38	86-73-7	
Hexachloro-1,3-butadiene	<b>0.078 U</b>	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 23:38	87-68-3	
Hexachlorobenzene	<b>0.078 U</b>	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 23:38	118-74-1	
Hexachlorocyclopentadiene	<b>0.078 U</b>	mg/kg	0.078	0.014	1	06/12/20 08:59	06/12/20 23:38	77-47-4	
Hexachloroethane	<b>0.078 U</b>	mg/kg	0.078	0.017	1	06/12/20 08:59	06/12/20 23:38	67-72-1	
Indeno(1,2,3-cd)pyrene	<b>0.14</b>	mg/kg	0.078	0.014	1	06/12/20 08:59	06/12/20 23:38	193-39-5	
Isophorone	<b>0.078 U</b>	mg/kg	0.078	0.021	1	06/12/20 08:59	06/12/20 23:38	78-59-1	
2-Methylnaphthalene	<b>0.082</b>	mg/kg	0.078	0.016	1	06/12/20 08:59	06/12/20 23:38	91-57-6	
2-Methylphenol(o-Cresol)	<b>0.078 U</b>	mg/kg	0.078	0.015	1	06/12/20 08:59	06/12/20 23:38	95-48-7	
3&4-Methylphenol(m&p Cresol)	<b>0.021J</b>	mg/kg	0.16	0.019	1	06/12/20 08:59	06/12/20 23:38		
Naphthalene	<b>0.13</b>	mg/kg	0.078	0.017	1	06/12/20 08:59	06/12/20 23:38	91-20-3	
2-Nitroaniline	<b>0.19 U</b>	mg/kg	0.19	0.017	1	06/12/20 08:59	06/12/20 23:38	88-74-4	
4-Nitroaniline	<b>0.19 U</b>	mg/kg	0.19	0.027	1	06/12/20 08:59	06/12/20 23:38	100-01-6	
Nitrobenzene	<b>0.078 U</b>	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 23:38	98-95-3	
N-Nitroso-di-n-propylamine	<b>0.078 U</b>	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 23:38	621-64-7	
N-Nitrosodiphenylamine	<b>0.078 U</b>	mg/kg	0.078	0.015	1	06/12/20 08:59	06/12/20 23:38	86-30-6	
Pentachlorophenol	<b>0.19 U</b>	mg/kg	0.19	0.036	1	06/12/20 08:59	06/12/20 23:38	87-86-5	
Phenanthrene	<b>0.33</b>	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 23:38	85-01-8	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-003-SB-5**      **Lab ID: 30365510006**      Collected: 05/29/20 11:45      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Phenol	<b>0.021J</b>	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 23:38	108-95-2	
Pyrene	<b>0.83</b>	mg/kg	0.078	0.021	1	06/12/20 08:59	06/12/20 23:38	129-00-0	
1,2,4,5-Tetrachlorobenzene	<b>0.078 U</b>	mg/kg	0.078	0.017	1	06/12/20 08:59	06/12/20 23:38	95-94-3	
2,3,4,6-Tetrachlorophenol	<b>0.078 U</b>	mg/kg	0.078	0.017	1	06/12/20 08:59	06/12/20 23:38	58-90-2	
2,4,5-Trichlorophenol	<b>0.19 U</b>	mg/kg	0.19	0.017	1	06/12/20 08:59	06/12/20 23:38	95-95-4	
2,4,6-Trichlorophenol	<b>0.078 U</b>	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 23:38	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	72	%	26-95		1	06/12/20 08:59	06/12/20 23:38	4165-60-0	
2-Fluorobiphenyl (S)	71	%	36-98		1	06/12/20 08:59	06/12/20 23:38	321-60-8	
Terphenyl-d14 (S)	69	%	59-116		1	06/12/20 08:59	06/12/20 23:38	1718-51-0	
Phenol-d6 (S)	69	%	34-98		1	06/12/20 08:59	06/12/20 23:38	13127-88-3	
2-Fluorophenol (S)	62	%	29-96		1	06/12/20 08:59	06/12/20 23:38	367-12-4	
2,4,6-Tribromophenol (S)	74	%	30-113		1	06/12/20 08:59	06/12/20 23:38	118-79-6	
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Pace Analytical Services - Greensburg									
Percent Moisture	<b>14.5</b>	%	0.10	0.10	1		06/02/20 09:56		
<b>7196 Chromium, Hexavalent</b>									
Analytical Method: EPA 7196A    Preparation Method: EPA 3060A									
Pace Analytical Services - Greensburg									
Chromium, Hexavalent	<b>0.77J</b>	mg/kg	1.2	0.74	1	06/02/20 10:22	06/03/20 16:09	18540-29-9	4c,5c
<b>9045D pH Soil</b>									
Analytical Method: EPA 9045D									
Pace Analytical Services - Greensburg									
pH in water at 25 degrees C	<b>8.8</b>	Std. Units	2.0	2.0	1		05/31/20 17:37		H3
<b>9071 Oil and Grease/TPH</b>									
Analytical Method: EPA 9071B    Preparation Method: EPA 9071B									
Pace Analytical Services - Greensburg									
Oil and Grease	<b>469 U</b>	mg/kg	469	211	1	06/03/20 12:08	06/04/20 07:38		3c
<b>9012B Cyanide, Total</b>									
Analytical Method: EPA 9012B    Preparation Method: EPA 9012B									
Pace Analytical Services - Greensburg									
Cyanide	<b>1.0</b>	mg/kg	0.94	0.12	1	06/02/20 08:00	06/02/20 11:20	57-12-5	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-004-SB-1**      **Lab ID: 30365510007**      Collected: 05/29/20 12:00      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 TPH Microwave</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
TPH (C10-C28)	<b>87.2</b>	mg/kg	7.3	4.2	1	06/12/20 08:37	06/12/20 17:58		L2
<b>Surrogates</b>									
o-Terphenyl (S)	66	%	60-125		1	06/12/20 08:37	06/12/20 17:58	84-15-1	
<b>8082 GCS PCB</b>									
Analytical Method: EPA 8082    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
PCB-1016 (Aroclor 1016)	<b>0.091 U</b>	mg/kg	0.091	0.0082	5	06/15/20 08:49	06/16/20 00:07	12674-11-2	ED
PCB-1221 (Aroclor 1221)	<b>0.091 U</b>	mg/kg	0.091	0.045	5	06/15/20 08:49	06/16/20 00:07	11104-28-2	ED
PCB-1232 (Aroclor 1232)	<b>0.091 U</b>	mg/kg	0.091	0.045	5	06/15/20 08:49	06/16/20 00:07	11141-16-5	ED
PCB-1242 (Aroclor 1242)	<b>0.091 U</b>	mg/kg	0.091	0.013	5	06/15/20 08:49	06/16/20 00:07	53469-21-9	ED
PCB-1248 (Aroclor 1248)	<b>0.091 U</b>	mg/kg	0.091	0.042	5	06/15/20 08:49	06/16/20 00:07	12672-29-6	ED
PCB-1254 (Aroclor 1254)	<b>0.091 U</b>	mg/kg	0.091	0.018	5	06/15/20 08:49	06/16/20 00:07	11097-69-1	ED
PCB-1260 (Aroclor 1260)	<b>0.091 U</b>	mg/kg	0.091	0.0084	5	06/15/20 08:49	06/16/20 00:07	11096-82-5	ED
PCB-1262 (Aroclor 1262)	<b>0.091 U</b>	mg/kg	0.091	0.028	5	06/15/20 08:49	06/16/20 00:07	37324-23-5	ED
PCB-1268 (Aroclor 1268)	<b>0.091 U</b>	mg/kg	0.091	0.028	5	06/15/20 08:49	06/16/20 00:07	11100-14-4	ED
PCB, Total	<b>0.82 U</b>	mg/kg	0.82	0.23	5	06/15/20 08:49	06/16/20 00:07	1336-36-3	
<b>Surrogates</b>									
Tetrachloro-m-xylene (S)	70	%	34-114		5	06/15/20 08:49	06/16/20 00:07	877-09-8	
Decachlorobiphenyl (S)	69	%	38-139		5	06/15/20 08:49	06/16/20 00:07	2051-24-3	
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 5035A/5030B									
Pace Analytical Services - Greensburg									
TPH (C06-C10)	<b>14.1 U</b>	mg/kg	14.1	7.8	1	06/04/20 11:30	06/04/20 22:39		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	68	%	60-125		1	06/04/20 11:30	06/04/20 22:39	98-08-8	
4-Bromofluorobenzene (S)	98	%	60-125		1	06/04/20 11:30	06/04/20 22:39	460-00-4	
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Aluminum	<b>15200</b>	mg/kg	45.6	11.4	5	06/03/20 07:18	06/04/20 11:20	7429-90-5	10c,9c
Antimony	<b>2.7 U</b>	mg/kg	2.7	2.2	5	06/03/20 07:18	06/04/20 11:20	7440-36-0	10c,9c
Arsenic	<b>10.4</b>	mg/kg	2.3	2.2	5	06/03/20 07:18	06/04/20 11:20	7440-38-2	10c,9c
Barium	<b>206</b>	mg/kg	9.1	0.43	5	06/03/20 07:18	06/04/20 11:20	7440-39-3	10c,9c
Beryllium	<b>1.4</b>	mg/kg	0.91	0.14	5	06/03/20 07:18	06/04/20 11:20	7440-41-7	10c,9c
Cadmium	<b>2.7</b>	mg/kg	1.4	0.28	5	06/03/20 07:18	06/04/20 11:20	7440-43-9	10c,9c
Chromium	<b>190</b>	mg/kg	2.3	0.42	5	06/03/20 07:18	06/04/20 11:20	7440-47-3	10c,9c
Cobalt	<b>13.0</b>	mg/kg	4.6	0.48	5	06/03/20 07:18	06/04/20 11:20	7440-48-4	10c,9c
Copper	<b>94.7</b>	mg/kg	4.6	2.7	5	06/03/20 07:18	06/04/20 11:20	7440-50-8	10c,9c
Iron	<b>76000</b>	mg/kg	912	106	100	06/03/20 07:18	06/04/20 12:29	7439-89-6	10c,9c
Lead	<b>239</b>	mg/kg	2.3	2.2	5	06/03/20 07:18	06/04/20 11:20	7439-92-1	10c,9c
Manganese	<b>8440</b>	mg/kg	91.2	9.1	100	06/03/20 07:18	06/04/20 12:29	7439-96-5	10c,9c
Nickel	<b>49.9</b>	mg/kg	9.1	1.1	5	06/03/20 07:18	06/04/20 11:20	7440-02-0	10c,9c
Selenium	<b>3.6 U</b>	mg/kg	3.6	2.7	5	06/03/20 07:18	06/04/20 11:20	7782-49-2	10c,9c
Silver	<b>2.7 U</b>	mg/kg	2.7	0.44	5	06/03/20 07:18	06/04/20 11:20	7440-22-4	10c,9c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-004-SB-1**      **Lab ID: 30365510007**      Collected: 05/29/20 12:00      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Thallium	<b>3.4J</b>	mg/kg	9.1	2.8	5	06/03/20 07:18	06/04/20 11:20	7440-28-0	10c,9c
Vanadium	<b>189</b>	mg/kg	4.6	0.37	5	06/03/20 07:18	06/04/20 11:20	7440-62-2	10c,9c
Zinc	<b>546</b>	mg/kg	4.6	0.77	5	06/03/20 07:18	06/04/20 11:20	7440-66-6	10c,9c
<b>7471 Mercury</b>									
Analytical Method: EPA 7471A    Preparation Method: EPA 7471A									
Pace Analytical Services - Greensburg									
Mercury	<b>0.32</b>	mg/kg	0.11	0.0052	1	06/03/20 10:48	06/04/20 06:22	7439-97-6	
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Acenaphthene	<b>0.073 U</b>	mg/kg	0.073	0.016	1	06/12/20 08:59	06/12/20 21:45	83-32-9	
Acenaphthylene	<b>0.036J</b>	mg/kg	0.073	0.016	1	06/12/20 08:59	06/12/20 21:45	208-96-8	
Acetophenone	<b>0.061J</b>	mg/kg	0.073	0.018	1	06/12/20 08:59	06/12/20 21:45	98-86-2	
Anthracene	<b>0.040J</b>	mg/kg	0.073	0.017	1	06/12/20 08:59	06/12/20 21:45	120-12-7	
Benzaldehyde	<b>0.099</b>	mg/kg	0.073	0.016	1	06/12/20 08:59	06/12/20 21:45	100-52-7	L1
Benzo(a)anthracene	<b>0.25</b>	mg/kg	0.073	0.014	1	06/12/20 08:59	06/12/20 21:45	56-55-3	
Benzo(a)pyrene	<b>0.25</b>	mg/kg	0.073	0.011	1	06/12/20 08:59	06/12/20 21:45	50-32-8	
Benzo(b)fluoranthene	<b>0.30</b>	mg/kg	0.073	0.014	1	06/12/20 08:59	06/12/20 21:45	205-99-2	
Benzo(g,h,i)perylene	<b>0.052J</b>	mg/kg	0.073	0.014	1	06/12/20 08:59	06/12/20 21:45	191-24-2	
Benzo(k)fluoranthene	<b>0.26</b>	mg/kg	0.073	0.014	1	06/12/20 08:59	06/12/20 21:45	207-08-9	
Biphenyl (Diphenyl)	<b>0.022J</b>	mg/kg	0.073	0.015	1	06/12/20 08:59	06/12/20 21:45	92-52-4	
Caprolactam	<b>0.13J</b>	mg/kg	0.18	0.020	1	06/12/20 08:59	06/12/20 21:45	105-60-2	
Carbazole	<b>0.021J</b>	mg/kg	0.073	0.017	1	06/12/20 08:59	06/12/20 21:45	86-74-8	
4-Chloroaniline	<b>0.073 U</b>	mg/kg	0.073	0.017	1	06/12/20 08:59	06/12/20 21:45	106-47-8	
bis(2-Chloroethoxy)methane	<b>0.073 U</b>	mg/kg	0.073	0.016	1	06/12/20 08:59	06/12/20 21:45	111-91-1	
bis(2-Chloroethyl) ether	<b>0.073 U</b>	mg/kg	0.073	0.017	1	06/12/20 08:59	06/12/20 21:45	111-44-4	
bis(2-Chloroisopropyl) ether	<b>0.073 U</b>	mg/kg	0.073	0.018	1	06/12/20 08:59	06/12/20 21:45	108-60-1	CH
2-Chloronaphthalene	<b>0.073 U</b>	mg/kg	0.073	0.015	1	06/12/20 08:59	06/12/20 21:45	91-58-7	
2-Chlorophenol	<b>0.073 U</b>	mg/kg	0.073	0.018	1	06/12/20 08:59	06/12/20 21:45	95-57-8	
Chrysene	<b>0.31</b>	mg/kg	0.073	0.015	1	06/12/20 08:59	06/12/20 21:45	218-01-9	
Dibenz(a,h)anthracene	<b>0.028J</b>	mg/kg	0.073	0.013	1	06/12/20 08:59	06/12/20 21:45	53-70-3	
3,3'-Dichlorobenzidine	<b>0.073 U</b>	mg/kg	0.073	0.014	1	06/12/20 08:59	06/12/20 21:45	91-94-1	L2
2,4-Dichlorophenol	<b>0.073 U</b>	mg/kg	0.073	0.019	1	06/12/20 08:59	06/12/20 21:45	120-83-2	
Diethylphthalate	<b>0.073 U</b>	mg/kg	0.073	0.015	1	06/12/20 08:59	06/12/20 21:45	84-66-2	
2,4-Dimethylphenol	<b>0.073 U</b>	mg/kg	0.073	0.014	1	06/12/20 08:59	06/12/20 21:45	105-67-9	
Di-n-butylphthalate	<b>0.031J</b>	mg/kg	0.073	0.017	1	06/12/20 08:59	06/12/20 21:45	84-74-2	
2,4-Dinitrophenol	<b>0.18 U</b>	mg/kg	0.18	0.038	1	06/12/20 08:59	06/12/20 21:45	51-28-5	13c
2,4-Dinitrotoluene	<b>0.073 U</b>	mg/kg	0.073	0.017	1	06/12/20 08:59	06/12/20 21:45	121-14-2	
2,6-Dinitrotoluene	<b>0.073 U</b>	mg/kg	0.073	0.019	1	06/12/20 08:59	06/12/20 21:45	606-20-2	
Di-n-octylphthalate	<b>0.073 U</b>	mg/kg	0.073	0.020	1	06/12/20 08:59	06/12/20 21:45	117-84-0	
bis(2-Ethylhexyl)phthalate	<b>0.073 U</b>	mg/kg	0.073	0.015	1	06/12/20 08:59	06/12/20 21:45	117-81-7	
Fluoranthene	<b>0.30</b>	mg/kg	0.073	0.017	1	06/12/20 08:59	06/12/20 21:45	206-44-0	
Fluorene	<b>0.073 U</b>	mg/kg	0.073	0.017	1	06/12/20 08:59	06/12/20 21:45	86-73-7	
Hexachloro-1,3-butadiene	<b>0.073 U</b>	mg/kg	0.073	0.018	1	06/12/20 08:59	06/12/20 21:45	87-68-3	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-004-SB-1**      **Lab ID: 30365510007**      Collected: 05/29/20 12:00      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Hexachlorobenzene	<b>0.073 U</b>	mg/kg	0.073	0.017	1	06/12/20 08:59	06/12/20 21:45	118-74-1	
Hexachlorocyclopentadiene	<b>0.073 U</b>	mg/kg	0.073	0.013	1	06/12/20 08:59	06/12/20 21:45	77-47-4	
Hexachloroethane	<b>0.073 U</b>	mg/kg	0.073	0.016	1	06/12/20 08:59	06/12/20 21:45	67-72-1	
Indeno(1,2,3-cd)pyrene	<b>0.062J</b>	mg/kg	0.073	0.014	1	06/12/20 08:59	06/12/20 21:45	193-39-5	
Isophorone	<b>0.073 U</b>	mg/kg	0.073	0.020	1	06/12/20 08:59	06/12/20 21:45	78-59-1	
2-Methylnaphthalene	<b>0.19</b>	mg/kg	0.073	0.015	1	06/12/20 08:59	06/12/20 21:45	91-57-6	
2-Methylphenol(o-Cresol)	<b>0.073 U</b>	mg/kg	0.073	0.014	1	06/12/20 08:59	06/12/20 21:45	95-48-7	
3&4-Methylphenol(m&p Cresol)	<b>0.15 U</b>	mg/kg	0.15	0.018	1	06/12/20 08:59	06/12/20 21:45		
Naphthalene	<b>0.21</b>	mg/kg	0.073	0.016	1	06/12/20 08:59	06/12/20 21:45	91-20-3	
2-Nitroaniline	<b>0.18 U</b>	mg/kg	0.18	0.016	1	06/12/20 08:59	06/12/20 21:45	88-74-4	
4-Nitroaniline	<b>0.18 U</b>	mg/kg	0.18	0.026	1	06/12/20 08:59	06/12/20 21:45	100-01-6	
Nitrobenzene	<b>0.073 U</b>	mg/kg	0.073	0.018	1	06/12/20 08:59	06/12/20 21:45	98-95-3	
N-Nitroso-di-n-propylamine	<b>0.073 U</b>	mg/kg	0.073	0.017	1	06/12/20 08:59	06/12/20 21:45	621-64-7	
N-Nitrosodiphenylamine	<b>0.018J</b>	mg/kg	0.073	0.014	1	06/12/20 08:59	06/12/20 21:45	86-30-6	
Pentachlorophenol	<b>0.18 U</b>	mg/kg	0.18	0.034	1	06/12/20 08:59	06/12/20 21:45	87-86-5	
Phenanthrene	<b>0.33</b>	mg/kg	0.073	0.017	1	06/12/20 08:59	06/12/20 21:45	85-01-8	
Phenol	<b>0.019J</b>	mg/kg	0.073	0.017	1	06/12/20 08:59	06/12/20 21:45	108-95-2	
Pyrene	<b>0.27</b>	mg/kg	0.073	0.020	1	06/12/20 08:59	06/12/20 21:45	129-00-0	
1,2,4,5-Tetrachlorobenzene	<b>0.073 U</b>	mg/kg	0.073	0.016	1	06/12/20 08:59	06/12/20 21:45	95-94-3	
2,3,4,6-Tetrachlorophenol	<b>0.073 U</b>	mg/kg	0.073	0.016	1	06/12/20 08:59	06/12/20 21:45	58-90-2	
2,4,5-Trichlorophenol	<b>0.18 U</b>	mg/kg	0.18	0.016	1	06/12/20 08:59	06/12/20 21:45	95-95-4	
2,4,6-Trichlorophenol	<b>0.073 U</b>	mg/kg	0.073	0.018	1	06/12/20 08:59	06/12/20 21:45	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	69	%	26-95		1	06/12/20 08:59	06/12/20 21:45	4165-60-0	
2-Fluorobiphenyl (S)	68	%	36-98		1	06/12/20 08:59	06/12/20 21:45	321-60-8	
Terphenyl-d14 (S)	72	%	59-116		1	06/12/20 08:59	06/12/20 21:45	1718-51-0	
Phenol-d6 (S)	66	%	34-98		1	06/12/20 08:59	06/12/20 21:45	13127-88-3	
2-Fluorophenol (S)	60	%	29-96		1	06/12/20 08:59	06/12/20 21:45	367-12-4	
2,4,6-Tribromophenol (S)	77	%	30-113		1	06/12/20 08:59	06/12/20 21:45	118-79-6	
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Pace Analytical Services - Greensburg									
Percent Moisture	<b>10.1</b>	%	0.10	0.10	1		06/02/20 09:56		
<b>7196 Chromium, Hexavalent</b>									
Analytical Method: EPA 7196A    Preparation Method: EPA 3060A									
Pace Analytical Services - Greensburg									
Chromium, Hexavalent	<b>1.1 U</b>	mg/kg	1.1	0.69	1	06/02/20 10:22	06/03/20 16:10	18540-29-9	4c,5c
<b>9045D pH Soil</b>									
Analytical Method: EPA 9045D									
Pace Analytical Services - Greensburg									
pH in water at 25 degrees C	<b>8.1</b>	Std. Units	2.0	2.0	1		05/31/20 17:37		H3

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-004-SB-1**      **Lab ID: 30365510007**      Collected: 05/29/20 12:00      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>9071 Oil and Grease/TPH</b>	Analytical Method: EPA 9071B    Preparation Method: EPA 9071B Pace Analytical Services - Greensburg								
Oil and Grease	<b>190J</b>	mg/kg	223	101	1	06/03/20 12:08	06/04/20 07:38		
<b>9012B Cyanide, Total</b>	Analytical Method: EPA 9012B    Preparation Method: EPA 9012B Pace Analytical Services - Greensburg								
Cyanide	<b>13.3</b>	mg/kg	5.6	0.70	5	06/02/20 08:00	06/02/20 11:32	57-12-5	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-004-SB-5**      **Lab ID: 30365510008**      Collected: 05/29/20 12:05      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 TPH Microwave</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
TPH (C10-C28)	<b>84.1</b>	mg/kg	7.5	4.3	1	06/12/20 08:37	06/12/20 18:04		L2
<b>Surrogates</b>									
o-Terphenyl (S)	71	%	60-125		1	06/12/20 08:37	06/12/20 18:04	84-15-1	
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 5035A/5030B									
Pace Analytical Services - Greensburg									
TPH (C06-C10)	<b>8.5J</b>	mg/kg	13.6	7.5	1	06/04/20 11:30	06/04/20 22:57		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	71	%	60-125		1	06/04/20 11:30	06/04/20 22:57	98-08-8	
4-Bromofluorobenzene (S)	97	%	60-125		1	06/04/20 11:30	06/04/20 22:57	460-00-4	
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Aluminum	<b>7770</b>	mg/kg	44.7	11.2	5	06/03/20 07:18	06/04/20 11:22	7429-90-5	10c,9c
Antimony	<b>7.3</b>	mg/kg	2.7	2.2	5	06/03/20 07:18	06/04/20 11:22	7440-36-0	10c,9c
Arsenic	<b>17.7</b>	mg/kg	2.2	2.1	5	06/03/20 07:18	06/04/20 11:22	7440-38-2	10c,9c
Barium	<b>196</b>	mg/kg	8.9	0.42	5	06/03/20 07:18	06/04/20 11:22	7440-39-3	10c,9c
Beryllium	<b>0.66J</b>	mg/kg	0.89	0.14	5	06/03/20 07:18	06/04/20 11:22	7440-41-7	10c,9c
Cadmium	<b>4.0</b>	mg/kg	1.3	0.27	5	06/03/20 07:18	06/04/20 11:22	7440-43-9	10c,9c
Chromium	<b>248</b>	mg/kg	2.2	0.41	5	06/03/20 07:18	06/04/20 11:22	7440-47-3	10c,9c
Cobalt	<b>34.1</b>	mg/kg	4.5	0.47	5	06/03/20 07:18	06/04/20 11:22	7440-48-4	10c,9c
Copper	<b>288</b>	mg/kg	4.5	2.6	5	06/03/20 07:18	06/04/20 11:22	7440-50-8	10c,9c
Iron	<b>192000</b>	mg/kg	893	104	100	06/03/20 07:18	06/04/20 12:31	7439-89-6	10c,9c
Lead	<b>1790</b>	mg/kg	2.2	2.2	5	06/03/20 07:18	06/04/20 11:22	7439-92-1	10c,9c
Manganese	<b>5010</b>	mg/kg	89.3	8.9	100	06/03/20 07:18	06/04/20 12:31	7439-96-5	10c,9c
Nickel	<b>121</b>	mg/kg	8.9	1.1	5	06/03/20 07:18	06/04/20 11:22	7440-02-0	10c,9c
Selenium	<b>3.6 U</b>	mg/kg	3.6	2.6	5	06/03/20 07:18	06/04/20 11:22	7782-49-2	10c,9c
Silver	<b>2.7 U</b>	mg/kg	2.7	0.43	5	06/03/20 07:18	06/04/20 11:22	7440-22-4	10c,9c
Thallium	<b>12.3</b>	mg/kg	8.9	2.7	5	06/03/20 07:18	06/04/20 11:22	7440-28-0	10c,9c
Vanadium	<b>1040</b>	mg/kg	4.5	0.36	5	06/03/20 07:18	06/04/20 11:22	7440-62-2	10c,9c
Zinc	<b>1300</b>	mg/kg	4.5	0.75	5	06/03/20 07:18	06/04/20 11:22	7440-66-6	10c,9c
<b>7471 Mercury</b>									
Analytical Method: EPA 7471A    Preparation Method: EPA 7471A									
Pace Analytical Services - Greensburg									
Mercury	<b>0.20</b>	mg/kg	0.11	0.0056	1	06/03/20 10:48	06/04/20 06:24	7439-97-6	
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Acenaphthene	<b>0.076 U</b>	mg/kg	0.076	0.017	1	06/12/20 08:59	06/12/20 22:08	83-32-9	
Acenaphthylene	<b>0.091</b>	mg/kg	0.076	0.016	1	06/12/20 08:59	06/12/20 22:08	208-96-8	
Acetophenone	<b>0.042J</b>	mg/kg	0.076	0.018	1	06/12/20 08:59	06/12/20 22:08	98-86-2	
Anthracene	<b>0.060J</b>	mg/kg	0.076	0.018	1	06/12/20 08:59	06/12/20 22:08	120-12-7	
Benzaldehyde	<b>0.060J</b>	mg/kg	0.076	0.017	1	06/12/20 08:59	06/12/20 22:08	100-52-7	L1
Benzo(a)anthracene	<b>0.32</b>	mg/kg	0.076	0.015	1	06/12/20 08:59	06/12/20 22:08	56-55-3	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-004-SB-5**      **Lab ID: 30365510008**      Collected: 05/29/20 12:05      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Benzo(a)pyrene	0.37	mg/kg	0.076	0.011	1	06/12/20 08:59	06/12/20 22:08	50-32-8	
Benzo(b)fluoranthene	0.49	mg/kg	0.076	0.014	1	06/12/20 08:59	06/12/20 22:08	205-99-2	
Benzo(g,h,i)perylene	0.068J	mg/kg	0.076	0.015	1	06/12/20 08:59	06/12/20 22:08	191-24-2	
Benzo(k)fluoranthene	0.46	mg/kg	0.076	0.015	1	06/12/20 08:59	06/12/20 22:08	207-08-9	
Biphenyl (Diphenyl)	0.037J	mg/kg	0.076	0.016	1	06/12/20 08:59	06/12/20 22:08	92-52-4	
Caprolactam	0.13J	mg/kg	0.19	0.021	1	06/12/20 08:59	06/12/20 22:08	105-60-2	
Carbazole	0.028J	mg/kg	0.076	0.018	1	06/12/20 08:59	06/12/20 22:08	86-74-8	
4-Chloroaniline	0.076 U	mg/kg	0.076	0.017	1	06/12/20 08:59	06/12/20 22:08	106-47-8	
bis(2-Chloroethoxy)methane	0.076 U	mg/kg	0.076	0.017	1	06/12/20 08:59	06/12/20 22:08	111-91-1	
bis(2-Chloroethyl) ether	0.076 U	mg/kg	0.076	0.018	1	06/12/20 08:59	06/12/20 22:08	111-44-4	
bis(2-Chloroisopropyl) ether	0.076 U	mg/kg	0.076	0.019	1	06/12/20 08:59	06/12/20 22:08	108-60-1	CH
2-Chloronaphthalene	0.076 U	mg/kg	0.076	0.015	1	06/12/20 08:59	06/12/20 22:08	91-58-7	
2-Chlorophenol	0.076 U	mg/kg	0.076	0.018	1	06/12/20 08:59	06/12/20 22:08	95-57-8	
Chrysene	0.42	mg/kg	0.076	0.015	1	06/12/20 08:59	06/12/20 22:08	218-01-9	
Dibenz(a,h)anthracene	0.044J	mg/kg	0.076	0.013	1	06/12/20 08:59	06/12/20 22:08	53-70-3	
3,3'-Dichlorobenzidine	0.076 U	mg/kg	0.076	0.015	1	06/12/20 08:59	06/12/20 22:08	91-94-1	L2
2,4-Dichlorophenol	0.076 U	mg/kg	0.076	0.020	1	06/12/20 08:59	06/12/20 22:08	120-83-2	
Diethylphthalate	0.076 U	mg/kg	0.076	0.015	1	06/12/20 08:59	06/12/20 22:08	84-66-2	
2,4-Dimethylphenol	0.076 U	mg/kg	0.076	0.015	1	06/12/20 08:59	06/12/20 22:08	105-67-9	
Di-n-butylphthalate	0.028J	mg/kg	0.076	0.018	1	06/12/20 08:59	06/12/20 22:08	84-74-2	
2,4-Dinitrophenol	0.19 U	mg/kg	0.19	0.039	1	06/12/20 08:59	06/12/20 22:08	51-28-5	13c
2,4-Dinitrotoluene	0.076 U	mg/kg	0.076	0.017	1	06/12/20 08:59	06/12/20 22:08	121-14-2	
2,6-Dinitrotoluene	0.076 U	mg/kg	0.076	0.019	1	06/12/20 08:59	06/12/20 22:08	606-20-2	
Di-n-octylphthalate	0.076 U	mg/kg	0.076	0.021	1	06/12/20 08:59	06/12/20 22:08	117-84-0	
bis(2-Ethylhexyl)phthalate	0.076 U	mg/kg	0.076	0.015	1	06/12/20 08:59	06/12/20 22:08	117-81-7	
Fluoranthene	0.31	mg/kg	0.076	0.018	1	06/12/20 08:59	06/12/20 22:08	206-44-0	
Fluorene	0.076 U	mg/kg	0.076	0.018	1	06/12/20 08:59	06/12/20 22:08	86-73-7	
Hexachloro-1,3-butadiene	0.076 U	mg/kg	0.076	0.018	1	06/12/20 08:59	06/12/20 22:08	87-68-3	
Hexachlorobenzene	0.076 U	mg/kg	0.076	0.018	1	06/12/20 08:59	06/12/20 22:08	118-74-1	
Hexachlorocyclopentadiene	0.076 U	mg/kg	0.076	0.014	1	06/12/20 08:59	06/12/20 22:08	77-47-4	
Hexachloroethane	0.076 U	mg/kg	0.076	0.017	1	06/12/20 08:59	06/12/20 22:08	67-72-1	
Indeno(1,2,3-cd)pyrene	0.089	mg/kg	0.076	0.014	1	06/12/20 08:59	06/12/20 22:08	193-39-5	
Isophorone	0.076 U	mg/kg	0.076	0.021	1	06/12/20 08:59	06/12/20 22:08	78-59-1	
2-Methylnaphthalene	0.29	mg/kg	0.076	0.016	1	06/12/20 08:59	06/12/20 22:08	91-57-6	
2-Methylphenol(o-Cresol)	0.076 U	mg/kg	0.076	0.015	1	06/12/20 08:59	06/12/20 22:08	95-48-7	
3&4-Methylphenol(m&p Cresol)	0.15 U	mg/kg	0.15	0.019	1	06/12/20 08:59	06/12/20 22:08		
Naphthalene	0.23	mg/kg	0.076	0.016	1	06/12/20 08:59	06/12/20 22:08	91-20-3	
2-Nitroaniline	0.19 U	mg/kg	0.19	0.017	1	06/12/20 08:59	06/12/20 22:08	88-74-4	
4-Nitroaniline	0.19 U	mg/kg	0.19	0.027	1	06/12/20 08:59	06/12/20 22:08	100-01-6	
Nitrobenzene	0.076 U	mg/kg	0.076	0.019	1	06/12/20 08:59	06/12/20 22:08	98-95-3	
N-Nitroso-di-n-propylamine	0.076 U	mg/kg	0.076	0.018	1	06/12/20 08:59	06/12/20 22:08	621-64-7	
N-Nitrosodiphenylamine	0.076 U	mg/kg	0.076	0.015	1	06/12/20 08:59	06/12/20 22:08	86-30-6	
Pentachlorophenol	0.19 U	mg/kg	0.19	0.035	1	06/12/20 08:59	06/12/20 22:08	87-86-5	
Phenanthrene	0.37	mg/kg	0.076	0.018	1	06/12/20 08:59	06/12/20 22:08	85-01-8	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-004-SB-5**      **Lab ID: 30365510008**      Collected: 05/29/20 12:05      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Phenol	<b>0.076 U</b>	mg/kg	0.076	0.018	1	06/12/20 08:59	06/12/20 22:08	108-95-2	
Pyrene	<b>0.29</b>	mg/kg	0.076	0.020	1	06/12/20 08:59	06/12/20 22:08	129-00-0	
1,2,4,5-Tetrachlorobenzene	<b>0.076 U</b>	mg/kg	0.076	0.017	1	06/12/20 08:59	06/12/20 22:08	95-94-3	
2,3,4,6-Tetrachlorophenol	<b>0.076 U</b>	mg/kg	0.076	0.016	1	06/12/20 08:59	06/12/20 22:08	58-90-2	
2,4,5-Trichlorophenol	<b>0.19 U</b>	mg/kg	0.19	0.017	1	06/12/20 08:59	06/12/20 22:08	95-95-4	
2,4,6-Trichlorophenol	<b>0.076 U</b>	mg/kg	0.076	0.019	1	06/12/20 08:59	06/12/20 22:08	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	72	%	26-95		1	06/12/20 08:59	06/12/20 22:08	4165-60-0	
2-Fluorobiphenyl (S)	69	%	36-98		1	06/12/20 08:59	06/12/20 22:08	321-60-8	
Terphenyl-d14 (S)	65	%	59-116		1	06/12/20 08:59	06/12/20 22:08	1718-51-0	
Phenol-d6 (S)	53	%	34-98		1	06/12/20 08:59	06/12/20 22:08	13127-88-3	
2-Fluorophenol (S)	49	%	29-96		1	06/12/20 08:59	06/12/20 22:08	367-12-4	
2,4,6-Tribromophenol (S)	63	%	30-113		1	06/12/20 08:59	06/12/20 22:08	118-79-6	
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Pace Analytical Services - Greensburg									
Percent Moisture	<b>12.5</b>	%	0.10	0.10	1		06/02/20 09:56		
<b>7196 Chromium, Hexavalent</b>									
Analytical Method: EPA 7196A    Preparation Method: EPA 3060A									
Pace Analytical Services - Greensburg									
Chromium, Hexavalent	<b>1.1J</b>	mg/kg	1.1	0.72	1	06/02/20 10:22	06/03/20 16:10	18540-29-9	4c,5c
<b>9045D pH Soil</b>									
Analytical Method: EPA 9045D									
Pace Analytical Services - Greensburg									
pH in water at 25 degrees C	<b>8.7</b>	Std. Units	2.0	2.0	1		05/31/20 17:38		H3
<b>9071 Oil and Grease/TPH</b>									
Analytical Method: EPA 9071B    Preparation Method: EPA 9071B									
Pace Analytical Services - Greensburg									
Oil and Grease	<b>275</b>	mg/kg	230	103	1	06/03/20 12:08	06/04/20 07:39		
<b>9012B Cyanide, Total</b>									
Analytical Method: EPA 9012B    Preparation Method: EPA 9012B									
Pace Analytical Services - Greensburg									
Cyanide	<b>5.1</b>	mg/kg	1.1	0.14	1	06/02/20 08:00	06/02/20 11:22	57-12-5	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-001-SB-1**      **Lab ID: 30365510009**      Collected: 05/29/20 13:35      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 TPH Microwave</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
TPH (C10-C28)	<b>58.7</b>	mg/kg	6.9	3.9	1	06/12/20 08:37	06/12/20 18:17		L2
<b>Surrogates</b>									
o-Terphenyl (S)	64	%	60-125		1	06/12/20 08:37	06/12/20 18:17	84-15-1	
<b>8082 GCS PCB</b>									
Analytical Method: EPA 8082    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
PCB-1016 (Aroclor 1016)	<b>0.085 U</b>	mg/kg	0.085	0.0076	5	06/15/20 08:49	06/16/20 00:16	12674-11-2	ED
PCB-1221 (Aroclor 1221)	<b>0.085 U</b>	mg/kg	0.085	0.042	5	06/15/20 08:49	06/16/20 00:16	11104-28-2	ED
PCB-1232 (Aroclor 1232)	<b>0.085 U</b>	mg/kg	0.085	0.042	5	06/15/20 08:49	06/16/20 00:16	11141-16-5	ED
PCB-1242 (Aroclor 1242)	<b>0.085 U</b>	mg/kg	0.085	0.012	5	06/15/20 08:49	06/16/20 00:16	53469-21-9	ED
PCB-1248 (Aroclor 1248)	<b>0.085 U</b>	mg/kg	0.085	0.039	5	06/15/20 08:49	06/16/20 00:16	12672-29-6	ED
PCB-1254 (Aroclor 1254)	<b>0.084J</b>	mg/kg	0.085	0.016	5	06/15/20 08:49	06/16/20 00:16	11097-69-1	ED
PCB-1260 (Aroclor 1260)	<b>0.045J</b>	mg/kg	0.085	0.0078	5	06/15/20 08:49	06/16/20 00:16	11096-82-5	ED
PCB-1262 (Aroclor 1262)	<b>0.085 U</b>	mg/kg	0.085	0.026	5	06/15/20 08:49	06/16/20 00:16	37324-23-5	ED
PCB-1268 (Aroclor 1268)	<b>0.085 U</b>	mg/kg	0.085	0.026	5	06/15/20 08:49	06/16/20 00:16	11100-14-4	ED
PCB, Total	<b>0.76 U</b>	mg/kg	0.76	0.22	5	06/15/20 08:49	06/16/20 00:16	1336-36-3	
<b>Surrogates</b>									
Tetrachloro-m-xylene (S)	66	%	34-114		5	06/15/20 08:49	06/16/20 00:16	877-09-8	
Decachlorobiphenyl (S)	69	%	38-139		5	06/15/20 08:49	06/16/20 00:16	2051-24-3	
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 5035A/5030B									
Pace Analytical Services - Greensburg									
TPH (C06-C10)	<b>9.8 U</b>	mg/kg	9.8	5.4	1	06/04/20 11:30	06/04/20 23:15		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	68	%	60-125		1	06/04/20 11:30	06/04/20 23:15	98-08-8	
4-Bromofluorobenzene (S)	99	%	60-125		1	06/04/20 11:30	06/04/20 23:15	460-00-4	
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Aluminum	<b>10200</b>	mg/kg	42.8	10.7	5	06/03/20 07:18	06/04/20 11:24	7429-90-5	10c,9c
Antimony	<b>2.6 U</b>	mg/kg	2.6	2.1	5	06/03/20 07:18	06/04/20 11:24	7440-36-0	10c,9c
Arsenic	<b>5.9</b>	mg/kg	2.1	2.1	5	06/03/20 07:18	06/04/20 11:24	7440-38-2	10c,9c
Barium	<b>111</b>	mg/kg	8.6	0.40	5	06/03/20 07:18	06/04/20 11:24	7440-39-3	10c,9c
Beryllium	<b>1.3</b>	mg/kg	0.86	0.13	5	06/03/20 07:18	06/04/20 11:24	7440-41-7	10c,9c
Cadmium	<b>1.2J</b>	mg/kg	1.3	0.26	5	06/03/20 07:18	06/04/20 11:24	7440-43-9	10c,9c
Chromium	<b>476</b>	mg/kg	2.1	0.39	5	06/03/20 07:18	06/04/20 11:24	7440-47-3	10c,9c
Cobalt	<b>5.5</b>	mg/kg	4.3	0.45	5	06/03/20 07:18	06/04/20 11:24	7440-48-4	10c,9c
Copper	<b>41.9</b>	mg/kg	4.3	2.5	5	06/03/20 07:18	06/04/20 11:24	7440-50-8	10c,9c
Iron	<b>133000</b>	mg/kg	857	99.6	100	06/03/20 07:18	06/04/20 12:33	7439-89-6	10c,9c
Lead	<b>82.4</b>	mg/kg	2.1	2.1	5	06/03/20 07:18	06/04/20 11:24	7439-92-1	10c,9c
Manganese	<b>12200</b>	mg/kg	85.7	8.6	100	06/03/20 07:18	06/04/20 12:33	7439-96-5	10c,9c
Nickel	<b>31.6</b>	mg/kg	8.6	1.1	5	06/03/20 07:18	06/04/20 11:24	7440-02-0	10c,9c
Selenium	<b>3.4 U</b>	mg/kg	3.4	2.5	5	06/03/20 07:18	06/04/20 11:24	7782-49-2	10c,9c
Silver	<b>2.6 U</b>	mg/kg	2.6	0.41	5	06/03/20 07:18	06/04/20 11:24	7440-22-4	10c,9c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-001-SB-1**      **Lab ID: 30365510009**      Collected: 05/29/20 13:35      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Thallium	<b>5.2J</b>	mg/kg	8.6	2.6	5	06/03/20 07:18	06/04/20 11:24	7440-28-0	10c,9c
Vanadium	<b>271</b>	mg/kg	4.3	0.35	5	06/03/20 07:18	06/04/20 11:24	7440-62-2	10c,9c
Zinc	<b>434</b>	mg/kg	4.3	0.72	5	06/03/20 07:18	06/04/20 11:24	7440-66-6	10c,9c
<b>7471 Mercury</b>									
Analytical Method: EPA 7471A    Preparation Method: EPA 7471A									
Pace Analytical Services - Greensburg									
Mercury	<b>1.2</b>	mg/kg	0.096	0.0047	1	06/03/20 10:48	06/04/20 06:25	7439-97-6	
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Acenaphthene	<b>0.69 U</b>	mg/kg	0.69	0.16	10	06/12/20 08:59	06/12/20 22:31	83-32-9	ED
Acenaphthylene	<b>0.69 U</b>	mg/kg	0.69	0.15	10	06/12/20 08:59	06/12/20 22:31	208-96-8	ED
Acetophenone	<b>0.69 U</b>	mg/kg	0.69	0.17	10	06/12/20 08:59	06/12/20 22:31	98-86-2	ED
Anthracene	<b>0.69 U</b>	mg/kg	0.69	0.16	10	06/12/20 08:59	06/12/20 22:31	120-12-7	ED
Benzaldehyde	<b>0.69 U</b>	mg/kg	0.69	0.15	10	06/12/20 08:59	06/12/20 22:31	100-52-7	ED,L1
Benzo(a)anthracene	<b>0.69 U</b>	mg/kg	0.69	0.13	10	06/12/20 08:59	06/12/20 22:31	56-55-3	ED
Benzo(a)pyrene	<b>0.12J</b>	mg/kg	0.69	0.10	10	06/12/20 08:59	06/12/20 22:31	50-32-8	ED
Benzo(b)fluoranthene	<b>0.16J</b>	mg/kg	0.69	0.13	10	06/12/20 08:59	06/12/20 22:31	205-99-2	ED
Benzo(g,h,i)perylene	<b>0.69 U</b>	mg/kg	0.69	0.14	10	06/12/20 08:59	06/12/20 22:31	191-24-2	ED
Benzo(k)fluoranthene	<b>0.69 U</b>	mg/kg	0.69	0.13	10	06/12/20 08:59	06/12/20 22:31	207-08-9	ED
Biphenyl (Diphenyl)	<b>0.69 U</b>	mg/kg	0.69	0.14	10	06/12/20 08:59	06/12/20 22:31	92-52-4	ED
Caprolactam	<b>1.7 U</b>	mg/kg	1.7	0.19	10	06/12/20 08:59	06/12/20 22:31	105-60-2	ED
Carbazole	<b>0.69 U</b>	mg/kg	0.69	0.16	10	06/12/20 08:59	06/12/20 22:31	86-74-8	ED
4-Chloroaniline	<b>0.69 U</b>	mg/kg	0.69	0.16	10	06/12/20 08:59	06/12/20 22:31	106-47-8	ED
bis(2-Chloroethoxy)methane	<b>0.69 U</b>	mg/kg	0.69	0.15	10	06/12/20 08:59	06/12/20 22:31	111-91-1	ED
bis(2-Chloroethyl) ether	<b>0.69 U</b>	mg/kg	0.69	0.16	10	06/12/20 08:59	06/12/20 22:31	111-44-4	ED
bis(2-Chloroisopropyl) ether	<b>0.69 U</b>	mg/kg	0.69	0.17	10	06/12/20 08:59	06/12/20 22:31	108-60-1	CH,ED
2-Chloronaphthalene	<b>0.69 U</b>	mg/kg	0.69	0.14	10	06/12/20 08:59	06/12/20 22:31	91-58-7	ED
2-Chlorophenol	<b>0.69 U</b>	mg/kg	0.69	0.17	10	06/12/20 08:59	06/12/20 22:31	95-57-8	ED
Chrysene	<b>0.16J</b>	mg/kg	0.69	0.14	10	06/12/20 08:59	06/12/20 22:31	218-01-9	ED
Dibenz(a,h)anthracene	<b>0.69 U</b>	mg/kg	0.69	0.12	10	06/12/20 08:59	06/12/20 22:31	53-70-3	ED
3,3'-Dichlorobenzidine	<b>0.69 U</b>	mg/kg	0.69	0.13	10	06/12/20 08:59	06/12/20 22:31	91-94-1	ED,L2
2,4-Dichlorophenol	<b>0.69 U</b>	mg/kg	0.69	0.18	10	06/12/20 08:59	06/12/20 22:31	120-83-2	ED
Diethylphthalate	<b>0.69 U</b>	mg/kg	0.69	0.14	10	06/12/20 08:59	06/12/20 22:31	84-66-2	ED
2,4-Dimethylphenol	<b>0.69 U</b>	mg/kg	0.69	0.14	10	06/12/20 08:59	06/12/20 22:31	105-67-9	ED
Di-n-butylphthalate	<b>0.69 U</b>	mg/kg	0.69	0.16	10	06/12/20 08:59	06/12/20 22:31	84-74-2	ED
2,4-Dinitrophenol	<b>1.7 U</b>	mg/kg	1.7	0.35	10	06/12/20 08:59	06/12/20 22:31	51-28-5	13c,ED
2,4-Dinitrotoluene	<b>0.69 U</b>	mg/kg	0.69	0.16	10	06/12/20 08:59	06/12/20 22:31	121-14-2	ED
2,6-Dinitrotoluene	<b>0.69 U</b>	mg/kg	0.69	0.17	10	06/12/20 08:59	06/12/20 22:31	606-20-2	ED
Di-n-octylphthalate	<b>0.69 U</b>	mg/kg	0.69	0.19	10	06/12/20 08:59	06/12/20 22:31	117-84-0	ED
bis(2-Ethylhexyl)phthalate	<b>0.69 U</b>	mg/kg	0.69	0.14	10	06/12/20 08:59	06/12/20 22:31	117-81-7	ED
Fluoranthene	<b>0.69 U</b>	mg/kg	0.69	0.16	10	06/12/20 08:59	06/12/20 22:31	206-44-0	ED
Fluorene	<b>0.69 U</b>	mg/kg	0.69	0.16	10	06/12/20 08:59	06/12/20 22:31	86-73-7	ED
Hexachloro-1,3-butadiene	<b>0.69 U</b>	mg/kg	0.69	0.17	10	06/12/20 08:59	06/12/20 22:31	87-68-3	ED

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-001-SB-1**      **Lab ID: 30365510009**      Collected: 05/29/20 13:35      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Hexachlorobenzene	<b>0.69 U</b>	mg/kg	0.69	0.16	10	06/12/20 08:59	06/12/20 22:31	118-74-1	ED
Hexachlorocyclopentadiene	<b>0.69 U</b>	mg/kg	0.69	0.12	10	06/12/20 08:59	06/12/20 22:31	77-47-4	ED
Hexachloroethane	<b>0.69 U</b>	mg/kg	0.69	0.15	10	06/12/20 08:59	06/12/20 22:31	67-72-1	ED
Indeno(1,2,3-cd)pyrene	<b>0.69 U</b>	mg/kg	0.69	0.13	10	06/12/20 08:59	06/12/20 22:31	193-39-5	ED
Isophorone	<b>0.69 U</b>	mg/kg	0.69	0.19	10	06/12/20 08:59	06/12/20 22:31	78-59-1	ED
2-Methylnaphthalene	<b>0.30J</b>	mg/kg	0.69	0.14	10	06/12/20 08:59	06/12/20 22:31	91-57-6	ED
2-Methylphenol(o-Cresol)	<b>0.69 U</b>	mg/kg	0.69	0.13	10	06/12/20 08:59	06/12/20 22:31	95-48-7	ED
3&4-Methylphenol(m&p Cresol)	<b>1.4 U</b>	mg/kg	1.4	0.17	10	06/12/20 08:59	06/12/20 22:31		ED
Naphthalene	<b>0.24J</b>	mg/kg	0.69	0.15	10	06/12/20 08:59	06/12/20 22:31	91-20-3	ED
2-Nitroaniline	<b>1.7 U</b>	mg/kg	1.7	0.15	10	06/12/20 08:59	06/12/20 22:31	88-74-4	ED
4-Nitroaniline	<b>1.7 U</b>	mg/kg	1.7	0.24	10	06/12/20 08:59	06/12/20 22:31	100-01-6	ED
Nitrobenzene	<b>0.69 U</b>	mg/kg	0.69	0.17	10	06/12/20 08:59	06/12/20 22:31	98-95-3	ED
N-Nitroso-di-n-propylamine	<b>0.69 U</b>	mg/kg	0.69	0.16	10	06/12/20 08:59	06/12/20 22:31	621-64-7	ED
N-Nitrosodiphenylamine	<b>0.69 U</b>	mg/kg	0.69	0.14	10	06/12/20 08:59	06/12/20 22:31	86-30-6	ED
Pentachlorophenol	<b>1.7 U</b>	mg/kg	1.7	0.32	10	06/12/20 08:59	06/12/20 22:31	87-86-5	ED
Phenanthrene	<b>0.24J</b>	mg/kg	0.69	0.16	10	06/12/20 08:59	06/12/20 22:31	85-01-8	ED
Phenol	<b>0.69 U</b>	mg/kg	0.69	0.16	10	06/12/20 08:59	06/12/20 22:31	108-95-2	ED
Pyrene	<b>0.69 U</b>	mg/kg	0.69	0.18	10	06/12/20 08:59	06/12/20 22:31	129-00-0	ED
1,2,4,5-Tetrachlorobenzene	<b>0.69 U</b>	mg/kg	0.69	0.15	10	06/12/20 08:59	06/12/20 22:31	95-94-3	ED
2,3,4,6-Tetrachlorophenol	<b>0.69 U</b>	mg/kg	0.69	0.15	10	06/12/20 08:59	06/12/20 22:31	58-90-2	ED
2,4,5-Trichlorophenol	<b>1.7 U</b>	mg/kg	1.7	0.15	10	06/12/20 08:59	06/12/20 22:31	95-95-4	ED
2,4,6-Trichlorophenol	<b>0.69 U</b>	mg/kg	0.69	0.17	10	06/12/20 08:59	06/12/20 22:31	88-06-2	ED
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	71	%	26-95		10	06/12/20 08:59	06/12/20 22:31	4165-60-0	
2-Fluorobiphenyl (S)	72	%	36-98		10	06/12/20 08:59	06/12/20 22:31	321-60-8	
Terphenyl-d14 (S)	66	%	59-116		10	06/12/20 08:59	06/12/20 22:31	1718-51-0	
Phenol-d6 (S)	68	%	34-98		10	06/12/20 08:59	06/12/20 22:31	13127-88-3	
2-Fluorophenol (S)	62	%	29-96		10	06/12/20 08:59	06/12/20 22:31	367-12-4	
2,4,6-Tribromophenol (S)	47	%	30-113		10	06/12/20 08:59	06/12/20 22:31	118-79-6	
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Pace Analytical Services - Greensburg									
Percent Moisture	<b>4.3</b>	%	0.10	0.10	1		06/02/20 09:57		
<b>7196 Chromium, Hexavalent</b>									
Analytical Method: EPA 7196A    Preparation Method: EPA 3060A									
Pace Analytical Services - Greensburg									
Chromium, Hexavalent	<b>1.0 U</b>	mg/kg	1.0	0.65	1	06/02/20 10:22	06/03/20 16:11	18540-29-9	4c,5c
<b>9045D pH Soil</b>									
Analytical Method: EPA 9045D									
Pace Analytical Services - Greensburg									
pH in water at 25 degrees C	<b>9.0</b>	Std. Units	2.0	2.0	1		05/31/20 17:54		H3

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-001-SB-1**      **Lab ID: 30365510009**      Collected: 05/29/20 13:35      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>9071 Oil and Grease/TPH</b>	Analytical Method: EPA 9071B    Preparation Method: EPA 9071B Pace Analytical Services - Greensburg								
Oil and Grease	<b>765</b>	mg/kg	208	93.7	1	06/03/20 12:08	06/04/20 07:39		
<b>9012B Cyanide, Total</b>	Analytical Method: EPA 9012B    Preparation Method: EPA 9012B Pace Analytical Services - Greensburg								
Cyanide	<b>2.1</b>	mg/kg	1.0	0.13	1	06/02/20 08:00	06/02/20 11:23	57-12-5	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-001-SB-5**      **Lab ID: 30365510010**      Collected: 05/29/20 13:40      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 TPH Microwave</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
TPH (C10-C28)	<b>149</b>	mg/kg	7.8	4.5	1	06/12/20 08:37	06/12/20 18:23		L2
<b>Surrogates</b>									
o-Terphenyl (S)	45	%	60-125		1	06/12/20 08:37	06/12/20 18:23	84-15-1	S8,SR
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 5035A/5030B									
Pace Analytical Services - Greensburg									
TPH (C06-C10)	<b>13.6 U</b>	mg/kg	13.6	7.5	1	06/04/20 11:30	06/04/20 23:33		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	61	%	60-125		1	06/04/20 11:30	06/04/20 23:33	98-08-8	
4-Bromofluorobenzene (S)	97	%	60-125		1	06/04/20 11:30	06/04/20 23:33	460-00-4	
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Aluminum	<b>31500</b>	mg/kg	46.6	11.7	5	06/03/20 07:18	06/04/20 11:26	7429-90-5	10c,9c
Antimony	<b>2.8 U</b>	mg/kg	2.8	2.3	5	06/03/20 07:18	06/04/20 11:26	7440-36-0	10c,9c
Arsenic	<b>47.5</b>	mg/kg	2.3	2.2	5	06/03/20 07:18	06/04/20 11:26	7440-38-2	10c,9c
Barium	<b>399</b>	mg/kg	9.3	0.44	5	06/03/20 07:18	06/04/20 11:26	7440-39-3	10c,9c
Beryllium	<b>1.9</b>	mg/kg	0.93	0.14	5	06/03/20 07:18	06/04/20 11:26	7440-41-7	10c,9c
Cadmium	<b>4.7</b>	mg/kg	1.4	0.28	5	06/03/20 07:18	06/04/20 11:26	7440-43-9	10c,9c
Chromium	<b>1710</b>	mg/kg	2.3	0.43	5	06/03/20 07:18	06/04/20 11:26	7440-47-3	10c,9c
Cobalt	<b>30.7</b>	mg/kg	4.7	0.49	5	06/03/20 07:18	06/04/20 11:26	7440-48-4	10c,9c
Copper	<b>125</b>	mg/kg	4.7	2.7	5	06/03/20 07:18	06/04/20 11:26	7440-50-8	10c,9c
Iron	<b>87000</b>	mg/kg	933	108	100	06/03/20 07:18	06/04/20 12:35	7439-89-6	10c,9c
Lead	<b>658</b>	mg/kg	2.3	2.3	5	06/03/20 07:18	06/04/20 11:26	7439-92-1	10c,9c
Manganese	<b>6120</b>	mg/kg	93.3	9.3	100	06/03/20 07:18	06/04/20 12:35	7439-96-5	10c,9c
Nickel	<b>150</b>	mg/kg	9.3	1.2	5	06/03/20 07:18	06/04/20 11:26	7440-02-0	10c,9c
Selenium	<b>3.7 U</b>	mg/kg	3.7	2.7	5	06/03/20 07:18	06/04/20 11:26	7782-49-2	10c,9c
Silver	<b>2.8 U</b>	mg/kg	2.8	0.45	5	06/03/20 07:18	06/04/20 11:26	7440-22-4	10c,9c
Thallium	<b>3.4J</b>	mg/kg	9.3	2.9	5	06/03/20 07:18	06/04/20 11:26	7440-28-0	10c,9c
Vanadium	<b>159</b>	mg/kg	4.7	0.38	5	06/03/20 07:18	06/04/20 11:26	7440-62-2	10c,9c
Zinc	<b>1260</b>	mg/kg	4.7	0.78	5	06/03/20 07:18	06/04/20 11:26	7440-66-6	10c,9c
<b>7471 Mercury</b>									
Analytical Method: EPA 7471A    Preparation Method: EPA 7471A									
Pace Analytical Services - Greensburg									
Mercury	<b>0.090J</b>	mg/kg	0.11	0.0054	1	06/03/20 10:48	06/04/20 06:28	7439-97-6	
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Acenaphthene	<b>0.078 U</b>	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 19:52	83-32-9	
Acenaphthylene	<b>0.078 U</b>	mg/kg	0.078	0.017	1	06/12/20 08:59	06/12/20 19:52	208-96-8	
Acetophenone	<b>0.078 U</b>	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 19:52	98-86-2	
Anthracene	<b>0.019J</b>	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 19:52	120-12-7	
Benzaldehyde	<b>0.078 U</b>	mg/kg	0.078	0.017	1	06/12/20 08:59	06/12/20 19:52	100-52-7	L1
Benzo(a)anthracene	<b>0.098</b>	mg/kg	0.078	0.015	1	06/12/20 08:59	06/12/20 19:52	56-55-3	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-001-SB-5**      **Lab ID: 30365510010**      Collected: 05/29/20 13:40      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Benzo(a)pyrene	0.088	mg/kg	0.078	0.011	1	06/12/20 08:59	06/12/20 19:52	50-32-8	
Benzo(b)fluoranthene	0.084	mg/kg	0.078	0.015	1	06/12/20 08:59	06/12/20 19:52	205-99-2	
Benzo(g,h,i)perylene	0.043J	mg/kg	0.078	0.015	1	06/12/20 08:59	06/12/20 19:52	191-24-2	
Benzo(k)fluoranthene	0.087	mg/kg	0.078	0.015	1	06/12/20 08:59	06/12/20 19:52	207-08-9	
Biphenyl (Diphenyl)	0.078 U	mg/kg	0.078	0.016	1	06/12/20 08:59	06/12/20 19:52	92-52-4	
Caprolactam	0.20 U	mg/kg	0.20	0.022	1	06/12/20 08:59	06/12/20 19:52	105-60-2	
Carbazole	0.078 U	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 19:52	86-74-8	
4-Chloroaniline	0.078 U	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 19:52	106-47-8	
bis(2-Chloroethoxy)methane	0.078 U	mg/kg	0.078	0.017	1	06/12/20 08:59	06/12/20 19:52	111-91-1	
bis(2-Chloroethyl) ether	0.078 U	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 19:52	111-44-4	
bis(2-Chloroisopropyl) ether	0.078 U	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 19:52	108-60-1	CH
2-Chloronaphthalene	0.078 U	mg/kg	0.078	0.016	1	06/12/20 08:59	06/12/20 19:52	91-58-7	
2-Chlorophenol	0.078 U	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 19:52	95-57-8	
Chrysene	0.11	mg/kg	0.078	0.016	1	06/12/20 08:59	06/12/20 19:52	218-01-9	
Dibenz(a,h)anthracene	0.019J	mg/kg	0.078	0.014	1	06/12/20 08:59	06/12/20 19:52	53-70-3	
3,3'-Dichlorobenzidine	0.078 U	mg/kg	0.078	0.015	1	06/12/20 08:59	06/12/20 19:52	91-94-1	L2
2,4-Dichlorophenol	0.078 U	mg/kg	0.078	0.021	1	06/12/20 08:59	06/12/20 19:52	120-83-2	
Diethylphthalate	0.078 U	mg/kg	0.078	0.016	1	06/12/20 08:59	06/12/20 19:52	84-66-2	
2,4-Dimethylphenol	0.078 U	mg/kg	0.078	0.015	1	06/12/20 08:59	06/12/20 19:52	105-67-9	
Di-n-butylphthalate	0.038J	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 19:52	84-74-2	
2,4-Dinitrophenol	0.20 U	mg/kg	0.20	0.040	1	06/12/20 08:59	06/12/20 19:52	51-28-5	13c
2,4-Dinitrotoluene	0.078 U	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 19:52	121-14-2	
2,6-Dinitrotoluene	0.078 U	mg/kg	0.078	0.020	1	06/12/20 08:59	06/12/20 19:52	606-20-2	
Di-n-octylphthalate	0.078 U	mg/kg	0.078	0.021	1	06/12/20 08:59	06/12/20 19:52	117-84-0	
bis(2-Ethylhexyl)phthalate	0.078 U	mg/kg	0.078	0.016	1	06/12/20 08:59	06/12/20 19:52	117-81-7	
Fluoranthene	0.17	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 19:52	206-44-0	
Fluorene	0.078 U	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 19:52	86-73-7	
Hexachloro-1,3-butadiene	0.078 U	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 19:52	87-68-3	
Hexachlorobenzene	0.078 U	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 19:52	118-74-1	
Hexachlorocyclopentadiene	0.078 U	mg/kg	0.078	0.014	1	06/12/20 08:59	06/12/20 19:52	77-47-4	
Hexachloroethane	0.078 U	mg/kg	0.078	0.017	1	06/12/20 08:59	06/12/20 19:52	67-72-1	
Indeno(1,2,3-cd)pyrene	0.044J	mg/kg	0.078	0.015	1	06/12/20 08:59	06/12/20 19:52	193-39-5	
Isophorone	0.078 U	mg/kg	0.078	0.021	1	06/12/20 08:59	06/12/20 19:52	78-59-1	
2-Methylnaphthalene	0.023J	mg/kg	0.078	0.016	1	06/12/20 08:59	06/12/20 19:52	91-57-6	
2-Methylphenol(o-Cresol)	0.078 U	mg/kg	0.078	0.015	1	06/12/20 08:59	06/12/20 19:52	95-48-7	
3&4-Methylphenol(m&p Cresol)	0.16 U	mg/kg	0.16	0.019	1	06/12/20 08:59	06/12/20 19:52		
Naphthalene	0.028J	mg/kg	0.078	0.017	1	06/12/20 08:59	06/12/20 19:52	91-20-3	
2-Nitroaniline	0.20 U	mg/kg	0.20	0.017	1	06/12/20 08:59	06/12/20 19:52	88-74-4	
4-Nitroaniline	0.20 U	mg/kg	0.20	0.028	1	06/12/20 08:59	06/12/20 19:52	100-01-6	
Nitrobenzene	0.078 U	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 19:52	98-95-3	
N-Nitroso-di-n-propylamine	0.078 U	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 19:52	621-64-7	
N-Nitrosodiphenylamine	0.078 U	mg/kg	0.078	0.015	1	06/12/20 08:59	06/12/20 19:52	86-30-6	
Pentachlorophenol	0.20 U	mg/kg	0.20	0.037	1	06/12/20 08:59	06/12/20 19:52	87-86-5	
Phenanthrene	0.097	mg/kg	0.078	0.018	1	06/12/20 08:59	06/12/20 19:52	85-01-8	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-001-SB-5**      **Lab ID: 30365510010**      Collected: 05/29/20 13:40      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Phenol	<b>0.078 U</b>	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 19:52	108-95-2	
Pyrene	<b>0.14</b>	mg/kg	0.078	0.021	1	06/12/20 08:59	06/12/20 19:52	129-00-0	
1,2,4,5-Tetrachlorobenzene	<b>0.078 U</b>	mg/kg	0.078	0.017	1	06/12/20 08:59	06/12/20 19:52	95-94-3	
2,3,4,6-Tetrachlorophenol	<b>0.078 U</b>	mg/kg	0.078	0.017	1	06/12/20 08:59	06/12/20 19:52	58-90-2	
2,4,5-Trichlorophenol	<b>0.20 U</b>	mg/kg	0.20	0.017	1	06/12/20 08:59	06/12/20 19:52	95-95-4	
2,4,6-Trichlorophenol	<b>0.078 U</b>	mg/kg	0.078	0.019	1	06/12/20 08:59	06/12/20 19:52	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	103	%	26-95		1	06/12/20 08:59	06/12/20 19:52	4165-60-0	ST
2-Fluorobiphenyl (S)	95	%	36-98		1	06/12/20 08:59	06/12/20 19:52	321-60-8	
Terphenyl-d14 (S)	139	%	59-116		1	06/12/20 08:59	06/12/20 19:52	1718-51-0	ST
Phenol-d6 (S)	105	%	34-98		1	06/12/20 08:59	06/12/20 19:52	13127-88-3	ST
2-Fluorophenol (S)	78	%	29-96		1	06/12/20 08:59	06/12/20 19:52	367-12-4	
2,4,6-Tribromophenol (S)	53	%	30-113		1	06/12/20 08:59	06/12/20 19:52	118-79-6	
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Pace Analytical Services - Greensburg									
Percent Moisture	<b>16.2</b>	%	0.10	0.10	1		06/02/20 09:57		
<b>7196 Chromium, Hexavalent</b>									
Analytical Method: EPA 7196A    Preparation Method: EPA 3060A									
Pace Analytical Services - Greensburg									
Chromium, Hexavalent	<b>1.2 U</b>	mg/kg	1.2	0.75	1	06/02/20 10:22	06/03/20 16:12	18540-29-9	4c,5c
<b>9045D pH Soil</b>									
Analytical Method: EPA 9045D									
Pace Analytical Services - Greensburg									
pH in water at 25 degrees C	<b>10.7</b>	Std. Units	2.0	2.0	1		05/31/20 17:55		H3
<b>9071 Oil and Grease/TPH</b>									
Analytical Method: EPA 9071B    Preparation Method: EPA 9071B									
Pace Analytical Services - Greensburg									
Oil and Grease	<b>239 U</b>	mg/kg	239	107	1	06/03/20 12:08	06/04/20 07:39		
<b>9012B Cyanide, Total</b>									
Analytical Method: EPA 9012B    Preparation Method: EPA 9012B									
Pace Analytical Services - Greensburg									
Cyanide	<b>1.1</b>	mg/kg	0.95	0.12	1	06/02/20 08:00	06/02/20 11:24	57-12-5	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-002-SB-1.5**      **Lab ID: 30365510011**      Collected: 05/29/20 14:00      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 TPH Microwave</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
TPH (C10-C28)	<b>66.9</b>	mg/kg	7.4	4.2	1	06/12/20 08:37	06/12/20 18:29		L2
<b>Surrogates</b>									
o-Terphenyl (S)	62	%	60-125		1	06/12/20 08:37	06/12/20 18:29	84-15-1	
<b>8082 GCS PCB</b>									
Analytical Method: EPA 8082    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
PCB-1016 (Aroclor 1016)	<b>0.094 U</b>	mg/kg	0.094	0.0084	5	06/15/20 08:49	06/16/20 00:33	12674-11-2	ED
PCB-1221 (Aroclor 1221)	<b>0.094 U</b>	mg/kg	0.094	0.047	5	06/15/20 08:49	06/16/20 00:33	11104-28-2	ED
PCB-1232 (Aroclor 1232)	<b>0.094 U</b>	mg/kg	0.094	0.046	5	06/15/20 08:49	06/16/20 00:33	11141-16-5	ED
PCB-1242 (Aroclor 1242)	<b>0.094 U</b>	mg/kg	0.094	0.013	5	06/15/20 08:49	06/16/20 00:33	53469-21-9	ED
PCB-1248 (Aroclor 1248)	<b>0.094 U</b>	mg/kg	0.094	0.043	5	06/15/20 08:49	06/16/20 00:33	12672-29-6	ED
PCB-1254 (Aroclor 1254)	<b>0.073J</b>	mg/kg	0.094	0.018	5	06/15/20 08:49	06/16/20 00:33	11097-69-1	ED
PCB-1260 (Aroclor 1260)	<b>0.056J</b>	mg/kg	0.094	0.0086	5	06/15/20 08:49	06/16/20 00:33	11096-82-5	ED
PCB-1262 (Aroclor 1262)	<b>0.094 U</b>	mg/kg	0.094	0.028	5	06/15/20 08:49	06/16/20 00:33	37324-23-5	ED
PCB-1268 (Aroclor 1268)	<b>0.094 U</b>	mg/kg	0.094	0.029	5	06/15/20 08:49	06/16/20 00:33	11100-14-4	ED
PCB, Total	<b>0.84 U</b>	mg/kg	0.84	0.24	5	06/15/20 08:49	06/16/20 00:33	1336-36-3	
<b>Surrogates</b>									
Tetrachloro-m-xylene (S)	76	%	34-114		5	06/15/20 08:49	06/16/20 00:33	877-09-8	
Decachlorobiphenyl (S)	80	%	38-139		5	06/15/20 08:49	06/16/20 00:33	2051-24-3	
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 5035A/5030B									
Pace Analytical Services - Greensburg									
TPH (C06-C10)	<b>11.5 U</b>	mg/kg	11.5	6.4	1	06/04/20 11:30	06/04/20 23:50		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	71	%	60-125		1	06/04/20 11:30	06/04/20 23:50	98-08-8	
4-Bromofluorobenzene (S)	99	%	60-125		1	06/04/20 11:30	06/04/20 23:50	460-00-4	
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Aluminum	<b>10300</b>	mg/kg	46.3	11.6	5	06/03/20 07:18	06/04/20 11:28	7429-90-5	10c,9c
Antimony	<b>2.8 U</b>	mg/kg	2.8	2.2	5	06/03/20 07:18	06/04/20 11:28	7440-36-0	10c,9c
Arsenic	<b>6.0</b>	mg/kg	2.3	2.2	5	06/03/20 07:18	06/04/20 11:28	7440-38-2	10c,9c
Barium	<b>122</b>	mg/kg	9.3	0.43	5	06/03/20 07:18	06/04/20 11:28	7440-39-3	10c,9c
Beryllium	<b>1.1</b>	mg/kg	0.93	0.14	5	06/03/20 07:18	06/04/20 11:28	7440-41-7	10c,9c
Cadmium	<b>1.6</b>	mg/kg	1.4	0.28	5	06/03/20 07:18	06/04/20 11:28	7440-43-9	10c,9c
Chromium	<b>463</b>	mg/kg	2.3	0.43	5	06/03/20 07:18	06/04/20 11:28	7440-47-3	10c,9c
Cobalt	<b>4.7</b>	mg/kg	4.6	0.49	5	06/03/20 07:18	06/04/20 11:28	7440-48-4	10c,9c
Copper	<b>46.8</b>	mg/kg	4.6	2.7	5	06/03/20 07:18	06/04/20 11:28	7440-50-8	10c,9c
Iron	<b>109000</b>	mg/kg	925	108	100	06/03/20 07:18	06/04/20 12:37	7439-89-6	10c,9c
Lead	<b>150</b>	mg/kg	2.3	2.3	5	06/03/20 07:18	06/04/20 11:28	7439-92-1	10c,9c
Manganese	<b>10300</b>	mg/kg	92.5	9.3	100	06/03/20 07:18	06/04/20 12:37	7439-96-5	10c,9c
Nickel	<b>27.4</b>	mg/kg	9.3	1.1	5	06/03/20 07:18	06/04/20 11:28	7440-02-0	10c,9c
Selenium	<b>3.7 U</b>	mg/kg	3.7	2.7	5	06/03/20 07:18	06/04/20 11:28	7782-49-2	10c,9c
Silver	<b>2.8 U</b>	mg/kg	2.8	0.45	5	06/03/20 07:18	06/04/20 11:28	7440-22-4	10c,9c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-002-SB-1.5**      **Lab ID: 30365510011**      Collected: 05/29/20 14:00      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Thallium	<b>4.0J</b>	mg/kg	9.3	2.8	5	06/03/20 07:18	06/04/20 11:28	7440-28-0	10c,9c
Vanadium	<b>233</b>	mg/kg	4.6	0.38	5	06/03/20 07:18	06/04/20 11:28	7440-62-2	10c,9c
Zinc	<b>890</b>	mg/kg	4.6	0.78	5	06/03/20 07:18	06/04/20 11:28	7440-66-6	10c,9c
<b>7471 Mercury</b>									
Analytical Method: EPA 7471A    Preparation Method: EPA 7471A									
Pace Analytical Services - Greensburg									
Mercury	<b>1.9</b>	mg/kg	0.11	0.0053	1	06/03/20 10:48	06/04/20 06:30	7439-97-6	
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Acenaphthene	<b>0.75 U</b>	mg/kg	0.75	0.17	10	06/12/20 08:59	06/12/20 22:53	83-32-9	ED
Acenaphthylene	<b>0.75 U</b>	mg/kg	0.75	0.16	10	06/12/20 08:59	06/12/20 22:53	208-96-8	ED
Acetophenone	<b>0.75 U</b>	mg/kg	0.75	0.18	10	06/12/20 08:59	06/12/20 22:53	98-86-2	ED
Anthracene	<b>0.75 U</b>	mg/kg	0.75	0.17	10	06/12/20 08:59	06/12/20 22:53	120-12-7	ED
Benzaldehyde	<b>0.75 U</b>	mg/kg	0.75	0.16	10	06/12/20 08:59	06/12/20 22:53	100-52-7	ED,L1
Benzo(a)anthracene	<b>0.75 U</b>	mg/kg	0.75	0.15	10	06/12/20 08:59	06/12/20 22:53	56-55-3	ED
Benzo(a)pyrene	<b>0.19J</b>	mg/kg	0.75	0.11	10	06/12/20 08:59	06/12/20 22:53	50-32-8	ED
Benzo(b)fluoranthene	<b>0.23J</b>	mg/kg	0.75	0.14	10	06/12/20 08:59	06/12/20 22:53	205-99-2	ED
Benzo(g,h,i)perylene	<b>0.75 U</b>	mg/kg	0.75	0.15	10	06/12/20 08:59	06/12/20 22:53	191-24-2	ED
Benzo(k)fluoranthene	<b>0.17J</b>	mg/kg	0.75	0.15	10	06/12/20 08:59	06/12/20 22:53	207-08-9	ED
Biphenyl (Diphenyl)	<b>0.75 U</b>	mg/kg	0.75	0.15	10	06/12/20 08:59	06/12/20 22:53	92-52-4	ED
Caprolactam	<b>1.9 U</b>	mg/kg	1.9	0.21	10	06/12/20 08:59	06/12/20 22:53	105-60-2	ED
Carbazole	<b>0.75 U</b>	mg/kg	0.75	0.18	10	06/12/20 08:59	06/12/20 22:53	86-74-8	ED
4-Chloroaniline	<b>0.75 U</b>	mg/kg	0.75	0.17	10	06/12/20 08:59	06/12/20 22:53	106-47-8	ED
bis(2-Chloroethoxy)methane	<b>0.75 U</b>	mg/kg	0.75	0.17	10	06/12/20 08:59	06/12/20 22:53	111-91-1	ED
bis(2-Chloroethyl) ether	<b>0.75 U</b>	mg/kg	0.75	0.18	10	06/12/20 08:59	06/12/20 22:53	111-44-4	ED
bis(2-Chloroisopropyl) ether	<b>0.75 U</b>	mg/kg	0.75	0.18	10	06/12/20 08:59	06/12/20 22:53	108-60-1	CH,ED
2-Chloronaphthalene	<b>0.75 U</b>	mg/kg	0.75	0.15	10	06/12/20 08:59	06/12/20 22:53	91-58-7	ED
2-Chlorophenol	<b>0.75 U</b>	mg/kg	0.75	0.18	10	06/12/20 08:59	06/12/20 22:53	95-57-8	ED
Chrysene	<b>0.18J</b>	mg/kg	0.75	0.15	10	06/12/20 08:59	06/12/20 22:53	218-01-9	ED
Dibenz(a,h)anthracene	<b>0.75 U</b>	mg/kg	0.75	0.13	10	06/12/20 08:59	06/12/20 22:53	53-70-3	ED
3,3'-Dichlorobenzidine	<b>0.75 U</b>	mg/kg	0.75	0.14	10	06/12/20 08:59	06/12/20 22:53	91-94-1	ED,L2
2,4-Dichlorophenol	<b>0.75 U</b>	mg/kg	0.75	0.20	10	06/12/20 08:59	06/12/20 22:53	120-83-2	ED
Diethylphthalate	<b>0.75 U</b>	mg/kg	0.75	0.15	10	06/12/20 08:59	06/12/20 22:53	84-66-2	ED
2,4-Dimethylphenol	<b>0.75 U</b>	mg/kg	0.75	0.15	10	06/12/20 08:59	06/12/20 22:53	105-67-9	ED
Di-n-butylphthalate	<b>0.75 U</b>	mg/kg	0.75	0.18	10	06/12/20 08:59	06/12/20 22:53	84-74-2	ED
2,4-Dinitrophenol	<b>1.9 U</b>	mg/kg	1.9	0.38	10	06/12/20 08:59	06/12/20 22:53	51-28-5	13c,ED
2,4-Dinitrotoluene	<b>0.75 U</b>	mg/kg	0.75	0.17	10	06/12/20 08:59	06/12/20 22:53	121-14-2	ED
2,6-Dinitrotoluene	<b>0.75 U</b>	mg/kg	0.75	0.19	10	06/12/20 08:59	06/12/20 22:53	606-20-2	ED
Di-n-octylphthalate	<b>0.75 U</b>	mg/kg	0.75	0.20	10	06/12/20 08:59	06/12/20 22:53	117-84-0	ED
bis(2-Ethylhexyl)phthalate	<b>0.17J</b>	mg/kg	0.75	0.15	10	06/12/20 08:59	06/12/20 22:53	117-81-7	ED
Fluoranthene	<b>0.75 U</b>	mg/kg	0.75	0.18	10	06/12/20 08:59	06/12/20 22:53	206-44-0	ED
Fluorene	<b>0.75 U</b>	mg/kg	0.75	0.17	10	06/12/20 08:59	06/12/20 22:53	86-73-7	ED
Hexachloro-1,3-butadiene	<b>0.75 U</b>	mg/kg	0.75	0.18	10	06/12/20 08:59	06/12/20 22:53	87-68-3	ED

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-002-SB-1.5**      **Lab ID: 30365510011**      Collected: 05/29/20 14:00      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Hexachlorobenzene	<b>0.75 U</b>	mg/kg	0.75	0.17	10	06/12/20 08:59	06/12/20 22:53	118-74-1	ED
Hexachlorocyclopentadiene	<b>0.75 U</b>	mg/kg	0.75	0.13	10	06/12/20 08:59	06/12/20 22:53	77-47-4	ED
Hexachloroethane	<b>0.75 U</b>	mg/kg	0.75	0.17	10	06/12/20 08:59	06/12/20 22:53	67-72-1	ED
Indeno(1,2,3-cd)pyrene	<b>0.75 U</b>	mg/kg	0.75	0.14	10	06/12/20 08:59	06/12/20 22:53	193-39-5	ED
Isophorone	<b>0.75 U</b>	mg/kg	0.75	0.20	10	06/12/20 08:59	06/12/20 22:53	78-59-1	ED
2-Methylnaphthalene	<b>0.75 U</b>	mg/kg	0.75	0.15	10	06/12/20 08:59	06/12/20 22:53	91-57-6	ED
2-Methylphenol(o-Cresol)	<b>0.75 U</b>	mg/kg	0.75	0.15	10	06/12/20 08:59	06/12/20 22:53	95-48-7	ED
3&4-Methylphenol(m&p Cresol)	<b>1.5 U</b>	mg/kg	1.5	0.18	10	06/12/20 08:59	06/12/20 22:53		ED
Naphthalene	<b>0.75 U</b>	mg/kg	0.75	0.16	10	06/12/20 08:59	06/12/20 22:53	91-20-3	ED
2-Nitroaniline	<b>1.9 U</b>	mg/kg	1.9	0.16	10	06/12/20 08:59	06/12/20 22:53	88-74-4	ED
4-Nitroaniline	<b>1.9 U</b>	mg/kg	1.9	0.26	10	06/12/20 08:59	06/12/20 22:53	100-01-6	ED
Nitrobenzene	<b>0.75 U</b>	mg/kg	0.75	0.19	10	06/12/20 08:59	06/12/20 22:53	98-95-3	ED
N-Nitroso-di-n-propylamine	<b>0.75 U</b>	mg/kg	0.75	0.18	10	06/12/20 08:59	06/12/20 22:53	621-64-7	ED
N-Nitrosodiphenylamine	<b>0.75 U</b>	mg/kg	0.75	0.15	10	06/12/20 08:59	06/12/20 22:53	86-30-6	ED
Pentachlorophenol	<b>1.9 U</b>	mg/kg	1.9	0.35	10	06/12/20 08:59	06/12/20 22:53	87-86-5	ED
Phenanthrene	<b>0.33J</b>	mg/kg	0.75	0.17	10	06/12/20 08:59	06/12/20 22:53	85-01-8	ED
Phenol	<b>0.75 U</b>	mg/kg	0.75	0.18	10	06/12/20 08:59	06/12/20 22:53	108-95-2	ED
Pyrene	<b>0.75 U</b>	mg/kg	0.75	0.20	10	06/12/20 08:59	06/12/20 22:53	129-00-0	ED
1,2,4,5-Tetrachlorobenzene	<b>0.75 U</b>	mg/kg	0.75	0.17	10	06/12/20 08:59	06/12/20 22:53	95-94-3	ED
2,3,4,6-Tetrachlorophenol	<b>0.75 U</b>	mg/kg	0.75	0.16	10	06/12/20 08:59	06/12/20 22:53	58-90-2	ED
2,4,5-Trichlorophenol	<b>1.9 U</b>	mg/kg	1.9	0.16	10	06/12/20 08:59	06/12/20 22:53	95-95-4	ED
2,4,6-Trichlorophenol	<b>0.75 U</b>	mg/kg	0.75	0.18	10	06/12/20 08:59	06/12/20 22:53	88-06-2	ED
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	119	%	26-95		10	06/12/20 08:59	06/12/20 22:53	4165-60-0	S4
2-Fluorobiphenyl (S)	121	%	36-98		10	06/12/20 08:59	06/12/20 22:53	321-60-8	S4
Terphenyl-d14 (S)	118	%	59-116		10	06/12/20 08:59	06/12/20 22:53	1718-51-0	S4
Phenol-d6 (S)	116	%	34-98		10	06/12/20 08:59	06/12/20 22:53	13127-88-3	S4
2-Fluorophenol (S)	104	%	29-96		10	06/12/20 08:59	06/12/20 22:53	367-12-4	S4
2,4,6-Tribromophenol (S)	88	%	30-113		10	06/12/20 08:59	06/12/20 22:53	118-79-6	
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Pace Analytical Services - Greensburg									
Percent Moisture	<b>11.4</b>	%	0.10	0.10	1		06/02/20 09:57		
<b>7196 Chromium, Hexavalent</b>									
Analytical Method: EPA 7196A    Preparation Method: EPA 3060A									
Pace Analytical Services - Greensburg									
Chromium, Hexavalent	<b>0.76J</b>	mg/kg	1.1	0.69	1	06/02/20 10:22	06/03/20 16:12	18540-29-9	4c,5c
<b>9045D pH Soil</b>									
Analytical Method: EPA 9045D									
Pace Analytical Services - Greensburg									
pH in water at 25 degrees C	<b>9.6</b>	Std. Units	2.0	2.0	1		05/31/20 17:56		H3

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II

Pace Project No.: 30365510

**Sample: B9-002-SB-1.5**      **Lab ID: 30365510011**      Collected: 05/29/20 14:00      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>9071 Oil and Grease/TPH</b>	Analytical Method: EPA 9071B    Preparation Method: EPA 9071B Pace Analytical Services - Greensburg								
Oil and Grease	<b>781</b>	mg/kg	225	101	1	06/03/20 12:08	06/04/20 07:39		
<b>9012B Cyanide, Total</b>	Analytical Method: EPA 9012B    Preparation Method: EPA 9012B Pace Analytical Services - Greensburg								
Cyanide	<b>3.0</b>	mg/kg	1.1	0.13	1	06/02/20 08:00	06/02/20 11:26	57-12-5	ML,R1

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-002-SB-5**      **Lab ID: 30365510012**      Collected: 05/29/20 14:05      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 TPH Microwave</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
TPH (C10-C28)	<b>27.4</b>	mg/kg	8.1	4.6	1	06/12/20 08:37	06/12/20 18:42		L2
<b>Surrogates</b>									
o-Terphenyl (S)	69	%	60-125		1	06/12/20 08:37	06/12/20 18:42	84-15-1	
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 5035A/5030B									
Pace Analytical Services - Greensburg									
TPH (C06-C10)	<b>15.2 U</b>	mg/kg	15.2	8.4	1	06/04/20 11:30	06/05/20 00:08		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	61	%	60-125		1	06/04/20 11:30	06/05/20 00:08	98-08-8	
4-Bromofluorobenzene (S)	96	%	60-125		1	06/04/20 11:30	06/05/20 00:08	460-00-4	
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Aluminum	<b>14600</b>	mg/kg	49.8	12.4	5	06/03/20 07:18	06/04/20 11:30	7429-90-5	10c,9c
Antimony	<b>3.0 U</b>	mg/kg	3.0	2.4	5	06/03/20 07:18	06/04/20 11:30	7440-36-0	10c,9c
Arsenic	<b>4.0</b>	mg/kg	2.5	2.4	5	06/03/20 07:18	06/04/20 11:30	7440-38-2	10c,9c
Barium	<b>144</b>	mg/kg	10	0.47	5	06/03/20 07:18	06/04/20 11:30	7440-39-3	10c,9c
Beryllium	<b>1.2</b>	mg/kg	1.0	0.15	5	06/03/20 07:18	06/04/20 11:30	7440-41-7	10c,9c
Cadmium	<b>0.60J</b>	mg/kg	1.5	0.30	5	06/03/20 07:18	06/04/20 11:30	7440-43-9	10c,9c
Chromium	<b>35.1</b>	mg/kg	2.5	0.46	5	06/03/20 07:18	06/04/20 11:30	7440-47-3	10c,9c
Cobalt	<b>4.1J</b>	mg/kg	5.0	0.53	5	06/03/20 07:18	06/04/20 11:30	7440-48-4	10c,9c
Copper	<b>19.8</b>	mg/kg	5.0	2.9	5	06/03/20 07:18	06/04/20 11:30	7440-50-8	10c,9c
Iron	<b>13200</b>	mg/kg	49.8	5.8	5	06/03/20 07:18	06/04/20 11:30	7439-89-6	10c,9c
Lead	<b>72.3</b>	mg/kg	2.5	2.4	5	06/03/20 07:18	06/04/20 11:30	7439-92-1	10c,9c
Manganese	<b>494</b>	mg/kg	5.0	0.50	5	06/03/20 07:18	06/04/20 11:30	7439-96-5	10c,9c
Nickel	<b>11.5</b>	mg/kg	10	1.2	5	06/03/20 07:18	06/04/20 11:30	7440-02-0	10c,9c
Selenium	<b>4.0 U</b>	mg/kg	4.0	2.9	5	06/03/20 07:18	06/04/20 11:30	7782-49-2	10c,9c
Silver	<b>3.0 U</b>	mg/kg	3.0	0.48	5	06/03/20 07:18	06/04/20 11:30	7440-22-4	10c,9c
Thallium	<b>10 U</b>	mg/kg	10	3.1	5	06/03/20 07:18	06/04/20 11:30	7440-28-0	10c,9c
Vanadium	<b>40.7</b>	mg/kg	5.0	0.40	5	06/03/20 07:18	06/04/20 11:30	7440-62-2	10c,9c
Zinc	<b>148</b>	mg/kg	5.0	0.84	5	06/03/20 07:18	06/04/20 11:30	7440-66-6	10c,9c
<b>7471 Mercury</b>									
Analytical Method: EPA 7471A    Preparation Method: EPA 7471A									
Pace Analytical Services - Greensburg									
Mercury	<b>0.041J</b>	mg/kg	0.12	0.0060	1	06/03/20 10:48	06/04/20 06:33	7439-97-6	
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Acenaphthene	<b>0.081 U</b>	mg/kg	0.081	0.018	1	06/12/20 08:59	06/12/20 20:15	83-32-9	
Acenaphthylene	<b>0.081 U</b>	mg/kg	0.081	0.018	1	06/12/20 08:59	06/12/20 20:15	208-96-8	
Acetophenone	<b>0.081 U</b>	mg/kg	0.081	0.019	1	06/12/20 08:59	06/12/20 20:15	98-86-2	
Anthracene	<b>0.081 U</b>	mg/kg	0.081	0.019	1	06/12/20 08:59	06/12/20 20:15	120-12-7	
Benzaldehyde	<b>0.081 U</b>	mg/kg	0.081	0.018	1	06/12/20 08:59	06/12/20 20:15	100-52-7	L1
Benzo(a)anthracene	<b>0.081 U</b>	mg/kg	0.081	0.016	1	06/12/20 08:59	06/12/20 20:15	56-55-3	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-002-SB-5**      **Lab ID: 30365510012**      Collected: 05/29/20 14:05      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Benzo(a)pyrene	0.081 U	mg/kg	0.081	0.012	1	06/12/20 08:59	06/12/20 20:15	50-32-8	
Benzo(b)fluoranthene	0.081 U	mg/kg	0.081	0.015	1	06/12/20 08:59	06/12/20 20:15	205-99-2	
Benzo(g,h,i)perylene	0.081 U	mg/kg	0.081	0.016	1	06/12/20 08:59	06/12/20 20:15	191-24-2	
Benzo(k)fluoranthene	0.081 U	mg/kg	0.081	0.016	1	06/12/20 08:59	06/12/20 20:15	207-08-9	
Biphenyl (Diphenyl)	0.081 U	mg/kg	0.081	0.017	1	06/12/20 08:59	06/12/20 20:15	92-52-4	
Caprolactam	0.20 U	mg/kg	0.20	0.023	1	06/12/20 08:59	06/12/20 20:15	105-60-2	
Carbazole	0.081 U	mg/kg	0.081	0.019	1	06/12/20 08:59	06/12/20 20:15	86-74-8	
4-Chloroaniline	0.081 U	mg/kg	0.081	0.018	1	06/12/20 08:59	06/12/20 20:15	106-47-8	
bis(2-Chloroethoxy)methane	0.081 U	mg/kg	0.081	0.018	1	06/12/20 08:59	06/12/20 20:15	111-91-1	
bis(2-Chloroethyl) ether	0.081 U	mg/kg	0.081	0.019	1	06/12/20 08:59	06/12/20 20:15	111-44-4	
bis(2-Chloroisopropyl) ether	0.081 U	mg/kg	0.081	0.020	1	06/12/20 08:59	06/12/20 20:15	108-60-1	CH
2-Chloronaphthalene	0.081 U	mg/kg	0.081	0.016	1	06/12/20 08:59	06/12/20 20:15	91-58-7	
2-Chlorophenol	0.081 U	mg/kg	0.081	0.019	1	06/12/20 08:59	06/12/20 20:15	95-57-8	
Chrysene	0.081 U	mg/kg	0.081	0.016	1	06/12/20 08:59	06/12/20 20:15	218-01-9	
Dibenz(a,h)anthracene	0.081 U	mg/kg	0.081	0.014	1	06/12/20 08:59	06/12/20 20:15	53-70-3	
3,3'-Dichlorobenzidine	0.081 U	mg/kg	0.081	0.016	1	06/12/20 08:59	06/12/20 20:15	91-94-1	L2
2,4-Dichlorophenol	0.081 U	mg/kg	0.081	0.021	1	06/12/20 08:59	06/12/20 20:15	120-83-2	
Diethylphthalate	0.081 U	mg/kg	0.081	0.016	1	06/12/20 08:59	06/12/20 20:15	84-66-2	
2,4-Dimethylphenol	0.081 U	mg/kg	0.081	0.016	1	06/12/20 08:59	06/12/20 20:15	105-67-9	
Di-n-butylphthalate	0.032J	mg/kg	0.081	0.019	1	06/12/20 08:59	06/12/20 20:15	84-74-2	
2,4-Dinitrophenol	0.20 U	mg/kg	0.20	0.042	1	06/12/20 08:59	06/12/20 20:15	51-28-5	13c
2,4-Dinitrotoluene	0.081 U	mg/kg	0.081	0.019	1	06/12/20 08:59	06/12/20 20:15	121-14-2	
2,6-Dinitrotoluene	0.081 U	mg/kg	0.081	0.020	1	06/12/20 08:59	06/12/20 20:15	606-20-2	
Di-n-octylphthalate	0.081 U	mg/kg	0.081	0.022	1	06/12/20 08:59	06/12/20 20:15	117-84-0	
bis(2-Ethylhexyl)phthalate	0.081 U	mg/kg	0.081	0.016	1	06/12/20 08:59	06/12/20 20:15	117-81-7	
Fluoranthene	0.081 U	mg/kg	0.081	0.019	1	06/12/20 08:59	06/12/20 20:15	206-44-0	
Fluorene	0.081 U	mg/kg	0.081	0.019	1	06/12/20 08:59	06/12/20 20:15	86-73-7	
Hexachloro-1,3-butadiene	0.081 U	mg/kg	0.081	0.019	1	06/12/20 08:59	06/12/20 20:15	87-68-3	
Hexachlorobenzene	0.081 U	mg/kg	0.081	0.019	1	06/12/20 08:59	06/12/20 20:15	118-74-1	
Hexachlorocyclopentadiene	0.081 U	mg/kg	0.081	0.014	1	06/12/20 08:59	06/12/20 20:15	77-47-4	
Hexachloroethane	0.081 U	mg/kg	0.081	0.018	1	06/12/20 08:59	06/12/20 20:15	67-72-1	
Indeno(1,2,3-cd)pyrene	0.081 U	mg/kg	0.081	0.015	1	06/12/20 08:59	06/12/20 20:15	193-39-5	
Isophorone	0.081 U	mg/kg	0.081	0.022	1	06/12/20 08:59	06/12/20 20:15	78-59-1	
2-Methylnaphthalene	0.081 U	mg/kg	0.081	0.017	1	06/12/20 08:59	06/12/20 20:15	91-57-6	
2-Methylphenol(o-Cresol)	0.081 U	mg/kg	0.081	0.016	1	06/12/20 08:59	06/12/20 20:15	95-48-7	
3&4-Methylphenol(m&p Cresol)	0.16 U	mg/kg	0.16	0.020	1	06/12/20 08:59	06/12/20 20:15		
Naphthalene	0.081 U	mg/kg	0.081	0.017	1	06/12/20 08:59	06/12/20 20:15	91-20-3	
2-Nitroaniline	0.20 U	mg/kg	0.20	0.018	1	06/12/20 08:59	06/12/20 20:15	88-74-4	
4-Nitroaniline	0.20 U	mg/kg	0.20	0.028	1	06/12/20 08:59	06/12/20 20:15	100-01-6	
Nitrobenzene	0.081 U	mg/kg	0.081	0.020	1	06/12/20 08:59	06/12/20 20:15	98-95-3	
N-Nitroso-di-n-propylamine	0.081 U	mg/kg	0.081	0.019	1	06/12/20 08:59	06/12/20 20:15	621-64-7	
N-Nitrosodiphenylamine	0.081 U	mg/kg	0.081	0.016	1	06/12/20 08:59	06/12/20 20:15	86-30-6	
Pentachlorophenol	0.20 U	mg/kg	0.20	0.038	1	06/12/20 08:59	06/12/20 20:15	87-86-5	
Phenanthrene	0.081 U	mg/kg	0.081	0.019	1	06/12/20 08:59	06/12/20 20:15	85-01-8	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: B9-002-SB-5**      **Lab ID: 30365510012**      Collected: 05/29/20 14:05      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Phenol	<b>0.081 U</b>	mg/kg	0.081	0.019	1	06/12/20 08:59	06/12/20 20:15	108-95-2	
Pyrene	<b>0.081 U</b>	mg/kg	0.081	0.022	1	06/12/20 08:59	06/12/20 20:15	129-00-0	
1,2,4,5-Tetrachlorobenzene	<b>0.081 U</b>	mg/kg	0.081	0.018	1	06/12/20 08:59	06/12/20 20:15	95-94-3	
2,3,4,6-Tetrachlorophenol	<b>0.081 U</b>	mg/kg	0.081	0.017	1	06/12/20 08:59	06/12/20 20:15	58-90-2	
2,4,5-Trichlorophenol	<b>0.20 U</b>	mg/kg	0.20	0.018	1	06/12/20 08:59	06/12/20 20:15	95-95-4	
2,4,6-Trichlorophenol	<b>0.081 U</b>	mg/kg	0.081	0.020	1	06/12/20 08:59	06/12/20 20:15	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	137	%	26-95		1	06/12/20 08:59	06/12/20 20:15	4165-60-0	ST
2-Fluorobiphenyl (S)	130	%	36-98		1	06/12/20 08:59	06/12/20 20:15	321-60-8	ST
Terphenyl-d14 (S)	148	%	59-116		1	06/12/20 08:59	06/12/20 20:15	1718-51-0	ST
Phenol-d6 (S)	135	%	34-98		1	06/12/20 08:59	06/12/20 20:15	13127-88-3	ST
2-Fluorophenol (S)	127	%	29-96		1	06/12/20 08:59	06/12/20 20:15	367-12-4	ST
2,4,6-Tribromophenol (S)	161	%	30-113		1	06/12/20 08:59	06/12/20 20:15	118-79-6	ST
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Pace Analytical Services - Greensburg									
Percent Moisture	<b>19.0</b>	%	0.10	0.10	1		06/02/20 09:57		
<b>7196 Chromium, Hexavalent</b>									
Analytical Method: EPA 7196A    Preparation Method: EPA 3060A									
Pace Analytical Services - Greensburg									
Chromium, Hexavalent	<b>1.3 U</b>	mg/kg	1.3	0.79	1	06/02/20 10:22	06/03/20 16:12	18540-29-9	4c,5c
<b>9045D pH Soil</b>									
Analytical Method: EPA 9045D									
Pace Analytical Services - Greensburg									
pH in water at 25 degrees C	<b>8.8</b>	Std. Units	2.0	2.0	1		05/31/20 17:56		H3
<b>9071 Oil and Grease/TPH</b>									
Analytical Method: EPA 9071B    Preparation Method: EPA 9071B									
Pace Analytical Services - Greensburg									
Oil and Grease	<b>493 U</b>	mg/kg	493	222	1	06/03/20 12:08	06/04/20 07:40		3c
<b>9012B Cyanide, Total</b>									
Analytical Method: EPA 9012B    Preparation Method: EPA 9012B									
Pace Analytical Services - Greensburg									
Cyanide	<b>0.36J</b>	mg/kg	1.2	0.15	1	06/02/20 08:00	06/02/20 11:29	57-12-5	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: duplicate**      **Lab ID: 30365510013**      Collected: 05/29/20 00:01      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 TPH Microwave</b>									
Analytical Method: EPA 8015B Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
TPH (C10-C28)	<b>94.2</b>	mg/kg	6.9	3.9	1	06/12/20 08:37	06/12/20 18:48		L2
<b>Surrogates</b>									
o-Terphenyl (S)	58	%	60-125		1	06/12/20 08:37	06/12/20 18:48	84-15-1	S8,SR
<b>8082 GCS PCB</b>									
Analytical Method: EPA 8082 Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
PCB-1016 (Aroclor 1016)	<b>0.086 U</b>	mg/kg	0.086	0.0078	5	06/15/20 08:49	06/16/20 00:42	12674-11-2	
PCB-1221 (Aroclor 1221)	<b>0.086 U</b>	mg/kg	0.086	0.043	5	06/15/20 08:49	06/16/20 00:42	11104-28-2	
PCB-1232 (Aroclor 1232)	<b>0.086 U</b>	mg/kg	0.086	0.042	5	06/15/20 08:49	06/16/20 00:42	11141-16-5	
PCB-1242 (Aroclor 1242)	<b>0.086 U</b>	mg/kg	0.086	0.012	5	06/15/20 08:49	06/16/20 00:42	53469-21-9	
PCB-1248 (Aroclor 1248)	<b>0.086 U</b>	mg/kg	0.086	0.040	5	06/15/20 08:49	06/16/20 00:42	12672-29-6	
PCB-1254 (Aroclor 1254)	<b>0.16</b>	mg/kg	0.086	0.017	5	06/15/20 08:49	06/16/20 00:42	11097-69-1	
PCB-1260 (Aroclor 1260)	<b>0.18</b>	mg/kg	0.086	0.0080	5	06/15/20 08:49	06/16/20 00:42	11096-82-5	C2
PCB-1262 (Aroclor 1262)	<b>0.086 U</b>	mg/kg	0.086	0.026	5	06/15/20 08:49	06/16/20 00:42	37324-23-5	
PCB-1268 (Aroclor 1268)	<b>0.086 U</b>	mg/kg	0.086	0.026	5	06/15/20 08:49	06/16/20 00:42	11100-14-4	
PCB, Total	<b>0.34J</b>	mg/kg	0.78	0.22	5	06/15/20 08:49	06/16/20 00:42	1336-36-3	
<b>Surrogates</b>									
Tetrachloro-m-xylene (S)	75	%	34-114		5	06/15/20 08:49	06/16/20 00:42	877-09-8	
Decachlorobiphenyl (S)	83	%	38-139		5	06/15/20 08:49	06/16/20 00:42	2051-24-3	
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015B Preparation Method: EPA 5035A/5030B									
Pace Analytical Services - Greensburg									
TPH (C06-C10)	<b>13.6 U</b>	mg/kg	13.6	7.5	1	06/04/20 11:30	06/05/20 00:26		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	75	%	60-125		1	06/04/20 11:30	06/05/20 00:26	98-08-8	
4-Bromofluorobenzene (S)	98	%	60-125		1	06/04/20 11:30	06/05/20 00:26	460-00-4	
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Aluminum	<b>18400</b>	mg/kg	41.1	10.3	5	06/03/20 07:18	06/04/20 11:32	7429-90-5	10c,9c
Antimony	<b>2.5 U</b>	mg/kg	2.5	2.0	5	06/03/20 07:18	06/04/20 11:32	7440-36-0	10c,9c
Arsenic	<b>13.0</b>	mg/kg	2.1	2.0	5	06/03/20 07:18	06/04/20 11:32	7440-38-2	10c,9c
Barium	<b>254</b>	mg/kg	8.2	0.39	5	06/03/20 07:18	06/04/20 11:32	7440-39-3	10c,9c
Beryllium	<b>2.3</b>	mg/kg	0.82	0.12	5	06/03/20 07:18	06/04/20 11:32	7440-41-7	10c,9c
Cadmium	<b>4.5</b>	mg/kg	1.2	0.25	5	06/03/20 07:18	06/04/20 11:32	7440-43-9	10c,9c
Chromium	<b>126</b>	mg/kg	2.1	0.38	5	06/03/20 07:18	06/04/20 11:32	7440-47-3	10c,9c
Cobalt	<b>12.2</b>	mg/kg	4.1	0.43	5	06/03/20 07:18	06/04/20 11:32	7440-48-4	10c,9c
Copper	<b>53.4</b>	mg/kg	4.1	2.4	5	06/03/20 07:18	06/04/20 11:32	7440-50-8	10c,9c
Iron	<b>46800</b>	mg/kg	821	95.5	100	06/03/20 07:18	06/04/20 12:39	7439-89-6	10c,9c
Lead	<b>184</b>	mg/kg	2.1	2.0	5	06/03/20 07:18	06/04/20 11:32	7439-92-1	10c,9c
Manganese	<b>4750</b>	mg/kg	82.1	8.2	100	06/03/20 07:18	06/04/20 12:39	7439-96-5	10c,9c
Nickel	<b>74.0</b>	mg/kg	8.2	1.0	5	06/03/20 07:18	06/04/20 11:32	7440-02-0	10c,9c
Selenium	<b>3.3 U</b>	mg/kg	3.3	2.4	5	06/03/20 07:18	06/04/20 11:32	7782-49-2	10c,9c
Silver	<b>2.5 U</b>	mg/kg	2.5	0.40	5	06/03/20 07:18	06/04/20 11:32	7440-22-4	10c,9c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: duplicate**      **Lab ID: 30365510013**      Collected: 05/29/20 00:01      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3050B									
Pace Analytical Services - Greensburg									
Thallium	<b>6.7J</b>	mg/kg	8.2	2.5	5	06/03/20 07:18	06/04/20 11:32	7440-28-0	10c,9c
Vanadium	<b>455</b>	mg/kg	4.1	0.33	5	06/03/20 07:18	06/04/20 11:32	7440-62-2	10c,9c
Zinc	<b>1850</b>	mg/kg	4.1	0.69	5	06/03/20 07:18	06/04/20 11:32	7440-66-6	10c,9c
<b>7471 Mercury</b>									
Analytical Method: EPA 7471A    Preparation Method: EPA 7471A									
Pace Analytical Services - Greensburg									
Mercury	<b>0.22</b>	mg/kg	0.11	0.0052	1	06/03/20 10:48	06/04/20 06:35	7439-97-6	
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Acenaphthene	<b>0.71 U</b>	mg/kg	0.71	0.16	10	06/12/20 08:59	06/12/20 20:38	83-32-9	ED
Acenaphthylene	<b>0.71 U</b>	mg/kg	0.71	0.15	10	06/12/20 08:59	06/12/20 20:38	208-96-8	ED
Acetophenone	<b>0.71 U</b>	mg/kg	0.71	0.17	10	06/12/20 08:59	06/12/20 20:38	98-86-2	ED
Anthracene	<b>0.71 U</b>	mg/kg	0.71	0.17	10	06/12/20 08:59	06/12/20 20:38	120-12-7	ED
Benzaldehyde	<b>0.71 U</b>	mg/kg	0.71	0.15	10	06/12/20 08:59	06/12/20 20:38	100-52-7	ED,L1
Benzo(a)anthracene	<b>0.20J</b>	mg/kg	0.71	0.14	10	06/12/20 08:59	06/12/20 20:38	56-55-3	ED
Benzo(a)pyrene	<b>0.29J</b>	mg/kg	0.71	0.10	10	06/12/20 08:59	06/12/20 20:38	50-32-8	ED
Benzo(b)fluoranthene	<b>0.40J</b>	mg/kg	0.71	0.13	10	06/12/20 08:59	06/12/20 20:38	205-99-2	ED
Benzo(g,h,i)perylene	<b>0.17J</b>	mg/kg	0.71	0.14	10	06/12/20 08:59	06/12/20 20:38	191-24-2	ED
Benzo(k)fluoranthene	<b>0.27J</b>	mg/kg	0.71	0.14	10	06/12/20 08:59	06/12/20 20:38	207-08-9	ED
Biphenyl (Diphenyl)	<b>0.71 U</b>	mg/kg	0.71	0.15	10	06/12/20 08:59	06/12/20 20:38	92-52-4	ED
Caprolactam	<b>1.8 U</b>	mg/kg	1.8	0.20	10	06/12/20 08:59	06/12/20 20:38	105-60-2	ED
Carbazole	<b>0.71 U</b>	mg/kg	0.71	0.17	10	06/12/20 08:59	06/12/20 20:38	86-74-8	ED
4-Chloroaniline	<b>0.71 U</b>	mg/kg	0.71	0.16	10	06/12/20 08:59	06/12/20 20:38	106-47-8	ED
bis(2-Chloroethoxy)methane	<b>0.71 U</b>	mg/kg	0.71	0.16	10	06/12/20 08:59	06/12/20 20:38	111-91-1	ED
bis(2-Chloroethyl) ether	<b>0.71 U</b>	mg/kg	0.71	0.17	10	06/12/20 08:59	06/12/20 20:38	111-44-4	ED
bis(2-Chloroisopropyl) ether	<b>0.71 U</b>	mg/kg	0.71	0.17	10	06/12/20 08:59	06/12/20 20:38	108-60-1	CH,ED
2-Chloronaphthalene	<b>0.71 U</b>	mg/kg	0.71	0.14	10	06/12/20 08:59	06/12/20 20:38	91-58-7	ED
2-Chlorophenol	<b>0.71 U</b>	mg/kg	0.71	0.17	10	06/12/20 08:59	06/12/20 20:38	95-57-8	ED
Chrysene	<b>0.27J</b>	mg/kg	0.71	0.14	10	06/12/20 08:59	06/12/20 20:38	218-01-9	ED
Dibenz(a,h)anthracene	<b>0.71 U</b>	mg/kg	0.71	0.12	10	06/12/20 08:59	06/12/20 20:38	53-70-3	ED
3,3'-Dichlorobenzidine	<b>0.71 U</b>	mg/kg	0.71	0.14	10	06/12/20 08:59	06/12/20 20:38	91-94-1	ED,L2
2,4-Dichlorophenol	<b>0.71 U</b>	mg/kg	0.71	0.19	10	06/12/20 08:59	06/12/20 20:38	120-83-2	ED
Diethylphthalate	<b>0.71 U</b>	mg/kg	0.71	0.14	10	06/12/20 08:59	06/12/20 20:38	84-66-2	ED
2,4-Dimethylphenol	<b>0.71 U</b>	mg/kg	0.71	0.14	10	06/12/20 08:59	06/12/20 20:38	105-67-9	ED
Di-n-butylphthalate	<b>0.71 U</b>	mg/kg	0.71	0.17	10	06/12/20 08:59	06/12/20 20:38	84-74-2	ED
2,4-Dinitrophenol	<b>1.8 U</b>	mg/kg	1.8	0.36	10	06/12/20 08:59	06/12/20 20:38	51-28-5	13c,ED
2,4-Dinitrotoluene	<b>0.71 U</b>	mg/kg	0.71	0.16	10	06/12/20 08:59	06/12/20 20:38	121-14-2	ED
2,6-Dinitrotoluene	<b>0.71 U</b>	mg/kg	0.71	0.18	10	06/12/20 08:59	06/12/20 20:38	606-20-2	ED
Di-n-octylphthalate	<b>0.71 U</b>	mg/kg	0.71	0.19	10	06/12/20 08:59	06/12/20 20:38	117-84-0	ED
bis(2-Ethylhexyl)phthalate	<b>0.71 U</b>	mg/kg	0.71	0.14	10	06/12/20 08:59	06/12/20 20:38	117-81-7	ED
Fluoranthene	<b>0.24J</b>	mg/kg	0.71	0.17	10	06/12/20 08:59	06/12/20 20:38	206-44-0	ED
Fluorene	<b>0.71 U</b>	mg/kg	0.71	0.16	10	06/12/20 08:59	06/12/20 20:38	86-73-7	ED
Hexachloro-1,3-butadiene	<b>0.71 U</b>	mg/kg	0.71	0.17	10	06/12/20 08:59	06/12/20 20:38	87-68-3	ED

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: duplicate**      **Lab ID: 30365510013**      Collected: 05/29/20 00:01      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Microwave</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3546									
Pace Analytical Services - Greensburg									
Hexachlorobenzene	<b>0.71 U</b>	mg/kg	0.71	0.16	10	06/12/20 08:59	06/12/20 20:38	118-74-1	ED
Hexachlorocyclopentadiene	<b>0.71 U</b>	mg/kg	0.71	0.13	10	06/12/20 08:59	06/12/20 20:38	77-47-4	ED
Hexachloroethane	<b>0.71 U</b>	mg/kg	0.71	0.16	10	06/12/20 08:59	06/12/20 20:38	67-72-1	ED
Indeno(1,2,3-cd)pyrene	<b>0.16J</b>	mg/kg	0.71	0.13	10	06/12/20 08:59	06/12/20 20:38	193-39-5	ED
Isophorone	<b>0.71 U</b>	mg/kg	0.71	0.19	10	06/12/20 08:59	06/12/20 20:38	78-59-1	ED
2-Methylnaphthalene	<b>0.71 U</b>	mg/kg	0.71	0.15	10	06/12/20 08:59	06/12/20 20:38	91-57-6	ED
2-Methylphenol(o-Cresol)	<b>0.71 U</b>	mg/kg	0.71	0.14	10	06/12/20 08:59	06/12/20 20:38	95-48-7	ED
3&4-Methylphenol(m&p Cresol)	<b>1.4 U</b>	mg/kg	1.4	0.17	10	06/12/20 08:59	06/12/20 20:38		ED
Naphthalene	<b>0.71 U</b>	mg/kg	0.71	0.15	10	06/12/20 08:59	06/12/20 20:38	91-20-3	ED
2-Nitroaniline	<b>1.8 U</b>	mg/kg	1.8	0.15	10	06/12/20 08:59	06/12/20 20:38	88-74-4	ED
4-Nitroaniline	<b>1.8 U</b>	mg/kg	1.8	0.25	10	06/12/20 08:59	06/12/20 20:38	100-01-6	ED
Nitrobenzene	<b>0.71 U</b>	mg/kg	0.71	0.18	10	06/12/20 08:59	06/12/20 20:38	98-95-3	ED
N-Nitroso-di-n-propylamine	<b>0.71 U</b>	mg/kg	0.71	0.17	10	06/12/20 08:59	06/12/20 20:38	621-64-7	ED
N-Nitrosodiphenylamine	<b>0.71 U</b>	mg/kg	0.71	0.14	10	06/12/20 08:59	06/12/20 20:38	86-30-6	ED
Pentachlorophenol	<b>1.8 U</b>	mg/kg	1.8	0.33	10	06/12/20 08:59	06/12/20 20:38	87-86-5	ED
Phenanthrene	<b>0.21J</b>	mg/kg	0.71	0.16	10	06/12/20 08:59	06/12/20 20:38	85-01-8	ED
Phenol	<b>0.71 U</b>	mg/kg	0.71	0.17	10	06/12/20 08:59	06/12/20 20:38	108-95-2	ED
Pyrene	<b>0.26J</b>	mg/kg	0.71	0.19	10	06/12/20 08:59	06/12/20 20:38	129-00-0	ED
1,2,4,5-Tetrachlorobenzene	<b>0.71 U</b>	mg/kg	0.71	0.16	10	06/12/20 08:59	06/12/20 20:38	95-94-3	ED
2,3,4,6-Tetrachlorophenol	<b>0.71 U</b>	mg/kg	0.71	0.15	10	06/12/20 08:59	06/12/20 20:38	58-90-2	ED
2,4,5-Trichlorophenol	<b>1.8 U</b>	mg/kg	1.8	0.16	10	06/12/20 08:59	06/12/20 20:38	95-95-4	ED
2,4,6-Trichlorophenol	<b>0.71 U</b>	mg/kg	0.71	0.17	10	06/12/20 08:59	06/12/20 20:38	88-06-2	ED
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	74	%	26-95		10	06/12/20 08:59	06/12/20 20:38	4165-60-0	
2-Fluorobiphenyl (S)	72	%	36-98		10	06/12/20 08:59	06/12/20 20:38	321-60-8	
Terphenyl-d14 (S)	67	%	59-116		10	06/12/20 08:59	06/12/20 20:38	1718-51-0	
Phenol-d6 (S)	71	%	34-98		10	06/12/20 08:59	06/12/20 20:38	13127-88-3	
2-Fluorophenol (S)	64	%	29-96		10	06/12/20 08:59	06/12/20 20:38	367-12-4	
2,4,6-Tribromophenol (S)	60	%	30-113		10	06/12/20 08:59	06/12/20 20:38	118-79-6	
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Pace Analytical Services - Greensburg									
Percent Moisture	<b>6.3</b>	%	0.10	0.10	1		06/02/20 09:57		
<b>7196 Chromium, Hexavalent</b>									
Analytical Method: EPA 7196A    Preparation Method: EPA 3060A									
Pace Analytical Services - Greensburg									
Chromium, Hexavalent	<b>0.72J</b>	mg/kg	1.1	0.69	1	06/02/20 10:22	06/03/20 16:13	18540-29-9	4c,5c
<b>9045D pH Soil</b>									
Analytical Method: EPA 9045D									
Pace Analytical Services - Greensburg									
pH in water at 25 degrees C	<b>8.7</b>	Std. Units	2.0	2.0	1		05/31/20 17:54		H3

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II

Pace Project No.: 30365510

**Sample: duplicate**      **Lab ID: 30365510013**      Collected: 05/29/20 00:01      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>9071 Oil and Grease/TPH</b>	Analytical Method: EPA 9071B Preparation Method: EPA 9071B Pace Analytical Services - Greensburg								
Oil and Grease	<b>7460</b>	mg/kg	214	96.5	1	06/03/20 12:08	06/04/20 07:40		
<b>9012B Cyanide, Total</b>	Analytical Method: EPA 9012B Preparation Method: EPA 9012B Pace Analytical Services - Greensburg								
Cyanide	<b>0.83J</b>	mg/kg	0.85	0.11	1	06/02/20 08:00	06/02/20 11:30	57-12-5	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: TB1**      **Lab ID: 30365510014**      Collected: 05/29/20 00:01      Received: 05/29/20 23:15      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 5030/8015B									
Pace Analytical Services - Greensburg									
TPH (C06-C10)	<b>200 U</b>	ug/L	200	98.0	1		06/02/20 21:40		CH
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	81	%	75-125		1		06/02/20 21:40	98-08-8	CH
4-Bromofluorobenzene (S)	101	%	75-125		1		06/02/20 21:40	460-00-4	
<b>8260B MSV</b>									
Analytical Method: EPA 8260B									
Pace Analytical Services - Greensburg									
Acetone	<b>10.0 U</b>	ug/L	10.0	5.6	1		06/02/20 14:47	67-64-1	
Benzene	<b>1.0 U</b>	ug/L	1.0	0.34	1		06/02/20 14:47	71-43-2	
Bromodichloromethane	<b>1.0 U</b>	ug/L	1.0	0.35	1		06/02/20 14:47	75-27-4	
Bromoform	<b>1.0 U</b>	ug/L	1.0	0.56	1		06/02/20 14:47	75-25-2	
Bromomethane	<b>1.0 U</b>	ug/L	1.0	0.73	1		06/02/20 14:47	74-83-9	CL
2-Butanone (MEK)	<b>10.0 U</b>	ug/L	10.0	1.5	1		06/02/20 14:47	78-93-3	
Carbon disulfide	<b>1.0 U</b>	ug/L	1.0	0.32	1		06/02/20 14:47	75-15-0	
Carbon tetrachloride	<b>1.0 U</b>	ug/L	1.0	0.44	1		06/02/20 14:47	56-23-5	
Chlorobenzene	<b>1.0 U</b>	ug/L	1.0	0.26	1		06/02/20 14:47	108-90-7	
Chloroethane	<b>1.0 U</b>	ug/L	1.0	0.64	1		06/02/20 14:47	75-00-3	
Chloroform	<b>1.0 U</b>	ug/L	1.0	0.39	1		06/02/20 14:47	67-66-3	
Chloromethane	<b>1.0 U</b>	ug/L	1.0	0.40	1		06/02/20 14:47	74-87-3	
Cyclohexane	<b>10.0 U</b>	ug/L	10.0	0.33	1		06/02/20 14:47	110-82-7	
1,2-Dibromo-3-chloropropane	<b>5.0 U</b>	ug/L	5.0	0.55	1		06/02/20 14:47	96-12-8	
Dibromochloromethane	<b>1.0 U</b>	ug/L	1.0	0.43	1		06/02/20 14:47	124-48-1	
1,2-Dibromoethane (EDB)	<b>1.0 U</b>	ug/L	1.0	0.44	1		06/02/20 14:47	106-93-4	
1,2-Dichlorobenzene	<b>1.0 U</b>	ug/L	1.0	0.38	1		06/02/20 14:47	95-50-1	
1,3-Dichlorobenzene	<b>1.0 U</b>	ug/L	1.0	0.45	1		06/02/20 14:47	541-73-1	
1,4-Dichlorobenzene	<b>1.0 U</b>	ug/L	1.0	0.48	1		06/02/20 14:47	106-46-7	
Dichlorodifluoromethane	<b>1.0 U</b>	ug/L	1.0	0.63	1		06/02/20 14:47	75-71-8	IH
1,1-Dichloroethane	<b>1.0 U</b>	ug/L	1.0	0.24	1		06/02/20 14:47	75-34-3	
1,2-Dichloroethane	<b>1.0 U</b>	ug/L	1.0	0.33	1		06/02/20 14:47	107-06-2	
1,2-Dichloroethene (Total)	<b>2.0 U</b>	ug/L	2.0	0.66	1		06/02/20 14:47	540-59-0	
1,1-Dichloroethene	<b>1.0 U</b>	ug/L	1.0	0.24	1		06/02/20 14:47	75-35-4	
cis-1,2-Dichloroethene	<b>1.0 U</b>	ug/L	1.0	0.38	1		06/02/20 14:47	156-59-2	
trans-1,2-Dichloroethene	<b>1.0 U</b>	ug/L	1.0	0.28	1		06/02/20 14:47	156-60-5	
1,2-Dichloropropane	<b>1.0 U</b>	ug/L	1.0	0.28	1		06/02/20 14:47	78-87-5	
cis-1,3-Dichloropropene	<b>1.0 U</b>	ug/L	1.0	0.29	1		06/02/20 14:47	10061-01-5	
trans-1,3-Dichloropropene	<b>1.0 U</b>	ug/L	1.0	0.32	1		06/02/20 14:47	10061-02-6	
Ethylbenzene	<b>1.0 U</b>	ug/L	1.0	0.40	1		06/02/20 14:47	100-41-4	
2-Hexanone	<b>10.0 U</b>	ug/L	10.0	0.58	1		06/02/20 14:47	591-78-6	
Isopropylbenzene (Cumene)	<b>1.0 U</b>	ug/L	1.0	0.47	1		06/02/20 14:47	98-82-8	
Methyl acetate	<b>5.0 U</b>	ug/L	5.0	0.55	1		06/02/20 14:47	79-20-9	
Methylene Chloride	<b>1.0 U</b>	ug/L	1.0	0.64	1		06/02/20 14:47	75-09-2	
4-Methyl-2-pentanone (MIBK)	<b>10.0 U</b>	ug/L	10.0	0.42	1		06/02/20 14:47	108-10-1	
Methyl-tert-butyl ether	<b>1.0 U</b>	ug/L	1.0	0.25	1		06/02/20 14:47	1634-04-4	
Styrene	<b>1.0 U</b>	ug/L	1.0	0.33	1		06/02/20 14:47	100-42-5	
1,1,2,2-Tetrachloroethane	<b>1.0 U</b>	ug/L	1.0	0.47	1		06/02/20 14:47	79-34-5	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: TB1**      **Lab ID: 30365510014**      Collected: 05/29/20 00:01      Received: 05/29/20 23:15      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8260B MSV</b>									
Analytical Method: EPA 8260B									
Pace Analytical Services - Greensburg									
Tetrachloroethene	1.0 U	ug/L	1.0	0.39	1		06/02/20 14:47	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.32	1		06/02/20 14:47	108-88-3	
1,2,3-Trichlorobenzene	2.0 U	ug/L	2.0	0.89	1		06/02/20 14:47	87-61-6	
1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	0.73	1		06/02/20 14:47	120-82-1	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.38	1		06/02/20 14:47	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.33	1		06/02/20 14:47	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.29	1		06/02/20 14:47	79-01-6	
Trichlorofluoromethane	1.0 U	ug/L	1.0	0.51	1		06/02/20 14:47	75-69-4	
1,1,2-Trichlorotrifluoroethane	50.0 U	ug/L	50.0	3.0	1		06/02/20 14:47	76-13-1	
Vinyl chloride	1.0 U	ug/L	1.0	0.29	1		06/02/20 14:47	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	1.4	1		06/02/20 14:47	1330-20-7	
m&p-Xylene	2.0 U	ug/L	2.0	0.94	1		06/02/20 14:47	179601-23-1	
o-Xylene	1.0 U	ug/L	1.0	0.41	1		06/02/20 14:47	95-47-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	91	%	70-130		1		06/02/20 14:47	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	70-130		1		06/02/20 14:47	17060-07-0	
Toluene-d8 (S)	92	%	70-130		1		06/02/20 14:47	2037-26-5	
Dibromofluoromethane (S)	108	%	70-130		1		06/02/20 14:47	1868-53-7	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: TB1**      **Lab ID: 30365510015**      Collected: 05/29/20 00:01      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 8015B Preparation Method: EPA 5035A/5030B									
Pace Analytical Services - Greensburg									
TPH (C06-C10)	<b>10.0 U</b>	mg/kg	10.0	5.5	1	06/04/20 11:30	06/05/20 00:45		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	76	%	60-125		1	06/04/20 11:30	06/05/20 00:45	98-08-8	
4-Bromofluorobenzene (S)	98	%	60-125		1	06/04/20 11:30	06/05/20 00:45	460-00-4	
<b>8260B MSV 5035 Low Level</b>									
Analytical Method: EPA 8260B Preparation Method: EPA 5035A									
Pace Analytical Services - Greensburg									
Acetone	<b>0.022</b>	mg/kg	0.010	0.0032	1	06/05/20 09:35	06/05/20 10:25	67-64-1	B
Benzene	<b>0.0050 U</b>	mg/kg	0.0050	0.00087	1	06/05/20 09:35	06/05/20 10:25	71-43-2	
Bromodichloromethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0011	1	06/05/20 09:35	06/05/20 10:25	75-27-4	
Bromoform	<b>0.0050 U</b>	mg/kg	0.0050	0.00066	1	06/05/20 09:35	06/05/20 10:25	75-25-2	
Bromomethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0019	1	06/05/20 09:35	06/05/20 10:25	74-83-9	
2-Butanone (MEK)	<b>0.010 U</b>	mg/kg	0.010	0.00091	1	06/05/20 09:35	06/05/20 10:25	78-93-3	
Carbon disulfide	<b>0.0050 U</b>	mg/kg	0.0050	0.0014	1	06/05/20 09:35	06/05/20 10:25	75-15-0	
Carbon tetrachloride	<b>0.0050 U</b>	mg/kg	0.0050	0.0017	1	06/05/20 09:35	06/05/20 10:25	56-23-5	
Chlorobenzene	<b>0.0050 U</b>	mg/kg	0.0050	0.00078	1	06/05/20 09:35	06/05/20 10:25	108-90-7	
Chloroethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0021	1	06/05/20 09:35	06/05/20 10:25	75-00-3	
Chloroform	<b>0.0050 U</b>	mg/kg	0.0050	0.0015	1	06/05/20 09:35	06/05/20 10:25	67-66-3	
Chloromethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0017	1	06/05/20 09:35	06/05/20 10:25	74-87-3	
Cyclohexane	<b>0.010 U</b>	mg/kg	0.010	0.0019	1	06/05/20 09:35	06/05/20 10:25	110-82-7	
1,2-Dibromo-3-chloropropane	<b>0.0050 U</b>	mg/kg	0.0050	0.0012	1	06/05/20 09:35	06/05/20 10:25	96-12-8	
Dibromochloromethane	<b>0.0050 U</b>	mg/kg	0.0050	0.00079	1	06/05/20 09:35	06/05/20 10:25	124-48-1	
1,2-Dibromoethane (EDB)	<b>0.0050 U</b>	mg/kg	0.0050	0.00080	1	06/05/20 09:35	06/05/20 10:25	106-93-4	
1,2-Dichlorobenzene	<b>0.0050 U</b>	mg/kg	0.0050	0.00059	1	06/05/20 09:35	06/05/20 10:25	95-50-1	
1,3-Dichlorobenzene	<b>0.0050 U</b>	mg/kg	0.0050	0.00065	1	06/05/20 09:35	06/05/20 10:25	541-73-1	
1,4-Dichlorobenzene	<b>0.0050 U</b>	mg/kg	0.0050	0.00071	1	06/05/20 09:35	06/05/20 10:25	106-46-7	
Dichlorodifluoromethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0027	1	06/05/20 09:35	06/05/20 10:25	75-71-8	IH
1,1-Dichloroethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0013	1	06/05/20 09:35	06/05/20 10:25	75-34-3	
1,2-Dichloroethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0013	1	06/05/20 09:35	06/05/20 10:25	107-06-2	
1,2-Dichloroethene (Total)	<b>0.010 U</b>	mg/kg	0.010	0.0024	1	06/05/20 09:35	06/05/20 10:25	540-59-0	
1,1-Dichloroethene	<b>0.0050 U</b>	mg/kg	0.0050	0.0019	1	06/05/20 09:35	06/05/20 10:25	75-35-4	
cis-1,2-Dichloroethene	<b>0.0050 U</b>	mg/kg	0.0050	0.0012	1	06/05/20 09:35	06/05/20 10:25	156-59-2	
trans-1,2-Dichloroethene	<b>0.0050 U</b>	mg/kg	0.0050	0.0013	1	06/05/20 09:35	06/05/20 10:25	156-60-5	
1,2-Dichloropropane	<b>0.0050 U</b>	mg/kg	0.0050	0.00072	1	06/05/20 09:35	06/05/20 10:25	78-87-5	
cis-1,3-Dichloropropene	<b>0.0050 U</b>	mg/kg	0.0050	0.00050	1	06/05/20 09:35	06/05/20 10:25	10061-01-5	
trans-1,3-Dichloropropene	<b>0.0050 U</b>	mg/kg	0.0050	0.0010	1	06/05/20 09:35	06/05/20 10:25	10061-02-6	
1,4-Dioxane (p-Dioxane)	<b>0.10 U</b>	mg/kg	0.10	0.041	1	06/05/20 09:35	06/05/20 10:25	123-91-1	6c,IH
Ethylbenzene	<b>0.0050 U</b>	mg/kg	0.0050	0.0011	1	06/05/20 09:35	06/05/20 10:25	100-41-4	
2-Hexanone	<b>0.010 U</b>	mg/kg	0.010	0.00098	1	06/05/20 09:35	06/05/20 10:25	591-78-6	
Isopropylbenzene (Cumene)	<b>0.0050 U</b>	mg/kg	0.0050	0.0012	1	06/05/20 09:35	06/05/20 10:25	98-82-8	
Methyl acetate	<b>0.050 U</b>	mg/kg	0.050	0.0011	1	06/05/20 09:35	06/05/20 10:25	79-20-9	
Methylene Chloride	<b>0.0050 U</b>	mg/kg	0.0050	0.0042	1	06/05/20 09:35	06/05/20 10:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	<b>0.010 U</b>	mg/kg	0.010	0.0011	1	06/05/20 09:35	06/05/20 10:25	108-10-1	
Methyl-tert-butyl ether	<b>0.0050 U</b>	mg/kg	0.0050	0.00067	1	06/05/20 09:35	06/05/20 10:25	1634-04-4	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: TB1**      **Lab ID: 30365510015**      Collected: 05/29/20 00:01      Received: 05/29/20 23:15      Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260B MSV 5035 Low Level</b>									
Analytical Method: EPA 8260B    Preparation Method: EPA 5035A									
Pace Analytical Services - Greensburg									
Styrene	<b>0.0050 U</b>	mg/kg	0.0050	0.0014	1	06/05/20 09:35	06/05/20 10:25	100-42-5	
1,1,2,2-Tetrachloroethane	<b>0.0050 U</b>	mg/kg	0.0050	0.00059	1	06/05/20 09:35	06/05/20 10:25	79-34-5	
Tetrachloroethene	<b>0.0050 U</b>	mg/kg	0.0050	0.0017	1	06/05/20 09:35	06/05/20 10:25	127-18-4	
Toluene	<b>0.0050 U</b>	mg/kg	0.0050	0.00099	1	06/05/20 09:35	06/05/20 10:25	108-88-3	
1,2,3-Trichlorobenzene	<b>0.0050 U</b>	mg/kg	0.0050	0.00095	1	06/05/20 09:35	06/05/20 10:25	87-61-6	IH
1,2,4-Trichlorobenzene	<b>0.0050 U</b>	mg/kg	0.0050	0.0013	1	06/05/20 09:35	06/05/20 10:25	120-82-1	
1,1,1-Trichloroethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0015	1	06/05/20 09:35	06/05/20 10:25	71-55-6	
1,1,2-Trichloroethane	<b>0.0050 U</b>	mg/kg	0.0050	0.00099	1	06/05/20 09:35	06/05/20 10:25	79-00-5	
Trichloroethene	<b>0.0050 U</b>	mg/kg	0.0050	0.0015	1	06/05/20 09:35	06/05/20 10:25	79-01-6	
Trichlorofluoromethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0022	1	06/05/20 09:35	06/05/20 10:25	75-69-4	
1,1,2-Trichlorotrifluoroethane	<b>0.050 U</b>	mg/kg	0.050	0.0022	1	06/05/20 09:35	06/05/20 10:25	76-13-1	
Vinyl chloride	<b>0.0050 U</b>	mg/kg	0.0050	0.0022	1	06/05/20 09:35	06/05/20 10:25	75-01-4	
Xylene (Total)	<b>0.015 U</b>	mg/kg	0.015	0.0032	1	06/05/20 09:35	06/05/20 10:25	1330-20-7	
<b>Surrogates</b>									
Toluene-d8 (S)	99	%	70-130		1	06/05/20 09:35	06/05/20 10:25	2037-26-5	
4-Bromofluorobenzene (S)	98	%	70-130		1	06/05/20 09:35	06/05/20 10:25	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	70-130		1	06/05/20 09:35	06/05/20 10:25	17060-07-0	
Dibromofluoromethane (S)	103	%	70-130		1	06/05/20 09:35	06/05/20 10:25	1868-53-7	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

Sample: field blank									
Lab ID: 30365510016 Collected: 05/29/20 15:00 Received: 05/29/20 23:15 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 TPH</b>									
Analytical Method: EPA 8015B Preparation Method: EPA 3510C									
Pace Analytical Services - Greensburg									
TPH (C10-C28)	<b>98.5 U</b>	ug/L	98.5	55.2	1	06/02/20 08:58	06/04/20 16:52		1c
<b>Surrogates</b>									
o-Terphenyl (S)	35	%	75-125		1	06/02/20 08:58	06/04/20 16:52	84-15-1	S8,SR
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 5030/8015B									
Pace Analytical Services - Greensburg									
TPH (C06-C10)	<b>200 U</b>	ug/L	200	98.0	1		06/02/20 21:58		CH
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	91	%	75-125		1		06/02/20 21:58	98-08-8	CH
4-Bromofluorobenzene (S)	103	%	75-125		1		06/02/20 21:58	460-00-4	
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Aluminum	<b>50.0 U</b>	ug/L	50.0	20.3	1	06/01/20 08:03	06/02/20 11:58	7429-90-5	
Antimony	<b>6.0 U</b>	ug/L	6.0	3.3	1	06/01/20 08:03	06/02/20 10:05	7440-36-0	
Arsenic	<b>5.0 U</b>	ug/L	5.0	2.0	1	06/01/20 08:03	06/02/20 10:05	7440-38-2	
Barium	<b>3.3J</b>	ug/L	10.0	0.68	1	06/01/20 08:03	06/02/20 10:05	7440-39-3	
Beryllium	<b>1.0 U</b>	ug/L	1.0	0.17	1	06/01/20 08:03	06/02/20 10:05	7440-41-7	
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	06/01/20 08:03	06/02/20 10:05	7440-43-9	
Chromium	<b>5.0 U</b>	ug/L	5.0	0.35	1	06/01/20 08:03	06/02/20 10:05	7440-47-3	
Cobalt	<b>5.0 U</b>	ug/L	5.0	0.53	1	06/01/20 08:03	06/02/20 10:05	7440-48-4	
Copper	<b>5.0 U</b>	ug/L	5.0	2.7	1	06/01/20 08:03	06/02/20 10:05	7440-50-8	
Iron	<b>70.0 U</b>	ug/L	70.0	40.9	1	06/01/20 08:03	06/02/20 10:05	7439-89-6	
Lead	<b>5.0 U</b>	ug/L	5.0	4.9	1	06/01/20 08:03	06/02/20 10:05	7439-92-1	
Manganese	<b>5.0 U</b>	ug/L	5.0	1.2	1	06/01/20 08:03	06/02/20 10:05	7439-96-5	
Nickel	<b>10.0 U</b>	ug/L	10.0	1.5	1	06/01/20 08:03	06/02/20 10:05	7440-02-0	
Selenium	<b>8.0 U</b>	ug/L	8.0	5.5	1	06/01/20 08:03	06/02/20 11:58	7782-49-2	
Silver	<b>6.0 U</b>	ug/L	6.0	1.4	1	06/01/20 08:03	06/02/20 11:58	7440-22-4	
Thallium	<b>10.0 U</b>	ug/L	10.0	4.0	1	06/01/20 08:03	06/02/20 10:05	7440-28-0	
Vanadium	<b>5.0 U</b>	ug/L	5.0	0.57	1	06/01/20 08:03	06/02/20 10:05	7440-62-2	
Zinc	<b>10.0 U</b>	ug/L	10.0	2.4	1	06/01/20 08:03	06/02/20 10:05	7440-66-6	
<b>7470 Mercury</b>									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Pace Analytical Services - Greensburg									
Mercury	<b>0.20 U</b>	ug/L	0.20	0.030	1	06/01/20 15:19	06/02/20 06:15	7439-97-6	
<b>8270D MSSV Organics</b>									
Analytical Method: EPA 8270D Preparation Method: EPA 3510C									
Pace Analytical Services - Greensburg									
Acenaphthene	<b>0.98 U</b>	ug/L	0.98	0.38	1	06/01/20 10:49	06/02/20 21:48	83-32-9	
Acenaphthylene	<b>0.98 U</b>	ug/L	0.98	0.37	1	06/01/20 10:49	06/02/20 21:48	208-96-8	
Acetophenone	<b>0.98 U</b>	ug/L	0.98	0.41	1	06/01/20 10:49	06/02/20 21:48	98-86-2	
Anthracene	<b>0.98 U</b>	ug/L	0.98	0.26	1	06/01/20 10:49	06/02/20 21:48	120-12-7	
Benzaldehyde	<b>0.98 U</b>	ug/L	0.98	0.42	1	06/01/20 10:49	06/02/20 21:48	100-52-7	
Benzo(a)anthracene	<b>0.98 U</b>	ug/L	0.98	0.20	1	06/01/20 10:49	06/02/20 21:48	56-55-3	
Benzo(a)pyrene	<b>0.98 U</b>	ug/L	0.98	0.18	1	06/01/20 10:49	06/02/20 21:48	50-32-8	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample:** field blank      **Lab ID:** 30365510016      Collected: 05/29/20 15:00      Received: 05/29/20 23:15      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270D MSSV Organics</b>			Analytical Method: EPA 8270D    Preparation Method: EPA 3510C Pace Analytical Services - Greensburg						
Benzo(b)fluoranthene	<b>0.98 U</b>	ug/L	0.98	0.23	1	06/01/20 10:49	06/02/20 21:48	205-99-2	
Benzo(g,h,i)perylene	<b>0.98 U</b>	ug/L	0.98	0.29	1	06/01/20 10:49	06/02/20 21:48	191-24-2	
Benzo(k)fluoranthene	<b>0.98 U</b>	ug/L	0.98	0.25	1	06/01/20 10:49	06/02/20 21:48	207-08-9	
Biphenyl (Diphenyl)	<b>0.98 U</b>	ug/L	0.98	0.31	1	06/01/20 10:49	06/02/20 21:48	92-52-4	
Caprolactam	<b>2.5 U</b>	ug/L	2.5	0.31	1	06/01/20 10:49	06/02/20 21:48	105-60-2	
Carbazole	<b>0.98 U</b>	ug/L	0.98	0.23	1	06/01/20 10:49	06/02/20 21:48	86-74-8	
4-Chloroaniline	<b>0.98 U</b>	ug/L	0.98	0.21	1	06/01/20 10:49	06/02/20 21:48	106-47-8	
bis(2-Chloroethoxy)methane	<b>0.98 U</b>	ug/L	0.98	0.35	1	06/01/20 10:49	06/02/20 21:48	111-91-1	
bis(2-Chloroethyl) ether	<b>0.98 U</b>	ug/L	0.98	0.40	1	06/01/20 10:49	06/02/20 21:48	111-44-4	
bis(2-Chloroisopropyl) ether	<b>0.98 U</b>	ug/L	0.98	0.40	1	06/01/20 10:49	06/02/20 21:48	108-60-1	
2-Chloronaphthalene	<b>0.98 U</b>	ug/L	0.98	0.33	1	06/01/20 10:49	06/02/20 21:48	91-58-7	
2-Chlorophenol	<b>0.98 U</b>	ug/L	0.98	0.32	1	06/01/20 10:49	06/02/20 21:48	95-57-8	
Chrysene	<b>0.98 U</b>	ug/L	0.98	0.20	1	06/01/20 10:49	06/02/20 21:48	218-01-9	
Dibenz(a,h)anthracene	<b>0.98 U</b>	ug/L	0.98	0.31	1	06/01/20 10:49	06/02/20 21:48	53-70-3	
3,3'-Dichlorobenzidine	<b>0.98 U</b>	ug/L	0.98	0.22	1	06/01/20 10:49	06/02/20 21:48	91-94-1	L2
2,4-Dichlorophenol	<b>0.98 U</b>	ug/L	0.98	0.33	1	06/01/20 10:49	06/02/20 21:48	120-83-2	
Diethylphthalate	<b>0.98 U</b>	ug/L	0.98	0.36	1	06/01/20 10:49	06/02/20 21:48	84-66-2	
2,4-Dimethylphenol	<b>0.98 U</b>	ug/L	0.98	0.35	1	06/01/20 10:49	06/02/20 21:48	105-67-9	
Di-n-butylphthalate	<b>0.53J</b>	ug/L	0.98	0.31	1	06/01/20 10:49	06/02/20 21:48	84-74-2	B
2,4-Dinitrophenol	<b>2.5 U</b>	ug/L	2.5	0.57	1	06/01/20 10:49	06/02/20 21:48	51-28-5	
2,4-Dinitrotoluene	<b>0.98 U</b>	ug/L	0.98	0.35	1	06/01/20 10:49	06/02/20 21:48	121-14-2	
2,6-Dinitrotoluene	<b>0.98 U</b>	ug/L	0.98	0.40	1	06/01/20 10:49	06/02/20 21:48	606-20-2	
Di-n-octylphthalate	<b>0.98 U</b>	ug/L	0.98	0.26	1	06/01/20 10:49	06/02/20 21:48	117-84-0	
bis(2-Ethylhexyl)phthalate	<b>0.39J</b>	ug/L	0.98	0.35	1	06/01/20 10:49	06/02/20 21:48	117-81-7	
Fluoranthene	<b>0.98 U</b>	ug/L	0.98	0.23	1	06/01/20 10:49	06/02/20 21:48	206-44-0	
Fluorene	<b>0.98 U</b>	ug/L	0.98	0.36	1	06/01/20 10:49	06/02/20 21:48	86-73-7	
Hexachloro-1,3-butadiene	<b>0.98 U</b>	ug/L	0.98	0.32	1	06/01/20 10:49	06/02/20 21:48	87-68-3	
Hexachlorobenzene	<b>0.98 U</b>	ug/L	0.98	0.30	1	06/01/20 10:49	06/02/20 21:48	118-74-1	
Hexachlorocyclopentadiene	<b>0.98 U</b>	ug/L	0.98	0.19	1	06/01/20 10:49	06/02/20 21:48	77-47-4	
Hexachloroethane	<b>0.98 U</b>	ug/L	0.98	0.30	1	06/01/20 10:49	06/02/20 21:48	67-72-1	
Indeno(1,2,3-cd)pyrene	<b>0.98 U</b>	ug/L	0.98	0.30	1	06/01/20 10:49	06/02/20 21:48	193-39-5	
Isophorone	<b>0.98 U</b>	ug/L	0.98	0.56	1	06/01/20 10:49	06/02/20 21:48	78-59-1	
2-Methylnaphthalene	<b>0.98 U</b>	ug/L	0.98	0.34	1	06/01/20 10:49	06/02/20 21:48	91-57-6	
2-Methylphenol(o-Cresol)	<b>0.98 U</b>	ug/L	0.98	0.36	1	06/01/20 10:49	06/02/20 21:48	95-48-7	
3&4-Methylphenol(m&p Cresol)	<b>2.0 U</b>	ug/L	2.0	1.9	1	06/01/20 10:49	06/02/20 21:48		
Naphthalene	<b>0.98 U</b>	ug/L	0.98	0.34	1	06/01/20 10:49	06/02/20 21:48	91-20-3	
2-Nitroaniline	<b>2.5 U</b>	ug/L	2.5	0.70	1	06/01/20 10:49	06/02/20 21:48	88-74-4	
4-Nitroaniline	<b>2.5 U</b>	ug/L	2.5	1.8	1	06/01/20 10:49	06/02/20 21:48	100-01-6	
Nitrobenzene	<b>0.98 U</b>	ug/L	0.98	0.37	1	06/01/20 10:49	06/02/20 21:48	98-95-3	
N-Nitroso-di-n-propylamine	<b>0.98 U</b>	ug/L	0.98	0.53	1	06/01/20 10:49	06/02/20 21:48	621-64-7	
N-Nitrosodiphenylamine	<b>0.98 U</b>	ug/L	0.98	0.25	1	06/01/20 10:49	06/02/20 21:48	86-30-6	
Pentachlorophenol	<b>2.5 U</b>	ug/L	2.5	1.0	1	06/01/20 10:49	06/02/20 21:48	87-86-5	
Phenanthrene	<b>0.98 U</b>	ug/L	0.98	0.33	1	06/01/20 10:49	06/02/20 21:48	85-01-8	
Phenol	<b>0.98 U</b>	ug/L	0.98	0.22	1	06/01/20 10:49	06/02/20 21:48	108-95-2	
Pyrene	<b>0.98 U</b>	ug/L	0.98	0.30	1	06/01/20 10:49	06/02/20 21:48	129-00-0	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample:** field blank      **Lab ID:** 30365510016      Collected: 05/29/20 15:00      Received: 05/29/20 23:15      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270D MSSV Organics</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3510C									
Pace Analytical Services - Greensburg									
1,2,4,5-Tetrachlorobenzene	0.98 U	ug/L	0.98	0.31	1	06/01/20 10:49	06/02/20 21:48	95-94-3	
2,3,4,6-Tetrachlorophenol	0.98 U	ug/L	0.98	0.28	1	06/01/20 10:49	06/02/20 21:48	58-90-2	
2,4,5-Trichlorophenol	2.5 U	ug/L	2.5	0.66	1	06/01/20 10:49	06/02/20 21:48	95-95-4	
2,4,6-Trichlorophenol	0.98 U	ug/L	0.98	0.36	1	06/01/20 10:49	06/02/20 21:48	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	48	%	10-140		1	06/01/20 10:49	06/02/20 21:48	4165-60-0	
2-Fluorobiphenyl (S)	45	%	10-135		1	06/01/20 10:49	06/02/20 21:48	321-60-8	
Terphenyl-d14 (S)	61	%	10-128		1	06/01/20 10:49	06/02/20 21:48	1718-51-0	
Phenol-d6 (S)	18	%	10-145		1	06/01/20 10:49	06/02/20 21:48	13127-88-3	
2-Fluorophenol (S)	27	%	10-142		1	06/01/20 10:49	06/02/20 21:48	367-12-4	
2,4,6-Tribromophenol (S)	59	%	10-140		1	06/01/20 10:49	06/02/20 21:48	118-79-6	
<b>8260B MSV</b>									
Analytical Method: EPA 8260B									
Pace Analytical Services - Greensburg									
Acetone	10.0 U	ug/L	10.0	5.6	1		06/02/20 16:02	67-64-1	
Benzene	1.0 U	ug/L	1.0	0.34	1		06/02/20 16:02	71-43-2	
Bromodichloromethane	1.0 U	ug/L	1.0	0.35	1		06/02/20 16:02	75-27-4	
Bromoform	1.0 U	ug/L	1.0	0.56	1		06/02/20 16:02	75-25-2	
Bromomethane	1.0 U	ug/L	1.0	0.73	1		06/02/20 16:02	74-83-9	CL
2-Butanone (MEK)	10.0 U	ug/L	10.0	1.5	1		06/02/20 16:02	78-93-3	
Carbon disulfide	1.0 U	ug/L	1.0	0.32	1		06/02/20 16:02	75-15-0	
Carbon tetrachloride	1.0 U	ug/L	1.0	0.44	1		06/02/20 16:02	56-23-5	
Chlorobenzene	1.0 U	ug/L	1.0	0.26	1		06/02/20 16:02	108-90-7	
Chloroethane	1.0 U	ug/L	1.0	0.64	1		06/02/20 16:02	75-00-3	
Chloroform	1.0 U	ug/L	1.0	0.39	1		06/02/20 16:02	67-66-3	
Chloromethane	1.0 U	ug/L	1.0	0.40	1		06/02/20 16:02	74-87-3	
Cyclohexane	10.0 U	ug/L	10.0	0.33	1		06/02/20 16:02	110-82-7	
1,2-Dibromo-3-chloropropane	5.0 U	ug/L	5.0	0.55	1		06/02/20 16:02	96-12-8	
Dibromochloromethane	1.0 U	ug/L	1.0	0.43	1		06/02/20 16:02	124-48-1	
1,2-Dibromoethane (EDB)	1.0 U	ug/L	1.0	0.44	1		06/02/20 16:02	106-93-4	
1,2-Dichlorobenzene	1.0 U	ug/L	1.0	0.38	1		06/02/20 16:02	95-50-1	
1,3-Dichlorobenzene	1.0 U	ug/L	1.0	0.45	1		06/02/20 16:02	541-73-1	
1,4-Dichlorobenzene	1.0 U	ug/L	1.0	0.48	1		06/02/20 16:02	106-46-7	
Dichlorodifluoromethane	1.0 U	ug/L	1.0	0.63	1		06/02/20 16:02	75-71-8	IH
1,1-Dichloroethane	1.0 U	ug/L	1.0	0.24	1		06/02/20 16:02	75-34-3	
1,2-Dichloroethane	1.0 U	ug/L	1.0	0.33	1		06/02/20 16:02	107-06-2	
1,2-Dichloroethene (Total)	2.0 U	ug/L	2.0	0.66	1		06/02/20 16:02	540-59-0	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.24	1		06/02/20 16:02	75-35-4	
cis-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.38	1		06/02/20 16:02	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.28	1		06/02/20 16:02	156-60-5	
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.28	1		06/02/20 16:02	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.29	1		06/02/20 16:02	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.32	1		06/02/20 16:02	10061-02-6	
Ethylbenzene	1.0 U	ug/L	1.0	0.40	1		06/02/20 16:02	100-41-4	
2-Hexanone	10.0 U	ug/L	10.0	0.58	1		06/02/20 16:02	591-78-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

Sample: field blank      Lab ID: 30365510016      Collected: 05/29/20 15:00      Received: 05/29/20 23:15      Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260B MSV</b>									
Analytical Method: EPA 8260B Pace Analytical Services - Greensburg									
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.47	1		06/02/20 16:02	98-82-8	
Methyl acetate	5.0 U	ug/L	5.0	0.55	1		06/02/20 16:02	79-20-9	
Methylene Chloride	1.0 U	ug/L	1.0	0.64	1		06/02/20 16:02	75-09-2	
4-Methyl-2-pentanone (MIBK)	10.0 U	ug/L	10.0	0.42	1		06/02/20 16:02	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.25	1		06/02/20 16:02	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.33	1		06/02/20 16:02	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.47	1		06/02/20 16:02	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.39	1		06/02/20 16:02	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.32	1		06/02/20 16:02	108-88-3	
1,2,3-Trichlorobenzene	2.0 U	ug/L	2.0	0.89	1		06/02/20 16:02	87-61-6	
1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	0.73	1		06/02/20 16:02	120-82-1	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.38	1		06/02/20 16:02	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.33	1		06/02/20 16:02	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.29	1		06/02/20 16:02	79-01-6	
Trichlorofluoromethane	1.0 U	ug/L	1.0	0.51	1		06/02/20 16:02	75-69-4	
1,1,2-Trichlorotrifluoroethane	50.0 U	ug/L	50.0	3.0	1		06/02/20 16:02	76-13-1	
Vinyl chloride	1.0 U	ug/L	1.0	0.29	1		06/02/20 16:02	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	1.4	1		06/02/20 16:02	1330-20-7	
m&p-Xylene	2.0 U	ug/L	2.0	0.94	1		06/02/20 16:02	179601-23-1	
o-Xylene	1.0 U	ug/L	1.0	0.41	1		06/02/20 16:02	95-47-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	95	%	70-130		1		06/02/20 16:02	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	70-130		1		06/02/20 16:02	17060-07-0	
Toluene-d8 (S)	91	%	70-130		1		06/02/20 16:02	2037-26-5	
Dibromofluoromethane (S)	103	%	70-130		1		06/02/20 16:02	1868-53-7	
<b>HEM, Oil and Grease</b>									
Analytical Method: EPA 1664A Pace Analytical Services - Greensburg									
Oil and Grease	4750 U	ug/L	4750	923	1		06/02/20 03:40		
<b>7196 Chromium, Hexavalent</b>									
Analytical Method: EPA 7196A Pace Analytical Services - Greensburg									
Chromium, Hexavalent	10.0 U	ug/L	10.0	8.1	1		05/29/20 23:44	18540-29-9	2c
<b>9012B Cyanide, Total</b>									
Analytical Method: EPA 9012B      Preparation Method: EPA 9012B Pace Analytical Services - Greensburg									
Cyanide	0.010 U	mg/L	0.010	0.0057	1	06/02/20 07:05	06/02/20 10:32	57-12-5	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

Sample: EQ blank      Lab ID: 30365510017      Collected: 05/29/20 15:05      Received: 05/29/20 23:15      Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015 TPH</b>									
Analytical Method: EPA 8015B    Preparation Method: EPA 3510C Pace Analytical Services - Greensburg									
TPH (C10-C28)	<b>72.0J</b>	ug/L	99.5	55.8	1	06/02/20 08:58	06/04/20 17:12		1c
<b>Surrogates</b>									
o-Terphenyl (S)	53	%	75-125		1	06/02/20 08:58	06/04/20 17:12	84-15-1	S8,SR
<b>Gasoline Range Organics</b>									
Analytical Method: EPA 5030/8015B Pace Analytical Services - Greensburg									
TPH (C06-C10)	<b>200 U</b>	ug/L	200	98.0	1		06/02/20 22:16		CH
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	91	%	75-125		1		06/02/20 22:16	98-08-8	CH
4-Bromofluorobenzene (S)	103	%	75-125		1		06/02/20 22:16	460-00-4	
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Aluminum	<b>28.6J</b>	ug/L	50.0	20.3	1	06/01/20 08:03	06/02/20 12:00	7429-90-5	
Antimony	<b>6.0 U</b>	ug/L	6.0	3.3	1	06/01/20 08:03	06/02/20 10:07	7440-36-0	
Arsenic	<b>5.0 U</b>	ug/L	5.0	2.0	1	06/01/20 08:03	06/02/20 10:07	7440-38-2	
Barium	<b>3.4J</b>	ug/L	10.0	0.68	1	06/01/20 08:03	06/02/20 10:07	7440-39-3	
Beryllium	<b>1.0 U</b>	ug/L	1.0	0.17	1	06/01/20 08:03	06/02/20 10:07	7440-41-7	
Cadmium	<b>3.0 U</b>	ug/L	3.0	0.34	1	06/01/20 08:03	06/02/20 10:07	7440-43-9	
Chromium	<b>0.42J</b>	ug/L	5.0	0.35	1	06/01/20 08:03	06/02/20 10:07	7440-47-3	
Cobalt	<b>5.0 U</b>	ug/L	5.0	0.53	1	06/01/20 08:03	06/02/20 10:07	7440-48-4	
Copper	<b>5.0 U</b>	ug/L	5.0	2.7	1	06/01/20 08:03	06/02/20 10:07	7440-50-8	
Iron	<b>238</b>	ug/L	70.0	40.9	1	06/01/20 08:03	06/02/20 10:07	7439-89-6	
Lead	<b>5.0 U</b>	ug/L	5.0	4.9	1	06/01/20 08:03	06/02/20 10:07	7439-92-1	
Manganese	<b>29.1</b>	ug/L	5.0	1.2	1	06/01/20 08:03	06/02/20 10:07	7439-96-5	
Nickel	<b>10.0 U</b>	ug/L	10.0	1.5	1	06/01/20 08:03	06/02/20 10:07	7440-02-0	
Selenium	<b>8.0 U</b>	ug/L	8.0	5.5	1	06/01/20 08:03	06/02/20 12:00	7782-49-2	
Silver	<b>6.0 U</b>	ug/L	6.0	1.4	1	06/01/20 08:03	06/02/20 12:00	7440-22-4	
Thallium	<b>10.0 U</b>	ug/L	10.0	4.0	1	06/01/20 08:03	06/02/20 10:07	7440-28-0	
Vanadium	<b>5.0 U</b>	ug/L	5.0	0.57	1	06/01/20 08:03	06/02/20 10:07	7440-62-2	
Zinc	<b>2.8J</b>	ug/L	10.0	2.4	1	06/01/20 08:03	06/02/20 10:07	7440-66-6	
<b>7470 Mercury</b>									
Analytical Method: EPA 7470A    Preparation Method: EPA 7470A Pace Analytical Services - Greensburg									
Mercury	<b>0.20 U</b>	ug/L	0.20	0.030	1	06/01/20 15:19	06/02/20 06:07	7439-97-6	11c
<b>8270D MSSV Organics</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3510C Pace Analytical Services - Greensburg									
Acenaphthene	<b>0.97 U</b>	ug/L	0.97	0.38	1	06/01/20 10:49	06/02/20 22:11	83-32-9	
Acenaphthylene	<b>0.97 U</b>	ug/L	0.97	0.37	1	06/01/20 10:49	06/02/20 22:11	208-96-8	
Acetophenone	<b>0.97 U</b>	ug/L	0.97	0.41	1	06/01/20 10:49	06/02/20 22:11	98-86-2	
Anthracene	<b>0.97 U</b>	ug/L	0.97	0.26	1	06/01/20 10:49	06/02/20 22:11	120-12-7	
Benzaldehyde	<b>0.97 U</b>	ug/L	0.97	0.42	1	06/01/20 10:49	06/02/20 22:11	100-52-7	
Benzo(a)anthracene	<b>0.97 U</b>	ug/L	0.97	0.20	1	06/01/20 10:49	06/02/20 22:11	56-55-3	
Benzo(a)pyrene	<b>0.97 U</b>	ug/L	0.97	0.18	1	06/01/20 10:49	06/02/20 22:11	50-32-8	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: EQ blank**      **Lab ID: 30365510017**      Collected: 05/29/20 15:05      Received: 05/29/20 23:15      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270D MSSV Organics</b>			Analytical Method: EPA 8270D    Preparation Method: EPA 3510C Pace Analytical Services - Greensburg						
Benzo(b)fluoranthene	<b>0.97 U</b>	ug/L	0.97	0.23	1	06/01/20 10:49	06/02/20 22:11	205-99-2	
Benzo(g,h,i)perylene	<b>0.97 U</b>	ug/L	0.97	0.29	1	06/01/20 10:49	06/02/20 22:11	191-24-2	
Benzo(k)fluoranthene	<b>0.97 U</b>	ug/L	0.97	0.25	1	06/01/20 10:49	06/02/20 22:11	207-08-9	
Biphenyl (Diphenyl)	<b>0.97 U</b>	ug/L	0.97	0.31	1	06/01/20 10:49	06/02/20 22:11	92-52-4	
Caprolactam	<b>2.4 U</b>	ug/L	2.4	0.31	1	06/01/20 10:49	06/02/20 22:11	105-60-2	
Carbazole	<b>0.97 U</b>	ug/L	0.97	0.23	1	06/01/20 10:49	06/02/20 22:11	86-74-8	
4-Chloroaniline	<b>0.97 U</b>	ug/L	0.97	0.21	1	06/01/20 10:49	06/02/20 22:11	106-47-8	
bis(2-Chloroethoxy)methane	<b>0.97 U</b>	ug/L	0.97	0.34	1	06/01/20 10:49	06/02/20 22:11	111-91-1	
bis(2-Chloroethyl) ether	<b>0.97 U</b>	ug/L	0.97	0.40	1	06/01/20 10:49	06/02/20 22:11	111-44-4	
bis(2-Chloroisopropyl) ether	<b>0.97 U</b>	ug/L	0.97	0.39	1	06/01/20 10:49	06/02/20 22:11	108-60-1	
2-Chloronaphthalene	<b>0.97 U</b>	ug/L	0.97	0.32	1	06/01/20 10:49	06/02/20 22:11	91-58-7	
2-Chlorophenol	<b>0.97 U</b>	ug/L	0.97	0.32	1	06/01/20 10:49	06/02/20 22:11	95-57-8	
Chrysene	<b>0.97 U</b>	ug/L	0.97	0.20	1	06/01/20 10:49	06/02/20 22:11	218-01-9	
Dibenz(a,h)anthracene	<b>0.97 U</b>	ug/L	0.97	0.30	1	06/01/20 10:49	06/02/20 22:11	53-70-3	
3,3'-Dichlorobenzidine	<b>0.97 U</b>	ug/L	0.97	0.22	1	06/01/20 10:49	06/02/20 22:11	91-94-1	L2
2,4-Dichlorophenol	<b>0.97 U</b>	ug/L	0.97	0.33	1	06/01/20 10:49	06/02/20 22:11	120-83-2	
Diethylphthalate	<b>0.97 U</b>	ug/L	0.97	0.35	1	06/01/20 10:49	06/02/20 22:11	84-66-2	
2,4-Dimethylphenol	<b>0.97 U</b>	ug/L	0.97	0.35	1	06/01/20 10:49	06/02/20 22:11	105-67-9	
Di-n-butylphthalate	<b>0.34J</b>	ug/L	0.97	0.31	1	06/01/20 10:49	06/02/20 22:11	84-74-2	B
2,4-Dinitrophenol	<b>2.4 U</b>	ug/L	2.4	0.57	1	06/01/20 10:49	06/02/20 22:11	51-28-5	
2,4-Dinitrotoluene	<b>0.97 U</b>	ug/L	0.97	0.35	1	06/01/20 10:49	06/02/20 22:11	121-14-2	
2,6-Dinitrotoluene	<b>0.97 U</b>	ug/L	0.97	0.39	1	06/01/20 10:49	06/02/20 22:11	606-20-2	
Di-n-octylphthalate	<b>0.97 U</b>	ug/L	0.97	0.26	1	06/01/20 10:49	06/02/20 22:11	117-84-0	
bis(2-Ethylhexyl)phthalate	<b>0.97 U</b>	ug/L	0.97	0.35	1	06/01/20 10:49	06/02/20 22:11	117-81-7	
Fluoranthene	<b>0.97 U</b>	ug/L	0.97	0.23	1	06/01/20 10:49	06/02/20 22:11	206-44-0	
Fluorene	<b>0.97 U</b>	ug/L	0.97	0.36	1	06/01/20 10:49	06/02/20 22:11	86-73-7	
Hexachloro-1,3-butadiene	<b>0.97 U</b>	ug/L	0.97	0.32	1	06/01/20 10:49	06/02/20 22:11	87-68-3	
Hexachlorobenzene	<b>0.97 U</b>	ug/L	0.97	0.30	1	06/01/20 10:49	06/02/20 22:11	118-74-1	
Hexachlorocyclopentadiene	<b>0.97 U</b>	ug/L	0.97	0.19	1	06/01/20 10:49	06/02/20 22:11	77-47-4	
Hexachloroethane	<b>0.97 U</b>	ug/L	0.97	0.29	1	06/01/20 10:49	06/02/20 22:11	67-72-1	
Indeno(1,2,3-cd)pyrene	<b>0.97 U</b>	ug/L	0.97	0.30	1	06/01/20 10:49	06/02/20 22:11	193-39-5	
Isophorone	<b>0.97 U</b>	ug/L	0.97	0.56	1	06/01/20 10:49	06/02/20 22:11	78-59-1	
2-Methylnaphthalene	<b>0.97 U</b>	ug/L	0.97	0.33	1	06/01/20 10:49	06/02/20 22:11	91-57-6	
2-Methylphenol(o-Cresol)	<b>0.97 U</b>	ug/L	0.97	0.36	1	06/01/20 10:49	06/02/20 22:11	95-48-7	
3&4-Methylphenol(m&p Cresol)	<b>1.9 U</b>	ug/L	1.9	1.8	1	06/01/20 10:49	06/02/20 22:11		
Naphthalene	<b>0.97 U</b>	ug/L	0.97	0.34	1	06/01/20 10:49	06/02/20 22:11	91-20-3	
2-Nitroaniline	<b>2.4 U</b>	ug/L	2.4	0.69	1	06/01/20 10:49	06/02/20 22:11	88-74-4	
4-Nitroaniline	<b>2.4 U</b>	ug/L	2.4	1.8	1	06/01/20 10:49	06/02/20 22:11	100-01-6	
Nitrobenzene	<b>0.97 U</b>	ug/L	0.97	0.36	1	06/01/20 10:49	06/02/20 22:11	98-95-3	
N-Nitroso-di-n-propylamine	<b>0.97 U</b>	ug/L	0.97	0.52	1	06/01/20 10:49	06/02/20 22:11	621-64-7	
N-Nitrosodiphenylamine	<b>0.97 U</b>	ug/L	0.97	0.25	1	06/01/20 10:49	06/02/20 22:11	86-30-6	
Pentachlorophenol	<b>2.4 U</b>	ug/L	2.4	1.0	1	06/01/20 10:49	06/02/20 22:11	87-86-5	
Phenanthrene	<b>0.97 U</b>	ug/L	0.97	0.33	1	06/01/20 10:49	06/02/20 22:11	85-01-8	
Phenol	<b>0.97 U</b>	ug/L	0.97	0.22	1	06/01/20 10:49	06/02/20 22:11	108-95-2	
Pyrene	<b>0.97 U</b>	ug/L	0.97	0.29	1	06/01/20 10:49	06/02/20 22:11	129-00-0	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

**Sample: EQ blank**      **Lab ID: 30365510017**      Collected: 05/29/20 15:05      Received: 05/29/20 23:15      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270D MSSV Organics</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3510C									
Pace Analytical Services - Greensburg									
1,2,4,5-Tetrachlorobenzene	<b>0.97 U</b>	ug/L	0.97	0.30	1	06/01/20 10:49	06/02/20 22:11	95-94-3	
2,3,4,6-Tetrachlorophenol	<b>0.97 U</b>	ug/L	0.97	0.27	1	06/01/20 10:49	06/02/20 22:11	58-90-2	
2,4,5-Trichlorophenol	<b>2.4 U</b>	ug/L	2.4	0.65	1	06/01/20 10:49	06/02/20 22:11	95-95-4	
2,4,6-Trichlorophenol	<b>0.97 U</b>	ug/L	0.97	0.36	1	06/01/20 10:49	06/02/20 22:11	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	45	%	10-140		1	06/01/20 10:49	06/02/20 22:11	4165-60-0	
2-Fluorobiphenyl (S)	41	%	10-135		1	06/01/20 10:49	06/02/20 22:11	321-60-8	
Terphenyl-d14 (S)	59	%	10-128		1	06/01/20 10:49	06/02/20 22:11	1718-51-0	
Phenol-d6 (S)	16	%	10-145		1	06/01/20 10:49	06/02/20 22:11	13127-88-3	
2-Fluorophenol (S)	25	%	10-142		1	06/01/20 10:49	06/02/20 22:11	367-12-4	
2,4,6-Tribromophenol (S)	50	%	10-140		1	06/01/20 10:49	06/02/20 22:11	118-79-6	
<b>8260B MSV</b>									
Analytical Method: EPA 8260B									
Pace Analytical Services - Greensburg									
Acetone	<b>10.0 U</b>	ug/L	10.0	5.6	1		06/02/20 16:26	67-64-1	
Benzene	<b>1.0 U</b>	ug/L	1.0	0.34	1		06/02/20 16:26	71-43-2	
Bromodichloromethane	<b>1.0 U</b>	ug/L	1.0	0.35	1		06/02/20 16:26	75-27-4	
Bromoform	<b>1.0 U</b>	ug/L	1.0	0.56	1		06/02/20 16:26	75-25-2	
Bromomethane	<b>1.0 U</b>	ug/L	1.0	0.73	1		06/02/20 16:26	74-83-9	CL
2-Butanone (MEK)	<b>10.0 U</b>	ug/L	10.0	1.5	1		06/02/20 16:26	78-93-3	
Carbon disulfide	<b>1.0 U</b>	ug/L	1.0	0.32	1		06/02/20 16:26	75-15-0	
Carbon tetrachloride	<b>1.0 U</b>	ug/L	1.0	0.44	1		06/02/20 16:26	56-23-5	
Chlorobenzene	<b>1.0 U</b>	ug/L	1.0	0.26	1		06/02/20 16:26	108-90-7	
Chloroethane	<b>1.0 U</b>	ug/L	1.0	0.64	1		06/02/20 16:26	75-00-3	
Chloroform	<b>1.0 U</b>	ug/L	1.0	0.39	1		06/02/20 16:26	67-66-3	
Chloromethane	<b>1.0 U</b>	ug/L	1.0	0.40	1		06/02/20 16:26	74-87-3	
Cyclohexane	<b>10.0 U</b>	ug/L	10.0	0.33	1		06/02/20 16:26	110-82-7	
1,2-Dibromo-3-chloropropane	<b>5.0 U</b>	ug/L	5.0	0.55	1		06/02/20 16:26	96-12-8	
Dibromochloromethane	<b>1.0 U</b>	ug/L	1.0	0.43	1		06/02/20 16:26	124-48-1	
1,2-Dibromoethane (EDB)	<b>1.0 U</b>	ug/L	1.0	0.44	1		06/02/20 16:26	106-93-4	
1,2-Dichlorobenzene	<b>1.0 U</b>	ug/L	1.0	0.38	1		06/02/20 16:26	95-50-1	
1,3-Dichlorobenzene	<b>1.0 U</b>	ug/L	1.0	0.45	1		06/02/20 16:26	541-73-1	
1,4-Dichlorobenzene	<b>1.0 U</b>	ug/L	1.0	0.48	1		06/02/20 16:26	106-46-7	
Dichlorodifluoromethane	<b>1.0 U</b>	ug/L	1.0	0.63	1		06/02/20 16:26	75-71-8	IH
1,1-Dichloroethane	<b>1.0 U</b>	ug/L	1.0	0.24	1		06/02/20 16:26	75-34-3	
1,2-Dichloroethane	<b>1.0 U</b>	ug/L	1.0	0.33	1		06/02/20 16:26	107-06-2	
1,2-Dichloroethene (Total)	<b>2.0 U</b>	ug/L	2.0	0.66	1		06/02/20 16:26	540-59-0	
1,1-Dichloroethene	<b>1.0 U</b>	ug/L	1.0	0.24	1		06/02/20 16:26	75-35-4	
cis-1,2-Dichloroethene	<b>1.0 U</b>	ug/L	1.0	0.38	1		06/02/20 16:26	156-59-2	
trans-1,2-Dichloroethene	<b>1.0 U</b>	ug/L	1.0	0.28	1		06/02/20 16:26	156-60-5	
1,2-Dichloropropane	<b>1.0 U</b>	ug/L	1.0	0.28	1		06/02/20 16:26	78-87-5	
cis-1,3-Dichloropropene	<b>1.0 U</b>	ug/L	1.0	0.29	1		06/02/20 16:26	10061-01-5	
trans-1,3-Dichloropropene	<b>1.0 U</b>	ug/L	1.0	0.32	1		06/02/20 16:26	10061-02-6	
Ethylbenzene	<b>1.0 U</b>	ug/L	1.0	0.40	1		06/02/20 16:26	100-41-4	
2-Hexanone	<b>10.0 U</b>	ug/L	10.0	0.58	1		06/02/20 16:26	591-78-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: B9 Phase II  
Pace Project No.: 30365510

Sample: EQ blank		Lab ID: 30365510017		Collected: 05/29/20 15:05		Received: 05/29/20 23:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260B MSV</b>		Analytical Method: EPA 8260B Pace Analytical Services - Greensburg							
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.47	1		06/02/20 16:26	98-82-8	
Methyl acetate	5.0 U	ug/L	5.0	0.55	1		06/02/20 16:26	79-20-9	
Methylene Chloride	1.0 U	ug/L	1.0	0.64	1		06/02/20 16:26	75-09-2	
4-Methyl-2-pentanone (MIBK)	10.0 U	ug/L	10.0	0.42	1		06/02/20 16:26	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.25	1		06/02/20 16:26	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.33	1		06/02/20 16:26	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.47	1		06/02/20 16:26	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.39	1		06/02/20 16:26	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.32	1		06/02/20 16:26	108-88-3	
1,2,3-Trichlorobenzene	2.0 U	ug/L	2.0	0.89	1		06/02/20 16:26	87-61-6	
1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	0.73	1		06/02/20 16:26	120-82-1	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.38	1		06/02/20 16:26	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.33	1		06/02/20 16:26	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.29	1		06/02/20 16:26	79-01-6	
Trichlorofluoromethane	1.0 U	ug/L	1.0	0.51	1		06/02/20 16:26	75-69-4	
1,1,2-Trichlorotrifluoroethane	50.0 U	ug/L	50.0	3.0	1		06/02/20 16:26	76-13-1	
Vinyl chloride	1.0 U	ug/L	1.0	0.29	1		06/02/20 16:26	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	1.4	1		06/02/20 16:26	1330-20-7	
m&p-Xylene	2.0 U	ug/L	2.0	0.94	1		06/02/20 16:26	179601-23-1	
o-Xylene	1.0 U	ug/L	1.0	0.41	1		06/02/20 16:26	95-47-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	94	%	70-130		1		06/02/20 16:26	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	70-130		1		06/02/20 16:26	17060-07-0	
Toluene-d8 (S)	92	%	70-130		1		06/02/20 16:26	2037-26-5	
Dibromofluoromethane (S)	107	%	70-130		1		06/02/20 16:26	1868-53-7	
<b>HEM, Oil and Grease</b>		Analytical Method: EPA 1664A Pace Analytical Services - Greensburg							
Oil and Grease	4750 U	ug/L	4750	923	1		06/02/20 03:40		
<b>7196 Chromium, Hexavalent</b>		Analytical Method: EPA 7196A Pace Analytical Services - Greensburg							
Chromium, Hexavalent	10.0 U	ug/L	10.0	8.1	1		05/29/20 23:44	18540-29-9	2c
<b>9012B Cyanide, Total</b>		Analytical Method: EPA 9012B Preparation Method: EPA 9012B Pace Analytical Services - Greensburg							
Cyanide	0.010 U	mg/L	0.010	0.0057	1	06/02/20 07:05	06/02/20 10:35	57-12-5	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

QC Batch:	399389	Analysis Method:	EPA 8015B
QC Batch Method:	EPA 5035A/5030B	Analysis Description:	Gasoline Range Organics
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013, 30365510015

METHOD BLANK: 1934020 Matrix: Solid  
Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013, 30365510015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
TPH (C06-C10)	mg/kg	10.0 U	10.0	5.5	06/04/20 19:21	
4-Bromofluorobenzene (S)	%	95	60-125		06/04/20 19:21	
a,a,a-Trifluorotoluene (S)	%	72	60-125		06/04/20 19:21	

LABORATORY CONTROL SAMPLE: 1934021

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
TPH (C06-C10)	mg/kg	50	41.2	82	80-120	
4-Bromofluorobenzene (S)	%			95	60-125	
a,a,a-Trifluorotoluene (S)	%			79	60-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1934022 1934023

Parameter	Units	30365510002		30365510003		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
TPH (C06-C10)	mg/kg	16.3 U	81.6	81.4	66.5	63.7	80	77	65-135	4	30
4-Bromofluorobenzene (S)	%						89	89	60-125		
a,a,a-Trifluorotoluene (S)	%						55	48	60-125		S2,SR

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA

Project: B9 Phase II

Pace Project No.: 30365510

QC Batch:	398943	Analysis Method:	EPA 5030/8015B
QC Batch Method:	EPA 5030/8015B	Analysis Description:	Gasoline Range Organics
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30365510014, 30365510016, 30365510017

METHOD BLANK: 1931949 Matrix: Water

Associated Lab Samples: 30365510014, 30365510016, 30365510017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
TPH (C06-C10)	ug/L	200 U	200	98.0	06/02/20 21:04	CH
4-Bromofluorobenzene (S)	%.	102	75-125		06/02/20 21:04	
a,a,a-Trifluorotoluene (S)	%.	81	75-125		06/02/20 21:04	CH

LABORATORY CONTROL SAMPLE: 1931950

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
TPH (C06-C10)	ug/L	1000	997	100	80-120	CH
4-Bromofluorobenzene (S)	%.			102	75-125	
a,a,a-Trifluorotoluene (S)	%.			105	75-125	CH

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

QC Batch: 398787      Analysis Method: EPA 7470A  
QC Batch Method: EPA 7470A      Analysis Description: 7470 Mercury  
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30365510016, 30365510017

METHOD BLANK: 1931341      Matrix: Water

Associated Lab Samples: 30365510016, 30365510017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	0.20 U	0.20	0.030	06/02/20 06:04	

LABORATORY CONTROL SAMPLE: 1931342

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	0.99	99	80-120	

MATRIX SPIKE SAMPLE: 1931344

Parameter	Units	30365510017 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	0.20 U	2.5	2.7	106	75-125	

SAMPLE DUPLICATE: 1931343

Parameter	Units	30365510017 Result	Dup Result	RPD	Max RPD	Qualifiers
Mercury	ug/L	0.20 U	0.20 U		20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

QC Batch: 399141 Analysis Method: EPA 7471A  
QC Batch Method: EPA 7471A Analysis Description: 7471 Mercury  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013

METHOD BLANK: 1932858 Matrix: Solid  
Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/kg	0.096 U	0.096	0.0047	06/04/20 05:56	

LABORATORY CONTROL SAMPLE: 1932859

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	0.21	0.22	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1932861 1932862

Parameter	Units	30365510002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	0.11 U	0.58	0.58	0.62	0.63	107	108	80-120	1	20	

SAMPLE DUPLICATE: 1932860

Parameter	Units	30365510002 Result	Dup Result	RPD	Max RPD	Qualifiers
Mercury	mg/kg	0.11 U	0.11 U		20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

QC Batch: 399081 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3050B Analysis Description: 6010C MET  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013

METHOD BLANK: 1932669 Matrix: Solid  
Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aluminum	mg/kg	9.8 U	9.8	2.5	06/04/20 10:46	10c,9c
Antimony	mg/kg	0.59 U	0.59	0.47	06/04/20 10:46	10c,9c
Arsenic	mg/kg	0.49 U	0.49	0.47	06/04/20 10:46	10c,9c
Barium	mg/kg	2.0 U	2.0	0.092	06/04/20 10:46	10c,9c
Beryllium	mg/kg	0.20 U	0.20	0.030	06/04/20 10:46	10c,9c
Cadmium	mg/kg	0.29 U	0.29	0.060	06/04/20 10:46	10c,9c
Chromium	mg/kg	0.49 U	0.49	0.090	06/04/20 10:46	10c,9c
Cobalt	mg/kg	0.98 U	0.98	0.10	06/04/20 10:46	10c,9c
Copper	mg/kg	0.98 U	0.98	0.57	06/04/20 10:46	10c,9c
Iron	mg/kg	1.3J	9.8	1.1	06/04/20 10:46	10c,9c
Lead	mg/kg	0.49 U	0.49	0.48	06/04/20 10:46	10c,9c
Manganese	mg/kg	0.32J	0.98	0.098	06/04/20 10:46	10c,9c
Nickel	mg/kg	2.0 U	2.0	0.24	06/04/20 10:46	10c,9c
Selenium	mg/kg	0.78 U	0.78	0.57	06/04/20 10:46	10c,9c
Silver	mg/kg	0.59 U	0.59	0.095	06/04/20 10:46	10c,9c
Thallium	mg/kg	2.0 U	2.0	0.60	06/04/20 10:46	10c,9c
Vanadium	mg/kg	0.98 U	0.98	0.080	06/04/20 10:46	10c,9c
Zinc	mg/kg	0.98 U	0.98	0.16	06/04/20 10:46	10c,9c

LABORATORY CONTROL SAMPLE: 1932670

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	mg/kg	500	477	95	80-120	10c,9c
Antimony	mg/kg	50	50.4	101	80-120	10c,9c
Arsenic	mg/kg	50	48.2	96	80-120	10c,9c
Barium	mg/kg	50	48.1	96	80-120	10c,9c
Beryllium	mg/kg	50	49.8	100	80-120	10c,9c
Cadmium	mg/kg	50	48.7	97	80-120	10c,9c
Chromium	mg/kg	50	49.9	100	80-120	10c,9c
Cobalt	mg/kg	50	48.1	96	80-120	10c,9c
Copper	mg/kg	50	47.6	95	80-120	10c,9c
Iron	mg/kg	500	491	98	80-120	10c,9c
Lead	mg/kg	50	46.8	94	80-120	10c,9c
Manganese	mg/kg	50	49.2	98	80-120	10c,9c
Nickel	mg/kg	50	52.7	105	80-120	10c,9c
Selenium	mg/kg	50	46.8	94	80-120	10c,9c
Silver	mg/kg	25	23.7	95	80-120	10c,9c

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

LABORATORY CONTROL SAMPLE: 1932670

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Thallium	mg/kg	50	49.1	98	80-120	10c,9c
Vanadium	mg/kg	50	47.8	96	80-120	10c,9c
Zinc	mg/kg	50	48.6	97	80-120	10c,9c

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1932671 1932672

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		30365510002 Result	Spike Conc.	Spike Conc.	Result								
Aluminum	mg/kg	8320	426	426	13700	10300	1250	455	75-125	28	20	10c,9c, MH,R1	
Antimony	mg/kg	3.1	42.6	42.6	15.0	18.3	28	36	75-125	20	20	10c,9c, ML	
Arsenic	mg/kg	16.0	42.6	42.6	55.7	57.6	93	98	75-125	3	20	10c,9c	
Barium	mg/kg	148	42.6	42.6	215	216	158	160	75-125	0	20	10c,9c, MH	
Beryllium	mg/kg	0.90	42.6	42.6	41.6	41.2	96	95	75-125	1	20	10c,9c	
Cadmium	mg/kg	2.2	42.6	42.6	43.5	43.1	97	96	75-125	1	20	10c,9c	
Chromium	mg/kg	12.3	42.6	42.6	57.4	57.4	106	106	75-125	0	20	10c,9c	
Cobalt	mg/kg	16.9	42.6	42.6	56.7	64.0	93	110	75-125	12	20	10c,9c	
Copper	mg/kg	153	42.6	42.6	196	259	102	250	75-125	28	20	10c,9c, MH,R1	
Iron	mg/kg	162000	426	426	137000	144000	-5920	-4160	75-125	5	20	10c,9c, ML	
Lead	mg/kg	57.6	42.6	42.6	89.5	121	75	150	75-125	30	20	10c,9c, MH,R1	
Manganese	mg/kg	29100	42.6	42.6	80600	45500	121000	38400	75-125	56	20	10c,9c, MH,R1	
Nickel	mg/kg	32.6	42.6	42.6	65.5	76.1	77	102	75-125	15	20	10c,9c	
Selenium	mg/kg	3.4 U	42.6	42.6	29.1	32.0	68	75	75-125	10	20	10c,9c, ML	
Silver	mg/kg	1.3J	21.3	21.3	22.9	21.3	101	94	75-125	7	20	10c,9c	
Thallium	mg/kg	4.4J	42.6	42.6	63.7	47.0	139	100	75-125	30	20	10c,9c, MH,R1	
Vanadium	mg/kg	35.2	42.6	42.6	91.7	82.3	133	111	75-125	11	20	10c,9c, MH	
Zinc	mg/kg	517	42.6	42.6	340	362	-416	-365	75-125	6	20	10c,9c, ML	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

QC Batch: 398662      Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A      Analysis Description: 6010C MET  
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30365510016, 30365510017

METHOD BLANK: 1930999      Matrix: Water

Associated Lab Samples: 30365510016, 30365510017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aluminum	ug/L	50.0 U	50.0	20.3	06/02/20 11:28	
Antimony	ug/L	6.0 U	6.0	3.3	06/02/20 09:34	
Arsenic	ug/L	5.0 U	5.0	2.0	06/02/20 09:34	
Barium	ug/L	10.0 U	10.0	0.68	06/02/20 09:34	
Beryllium	ug/L	1.0 U	1.0	0.17	06/02/20 09:34	
Cadmium	ug/L	3.0 U	3.0	0.34	06/02/20 09:34	
Chromium	ug/L	5.0 U	5.0	0.35	06/02/20 09:34	
Cobalt	ug/L	5.0 U	5.0	0.53	06/02/20 09:34	
Copper	ug/L	5.0 U	5.0	2.7	06/02/20 09:34	
Iron	ug/L	70.0 U	70.0	40.9	06/02/20 09:34	
Lead	ug/L	5.0 U	5.0	4.9	06/02/20 09:34	
Manganese	ug/L	5.0 U	5.0	1.2	06/02/20 09:34	
Nickel	ug/L	10.0 U	10.0	1.5	06/02/20 09:34	
Selenium	ug/L	8.0 U	8.0	5.5	06/02/20 11:28	
Silver	ug/L	6.0 U	6.0	1.4	06/02/20 11:28	
Thallium	ug/L	10.0 U	10.0	4.0	06/02/20 09:34	
Vanadium	ug/L	5.0 U	5.0	0.57	06/02/20 09:34	
Zinc	ug/L	10.0 U	10.0	2.4	06/02/20 09:34	

LABORATORY CONTROL SAMPLE: 1931000

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	5000	4980	100	80-120	
Antimony	ug/L	500	509	102	80-120	
Arsenic	ug/L	500	496	99	80-120	
Barium	ug/L	500	510	102	80-120	
Beryllium	ug/L	500	526	105	80-120	
Cadmium	ug/L	500	513	103	80-120	
Chromium	ug/L	500	504	101	80-120	
Cobalt	ug/L	500	484	97	80-120	
Copper	ug/L	500	512	102	80-120	
Iron	ug/L	5000	5210	104	80-120	
Lead	ug/L	500	494	99	80-120	
Manganese	ug/L	500	511	102	80-120	
Nickel	ug/L	500	528	106	80-120	
Selenium	ug/L	500	515	103	80-120	
Silver	ug/L	250	268	107	80-120	
Thallium	ug/L	500	489	98	80-120	
Vanadium	ug/L	500	490	98	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

LABORATORY CONTROL SAMPLE: 1931000

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Zinc	ug/L	500	513	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1931002 1931003

Parameter	Units	30365302016		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Aluminum	ug/L	50.0 U	5000	5000	5070	5050	101	101	75-125	0	20		
Antimony	ug/L	6.0 U	500	500	502	500	100	100	75-125	0	20		
Arsenic	ug/L	5.0 U	500	500	491	487	98	97	75-125	1	20		
Barium	ug/L	4.0J	500	500	494	498	98	99	75-125	1	20		
Beryllium	ug/L	1.0 U	500	500	506	506	101	101	75-125	0	20		
Cadmium	ug/L	3.0 U	500	500	504	505	101	101	75-125	0	20		
Chromium	ug/L	0.50J	500	500	485	484	97	97	75-125	0	20		
Cobalt	ug/L	5.0 U	500	500	478	478	96	96	75-125	0	20		
Copper	ug/L	5.0 U	500	500	489	492	98	98	75-125	1	20		
Iron	ug/L	87.7	5000	5000	5170	5170	102	102	75-125	0	20		
Lead	ug/L	5.0 U	500	500	488	491	98	98	75-125	1	20		
Manganese	ug/L	5.7	500	500	499	498	99	98	75-125	0	20		
Nickel	ug/L	10.0 U	500	500	521	519	104	104	75-125	0	20		
Selenium	ug/L	8.0 U	500	500	519	510	104	102	75-125	2	20		
Silver	ug/L	6.0 U	250	250	275	268	110	107	75-125	2	20		
Thallium	ug/L	10.0 U	500	500	485	484	97	97	75-125	0	20		
Vanadium	ug/L	5.0 U	500	500	472	474	94	95	75-125	0	20		
Zinc	ug/L	2.8J	500	500	508	510	101	101	75-125	1	20		

SAMPLE DUPLICATE: 1931001

Parameter	Units	30365302016 Result	Dup Result	RPD	Max RPD	Qualifiers
Aluminum	ug/L	50.0 U	50.0 U		20	
Antimony	ug/L	6.0 U	6.0 U		20	
Arsenic	ug/L	5.0 U	5.0 U		20	
Barium	ug/L	4.0J	3.8J		20	
Beryllium	ug/L	1.0 U	1.0 U		20	
Cadmium	ug/L	3.0 U	3.0 U		20	
Chromium	ug/L	0.50J	5.0 U		20	
Cobalt	ug/L	5.0 U	5.0 U		20	
Copper	ug/L	5.0 U	5.0 U		20	
Iron	ug/L	87.7	81.6	7	20	
Lead	ug/L	5.0 U	5.0 U		20	
Manganese	ug/L	5.7	5.1	11	20	
Nickel	ug/L	10.0 U	10.0 U		20	
Selenium	ug/L	8.0 U	8.0 U		20	
Silver	ug/L	6.0 U	6.0 U		20	
Thallium	ug/L	10.0 U	10.0 U		20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II

Pace Project No.: 30365510

SAMPLE DUPLICATE: 1931001

Parameter	Units	30365302016 Result	Dup Result	RPD	Max RPD	Qualifiers
Vanadium	ug/L	5.0 U	5.0 U		20	
Zinc	ug/L	2.8J	2.4J		20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

QC Batch: 399557 Analysis Method: EPA 8260B  
QC Batch Method: EPA 5035A Analysis Description: 8260B MSV 5035 Low  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30365510001, 30365510002, 30365510004, 30365510015

METHOD BLANK: 1935081 Matrix: Solid  
Associated Lab Samples: 30365510001, 30365510002, 30365510004, 30365510015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	mg/kg	0.0050 U	0.0050	0.0015	06/05/20 10:04	
1,1,2,2-Tetrachloroethane	mg/kg	0.0050 U	0.0050	0.00059	06/05/20 10:04	
1,1,2-Trichloroethane	mg/kg	0.0050 U	0.0050	0.00099	06/05/20 10:04	
1,1,2-Trichlorotrifluoroethane	mg/kg	0.050 U	0.050	0.0022	06/05/20 10:04	
1,1-Dichloroethane	mg/kg	0.0050 U	0.0050	0.0013	06/05/20 10:04	
1,1-Dichloroethene	mg/kg	0.0050 U	0.0050	0.0019	06/05/20 10:04	
1,2,3-Trichlorobenzene	mg/kg	0.0050 U	0.0050	0.00095	06/05/20 10:04	IH
1,2,4-Trichlorobenzene	mg/kg	0.0050 U	0.0050	0.0013	06/05/20 10:04	
1,2-Dibromo-3-chloropropane	mg/kg	0.0050 U	0.0050	0.0012	06/05/20 10:04	
1,2-Dibromoethane (EDB)	mg/kg	0.0050 U	0.0050	0.00080	06/05/20 10:04	
1,2-Dichlorobenzene	mg/kg	0.0050 U	0.0050	0.00059	06/05/20 10:04	
1,2-Dichloroethane	mg/kg	0.0050 U	0.0050	0.0013	06/05/20 10:04	
1,2-Dichloroethene (Total)	mg/kg	0.010 U	0.010	0.0024	06/05/20 10:04	
1,2-Dichloropropane	mg/kg	0.0050 U	0.0050	0.00072	06/05/20 10:04	
1,3-Dichlorobenzene	mg/kg	0.0050 U	0.0050	0.00065	06/05/20 10:04	
1,4-Dichlorobenzene	mg/kg	0.0050 U	0.0050	0.00071	06/05/20 10:04	
1,4-Dioxane (p-Dioxane)	mg/kg	0.10 U	0.10	0.041	06/05/20 10:04	6c,IH
2-Butanone (MEK)	mg/kg	0.010 U	0.010	0.00091	06/05/20 10:04	
2-Hexanone	mg/kg	0.010 U	0.010	0.00098	06/05/20 10:04	
4-Methyl-2-pentanone (MIBK)	mg/kg	0.010 U	0.010	0.0011	06/05/20 10:04	
Acetone	mg/kg	0.0062J	0.010	0.0032	06/05/20 10:04	
Benzene	mg/kg	0.0050 U	0.0050	0.00087	06/05/20 10:04	
Bromodichloromethane	mg/kg	0.0050 U	0.0050	0.0011	06/05/20 10:04	
Bromoform	mg/kg	0.0050 U	0.0050	0.00066	06/05/20 10:04	
Bromomethane	mg/kg	0.0050 U	0.0050	0.0019	06/05/20 10:04	
Carbon disulfide	mg/kg	0.0050 U	0.0050	0.0014	06/05/20 10:04	
Carbon tetrachloride	mg/kg	0.0050 U	0.0050	0.0017	06/05/20 10:04	
Chlorobenzene	mg/kg	0.0050 U	0.0050	0.00078	06/05/20 10:04	
Chloroethane	mg/kg	0.0050 U	0.0050	0.0021	06/05/20 10:04	
Chloroform	mg/kg	0.0050 U	0.0050	0.0015	06/05/20 10:04	
Chloromethane	mg/kg	0.0050 U	0.0050	0.0017	06/05/20 10:04	
cis-1,2-Dichloroethene	mg/kg	0.0050 U	0.0050	0.0012	06/05/20 10:04	
cis-1,3-Dichloropropene	mg/kg	0.0050 U	0.0050	0.00050	06/05/20 10:04	
Cyclohexane	mg/kg	0.010 U	0.010	0.0019	06/05/20 10:04	
Dibromochloromethane	mg/kg	0.0050 U	0.0050	0.00079	06/05/20 10:04	
Dichlorodifluoromethane	mg/kg	0.0050 U	0.0050	0.0027	06/05/20 10:04	IH
Ethylbenzene	mg/kg	0.0050 U	0.0050	0.0011	06/05/20 10:04	
Isopropylbenzene (Cumene)	mg/kg	0.0050 U	0.0050	0.0012	06/05/20 10:04	
Methyl acetate	mg/kg	0.050 U	0.050	0.0011	06/05/20 10:04	
Methyl-tert-butyl ether	mg/kg	0.0050 U	0.0050	0.00067	06/05/20 10:04	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

METHOD BLANK: 1935081 Matrix: Solid  
Associated Lab Samples: 30365510001, 30365510002, 30365510004, 30365510015

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methylene Chloride	mg/kg	0.0050 U	0.0050	0.0042	06/05/20 10:04	
Styrene	mg/kg	0.0050 U	0.0050	0.0014	06/05/20 10:04	
Tetrachloroethene	mg/kg	0.0050 U	0.0050	0.0017	06/05/20 10:04	
Toluene	mg/kg	0.0050 U	0.0050	0.00099	06/05/20 10:04	
trans-1,2-Dichloroethene	mg/kg	0.0050 U	0.0050	0.0013	06/05/20 10:04	
trans-1,3-Dichloropropene	mg/kg	0.0050 U	0.0050	0.0010	06/05/20 10:04	
Trichloroethene	mg/kg	0.0050 U	0.0050	0.0015	06/05/20 10:04	
Trichlorofluoromethane	mg/kg	0.0050 U	0.0050	0.0022	06/05/20 10:04	
Vinyl chloride	mg/kg	0.0050 U	0.0050	0.0022	06/05/20 10:04	
Xylene (Total)	mg/kg	0.015 U	0.015	0.0032	06/05/20 10:04	
1,2-Dichloroethane-d4 (S)	%	103	70-130		06/05/20 10:04	
4-Bromofluorobenzene (S)	%	101	70-130		06/05/20 10:04	
Dibromofluoromethane (S)	%	100	70-130		06/05/20 10:04	
Toluene-d8 (S)	%	100	70-130		06/05/20 10:04	

LABORATORY CONTROL SAMPLE: 1935082

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	mg/kg	0.02	0.020	98	62-129	
1,1,2,2-Tetrachloroethane	mg/kg	0.02	0.017	86	60-108	
1,1,2-Trichloroethane	mg/kg	0.02	0.018	88	61-114	
1,1,2-Trichlorotrifluoroethane	mg/kg	0.02	0.020J	101	16-175	
1,1-Dichloroethane	mg/kg	0.02	0.017	83	54-121	
1,1-Dichloroethene	mg/kg	0.02	0.016	78	49-111	
1,2,3-Trichlorobenzene	mg/kg	0.02	0.019	93	64-118 IH	
1,2,4-Trichlorobenzene	mg/kg	0.02	0.019	93	60-126	
1,2-Dibromo-3-chloropropane	mg/kg	0.02	0.018	90	50-116	
1,2-Dibromoethane (EDB)	mg/kg	0.02	0.018	90	60-115	
1,2-Dichlorobenzene	mg/kg	0.02	0.018	91	70-130	
1,2-Dichloroethane	mg/kg	0.02	0.017	86	62-112	
1,2-Dichloroethene (Total)	mg/kg	0.04	0.033	83	55-114	
1,2-Dichloropropane	mg/kg	0.02	0.017	86	59-112	
1,3-Dichlorobenzene	mg/kg	0.02	0.018	89	63-122	
1,4-Dichlorobenzene	mg/kg	0.02	0.018	88	63-117	
1,4-Dioxane (p-Dioxane)	mg/kg	0.2	0.23	113	48-134 6c,IH	
2-Butanone (MEK)	mg/kg	0.02	0.019	94	52-111	
2-Hexanone	mg/kg	0.02	0.020	102	51-113	
4-Methyl-2-pentanone (MIBK)	mg/kg	0.02	0.018	91	55-112	
Acetone	mg/kg	0.02	0.023	113	10-175	
Benzene	mg/kg	0.02	0.018	90	51-123	
Bromodichloromethane	mg/kg	0.02	0.018	88	59-113	
Bromoform	mg/kg	0.02	0.017	83	50-95	
Bromomethane	mg/kg	0.02	0.016	81	50-136	
Carbon disulfide	mg/kg	0.02	0.019	95	44-125	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

LABORATORY CONTROL SAMPLE: 1935082

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	mg/kg	0.02	0.018	90	53-115	
Chlorobenzene	mg/kg	0.02	0.018	89	63-119	
Chloroethane	mg/kg	0.02	0.018	88	13-154	
Chloroform	mg/kg	0.02	0.017	85	57-115	
Chloromethane	mg/kg	0.02	0.019	95	57-112	
cis-1,2-Dichloroethene	mg/kg	0.02	0.016	81	56-114	
cis-1,3-Dichloropropene	mg/kg	0.02	0.017	84	59-108	
Cyclohexane	mg/kg	0.02	0.019	96	58-113	
Dibromochloromethane	mg/kg	0.02	0.017	86	59-102	
Dichlorodifluoromethane	mg/kg	0.02	0.023	115	56-152	IH
Ethylbenzene	mg/kg	0.02	0.018	88	61-123	
Isopropylbenzene (Cumene)	mg/kg	0.02	0.019	97	62-136	
Methyl acetate	mg/kg	0.02	0.016J	81	23-128	
Methyl-tert-butyl ether	mg/kg	0.02	0.018	91	60-108	
Methylene Chloride	mg/kg	0.02	0.017	85	20-159	
Styrene	mg/kg	0.02	0.018	92	63-119	
Tetrachloroethene	mg/kg	0.02	0.017	87	57-124	
Toluene	mg/kg	0.02	0.017	87	56-120	
trans-1,2-Dichloroethene	mg/kg	0.02	0.017	85	53-115	
trans-1,3-Dichloropropene	mg/kg	0.02	0.017	86	60-107	
Trichloroethene	mg/kg	0.02	0.018	90	61-115	
Trichlorofluoromethane	mg/kg	0.02	0.019	94	67-127	
Vinyl chloride	mg/kg	0.02	0.019	94	61-120	
Xylene (Total)	mg/kg	0.06	0.054	90	57-125	
1,2-Dichloroethane-d4 (S)	%			103	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Dibromofluoromethane (S)	%			98	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1935083 1935084

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		30365510002 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1-Trichloroethane	mg/kg	0.0067 U	0.03	0.024	0.032	0.024	105	99	35-127	27	30		
1,1,2,2-Tetrachloroethane	mg/kg	0.0067 U	0.03	0.024	0.024	0.019	78	76	10-128	24	30		
1,1,2-Trichloroethane	mg/kg	0.0067 U	0.03	0.024	0.025	0.018	82	75	16-132	30	30		
1,1,2-Trichlorotrifluoroethane	mg/kg	0.067 U	0.03	0.024	0.033J	0.024J	108	99	12-175		30		
1,1-Dichloroethane	mg/kg	0.0067 U	0.03	0.024	0.028	0.021	91	86	36-112	27	30		
1,1-Dichloroethene	mg/kg	0.0067 U	0.03	0.024	0.026	0.019	84	78	10-112	29	30		
1,2,3-Trichlorobenzene	mg/kg	0.0067 U	0.03	0.024	0.0088	0.0099	29	40	10-133	12	30	IH	
1,2,4-Trichlorobenzene	mg/kg	0.0067 U	0.03	0.024	0.0085	0.011	28	43	10-135	21	30		
1,2-Dibromo-3-chloropropane	mg/kg	0.0067 U	0.03	0.024	0.016	0.015	54	60	10-115	11	30		
1,2-Dibromoethane (EDB)	mg/kg	0.0067 U	0.03	0.024	0.024	0.017	77	70	23-123	31	30	R1	
1,2-Dichlorobenzene	mg/kg	0.0067 U	0.03	0.024	0.016	0.014	51	58	10-144	8	30		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1935083												1935084	
Parameter	Units	30365510002		MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual	
		Result	Conc.	Spike	Spike	Result	Result	% Rec	% Rec	Limits	RPD		RPD
1,2-Dichloroethane	mg/kg	0.0067 U	0.03	0.024	0.026	0.019	84	79	32-111	27	30		
1,2-Dichloroethene (Total)	mg/kg	0.013 U	0.061	0.049	0.052	0.038	85	78	23-101	30	30		
1,2-Dichloropropane	mg/kg	0.0067 U	0.03	0.024	0.026	0.020	86	82	25-124	26	30		
1,3-Dichlorobenzene	mg/kg	0.0067 U	0.03	0.024	0.016	0.015	52	61	10-149	6	30		
1,4-Dichlorobenzene	mg/kg	0.0067 U	0.03	0.024	0.014	0.014	45	56	10-149	0	30		
1,4-Dioxane (p-Dioxane)	mg/kg	0.13 U	0.3	0.24	0.30	0.20	98	82	29-136	39	30	6c, IH, R1	
2-Butanone (MEK)	mg/kg	0.013 U	0.03	0.024	0.032	0.017	106	71	10-153	60	30	R1	
2-Hexanone	mg/kg	0.013 U	0.03	0.024	0.028	0.019	91	76	10-175	39	30	R1	
4-Methyl-2-pentanone (MIBK)	mg/kg	0.013 U	0.03	0.024	0.027	0.020	87	80	10-147	30	30		
Acetone	mg/kg	0.013 U	0.03	0.024	0.036	0.017	117	68	10-175	72	30	R1	
Benzene	mg/kg	0.0067 U	0.03	0.024	0.064	0.020	210	83	29-120	104	30	MH,R1	
Bromodichloromethane	mg/kg	0.0067 U	0.03	0.024	0.026	0.020	87	83	26-116	26	30		
Bromoform	mg/kg	0.0067 U	0.03	0.024	0.020	0.016	66	65	10-110	23	30		
Bromomethane	mg/kg	0.0067 U	0.03	0.024	0.027	0.020	89	80	10-122	32	30	R1	
Carbon disulfide	mg/kg	0.0067 U	0.03	0.024	0.037	0.021	121	86	10-110	54	30	MH,R1	
Carbon tetrachloride	mg/kg	0.0067 U	0.03	0.024	0.029	0.021	96	87	27-118	31	30	R1	
Chlorobenzene	mg/kg	0.0067 U	0.03	0.024	0.021	0.017	69	71	10-139	20	30		
Chloroethane	mg/kg	0.0067 U	0.03	0.024	0.029	0.021	96	86	10-138	32	30	R1	
Chloroform	mg/kg	0.0067 U	0.03	0.024	0.027	0.021	90	84	31-118	29	30		
Chloromethane	mg/kg	0.0067 U	0.03	0.024	0.036	0.021	120	86	10-162	53	30	R1	
cis-1,2-Dichloroethene	mg/kg	0.0067 U	0.03	0.024	0.025	0.019	83	76	24-126	30	30		
cis-1,3-Dichloropropene	mg/kg	0.0067 U	0.03	0.024	0.024	0.018	78	72	10-128	30	30		
Cyclohexane	mg/kg	0.013 U	0.03	0.024	0.032	0.026	104	106	13-175	20	30		
Dibromochloromethane	mg/kg	0.0067 U	0.03	0.024	0.023	0.018	76	72	10-117	26	30		
Dichlorodifluoromethane	mg/kg	0.0067 U	0.03	0.024	0.031	0.021	100	86	10-175	36	30	IH,R1	
Ethylbenzene	mg/kg	0.0067 U	0.03	0.024	0.027	0.020	88	82	10-136	27	30		
Isopropylbenzene (Cumene)	mg/kg	0.0067 U	0.03	0.024	0.027	0.024	88	96	10-145	13	30		
Methyl acetate	mg/kg	0.067 U	0.03	0.024	0.023J	0.015J	75	63	10-175		30		
Methyl-tert-butyl ether	mg/kg	0.0067 U	0.03	0.024	0.028	0.019	92	77	30-110	40	30	R1	
Methylene Chloride	mg/kg	0.0067 U	0.03	0.024	0.027	0.020	88	80	10-131	30	30		
Styrene	mg/kg	0.0067 U	0.03	0.024	0.019	0.016	61	67	10-118	13	30		
Tetrachloroethene	mg/kg	0.0067 U	0.03	0.024	0.026	0.021	84	86	10-144	19	30		
Toluene	mg/kg	0.0067 U	0.03	0.024	0.040	0.019	132	79	13-132	70	30	R1	
trans-1,2-Dichloroethene	mg/kg	0.0067 U	0.03	0.024	0.027	0.020	87	80	21-121	30	30		
trans-1,3-Dichloropropene	mg/kg	0.0067 U	0.03	0.024	0.022	0.018	73	72	10-131	24	30		
Trichloroethene	mg/kg	0.0067 U	0.03	0.024	0.026	0.021	87	84	10-170	25	30		
Trichlorofluoromethane	mg/kg	0.0067 U	0.03	0.024	0.033	0.023	109	95	25-142	35	30	R1	
Vinyl chloride	mg/kg	0.0067 U	0.03	0.024	0.030	0.022	98	91	10-175	29	30		
Xylene (Total)	mg/kg	0.020 U	0.091	0.074	0.071	0.058	78	79	12-128	21	30		
1,2-Dichloroethane-d4 (S)	%						102	107	70-130				
4-Bromofluorobenzene (S)	%						108	98	70-130				
Dibromofluoromethane (S)	%						103	100	70-130				
Toluene-d8 (S)	%						104	103	70-130				

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

QC Batch: 398934 Analysis Method: EPA 8260B  
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30365510014, 30365510016, 30365510017

METHOD BLANK: 1931928 Matrix: Water  
Associated Lab Samples: 30365510014, 30365510016, 30365510017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	1.0 U	1.0	0.38	06/02/20 13:08	
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0	0.47	06/02/20 13:08	
1,1,2-Trichloroethane	ug/L	1.0 U	1.0	0.33	06/02/20 13:08	
1,1,2-Trichlorotrifluoroethane	ug/L	50.0 U	50.0	3.0	06/02/20 13:08	
1,1-Dichloroethane	ug/L	1.0 U	1.0	0.24	06/02/20 13:08	
1,1-Dichloroethene	ug/L	1.0 U	1.0	0.24	06/02/20 13:08	
1,2,3-Trichlorobenzene	ug/L	2.0 U	2.0	0.89	06/02/20 13:08	
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0	0.73	06/02/20 13:08	
1,2-Dibromo-3-chloropropane	ug/L	5.0 U	5.0	0.55	06/02/20 13:08	
1,2-Dibromoethane (EDB)	ug/L	1.0 U	1.0	0.44	06/02/20 13:08	
1,2-Dichlorobenzene	ug/L	1.0 U	1.0	0.38	06/02/20 13:08	
1,2-Dichloroethane	ug/L	1.0 U	1.0	0.33	06/02/20 13:08	
1,2-Dichloroethene (Total)	ug/L	2.0 U	2.0	0.66	06/02/20 13:08	
1,2-Dichloropropane	ug/L	1.0 U	1.0	0.28	06/02/20 13:08	
1,3-Dichlorobenzene	ug/L	1.0 U	1.0	0.45	06/02/20 13:08	
1,4-Dichlorobenzene	ug/L	1.0 U	1.0	0.48	06/02/20 13:08	
2-Butanone (MEK)	ug/L	10.0 U	10.0	1.5	06/02/20 13:08	
2-Hexanone	ug/L	10.0 U	10.0	0.58	06/02/20 13:08	
4-Methyl-2-pentanone (MIBK)	ug/L	10.0 U	10.0	0.42	06/02/20 13:08	
Acetone	ug/L	10.0 U	10.0	5.6	06/02/20 13:08	
Benzene	ug/L	1.0 U	1.0	0.34	06/02/20 13:08	
Bromodichloromethane	ug/L	1.0 U	1.0	0.35	06/02/20 13:08	
Bromoform	ug/L	1.0 U	1.0	0.56	06/02/20 13:08	
Bromomethane	ug/L	1.0 U	1.0	0.73	06/02/20 13:08	CL
Carbon disulfide	ug/L	1.0 U	1.0	0.32	06/02/20 13:08	
Carbon tetrachloride	ug/L	1.0 U	1.0	0.44	06/02/20 13:08	
Chlorobenzene	ug/L	1.0 U	1.0	0.26	06/02/20 13:08	
Chloroethane	ug/L	1.0 U	1.0	0.64	06/02/20 13:08	
Chloroform	ug/L	1.0 U	1.0	0.39	06/02/20 13:08	
Chloromethane	ug/L	1.0 U	1.0	0.40	06/02/20 13:08	
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0	0.38	06/02/20 13:08	
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0	0.29	06/02/20 13:08	
Cyclohexane	ug/L	10.0 U	10.0	0.33	06/02/20 13:08	
Dibromochloromethane	ug/L	1.0 U	1.0	0.43	06/02/20 13:08	
Dichlorodifluoromethane	ug/L	1.0 U	1.0	0.63	06/02/20 13:08	IH
Ethylbenzene	ug/L	1.0 U	1.0	0.40	06/02/20 13:08	
Isopropylbenzene (Cumene)	ug/L	1.0 U	1.0	0.47	06/02/20 13:08	
m&p-Xylene	ug/L	2.0 U	2.0	0.94	06/02/20 13:08	
Methyl acetate	ug/L	5.0 U	5.0	0.55	06/02/20 13:08	
Methyl-tert-butyl ether	ug/L	1.0 U	1.0	0.25	06/02/20 13:08	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

METHOD BLANK: 1931928 Matrix: Water  
Associated Lab Samples: 30365510014, 30365510016, 30365510017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methylene Chloride	ug/L	1.0 U	1.0	0.64	06/02/20 13:08	
o-Xylene	ug/L	1.0 U	1.0	0.41	06/02/20 13:08	
Styrene	ug/L	1.0 U	1.0	0.33	06/02/20 13:08	
Tetrachloroethene	ug/L	1.0 U	1.0	0.39	06/02/20 13:08	
Toluene	ug/L	1.0 U	1.0	0.32	06/02/20 13:08	
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0	0.28	06/02/20 13:08	
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0	0.32	06/02/20 13:08	
Trichloroethene	ug/L	1.0 U	1.0	0.29	06/02/20 13:08	
Trichlorofluoromethane	ug/L	1.0 U	1.0	0.51	06/02/20 13:08	
Vinyl chloride	ug/L	1.0 U	1.0	0.29	06/02/20 13:08	
Xylene (Total)	ug/L	3.0 U	3.0	1.4	06/02/20 13:08	
1,2-Dichloroethane-d4 (S)	%	100	70-130		06/02/20 13:08	
4-Bromofluorobenzene (S)	%	94	70-130		06/02/20 13:08	
Dibromofluoromethane (S)	%	106	70-130		06/02/20 13:08	
Toluene-d8 (S)	%	93	70-130		06/02/20 13:08	

LABORATORY CONTROL SAMPLE: 1931929

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	21.3	107	70-130	
1,1,2,2-Tetrachloroethane	ug/L	20	21.5	108	70-130	
1,1,2-Trichloroethane	ug/L	20	20.6	103	70-130	
1,1,2-Trichlorotrifluoroethane	ug/L	20	17.1J	85	61-138	
1,1-Dichloroethane	ug/L	20	20.9	105	70-130	
1,1-Dichloroethene	ug/L	20	18.5	92	70-130	
1,2,3-Trichlorobenzene	ug/L	20	22.0	110	70-130	
1,2,4-Trichlorobenzene	ug/L	20	21.5	108	70-130	
1,2-Dibromo-3-chloropropane	ug/L	20	19.8	99	59-122	
1,2-Dibromoethane (EDB)	ug/L	20	20.3	101	70-130	
1,2-Dichlorobenzene	ug/L	20	22.4	112	70-130	
1,2-Dichloroethane	ug/L	20	20.0	100	70-130	
1,2-Dichloroethene (Total)	ug/L	40	39.5	99	70-130	
1,2-Dichloropropane	ug/L	20	21.1	105	70-130	
1,3-Dichlorobenzene	ug/L	20	22.3	111	70-130	
1,4-Dichlorobenzene	ug/L	20	21.9	110	70-130	
2-Butanone (MEK)	ug/L	20	21.4	107	70-130	
2-Hexanone	ug/L	20	21.1	105	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	20	21.0	105	70-130	
Acetone	ug/L	20	19.9	100	67-173	
Benzene	ug/L	20	20.3	101	70-130	
Bromodichloromethane	ug/L	20	21.0	105	70-130	
Bromoform	ug/L	20	18.8	94	63-119	
Bromomethane	ug/L	20	8.3	41	24-159 CL	
Carbon disulfide	ug/L	20	16.6	83	57-132	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

LABORATORY CONTROL SAMPLE: 1931929

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	ug/L	20	19.9	99	70-130	
Chlorobenzene	ug/L	20	22.2	111	70-130	
Chloroethane	ug/L	20	24.3	121	62-145	
Chloroform	ug/L	20	20.0	100	70-130	
Chloromethane	ug/L	20	17.9	89	66-140	
cis-1,2-Dichloroethene	ug/L	20	19.8	99	70-130	
cis-1,3-Dichloropropene	ug/L	20	20.3	102	70-130	
Cyclohexane	ug/L	20	18.6	93	63-128	
Dibromochloromethane	ug/L	20	19.5	98	70-130	
Dichlorodifluoromethane	ug/L	20	21.8	109	62-162 IH	
Ethylbenzene	ug/L	20	21.5	108	70-130	
Isopropylbenzene (Cumene)	ug/L	20	24.5	123	70-130	
m&p-Xylene	ug/L	40	43.5	109	70-130	
Methyl acetate	ug/L	20	17.0	85	37-158	
Methyl-tert-butyl ether	ug/L	20	18.9	94	70-130	
Methylene Chloride	ug/L	20	19.4	97	70-130	
o-Xylene	ug/L	20	20.9	105	70-130	
Styrene	ug/L	20	23.0	115	70-130	
Tetrachloroethene	ug/L	20	21.5	107	70-130	
Toluene	ug/L	20	21.2	106	70-130	
trans-1,2-Dichloroethene	ug/L	20	19.8	99	70-130	
trans-1,3-Dichloropropene	ug/L	20	19.5	97	70-130	
Trichloroethene	ug/L	20	21.0	105	70-130	
Trichlorofluoromethane	ug/L	20	23.3	117	70-130	
Vinyl chloride	ug/L	20	20.1	101	70-130	
Xylene (Total)	ug/L	60	64.5	107	70-130	
1,2-Dichloroethane-d4 (S)	%			97	70-130	
4-Bromofluorobenzene (S)	%			96	70-130	
Dibromofluoromethane (S)	%			104	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1931930 1931931

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		30365303002 Result	Spike Conc.	Spike Conc.	Result							Result
1,1,1-Trichloroethane	ug/L	1.0 U	20	20	13.9	18.3	70	92	55-146	27	30	
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	20	20	12.7	15.8	63	79	55-118	22	30	
1,1,2-Trichloroethane	ug/L	1.0 U	20	20	13.0	16.1	65	80	61-122	21	30	
1,1,2-Trichlorotrifluoroethane	ug/L	50.0 U	20	20	11.7J	14.3J	59	71	42-134		30	
1,1-Dichloroethane	ug/L	1.0 U	20	20	13.7	17.2	69	86	59-130	23	30	
1,1-Dichloroethene	ug/L	1.0 U	20	20	12.3	15.6	61	78	52-119	24	30	
1,2,3-Trichlorobenzene	ug/L	2.0 U	20	20	12.8	16.7	64	83	45-126	27	30	
1,2,4-Trichlorobenzene	ug/L	1.0 U	20	20	13.0	16.8	65	84	38-146	25	30	
1,2-Dibromo-3-chloropropane	ug/L	5.0 U	20	20	10.9	14.1	55	71	32-112	26	30	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

Parameter	Units	30365303002		1931930		1931931		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
1,2-Dibromoethane (EDB)	ug/L	1.0 U	20	20	13.0	15.5	65	78	61-116	17	30			
1,2-Dichlorobenzene	ug/L	1.0 U	20	20	13.3	17.0	67	85	58-126	24	30			
1,2-Dichloroethane	ug/L	1.0 U	20	20	13.0	15.8	65	79	49-135	20	30			
1,2-Dichloroethene (Total)	ug/L	2.0 U	40	40	26.0	33.2	65	83	61-119	25	30			
1,2-Dichloropropane	ug/L	1.0 U	20	20	13.5	17.1	68	86	67-121	23	30			
1,3-Dichlorobenzene	ug/L	1.0 U	20	20	13.1	16.8	66	84	56-130	25	30			
1,4-Dichlorobenzene	ug/L	1.0 U	20	20	12.9	16.2	65	81	60-121	23	30			
2-Butanone (MEK)	ug/L	10.0 U	20	20	13.4	16.6	67	83	59-138	21	30			
2-Hexanone	ug/L	10.0 U	20	20	13.9	16.6	69	83	66-123	18	30			
4-Methyl-2-pentanone (MIBK)	ug/L	10.0 U	20	20	14.2	16.5	71	82	70-130	15	30			
Acetone	ug/L	10.0 U	20	20	15.2	16.0	63	67	57-140	6	30			
Benzene	ug/L	1.0 U	20	20	13.1	16.8	66	84	50-149	25	30			
Bromodichloromethane	ug/L	1.0 U	20	20	13.2	17.1	66	86	46-131	26	30			
Bromoform	ug/L	1.0 U	20	20	10.4	13.2	52	66	30-119	23	30			
Bromomethane	ug/L	1.0 U	20	20	1.9	2.4	9	12	10-163	24	30	CL,ML		
Carbon disulfide	ug/L	1.0 U	20	20	11.2	13.9	56	70	41-116	22	30			
Carbon tetrachloride	ug/L	1.0 U	20	20	12.8	16.7	64	84	55-119	26	30			
Chlorobenzene	ug/L	1.0 U	20	20	14.2	17.7	71	88	66-124	21	30			
Chloroethane	ug/L	1.0 U	20	20	21.7	21.9	108	110	45-162	1	30			
Chloroform	ug/L	1.0 U	20	20	12.6	16.4	63	82	56-123	26	30			
Chloromethane	ug/L	1.0 U	20	20	12.3	13.8	61	69	49-150	12	30			
cis-1,2-Dichloroethene	ug/L	1.0 U	20	20	13.1	16.5	65	83	63-116	23	30			
cis-1,3-Dichloropropene	ug/L	1.0 U	20	20	11.6	15.2	58	76	46-119	27	30			
Cyclohexane	ug/L	10.0 U	20	20	12.3	15.4	61	77	51-130	22	30			
Dibromochloromethane	ug/L	1.0 U	20	20	12.2	15.2	61	76	42-120	22	30			
Dichlorodifluoromethane	ug/L	1.0 U	20	20	17.5	18.9	88	95	59-155	8	30	IH		
Ethylbenzene	ug/L	1.0 U	20	20	13.7	17.8	69	89	63-135	26	30			
Isopropylbenzene (Cumene)	ug/L	1.0 U	20	20	14.5	18.5	73	92	50-167	24	30			
m&p-Xylene	ug/L	2.0 U	40	40	27.4	35.4	69	89	63-135	26	30			
Methyl acetate	ug/L	5.0 U	20	20	10.5	12.3	53	62	17-145	16	30			
Methyl-tert-butyl ether	ug/L	1.0 U	20	20	13.0	16.0	65	80	53-123	21	30			
Methylene Chloride	ug/L	1.0 U	20	20	12.9	15.8	65	79	57-132	20	30			
o-Xylene	ug/L	1.0 U	20	20	13.6	16.8	68	84	57-133	22	30			
Styrene	ug/L	1.0 U	20	20	13.8	18.1	69	91	58-130	27	30			
Tetrachloroethene	ug/L	1.0 U	20	20	13.9	17.6	70	88	61-132	23	30			
Toluene	ug/L	1.0 U	20	20	13.6	17.4	68	87	59-139	25	30			
trans-1,2-Dichloroethene	ug/L	1.0 U	20	20	12.9	16.7	65	84	60-124	26	30			
trans-1,3-Dichloropropene	ug/L	1.0 U	20	20	11.9	14.8	59	74	48-121	22	30			
Trichloroethene	ug/L	1.0 U	20	20	13.9	17.4	69	87	63-128	22	30			
Trichlorofluoromethane	ug/L	1.0 U	20	20	19.0	20.0	95	100	70-152	5	30			
Vinyl chloride	ug/L	1.0 U	20	20	16.9	17.9	85	89	67-141	5	30			
Xylene (Total)	ug/L	3.0 U	60	60	41.0	52.3	68	87	63-135	24	30			
1,2-Dichloroethane-d4 (S)	%						97	95	70-130					
4-Bromofluorobenzene (S)	%						95	94	70-130					

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA

Project: B9 Phase II

Pace Project No.: 30365510

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1931930												1931931	
Parameter	Units	30365303002 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
			Spike Conc.	Spike Conc.									
Dibromofluoromethane (S)	%.							102	103	70-130			
Toluene-d8 (S)	%.							96	96	70-130			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

QC Batch:	400233	Analysis Method:	EPA 8015B
QC Batch Method:	EPA 3546	Analysis Description:	EPA 8015 TPH
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013

METHOD BLANK: 1938011 Matrix: Solid  
Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
TPH (C10-C28)	mg/kg	6.6 U	6.6	3.8	06/12/20 16:29	
o-Terphenyl (S)	%	58	60-125		06/12/20 16:29	SR

LABORATORY CONTROL SAMPLE: 1938012

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
TPH (C10-C28)	mg/kg	65.1	47.6	73	80-120	7c,L2
o-Terphenyl (S)	%			72	60-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1938013 1938014

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result								
TPH (C10-C28)	mg/kg	30.1	73.1	72.2	76.6	88.2		64	80	65-135	14	30	ML
o-Terphenyl (S)	%							64	71	60-125			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II

Pace Project No.: 30365510

QC Batch: 398849

Analysis Method: EPA 8015B

QC Batch Method: EPA 3510C

Analysis Description: EPA 8015 TPH

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30365510016, 30365510017

METHOD BLANK: 1931643

Matrix: Water

Associated Lab Samples: 30365510016, 30365510017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
TPH (C10-C28)	ug/L	100 U	100	56.0	06/04/20 15:55	
o-Terphenyl (S)	%.	50	75-125		06/04/20 15:55	SR

LABORATORY CONTROL SAMPLE: 1931644

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
TPH (C10-C28)	ug/L	1000	820	82	80-120	
o-Terphenyl (S)	%.			82	75-125	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

QC Batch: 400732 Analysis Method: EPA 8082  
QC Batch Method: EPA 3546 Analysis Description: 8082 GCS PCB  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30365510001, 30365510003, 30365510005, 30365510007, 30365510009, 30365510011, 30365510013

METHOD BLANK: 1940147 Matrix: Solid  
Associated Lab Samples: 30365510001, 30365510003, 30365510005, 30365510007, 30365510009, 30365510011, 30365510013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	mg/kg	0.017 U	0.017	0.0015	06/15/20 19:34	
PCB-1221 (Aroclor 1221)	mg/kg	0.017 U	0.017	0.0083	06/15/20 19:34	
PCB-1232 (Aroclor 1232)	mg/kg	0.017 U	0.017	0.0082	06/15/20 19:34	
PCB-1242 (Aroclor 1242)	mg/kg	0.017 U	0.017	0.0024	06/15/20 19:34	
PCB-1248 (Aroclor 1248)	mg/kg	0.017 U	0.017	0.0077	06/15/20 19:34	
PCB-1254 (Aroclor 1254)	mg/kg	0.017 U	0.017	0.0032	06/15/20 19:34	
PCB-1260 (Aroclor 1260)	mg/kg	0.017 U	0.017	0.0015	06/15/20 19:34	
PCB-1262 (Aroclor 1262)	mg/kg	0.017 U	0.017	0.0051	06/15/20 19:34	
PCB-1268 (Aroclor 1268)	mg/kg	0.017 U	0.017	0.0051	06/15/20 19:34	
Decachlorobiphenyl (S)	%	79	38-139		06/15/20 19:34	CL
Tetrachloro-m-xylene (S)	%	71	34-114		06/15/20 19:34	

LABORATORY CONTROL SAMPLE: 1940148

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	mg/kg	0.17	0.13	81	61-105	
PCB-1260 (Aroclor 1260)	mg/kg	0.17	0.14	83	70-100	
Decachlorobiphenyl (S)	%			87	38-139	
Tetrachloro-m-xylene (S)	%			75	34-114	

LABORATORY CONTROL SAMPLE: 1940149

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1232 (Aroclor 1232)	mg/kg	0.16	0.12	72	37-108	
Decachlorobiphenyl (S)	%			82	38-139	
Tetrachloro-m-xylene (S)	%			70	34-114	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1940150 1940151

Parameter	Units	30365302001		MSD		MS		MSD		% Rec Limits	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
PCB-1016 (Aroclor 1016)	mg/kg	0.17 U	0.17	0.17	0.15J	0.17J	90	100	24-137		25	ED
PCB-1260 (Aroclor 1260)	mg/kg	0.17 U	0.17	0.17	0.27	0.25	156	145	19-156	7	25	ED
Decachlorobiphenyl (S)	%						89	97	38-139			
Tetrachloro-m-xylene (S)	%						79	85	34-114			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II

Pace Project No.: 30365510

Parameter	Units	1940152		1940153		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		30365302003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
PCB-1232 (Aroclor 1232)	mg/kg	0.087 U	0.18	0.17	0.22	0.19		127	107	37-108	18	25	ED, MH
Decachlorobiphenyl (S)	%							79	83	38-139			
Tetrachloro-m-xylene (S)	%							75	79	34-114			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

QC Batch: 400234 Analysis Method: EPA 8270D  
QC Batch Method: EPA 3546 Analysis Description: 8270D Solid MSSV Microwave  
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013

METHOD BLANK: 1938015 Matrix: Solid  
Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2,4,5-Tetrachlorobenzene	mg/kg	0.066 U	0.066	0.015	06/12/20 17:35	
2,3,4,6-Tetrachlorophenol	mg/kg	0.066 U	0.066	0.014	06/12/20 17:35	
2,4,5-Trichlorophenol	mg/kg	0.17 U	0.17	0.015	06/12/20 17:35	
2,4,6-Trichlorophenol	mg/kg	0.066 U	0.066	0.016	06/12/20 17:35	
2,4-Dichlorophenol	mg/kg	0.066 U	0.066	0.018	06/12/20 17:35	
2,4-Dimethylphenol	mg/kg	0.066 U	0.066	0.013	06/12/20 17:35	
2,4-Dinitrophenol	mg/kg	0.17 U	0.17	0.034	06/12/20 17:35	13c
2,4-Dinitrotoluene	mg/kg	0.066 U	0.066	0.015	06/12/20 17:35	
2,6-Dinitrotoluene	mg/kg	0.066 U	0.066	0.017	06/12/20 17:35	
2-Chloronaphthalene	mg/kg	0.066 U	0.066	0.013	06/12/20 17:35	
2-Chlorophenol	mg/kg	0.066 U	0.066	0.016	06/12/20 17:35	
2-Methylnaphthalene	mg/kg	0.066 U	0.066	0.014	06/12/20 17:35	
2-Methylphenol(o-Cresol)	mg/kg	0.066 U	0.066	0.013	06/12/20 17:35	
2-Nitroaniline	mg/kg	0.17 U	0.17	0.014	06/12/20 17:35	
3&4-Methylphenol(m&p Cresol)	mg/kg	0.13 U	0.13	0.016	06/12/20 17:35	
3,3'-Dichlorobenzidine	mg/kg	0.066 U	0.066	0.013	06/12/20 17:35	
4-Chloroaniline	mg/kg	0.066 U	0.066	0.015	06/12/20 17:35	
4-Nitroaniline	mg/kg	0.17 U	0.17	0.023	06/12/20 17:35	
Acenaphthene	mg/kg	0.066 U	0.066	0.015	06/12/20 17:35	
Acenaphthylene	mg/kg	0.066 U	0.066	0.014	06/12/20 17:35	
Acetophenone	mg/kg	0.066 U	0.066	0.016	06/12/20 17:35	
Anthracene	mg/kg	0.066 U	0.066	0.015	06/12/20 17:35	
Benzaldehyde	mg/kg	0.066 U	0.066	0.014	06/12/20 17:35	
Benzo(a)anthracene	mg/kg	0.066 U	0.066	0.013	06/12/20 17:35	
Benzo(a)pyrene	mg/kg	0.066 U	0.066	0.0097	06/12/20 17:35	
Benzo(b)fluoranthene	mg/kg	0.066 U	0.066	0.012	06/12/20 17:35	
Benzo(g,h,i)perylene	mg/kg	0.066 U	0.066	0.013	06/12/20 17:35	
Benzo(k)fluoranthene	mg/kg	0.066 U	0.066	0.013	06/12/20 17:35	
Biphenyl (Diphenyl)	mg/kg	0.066 U	0.066	0.014	06/12/20 17:35	
bis(2-Chloroethoxy)methane	mg/kg	0.066 U	0.066	0.015	06/12/20 17:35	
bis(2-Chloroethyl) ether	mg/kg	0.066 U	0.066	0.016	06/12/20 17:35	
bis(2-Chloroisopropyl) ether	mg/kg	0.066 U	0.066	0.016	06/12/20 17:35	CH
bis(2-Ethylhexyl)phthalate	mg/kg	0.066 U	0.066	0.013	06/12/20 17:35	
Caprolactam	mg/kg	0.17 U	0.17	0.018	06/12/20 17:35	
Carbazole	mg/kg	0.066 U	0.066	0.016	06/12/20 17:35	
Chrysene	mg/kg	0.066 U	0.066	0.013	06/12/20 17:35	
Di-n-butylphthalate	mg/kg	0.066 U	0.066	0.016	06/12/20 17:35	
Di-n-octylphthalate	mg/kg	0.066 U	0.066	0.018	06/12/20 17:35	
Dibenz(a,h)anthracene	mg/kg	0.066 U	0.066	0.012	06/12/20 17:35	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

METHOD BLANK: 1938015

Matrix: Solid

Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Diethylphthalate	mg/kg	0.066 U	0.066	0.013	06/12/20 17:35	
Fluoranthene	mg/kg	0.066 U	0.066	0.016	06/12/20 17:35	
Fluorene	mg/kg	0.066 U	0.066	0.015	06/12/20 17:35	
Hexachloro-1,3-butadiene	mg/kg	0.066 U	0.066	0.016	06/12/20 17:35	
Hexachlorobenzene	mg/kg	0.066 U	0.066	0.015	06/12/20 17:35	
Hexachlorocyclopentadiene	mg/kg	0.066 U	0.066	0.012	06/12/20 17:35	
Hexachloroethane	mg/kg	0.066 U	0.066	0.015	06/12/20 17:35	
Indeno(1,2,3-cd)pyrene	mg/kg	0.066 U	0.066	0.012	06/12/20 17:35	
Isophorone	mg/kg	0.066 U	0.066	0.018	06/12/20 17:35	
N-Nitroso-di-n-propylamine	mg/kg	0.066 U	0.066	0.016	06/12/20 17:35	
N-Nitrosodiphenylamine	mg/kg	0.066 U	0.066	0.013	06/12/20 17:35	
Naphthalene	mg/kg	0.066 U	0.066	0.014	06/12/20 17:35	
Nitrobenzene	mg/kg	0.066 U	0.066	0.016	06/12/20 17:35	
Pentachlorophenol	mg/kg	0.17 U	0.17	0.031	06/12/20 17:35	
Phenanthrene	mg/kg	0.066 U	0.066	0.015	06/12/20 17:35	
Phenol	mg/kg	0.066 U	0.066	0.016	06/12/20 17:35	
Pyrene	mg/kg	0.066 U	0.066	0.018	06/12/20 17:35	
2,4,6-Tribromophenol (S)	%	55	30-113		06/12/20 17:35	
2-Fluorobiphenyl (S)	%	54	36-98		06/12/20 17:35	
2-Fluorophenol (S)	%	58	29-96		06/12/20 17:35	
Nitrobenzene-d5 (S)	%	57	26-95		06/12/20 17:35	
Phenol-d6 (S)	%	61	34-98		06/12/20 17:35	
Terphenyl-d14 (S)	%	70	59-116		06/12/20 17:35	

LABORATORY CONTROL SAMPLE: 1938016

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4,5-Tetrachlorobenzene	mg/kg	0.65	0.31	47	36-107	
2,3,4,6-Tetrachlorophenol	mg/kg	0.65	0.39	61	35-114	
2,4,5-Trichlorophenol	mg/kg	0.65	0.34	52	42-115	
2,4,6-Trichlorophenol	mg/kg	0.65	0.34	52	35-119	
2,4-Dichlorophenol	mg/kg	0.65	0.32	50	36-81	
2,4-Dimethylphenol	mg/kg	0.65	0.33	51	31-75	
2,4-Dinitrophenol	mg/kg	0.65	0.50	78	10-110	13c
2,4-Dinitrotoluene	mg/kg	0.65	0.46	71	52-128	
2,6-Dinitrotoluene	mg/kg	0.65	0.37	57	45-123	
2-Chloronaphthalene	mg/kg	0.65	0.32	49	41-108	
2-Chlorophenol	mg/kg	0.65	0.32	49	34-98	
2-Methylnaphthalene	mg/kg	0.65	0.32	49	35-77	
2-Methylphenol(o-Cresol)	mg/kg	0.65	0.34	52	34-97	
2-Nitroaniline	mg/kg	0.65	0.39	59	47-121	
3&4-Methylphenol(m&p Cresol)	mg/kg	0.65	0.35	54	38-101	
3,3'-Dichlorobenzidine	mg/kg	0.65	0.20	30	42-122	L2

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

LABORATORY CONTROL SAMPLE: 1938016

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
4-Chloroaniline	mg/kg	0.65	0.32	50	23-82	
4-Nitroaniline	mg/kg	0.65	0.32	48	29-173	
Acenaphthene	mg/kg	0.65	0.33	50	44-109	
Acenaphthylene	mg/kg	0.65	0.33	50	41-109	
Acetophenone	mg/kg	0.65	0.34	52	33-95	
Anthracene	mg/kg	0.65	0.42	65	54-109	
Benzaldehyde	mg/kg	0.65	0.23	36	10-26	L1
Benzo(a)anthracene	mg/kg	0.65	0.53	82	62-118	
Benzo(a)pyrene	mg/kg	0.65	0.49	76	64-115	
Benzo(b)fluoranthene	mg/kg	0.65	0.51	78	60-123	
Benzo(g,h,i)perylene	mg/kg	0.65	0.55	85	33-146	
Benzo(k)fluoranthene	mg/kg	0.65	0.49	76	64-129	
Biphenyl (Diphenyl)	mg/kg	0.65	0.33	50	40-103	
bis(2-Chloroethoxy)methane	mg/kg	0.65	0.33	51	36-81	
bis(2-Chloroethyl) ether	mg/kg	0.65	0.37	57	31-97	
bis(2-Chloroisopropyl) ether	mg/kg	0.65	0.38	59	30-108	CH
bis(2-Ethylhexyl)phthalate	mg/kg	0.65	0.50	77	50-137	
Caprolactam	mg/kg	0.65	0.56	86	40-98	
Carbazole	mg/kg	0.65	0.39	60	56-119	
Chrysene	mg/kg	0.65	0.47	72	64-120	
Di-n-butylphthalate	mg/kg	0.65	0.52	80	59-127	
Di-n-octylphthalate	mg/kg	0.65	0.51	79	44-150	
Dibenz(a,h)anthracene	mg/kg	0.65	0.53	82	41-144	
Diethylphthalate	mg/kg	0.65	0.43	66	55-118	
Fluoranthene	mg/kg	0.65	0.49	75	61-120	
Fluorene	mg/kg	0.65	0.35	54	47-111	
Hexachloro-1,3-butadiene	mg/kg	0.65	0.28	44	32-82	
Hexachlorobenzene	mg/kg	0.65	0.38	59	52-116	
Hexachlorocyclopentadiene	mg/kg	0.65	0.29	45	10-103	
Hexachloroethane	mg/kg	0.65	0.31	47	29-99	
Indeno(1,2,3-cd)pyrene	mg/kg	0.65	0.53	82	41-144	
Isophorone	mg/kg	0.65	0.33	52	36-82	
N-Nitroso-di-n-propylamine	mg/kg	0.65	0.34	53	36-104	
N-Nitrosodiphenylamine	mg/kg	0.65	0.37	57	39-92	
Naphthalene	mg/kg	0.65	0.32	50	35-78	
Nitrobenzene	mg/kg	0.65	0.32	49	33-81	
Pentachlorophenol	mg/kg	0.65	0.57	87	20-132	
Phenanthrene	mg/kg	0.65	0.44	68	54-111	
Phenol	mg/kg	0.65	0.34	53	36-98	
Pyrene	mg/kg	0.65	0.49	76	58-125	
2,4,6-Tribromophenol (S)	%			64	30-113	
2-Fluorobiphenyl (S)	%			47	36-98	
2-Fluorophenol (S)	%			51	29-96	
Nitrobenzene-d5 (S)	%			50	26-95	
Phenol-d6 (S)	%			54	34-98	
Terphenyl-d14 (S)	%			70	59-116	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

Parameter	Units	1938017		1938018		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		30365510002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
1,2,4,5-Tetrachlorobenzene	mg/kg	0.074 U	0.74	0.73	0.39	0.45	53	62	32-106	14	25		
2,3,4,6-Tetrachlorophenol	mg/kg	0.074 U	0.74	0.73	0.44	0.45	59	62	10-110	3	25		
2,4,5-Trichlorophenol	mg/kg	0.18 U	0.74	0.73	0.44	0.49	59	68	10-139	12	25		
2,4,6-Trichlorophenol	mg/kg	0.074 U	0.74	0.73	0.43	0.47	59	65	10-131	8	25		
2,4-Dichlorophenol	mg/kg	0.074 U	0.74	0.73	0.36	0.43	49	59	10-106	17	25		
2,4-Dimethylphenol	mg/kg	0.074 U	0.74	0.73	0.14	0.18	19	25	10-88	25	25		
2,4-Dinitrophenol	mg/kg	0.18 U	0.74	0.73	0.11J	0.15J	15	21	10-150		25	13c	
2,4-Dinitrotoluene	mg/kg	0.074 U	0.74	0.73	0.60	0.62	82	86	20-131	3	25		
2,6-Dinitrotoluene	mg/kg	0.074 U	0.74	0.73	0.50	0.54	67	75	18-126	9	25		
2-Chloronaphthalene	mg/kg	0.074 U	0.74	0.73	0.43	0.47	58	64	34-108	9	25		
2-Chlorophenol	mg/kg	0.074 U	0.74	0.73	0.35	0.41	48	57	10-115	16	25		
2-Methylnaphthalene	mg/kg	0.021J	0.74	0.73	0.42	0.47	54	61	17-90	10	25		
2-Methylphenol(o-Cresol)	mg/kg	0.074 U	0.74	0.73	0.22	0.28	30	39	10-100	24	25		
2-Nitroaniline	mg/kg	0.18 U	0.74	0.73	0.49	0.53	66	73	34-112	9	25		
3&4-Methylphenol(m&p Cresol)	mg/kg	0.15 U	0.74	0.73	0.27	0.34	36	46	10-105	24	25		
3,3'-Dichlorobenzidine	mg/kg	0.074 U	0.74	0.73	0.074 U	0.073 U	0	0	10-171		25	ML	
4-Chloroaniline	mg/kg	0.074 U	0.74	0.73	0.18	0.23	24	32	10-80	26	25	R1	
4-Nitroaniline	mg/kg	0.18 U	0.74	0.73	0.19	0.18	26	25	10-175	3	25		
Acenaphthene	mg/kg	0.074 U	0.74	0.73	0.43	0.49	59	67	26-120	11	25		
Acenaphthylene	mg/kg	0.074 U	0.74	0.73	0.45	0.49	61	67	23-118	8	25		
Acetophenone	mg/kg	0.074 U	0.74	0.73	0.44	0.49	58	66	20-100	10	25		
Anthracene	mg/kg	0.074 U	0.74	0.73	0.56	0.56	75	77	24-127	0	25		
Benzaldehyde	mg/kg	0.074 U	0.74	0.73	0.42	0.18	56	23	10-57	81	25	R1	
Benzo(a)anthracene	mg/kg	0.017J	0.74	0.73	0.62	0.63	82	84	19-145	2	25		
Benzo(a)pyrene	mg/kg	0.016J	0.74	0.73	0.58	0.58	76	78	19-151	2	25		
Benzo(b)fluoranthene	mg/kg	0.026J	0.74	0.73	0.68	0.60	88	78	19-172	13	25		
Benzo(g,h,i)perylene	mg/kg	0.022J	0.74	0.73	0.46	0.50	59	66	10-122	9	25		
Benzo(k)fluoranthene	mg/kg	0.018J	0.74	0.73	0.52	0.58	68	77	10-175	10	25		
Biphenyl (Diphenyl)	mg/kg	0.074 U	0.74	0.73	0.42	0.48	57	66	31-107	13	25		
bis(2-Chloroethoxy)methane	mg/kg	0.074 U	0.74	0.73	0.43	0.48	58	66	26-82	13	25		
bis(2-Chloroethyl) ether	mg/kg	0.074 U	0.74	0.73	0.44	0.51	60	70	17-100	14	25		
bis(2-Chloroisopropyl) ether	mg/kg	0.074 U	0.74	0.73	0.50	0.56	68	77	20-105	11	25	CH	
bis(2-Ethylhexyl)phthalate	mg/kg	0.074 U	0.74	0.73	0.61	0.61	82	83	10-175	0	25		
Caprolactam	mg/kg	0.023J	0.74	0.73	0.59	0.64	77	84	33-90	7	25		
Carbazole	mg/kg	0.074 U	0.74	0.73	0.45	0.48	61	66	21-144	6	25		
Chrysene	mg/kg	0.023J	0.74	0.73	0.58	0.58	76	77	11-156	0	25		
Di-n-butylphthalate	mg/kg	0.074 U	0.74	0.73	0.60	0.64	79	86	45-130	6	25		
Di-n-octylphthalate	mg/kg	0.074 U	0.74	0.73	0.63	0.62	85	85	10-175	1	25		
Dibenz(a,h)anthracene	mg/kg	0.074 U	0.74	0.73	0.49	0.54	66	75	10-136	10	25		
Diethylphthalate	mg/kg	0.074 U	0.74	0.73	0.52	0.58	70	79	42-114	11	25		
Fluoranthene	mg/kg	0.018J	0.74	0.73	0.64	0.63	84	84	10-157	2	25		
Fluorene	mg/kg	0.074 U	0.74	0.73	0.50	0.54	67	74	21-127	9	25		
Hexachloro-1,3-butadiene	mg/kg	0.074 U	0.74	0.73	0.36	0.41	48	56	25-88	13	25		
Hexachlorobenzene	mg/kg	0.074 U	0.74	0.73	0.53	0.53	72	74	46-126	1	25		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

Parameter	Units	1938017		1938018		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		30365510002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Hexachlorocyclopentadiene	mg/kg	0.074 U	0.74	0.73	0.37	0.43	50	59	10-75	15	25		
Hexachloroethane	mg/kg	0.074 U	0.74	0.73	0.41	0.45	55	62	15-96	11	25		
Indeno(1,2,3-cd)pyrene	mg/kg	0.017J	0.74	0.73	0.49	0.54	64	71	10-128	9	25		
Isophorone	mg/kg	0.074 U	0.74	0.73	0.42	0.48	57	66	22-85	13	25		
N-Nitroso-di-n-propylamine	mg/kg	0.074 U	0.74	0.73	0.44	0.50	59	69	21-105	13	25		
N-Nitrosodiphenylamine	mg/kg	0.074 U	0.74	0.73	0.47	0.51	63	70	24-109	9	25		
Naphthalene	mg/kg	0.020J	0.74	0.73	0.45	0.47	59	61	10-102	3	25		
Nitrobenzene	mg/kg	0.074 U	0.74	0.73	0.41	0.46	55	63	17-86	11	25		
Pentachlorophenol	mg/kg	0.18 U	0.74	0.73	0.47	0.43	63	59	10-100	8	25		
Phenanthrene	mg/kg	0.035J	0.74	0.73	0.65	0.64	83	83	25-138	1	25		
Phenol	mg/kg	0.074 U	0.74	0.73	0.31	0.38	42	53	10-107	21	25		
Pyrene	mg/kg	0.020J	0.74	0.73	0.62	0.64	81	85	14-160	3	25		
2,4,6-Tribromophenol (S)	%						60	68	30-113				
2-Fluorobiphenyl (S)	%						53	62	36-98				
2-Fluorophenol (S)	%						32	43	29-96				
Nitrobenzene-d5 (S)	%						58	65	26-95				
Phenol-d6 (S)	%						39	48	34-98				
Terphenyl-d14 (S)	%						71	72	59-116				

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

QC Batch: 398665 Analysis Method: EPA 8270D  
QC Batch Method: EPA 3510C Analysis Description: 8270D Water MSSV  
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30365510016, 30365510017

METHOD BLANK: 1931006 Matrix: Water

Associated Lab Samples: 30365510016, 30365510017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2,4,5-Tetrachlorobenzene	ug/L	1.0 U	1.0	0.31	06/02/20 13:24	
2,3,4,6-Tetrachlorophenol	ug/L	1.0 U	1.0	0.28	06/02/20 13:24	
2,4,5-Trichlorophenol	ug/L	2.5 U	2.5	0.67	06/02/20 13:24	
2,4,6-Trichlorophenol	ug/L	1.0 U	1.0	0.37	06/02/20 13:24	
2,4-Dichlorophenol	ug/L	1.0 U	1.0	0.34	06/02/20 13:24	
2,4-Dimethylphenol	ug/L	1.0 U	1.0	0.36	06/02/20 13:24	
2,4-Dinitrophenol	ug/L	2.5 U	2.5	0.58	06/02/20 13:24	
2,4-Dinitrotoluene	ug/L	1.0 U	1.0	0.36	06/02/20 13:24	
2,6-Dinitrotoluene	ug/L	1.0 U	1.0	0.40	06/02/20 13:24	
2-Chloronaphthalene	ug/L	1.0 U	1.0	0.33	06/02/20 13:24	
2-Chlorophenol	ug/L	1.0 U	1.0	0.32	06/02/20 13:24	
2-Methylnaphthalene	ug/L	1.0 U	1.0	0.34	06/02/20 13:24	
2-Methylphenol(o-Cresol)	ug/L	1.0 U	1.0	0.37	06/02/20 13:24	
2-Nitroaniline	ug/L	2.5 U	2.5	0.71	06/02/20 13:24	
3&4-Methylphenol(m&p Cresol)	ug/L	2.0 U	2.0	1.9	06/02/20 13:24	
3,3'-Dichlorobenzidine	ug/L	1.0 U	1.0	0.23	06/02/20 13:24	
4-Chloroaniline	ug/L	1.0 U	1.0	0.21	06/02/20 13:24	
4-Nitroaniline	ug/L	2.5 U	2.5	1.9	06/02/20 13:24	
Acenaphthene	ug/L	1.0 U	1.0	0.39	06/02/20 13:24	
Acenaphthylene	ug/L	1.0 U	1.0	0.38	06/02/20 13:24	
Acetophenone	ug/L	1.0 U	1.0	0.42	06/02/20 13:24	
Anthracene	ug/L	1.0 U	1.0	0.27	06/02/20 13:24	
Benzaldehyde	ug/L	1.0 U	1.0	0.43	06/02/20 13:24	
Benzo(a)anthracene	ug/L	1.0 U	1.0	0.20	06/02/20 13:24	
Benzo(a)pyrene	ug/L	1.0 U	1.0	0.18	06/02/20 13:24	
Benzo(b)fluoranthene	ug/L	1.0 U	1.0	0.24	06/02/20 13:24	
Benzo(g,h,i)perylene	ug/L	1.0 U	1.0	0.30	06/02/20 13:24	
Benzo(k)fluoranthene	ug/L	1.0 U	1.0	0.26	06/02/20 13:24	
Biphenyl (Diphenyl)	ug/L	1.0 U	1.0	0.32	06/02/20 13:24	
bis(2-Chloroethoxy)methane	ug/L	1.0 U	1.0	0.36	06/02/20 13:24	
bis(2-Chloroethyl) ether	ug/L	1.0 U	1.0	0.41	06/02/20 13:24	
bis(2-Chloroisopropyl) ether	ug/L	1.0 U	1.0	0.40	06/02/20 13:24	
bis(2-Ethylhexyl)phthalate	ug/L	0.52J	1.0	0.36	06/02/20 13:24	
Caprolactam	ug/L	2.5 U	2.5	0.32	06/02/20 13:24	
Carbazole	ug/L	1.0 U	1.0	0.23	06/02/20 13:24	
Chrysene	ug/L	1.0 U	1.0	0.21	06/02/20 13:24	
Di-n-butylphthalate	ug/L	2.6	1.0	0.32	06/02/20 13:24	B
Di-n-octylphthalate	ug/L	1.0 U	1.0	0.27	06/02/20 13:24	
Dibenz(a,h)anthracene	ug/L	1.0 U	1.0	0.31	06/02/20 13:24	
Diethylphthalate	ug/L	1.0 U	1.0	0.36	06/02/20 13:24	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

METHOD BLANK: 1931006 Matrix: Water  
Associated Lab Samples: 30365510016, 30365510017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoranthene	ug/L	1.0 U	1.0	0.23	06/02/20 13:24	
Fluorene	ug/L	1.0 U	1.0	0.37	06/02/20 13:24	
Hexachloro-1,3-butadiene	ug/L	1.0 U	1.0	0.33	06/02/20 13:24	
Hexachlorobenzene	ug/L	1.0 U	1.0	0.30	06/02/20 13:24	
Hexachlorocyclopentadiene	ug/L	1.0 U	1.0	0.19	06/02/20 13:24	
Hexachloroethane	ug/L	1.0 U	1.0	0.30	06/02/20 13:24	
Indeno(1,2,3-cd)pyrene	ug/L	1.0 U	1.0	0.30	06/02/20 13:24	
Isophorone	ug/L	1.0 U	1.0	0.57	06/02/20 13:24	
N-Nitroso-di-n-propylamine	ug/L	1.0 U	1.0	0.54	06/02/20 13:24	
N-Nitrosodiphenylamine	ug/L	1.0 U	1.0	0.25	06/02/20 13:24	
Naphthalene	ug/L	1.0 U	1.0	0.35	06/02/20 13:24	
Nitrobenzene	ug/L	1.0 U	1.0	0.38	06/02/20 13:24	
Pentachlorophenol	ug/L	2.5 U	2.5	1.0	06/02/20 13:24	
Phenanthrene	ug/L	1.0 U	1.0	0.34	06/02/20 13:24	
Phenol	ug/L	1.0 U	1.0	0.22	06/02/20 13:24	
Pyrene	ug/L	1.0 U	1.0	0.30	06/02/20 13:24	
2,4,6-Tribromophenol (S)	%	62	10-140		06/02/20 13:24	
2-Fluorobiphenyl (S)	%	47	10-135		06/02/20 13:24	
2-Fluorophenol (S)	%	32	10-142		06/02/20 13:24	
Nitrobenzene-d5 (S)	%	48	10-140		06/02/20 13:24	
Phenol-d6 (S)	%	23	10-145		06/02/20 13:24	
Terphenyl-d14 (S)	%	58	10-128		06/02/20 13:24	

LABORATORY CONTROL SAMPLE: 1931007

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4,5-Tetrachlorobenzene	ug/L	10	4.9	49	28-99	
2,3,4,6-Tetrachlorophenol	ug/L	10	8.6	86	33-115	
2,4,5-Trichlorophenol	ug/L	10	7.9	79	57-113	
2,4,6-Trichlorophenol	ug/L	10	7.3	73	45-122	
2,4-Dichlorophenol	ug/L	10	6.8	68	33-96	
2,4-Dimethylphenol	ug/L	10	7.3	73	19-87	
2,4-Dinitrophenol	ug/L	10	10.9	109	15-119	
2,4-Dinitrotoluene	ug/L	10	8.6	86	40-119	
2,6-Dinitrotoluene	ug/L	10	7.6	76	50-116	
2-Chloronaphthalene	ug/L	10	5.4	54	30-101	
2-Chlorophenol	ug/L	10	6.0	60	27-97	
2-Methylnaphthalene	ug/L	10	5.3	53	24-91	
2-Methylphenol(o-Cresol)	ug/L	10	6.3	63	10-175	
2-Nitroaniline	ug/L	10	8.3	83	48-120	
3&4-Methylphenol(m&p Cresol)	ug/L	20	12.5	63	21-131	
3,3'-Dichlorobenzidine	ug/L	10	3.0	30	49-117	L2
4-Chloroaniline	ug/L	10	4.4	44	22-79	
4-Nitroaniline	ug/L	10	7.5	75	46-136	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

LABORATORY CONTROL SAMPLE: 1931007

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	10	5.9	59	36-106	
Acenaphthylene	ug/L	10	6.1	61	35-103	
Acetophenone	ug/L	10	6.4	64	30-107	
Anthracene	ug/L	10	7.5	75	56-106	
Benzaldehyde	ug/L	10	3.5	35	10-128	
Benzo(a)anthracene	ug/L	10	7.6	76	64-124	
Benzo(a)pyrene	ug/L	10	7.8	78	61-115	
Benzo(b)fluoranthene	ug/L	10	8.1	81	58-133	
Benzo(g,h,i)perylene	ug/L	10	8.5	85	40-142	
Benzo(k)fluoranthene	ug/L	10	8.0	80	61-121	
Biphenyl (Diphenyl)	ug/L	10	5.7	57	29-103	
bis(2-Chloroethoxy)methane	ug/L	10	6.6	66	33-96	
bis(2-Chloroethyl) ether	ug/L	10	5.4	54	25-98	
bis(2-Chloroisopropyl) ether	ug/L	10	5.4	54	23-104	
bis(2-Ethylhexyl)phthalate	ug/L	10	8.6	86	65-141	
Caprolactam	ug/L	10	3.2	32	10-39	
Carbazole	ug/L	10	7.2	72	59-112	
Chrysene	ug/L	10	7.9	79	63-120	
Di-n-butylphthalate	ug/L	10	9.4	94	69-126	
Di-n-octylphthalate	ug/L	10	9.2	92	61-145	
Dibenz(a,h)anthracene	ug/L	10	8.8	88	52-138	
Diethylphthalate	ug/L	10	7.3	73	61-117	
Fluoranthene	ug/L	10	7.9	79	65-119	
Fluorene	ug/L	10	6.7	67	44-110	
Hexachloro-1,3-butadiene	ug/L	10	4.1	41	13-112	
Hexachlorobenzene	ug/L	10	6.4	64	17-121	
Hexachlorocyclopentadiene	ug/L	10	1.4	14	10-83	
Hexachloroethane	ug/L	10	3.9	39	13-108	
Indeno(1,2,3-cd)pyrene	ug/L	10	8.7	87	48-140	
Isophorone	ug/L	10	5.2	52	34-93	
N-Nitroso-di-n-propylamine	ug/L	10	6.3	63	34-106	
N-Nitrosodiphenylamine	ug/L	10	6.8	68	34-97	
Naphthalene	ug/L	10	5.1	51	23-90	
Nitrobenzene	ug/L	10	5.7	57	26-128	
Pentachlorophenol	ug/L	10	10.7	107	37-125	
Phenanthrene	ug/L	10	6.7	67	56-112	
Phenol	ug/L	10	3.4	34	10-58	
Pyrene	ug/L	10	7.5	75	56-128	
2,4,6-Tribromophenol (S)	%			73	10-140	
2-Fluorobiphenyl (S)	%			50	10-135	
2-Fluorophenol (S)	%			37	10-142	
Nitrobenzene-d5 (S)	%			56	10-140	
Phenol-d6 (S)	%			29	10-145	
Terphenyl-d14 (S)	%			61	10-128	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1931008 1931009												
Parameter	Units	30365303002		MS	MSD	MS		MSD		% Rec Limits	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec			
1,2,4,5-Tetrachlorobenzene	ug/L	1.0 U	10.2	10	5.8	5.1	57	51	10-91	13	25	
2,3,4,6-Tetrachlorophenol	ug/L	1.0 U	10.2	10	11.0	9.8	108	98	25-127	11	25	
2,4,5-Trichlorophenol	ug/L	2.5 U	10.2	10	9.9	9.1	97	91	32-129	9	25	
2,4,6-Trichlorophenol	ug/L	1.0 U	10.2	10	9.6	8.4	94	84	25-130	13	25	
2,4-Dichlorophenol	ug/L	1.0 U	10.2	10	8.0	7.2	79	72	19-100	11	25	
2,4-Dimethylphenol	ug/L	1.0 U	10.2	10	8.3	7.5	82	75	10-93	11	25	
2,4-Dinitrophenol	ug/L	2.5 U	10.2	10	13.1	12.2	129	122	10-165	8	25	
2,4-Dinitrotoluene	ug/L	1.0 U	10.2	10	9.9	8.9	97	89	37-123	11	25	
2,6-Dinitrotoluene	ug/L	1.0 U	10.2	10	8.7	7.8	85	78	30-118	11	25	
2-Chloronaphthalene	ug/L	1.0 U	10.2	10	6.6	5.7	65	57	14-98	16	25	
2-Chlorophenol	ug/L	1.0 U	10.2	10	6.6	5.9	65	59	10-99	10	25	
2-Methylnaphthalene	ug/L	1.0 U	10.2	10	5.7	5.0	56	50	10-89	13	25	
2-Methylphenol(o-Cresol)	ug/L	1.0 U	10.2	10	6.5	5.9	64	59	10-120	9	25	
2-Nitroaniline	ug/L	2.5 U	10.2	10	10.1	9.2	99	92	31-120	9	25	
3&4-Methylphenol(m&p Cresol)	ug/L	2.0 U	20.4	20	12.6	11.5	62	57	10-132	10	25	
3,3'-Dichlorobenzidine	ug/L	1.0 U	10.2	10	1.0 U	1.0 U	0	0	10-112		25	ML
4-Chloroaniline	ug/L	1.0 U	10.2	10	4.3	4.4	42	44	10-90	4	25	
4-Nitroaniline	ug/L	2.5 U	10.2	10	8.4	7.2	82	72	10-168	15	25	
Acenaphthene	ug/L	1.0 U	10.2	10	7.2	6.1	71	61	19-104	16	25	
Acenaphthylene	ug/L	1.0 U	10.2	10	7.4	6.3	73	63	15-102	16	25	
Acetophenone	ug/L	1.0 U	10.2	10	6.9	6.1	68	61	16-96	13	25	
Anthracene	ug/L	1.0 U	10.2	10	8.6	7.7	84	77	34-108	10	25	
Benzaldehyde	ug/L	1.0 U	10.2	10	3.7	3.4	36	34	10-121	7	25	
Benzo(a)anthracene	ug/L	1.0 U	10.2	10	8.4	7.4	82	74	46-122	13	25	
Benzo(a)pyrene	ug/L	1.0 U	10.2	10	8.7	7.8	85	78	39-117	11	25	
Benzo(b)fluoranthene	ug/L	1.0 U	10.2	10	9.0	8.0	89	80	33-147	12	25	
Benzo(g,h,i)perylene	ug/L	1.0 U	10.2	10	6.5	5.1	63	51	10-124	24	25	
Benzo(k)fluoranthene	ug/L	1.0 U	10.2	10	10.2	9.6	100	96	44-130	7	25	
Biphenyl (Diphenyl)	ug/L	1.0 U	10.2	10	6.9	5.4	67	54	10-95	24	25	
bis(2-Chloroethoxy)methane	ug/L	1.0 U	10.2	10	7.2	6.3	71	63	10-99	14	25	
bis(2-Chloroethyl) ether	ug/L	1.0 U	10.2	10	5.9	5.2	57	52	10-108	12	25	
bis(2-Chloroisopropyl) ether	ug/L	1.0 U	10.2	10	5.9	5.1	57	51	10-110	14	25	
bis(2-Ethylhexyl)phthalate	ug/L	0.49J	10.2	10	10.2	8.9	95	84	43-136	13	25	
Caprolactam	ug/L	0.34J	10.2	10	3.0	2.8	26	24	10-40	7	25	
Carbazole	ug/L	1.0 U	10.2	10	9.3	8.4	92	84	50-114	10	25	
Chrysene	ug/L	1.0 U	10.2	10	8.8	7.7	86	77	44-121	12	25	
Di-n-butylphthalate	ug/L	1.9	10.2	10	11.2	9.7	92	78	50-123	14	25	
Di-n-octylphthalate	ug/L	1.0 U	10.2	10	11.7	10.8	114	108	27-164	8	25	
Dibenz(a,h)anthracene	ug/L	1.0 U	10.2	10	7.3	5.8	72	58	11-127	24	25	
Diethylphthalate	ug/L	1.0 U	10.2	10	8.8	8.0	85	79	38-122	9	25	
Fluoranthene	ug/L	1.0 U	10.2	10	9.1	7.9	89	79	39-124	15	25	
Fluorene	ug/L	1.0 U	10.2	10	7.5	7.1	73	71	23-111	5	25	
Hexachloro-1,3-butadiene	ug/L	1.0 U	10.2	10	4.1	3.7	40	37	10-99	10	25	
Hexachlorobenzene	ug/L	1.0 U	10.2	10	7.1	6.4	69	64	34-114	10	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

Parameter	Units	1931008		1931009		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		30365303002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Hexachlorocyclopentadiene	ug/L	1.0 U	10.2	10	1.6	1.4	15	14	10-65	9	25	
Hexachloroethane	ug/L	1.0 U	10.2	10	3.9	3.5	39	35	10-128	12	25	
Indeno(1,2,3-cd)pyrene	ug/L	1.0 U	10.2	10	7.2	5.6	71	56	11-126	25	25	
Isophorone	ug/L	1.0 U	10.2	10	5.9	5.1	58	51	10-102	14	25	
N-Nitroso-di-n-propylamine	ug/L	1.0 U	10.2	10	7.0	5.9	68	59	10-124	16	25	
N-Nitrosodiphenylamine	ug/L	1.0 U	10.2	10	7.6	7.1	75	71	10-110	7	25	
Naphthalene	ug/L	1.0 U	10.2	10	5.5	4.9	53	49	10-84	11	25	
Nitrobenzene	ug/L	1.0 U	10.2	10	6.6	5.8	65	58	11-114	13	25	
Pentachlorophenol	ug/L	2.5 U	10.2	10	12.8	11.4	126	114	10-175	12	25	
Phenanthrene	ug/L	1.0 U	10.2	10	8.4	7.1	83	71	34-117	18	25	
Phenol	ug/L	1.0 U	10.2	10	3.0	2.8	28	27	10-46	8	25	
Pyrene	ug/L	1.0 U	10.2	10	8.5	7.5	83	75	35-127	12	25	
2,4,6-Tribromophenol (S)	%						80	79	10-140			
2-Fluorobiphenyl (S)	%						61	54	10-135			
2-Fluorophenol (S)	%						32	31	10-142			
Nitrobenzene-d5 (S)	%						60	55	10-140			
Phenol-d6 (S)	%						24	22	10-145			
Terphenyl-d14 (S)	%						66	58	10-128			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II

Pace Project No.: 30365510

QC Batch: 398899

Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87

Analysis Description: Dry Weight/Percent Moisture

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013

SAMPLE DUPLICATE: 1931767

Parameter	Units	30365510001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	9.4	9.9	5	20	

SAMPLE DUPLICATE: 1931768

Parameter	Units	30365510002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	9.7	7.7	23	20	D6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

QC Batch: 398838	Analysis Method: EPA 1664A
QC Batch Method: EPA 1664A	Analysis Description: 1664 HEM, Oil and Grease
	Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30365510016, 30365510017

METHOD BLANK: 1931587 Matrix: Water

Associated Lab Samples: 30365510016, 30365510017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Oil and Grease	ug/L	4750 U	4750	923	06/02/20 03:34	

LABORATORY CONTROL SAMPLE: 1931588

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Oil and Grease	ug/L	40000	34700	87	78-114	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1931589 1931590

Parameter	Units	30364769004		1931589		1931590		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS % Rec	MSD % Rec				
Oil and Grease	ug/L	ND	40000	32500	40000	78	80	78-114	2	18	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

QC Batch: 398841 Analysis Method: EPA 7196A  
QC Batch Method: EPA 3060A Analysis Description: 7196 Chromium, Hexavalent  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013

METHOD BLANK: 1931603 Matrix: Solid  
Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chromium, Hexavalent	mg/kg	1.0 U	1.0	0.63	06/03/20 16:05	4c,5c

LABORATORY CONTROL SAMPLE: 1931604

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/kg	20	19.0	95	80-120	4c,5c

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1931605 1931606

Parameter	Units	30365510002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium, Hexavalent	mg/kg	1.1 U	21.9	21.9	1.1 U	1.1 U	0	0	75-125		20	4c,5c, ML

MATRIX SPIKE SAMPLE: 1931607

Parameter	Units	30365510002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/kg	1.1 U	812	752	92	75-125	4c,5c

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II

Pace Project No.: 30365510

QC Batch: 398626

Analysis Method: EPA 7196A

QC Batch Method: EPA 7196A

Analysis Description: 7196 Chromium, Hexavalent

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30365510016, 30365510017

METHOD BLANK: 1930684

Matrix: Water

Associated Lab Samples: 30365510016, 30365510017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chromium, Hexavalent	ug/L	10.0 U	10.0	8.1	05/29/20 23:42	2c

LABORATORY CONTROL SAMPLE & LCSD: 1930685

1930686

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Chromium, Hexavalent	ug/L	250	248	258	99	103	85-115	4	20	2c

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II

Pace Project No.: 30365510

QC Batch: 398617

Analysis Method: EPA 9045D

QC Batch Method: EPA 9045D

Analysis Description: 9045D pH

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008

SAMPLE DUPLICATE: 1930630

Parameter	Units	30365302009 Result	Dup Result	RPD	Max RPD	Qualifiers
pH in water at 25 degrees C	Std. Units	11.2	11.3	0	10	H3

SAMPLE DUPLICATE: 1930641

Parameter	Units	30365510002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH in water at 25 degrees C	Std. Units	9.6	9.5	1	10	H3

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II

Pace Project No.: 30365510

QC Batch: 398640

Analysis Method: EPA 9045D

QC Batch Method: EPA 9045D

Analysis Description: 9045D pH

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30365510009, 30365510010, 30365510011, 30365510012, 30365510013

SAMPLE DUPLICATE: 1930938

Parameter	Units	30365510013 Result	Dup Result	RPD	Max RPD	Qualifiers
pH in water at 25 degrees C	Std. Units	8.7	8.7	0	10	H3

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

QC Batch: 399083 Analysis Method: EPA 9071B  
QC Batch Method: EPA 9071B Analysis Description: 9071 ASE, Oil and Grease/TPH  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013

METHOD BLANK: 1932677 Matrix: Solid  
Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Oil and Grease	mg/kg	200 U	200	90.0	06/04/20 07:35	

LABORATORY CONTROL SAMPLE: 1932678

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/kg	1600	1600	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1932679 1932680

Parameter	Units	30365510002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual
										RPD	RPD	
Oil and Grease	mg/kg	222 U	1770	1770	1700	1760	92	96	85-115	3	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

QC Batch: 398767 Analysis Method: EPA 9012B  
QC Batch Method: EPA 9012B Analysis Description: 9012B Cyanide  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013

METHOD BLANK: 1931277 Matrix: Solid  
Associated Lab Samples: 30365510001, 30365510002, 30365510003, 30365510004, 30365510005, 30365510006, 30365510007, 30365510008, 30365510009, 30365510010, 30365510011, 30365510012, 30365510013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cyanide	mg/kg	1.0 U	1.0	0.13	06/02/20 11:10	

LABORATORY CONTROL SAMPLE: 1931278

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/kg	6	5.8	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1931279 1931280

Parameter	Units	30365510002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cyanide	mg/kg	1.1	2.9	3.3	4.1	4.8	104	111	90-110	15	20	MH

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1931281 1931282

Parameter	Units	30365510011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cyanide	mg/kg	3.0	2.7	3.4	5.2	6.6	81	107	90-110	24	20	ML,R1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: B9 Phase II  
Pace Project No.: 30365510

QC Batch: 398736 Analysis Method: EPA 9012B  
QC Batch Method: EPA 9012B Analysis Description: 9012B Cyanide, Total  
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30365510016, 30365510017

METHOD BLANK: 1931171 Matrix: Water

Associated Lab Samples: 30365510016, 30365510017

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cyanide	mg/L	0.010 U	0.010	0.0057	06/02/20 10:19	

LABORATORY CONTROL SAMPLE: 1931172

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	0.2	0.20	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1931173 1931174

Parameter	Units	30365569009		1931173		1931174		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result					
Cyanide	mg/L	ND	0.1	0.1	0.10	0.096	97	94	90-110	4	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1931284 1931285

Parameter	Units	30365510017		1931284		1931285		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result					
Cyanide	mg/L	0.010 U	0.1	0.1	0.098	0.098	97	97	90-110	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## QUALIFIERS

Project: B9 Phase II  
Pace Project No.: 30365510

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.  
ND - Not Detected at or above adjusted reporting limit.  
TNTC - Too Numerous To Count  
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
MDL - Adjusted Method Detection Limit.  
PQL - Practical Quantitation Limit.  
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.  
S - Surrogate  
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.  
LCS(D) - Laboratory Control Sample (Duplicate)  
MS(D) - Matrix Spike (Duplicate)  
DUP - Sample Duplicate  
RPD - Relative Percent Difference  
NC - Not Calculable.  
SG - Silica Gel - Clean-Up  
U - Indicates the compound was analyzed for, but not detected.  
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.  
TNI - The NELAC Institute.

### BATCH QUALIFIERS

Batch: 398626  
[1] Due to limited volume for MS/MSD, LCSD was analyzed  
Batch: 398849  
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.  
Batch: 399205  
[1] The CRDL standard exceeded the 30% criteria for Cu. Sample was above the linear range, therefore diluted elevating the reporting limits.  
[2] The PDS failed for Fe and Mn  
Batch: 399259  
[1] ORP: 276 mV at 20.8 deg C; Spike samples have a tendency to reduce, see Figure 2.  
[2] LCR: 92%; PDS: 111.62%

### ANALYTE QUALIFIERS

10c The PDS failed for Fe and Mn  
11c The PDS recovery was outside of the laboratory control limits. Result may be biased high  
12c The PDS recovery was outside of the laboratory control limits. Result may be biased low  
13c The read back of the low concentration calibration standard for this compound is not within 30% of the true value. The results may be biased low and should be considered estimated.  
1c A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.  
2c Due to limited volume for MS/MSD, LCSD was analyzed

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: B9 Phase II  
Pace Project No.: 30365510

---

### ANALYTE QUALIFIERS

3c	Initial sample volume reduced-clay.
4c	LCR: 92%; PDS: 111.62%
5c	ORP: 276 mV at 20.8 deg C; Spike samples have a tendency to reduce, see Figure 2.
6c	RF below method recommended limit.
7c	Solid LCS-Data accepted based upon Pace-Pittsburgh's in house control limits of 51-106%
8c	Surrogate recovery is outside control limits due to matrix interferences (sample pH > 10). Samples from this site have been re-extracted to confirm that surrogate failure is due to matrix. Therefore, this sample was not re-extracted.
9c	The CRDL standard exceeded the 30% criteria for Cu. Sample was above the linear range, therefore diluted elevating the reporting limits.
B	Analyte was detected in the associated method blank.
C2	Relative percent difference between results from each column was greater than 40%. The lower of the two results was reported.
CH	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
CL	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
ED	Due to the extract's physical characteristics, the analysis was performed at dilution.
H3	Sample was received or analysis requested beyond the recognized method holding time.
IH	This analyte exceeded secondary source verification criteria high for the initial calibration. The reported results should be considered an estimated value.
L1	Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
MH	Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.
ML	Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.
R1	RPD value was outside control limits.
S2	Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).
S4	Surrogate recovery not evaluated against control limits due to sample dilution.
S8	Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-extraction and/or re-analysis)
SR	Surrogate recovery was below laboratory control limits. Results may be biased low.
ST	Surrogate recovery was above laboratory control limits. Results may be biased high.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: B9 Phase II  
Pace Project No.: 30365510

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30365510001	B9-006-SB-1	EPA 3546	400233	EPA 8015B	400753
30365510002	B9-006-SB-8	EPA 3546	400233	EPA 8015B	400753
30365510003	B9-005-SB-1	EPA 3546	400233	EPA 8015B	400753
30365510004	B9-005-SB-4	EPA 3546	400233	EPA 8015B	400753
30365510005	B9-003-SB-1	EPA 3546	400233	EPA 8015B	400753
30365510006	B9-003-SB-5	EPA 3546	400233	EPA 8015B	400753
30365510007	B9-004-SB-1	EPA 3546	400233	EPA 8015B	400753
30365510008	B9-004-SB-5	EPA 3546	400233	EPA 8015B	400753
30365510009	B9-001-SB-1	EPA 3546	400233	EPA 8015B	400753
30365510010	B9-001-SB-5	EPA 3546	400233	EPA 8015B	400753
30365510011	B9-002-SB-1.5	EPA 3546	400233	EPA 8015B	400753
30365510012	B9-002-SB-5	EPA 3546	400233	EPA 8015B	400753
30365510013	duplicate	EPA 3546	400233	EPA 8015B	400753
30365510016	field blank	EPA 3510C	398849	EPA 8015B	398923
30365510017	EQ blank	EPA 3510C	398849	EPA 8015B	398923
30365510001	B9-006-SB-1	EPA 3546	400732	EPA 8082	400919
30365510003	B9-005-SB-1	EPA 3546	400732	EPA 8082	400919
30365510005	B9-003-SB-1	EPA 3546	400732	EPA 8082	400919
30365510007	B9-004-SB-1	EPA 3546	400732	EPA 8082	400919
30365510009	B9-001-SB-1	EPA 3546	400732	EPA 8082	400919
30365510011	B9-002-SB-1.5	EPA 3546	400732	EPA 8082	400919
30365510013	duplicate	EPA 3546	400732	EPA 8082	400919
30365510001	B9-006-SB-1	EPA 5035A/5030B	399389	EPA 8015B	399397
30365510002	B9-006-SB-8	EPA 5035A/5030B	399389	EPA 8015B	399397
30365510003	B9-005-SB-1	EPA 5035A/5030B	399389	EPA 8015B	399397
30365510004	B9-005-SB-4	EPA 5035A/5030B	399389	EPA 8015B	399397
30365510005	B9-003-SB-1	EPA 5035A/5030B	399389	EPA 8015B	399397
30365510006	B9-003-SB-5	EPA 5035A/5030B	399389	EPA 8015B	399397
30365510007	B9-004-SB-1	EPA 5035A/5030B	399389	EPA 8015B	399397
30365510008	B9-004-SB-5	EPA 5035A/5030B	399389	EPA 8015B	399397
30365510009	B9-001-SB-1	EPA 5035A/5030B	399389	EPA 8015B	399397
30365510010	B9-001-SB-5	EPA 5035A/5030B	399389	EPA 8015B	399397
30365510011	B9-002-SB-1.5	EPA 5035A/5030B	399389	EPA 8015B	399397
30365510012	B9-002-SB-5	EPA 5035A/5030B	399389	EPA 8015B	399397
30365510013	duplicate	EPA 5035A/5030B	399389	EPA 8015B	399397
30365510015	TB1	EPA 5035A/5030B	399389	EPA 8015B	399397
30365510014	TB1	EPA 5030/8015B	398943		
30365510016	field blank	EPA 5030/8015B	398943		
30365510017	EQ blank	EPA 5030/8015B	398943		
30365510001	B9-006-SB-1	EPA 3050B	399081	EPA 6010C	399205
30365510002	B9-006-SB-8	EPA 3050B	399081	EPA 6010C	399205
30365510003	B9-005-SB-1	EPA 3050B	399081	EPA 6010C	399205
30365510004	B9-005-SB-4	EPA 3050B	399081	EPA 6010C	399205
30365510005	B9-003-SB-1	EPA 3050B	399081	EPA 6010C	399205
30365510006	B9-003-SB-5	EPA 3050B	399081	EPA 6010C	399205
30365510007	B9-004-SB-1	EPA 3050B	399081	EPA 6010C	399205

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: B9 Phase II  
Pace Project No.: 30365510

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30365510008	B9-004-SB-5	EPA 3050B	399081	EPA 6010C	399205
30365510009	B9-001-SB-1	EPA 3050B	399081	EPA 6010C	399205
30365510010	B9-001-SB-5	EPA 3050B	399081	EPA 6010C	399205
30365510011	B9-002-SB-1.5	EPA 3050B	399081	EPA 6010C	399205
30365510012	B9-002-SB-5	EPA 3050B	399081	EPA 6010C	399205
30365510013	duplicate	EPA 3050B	399081	EPA 6010C	399205
30365510016	field blank	EPA 3005A	398662	EPA 6010C	398802
30365510017	EQ blank	EPA 3005A	398662	EPA 6010C	398802
30365510016	field blank	EPA 7470A	398787	EPA 7470A	398821
30365510017	EQ blank	EPA 7470A	398787	EPA 7470A	398821
30365510001	B9-006-SB-1	EPA 7471A	399141	EPA 7471A	399287
30365510002	B9-006-SB-8	EPA 7471A	399141	EPA 7471A	399287
30365510003	B9-005-SB-1	EPA 7471A	399141	EPA 7471A	399287
30365510004	B9-005-SB-4	EPA 7471A	399141	EPA 7471A	399287
30365510005	B9-003-SB-1	EPA 7471A	399141	EPA 7471A	399287
30365510006	B9-003-SB-5	EPA 7471A	399141	EPA 7471A	399287
30365510007	B9-004-SB-1	EPA 7471A	399141	EPA 7471A	399287
30365510008	B9-004-SB-5	EPA 7471A	399141	EPA 7471A	399287
30365510009	B9-001-SB-1	EPA 7471A	399141	EPA 7471A	399287
30365510010	B9-001-SB-5	EPA 7471A	399141	EPA 7471A	399287
30365510011	B9-002-SB-1.5	EPA 7471A	399141	EPA 7471A	399287
30365510012	B9-002-SB-5	EPA 7471A	399141	EPA 7471A	399287
30365510013	duplicate	EPA 7471A	399141	EPA 7471A	399287
30365510001	B9-006-SB-1	EPA 3546	400234	EPA 8270D	400726
30365510002	B9-006-SB-8	EPA 3546	400234	EPA 8270D	400726
30365510003	B9-005-SB-1	EPA 3546	400234	EPA 8270D	400726
30365510004	B9-005-SB-4	EPA 3546	400234	EPA 8270D	400726
30365510005	B9-003-SB-1	EPA 3546	400234	EPA 8270D	400726
30365510006	B9-003-SB-5	EPA 3546	400234	EPA 8270D	400726
30365510007	B9-004-SB-1	EPA 3546	400234	EPA 8270D	400726
30365510008	B9-004-SB-5	EPA 3546	400234	EPA 8270D	400726
30365510009	B9-001-SB-1	EPA 3546	400234	EPA 8270D	400726
30365510010	B9-001-SB-5	EPA 3546	400234	EPA 8270D	400726
30365510011	B9-002-SB-1.5	EPA 3546	400234	EPA 8270D	400726
30365510012	B9-002-SB-5	EPA 3546	400234	EPA 8270D	400726
30365510013	duplicate	EPA 3546	400234	EPA 8270D	400726
30365510016	field blank	EPA 3510C	398665	EPA 8270D	398786
30365510017	EQ blank	EPA 3510C	398665	EPA 8270D	398786
30365510001	B9-006-SB-1	EPA 5035A	399557	EPA 8260B	399571
30365510002	B9-006-SB-8	EPA 5035A	399557	EPA 8260B	399571
30365510004	B9-005-SB-4	EPA 5035A	399557	EPA 8260B	399571
30365510015	TB1	EPA 5035A	399557	EPA 8260B	399571
30365510014	TB1	EPA 8260B	398934		
30365510016	field blank	EPA 8260B	398934		
30365510017	EQ blank	EPA 8260B	398934		

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: B9 Phase II  
Pace Project No.: 30365510

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30365510001	B9-006-SB-1	ASTM D2974-87	398899		
30365510002	B9-006-SB-8	ASTM D2974-87	398899		
30365510003	B9-005-SB-1	ASTM D2974-87	398899		
30365510004	B9-005-SB-4	ASTM D2974-87	398899		
30365510005	B9-003-SB-1	ASTM D2974-87	398899		
30365510006	B9-003-SB-5	ASTM D2974-87	398899		
30365510007	B9-004-SB-1	ASTM D2974-87	398899		
30365510008	B9-004-SB-5	ASTM D2974-87	398899		
30365510009	B9-001-SB-1	ASTM D2974-87	398899		
30365510010	B9-001-SB-5	ASTM D2974-87	398899		
30365510011	B9-002-SB-1.5	ASTM D2974-87	398899		
30365510012	B9-002-SB-5	ASTM D2974-87	398899		
30365510013	duplicate	ASTM D2974-87	398899		
30365510016	field blank	EPA 1664A	398838		
30365510017	EQ blank	EPA 1664A	398838		
30365510001	B9-006-SB-1	EPA 3060A	398841	EPA 7196A	399259
30365510002	B9-006-SB-8	EPA 3060A	398841	EPA 7196A	399259
30365510003	B9-005-SB-1	EPA 3060A	398841	EPA 7196A	399259
30365510004	B9-005-SB-4	EPA 3060A	398841	EPA 7196A	399259
30365510005	B9-003-SB-1	EPA 3060A	398841	EPA 7196A	399259
30365510006	B9-003-SB-5	EPA 3060A	398841	EPA 7196A	399259
30365510007	B9-004-SB-1	EPA 3060A	398841	EPA 7196A	399259
30365510008	B9-004-SB-5	EPA 3060A	398841	EPA 7196A	399259
30365510009	B9-001-SB-1	EPA 3060A	398841	EPA 7196A	399259
30365510010	B9-001-SB-5	EPA 3060A	398841	EPA 7196A	399259
30365510011	B9-002-SB-1.5	EPA 3060A	398841	EPA 7196A	399259
30365510012	B9-002-SB-5	EPA 3060A	398841	EPA 7196A	399259
30365510013	duplicate	EPA 3060A	398841	EPA 7196A	399259
30365510016	field blank	EPA 7196A	398626		
30365510017	EQ blank	EPA 7196A	398626		
30365510001	B9-006-SB-1	EPA 9045D	398617		
30365510002	B9-006-SB-8	EPA 9045D	398617		
30365510003	B9-005-SB-1	EPA 9045D	398617		
30365510004	B9-005-SB-4	EPA 9045D	398617		
30365510005	B9-003-SB-1	EPA 9045D	398617		
30365510006	B9-003-SB-5	EPA 9045D	398617		
30365510007	B9-004-SB-1	EPA 9045D	398617		
30365510008	B9-004-SB-5	EPA 9045D	398617		
30365510009	B9-001-SB-1	EPA 9045D	398640		
30365510010	B9-001-SB-5	EPA 9045D	398640		
30365510011	B9-002-SB-1.5	EPA 9045D	398640		
30365510012	B9-002-SB-5	EPA 9045D	398640		
30365510013	duplicate	EPA 9045D	398640		
30365510001	B9-006-SB-1	EPA 9071B	399083	EPA 9071B	399312
30365510002	B9-006-SB-8	EPA 9071B	399083	EPA 9071B	399312
30365510003	B9-005-SB-1	EPA 9071B	399083	EPA 9071B	399312

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: B9 Phase II  
Pace Project No.: 30365510

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30365510004	B9-005-SB-4	EPA 9071B	399083	EPA 9071B	399312
30365510005	B9-003-SB-1	EPA 9071B	399083	EPA 9071B	399312
30365510006	B9-003-SB-5	EPA 9071B	399083	EPA 9071B	399312
30365510007	B9-004-SB-1	EPA 9071B	399083	EPA 9071B	399312
30365510008	B9-004-SB-5	EPA 9071B	399083	EPA 9071B	399312
30365510009	B9-001-SB-1	EPA 9071B	399083	EPA 9071B	399312
30365510010	B9-001-SB-5	EPA 9071B	399083	EPA 9071B	399312
30365510011	B9-002-SB-1.5	EPA 9071B	399083	EPA 9071B	399312
30365510012	B9-002-SB-5	EPA 9071B	399083	EPA 9071B	399312
30365510013	duplicate	EPA 9071B	399083	EPA 9071B	399312
30365510001	B9-006-SB-1	EPA 9012B	398767	EPA 9012B	398865
30365510002	B9-006-SB-8	EPA 9012B	398767	EPA 9012B	398865
30365510003	B9-005-SB-1	EPA 9012B	398767	EPA 9012B	398865
30365510004	B9-005-SB-4	EPA 9012B	398767	EPA 9012B	398865
30365510005	B9-003-SB-1	EPA 9012B	398767	EPA 9012B	398865
30365510006	B9-003-SB-5	EPA 9012B	398767	EPA 9012B	398865
30365510007	B9-004-SB-1	EPA 9012B	398767	EPA 9012B	398865
30365510008	B9-004-SB-5	EPA 9012B	398767	EPA 9012B	398865
30365510009	B9-001-SB-1	EPA 9012B	398767	EPA 9012B	398865
30365510010	B9-001-SB-5	EPA 9012B	398767	EPA 9012B	398865
30365510011	B9-002-SB-1.5	EPA 9012B	398767	EPA 9012B	398865
30365510012	B9-002-SB-5	EPA 9012B	398767	EPA 9012B	398865
30365510013	duplicate	EPA 9012B	398767	EPA 9012B	398865
30365510016	field blank	EPA 9012B	398736	EPA 9012B	398862
30365510017	EQ blank	EPA 9012B	398736	EPA 9012B	398862

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

NO#: 30365510

The Chain-of-Custody is a LEGAL DO



<b>Section A</b>	<b>Section B</b>	<b>Section C</b>
Company: <b>EnviroAnalytics Group</b>	Report To: <b>Jamés Calenda</b>	Invoice Internal: <b>1</b>
Address: <b>1430 Sparrows Point Blvd</b>	Copy To: <b>[Blank]</b>	Attention: <b>[Blank]</b>
<b>Sparrows Point, MD 21219</b>	PO Number: <b>B9 Phase II</b>	Company Name: <b>EnviroAnalytics Group</b>
Email To: <b>jcalenda@enviroanalyticgroup.com</b>	Project Name: <b>B9 Phase II</b>	Address: <b>1850 Des Peres Road, Suite 303 St. Louis, MO 63131</b>
Phone: <b>314-620-3056</b>	Project Number: <b>2-ED10206</b>	Faces Guide Reference: <b>[Blank]</b>
Requested Due Date/TAT: <b>5 days</b>	Requested Due Date/TAT: <b>2-ED10206</b>	Project Manager: <b>Samantha Baylora</b>
		Faces Profile #: <b>[Blank]</b>
		State: <b>MD</b>

ITEM #	Valid Matrix Codes	Matrix Code	Sample ID	Sample Type (G=Grab C=Comp)	Collected		# of Containers	Unpreserved	H <sub>2</sub> O <sub>2</sub>	HNO <sub>3</sub>	HCl	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	DI Water	Preservatives	Analytes												Face Project No./ Lab I.D.							
					COMPOSITE START	COMPOSITE END/GRAB										DATE	TIME	Residual Chlorine (Y/N)	Oil and Grease/1664A (a)	Oil and Grease/9071B (soil)	Hexavalent Chromium/196A	Mercury/741A or 7470A	Total Cyanide/9012A	PCB/8082 (soil)	Asbestos	Oil and Grease/1664A (a)	Residual Chlorine (Y/N)								
1		SL G	B9-006-SB-1	SL G	5/29/20	10:40	7	7					1	2		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	001
2		SL G	B9-006-SB-2	SL G	10:45		14	5					3	6		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	003
3		SL G	B9-005-SB-1	SL G	11:10		7	4					1	2		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	004
4		SL G	B9-005-SB-4	SL G	11:15		5	2					1	2		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	005
5		SL G	B9-003-SB-1	SL G	11:40		6	3					1	2		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	006
6		SL G	B9-003-SB-5	SL G	11:45		5	2					1	2		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	007
7		SL G	B9-004-SB-1	SL G	12:00		6	3					1	2		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	008
8		SL G	B9-004-SB-5	SL G	12:05		5	2					1	2		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	009
9		SL G	B9-001-SB-1	SL G	13:35		6	3					1	2		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	010
10		SL G	B9-001-SB-5	SL G	13:40		5	2					1	2		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	011
11		SL G	B9-002-SB-1.5	SL G	14:00		6	3					1	2		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	012
12		SL G	B9-002-SB-5	SL G	14:05		5	2					1	2		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	013

<b>ACCEPTED BY/AFFILIATION:</b>	<b>DATE:</b> 5/29/20	<b>TIME:</b> 1550
<b>RECEIVED BY/AFFILIATION:</b>	<b>DATE:</b> 5/29/20	<b>TIME:</b> 1615
<b>ADDITIONAL COMMENTS:</b>	Data Package Required? (Y/N): <b>Y</b>	
	Data Validation Required? (Y/N): <b>N</b>	
If data package is required, attach data package checklist.		
<b>SAMPLER NAME AND SIGNATURE:</b>	Lower Parker	
<b>PRINT Name of SAMPLER:</b>	Lower Parker	
<b>SIGNATURE of SAMPLER:</b>	[Signature]	
<b>DATE Signed (MM/DD/YYYY):</b>	6/12/20	
<b>Temp In °C</b>	5.2	5.2
<b>Received on Ice (Y/N)</b>	N	Y
<b>Custody Sealed (Y/N)</b>	N	Y
<b>Samples Intact (Y/N)</b>	Y	Y

F-ALL-Q-020rev.06, 2-Feb-2007

# 30365510

Page: 2 of 2

<b>Section A</b> Required Client Information:		<b>Section B</b> Required Project Information:		<b>Section C</b> Invoice Information:	
Company: EnviroAnalytics Group	Report To: James Calenda	Attention: Laura Sargent	Company Name: EnviroAnalytics Group	Address: 1650 Des Peres Road, Suite 303 St. Louis, MO 63131	State: MD
Address: 1430 Sparrows Point Blvd	Copy To:	Project Name: Samantha Bayura	Address: 1650 Des Peres Road, Suite 303 St. Louis, MO 63131	City: St. Louis	State: MD
Sparrows Point, MD 21219	PO Number:	Project Reference:	City: St. Louis	State: MD	Zip: 63131
Email To: jcalenda@enviroanalyticsgroup.com	Project Name: B9 Phase II	Project Manager:	City: St. Louis	State: MD	Zip: 63131
Phone: 314-620-3056	Project Number: 20010209	Project Profile #:	City: St. Louis	State: MD	Zip: 63131
Requested Due Date/TAT: 5 day					

ITEM #	Valid Matrix Codes DRINKING WATER DW WASTE WATER WW PRODUCT P SOIL/SOLID S ON OIL NIFE N AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	PRESERVATIVES	LABORATORY TEST	VOC/8260B	SVOC 8270D	DRO/8015B	GRO/8015B	METALS/6010C	Mercury/7471A or 7470A	Hexavalent Chromium/7196A	Total Cyanide/9012A	PCB/8082 (soil)	Asbestos	Oil and Grease/1664A (soil)	Oil and Grease/9071B (soil)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
				COMPOSITE START	COMPOSITE END/GRAB																	
1		SL G	G		05/25/20	7	H <sub>2</sub> SO <sub>4</sub> Unpreserved	DI Water	X	X	X	X	X	X	X	X	X	X	X	X	X	013
2	duplicate	WT G	G			4	HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Methanol		X	X	X	X	X	X	X	X	X	X	X	X	X	014,015
3	field blank	WT G	G		1500	13	HNO <sub>3</sub>		X	X	X	X	X	X	X	X	X	X	X	X	X	016
4	FA blank	WT G	G		1505	13	H <sub>2</sub> SO <sub>4</sub> Unpreserved		X	X	X	X	X	X	X	X	X	X	X	X	X	017

<b>ADDITIONAL COMMENTS:</b>	<b>RETURN TO:</b> <i>Shirley Ph / ALM</i>	<b>DATE:</b> 05/25/20	<b>TIME:</b> 1550	<b>ACCEPTED BY:</b> <i>Shirley Ph</i>	<b>DATE:</b> 05/29/20	<b>TIME:</b> 1615
<b>Data Package Required? (Y/N):</b> (N)	<i>Shirley Ph / ALM</i>	<i>05/25/20</i>	<i>1550</i>	<i>Shirley Ph</i>	<i>05/29/20</i>	<i>1615</i>
<b>Data Validation Required? (Y/N):</b> (N)	<i>Shirley Ph / ALM</i>	<i>05/29/20</i>	<i>17:35</i>	<i>Shirley Ph</i>	<i>05/29/20</i>	<i>1600</i>
<b>if data package is required, attach data package checklist.</b>	<i>Shirley Ph</i>	<i>05/29/20</i>	<i>17:35</i>	<i>Shirley Ph</i>	<i>05/29/20</i>	<i>1615</i>
<b>TEMP IN C:</b>						
<b>Received on Ice (Y/N):</b>						
<b>Custody Sealed (Y/N):</b>						
<b>Samples Intact (Y/N):</b>						



Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics

Project # 30365510

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: \_\_\_\_\_

Label	JSM
LIMS Login	MJS

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 9 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 5.2, 5.1, 4.0 °C Correction Factor: -0.5 °C Final Temp: 4.7, 4.6, 3.5 °C  
 Temp should be above freezing to 6°C 6.1 5.6

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
				<u>1002192</u>	<u>JSM 5/30/2020</u>
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Includes date/time/ID Matrix: <u>SL+WT</u>					
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Short Hold Time Analysis (<72hr remaining):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containers intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Organic Samples checked for dechlorination:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Filtered volume received for Dissolved tests	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
exceptions: <u>VOA</u> , coliform, TOC, <u>O&amp;G</u> Phenolics, Radon, <u>Non-aqueous matrix</u>					
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>JSM</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Trip Blank Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed: <u>JSM</u>	Date: <u>5/30/2020</u>

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



# EMSL Analytical, Inc.

3410 Winnetka Avenue North, New Hope, MN 55427

Phone/Fax: (763) 449-4922 / (763) 449-4924

<http://www.EMSL.com>

[minneapolislab@emsl.com](mailto:minneapolislab@emsl.com)

EMSL Order:	352005271
CustomerID:	PACE25
CustomerPO:	30365510
ProjectID:	

Attn: **Samantha Bayura**  
**Pace Analytical Services, LLC**  
**1638 Roseytown Road**  
**Suite 2, 3, 4**  
**Greensburg, PA 15601**


Phone: (724) 850-5600  
 Fax: (724) 850-5601  
 Received: 06/02/20 9:40 AM  
 Analysis Date: 6/8/2020  
 Collected: 5/29/2020

Project: 30365510

## Test Report: Asbestos Analysis via Polarized Light Microscopy, Qualitative

Sample	Description	Appearance	Result	Notes
30365510 001 352005271-0001		Gray Non-Fibrous Heterogeneous	<b>Chrysotile</b>	
30365510 003 352005271-0002		Brown Non-Fibrous Heterogeneous	<b>Chrysotile</b> <b>Amosite</b>	
30365510 013 352005271-0003		Brown Non-Fibrous Heterogeneous	<b>Chrysotile</b> <b>Amosite</b>	

Analyst(s)  
 Jodie Bourgerie (3)

  
 Rachel Travis, Laboratory Manager  
 or other approved signatory

EMSL recommends that soil samples reported as "ND" be tested by the EPA Screening Method/Qualitative. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted.  
 Samples analyzed by EMSL Analytical, Inc. New Hope, MN NVLAP Lab Code 200019-0; Colorado AL-24478

Initial report from 06/08/2020 16:33:20

Chain of Custody

5271

**Sample Condition upon Receipt:**  
(Please record the following information)

Temp in C	
Received on Ice	Yes No
Sealed Cooler	Yes No
Samples Intact	Yes No

Subcontractor Project No.:  
P.O. No: ASR- 30365510

Request Date: 6/1/20 Analysis Due Date: 6/8/2020  
Shipped By: FedEx

Certification Required: MD

Pace Project No.: 30365510  
Report/Invoice to: Samantha Bayura

Page 1 of 1



**Pace Analytical Services, Inc.**  
1638 Roseytown Road  
Suites 2, 3, & 4  
Greensburg, PA 15601  
Phone (724) 850-5600  
FAX (724) 850-5601

Pace Sample ID:	Matrix:	Collection Date:	Time:	Analysis Requested:	Analytical Method:	Preservative Type:
1	SL	5/29/20	10:40	asbestos	PLM EPA 600/R93/116	none
2	SL	5/29/20	11:10	asbestos	PLM EPA 600/R93/116	none
3	SL	5/29/20	00:01	asbestos	PLM EPA 600/R93/116	none
4						
5						
6						
7						
8						
9						
10						
11						
12						

Special Requirements

\*\*\*\*\*Please supply a method blank and LCS QC information on the final report\*\*\*\*

Subcontract Lab Address:  
Phone:

EMSL - MN  
3410 Winnetka Avenue North  
New Hope, MN 55427  
612-607-6457

Analysis Authorized By:  
Acceptance of Terms By:

*Samantha Bayura*  
Face Agent Name Title

Subcontract Lab Agent Title  
Vik FedEx # 146180603272

Relinquished By:  
Relinquished By

*B.M. Minter*  
(Signature & Affiliation) (Date) (Time)  
6-1-2020 10:00

Received By:  
(Signature & Affiliation)

*M.D.S. (EMSL)*  
(Signature & Affiliation) (Date) (Time)  
6/2/2020 09:40

Comments:

Received By:  
(Signature & Affiliation) (Date) (Time)

(Signature & Affiliation) (Date) (Time)

In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

June 11, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM GW Samplig  
Pace Project No.: 30366965

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on June 08, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Samplig  
Pace Project No.: 30366965

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Samplig  
Pace Project No.: 30366965

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30366965001	RW01-MW(S)	Water	06/08/20 10:30	06/08/20 22:30
30366965002	RW01-MW(1)	Water	06/08/20 11:10	06/08/20 22:30
30366965003	RWB-MWS	Water	06/08/20 13:00	06/08/20 22:30
30366965004	RWB-MWI	Water	06/08/20 12:55	06/08/20 22:30
30366965005	RWD-MWS	Water	06/08/20 13:35	06/08/20 22:30
30366965006	RWD-MWI	Water	06/08/20 14:10	06/08/20 22:30
30366965007	RWE-MWS	Water	06/08/20 14:55	06/08/20 22:30

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Samplig  
Pace Project No.: 30366965

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30366965001	RW01-MW(S)	EPA 6010C	KAS	2	PASI-PA
30366965002	RW01-MW(1)	EPA 6010C	KAS	2	PASI-PA
30366965003	RWB-MWS	EPA 6010C	KAS	2	PASI-PA
30366965004	RWB-MWI	EPA 6010C	KAS	2	PASI-PA
30366965005	RWD-MWS	EPA 6010C	KAS	2	PASI-PA
30366965006	RWD-MWI	EPA 6010C	KAS	2	PASI-PA
30366965007	RWE-MWS	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Samplig

Pace Project No.: 30366965

Sample: RW01-MW(S)		Lab ID: 30366965001	Collected: 06/08/20 10:30	Received: 06/08/20 22:30	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>1.6J</b>	ug/L	3.0	0.34	1	06/10/20 09:05	06/10/20 21:57	7440-43-9	
Zinc, Dissolved	<b>6200</b>	ug/L	10.0	2.4	1	06/10/20 09:05	06/10/20 21:57	7440-66-6	ML

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM GW Samplig

Pace Project No.: 30366965

Sample: RW01-MW(1)		Lab ID: 30366965002	Collected: 06/08/20 11:10	Received: 06/08/20 22:30	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>117</b>	ug/L	3.0	0.34	1	06/10/20 09:05	06/10/20 22:09	7440-43-9	
Zinc, Dissolved	<b>13700</b>	ug/L	1000	238	100	06/10/20 09:05	06/10/20 22:32	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Samplig

Pace Project No.: 30366965

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWB-MWS</b>									
<b>Lab ID: 30366965003</b>									
Collected: 06/08/20 13:00    Received: 06/08/20 22:30    Matrix: Water									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	06/10/20 09:05	06/10/20 22:13	7440-43-9	
Zinc, Dissolved	<b>10.0 U</b>	ug/L	10.0	2.4	1	06/10/20 09:05	06/10/20 22:13	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Samplig

Pace Project No.: 30366965

---

**Sample: RWB-MWI**      **Lab ID: 30366965004**      Collected: 06/08/20 12:55      Received: 06/08/20 22:30      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	06/10/20 09:05	06/10/20 22:21	7440-43-9	
Zinc, Dissolved	<b>8.4J</b>	ug/L	10.0	2.4	1	06/10/20 09:05	06/10/20 22:21	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Samplig

Pace Project No.: 30366965

Sample: RWD-MWS		Lab ID: 30366965005	Collected: 06/08/20 13:35	Received: 06/08/20 22:30	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.46J</b>	ug/L	3.0	0.34	1	06/10/20 09:05	06/10/20 22:23	7440-43-9	
Zinc, Dissolved	<b>10.0 U</b>	ug/L	10.0	2.4	1	06/10/20 09:05	06/10/20 22:23	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Samplig

Pace Project No.: 30366965

Sample: RWD-MWI		Lab ID: 30366965006		Collected: 06/08/20 14:10		Received: 06/08/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>515</b>	ug/L	3.0	0.34	1	06/10/20 09:05	06/10/20 22:25	7440-43-9	
Zinc, Dissolved	<b>59300</b>	ug/L	1000	238	100	06/10/20 09:05	06/10/20 22:34	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Samplig

Pace Project No.: 30366965

Sample: RWE-MWS		Lab ID: 30366965007		Collected: 06/08/20 14:55		Received: 06/08/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>1.4J</b>	ug/L	3.0	0.34	1	06/10/20 09:05	06/10/20 22:30	7440-43-9	
Zinc, Dissolved	<b>1360</b>	ug/L	10.0	2.4	1	06/10/20 09:05	06/10/20 22:30	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Samplig

Pace Project No.: 30366965

QC Batch:	400175	Analysis Method:	EPA 6010C
QC Batch Method:	EPA 3005A	Analysis Description:	6010C MET Dissolved
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30366965001, 30366965002, 30366965003, 30366965004, 30366965005, 30366965006, 30366965007

METHOD BLANK: 1937846 Matrix: Water  
Associated Lab Samples: 30366965001, 30366965002, 30366965003, 30366965004, 30366965005, 30366965006, 30366965007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	06/10/20 21:53	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	06/10/20 21:53	

LABORATORY CONTROL SAMPLE: 1937847

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	477	95	80-120	
Zinc, Dissolved	ug/L	500	500	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1937849 1937850

Parameter	Units	30366965001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	1.6J	500	500	493	481	98	96	75-125	2	20	
Zinc, Dissolved	ug/L	6200	500	500	6480	6340	55	28	75-125	2	20 ML	

SAMPLE DUPLICATE: 1937848

Parameter	Units	30366965001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	1.6J	1.7J		20	
Zinc, Dissolved	ug/L	6200	6030	3	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Samplig

Pace Project No.: 30366965

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Samplig  
Pace Project No.: 30366965

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30366965001	RW01-MW(S)	EPA 3005A	400175	EPA 6010C	400341
30366965002	RW01-MW(1)	EPA 3005A	400175	EPA 6010C	400341
30366965003	RWB-MWS	EPA 3005A	400175	EPA 6010C	400341
30366965004	RWB-MWI	EPA 3005A	400175	EPA 6010C	400341
30366965005	RWD-MWS	EPA 3005A	400175	EPA 6010C	400341
30366965006	RWD-MWI	EPA 3005A	400175	EPA 6010C	400341
30366965007	RWE-MWS	EPA 3005A	400175	EPA 6010C	400341

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**Section A**  
Client Information: Company: EnviroAnalytics Group  
Address: 1600 Sparrows Point Blvd, Suite B2 Sparrows Point, MD 21219  
Phone: 314-620-3056 Fax: [ ]  
Requested Due Date/TAT: 5 Day

**Section B**  
Required Project Information: Report To: James Calenda  
Copy To: Stewart Kabis  
Purchase Order No.: EAG-SPT-6452  
Project Name: RWM BW Sampling  
Project Number: [ ]

**Section C**  
Invoice Information: Attention: Laura Sargent  
Company Name: EnviroAnalytics Group  
Address: 1650 Des Peres Road, Suite 303 St. Louis, MO 63131  
Pace Quote Reference: [ ]  
Pace Project Manager: Samantha Bayura  
Pace Profile #: [ ]

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER

Site Location: [ ]  
STATE: MD

ITEM #	Section D Required Client Information	Valid Matrix Codes	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C-COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Requested Analysis Filtered (Y/N)	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS				
					COMPOSITE START	COMPOSITE END/GRAB														
1	RWD1-MW(S)	DRINKING WATER	ST G	G	DATE	TIME	10:30	1	Unpreserved	Y	6/18/20	16:18	CIMB/PACE	6/18/20	16:18	Received on	Temp in °C	Cooler (Y/N)	Custody Sealed	Samples Intact (Y/N)
2	RWD1-MW(L)	WASTE WATER	ST G	G	DATE	TIME	11:00	1	Unpreserved	Y	6/18/20	19:30	RDS/PACE	6/18/20	19:30	Received on	Temp in °C	Cooler (Y/N)	Custody Sealed	Samples Intact (Y/N)
3	RWB-MWS	WASTE WATER	ST G	G	DATE	TIME	12:55	1	Unpreserved	Y	6/18/20	22:30	MUNICIPALITY	6/18/20	22:30	Received on	Temp in °C	Cooler (Y/N)	Custody Sealed	Samples Intact (Y/N)
4	RWB-MWJ	WASTE WATER	ST G	G	DATE	TIME	13:55	1	Unpreserved	Y	6/18/20	22:30	MUNICIPALITY	6/18/20	22:30	Received on	Temp in °C	Cooler (Y/N)	Custody Sealed	Samples Intact (Y/N)
5	RWD-MWS	WASTE WATER	ST G	G	DATE	TIME	14:10	1	Unpreserved	Y	6/18/20	22:30	MUNICIPALITY	6/18/20	22:30	Received on	Temp in °C	Cooler (Y/N)	Custody Sealed	Samples Intact (Y/N)
6	RWD-MWJ	WASTE WATER	ST G	G	DATE	TIME	14:56	1	Unpreserved	Y	6/18/20	22:30	MUNICIPALITY	6/18/20	22:30	Received on	Temp in °C	Cooler (Y/N)	Custody Sealed	Samples Intact (Y/N)
7	RWB-MWS	WASTE WATER	ST G	G	DATE	TIME			Unpreserved	Y						Received on	Temp in °C	Cooler (Y/N)	Custody Sealed	Samples Intact (Y/N)
8									Unpreserved	Y						Received on	Temp in °C	Cooler (Y/N)	Custody Sealed	Samples Intact (Y/N)
9									Unpreserved	Y						Received on	Temp in °C	Cooler (Y/N)	Custody Sealed	Samples Intact (Y/N)
10									Unpreserved	Y						Received on	Temp in °C	Cooler (Y/N)	Custody Sealed	Samples Intact (Y/N)
11									Unpreserved	Y						Received on	Temp in °C	Cooler (Y/N)	Custody Sealed	Samples Intact (Y/N)
12									Unpreserved	Y						Received on	Temp in °C	Cooler (Y/N)	Custody Sealed	Samples Intact (Y/N)

**WO# : 30366965**

30366965

**ADDITIONAL COMMENTS**

NO  
NO  
CIMB/PACE  
RDS/PACE  
RDS/PACE

**RELINQUISHED BY / AFFILIATION**

DATE TIME

**ACCEPTED BY / AFFILIATION**

DATE TIME

**SAMPLER NAME AND SIGNATURE**

PRINT Name of SAMPLER: *Laura M. Glunas*

SIGNATURE of SAMPLER: *[Signature]*

DATE Signed (MM/DD/YYYY): *06/18/2020*

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Enviro Analytics Group Project # 30366965

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>mll</u>
LIMS Login	<u>mll</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 10 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 2.5 °C Correction Factor: .3 °C Final Temp: 2.1 °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and initials of person examining contents:
				<u>10D2192</u>	<u>mll 6/8/2020</u>
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.	
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.	
-Includes date/time/ID Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.	
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.	
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.	
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.	
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.	
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.	
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.	
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.	
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.	
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.	
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed <u>mll</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.	
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.	
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

June 16, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30367193

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on June 09, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30367193

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30367193

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30367193001	RW02-MW(S)	Water	06/09/20 08:50	06/09/20 22:15
30367193002	RW02-MW(I)	Water	06/09/20 09:35	06/09/20 22:15
30367193003	RW03-MW(S)	Water	06/09/20 10:25	06/09/20 22:15
30367193004	RW03-MW(I)	Water	06/09/20 11:00	06/09/20 22:15
30367193005	RW05-MW(I)	Water	06/09/20 12:25	06/09/20 22:15
30367193006	RW05-MW(S)	Water	06/09/20 13:00	06/09/20 22:15
30367193007	RWF-MWS	Water	06/09/20 14:00	06/09/20 22:15
30367193008	RWF-MWI	Water	06/09/20 14:35	06/09/20 22:15
30367193009	RWG-MWS	Water	06/09/20 15:50	06/09/20 22:15

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30367193

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30367193001	RW02-MW(S)	EPA 6010C	CTS	2	PASI-PA
30367193002	RW02-MW(I)	EPA 6010C	CTS	2	PASI-PA
30367193003	RW03-MW(S)	EPA 6010C	CTS	2	PASI-PA
30367193004	RW03-MW(I)	EPA 6010C	CTS	2	PASI-PA
30367193005	RW05-MW(I)	EPA 6010C	CTS	2	PASI-PA
30367193006	RW05-MW(S)	EPA 6010C	CTS	2	PASI-PA
30367193007	RWF-MWS	EPA 6010C	CTS	2	PASI-PA
30367193008	RWF-MWI	EPA 6010C	CTS	2	PASI-PA
30367193009	RWG-MWS	EPA 6010C	CTS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30367193

Sample: RW02-MW(S)		Lab ID: 30367193001		Collected: 06/09/20 08:50	Received: 06/09/20 22:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.61J</b>	ug/L	3.0	0.34	1	06/11/20 12:48	06/16/20 08:50	7440-43-9	
Zinc, Dissolved	<b>1940</b>	ug/L	10.0	2.4	1	06/11/20 12:48	06/16/20 08:50	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30367193

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW02-MW(I)</b>									
<b>Lab ID: 30367193002</b>									
Collected: 06/09/20 09:35    Received: 06/09/20 22:15    Matrix: Water									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>398</b>	ug/L	3.0	0.34	1	06/11/20 12:48	06/16/20 09:02	7440-43-9	
Zinc, Dissolved	<b>34900</b>	ug/L	1000	238	100	06/11/20 12:48	06/16/20 09:54	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367193

Sample: RW03-MW(S)		Lab ID: 30367193003		Collected: 06/09/20 10:25		Received: 06/09/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>14.5</b>	ug/L	3.0	0.34	1	06/11/20 12:48	06/16/20 09:04	7440-43-9	
Zinc, Dissolved	<b>18800</b>	ug/L	1000	238	100	06/11/20 12:48	06/16/20 09:56	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367193

Sample: RW03-MW(I)		Lab ID: 30367193004		Collected: 06/09/20 11:00		Received: 06/09/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>581</b>	ug/L	3.0	0.34	1	06/11/20 12:48	06/16/20 09:11	7440-43-9	
Zinc, Dissolved	<b>19400</b>	ug/L	1000	238	100	06/11/20 12:48	06/16/20 09:58	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30367193

Sample: RW05-MW(I)		Lab ID: 30367193005		Collected: 06/09/20 12:25	Received: 06/09/20 22:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>1930</b>	ug/L	3.0	0.34	1	06/11/20 12:48	06/16/20 09:13	7440-43-9	
Zinc, Dissolved	<b>76600</b>	ug/L	1000	238	100	06/11/20 12:48	06/16/20 10:01	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367193

Sample: RW05-MW(S)		Lab ID: 30367193006	Collected: 06/09/20 13:00	Received: 06/09/20 22:15	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.53J</b>	ug/L	3.0	0.34	1	06/11/20 12:48	06/16/20 09:15	7440-43-9	
Zinc, Dissolved	<b>8.6J</b>	ug/L	10.0	2.4	1	06/11/20 12:48	06/16/20 09:15	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367193

Sample: RWF-MWS		Lab ID: 30367193007		Collected: 06/09/20 14:00		Received: 06/09/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>5.7</b>	ug/L	3.0	0.34	1	06/11/20 12:48	06/16/20 09:17	7440-43-9	
Zinc, Dissolved	<b>31200</b>	ug/L	1000	238	100	06/11/20 12:48	06/16/20 10:03	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367193

Sample: RWF-MWI		Lab ID: 30367193008		Collected: 06/09/20 14:35		Received: 06/09/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>2580</b>	ug/L	3.0	0.34	1	06/11/20 12:48	06/16/20 09:20	7440-43-9	
Zinc, Dissolved	<b>108000</b>	ug/L	1000	238	100	06/11/20 12:48	06/16/20 10:05	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367193

Sample: RWG-MWS		Lab ID: 30367193009	Collected: 06/09/20 15:50	Received: 06/09/20 22:15	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.63J</b>	ug/L	3.0	0.34	1	06/11/20 12:48	06/16/20 09:22	7440-43-9	
Zinc, Dissolved	<b>9.8J</b>	ug/L	10.0	2.4	1	06/11/20 12:48	06/16/20 09:22	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30367193

QC Batch: 400485 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30367193001, 30367193002, 30367193003, 30367193004, 30367193005, 30367193006, 30367193007, 30367193008, 30367193009

METHOD BLANK: 1939054 Matrix: Water  
Associated Lab Samples: 30367193001, 30367193002, 30367193003, 30367193004, 30367193005, 30367193006, 30367193007, 30367193008, 30367193009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	06/16/20 08:46	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	06/16/20 08:46	

LABORATORY CONTROL SAMPLE: 1939055

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	467	93	80-120	
Zinc, Dissolved	ug/L	500	480	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1939057 1939058

Parameter	Units	30367193001		30367193001		30367193001		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Result				
Cadmium, Dissolved	ug/L	0.61J	500	500	512	512	102	102	75-125	0	20
Zinc, Dissolved	ug/L	1940	500	500	2430	2390	98	91	75-125	1	20

MATRIX SPIKE SAMPLE: 1939060

Parameter	Units	30367411002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L		609	500	1120	101	75-125
Zinc, Dissolved	ug/L		114000	500	112000	-280	75-125 ML

SAMPLE DUPLICATE: 1939056

Parameter	Units	30367193001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	0.61J	0.59J		20	
Zinc, Dissolved	ug/L	1940	1920	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30367193

SAMPLE DUPLICATE: 1939059

Parameter	Units	30367411002 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	609	605	1	20	
Zinc, Dissolved	ug/L	114000	112000	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30367193

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30367193

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30367193001	RW02-MW(S)	EPA 3005A	400485	EPA 6010C	400602
30367193002	RW02-MW(I)	EPA 3005A	400485	EPA 6010C	400602
30367193003	RW03-MW(S)	EPA 3005A	400485	EPA 6010C	400602
30367193004	RW03-MW(I)	EPA 3005A	400485	EPA 6010C	400602
30367193005	RW05-MW(I)	EPA 3005A	400485	EPA 6010C	400602
30367193006	RW05-MW(S)	EPA 3005A	400485	EPA 6010C	400602
30367193007	RWF-MWS	EPA 3005A	400485	EPA 6010C	400602
30367193008	RWF-MWI	EPA 3005A	400485	EPA 6010C	400602
30367193009	RWG-MWS	EPA 3005A	400485	EPA 6010C	400602

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



CHAIN-OF-CUSTODY / ANALYTICAL REQUEST DOCUMENT  
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed.

<b>Section A</b> Client Information:		<b>Section B</b> Required Project Information:		<b>Section C</b> Invoice Information:	
Company:	EnviroAnalytics Group	Report To:	James Calenda	Attention:	Laura Sargent
Address:	1600 Sparrows Point Blvd, Suite B2	Copy To:	Stewart Kabis	Company Name:	EnviroAnalytics Group
City:	Sparrows Point, MD 21219	Purchase Order No.:	EAG-SPT-6452	Address:	1650 Des Peres Road, Suite 303 St. Louis, MO 63131
Email:	jcalenda@enviroanalyticssgroup.com	Project Name:	RWMI/GW Sampling	Pace Quote Reference:	
Phone:	314-620-3056	Project Number:		Pace Project Manager:	Samantha Bayura
Requested Due Date/FAT:	5 Day			Pace Profile #:	

ITEM #	Section D Required Client Information	Valid Matrix Codes	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
					COMPOSITE START	COMPOSITE END/DATE							
1	RW02-mw(s)	MATRIX	WT 4		DATE	TIME		1					001
2	RW02-mw(l)	DRINKING WATER			DATE	TIME							002
3	RW03-mw(s)	WASTE WATER			DATE	TIME							003
4	RW03-mw(l)	PRODUCT			DATE	TIME							004
5	RW05-mw(l)	SOIL/SOLID			DATE	TIME							005
6	RW05-mw(s)	OIL			DATE	TIME							006
7	RWF-mws	WIPE			DATE	TIME							007
8	RWF-mw 1	AIR			DATE	TIME							008
9	RW06-mws	OTHER			DATE	TIME							009
10		TISSUE											

<b>ADDITIONAL COMMENTS</b>	<b>RELINQUISHED BY / AFFILIATION</b>	<b>DATE</b>	<b>TIME</b>	<b>ACCEPTED BY / AFFILIATION</b>	<b>DATE</b>	<b>TIME</b>	<b>SAMPLE CONDITIONS</b>
NO	[Signature]	6/9/20	1615	[Signature]	6/9/20	1620	Received on Ice (Y/N) <input checked="" type="checkbox"/> Custody Sealed Cooler (Y/N) <input type="checkbox"/> Samples Intact (Y/N) <input type="checkbox"/>
NO	[Signature]	6/9/20	1915	[Signature]	6/9/20	1925	Received on Ice (Y/N) <input checked="" type="checkbox"/> Custody Sealed Cooler (Y/N) <input type="checkbox"/> Samples Intact (Y/N) <input type="checkbox"/>
	[Signature]	6/20	2315	[Signature]	6/20	2315	Received on Ice (Y/N) <input checked="" type="checkbox"/> Custody Sealed Cooler (Y/N) <input type="checkbox"/> Samples Intact (Y/N) <input type="checkbox"/>

**SAMPLER NAME AND SIGNATURE**  
PRINT Name of SAMPLER: Leandra M Glumac  
SIGNATURE of SAMPLER: [Signature]  
DATE Signed (MM/DD/YY): 06/09/2020

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics Group

Project # \_\_\_\_\_

# - **30367193**

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>MCC</u>
LIMS Login	<u>MCC</u>

Custody Seal on Cooler/Box Present:  yes  no    Seals Intact:  yes  no

Thermometer Used 10    Type of Ice:  Wet     Blue     None

Cooler Temperature    Observed Temp 3.6 °C    Correction Factor: .3 °C    Final Temp: 3.3 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:
	Yes	No	N/A	
				<u>1002192</u>
				<u>MCC 6/10/2020</u>
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID      Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>MCC</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed: _____    Date: _____

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

June 16, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30367411

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on June 10, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30367411

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30367411

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30367411001	RWG-MWI	Water	06/10/20 09:35	06/10/20 22:00
30367411002	RWE-MWI	Water	06/10/20 10:20	06/10/20 22:00
30367411003	RWA-MWI	Water	06/10/20 11:00	06/10/20 22:00
30367411004	RWA-MWS	Water	06/10/20 11:38	06/10/20 22:00
30367411005	RW06-MWI	Water	06/10/20 13:35	06/10/20 22:00
30367411006	RW06R-MWS	Water	06/10/20 14:35	06/10/20 22:00
30367411007	RW06-MWD	Water	06/10/20 15:10	06/10/20 22:00

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30367411

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30367411001	RWG-MWI	EPA 6010C	CTS	2	PASI-PA
30367411002	RWE-MWI	EPA 6010C	CTS	2	PASI-PA
30367411003	RWA-MWI	EPA 6010C	CTS	2	PASI-PA
30367411004	RWA-MWS	EPA 6010C	CTS	2	PASI-PA
30367411005	RW06-MWI	EPA 6010C	CTS	2	PASI-PA
30367411006	RW06R-MWS	EPA 6010C	CTS	2	PASI-PA
30367411007	RW06-MWD	EPA 6010C	CTS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367411

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWG-MWI      Lab ID: 30367411001      Collected: 06/10/20 09:35      Received: 06/10/20 22:00      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>26.7</b>	ug/L	3.0	0.34	1	06/11/20 12:48	06/16/20 09:24	7440-43-9	
Zinc, Dissolved	<b>465</b>	ug/L	10.0	2.4	1	06/11/20 12:48	06/16/20 09:24	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367411

Sample: RWE-MWI		Lab ID: 30367411002		Collected: 06/10/20 10:20		Received: 06/10/20 22:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>609</b>	ug/L	3.0	0.34	1	06/11/20 12:48	06/16/20 09:26	7440-43-9	
Zinc, Dissolved	<b>114000</b>	ug/L	1000	238	100	06/11/20 12:48	06/16/20 10:07	7440-66-6	ML

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30367411

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWA-MWI</b>									
<b>Lab ID: 30367411003</b>									
Collected: 06/10/20 11:00    Received: 06/10/20 22:00    Matrix: Water									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>10200</b>	ug/L	300	34.0	100	06/11/20 12:48	06/16/20 10:14	7440-43-9	
Zinc, Dissolved	<b>441000</b>	ug/L	1000	238	100	06/11/20 12:48	06/16/20 10:14	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30367411

Sample: RWA-MWS		Lab ID: 30367411004		Collected: 06/10/20 11:38		Received: 06/10/20 22:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.88J</b>	ug/L	3.0	0.34	1	06/11/20 12:48	06/16/20 10:20	7440-43-9	
Zinc, Dissolved	<b>21.5</b>	ug/L	10.0	2.4	1	06/11/20 12:48	06/16/20 10:20	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367411

Sample: RW06-MWI		Lab ID: 30367411005		Collected: 06/10/20 13:35	Received: 06/10/20 22:00	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>582</b>	ug/L	3.0	0.34	1	06/11/20 12:48	06/16/20 09:41	7440-43-9	
Zinc, Dissolved	<b>94400</b>	ug/L	1000	238	100	06/11/20 12:48	06/16/20 10:23	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30367411

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW06R-MWS      Lab ID: 30367411006      Collected: 06/10/20 14:35      Received: 06/10/20 22:00      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>0.98J</b>	ug/L	3.0	0.34	1	06/11/20 12:48	06/16/20 09:44	7440-43-9	
Zinc, Dissolved	<b>19.4</b>	ug/L	10.0	2.4	1	06/11/20 12:48	06/16/20 09:44	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30367411

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW06-MWD      Lab ID: 30367411007      Collected: 06/10/20 15:10      Received: 06/10/20 22:00      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>0.48J</b>	ug/L	3.0	0.34	1	06/11/20 12:48	06/16/20 09:46	7440-43-9	
Zinc, Dissolved	<b>135</b>	ug/L	10.0	2.4	1	06/11/20 12:48	06/16/20 09:46	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30367411

QC Batch: 400485 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30367411001, 30367411002, 30367411003, 30367411004, 30367411005, 30367411006, 30367411007

METHOD BLANK: 1939054 Matrix: Water  
Associated Lab Samples: 30367411001, 30367411002, 30367411003, 30367411004, 30367411005, 30367411006, 30367411007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	06/16/20 08:46	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	06/16/20 08:46	

LABORATORY CONTROL SAMPLE: 1939055

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	467	93	80-120	
Zinc, Dissolved	ug/L	500	480	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1939057 1939058

Parameter	Units	30367193001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	0.61J	500	500	512	512	102	102	75-125	0	20	
Zinc, Dissolved	ug/L	1940	500	500	2430	2390	98	91	75-125	1	20	

MATRIX SPIKE SAMPLE: 1939060

Parameter	Units	30367411002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	609	500	1120	101	75-125	
Zinc, Dissolved	ug/L	114000	500	112000	-280	75-125 ML	

SAMPLE DUPLICATE: 1939056

Parameter	Units	30367193001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	0.61J	0.59J		20	
Zinc, Dissolved	ug/L	1940	1920	1	20	

SAMPLE DUPLICATE: 1939059

Parameter	Units	30367411002 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	609	605	1	20	
Zinc, Dissolved	ug/L	114000	112000	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling  
Pace Project No.: 30367411

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30367411

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30367411001	RWG-MWI	EPA 3005A	400485	EPA 6010C	400602
30367411002	RWE-MWI	EPA 3005A	400485	EPA 6010C	400602
30367411003	RWA-MWI	EPA 3005A	400485	EPA 6010C	400602
30367411004	RWA-MWS	EPA 3005A	400485	EPA 6010C	400602
30367411005	RW06-MWI	EPA 3005A	400485	EPA 6010C	400602
30367411006	RW06R-MWS	EPA 3005A	400485	EPA 6010C	400602
30367411007	RW06-MWD	EPA 3005A	400485	EPA 6010C	400602

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**Section A**  
Client Information:  
Company: EnviroAnalytics Group  
Address: 1600 Sparrows Point Blvd, Suite B2  
Sparrows Point, MD 21219  
Contact: jcalenda@enviroanalyticsgroup.com  
Phone: 314-620-3056  
Fax: [ ]  
Requested Due Date/TAT: 5 Day

**Section B**  
Required Project Information:  
Report To: James Calenda  
Copy To: Stewart Kabis  
Purchase Order No.: EAG-SPT-6452  
Project Name: RWM GW Sampling  
Project Number: [ ]

**Section C**  
Invoice Information:  
Attention: Laura Sargent  
Company Name: EnviroAnalytics Group  
Address: 1650 Des Peres Road, Suite 303 St. Louis, MO 63131  
Pace Quote Reference: [ ]  
Pace Project Manager: Samantha Bayura  
Pace Profile #: [ ]

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER  
 Site Location: [ ]  
 STATE: MD

#	ITEM	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW WATER W PRODUCT P SOIL/SOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives Unpreserved H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> O <sub>3</sub> Methanol Other	Requested Analysis Filtered (Y/N)	Temp in °C	Received on	Custody Sealed	Cooler (Y/N)	Samples Intact (Y/N)
					COMPOSITE START	COMPOSITE END/GRAB											
1	RW6-MWI		WT6	G		6/10/20	9:35			1		Y					
2	RWE-MWI		WT6	G		6/10/20	10:20			1		Y					
3	RWA-MWI		WT6	G		6/10/20	11:00			1		Y					
4	RWA-MWS		WT6	G		6/10/20	11:38			1		Y					
5	RW06-MWI		WT6	G		6/10/20	13:35			1		Y					
6	RW06R-MWS		WT6	G		6/10/20	14:35			1		Y					
7	RW06-MWD		WT6	G		6/10/20	15:10			1		Y					

**WO#: 30367411**  
  
 30367411

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
No	James Calenda	6/10/20	16:15	Chris B / Pace	6/10/20	16:20	
No	Chris B / Pace	6/10/20	19:05	Chris B / Pace	6/10/20	19:05	Y
	Chris B / Pace	6/10/20	20:00	Chris B / Pace	6/10/20	20:00	Y

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Lisa Perin  
 SIGNATURE of SAMPLER:   
 DATE Signed (MM/DD/YYYY): 6/10/20

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to rate charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Enviro Analytics Project # 30367411

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: NA-COULLEN

Label <u>NA</u>
LIMS Login <u>BLM</u>

Custody Seal on Cooler/Box Present:  yes  no    Seals intact:  yes  no

Thermometer Used #9    Type of Ice:  Wet  Blue  None

Cooler Temperature    Observed Temp 4.5 °C    Correction Factor: -0.5 °C    Final Temp: 4.0 °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
				<u>10D2192</u>	<u>NA 07/11/2020</u>
Chain of Custody Present:	/				
Chain of Custody Filled Out:	/				
Chain of Custody Relinquished:	/				
Sampler Name & Signature on COC:	/				
Sample Labels match COC:	/				
-Includes date/time/ID      Matrix: <u>wt</u>					
Samples Arrived within Hold Time:	/				
Short Hold Time Analysis (<72hr remaining):		/			
Rush Turn Around Time Requested:	/				<u>5 day rush</u>
Sufficient Volume:	/				
Correct Containers Used:	/				
-Pace Containers Used:	/				
Containers Intact:	/				
Orthophosphate field filtered			/		
Hex Cr Aqueous sample field filtered			/		
Organic Samples checked for dechlorination:			/		
Filtered volume received for Dissolved tests	/		X		<u>mg 6/11/2020</u>
All containers have been checked for preservation.	/				
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	/			Initial when completed <u>NA</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):		/			
Trip Blank Present:		/			
Trip Blank Custody Seals Present			/		
Rad Samples Screened < 0.5 mrem/hr			/	Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

June 16, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30367631

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on June 11, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

This project follows the April 5, 2016 revision 3 Quality Assurance Project Plan for Sparrows Point Terminal Site, Sparrows Point, MD prepared for EnviroAnalytics Group and is not for PA DEP compliance reporting.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30367631

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Florida: Cert E871149 SEKS WET

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30367631

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30367631001	RW07-MWI	Water	06/11/20 10:10	06/11/20 22:30
30367631002	RW07-MWS	Water	06/11/20 10:32	06/11/20 22:30
30367631003	RW08-MWS	Water	06/11/20 11:15	06/11/20 22:30
30367631004	RW08-MWI	Water	06/11/20 11:45	06/11/20 22:30
30367631005	RW23-MWI	Water	06/11/20 13:30	06/11/20 22:30
30367631006	RW23-MWS	Water	06/11/20 14:00	06/11/20 22:30
30367631007	RWM-MWI	Water	06/11/20 15:05	06/11/20 22:30
30367631008	RWM-MWS	Water	06/11/20 15:35	06/11/20 22:30

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30367631

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30367631001	RW07-MWI	EPA 6010C	CTS	2	PASI-PA
30367631002	RW07-MWS	EPA 6010C	CTS	2	PASI-PA
30367631003	RW08-MWS	EPA 6010C	CTS	2	PASI-PA
30367631004	RW08-MWI	EPA 6010C	CTS	2	PASI-PA
30367631005	RW23-MWI	EPA 6010C	CTS	2	PASI-PA
30367631006	RW23-MWS	EPA 6010C	CTS	2	PASI-PA
30367631007	RWM-MWI	EPA 6010C	CTS	2	PASI-PA
30367631008	RWM-MWS	EPA 6010C	CTS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: RWM GW Sampling  
Pace Project No.: 30367631

---

**Method:** EPA 6010C  
**Description:** 6010C MET ICP,Dissolved  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

### General Information:

8 samples were analyzed for EPA 6010C by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3005A with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 400899

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30367631001,30367632003

ML: Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

- MS (Lab ID: 1941087)
- Zinc, Dissolved

### Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

### Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367631

Sample: RW07-MWI		Lab ID: 30367631001		Collected: 06/11/20 10:10	Received: 06/11/20 22:30	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>1.7J</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 11:28	7440-43-9	
Zinc, Dissolved	<b>400</b>	ug/L	10.0	2.4	1	06/15/20 13:06	06/16/20 11:28	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367631

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW07-MWS</b>									
<b>Lab ID: 30367631002</b>									
Collected: 06/11/20 10:32    Received: 06/11/20 22:30    Matrix: Water									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>4.5</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 11:41	7440-43-9	
Zinc, Dissolved	<b>220</b>	ug/L	10.0	2.4	1	06/15/20 13:06	06/16/20 11:41	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367631

Sample: RW08-MWS		Lab ID: 30367631003		Collected: 06/11/20 11:15		Received: 06/11/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.67J</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 11:43	7440-43-9	
Zinc, Dissolved	<b>12000</b>	ug/L	1000	238	100	06/15/20 13:06	06/16/20 12:38	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367631

Sample: RW08-MWI		Lab ID: 30367631004		Collected: 06/11/20 11:45	Received: 06/11/20 22:30	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.47J</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 11:49	7440-43-9	
Zinc, Dissolved	<b>4.5J</b>	ug/L	10.0	2.4	1	06/15/20 13:06	06/16/20 11:49	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367631

Sample: RW23-MWI		Lab ID: 30367631005		Collected: 06/11/20 13:30		Received: 06/11/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>2740</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 11:52	7440-43-9	
Zinc, Dissolved	<b>116000</b>	ug/L	1000	238	100	06/15/20 13:06	06/16/20 12:40	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367631

Sample: RW23-MWS		Lab ID: 30367631006		Collected: 06/11/20 14:00		Received: 06/11/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 12:43	7440-43-9	
Zinc, Dissolved	<b>2.7J</b>	ug/L	10.0	2.4	1	06/15/20 13:06	06/16/20 12:43	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367631

Sample: RWM-MWI		Lab ID: 30367631007		Collected: 06/11/20 15:05	Received: 06/11/20 22:30	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>1040</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 11:56	7440-43-9	
Zinc, Dissolved	<b>128000</b>	ug/L	1000	238	100	06/15/20 13:06	06/16/20 12:45	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367631

Sample: RWM-MWS		Lab ID: 30367631008		Collected: 06/11/20 15:35		Received: 06/11/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 12:47	7440-43-9	
Zinc, Dissolved	<b>21.8</b>	ug/L	10.0	2.4	1	06/15/20 13:06	06/16/20 12:47	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30367631

QC Batch: 400899 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30367631001, 30367631002, 30367631003, 30367631004, 30367631005, 30367631006, 30367631007, 30367631008

METHOD BLANK: 1941081 Matrix: Water  
Associated Lab Samples: 30367631001, 30367631002, 30367631003, 30367631004, 30367631005, 30367631006, 30367631007, 30367631008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	06/16/20 11:24	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	06/16/20 11:24	

LABORATORY CONTROL SAMPLE: 1941082

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	469	94	80-120	
Zinc, Dissolved	ug/L	500	481	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1941084 1941085

Parameter	Units	30367631001		30367631001		30367631001		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec				
Cadmium, Dissolved	ug/L	1.7J	500	500	494	495	98	99	75-125	0	20
Zinc, Dissolved	ug/L	400	500	500	875	879	95	96	75-125	1	20

MATRIX SPIKE SAMPLE: 1941087

Parameter	Units	30367632003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L		2.5J	500	492	98	75-125
Zinc, Dissolved	ug/L		37200	500	37200	-14	75-125 ML

SAMPLE DUPLICATE: 1941083

Parameter	Units	30367631001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	1.7J	1.8J		20	
Zinc, Dissolved	ug/L	400	402	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA**

Project: RWM GW Sampling  
Pace Project No.: 30367631

SAMPLE DUPLICATE: 1941086

Parameter	Units	30367632003 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	2.5J	2.6J		20	
Zinc, Dissolved	ug/L	37200	35700	4	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling  
Pace Project No.: 30367631

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30367631

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30367631001	RW07-MWI	EPA 3005A	400899	EPA 6010C	400964
30367631002	RW07-MWS	EPA 3005A	400899	EPA 6010C	400964
30367631003	RW08-MWS	EPA 3005A	400899	EPA 6010C	400964
30367631004	RW08-MWI	EPA 3005A	400899	EPA 6010C	400964
30367631005	RW23-MWI	EPA 3005A	400899	EPA 6010C	400964
30367631006	RW23-MWS	EPA 3005A	400899	EPA 6010C	400964
30367631007	RWM-MWI	EPA 3005A	400899	EPA 6010C	400964
30367631008	RWM-MWS	EPA 3005A	400899	EPA 6010C	400964

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



**Section A**  
Client Information:  
Company: EnviroAnalytics Group  
Address: 1600 Sparrows Point Blvd, Suite B2  
Sparrows Point, MD 21219  
Email: jcalenda@enviroanalyticsgroup.com  
Phone: 314-620-3056 Fax: [blank]  
Requested Due Date/TAT: 5 Day

**Section B**  
Required Project Information:  
Report To: James Calenda  
Copy To: Stewart Kabis  
Purchase Order No.: EAG-SPT-6452  
Project Name: RWM GW Sampling  
Project Number:

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  
Site Location: MD  
STATE: MD

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW WASTE WATER P PRODUCT SOIL/SOLID OIL OIL WIFE AIR OTHER TISSUE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Preservatives										Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB				DATE	TIME	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other			
1	RW07 - mwi				WT6		1													001
2	RW07 - mws				WT6		1													003
3	RW08 - mws				WT6		1													003
4	RW08 - mwi				WT6		1													004
5	RW23 - mwi				WT6		1													003
6	RW23 - mws				WT6		1													003
7	RWM - mwi				WT6		1													007
8	RWM - mws				WT6		1													008

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	Temp in °C	Received on Ice (Y/N)	Cooler Sealed (Y/N)	Samples Intact (Y/N)
NO	Stewart Kabis	6/11/20	1620	Lisa Penn	6/11/20	1630					
NO	Stewart Kabis	6/11/20	1935	Stewart Kabis	6/11/20	1935					
	Stewart Kabis	6/11/20	2230	Lisa Penn	6/11/20	2230		40			

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to pay charges of 10% per month for any invoices not paid within 30 days.



Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics

Project # # 30367637

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Label	<u>JSM</u>
LIMS Login	<u>JSM</u>

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no      Seals intact:  yes  no

Thermometer Used 9      Type of Ice: Wet Blue None

Cooler Temperature Observed Temp 4.5 °C      Correction Factor: -0.5 °C      Final Temp: 4.0 °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
				<u>1012192</u>	<u>JSM 6/12/2020</u>
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Includes date/time/ID      Matrix: <u>WTF</u>					
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Short Hold Time Analysis (<72hr remaining):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>JSM</u>	Date/time of preservation: _____
				Lot # of added preservative: _____	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed: <u>JSM</u>	Date: <u>6/12/2020</u>

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

June 16, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30367632

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on June 11, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

This project follows the April 5, 2016 revision 3 Quality Assurance Project Plan for Sparrows Point Terminal Site, Sparrows Point, MD prepared for EnviroAnalytics Group and is not for PA DEP compliance reporting.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30367632

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30367632

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30367632001	RW14-MW(S)	Water	06/11/20 11:40	06/11/20 22:30
30367632002	RW11-MW(I)	Water	06/11/20 13:10	06/11/20 22:30
30367632003	RW11-MW(S)	Water	06/11/20 13:50	06/11/20 22:30
30367632004	RW15-MW(S)	Water	06/11/20 15:10	06/11/20 22:30
30367632005	RW15-MW(I)	Water	06/11/20 16:05	06/11/20 22:30

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30367632

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30367632001	RW14-MW(S)	EPA 6010C	CTS	2	PASI-PA
30367632002	RW11-MW(I)	EPA 6010C	CTS	2	PASI-PA
30367632003	RW11-MW(S)	EPA 6010C	CTS	2	PASI-PA
30367632004	RW15-MW(S)	EPA 6010C	CTS	2	PASI-PA
30367632005	RW15-MW(I)	EPA 6010C	CTS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: RWM GW Sampling  
Pace Project No.: 30367632

---

**Method:** EPA 6010C  
**Description:** 6010C MET ICP,Dissolved  
**Client:** EnviroAnalytics Group, LLC  
**Date:** June 16, 2020

### General Information:

5 samples were analyzed for EPA 6010C by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3005A with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 400899

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30367631001,30367632003

ML: Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

- MS (Lab ID: 1941087)
- Zinc, Dissolved

### Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

### Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367632

Sample: RW14-MW(S)		Lab ID: 30367632001		Collected: 06/11/20 11:40		Received: 06/11/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3590</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 12:00	7440-43-9	
Zinc, Dissolved	<b>71900</b>	ug/L	1000	238	100	06/15/20 13:06	06/16/20 12:49	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30367632

Sample: RW11-MW(l)		Lab ID: 30367632002		Collected: 06/11/20 13:10		Received: 06/11/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>75.1</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 12:03	7440-43-9	
Zinc, Dissolved	<b>128000</b>	ug/L	1000	238	100	06/15/20 13:06	06/16/20 12:51	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367632

Sample: RW11-MW(S)		Lab ID: 30367632003		Collected: 06/11/20 13:50		Received: 06/11/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>2.5J</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 12:05	7440-43-9	
Zinc, Dissolved	<b>37200</b>	ug/L	1000	238	100	06/15/20 13:06	06/16/20 12:54	7440-66-6	ML

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367632

Sample: RW15-MW(S)		Lab ID: 30367632004		Collected: 06/11/20 15:10	Received: 06/11/20 22:30	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 12:16	7440-43-9	
Zinc, Dissolved	<b>2.7J</b>	ug/L	10.0	2.4	1	06/15/20 13:06	06/16/20 12:16	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367632

Sample: RW15-MW(I)		Lab ID: 30367632005		Collected: 06/11/20 16:05		Received: 06/11/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 12:18	7440-43-9	
Zinc, Dissolved	<b>5.8J</b>	ug/L	10.0	2.4	1	06/15/20 13:06	06/16/20 12:18	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30367632

QC Batch: 400899 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30367632001, 30367632002, 30367632003, 30367632004, 30367632005

METHOD BLANK: 1941081 Matrix: Water  
Associated Lab Samples: 30367632001, 30367632002, 30367632003, 30367632004, 30367632005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	06/16/20 11:24	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	06/16/20 11:24	

LABORATORY CONTROL SAMPLE: 1941082

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	469	94	80-120	
Zinc, Dissolved	ug/L	500	481	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1941084 1941085

Parameter	Units	30367631001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	1.7J	500	500	494	495	98	99	75-125	0	20	
Zinc, Dissolved	ug/L	400	500	500	875	879	95	96	75-125	1	20	

MATRIX SPIKE SAMPLE: 1941087

Parameter	Units	30367632003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	2.5J	500	492	98	75-125	
Zinc, Dissolved	ug/L	37200	500	37200	-14	75-125 ML	

SAMPLE DUPLICATE: 1941083

Parameter	Units	30367631001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	1.7J	1.8J		20	
Zinc, Dissolved	ug/L	400	402	0	20	

SAMPLE DUPLICATE: 1941086

Parameter	Units	30367632003 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	2.5J	2.6J		20	
Zinc, Dissolved	ug/L	37200	35700	4	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30367632

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: RWM GW Sampling  
Pace Project No.: 30367632

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30367632001	RW14-MW(S)	EPA 3005A	400899	EPA 6010C	400964
30367632002	RW11-MW(I)	EPA 3005A	400899	EPA 6010C	400964
30367632003	RW11-MW(S)	EPA 3005A	400899	EPA 6010C	400964
30367632004	RW15-MW(S)	EPA 3005A	400899	EPA 6010C	400964
30367632005	RW15-MW(I)	EPA 3005A	400899	EPA 6010C	400964

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**Section B**  
Required Project Information:

Company: EnviroAnalytics Group  
 Report To: James Calenda  
 Copy To: Stewart Kabis  
 Purchase Order No.: EAG-SPT-6452  
 Project Name: RWM GW Sampling  
 Project Number:

**REGULATORY AGENCY**

Company Name: EnviroAnalytics Group  
 Address: 1650 Des Peres Road, Suite 303 St. Louis, MO 63131  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER

Site Location: \_\_\_\_\_ MD  
 STATE: \_\_\_\_\_

**Section D**  
Required Client Information

**Valid Matrix Codes**  
 MATRIX CODE  
 DRINKING WATER DW  
 WASTE WATER WW  
 PRODUCT P  
 SOILSOLID SL  
 OIL OI  
 WIPE WP  
 OTHER AR  
 AIR OT  
 TISSUE TS

**SAMPLE ID**  
 (A-Z, 0-9 / -)  
 Sample IDs MUST BE UNIQUE

Section D Required Client Information	Valid Matrix Codes	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION		# OF CONTAINERS	Preservatives	Analysis Test	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
		COMPOSITE START	COMPOSITE END/GRAB			DATE	TIME						
1. RW14-mw(S)				G	WTG	06/11/2020	1140	1	Unpreserved	Total Cadmium 6010 Total Zinc 6010	Y		001
2. RW11-mw(G)				G			1310	1			Y		002
3. RW11-mw(S)				G			1350	1			Y		003
4. RW15-mw(S)				G			1510	1			Y		004
5. RW15-mw(G)				G			1145	1			Y		005

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	Temp In °C	Received on Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
NO	AMB/PAK	6/11/20	11:30	AMB/PAK	6/11/20	16:35	Y		Y			
NO	AMB/PAK	6/11/20	19:35	RDS/PAK	6/11/20	19:35	Y		Y			
	RDS/PAK	6/11/20	18:30	AMB/PAK	6/11/20	22:30	Y	5.6	Y			

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Sandra M Gilman  
 SIGNATURE of SAMPLER: *[Signature]*  
 DATE Signed (MM/DD/YYYY): 06/11/2020

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics

Project # #-30367632

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

Label	JSM
LIMS Login	JSM

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no      Seals intact:  yes  no

Thermometer Used 9      Type of Ice: Wet Blue None

Cooler Temperature Observed Temp 5.6 °C      Correction Factor: -0.5 °C      Final Temp: 5.1 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents: <u>JSM 6/12/2020</u>
	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID      Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>JSM</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed: <u>JSM</u> Date: <u>6/12/2020</u>

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



June 16, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30367859

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on June 12, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

This project follows the April 5, 2016 revision 3 Quality Assurance Project Plan for Sparrows Point Terminal Site, Sparrows Point, MD prepared for EnviroAnalytics Group and is not for PA DEP compliance reporting.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30367859

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30367859

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30367859001	RWL-MWS	Water	06/12/20 09:20	06/12/20 21:45
30367859002	RWL-MWI	Water	06/12/20 10:00	06/12/20 21:45
30367859003	RWK-MWS	Water	06/12/20 11:00	06/12/20 21:45
30367859004	RWK-MWI	Water	06/12/20 11:35	06/12/20 21:45
30367859005	RWQ-MWS	Water	06/12/20 12:35	06/12/20 21:45

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30367859

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30367859001	RWL-MWS	EPA 6010C	CTS	2	PASI-PA
30367859002	RWL-MWI	EPA 6010C	CTS	2	PASI-PA
30367859003	RWK-MWS	EPA 6010C	CTS	2	PASI-PA
30367859004	RWK-MWI	EPA 6010C	CTS	2	PASI-PA
30367859005	RWQ-MWS	EPA 6010C	CTS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: RWM GW Sampling

Pace Project No.: 30367859

---

**Method:** EPA 6010C

**Description:** 6010C MET ICP,Dissolved

**Client:** EnviroAnalytics Group, LLC

**Date:** June 16, 2020

**General Information:**

5 samples were analyzed for EPA 6010C by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3005A with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 400899

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30367631001,30367632003

ML: Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

- MS (Lab ID: 1941087)

- Zinc, Dissolved

**Duplicate Sample:**

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367859

Sample: <b>RWL-MWS</b>		Lab ID: <b>30367859001</b>		Collected: 06/12/20 09:20	Received: 06/12/20 21:45	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.52J</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 12:20	7440-43-9	
Zinc, Dissolved	<b>16100</b>	ug/L	1000	238	100	06/15/20 13:06	06/16/20 13:04	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367859

Sample: <b>RWL-MWI</b>		Lab ID: <b>30367859002</b>		Collected: 06/12/20 10:00	Received: 06/12/20 21:45	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>1140</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 12:23	7440-43-9	
Zinc, Dissolved	<b>96300</b>	ug/L	1000	238	100	06/15/20 13:06	06/16/20 13:07	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367859

Sample: <b>RWK-MWS</b>		Lab ID: <b>30367859003</b>	Collected: 06/12/20 11:00	Received: 06/12/20 21:45	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 12:25	7440-43-9	
Zinc, Dissolved	<b>10400</b>	ug/L	1000	238	100	06/15/20 13:06	06/16/20 13:09	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367859

Sample: RWK-MWI		Lab ID: 30367859004	Collected: 06/12/20 11:35	Received: 06/12/20 21:45	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>76.9</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 12:27	7440-43-9	
Zinc, Dissolved	<b>21400</b>	ug/L	1000	238	100	06/15/20 13:06	06/16/20 13:11	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30367859

Sample: RWQ-MWS		Lab ID: 30367859005		Collected: 06/12/20 12:35		Received: 06/12/20 21:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>2.9J</b>	ug/L	3.0	0.34	1	06/15/20 13:06	06/16/20 12:29	7440-43-9	
Zinc, Dissolved	<b>149</b>	ug/L	10.0	2.4	1	06/15/20 13:06	06/16/20 12:29	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30367859

QC Batch: 400899 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30367859001, 30367859002, 30367859003, 30367859004, 30367859005

METHOD BLANK: 1941081 Matrix: Water  
Associated Lab Samples: 30367859001, 30367859002, 30367859003, 30367859004, 30367859005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	06/16/20 11:24	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	06/16/20 11:24	

LABORATORY CONTROL SAMPLE: 1941082

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	469	94	80-120	
Zinc, Dissolved	ug/L	500	481	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1941084 1941085

Parameter	Units	30367631001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	1.7J	500	500	494	495	98	99	75-125	0	20	
Zinc, Dissolved	ug/L	400	500	500	875	879	95	96	75-125	1	20	

MATRIX SPIKE SAMPLE: 1941087

Parameter	Units	30367632003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	2.5J	500	492	98	75-125	
Zinc, Dissolved	ug/L	37200	500	37200	-14	75-125 ML	

SAMPLE DUPLICATE: 1941083

Parameter	Units	30367631001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	1.7J	1.8J		20	
Zinc, Dissolved	ug/L	400	402	0	20	

SAMPLE DUPLICATE: 1941086

Parameter	Units	30367632003 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	2.5J	2.6J		20	
Zinc, Dissolved	ug/L	37200	35700	4	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30367859

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: RWM GW Sampling  
Pace Project No.: 30367859

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30367859001	RWL-MWS	EPA 3005A	400899	EPA 6010C	400964
30367859002	RWL-MWI	EPA 3005A	400899	EPA 6010C	400964
30367859003	RWK-MWS	EPA 3005A	400899	EPA 6010C	400964
30367859004	RWK-MWI	EPA 3005A	400899	EPA 6010C	400964
30367859005	RWQ-MWS	EPA 3005A	400899	EPA 6010C	400964

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



must be completed accurately.

**Section A**  
Client Information:  
Company: **EnviroAnalytics Group**  
Address: **1600 Sparrows Point Blvd, Suite B2**  
Sparrows Point, MD 21219

**Section B**  
Required Project Information:  
Report To: **James Calenda**  
Copy To: **Stewart Kabis**  
Purchase Order No.: **EAG-SPT-6452**  
Project Name: **RWM GW Sampling**  
Project Number:

Company Name: **EnviroAnalytics Group**  
Address: **1650 Des Peres Road, Suite 303 St. Louis, MO 63131**  
Pace Quote Reference: **Samantha Bayura**  
Pace Project Manager: **Samantha Bayura**  
Pace Profile #:

REGULATORY AGENCY  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER

Site Location: **MD**  
STATE:

#	ITEM	Section D Required Client Information	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WT WASTE WATER WW PRODUCT P SOL/SOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives Unpreserved H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Methanol Other	Analysis Test Total Cadmium 6010 Dissolved Total Zinc 6010 Dissolved	Requested Analysis Filtered (Y/N)	Pace Project No./ Lab I.D.
						COMPOSITE START	COMPOSITE END/GRAB						
1	RWL-MWS			WT G	G	DATE	TIME	DATE	TIME				601
2	RWL-MW1					DATE	TIME	DATE	TIME				602
3	RWK-MWS					DATE	TIME	DATE	TIME				603
4	RWK-MW1					DATE	TIME	DATE	TIME				604
5	RWS-MWS					DATE	TIME	DATE	TIME				605

**ADDITIONAL COMMENTS**  
NO  
NO

**RELINQUISHED BY / AFFILIATION**  
JAMES CALENDA  
RWS-LAES

**DATE**  
6/12/2020  
6/12/2020

**TIME**  
11:05  
17:35

**ACCEPTED BY / AFFILIATION**  
GAMB/FAE  
RWS-LAES

**DATE**  
6/12/2020  
6/12/2020

**TIME**  
16:16  
18:30

**SAMPLE CONDITIONS**  
Received on Ice (Y/N)   
Custody Sealed   
Cooler (Y/N)   
Samples Intact (Y/N)

**SAMPLER NAME AND SIGNATURE**  
PRINT Name of SAMPLER: **Leandra M. Calenda**  
SIGNATURE of SAMPLER: *[Signature]*  
DATE Signed (MM/DD/YYYY): **06/12/2020**

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics

Project # 30367859

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: \_\_\_\_\_

Label JSM  
LIMS Login JSM

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 9 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 4.8 °C Correction Factor: -0.5 °C Final Temp: 4.3 °C

Temp should be above freezing to 6°C

pH paper Lot# 10D2192 Date and Initials of person examining contents: JSM 6/13/2020

Comments:

	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID Matrix: <u>WT</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>JSM</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>JSM</u> Date: <u>6/13/2020</u>

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

June 23, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30368033

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on June 15, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30368033

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30368033

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30368033001	RW04-MWS	Water	06/15/20 08:55	06/15/20 22:15
30368033002	RW13-MWI	Water	06/15/20 09:40	06/15/20 22:15
30368033003	RWN-MWS	Water	06/15/20 10:30	06/15/20 22:15
30368033004	RWP-MWI	Water	06/15/20 12:20	06/15/20 22:15
30368033005	RWQ-MWI	Water	06/15/20 13:15	06/15/20 22:15
30368033006	RWS-MWS	Water	06/15/20 14:20	06/15/20 22:15
30368033007	RWS-MWI	Water	06/15/20 15:05	06/15/20 22:15

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30368033

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30368033001	RW04-MWS	EPA 6010C	CTS	2	PASI-PA
30368033002	RW13-MWI	EPA 6010C	CTS	2	PASI-PA
30368033003	RWN-MWS	EPA 6010C	CTS	2	PASI-PA
30368033004	RWP-MWI	EPA 6010C	CTS	2	PASI-PA
30368033005	RWQ-MWI	EPA 6010C	CTS	2	PASI-PA
30368033006	RWS-MWS	EPA 6010C	CTS	2	PASI-PA
30368033007	RWS-MWI	EPA 6010C	CTS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30368033

Sample: RW04-MWS		Lab ID: 30368033001		Collected: 06/15/20 08:55		Received: 06/15/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.99J</b>	ug/L	3.0	0.34	1	06/17/20 14:05	06/23/20 07:18	7440-43-9	
Zinc, Dissolved	<b>79.4</b>	ug/L	10.0	2.4	1	06/17/20 14:05	06/23/20 07:18	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30368033

Sample: RW13-MWI		Lab ID: 30368033002		Collected: 06/15/20 09:40	Received: 06/15/20 22:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>15.4</b>	ug/L	3.0	0.34	1	06/17/20 14:05	06/23/20 07:30	7440-43-9	
Zinc, Dissolved	<b>27.0</b>	ug/L	10.0	2.4	1	06/17/20 14:05	06/23/20 07:30	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30368033

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWN-MWS      Lab ID: 30368033003      Collected: 06/15/20 10:30      Received: 06/15/20 22:15      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>6810</b>	ug/L	3.0	0.34	1	06/17/20 14:05	06/23/20 07:32	7440-43-9	
Zinc, Dissolved	<b>884000</b>	ug/L	10000	2380	1000	06/17/20 14:05	06/23/20 09:04	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30368033

Sample: RWP-MWI		Lab ID: 30368033004		Collected: 06/15/20 12:20	Received: 06/15/20 22:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>7090</b>	ug/L	300	34.0	100	06/17/20 14:05	06/23/20 08:31	7440-43-9	
Zinc, Dissolved	<b>3160000</b>	ug/L	10000	2380	1000	06/17/20 14:05	06/23/20 09:06	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30368033

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWQ-MWI      Lab ID: 30368033005      Collected: 06/15/20 13:15      Received: 06/15/20 22:15      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.7</b>	ug/L	3.0	0.34	1	06/17/20 14:05	06/23/20 07:46	7440-43-9	
Zinc, Dissolved	<b>255000</b>	ug/L	1000	238	100	06/17/20 14:05	06/23/20 08:33	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30368033

Sample: RWS-MWS		Lab ID: 30368033006		Collected: 06/15/20 14:20		Received: 06/15/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>1.9J</b>	ug/L	3.0	0.34	1	06/17/20 14:05	06/23/20 07:48	7440-43-9	
Zinc, Dissolved	<b>954000</b>	ug/L	10000	2380	1000	06/17/20 14:05	06/23/20 09:08	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30368033

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWS-MWI      Lab ID: 30368033007      Collected: 06/15/20 15:05      Received: 06/15/20 22:15      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>0.58J</b>	ug/L	3.0	0.34	1	06/17/20 14:05	06/23/20 07:51	7440-43-9	
Zinc, Dissolved	<b>74300</b>	ug/L	1000	238	100	06/17/20 14:05	06/23/20 08:37	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30368033

QC Batch: 401312 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30368033001, 30368033002, 30368033003, 30368033004, 30368033005, 30368033006, 30368033007

METHOD BLANK: 1942761 Matrix: Water  
Associated Lab Samples: 30368033001, 30368033002, 30368033003, 30368033004, 30368033005, 30368033006, 30368033007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	06/23/20 07:13	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	06/23/20 07:13	

LABORATORY CONTROL SAMPLE: 1942762

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	469	94	80-120	
Zinc, Dissolved	ug/L	500	478	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1942764 1942765

Parameter	Units	30368033001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	0.99J	500	500	492	500	98	100	75-125	2	20	
Zinc, Dissolved	ug/L	79.4	500	500	543	554	93	95	75-125	2	20	

MATRIX SPIKE SAMPLE: 1942767

Parameter	Units	30368273004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	4610	500	5200	117	75-125	
Zinc, Dissolved	ug/L	474000	500	481000	1280	75-125 M6	

SAMPLE DUPLICATE: 1942763

Parameter	Units	30368033001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	0.99J	1.0J		20	
Zinc, Dissolved	ug/L	79.4	80.0	1	20	

SAMPLE DUPLICATE: 1942766

Parameter	Units	30368273004 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	4610	4570	1	20	
Zinc, Dissolved	ug/L	474000	491000	3	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30368033

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

1c The precision between the sample and serial dilution exceeded laboratory control limits.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30368033

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30368033001	RW04-MWS	EPA 3005A	401312	EPA 6010C	401359
30368033002	RW13-MWI	EPA 3005A	401312	EPA 6010C	401359
30368033003	RWN-MWS	EPA 3005A	401312	EPA 6010C	401359
30368033004	RWP-MWI	EPA 3005A	401312	EPA 6010C	401359
30368033005	RWQ-MWI	EPA 3005A	401312	EPA 6010C	401359
30368033006	RWS-MWS	EPA 3005A	401312	EPA 6010C	401359
30368033007	RWS-MWI	EPA 3005A	401312	EPA 6010C	401359

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



**Section A**  
 Client Information:  
 Company: EnviroAnalytics Group  
 Address: 1600 Sparrows Point Blvd, Suite B2  
 Sparrows Point, MD 21219  
 Contact: jcalenda@enviroanalyticsgroup.com  
 Phone: 314-620-3056  
 Fax: 314-620-3056  
 Project Name: RWM GW Sampling  
 Project Number: EAG-SPT-6452  
 Purchase Order No.: EAG-SPT-6452

**Section B**  
 Required Project Information:  
 Report To: James Calenda  
 Copy To: Stewart Kabis

**Section C**  
 Invoice Information:  
 Attention: Laura Sargent  
 Company Name: EnviroAnalytics Group  
 Address: 1650 Des Peres Road, Suite 303 St. Louis, MO 63131  
 Pace Quote Reference: 1650 Des Peres Road, Suite 303 St. Louis, MO 63131  
 Pace Project Manager: Samantha Bayura  
 Pace Profile #:   
 Regulatory Agency:   
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER  
 Site Location: MD  
 STATE: MD

Section D Required Client Information	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OI WIPE WI AIR AI OTHER OT TISSUE TS	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES		Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.		
		COMPOSITE START	COMPOSITE END/GRAB				DATE	TIME				DATE	TIME
RW04-MWS				WT G		1			Y		001		
RW13-MWI				WT G		1			Y		002		
RWN-MWS				WT G		1			Y		063		
RWP-MWI				WT G		1			Y		004		
RWQ-MWI				WT G		1			Y		005		
RWS-MWS				WT G		1			Y		006		
RWS-MWI				WT G		1			Y		007		

**Section E**  
 ADDITIONAL COMMENTS: No  
 Relinquished By/Affiliation: James Calenda  
 Date: 6/15/20  
 Time: 16:15  
 Accepted By/Affiliation: Lisa Perdue  
 Date: 6/15/20  
 Time: 19:10  
 Sample Conditions: X  
 Received on Ice (Y/N): Y  
 Temp in °C: 17  
 Samples Intact (Y/N): Y  
 Cooler (Y/N): N  
 Custody Sealed (Y/N): Y

**Section F**  
 SAMPLER NAME AND SIGNATURE: Lisa Perdue  
 PRINT NAME OF SAMPLER: Lisa Perdue  
 SIGNATURE OF SAMPLER: [Signature]  
 DATE SIGNED (MM/DD/YY): 6/15/20

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to pay charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics Group

Project # # 30368033

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

Tracking #: N/A

Label	<u>MCC</u>
LIMS Login	<u>MCC</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 10 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 2.0 °C Correction Factor: .3 °C Final Temp: 1.7 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:
	Yes	No	N/A	
				<u>1002192</u>
				<u>MCC 6/16/2010</u>
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed <u>MCC</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed: Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted-By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

June 23, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30368273

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on June 16, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30368273

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30368273

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30368273001	RW22R-MWI	Water	06/16/20 09:40	06/16/20 22:45
30368273002	RW22R-MWS	Water	06/16/20 10:20	06/16/20 22:45
30368273003	RWH-MWS	Water	06/16/20 11:20	06/16/20 22:45
30368273004	RWH-MWI	Water	06/16/20 11:50	06/16/20 22:45
30368273005	RW21-MWI	Water	06/16/20 12:30	06/16/20 22:45
30368273006	RWR-MWS	Water	06/16/20 14:15	06/16/20 22:45
30368273007	RW25-MWS	Water	06/16/20 15:05	06/16/20 22:45
30368273008	RW25-MWI	Water	06/16/20 15:35	06/16/20 22:45

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30368273

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30368273001	RW22R-MWI	EPA 6010C	CTS	2	PASI-PA
30368273002	RW22R-MWS	EPA 6010C	CTS	2	PASI-PA
30368273003	RWH-MWS	EPA 6010C	CTS	2	PASI-PA
30368273004	RWH-MWI	EPA 6010C	CTS	2	PASI-PA
30368273005	RW21-MWI	EPA 6010C	CTS	2	PASI-PA
30368273006	RWR-MWS	EPA 6010C	CTS	2	PASI-PA
30368273007	RW25-MWS	EPA 6010C	CTS	2	PASI-PA
30368273008	RW25-MWI	EPA 6010C	CTS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30368273

Sample: RW22R-MWI		Lab ID: 30368273001		Collected: 06/16/20 09:40		Received: 06/16/20 22:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>2.0J</b>	ug/L	3.0	0.34	1	06/17/20 14:05	06/23/20 07:53	7440-43-9	
Zinc, Dissolved	<b>4350</b>	ug/L	10.0	2.4	1	06/17/20 14:05	06/23/20 07:53	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30368273

Sample: RW22R-MWS		Lab ID: 30368273002		Collected: 06/16/20 10:20		Received: 06/16/20 22:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>51.4</b>	ug/L	3.0	0.34	1	06/17/20 14:05	06/23/20 07:55	7440-43-9	
Zinc, Dissolved	<b>217000</b>	ug/L	1000	238	100	06/17/20 14:05	06/23/20 08:39	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30368273

Sample: RWH-MWS		Lab ID: 30368273003	Collected: 06/16/20 11:20	Received: 06/16/20 22:45	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.97J</b>	ug/L	3.0	0.34	1	06/17/20 14:05	06/23/20 08:49	7440-43-9	
Zinc, Dissolved	<b>48.9</b>	ug/L	10.0	2.4	1	06/17/20 14:05	06/23/20 08:49	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30368273

Sample: RWH-MWI		Lab ID: 30368273004	Collected: 06/16/20 11:50	Received: 06/16/20 22:45	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>4610</b>	ug/L	3.0	0.34	1	06/17/20 14:05	06/23/20 08:00	7440-43-9	
Zinc, Dissolved	<b>474000</b>	ug/L	1000	238	100	06/17/20 14:05	06/23/20 08:51	7440-66-6	M6

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30368273

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW21-MWI</b>									
<b>Lab ID: 30368273005</b>									
Collected: 06/16/20 12:30    Received: 06/16/20 22:45    Matrix: Water									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>34.0</b>	ug/L	3.0	0.34	1	06/17/20 14:05	06/23/20 08:18	7440-43-9	
Zinc, Dissolved	<b>470000</b>	ug/L	1000	238	100	06/17/20 14:05	06/23/20 08:57	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30368273

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWR-MWS      Lab ID: 30368273006      Collected: 06/16/20 14:15      Received: 06/16/20 22:45      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>35.5</b>	ug/L	3.0	0.34	1	06/17/20 14:05	06/23/20 08:20	7440-43-9	
Zinc, Dissolved	<b>327000</b>	ug/L	1000	238	100	06/17/20 14:05	06/23/20 09:00	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30368273

---

**Sample: RW25-MWS**      **Lab ID: 30368273007**      Collected: 06/16/20 15:05      Received: 06/16/20 22:45      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>4.6</b>	ug/L	3.0	0.34	1	06/17/20 14:05	06/23/20 08:23	7440-43-9	
Zinc, Dissolved	<b>5720</b>	ug/L	10.0	2.4	1	06/17/20 14:05	06/23/20 08:23	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30368273

Sample: RW25-MWI		Lab ID: 30368273008		Collected: 06/16/20 15:35		Received: 06/16/20 22:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>652</b>	ug/L	3.0	0.34	1	06/17/20 14:05	06/23/20 08:25	7440-43-9	
Zinc, Dissolved	<b>443000</b>	ug/L	1000	238	100	06/17/20 14:05	06/23/20 09:02	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30368273

QC Batch:	401312	Analysis Method:	EPA 6010C
QC Batch Method:	EPA 3005A	Analysis Description:	6010C MET Dissolved
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30368273001, 30368273002, 30368273003, 30368273004, 30368273005, 30368273006, 30368273007, 30368273008

METHOD BLANK: 1942761 Matrix: Water  
Associated Lab Samples: 30368273001, 30368273002, 30368273003, 30368273004, 30368273005, 30368273006, 30368273007, 30368273008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	06/23/20 07:13	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	06/23/20 07:13	

LABORATORY CONTROL SAMPLE: 1942762

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	469	94	80-120	
Zinc, Dissolved	ug/L	500	478	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1942764 1942765

Parameter	Units	30368033001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Cadmium, Dissolved	ug/L	0.99J	500	500	492	500	98	100	75-125	2	20		
Zinc, Dissolved	ug/L	79.4	500	500	543	554	93	95	75-125	2	20		

MATRIX SPIKE SAMPLE: 1942767

Parameter	Units	30368273004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L		4610	500	5200	117	75-125
Zinc, Dissolved	ug/L		474000	500	481000	1280	75-125 M6

SAMPLE DUPLICATE: 1942763

Parameter	Units	30368033001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	0.99J	1.0J		20	
Zinc, Dissolved	ug/L	79.4	80.0	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling

Pace Project No.: 30368273

SAMPLE DUPLICATE: 1942766

Parameter	Units	30368273004 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	4610	4570	1	20	
Zinc, Dissolved	ug/L	474000	491000	3	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30368273

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling

Pace Project No.: 30368273

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30368273001	RW22R-MWI	EPA 3005A	401312	EPA 6010C	401359
30368273002	RW22R-MWS	EPA 3005A	401312	EPA 6010C	401359
30368273003	RWH-MWS	EPA 3005A	401312	EPA 6010C	401359
30368273004	RWH-MWI	EPA 3005A	401312	EPA 6010C	401359
30368273005	RW21-MWI	EPA 3005A	401312	EPA 6010C	401359
30368273006	RWR-MWS	EPA 3005A	401312	EPA 6010C	401359
30368273007	RW25-MWS	EPA 3005A	401312	EPA 6010C	401359
30368273008	RW25-MWI	EPA 3005A	401312	EPA 6010C	401359

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.





Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics Group

Project # # 30368273

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>MCC</u>
LIMS Login	<u>MCC</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 10 Type of Ice: (wet) Blue None

Cooler Temperature Observed Temp 1.8 °C Correction Factor: 1.3 °C Final Temp: 1.5 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:	
	Yes	No	N/A		
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>10D219Z</u>	<u>MCC 6/17/2020</u>
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sample Labels match COC: -Includes date/time/ID Matrix: <u>WT</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Correct Containers Used: -Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed <u>MCC</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed:	Date:

Client Notification/ Resolution:

Person-Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

June 29, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30368456

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on June 17, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30368456

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30368456

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30368456001	Trip Blank (1) (WT)	Water	06/17/20 00:01	06/17/20 22:45
30368456002	Trip Blank (1) (SL)	Solid	06/17/20 00:01	06/17/20 22:45
30368456003	RW21-MWS	Water	06/17/20 09:45	06/17/20 22:45
30368456004	RW21-MWI	Water	06/17/20 10:30	06/17/20 22:45
30368456005	RWO-MWI	Water	06/17/20 11:20	06/17/20 22:45
30368456006	RWO-MWS	Water	06/17/20 12:15	06/17/20 22:45
30368456007	RWI-MWS	Water	06/17/20 14:10	06/17/20 22:45
30368456008	RWI-MWI	Water	06/17/20 15:00	06/17/20 22:45

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30368456

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30368456001	Trip Blank (1) (WT)	EPA 8260B	LEL	40	PASI-PA
30368456002	Trip Blank (1) (SL)	EPA 8260B	JEW	54	PASI-PA
30368456003	RW21-MWS	EPA 6010C	CTS	2	PASI-PA
		EPA 8270D by SIM	AJC	20	PASI-PA
		EPA 8270D	EAC	62	PASI-PA
		EPA 8260B	LEL	40	PASI-PA
		EPA 8270D by SIM	AJC	20	PASI-PA
30368456004	RW21-MWI	EPA 8270D	EAC	62	PASI-PA
		EPA 8260B	LEL	40	PASI-PA
		EPA 6010C	CTS	2	PASI-PA
30368456005	RWO-MWI	EPA 6010C	CTS	2	PASI-PA
30368456006	RWO-MWS	EPA 6010C	CTS	2	PASI-PA
30368456007	RWI-MWS	EPA 6010C	CTS	2	PASI-PA
30368456008	RWI-MWI	EPA 6010C	CTS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30368456

**Sample: Trip Blank (1) (WT)**      **Lab ID: 30368456001**      Collected: 06/17/20 00:01      Received: 06/17/20 22:45      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8260B MSV</b>									
Analytical Method: EPA 8260B									
Pace Analytical Services - Greensburg									
Acetone	10.0 U	ug/L	10.0	5.6	1		06/26/20 14:58	67-64-1	
Benzene	1.0 U	ug/L	1.0	0.34	1		06/26/20 14:58	71-43-2	
Bromodichloromethane	1.0 U	ug/L	1.0	0.35	1		06/26/20 14:58	75-27-4	
Bromoform	1.0 U	ug/L	1.0	0.56	1		06/26/20 14:58	75-25-2	
Bromomethane	1.0 U	ug/L	1.0	0.73	1		06/26/20 14:58	74-83-9	
2-Butanone (MEK)	10.0 U	ug/L	10.0	1.5	1		06/26/20 14:58	78-93-3	
Carbon disulfide	1.0 U	ug/L	1.0	0.32	1		06/26/20 14:58	75-15-0	
Carbon tetrachloride	1.0 U	ug/L	1.0	0.44	1		06/26/20 14:58	56-23-5	
Chlorobenzene	1.0 U	ug/L	1.0	0.26	1		06/26/20 14:58	108-90-7	
Chloroethane	1.0 U	ug/L	1.0	0.64	1		06/26/20 14:58	75-00-3	
Chloroform	1.0 U	ug/L	1.0	0.39	1		06/26/20 14:58	67-66-3	
Chloromethane	1.0 U	ug/L	1.0	0.40	1		06/26/20 14:58	74-87-3	
Dibromochloromethane	1.0 U	ug/L	1.0	0.43	1		06/26/20 14:58	124-48-1	
1,1-Dichloroethane	1.0 U	ug/L	1.0	0.24	1		06/26/20 14:58	75-34-3	
1,2-Dichloroethane	1.0 U	ug/L	1.0	0.33	1		06/26/20 14:58	107-06-2	
1,2-Dichloroethene (Total)	2.0 U	ug/L	2.0	0.66	1		06/26/20 14:58	540-59-0	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.24	1		06/26/20 14:58	75-35-4	
cis-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.38	1		06/26/20 14:58	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.28	1		06/26/20 14:58	156-60-5	
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.28	1		06/26/20 14:58	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.29	1		06/26/20 14:58	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.32	1		06/26/20 14:58	10061-02-6	
Ethylbenzene	1.0 U	ug/L	1.0	0.40	1		06/26/20 14:58	100-41-4	
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.47	1		06/26/20 14:58	98-82-8	
Methylene Chloride	1.0 U	ug/L	1.0	0.64	1		06/26/20 14:58	75-09-2	
4-Methyl-2-pentanone (MIBK)	10.0 U	ug/L	10.0	0.42	1		06/26/20 14:58	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.25	1		06/26/20 14:58	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.33	1		06/26/20 14:58	100-42-5	
1,1,1,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.47	1		06/26/20 14:58	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.39	1		06/26/20 14:58	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.32	1		06/26/20 14:58	108-88-3	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.38	1		06/26/20 14:58	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.33	1		06/26/20 14:58	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.29	1		06/26/20 14:58	79-01-6	
Vinyl chloride	1.0 U	ug/L	1.0	0.29	1		06/26/20 14:58	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	1.4	1		06/26/20 14:58	1330-20-7	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	98	%	70-130		1		06/26/20 14:58	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	70-130		1		06/26/20 14:58	17060-07-0	
Toluene-d8 (S)	97	%	70-130		1		06/26/20 14:58	2037-26-5	
Dibromofluoromethane (S)	98	%	70-130		1		06/26/20 14:58	1868-53-7	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30368456

**Sample: Trip Blank (1) (SL)**      **Lab ID: 30368456002**      Collected: 06/17/20 00:01      Received: 06/17/20 22:45      Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260B MSV 5035 Low Level</b>									
Analytical Method: EPA 8260B    Preparation Method: EPA 5035A									
Pace Analytical Services - Greensburg									
Acetone	<b>0.0093J</b>	mg/kg	0.010	0.0032	1	06/27/20 11:05	06/27/20 12:09	67-64-1	1c,B
Benzene	<b>0.0050 U</b>	mg/kg	0.0050	0.00087	1	06/27/20 11:05	06/27/20 12:09	71-43-2	1c
Bromodichloromethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0011	1	06/27/20 11:05	06/27/20 12:09	75-27-4	1c
Bromoform	<b>0.0050 U</b>	mg/kg	0.0050	0.00066	1	06/27/20 11:05	06/27/20 12:09	75-25-2	1c
Bromomethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0019	1	06/27/20 11:05	06/27/20 12:09	74-83-9	1c
2-Butanone (MEK)	<b>0.010 U</b>	mg/kg	0.010	0.00091	1	06/27/20 11:05	06/27/20 12:09	78-93-3	1c
Carbon disulfide	<b>0.0050 U</b>	mg/kg	0.0050	0.0014	1	06/27/20 11:05	06/27/20 12:09	75-15-0	1c
Carbon tetrachloride	<b>0.0050 U</b>	mg/kg	0.0050	0.0017	1	06/27/20 11:05	06/27/20 12:09	56-23-5	1c
Chlorobenzene	<b>0.0050 U</b>	mg/kg	0.0050	0.00078	1	06/27/20 11:05	06/27/20 12:09	108-90-7	1c
Chloroethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0021	1	06/27/20 11:05	06/27/20 12:09	75-00-3	1c
Chloroform	<b>0.0050 U</b>	mg/kg	0.0050	0.0015	1	06/27/20 11:05	06/27/20 12:09	67-66-3	1c
Chloromethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0017	1	06/27/20 11:05	06/27/20 12:09	74-87-3	1c
Cyclohexane	<b>0.010 U</b>	mg/kg	0.010	0.0019	1	06/27/20 11:05	06/27/20 12:09	110-82-7	1c
1,2-Dibromo-3-chloropropane	<b>0.0050 U</b>	mg/kg	0.0050	0.0012	1	06/27/20 11:05	06/27/20 12:09	96-12-8	1c
Dibromochloromethane	<b>0.0050 U</b>	mg/kg	0.0050	0.00079	1	06/27/20 11:05	06/27/20 12:09	124-48-1	1c
1,2-Dibromoethane (EDB)	<b>0.0050 U</b>	mg/kg	0.0050	0.00080	1	06/27/20 11:05	06/27/20 12:09	106-93-4	1c
1,2-Dichlorobenzene	<b>0.0050 U</b>	mg/kg	0.0050	0.00059	1	06/27/20 11:05	06/27/20 12:09	95-50-1	1c
1,3-Dichlorobenzene	<b>0.0050 U</b>	mg/kg	0.0050	0.00065	1	06/27/20 11:05	06/27/20 12:09	541-73-1	1c
1,4-Dichlorobenzene	<b>0.0050 U</b>	mg/kg	0.0050	0.00071	1	06/27/20 11:05	06/27/20 12:09	106-46-7	1c
Dichlorodifluoromethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0027	1	06/27/20 11:05	06/27/20 12:09	75-71-8	1c
1,1-Dichloroethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0013	1	06/27/20 11:05	06/27/20 12:09	75-34-3	1c
1,2-Dichloroethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0013	1	06/27/20 11:05	06/27/20 12:09	107-06-2	1c
1,2-Dichloroethene (Total)	<b>0.010 U</b>	mg/kg	0.010	0.0024	1	06/27/20 11:05	06/27/20 12:09	540-59-0	
1,1-Dichloroethene	<b>0.0050 U</b>	mg/kg	0.0050	0.0019	1	06/27/20 11:05	06/27/20 12:09	75-35-4	1c
cis-1,2-Dichloroethene	<b>0.0050 U</b>	mg/kg	0.0050	0.0012	1	06/27/20 11:05	06/27/20 12:09	156-59-2	1c
trans-1,2-Dichloroethene	<b>0.0050 U</b>	mg/kg	0.0050	0.0013	1	06/27/20 11:05	06/27/20 12:09	156-60-5	1c
1,2-Dichloropropane	<b>0.0050 U</b>	mg/kg	0.0050	0.00072	1	06/27/20 11:05	06/27/20 12:09	78-87-5	1c
cis-1,3-Dichloropropene	<b>0.0050 U</b>	mg/kg	0.0050	0.00050	1	06/27/20 11:05	06/27/20 12:09	10061-01-5	1c
trans-1,3-Dichloropropene	<b>0.0050 U</b>	mg/kg	0.0050	0.0010	1	06/27/20 11:05	06/27/20 12:09	10061-02-6	1c
1,4-Dioxane (p-Dioxane)	<b>0.10 U</b>	mg/kg	0.10	0.041	1	06/27/20 11:05	06/27/20 12:09	123-91-1	1c,2c
Ethylbenzene	<b>0.0050 U</b>	mg/kg	0.0050	0.0011	1	06/27/20 11:05	06/27/20 12:09	100-41-4	1c
2-Hexanone	<b>0.010 U</b>	mg/kg	0.010	0.00098	1	06/27/20 11:05	06/27/20 12:09	591-78-6	1c
Isopropylbenzene (Cumene)	<b>0.0050 U</b>	mg/kg	0.0050	0.0012	1	06/27/20 11:05	06/27/20 12:09	98-82-8	1c
Methyl acetate	<b>0.050 U</b>	mg/kg	0.050	0.0011	1	06/27/20 11:05	06/27/20 12:09	79-20-9	1c
Methylene Chloride	<b>0.0050 U</b>	mg/kg	0.0050	0.0042	1	06/27/20 11:05	06/27/20 12:09	75-09-2	1c
4-Methyl-2-pentanone (MIBK)	<b>0.010 U</b>	mg/kg	0.010	0.0011	1	06/27/20 11:05	06/27/20 12:09	108-10-1	1c
Methyl-tert-butyl ether	<b>0.0050 U</b>	mg/kg	0.0050	0.00067	1	06/27/20 11:05	06/27/20 12:09	1634-04-4	1c
Styrene	<b>0.0050 U</b>	mg/kg	0.0050	0.0014	1	06/27/20 11:05	06/27/20 12:09	100-42-5	1c
1,1,1,2-Tetrachloroethane	<b>0.0050 U</b>	mg/kg	0.0050	0.00059	1	06/27/20 11:05	06/27/20 12:09	79-34-5	1c
Tetrachloroethene	<b>0.0050 U</b>	mg/kg	0.0050	0.0017	1	06/27/20 11:05	06/27/20 12:09	127-18-4	1c
Toluene	<b>0.0050 U</b>	mg/kg	0.0050	0.00099	1	06/27/20 11:05	06/27/20 12:09	108-88-3	1c
1,2,3-Trichlorobenzene	<b>0.0050 U</b>	mg/kg	0.0050	0.00095	1	06/27/20 11:05	06/27/20 12:09	87-61-6	1c
1,2,4-Trichlorobenzene	<b>0.0050 U</b>	mg/kg	0.0050	0.0013	1	06/27/20 11:05	06/27/20 12:09	120-82-1	1c
1,1,1-Trichloroethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0015	1	06/27/20 11:05	06/27/20 12:09	71-55-6	1c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30368456

**Sample: Trip Blank (1) (SL)**      **Lab ID: 30368456002**      Collected: 06/17/20 00:01      Received: 06/17/20 22:45      Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260B MSV 5035 Low Level</b>									
Analytical Method: EPA 8260B    Preparation Method: EPA 5035A									
Pace Analytical Services - Greensburg									
1,1,2-Trichloroethane	<b>0.0050 U</b>	mg/kg	0.0050	0.00099	1	06/27/20 11:05	06/27/20 12:09	79-00-5	1c
Trichloroethene	<b>0.0050 U</b>	mg/kg	0.0050	0.0015	1	06/27/20 11:05	06/27/20 12:09	79-01-6	1c
Trichlorofluoromethane	<b>0.0050 U</b>	mg/kg	0.0050	0.0022	1	06/27/20 11:05	06/27/20 12:09	75-69-4	1c
1,1,2-Trichlorotrifluoroethane	<b>0.050 U</b>	mg/kg	0.050	0.0022	1	06/27/20 11:05	06/27/20 12:09	76-13-1	1c
Vinyl chloride	<b>0.0050 U</b>	mg/kg	0.0050	0.0022	1	06/27/20 11:05	06/27/20 12:09	75-01-4	1c
Xylene (Total)	<b>0.015 U</b>	mg/kg	0.015	0.0032	1	06/27/20 11:05	06/27/20 12:09	1330-20-7	
<b>Surrogates</b>									
Toluene-d8 (S)	100	%	70-130		1	06/27/20 11:05	06/27/20 12:09	2037-26-5	
4-Bromofluorobenzene (S)	101	%	70-130		1	06/27/20 11:05	06/27/20 12:09	460-00-4	
1,2-Dichloroethane-d4 (S)	86	%	70-130		1	06/27/20 11:05	06/27/20 12:09	17060-07-0	
Dibromofluoromethane (S)	97	%	70-130		1	06/27/20 11:05	06/27/20 12:09	1868-53-7	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30368456

Sample: RW21-MWS      Lab ID: 30368456003      Collected: 06/17/20 09:45      Received: 06/17/20 22:45      Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	322	ug/L	3.0	0.34	1	06/19/20 16:01	06/23/20 09:32	7440-43-9	
Zinc, Dissolved	268000	ug/L	1000	238	100	06/19/20 16:01	06/23/20 10:13	7440-66-6	3c,M6
<b>8270D MSSV PAH by SIM</b>									
Analytical Method: EPA 8270D by SIM    Preparation Method: EPA 3510C Pace Analytical Services - Greensburg									
Acenaphthene	0.24	ug/L	0.10	0.029	1	06/22/20 11:37	06/23/20 16:40	83-32-9	1c
Acenaphthylene	0.52	ug/L	0.10	0.034	1	06/22/20 11:37	06/23/20 16:40	208-96-8	1c
Anthracene	0.36	ug/L	0.10	0.028	1	06/22/20 11:37	06/23/20 16:40	120-12-7	1c
Benzo(a)anthracene	0.17	ug/L	0.10	0.039	1	06/22/20 11:37	06/23/20 16:40	56-55-3	1c
Benzo(a)pyrene	0.091J	ug/L	0.10	0.012	1	06/22/20 11:37	06/23/20 16:40	50-32-8	1c
Benzo(b)fluoranthene	0.12	ug/L	0.10	0.027	1	06/22/20 11:37	06/23/20 16:40	205-99-2	1c
Benzo(g,h,i)perylene	0.043J	ug/L	0.10	0.036	1	06/22/20 11:37	06/23/20 16:40	191-24-2	1c
Benzo(k)fluoranthene	0.048J	ug/L	0.10	0.023	1	06/22/20 11:37	06/23/20 16:40	207-08-9	1c
Chrysene	0.13	ug/L	0.10	0.040	1	06/22/20 11:37	06/23/20 16:40	218-01-9	1c
Dibenz(a,h)anthracene	0.10 U	ug/L	0.10	0.028	1	06/22/20 11:37	06/23/20 16:40	53-70-3	1c
1,4-Dioxane (p-Dioxane)	1.6	ug/L	0.10	0.082	1	06/22/20 11:37	06/23/20 11:44	123-91-1	1c
Fluoranthene	0.89	ug/L	0.10	0.032	1	06/22/20 11:37	06/23/20 16:40	206-44-0	1c
Fluorene	0.14	ug/L	0.10	0.031	1	06/22/20 11:37	06/23/20 16:40	86-73-7	1c
Indeno(1,2,3-cd)pyrene	0.040J	ug/L	0.10	0.030	1	06/22/20 11:37	06/23/20 16:40	193-39-5	1c
2-Methylnaphthalene	1.4	ug/L	0.10	0.028	1	06/22/20 11:37	06/23/20 16:40	91-57-6	1c
Naphthalene	138	ug/L	1.0	0.38	10	06/22/20 11:37	06/24/20 12:30	91-20-3	1c
Phenanthrene	1.6	ug/L	0.10	0.044	1	06/22/20 11:37	06/23/20 16:40	85-01-8	1c
Pyrene	0.57	ug/L	0.10	0.036	1	06/22/20 11:37	06/23/20 16:40	129-00-0	1c
<b>Surrogates</b>									
2-Fluorobiphenyl (S)	32	%	19-92		1	06/22/20 11:37	06/23/20 16:40	321-60-8	
Terphenyl-d14 (S)	62	%	55-109		1	06/22/20 11:37	06/23/20 16:40	1718-51-0	
<b>8270D MSSV Organics</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3510C Pace Analytical Services - Greensburg									
Acenaphthene	1.0 U	ug/L	1.0	0.39	1	06/22/20 11:37	06/24/20 16:50	83-32-9	1c
Acenaphthylene	0.46J	ug/L	1.0	0.39	1	06/22/20 11:37	06/24/20 16:50	208-96-8	1c
Acetophenone	1.0 U	ug/L	1.0	0.43	1	06/22/20 11:37	06/24/20 16:50	98-86-2	1c
Anthracene	0.32J	ug/L	1.0	0.27	1	06/22/20 11:37	06/24/20 16:50	120-12-7	1c,L1
Benzaldehyde	1.0 U	ug/L	1.0	0.44	1	06/22/20 11:37	06/24/20 16:50	100-52-7	1c
Benzo(a)anthracene	1.0 U	ug/L	1.0	0.21	1	06/22/20 11:37	06/24/20 16:50	56-55-3	1c
Benzo(a)pyrene	1.0 U	ug/L	1.0	0.19	1	06/22/20 11:37	06/24/20 16:50	50-32-8	1c
Benzo(b)fluoranthene	1.0 U	ug/L	1.0	0.24	1	06/22/20 11:37	06/24/20 16:50	205-99-2	1c
Benzo(g,h,i)perylene	1.0 U	ug/L	1.0	0.30	1	06/22/20 11:37	06/24/20 16:50	191-24-2	1c
Benzo(k)fluoranthene	1.0 U	ug/L	1.0	0.26	1	06/22/20 11:37	06/24/20 16:50	207-08-9	1c
Biphenyl (Diphenyl)	1.0 U	ug/L	1.0	0.32	1	06/22/20 11:37	06/24/20 16:50	92-52-4	1c
Caprolactam	2.5 U	ug/L	2.5	0.32	1	06/22/20 11:37	06/24/20 16:50	105-60-2	1c,L1
Carbazole	1.6	ug/L	1.0	0.24	1	06/22/20 11:37	06/24/20 16:50	86-74-8	1c
4-Chloroaniline	1.0 U	ug/L	1.0	0.22	1	06/22/20 11:37	06/24/20 16:50	106-47-8	1c
bis(2-Chloroethoxy)methane	1.0 U	ug/L	1.0	0.36	1	06/22/20 11:37	06/24/20 16:50	111-91-1	1c
bis(2-Chloroethyl) ether	1.0 U	ug/L	1.0	0.41	1	06/22/20 11:37	06/24/20 16:50	111-44-4	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30368456

**Sample: RW21-MWS**      **Lab ID: 30368456003**      Collected: 06/17/20 09:45      Received: 06/17/20 22:45      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270D MSSV Organics</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3510C									
Pace Analytical Services - Greensburg									
bis(2-Chloroisopropyl) ether	1.0 U	ug/L	1.0	0.41	1	06/22/20 11:37	06/24/20 16:50	108-60-1	1c
2-Chloronaphthalene	1.0 U	ug/L	1.0	0.34	1	06/22/20 11:37	06/24/20 16:50	91-58-7	1c
2-Chlorophenol	1.0 U	ug/L	1.0	0.33	1	06/22/20 11:37	06/24/20 16:50	95-57-8	1c
Chrysene	1.0 U	ug/L	1.0	0.21	1	06/22/20 11:37	06/24/20 16:50	218-01-9	1c
Dibenz(a,h)anthracene	1.0 U	ug/L	1.0	0.32	1	06/22/20 11:37	06/24/20 16:50	53-70-3	1c
3,3'-Dichlorobenzidine	1.0 U	ug/L	1.0	0.23	1	06/22/20 11:37	06/24/20 16:50	91-94-1	1c
2,4-Dichlorophenol	1.0 U	ug/L	1.0	0.34	1	06/22/20 11:37	06/24/20 16:50	120-83-2	1c,L1
Diethylphthalate	1.0 U	ug/L	1.0	0.37	1	06/22/20 11:37	06/24/20 16:50	84-66-2	1c
2,4-Dimethylphenol	6.3	ug/L	1.0	0.36	1	06/22/20 11:37	06/24/20 16:50	105-67-9	1c,L1
Di-n-butylphthalate	1.0 U	ug/L	1.0	0.32	1	06/22/20 11:37	06/24/20 16:50	84-74-2	1c
2,4-Dinitrophenol	0.96J	ug/L	2.5	0.59	1	06/22/20 11:37	06/24/20 16:50	51-28-5	1c,L1
2,4-Dinitrotoluene	1.0 U	ug/L	1.0	0.36	1	06/22/20 11:37	06/24/20 16:50	121-14-2	1c,L1
2,6-Dinitrotoluene	1.0 U	ug/L	1.0	0.41	1	06/22/20 11:37	06/24/20 16:50	606-20-2	1c
Di-n-octylphthalate	0.61J	ug/L	1.0	0.27	1	06/22/20 11:37	06/24/20 16:50	117-84-0	1c
bis(2-Ethylhexyl)phthalate	1.0 U	ug/L	1.0	0.36	1	06/22/20 11:37	06/24/20 16:50	117-81-7	1c
Fluoranthene	0.79J	ug/L	1.0	0.24	1	06/22/20 11:37	06/24/20 16:50	206-44-0	1c
Fluorene	1.0 U	ug/L	1.0	0.37	1	06/22/20 11:37	06/24/20 16:50	86-73-7	1c
Hexachloro-1,3-butadiene	1.0 U	ug/L	1.0	0.33	1	06/22/20 11:37	06/24/20 16:50	87-68-3	1c
Hexachlorobenzene	1.0 U	ug/L	1.0	0.31	1	06/22/20 11:37	06/24/20 16:50	118-74-1	1c
Hexachlorocyclopentadiene	1.0 U	ug/L	1.0	0.19	1	06/22/20 11:37	06/24/20 16:50	77-47-4	1c
Hexachloroethane	1.0 U	ug/L	1.0	0.31	1	06/22/20 11:37	06/24/20 16:50	67-72-1	1c
Indeno(1,2,3-cd)pyrene	1.0 U	ug/L	1.0	0.31	1	06/22/20 11:37	06/24/20 16:50	193-39-5	1c
Isophorone	1.0 U	ug/L	1.0	0.58	1	06/22/20 11:37	06/24/20 16:50	78-59-1	1c
2-Methylnaphthalene	1.1	ug/L	1.0	0.35	1	06/22/20 11:37	06/24/20 16:50	91-57-6	1c
2-Methylphenol(o-Cresol)	1.0 U	ug/L	1.0	0.37	1	06/22/20 11:37	06/24/20 16:50	95-48-7	1c
3&4-Methylphenol(m&p Cresol)	2.0 U	ug/L	2.0	1.9	1	06/22/20 11:37	06/24/20 16:50		1c
Naphthalene	134	ug/L	10.1	3.5	10	06/22/20 11:37	06/25/20 15:10	91-20-3	1c
2-Nitroaniline	2.5 U	ug/L	2.5	0.72	1	06/22/20 11:37	06/24/20 16:50	88-74-4	1c,L1
4-Nitroaniline	2.5 U	ug/L	2.5	1.9	1	06/22/20 11:37	06/24/20 16:50	100-01-6	1c
Nitrobenzene	1.0 U	ug/L	1.0	0.38	1	06/22/20 11:37	06/24/20 16:50	98-95-3	1c
N-Nitroso-di-n-propylamine	1.0 U	ug/L	1.0	0.54	1	06/22/20 11:37	06/24/20 16:50	621-64-7	1c
N-Nitrosodiphenylamine	1.0 U	ug/L	1.0	0.26	1	06/22/20 11:37	06/24/20 16:50	86-30-6	1c,L1
Pentachlorophenol	2.5 U	ug/L	2.5	1.1	1	06/22/20 11:37	06/24/20 16:50	87-86-5	1c,L1
Phenanthrene	1.3	ug/L	1.0	0.34	1	06/22/20 11:37	06/24/20 16:50	85-01-8	1c
Phenol	1.0 U	ug/L	1.0	0.23	1	06/22/20 11:37	06/24/20 16:50	108-95-2	1c
Pyrene	0.54J	ug/L	1.0	0.30	1	06/22/20 11:37	06/24/20 16:50	129-00-0	1c
1,2,4,5-Tetrachlorobenzene	1.0 U	ug/L	1.0	0.32	1	06/22/20 11:37	06/24/20 16:50	95-94-3	1c
2,3,4,6-Tetrachlorophenol	1.0 U	ug/L	1.0	0.28	1	06/22/20 11:37	06/24/20 16:50	58-90-2	1c,L1
2,4,5-Trichlorophenol	2.5 U	ug/L	2.5	0.68	1	06/22/20 11:37	06/24/20 16:50	95-95-4	1c,L1
2,4,6-Trichlorophenol	1.0 U	ug/L	1.0	0.37	1	06/22/20 11:37	06/24/20 16:50	88-06-2	1c
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	26	%	10-140		1	06/22/20 11:37	06/24/20 16:50	4165-60-0	
2-Fluorobiphenyl (S)	26	%	10-135		1	06/22/20 11:37	06/24/20 16:50	321-60-8	
Terphenyl-d14 (S)	53	%	10-128		1	06/22/20 11:37	06/24/20 16:50	1718-51-0	
Phenol-d6 (S)	15	%	10-145		1	06/22/20 11:37	06/24/20 16:50	13127-88-3	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30368456

**Sample: RW21-MWS**      **Lab ID: 30368456003**      Collected: 06/17/20 09:45      Received: 06/17/20 22:45      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270D MSSV Organics</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3510C									
Pace Analytical Services - Greensburg									
<b>Surrogates</b>									
2-Fluorophenol (S)	20	%	10-142		1	06/22/20 11:37	06/24/20 16:50	367-12-4	
2,4,6-Tribromophenol (S)	52	%	10-140		1	06/22/20 11:37	06/24/20 16:50	118-79-6	
<b>8260B MSV</b>									
Analytical Method: EPA 8260B									
Pace Analytical Services - Greensburg									
Acetone	<b>10.0 U</b>	ug/L	10.0	5.6	1		06/26/20 17:52	67-64-1	
Benzene	<b>66.5</b>	ug/L	1.0	0.34	1		06/26/20 17:52	71-43-2	
Bromodichloromethane	<b>1.0 U</b>	ug/L	1.0	0.35	1		06/26/20 17:52	75-27-4	
Bromoform	<b>1.0 U</b>	ug/L	1.0	0.56	1		06/26/20 17:52	75-25-2	
Bromomethane	<b>1.0 U</b>	ug/L	1.0	0.73	1		06/26/20 17:52	74-83-9	
2-Butanone (MEK)	<b>10.0 U</b>	ug/L	10.0	1.5	1		06/26/20 17:52	78-93-3	
Carbon disulfide	<b>1.0 U</b>	ug/L	1.0	0.32	1		06/26/20 17:52	75-15-0	
Carbon tetrachloride	<b>1.0 U</b>	ug/L	1.0	0.44	1		06/26/20 17:52	56-23-5	
Chlorobenzene	<b>1.0 U</b>	ug/L	1.0	0.26	1		06/26/20 17:52	108-90-7	
Chloroethane	<b>1.0 U</b>	ug/L	1.0	0.64	1		06/26/20 17:52	75-00-3	
Chloroform	<b>1.0 U</b>	ug/L	1.0	0.39	1		06/26/20 17:52	67-66-3	
Chloromethane	<b>1.0 U</b>	ug/L	1.0	0.40	1		06/26/20 17:52	74-87-3	
Dibromochloromethane	<b>1.0 U</b>	ug/L	1.0	0.43	1		06/26/20 17:52	124-48-1	
1,1-Dichloroethane	<b>1.0 U</b>	ug/L	1.0	0.24	1		06/26/20 17:52	75-34-3	
1,2-Dichloroethane	<b>1.0 U</b>	ug/L	1.0	0.33	1		06/26/20 17:52	107-06-2	
1,2-Dichloroethene (Total)	<b>2.0 U</b>	ug/L	2.0	0.66	1		06/26/20 17:52	540-59-0	
1,1-Dichloroethene	<b>1.0 U</b>	ug/L	1.0	0.24	1		06/26/20 17:52	75-35-4	
cis-1,2-Dichloroethene	<b>1.0 U</b>	ug/L	1.0	0.38	1		06/26/20 17:52	156-59-2	
trans-1,2-Dichloroethene	<b>1.0 U</b>	ug/L	1.0	0.28	1		06/26/20 17:52	156-60-5	
1,2-Dichloropropane	<b>1.0 U</b>	ug/L	1.0	0.28	1		06/26/20 17:52	78-87-5	
cis-1,3-Dichloropropene	<b>1.0 U</b>	ug/L	1.0	0.29	1		06/26/20 17:52	10061-01-5	
trans-1,3-Dichloropropene	<b>1.0 U</b>	ug/L	1.0	0.32	1		06/26/20 17:52	10061-02-6	
Ethylbenzene	<b>3.3</b>	ug/L	1.0	0.40	1		06/26/20 17:52	100-41-4	
Isopropylbenzene (Cumene)	<b>1.0 U</b>	ug/L	1.0	0.47	1		06/26/20 17:52	98-82-8	
Methylene Chloride	<b>1.0 U</b>	ug/L	1.0	0.64	1		06/26/20 17:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	<b>10.0 U</b>	ug/L	10.0	0.42	1		06/26/20 17:52	108-10-1	
Methyl-tert-butyl ether	<b>1.0 U</b>	ug/L	1.0	0.25	1		06/26/20 17:52	1634-04-4	
Styrene	<b>2.4</b>	ug/L	1.0	0.33	1		06/26/20 17:52	100-42-5	
1,1,1,2-Tetrachloroethane	<b>1.0 U</b>	ug/L	1.0	0.47	1		06/26/20 17:52	79-34-5	
Tetrachloroethene	<b>1.0 U</b>	ug/L	1.0	0.39	1		06/26/20 17:52	127-18-4	
Toluene	<b>4.4</b>	ug/L	1.0	0.32	1		06/26/20 17:52	108-88-3	
1,1,1-Trichloroethane	<b>1.0 U</b>	ug/L	1.0	0.38	1		06/26/20 17:52	71-55-6	
1,1,2-Trichloroethane	<b>1.0 U</b>	ug/L	1.0	0.33	1		06/26/20 17:52	79-00-5	
Trichloroethene	<b>1.0 U</b>	ug/L	1.0	0.29	1		06/26/20 17:52	79-01-6	
Vinyl chloride	<b>1.0 U</b>	ug/L	1.0	0.29	1		06/26/20 17:52	75-01-4	
Xylene (Total)	<b>21.3</b>	ug/L	3.0	1.4	1		06/26/20 17:52	1330-20-7	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	95	%	70-130		1		06/26/20 17:52	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130		1		06/26/20 17:52	17060-07-0	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30368456

---

**Sample: RW21-MWS**      **Lab ID: 30368456003**      Collected: 06/17/20 09:45      Received: 06/17/20 22:45      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
------------	---------	-------	-----------------	-----	----	----------	----------	---------	------

**8260B MSV**      Analytical Method: EPA 8260B  
Pace Analytical Services - Greensburg

**Surrogates**

Toluene-d8 (S)	93	%	70-130		1		06/26/20 17:52	2037-26-5	
Dibromofluoromethane (S)	96	%	70-130		1		06/26/20 17:52	1868-53-7	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30368456

**Sample: RW21-MWI**      **Lab ID: 30368456004**      Collected: 06/17/20 10:30      Received: 06/17/20 22:45      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270D MSSV PAH by SIM</b>									
Analytical Method: EPA 8270D by SIM					Preparation Method: EPA 3510C				
Pace Analytical Services - Greensburg									
Acenaphthene	0.34	ug/L	0.099	0.029	1	06/22/20 11:37	06/23/20 16:59	83-32-9	1c
Acenaphthylene	0.35	ug/L	0.099	0.033	1	06/22/20 11:37	06/23/20 16:59	208-96-8	1c
Anthracene	0.28	ug/L	0.099	0.027	1	06/22/20 11:37	06/23/20 16:59	120-12-7	1c
Benzo(a)anthracene	0.054J	ug/L	0.099	0.038	1	06/22/20 11:37	06/23/20 16:59	56-55-3	1c
Benzo(a)pyrene	0.099 U	ug/L	0.099	0.012	1	06/22/20 11:37	06/23/20 16:59	50-32-8	1c
Benzo(b)fluoranthene	0.099 U	ug/L	0.099	0.027	1	06/22/20 11:37	06/23/20 16:59	205-99-2	1c
Benzo(g,h,i)perylene	0.099 U	ug/L	0.099	0.035	1	06/22/20 11:37	06/23/20 16:59	191-24-2	1c
Benzo(k)fluoranthene	0.099 U	ug/L	0.099	0.023	1	06/22/20 11:37	06/23/20 16:59	207-08-9	1c
Chrysene	0.099 U	ug/L	0.099	0.040	1	06/22/20 11:37	06/23/20 16:59	218-01-9	1c
Dibenz(a,h)anthracene	0.099 U	ug/L	0.099	0.027	1	06/22/20 11:37	06/23/20 16:59	53-70-3	1c
1,4-Dioxane (p-Dioxane)	0.099 U	ug/L	0.099	0.080	1	06/22/20 11:37	06/23/20 12:08	123-91-1	1c
Fluoranthene	0.50	ug/L	0.099	0.032	1	06/22/20 11:37	06/23/20 16:59	206-44-0	1c
Fluorene	0.78	ug/L	0.099	0.031	1	06/22/20 11:37	06/23/20 16:59	86-73-7	1c
Indeno(1,2,3-cd)pyrene	0.099 U	ug/L	0.099	0.030	1	06/22/20 11:37	06/23/20 16:59	193-39-5	1c
2-Methylnaphthalene	0.057J	ug/L	0.099	0.027	1	06/22/20 11:37	06/23/20 16:59	91-57-6	1c
Naphthalene	0.12	ug/L	0.099	0.038	1	06/22/20 11:37	06/23/20 16:59	91-20-3	1c
Phenanthrene	1.2	ug/L	0.099	0.043	1	06/22/20 11:37	06/23/20 16:59	85-01-8	1c
Pyrene	0.32	ug/L	0.099	0.036	1	06/22/20 11:37	06/23/20 16:59	129-00-0	1c
<b>Surrogates</b>									
2-Fluorobiphenyl (S)	37	%	19-92		1	06/22/20 11:37	06/23/20 16:59	321-60-8	
Terphenyl-d14 (S)	57	%	55-109		1	06/22/20 11:37	06/23/20 16:59	1718-51-0	
<b>8270D MSSV Organics</b>									
Analytical Method: EPA 8270D					Preparation Method: EPA 3510C				
Pace Analytical Services - Greensburg									
Acenaphthene	0.99 U	ug/L	0.99	0.39	1	06/22/20 11:37	06/24/20 17:36	83-32-9	1c
Acenaphthylene	0.99 U	ug/L	0.99	0.38	1	06/22/20 11:37	06/24/20 17:36	208-96-8	1c
Acetophenone	0.99 U	ug/L	0.99	0.42	1	06/22/20 11:37	06/24/20 17:36	98-86-2	1c
Anthracene	0.99 U	ug/L	0.99	0.26	1	06/22/20 11:37	06/24/20 17:36	120-12-7	1c, L1
Benzaldehyde	0.99 U	ug/L	0.99	0.43	1	06/22/20 11:37	06/24/20 17:36	100-52-7	1c
Benzo(a)anthracene	0.99 U	ug/L	0.99	0.20	1	06/22/20 11:37	06/24/20 17:36	56-55-3	1c
Benzo(a)pyrene	0.99 U	ug/L	0.99	0.18	1	06/22/20 11:37	06/24/20 17:36	50-32-8	1c
Benzo(b)fluoranthene	0.99 U	ug/L	0.99	0.23	1	06/22/20 11:37	06/24/20 17:36	205-99-2	1c
Benzo(g,h,i)perylene	0.99 U	ug/L	0.99	0.29	1	06/22/20 11:37	06/24/20 17:36	191-24-2	1c
Benzo(k)fluoranthene	0.99 U	ug/L	0.99	0.25	1	06/22/20 11:37	06/24/20 17:36	207-08-9	1c
Biphenyl (Diphenyl)	0.99 U	ug/L	0.99	0.32	1	06/22/20 11:37	06/24/20 17:36	92-52-4	1c
Caprolactam	2.5 U	ug/L	2.5	0.31	1	06/22/20 11:37	06/24/20 17:36	105-60-2	1c, L1
Carbazole	0.72J	ug/L	0.99	0.23	1	06/22/20 11:37	06/24/20 17:36	86-74-8	1c
4-Chloroaniline	0.99 U	ug/L	0.99	0.21	1	06/22/20 11:37	06/24/20 17:36	106-47-8	1c
bis(2-Chloroethoxy)methane	0.99 U	ug/L	0.99	0.35	1	06/22/20 11:37	06/24/20 17:36	111-91-1	1c
bis(2-Chloroethyl) ether	0.99 U	ug/L	0.99	0.41	1	06/22/20 11:37	06/24/20 17:36	111-44-4	1c
bis(2-Chloroisopropyl) ether	0.99 U	ug/L	0.99	0.40	1	06/22/20 11:37	06/24/20 17:36	108-60-1	1c
2-Chloronaphthalene	0.99 U	ug/L	0.99	0.33	1	06/22/20 11:37	06/24/20 17:36	91-58-7	1c
2-Chlorophenol	0.99 U	ug/L	0.99	0.32	1	06/22/20 11:37	06/24/20 17:36	95-57-8	1c
Chrysene	0.99 U	ug/L	0.99	0.20	1	06/22/20 11:37	06/24/20 17:36	218-01-9	1c
Dibenz(a,h)anthracene	0.99 U	ug/L	0.99	0.31	1	06/22/20 11:37	06/24/20 17:36	53-70-3	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30368456

**Sample: RW21-MWI**      **Lab ID: 30368456004**      Collected: 06/17/20 10:30      Received: 06/17/20 22:45      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270D MSSV Organics</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3510C									
Pace Analytical Services - Greensburg									
3,3'-Dichlorobenzidine	<b>0.99 U</b>	ug/L	0.99	0.22	1	06/22/20 11:37	06/24/20 17:36	91-94-1	1c
2,4-Dichlorophenol	<b>0.99 U</b>	ug/L	0.99	0.33	1	06/22/20 11:37	06/24/20 17:36	120-83-2	1c,L1
Diethylphthalate	<b>0.99 U</b>	ug/L	0.99	0.36	1	06/22/20 11:37	06/24/20 17:36	84-66-2	1c
2,4-Dimethylphenol	<b>0.49J</b>	ug/L	0.99	0.36	1	06/22/20 11:37	06/24/20 17:36	105-67-9	1c,L1
Di-n-butylphthalate	<b>1.1</b>	ug/L	0.99	0.32	1	06/22/20 11:37	06/24/20 17:36	84-74-2	1c,B
2,4-Dinitrophenol	<b>0.94J</b>	ug/L	2.5	0.58	1	06/22/20 11:37	06/24/20 17:36	51-28-5	1c,L1
2,4-Dinitrotoluene	<b>0.99 U</b>	ug/L	0.99	0.35	1	06/22/20 11:37	06/24/20 17:36	121-14-2	1c,L1
2,6-Dinitrotoluene	<b>0.99 U</b>	ug/L	0.99	0.40	1	06/22/20 11:37	06/24/20 17:36	606-20-2	1c
Di-n-octylphthalate	<b>0.60J</b>	ug/L	0.99	0.27	1	06/22/20 11:37	06/24/20 17:36	117-84-0	1c
bis(2-Ethylhexyl)phthalate	<b>0.44J</b>	ug/L	0.99	0.36	1	06/22/20 11:37	06/24/20 17:36	117-81-7	1c
Fluoranthene	<b>0.45J</b>	ug/L	0.99	0.23	1	06/22/20 11:37	06/24/20 17:36	206-44-0	1c
Fluorene	<b>0.62J</b>	ug/L	0.99	0.37	1	06/22/20 11:37	06/24/20 17:36	86-73-7	1c
Hexachloro-1,3-butadiene	<b>0.99 U</b>	ug/L	0.99	0.33	1	06/22/20 11:37	06/24/20 17:36	87-68-3	1c
Hexachlorobenzene	<b>0.99 U</b>	ug/L	0.99	0.30	1	06/22/20 11:37	06/24/20 17:36	118-74-1	1c
Hexachlorocyclopentadiene	<b>0.99 U</b>	ug/L	0.99	0.19	1	06/22/20 11:37	06/24/20 17:36	77-47-4	1c
Hexachloroethane	<b>0.99 U</b>	ug/L	0.99	0.30	1	06/22/20 11:37	06/24/20 17:36	67-72-1	1c
Indeno(1,2,3-cd)pyrene	<b>0.99 U</b>	ug/L	0.99	0.30	1	06/22/20 11:37	06/24/20 17:36	193-39-5	1c
Isophorone	<b>0.99 U</b>	ug/L	0.99	0.57	1	06/22/20 11:37	06/24/20 17:36	78-59-1	1c
2-Methylnaphthalene	<b>0.99 U</b>	ug/L	0.99	0.34	1	06/22/20 11:37	06/24/20 17:36	91-57-6	1c
2-Methylphenol(o-Cresol)	<b>0.45J</b>	ug/L	0.99	0.36	1	06/22/20 11:37	06/24/20 17:36	95-48-7	1c
3&4-Methylphenol(m&p Cresol)	<b>2.0 U</b>	ug/L	2.0	1.9	1	06/22/20 11:37	06/24/20 17:36		1c
Naphthalene	<b>0.99 U</b>	ug/L	0.99	0.35	1	06/22/20 11:37	06/24/20 17:36	91-20-3	1c
2-Nitroaniline	<b>2.5 U</b>	ug/L	2.5	0.71	1	06/22/20 11:37	06/24/20 17:36	88-74-4	1c,L1
4-Nitroaniline	<b>2.5 U</b>	ug/L	2.5	1.8	1	06/22/20 11:37	06/24/20 17:36	100-01-6	1c
Nitrobenzene	<b>0.99 U</b>	ug/L	0.99	0.37	1	06/22/20 11:37	06/24/20 17:36	98-95-3	1c
N-Nitroso-di-n-propylamine	<b>0.99 U</b>	ug/L	0.99	0.53	1	06/22/20 11:37	06/24/20 17:36	621-64-7	1c
N-Nitrosodiphenylamine	<b>0.99 U</b>	ug/L	0.99	0.25	1	06/22/20 11:37	06/24/20 17:36	86-30-6	1c,L1
Pentachlorophenol	<b>2.5 U</b>	ug/L	2.5	1.0	1	06/22/20 11:37	06/24/20 17:36	87-86-5	1c,L1
Phenanthrene	<b>0.96J</b>	ug/L	0.99	0.34	1	06/22/20 11:37	06/24/20 17:36	85-01-8	1c
Phenol	<b>0.99 U</b>	ug/L	0.99	0.22	1	06/22/20 11:37	06/24/20 17:36	108-95-2	1c
Pyrene	<b>0.31J</b>	ug/L	0.99	0.30	1	06/22/20 11:37	06/24/20 17:36	129-00-0	1c
1,2,4,5-Tetrachlorobenzene	<b>0.99 U</b>	ug/L	0.99	0.31	1	06/22/20 11:37	06/24/20 17:36	95-94-3	1c
2,3,4,6-Tetrachlorophenol	<b>0.99 U</b>	ug/L	0.99	0.28	1	06/22/20 11:37	06/24/20 17:36	58-90-2	1c,L1
2,4,5-Trichlorophenol	<b>2.5 U</b>	ug/L	2.5	0.66	1	06/22/20 11:37	06/24/20 17:36	95-95-4	1c,L1
2,4,6-Trichlorophenol	<b>0.99 U</b>	ug/L	0.99	0.36	1	06/22/20 11:37	06/24/20 17:36	88-06-2	1c
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	34	%	10-140		1	06/22/20 11:37	06/24/20 17:36	4165-60-0	
2-Fluorobiphenyl (S)	31	%	10-135		1	06/22/20 11:37	06/24/20 17:36	321-60-8	
Terphenyl-d14 (S)	48	%	10-128		1	06/22/20 11:37	06/24/20 17:36	1718-51-0	
Phenol-d6 (S)	16	%	10-145		1	06/22/20 11:37	06/24/20 17:36	13127-88-3	
2-Fluorophenol (S)	22	%	10-142		1	06/22/20 11:37	06/24/20 17:36	367-12-4	
2,4,6-Tribromophenol (S)	47	%	10-140		1	06/22/20 11:37	06/24/20 17:36	118-79-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30368456

**Sample: RW21-MWI**      **Lab ID: 30368456004**      Collected: 06/17/20 10:30      Received: 06/17/20 22:45      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8260B MSV</b>									
Analytical Method: EPA 8260B									
Pace Analytical Services - Greensburg									
Acetone	10.0 U	ug/L	10.0	5.6	1		06/26/20 18:17	67-64-1	
Benzene	1.5	ug/L	1.0	0.34	1		06/26/20 18:17	71-43-2	
Bromodichloromethane	1.0 U	ug/L	1.0	0.35	1		06/26/20 18:17	75-27-4	
Bromoform	1.0 U	ug/L	1.0	0.56	1		06/26/20 18:17	75-25-2	
Bromomethane	1.0 U	ug/L	1.0	0.73	1		06/26/20 18:17	74-83-9	
2-Butanone (MEK)	10.0 U	ug/L	10.0	1.5	1		06/26/20 18:17	78-93-3	
Carbon disulfide	1.0 U	ug/L	1.0	0.32	1		06/26/20 18:17	75-15-0	
Carbon tetrachloride	1.0 U	ug/L	1.0	0.44	1		06/26/20 18:17	56-23-5	
Chlorobenzene	1.0 U	ug/L	1.0	0.26	1		06/26/20 18:17	108-90-7	
Chloroethane	1.0 U	ug/L	1.0	0.64	1		06/26/20 18:17	75-00-3	
Chloroform	1.0 U	ug/L	1.0	0.39	1		06/26/20 18:17	67-66-3	
Chloromethane	1.0 U	ug/L	1.0	0.40	1		06/26/20 18:17	74-87-3	
Dibromochloromethane	1.0 U	ug/L	1.0	0.43	1		06/26/20 18:17	124-48-1	
1,1-Dichloroethane	1.0 U	ug/L	1.0	0.24	1		06/26/20 18:17	75-34-3	
1,2-Dichloroethane	1.0 U	ug/L	1.0	0.33	1		06/26/20 18:17	107-06-2	
1,2-Dichloroethene (Total)	2.0 U	ug/L	2.0	0.66	1		06/26/20 18:17	540-59-0	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.24	1		06/26/20 18:17	75-35-4	
cis-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.38	1		06/26/20 18:17	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.28	1		06/26/20 18:17	156-60-5	
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.28	1		06/26/20 18:17	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.29	1		06/26/20 18:17	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.32	1		06/26/20 18:17	10061-02-6	
Ethylbenzene	1.0 U	ug/L	1.0	0.40	1		06/26/20 18:17	100-41-4	
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.47	1		06/26/20 18:17	98-82-8	
Methylene Chloride	1.0 U	ug/L	1.0	0.64	1		06/26/20 18:17	75-09-2	
4-Methyl-2-pentanone (MIBK)	10.0 U	ug/L	10.0	0.42	1		06/26/20 18:17	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.25	1		06/26/20 18:17	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.33	1		06/26/20 18:17	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.47	1		06/26/20 18:17	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.39	1		06/26/20 18:17	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.32	1		06/26/20 18:17	108-88-3	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.38	1		06/26/20 18:17	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.33	1		06/26/20 18:17	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.29	1		06/26/20 18:17	79-01-6	
Vinyl chloride	1.0 U	ug/L	1.0	0.29	1		06/26/20 18:17	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	1.4	1		06/26/20 18:17	1330-20-7	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	97	%	70-130		1		06/26/20 18:17	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	70-130		1		06/26/20 18:17	17060-07-0	
Toluene-d8 (S)	95	%	70-130		1		06/26/20 18:17	2037-26-5	
Dibromofluoromethane (S)	97	%	70-130		1		06/26/20 18:17	1868-53-7	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30368456

Sample: RWO-MWI		Lab ID: 30368456005	Collected: 06/17/20 11:20	Received: 06/17/20 22:45	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>66.2</b>	ug/L	3.0	0.34	1	06/19/20 16:01	06/23/20 09:45	7440-43-9	
Zinc, Dissolved	<b>223000</b>	ug/L	1000	238	100	06/19/20 16:01	06/23/20 10:32	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30368456

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWO-MWS      Lab ID: 30368456006      Collected: 06/17/20 12:15      Received: 06/17/20 22:45      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>0.46J</b>	ug/L	3.0	0.34	1	06/19/20 16:01	06/23/20 09:47	7440-43-9	
Zinc, Dissolved	<b>11100</b>	ug/L	1000	238	100	06/19/20 16:01	06/23/20 10:35	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30368456

Sample: RWI-MWS		Lab ID: 30368456007		Collected: 06/17/20 14:10		Received: 06/17/20 22:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>17.5</b>	ug/L	3.0	0.34	1	06/19/20 16:01	06/23/20 09:56	7440-43-9	
Zinc, Dissolved	<b>211</b>	ug/L	10.0	2.4	1	06/19/20 16:01	06/23/20 09:56	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30368456

Sample: RWI-MWI		Lab ID: 30368456008	Collected: 06/17/20 15:00	Received: 06/17/20 22:45	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>10800</b>	ug/L	3000	340	1000	06/19/20 16:01	06/23/20 10:37	7440-43-9	
Zinc, Dissolved	<b>775000</b>	ug/L	10000	2380	1000	06/19/20 16:01	06/23/20 10:37	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30368456

QC Batch: 401724 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30368456003, 30368456005, 30368456006, 30368456007, 30368456008

METHOD BLANK: 1944898 Matrix: Water  
Associated Lab Samples: 30368456003, 30368456005, 30368456006, 30368456007, 30368456008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	06/23/20 09:28	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	06/23/20 09:28	

LABORATORY CONTROL SAMPLE: 1944899

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	465	93	80-120	
Zinc, Dissolved	ug/L	500	462	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1944901 1944902

Parameter	Units	30368456003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	322	500	500	820	816	100	99	75-125	1	20	
Zinc, Dissolved	ug/L	268000	500	500	268000	256000	60	-2400	75-125	5	20 M6	

SAMPLE DUPLICATE: 1944900

Parameter	Units	30368456003 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	322	320	1	20	
Zinc, Dissolved	ug/L	268000	272000	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30368456

QC Batch: 402856 Analysis Method: EPA 8260B  
QC Batch Method: EPA 5035A Analysis Description: 8260B MSV 5035 Low  
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30368456002

METHOD BLANK: 1950075 Matrix: Solid  
Associated Lab Samples: 30368456002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	mg/kg	0.0050 U	0.0050	0.0015	06/27/20 11:48	
1,1,2,2-Tetrachloroethane	mg/kg	0.0050 U	0.0050	0.00059	06/27/20 11:48	
1,1,2-Trichloroethane	mg/kg	0.0050 U	0.0050	0.00099	06/27/20 11:48	
1,1,2-Trichlorotrifluoroethane	mg/kg	0.050 U	0.050	0.0022	06/27/20 11:48	
1,1-Dichloroethane	mg/kg	0.0050 U	0.0050	0.0013	06/27/20 11:48	
1,1-Dichloroethene	mg/kg	0.0050 U	0.0050	0.0019	06/27/20 11:48	
1,2,3-Trichlorobenzene	mg/kg	0.0050 U	0.0050	0.00095	06/27/20 11:48	
1,2,4-Trichlorobenzene	mg/kg	0.0050 U	0.0050	0.0013	06/27/20 11:48	
1,2-Dibromo-3-chloropropane	mg/kg	0.0050 U	0.0050	0.0012	06/27/20 11:48	
1,2-Dibromoethane (EDB)	mg/kg	0.0050 U	0.0050	0.00080	06/27/20 11:48	
1,2-Dichlorobenzene	mg/kg	0.0050 U	0.0050	0.00059	06/27/20 11:48	
1,2-Dichloroethane	mg/kg	0.0050 U	0.0050	0.0013	06/27/20 11:48	
1,2-Dichloroethene (Total)	mg/kg	0.010 U	0.010	0.0024	06/27/20 11:48	
1,2-Dichloropropane	mg/kg	0.0050 U	0.0050	0.00072	06/27/20 11:48	
1,3-Dichlorobenzene	mg/kg	0.0050 U	0.0050	0.00065	06/27/20 11:48	
1,4-Dichlorobenzene	mg/kg	0.0050 U	0.0050	0.00071	06/27/20 11:48	
1,4-Dioxane (p-Dioxane)	mg/kg	0.10 U	0.10	0.041	06/27/20 11:48	2c
2-Butanone (MEK)	mg/kg	0.010 U	0.010	0.00091	06/27/20 11:48	
2-Hexanone	mg/kg	0.010 U	0.010	0.00098	06/27/20 11:48	
4-Methyl-2-pentanone (MIBK)	mg/kg	0.010 U	0.010	0.0011	06/27/20 11:48	
Acetone	mg/kg	0.0065J	0.010	0.0032	06/27/20 11:48	
Benzene	mg/kg	0.0050 U	0.0050	0.00087	06/27/20 11:48	
Bromodichloromethane	mg/kg	0.0050 U	0.0050	0.0011	06/27/20 11:48	
Bromoform	mg/kg	0.0050 U	0.0050	0.00066	06/27/20 11:48	
Bromomethane	mg/kg	0.0050 U	0.0050	0.0019	06/27/20 11:48	
Carbon disulfide	mg/kg	0.0050 U	0.0050	0.0014	06/27/20 11:48	
Carbon tetrachloride	mg/kg	0.0050 U	0.0050	0.0017	06/27/20 11:48	
Chlorobenzene	mg/kg	0.0050 U	0.0050	0.00078	06/27/20 11:48	
Chloroethane	mg/kg	0.0050 U	0.0050	0.0021	06/27/20 11:48	
Chloroform	mg/kg	0.0050 U	0.0050	0.0015	06/27/20 11:48	
Chloromethane	mg/kg	0.0050 U	0.0050	0.0017	06/27/20 11:48	
cis-1,2-Dichloroethene	mg/kg	0.0050 U	0.0050	0.0012	06/27/20 11:48	
cis-1,3-Dichloropropene	mg/kg	0.0050 U	0.0050	0.00050	06/27/20 11:48	
Cyclohexane	mg/kg	0.010 U	0.010	0.0019	06/27/20 11:48	
Dibromochloromethane	mg/kg	0.0050 U	0.0050	0.00079	06/27/20 11:48	
Dichlorodifluoromethane	mg/kg	0.0050 U	0.0050	0.0027	06/27/20 11:48	
Ethylbenzene	mg/kg	0.0050 U	0.0050	0.0011	06/27/20 11:48	
Isopropylbenzene (Cumene)	mg/kg	0.0050 U	0.0050	0.0012	06/27/20 11:48	
Methyl acetate	mg/kg	0.050 U	0.050	0.0011	06/27/20 11:48	
Methyl-tert-butyl ether	mg/kg	0.0050 U	0.0050	0.00067	06/27/20 11:48	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30368456

METHOD BLANK: 1950075

Matrix: Solid

Associated Lab Samples: 30368456002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methylene Chloride	mg/kg	0.0050 U	0.0050	0.0042	06/27/20 11:48	
Styrene	mg/kg	0.0050 U	0.0050	0.0014	06/27/20 11:48	
Tetrachloroethene	mg/kg	0.0050 U	0.0050	0.0017	06/27/20 11:48	
Toluene	mg/kg	0.0050 U	0.0050	0.00099	06/27/20 11:48	
trans-1,2-Dichloroethene	mg/kg	0.0050 U	0.0050	0.0013	06/27/20 11:48	
trans-1,3-Dichloropropene	mg/kg	0.0050 U	0.0050	0.0010	06/27/20 11:48	
Trichloroethene	mg/kg	0.0050 U	0.0050	0.0015	06/27/20 11:48	
Trichlorofluoromethane	mg/kg	0.0050 U	0.0050	0.0022	06/27/20 11:48	
Vinyl chloride	mg/kg	0.0050 U	0.0050	0.0022	06/27/20 11:48	
Xylene (Total)	mg/kg	0.015 U	0.015	0.0032	06/27/20 11:48	
1,2-Dichloroethane-d4 (S)	%	88	70-130		06/27/20 11:48	
4-Bromofluorobenzene (S)	%	102	70-130		06/27/20 11:48	
Dibromofluoromethane (S)	%	95	70-130		06/27/20 11:48	
Toluene-d8 (S)	%	98	70-130		06/27/20 11:48	

LABORATORY CONTROL SAMPLE: 1950076

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	mg/kg	0.02	0.016	80	62-129	
1,1,2,2-Tetrachloroethane	mg/kg	0.02	0.017	85	60-108	
1,1,2-Trichloroethane	mg/kg	0.02	0.017	84	61-114	
1,1,2-Trichlorotrifluoroethane	mg/kg	0.02	0.019J	93	16-175	
1,1-Dichloroethane	mg/kg	0.02	0.016	79	54-121	
1,1-Dichloroethene	mg/kg	0.02	0.016	78	49-111	
1,2,3-Trichlorobenzene	mg/kg	0.02	0.020	98	64-118	
1,2,4-Trichlorobenzene	mg/kg	0.02	0.020	100	60-126	
1,2-Dibromo-3-chloropropane	mg/kg	0.02	0.018	92	50-116	
1,2-Dibromoethane (EDB)	mg/kg	0.02	0.016	81	60-115	
1,2-Dichlorobenzene	mg/kg	0.02	0.018	91	70-130	
1,2-Dichloroethane	mg/kg	0.02	0.014	68	62-112	
1,2-Dichloroethene (Total)	mg/kg	0.04	0.030	74	55-114	
1,2-Dichloropropane	mg/kg	0.02	0.016	81	59-112	
1,3-Dichlorobenzene	mg/kg	0.02	0.018	91	63-122	
1,4-Dichlorobenzene	mg/kg	0.02	0.017	86	63-117	
1,4-Dioxane (p-Dioxane)	mg/kg	0.2	0.18	92	48-134 2c	
2-Butanone (MEK)	mg/kg	0.02	0.017	84	52-111	
2-Hexanone	mg/kg	0.02	0.017	85	51-113	
4-Methyl-2-pentanone (MIBK)	mg/kg	0.02	0.016	78	55-112	
Acetone	mg/kg	0.02	0.018	92	10-175	
Benzene	mg/kg	0.02	0.017	84	51-123	
Bromodichloromethane	mg/kg	0.02	0.016	78	59-113	
Bromoform	mg/kg	0.02	0.016	80	50-95	
Bromomethane	mg/kg	0.02	0.015	73	50-136	
Carbon disulfide	mg/kg	0.02	0.018	90	44-125	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30368456

LABORATORY CONTROL SAMPLE: 1950076

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	mg/kg	0.02	0.015	73	53-115	
Chlorobenzene	mg/kg	0.02	0.017	85	63-119	
Chloroethane	mg/kg	0.02	0.020	100	13-154	
Chloroform	mg/kg	0.02	0.014	71	57-115	
Chloromethane	mg/kg	0.02	0.022	109	57-112	
cis-1,2-Dichloroethene	mg/kg	0.02	0.014	72	56-114	
cis-1,3-Dichloropropene	mg/kg	0.02	0.016	78	59-108	
Cyclohexane	mg/kg	0.02	0.018	92	58-113	
Dibromochloromethane	mg/kg	0.02	0.016	79	59-102	
Dichlorodifluoromethane	mg/kg	0.02	0.027	134	56-152	
Ethylbenzene	mg/kg	0.02	0.017	87	61-123	
Isopropylbenzene (Cumene)	mg/kg	0.02	0.019	96	62-136	
Methyl acetate	mg/kg	0.02	0.010J	51	23-128	
Methyl-tert-butyl ether	mg/kg	0.02	0.015	73	60-108	
Methylene Chloride	mg/kg	0.02	0.015	77	20-159	
Styrene	mg/kg	0.02	0.018	88	63-119	
Tetrachloroethene	mg/kg	0.02	0.018	88	57-124	
Toluene	mg/kg	0.02	0.016	82	56-120	
trans-1,2-Dichloroethene	mg/kg	0.02	0.015	77	53-115	
trans-1,3-Dichloropropene	mg/kg	0.02	0.016	80	60-107	
Trichloroethene	mg/kg	0.02	0.017	83	61-115	
Trichlorofluoromethane	mg/kg	0.02	0.019	96	67-127	
Vinyl chloride	mg/kg	0.02	0.023	116	61-120	
Xylene (Total)	mg/kg	0.06	0.051	85	57-125	
1,2-Dichloroethane-d4 (S)	%			88	70-130	
4-Bromofluorobenzene (S)	%			97	70-130	
Dibromofluoromethane (S)	%			91	70-130	
Toluene-d8 (S)	%			99	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30368456

QC Batch: 402763 Analysis Method: EPA 8260B  
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30368456001, 30368456003, 30368456004

METHOD BLANK: 1949504 Matrix: Water  
Associated Lab Samples: 30368456001, 30368456003, 30368456004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	1.0 U	1.0	0.38	06/26/20 13:44	
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0	0.47	06/26/20 13:44	
1,1,2-Trichloroethane	ug/L	1.0 U	1.0	0.33	06/26/20 13:44	
1,1-Dichloroethane	ug/L	1.0 U	1.0	0.24	06/26/20 13:44	
1,1-Dichloroethene	ug/L	1.0 U	1.0	0.24	06/26/20 13:44	
1,2-Dichloroethane	ug/L	1.0 U	1.0	0.33	06/26/20 13:44	
1,2-Dichloroethene (Total)	ug/L	2.0 U	2.0	0.66	06/26/20 13:44	
1,2-Dichloropropane	ug/L	1.0 U	1.0	0.28	06/26/20 13:44	
2-Butanone (MEK)	ug/L	10.0 U	10.0	1.5	06/26/20 13:44	
4-Methyl-2-pentanone (MIBK)	ug/L	10.0 U	10.0	0.42	06/26/20 13:44	
Acetone	ug/L	10.0 U	10.0	5.6	06/26/20 13:44	
Benzene	ug/L	1.0 U	1.0	0.34	06/26/20 13:44	
Bromodichloromethane	ug/L	1.0 U	1.0	0.35	06/26/20 13:44	
Bromoform	ug/L	1.0 U	1.0	0.56	06/26/20 13:44	
Bromomethane	ug/L	1.0 U	1.0	0.73	06/26/20 13:44	
Carbon disulfide	ug/L	1.0 U	1.0	0.32	06/26/20 13:44	
Carbon tetrachloride	ug/L	1.0 U	1.0	0.44	06/26/20 13:44	
Chlorobenzene	ug/L	1.0 U	1.0	0.26	06/26/20 13:44	
Chloroethane	ug/L	1.0 U	1.0	0.64	06/26/20 13:44	
Chloroform	ug/L	1.0 U	1.0	0.39	06/26/20 13:44	
Chloromethane	ug/L	1.0 U	1.0	0.40	06/26/20 13:44	
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0	0.38	06/26/20 13:44	
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0	0.29	06/26/20 13:44	
Dibromochloromethane	ug/L	1.0 U	1.0	0.43	06/26/20 13:44	
Ethylbenzene	ug/L	1.0 U	1.0	0.40	06/26/20 13:44	
Isopropylbenzene (Cumene)	ug/L	1.0 U	1.0	0.47	06/26/20 13:44	
Methyl-tert-butyl ether	ug/L	1.0 U	1.0	0.25	06/26/20 13:44	
Methylene Chloride	ug/L	1.0 U	1.0	0.64	06/26/20 13:44	
Styrene	ug/L	1.0 U	1.0	0.33	06/26/20 13:44	
Tetrachloroethene	ug/L	1.0 U	1.0	0.39	06/26/20 13:44	
Toluene	ug/L	1.0 U	1.0	0.32	06/26/20 13:44	
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0	0.28	06/26/20 13:44	
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0	0.32	06/26/20 13:44	
Trichloroethene	ug/L	1.0 U	1.0	0.29	06/26/20 13:44	
Vinyl chloride	ug/L	1.0 U	1.0	0.29	06/26/20 13:44	
Xylene (Total)	ug/L	3.0 U	3.0	1.4	06/26/20 13:44	
1,2-Dichloroethane-d4 (S)	%	94	70-130		06/26/20 13:44	
4-Bromofluorobenzene (S)	%	99	70-130		06/26/20 13:44	
Dibromofluoromethane (S)	%	99	70-130		06/26/20 13:44	
Toluene-d8 (S)	%	97	70-130		06/26/20 13:44	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30368456

LABORATORY CONTROL SAMPLE: 1949505

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	19.1	95	70-130	
1,1,2,2-Tetrachloroethane	ug/L	20	20.4	102	70-130	
1,1,2-Trichloroethane	ug/L	20	20.3	101	70-130	
1,1-Dichloroethane	ug/L	20	19.5	98	70-130	
1,1-Dichloroethene	ug/L	20	18.1	90	70-130	
1,2-Dichloroethane	ug/L	20	18.6	93	70-130	
1,2-Dichloroethene (Total)	ug/L	40	38.9	97	70-130	
1,2-Dichloropropane	ug/L	20	19.7	99	70-130	
2-Butanone (MEK)	ug/L	20	16.9	84	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	20	17.9	89	70-130	
Acetone	ug/L	20	15.8	79	67-173	
Benzene	ug/L	20	19.8	99	70-130	
Bromodichloromethane	ug/L	20	18.3	92	70-130	
Bromoform	ug/L	20	17.4	87	63-119	
Bromomethane	ug/L	20	17.6	88	24-159	
Carbon disulfide	ug/L	20	16.9	84	57-132	
Carbon tetrachloride	ug/L	20	17.5	87	70-130	
Chlorobenzene	ug/L	20	20.5	102	70-130	
Chloroethane	ug/L	20	20.1	100	62-145	
Chloroform	ug/L	20	17.5	87	70-130	
Chloromethane	ug/L	20	23.9	120	66-140	
cis-1,2-Dichloroethene	ug/L	20	18.9	95	70-130	
cis-1,3-Dichloropropene	ug/L	20	17.4	87	70-130	
Dibromochloromethane	ug/L	20	18.4	92	70-130	
Ethylbenzene	ug/L	20	20.2	101	70-130	
Isopropylbenzene (Cumene)	ug/L	20	20.9	104	70-130	
Methyl-tert-butyl ether	ug/L	20	15.9	80	70-130	
Methylene Chloride	ug/L	20	20.2	101	70-130	
Styrene	ug/L	20	20.8	104	70-130	
Tetrachloroethene	ug/L	20	19.4	97	70-130	
Toluene	ug/L	20	19.9	99	70-130	
trans-1,2-Dichloroethene	ug/L	20	20.0	100	70-130	
trans-1,3-Dichloropropene	ug/L	20	17.9	90	70-130	
Trichloroethene	ug/L	20	19.3	97	70-130	
Vinyl chloride	ug/L	20	20.2	101	70-130	
Xylene (Total)	ug/L	60	60.8	101	70-130	
1,2-Dichloroethane-d4 (S)	%			91	70-130	
4-Bromofluorobenzene (S)	%			96	70-130	
Dibromofluoromethane (S)	%			96	70-130	
Toluene-d8 (S)	%			99	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30368456

Parameter	Units	1949506		1949507		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		30369076001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
1,1,1-Trichloroethane	ug/L	ND	20	20	16.3	13.9	82	70	55-146	16	30		
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	16.9	14.7	85	73	55-118	14	30		
1,1,2-Trichloroethane	ug/L	ND	20	20	16.4	13.7	82	68	61-122	18	30		
1,1-Dichloroethane	ug/L	ND	20	20	17.8	15.1	89	76	59-130	16	30		
1,1-Dichloroethene	ug/L	19.1	20	20	34.1	30.8	75	58	52-119	10	30		
1,2-Dichloroethane	ug/L	ND	20	20	17.7	15.7	76	66	49-135	12	30		
1,2-Dichloroethene (Total)	ug/L	ND	40	40	33.6	27.6	84	69	61-119	20	30		
1,2-Dichloropropane	ug/L	ND	20	20	15.8	13.1	79	65	67-121	19	30	ML	
2-Butanone (MEK)	ug/L	ND	20	20	14.5	13.6	72	68	59-138	6	30		
4-Methyl-2-pentanone (MIBK)	ug/L	ND	20	20	13.5	12.1	67	60	70-130	11	30	ML	
Acetone	ug/L	ND	20	20	12.7	11.8	64	59	57-140	8	30		
Benzene	ug/L	9.6	20	20	26.5	23.7	85	70	50-149	11	30		
Bromodichloromethane	ug/L	ND	20	20	14.5	12.4	72	62	46-131	16	30		
Bromoform	ug/L	ND	20	20	13.1	11.0	66	55	30-119	17	30		
Bromomethane	ug/L	ND	20	20	10.6	11.7	53	59	10-163	10	30		
Carbon disulfide	ug/L	ND	20	20	14.1	14.0	71	70	41-116	1	30		
Carbon tetrachloride	ug/L	ND	20	20	14.7	11.8	73	59	55-119	21	30		
Chlorobenzene	ug/L	ND	20	20	16.3	13.8	82	69	66-124	17	30		
Chloroethane	ug/L	ND	20	20	17.6	18.7	88	94	45-162	6	30		
Chloroform	ug/L	ND	20	20	14.5	12.3	73	61	56-123	17	30		
Chloromethane	ug/L	ND	20	20	19.3	20.8	97	104	49-150	7	30		
cis-1,2-Dichloroethene	ug/L	ND	20	20	17.7	14.4	88	72	63-116	20	30		
cis-1,3-Dichloropropene	ug/L	ND	20	20	13.2	11.4	66	57	46-119	14	30		
Dibromochloromethane	ug/L	ND	20	20	14.1	12.1	70	61	42-120	15	30		
Ethylbenzene	ug/L	ND	20	20	16.2	13.4	81	67	63-135	18	30		
Isopropylbenzene (Cumene)	ug/L	ND	20	20	17.8	14.2	89	71	50-167	22	30		
Methyl-tert-butyl ether	ug/L	21.8	20	20	35.4	35.4	68	68	53-123	0	30		
Methylene Chloride	ug/L	ND	20	20	16.6	14.1	83	70	57-132	16	30		
Styrene	ug/L	ND	20	20	16.0	13.1	80	65	58-130	20	30		
Tetrachloroethene	ug/L	ND	20	20	15.8	12.5	79	62	61-132	23	30		
Toluene	ug/L	ND	20	20	16.2	13.5	81	68	59-139	18	30		
trans-1,2-Dichloroethene	ug/L	ND	20	20	15.9	13.2	80	66	60-124	19	30		
trans-1,3-Dichloropropene	ug/L	ND	20	20	13.7	11.8	69	59	48-121	15	30		
Trichloroethene	ug/L	1.3	20	20	21.6	16.8	101	78	63-128	25	30		
Vinyl chloride	ug/L	ND	20	20	17.4	17.8	87	89	67-141	3	30		
Xylene (Total)	ug/L	ND	60	60	48.6	39.7	81	66	63-135	20	30		
1,2-Dichloroethane-d4 (S)	%						93	92	70-130				
4-Bromofluorobenzene (S)	%						97	101	70-130				
Dibromofluoromethane (S)	%						96	97	70-130				
Toluene-d8 (S)	%						99	97	70-130				

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling

Pace Project No.: 30368456

QC Batch: 401805

Analysis Method: EPA 8270D by SIM

QC Batch Method: EPA 3510C

Analysis Description: 8270D Water PAH by SIM MSSV

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30368456003, 30368456004

METHOD BLANK: 1945614

Matrix: Water

Associated Lab Samples: 30368456003, 30368456004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	0.10 U	0.10	0.081	06/23/20 10:56	
2-Methylnaphthalene	ug/L	0.10 U	0.10	0.028	06/23/20 15:01	
Acenaphthene	ug/L	0.10 U	0.10	0.029	06/23/20 15:01	
Acenaphthylene	ug/L	0.10 U	0.10	0.034	06/23/20 15:01	
Anthracene	ug/L	0.10 U	0.10	0.028	06/23/20 15:01	
Benzo(a)anthracene	ug/L	0.10 U	0.10	0.039	06/23/20 15:01	
Benzo(a)pyrene	ug/L	0.10 U	0.10	0.012	06/23/20 15:01	
Benzo(b)fluoranthene	ug/L	0.10 U	0.10	0.027	06/23/20 15:01	
Benzo(g,h,i)perylene	ug/L	0.10 U	0.10	0.035	06/23/20 15:01	
Benzo(k)fluoranthene	ug/L	0.10 U	0.10	0.023	06/23/20 15:01	
Chrysene	ug/L	0.10 U	0.10	0.040	06/23/20 15:01	
Dibenz(a,h)anthracene	ug/L	0.10 U	0.10	0.028	06/23/20 15:01	
Fluoranthene	ug/L	0.10 U	0.10	0.032	06/23/20 15:01	
Fluorene	ug/L	0.10 U	0.10	0.031	06/23/20 15:01	
Indeno(1,2,3-cd)pyrene	ug/L	0.10 U	0.10	0.030	06/23/20 15:01	
Naphthalene	ug/L	0.10 U	0.10	0.038	06/23/20 15:01	
Phenanthrene	ug/L	0.10 U	0.10	0.044	06/23/20 15:01	
Pyrene	ug/L	0.10 U	0.10	0.036	06/23/20 15:01	
2-Fluorobiphenyl (S)	%	41	19-92		06/23/20 15:01	
Terphenyl-d14 (S)	%	78	55-109		06/23/20 15:01	

LABORATORY CONTROL SAMPLE: 1945615

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2-Methylnaphthalene	ug/L	2	1.2	61	31-108	
Acenaphthene	ug/L	2	1.3	63	29-110	
Acenaphthylene	ug/L	2	1.2	59	28-121	
Anthracene	ug/L	2	1.4	70	40-115	
Benzo(a)anthracene	ug/L	2	1.7	83	63-119	
Benzo(a)pyrene	ug/L	2	1.6	80	56-121	
Benzo(b)fluoranthene	ug/L	2	1.8	89	61-126	
Benzo(g,h,i)perylene	ug/L	2	1.8	91	53-123	
Benzo(k)fluoranthene	ug/L	2	1.6	82	57-121	
Chrysene	ug/L	2	1.6	78	62-109	
Dibenz(a,h)anthracene	ug/L	2	1.7	87	55-125	
Fluoranthene	ug/L	2	1.7	85	55-121	
Fluorene	ug/L	2	1.4	70	30-119	
Indeno(1,2,3-cd)pyrene	ug/L	2	1.9	96	56-124	
Naphthalene	ug/L	2	1.1	55	26-104	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling

Pace Project No.: 30368456

LABORATORY CONTROL SAMPLE: 1945615

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenanthrene	ug/L	2	1.5	77	38-112	
Pyrene	ug/L	2	1.6	82	56-119	
2-Fluorobiphenyl (S)	%			61	19-92	
Terphenyl-d14 (S)	%			88	55-109	

LABORATORY CONTROL SAMPLE: 1945616

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	2	0.50	25	10-54	
2-Fluorobiphenyl (S)	%			37	19-92	
Terphenyl-d14 (S)	%			72	55-109	CH,S6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling

Pace Project No.: 30368456

QC Batch: 401804

Analysis Method: EPA 8270D

QC Batch Method: EPA 3510C

Analysis Description: 8270D Water MSSV

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30368456003, 30368456004

METHOD BLANK: 1945612

Matrix: Water

Associated Lab Samples: 30368456003, 30368456004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2,4,5-Tetrachlorobenzene	ug/L	1.0 U	1.0	0.31	06/24/20 15:41	
2,3,4,6-Tetrachlorophenol	ug/L	1.0 U	1.0	0.28	06/24/20 15:41	
2,4,5-Trichlorophenol	ug/L	2.5 U	2.5	0.67	06/24/20 15:41	
2,4,6-Trichlorophenol	ug/L	1.0 U	1.0	0.37	06/24/20 15:41	
2,4-Dichlorophenol	ug/L	1.0 U	1.0	0.34	06/24/20 15:41	
2,4-Dimethylphenol	ug/L	1.0 U	1.0	0.36	06/24/20 15:41	
2,4-Dinitrophenol	ug/L	2.5 U	2.5	0.58	06/24/20 15:41	
2,4-Dinitrotoluene	ug/L	1.0 U	1.0	0.36	06/24/20 15:41	
2,6-Dinitrotoluene	ug/L	1.0 U	1.0	0.40	06/24/20 15:41	
2-Chloronaphthalene	ug/L	1.0 U	1.0	0.33	06/24/20 15:41	
2-Chlorophenol	ug/L	1.0 U	1.0	0.32	06/24/20 15:41	
2-Methylnaphthalene	ug/L	1.0 U	1.0	0.34	06/24/20 15:41	
2-Methylphenol(o-Cresol)	ug/L	1.0 U	1.0	0.37	06/24/20 15:41	
2-Nitroaniline	ug/L	2.5 U	2.5	0.71	06/24/20 15:41	
3&4-Methylphenol(m&p Cresol)	ug/L	2.0 U	2.0	1.9	06/24/20 15:41	
3,3'-Dichlorobenzidine	ug/L	1.0 U	1.0	0.23	06/24/20 15:41	
4-Chloroaniline	ug/L	1.0 U	1.0	0.21	06/24/20 15:41	
4-Nitroaniline	ug/L	2.5 U	2.5	1.9	06/24/20 15:41	
Acenaphthene	ug/L	1.0 U	1.0	0.39	06/24/20 15:41	
Acenaphthylene	ug/L	1.0 U	1.0	0.38	06/24/20 15:41	
Acetophenone	ug/L	1.0 U	1.0	0.42	06/24/20 15:41	
Anthracene	ug/L	1.0 U	1.0	0.27	06/24/20 15:41	
Benzaldehyde	ug/L	1.0 U	1.0	0.43	06/24/20 15:41	
Benzo(a)anthracene	ug/L	1.0 U	1.0	0.20	06/24/20 15:41	
Benzo(a)pyrene	ug/L	1.0 U	1.0	0.18	06/24/20 15:41	
Benzo(b)fluoranthene	ug/L	1.0 U	1.0	0.24	06/24/20 15:41	
Benzo(g,h,i)perylene	ug/L	1.0 U	1.0	0.30	06/24/20 15:41	
Benzo(k)fluoranthene	ug/L	1.0 U	1.0	0.26	06/24/20 15:41	
Biphenyl (Diphenyl)	ug/L	1.0 U	1.0	0.32	06/24/20 15:41	
bis(2-Chloroethoxy)methane	ug/L	1.0 U	1.0	0.36	06/24/20 15:41	
bis(2-Chloroethyl) ether	ug/L	1.0 U	1.0	0.41	06/24/20 15:41	
bis(2-Chloroisopropyl) ether	ug/L	1.0 U	1.0	0.40	06/24/20 15:41	
bis(2-Ethylhexyl)phthalate	ug/L	1.0 U	1.0	0.36	06/24/20 15:41	
Caprolactam	ug/L	2.5 U	2.5	0.32	06/24/20 15:41	
Carbazole	ug/L	1.0 U	1.0	0.23	06/24/20 15:41	
Chrysene	ug/L	1.0 U	1.0	0.21	06/24/20 15:41	
Di-n-butylphthalate	ug/L	0.40J	1.0	0.32	06/24/20 15:41	
Di-n-octylphthalate	ug/L	1.0 U	1.0	0.27	06/24/20 15:41	
Dibenz(a,h)anthracene	ug/L	1.0 U	1.0	0.31	06/24/20 15:41	
Diethylphthalate	ug/L	1.0 U	1.0	0.36	06/24/20 15:41	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30368456

METHOD BLANK: 1945612 Matrix: Water  
Associated Lab Samples: 30368456003, 30368456004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoranthene	ug/L	1.0 U	1.0	0.23	06/24/20 15:41	
Fluorene	ug/L	1.0 U	1.0	0.37	06/24/20 15:41	
Hexachloro-1,3-butadiene	ug/L	1.0 U	1.0	0.33	06/24/20 15:41	
Hexachlorobenzene	ug/L	1.0 U	1.0	0.30	06/24/20 15:41	
Hexachlorocyclopentadiene	ug/L	1.0 U	1.0	0.19	06/24/20 15:41	
Hexachloroethane	ug/L	1.0 U	1.0	0.30	06/24/20 15:41	
Indeno(1,2,3-cd)pyrene	ug/L	1.0 U	1.0	0.30	06/24/20 15:41	
Isophorone	ug/L	1.0 U	1.0	0.57	06/24/20 15:41	
N-Nitroso-di-n-propylamine	ug/L	1.0 U	1.0	0.54	06/24/20 15:41	
N-Nitrosodiphenylamine	ug/L	1.0 U	1.0	0.25	06/24/20 15:41	
Naphthalene	ug/L	1.0 U	1.0	0.35	06/24/20 15:41	
Nitrobenzene	ug/L	1.0 U	1.0	0.38	06/24/20 15:41	
Pentachlorophenol	ug/L	2.5 U	2.5	1.0	06/24/20 15:41	
Phenanthrene	ug/L	1.0 U	1.0	0.34	06/24/20 15:41	
Phenol	ug/L	1.0 U	1.0	0.22	06/24/20 15:41	
Pyrene	ug/L	1.0 U	1.0	0.30	06/24/20 15:41	
2,4,6-Tribromophenol (S)	%	51	10-140		06/24/20 15:41	
2-Fluorobiphenyl (S)	%	34	10-135		06/24/20 15:41	
2-Fluorophenol (S)	%	27	10-142		06/24/20 15:41	
Nitrobenzene-d5 (S)	%	37	10-140		06/24/20 15:41	
Phenol-d6 (S)	%	21	10-145		06/24/20 15:41	
Terphenyl-d14 (S)	%	69	10-128		06/24/20 15:41	

LABORATORY CONTROL SAMPLE: 1945613

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4,5-Tetrachlorobenzene	ug/L	10	7.8	78	28-99	
2,3,4,6-Tetrachlorophenol	ug/L	10	13.0	130	33-115	L1
2,4,5-Trichlorophenol	ug/L	10	11.6	116	57-113	L1
2,4,6-Trichlorophenol	ug/L	10	11.4	114	45-122	
2,4-Dichlorophenol	ug/L	10	10.2	102	33-96	L1
2,4-Dimethylphenol	ug/L	10	10.0	100	19-87	L1
2,4-Dinitrophenol	ug/L	10	13.1	131	15-119	L1
2,4-Dinitrotoluene	ug/L	10	12.9	129	40-119	L1
2,6-Dinitrotoluene	ug/L	10	11.1	111	50-116	
2-Chloronaphthalene	ug/L	10	8.5	85	30-101	
2-Chlorophenol	ug/L	10	8.6	86	27-97	
2-Methylnaphthalene	ug/L	10	8.2	82	24-91	
2-Methylphenol(o-Cresol)	ug/L	10	9.0	90	10-175	
2-Nitroaniline	ug/L	10	12.4	124	48-120	L1
3&4-Methylphenol(m&p Cresol)	ug/L	20	18.1	91	21-131	
3,3'-Dichlorobenzidine	ug/L	10	7.5	75	49-117	
4-Chloroaniline	ug/L	10	6.0	60	22-79	
4-Nitroaniline	ug/L	10	8.3	83	46-136	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30368456

LABORATORY CONTROL SAMPLE: 1945613

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	10	8.5	85	36-106	
Acenaphthylene	ug/L	10	9.3	93	35-103	
Acetophenone	ug/L	10	7.7	77	30-107	
Anthracene	ug/L	10	10.8	108	56-106	L1
Benzaldehyde	ug/L	10	4.6	46	10-128	
Benzo(a)anthracene	ug/L	10	11.8	118	64-124	
Benzo(a)pyrene	ug/L	10	11.2	112	61-115	
Benzo(b)fluoranthene	ug/L	10	11.8	118	58-133	
Benzo(g,h,i)perylene	ug/L	10	6.7	67	40-142	
Benzo(k)fluoranthene	ug/L	10	11.5	115	61-121	
Biphenyl (Diphenyl)	ug/L	10	8.8	88	29-103	
bis(2-Chloroethoxy)methane	ug/L	10	9.0	90	33-96	
bis(2-Chloroethyl) ether	ug/L	10	7.5	75	25-98	
bis(2-Chloroisopropyl) ether	ug/L	10	8.2	82	23-104	
bis(2-Ethylhexyl)phthalate	ug/L	10	12.5	125	65-141	
Caprolactam	ug/L	10	4.7	47	10-39	L1
Carbazole	ug/L	10	10.2	102	59-112	
Chrysene	ug/L	10	11.0	110	63-120	
Di-n-butylphthalate	ug/L	10	12.4	124	69-126	
Di-n-octylphthalate	ug/L	10	11.9	119	61-145	
Dibenz(a,h)anthracene	ug/L	10	10.5	105	52-138	
Diethylphthalate	ug/L	10	11.2	112	61-117	
Fluoranthene	ug/L	10	11.4	114	65-119	
Fluorene	ug/L	10	10.1	101	44-110	
Hexachloro-1,3-butadiene	ug/L	10	6.6	66	13-112	
Hexachlorobenzene	ug/L	10	10.5	105	17-121	
Hexachlorocyclopentadiene	ug/L	10	0.96J	10	10-83	
Hexachloroethane	ug/L	10	5.5	55	13-108	
Indeno(1,2,3-cd)pyrene	ug/L	10	10.8	108	48-140	
Isophorone	ug/L	10	7.1	71	34-93	
N-Nitroso-di-n-propylamine	ug/L	10	9.5	95	34-106	
N-Nitrosodiphenylamine	ug/L	10	10.9	109	34-97	L1
Naphthalene	ug/L	10	7.4	74	23-90	
Nitrobenzene	ug/L	10	8.0	80	26-128	
Pentachlorophenol	ug/L	10	15.2	152	37-125	L1
Phenanthrene	ug/L	10	10.9	109	56-112	
Phenol	ug/L	10	4.5	45	10-58	
Pyrene	ug/L	10	11.2	112	56-128	
2,4,6-Tribromophenol (S)	%			73	10-140	
2-Fluorobiphenyl (S)	%			44	10-135	
2-Fluorophenol (S)	%			39	10-142	
Nitrobenzene-d5 (S)	%			57	10-140	
Phenol-d6 (S)	%			31	10-145	
Terphenyl-d14 (S)	%			71	10-128	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling  
Pace Project No.: 30368456

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.  
ND - Not Detected at or above adjusted reporting limit.  
TNTC - Too Numerous To Count  
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
MDL - Adjusted Method Detection Limit.  
PQL - Practical Quantitation Limit.  
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.  
S - Surrogate  
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.  
LCS(D) - Laboratory Control Sample (Duplicate)  
MS(D) - Matrix Spike (Duplicate)  
DUP - Sample Duplicate  
RPD - Relative Percent Difference  
NC - Not Calculable.  
SG - Silica Gel - Clean-Up  
U - Indicates the compound was analyzed for, but not detected.  
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.  
TNI - The NELAC Institute.

### BATCH QUALIFIERS

Batch: 401804  
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.  
Batch: 401805  
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.  
Batch: 402856  
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

1c A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.  
2c RF below method recommended limit.  
3c The PDS recovery was outside of the laboratory control limits. Result may be biased low.  
B Analyte was detected in the associated method blank.  
CH The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.  
L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.  
M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.  
ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.  
S6 Surrogate recovery outside control limits. Data accepted based on valid recovery of applicable surrogates (no analytes associated with this surrogate)

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30368456

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30368456003	RW21-MWS	EPA 3005A	401724	EPA 6010C	401759
30368456005	RWO-MWI	EPA 3005A	401724	EPA 6010C	401759
30368456006	RWO-MWS	EPA 3005A	401724	EPA 6010C	401759
30368456007	RWI-MWS	EPA 3005A	401724	EPA 6010C	401759
30368456008	RWI-MWI	EPA 3005A	401724	EPA 6010C	401759
30368456003	RW21-MWS	EPA 3510C	401805	EPA 8270D by SIM	401960
30368456004	RW21-MWI	EPA 3510C	401805	EPA 8270D by SIM	401960
30368456003	RW21-MWS	EPA 3510C	401804	EPA 8270D	401957
30368456004	RW21-MWI	EPA 3510C	401804	EPA 8270D	401957
30368456002	Trip Blank (1) (SL)	EPA 5035A	402856	EPA 8260B	402863
30368456001	Trip Blank (1) (WT)	EPA 8260B	402763		
30368456003	RW21-MWS	EPA 8260B	402763		
30368456004	RW21-MWI	EPA 8260B	402763		

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



**Section A**  
Required Client Information:  
Company: EnviroAnalytics Group  
Address: 1600 Sparrows Point Blvd, Suite B2  
Sparrows Point, MD 21219  
Email: jcalenda@enviroanalyticsgroup.com  
Phone: 314-620-3056  
Fax: [Blank]  
Requested Due Date/TAT: 5 Day

**Section B**  
Required Project Information:  
Report To: James Calenda  
Copy To: Stewart Kabis  
Purchase Order No.: EAG-SPT-6452  
Project Name: RWM GW Sampling  
Project Number: [Blank]

**Section C**  
Invoice Information:  
Attention: Laura Sargent  
Company Name: EnviroAnalytics Group  
Address: 1650 Des Peres Road, Suite 303 St. Louis, MO 63131  
Pace Quote Reference: Samantha Bayyura  
Pace Project Manager: [Blank]  
Pace Profile #: [Blank]

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER

Site Location: MD  
STATE: MD

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WT WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives Unpreserved H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> O <sub>3</sub> Methanol Other DI	Requested Analysis Filtered (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB					
1	Trip Blank	WTG			6/17/20				001
2	RW21-mws	WTG			945	2		X	002
3	RW21-mwp	WTG			1030	5		X	003
4	RW0-mwi	WTG			1120	1		X	004
5	RW0-mws	WTG			1245	1		X	005
6	RWF-mws	WTG			1410	1		X	006
7	RWI-mwi	WTG			1500	1		X	007

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
NO	James Calenda - ARM	6/17/20	16:15	James Calenda - ARM	6/17/20	16:20	
NO	James Calenda - ARM	6/17/20	19:40	James Calenda - ARM	6/17/20	19:40	
	James Calenda - ARM	6/17/20	10:50	James Calenda - ARM	6/17/20	22:50	Y

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Lisa Perin  
 SIGNATURE of SAMPLER: [Signature]  
 DATE Signed (MM/DD/YYYY): 6/17/20

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to take charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics Group

Project # 30368456

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>MLL</u>
LIMS Login	<u>MLL</u>

Custody Seal on Cooler/Box Present:  yes  no    Seals intact:  yes  no

Thermometer Used 10    Type of Ice:  Wet  Blue  None

Cooler Temperature    Observed Temp 2.5 °C    Correction Factor: .3 °C    Final Temp: 2.3 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:
	Yes	No	N/A	
				<u>1002192</u>
				<u>MLL 6/18/2020</u>
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID      Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.
exceptions: <input checked="" type="checkbox"/> VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>MLL</u> Date/time of preservation:
				Lot # of added preservative
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed:    Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in reports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

June 25, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30368693

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on June 18, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30368693

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling

Pace Project No.: 30368693

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30368693001	RW 24-MWI	Water	06/18/20 08:50	06/18/20 23:00
30368693002	RW 24-MWS	Water	06/18/20 09:45	06/18/20 23:00
30368693003	RW16-MWI	Water	06/18/20 10:45	06/18/20 23:00
30368693004	RW18-MWS	Water	06/18/20 11:25	06/18/20 23:00
30368693005	RW18-MWI	Water	06/18/20 12:30	06/18/20 23:00

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30368693

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30368693001	RW 24-MWI	EPA 6010C	CTS	2	PASI-PA
30368693002	RW 24-MWS	EPA 6010C	CTS	2	PASI-PA
30368693003	RW16-MWI	EPA 6010C	CTS	2	PASI-PA
30368693004	RW18-MWS	EPA 6010C	CTS	2	PASI-PA
30368693005	RW18-MWI	EPA 6010C	CTS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30368693

Sample: RW 24-MWI		Lab ID: 30368693001		Collected: 06/18/20 08:50		Received: 06/18/20 23:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>1050</b>	ug/L	3.0	0.34	1	06/19/20 16:01	06/23/20 10:01	7440-43-9	
Zinc, Dissolved	<b>378000</b>	ug/L	1000	238	100	06/19/20 16:01	06/23/20 10:39	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30368693

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW 24-MWS      Lab ID: 30368693002      Collected: 06/18/20 09:45      Received: 06/18/20 23:00      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	06/19/20 16:01	06/23/20 10:41	7440-43-9	
Zinc, Dissolved	<b>3.4J</b>	ug/L	10.0	2.4	1	06/19/20 16:01	06/23/20 10:41	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30368693

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW16-MWI      Lab ID: 30368693003      Collected: 06/18/20 10:45      Received: 06/18/20 23:00      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	06/19/20 16:01	06/23/20 10:05	7440-43-9	
Zinc, Dissolved	<b>7.3J</b>	ug/L	10.0	2.4	1	06/19/20 16:01	06/23/20 10:05	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30368693

---

**Sample: RW18-MWS**      **Lab ID: 30368693004**      Collected: 06/18/20 11:25      Received: 06/18/20 23:00      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	06/19/20 16:01	06/23/20 10:08	7440-43-9	
Zinc, Dissolved	<b>4.2J</b>	ug/L	10.0	2.4	1	06/19/20 16:01	06/23/20 10:08	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30368693

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW18-MWI</b>									
<b>Lab ID: 30368693005</b>									
Collected: 06/18/20 12:30    Received: 06/18/20 23:00    Matrix: Water									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>16.0</b>	ug/L	3.0	0.34	1	06/19/20 16:01	06/23/20 10:10	7440-43-9	
Zinc, Dissolved	<b>252000</b>	ug/L	1000	238	100	06/19/20 16:01	06/23/20 10:44	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30368693

QC Batch: 401724 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30368693001, 30368693002, 30368693003, 30368693004, 30368693005

METHOD BLANK: 1944898 Matrix: Water  
Associated Lab Samples: 30368693001, 30368693002, 30368693003, 30368693004, 30368693005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	06/23/20 09:28	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	06/23/20 09:28	

LABORATORY CONTROL SAMPLE: 1944899

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	465	93	80-120	
Zinc, Dissolved	ug/L	500	462	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1944901 1944902

Parameter	Units	30368456003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	322	500	500	820	816	100	99	75-125	1	20	
Zinc, Dissolved	ug/L	268000	500	500	268000	256000	60	-2400	75-125	5	20 M6	

SAMPLE DUPLICATE: 1944900

Parameter	Units	30368456003 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	322	320	1	20	
Zinc, Dissolved	ug/L	268000	272000	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30368693

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: RWM GW Sampling  
Pace Project No.: 30368693

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30368693001	RW 24-MWI	EPA 3005A	401724	EPA 6010C	401759
30368693002	RW 24-MWS	EPA 3005A	401724	EPA 6010C	401759
30368693003	RW16-MWI	EPA 3005A	401724	EPA 6010C	401759
30368693004	RW18-MWS	EPA 3005A	401724	EPA 6010C	401759
30368693005	RW18-MWI	EPA 3005A	401724	EPA 6010C	401759

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



30368693

**Section C**

**Invoice Information:**  
**Attention:** Laura Sargent  
**Company Name:** EnviroAnalytics Group  
**Address:** 1660 Des Peres Road, Suite 303 St. Louis, MO 63131  
**Pace Quote References:**  
**Pace Project Manager:** Samantha Bayura  
**Pace Profile #:**

**Section B**

**Required Project Information:**  
**Report To:** James Calenda  
**Copy To:** Stewart Kabis  
**Purchase Order No.:** EAG-SPT-6452  
**Project Name:** RWM GW Sampling  
**Project Number:**

**Section A**

**Required Client Information:**  
**Company:** EnviroAnalytics Group  
**Address:** 1600 Sparrows Point Blvd, Suite B2  
**Sparrows Point, MD 21219**  
**Phone:** 314-620-3056  
**Fax:**  
**Website:** jcalenda@enviroanalyticsgroup.com  
**Requested Due Date/TAT:** 5 Day

**REGULATORY AGENCY**

NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER

**Site Location**  
**STATE:** MD

**Requested Analysis Filtered (Y/N)**

SAMPLE ID (A-Z, 0-9 / -)	Valid Matrix Codes MATRIX: DRINKING WATER, WATER, WASTE PRODUCT, SOIL/SOLID, OIL, WIPE, AIR, OTHER, TISSUE CODE: DW, WT, WW, P, SL, OL, WP, AR, OT, TS	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION		# OF CONTAINERS	Preservatives							Analysis Test Lead/Cadmium 6010 Dissolved Lead/Zinc 6010 Dissolved	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
		COMPOSITE START	COMPOSITE END/GRAB			DATE	TIME		DATE	TIME	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH			
1	RW24-MWI			WTG	WTG	6/18/20	850	1										001
2	RW24-MWIS			WTG	WTG		945	1										002
3	RW16-MWI			WTG	WTG		1045	1										003
4	RW18-MWIS			WTG	WTG		1125	1										004
5	RW18-MWIS			WTG	WTG		1230	1										005

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Received on	Temp in °C	Ice (Y/N)	Custody Sealed	Cooler (Y/N)	Samples Intact (Y/N)
N/A	James Calenda	6/18/20	1415	Lisa Ferran	6/18/20	1545	Y					
N/A	James Calenda	6/18/20	1945	RDS Vaks	6/18/20	1955	Y					
	RDS Vaks	6/18/20	2300	Monica J. Camp	6/18/20	2300	Y	3.1	Y	N	Y	Y

**SAMPLER NAME AND SIGNATURE**  
**PRINT Name of SAMPLER:** Lisa Ferran  
**SIGNATURE of SAMPLER:** *[Signature]*  
**DATE Signed (MM/DD/YY):** 6/18/20

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to take charges of 1.5% per month for any invoices not paid within 30 days.



Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics Group

Project # 30368693

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>MLC</u>
LIMS Login	<u>MLC</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 10 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 3.4 °C Correction Factor: .3 °C Final Temp: 3.1 °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents
				<u>1002192</u>	<u>MLC 6/19/2020</u>
Chain of Custody Present:	/				
Chain of Custody Filled Out:	/				
Chain of Custody Relinquished:	/				
Sampler Name & Signature on COC:	/				
Sample Labels match COC:	/				
-Includes date/time/ID Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	/				
Short Hold Time Analysis (<72hr remaining):		/			
Rush Turn Around Time Requested:	/				
Sufficient Volume:	/				
Correct Containers Used:	/				
-Pace Containers Used:	/				
Containers Intact:	/				
Orthophosphate field filtered			/		
Hex Cr Aqueous sample field filtered			/		
Organic Samples checked for dechlorination:			/		
Filtered volume received for Dissolved tests	/				
All containers have been checked for preservation.	/				
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	/			Initial when completed <u>BLM</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):			/		
Trip Blank Present:			/		
Trip Blank Custody Seals Present			/		
Rad Samples Screened < 0.5 mrem/hr			/	Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

July 02, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30369492

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on June 24, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30369492

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30369492

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30369492001	RW19-MW(S)	Water	06/24/20 09:25	06/24/20 22:15
30369492002	RW19-MW(I)	Water	06/24/20 10:00	06/24/20 22:15
30369492003	RW16-MW(S)	Water	06/24/20 11:15	06/24/20 22:15
30369492004	RWJ-MWS	Water	06/24/20 11:45	06/24/20 22:15
30369492005	RWJ-MWI	Water	06/24/20 12:50	06/24/20 22:15
30369492006	RW09-MW(S)	Water	06/24/20 15:00	06/24/20 22:15

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30369492

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30369492001	RW19-MW(S)	EPA 6010C	KAS	2	PASI-PA
30369492002	RW19-MW(I)	EPA 6010C	KAS	2	PASI-PA
30369492003	RW16-MW(S)	EPA 6010C	KAS	2	PASI-PA
30369492004	RWJ-MWS	EPA 6010C	KAS	2	PASI-PA
30369492005	RWJ-MWI	EPA 6010C	KAS	2	PASI-PA
30369492006	RW09-MW(S)	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30369492

Sample: RW19-MW(S)		Lab ID: 30369492001		Collected: 06/24/20 09:25		Received: 06/24/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.77J</b>	ug/L	3.0	0.34	1	06/26/20 07:54	07/01/20 13:44	7440-43-9	
Zinc, Dissolved	<b>2710</b>	ug/L	10.0	2.4	1	06/26/20 07:54	07/01/20 13:44	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30369492

Sample: RW19-MW(I)		Lab ID: 30369492002		Collected: 06/24/20 10:00		Received: 06/24/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3390</b>	ug/L	300	34.0	100	06/26/20 07:54	07/01/20 13:58	7440-43-9	
Zinc, Dissolved	<b>6450000</b>	ug/L	100000	23800	10000	06/26/20 07:54	07/01/20 14:12	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30369492

---

**Sample: RW16-MW(S)**      **Lab ID: 30369492003**      Collected: 06/24/20 11:15      Received: 06/24/20 22:15      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	06/26/20 07:54	07/01/20 14:14	7440-43-9	
Zinc, Dissolved	<b>10.0 U</b>	ug/L	10.0	2.4	1	06/26/20 07:54	07/01/20 14:14	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30369492

---

**Sample: RWJ-MWS**      **Lab ID: 30369492004**      Collected: 06/24/20 11:45      Received: 06/24/20 22:15      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	06/26/20 07:54	07/01/20 14:16	7440-43-9	
Zinc, Dissolved	<b>4.0J</b>	ug/L	10.0	2.4	1	06/26/20 07:54	07/01/20 14:16	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30369492

Sample: RWJ-MWI		Lab ID: 30369492005		Collected: 06/24/20 12:50		Received: 06/24/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>2.1J</b>	ug/L	3.0	0.34	1	06/26/20 07:54	07/01/20 14:19	7440-43-9	
Zinc, Dissolved	<b>805</b>	ug/L	10.0	2.4	1	06/26/20 07:54	07/01/20 14:19	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30369492

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW09-MW(S)</b>									
<b>Lab ID: 30369492006</b>									
Collected: 06/24/20 15:00    Received: 06/24/20 22:15    Matrix: Water									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>15.2</b>	ug/L	3.0	0.34	1	06/26/20 07:54	07/01/20 14:21	7440-43-9	
Zinc, Dissolved	<b>26700</b>	ug/L	1000	238	100	06/26/20 07:54	07/01/20 14:25	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30369492

QC Batch: 402689 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30369492001, 30369492002, 30369492003, 30369492004, 30369492005, 30369492006

METHOD BLANK: 1949237 Matrix: Water  
Associated Lab Samples: 30369492001, 30369492002, 30369492003, 30369492004, 30369492005, 30369492006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	07/01/20 13:40	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	07/01/20 13:40	

LABORATORY CONTROL SAMPLE: 1949238

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	480	96	80-120	
Zinc, Dissolved	ug/L	500	485	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1949240 1949241

Parameter	Units	30369492001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	0.77J	500	500	524	530	105	106	75-125	1	20	
Zinc, Dissolved	ug/L	2710	500	500	3220	3270	102	112	75-125	2	20	

SAMPLE DUPLICATE: 1949239

Parameter	Units	30369492001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	0.77J	0.85J		20	
Zinc, Dissolved	ug/L	2710	2810	4	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30369492

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30369492

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30369492001	RW19-MW(S)	EPA 3005A	402689	EPA 6010C	402817
30369492002	RW19-MW(I)	EPA 3005A	402689	EPA 6010C	402817
30369492003	RW16-MW(S)	EPA 3005A	402689	EPA 6010C	402817
30369492004	RWJ-MWS	EPA 3005A	402689	EPA 6010C	402817
30369492005	RWJ-MWI	EPA 3005A	402689	EPA 6010C	402817
30369492006	RW09-MW(S)	EPA 3005A	402689	EPA 6010C	402817

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



**Section B**  
Required Project Information:  
Report To: James Calenda  
Copy To: Stewart Kabis  
Purchase Order No.: EAG-SPT-6452  
Project Name: RWM GW Sampling  
Project Number:

**Section C**  
Invoice Information:  
Attention: Laura Sargent  
Company Name: EnviroAnalytics Group  
Address: 1650 Des Peres Road, Suite 303 St. Louis, MO 63131  
Pace Quote Reference: Samantha Bayura  
Pace Project Manager: Samantha Bayura  
Pace Profile #:

**Section D**  
Required Client Information:  
Valid Matrix Codes  
MATRIX CODE  
DRINKING WATER DW  
WASTE WATER WW  
PRODUCT WATER PW  
SOIL/SOLID SL  
OIL OL  
WIPE WIP  
AIR AIR  
OTHER OT  
TISSUE TS

**Section E**  
REGULATORY AGENCY  
NPDES  GROUND WATER  DRINKING WATER  
UST  RCRA  OTHER

ITEM #	Matrix Code	Sample ID	Matrix Code	Sample Type	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time	Temp in °C	Received on	Custody Sealed	Samples Intact
1	RW19-MWS	(A-Z, 0-9 / -)	DW	GRAB	LAB	6/24/20	15:30	LAB	6/24/20	15:30	21.1	Y	Y	Y
2	RW19-MWT	(A-Z, 0-9 / -)	WT	GRAB	LAB	6/24/20	19:10	LAB	6/24/20	19:10	21.1	Y	Y	Y
3	RW16-MWS	(A-Z, 0-9 / -)	SL	GRAB	LAB	6/24/20	15:30	LAB	6/24/20	15:30	21.1	Y	Y	Y
4	RWS-MWS	(A-Z, 0-9 / -)	WW	GRAB	LAB	6/24/20	19:10	LAB	6/24/20	19:10	21.1	Y	Y	Y
5	RWD-MWT	(A-Z, 0-9 / -)	P	GRAB	LAB	6/24/20	15:30	LAB	6/24/20	15:30	21.1	Y	Y	Y
6	RWD09-MWS	(A-Z, 0-9 / -)	OL	GRAB	LAB	6/24/20	15:30	LAB	6/24/20	15:30	21.1	Y	Y	Y

**Section F**  
Requested Analysis Filtered (Y/N)  
Total Cadmium 6010 Dissolved  
Total Zinc 6010 Dissolved  
Other

**Section G**  
SAMPLE TEMPERATURE AT COLLECTION  
# OF CONTAINERS  
Preservatives  
Unpreserved  
H<sub>2</sub>SO<sub>4</sub>  
HNO<sub>3</sub>  
HCl  
NaOH  
Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>  
Methanol  
Other

**Section H**  
Additional Comments  
NO  
NO

**Section I**  
SAMPLER NAME AND SIGNATURE  
PRINT Name of SAMPLER: Leandra H. Glumac  
SIGNATURE of SAMPLER: [Signature]

**Section J**  
DATE SIGNED (MM/DD/YYYY): 06/24/2020

**Section K**  
Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

**Section L**  
Page 14 of 15

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics Group

Project # \_\_\_\_\_

#-30369492

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: NIA

Label	<u>MLC</u>
LIMS Login	<u>MLC</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 10 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 2.4 °C Correction Factor: .3 °C Final Temp: 2.1 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:	
	Yes	No	N/A		
				<u>10D0391</u>	<u>MLC 6/25/2020</u>
Chain of Custody Present:	<input checked="" type="checkbox"/>			1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>			2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>			3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>			4.	
Sample Labels match COC:	<input checked="" type="checkbox"/>			5.	
-Includes date/time/ID Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>			6.	
Short Hold Time Analysis (<72hr remaining):		<input checked="" type="checkbox"/>		7.	
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>			8.	
Sufficient Volume:	<input checked="" type="checkbox"/>			9.	
Correct Containers Used:	<input checked="" type="checkbox"/>			10.	
-Pace Containers Used:	<input checked="" type="checkbox"/>				
Containers Intact:	<input checked="" type="checkbox"/>			11.	
Orthophosphate field filtered			<input checked="" type="checkbox"/>	12.	
Hex Cr Aqueous sample field filtered			<input checked="" type="checkbox"/>	13.	
Organic Samples checked for dechlorination:			<input checked="" type="checkbox"/>	14.	
Filtered volume received for Dissolved tests			<input checked="" type="checkbox"/>	15.	
All containers have been checked for preservation.	<input checked="" type="checkbox"/>			16.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>			Initial when completed	Date/time of preservation
				<u>MLC</u>	
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):			<input checked="" type="checkbox"/>	17.	
Trip Blank Present:			<input checked="" type="checkbox"/>	18.	
Trip Blank Custody Seals Present			<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr			<input checked="" type="checkbox"/>	Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



July 02, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30369731

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on June 25, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30369731

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling

Pace Project No.: 30369731

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30369731001	RW09-MW(I)	Water	06/25/20 09:00	06/25/20 21:30
30369731002	RW10-MW(I)	Water	06/25/20 13:35	06/25/20 21:30

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30369731

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30369731001	RW09-MW(I)	EPA 6010C	KAS	2	PASI-PA
30369731002	RW10-MW(I)	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30369731

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW09-MW(I)</b>									
<b>Lab ID: 30369731001</b>									
Collected: 06/25/20 09:00    Received: 06/25/20 21:30    Matrix: Water									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>16.5</b>	ug/L	3.0	0.34	1	06/30/20 09:27	07/01/20 11:25	7440-43-9	1c
Zinc, Dissolved	<b>77800</b>	ug/L	1000	238	100	06/30/20 09:27	07/01/20 11:34	7440-66-6	1c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30369731

Sample: RW10-MW(l)		Lab ID: 30369731002		Collected: 06/25/20 13:35		Received: 06/25/20 21:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.67J</b>	ug/L	3.0	0.34	1	06/30/20 09:27	07/01/20 11:29	7440-43-9	1c
Zinc, Dissolved	<b>940</b>	ug/L	10.0	2.4	1	06/30/20 09:27	07/01/20 11:29	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30369731

QC Batch: 403131 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30369731001, 30369731002

METHOD BLANK: 1951160 Matrix: Water  
Associated Lab Samples: 30369731001, 30369731002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	07/01/20 10:50	1c
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	07/01/20 10:50	1c

LABORATORY CONTROL SAMPLE: 1951161

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	496	99	80-120	1c
Zinc, Dissolved	ug/L	500	493	99	80-120	1c

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1951163 1951164

Parameter	Units	30369730001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	30.0 U	500	500	513	511	103	102	75-125	0	20	1c
Zinc, Dissolved	ug/L	100 U	500	500	527	528	105	106	75-125	0	20	1c

SAMPLE DUPLICATE: 1951162

Parameter	Units	30369730001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	30.0 U	30.0 U		20	1c
Zinc, Dissolved	ug/L	100 U	100 U		20	1c

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30369731

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### BATCH QUALIFIERS

Batch: 403275

[1] The PDS failed for Zn.

### ANALYTE QUALIFIERS

1c The PDS failed for Zn.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: RWM GW Sampling  
Pace Project No.: 30369731

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30369731001	RW09-MW(I)	EPA 3005A	403131	EPA 6010C	403275
30369731002	RW10-MW(I)	EPA 3005A	403131	EPA 6010C	403275

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



**30369731**

**Section B**  
Required Project Information:  
Report To: James Calenda  
Copy To: Stewart Kabis

**Section C**  
Invoices Information:  
Attention: Laura Sargent  
Company Name: EnviroAnalytics Group  
Address: 1650 Des Peres Road, Suite 303 St. Louis, MO 63131

**Section A**  
Required Client Information:  
Company: EnviroAnalytics Group  
Address: 1600 Sparrows Point Blvd, Suite B2  
Sparrows Point, MD 21219  
Purchase Order No.: EAG-SPT-6452  
Project Name: RWM GW Sampling  
Project Number:

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER

Site Location: MD  
STATE: MD

Price Quote Reference:  
Pace Project Manager: Samantha Bayura  
Pace Profile #:

ITEM #	Section D Required Client Information	Valid Matrix Codes	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	# OF CONTAINERS	Preservatives	Requested Analysis Filtered (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB					
1	RW09-MW(1)	DRINKING WATER (DW) WASTE WATER (WW) PRODUCT (P) SOIL/SOLID (SL) OIL (O) WIPE (WP) AIR (AR) OTHER (OT) TISSUE (TS)	06/25/2020	0900	W/G	1	Unpreserved H2SO4 HNO3 HCl NaOH Na2O3 Methanol Other	Y	001
2	RW10-MW(1)		11	1335	n	1	Unpreserved H2SO4 HNO3 HCl NaOH Na2O3 Methanol Other	Y	002
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
GMP/PACE	6/25/20	1500	GMP/PACE	6/25/20	15:25	Received on Ice (Y/N) <input type="checkbox"/> Custody Sealed (Y/N) <input type="checkbox"/> Cooler (Y/N) <input type="checkbox"/> Samples Intact (Y/N) <input type="checkbox"/>
GMP/PACE	6/25/20	15:15	DDS TRACE	6/25/20	15:25	
DDS TRACE	6/25/20	21:30	Marius & Cheryl	6/25/20	21:30	

**Section D**  
Required Client Information  
**SAMPLE ID**  
(A-Z, 0-9 / -)  
Sample IDs MUST BE UNIQUE

**Section E**  
SAMPLER NAME AND SIGNATURE  
PRINT Name of SAMPLER: *Samantha Bayura*  
SIGNATURE of SAMPLER: *[Signature]*  
DATE Signed (MM/DD/YYYY): *06/25/2020*

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to take charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: EnviroAnalytics Group

Project # \_\_\_\_\_

#-30369731

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>mll</u>
LIMS Login	<u>mll</u>

Custody Seal on Cooler/Box Present:  yes  no      Seals Intact:  yes  no

Thermometer Used 10      Type of Ice: Wet Blue None

Cooler Temperature Observed Temp 2.9 °C      Correction Factor: .3 °C      Final Temp: 2.6 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:	
	Yes	No	N/A		
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>10D0391</u>	<u>mll 6/25/2020</u>
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Includes date/time/ID      Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>mll</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

July 09, 2020

Mr. James Calenda  
EnviroAnalytics Group, LLC  
1600 Sparrows Point Blvd  
Suite B2  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30370381

Dear Mr. Calenda:

Enclosed are the analytical results for sample(s) received by the laboratory on June 30, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30370381

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30370381

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30370381001	RW12-MWI	Water	06/30/20 14:20	06/30/20 21:45
30370381002	RW12-MWS	Water	06/30/20 15:00	06/30/20 21:45
30370381003	RWR-MWI	Water	06/30/20 16:05	06/30/20 21:45

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling

Pace Project No.: 30370381

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30370381001	RW12-MWI	EPA 6010C	CTS	2	PASI-PA
30370381002	RW12-MWS	EPA 6010C	CTS	2	PASI-PA
30370381003	RWR-MWI	EPA 6010C	CTS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30370381

**Sample: RW12-MWI**      **Lab ID: 30370381001**      Collected: 06/30/20 14:20      Received: 06/30/20 21:45      Matrix: Water

Comments: • Sample analysis is dissolved as per client email.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>716</b>	ug/L	3.0	0.34	1	07/06/20 08:29	07/09/20 10:21	7440-43-9	
Zinc, Dissolved	<b>86400</b>	ug/L	1000	238	100	07/06/20 08:29	07/09/20 10:55	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30370381

**Sample: RW12-MWS**      **Lab ID: 30370381002**      Collected: 06/30/20 15:00      Received: 06/30/20 21:45      Matrix: Water

Comments: • Sample analysis is dissolved as per client email.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>5.2</b>	ug/L	3.0	0.34	1	07/06/20 08:29	07/09/20 10:24	7440-43-9	
Zinc, Dissolved	<b>4660</b>	ug/L	10.0	2.4	1	07/06/20 08:29	07/09/20 10:24	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30370381

**Sample: RWR-MWI**      **Lab ID: 30370381003**      Collected: 06/30/20 16:05      Received: 06/30/20 21:45      Matrix: Water

Comments: • Sample analysis is dissolved as per client email.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>508</b>	ug/L	3.0	0.34	1	07/06/20 08:29	07/09/20 10:39	7440-43-9	
Zinc, Dissolved	<b>2530000</b>	ug/L	10000	2380	1000	07/06/20 08:29	07/09/20 10:57	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30370381

QC Batch: 403744 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30370381001, 30370381002, 30370381003

METHOD BLANK: 1954089 Matrix: Water  
Associated Lab Samples: 30370381001, 30370381002, 30370381003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	07/09/20 10:05	
Zinc, Dissolved	ug/L	4.9J	10.0	2.4	07/09/20 10:05	

LABORATORY CONTROL SAMPLE: 1954090

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	485	97	80-120	
Zinc, Dissolved	ug/L	500	482	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1954092 1954093

Parameter	Units	30370379001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	3.0 U	500	500	536	539	107	108	75-125	1	20	
Zinc, Dissolved	ug/L	20.4	500	500	561	557	108	107	75-125	1	20	

SAMPLE DUPLICATE: 1954091

Parameter	Units	30370379001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0 U		20	
Zinc, Dissolved	ug/L	20.4	19.7	3	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30370381

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: RWM GW Sampling  
Pace Project No.: 30370381

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30370381001	RW12-MWI	EPA 3005A	403744	EPA 6010C	403881
30370381002	RW12-MWS	EPA 3005A	403744	EPA 6010C	403881
30370381003	RWR-MWI	EPA 3005A	403744	EPA 6010C	403881

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**  
Client Information:  
Company: EnviroAnalytics Group  
Address: 1600 Sparrows Point Blvd, Suite B2  
Sparrows Point, MD 21219  
Contact: jcalenda@enviroanalyticsgroup.com  
Phone: 314-620-3056 Fax: [ ]  
Requested Due Date/TAT: 5 Day

**Section B**  
Required Project Information:  
Report To: James Calenda  
Copy To: Stewart Kabis  
Purchase Order No.: EAG-SPT-6452  
Project Name: RWM GW Sampling  
Project Number: 20010103

**Section C**  
Invoice Information:  
Attention: Laura Sargent  
Company Name: EnviroAnalytics Group  
Address: 1650 Des Peres Road, Suite 303 St. Louis, MO 63131  
Pace Quote Reference: [ ]  
Pace Project Manager: Samantha Bayura  
Pace Profile #: [ ]

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER

Site Location: MD  
STATE: [ ]

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WT WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives Unpreserved H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Methanol Other	Requested Analysis Filtered (Y/N)	Y/N	Total Cadmium 6010 Total Zinc 6010	Analysis Test	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
				COMPOSITE START	COMPOSITE END/GRAB											
1	RW1Z-MWE	NT6		DATE: 6/30/20	TIME: 1420		1									
2	RW1Z-MWS	NT6		DATE: 6/30/20	TIME: 1500		1									
3	RWR-MWE	NT6		DATE: 6/30/20	TIME: 1605		1									
4																
5																
6																
7																
8																
9																
10																
11																
12																

**ADDITIONAL COMMENTS**  
NO SPPR  
NO CMB/PAE  
RDS ACE

**RELINQUISHED BY / AFFILIATION**  
DATE: 6/30/20 TIME: 1630  
CMB/PAE  
RDS ACE  
Ben Mumford

**ACCEPTED BY / AFFILIATION**  
DATE: 6/30/20 TIME: 16:30  
CMB/PAE  
RDS ACE

**DATE SIGNED (MM/DD/YY):** 6/30/20

**PRINT Name of SAMPLER:** Lisa Perrin  
**SIGNATURE of SAMPLER:** [Signature]

**SAMPLER NAME AND SIGNATURE**

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to rate charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt

# 30370381



Client Name: Enviro Analytics

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Label	<u>BLM</u>
LIMS Login	<u>BLM</u>

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 9 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 5.5 °C Correction Factor: 40.3 °C Final Temp: 5.8 °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
				<u>10D5191</u>	<u>BLM 7-1-2026</u>
Chain of Custody Present:	/			1.	
Chain of Custody Filled Out:	/			2.	
Chain of Custody Relinquished:	/			3.	
Sampler Name & Signature on COC:	/			4.	
Sample Labels match COC: -Includes date/time/ID Matrix: <u>WT</u>	/			5.	<u>Bottle have dissolved metals on them</u>
Samples Arrived within Hold Time:	/			6.	
Short Hold Time Analysis (<72hr remaining):		/		7.	
Rush Turn Around Time Requested:	/			8.	
Sufficient Volume:	/			9.	
Correct Containers Used: -Pace Containers Used:	/			10.	
Containers Intact:	/			11.	
Orthophosphate field filtered			/	12.	
Hex Cr Aqueous sample field filtered			/	13.	
Organic Samples checked for dechlorination:			/	14.	
Filtered volume received for Dissolved tests	/			15.	
All containers have been checked for preservation.	/			16.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	/			Initial when completed	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):			/	17.	
Trip Blank Present:			/	18.	
Trip Blank Custody Seals Present			/		
Rad Samples Screened < 0.5 mrem/hr			/	Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

September 16, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30381623

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on September 09, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30381623

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30381623

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30381623001	RWG-MWI	Water	09/09/20 14:00	09/09/20 22:30
30381623002	RWG-MWS	Water	09/09/20 14:45	09/09/20 22:30

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling

Pace Project No.: 30381623

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30381623001	RWG-MWI	EPA 6010C	KAS	2	PASI-PA
30381623002	RWG-MWS	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30381623

Sample: RWG-MWI		Lab ID: 30381623001	Collected: 09/09/20 14:00	Received: 09/09/20 22:30	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>38.2</b>	ug/L	3.0	0.34	1	09/15/20 09:33	09/15/20 18:42	7440-43-9	
Zinc, Dissolved	<b>545</b>	ug/L	10.0	2.4	1	09/15/20 09:33	09/15/20 18:42	7440-66-6	1c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30381623

Sample: RWG-MWS		Lab ID: 30381623002		Collected: 09/09/20 14:45		Received: 09/09/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	09/15/20 09:33	09/15/20 18:54	7440-43-9	
Zinc, Dissolved	<b>10.0 U</b>	ug/L	10.0	2.4	1	09/15/20 09:33	09/15/20 18:54	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30381623

QC Batch: 413855 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30381623001, 30381623002

METHOD BLANK: 2001665 Matrix: Water  
Associated Lab Samples: 30381623001, 30381623002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	09/15/20 18:38	
Zinc, Dissolved	ug/L	4.8J	10.0	2.4	09/15/20 18:38	

LABORATORY CONTROL SAMPLE: 2001666

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	493	99	80-120	
Zinc, Dissolved	ug/L	500	493	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2001668 2001669

Parameter	Units	30381623001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	38.2	500	500	585	579	109	108	75-125	1	20	
Zinc, Dissolved	ug/L	545	500	500	1070	1060	106	104	75-125	1	20	

SAMPLE DUPLICATE: 2001667

Parameter	Units	30381623001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	38.2	39.3	3	20	
Zinc, Dissolved	ug/L	545	558	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30381623

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

1c The precision between the sample and serial dilution exceeded laboratory control limits.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: RWM GW Sampling  
Pace Project No.: 30381623

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30381623001	RWG-MWI	EPA 3005A	413855	EPA 6010C	414007
30381623002	RWG-MWS	EPA 3005A	413855	EPA 6010C	414007

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be complete

WO#: 30381623



REGULATORY AGENCY:  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER

**Section B**  
 Invoice Information:  
 Attention: Math Newman  
 Company Name: Face Analytical Group  
 Address: 4650 Das Pass Road, Suite 200, Glen Burnie, MD 21061  
 Pace Quote Reference: Samantha Bayura  
 Pace Project Manager: Samantha Bayura  
 Pace Profile #:

**Section A**  
 Required Client Information:  
 Report To: Stewart Kabis  
 Copy To: Stewart Kabis  
 Purchase Order No.: 152  
 Project Name: RWM GW Sampling  
 Project Number:

**Section D**  
 Required Client Information  
 Valid Matrix Codes  
 MATRIX CODE  
 DW DRINKING WATER  
 WT WASTE WATER  
 WW WASTE WATER  
 P PRODUCT  
 SL SOIL/SOLID  
 OIL  
 WIP WIP  
 AIR AIR  
 OT OTHER  
 TS TISSUE  
**SAMPLE ID**  
 (A-Z, 0-9 / -)  
 Sample IDs MUST BE UNIQUE  
 Requested Due Date/TAT: 5 Day

ITEM #	Valid Matrix Codes	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
				COMPOSITE START	COMPOSITE END/GRAB						
1	RWG-RWI	WTG	G	9/19/20	1400		1	Unpreserved H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Methanol Other	Y		101
2	RWG-MUS	WTG	G	9/19/20	1445		1	Unpreserved H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Methanol Other	Y		002
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
NO	<u>Shane</u>	9/19/20	1500	<u>Face</u>	9/19/20	1521	
NO	<u>Shane</u>	9/19/20	1800	<u>Face</u>	9/19/20	1810	Y
	<u>Shane</u>	9/19/20	1830	<u>Mamus 1 (Lead)</u>	9/19/20	1730	Y N Y

Temp In °C  
 Received on Ice (Y/N)  
 Custody Sealed Cooler (Y/N)  
 Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE  
 PRINT Name of SAMPLER: Lisa Perrin  
 SIGNATURE of SAMPLER: Lisa Perrin  
 DATE SIGNED (MM/DD/YYYY): 9/19/20

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to rate charges of 1.2% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Trade Point

Project # #-30381623

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>MCC</u>
LIMS Login	<u>MCC</u>

Custody Seal on Cooler/Box Present:  yes  no      Seals intact:  yes  no

Thermometer Used 11      Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 4.8 °C      Correction Factor: .4 °C      Final Temp: 4.4 °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
				<u>10D4191</u>	<u>MCC 9/10/2020</u>
Chain of Custody Present:	/			1.	
Chain of Custody Filled Out:	/			2.	
Chain of Custody Relinquished:	/			3.	
Sampler Name & Signature on COC:	/			4.	
Sample Labels match COC:	/			5.	
-Includes date/time/ID      Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	/			6.	
Short Hold Time Analysis (<72hr remaining):		/		7.	
Rush Turn Around Time Requested:	/			8.	
Sufficient Volume:	/			9.	
Correct Containers Used:	/			10.	
-Pace Containers Used:	/				
Containers Intact:	/			11.	
Orthophosphate field filtered			/	12.	
Hex Cr Aqueous sample field filtered			/	13.	
Organic Samples checked for dechlorination:			/	14.	
Filtered volume received for Dissolved tests			/	15.	
All containers have been checked for preservation.	/			16.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	/			Initial when completed	Date/time of preservation
				<u>MCC</u>	
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):			/	17.	
Trip Blank Present:			/	18.	
Trip Blank Custody Seals Present			/		
Rad Samples Screened < 0.5 mrem/hr			/	Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

September 16, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30381961

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on September 10, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30381961

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30381961

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30381961001	RWB-MWI	Water	09/10/20 08:35	09/10/20 22:30
30381961002	RWB-MWS	Water	09/10/20 09:20	09/10/20 22:30
30381961003	RWF-MWI	Water	09/10/20 10:40	09/10/20 22:30
30381961004	RWF-MWS	Water	09/10/20 11:15	09/10/20 22:30
30381961005	RWE-MWI	Water	09/10/20 12:55	09/10/20 22:30
30381961006	RWE-MWS	Water	09/10/20 13:30	09/10/20 22:30
30381961007	RWD-MWI	Water	09/10/20 14:10	09/10/20 22:30
30381961008	RWD-MWS	Water	09/10/20 14:50	09/10/20 22:30

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30381961

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30381961001	RWB-MWI	EPA 6010C	KAS	2	PASI-PA
30381961002	RWB-MWS	EPA 6010C	KAS	2	PASI-PA
30381961003	RWF-MWI	EPA 6010C	KAS	2	PASI-PA
30381961004	RWF-MWS	EPA 6010C	KAS	2	PASI-PA
30381961005	RWE-MWI	EPA 6010C	KAS	2	PASI-PA
30381961006	RWE-MWS	EPA 6010C	KAS	2	PASI-PA
30381961007	RWD-MWI	EPA 6010C	KAS	2	PASI-PA
30381961008	RWD-MWS	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30381961

Sample: <b>RWB-MWI</b>		Lab ID: <b>30381961001</b>		Collected: 09/10/20 08:35	Received: 09/10/20 22:30	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.59J</b>	ug/L	3.0	0.34	1	09/15/20 09:33	09/15/20 18:57	7440-43-9	
Zinc, Dissolved	<b>15.2</b>	ug/L	10.0	2.4	1	09/15/20 09:33	09/15/20 18:57	7440-66-6	1c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30381961

Sample: <b>RWB-MWS</b>		Lab ID: <b>30381961002</b>		Collected: 09/10/20 09:20	Received: 09/10/20 22:30	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	09/15/20 09:33	09/15/20 19:04	7440-43-9	
Zinc, Dissolved	<b>5.8J</b>	ug/L	10.0	2.4	1	09/15/20 09:33	09/15/20 19:04	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30381961

Sample: RWF-MWI		Lab ID: 30381961003		Collected: 09/10/20 10:40	Received: 09/10/20 22:30	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3170</b>	ug/L	3.0	0.34	1	09/15/20 09:33	09/15/20 19:07	7440-43-9	
Zinc, Dissolved	<b>134000</b>	ug/L	1000	238	100	09/15/20 09:33	09/15/20 19:26	7440-66-6	1c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30381961

Sample: RWF-MWS		Lab ID: 30381961004		Collected: 09/10/20 11:15		Received: 09/10/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>6.0</b>	ug/L	3.0	0.34	1	09/15/20 09:33	09/15/20 19:12	7440-43-9	
Zinc, Dissolved	<b>44400</b>	ug/L	1000	238	100	09/15/20 09:33	09/15/20 19:28	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30381961

Sample: RWE-MWI		Lab ID: 30381961005		Collected: 09/10/20 12:55		Received: 09/10/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>584</b>	ug/L	3.0	0.34	1	09/15/20 09:33	09/15/20 19:14	7440-43-9	
Zinc, Dissolved	<b>110000</b>	ug/L	1000	238	100	09/15/20 09:33	09/15/20 19:31	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30381961

Sample: RWE-MWS		Lab ID: 30381961006		Collected: 09/10/20 13:30		Received: 09/10/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>8.7</b>	ug/L	3.0	0.34	1	09/15/20 09:33	09/15/20 19:16	7440-43-9	
Zinc, Dissolved	<b>22100</b>	ug/L	1000	238	100	09/15/20 09:33	09/15/20 19:37	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30381961

Sample: RWD-MWI		Lab ID: 30381961007		Collected: 09/10/20 14:10		Received: 09/10/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>541</b>	ug/L	3.0	0.34	1	09/15/20 09:33	09/15/20 19:18	7440-43-9	
Zinc, Dissolved	<b>69300</b>	ug/L	1000	238	100	09/15/20 09:33	09/15/20 19:40	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30381961

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWD-MWS      Lab ID: 30381961008      Collected: 09/10/20 14:50      Received: 09/10/20 22:30      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>0.46J</b>	ug/L	3.0	0.34	1	09/15/20 09:33	09/15/20 19:24	7440-43-9	
Zinc, Dissolved	<b>4.2J</b>	ug/L	10.0	2.4	1	09/15/20 09:33	09/15/20 19:24	7440-66-6	1c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30381961

QC Batch: 413855 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30381961001, 30381961002, 30381961003, 30381961004, 30381961005, 30381961006, 30381961007, 30381961008

METHOD BLANK: 2001665 Matrix: Water  
Associated Lab Samples: 30381961001, 30381961002, 30381961003, 30381961004, 30381961005, 30381961006, 30381961007, 30381961008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	09/15/20 18:38	
Zinc, Dissolved	ug/L	4.8J	10.0	2.4	09/15/20 18:38	

LABORATORY CONTROL SAMPLE: 2001666

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	493	99	80-120	
Zinc, Dissolved	ug/L	500	493	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2001668 2001669

Parameter	Units	2001668		2001669		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		30381623001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Cadmium, Dissolved	ug/L	38.2	500	500	585	579	109	108	75-125	1	20
Zinc, Dissolved	ug/L	545	500	500	1070	1060	106	104	75-125	1	20

SAMPLE DUPLICATE: 2001667

Parameter	Units	30381623001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	38.2	39.3	3	20	
Zinc, Dissolved	ug/L	545	558	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling  
Pace Project No.: 30381961

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

1c The precision between the sample and serial dilution exceeded laboratory control limits.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30381961

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30381961001	RWB-MWI	EPA 3005A	413855	EPA 6010C	414007
30381961002	RWB-MWS	EPA 3005A	413855	EPA 6010C	414007
30381961003	RWF-MWI	EPA 3005A	413855	EPA 6010C	414007
30381961004	RWF-MWS	EPA 3005A	413855	EPA 6010C	414007
30381961005	RWE-MWI	EPA 3005A	413855	EPA 6010C	414007
30381961006	RWE-MWS	EPA 3005A	413855	EPA 6010C	414007
30381961007	RWD-MWI	EPA 3005A	413855	EPA 6010C	414007
30381961008	RWD-MWS	EPA 3005A	413855	EPA 6010C	414007

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



30381961

**Section A**

**Required Project Information:**

Client Information: **Trade Point**  
Company: **EnviroAnalytics Group**  
Address: **1600 Sparrows Point Blvd, Suite B2, Sparrows Point, MD 21219**  
Phone: **410-620-3030** Fax: **410-620-3030**  
Requested Due Date/TAT: **5 Day**

**Section B**

**Invoice Information:**

Report To: **James Garcia**  
Copy To: **Stewart Kabis**  
Company Name: **EnviroAnalytics Group**  
Address: **1600 Sparrows Point Blvd, Suite B2, Sparrows Point, MD 21219**  
Purchase Order No.: **EA03010452**  
Project Name: **RWM GW Sampling**  
Project Number:

**Section C**

**Regulatory Agency:**

Attention: **Trace Point**  
Company Name: **EnviroAnalytics Group**  
Address: **1600 Sparrows Point Blvd, Suite B2, Sparrows Point, MD 21219**  
Site Location: **MD**  
State: **MD**

**Section D**  
Valid Matrix Codes  
MATRIX DRINKING WATER DW  
WATER WASTE WATER WT  
PRODUCT P  
SOIL/SOLID SL  
OIL OL  
WIPE WP  
AIR AR  
OTHER OT  
TISSUE TS

**SAMPLE ID**

(A-Z, 0-9 / -)

Sample IDs MUST BE UNIQUE

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	PRESERVATIVES	ANALYSIS TEST	Y/N	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
			DATE	TIME						
1	RWB-MWI	WT G	9/10/20	835	1	Unpreserved	Test Cadmium 6040 Test Zinc 6040	X		001
2	RWB-MWS	WT G		920	1			X		002
3	RWF-MWI	WT G		1040	1			X		003
4	RWF-MWS	WT G		1115	1			X		004
5	RWE-MWI	WT G		1255	1			X		005
6	RWE-MWS	WT G		1330	1			X		006
7	RWD-MWI	WT G		1410	1			X		007
8	RWD-MWS	WT G		1450	1			X		008

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp In C	Received on	Custody Sealed	Cooler (Y/N)	Samples Intact
NO	James Garcia / PAC	9/10/20	1525	James Garcia / PAC	9/10/20	1525		X			
NO	James Garcia / PAC	9/10/20	1920	James Garcia / PAC	9/10/20	1930		X			
	James Garcia / PAC	9/10/20	2030	Manoj K (Comp)	9/10/20	2030	29	X			

**SAMPLER NAME AND SIGNATURE**

PRINT Name of SAMPLER: **James Garcia**  
SIGNATURE of SAMPLER: **James Garcia**  
DATE Signed (MM/DD/YYYY): **9/10/20**

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Trade Point

Project # #-30381961

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>mll</u>
LIMS Login	<u>mll</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 11 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 3.3 °C Correction Factor: .4 °C Final Temp: 29 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:
	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1004191 mll 9/11/2020
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-Includes date/time/ID Matrix: <u>WT</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Short Hold Time Analysis (<72hr remaining):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
All containers have been checked for preservation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>mll</u> Date/time of preservation:
				Lot # of added preservative:
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed: Date:

Client Notification/ Resolution:

Person-Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted-By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in reports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)  
 \*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

September 21, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30382391

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on September 14, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30382391

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30382391

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30382391001	RW06-MWI	Water	09/14/20 09:25	09/14/20 22:15
30382391002	RW06-MWS	Water	09/14/20 10:00	09/14/20 22:15
30382391003	RW11-MWS	Water	09/14/20 11:05	09/14/20 22:15
30382391004	RW04-MWS	Water	09/14/20 11:55	09/14/20 22:15
30382391005	RW02-MWS	Water	09/14/20 13:30	09/14/20 22:15
30382391006	RW02-MWI	Water	09/14/20 14:25	09/14/20 22:15
30382391007	RW01-MWS	Water	09/14/20 15:00	09/14/20 22:15
30382391008	RW01-MWI	Water	09/14/20 15:45	09/14/20 22:15

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30382391

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30382391001	RW06-MWI	EPA 6010C	KAS	2	PASI-PA
30382391002	RW06-MWS	EPA 6010C	KAS	2	PASI-PA
30382391003	RW11-MWS	EPA 6010C	KAS	2	PASI-PA
30382391004	RW04-MWS	EPA 6010C	KAS	2	PASI-PA
30382391005	RW02-MWS	EPA 6010C	KAS	2	PASI-PA
30382391006	RW02-MWI	EPA 6010C	KAS	2	PASI-PA
30382391007	RW01-MWS	EPA 6010C	KAS	2	PASI-PA
30382391008	RW01-MWI	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30382391

Sample: RW06-MWI		Lab ID: 30382391001		Collected: 09/14/20 09:25		Received: 09/14/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>530</b>	ug/L	3.0	0.34	1	09/17/20 15:01	09/18/20 16:54	7440-43-9	
Zinc, Dissolved	<b>111000</b>	ug/L	1000	238	100	09/17/20 15:01	09/18/20 18:10	7440-66-6	ML

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30382391

---

**Sample: RW06-MWS**      **Lab ID: 30382391002**      Collected: 09/14/20 10:00      Received: 09/14/20 22:15      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>0.69J</b>	ug/L	3.0	0.34	1	09/17/20 15:01	09/18/20 17:09	7440-43-9	
Zinc, Dissolved	<b>8.0J</b>	ug/L	10.0	2.4	1	09/17/20 15:01	09/18/20 17:09	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30382391

Sample: RW11-MWS		Lab ID: 30382391003	Collected: 09/14/20 11:05	Received: 09/14/20 22:15	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>2.2J</b>	ug/L	3.0	0.34	1	09/17/20 15:01	09/18/20 17:11	7440-43-9	
Zinc, Dissolved	<b>46600</b>	ug/L	1000	238	100	09/17/20 15:01	09/18/20 18:48	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30382391

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW04-MWS      Lab ID: 30382391004      Collected: 09/14/20 11:55      Received: 09/14/20 22:15      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>0.62J</b>	ug/L	3.0	0.34	1	09/17/20 15:01	09/18/20 17:20	7440-43-9	
Zinc, Dissolved	<b>75.4</b>	ug/L	10.0	2.4	1	09/17/20 15:01	09/18/20 17:20	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30382391

Sample: RW02-MWS		Lab ID: 30382391005		Collected: 09/14/20 13:30		Received: 09/14/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.43J</b>	ug/L	3.0	0.34	1	09/17/20 15:01	09/18/20 17:22	7440-43-9	
Zinc, Dissolved	<b>1280</b>	ug/L	10.0	2.4	1	09/17/20 15:01	09/18/20 17:22	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30382391

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW02-MWI      Lab ID: 30382391006      Collected: 09/14/20 14:25      Received: 09/14/20 22:15      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>0.69J</b>	ug/L	3.0	0.34	1	09/17/20 15:01	09/18/20 17:24	7440-43-9	
Zinc, Dissolved	<b>123</b>	ug/L	10.0	2.4	1	09/17/20 15:01	09/18/20 17:24	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30382391

Sample: RW01-MWS		Lab ID: 30382391007		Collected: 09/14/20 15:00		Received: 09/14/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>1.3J</b>	ug/L	3.0	0.34	1	09/17/20 15:01	09/18/20 17:26	7440-43-9	
Zinc, Dissolved	<b>7050</b>	ug/L	10.0	2.4	1	09/17/20 15:01	09/18/20 17:26	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30382391

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW01-MWI      Lab ID: 30382391008      Collected: 09/14/20 15:45      Received: 09/14/20 22:15      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	09/17/20 15:01	09/18/20 17:28	7440-43-9	
Zinc, Dissolved	<b>3.7J</b>	ug/L	10.0	2.4	1	09/17/20 15:01	09/18/20 17:28	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30382391

QC Batch: 414425 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30382391001, 30382391002, 30382391003, 30382391004, 30382391005, 30382391006, 30382391007, 30382391008

METHOD BLANK: 2004104 Matrix: Water  
Associated Lab Samples: 30382391001, 30382391002, 30382391003, 30382391004, 30382391005, 30382391006, 30382391007, 30382391008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	09/18/20 16:50	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	09/18/20 16:50	

LABORATORY CONTROL SAMPLE: 2004105

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	468	94	80-120	
Zinc, Dissolved	ug/L	500	473	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2004107 2004108

Parameter	Units	30382391001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	530	500	500	1020	1020	99	98	75-125	0	20	
Zinc, Dissolved	ug/L	111000	500	500	105000	108000	-1320	-740	75-125	3	20 ML	

MATRIX SPIKE SAMPLE: 2004110

Parameter	Units	30382619003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	0.42J	500	501	100	75-125	
Zinc, Dissolved	ug/L	60300	500	63400	636	75-125 MH	

SAMPLE DUPLICATE: 2004106

Parameter	Units	30382391001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	530	542	2	20	
Zinc, Dissolved	ug/L	111000	106000	5	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



**QUALITY CONTROL DATA**

Project: RWM GW Sampling  
Pace Project No.: 30382391

SAMPLE DUPLICATE: 2004109

Parameter	Units	30382619003 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	0.42J	0.45J		20	
Zinc, Dissolved	ug/L	60300	61000	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling  
Pace Project No.: 30382391

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30382391

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30382391001	RW06-MWI	EPA 3005A	414425	EPA 6010C	414501
30382391002	RW06-MWS	EPA 3005A	414425	EPA 6010C	414501
30382391003	RW11-MWS	EPA 3005A	414425	EPA 6010C	414501
30382391004	RW04-MWS	EPA 3005A	414425	EPA 6010C	414501
30382391005	RW02-MWS	EPA 3005A	414425	EPA 6010C	414501
30382391006	RW02-MWI	EPA 3005A	414425	EPA 6010C	414501
30382391007	RW01-MWS	EPA 3005A	414425	EPA 6010C	414501
30382391008	RW01-MWI	EPA 3005A	414425	EPA 6010C	414501

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**CHAIN-OF-CUSTODY / Analytical Request Document**  
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**  
Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Requested Due Date/TAT: 5 day

**Section B**  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis  
PO Number: \_\_\_\_\_  
Project Name: RWM GW Sampling  
Project Number: \_\_\_\_\_

**Section C**  
Invoice Information:  
Attention: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
Pace Quote Reference: \_\_\_\_\_  
Pace Project Manager: Samantha Bayura  
Pace Profile #: \_\_\_\_\_

Page: \_\_\_\_\_ of \_\_\_\_\_

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER \_\_\_\_\_

Site Location  
STATE: MD

**Section D**  
Required Client Information  
Valid Matrix Codes  
MATRIX CODE  
DRINKING WATER DW  
WASTE WATER WW  
PRODUCT P  
SOLID OIL  
WIFE  
AIR  
OTHER  
TISSUE TS

**SAMPLE ID**  
(A-Z, 0-9 / -)  
Sample IDs MUST BE UNIQUE

**Requested Analysis Filtered (Y/N)**

ITEM #	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED	DATE	TIME	DATE	TIME	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Sample Conditions
1	RW06-MWI	WTG	COMPOSITE START	9/14/20	9:25					Jace	9/14/20	15:45	
2	RW06-MWS	WTG	COMPOSITE END/GRAB		10:00					Jace	9/14/20	16:05	X
3	RW11-MWS	WTG			11:05					Jace	9/14/20	16:55	
4	RW04-MWS	WTG			11:55					Jace	9/14/20	17:25	
5	RW02-MWS	WTG			13:30					Jace	9/14/20	17:55	
6	RW02-MWI	WTG			14:25					Jace	9/14/20	18:25	
7	RW01-MWS	WTG			15:00					Jace	9/14/20	18:55	
8	RW01-MWI	WTG			15:45					Jace	9/14/20	19:25	
9													
10													
11													
12													

Analysis Test:  
 Dissolved Cadmium  
 Dissolved Zinc  
 HCl  
 HNO<sub>3</sub>  
 H<sub>2</sub>SO<sub>4</sub>  
 Unpreserved  
 DI Water  
 Other  
 Na<sub>2</sub>SO<sub>3</sub>  
 NaOH  
 H<sub>2</sub>O<sub>2</sub>

Preservatives

# OF CONTAINERS

SAMPLE TEMP AT COLLECTION

Pace Project No / Lab I.D.  
 001  
002  
003  
004  
005  
006  
007  
008

**Section E**  
Additional Comments:  
Data Package Required? (Y/N)  
Data Validation Required? (Y/N)  
If data package is required, attach data package checklist.

**RELINQUISHED BY / AFFILIATION**  
 Jace  
 Jace  
 Jace

**DATE**  
 9/14/20  
 9/14/20  
 9/14/20

**TIME**  
 15:45  
 16:05  
 16:55

**ACCEPTED BY / AFFILIATION**  
 Jace  
 Jace  
 Jace

**DATE**  
 9/14/20  
 9/14/20  
 9/14/20

**TIME**  
 15:45  
 16:05  
 16:55

**Sample Conditions**  
 Ice (Y/N)  
 Custody Sealed (Y/N)  
 Samples Intact (Y/N)

Received on: 9/14/20  
 Cooler (Y/N)  
 Ice (Y/N)  
 Samples Intact (Y/N)

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Lisa Pearson  
 SIGNATURE of SAMPLER: Lisa Pearson

**DATE SIGNED (MM/DD/YYYY)**  
 9/14/20

Pittsburgh Lab Sample Condition Upon Receipt

# 30382391



Client Name: TradePoint

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Label	<u>BLM</u>
LIMS Login	<u>BLM</u>

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no      Seals intact:  yes  no

Thermometer Used 11      Type of Ice:  Wet  Blue  None

Cooler Temperature      Observed Temp 3.9 °C      Correction Factor: -0.4 °C      Final Temp: 3.5 °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
				<u>1002192</u>	<u>BLM 9-15-2020</u>
Chain of Custody Present:	/			1.	
Chain of Custody Filled Out:	/			2.	
Chain of Custody Relinquished:	/			3.	
Sampler Name & Signature on COC:	/			4.	
Sample Labels match COC: -Includes date/time/ID      Matrix: <u>WT</u>	/			5.	
Samples Arrived within Hold Time:	/			6.	
Short Hold Time Analysis (<72hr remaining):		/		7.	
Rush Turn Around Time Requested:	/			8.	
Sufficient Volume:	/			9.	
Correct Containers Used: -Pace Containers Used:	/			10.	
Containers Intact:	/			11.	
Orthophosphate field filtered			/	12.	
Hex Cr Aqueous sample field filtered			/	13.	
Organic Samples checked for dechlorination:			/	14.	
Filtered volume received for Dissolved tests All containers have been checked for preservation.	/		X	15.	<u>9-15-2020 BLM</u>
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				16.	
All containers meet method preservation requirements.	/			Initial when completed	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):			/	17.	
Trip Blank Present:			/	18.	
Trip Blank Custody Seals Present			/		
Rad Samples Screened < 0.5 mrem/hr			/	Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

September 21, 2020

Mr. Matthew Newman  
Tradeport Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30382619

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on September 15, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

This project follows the April 5, 2016 revision 3 Quality Assurance Project Plan for Sparrows Point Terminal Site, Sparrows Point, MD prepared for EnviroAnalytics Group and is not for PA DEP compliance reporting.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30382619

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30382619

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30382619001	RWH-MWS	Water	09/15/20 08:50	09/15/20 23:00
30382619002	RWH-MWI	Water	09/15/20 09:45	09/15/20 23:00
30382619003	RWS-MWS	Water	09/15/20 10:30	09/15/20 23:00
30382619004	RWS-MWI	Water	09/15/20 11:55	09/15/20 23:00
30382619005	RW19-MWS	Water	09/15/20 13:30	09/15/20 23:00
30382619006	RW19-MWI	Water	09/15/20 15:00	09/15/20 23:00

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling

Pace Project No.: 30382619

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30382619001	RWH-MWS	EPA 6010C	KAS	2	PASI-PA
30382619002	RWH-MWI	EPA 6010C	KAS	2	PASI-PA
30382619003	RWS-MWS	EPA 6010C	KAS	2	PASI-PA
30382619004	RWS-MWI	EPA 6010C	KAS	2	PASI-PA
30382619005	RW19-MWS	EPA 6010C	KAS	2	PASI-PA
30382619006	RW19-MWI	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: RWM GW Sampling  
Pace Project No.: 30382619

---

**Method:** EPA 6010C  
**Description:** 6010C MET ICP,Dissolved  
**Client:** Tradepoint Atlantic  
**Date:** September 21, 2020

### General Information:

6 samples were analyzed for EPA 6010C by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3005A with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 414425

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30382391001,30382619003

MH: Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

- MS (Lab ID: 2004110)
  - Zinc, Dissolved

ML: Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

- MS (Lab ID: 2004107)
  - Zinc, Dissolved
- MSD (Lab ID: 2004108)
  - Zinc, Dissolved

### Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

### Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30382619

Sample: RWH-MWS		Lab ID: 30382619001		Collected: 09/15/20 08:50		Received: 09/15/20 23:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>22.4</b>	ug/L	3.0	0.34	1	09/17/20 15:01	09/18/20 17:30	7440-43-9	
Zinc, Dissolved	<b>5330</b>	ug/L	10.0	2.4	1	09/17/20 15:01	09/18/20 17:30	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30382619

Sample: RWH-MWI		Lab ID: 30382619002		Collected: 09/15/20 09:45		Received: 09/15/20 23:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>4330</b>	ug/L	3.0	0.34	1	09/17/20 15:01	09/18/20 17:32	7440-43-9	
Zinc, Dissolved	<b>477000</b>	ug/L	1000	238	100	09/17/20 15:01	09/18/20 18:51	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30382619

Sample: RWS-MWS		Lab ID: 30382619003		Collected: 09/15/20 10:30		Received: 09/15/20 23:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.42J</b>	ug/L	3.0	0.34	1	09/17/20 15:01	09/18/20 17:39	7440-43-9	
Zinc, Dissolved	<b>60300</b>	ug/L	1000	238	100	09/17/20 15:01	09/18/20 18:53	7440-66-6	MH

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30382619

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWS-MWI      Lab ID: 30382619004      Collected: 09/15/20 11:55      Received: 09/15/20 23:00      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>1.8J</b>	ug/L	3.0	0.34	1	09/17/20 15:01	09/18/20 18:00	7440-43-9	
Zinc, Dissolved	<b>760000</b>	ug/L	10000	2380	1000	09/17/20 15:01	09/18/20 18:59	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30382619

Sample: RW19-MWS		Lab ID: 30382619005		Collected: 09/15/20 13:30		Received: 09/15/20 23:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>4.3</b>	ug/L	3.0	0.34	1	09/17/20 15:01	09/18/20 17:57	7440-43-9	
Zinc, Dissolved	<b>22600</b>	ug/L	1000	238	100	09/17/20 15:01	09/18/20 19:02	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30382619

Sample: RW19-MWI		Lab ID: 30382619006		Collected: 09/15/20 15:00	Received: 09/15/20 23:00	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>1630</b>	ug/L	300	34.0	100	09/17/20 15:01	09/18/20 19:04	7440-43-9	
Zinc, Dissolved	<b>6220000</b>	ug/L	10000	2380	1000	09/17/20 15:01	09/18/20 19:07	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30382619

QC Batch: 414425 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30382619001, 30382619002, 30382619003, 30382619004, 30382619005, 30382619006

METHOD BLANK: 2004104 Matrix: Water  
Associated Lab Samples: 30382619001, 30382619002, 30382619003, 30382619004, 30382619005, 30382619006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	09/18/20 16:50	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	09/18/20 16:50	

LABORATORY CONTROL SAMPLE: 2004105

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	468	94	80-120	
Zinc, Dissolved	ug/L	500	473	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2004107 2004108

Parameter	Units	30382391001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	530	500	500	1020	1020	99	98	75-125	0	20	
Zinc, Dissolved	ug/L	111000	500	500	105000	108000	-1320	-740	75-125	3	20 ML	

MATRIX SPIKE SAMPLE: 2004110

Parameter	Units	30382619003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	0.42J	500	501	100	75-125	
Zinc, Dissolved	ug/L	60300	500	63400	636	75-125 MH	

SAMPLE DUPLICATE: 2004106

Parameter	Units	30382391001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	530	542	2	20	
Zinc, Dissolved	ug/L	111000	106000	5	20	

SAMPLE DUPLICATE: 2004109

Parameter	Units	30382619003 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	0.42J	0.45J		20	
Zinc, Dissolved	ug/L	60300	61000	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling  
Pace Project No.: 30382619

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30382619

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30382619001	RWH-MWS	EPA 3005A	414425	EPA 6010C	414501
30382619002	RWH-MWI	EPA 3005A	414425	EPA 6010C	414501
30382619003	RWS-MWS	EPA 3005A	414425	EPA 6010C	414501
30382619004	RWS-MWI	EPA 3005A	414425	EPA 6010C	414501
30382619005	RW19-MWS	EPA 3005A	414425	EPA 6010C	414501
30382619006	RW19-MWI	EPA 3005A	414425	EPA 6010C	414501

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**Section A**  
 Required Client Information:  
 Company: Tradepoint Atlantic  
 Address: 1600 Sparrows Point Blvd  
 Sparrows Point, MD 21219  
 Email To:  
 Phone:  
 Fax:  
 Requested Due Date/TAT: 5 day

**Section B**  
 Required Project Information:  
 Report To: Matt Newman  
 Copy To: Stew Kabis  
 PO Number:  
 Project Name: RWM GW Sampling  
 Project Number:

**Section C**  
 Invoice Information:  
 Attention: Matt Newman  
 Company Name: Tradepoint Atlantic  
 Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
 Face Quote Reference:  
 Pace Project Manager: Samantha Bayura  
 Pace Profile #:  
 Site Location: STATE: MD  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER

ITEM #	Valid Matrix Codes MATRIX DRINKING WATER DW WATER WT WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	Preservatives	Requested Analysis: Filtered (Y/N)	Pace Project No. / Lab I.D.
				COMPOSITE START	COMPOSITE END/GRAB				
				DATE	TIME	DATE	TIME		
1	RW HAWES	WT G	G	9/15/20	8:50	1	Unpreserved	Analysis Test ↑ Dissolved Cadmium Dissolved Zinc	001
2	RW H - MW I	WT G	G	9/15/20	9:45	1	HCl		002
3	RWS - MWS	WT G	G	9/15/20	10:30	1	HNO <sub>3</sub>		003
4	RWS - MW I	WT G	G	9/15/20	11:55	1	H <sub>2</sub> SO <sub>4</sub>		004
5	RW 19 - MWS	WT G	G	9/15/20	13:30	1	NaOH		005
6	RW 19 - MW I	WT G	G	9/15/20	15:00	1	Na <sub>2</sub> O <sub>2</sub>		000
7							Other		
8							DI Water		
9									
10									
11									
12									

**ADDITIONAL COMMENTS**

Data Package Required? (Y/N): *Yes*

Data Validation Required? (Y/N): *Yes*

If data package is required, attach data package checklist:

REL. QUISHED BY/AFFILIATION: *Stew Kabis* DATE: 9/15/20 TIME: 16:40

ACCEPTED BY/AFFILIATION: *Joe Pace* DATE: 9/15/20 TIME: 16:46

RECEIVED ON: *9/15/20* TIME: 13:00

COOLER (Y/N): *N*

ICE (Y/N): *Y*

STUDY SEALED: *Y*

SAMPLES INTACT: *Y*

DATE SIGNED: 9/15/20

SIGNATURE OF SAMPLER: *Lisa Ferrin*

PRINT NAME OF SAMPLER: Lisa Ferrin

DATE SIGNED (MM/DD/YYYY): 09/15/20

F-ALL-Q-020rev.06.2-Feb-2007

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt

#-30382619



Client Name: TradePoint Atlantic Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: WVA

Label	<u>mll</u>
LIMS Login	<u>mll</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 11 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 2.9 °C Correction Factor: .4 °C Final Temp: 2.5 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:
	Yes	No	N/A	
				<u>10D2192</u>
				<u>mll 9/15/2020</u>
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC: -Includes date/time/ID Matrix: <u>WT</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. <u>no time on sample RWH-MWT label</u>
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used: -Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>mll</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed: _____ Date: _____

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

September 21, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30382852

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on September 16, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30382852

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30382852

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30382852001	RW05R-MWI	Water	09/16/20 13:15	09/16/20 22:15
30382852002	RW05-MWS	Water	09/16/20 14:05	09/16/20 22:15
30382852003	RW08-MWI	Water	09/16/20 15:10	09/16/20 22:15

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30382852

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30382852001	RW05R-MWI	EPA 6010C	KAS	2	PASI-PA
30382852002	RW05-MWS	EPA 6010C	KAS	2	PASI-PA
30382852003	RW08-MWI	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30382852

<b>Sample: RW05R-MWI</b>		<b>Lab ID: 30382852001</b>		Collected: 09/16/20 13:15	Received: 09/16/20 22:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>1650</b>	ug/L	3.0	0.34	1	09/17/20 15:03	09/18/20 19:34	7440-43-9	
Zinc, Dissolved	<b>80000</b>	ug/L	1000	238	100	09/17/20 15:03	09/18/20 20:11	7440-66-6	1c,ML

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30382852

Sample: RW05-MWS		Lab ID: 30382852002		Collected: 09/16/20 14:05		Received: 09/16/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	09/17/20 15:03	09/18/20 19:49	7440-43-9	
Zinc, Dissolved	<b>5.9J</b>	ug/L	10.0	2.4	1	09/17/20 15:03	09/18/20 19:49	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30382852

Sample: RW08-MWI		Lab ID: 30382852003		Collected: 09/16/20 15:10		Received: 09/16/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.39J</b>	ug/L	3.0	0.34	1	09/17/20 15:03	09/18/20 19:51	7440-43-9	
Zinc, Dissolved	<b>5.4J</b>	ug/L	10.0	2.4	1	09/17/20 15:03	09/18/20 19:51	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30382852

QC Batch: 414427 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30382852001, 30382852002, 30382852003

METHOD BLANK: 2004116 Matrix: Water

Associated Lab Samples: 30382852001, 30382852002, 30382852003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	09/18/20 19:29	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	09/18/20 19:29	

LABORATORY CONTROL SAMPLE: 2004117

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	460	92	80-120	
Zinc, Dissolved	ug/L	500	464	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2004119 2004120

Parameter	Units	30382852001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	1650	500	500	2260	2260	122	123	75-125	0	20	
Zinc, Dissolved	ug/L	80000	500	500	77600	72200	-486	-1570	75-125	7	20 ML	

SAMPLE DUPLICATE: 2004118

Parameter	Units	30382852001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	1650	1780	8	20	
Zinc, Dissolved	ug/L	80000	74200	8	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30382852

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

1c The precision between the sample and serial dilution exceeded laboratory control limits.

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: RWM GW Sampling  
Pace Project No.: 30382852

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30382852001	RW05R-MWI	EPA 3005A	414427	EPA 6010C	414502
30382852002	RW05-MWS	EPA 3005A	414427	EPA 6010C	414502
30382852003	RW08-MWI	EPA 3005A	414427	EPA 6010C	414502

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

WO#: 30382852

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be com[plete]



**Section A**  
**Required Client Information:**  
 Company: Tradepoint Atlantic  
 Address: 1600 Sparrows Point Blvd  
 Sparrows Point, MD 21219  
 Email To:  
 Phone:  
 Requested Due Date/TAT: 5 day

**Section B**  
**Required Project Information:**  
 Report To: Matt Newiman  
 Copy To: Stew Kabis  
 PO Number:  
 Project Name: RWM GW Sampling  
 Project Number:  
 Requested Due Date/TAT: 5 day

**Section C**  
**Invoice Information:**  
 Attention: Matt Newiman  
 Company Name: Tradepoint Atlantic  
 Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
 Pace Quote Reference:  
 Pace Project Manager: Samantha Bayura  
 Pace Profile #:  
 REGULATORY AGENCY  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER  
 Site Location: MD  
 STATE:

ITEM #	Valid Matrix Codes MATRIX CODE	Section D Required Client Information	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES		Requested Analysis: Filtered (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB				DATE	TIME		
1.	RW08-MWI					WTG	1				001
2.	RW05-MWS					WTG	1				002
3.	RW08-MWI					WTG	1				003
4.											
5.											
6.											
7.											
8.											
9.											
10.											
11.											
12.											

**Requested Analysis: Filtered (Y/N)**

**Analysis Test:** Dissolved Cadmium, Dissolved Zinc

**REQUISITIONED BY/AFFILIATION** | **DATE** | **TIME** | **ACCEPTED BY/AFFILIATION** | **DATE** | **TIME** | **SAMPLE CONDITIONS**

Stew Kabis	9/16/20	1600	Pace	9-16-20	1600	Y
Stew Kabis	9/16/20	1445	Pace	9-16-20	1400	N
Stew Kabis	9/16/20	1510	Pace	9-16-20	1415	Y

**ADDITIONAL COMMENTS (Y/N):**

Data Package Required? (Y/N):  
 Data Validation Required? (Y/N):  
 If data package is required, attach data package checklist.

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Lisa Pace  
 SIGNATURE of SAMPLER: *[Signature]* DATE Signed (MM/DD/YY): 9/16/20

Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)



Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Trade Point Atlantic Project # \_\_\_\_\_

# 30382852

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: DIA

Label	<u>mcc</u>
LIMS Login	<u>mcc</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 11 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 3.7 °C Correction Factor: .4 °C Final Temp: 3.3 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and initials of person examining contents	
	Yes	No	N/A		
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>10D2192</u>	<u>mcc 9/16/2010</u>
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Includes date/time/ID Matrix: <u>WI</u>					
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Short Hold Time Analysis (<72hr remaining):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
All containers have been checked for preservation:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>mcc</u>	Date/time of preservation: _____
				Lot # of added preservative: _____	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed: _____	Date: _____

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

September 21, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30382853

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on September 16, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30382853

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30382853

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30382853001	RW14-MWS	Water	09/16/20 11:04	09/16/20 22:15
30382853002	RW15-MWS	Water	09/16/20 11:42	09/16/20 22:15
30382853003	RW15-MWI	Water	09/16/20 12:44	09/16/20 22:15
30382853004	RW18-MWS	Water	09/16/20 13:17	09/16/20 22:15
30382853005	RW18-MWI	Water	09/16/20 13:52	09/16/20 22:15

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30382853

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30382853001	RW14-MWS	EPA 6010C	KAS	2	PASI-PA
30382853002	RW15-MWS	EPA 6010C	KAS	2	PASI-PA
30382853003	RW15-MWI	EPA 6010C	KAS	2	PASI-PA
30382853004	RW18-MWS	EPA 6010C	KAS	2	PASI-PA
30382853005	RW18-MWI	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30382853

Sample: RW14-MWS		Lab ID: 30382853001		Collected: 09/16/20 11:04		Received: 09/16/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3240</b>	ug/L	3.0	0.34	1	09/17/20 15:03	09/18/20 19:59	7440-43-9	
Zinc, Dissolved	<b>56600</b>	ug/L	1000	238	100	09/17/20 15:03	09/18/20 20:30	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30382853

Sample: RW15-MWS		Lab ID: 30382853002		Collected: 09/16/20 11:42		Received: 09/16/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.51J</b>	ug/L	3.0	0.34	1	09/17/20 15:03	09/18/20 20:02	7440-43-9	
Zinc, Dissolved	<b>9.4J</b>	ug/L	10.0	2.4	1	09/17/20 15:03	09/18/20 20:02	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30382853

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW15-MWI      Lab ID: 30382853003      Collected: 09/16/20 12:44      Received: 09/16/20 22:15      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>8.0</b>	ug/L	3.0	0.34	1	09/17/20 15:03	09/18/20 20:04	7440-43-9	
Zinc, Dissolved	<b>3210</b>	ug/L	10.0	2.4	1	09/17/20 15:03	09/18/20 20:04	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30382853

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW18-MWS      Lab ID: 30382853004      Collected: 09/16/20 13:17      Received: 09/16/20 22:15      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	09/17/20 15:03	09/18/20 20:06	7440-43-9	
Zinc, Dissolved	<b>22.7</b>	ug/L	10.0	2.4	1	09/17/20 15:03	09/18/20 20:06	7440-66-6	1c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30382853

Sample: RW18-MWI		Lab ID: 30382853005		Collected: 09/16/20 13:52		Received: 09/16/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>43.1</b>	ug/L	3.0	0.34	1	09/17/20 15:03	09/18/20 20:08	7440-43-9	
Zinc, Dissolved	<b>753000</b>	ug/L	1000	238	100	09/17/20 15:03	09/18/20 20:32	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30382853

QC Batch: 414427 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30382853001, 30382853002, 30382853003, 30382853004, 30382853005

METHOD BLANK: 2004116 Matrix: Water  
Associated Lab Samples: 30382853001, 30382853002, 30382853003, 30382853004, 30382853005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	09/18/20 19:29	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	09/18/20 19:29	

LABORATORY CONTROL SAMPLE: 2004117

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	460	92	80-120	
Zinc, Dissolved	ug/L	500	464	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2004119 2004120

Parameter	Units	30382852001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	1650	500	500	2260	2260	122	123	75-125	0	20	
Zinc, Dissolved	ug/L	80000	500	500	77600	72200	-486	-1570	75-125	7	20 ML	

SAMPLE DUPLICATE: 2004118

Parameter	Units	30382852001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	1650	1780	8	20	
Zinc, Dissolved	ug/L	80000	74200	8	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30382853

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

1c The precision between the sample and serial dilution exceeded laboratory control limits.

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30382853

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30382853001	RW14-MWS	EPA 3005A	414427	EPA 6010C	414502
30382853002	RW15-MWS	EPA 3005A	414427	EPA 6010C	414502
30382853003	RW15-MWI	EPA 3005A	414427	EPA 6010C	414502
30382853004	RW18-MWS	EPA 3005A	414427	EPA 6010C	414502
30382853005	RW18-MWI	EPA 3005A	414427	EPA 6010C	414502

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



**Section A**  
Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To:  
Phone:  
Requested Due Date/TAT: 5 day

**Section B**  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis  
PO Number:  
Project Name: RWM GW Sampling  
Project Number:

**Section C**  
Invoice Information:  
Attention: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
Face Quote Reference:  
Pace Project Manager: Samantha Bayura  
Face Profile #:  
REGULATORY AGENCY  
NPDES  GROUND WATER  DRINKING WATER  
UST  RCRA  OTHER   
Site Location: MD

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OI WIPE WI AIR AR OTHER OT TISSUE TS	COLLECTED		SAMPLE TYPE (G=GRAB C=CMP)	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION		# OF CONTAINERS	Preservatives	Analysis Test ↑	Requested Analysis Filtered (Y/N)	Pace Project No / Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB			DATE	TIME					
1	RW14-MNS				G	WTG	09/16/20	1604	1	H2SO4 Unpreserved	DI Water	Y	001
2	RW15-MNS				G	WTG	09/16/20	1618	1	H2SO4 Unpreserved	DI Water	Y	007
3	RW15-MNI				G	WTG	09/16/20	1618	1	H2SO4 Unpreserved	DI Water	Y	003
4	RW18-MNS				G	WTG	09/16/20	1617	1	H2SO4 Unpreserved	DI Water	Y	004
5	RW18-MNI				G	WTG	09/16/20	1652	1	H2SO4 Unpreserved	DI Water	Y	005
6													
7													
8													
9													
10													
11													
12													

**ADDITIONAL COMMENTS**

Data Package Required? (Y/N): Y  
Data Validation Required? (Y/N): Y  
if data package is required, attach data package checklist.

RELINQUISHED BY/AFFILIATION	DATE	TIME	ACCEPTED BY/AFFILIATION	DATE	TIME	Sample Conditions
MNW Bann ARM	09/16/20	1600	MNW Bann	09-16-20	1600	
MNW Bann	09/16/20	1645	MNW Bann	09-16-20	1600	VI
MNW Bann	09/16/20	1615	MNW Bann	09-16-20	2215	Y N Y

**SAMPLER NAME AND SIGNATURE**  
PRINT Name of SAMPLER: MNW Bann  
SIGNATURE of SAMPLER: [Signature]  
DATE Signed (MM/DD/YY): 09/16/20

Received on (Y/N)  Cooler (Y/N)  Samples Intact (Y/N)

Pittsburgh Lab Sample Condition Upon Receipt

# - 30382853



Client Name: Trade Point Atlantic Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>mcc</u>
LIMS Login	<u>mcc</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 11 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 3.2 °C Correction Factor: .4 °C Final Temp: 2.8 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:	
	Yes	No	N/A		
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10D2192 mcc 9/16/2019	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Includes date/time/ID Matrix: <u>WT</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>mcc</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.	
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.	
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

September 28, 2020

Mr. Matthew Newman  
Tradeport Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30383317

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on September 18, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

This project follows the April 5, 2016 revision 3 Quality Assurance Project Plan for Sparrows Point Terminal Site, Sparrows Point, MD prepared for EnviroAnalytics Group and is not for PA DEP compliance reporting.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30383317

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Florida: Cert E871149 SEKS WET  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling

Pace Project No.: 30383317

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30383317001	RW08-MWS	Water	09/17/20 11:30	09/18/20 23:00
30383317002	RWP-MWI	Water	09/17/20 12:40	09/18/20 23:00
30383317003	RW09-MWI	Water	09/17/20 14:10	09/18/20 23:00
30383317004	RW09-MWS	Water	09/17/20 15:00	09/18/20 23:00

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30383317

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30383317001	RW08-MWS	EPA 6010C	KAS	2	PASI-PA
30383317002	RWP-MWI	EPA 6010C	KAS	2	PASI-PA
30383317003	RW09-MWI	EPA 6010C	KAS	2	PASI-PA
30383317004	RW09-MWS	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: RWM GW Sampling  
Pace Project No.: 30383317

---

**Method:** EPA 6010C  
**Description:** 6010C MET ICP,Dissolved  
**Client:** Tradepoint Atlantic  
**Date:** September 28, 2020

### General Information:

4 samples were analyzed for EPA 6010C by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3005A with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 414934

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30383317001,30383318007

ML: Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

- MS (Lab ID: 2006795)
  - Cadmium, Dissolved
  - Zinc, Dissolved

### Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

### Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383317

Sample: RW08-MWS		Lab ID: 30383317001		Collected: 09/17/20 11:30		Received: 09/18/20 23:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	09/22/20 09:58	09/24/20 17:50	7440-43-9	
Zinc, Dissolved	<b>2330</b>	ug/L	10.0	2.4	1	09/22/20 09:58	09/24/20 17:50	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383317

Sample: RWP-MWI		Lab ID: 30383317002		Collected: 09/17/20 12:40		Received: 09/18/20 23:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>7220</b>	ug/L	300	34.0	100	09/22/20 09:58	09/24/20 19:07	7440-43-9	
Zinc, Dissolved	<b>3810000</b>	ug/L	10000	2380	1000	09/22/20 09:58	09/24/20 19:14	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383317

**Sample: RW09-MWI**      **Lab ID: 30383317003**      Collected: 09/17/20 14:10      Received: 09/18/20 23:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>10.7</b>	ug/L	3.0	0.34	1	09/22/20 09:58	09/24/20 18:05	7440-43-9	
Zinc, Dissolved	<b>79100</b>	ug/L	1000	238	100	09/22/20 09:58	09/24/20 19:09	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30383317

Sample: RW09-MWS		Lab ID: 30383317004		Collected: 09/17/20 15:00	Received: 09/18/20 23:00	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>17.0</b>	ug/L	3.0	0.34	1	09/22/20 09:58	09/24/20 18:03	7440-43-9	
Zinc, Dissolved	<b>39900</b>	ug/L	1000	238	100	09/22/20 09:58	09/24/20 19:11	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30383317

QC Batch: 414934 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30383317001, 30383317002, 30383317003, 30383317004

METHOD BLANK: 2006789 Matrix: Water  
Associated Lab Samples: 30383317001, 30383317002, 30383317003, 30383317004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	09/24/20 17:46	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	09/24/20 17:46	

LABORATORY CONTROL SAMPLE: 2006790

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	478	96	80-120	
Zinc, Dissolved	ug/L	500	491	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2006792 2006793

Parameter	Units	30383317001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	3.0 U	500	500	518	518	103	103	75-125	0	20	
Zinc, Dissolved	ug/L	2330	500	500	2820	2850	99	105	75-125	1	20	

MATRIX SPIKE SAMPLE: 2006795

Parameter	Units	30383318007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	23900	500	23400	-96	75-125 ML	
Zinc, Dissolved	ug/L	296000	500	281000	-3180	75-125 ML	

SAMPLE DUPLICATE: 2006791

Parameter	Units	30383317001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0 U		20	
Zinc, Dissolved	ug/L	2330	2290	2	20	

SAMPLE DUPLICATE: 2006794

Parameter	Units	30383318007 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	23900	24800	4	20	
Zinc, Dissolved	ug/L	296000	304000	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling  
Pace Project No.: 30383317

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: RWM GW Sampling  
Pace Project No.: 30383317

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30383317001	RW08-MWS	EPA 3005A	414934	EPA 6010C	415037
30383317002	RWP-MWI	EPA 3005A	414934	EPA 6010C	415037
30383317003	RW09-MWI	EPA 3005A	414934	EPA 6010C	415037
30383317004	RW09-MWS	EPA 3005A	414934	EPA 6010C	415037

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**WO#: 30383317**



30383317

quest document  
ust be completed accurately.

**Section A**  
Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Requested Due Date/TAT: 5 day

**Section B**  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis  
PO Number: \_\_\_\_\_  
Project Name: RWM GW Sampling  
Project Number: \_\_\_\_\_

Attention: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
Pace Quote Reference: \_\_\_\_\_  
Pace Project Manager: Samantha Bayura  
Pace Profile #: \_\_\_\_\_

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER \_\_\_\_\_

Site Location: **MD**  
STATE: **MD**

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OL WIPE WIP AIR AR OTHER OT TISSUE TS	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP) (see valid codes to left)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Unpreserved H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub> Other DI Water	Preservatives	Analysis Test Y/N	Requested Analysis Filtered (Y/N)	Pace Project No./ Lab I.D.
		COMPOSITE START	COMPOSITE END/CPAB								
1	RW08-MWS			WTG	WTG	1			X		001
2	RW09-MWS			WTG	WTG	1			X		002
3	RW09-MWS			WTG	WTG	1			X		003
4	RW09-MWS			WTG	WTG	1			X		004
5											
6											
7											
8											
9											
10											
11											
12											

**REQUISITIONED BY/AFFILIATION** DATE TIME  
 [Signature] 9/17/20 1530

**ACCEPTED BY/AFFILIATION** DATE TIME  
 [Signature] 9/18/20 1405

**DATE SIGNED (MM/DD/YY):** 9/17/20

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Lisa Parnin  
 SIGNATURE of SAMPLER: [Signature]

Received on \_\_\_\_\_ Ice (Y/N) \_\_\_\_\_ Custody Sealed (Y/N) \_\_\_\_\_ Samples Intact (Y/N) \_\_\_\_\_

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Tradepoint

Project # 30383317

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Label JSM  
LIMS Login JSM

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 10 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 3.5 °C Correction Factor: -0.5 °C Final Temp: 3.0 °C  
Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
				<u>1000192</u>	<u>JSM 9/19/2000</u>
Chain of Custody Present:	/			1.	
Chain of Custody Filled Out:	/			2.	
Chain of Custody Relinquished:	/			3.	
Sampler Name & Signature on COC:	/			4.	
Sample Labels match COC:	/			5.	
-Includes date/time/ID Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	/			6.	
Short Hold Time Analysis (<72hr remaining):	/			7.	
Rush Turn Around Time Requested:	/			8.	
Sufficient Volume:	/			9.	
Correct Containers Used:	/			10.	
-Pace Containers Used:	/				
Containers Intact:	/			11.	
Orthophosphate field filtered			/	12.	
Hex Cr Aqueous sample field filtered			/	13.	
Organic Samples checked for dechlorination:			/	14.	
Filtered volume received for Dissolved tests			/	15.	
All containers have been checked for preservation.	/			16.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	/			Initial when completed: <u>JSM</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):			/	17.	
Trip Blank Present:			/	18.	
Trip Blank Custody Seals Present			/		
Rad Samples Screened < 0.5 mrem/hr			/	Initial when completed: <u>JSM</u>	Date: <u>9/19/2000</u>

Client Notification/ Resolution:  
 Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_  
 Comments/ Resolution: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)  
 \*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

September 28, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30383318

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on September 18, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

This project follows the April 5, 2016 revision 3 Quality Assurance Project Plan for Sparrows Point Terminal Site, Sparrows Point, MD prepared for EnviroAnalytics Group and is not for PA DEP compliance reporting.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30383318

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Florida: Cert E871149 SEKS WET  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30383318

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30383318001	RW25-MWI	Water	09/17/20 09:17	09/18/20 23:00
30383318002	RW16-MWS	Water	09/17/20 09:58	09/18/20 23:00
30383318003	RW16-MWI	Water	09/17/20 10:45	09/18/20 23:00
30383318004	RW24-MWS	Water	09/17/20 11:15	09/18/20 23:00
30383318005	RW24-MWI	Water	09/17/20 11:50	09/18/20 23:00
30383318006	RWN-MWS	Water	09/17/20 13:05	09/18/20 23:00
30383318007	RW13-MWI	Water	09/17/20 13:39	09/18/20 23:00
30383318008	RW25-MWS	Water	09/17/20 14:38	09/18/20 23:00

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30383318

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30383318001	RW25-MWI	EPA 6010C	KAS	2	PASI-PA
30383318002	RW16-MWS	EPA 6010C	KAS	2	PASI-PA
30383318003	RW16-MWI	EPA 6010C	KAS	2	PASI-PA
30383318004	RW24-MWS	EPA 6010C	KAS	2	PASI-PA
30383318005	RW24-MWI	EPA 6010C	KAS	2	PASI-PA
30383318006	RWN-MWS	EPA 6010C	KAS	2	PASI-PA
30383318007	RW13-MWI	EPA 6010C	KAS	2	PASI-PA
30383318008	RW25-MWS	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: RWM GW Sampling  
Pace Project No.: 30383318

---

**Method:** EPA 6010C  
**Description:** 6010C MET ICP,Dissolved  
**Client:** Tradepoint Atlantic  
**Date:** September 28, 2020

**General Information:**

8 samples were analyzed for EPA 6010C by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3005A with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 414934

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30383317001,30383318007

ML: Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

- MS (Lab ID: 2006795)
  - Cadmium, Dissolved
  - Zinc, Dissolved

**Duplicate Sample:**

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383318

Sample: RW25-MWI		Lab ID: 30383318001		Collected: 09/17/20 09:17		Received: 09/18/20 23:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>708</b>	ug/L	3.0	0.34	1	09/22/20 09:58	09/24/20 18:19	7440-43-9	
Zinc, Dissolved	<b>477000</b>	ug/L	1000	238	100	09/22/20 09:58	09/24/20 19:16	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383318

Sample: RW16-MWS		Lab ID: 30383318002		Collected: 09/17/20 09:58		Received: 09/18/20 23:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	09/22/20 09:58	09/24/20 18:56	7440-43-9	
Zinc, Dissolved	<b>22.3</b>	ug/L	10.0	2.4	1	09/22/20 09:58	09/24/20 18:56	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30383318

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW16-MWI</b>									
<b>Lab ID: 30383318003</b>									
Collected: 09/17/20 10:45    Received: 09/18/20 23:00    Matrix: Water									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	09/22/20 09:58	09/24/20 18:24	7440-43-9	
Zinc, Dissolved	<b>63.1</b>	ug/L	10.0	2.4	1	09/22/20 09:58	09/24/20 18:24	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383318

---

**Sample: RW24-MWS**      **Lab ID: 30383318004**      Collected: 09/17/20 11:15      Received: 09/18/20 23:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	09/22/20 09:58	09/24/20 18:27	7440-43-9	
Zinc, Dissolved	<b>16.4</b>	ug/L	10.0	2.4	1	09/22/20 09:58	09/24/20 18:27	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30383318

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW24-MWI</b>									
<b>Lab ID: 30383318005</b>									
Collected: 09/17/20 11:50    Received: 09/18/20 23:00    Matrix: Water									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>922</b>	ug/L	3.0	0.34	1	09/22/20 09:58	09/24/20 18:29	7440-43-9	
Zinc, Dissolved	<b>364000</b>	ug/L	1000	238	100	09/22/20 09:58	09/24/20 19:18	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383318

<b>Sample: RWN-MWS</b>		<b>Lab ID: 30383318006</b>		Collected: 09/17/20 13:05	Received: 09/18/20 23:00	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>7350</b>	ug/L	3.0	0.34	1	09/22/20 09:58	09/24/20 18:31	7440-43-9	
Zinc, Dissolved	<b>1140000</b>	ug/L	10000	2380	1000	09/22/20 09:58	09/24/20 19:26	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383318

Sample: RW13-MWI		Lab ID: 30383318007		Collected: 09/17/20 13:39		Received: 09/18/20 23:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>23900</b>	ug/L	300	34.0	100	09/22/20 09:58	09/24/20 19:28	7440-43-9	ML
Zinc, Dissolved	<b>296000</b>	ug/L	1000	238	100	09/22/20 09:58	09/24/20 19:28	7440-66-6	ML

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383318

---

**Sample: RW25-MWS**      **Lab ID: 30383318008**      Collected: 09/17/20 14:38      Received: 09/18/20 23:00      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>7.0</b>	ug/L	3.0	0.34	1	09/22/20 09:58	09/24/20 18:58	7440-43-9	
Zinc, Dissolved	<b>2780</b>	ug/L	10.0	2.4	1	09/22/20 09:58	09/24/20 18:58	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30383318

QC Batch: 414934 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30383318001, 30383318002, 30383318003, 30383318004, 30383318005, 30383318006, 30383318007, 30383318008

METHOD BLANK: 2006789 Matrix: Water  
Associated Lab Samples: 30383318001, 30383318002, 30383318003, 30383318004, 30383318005, 30383318006, 30383318007, 30383318008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	09/24/20 17:46	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	09/24/20 17:46	

LABORATORY CONTROL SAMPLE: 2006790

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	478	96	80-120	
Zinc, Dissolved	ug/L	500	491	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2006792 2006793

Parameter	Units	30383317001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Cadmium, Dissolved	ug/L	3.0 U	500	500	518	518	103	103	75-125	0	20		
Zinc, Dissolved	ug/L	2330	500	500	2820	2850	99	105	75-125	1	20		

MATRIX SPIKE SAMPLE: 2006795

Parameter	Units	30383318007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	23900	500	23400	-96	75-125 ML	
Zinc, Dissolved	ug/L	296000	500	281000	-3180	75-125 ML	

SAMPLE DUPLICATE: 2006791

Parameter	Units	30383317001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0 U		20	
Zinc, Dissolved	ug/L	2330	2290	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling

Pace Project No.: 30383318

SAMPLE DUPLICATE: 2006794

Parameter	Units	30383318007 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	23900	24800	4	20	
Zinc, Dissolved	ug/L	296000	304000	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling  
Pace Project No.: 30383318

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30383318

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30383318001	RW25-MWI	EPA 3005A	414934	EPA 6010C	415037
30383318002	RW16-MWS	EPA 3005A	414934	EPA 6010C	415037
30383318003	RW16-MWI	EPA 3005A	414934	EPA 6010C	415037
30383318004	RW24-MWS	EPA 3005A	414934	EPA 6010C	415037
30383318005	RW24-MWI	EPA 3005A	414934	EPA 6010C	415037
30383318006	RWN-MWS	EPA 3005A	414934	EPA 6010C	415037
30383318007	RW13-MWI	EPA 3005A	414934	EPA 6010C	415037
30383318008	RW25-MWS	EPA 3005A	414934	EPA 6010C	415037

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

Section A Required Information:  
 Company: Tradepoint Atlantic  
 Address: 1600 Sparrows Point Blvd  
 Sparrows Point, MD 21219  
 Email To: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Requested Due Date/TAT: 5 day

Report To: Matt Newman  
 Copy To: Stew Kabis

Company Name: Tradepoint Atlantic  
 Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
 PO Number: \_\_\_\_\_  
 Project Name: RWM GW Sampling  
 Project Number: \_\_\_\_\_

Pace Quote Reference: \_\_\_\_\_  
 Pace Project Manager: Samantha Bayura  
 Pace Profile #: \_\_\_\_\_

REGULATORY AGENCY  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER \_\_\_\_\_

Site Location  
 STATE: MD

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WW WASTE WATER WP PRODUCT P SOILSOLID SL OIL OL WIPE WF AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	Preservatives										Analysis Test ↑	Requested Analysis Filtered (Y/N)	Pace Project No./ Lab I.D.			
				COMPOSITE START	COMPOSITE END/GRAB		DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME				DATE	TIME	DATE
1	RW25-MWI	WT 6	G	9/17/10	10:17	1	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Other	DI Water	Y	Y	Dissolved Cadmium	X	Dissolved Zinc	X	001	
2	RW16-MWS	WT 6	G	9/18/10	10:45	1	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Other	DI Water	Y	Y	Dissolved Cadmium	X	Dissolved Zinc	X	002	
3	RW16-MWI	WT 6	G	9/18/10	11:15	1	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Other	DI Water	Y	Y	Dissolved Cadmium	X	Dissolved Zinc	X	003	
4	RW24-MWS	WT 6	G	9/18/10	11:50	1	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Other	DI Water	Y	Y	Dissolved Cadmium	X	Dissolved Zinc	X	004	
5	RW24-MWI	WT 6	G	9/18/10	13:05	1	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Other	DI Water	Y	Y	Dissolved Cadmium	X	Dissolved Zinc	X	005	
6	RWN-MWS	WT 6	G	9/18/10	13:39	1	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Other	DI Water	Y	Y	Dissolved Cadmium	X	Dissolved Zinc	X	006	
7	RW13-MWI	WT 6	G	9/18/10	14:38	1	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Other	DI Water	Y	Y	Dissolved Cadmium	X	Dissolved Zinc	X	007	
8	RW25-MWS	WT 6	G			1	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Other	DI Water	Y	Y	Dissolved Cadmium	X	Dissolved Zinc	X	008	
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS

Data Package Required?  YES

Data Validation Required?  YES

If data package is required, attach data package checklist.

RELINQUISHED BY/AFFILIATION	DATE	TIME	ACCEPTED BY/AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Joshua Barber ARAI	9/17/10	15:30	J Barber PAC	9-18-20	1530	
J Barber PAC	9/18/10	18:15	J Barber PAC	9-18-20	1815	
J Barber PAC	9-18-20	13:00	J Barber PAC	9/18/10	2100	Y N Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Joshua Barber

SIGNATURE of SAMPLER: [Signature]

DATE Signed (MM/DD/YYYY): 09/17/10

Received on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Tradeport

Project #

# 30383318

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Label JSM  
LIMS Login JSM

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 10 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 3.1 °C Correction Factor: -0.5 °C Final Temp: 2.6 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents: <u>JSM 9/19/2020</u>
	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>JSM</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed: <u>JSM</u> Date: <u>9/19/2020</u>

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



September 28, 2020

Mr. Matthew Newman  
Tradeport Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30383319

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on September 18, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

This project follows the April 5, 2016 revision 3 Quality Assurance Project Plan for Sparrows Point Terminal Site, Sparrows Point, MD prepared for EnviroAnalytics Group and is not for PA DEP compliance reporting.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30383319

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Florida: Cert E871149 SEKS WET  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30383319

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30383319001	RWR-MWS	Water	09/18/20 10:16	09/18/20 23:00
30383319002	RWR-MWI	Water	09/18/20 11:04	09/18/20 23:00

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30383319

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30383319001	RWR-MWS	EPA 6010C	KAS	2	PASI-PA
30383319002	RWR-MWI	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## PROJECT NARRATIVE

Project: RWM GW Sampling  
Pace Project No.: 30383319

---

**Method:** EPA 6010C  
**Description:** 6010C MET ICP,Dissolved  
**Client:** Tradepoint Atlantic  
**Date:** September 28, 2020

**General Information:**

2 samples were analyzed for EPA 6010C by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3005A with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 414934

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30383317001,30383318007

ML: Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

- MS (Lab ID: 2006795)
  - Cadmium, Dissolved
  - Zinc, Dissolved

**Duplicate Sample:**

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30383319

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWR-MWS      Lab ID: 30383319001      Collected: 09/18/20 10:16      Received: 09/18/20 23:00      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>34.3</b>	ug/L	3.0	0.34	1	09/22/20 09:58	09/24/20 19:00	7440-43-9	
Zinc, Dissolved	<b>326000</b>	ug/L	1000	238	100	09/22/20 09:58	09/24/20 19:35	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30383319

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWR-MWI      Lab ID: 30383319002      Collected: 09/18/20 11:04      Received: 09/18/20 23:00      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>425</b>	ug/L	3.0	0.34	1	09/22/20 09:58	09/24/20 19:03	7440-43-9	
Zinc, Dissolved	<b>1830000</b>	ug/L	10000	2380	1000	09/22/20 09:58	09/24/20 19:37	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30383319

QC Batch: 414934 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30383319001, 30383319002

METHOD BLANK: 2006789 Matrix: Water  
Associated Lab Samples: 30383319001, 30383319002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	09/24/20 17:46	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	09/24/20 17:46	

LABORATORY CONTROL SAMPLE: 2006790

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	478	96	80-120	
Zinc, Dissolved	ug/L	500	491	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2006792 2006793

Parameter	Units	30383317001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	3.0 U	500	500	518	518	103	103	75-125	0	20	
Zinc, Dissolved	ug/L	2330	500	500	2820	2850	99	105	75-125	1	20	

MATRIX SPIKE SAMPLE: 2006795

Parameter	Units	30383318007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	23900	500	23400	-96	75-125	ML
Zinc, Dissolved	ug/L	296000	500	281000	-3180	75-125	ML

SAMPLE DUPLICATE: 2006791

Parameter	Units	30383317001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0 U		20	
Zinc, Dissolved	ug/L	2330	2290	2	20	

SAMPLE DUPLICATE: 2006794

Parameter	Units	30383318007 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	23900	24800	4	20	
Zinc, Dissolved	ug/L	296000	304000	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## QUALIFIERS

Project: RWM GW Sampling  
Pace Project No.: 30383319

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: RWM GW Sampling  
Pace Project No.: 30383319

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30383319001	RWR-MWS	EPA 3005A	414934	EPA 6010C	415037
30383319002	RWR-MWI	EPA 3005A	414934	EPA 6010C	415037

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**Section A**  
Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Requested Due Date/TAT: 5 day

**Section B**  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis  
PO Number: \_\_\_\_\_  
Project Name: RWM GW Sampling  
Project Number: \_\_\_\_\_

**Section C**  
Invoice Information:  
Attention: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
Pace Quote Reference: \_\_\_\_\_  
Pace Project Manager: Samantha Bayura  
Pace Profile #: \_\_\_\_\_

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER \_\_\_\_\_

Site Location  
STATE: MD

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW WATER P PRODUCT SOL/SOLID OIL OIL WIP WIP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test ↑	Requested Analysis Filtered (Y/N)							
				COMPOSITE START	COMPOSITE END/GRAB					Y	N						
1	RWR-MNS	WT G	WT G	DATE	TIME	DATE	TIME	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Other	DI Water	Dissolved Cadmium	Dissolved Zinc	Pace Project No./ Lab I.D.
2	RWR-MNI	WT G	WT G	7/19/20	1016	7/19/20	1104	X	X						X	X	001
3																	002
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

**WO#: 30383319**

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Sample Conditions
Data Package Required? (Y/N)	<u>Stew Kabis</u> ARM	<u>09/18/20</u>	<u>1315</u>	<u>Stew Kabis</u> ARM	<u>9-18-20</u>	<u>1530</u>	
Data Validation Required? (Y/N)	<u>Stew Kabis</u> ARM	<u>9/18/20</u>	<u>1815</u>	<u>Stew Kabis</u> ARM	<u>9/18/20</u>	<u>2300</u>	
If data package is required, attach data package checklist.							

**SAMPLER NAME AND SIGNATURE**  
PRINT Name of SAMPLER: Stew Kabis  
SIGNATURE of SAMPLER: [Signature]  
DATE Signed (MM/DD/YY): 09/18/20

Received on \_\_\_\_\_  
Cooler (Y/N) \_\_\_\_\_  
Samples Intact (Y/N) \_\_\_\_\_

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.  
F-ALL-Q-020rev.06, 2-Feb-2007

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Tradepoint

Project # # - 30383319

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Label	JSM
LIMS Login	JSM

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 10 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 2.9 °C Correction Factor: -0.5 °C Final Temp: 2.4 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents: <u>JSM 9/19/2020</u>
	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID Matrix: <u>WT</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>JSM</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed: <u>JSM</u> Date: <u>9/19/2020</u>

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in reports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

September 29, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30383477

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on September 21, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30383477

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Florida: Cert E871149 SEKS WET  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30383477

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30383477001	Trip Blank	Water	09/21/20 00:01	09/21/20 22:50
30383477002	RW21-MWI	Water	09/21/20 08:33	09/21/20 22:50
30383477003	RW21-MWS	Water	09/21/20 09:25	09/21/20 22:50
30383477004	RW21-MWP	Water	09/21/20 10:55	09/21/20 22:50
30383477005	RWQ-MWS	Water	09/21/20 11:50	09/21/20 22:50
30383477006	RWQ-MWI	Water	09/21/20 13:00	09/21/20 22:50
30383477007	RWO-MWI	Water	09/21/20 14:20	09/21/20 22:50
30383477008	RWO-MWS	Water	09/21/20 15:10	09/21/20 22:50

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30383477

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30383477001	Trip Blank	EPA 8260B	LEL	40	PASI-PA
30383477002	RW21-MWI	EPA 6010C	KAS	2	PASI-PA
30383477003	RW21-MWS	EPA 6010C	KAS	2	PASI-PA
		EPA 8270D	EAC	62	PASI-PA
		EPA 8260B	LEL	40	PASI-PA
		EPA 8270D	EAC	62	PASI-PA
30383477004	RW21-MWP	EPA 8260B	LEL	55	PASI-PA
		EPA 6010C	KAS	2	PASI-PA
30383477005	RWQ-MWS	EPA 6010C	KAS	2	PASI-PA
30383477006	RWQ-MWI	EPA 6010C	KAS	2	PASI-PA
30383477007	RWO-MWI	EPA 6010C	KAS	2	PASI-PA
30383477008	RWO-MWS	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30383477

**Sample: Trip Blank**      **Lab ID: 30383477001**      Collected: 09/21/20 00:01      Received: 09/21/20 22:50      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8260B MSV</b>									
Analytical Method: EPA 8260B									
Pace Analytical Services - Greensburg									
Acetone	10.0 U	ug/L	10.0	5.6	1		09/24/20 14:46	67-64-1	
Benzene	1.0 U	ug/L	1.0	0.34	1		09/24/20 14:46	71-43-2	
Bromodichloromethane	1.0 U	ug/L	1.0	0.35	1		09/24/20 14:46	75-27-4	
Bromoform	1.0 U	ug/L	1.0	0.56	1		09/24/20 14:46	75-25-2	
Bromomethane	1.0 U	ug/L	1.0	0.73	1		09/24/20 14:46	74-83-9	
2-Butanone (MEK)	10.0 U	ug/L	10.0	1.5	1		09/24/20 14:46	78-93-3	
Carbon disulfide	1.0 U	ug/L	1.0	0.32	1		09/24/20 14:46	75-15-0	
Carbon tetrachloride	1.0 U	ug/L	1.0	0.44	1		09/24/20 14:46	56-23-5	
Chlorobenzene	1.0 U	ug/L	1.0	0.26	1		09/24/20 14:46	108-90-7	
Chloroethane	1.0 U	ug/L	1.0	0.64	1		09/24/20 14:46	75-00-3	
Chloroform	1.0 U	ug/L	1.0	0.39	1		09/24/20 14:46	67-66-3	
Chloromethane	1.0 U	ug/L	1.0	0.40	1		09/24/20 14:46	74-87-3	
Dibromochloromethane	1.0 U	ug/L	1.0	0.43	1		09/24/20 14:46	124-48-1	
1,1-Dichloroethane	1.0 U	ug/L	1.0	0.24	1		09/24/20 14:46	75-34-3	
1,2-Dichloroethane	1.0 U	ug/L	1.0	0.33	1		09/24/20 14:46	107-06-2	
1,2-Dichloroethene (Total)	2.0 U	ug/L	2.0	0.66	1		09/24/20 14:46	540-59-0	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.24	1		09/24/20 14:46	75-35-4	
cis-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.38	1		09/24/20 14:46	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.28	1		09/24/20 14:46	156-60-5	
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.28	1		09/24/20 14:46	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.29	1		09/24/20 14:46	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.32	1		09/24/20 14:46	10061-02-6	
Ethylbenzene	1.0 U	ug/L	1.0	0.40	1		09/24/20 14:46	100-41-4	
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.47	1		09/24/20 14:46	98-82-8	L1
Methylene Chloride	1.0 U	ug/L	1.0	0.64	1		09/24/20 14:46	75-09-2	
4-Methyl-2-pentanone (MIBK)	10.0 U	ug/L	10.0	0.42	1		09/24/20 14:46	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.25	1		09/24/20 14:46	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.33	1		09/24/20 14:46	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.47	1		09/24/20 14:46	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.39	1		09/24/20 14:46	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.32	1		09/24/20 14:46	108-88-3	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.38	1		09/24/20 14:46	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.33	1		09/24/20 14:46	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.29	1		09/24/20 14:46	79-01-6	
Vinyl chloride	1.0 U	ug/L	1.0	0.29	1		09/24/20 14:46	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	1.4	1		09/24/20 14:46	1330-20-7	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	97	%	70-130		1		09/24/20 14:46	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		1		09/24/20 14:46	17060-07-0	
Toluene-d8 (S)	92	%	70-130		1		09/24/20 14:46	2037-26-5	
Dibromofluoromethane (S)	99	%	70-130		1		09/24/20 14:46	1868-53-7	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383477

---

**Sample: RW21-MWI**      **Lab ID: 30383477002**      Collected: 09/21/20 08:33      Received: 09/21/20 22:50      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>29.4</b>	ug/L	3.0	0.34	1	09/24/20 09:07	09/24/20 21:08	7440-43-9	1c
Zinc, Dissolved	<b>536000</b>	ug/L	1000	238	100	09/24/20 09:07	09/24/20 19:58	7440-66-6	3c,ML

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30383477

**Sample: RW21-MWS**      **Lab ID: 30383477003**      Collected: 09/21/20 09:25      Received: 09/21/20 22:50      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>294</b>	ug/L	3.0	0.34	1	09/24/20 09:07	09/24/20 20:12	7440-43-9	1c
Zinc, Dissolved	<b>298000</b>	ug/L	1000	238	100	09/24/20 09:07	09/24/20 21:26	7440-66-6	3c
<b>8270D MSSV Organics</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3510C Pace Analytical Services - Greensburg									
Acenaphthene	<b>1.0 U</b>	ug/L	1.0	0.39	1	09/28/20 11:17	09/28/20 22:32	83-32-9	2c
Acenaphthylene	<b>1.0 U</b>	ug/L	1.0	0.38	1	09/28/20 11:17	09/28/20 22:32	208-96-8	2c
Acetophenone	<b>1.0 U</b>	ug/L	1.0	0.42	1	09/28/20 11:17	09/28/20 22:32	98-86-2	2c
Anthracene	<b>1.0 U</b>	ug/L	1.0	0.26	1	09/28/20 11:17	09/28/20 22:32	120-12-7	2c
Benzaldehyde	<b>1.0 U</b>	ug/L	1.0	0.43	1	09/28/20 11:17	09/28/20 22:32	100-52-7	2c
Benzo(a)anthracene	<b>1.0 U</b>	ug/L	1.0	0.20	1	09/28/20 11:17	09/28/20 22:32	56-55-3	2c
Benzo(a)pyrene	<b>1.0 U</b>	ug/L	1.0	0.18	1	09/28/20 11:17	09/28/20 22:32	50-32-8	2c
Benzo(b)fluoranthene	<b>1.0 U</b>	ug/L	1.0	0.23	1	09/28/20 11:17	09/28/20 22:32	205-99-2	2c
Benzo(g,h,i)perylene	<b>1.0 U</b>	ug/L	1.0	0.30	1	09/28/20 11:17	09/28/20 22:32	191-24-2	2c
Benzo(k)fluoranthene	<b>1.0 U</b>	ug/L	1.0	0.26	1	09/28/20 11:17	09/28/20 22:32	207-08-9	2c
Biphenyl (Diphenyl)	<b>1.0 U</b>	ug/L	1.0	0.32	1	09/28/20 11:17	09/28/20 22:32	92-52-4	2c
Caprolactam	<b>2.5 U</b>	ug/L	2.5	0.31	1	09/28/20 11:17	09/28/20 22:32	105-60-2	2c
Carbazole	<b>1.2</b>	ug/L	1.0	0.23	1	09/28/20 11:17	09/28/20 22:32	86-74-8	2c
4-Chloroaniline	<b>1.0 U</b>	ug/L	1.0	0.21	1	09/28/20 11:17	09/28/20 22:32	106-47-8	2c
bis(2-Chloroethoxy)methane	<b>1.0 U</b>	ug/L	1.0	0.35	1	09/28/20 11:17	09/28/20 22:32	111-91-1	2c
bis(2-Chloroethyl) ether	<b>1.0 U</b>	ug/L	1.0	0.41	1	09/28/20 11:17	09/28/20 22:32	111-44-4	2c
bis(2-Chloroisopropyl) ether	<b>1.0 U</b>	ug/L	1.0	0.40	1	09/28/20 11:17	09/28/20 22:32	108-60-1	2c
2-Chloronaphthalene	<b>1.0 U</b>	ug/L	1.0	0.33	1	09/28/20 11:17	09/28/20 22:32	91-58-7	2c
2-Chlorophenol	<b>1.0 U</b>	ug/L	1.0	0.32	1	09/28/20 11:17	09/28/20 22:32	95-57-8	2c
Chrysene	<b>1.0 U</b>	ug/L	1.0	0.20	1	09/28/20 11:17	09/28/20 22:32	218-01-9	2c
Dibenz(a,h)anthracene	<b>1.0 U</b>	ug/L	1.0	0.31	1	09/28/20 11:17	09/28/20 22:32	53-70-3	2c
3,3'-Dichlorobenzidine	<b>1.0 U</b>	ug/L	1.0	0.23	1	09/28/20 11:17	09/28/20 22:32	91-94-1	2c,L2
2,4-Dichlorophenol	<b>1.0 U</b>	ug/L	1.0	0.33	1	09/28/20 11:17	09/28/20 22:32	120-83-2	2c
Diethylphthalate	<b>1.0 U</b>	ug/L	1.0	0.36	1	09/28/20 11:17	09/28/20 22:32	84-66-2	2c
2,4-Dimethylphenol	<b>8.6</b>	ug/L	1.0	0.36	1	09/28/20 11:17	09/28/20 22:32	105-67-9	2c
Di-n-butylphthalate	<b>1.0 U</b>	ug/L	1.0	0.32	1	09/28/20 11:17	09/28/20 22:32	84-74-2	2c
2,4-Dinitrophenol	<b>2.5 U</b>	ug/L	2.5	0.58	1	09/28/20 11:17	09/28/20 22:32	51-28-5	2c
2,4-Dinitrotoluene	<b>1.0 U</b>	ug/L	1.0	0.36	1	09/28/20 11:17	09/28/20 22:32	121-14-2	2c
2,6-Dinitrotoluene	<b>1.0 U</b>	ug/L	1.0	0.40	1	09/28/20 11:17	09/28/20 22:32	606-20-2	2c
Di-n-octylphthalate	<b>1.0 U</b>	ug/L	1.0	0.27	1	09/28/20 11:17	09/28/20 22:32	117-84-0	2c
bis(2-Ethylhexyl)phthalate	<b>1.0 U</b>	ug/L	1.0	0.36	1	09/28/20 11:17	09/28/20 22:32	117-81-7	2c
Fluoranthene	<b>0.34J</b>	ug/L	1.0	0.23	1	09/28/20 11:17	09/28/20 22:32	206-44-0	2c
Fluorene	<b>1.0 U</b>	ug/L	1.0	0.37	1	09/28/20 11:17	09/28/20 22:32	86-73-7	2c
Hexachloro-1,3-butadiene	<b>1.0 U</b>	ug/L	1.0	0.33	1	09/28/20 11:17	09/28/20 22:32	87-68-3	2c
Hexachlorobenzene	<b>1.0 U</b>	ug/L	1.0	0.30	1	09/28/20 11:17	09/28/20 22:32	118-74-1	2c
Hexachlorocyclopentadiene	<b>1.0 U</b>	ug/L	1.0	0.19	1	09/28/20 11:17	09/28/20 22:32	77-47-4	2c
Hexachloroethane	<b>1.0 U</b>	ug/L	1.0	0.30	1	09/28/20 11:17	09/28/20 22:32	67-72-1	2c
Indeno(1,2,3-cd)pyrene	<b>1.0 U</b>	ug/L	1.0	0.30	1	09/28/20 11:17	09/28/20 22:32	193-39-5	2c
Isophorone	<b>1.0 U</b>	ug/L	1.0	0.57	1	09/28/20 11:17	09/28/20 22:32	78-59-1	2c
2-Methylnaphthalene	<b>0.54J</b>	ug/L	1.0	0.34	1	09/28/20 11:17	09/28/20 22:32	91-57-6	2c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30383477

**Sample: RW21-MWS**      **Lab ID: 30383477003**      Collected: 09/21/20 09:25      Received: 09/21/20 22:50      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270D MSSV Organics</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3510C									
Pace Analytical Services - Greensburg									
2-Methylphenol(o-Cresol)	1.0 U	ug/L	1.0	0.37	1	09/28/20 11:17	09/28/20 22:32	95-48-7	2c
3&4-Methylphenol(m&p Cresol)	2.0 U	ug/L	2.0	1.9	1	09/28/20 11:17	09/28/20 22:32		2c
Naphthalene	99.0	ug/L	10	3.5	10	09/28/20 11:17	09/28/20 22:54	91-20-3	2c
2-Nitroaniline	2.5 U	ug/L	2.5	0.71	1	09/28/20 11:17	09/28/20 22:32	88-74-4	2c
4-Nitroaniline	2.5 U	ug/L	2.5	1.9	1	09/28/20 11:17	09/28/20 22:32	100-01-6	2c
Nitrobenzene	1.0 U	ug/L	1.0	0.37	1	09/28/20 11:17	09/28/20 22:32	98-95-3	2c
N-Nitroso-di-n-propylamine	1.0 U	ug/L	1.0	0.54	1	09/28/20 11:17	09/28/20 22:32	621-64-7	2c
N-Nitrosodiphenylamine	1.0 U	ug/L	1.0	0.25	1	09/28/20 11:17	09/28/20 22:32	86-30-6	2c
Pentachlorophenol	2.5 U	ug/L	2.5	1.0	1	09/28/20 11:17	09/28/20 22:32	87-86-5	2c
Phenanthrene	0.59J	ug/L	1.0	0.34	1	09/28/20 11:17	09/28/20 22:32	85-01-8	2c
Phenol	1.0 U	ug/L	1.0	0.22	1	09/28/20 11:17	09/28/20 22:32	108-95-2	2c
Pyrene	1.0 U	ug/L	1.0	0.30	1	09/28/20 11:17	09/28/20 22:32	129-00-0	2c
1,2,4,5-Tetrachlorobenzene	1.0 U	ug/L	1.0	0.31	1	09/28/20 11:17	09/28/20 22:32	95-94-3	2c
2,3,4,6-Tetrachlorophenol	1.0 U	ug/L	1.0	0.28	1	09/28/20 11:17	09/28/20 22:32	58-90-2	2c
2,4,5-Trichlorophenol	2.5 U	ug/L	2.5	0.67	1	09/28/20 11:17	09/28/20 22:32	95-95-4	2c
2,4,6-Trichlorophenol	1.0 U	ug/L	1.0	0.37	1	09/28/20 11:17	09/28/20 22:32	88-06-2	2c
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	25	%	10-140		1	09/28/20 11:17	09/28/20 22:32	4165-60-0	
2-Fluorobiphenyl (S)	27	%	10-135		1	09/28/20 11:17	09/28/20 22:32	321-60-8	
Terphenyl-d14 (S)	58	%	10-128		1	09/28/20 11:17	09/28/20 22:32	1718-51-0	
Phenol-d6 (S)	13	%	10-145		1	09/28/20 11:17	09/28/20 22:32	13127-88-3	
2-Fluorophenol (S)	15	%	10-142		1	09/28/20 11:17	09/28/20 22:32	367-12-4	
2,4,6-Tribromophenol (S)	52	%	10-140		1	09/28/20 11:17	09/28/20 22:32	118-79-6	
<b>8260B MSV</b>									
Analytical Method: EPA 8260B									
Pace Analytical Services - Greensburg									
Acetone	10.0 U	ug/L	10.0	5.6	1		09/24/20 21:21	67-64-1	
Benzene	81.2	ug/L	1.0	0.34	1		09/24/20 21:21	71-43-2	
Bromodichloromethane	1.0 U	ug/L	1.0	0.35	1		09/24/20 21:21	75-27-4	
Bromoform	1.0 U	ug/L	1.0	0.56	1		09/24/20 21:21	75-25-2	
Bromomethane	1.0 U	ug/L	1.0	0.73	1		09/24/20 21:21	74-83-9	
2-Butanone (MEK)	10.0 U	ug/L	10.0	1.5	1		09/24/20 21:21	78-93-3	
Carbon disulfide	1.0 U	ug/L	1.0	0.32	1		09/24/20 21:21	75-15-0	
Carbon tetrachloride	1.0 U	ug/L	1.0	0.44	1		09/24/20 21:21	56-23-5	
Chlorobenzene	1.0 U	ug/L	1.0	0.26	1		09/24/20 21:21	108-90-7	
Chloroethane	2.1	ug/L	1.0	0.64	1		09/24/20 21:21	75-00-3	
Chloroform	1.0 U	ug/L	1.0	0.39	1		09/24/20 21:21	67-66-3	
Chloromethane	1.0 U	ug/L	1.0	0.40	1		09/24/20 21:21	74-87-3	
Dibromochloromethane	1.0 U	ug/L	1.0	0.43	1		09/24/20 21:21	124-48-1	
1,1-Dichloroethane	1.0 U	ug/L	1.0	0.24	1		09/24/20 21:21	75-34-3	
1,2-Dichloroethane	1.0 U	ug/L	1.0	0.33	1		09/24/20 21:21	107-06-2	
1,2-Dichloroethene (Total)	2.0 U	ug/L	2.0	0.66	1		09/24/20 21:21	540-59-0	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.24	1		09/24/20 21:21	75-35-4	
cis-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.38	1		09/24/20 21:21	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.28	1		09/24/20 21:21	156-60-5	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30383477

**Sample: RW21-MWS**      **Lab ID: 30383477003**      Collected: 09/21/20 09:25      Received: 09/21/20 22:50      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8260B MSV</b>									
Analytical Method: EPA 8260B									
Pace Analytical Services - Greensburg									
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.28	1		09/24/20 21:21	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.29	1		09/24/20 21:21	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.32	1		09/24/20 21:21	10061-02-6	
Ethylbenzene	3.2	ug/L	1.0	0.40	1		09/24/20 21:21	100-41-4	
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.47	1		09/24/20 21:21	98-82-8	L1
Methylene Chloride	1.0 U	ug/L	1.0	0.64	1		09/24/20 21:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	10.0 U	ug/L	10.0	0.42	1		09/24/20 21:21	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.25	1		09/24/20 21:21	1634-04-4	
Styrene	2.7	ug/L	1.0	0.33	1		09/24/20 21:21	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.47	1		09/24/20 21:21	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.39	1		09/24/20 21:21	127-18-4	
Toluene	4.4	ug/L	1.0	0.32	1		09/24/20 21:21	108-88-3	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.38	1		09/24/20 21:21	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.33	1		09/24/20 21:21	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.29	1		09/24/20 21:21	79-01-6	
Vinyl chloride	1.0 U	ug/L	1.0	0.29	1		09/24/20 21:21	75-01-4	
Xylene (Total)	19.6	ug/L	3.0	1.4	1		09/24/20 21:21	1330-20-7	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	100	%	70-130		1		09/24/20 21:21	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		09/24/20 21:21	17060-07-0	
Toluene-d8 (S)	96	%	70-130		1		09/24/20 21:21	2037-26-5	
Dibromofluoromethane (S)	99	%	70-130		1		09/24/20 21:21	1868-53-7	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383477

**Sample: RW21-MWP**      **Lab ID: 30383477004**      Collected: 09/21/20 10:55      Received: 09/21/20 22:50      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270D MSSV Organics</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3510C									
Pace Analytical Services - Greensburg									
Acenaphthene	2.2	ug/L	1.0	0.39	1	09/28/20 11:17	09/28/20 23:16	83-32-9	2c
Acenaphthylene	3.7	ug/L	1.0	0.38	1	09/28/20 11:17	09/28/20 23:16	208-96-8	2c
Acetophenone	1.0 U	ug/L	1.0	0.42	1	09/28/20 11:17	09/28/20 23:16	98-86-2	2c
Anthracene	1.8	ug/L	1.0	0.26	1	09/28/20 11:17	09/28/20 23:16	120-12-7	2c
Benzaldehyde	1.0 U	ug/L	1.0	0.43	1	09/28/20 11:17	09/28/20 23:16	100-52-7	2c
Benzo(a)anthracene	1.0 U	ug/L	1.0	0.20	1	09/28/20 11:17	09/28/20 23:16	56-55-3	2c
Benzo(a)pyrene	1.0 U	ug/L	1.0	0.18	1	09/28/20 11:17	09/28/20 23:16	50-32-8	2c
Benzo(b)fluoranthene	1.0 U	ug/L	1.0	0.23	1	09/28/20 11:17	09/28/20 23:16	205-99-2	2c
Benzo(g,h,i)perylene	1.0 U	ug/L	1.0	0.30	1	09/28/20 11:17	09/28/20 23:16	191-24-2	2c
Benzo(k)fluoranthene	1.0 U	ug/L	1.0	0.26	1	09/28/20 11:17	09/28/20 23:16	207-08-9	2c
Biphenyl (Diphenyl)	2.7	ug/L	1.0	0.32	1	09/28/20 11:17	09/28/20 23:16	92-52-4	2c
Caprolactam	2.5 U	ug/L	2.5	0.31	1	09/28/20 11:17	09/28/20 23:16	105-60-2	2c
Carbazole	28.1	ug/L	10	2.3	10	09/28/20 11:17	09/28/20 23:37	86-74-8	2c
4-Chloroaniline	1.0 U	ug/L	1.0	0.21	1	09/28/20 11:17	09/28/20 23:16	106-47-8	2c
bis(2-Chloroethoxy)methane	1.0 U	ug/L	1.0	0.35	1	09/28/20 11:17	09/28/20 23:16	111-91-1	2c
bis(2-Chloroethyl) ether	1.0 U	ug/L	1.0	0.41	1	09/28/20 11:17	09/28/20 23:16	111-44-4	2c
bis(2-Chloroisopropyl) ether	1.0 U	ug/L	1.0	0.40	1	09/28/20 11:17	09/28/20 23:16	108-60-1	2c
2-Chloronaphthalene	1.0 U	ug/L	1.0	0.33	1	09/28/20 11:17	09/28/20 23:16	91-58-7	2c
2-Chlorophenol	1.0 U	ug/L	1.0	0.32	1	09/28/20 11:17	09/28/20 23:16	95-57-8	2c
Chrysene	1.0 U	ug/L	1.0	0.20	1	09/28/20 11:17	09/28/20 23:16	218-01-9	2c
Dibenz(a,h)anthracene	1.0 U	ug/L	1.0	0.31	1	09/28/20 11:17	09/28/20 23:16	53-70-3	2c
3,3'-Dichlorobenzidine	1.0 U	ug/L	1.0	0.23	1	09/28/20 11:17	09/28/20 23:16	91-94-1	2c,L2
2,4-Dichlorophenol	1.0 U	ug/L	1.0	0.33	1	09/28/20 11:17	09/28/20 23:16	120-83-2	2c
Diethylphthalate	1.0 U	ug/L	1.0	0.36	1	09/28/20 11:17	09/28/20 23:16	84-66-2	2c
2,4-Dimethylphenol	0.76J	ug/L	1.0	0.36	1	09/28/20 11:17	09/28/20 23:16	105-67-9	2c
Di-n-butylphthalate	1.0 U	ug/L	1.0	0.32	1	09/28/20 11:17	09/28/20 23:16	84-74-2	2c
2,4-Dinitrophenol	2.5 U	ug/L	2.5	0.58	1	09/28/20 11:17	09/28/20 23:16	51-28-5	2c
2,4-Dinitrotoluene	1.0 U	ug/L	1.0	0.36	1	09/28/20 11:17	09/28/20 23:16	121-14-2	2c
2,6-Dinitrotoluene	1.0 U	ug/L	1.0	0.40	1	09/28/20 11:17	09/28/20 23:16	606-20-2	2c
Di-n-octylphthalate	1.0 U	ug/L	1.0	0.27	1	09/28/20 11:17	09/28/20 23:16	117-84-0	2c
bis(2-Ethylhexyl)phthalate	1.0 U	ug/L	1.0	0.36	1	09/28/20 11:17	09/28/20 23:16	117-81-7	2c
Fluoranthene	1.7	ug/L	1.0	0.23	1	09/28/20 11:17	09/28/20 23:16	206-44-0	2c
Fluorene	6.3	ug/L	1.0	0.37	1	09/28/20 11:17	09/28/20 23:16	86-73-7	2c
Hexachloro-1,3-butadiene	1.0 U	ug/L	1.0	0.33	1	09/28/20 11:17	09/28/20 23:16	87-68-3	2c
Hexachlorobenzene	1.0 U	ug/L	1.0	0.30	1	09/28/20 11:17	09/28/20 23:16	118-74-1	2c
Hexachlorocyclopentadiene	1.0 U	ug/L	1.0	0.19	1	09/28/20 11:17	09/28/20 23:16	77-47-4	2c
Hexachloroethane	1.0 U	ug/L	1.0	0.30	1	09/28/20 11:17	09/28/20 23:16	67-72-1	2c
Indeno(1,2,3-cd)pyrene	1.0 U	ug/L	1.0	0.30	1	09/28/20 11:17	09/28/20 23:16	193-39-5	2c
Isophorone	1.0 U	ug/L	1.0	0.57	1	09/28/20 11:17	09/28/20 23:16	78-59-1	2c
2-Methylnaphthalene	4.9	ug/L	1.0	0.34	1	09/28/20 11:17	09/28/20 23:16	91-57-6	2c
2-Methylphenol(o-Cresol)	1.0 U	ug/L	1.0	0.37	1	09/28/20 11:17	09/28/20 23:16	95-48-7	2c
3&4-Methylphenol(m&p Cresol)	2.0 U	ug/L	2.0	1.9	1	09/28/20 11:17	09/28/20 23:16		2c
Naphthalene	147	ug/L	10	3.5	10	09/28/20 11:17	09/28/20 23:37	91-20-3	2c
2-Nitroaniline	2.5 U	ug/L	2.5	0.71	1	09/28/20 11:17	09/28/20 23:16	88-74-4	2c
4-Nitroaniline	2.5 U	ug/L	2.5	1.9	1	09/28/20 11:17	09/28/20 23:16	100-01-6	2c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30383477

**Sample: RW21-MWP**      **Lab ID: 30383477004**      Collected: 09/21/20 10:55      Received: 09/21/20 22:50      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270D MSSV Organics</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3510C									
Pace Analytical Services - Greensburg									
Nitrobenzene	1.0 U	ug/L	1.0	0.37	1	09/28/20 11:17	09/28/20 23:16	98-95-3	2c
N-Nitroso-di-n-propylamine	1.0 U	ug/L	1.0	0.54	1	09/28/20 11:17	09/28/20 23:16	621-64-7	2c
N-Nitrosodiphenylamine	1.0 U	ug/L	1.0	0.25	1	09/28/20 11:17	09/28/20 23:16	86-30-6	2c
Pentachlorophenol	2.5 U	ug/L	2.5	1.0	1	09/28/20 11:17	09/28/20 23:16	87-86-5	2c
Phenanthrene	10.9	ug/L	1.0	0.34	1	09/28/20 11:17	09/28/20 23:16	85-01-8	2c
Phenol	1.0 U	ug/L	1.0	0.22	1	09/28/20 11:17	09/28/20 23:16	108-95-2	2c
Pyrene	0.99J	ug/L	1.0	0.30	1	09/28/20 11:17	09/28/20 23:16	129-00-0	2c
1,2,4,5-Tetrachlorobenzene	1.0 U	ug/L	1.0	0.31	1	09/28/20 11:17	09/28/20 23:16	95-94-3	2c
2,3,4,6-Tetrachlorophenol	1.0 U	ug/L	1.0	0.28	1	09/28/20 11:17	09/28/20 23:16	58-90-2	2c
2,4,5-Trichlorophenol	2.5 U	ug/L	2.5	0.67	1	09/28/20 11:17	09/28/20 23:16	95-95-4	2c
2,4,6-Trichlorophenol	1.0 U	ug/L	1.0	0.37	1	09/28/20 11:17	09/28/20 23:16	88-06-2	2c
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	41	%	10-140		1	09/28/20 11:17	09/28/20 23:16	4165-60-0	
2-Fluorobiphenyl (S)	43	%	10-135		1	09/28/20 11:17	09/28/20 23:16	321-60-8	
Terphenyl-d14 (S)	67	%	10-128		1	09/28/20 11:17	09/28/20 23:16	1718-51-0	
Phenol-d6 (S)	20	%	10-145		1	09/28/20 11:17	09/28/20 23:16	13127-88-3	
2-Fluorophenol (S)	23	%	10-142		1	09/28/20 11:17	09/28/20 23:16	367-12-4	
2,4,6-Tribromophenol (S)	66	%	10-140		1	09/28/20 11:17	09/28/20 23:16	118-79-6	
<b>8260B MSV</b>									
Analytical Method: EPA 8260B									
Pace Analytical Services - Greensburg									
Acetone	10.0 U	ug/L	10.0	5.6	1		09/24/20 20:56	67-64-1	
Benzene	2.9	ug/L	1.0	0.34	1		09/24/20 20:56	71-43-2	
Bromodichloromethane	1.0 U	ug/L	1.0	0.35	1		09/24/20 20:56	75-27-4	
Bromoform	1.0 U	ug/L	1.0	0.56	1		09/24/20 20:56	75-25-2	
Bromomethane	1.0 U	ug/L	1.0	0.73	1		09/24/20 20:56	74-83-9	
2-Butanone (MEK)	10.0 U	ug/L	10.0	1.5	1		09/24/20 20:56	78-93-3	
Carbon disulfide	1.0 U	ug/L	1.0	0.32	1		09/24/20 20:56	75-15-0	
Carbon tetrachloride	1.0 U	ug/L	1.0	0.44	1		09/24/20 20:56	56-23-5	
Chlorobenzene	1.0 U	ug/L	1.0	0.26	1		09/24/20 20:56	108-90-7	
Chloroethane	1.0 U	ug/L	1.0	0.64	1		09/24/20 20:56	75-00-3	
Chloroform	1.0 U	ug/L	1.0	0.39	1		09/24/20 20:56	67-66-3	
Chloromethane	1.0 U	ug/L	1.0	0.40	1		09/24/20 20:56	74-87-3	
Cyclohexane	10.0 U	ug/L	10.0	0.33	1		09/24/20 20:56	110-82-7	
1,2-Dibromo-3-chloropropane	5.0 U	ug/L	5.0	0.55	1		09/24/20 20:56	96-12-8	
Dibromochloromethane	1.0 U	ug/L	1.0	0.43	1		09/24/20 20:56	124-48-1	
1,2-Dibromoethane (EDB)	1.0 U	ug/L	1.0	0.44	1		09/24/20 20:56	106-93-4	
1,2-Dichlorobenzene	1.0 U	ug/L	1.0	0.38	1		09/24/20 20:56	95-50-1	
1,3-Dichlorobenzene	1.0 U	ug/L	1.0	0.45	1		09/24/20 20:56	541-73-1	
1,4-Dichlorobenzene	1.0 U	ug/L	1.0	0.48	1		09/24/20 20:56	106-46-7	
Dichlorodifluoromethane	1.0 U	ug/L	1.0	0.63	1		09/24/20 20:56	75-71-8	
1,1-Dichloroethane	1.0 U	ug/L	1.0	0.24	1		09/24/20 20:56	75-34-3	
1,2-Dichloroethane	1.0 U	ug/L	1.0	0.33	1		09/24/20 20:56	107-06-2	
1,2-Dichloroethene (Total)	2.0 U	ug/L	2.0	0.66	1		09/24/20 20:56	540-59-0	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.24	1		09/24/20 20:56	75-35-4	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30383477

**Sample: RW21-MWP**      **Lab ID: 30383477004**      Collected: 09/21/20 10:55      Received: 09/21/20 22:50      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260B MSV</b>									
Analytical Method: EPA 8260B									
Pace Analytical Services - Greensburg									
cis-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.38	1		09/24/20 20:56	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.28	1		09/24/20 20:56	156-60-5	
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.28	1		09/24/20 20:56	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.29	1		09/24/20 20:56	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.32	1		09/24/20 20:56	10061-02-6	
Ethylbenzene	1.0 U	ug/L	1.0	0.40	1		09/24/20 20:56	100-41-4	
2-Hexanone	10.0 U	ug/L	10.0	0.58	1		09/24/20 20:56	591-78-6	
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.47	1		09/24/20 20:56	98-82-8	L1
Methyl acetate	5.0 U	ug/L	5.0	0.55	1		09/24/20 20:56	79-20-9	
Methylene Chloride	1.0 U	ug/L	1.0	0.64	1		09/24/20 20:56	75-09-2	
4-Methyl-2-pentanone (MIBK)	10.0 U	ug/L	10.0	0.42	1		09/24/20 20:56	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.25	1		09/24/20 20:56	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.33	1		09/24/20 20:56	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.47	1		09/24/20 20:56	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.39	1		09/24/20 20:56	127-18-4	
Toluene	0.45J	ug/L	1.0	0.32	1		09/24/20 20:56	108-88-3	
1,2,3-Trichlorobenzene	2.0 U	ug/L	2.0	0.89	1		09/24/20 20:56	87-61-6	
1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	0.73	1		09/24/20 20:56	120-82-1	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.38	1		09/24/20 20:56	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.33	1		09/24/20 20:56	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.29	1		09/24/20 20:56	79-01-6	
Trichlorofluoromethane	1.0 U	ug/L	1.0	0.51	1		09/24/20 20:56	75-69-4	
1,1,2-Trichlorotrifluoroethane	50.0 U	ug/L	50.0	3.0	1		09/24/20 20:56	76-13-1	
Vinyl chloride	1.0 U	ug/L	1.0	0.29	1		09/24/20 20:56	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	1.4	1		09/24/20 20:56	1330-20-7	
m&p-Xylene	2.0 U	ug/L	2.0	0.94	1		09/24/20 20:56	179601-23-1	
o-Xylene	1.0 U	ug/L	1.0	0.41	1		09/24/20 20:56	95-47-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	99	%	70-130		1		09/24/20 20:56	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	70-130		1		09/24/20 20:56	17060-07-0	
Toluene-d8 (S)	96	%	70-130		1		09/24/20 20:56	2037-26-5	
Dibromofluoromethane (S)	102	%	70-130		1		09/24/20 20:56	1868-53-7	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30383477

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWQ-MWS      Lab ID: 30383477005      Collected: 09/21/20 11:50      Received: 09/21/20 22:50      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.3</b>	ug/L	3.0	0.34	1	09/24/20 09:07	09/24/20 20:25	7440-43-9	1c
Zinc, Dissolved	<b>162</b>	ug/L	10.0	2.4	1	09/24/20 09:07	09/24/20 20:25	7440-66-6	3c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383477

**Sample: RWQ-MWI**      **Lab ID: 30383477006**      Collected: 09/21/20 13:00      Received: 09/21/20 22:50      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>4.2</b>	ug/L	3.0	0.34	1	09/24/20 09:07	09/24/20 21:22	7440-43-9	1c
Zinc, Dissolved	<b>280000</b>	ug/L	1000	238	100	09/24/20 09:07	09/24/20 20:16	7440-66-6	3c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30383477

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWO-MWI      Lab ID: 30383477007      Collected: 09/21/20 14:20      Received: 09/21/20 22:50      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>57.8</b>	ug/L	3.0	0.34	1	09/24/20 09:07	09/24/20 20:27	7440-43-9	1c
Zinc, Dissolved	<b>204000</b>	ug/L	1000	238	100	09/24/20 09:07	09/24/20 21:37	7440-66-6	3c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30383477

Sample: RWO-MWS		Lab ID: 30383477008		Collected: 09/21/20 15:10		Received: 09/21/20 22:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>4.1</b>	ug/L	3.0	0.34	1	09/24/20 09:07	09/24/20 20:36	7440-43-9	1c
Zinc, Dissolved	<b>5030</b>	ug/L	10.0	2.4	1	09/24/20 09:07	09/24/20 20:36	7440-66-6	3c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30383477

QC Batch: 415332 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30383477002, 30383477003, 30383477005, 30383477006, 30383477007, 30383477008

METHOD BLANK: 2008723 Matrix: Water  
Associated Lab Samples: 30383477002, 30383477003, 30383477005, 30383477006, 30383477007, 30383477008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	09/24/20 19:54	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	09/24/20 19:54	

LABORATORY CONTROL SAMPLE: 2008724

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	476	95	80-120	
Zinc, Dissolved	ug/L	500	483	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2008726 2008727

Parameter	Units	30383477002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	29.4	500	500	537	529	102	100	75-125	2	20	
Zinc, Dissolved	ug/L	536000	500	500	497000	524000	-7740	-2220	75-125	5	20 ML	

MATRIX SPIKE SAMPLE: 2008729

Parameter	Units	30383698005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	500	505	101	75-125	
Zinc, Dissolved	ug/L	7.8J	500	513	101	75-125	

SAMPLE DUPLICATE: 2008725

Parameter	Units	30383477002 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	29.4	28.8	2	20	
Zinc, Dissolved	ug/L	536000	511000	5	20	

SAMPLE DUPLICATE: 2008728

Parameter	Units	30383698005 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0 U		20	
Zinc, Dissolved	ug/L	7.8J	6.9J		20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30383477

QC Batch: 415394 Analysis Method: EPA 8260B  
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV  
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30383477001, 30383477003, 30383477004

METHOD BLANK: 2008952 Matrix: Water

Associated Lab Samples: 30383477001, 30383477003, 30383477004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	1.0 U	1.0	0.38	09/24/20 13:07	
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0	0.47	09/24/20 13:07	
1,1,2-Trichloroethane	ug/L	1.0 U	1.0	0.33	09/24/20 13:07	
1,1,2-Trichlorotrifluoroethane	ug/L	50.0 U	50.0	3.0	09/24/20 13:07	
1,1-Dichloroethane	ug/L	1.0 U	1.0	0.24	09/24/20 13:07	
1,1-Dichloroethene	ug/L	1.0 U	1.0	0.24	09/24/20 13:07	
1,2,3-Trichlorobenzene	ug/L	2.0 U	2.0	0.89	09/24/20 13:07	
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0	0.73	09/24/20 13:07	
1,2-Dibromo-3-chloropropane	ug/L	5.0 U	5.0	0.55	09/24/20 13:07	
1,2-Dibromoethane (EDB)	ug/L	1.0 U	1.0	0.44	09/24/20 13:07	
1,2-Dichlorobenzene	ug/L	1.0 U	1.0	0.38	09/24/20 13:07	
1,2-Dichloroethane	ug/L	1.0 U	1.0	0.33	09/24/20 13:07	
1,2-Dichloroethene (Total)	ug/L	2.0 U	2.0	0.66	09/24/20 13:07	
1,2-Dichloropropane	ug/L	1.0 U	1.0	0.28	09/24/20 13:07	
1,3-Dichlorobenzene	ug/L	1.0 U	1.0	0.45	09/24/20 13:07	
1,4-Dichlorobenzene	ug/L	1.0 U	1.0	0.48	09/24/20 13:07	
2-Butanone (MEK)	ug/L	10.0 U	10.0	1.5	09/24/20 13:07	
2-Hexanone	ug/L	10.0 U	10.0	0.58	09/24/20 13:07	
4-Methyl-2-pentanone (MIBK)	ug/L	10.0 U	10.0	0.42	09/24/20 13:07	
Acetone	ug/L	10.0 U	10.0	5.6	09/24/20 13:07	
Benzene	ug/L	1.0 U	1.0	0.34	09/24/20 13:07	
Bromodichloromethane	ug/L	1.0 U	1.0	0.35	09/24/20 13:07	
Bromoform	ug/L	1.0 U	1.0	0.56	09/24/20 13:07	
Bromomethane	ug/L	0.80J	1.0	0.73	09/24/20 13:07	
Carbon disulfide	ug/L	1.0 U	1.0	0.32	09/24/20 13:07	
Carbon tetrachloride	ug/L	1.0 U	1.0	0.44	09/24/20 13:07	
Chlorobenzene	ug/L	1.0 U	1.0	0.26	09/24/20 13:07	
Chloroethane	ug/L	1.0 U	1.0	0.64	09/24/20 13:07	
Chloroform	ug/L	1.0 U	1.0	0.39	09/24/20 13:07	
Chloromethane	ug/L	1.0 U	1.0	0.40	09/24/20 13:07	
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0	0.38	09/24/20 13:07	
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0	0.29	09/24/20 13:07	
Cyclohexane	ug/L	10.0 U	10.0	0.33	09/24/20 13:07	
Dibromochloromethane	ug/L	1.0 U	1.0	0.43	09/24/20 13:07	
Dichlorodifluoromethane	ug/L	1.0 U	1.0	0.63	09/24/20 13:07	
Ethylbenzene	ug/L	1.0 U	1.0	0.40	09/24/20 13:07	
Isopropylbenzene (Cumene)	ug/L	1.0 U	1.0	0.47	09/24/20 13:07	
m&p-Xylene	ug/L	2.0 U	2.0	0.94	09/24/20 13:07	
Methyl acetate	ug/L	5.0 U	5.0	0.55	09/24/20 13:07	
Methyl-tert-butyl ether	ug/L	1.0 U	1.0	0.25	09/24/20 13:07	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30383477

METHOD BLANK: 2008952 Matrix: Water  
Associated Lab Samples: 30383477001, 30383477003, 30383477004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methylene Chloride	ug/L	1.0 U	1.0	0.64	09/24/20 13:07	
o-Xylene	ug/L	1.0 U	1.0	0.41	09/24/20 13:07	
Styrene	ug/L	1.0 U	1.0	0.33	09/24/20 13:07	
Tetrachloroethene	ug/L	1.0 U	1.0	0.39	09/24/20 13:07	
Toluene	ug/L	1.0 U	1.0	0.32	09/24/20 13:07	
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0	0.28	09/24/20 13:07	
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0	0.32	09/24/20 13:07	
Trichloroethene	ug/L	1.0 U	1.0	0.29	09/24/20 13:07	
Trichlorofluoromethane	ug/L	1.0 U	1.0	0.51	09/24/20 13:07	
Vinyl chloride	ug/L	1.0 U	1.0	0.29	09/24/20 13:07	
Xylene (Total)	ug/L	3.0 U	3.0	1.4	09/24/20 13:07	
1,2-Dichloroethane-d4 (S)	%	103	70-130		09/24/20 13:07	
4-Bromofluorobenzene (S)	%	100	70-130		09/24/20 13:07	
Dibromofluoromethane (S)	%	98	70-130		09/24/20 13:07	
Toluene-d8 (S)	%	96	70-130		09/24/20 13:07	

LABORATORY CONTROL SAMPLE: 2008953

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	25.7	128	70-130	
1,1,2,2-Tetrachloroethane	ug/L	20	24.6	123	70-130	
1,1,2-Trichloroethane	ug/L	20	24.4	122	70-130	
1,1,2-Trichlorotrifluoroethane	ug/L	20	23.3J	116	61-138	
1,1-Dichloroethane	ug/L	20	24.1	121	70-130	
1,1-Dichloroethene	ug/L	20	23.0	115	70-130	
1,2,3-Trichlorobenzene	ug/L	20	25.7	128	70-130	
1,2,4-Trichlorobenzene	ug/L	20	24.7	124	70-130	
1,2-Dibromo-3-chloropropane	ug/L	20	24.0	120	59-122	
1,2-Dibromoethane (EDB)	ug/L	20	22.1	110	70-130	
1,2-Dichlorobenzene	ug/L	20	23.9	120	70-130	
1,2-Dichloroethane	ug/L	20	23.4	117	70-130	
1,2-Dichloroethene (Total)	ug/L	40	46.4	116	70-130	
1,2-Dichloropropane	ug/L	20	23.1	115	70-130	
1,3-Dichlorobenzene	ug/L	20	24.5	122	70-130	
1,4-Dichlorobenzene	ug/L	20	23.9	119	70-130	
2-Butanone (MEK)	ug/L	20	20.5	102	70-130	
2-Hexanone	ug/L	20	23.4	117	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	20	24.2	121	70-130	
Acetone	ug/L	20	23.7	118	67-173	
Benzene	ug/L	20	23.4	117	70-130	
Bromodichloromethane	ug/L	20	25.0	125	70-130	
Bromoform	ug/L	20	23.2	116	63-119	
Bromomethane	ug/L	20	27.2	136	24-159	
Carbon disulfide	ug/L	20	22.2	111	57-132	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30383477

LABORATORY CONTROL SAMPLE: 2008953

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	ug/L	20	24.1	121	70-130	
Chlorobenzene	ug/L	20	24.9	125	70-130	
Chloroethane	ug/L	20	25.4	127	62-145	
Chloroform	ug/L	20	22.8	114	70-130	
Chloromethane	ug/L	20	25.7	129	66-140	
cis-1,2-Dichloroethene	ug/L	20	22.0	110	70-130	
cis-1,3-Dichloropropene	ug/L	20	24.1	121	70-130	
Cyclohexane	ug/L	20	22.9	115	63-128	
Dibromochloromethane	ug/L	20	22.7	114	70-130	
Dichlorodifluoromethane	ug/L	20	26.5	132	62-162	
Ethylbenzene	ug/L	20	24.6	123	70-130	
Isopropylbenzene (Cumene)	ug/L	20	26.7	133	70-130	L1
m&p-Xylene	ug/L	40	49.7	124	70-130	
Methyl acetate	ug/L	20	26.0	130	37-158	
Methyl-tert-butyl ether	ug/L	20	22.6	113	70-130	
Methylene Chloride	ug/L	20	23.3	117	70-130	
o-Xylene	ug/L	20	23.6	118	70-130	
Styrene	ug/L	20	25.2	126	70-130	
Tetrachloroethene	ug/L	20	24.6	123	70-130	
Toluene	ug/L	20	23.4	117	70-130	
trans-1,2-Dichloroethene	ug/L	20	24.4	122	70-130	
trans-1,3-Dichloropropene	ug/L	20	24.5	122	70-130	
Trichloroethene	ug/L	20	24.3	121	70-130	
Trichlorofluoromethane	ug/L	20	25.4	127	70-130	
Vinyl chloride	ug/L	20	25.5	127	70-130	
Xylene (Total)	ug/L	60	73.3	122	70-130	
1,2-Dichloroethane-d4 (S)	%			101	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Dibromofluoromethane (S)	%			100	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2008954 2008955

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		30383457002	Spike Conc.	Spike Conc.	Result							
1,1,1-Trichloroethane	ug/L	1.0 U	20	20	23.6	20.0	118	100	55-146	17	30	
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	20	20	20.0	17.3	100	86	55-118	15	30	
1,1,2-Trichloroethane	ug/L	1.0 U	20	20	20.6	17.8	103	89	61-122	15	30	
1,1,2-Trichlorotrifluoroethane	ug/L	50.0 U	20	20	22.9J	22.4J	115	112	42-134		30	
1,1-Dichloroethane	ug/L	1.0 U	20	20	21.0	17.7	105	88	59-130	17	30	
1,1-Dichloroethene	ug/L	1.0 U	20	20	20.4	17.3	102	87	52-119	16	30	
1,2,3-Trichlorobenzene	ug/L	2.0 U	20	20	17.0	15.5	85	78	45-126	9	30	
1,2,4-Trichlorobenzene	ug/L	1.0 U	20	20	16.9	14.9	84	74	38-146	12	30	
1,2-Dibromo-3-chloropropane	ug/L	5.0 U	20	20	18.2	16.1	91	80	32-112	12	30	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30383477

Parameter	Units	2008954		2008955		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual	
		30383457002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result									MSD Result
1,2-Dibromoethane (EDB)	ug/L	1.0 U	20	20	18.6	17.2	93	86	61-116	8	30			
1,2-Dichlorobenzene	ug/L	1.0 U	20	20	19.5	17.7	97	89	58-126	9	30			
1,2-Dichloroethane	ug/L	1.0 U	20	20	19.0	17.2	95	86	49-135	10	30			
1,2-Dichloroethene (Total)	ug/L	2.0 U	40	40	39.2	33.1	98	83	61-119	17	30			
1,2-Dichloropropane	ug/L	1.0 U	20	20	20.8	17.3	104	86	67-121	18	30			
1,3-Dichlorobenzene	ug/L	1.0 U	20	20	18.9	16.9	95	84	56-130	11	30			
1,4-Dichlorobenzene	ug/L	1.0 U	20	20	18.6	16.6	93	83	60-121	12	30			
2-Butanone (MEK)	ug/L	10.0 U	20	20	19.0	17.8	95	89	59-138	7	30			
2-Hexanone	ug/L	10.0 U	20	20	19.2	19.3	96	97	66-123	0	30			
4-Methyl-2-pentanone (MIBK)	ug/L	10.0 U	20	20	19.6	19.0	98	95	70-130	3	30			
Acetone	ug/L	10.0 U	20	20	20.4	20.5	89	90	57-140	0	30			
Benzene	ug/L	1.0 U	20	20	20.5	18.1	103	90	50-149	13	30			
Bromodichloromethane	ug/L	1.0 U	20	20	21.0	18.2	105	91	46-131	14	30			
Bromoform	ug/L	1.0 U	20	20	18.2	15.6	91	78	30-119	15	30			
Bromomethane	ug/L	1.0 U	20	20	18.1	16.2	88	79	10-163	11	30			
Carbon disulfide	ug/L	1.0 U	20	20	19.3	18.2	96	91	41-116	6	30			
Carbon tetrachloride	ug/L	1.0 U	20	20	21.9	18.5	109	93	55-119	17	30			
Chlorobenzene	ug/L	1.0 U	20	20	20.3	18.1	102	90	66-124	12	30			
Chloroethane	ug/L	1.0 U	20	20	23.5	23.1	117	115	45-162	2	30			
Chloroform	ug/L	1.0 U	20	20	20.3	17.5	101	88	56-123	15	30			
Chloromethane	ug/L	1.0 U	20	20	19.3	20.2	97	101	49-150	4	30			
cis-1,2-Dichloroethene	ug/L	1.0 U	20	20	19.5	16.2	98	81	63-116	19	30			
cis-1,3-Dichloropropene	ug/L	1.0 U	20	20	18.5	16.6	93	83	46-119	11	30			
Cyclohexane	ug/L	10.0 U	20	20	21.7	20.6	109	103	51-130	5	30			
Dibromochloromethane	ug/L	1.0 U	20	20	19.4	17.5	97	87	42-120	11	30			
Dichlorodifluoromethane	ug/L	1.0 U	20	20	21.6	21.9	108	109	59-155	1	30			
Ethylbenzene	ug/L	1.0 U	20	20	20.1	18.4	100	92	63-135	9	30			
Isopropylbenzene (Cumene)	ug/L	1.0 U	20	20	22.6	19.2	113	96	50-167	16	30			
m&p-Xylene	ug/L	2.0 U	40	40	41.8	36.5	104	91	63-135	14	30			
Methyl acetate	ug/L	5.0 U	20	20	19.2	18.7	96	93	17-145	3	30			
Methyl-tert-butyl ether	ug/L	1.0 U	20	20	19.3	18.9	96	95	53-123	2	30			
Methylene Chloride	ug/L	1.0 U	20	20	20.2	17.0	101	85	57-132	17	30			
o-Xylene	ug/L	1.0 U	20	20	19.7	16.8	98	84	57-133	16	30			
Styrene	ug/L	1.0 U	20	20	18.7	16.6	94	83	58-130	12	30			
Tetrachloroethene	ug/L	1.0 U	20	20	20.7	17.9	104	90	61-132	14	30			
Toluene	ug/L	1.0 U	20	20	20.3	17.9	102	90	59-139	13	30			
trans-1,2-Dichloroethene	ug/L	1.0 U	20	20	19.6	17.0	98	85	60-124	15	30			
trans-1,3-Dichloropropene	ug/L	1.0 U	20	20	18.2	15.6	91	78	48-121	15	30			
Trichloroethene	ug/L	1.0 U	20	20	20.3	17.5	102	88	63-128	15	30			
Trichlorofluoromethane	ug/L	1.0 U	20	20	21.9	21.8	110	109	70-152	1	30			
Vinyl chloride	ug/L	1.0 U	20	20	21.4	20.8	107	104	67-141	3	30			
Xylene (Total)	ug/L	3.0 U	60	60	61.5	53.3	102	89	63-135	14	30			
1,2-Dichloroethane-d4 (S)	%							105	105	70-130				
4-Bromofluorobenzene (S)	%							100	100	70-130				

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling

Pace Project No.: 30383477

Parameter	Units	2008954		2008955		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		30383457002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Dibromofluoromethane (S)	%.					100	100	70-130			
Toluene-d8 (S)	%.					98	101	70-130			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30383477

QC Batch: 415859	Analysis Method: EPA 8270D
QC Batch Method: EPA 3510C	Analysis Description: 8270D Water MSSV
	Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30383477003, 30383477004

METHOD BLANK: 2010923 Matrix: Water

Associated Lab Samples: 30383477003, 30383477004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2,4,5-Tetrachlorobenzene	ug/L	1.0 U	1.0	0.31	09/28/20 20:22	
2,3,4,6-Tetrachlorophenol	ug/L	1.0 U	1.0	0.28	09/28/20 20:22	
2,4,5-Trichlorophenol	ug/L	2.5 U	2.5	0.67	09/28/20 20:22	
2,4,6-Trichlorophenol	ug/L	1.0 U	1.0	0.37	09/28/20 20:22	
2,4-Dichlorophenol	ug/L	1.0 U	1.0	0.34	09/28/20 20:22	
2,4-Dimethylphenol	ug/L	1.0 U	1.0	0.36	09/28/20 20:22	
2,4-Dinitrophenol	ug/L	2.5 U	2.5	0.58	09/28/20 20:22	
2,4-Dinitrotoluene	ug/L	1.0 U	1.0	0.36	09/28/20 20:22	
2,6-Dinitrotoluene	ug/L	1.0 U	1.0	0.40	09/28/20 20:22	
2-Chloronaphthalene	ug/L	1.0 U	1.0	0.33	09/28/20 20:22	
2-Chlorophenol	ug/L	1.0 U	1.0	0.32	09/28/20 20:22	
2-Methylnaphthalene	ug/L	1.0 U	1.0	0.34	09/28/20 20:22	
2-Methylphenol(o-Cresol)	ug/L	1.0 U	1.0	0.37	09/28/20 20:22	
2-Nitroaniline	ug/L	2.5 U	2.5	0.71	09/28/20 20:22	
3&4-Methylphenol(m&p Cresol)	ug/L	2.0 U	2.0	1.9	09/28/20 20:22	
3,3'-Dichlorobenzidine	ug/L	1.0 U	1.0	0.23	09/28/20 20:22	
4-Chloroaniline	ug/L	1.0 U	1.0	0.21	09/28/20 20:22	
4-Nitroaniline	ug/L	2.5 U	2.5	1.9	09/28/20 20:22	
Acenaphthene	ug/L	1.0 U	1.0	0.39	09/28/20 20:22	
Acenaphthylene	ug/L	1.0 U	1.0	0.38	09/28/20 20:22	
Acetophenone	ug/L	1.0 U	1.0	0.42	09/28/20 20:22	
Anthracene	ug/L	1.0 U	1.0	0.27	09/28/20 20:22	
Benzaldehyde	ug/L	1.0 U	1.0	0.43	09/28/20 20:22	
Benzo(a)anthracene	ug/L	1.0 U	1.0	0.20	09/28/20 20:22	
Benzo(a)pyrene	ug/L	1.0 U	1.0	0.18	09/28/20 20:22	
Benzo(b)fluoranthene	ug/L	1.0 U	1.0	0.24	09/28/20 20:22	
Benzo(g,h,i)perylene	ug/L	1.0 U	1.0	0.30	09/28/20 20:22	
Benzo(k)fluoranthene	ug/L	1.0 U	1.0	0.26	09/28/20 20:22	
Biphenyl (Diphenyl)	ug/L	1.0 U	1.0	0.32	09/28/20 20:22	
bis(2-Chloroethoxy)methane	ug/L	1.0 U	1.0	0.36	09/28/20 20:22	
bis(2-Chloroethyl) ether	ug/L	1.0 U	1.0	0.41	09/28/20 20:22	
bis(2-Chloroisopropyl) ether	ug/L	1.0 U	1.0	0.40	09/28/20 20:22	
bis(2-Ethylhexyl)phthalate	ug/L	1.0 U	1.0	0.36	09/28/20 20:22	
Caprolactam	ug/L	0.33J	2.5	0.32	09/28/20 20:22	
Carbazole	ug/L	1.0 U	1.0	0.23	09/28/20 20:22	
Chrysene	ug/L	1.0 U	1.0	0.21	09/28/20 20:22	
Di-n-butylphthalate	ug/L	1.0 U	1.0	0.32	09/28/20 20:22	
Di-n-octylphthalate	ug/L	1.0 U	1.0	0.27	09/28/20 20:22	
Dibenz(a,h)anthracene	ug/L	1.0 U	1.0	0.31	09/28/20 20:22	
Diethylphthalate	ug/L	1.0 U	1.0	0.36	09/28/20 20:22	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30383477

METHOD BLANK: 2010923 Matrix: Water

Associated Lab Samples: 30383477003, 30383477004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoranthene	ug/L	1.0 U	1.0	0.23	09/28/20 20:22	
Fluorene	ug/L	1.0 U	1.0	0.37	09/28/20 20:22	
Hexachloro-1,3-butadiene	ug/L	1.0 U	1.0	0.33	09/28/20 20:22	
Hexachlorobenzene	ug/L	1.0 U	1.0	0.30	09/28/20 20:22	
Hexachlorocyclopentadiene	ug/L	1.0 U	1.0	0.19	09/28/20 20:22	
Hexachloroethane	ug/L	1.0 U	1.0	0.30	09/28/20 20:22	
Indeno(1,2,3-cd)pyrene	ug/L	1.0 U	1.0	0.30	09/28/20 20:22	
Isophorone	ug/L	1.0 U	1.0	0.57	09/28/20 20:22	
N-Nitroso-di-n-propylamine	ug/L	1.0 U	1.0	0.54	09/28/20 20:22	
N-Nitrosodiphenylamine	ug/L	1.0 U	1.0	0.25	09/28/20 20:22	
Naphthalene	ug/L	0.45J	1.0	0.35	09/28/20 20:22	
Nitrobenzene	ug/L	1.0 U	1.0	0.38	09/28/20 20:22	
Pentachlorophenol	ug/L	2.5 U	2.5	1.0	09/28/20 20:22	
Phenanthrene	ug/L	1.0 U	1.0	0.34	09/28/20 20:22	
Phenol	ug/L	1.0 U	1.0	0.22	09/28/20 20:22	
Pyrene	ug/L	1.0 U	1.0	0.30	09/28/20 20:22	
2,4,6-Tribromophenol (S)	%	85	10-140		09/28/20 20:22	
2-Fluorobiphenyl (S)	%	70	10-135		09/28/20 20:22	
2-Fluorophenol (S)	%	51	10-142		09/28/20 20:22	
Nitrobenzene-d5 (S)	%	71	10-140		09/28/20 20:22	
Phenol-d6 (S)	%	41	10-145		09/28/20 20:22	
Terphenyl-d14 (S)	%	89	10-128		09/28/20 20:22	

LABORATORY CONTROL SAMPLE: 2010924

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4,5-Tetrachlorobenzene	ug/L	10	7.3	73	28-99	
2,3,4,6-Tetrachlorophenol	ug/L	10	9.1	91	33-115	
2,4,5-Trichlorophenol	ug/L	10	8.9	89	57-113	
2,4,6-Trichlorophenol	ug/L	10	8.4	84	45-122	
2,4-Dichlorophenol	ug/L	10	7.9	79	33-96	
2,4-Dimethylphenol	ug/L	10	8.0	80	19-87	
2,4-Dinitrophenol	ug/L	10	10.7	107	15-119	
2,4-Dinitrotoluene	ug/L	10	8.9	89	40-119	
2,6-Dinitrotoluene	ug/L	10	8.6	86	50-116	
2-Chloronaphthalene	ug/L	10	7.1	71	30-101	
2-Chlorophenol	ug/L	10	6.9	69	27-97	
2-Methylnaphthalene	ug/L	10	7.2	72	24-91	
2-Methylphenol(o-Cresol)	ug/L	10	7.0	70	10-175	
2-Nitroaniline	ug/L	10	8.8	88	48-120	
3&4-Methylphenol(m&p Cresol)	ug/L	20	13.4	67	21-131	
3,3'-Dichlorobenzidine	ug/L	10	3.8	38	49-117	L2
4-Chloroaniline	ug/L	10	5.2	52	22-79	
4-Nitroaniline	ug/L	10	8.8	88	46-136	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling

Pace Project No.: 30383477

LABORATORY CONTROL SAMPLE: 2010924

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	10	7.9	79	36-106	
Acenaphthylene	ug/L	10	8.1	81	35-103	
Acetophenone	ug/L	10	7.2	72	30-107	
Anthracene	ug/L	10	8.8	88	56-106	
Benzaldehyde	ug/L	10	2.7	27	10-128	
Benzo(a)anthracene	ug/L	10	9.5	95	64-124	
Benzo(a)pyrene	ug/L	10	9.1	91	61-115	
Benzo(b)fluoranthene	ug/L	10	9.2	92	58-133	
Benzo(g,h,i)perylene	ug/L	10	9.8	98	40-142	
Benzo(k)fluoranthene	ug/L	10	9.8	98	61-121	
Biphenyl (Diphenyl)	ug/L	10	7.4	74	29-103	
bis(2-Chloroethoxy)methane	ug/L	10	7.2	72	33-96	
bis(2-Chloroethyl) ether	ug/L	10	7.0	70	25-98	
bis(2-Chloroisopropyl) ether	ug/L	10	6.7	67	23-104	
bis(2-Ethylhexyl)phthalate	ug/L	10	9.9	99	65-141	
Caprolactam	ug/L	10	3.3	33	10-39	
Carbazole	ug/L	10	8.3	83	59-112	
Chrysene	ug/L	10	9.2	92	63-120	
Di-n-butylphthalate	ug/L	10	9.4	94	69-126	
Di-n-octylphthalate	ug/L	10	10	100	61-145	
Dibenz(a,h)anthracene	ug/L	10	10.1	101	52-138	
Diethylphthalate	ug/L	10	8.9	89	61-117	
Fluoranthene	ug/L	10	9.0	90	65-119	
Fluorene	ug/L	10	8.3	83	44-110	
Hexachloro-1,3-butadiene	ug/L	10	6.4	64	13-112	
Hexachlorobenzene	ug/L	10	8.2	82	17-121	
Hexachlorocyclopentadiene	ug/L	10	7.1	71	10-83	
Hexachloroethane	ug/L	10	5.2	52	13-108	
Indeno(1,2,3-cd)pyrene	ug/L	10	9.8	98	48-140	
Isophorone	ug/L	10	7.5	75	34-93	
N-Nitroso-di-n-propylamine	ug/L	10	7.5	75	34-106	
N-Nitrosodiphenylamine	ug/L	10	7.7	77	34-97	
Naphthalene	ug/L	10	7.3	73	23-90	
Nitrobenzene	ug/L	10	6.8	68	26-128	
Pentachlorophenol	ug/L	10	12.4	124	37-125	
Phenanthrene	ug/L	10	8.8	88	56-112	
Phenol	ug/L	10	3.3	33	10-58	
Pyrene	ug/L	10	9.6	96	56-128	
2,4,6-Tribromophenol (S)	%			86	10-140	
2-Fluorobiphenyl (S)	%			68	10-135	
2-Fluorophenol (S)	%			44	10-142	
Nitrobenzene-d5 (S)	%			68	10-140	
Phenol-d6 (S)	%			35	10-145	
Terphenyl-d14 (S)	%			83	10-128	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling  
Pace Project No.: 30383477

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### BATCH QUALIFIERS

Batch: 415859

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

1c The precision between the sample and serial dilution exceeded laboratory control limits.

2c A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

3c The PDS recovery was outside of the laboratory control limits. Result may be biased low

L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30383477

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30383477002	RW21-MWI	EPA 3005A	415332	EPA 6010C	415505
30383477003	RW21-MWS	EPA 3005A	415332	EPA 6010C	415505
30383477005	RWQ-MWS	EPA 3005A	415332	EPA 6010C	415505
30383477006	RWQ-MWI	EPA 3005A	415332	EPA 6010C	415505
30383477007	RWO-MWI	EPA 3005A	415332	EPA 6010C	415505
30383477008	RWO-MWS	EPA 3005A	415332	EPA 6010C	415505
30383477003	RW21-MWS	EPA 3510C	415859	EPA 8270D	415942
30383477004	RW21-MWP	EPA 3510C	415859	EPA 8270D	415942
30383477001	Trip Blank	EPA 8260B	415394		
30383477003	RW21-MWS	EPA 8260B	415394		
30383477004	RW21-MWP	EPA 8260B	415394		

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



**30383477**

**Section A**

Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To:  
Phone:  
Requested Due Date/TAT: 5 day

Section B  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis  
PO Number:  
Project Name: RWM GW Sampling  
Project Number:

Section C  
Invoice Information:  
Attention: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
Pace Quote Reference:  
Pace Project Manager: Samantha Bayura  
Pace Profile #:

**REGULATORY AGENCY**

NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER

Site Location  
STATE: MD

**Requested Analysis Filtered (Y/N)**

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW WATER P PRODUCT SL SOLID OL OIL WP WIFE AR AIR OT OTHER TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES		Analysis Test ↑ Y/N	Disolved Cadmium	Disolved Zinc	VOCs	SVOCS	Pace Project No./ Lab I.D.
				COMPOSITE START	COMPOSITE END/GRAB			DATE	TIME						
1	TRIO Blank	WTG			9/21/20		2								001
2	RW21-MWI	WTG			833		1								002
3	RW21-MWS	WTG			925		62								003
4	RW21-MWF	WTG			1055		52								004
5	RWR-MWS	WTG			1150		1								005
6	RWR-MWI	WTG			1300		1								006
7	RWD-MWI	WTG			1420		1								007
8	RWD-MWS	WTG			1510		1								008
9															
10															
11															
12															

**ADDITIONAL COMMENTS**

Data Package Required? (Y/N):  Y

Data Validation Required? (Y/N):  Y

If data package is required, attach data package checklist.

RELINQUISHED BY / AFFILIATION: *[Signature]* DATE: 9/21/20 TIME: 1600

ACCEPTED BY / AFFILIATION: *[Signature]* DATE: 9/21/20 TIME: 1430

SAMPLE NAME AND SIGNATURE: *[Signature]* DATE Signed (MM/DD/YYYY): 9/21/20

PRINT Name of SAMPLER: Lisa Peck  
SIGNATURE of SAMPLER: *[Signature]*

Received on: *[Signature]* Received by: *[Signature]*

Cooler (Y/N):  Y  
Custody Sealed (Y/N):  Y  
Samples Intact (Y/N):  Y

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.



Pittsburgh Lab Sample Condition Upon Receipt



Client Name: TradePoint Atlantic

Project #

#-30383477

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>MLL</u>
LIMS Login	<u>MLL</u>

Custody Seal on Cooler/Box Present:  yes  no      Seals intact:  yes  no

Thermometer Used 11      Type of Ice: Wet Blue None

Cooler Temperature Observed Temp 2.3 °C      Correction Factor: .4 °C      Final Temp: 1.9 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and initials of person examining contents:
	Yes	No	N/A	
				<u>100046</u>
				<u>MLL 9/22/2010</u>
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:	/			4.
Sample Labels match COC:	/			5.
-Includes date/time/ID      Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):	/			7.
Rush Turn Around Time Requested:	/			8.
Sufficient Volume:	/			9.
Correct Containers Used:	/			10.
-Pace Containers Used:	/			
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Hex Cr Aqueous sample field filtered			/	13.
Organic Samples checked for dechlorination:	/			14.
Filtered volume received for Dissolved tests			/	15.
All containers have been checked for preservation.	/			16.
exceptions: <u>VOA</u> coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	/			Initial when completed: <u>MLL</u> Date/time of preservation:
				Lot # of added preservative:
Headspace in VOA Vials (>6mm):		/		17.
Trip Blank Present:	/			18.
Trip Blank Custody Seals Present	/			
Rad Samples Screened < 0.5 mrem/hr			/	Initial when completed:      Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

September 28, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30383698

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on September 22, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30383698

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Florida: Cert E871149 SEKS WET  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30383698

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30383698001	RW6R-MWD	Water	09/22/20 08:45	09/22/20 23:15
30383698002	RW10-MWI	Water	09/22/20 10:00	09/22/20 23:15
30383698003	RW23-MWI	Water	09/22/20 10:45	09/22/20 23:15
30383698004	RW23-MWS	Water	09/22/20 11:50	09/22/20 23:15
30383698005	RWM-MWS	Water	09/22/20 13:25	09/22/20 23:15
30383698006	RWM-MWI	Water	09/22/20 14:15	09/22/20 23:15
30383698007	RWL-MWI	Water	09/22/20 15:15	09/22/20 23:15

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30383698

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30383698001	RW6R-MWD	EPA 6010C	KAS	2	PASI-PA
30383698002	RW10-MWI	EPA 6010C	KAS	2	PASI-PA
30383698003	RW23-MWI	EPA 6010C	KAS	2	PASI-PA
30383698004	RW23-MWS	EPA 6010C	KAS	2	PASI-PA
30383698005	RWM-MWS	EPA 6010C	KAS	2	PASI-PA
30383698006	RWM-MWI	EPA 6010C	KAS	2	PASI-PA
30383698007	RWL-MWI	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30383698

Sample: RW6R-MWD		Lab ID: 30383698001	Collected: 09/22/20 08:45	Received: 09/22/20 23:15	Matrix: Water					
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg								
Cadmium, Dissolved	<b>0.49J</b>	ug/L	3.0	0.34	1	09/24/20 09:07	09/24/20 20:39	7440-43-9	1c	
Zinc, Dissolved	<b>129</b>	ug/L	10.0	2.4	1	09/24/20 09:07	09/24/20 20:39	7440-66-6	2c	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383698

Sample: RW10-MWI		Lab ID: 30383698002		Collected: 09/22/20 10:00		Received: 09/22/20 23:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.77J</b>	ug/L	3.0	0.34	1	09/24/20 09:07	09/24/20 20:41	7440-43-9	1c
Zinc, Dissolved	<b>1090</b>	ug/L	10.0	2.4	1	09/24/20 09:07	09/24/20 20:41	7440-66-6	2c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383698

Sample: RW23-MWI		Lab ID: 30383698003		Collected: 09/22/20 10:45		Received: 09/22/20 23:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>2500</b>	ug/L	3.0	0.34	1	09/24/20 09:07	09/24/20 20:43	7440-43-9	1c
Zinc, Dissolved	<b>105000</b>	ug/L	1000	238	100	09/24/20 09:07	09/24/20 21:39	7440-66-6	2c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383698

**Sample: RW23-MWS**      **Lab ID: 30383698004**      Collected: 09/22/20 11:50      Received: 09/22/20 23:15      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	09/24/20 09:07	09/24/20 20:47	7440-43-9	1c
Zinc, Dissolved	<b>6.4J</b>	ug/L	10.0	2.4	1	09/24/20 09:07	09/24/20 20:47	7440-66-6	2c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383698

Sample: RWM-MWS		Lab ID: 30383698005		Collected: 09/22/20 13:25		Received: 09/22/20 23:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	09/24/20 09:07	09/24/20 20:49	7440-43-9	1c
Zinc, Dissolved	<b>7.8J</b>	ug/L	10.0	2.4	1	09/24/20 09:07	09/24/20 20:49	7440-66-6	2c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30383698

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWM-MWI      Lab ID: 30383698006      Collected: 09/22/20 14:15      Received: 09/22/20 23:15      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>1060</b>	ug/L	3.0	0.34	1	09/24/20 09:07	09/24/20 21:01	7440-43-9	1c
Zinc, Dissolved	<b>138000</b>	ug/L	1000	238	100	09/24/20 09:07	09/24/20 21:41	7440-66-6	2c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383698

Sample: RWL-MWI		Lab ID: 30383698007		Collected: 09/22/20 15:15	Received: 09/22/20 23:15	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg								
Cadmium, Dissolved	<b>1210</b>	ug/L	3.0	0.34	1	09/24/20 09:07	09/24/20 21:05	7440-43-9	1c	
Zinc, Dissolved	<b>116000</b>	ug/L	1000	238	100	09/24/20 09:07	09/24/20 21:43	7440-66-6	2c	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30383698

QC Batch: 415332 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30383698001, 30383698002, 30383698003, 30383698004, 30383698005, 30383698006, 30383698007

METHOD BLANK: 2008723 Matrix: Water  
Associated Lab Samples: 30383698001, 30383698002, 30383698003, 30383698004, 30383698005, 30383698006, 30383698007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	09/24/20 19:54	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	09/24/20 19:54	

LABORATORY CONTROL SAMPLE: 2008724

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	476	95	80-120	
Zinc, Dissolved	ug/L	500	483	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2008726 2008727

Parameter	Units	30383477002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	29.4	500	500	537	529	102	100	75-125	2	20	
Zinc, Dissolved	ug/L	536000	500	500	497000	524000	-7740	-2220	75-125	5	20 ML	

MATRIX SPIKE SAMPLE: 2008729

Parameter	Units	30383698005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	500	505	101	75-125	
Zinc, Dissolved	ug/L	7.8J	500	513	101	75-125	

SAMPLE DUPLICATE: 2008725

Parameter	Units	30383477002 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	29.4	28.8	2	20	
Zinc, Dissolved	ug/L	536000	511000	5	20	

SAMPLE DUPLICATE: 2008728

Parameter	Units	30383698005 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0 U		20	
Zinc, Dissolved	ug/L	7.8J	6.9J		20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling  
Pace Project No.: 30383698

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

1c The precision between the sample and serial dilution exceeded laboratory control limits.

2c The PDS recovery was outside of the laboratory control limits. Result may be biased low

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30383698

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30383698001	RW6R-MWD	EPA 3005A	415332	EPA 6010C	415505
30383698002	RW10-MWI	EPA 3005A	415332	EPA 6010C	415505
30383698003	RW23-MWI	EPA 3005A	415332	EPA 6010C	415505
30383698004	RW23-MWS	EPA 3005A	415332	EPA 6010C	415505
30383698005	RWM-MWS	EPA 3005A	415332	EPA 6010C	415505
30383698006	RWM-MWI	EPA 3005A	415332	EPA 6010C	415505
30383698007	RWL-MWI	EPA 3005A	415332	EPA 6010C	415505

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



**Section A**  
Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To:  
Phone:  
Requested Due Date/TAT: 5 day

**Section B**  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis  
PO Number:  
Project Name: RWM GW Sampling  
Project Number:  
Requested Due Date/TAT: 5 day

**Section C**  
Invoice Information:  
Attention: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
Pace Quote Reference:  
Pace Project Manager: Samantha Bayura  
Pace Profile #:  
Site Location: **MD**  
STATE:

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER

ITEM #	Section D Required Client Information		Valid Matrix Codes		COLLECTED		SAMPLE TEMP AT COLLECTION		# OF CONTAINERS		PRESERVATIVES		ANALYSIS TEST ↑		Pace Project No./ Lab I.D.							
	MATRIX	CODE	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	UNPRESERVED	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl		NaOH	Na <sub>2</sub> O <sub>3</sub>	Other	DI Water	Disolved Cadmium	Disolved Zinc	
1	RWL-R-MWI	DW	9/22/20	845			1		1													001
2	RWL-R-MWI	WT		1000			1		1													002
3	RWL-R-MWI	WW		1045			1		1													003
4	RWL-R-MWI	P		1150			1		1													004
5	RWL-R-MWI	SL		1325			1		1													005
6	RWL-R-MWI	OL		1415			1		1													006
7	RWL-R-MWI	WP		1515			1		1													007
8		AR																				
9		OT																				
10		TS																				
11																						
12																						

**ADDITIONAL COMMENTS**  
Data Package Required? (Y/N) *Y*  
Data Validation Required? (Y/N) *Y*  
If data package is required, attach data package checklist.

**SAMPLER NAME AND SIGNATURE**  
PRINT Name of SAMPLER: *Lisa Peron*  
SIGNATURE of SAMPLER: *[Signature]*  
DATE Signed (MM/DD/YYYY): *9/22/20*

Received on *9/22/20* at *3:15* PM  
Cooler Sealed (Y/N) *Y*  
Samples Intact (Y/N) *Y*



Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Track Point Atlantic Project # \_\_\_\_\_

#-30383698

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>mcc</u>
LIMS Login	<u>mcc</u>

Custody Seal on Cooler/Box Present:  yes  no      Seals intact:  yes  no

Thermometer Used 11      Type of Ice: Wet Blue None

Cooler Temperature Observed Temp 3.5 °C      Correction Factor: .4 °C      Final Temp: 3.1 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:
	Yes	No	N/A	
				<u>10D0401</u>
				<u>mcc 9/23/2020</u>
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID      Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed <u>mcc</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed:      Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

September 29, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30383954

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on September 23, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30383954

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Florida: Cert E871149 SEKS WET  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30383954

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30383954001	RWL-MWS	Water	09/23/20 08:50	09/23/20 23:30
30383954002	RWK-MWI	Water	09/23/20 09:30	09/23/20 23:30
30383954003	RWK-MWS	Water	09/23/20 10:25	09/23/20 23:30
30383954004	RWJ-MWI	Water	09/23/20 11:15	09/23/20 23:30
30383954005	RWJ-MWS	Water	09/23/20 12:05	09/23/20 23:30

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30383954

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30383954001	RWL-MWS	EPA 6010C	KAS	2	PASI-PA
30383954002	RWK-MWI	EPA 6010C	KAS	2	PASI-PA
30383954003	RWK-MWS	EPA 6010C	KAS	2	PASI-PA
30383954004	RWJ-MWI	EPA 6010C	KAS	2	PASI-PA
30383954005	RWJ-MWS	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383954

Sample: <b>RWL-MWS</b>		Lab ID: <b>30383954001</b>		Collected: 09/23/20 08:50	Received: 09/23/20 23:30	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.59J</b>	ug/L	3.0	0.34	1	09/28/20 14:48	09/29/20 11:55	7440-43-9	
Zinc, Dissolved	<b>15000</b>	ug/L	1000	238	100	09/28/20 14:48	09/29/20 12:27	7440-66-6	MH

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383954

Sample: <b>RWK-MWI</b>		Lab ID: <b>30383954002</b>		Collected: 09/23/20 09:30	Received: 09/23/20 23:30	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>79.1</b>	ug/L	3.0	0.34	1	09/28/20 14:48	09/29/20 12:10	7440-43-9	
Zinc, Dissolved	<b>36800</b>	ug/L	1000	238	100	09/28/20 14:48	09/29/20 12:40	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383954

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWK-MWS      Lab ID: 30383954003      Collected: 09/23/20 10:25      Received: 09/23/20 23:30      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>0.51J</b>	ug/L	3.0	0.34	1	09/28/20 14:48	09/29/20 12:13	7440-43-9	
Zinc, Dissolved	<b>16800</b>	ug/L	1000	238	100	09/28/20 14:48	09/29/20 12:43	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383954

**Sample: RWJ-MWI**      **Lab ID: 30383954004**      Collected: 09/23/20 11:15      Received: 09/23/20 23:30      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>2.3J</b>	ug/L	3.0	0.34	1	09/28/20 14:48	09/29/20 12:23	7440-43-9	
Zinc, Dissolved	<b>744</b>	ug/L	10.0	2.4	1	09/28/20 14:48	09/29/20 12:23	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30383954

Sample: RWJ-MWS		Lab ID: 30383954005		Collected: 09/23/20 12:05		Received: 09/23/20 23:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	09/28/20 14:48	09/29/20 12:25	7440-43-9	
Zinc, Dissolved	<b>2.6J</b>	ug/L	10.0	2.4	1	09/28/20 14:48	09/29/20 12:25	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling

Pace Project No.: 30383954

QC Batch:	415914	Analysis Method:	EPA 6010C
QC Batch Method:	EPA 3005A	Analysis Description:	6010C MET Dissolved
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30383954001, 30383954002, 30383954003, 30383954004, 30383954005

METHOD BLANK: 2011064 Matrix: Water  
Associated Lab Samples: 30383954001, 30383954002, 30383954003, 30383954004, 30383954005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	09/29/20 11:51	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	09/29/20 11:51	

LABORATORY CONTROL SAMPLE: 2011065

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	476	95	80-120	
Zinc, Dissolved	ug/L	500	490	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2011067 2011068

Parameter	Units	30383954001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	0.59J	500	500	517	507	103	101	75-125	2	20	
Zinc, Dissolved	ug/L	15000	500	500	16500	16400	314	282	75-125	1	20 MH	

SAMPLE DUPLICATE: 2011066

Parameter	Units	30383954001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	0.59J	0.74J		20	
Zinc, Dissolved	ug/L	15000	16000	7	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30383954

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: RWM GW Sampling  
Pace Project No.: 30383954

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30383954001	RWL-MWS	EPA 3005A	415914	EPA 6010C	415978
30383954002	RWK-MWI	EPA 3005A	415914	EPA 6010C	415978
30383954003	RWK-MWS	EPA 3005A	415914	EPA 6010C	415978
30383954004	RWJ-MWI	EPA 3005A	415914	EPA 6010C	415978
30383954005	RWJ-MWS	EPA 3005A	415914	EPA 6010C	415978

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



**Section A**  
Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To:  
Phone:  
Requested Due Date(TAT): 5 day

**Section B**  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis  
PO Number:  
Project Name: RWM GW Sampling  
Project Number:

**Section C**  
Invoice Information:  
Attention: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
Pace Quote Reference:  
Pace Project Manager: Samantha Bayura  
Pace Profile #:  
REGULATORY AGENCY  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER  
Site Location: **MD**  
STATE:

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WT WATER WTW PRODUCT P SOLID S LIQUID L WIFE WIF AIR AIR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	PRESERVATIVES	ANALYSIS TEST ↑	Requested Analysis Filtered (Y/N)		Pace Project No./ Lab I.D.																												
				COMPOSITE START	COMPOSITE END/GRAB				DATE	TIME		Y	N																										
1	RWL-MWS	WTG	G	9/23/20	850	1	Unpreserved	Analysis Test ↑			601																												
2	RWK-MWT	WTG	G	9/23/20	930	1	H <sub>2</sub> SO <sub>4</sub>	Analysis Test ↑			602																												
3	RWK-MWS	WTG	G	9/23/20	1025	1	HNO <sub>3</sub>	Analysis Test ↑			603																												
4	RWJ-MWT	WTG	G	9/23/20	1115	1	NaOH	Analysis Test ↑			604																												
5	RWJ-MWS	WTG	G	9/23/20	1205	1	Na <sub>2</sub> O <sub>3</sub>	Analysis Test ↑			605																												
6							HCl																																
7							HNO <sub>3</sub>																																
8							Other																																
9							DI Water																																
10																																							
11																																							
12																																							
<table border="1"> <thead> <tr> <th>REQUISITIONED BY / AFFILIATION</th> <th>DATE</th> <th>TIME</th> <th>ACCEPTED BY / AFFILIATION</th> <th>DATE</th> <th>TIME</th> <th>SAMPLE CONDITIONS</th> </tr> </thead> <tbody> <tr> <td>Stew Kabis</td> <td>9/23/20</td> <td>1545</td> <td>Stew Kabis</td> <td>9/23/20</td> <td>1620</td> <td></td> </tr> <tr> <td>Stew Kabis</td> <td>9/23/20</td> <td>2010</td> <td>Stew Kabis</td> <td>9/23/20</td> <td>0615</td> <td>Y</td> </tr> <tr> <td>Stew Kabis</td> <td>9/23/20</td> <td>1330</td> <td>Stew Kabis</td> <td>9/23/20</td> <td>1330</td> <td>Y</td> </tr> </tbody> </table>												REQUISITIONED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	Stew Kabis	9/23/20	1545	Stew Kabis	9/23/20	1620		Stew Kabis	9/23/20	2010	Stew Kabis	9/23/20	0615	Y	Stew Kabis	9/23/20	1330	Stew Kabis	9/23/20	1330	Y
REQUISITIONED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS																																	
Stew Kabis	9/23/20	1545	Stew Kabis	9/23/20	1620																																		
Stew Kabis	9/23/20	2010	Stew Kabis	9/23/20	0615	Y																																	
Stew Kabis	9/23/20	1330	Stew Kabis	9/23/20	1330	Y																																	
<p><b>ADDITIONAL COMMENTS (Y/N):</b></p> <p>Data Package Required? (Y/N):</p> <p>Data Validation Required? (Y/N):</p> <p>If data package is required, attach data package checklist.</p>																																							
<p><b>SAMPLER NAME AND SIGNATURE</b></p> <p>PRINT Name of SAMPLER: Lisa Begun</p> <p>SIGNATURE of SAMPLER: <i>[Signature]</i></p> <p>DATE Signed (MM/DD/YYYY): 9/23/20</p>																																							
<p>Received on Ice (Y/N) _____</p> <p>Cooler Sealed (Y/N) _____</p> <p>Samples Intact (Y/N) _____</p>																																							

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Trade point Atlantic

Project # \_\_\_\_\_

# 30383954

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>mll</u>
LIMS Login	<u>mll</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 11 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 1.6 °C Correction Factor: .4 °C Final Temp: 1.2 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:	
	Yes	No	N/A		
				<u>1000401</u>	<u>mll 9/24/2020</u>
Chain of Custody Present:	<input checked="" type="checkbox"/>			1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>			2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>			3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>			4.	
Sample Labels match COC:	<input checked="" type="checkbox"/>			5.	
-Includes date/time/ID Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>			6.	
Short Hold Time Analysis (<72hr remaining):		<input checked="" type="checkbox"/>		7.	
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>			8.	
Sufficient Volume:	<input checked="" type="checkbox"/>			9.	
Correct Containers Used:	<input checked="" type="checkbox"/>			10.	
-Pace Containers Used:	<input checked="" type="checkbox"/>				
Containers Intact:	<input checked="" type="checkbox"/>			11.	
Orthophosphate field filtered			<input checked="" type="checkbox"/>	12.	
Hex Cr Aqueous sample field filtered			<input checked="" type="checkbox"/>	13.	
Organic Samples checked for dechlorination:			<input checked="" type="checkbox"/>	14.	
Filtered volume received for Dissolved tests			<input checked="" type="checkbox"/>	15.	
All containers have been checked for preservation.	<input checked="" type="checkbox"/>			16.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>			Initial when completed <u>mll</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):			<input checked="" type="checkbox"/>	17.	
Trip Blank Present:			<input checked="" type="checkbox"/>	18.	
Trip Blank Custody Seals Present			<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr			<input checked="" type="checkbox"/>	Initial when completed:	Date:

Client Notification/ Resolution:

Person-Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

October 06, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30384706

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on September 29, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30384706

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30384706

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30384706001	RW22R-MWS	Water	09/29/20 08:35	09/29/20 22:30
30384706002	RW22R-MWI	Water	09/29/20 09:30	09/29/20 22:30
30384706003	RWA-MWS	Water	09/29/20 10:45	09/29/20 22:30
30384706004	RWA-MWI	Water	09/29/20 12:30	09/29/20 22:30

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30384706

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30384706001	RW22R-MWS	EPA 6010C	KAS	2	PASI-PA
30384706002	RW22R-MWI	EPA 6010C	KAS	2	PASI-PA
30384706003	RWA-MWS	EPA 6010C	KAS	2	PASI-PA
30384706004	RWA-MWI	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30384706

---

**Sample: RW22R-MWS**      **Lab ID: 30384706001**      Collected: 09/29/20 08:35      Received: 09/29/20 22:30      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>52.1</b>	ug/L	3.0	0.34	1	10/05/20 09:28	10/05/20 17:55	7440-43-9	
Zinc, Dissolved	<b>253000</b>	ug/L	1000	238	100	10/05/20 09:28	10/05/20 18:31	7440-66-6	ML

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30384706

**Sample: RW22R-MWI**      **Lab ID: 30384706002**      Collected: 09/29/20 09:30      Received: 09/29/20 22:30      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>2.4J</b>	ug/L	3.0	0.34	1	10/05/20 09:28	10/05/20 18:12	7440-43-9	
Zinc, Dissolved	<b>5340</b>	ug/L	10.0	2.4	1	10/05/20 09:28	10/05/20 18:12	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30384706

---

**Sample: RWA-MWS**      **Lab ID: 30384706003**      Collected: 09/29/20 10:45      Received: 09/29/20 22:30      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>2.9J</b>	ug/L	3.0	0.34	1	10/05/20 09:28	10/05/20 18:16	7440-43-9	
Zinc, Dissolved	<b>182</b>	ug/L	10.0	2.4	1	10/05/20 09:28	10/05/20 18:16	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30384706

Sample: RWA-MWI		Lab ID: 30384706004		Collected: 09/29/20 12:30		Received: 09/29/20 22:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>7630</b>	ug/L	3.0	0.34	1	10/05/20 09:28	10/05/20 18:24	7440-43-9	
Zinc, Dissolved	<b>452000</b>	ug/L	1000	238	100	10/05/20 09:28	10/05/20 18:44	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30384706

QC Batch: 416889      Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A      Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30384706001, 30384706002, 30384706003, 30384706004

METHOD BLANK: 2015901      Matrix: Water  
Associated Lab Samples: 30384706001, 30384706002, 30384706003, 30384706004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	10/05/20 17:51	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	10/05/20 17:51	

LABORATORY CONTROL SAMPLE: 2015902

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	475	95	80-120	
Zinc, Dissolved	ug/L	500	490	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2015904      2015905

Parameter	Units	30384706001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	52.1	500	500	546	556	99	101	75-125	2	20	
Zinc, Dissolved	ug/L	253000	500	500	248000	252000	-1120	-240	75-125	2	20 ML	

SAMPLE DUPLICATE: 2015903

Parameter	Units	30384706001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	52.1	52.2	0	20	
Zinc, Dissolved	ug/L	253000	251000	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30384706

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: RWM GW Sampling  
Pace Project No.: 30384706

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30384706001	RW22R-MWS	EPA 3005A	416889	EPA 6010C	416998
30384706002	RW22R-MWI	EPA 3005A	416889	EPA 6010C	416998
30384706003	RWA-MWS	EPA 3005A	416889	EPA 6010C	416998
30384706004	RWA-MWI	EPA 3005A	416889	EPA 6010C	416998

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



**Section A**  
Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To:  
Phone:  
Requested Due Date(TAT): 5 day

**Section B**  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis  
PO Number:  
Project Name: RWM GW Sampling  
Project Number:

**Section C**  
Invoice Information:  
Attention: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
Pace Quote Reference:  
Pace Project Manager: Samantha Bayura  
Pace Profile #:

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER  
 Site Location: **MD**  
 STATE:

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW WASTE WATER PRODUCT P SOLID OIL WIFE ASB OTHER TISSUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	PRESERVATIVES	ANALYSIS TEST	Pace Project No./ Lab I.D.
				COMPOSITE START	COMPOSITE END/GRAB				
				DATE	TIME	DATE	TIME		
1		RW 22R-MWS		9/29/20	835	1	Unpreserved	Analysis Test Dissolved Cadmium Dissolved Zinc	001
2		RW 22R-MWIF			930	1	HCl		002
3		RWA-MWS			1045	1	HNO <sub>3</sub>		003
4		RWA-MWIF			1230	1	HNO <sub>3</sub>		004
5							H <sub>2</sub> SO <sub>4</sub>		
6							NaOH		
7							Na <sub>2</sub> O <sub>3</sub>		
8							Other		
9							DI Water		
10									
11									
12									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION		ACCEPTED BY / AFFILIATION		DATE		TIME	SAMPLE CONDITIONS
	DATE	TIME	DATE	TIME	DATE	TIME		
Data Package Required? (Y/N)					9/29/20	1530		Y
Data Validation Required? (Y/N)					9/29/20	1755		N
If data package is required, attach data package checklist.					9-24-2020	2050		Y

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Oliver Perwin  
 SIGNATURE OF SAMPLER: [Signature]  
 DATE Signed (MM/DD/YYYY): 9/29/20

Received on:  (Y/N)  (Y/N)  (Y/N)  
 Cooled Sealed:  (Y/N)  (Y/N)  (Y/N)  
 Samples Intact:  (Y/N)  (Y/N)  (Y/N)

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Tradepoint Atlantic

Project #

# 30384706

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

Tracking #: N/A

Label	<u>mll</u>
LIMS Login	<u>mll</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 9 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 3.3 °C Correction Factor: -1 °C Final Temp: 37 °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
				<u>1006401</u>	<u>mll 9/29/2020</u>
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Includes date/time/ID Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Short Hold Time Analysis (<72hr remaining):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed <u>mll</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

November 13, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30391202

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on November 05, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30391202

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30391202

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30391202001	RWG-MWI	Water	11/05/20 09:45	11/05/20 22:15
30391202002	RWG-MWS	Water	11/05/20 10:30	11/05/20 22:15
30391202003	RWF-MWI	Water	11/05/20 11:35	11/05/20 22:15
30391202004	RWF-MWS	Water	11/05/20 12:45	11/05/20 22:15
30391202005	RW05R-MWI	Water	11/05/20 14:00	11/05/20 22:15

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30391202

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30391202001	RWG-MWI	EPA 6010C	KAS	2	PASI-PA
30391202002	RWG-MWS	EPA 6010C	KAS	2	PASI-PA
30391202003	RWF-MWI	EPA 6010C	KAS	2	PASI-PA
30391202004	RWF-MWS	EPA 6010C	KAS	2	PASI-PA
30391202005	RW05R-MWI	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391202

Sample: RWG-MWI		Lab ID: 30391202001	Collected: 11/05/20 09:45	Received: 11/05/20 22:15	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>40.0</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 19:17	7440-43-9	
Zinc, Dissolved	<b>522</b>	ug/L	10.0	2.4	1	11/11/20 14:46	11/12/20 19:17	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391202

Sample: RWG-MWS		Lab ID: 30391202002	Collected: 11/05/20 10:30	Received: 11/05/20 22:15	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 19:31	7440-43-9	
Zinc, Dissolved	<b>10.0 U</b>	ug/L	10.0	2.4	1	11/11/20 14:46	11/12/20 19:31	7440-66-6	1c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391202

Sample: RWF-MWI		Lab ID: 30391202003		Collected: 11/05/20 11:35		Received: 11/05/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3330</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 19:42	7440-43-9	
Zinc, Dissolved	<b>110000</b>	ug/L	1000	238	100	11/11/20 14:46	11/12/20 21:01	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391202

Sample: RWF-MWS		Lab ID: 30391202004		Collected: 11/05/20 12:45		Received: 11/05/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>4.6</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 19:45	7440-43-9	
Zinc, Dissolved	<b>39000</b>	ug/L	1000	238	100	11/11/20 14:46	11/12/20 21:03	7440-66-6	1c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391202

<b>Sample: RW05R-MWI</b>		<b>Lab ID: 30391202005</b>		Collected: 11/05/20 14:00	Received: 11/05/20 22:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>1790</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 19:47	7440-43-9	
Zinc, Dissolved	<b>68200</b>	ug/L	1000	238	100	11/11/20 14:46	11/12/20 21:06	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30391202

QC Batch: 422650 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30391202001, 30391202002, 30391202003, 30391202004, 30391202005

METHOD BLANK: 2042817 Matrix: Water  
Associated Lab Samples: 30391202001, 30391202002, 30391202003, 30391202004, 30391202005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	11/12/20 19:12	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	11/12/20 19:12	

LABORATORY CONTROL SAMPLE: 2042818

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	463	93	80-120	
Zinc, Dissolved	ug/L	500	470	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2042820 2042821

Parameter	Units	30391202001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	40.0	500	500	599	607	112	113	75-125	1	20	
Zinc, Dissolved	ug/L	522	500	500	1020	1020	99	101	75-125	1	20	

MATRIX SPIKE SAMPLE: 2042823

Parameter	Units	30391615006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	33.8	500	537	101	75-125	
Zinc, Dissolved	ug/L	293000	500	295000	280	75-125 MH	

SAMPLE DUPLICATE: 2042819

Parameter	Units	30391202001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	40.0	40.0	0	20	
Zinc, Dissolved	ug/L	522	532	2	20	

SAMPLE DUPLICATE: 2042822

Parameter	Units	30391615006 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	33.8	33.8	0	20	
Zinc, Dissolved	ug/L	293000	299000	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30391202

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

1c The precision between the sample and serial dilution exceeded laboratory control limits.

MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30391202

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30391202001	RWG-MWI	EPA 3005A	422650	EPA 6010C	422720
30391202002	RWG-MWS	EPA 3005A	422650	EPA 6010C	422720
30391202003	RWF-MWI	EPA 3005A	422650	EPA 6010C	422720
30391202004	RWF-MWS	EPA 3005A	422650	EPA 6010C	422720
30391202005	RW05R-MWI	EPA 3005A	422650	EPA 6010C	422720

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.





**Section A**  
Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To:  
Phone:  
Requested Due Date/TAT: 5 day

**Section B**  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis  
PO Number:  
Project Name: RWM GW Sampling  
Project Number: 20010103

**Section C**  
Invoice Information:  
Attention: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
Pace Quote Reference:  
Pace Project Manager: Samantha Baylura  
Pace Profile #:

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER  
**Site Location**  
**STATE:** MD

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WT WASTE WATER WW PRODUCT P SOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	Preservatives	Analysis Test ↑	Requested Analysis Filtered (Y/N)		Pace Project No / Lab I.D.
				DATE	TIME				Y	N	
1	RWG-MWI	WTG	G	11/5/20	945	1	Unpreserved H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub> Other DI Water	↑ Dissolved Cadmium ↑ Dissolved Zinc	Y	Y	001
2	RWG-MWS	WTG	G	11/5/20	1030	1			Y	Y	002
3	RWF-MWI	WTG	G	11/5/20	1135	1			Y	Y	003
4	RWF-MWS	WTG	G	11/5/20	1245	1			Y	Y	004
5	RWOSR-MWI	WTG	G	11/5/20	1400	1			Y	Y	005
6											
7											
8											
9											
10											
11											
12											

**ADDITIONAL COMMENTS**  
 Data Package Required? (Y/N):  Y  
 Data Validation Required? (Y/N):  Y  
 If data package is required, attach data package checklist.

**RELINQUISHED BY / AFFILIATION**  
 DATE TIME  
 11/5/20 1500  
 11/5/20 1830  
 11/5/20 22.5

**ACCEPTED BY / AFFILIATION**  
 DATE TIME  
 11/5/20 1500  
 11/5/20 1830  
 11/5/20 22.5

**Sample Conditions**  
 Received on Ice (Y/N):  Y  
 Custody Sealed Cooler (Y/N):  Y  
 Samples Intact (Y/N):  Y

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Lisa Pecan  
 SIGNATURE of SAMPLER: *[Signature]*  
 DATE Signed (MM/DD/YY): 11/5/20

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: TradePoint Atlantic

Project #

#-30391202

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

Tracking #: PIA

Label	<u>mll</u>
LIMS Login	<u>mll</u>

Custody Seal on Cooler/Box Present:  yes  no    Seals intact:  yes  no

Thermometer Used 9    Type of Ice:  Wet     Blue     None

Cooler Temperature    Observed Temp 2.6 °C    Correction Factor: -1 °C    Final Temp: 2.5 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:
	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.P0401 mll 11/16/2000
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-Includes date/time/ID      Matrix: <u>WT</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Filtered volume received for Dissolved tests	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>mll</u> Date/time of preservation:
				Lot # of added preservative
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed:    Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in reports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

November 16, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30391615

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on November 09, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30391615

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30391615

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30391615001	RW15-MWS	Water	11/09/20 10:22	11/09/20 22:00
30391615002	RW15-MWI	Water	11/09/20 11:18	11/09/20 22:00
30391615003	RW16-MWS	Water	11/09/20 11:48	11/09/20 22:00
30391615004	RW16-MWI	Water	11/09/20 12:26	11/09/20 22:00
30391615005	RW18-MWI	Water	11/09/20 13:07	11/09/20 22:00
30391615006	RWR-MWS	Water	11/09/20 14:15	11/09/20 22:00
30391615007	RWR-MWI	Water	11/09/20 14:41	11/09/20 22:00

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling

Pace Project No.: 30391615

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30391615001	RW15-MWS	EPA 6010C	KAS	2	PASI-PA
30391615002	RW15-MWI	EPA 6010C	KAS	2	PASI-PA
30391615003	RW16-MWS	EPA 6010C	KAS	2	PASI-PA
30391615004	RW16-MWI	EPA 6010C	KAS	2	PASI-PA
30391615005	RW18-MWI	EPA 6010C	KAS	2	PASI-PA
30391615006	RWR-MWS	EPA 6010C	KAS	2	PASI-PA
30391615007	RWR-MWI	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391615

Sample: RW15-MWS		Lab ID: 30391615001		Collected: 11/09/20 10:22	Received: 11/09/20 22:00	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 19:33	7440-43-9	
Zinc, Dissolved	<b>3.3J</b>	ug/L	10.0	2.4	1	11/11/20 14:46	11/12/20 19:33	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391615

Sample: RW15-MWI		Lab ID: 30391615002		Collected: 11/09/20 11:18	Received: 11/09/20 22:00	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.91J</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 20:07	7440-43-9	
Zinc, Dissolved	<b>137</b>	ug/L	10.0	2.4	1	11/11/20 14:46	11/12/20 20:07	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30391615

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW16-MWS      Lab ID: 30391615003      Collected: 11/09/20 11:48      Received: 11/09/20 22:00      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 20:10	7440-43-9	
Zinc, Dissolved	<b>3.7J</b>	ug/L	10.0	2.4	1	11/11/20 14:46	11/12/20 20:10	7440-66-6	1c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391615

**Sample: RW16-MWI**      **Lab ID: 30391615004**      Collected: 11/09/20 12:26      Received: 11/09/20 22:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 20:19	7440-43-9	
Zinc, Dissolved	<b>10.2</b>	ug/L	10.0	2.4	1	11/11/20 14:46	11/12/20 20:19	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391615

Sample: RW18-MWI		Lab ID: 30391615005		Collected: 11/09/20 13:07		Received: 11/09/20 22:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>42.1</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 19:50	7440-43-9	
Zinc, Dissolved	<b>534000</b>	ug/L	1000	238	100	11/11/20 14:46	11/12/20 21:08	7440-66-6	1c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391615

Sample: RWR-MWS		Lab ID: 30391615006		Collected: 11/09/20 14:15	Received: 11/09/20 22:00	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>33.8</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 19:52	7440-43-9	
Zinc, Dissolved	<b>293000</b>	ug/L	1000	238	100	11/11/20 14:46	11/12/20 21:10	7440-66-6	1c,MH

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30391615

Sample: RWR-MWI		Lab ID: 30391615007	Collected: 11/09/20 14:41	Received: 11/09/20 22:00	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>398</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 20:00	7440-43-9	
Zinc, Dissolved	<b>996000</b>	ug/L	10000	2380	1000	11/11/20 14:46	11/12/20 21:38	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30391615

QC Batch: 422650 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30391615001, 30391615002, 30391615003, 30391615004, 30391615005, 30391615006, 30391615007

METHOD BLANK: 2042817 Matrix: Water  
Associated Lab Samples: 30391615001, 30391615002, 30391615003, 30391615004, 30391615005, 30391615006, 30391615007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	11/12/20 19:12	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	11/12/20 19:12	

LABORATORY CONTROL SAMPLE: 2042818

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	463	93	80-120	
Zinc, Dissolved	ug/L	500	470	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2042820 2042821

Parameter	Units	30391202001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	40.0	500	500	599	607	112	113	75-125	1	20	
Zinc, Dissolved	ug/L	522	500	500	1020	1020	99	101	75-125	1	20	

MATRIX SPIKE SAMPLE: 2042823

Parameter	Units	30391615006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	33.8	500	537	101	75-125	
Zinc, Dissolved	ug/L	293000	500	295000	280	75-125 MH	

SAMPLE DUPLICATE: 2042819

Parameter	Units	30391202001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	40.0	40.0	0	20	
Zinc, Dissolved	ug/L	522	532	2	20	

SAMPLE DUPLICATE: 2042822

Parameter	Units	30391615006 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	33.8	33.8	0	20	
Zinc, Dissolved	ug/L	293000	299000	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30391615

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

1c The precision between the sample and serial dilution exceeded laboratory control limits.

MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30391615

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30391615001	RW15-MWS	EPA 3005A	422650	EPA 6010C	422720
30391615002	RW15-MWI	EPA 3005A	422650	EPA 6010C	422720
30391615003	RW16-MWS	EPA 3005A	422650	EPA 6010C	422720
30391615004	RW16-MWI	EPA 3005A	422650	EPA 6010C	422720
30391615005	RW18-MWI	EPA 3005A	422650	EPA 6010C	422720
30391615006	RWR-MWS	EPA 3005A	422650	EPA 6010C	422720
30391615007	RWR-MWI	EPA 3005A	422650	EPA 6010C	422720

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



NO#: 30391615



30391615

**Section A**  
 Required Client Information:  
 Company: Tradepoint Atlantic  
 Address: 1600 Sparrows Point Blvd  
 Sparrows Point, MD 21219  
 Email To: *skabis@omgroup.net*  
 Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
 Requested Due Date/TAT: 5 day

**Section B**  
 Required Project Information:  
 Report To: Matt Newman  
 Copy To: Stew Kabis  
 PO Number:  
 Project Name: RWM GW Sampling  
 Project Number: 2010103

**Section C**  
 Invoice Information:  
 Attention: Matt Newman  
 Company Name: Tradepoint Atlantic  
 Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
 Pace Quote Reference:  
 Pace Project Manager: Samantha Bayura  
 Pace Profile #:  
 Site Location: MD  
 STATE: MD

**Section D**  
 Required Client Information  
 Valid Matrix Codes  
 MATRIX CODE  
 DRINKING WATER DW  
 WASTE WATER WW  
 PRODUCT SOLID S  
 OIL OIL  
 WIPE WIP  
 AIR AIR  
 OTHER OTS  
 TISSUE TSS  
**SAMPLE ID**  
 (A-Z, 0-9 / . -)  
 Sample IDs MUST BE UNIQUE

ITEM #	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↑	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB			DATE	TIME	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>		
1	RW15-MWS	G	11/9/20	1030	1430	1									001
2	RW15-MWT	G	11/9/20	1118	1430	1									002
3	RW16-MWS	G	11/9/20	1148	1430	1									003
4	RW16-MWI	G	11/9/20	1226	1430	1									004
5	RW18-MWI	G	11/9/20	1307	1430	1									005
6	RWR-MWS	G	11/9/20	1415	1430	1									006
7	RWR-MWT	G	11/9/20	1441	1430	1									007
8															
9															
10															
11															
12															

**Section E**  
 ADDITIONAL COMMENTS  
 Data Package Required? (Y/N)  
 Data Validation Required? (Y/N)  
 If data package is required, attach data package checklist.

RELINQUISHED BY / AFFILIATION  
 DATE  
 TIME  
 ACCEPTED BY / AFFILIATION  
 DATE  
 TIME

RELINQUISHED BY / AFFILIATION: *Ann Bann ARAN*  
 DATE: 11/9/20  
 TIME: 1430  
 ACCEPTED BY / AFFILIATION: *Pace*  
 DATE: 11/9/20  
 TIME: 1745  
 SIGNATURE OF SAMPLER: *Ann Bann*  
 DATE SIGNED (MM/DD/YY): 11/09/20

SAMPLER NAME AND SIGNATURE  
 PRINT Name of SAMPLER: *Toshua Barnes*  
 SIGNATURE OF SAMPLER: *Ann Bann*  
 DATE SIGNED (MM/DD/YY): 11/09/20

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: TradePoint Atlantic

Project #

# 30391615

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: PIA

Label	<u>MLC</u>
LIMS Login	<u>MLC</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 9 Type of Ice: Wet Blue None

Cooler Temperature Observed Temp 3.2 °C Correction Factor: -.1 °C Final Temp: 3.1 °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents
				<u>10D0401</u>	<u>MLC 11/10/2020</u>
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.	
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.	
-Includes date/time/ID Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.	
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.	
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.	
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.	
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.	
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.	
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.	
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.	
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.	
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.	
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed <u>MLC</u>	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.	
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.	
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

November 13, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30391867

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on November 10, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30391867

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30391867

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30391867001	RW24-MWS	Water	11/10/20 09:21	11/10/20 22:45
30391867002	RW24-MWI	Water	11/10/20 09:52	11/10/20 22:45
30391867003	RW14-MWS	Water	11/10/20 10:23	11/10/20 22:45
30391867004	RW13-MWI	Water	11/10/20 10:49	11/10/20 22:45
30391867005	RWN-MWS	Water	11/10/20 11:14	11/10/20 22:45
30391867006	RW18-MWS	Water	11/10/20 11:30	11/10/20 22:45
30391867007	RW25-MWS	Water	11/10/20 12:27	11/10/20 22:45
30391867008	RW25-MWI	Water	11/10/20 12:54	11/10/20 22:45

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30391867

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30391867001	RW24-MWS	EPA 6010C	KAS	2	PASI-PA
30391867002	RW24-MWI	EPA 6010C	KAS	2	PASI-PA
30391867003	RW14-MWS	EPA 6010C	KAS	2	PASI-PA
30391867004	RW13-MWI	EPA 6010C	KAS	2	PASI-PA
30391867005	RWN-MWS	EPA 6010C	KAS	2	PASI-PA
30391867006	RW18-MWS	EPA 6010C	KAS	2	PASI-PA
30391867007	RW25-MWS	EPA 6010C	KAS	2	PASI-PA
30391867008	RW25-MWI	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30391867

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW24-MWS      Lab ID: 30391867001      Collected: 11/10/20 09:21      Received: 11/10/20 22:45      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 20:40	7440-43-9	
Zinc, Dissolved	<b>10.0 U</b>	ug/L	10.0	2.4	1	11/11/20 14:46	11/12/20 20:40	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391867

Sample: RW24-MWI		Lab ID: 30391867002		Collected: 11/10/20 09:52	Received: 11/10/20 22:45	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>842</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 20:22	7440-43-9	
Zinc, Dissolved	<b>258000</b>	ug/L	1000	238	100	11/11/20 14:46	11/12/20 21:20	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391867

Sample: RW14-MWS		Lab ID: 30391867003	Collected: 11/10/20 10:23	Received: 11/10/20 22:45	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3020</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 20:24	7440-43-9	
Zinc, Dissolved	<b>50200</b>	ug/L	1000	238	100	11/11/20 14:46	11/12/20 21:23	7440-66-6	1c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30391867

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW13-MWI      Lab ID: 30391867004      Collected: 11/10/20 10:49      Received: 11/10/20 22:45      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>6.1</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 20:43	7440-43-9	
Zinc, Dissolved	<b>19.8</b>	ug/L	10.0	2.4	1	11/11/20 14:46	11/12/20 20:43	7440-66-6	1c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30391867

Sample: RWN-MWS		Lab ID: 30391867005		Collected: 11/10/20 11:14		Received: 11/10/20 22:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>6260</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 20:27	7440-43-9	
Zinc, Dissolved	<b>709000</b>	ug/L	1000	238	100	11/11/20 14:46	11/12/20 21:31	7440-66-6	1c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391867

---

**Sample: RW18-MWS**      **Lab ID: 30391867006**      Collected: 11/10/20 11:30      Received: 11/10/20 22:45      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 20:38	7440-43-9	
Zinc, Dissolved	<b>3.3J</b>	ug/L	10.0	2.4	1	11/11/20 14:46	11/12/20 20:38	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391867

Sample: RW25-MWS		Lab ID: 30391867007		Collected: 11/10/20 12:27		Received: 11/10/20 22:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>8.6</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 20:33	7440-43-9	
Zinc, Dissolved	<b>9930</b>	ug/L	1000	238	100	11/11/20 14:46	11/12/20 21:34	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391867

Sample: RW25-MWI		Lab ID: 30391867008		Collected: 11/10/20 12:54	Received: 11/10/20 22:45	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>703</b>	ug/L	3.0	0.34	1	11/11/20 14:46	11/12/20 20:29	7440-43-9	
Zinc, Dissolved	<b>445000</b>	ug/L	1000	238	100	11/11/20 14:46	11/12/20 21:36	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30391867

QC Batch:	422650	Analysis Method:	EPA 6010C
QC Batch Method:	EPA 3005A	Analysis Description:	6010C MET Dissolved
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30391867001, 30391867002, 30391867003, 30391867004, 30391867005, 30391867006, 30391867007, 30391867008

METHOD BLANK: 2042817 Matrix: Water  
Associated Lab Samples: 30391867001, 30391867002, 30391867003, 30391867004, 30391867005, 30391867006, 30391867007, 30391867008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	11/12/20 19:12	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	11/12/20 19:12	

LABORATORY CONTROL SAMPLE: 2042818

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	463	93	80-120	
Zinc, Dissolved	ug/L	500	470	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2042820 2042821

Parameter	Units	30391202001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Cadmium, Dissolved	ug/L	40.0	500	500	599	607	112	113	75-125	1	20		
Zinc, Dissolved	ug/L	522	500	500	1020	1020	99	101	75-125	1	20		

MATRIX SPIKE SAMPLE: 2042823

Parameter	Units	30391615006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	33.8	500	537	101	75-125	
Zinc, Dissolved	ug/L	293000	500	295000	280	75-125 MH	

SAMPLE DUPLICATE: 2042819

Parameter	Units	30391202001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	40.0	40.0	0	20	
Zinc, Dissolved	ug/L	522	532	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30391867

SAMPLE DUPLICATE: 2042822

Parameter	Units	30391615006 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	33.8	33.8	0	20	
Zinc, Dissolved	ug/L	293000	299000	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30391867

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

1c The precision between the sample and serial dilution exceeded laboratory control limits.

MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30391867

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30391867001	RW24-MWS	EPA 3005A	422650	EPA 6010C	422720
30391867002	RW24-MWI	EPA 3005A	422650	EPA 6010C	422720
30391867003	RW14-MWS	EPA 3005A	422650	EPA 6010C	422720
30391867004	RW13-MWI	EPA 3005A	422650	EPA 6010C	422720
30391867005	RWN-MWS	EPA 3005A	422650	EPA 6010C	422720
30391867006	RW18-MWS	EPA 3005A	422650	EPA 6010C	422720
30391867007	RW25-MWS	EPA 3005A	422650	EPA 6010C	422720
30391867008	RW25-MWI	EPA 3005A	422650	EPA 6010C	422720

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**WO#: 30391867**



**Section A**  
Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To: skabis@atarmj.com.net  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Requested Due Date/TAT: 5 day

**Section B**  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis  
PO Number: \_\_\_\_\_  
Project Name: RWM GW Sampling  
Project Number: 20010103

**Section C**  
Invoice Information:  
Client: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
Pace Quote Reference: \_\_\_\_\_  
Pace Project Manager: Samantha Bayura  
Pace Profile #: \_\_\_\_\_

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER \_\_\_\_\_  
 Site Location: \_\_\_\_\_  
 STATE: **MD**

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW PRODUCT P SOILSOLID S OIL OL WIPE WIP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	# OF CONTAINERS	PRESERVATIVES		Analysis Test	Requested Analysis Filtered (Y/N)	Pace Project No. / Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB			DATE	TIME			
1	RW24-MWS	WT G	11/20/20	0931	G	1	✓	✓	✓	✓	001
2	RW24-MWI	WT G	11/20/20	0952	G	1	✓	✓	✓	✓	002
3	RW14-MWS	WT G	11/20/20	1033	G	1	✓	✓	✓	✓	003
4	RW13-MWI	WT G	11/20/20	1049	G	1	✓	✓	✓	✓	004
5	RW1-MWS	WT G	11/20/20	1114	G	1	✓	✓	✓	✓	005
6	RW18-MWS	WT G	11/20/20	1130	G	1	✓	✓	✓	✓	006
7	RW25-MWS	WT G	11/20/20	1237	G	1	✓	✓	✓	✓	007
8	RW25-MWI	WT G	11/20/20	1254	G	1	✓	✓	✓	✓	008
9											
10											
11											
12											

**ADDITIONAL COMMENTS**  
 Data Package Required? (Y/N): *Y*  
 Data Validation Required? (Y/N): *Y*  
 If data package is required, attach data package checklist.

**RELINQUISHED BY/AFFILIATION**  
 Date: 11/20/20 Time: 1400  
 Signature: *MW Bann*

**ACCEPTED BY/AFFILIATION**  
 Date: 11/10/20 Time: 1600  
 Signature: *Joshua Bayura*

**DATE SIGNED (MM/DD/YY):** 11/10/20

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: *Joshua Bayura*  
 SIGNATURE of SAMPLER: *MW Bann*

**Received on** (Y/N)  **Custody Sealed** (Y/N)  **Samples Intact** (Y/N)

F-ALL-Q-020rev.06, 2-Feb-2007

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: TradePoint Atlantic

Project #

# 30391867

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

Tracking #: PIA

Label	<u>mll</u>
LIMS Login	<u>mll</u>

Custody Seal on Cooler/Box Present:  yes  no    Seals intact:  yes  no

Thermometer Used 9    Type of Ice:  Wet     Blue     None

Cooler Temperature    Observed Temp 2.9 °C    Correction Factor: -1 °C    Final Temp: 2.8 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:
	Yes	No	N/A	
				<u>10 D0401</u>
				<u>mll 11/11/2020</u>
Chain of Custody Present:	<input checked="" type="checkbox"/>			1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>			2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>			3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>			4.
Sample Labels match COC:	<input checked="" type="checkbox"/>			5.
-Includes date/time/ID      Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>			6.
Short Hold Time Analysis (<72hr remaining):		<input checked="" type="checkbox"/>		7.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>			8.
Sufficient Volume:	<input checked="" type="checkbox"/>			9.
Correct Containers Used:	<input checked="" type="checkbox"/>			10.
-Pace Containers Used:	<input checked="" type="checkbox"/>			
Containers Intact:	<input checked="" type="checkbox"/>			11.
Orthophosphate field filtered			<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered:			<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:			<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests			<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>			16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>			Initial when completed <u>mll</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):			<input checked="" type="checkbox"/>	17.
Trip Blank Present:			<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present			<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr			<input checked="" type="checkbox"/>	Initial when completed:    Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

November 13, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30391868

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on November 10, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30391868

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30391868

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30391868001	RWA-MWI	Water	11/09/20 14:10	11/10/20 22:45
30391868002	RWA-MWS	Water	11/09/20 15:10	11/10/20 22:45

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling

Pace Project No.: 30391868

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30391868001	RWA-MWI	EPA 6010C	KAS	2	PASI-PA
30391868002	RWA-MWS	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391868

Sample: RWA-MWI		Lab ID: 30391868001		Collected: 11/09/20 14:10		Received: 11/10/20 22:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>10100</b>	ug/L	300	34.0	100	11/11/20 14:48	11/12/20 23:25	7440-43-9	MH
Zinc, Dissolved	<b>406000</b>	ug/L	1000	238	100	11/11/20 14:48	11/12/20 23:25	7440-66-6	1c,MH, ML

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391868

Sample: RWA-MWS		Lab ID: 30391868002	Collected: 11/09/20 15:10	Received: 11/10/20 22:45	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>1.5J</b>	ug/L	3.0	0.34	1	11/11/20 14:48	11/12/20 23:47	7440-43-9	
Zinc, Dissolved	<b>52.1</b>	ug/L	10.0	2.4	1	11/11/20 14:48	11/12/20 23:47	7440-66-6	1c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30391868

QC Batch: 422653      Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A      Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30391868001, 30391868002

METHOD BLANK: 2042828      Matrix: Water  
Associated Lab Samples: 30391868001, 30391868002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	11/12/20 23:13	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	11/12/20 23:13	

LABORATORY CONTROL SAMPLE: 2042829

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	490	98	80-120	
Zinc, Dissolved	ug/L	500	499	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2042831      2042832

Parameter	Units	30391868001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	10100	500	500	10700	11300	106	230	75-125	6	20	MH
Zinc, Dissolved	ug/L	406000	500	500	394000	418000	-2260	2560	75-125	6	20	MH,ML

SAMPLE DUPLICATE: 2042830

Parameter	Units	30391868001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	10100	10400	3	20	
Zinc, Dissolved	ug/L	406000	408000	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30391868

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

1c The PDS recovery was outside of the laboratory control limits. Result may be biased low

MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: RWM GW Sampling  
Pace Project No.: 30391868

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30391868001	RWA-MWI	EPA 3005A	422653	EPA 6010C	422721
30391868002	RWA-MWS	EPA 3005A	422653	EPA 6010C	422721

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

WO#: 30391868



**Section A**  
Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219

**Section B**  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis

**Section C**  
Invoice Information:  
Attention: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219

PO Number:  
Project Name: RWM GW Sampling  
Project Number: 20060103

Site Location: **MD**

ITEM #	Valid Matrix Codes MATRIX CODE	Valid Matrix Codes DW WATER WT WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL CL WIPE WP AIR AR OTHER OT TISSUE TS	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Preservatives Unpreserved H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub> Other DI Water	Requested Analysis Filtered (Y/N)	Analysis Test ↑ Dissolved Cadmium Dissolved Zinc	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB							
1	RWA - mwi				WT G		1		Y		601
2	RWA - mws				WT G		1		Y		602
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

**ADDITIONAL COMMENTS**

Data Package Required? (Y/N) *Y*

Data Validation Required? (Y/N) *Y*

If data package is required, attach data package checklist.

REQUIRED BY / AFFILIATION: *Stew Kabis* DATE: *11/10/20* TIME: *1600*

ACCEPTED BY / AFFILIATION: *Lisa Parrin* DATE: *11/10/20* TIME: *1600*

RECEIVED BY / AFFILIATION: *Stew Kabis* DATE: *11/10/20* TIME: *1600*

RECEIVED ON: *11/9/20*

DATE SIGNED: *11/9/20*

PRINT NAME OF SAMPLER: *Lisa Parrin*

SIGNATURE OF SAMPLER: *[Signature]*

SAMPLER NAME AND SIGNATURE

Received on: *Y* Ice (Y/N): *Y* Custody Sealed (Y/N): *Y* Samples Intact (Y/N): *Y*

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month to any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt

# 30391868



Client Name: Trackpoint Atlantic Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Label	<u>MCC</u>
LIMS Login	<u>MCC</u>

Tracking #: N/A

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 9 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 23 °C Correction Factor: -1 °C Final Temp: 22 °C  
Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents: <u>MCC HHH/10/10</u>
	Yes	No	N/A	
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:	/			4.
Sample Labels match COC:	/			5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):		/		7.
Rush Turn Around Time Requested:	/			8.
Sufficient Volume:	/			9.
Correct Containers Used:	/			10.
-Pace Containers Used:	/			
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Hex Cr Aqueous sample field filtered			/	13.
Organic Samples checked for dechlorination:			/	14.
Filtered volume received for Dissolved tests			/	15.
All containers have been checked for preservation.	/			16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	/			Initial when completed <u>MCC</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):			/	17.
Trip Blank Present:			/	18.
Trip Blank Custody Seals Present			/	
Rad Samples Screened < 0.5 mrem/hr			/	Initial when completed: Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

November 13, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30391869

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on November 10, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30391869

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30391869

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30391869001	RW05-MWS	Water	11/10/20 08:20	11/10/20 22:45
30391869002	RWE-MWI	Water	11/10/20 09:20	11/10/20 22:45
30391869003	RWE-MWS	Water	11/10/20 10:25	11/10/20 22:45
30391869004	RWD-MWI	Water	11/10/20 11:15	11/10/20 22:45
30391869005	RWD-MWS	Water	11/10/20 12:30	11/10/20 22:45
30391869006	RWB-MWI	Water	11/10/20 13:50	11/10/20 22:45
30391869007	RWB-MWS	Water	11/10/20 15:00	11/10/20 22:45

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30391869

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30391869001	RW05-MWS	EPA 6010C	KAS	2	PASI-PA
30391869002	RWE-MWI	EPA 6010C	KAS	2	PASI-PA
30391869003	RWE-MWS	EPA 6010C	KAS	2	PASI-PA
30391869004	RWD-MWI	EPA 6010C	KAS	2	PASI-PA
30391869005	RWD-MWS	EPA 6010C	KAS	2	PASI-PA
30391869006	RWB-MWI	EPA 6010C	KAS	2	PASI-PA
30391869007	RWB-MWS	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391869

Sample: RW05-MWS		Lab ID: 30391869001		Collected: 11/10/20 08:20	Received: 11/10/20 22:45	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	11/11/20 14:48	11/12/20 23:50	7440-43-9	
Zinc, Dissolved	<b>9.8J</b>	ug/L	10.0	2.4	1	11/11/20 14:48	11/12/20 23:50	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30391869

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWE-MWI      Lab ID: 30391869002      Collected: 11/10/20 09:20      Received: 11/10/20 22:45      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>527</b>	ug/L	3.0	0.34	1	11/11/20 14:48	11/12/20 23:53	7440-43-9	
Zinc, Dissolved	<b>80800</b>	ug/L	1000	238	100	11/11/20 14:48	11/13/20 00:14	7440-66-6	1c

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391869

Sample: RWE-MWS		Lab ID: 30391869003		Collected: 11/10/20 10:25		Received: 11/10/20 22:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.44J</b>	ug/L	3.0	0.34	1	11/11/20 14:48	11/12/20 23:58	7440-43-9	
Zinc, Dissolved	<b>156</b>	ug/L	10.0	2.4	1	11/11/20 14:48	11/12/20 23:58	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391869

Sample: RWD-MWI		Lab ID: 30391869004	Collected: 11/10/20 11:15	Received: 11/10/20 22:45	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>596</b>	ug/L	3.0	0.34	1	11/11/20 14:48	11/13/20 00:00	7440-43-9	
Zinc, Dissolved	<b>64200</b>	ug/L	1000	238	100	11/11/20 14:48	11/13/20 00:17	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391869

Sample: RWD-MWS		Lab ID: 30391869005		Collected: 11/10/20 12:30		Received: 11/10/20 22:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	11/11/20 14:48	11/13/20 00:06	7440-43-9	
Zinc, Dissolved	<b>3.0J</b>	ug/L	10.0	2.4	1	11/11/20 14:48	11/13/20 00:06	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391869

Sample: <b>RWB-MWI</b>		Lab ID: <b>30391869006</b>		Collected: 11/10/20 13:50	Received: 11/10/20 22:45	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	11/11/20 14:48	11/13/20 00:09	7440-43-9	
Zinc, Dissolved	<b>13.5</b>	ug/L	10.0	2.4	1	11/11/20 14:48	11/13/20 00:09	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30391869

Sample: <b>RWB-MWS</b>		Lab ID: <b>30391869007</b>		Collected: 11/10/20 15:00	Received: 11/10/20 22:45	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	11/11/20 14:48	11/13/20 00:11	7440-43-9	
Zinc, Dissolved	<b>11.9</b>	ug/L	10.0	2.4	1	11/11/20 14:48	11/13/20 00:11	7440-66-6	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30391869

QC Batch: 422653 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30391869001, 30391869002, 30391869003, 30391869004, 30391869005, 30391869006, 30391869007

METHOD BLANK: 2042828 Matrix: Water  
Associated Lab Samples: 30391869001, 30391869002, 30391869003, 30391869004, 30391869005, 30391869006, 30391869007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	11/12/20 23:13	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	11/12/20 23:13	

LABORATORY CONTROL SAMPLE: 2042829

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	490	98	80-120	
Zinc, Dissolved	ug/L	500	499	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2042831 2042832

Parameter	Units	30391868001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	10100	500	500	10700	11300	106	230	75-125	6	20	MH
Zinc, Dissolved	ug/L	406000	500	500	394000	418000	-2260	2560	75-125	6	20	MH,ML

SAMPLE DUPLICATE: 2042830

Parameter	Units	30391868001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	10100	10400	3	20	
Zinc, Dissolved	ug/L	406000	408000	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling  
Pace Project No.: 30391869

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

1c The PDS recovery was outside of the laboratory control limits. Result may be biased low

MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30391869

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30391869001	RW05-MWS	EPA 3005A	422653	EPA 6010C	422721
30391869002	RWE-MWI	EPA 3005A	422653	EPA 6010C	422721
30391869003	RWE-MWS	EPA 3005A	422653	EPA 6010C	422721
30391869004	RWD-MWI	EPA 3005A	422653	EPA 6010C	422721
30391869005	RWD-MWS	EPA 3005A	422653	EPA 6010C	422721
30391869006	RWB-MWI	EPA 3005A	422653	EPA 6010C	422721
30391869007	RWB-MWS	EPA 3005A	422653	EPA 6010C	422721

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



**Section A**  
Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To:  
Phone:  
Requested Due Date/TAT: 5 day

**Section B**  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis  
PO Number:  
Project Name: RWM GW Sampling  
Project Number: 20010103

**Section C**  
Invoice Information:  
Attention: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
Pace Quote Reference:  
Pace Project Manager: Samantha Bayura  
Pace Profile #:  
REGULATORY AGENCY  
NPDES  GROUND WATER  DRINKING WATER   
 UST  RCRA  OTHER   
Site Location STATE: MD

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WT WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	# OF CONTAINERS	Preservatives Unpreserved H2SO4 HNO3 HCl NaOH Na2S2O3 Other	Analysis Test ↑ DI Water Dissolved Cadmium Dissolved Zinc	Requested Analysis Filtered (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB						
1	RW05-MWS	WTG	11/10/20	820	1	1		X	Y	001
2	RWE-MWI	WTG	11/10/20	920	1	1		X	Y	002
3	RWE-MWS	WTG	11/10/20	1025	1	1		X	Y	003
4	RWD-MWI	WTG	11/10/20	1115	1	1		X	Y	004
5	RWD-MWS	WTG	11/10/20	1230	1	1		X	Y	005
6	RWB-MWI	WTG	11/10/20	1350	1	1		X	Y	006
7	RWB-MWS	WTG	11/10/20	1500	1	1		X	Y	007
8										
9										
10										
11										
12										

ADDITIONAL COMMENTS	REQUISITED BY/AFFILIATION	DATE	TIME	ACCEPTED BY/AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Data Package Required? (Y/N):	[Signature]	11/10/20	1600	[Signature]	11/10/20	1600	
Data Validation Required? (Y/N):	[Signature]	11/10/20	1905	[Signature]	11-10-20	1910	
If data package is required, attach data package checklist.	[Signature]	11/10/20	2045	[Signature]	11-10-20	2155	

SAMPLER NAME AND SIGNATURE		Received on (Y/N)	Custody Sealed (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Lisa Perrin	SIGNATURE OF SAMPLER: [Signature]	DATE Signed (MM/DD/YYYY): 11/10/20		

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Trade point Atlantic Project # \_\_\_\_\_

#-30391869

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: NIA

Label	<u>MCC</u>
LIMS Login	<u>MCC</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 9 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 1.8 °C Correction Factor: -1 °C Final Temp: 1.7 °C

Temp should be above freezing to 6°C

pH paper Lot#	<u>1000401</u>	Date and Initials of person examining contents:	<u>MCC 11/11/2020</u>
---------------	----------------	---	-----------------------

Comments:

	Yes	No	N/A		
Chain of Custody Present:	/			1.	
Chain of Custody Filled Out:	/			2.	
Chain of Custody Relinquished:	/			3.	
Sampler Name & Signature on COC:	/			4.	
Sample Labels match COC:	/			5.	
-Includes date/time/ID Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	/			6.	
Short Hold Time Analysis (<72hr remaining):		/		7.	
Rush Turn Around Time Requested:	/			8.	
Sufficient Volume:	/			9.	
Correct Containers Used:	/			10.	
-Pace Containers Used:	/				
Containers Intact:	/			11.	
Orthophosphate field filtered			/	12.	
Hex Cr Aqueous sample field filtered			/	13.	
Organic Samples checked for dechlorination:			/	14.	
Filtered volume received for Dissolved tests			/	15.	
All containers have been checked for preservation.	/			16.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					
All containers meet method preservation requirements.	/			Initial when completed	Date/time of preservation
				<u>MCC</u>	
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):			/	17.	
Trip Blank Present:			/	18.	
Trip Blank Custody Seals Present			/		
Rad Samples Screened < 0.5 mrem/hr			/	Initial when completed:	Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

November 19, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30392129

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on November 11, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30392129

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30392129

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30392129001	RW21R-MWS	Water	11/11/20 08:10	11/11/20 22:15
30392129002	RW21R-MWI	Water	11/11/20 09:00	11/11/20 22:15
30392129003	RW06-MWD	Water	11/11/20 09:45	11/11/20 22:15
30392129004	RW06R-MWS	Water	11/11/20 10:25	11/11/20 22:15
30392129005	RW06-MWI	Water	11/11/20 11:00	11/11/20 22:15
30392129006	RW23-MWI	Water	11/11/20 13:45	11/11/20 22:15
30392129007	RW23-MWS	Water	11/11/20 14:40	11/11/20 22:15

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling

Pace Project No.: 30392129

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30392129001	RW21R-MWS	EPA 6010C	KAS	2	PASI-PA
30392129002	RW21R-MWI	EPA 6010C	KAS	2	PASI-PA
30392129003	RW06-MWD	EPA 6010C	KAS	2	PASI-PA
30392129004	RW06R-MWS	EPA 6010C	KAS	2	PASI-PA
30392129005	RW06-MWI	EPA 6010C	KAS	2	PASI-PA
30392129006	RW23-MWI	EPA 6010C	KAS	2	PASI-PA
30392129007	RW23-MWS	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30392129

Sample: RW21R-MWS		Lab ID: 30392129001		Collected: 11/11/20 08:10	Received: 11/11/20 22:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>30.7</b>	ug/L	3.0	0.34	1	11/13/20 14:46	11/18/20 13:41	7440-43-9	
Zinc, Dissolved	<b>145000</b>	ug/L	1000	238	100	11/13/20 14:46	11/18/20 15:06	7440-66-6	ML

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30392129

---

**Sample: RW21R-MWI**      **Lab ID: 30392129002**      Collected: 11/11/20 09:00      Received: 11/11/20 22:15      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>1.6J</b>	ug/L	3.0	0.34	1	11/13/20 14:46	11/18/20 14:10	7440-43-9	
Zinc, Dissolved	<b>4520</b>	ug/L	10.0	2.4	1	11/13/20 14:46	11/18/20 14:10	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30392129

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW06-MWD      Lab ID: 30392129003      Collected: 11/11/20 09:45      Received: 11/11/20 22:15      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	11/13/20 14:46	11/18/20 13:56	7440-43-9	
Zinc, Dissolved	<b>13.8</b>	ug/L	10.0	2.4	1	11/13/20 14:46	11/18/20 13:56	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30392129

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW06R-MWS      Lab ID: 30392129004      Collected: 11/11/20 10:25      Received: 11/11/20 22:15      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>0.90J</b>	ug/L	3.0	0.34	1	11/13/20 14:46	11/18/20 13:58	7440-43-9	
Zinc, Dissolved	<b>10.0 U</b>	ug/L	10.0	2.4	1	11/13/20 14:46	11/18/20 13:58	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30392129

Sample: RW06-MWI		Lab ID: 30392129005		Collected: 11/11/20 11:00	Received: 11/11/20 22:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.66J</b>	ug/L	3.0	0.34	1	11/13/20 14:46	11/18/20 14:08	7440-43-9	
Zinc, Dissolved	<b>79.7</b>	ug/L	10.0	2.4	1	11/13/20 14:46	11/18/20 14:08	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30392129

**Sample: RW23-MWI**      **Lab ID: 30392129006**      Collected: 11/11/20 13:45      Received: 11/11/20 22:15      Matrix: Water

Comments: • No collection time on sample label

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>2340</b>	ug/L	3.0	0.34	1	11/13/20 14:46	11/18/20 14:14	7440-43-9	
Zinc, Dissolved	<b>95600</b>	ug/L	1000	238	100	11/13/20 14:46	11/18/20 15:19	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30392129

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW23-MWS      Lab ID: 30392129007      Collected: 11/11/20 14:40      Received: 11/11/20 22:15      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	11/13/20 14:46	11/18/20 14:19	7440-43-9	
Zinc, Dissolved	<b>5.9J</b>	ug/L	10.0	2.4	1	11/13/20 14:46	11/18/20 14:19	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30392129

QC Batch: 423087 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30392129001, 30392129002, 30392129003, 30392129004, 30392129005, 30392129006, 30392129007

METHOD BLANK: 2044991 Matrix: Water  
Associated Lab Samples: 30392129001, 30392129002, 30392129003, 30392129004, 30392129005, 30392129006, 30392129007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	11/18/20 13:37	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	11/18/20 13:37	

LABORATORY CONTROL SAMPLE: 2044992

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	484	97	80-120	
Zinc, Dissolved	ug/L	500	481	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2044994 2044995

Parameter	Units	30392129001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	30.7	500	500	534	534	101	101	75-125	0	20	
Zinc, Dissolved	ug/L	145000	500	500	143000	141000	-420	-660	75-125	1	20 ML	

MATRIX SPIKE SAMPLE: 2044997

Parameter	Units	30392419004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	0.37J	500	519	104	75-125	
Zinc, Dissolved	ug/L	18100	500	19200	238	75-125 MH	

SAMPLE DUPLICATE: 2044993

Parameter	Units	30392129001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	30.7	30.9	1	20	
Zinc, Dissolved	ug/L	145000	144000	0	20	

SAMPLE DUPLICATE: 2044996

Parameter	Units	30392419004 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	0.37J	3.0 U		20	
Zinc, Dissolved	ug/L	18100	17900	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30392129

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30392129

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30392129001	RW21R-MWS	EPA 3005A	423087	EPA 6010C	423152
30392129002	RW21R-MWI	EPA 3005A	423087	EPA 6010C	423152
30392129003	RW06-MWD	EPA 3005A	423087	EPA 6010C	423152
30392129004	RW06R-MWS	EPA 3005A	423087	EPA 6010C	423152
30392129005	RW06-MWI	EPA 3005A	423087	EPA 6010C	423152
30392129006	RW23-MWI	EPA 3005A	423087	EPA 6010C	423152
30392129007	RW23-MWS	EPA 3005A	423087	EPA 6010C	423152

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed a

**Section A**  
Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To:  
Phone:  
Requested Due Date/TAT: 5 day

**Section B**  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis  
PO Number:  
Project Name: RWM GW Sampling  
Project Number: 20010103

**Section C**  
Invoice Information:  
Attention: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, MD 21219  
Pace Quote Reference:  
Pace Project Manager: Samantha Bayura  
Pace Profile #:

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER

**Site Location**  
 STATE: MD

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WT WASTE WATER WW PRODUCT P SOL/SOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	Preservatives H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub> Other DI Water	Analysis Test ↑ Dissolved Cadmium Dissolved Zinc	Requested Analysis Filtered (Y/N)	Pace Project No./ Lab I.D.					
				COMPOSITE START	COMPOSITE END/GRAB										
ADDITIONAL COMMENTS															
1	RW21R-MWS	WTG	G-GRAB	11/11/20	810	1				001					
2	RW21R-MWI	WTG	G-GRAB	11/11/20	8400	1				002					
3	RW06-MWD	WTG	G-GRAB	11/11/20	945	1				003					
4	RW06R-MWS	WTG	G-GRAB	11/11/20	1075	1				004					
5	RW06-MWI	WTG	G-GRAB	11/11/20	1100	1				005					
6	RW23-MWI	WTG	G-GRAB	11/11/20	1245	1				006					
7	RW23-MWS	WTG	G-GRAB	11/11/20	1440	1				007					
8															
9															
10															
11															
12															
Data Package Required? (Y/N)															
Data Validation Required? (Y/N)															
If data package is required, attach data package checklist.															
RELINQUISHED BY / AFFILIATION										DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Shawgo										11/11/20	1500	Shawgo	11/11/20	1500	
Pace										11/11/20	1710	Pace	11-20	1715	Y
Pace										11/20	1715	Pace	11-20	1715	Y
Pace										11/20	1715	Pace	11-20	1715	Y
SAMPLER NAME AND SIGNATURE										PRINT Name of SAMPLER: Lisa Perrow					
SIGNATURE of SAMPLER: Lisa Perrow										DATE Signed (MM/DD/YY): 11/11/20					

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt

#30392129



Client Name: Trailpoint Atlantic

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>M/C</u>
LIMS Login	<u>M/C</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 9 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 1.6 °C Correction Factor: -1 °C Final Temp: 1.5 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents
	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. <u>10D0401</u>
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC: -Includes date/time/ID Matrix: <u>WT</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. <u>Sample 006, RW23-MWI has no time on sample label</u>
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used: -Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>M/C</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed: _____ Date: _____

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

November 19, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30392419

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on November 12, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30392419

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30392419

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30392419001	RWL-MWI	Water	11/12/20 09:30	11/12/20 22:45
30392419002	RWL-MWS	Water	11/12/20 10:15	11/12/20 22:45
30392419003	RWK-MWI	Water	11/12/20 11:10	11/12/20 22:45
30392419004	RWK-MWS	Water	11/12/20 12:00	11/12/20 22:45
30392419005	RWJ-MWI	Water	11/12/20 13:15	11/12/20 22:45
30392419006	RWJ-MWS	Water	11/12/20 14:45	11/12/20 22:45

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30392419

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30392419001	RWL-MWI	EPA 6010C	KAS	2	PASI-PA
30392419002	RWL-MWS	EPA 6010C	KAS	2	PASI-PA
30392419003	RWK-MWI	EPA 6010C	KAS	2	PASI-PA
30392419004	RWK-MWS	EPA 6010C	KAS	2	PASI-PA
30392419005	RWJ-MWI	EPA 6010C	KAS	2	PASI-PA
30392419006	RWJ-MWS	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30392419

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWL-MWI      Lab ID: 30392419001      Collected: 11/12/20 09:30      Received: 11/12/20 22:45      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>1160</b>	ug/L	3.0	0.34	1	11/13/20 14:46	11/18/20 14:21	7440-43-9	
Zinc, Dissolved	<b>126000</b>	ug/L	1000	238	100	11/13/20 14:46	11/18/20 15:21	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30392419

Sample: <b>RWL-MWS</b>		Lab ID: <b>30392419002</b>		Collected: 11/12/20 10:15	Received: 11/12/20 22:45	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	11/13/20 14:46	11/18/20 14:26	7440-43-9	
Zinc, Dissolved	<b>14200</b>	ug/L	1000	238	100	11/13/20 14:46	11/18/20 15:23	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30392419

Sample: <b>RWK-MWI</b>		Lab ID: <b>30392419003</b>	Collected: 11/12/20 11:10	Received: 11/12/20 22:45	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>74.4</b>	ug/L	3.0	0.34	1	11/13/20 14:46	11/18/20 14:29	7440-43-9	
Zinc, Dissolved	<b>26500</b>	ug/L	1000	238	100	11/13/20 14:46	11/18/20 15:26	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30392419

Sample: <b>RWK-MWS</b>		Lab ID: <b>30392419004</b>	Collected: 11/12/20 12:00	Received: 11/12/20 22:45	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.37J</b>	ug/L	3.0	0.34	1	11/13/20 14:46	11/18/20 14:32	7440-43-9	
Zinc, Dissolved	<b>18100</b>	ug/L	1000	238	100	11/13/20 14:46	11/18/20 15:33	7440-66-6	MH

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30392419

Sample: RWJ-MWI		Lab ID: 30392419005	Collected: 11/12/20 13:15	Received: 11/12/20 22:45	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>2.4J</b>	ug/L	3.0	0.34	1	11/13/20 14:46	11/18/20 14:46	7440-43-9	
Zinc, Dissolved	<b>1060</b>	ug/L	10.0	2.4	1	11/13/20 14:46	11/18/20 14:46	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30392419

Sample: RWJ-MWS		Lab ID: 30392419006	Collected: 11/12/20 14:45	Received: 11/12/20 22:45	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	11/13/20 14:46	11/18/20 14:49	7440-43-9	
Zinc, Dissolved	<b>10.0 U</b>	ug/L	10.0	2.4	1	11/13/20 14:46	11/18/20 14:49	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30392419

QC Batch: 423087 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30392419001, 30392419002, 30392419003, 30392419004, 30392419005, 30392419006

METHOD BLANK: 2044991 Matrix: Water  
Associated Lab Samples: 30392419001, 30392419002, 30392419003, 30392419004, 30392419005, 30392419006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	11/18/20 13:37	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	11/18/20 13:37	

LABORATORY CONTROL SAMPLE: 2044992

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	484	97	80-120	
Zinc, Dissolved	ug/L	500	481	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2044994 2044995

Parameter	Units	30392129001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	30.7	500	500	534	534	101	101	75-125	0	20	
Zinc, Dissolved	ug/L	145000	500	500	143000	141000	-420	-660	75-125	1	20 ML	

MATRIX SPIKE SAMPLE: 2044997

Parameter	Units	30392419004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	0.37J	500	519	104	75-125	
Zinc, Dissolved	ug/L	18100	500	19200	238	75-125 MH	

SAMPLE DUPLICATE: 2044993

Parameter	Units	30392129001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	30.7	30.9	1	20	
Zinc, Dissolved	ug/L	145000	144000	0	20	

SAMPLE DUPLICATE: 2044996

Parameter	Units	30392419004 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	0.37J	3.0 U		20	
Zinc, Dissolved	ug/L	18100	17900	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30392419

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

ML Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: RWM GW Sampling  
Pace Project No.: 30392419

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30392419001	RWL-MWI	EPA 3005A	423087	EPA 6010C	423152
30392419002	RWL-MWS	EPA 3005A	423087	EPA 6010C	423152
30392419003	RWK-MWI	EPA 3005A	423087	EPA 6010C	423152
30392419004	RWK-MWS	EPA 3005A	423087	EPA 6010C	423152
30392419005	RWJ-MWI	EPA 3005A	423087	EPA 6010C	423152
30392419006	RWJ-MWS	EPA 3005A	423087	EPA 6010C	423152

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed.



**Section A**  
Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To:  
Phone:  
Fax:  
Requested Due Date/TAT: 5 day

**Section B**  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis  
PO Number:  
Project Name: RWM GW Sampling  
Project Number: 20101033  
Requested Due Date/TAT: 5 day

**Section C**  
Invoice Information:  
Attention: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
Pace Quote Reference:  
Pace Project Manager: Samantha Bayura  
Pace Profile #:  
REGULATORY AGENCY  
NPDES  GROUND WATER  DRINKING WATER   
UST  RCRA  OTHER   
Site Location: MD  
STATE: MD

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX CODE DW DRINKING WATER WT WASTE WATER WP WASTE PRODUCT P SOLID SL SOIL/SOLID OL OIL WI WIPE AR AIR OT OTHER TS TISSUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	Preservatives H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub> Other	Analysis Test ↑ Dissolved Cadmium Dissolved Zinc	Requested Analysis Filtered (Y/N)	Pace Project No / Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB					
1	RWL-MWI		WTG		11/12/20 9:30	1015	1		X		001
2	RWL-MWS		WTG		11/12/20 10:15		1		X		002
3	RWK-MWI		WTG		11/12/20 11:10		1		X		003
4	RWK-MWS		WTG		11/12/20 12:00		1		X		004
5	RWJ-MWI		WTG		11/12/20 13:15		1		X		005
6	RWJ-MWS		WTG		11/12/20 14:45		1		X		006
7											
8											
9											
10											
11											
12											

**ADDITIONAL COMMENTS**  
Data Package Required? (Y/N) [Signature]  
Data Validation Required? (Y/N) [Signature]  
If data package is required, attach data package checklist.

**RELINQUISHED BY / AFFILIATION** [Signature] Pace  
DATE 11/12/20 15:30  
TIME 15:30

**ACCEPTED BY / AFFILIATION** [Signature] Pace  
DATE 11-12-20 19:35  
TIME 19:35

**RECEIVED ON** [Signature] Pace  
DATE 11-20-20  
TIME 19:35

**COOLER (Y/N)** [Signature] Pace  
DATE 11-20-20  
TIME 19:35

**CUSTODY SEALED** [Signature] Pace  
DATE 11-20-20  
TIME 19:35

**SAMPLES INTERACT** [Signature] Pace  
DATE 11-20-20  
TIME 19:35

Pittsburgh Lab Sample Condition Upon Receipt

#-30392419



Client Name: TradePoint Atlantic Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>MCC</u>
LIMS Login	<u>MCC</u>

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 9 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 1.1 °C Correction Factor: -1 °C Final Temp: 1.0 °C

Temp should be above freezing to 6°C

pH paper Lot#	<u>1000401</u>
Date and Initials of person examining contents:	<u>MCC 11/13/2020</u>

Comments:

	Yes	No	N/A	
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:	/			4.
Sample Labels match COC:	/			5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):		/		7.
Rush Turn Around Time Requested:	/			8.
Sufficient Volume:	/			9.
Correct Containers Used:	/			10.
-Pace Containers Used:	/			
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Hex Cr Aqueous sample field filtered			/	13.
Organic Samples checked for dechlorination:			/	14.
Filtered volume received for Dissolved tests			/	15.
All containers have been checked for preservation.	/			16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	/			Initial when completed: <u>MCC</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):			/	17.
Trip Blank Present:			/	18.
Trip Blank Custody Seals Present			/	
Rad Samples Screened < 0.5 mrem/hr			/	Initial when completed: _____ Date: _____

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

November 20, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30392961

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on November 16, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30392961

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30392961

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30392961001	RW04-MWS	Water	11/16/20 08:25	11/16/20 21:50
30392961002	RWM-MWI	Water	11/16/20 09:45	11/16/20 21:50
30392961003	RWM-MWS	Water	11/16/20 10:40	11/16/20 21:50
30392961004	RW11-MWI	Water	11/16/20 11:30	11/16/20 21:50
30392961005	RW11-MWS	Water	11/16/20 12:15	11/16/20 21:50
30392961006	RW10-MWI	Water	11/16/20 13:00	11/16/20 21:50
30392961007	RW09-MWS	Water	11/16/20 14:25	11/16/20 21:50
30392961008	RW09-MWI	Water	11/16/20 15:10	11/16/20 21:50

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30392961

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30392961001	RW04-MWS	EPA 6010C	KAS	2	PASI-PA
30392961002	RWM-MWI	EPA 6010C	KAS	2	PASI-PA
30392961003	RWM-MWS	EPA 6010C	KAS	2	PASI-PA
30392961004	RW11-MWI	EPA 6010C	KAS	2	PASI-PA
30392961005	RW11-MWS	EPA 6010C	KAS	2	PASI-PA
30392961006	RW10-MWI	EPA 6010C	KAS	2	PASI-PA
30392961007	RW09-MWS	EPA 6010C	KAS	2	PASI-PA
30392961008	RW09-MWI	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30392961

---

**Sample: RW04-MWS**      **Lab ID: 30392961001**      Collected: 11/16/20 08:25      Received: 11/16/20 21:50      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>0.38J</b>	ug/L	3.0	0.34	1	11/18/20 14:45	11/20/20 12:23	7440-43-9	
Zinc, Dissolved	<b>54.6</b>	ug/L	10.0	2.4	1	11/18/20 14:45	11/20/20 12:23	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30392961

Sample: RWM-MWI		Lab ID: 30392961002		Collected: 11/16/20 09:45	Received: 11/16/20 21:50	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>1120</b>	ug/L	3.0	0.34	1	11/18/20 14:45	11/20/20 12:36	7440-43-9	
Zinc, Dissolved	<b>125000</b>	ug/L	1000	238	100	11/18/20 14:45	11/20/20 13:50	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30392961

**Sample: RWM-MWS**      **Lab ID: 30392961003**      Collected: 11/16/20 10:40      Received: 11/16/20 21:50      Matrix: Water

Comments: • Sample ID on container does not match COC. Identified by collectin time.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.0 U</b>	ug/L	3.0	0.34	1	11/18/20 14:45	11/20/20 12:39	7440-43-9	
Zinc, Dissolved	<b>10.6</b>	ug/L	10.0	2.4	1	11/18/20 14:45	11/20/20 12:39	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30392961

Sample: RW11-MWI		Lab ID: 30392961004		Collected: 11/16/20 11:30		Received: 11/16/20 21:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>179</b>	ug/L	3.0	0.34	1	11/18/20 14:45	11/20/20 12:48	7440-43-9	
Zinc, Dissolved	<b>166000</b>	ug/L	1000	238	100	11/18/20 14:45	11/20/20 13:52	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30392961

Sample: RW11-MWS		Lab ID: 30392961005		Collected: 11/16/20 12:15		Received: 11/16/20 21:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>2.0J</b>	ug/L	3.0	0.34	1	11/18/20 14:45	11/20/20 12:50	7440-43-9	
Zinc, Dissolved	<b>55200</b>	ug/L	1000	238	100	11/18/20 14:45	11/20/20 13:55	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30392961

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW10-MWI      Lab ID: 30392961006      Collected: 11/16/20 13:00      Received: 11/16/20 21:50      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>0.55J</b>	ug/L	3.0	0.34	1	11/18/20 14:45	11/20/20 12:54	7440-43-9	
Zinc, Dissolved	<b>550</b>	ug/L	10.0	2.4	1	11/18/20 14:45	11/20/20 12:54	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30392961

**Sample: RW09-MWS**      **Lab ID: 30392961007**      Collected: 11/16/20 14:25      Received: 11/16/20 21:50      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>16.0</b>	ug/L	3.0	0.34	1	11/18/20 14:45	11/20/20 12:57	7440-43-9	
Zinc, Dissolved	<b>45200</b>	ug/L	1000	238	100	11/18/20 14:45	11/20/20 13:57	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30392961

Sample: RW09-MWI		Lab ID: 30392961008		Collected: 11/16/20 15:10	Received: 11/16/20 21:50	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>10.3</b>	ug/L	3.0	0.34	1	11/18/20 14:45	11/20/20 12:59	7440-43-9	
Zinc, Dissolved	<b>73700</b>	ug/L	1000	238	100	11/18/20 14:45	11/20/20 13:59	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30392961

QC Batch: 423729 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30392961001, 30392961002, 30392961003, 30392961004, 30392961005, 30392961006, 30392961007, 30392961008

METHOD BLANK: 2048469 Matrix: Water  
Associated Lab Samples: 30392961001, 30392961002, 30392961003, 30392961004, 30392961005, 30392961006, 30392961007, 30392961008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	11/20/20 12:19	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	11/20/20 12:19	

LABORATORY CONTROL SAMPLE: 2048470

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	485	97	80-120	
Zinc, Dissolved	ug/L	500	485	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2048472 2048473

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		30392961001 Result	Spike Conc.	Spike Conc.	Result						
Cadmium, Dissolved	ug/L	0.38J	500	500	521	516	104	103	75-125	1	20
Zinc, Dissolved	ug/L	54.6	500	500	613	551	112	99	75-125	11	20

MATRIX SPIKE SAMPLE: 2048475

Parameter	Units	30393196003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	7700	500	8160	92	75-125	
Zinc, Dissolved	ug/L	3520000	500	3580000	12400	75-125 MH	

SAMPLE DUPLICATE: 2048471

Parameter	Units	30392961001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	0.38J	3.0 U		20	
Zinc, Dissolved	ug/L	54.6	58.8	8	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling

Pace Project No.: 30392961

SAMPLE DUPLICATE: 2048474

Parameter	Units	30393196003 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	7700	7470	3	20	
Zinc, Dissolved	ug/L	3520000	3500000	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30392961

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: RWM GW Sampling  
Pace Project No.: 30392961

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30392961001	RW04-MWS	EPA 3005A	423729	EPA 6010C	423813
30392961002	RWM-MWI	EPA 3005A	423729	EPA 6010C	423813
30392961003	RWM-MWS	EPA 3005A	423729	EPA 6010C	423813
30392961004	RW11-MWI	EPA 3005A	423729	EPA 6010C	423813
30392961005	RW11-MWS	EPA 3005A	423729	EPA 6010C	423813
30392961006	RW10-MWI	EPA 3005A	423729	EPA 6010C	423813
30392961007	RW09-MWS	EPA 3005A	423729	EPA 6010C	423813
30392961008	RW09-MWI	EPA 3005A	423729	EPA 6010C	423813

**REPORT OF LABORATORY ANALYSIS**

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

Section A  
Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Requested Due Date/TAT: 5 day

Section B  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis  
PO Number: \_\_\_\_\_  
Project Name: RWM GW Sampling  
Project Number: 20010103

Section C  
Invoice Information:  
Attention: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
Pace Quote Reference: Samantha Bayura  
Pace Project Manager: \_\_\_\_\_  
Pace Profile #: \_\_\_\_\_

Page: \_\_\_\_\_ of \_\_\_\_\_

REGULATORY AGENCY  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER \_\_\_\_\_

Site Location  
 STATE: MD

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WT WASTE WATER VW PRODUCT P SOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		# OF CONTAINERS	Preservatives Unpreserved H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Other DI Water	Analysis Test ↑ Dissolved Cadmium Dissolved Zinc	Requested Analysis Filtered (Y/N)	Pace Project No./ Lab I.D.
				COMPOSITE START	COMPOSITE END/GRAB					
1	RW04-MWS	WT6	G-GRAB	11/16/20	825	1		X	001	
2	RWM-MWF	WT6	G-GRAB		945	1		X	002	
3	RWM-MWS	WT6	G-GRAB		1040	1		X	003	
4	RW11-MWF	WT6	G-GRAB		1130	1		X	004	
5	RW11-MWS	WT6	G-GRAB		1215	1		X	005	
6	RW10-MWI	WT6	G-GRAB		1300	1		X	006	
7	RW09-MWS	WT6	G-GRAB		1425	1		X	007	
8	RW09-MWF	WT6	G-GRAB		1510	1		X	008	
9										
10										
11										
12										

ADDITIONAL COMMENTS

Data Package Required? (Y/N): \_\_\_\_\_  
 Data Validation Required? (Y/N): \_\_\_\_\_  
 If data package is required, attach data package checklist.

RELINQUISHED BY / AFFILIATION: \_\_\_\_\_ DATE: 11/16/20 TIME: 1800  
 ACCEPTED BY / AFFILIATION: \_\_\_\_\_ DATE: 11/16/20 TIME: 1800

SAMPLER NAME AND SIGNATURE: \_\_\_\_\_  
 PRINT Name of SAMPLER: Lisa Perrin  
 SIGNATURE of SAMPLER: \_\_\_\_\_  
 DATE Signed (MM/DD/YY): 11/16/20

Received on \_\_\_\_\_ Ice (Y/N) \_\_\_\_\_ Cooler (Y/N) \_\_\_\_\_ Samples Intact (Y/N) \_\_\_\_\_

Pittsburgh Lab Sample Condition Upon Receipt

# 30392961



Client Name: Tradepoint Atlantic

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: N/A

Label	<u>MLL</u>
LIMS Login	<u>MLL</u>

Custody Seal on Cooler/Box Present:  yes  no    Seals intact:  yes  no

Thermometer Used 9    Type of Ice: Wet Blue None

Cooler Temperature    Observed Temp 1.9 °C    Correction Factor: -1 °C    Final Temp: 1.8 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:
	Yes	No	N/A	
				<u>10 D0401</u>
				<u>MLL 1/17/2010</u>
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:	/			4.
Sample Labels match COC: -Includes date/time/ID      Matrix: <u>WT</u>		/		5. There are two sample IDs reading RUM-MLI but the one sample had the time for sample RUM-MLI so I logged it as that sample ID.
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):	/			7.
Rush Turn Around Time Requested:	/			8.
Sufficient Volume:	/			9.
Correct Containers Used: -Pace Containers Used:	/			10.
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Hex Cr Aqueous sample field filtered			/	13.
Organic Samples checked for dechlorination:			/	14.
Filtered volume received for Dissolved tests			/	15.
All containers have been checked for preservation.	/			16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	/			Initial when completed: <u>MLL</u> Date/time of preservation:
				Lot # of added preservative
Headspace in VOA Vials (>6mm):			/	17.
Trip Blank Present:			/	18.
Trip Blank Custody Seals Present			/	
Rad Samples Screened < 0.5 mrem/hr			/	Initial when completed:    Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



November 20, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30393196

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on November 17, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30393196

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30393196

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30393196001	RW19-MWI	Water	11/17/20 08:45	11/17/20 22:00
30393196002	RW19-MWS	Water	11/17/20 09:30	11/17/20 22:00
30393196003	RWP-MWI	Water	11/17/20 10:35	11/17/20 22:00
30393196004	RWQ-MWI	Water	11/17/20 11:20	11/17/20 22:00
30393196005	RWQ-MWS	Water	11/17/20 12:35	11/17/20 22:00
30393196006	RWS-MWI	Water	11/17/20 13:55	11/17/20 22:00
30393196007	RWS-MWS	Water	11/17/20 15:00	11/17/20 22:00

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30393196

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30393196001	RW19-MWI	EPA 6010C	KAS	2	PASI-PA
30393196002	RW19-MWS	EPA 6010C	KAS	2	PASI-PA
30393196003	RWP-MWI	EPA 6010C	KAS	2	PASI-PA
30393196004	RWQ-MWI	EPA 6010C	KAS	2	PASI-PA
30393196005	RWQ-MWS	EPA 6010C	KAS	2	PASI-PA
30393196006	RWS-MWI	EPA 6010C	KAS	2	PASI-PA
30393196007	RWS-MWS	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30393196

Sample: RW19-MWI		Lab ID: 30393196001		Collected: 11/17/20 08:45	Received: 11/17/20 22:00	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>1540</b>	ug/L	300	34.0	100	11/18/20 14:45	11/20/20 14:06	7440-43-9	
Zinc, Dissolved	<b>3930000</b>	ug/L	10000	2380	1000	11/18/20 14:45	11/20/20 14:13	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30393196

---

**Sample: RW19-MWS**      **Lab ID: 30393196002**      Collected: 11/17/20 09:30      Received: 11/17/20 22:00      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>1.3J</b>	ug/L	3.0	0.34	1	11/18/20 14:45	11/20/20 13:35	7440-43-9	
Zinc, Dissolved	<b>6190</b>	ug/L	10.0	2.4	1	11/18/20 14:45	11/20/20 13:35	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30393196

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWP-MWI</b>									
<b>Lab ID: 30393196003</b>									
Collected: 11/17/20 10:35									
Received: 11/17/20 22:00									
Matrix: Water									
Analytical Method: EPA 6010C Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>7700</b>	ug/L	300	34.0	100	11/18/20 14:45	11/20/20 13:19	7440-43-9	
Zinc, Dissolved	<b>3520000</b>	ug/L	10000	2380	1000	11/18/20 14:45	11/20/20 14:16	7440-66-6	MH

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30393196

---

**Sample: RWQ-MWI**      **Lab ID: 30393196004**      Collected: 11/17/20 11:20      Received: 11/17/20 22:00      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>2.9J</b>	ug/L	3.0	0.34	1	11/18/20 14:45	11/20/20 13:07	7440-43-9	
Zinc, Dissolved	<b>257000</b>	ug/L	1000	238	100	11/18/20 14:45	11/20/20 14:09	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30393196

**Sample: RWQ-MWS**      **Lab ID: 30393196005**      Collected: 11/17/20 12:35      Received: 11/17/20 22:00      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>3.2</b>	ug/L	3.0	0.34	1	11/18/20 14:45	11/20/20 13:39	7440-43-9	
Zinc, Dissolved	<b>152</b>	ug/L	10.0	2.4	1	11/18/20 14:45	11/20/20 13:39	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30393196

Sample: RWS-MWI		Lab ID: 30393196006		Collected: 11/17/20 13:55	Received: 11/17/20 22:00	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>1.7J</b>	ug/L	3.0	0.34	1	11/18/20 14:45	11/20/20 13:44	7440-43-9	
Zinc, Dissolved	<b>919000</b>	ug/L	10000	2380	1000	11/18/20 14:45	11/20/20 14:22	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30393196

---

**Sample: RWS-MWS**      **Lab ID: 30393196007**      Collected: 11/17/20 15:00      Received: 11/17/20 22:00      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>0.39J</b>	ug/L	3.0	0.34	1	11/18/20 14:45	11/20/20 13:41	7440-43-9	
Zinc, Dissolved	<b>7260</b>	ug/L	10.0	2.4	1	11/18/20 14:45	11/20/20 13:41	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30393196

QC Batch: 423729 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30393196001, 30393196002, 30393196003, 30393196004, 30393196005, 30393196006, 30393196007

METHOD BLANK: 2048469 Matrix: Water  
Associated Lab Samples: 30393196001, 30393196002, 30393196003, 30393196004, 30393196005, 30393196006, 30393196007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	11/20/20 12:19	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	11/20/20 12:19	

LABORATORY CONTROL SAMPLE: 2048470

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	485	97	80-120	
Zinc, Dissolved	ug/L	500	485	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2048472 2048473

Parameter	Units	30392961001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	0.38J	500	500	521	516	104	103	75-125	1	20	
Zinc, Dissolved	ug/L	54.6	500	500	613	551	112	99	75-125	11	20	

MATRIX SPIKE SAMPLE: 2048475

Parameter	Units	30393196003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	7700	500	8160	92	75-125	
Zinc, Dissolved	ug/L	3520000	500	3580000	12400	75-125 MH	

SAMPLE DUPLICATE: 2048471

Parameter	Units	30392961001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	0.38J	3.0 U		20	
Zinc, Dissolved	ug/L	54.6	58.8	8	20	

SAMPLE DUPLICATE: 2048474

Parameter	Units	30393196003 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	7700	7470	3	20	
Zinc, Dissolved	ug/L	3520000	3500000	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30393196

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30393196

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30393196001	RW19-MWI	EPA 3005A	423729	EPA 6010C	423813
30393196002	RW19-MWS	EPA 3005A	423729	EPA 6010C	423813
30393196003	RWP-MWI	EPA 3005A	423729	EPA 6010C	423813
30393196004	RWQ-MWI	EPA 3005A	423729	EPA 6010C	423813
30393196005	RWQ-MWS	EPA 3005A	423729	EPA 6010C	423813
30393196006	RWS-MWI	EPA 3005A	423729	EPA 6010C	423813
30393196007	RWS-MWS	EPA 3005A	423729	EPA 6010C	423813

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



**Section A**  
Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Requested Due Date/TAT: 5 day

**Section B**  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis  
Project Name: RWM GW Sampling  
Project Number: 20010103

**Section C**  
Invoice Information:  
Attention: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
Pace Quote Reference: \_\_\_\_\_  
Pace Project Manager: Samantha Bayura  
Pace Profile #: \_\_\_\_\_

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER  
**Site Location STATE:** MD

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW WATER P PRODUCT SL SOLID OL WIRE WP AIR AR OTHER OT TISSUE TS	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub> Other DI Water	Analysis Test ↑ Dissolved Cadmium Dissolved Zinc	Requested Analysis Filtered (Y/N)	Pace Project No / Lab I.D.
		COMPOSITE START	COMPOSITE END/GRAB								
1	RWQ-MWI			WTG		11/17/20	845		X		001
2	RWQ-MWS			WTG			930		X		002
3	RWP-MWI			WTG			1035		X		003
4	RWQ-MWI			WTG			1120		X		004
5	RWQ-MWS			WTG			1235		X		005
6	RWS-MWI			WTG			1355		X		006
7	RWS-MWS			WTG			1500		X		007
8											
9											
10											
11											
12											

**ADDITIONAL COMMENTS**  
 Data Package Required? (Y/N) Y  
 Data Validation Required? (Y/N): Y  
 If data package is required, attach data package checklist.

**RELINQUISHED BY / AFFILIATION**  
 [Signature] Pace 11/17/20 15:50  
 [Signature] Pace 11-17-20 18:40  
 [Signature] Pace 11/22/20 20:00

**ACCEPTED BY / AFFILIATION**  
 [Signature] Pace 11/17/20 18:30  
 [Signature] Pace 11-17-20 18:40  
 [Signature] Pace 11/22/20 20:00

**DATE** **TIME**

**Sample Conditions**  
 Received on: \_\_\_\_\_  
 Ice (Y/N): \_\_\_\_\_  
 Custody Sealed (Y/N): \_\_\_\_\_  
 Cooler (Y/N): \_\_\_\_\_  
 Samples Intact (Y/N): \_\_\_\_\_

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Lisa Peria  
 SIGNATURE of SAMPLER: [Signature]

**DATE SIGNED (MM/DD/YYYY):** 11/17/20

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: Tradepoint Atlantic

Project # 30393193

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: VIA

Label	<u>MCC</u>
LIMS Login	<u>MCC</u>

Custody Seal on Cooler/Box Present:  yes  no    Seals intact:  yes  no

Thermometer Used 9    Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp \_\_\_\_\_ °C    Correction Factor: -1 °C    Final Temp: \_\_\_\_\_ °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:
	Yes	No	N/A	
				<u>1000101</u>
				<u>MCC 11/17/2010</u>
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID      Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed <u>MCC</u> Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Initial when completed:    Date:

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



November 30, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30393515

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on November 18, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30393515

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30393515

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30393515001	RWO-MWS	Water	11/18/20 09:25	11/18/20 22:15
30393515002	RWO-MWI	Water	11/18/20 10:15	11/18/20 22:15
30393515003	RWH-MWI	Water	11/18/20 11:00	11/18/20 22:15
30393515004	RWH-MWS	Water	11/18/20 11:55	11/18/20 22:15
30393515005	R21-MWI	Water	11/18/20 13:30	11/18/20 22:15
30393515006	R21-MWS	Water	11/18/20 14:15	11/18/20 22:15
30393515007	R21-MWP	Water	11/18/20 15:05	11/18/20 22:15

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling

Pace Project No.: 30393515

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30393515001	RWO-MWS	EPA 6010C	KAS	2	PASI-PA
30393515002	RWO-MWI	EPA 6010C	KAS	2	PASI-PA
30393515003	RWH-MWI	EPA 6010C	KAS	2	PASI-PA
30393515004	RWH-MWS	EPA 6010C	KAS	2	PASI-PA
30393515005	R21-MWI	EPA 6010C	KAS	2	PASI-PA
30393515006	R21-MWS	EPA 6010C	KAS	2	PASI-PA
		EPA 8270D	CF1, EAC	62	PASI-PA
		EPA 8260B	LEL	40	PASI-PA
		EPA 8270D	EAC	62	PASI-PA
30393515007	R21-MWP	EPA 8260B	LEL	55	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30393515

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RWO-MWS      Lab ID: 30393515001      Collected: 11/18/20 09:25      Received: 11/18/20 22:15      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>0.53J</b>	ug/L	3.0	0.34	1	11/23/20 08:02	11/24/20 15:14	7440-43-9	
Zinc, Dissolved	<b>2750</b>	ug/L	10.0	2.4	1	11/23/20 08:02	11/24/20 15:14	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30393515

Sample: RWO-MWI		Lab ID: 30393515002		Collected: 11/18/20 10:15	Received: 11/18/20 22:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>27.9</b>	ug/L	3.0	0.34	1	11/23/20 08:02	11/24/20 15:27	7440-43-9	
Zinc, Dissolved	<b>155000</b>	ug/L	1000	238	100	11/23/20 08:02	11/24/20 16:16	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30393515

Sample: RWH-MWI		Lab ID: 30393515003		Collected: 11/18/20 11:00		Received: 11/18/20 22:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>6650</b>	ug/L	3.0	0.34	1	11/23/20 08:02	11/24/20 15:40	7440-43-9	
Zinc, Dissolved	<b>618000</b>	ug/L	1000	238	100	11/23/20 08:02	11/24/20 16:18	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30393515

---

**Sample: RWH-MWS**      **Lab ID: 30393515004**      Collected: 11/18/20 11:55      Received: 11/18/20 22:15      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>7.0</b>	ug/L	3.0	0.34	1	11/23/20 08:02	11/24/20 15:32	7440-43-9	
Zinc, Dissolved	<b>1310</b>	ug/L	10.0	2.4	1	11/23/20 08:02	11/24/20 15:32	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30393515

---

**Sample: R21-MWI**      **Lab ID: 30393515005**      Collected: 11/18/20 13:30      Received: 11/18/20 22:15      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>27.8</b>	ug/L	3.0	0.34	1	11/23/20 08:02	11/24/20 15:42	7440-43-9	
Zinc, Dissolved	<b>562000</b>	ug/L	1000	238	100	11/23/20 08:02	11/24/20 16:21	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30393515

**Sample: R21-MWS**      **Lab ID: 30393515006**      Collected: 11/18/20 14:15      Received: 11/18/20 22:15      Matrix: Water

Comments: • Samples in this workorder were received in the laboratory without an associated trip blank.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>367</b>	ug/L	3.0	0.34	1	11/23/20 08:02	11/24/20 15:47	7440-43-9	
Zinc, Dissolved	<b>325000</b>	ug/L	1000	238	100	11/23/20 08:02	11/24/20 16:23	7440-66-6	
<b>8270D MSSV Organics</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3510C									
Pace Analytical Services - Greensburg									
Acenaphthene	<b>0.99 U</b>	ug/L	0.99	0.39	1	11/24/20 09:05	11/25/20 01:24	83-32-9	1c
Acenaphthylene	<b>0.99 U</b>	ug/L	0.99	0.38	1	11/24/20 09:05	11/25/20 01:24	208-96-8	1c
Acetophenone	<b>0.99 U</b>	ug/L	0.99	0.42	1	11/24/20 09:05	11/25/20 01:24	98-86-2	1c
Anthracene	<b>0.99 U</b>	ug/L	0.99	0.26	1	11/24/20 09:05	11/25/20 01:24	120-12-7	1c
Benzaldehyde	<b>0.99 U</b>	ug/L	0.99	0.43	1	11/24/20 09:05	11/25/20 01:24	100-52-7	1c
Benzo(a)anthracene	<b>0.99 U</b>	ug/L	0.99	0.20	1	11/24/20 09:05	11/25/20 01:24	56-55-3	1c
Benzo(a)pyrene	<b>0.99 U</b>	ug/L	0.99	0.18	1	11/24/20 09:05	11/25/20 01:24	50-32-8	1c
Benzo(b)fluoranthene	<b>0.99 U</b>	ug/L	0.99	0.23	1	11/24/20 09:05	11/25/20 01:24	205-99-2	1c
Benzo(g,h,i)perylene	<b>0.99 U</b>	ug/L	0.99	0.29	1	11/24/20 09:05	11/25/20 01:24	191-24-2	1c
Benzo(k)fluoranthene	<b>0.99 U</b>	ug/L	0.99	0.25	1	11/24/20 09:05	11/25/20 01:24	207-08-9	1c
Biphenyl (Diphenyl)	<b>0.99 U</b>	ug/L	0.99	0.32	1	11/24/20 09:05	11/25/20 01:24	92-52-4	1c
Caprolactam	<b>2.5 U</b>	ug/L	2.5	0.31	1	11/24/20 09:05	11/25/20 01:24	105-60-2	1c
Carbazole	<b>1.2</b>	ug/L	0.99	0.23	1	11/24/20 09:05	11/25/20 01:24	86-74-8	1c
4-Chloroaniline	<b>0.99 U</b>	ug/L	0.99	0.21	1	11/24/20 09:05	11/25/20 01:24	106-47-8	1c
bis(2-Chloroethoxy)methane	<b>0.99 U</b>	ug/L	0.99	0.35	1	11/24/20 09:05	11/25/20 01:24	111-91-1	1c
bis(2-Chloroethyl) ether	<b>0.99 U</b>	ug/L	0.99	0.41	1	11/24/20 09:05	11/25/20 01:24	111-44-4	1c
bis(2-Chloroisopropyl) ether	<b>0.99 U</b>	ug/L	0.99	0.40	1	11/24/20 09:05	11/25/20 01:24	108-60-1	1c
2-Chloronaphthalene	<b>0.99 U</b>	ug/L	0.99	0.33	1	11/24/20 09:05	11/25/20 01:24	91-58-7	1c
2-Chlorophenol	<b>0.99 U</b>	ug/L	0.99	0.32	1	11/24/20 09:05	11/25/20 01:24	95-57-8	1c
Chrysene	<b>0.99 U</b>	ug/L	0.99	0.20	1	11/24/20 09:05	11/25/20 01:24	218-01-9	1c
Dibenz(a,h)anthracene	<b>0.99 U</b>	ug/L	0.99	0.31	1	11/24/20 09:05	11/25/20 01:24	53-70-3	1c
3,3'-Dichlorobenzidine	<b>0.99 U</b>	ug/L	0.99	0.22	1	11/24/20 09:05	11/25/20 01:24	91-94-1	1c, L2
2,4-Dichlorophenol	<b>0.99 U</b>	ug/L	0.99	0.33	1	11/24/20 09:05	11/25/20 01:24	120-83-2	1c
Diethylphthalate	<b>0.99 U</b>	ug/L	0.99	0.36	1	11/24/20 09:05	11/25/20 01:24	84-66-2	1c
2,4-Dimethylphenol	<b>14.1</b>	ug/L	0.99	0.36	1	11/24/20 09:05	11/25/20 01:24	105-67-9	1c
Di-n-butylphthalate	<b>0.40J</b>	ug/L	0.99	0.32	1	11/24/20 09:05	11/25/20 01:24	84-74-2	1c, B
2,4-Dinitrophenol	<b>2.5 U</b>	ug/L	2.5	0.58	1	11/24/20 09:05	11/25/20 01:24	51-28-5	1c, 2c
2,4-Dinitrotoluene	<b>0.99 U</b>	ug/L	0.99	0.35	1	11/24/20 09:05	11/25/20 01:24	121-14-2	1c
2,6-Dinitrotoluene	<b>0.99 U</b>	ug/L	0.99	0.40	1	11/24/20 09:05	11/25/20 01:24	606-20-2	1c
Di-n-octylphthalate	<b>0.99 U</b>	ug/L	0.99	0.27	1	11/24/20 09:05	11/25/20 01:24	117-84-0	1c
bis(2-Ethylhexyl)phthalate	<b>0.41J</b>	ug/L	0.99	0.36	1	11/24/20 09:05	11/25/20 01:24	117-81-7	1c
Fluoranthene	<b>0.62J</b>	ug/L	0.99	0.23	1	11/24/20 09:05	11/25/20 01:24	206-44-0	1c
Fluorene	<b>0.99 U</b>	ug/L	0.99	0.37	1	11/24/20 09:05	11/25/20 01:24	86-73-7	1c
Hexachloro-1,3-butadiene	<b>0.99 U</b>	ug/L	0.99	0.33	1	11/24/20 09:05	11/25/20 01:24	87-68-3	1c
Hexachlorobenzene	<b>0.99 U</b>	ug/L	0.99	0.30	1	11/24/20 09:05	11/25/20 01:24	118-74-1	1c
Hexachlorocyclopentadiene	<b>0.99 U</b>	ug/L	0.99	0.19	1	11/24/20 09:05	11/25/20 01:24	77-47-4	1c
Hexachloroethane	<b>0.99 U</b>	ug/L	0.99	0.30	1	11/24/20 09:05	11/25/20 01:24	67-72-1	1c
Indeno(1,2,3-cd)pyrene	<b>0.99 U</b>	ug/L	0.99	0.30	1	11/24/20 09:05	11/25/20 01:24	193-39-5	1c
Isophorone	<b>0.99 U</b>	ug/L	0.99	0.57	1	11/24/20 09:05	11/25/20 01:24	78-59-1	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Project No.: 30393515

**Sample: R21-MWS**      **Lab ID: 30393515006**      Collected: 11/18/20 14:15      Received: 11/18/20 22:15      Matrix: Water

Comments: • Samples in this workorder were received in the laboratory without an associated trip blank.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Organics</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3510C									
Pace Analytical Services - Greensburg									
2-Methylnaphthalene	<b>0.96J</b>	ug/L	0.99	0.34	1	11/24/20 09:05	11/25/20 01:24	91-57-6	1c
2-Methylphenol(o-Cresol)	<b>0.99 U</b>	ug/L	0.99	0.36	1	11/24/20 09:05	11/25/20 01:24	95-48-7	1c
3&4-Methylphenol(m&p Cresol)	<b>2.0 U</b>	ug/L	2.0	1.9	1	11/24/20 09:05	11/25/20 01:24		1c,B
Naphthalene	<b>179</b>	ug/L	19.8	6.9	20	11/24/20 09:05	11/26/20 00:58	91-20-3	1c
2-Nitroaniline	<b>2.5 U</b>	ug/L	2.5	0.71	1	11/24/20 09:05	11/25/20 01:24	88-74-4	1c
4-Nitroaniline	<b>2.5 U</b>	ug/L	2.5	1.8	1	11/24/20 09:05	11/25/20 01:24	100-01-6	1c
Nitrobenzene	<b>0.99 U</b>	ug/L	0.99	0.37	1	11/24/20 09:05	11/25/20 01:24	98-95-3	1c
N-Nitroso-di-n-propylamine	<b>0.99 U</b>	ug/L	0.99	0.53	1	11/24/20 09:05	11/25/20 01:24	621-64-7	1c
N-Nitrosodiphenylamine	<b>0.99 U</b>	ug/L	0.99	0.25	1	11/24/20 09:05	11/25/20 01:24	86-30-6	1c
Pentachlorophenol	<b>2.5 U</b>	ug/L	2.5	1.0	1	11/24/20 09:05	11/25/20 01:24	87-86-5	1c
Phenanthrene	<b>0.94J</b>	ug/L	0.99	0.34	1	11/24/20 09:05	11/25/20 01:24	85-01-8	1c
Phenol	<b>0.99 U</b>	ug/L	0.99	0.22	1	11/24/20 09:05	11/25/20 01:24	108-95-2	1c
Pyrene	<b>0.37J</b>	ug/L	0.99	0.30	1	11/24/20 09:05	11/25/20 01:24	129-00-0	1c
1,2,4,5-Tetrachlorobenzene	<b>0.99 U</b>	ug/L	0.99	0.31	1	11/24/20 09:05	11/25/20 01:24	95-94-3	1c
2,3,4,6-Tetrachlorophenol	<b>0.99 U</b>	ug/L	0.99	0.28	1	11/24/20 09:05	11/25/20 01:24	58-90-2	1c
2,4,5-Trichlorophenol	<b>2.5 U</b>	ug/L	2.5	0.66	1	11/24/20 09:05	11/25/20 01:24	95-95-4	1c
2,4,6-Trichlorophenol	<b>0.99 U</b>	ug/L	0.99	0.36	1	11/24/20 09:05	11/25/20 01:24	88-06-2	1c
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	39	%	10-140		1	11/24/20 09:05	11/25/20 01:24	4165-60-0	
2-Fluorobiphenyl (S)	34	%	10-135		1	11/24/20 09:05	11/25/20 01:24	321-60-8	
Terphenyl-d14 (S)	73	%	10-128		1	11/24/20 09:05	11/25/20 01:24	1718-51-0	
Phenol-d6 (S)	13	%	10-145		1	11/24/20 09:05	11/25/20 01:24	13127-88-3	
2-Fluorophenol (S)	19	%	10-142		1	11/24/20 09:05	11/25/20 01:24	367-12-4	
2,4,6-Tribromophenol (S)	69	%	10-140		1	11/24/20 09:05	11/25/20 01:24	118-79-6	
<b>8260B MSV</b>									
Analytical Method: EPA 8260B									
Pace Analytical Services - Greensburg									
Acetone	<b>10.0 U</b>	ug/L	10.0	5.6	1		11/23/20 20:37	67-64-1	
Benzene	<b>106</b>	ug/L	1.0	0.34	1		11/23/20 20:37	71-43-2	
Bromodichloromethane	<b>1.0 U</b>	ug/L	1.0	0.35	1		11/23/20 20:37	75-27-4	
Bromoform	<b>1.0 U</b>	ug/L	1.0	0.56	1		11/23/20 20:37	75-25-2	L1
Bromomethane	<b>1.0 U</b>	ug/L	1.0	0.73	1		11/23/20 20:37	74-83-9	
2-Butanone (MEK)	<b>10.0 U</b>	ug/L	10.0	1.5	1		11/23/20 20:37	78-93-3	
Carbon disulfide	<b>1.0 U</b>	ug/L	1.0	0.32	1		11/23/20 20:37	75-15-0	
Carbon tetrachloride	<b>1.0 U</b>	ug/L	1.0	0.44	1		11/23/20 20:37	56-23-5	
Chlorobenzene	<b>1.0 U</b>	ug/L	1.0	0.26	1		11/23/20 20:37	108-90-7	
Chloroethane	<b>1.0 U</b>	ug/L	1.0	0.64	1		11/23/20 20:37	75-00-3	
Chloroform	<b>1.0 U</b>	ug/L	1.0	0.39	1		11/23/20 20:37	67-66-3	
Chloromethane	<b>1.0 U</b>	ug/L	1.0	0.40	1		11/23/20 20:37	74-87-3	
Dibromochloromethane	<b>1.0 U</b>	ug/L	1.0	0.43	1		11/23/20 20:37	124-48-1	
1,1-Dichloroethane	<b>2.3</b>	ug/L	1.0	0.24	1		11/23/20 20:37	75-34-3	
1,2-Dichloroethane	<b>1.0 U</b>	ug/L	1.0	0.33	1		11/23/20 20:37	107-06-2	
1,2-Dichloroethene (Total)	<b>2.0 U</b>	ug/L	2.0	0.66	1		11/23/20 20:37	540-59-0	
1,1-Dichloroethene	<b>1.0 U</b>	ug/L	1.0	0.24	1		11/23/20 20:37	75-35-4	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30393515

**Sample: R21-MWS**      **Lab ID: 30393515006**      Collected: 11/18/20 14:15      Received: 11/18/20 22:15      Matrix: Water

Comments: • Samples in this workorder were received in the laboratory without an associated trip blank.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260B MSV</b>									
Analytical Method: EPA 8260B									
Pace Analytical Services - Greensburg									
cis-1,2-Dichloroethene	<b>0.60J</b>	ug/L	1.0	0.38	1		11/23/20 20:37	156-59-2	
trans-1,2-Dichloroethene	<b>1.0 U</b>	ug/L	1.0	0.28	1		11/23/20 20:37	156-60-5	
1,2-Dichloropropane	<b>1.0 U</b>	ug/L	1.0	0.28	1		11/23/20 20:37	78-87-5	
cis-1,3-Dichloropropene	<b>1.0 U</b>	ug/L	1.0	0.29	1		11/23/20 20:37	10061-01-5	
trans-1,3-Dichloropropene	<b>1.0 U</b>	ug/L	1.0	0.32	1		11/23/20 20:37	10061-02-6	
Ethylbenzene	<b>4.0</b>	ug/L	1.0	0.40	1		11/23/20 20:37	100-41-4	
Isopropylbenzene (Cumene)	<b>1.0 U</b>	ug/L	1.0	0.47	1		11/23/20 20:37	98-82-8	L1
Methylene Chloride	<b>1.0 U</b>	ug/L	1.0	0.64	1		11/23/20 20:37	75-09-2	
4-Methyl-2-pentanone (MIBK)	<b>10.0 U</b>	ug/L	10.0	0.42	1		11/23/20 20:37	108-10-1	
Methyl-tert-butyl ether	<b>1.0 U</b>	ug/L	1.0	0.25	1		11/23/20 20:37	1634-04-4	
Styrene	<b>2.1</b>	ug/L	1.0	0.33	1		11/23/20 20:37	100-42-5	
1,1,2,2-Tetrachloroethane	<b>1.0 U</b>	ug/L	1.0	0.47	1		11/23/20 20:37	79-34-5	
Tetrachloroethene	<b>1.0 U</b>	ug/L	1.0	0.39	1		11/23/20 20:37	127-18-4	
Toluene	<b>5.4</b>	ug/L	1.0	0.32	1		11/23/20 20:37	108-88-3	
1,1,1-Trichloroethane	<b>1.0 U</b>	ug/L	1.0	0.38	1		11/23/20 20:37	71-55-6	L1
1,1,2-Trichloroethane	<b>1.0 U</b>	ug/L	1.0	0.33	1		11/23/20 20:37	79-00-5	
Trichloroethene	<b>1.0 U</b>	ug/L	1.0	0.29	1		11/23/20 20:37	79-01-6	
Vinyl chloride	<b>1.0 U</b>	ug/L	1.0	0.29	1		11/23/20 20:37	75-01-4	L1
Xylene (Total)	<b>23.9</b>	ug/L	3.0	1.4	1		11/23/20 20:37	1330-20-7	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	93	%	70-130		1		11/23/20 20:37	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	70-130		1		11/23/20 20:37	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		11/23/20 20:37	2037-26-5	
Dibromofluoromethane (S)	94	%	70-130		1		11/23/20 20:37	1868-53-7	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30393515

**Sample: R21-MWP**      **Lab ID: 30393515007**      Collected: 11/18/20 15:05      Received: 11/18/20 22:15      Matrix: Water

Comments: • Samples in this workorder were received in the laboratory without an associated trip blank.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Organics</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3510C									
Pace Analytical Services - Greensburg									
Acenaphthene	0.99 U	ug/L	0.99	0.39	1	11/24/20 09:05	11/25/20 01:46	83-32-9	1c
Acenaphthylene	0.99 U	ug/L	0.99	0.38	1	11/24/20 09:05	11/25/20 01:46	208-96-8	1c
Acetophenone	0.99 U	ug/L	0.99	0.42	1	11/24/20 09:05	11/25/20 01:46	98-86-2	1c
Anthracene	0.99 U	ug/L	0.99	0.26	1	11/24/20 09:05	11/25/20 01:46	120-12-7	1c
Benzaldehyde	0.99 U	ug/L	0.99	0.43	1	11/24/20 09:05	11/25/20 01:46	100-52-7	1c
Benzo(a)anthracene	0.99 U	ug/L	0.99	0.20	1	11/24/20 09:05	11/25/20 01:46	56-55-3	1c
Benzo(a)pyrene	0.99 U	ug/L	0.99	0.18	1	11/24/20 09:05	11/25/20 01:46	50-32-8	1c
Benzo(b)fluoranthene	0.99 U	ug/L	0.99	0.23	1	11/24/20 09:05	11/25/20 01:46	205-99-2	1c
Benzo(g,h,i)perylene	0.99 U	ug/L	0.99	0.29	1	11/24/20 09:05	11/25/20 01:46	191-24-2	1c
Benzo(k)fluoranthene	0.99 U	ug/L	0.99	0.25	1	11/24/20 09:05	11/25/20 01:46	207-08-9	1c
Biphenyl (Diphenyl)	0.99 U	ug/L	0.99	0.32	1	11/24/20 09:05	11/25/20 01:46	92-52-4	1c
Caprolactam	2.5 U	ug/L	2.5	0.31	1	11/24/20 09:05	11/25/20 01:46	105-60-2	1c
Carbazole	0.48J	ug/L	0.99	0.23	1	11/24/20 09:05	11/25/20 01:46	86-74-8	1c
4-Chloroaniline	0.99 U	ug/L	0.99	0.21	1	11/24/20 09:05	11/25/20 01:46	106-47-8	1c
bis(2-Chloroethoxy)methane	0.99 U	ug/L	0.99	0.35	1	11/24/20 09:05	11/25/20 01:46	111-91-1	1c
bis(2-Chloroethyl) ether	0.99 U	ug/L	0.99	0.41	1	11/24/20 09:05	11/25/20 01:46	111-44-4	1c
bis(2-Chloroisopropyl) ether	0.99 U	ug/L	0.99	0.40	1	11/24/20 09:05	11/25/20 01:46	108-60-1	1c
2-Chloronaphthalene	0.99 U	ug/L	0.99	0.33	1	11/24/20 09:05	11/25/20 01:46	91-58-7	1c
2-Chlorophenol	0.99 U	ug/L	0.99	0.32	1	11/24/20 09:05	11/25/20 01:46	95-57-8	1c
Chrysene	0.99 U	ug/L	0.99	0.20	1	11/24/20 09:05	11/25/20 01:46	218-01-9	1c
Dibenz(a,h)anthracene	0.99 U	ug/L	0.99	0.31	1	11/24/20 09:05	11/25/20 01:46	53-70-3	1c
3,3'-Dichlorobenzidine	0.99 U	ug/L	0.99	0.22	1	11/24/20 09:05	11/25/20 01:46	91-94-1	1c,L2
2,4-Dichlorophenol	0.99 U	ug/L	0.99	0.33	1	11/24/20 09:05	11/25/20 01:46	120-83-2	1c
Diethylphthalate	0.99 U	ug/L	0.99	0.36	1	11/24/20 09:05	11/25/20 01:46	84-66-2	1c
2,4-Dimethylphenol	1.0	ug/L	0.99	0.36	1	11/24/20 09:05	11/25/20 01:46	105-67-9	1c
Di-n-butylphthalate	0.99 U	ug/L	0.99	0.32	1	11/24/20 09:05	11/25/20 01:46	84-74-2	1c
2,4-Dinitrophenol	2.5 U	ug/L	2.5	0.58	1	11/24/20 09:05	11/25/20 01:46	51-28-5	1c,2c
2,4-Dinitrotoluene	0.99 U	ug/L	0.99	0.35	1	11/24/20 09:05	11/25/20 01:46	121-14-2	1c
2,6-Dinitrotoluene	0.99 U	ug/L	0.99	0.40	1	11/24/20 09:05	11/25/20 01:46	606-20-2	1c
Di-n-octylphthalate	0.99 U	ug/L	0.99	0.27	1	11/24/20 09:05	11/25/20 01:46	117-84-0	1c
bis(2-Ethylhexyl)phthalate	0.99 U	ug/L	0.99	0.36	1	11/24/20 09:05	11/25/20 01:46	117-81-7	1c
Fluoranthene	0.71J	ug/L	0.99	0.23	1	11/24/20 09:05	11/25/20 01:46	206-44-0	1c
Fluorene	0.99 U	ug/L	0.99	0.37	1	11/24/20 09:05	11/25/20 01:46	86-73-7	1c
Hexachloro-1,3-butadiene	0.99 U	ug/L	0.99	0.33	1	11/24/20 09:05	11/25/20 01:46	87-68-3	1c
Hexachlorobenzene	0.99 U	ug/L	0.99	0.30	1	11/24/20 09:05	11/25/20 01:46	118-74-1	1c
Hexachlorocyclopentadiene	0.99 U	ug/L	0.99	0.19	1	11/24/20 09:05	11/25/20 01:46	77-47-4	1c
Hexachloroethane	0.99 U	ug/L	0.99	0.30	1	11/24/20 09:05	11/25/20 01:46	67-72-1	1c
Indeno(1,2,3-cd)pyrene	0.99 U	ug/L	0.99	0.30	1	11/24/20 09:05	11/25/20 01:46	193-39-5	1c
Isophorone	0.99 U	ug/L	0.99	0.57	1	11/24/20 09:05	11/25/20 01:46	78-59-1	1c
2-Methylnaphthalene	0.99 U	ug/L	0.99	0.34	1	11/24/20 09:05	11/25/20 01:46	91-57-6	1c
2-Methylphenol(o-Cresol)	0.60J	ug/L	0.99	0.36	1	11/24/20 09:05	11/25/20 01:46	95-48-7	1c
3&4-Methylphenol(m&p Cresol)	2.0 U	ug/L	2.0	1.9	1	11/24/20 09:05	11/25/20 01:46		1c,B
Naphthalene	0.99 U	ug/L	0.99	0.35	1	11/24/20 09:05	11/25/20 01:46	91-20-3	1c
2-Nitroaniline	2.5 U	ug/L	2.5	0.71	1	11/24/20 09:05	11/25/20 01:46	88-74-4	1c

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30393515

**Sample: R21-MWP**      **Lab ID: 30393515007**      Collected: 11/18/20 15:05      Received: 11/18/20 22:15      Matrix: Water

Comments: • Samples in this workorder were received in the laboratory without an associated trip blank.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270D MSSV Organics</b>									
Analytical Method: EPA 8270D    Preparation Method: EPA 3510C									
Pace Analytical Services - Greensburg									
4-Nitroaniline	<b>2.5 U</b>	ug/L	2.5	1.8	1	11/24/20 09:05	11/25/20 01:46	100-01-6	1c
Nitrobenzene	<b>0.99 U</b>	ug/L	0.99	0.37	1	11/24/20 09:05	11/25/20 01:46	98-95-3	1c
N-Nitroso-di-n-propylamine	<b>0.99 U</b>	ug/L	0.99	0.53	1	11/24/20 09:05	11/25/20 01:46	621-64-7	1c
N-Nitrosodiphenylamine	<b>0.99 U</b>	ug/L	0.99	0.25	1	11/24/20 09:05	11/25/20 01:46	86-30-6	1c
Pentachlorophenol	<b>2.5 U</b>	ug/L	2.5	1.0	1	11/24/20 09:05	11/25/20 01:46	87-86-5	1c
Phenanthrene	<b>0.99 U</b>	ug/L	0.99	0.34	1	11/24/20 09:05	11/25/20 01:46	85-01-8	1c
Phenol	<b>0.99 U</b>	ug/L	0.99	0.22	1	11/24/20 09:05	11/25/20 01:46	108-95-2	1c
Pyrene	<b>0.46J</b>	ug/L	0.99	0.30	1	11/24/20 09:05	11/25/20 01:46	129-00-0	1c
1,2,4,5-Tetrachlorobenzene	<b>0.99 U</b>	ug/L	0.99	0.31	1	11/24/20 09:05	11/25/20 01:46	95-94-3	1c
2,3,4,6-Tetrachlorophenol	<b>0.99 U</b>	ug/L	0.99	0.28	1	11/24/20 09:05	11/25/20 01:46	58-90-2	1c
2,4,5-Trichlorophenol	<b>2.5 U</b>	ug/L	2.5	0.66	1	11/24/20 09:05	11/25/20 01:46	95-95-4	1c
2,4,6-Trichlorophenol	<b>0.99 U</b>	ug/L	0.99	0.36	1	11/24/20 09:05	11/25/20 01:46	88-06-2	1c
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	51	%	10-140		1	11/24/20 09:05	11/25/20 01:46	4165-60-0	
2-Fluorobiphenyl (S)	52	%	10-135		1	11/24/20 09:05	11/25/20 01:46	321-60-8	
Terphenyl-d14 (S)	77	%	10-128		1	11/24/20 09:05	11/25/20 01:46	1718-51-0	
Phenol-d6 (S)	18	%	10-145		1	11/24/20 09:05	11/25/20 01:46	13127-88-3	
2-Fluorophenol (S)	26	%	10-142		1	11/24/20 09:05	11/25/20 01:46	367-12-4	
2,4,6-Tribromophenol (S)	73	%	10-140		1	11/24/20 09:05	11/25/20 01:46	118-79-6	
<b>8260B MSV</b>									
Analytical Method: EPA 8260B									
Pace Analytical Services - Greensburg									
Acetone	<b>10.0 U</b>	ug/L	10.0	5.6	1		11/23/20 21:02	67-64-1	
Benzene	<b>1.0 U</b>	ug/L	1.0	0.34	1		11/23/20 21:02	71-43-2	
Bromodichloromethane	<b>1.0 U</b>	ug/L	1.0	0.35	1		11/23/20 21:02	75-27-4	
Bromoform	<b>1.0 U</b>	ug/L	1.0	0.56	1		11/23/20 21:02	75-25-2	L1
Bromomethane	<b>1.0 U</b>	ug/L	1.0	0.73	1		11/23/20 21:02	74-83-9	
2-Butanone (MEK)	<b>10.0 U</b>	ug/L	10.0	1.5	1		11/23/20 21:02	78-93-3	
Carbon disulfide	<b>1.0 U</b>	ug/L	1.0	0.32	1		11/23/20 21:02	75-15-0	
Carbon tetrachloride	<b>1.0 U</b>	ug/L	1.0	0.44	1		11/23/20 21:02	56-23-5	
Chlorobenzene	<b>1.0 U</b>	ug/L	1.0	0.26	1		11/23/20 21:02	108-90-7	
Chloroethane	<b>1.0 U</b>	ug/L	1.0	0.64	1		11/23/20 21:02	75-00-3	
Chloroform	<b>1.0 U</b>	ug/L	1.0	0.39	1		11/23/20 21:02	67-66-3	
Chloromethane	<b>1.0 U</b>	ug/L	1.0	0.40	1		11/23/20 21:02	74-87-3	
Cyclohexane	<b>10.0 U</b>	ug/L	10.0	0.33	1		11/23/20 21:02	110-82-7	
1,2-Dibromo-3-chloropropane	<b>5.0 U</b>	ug/L	5.0	0.55	1		11/23/20 21:02	96-12-8	
Dibromochloromethane	<b>1.0 U</b>	ug/L	1.0	0.43	1		11/23/20 21:02	124-48-1	
1,2-Dibromoethane (EDB)	<b>1.0 U</b>	ug/L	1.0	0.44	1		11/23/20 21:02	106-93-4	
1,2-Dichlorobenzene	<b>1.0 U</b>	ug/L	1.0	0.38	1		11/23/20 21:02	95-50-1	
1,3-Dichlorobenzene	<b>1.0 U</b>	ug/L	1.0	0.45	1		11/23/20 21:02	541-73-1	
1,4-Dichlorobenzene	<b>1.0 U</b>	ug/L	1.0	0.48	1		11/23/20 21:02	106-46-7	
Dichlorodifluoromethane	<b>1.0 U</b>	ug/L	1.0	0.63	1		11/23/20 21:02	75-71-8	
1,1-Dichloroethane	<b>0.49J</b>	ug/L	1.0	0.24	1		11/23/20 21:02	75-34-3	
1,2-Dichloroethane	<b>1.0 U</b>	ug/L	1.0	0.33	1		11/23/20 21:02	107-06-2	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30393515

**Sample: R21-MWP**      **Lab ID: 30393515007**      Collected: 11/18/20 15:05      Received: 11/18/20 22:15      Matrix: Water

Comments: • Samples in this workorder were received in the laboratory without an associated trip blank.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260B MSV</b>									
Analytical Method: EPA 8260B									
Pace Analytical Services - Greensburg									
1,2-Dichloroethene (Total)	2.0 U	ug/L	2.0	0.66	1		11/23/20 21:02	540-59-0	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.24	1		11/23/20 21:02	75-35-4	
cis-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.38	1		11/23/20 21:02	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.28	1		11/23/20 21:02	156-60-5	
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.28	1		11/23/20 21:02	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.29	1		11/23/20 21:02	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.32	1		11/23/20 21:02	10061-02-6	
Ethylbenzene	1.0 U	ug/L	1.0	0.40	1		11/23/20 21:02	100-41-4	
2-Hexanone	10.0 U	ug/L	10.0	0.58	1		11/23/20 21:02	591-78-6	
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.47	1		11/23/20 21:02	98-82-8	L1
Methyl acetate	5.0 U	ug/L	5.0	0.55	1		11/23/20 21:02	79-20-9	IH
Methylene Chloride	1.0 U	ug/L	1.0	0.64	1		11/23/20 21:02	75-09-2	
4-Methyl-2-pentanone (MIBK)	10.0 U	ug/L	10.0	0.42	1		11/23/20 21:02	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.25	1		11/23/20 21:02	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.33	1		11/23/20 21:02	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.47	1		11/23/20 21:02	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.39	1		11/23/20 21:02	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.32	1		11/23/20 21:02	108-88-3	
1,2,3-Trichlorobenzene	2.0 U	ug/L	2.0	0.89	1		11/23/20 21:02	87-61-6	
1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	0.73	1		11/23/20 21:02	120-82-1	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.38	1		11/23/20 21:02	71-55-6	L1
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.33	1		11/23/20 21:02	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.29	1		11/23/20 21:02	79-01-6	
Trichlorofluoromethane	1.0 U	ug/L	1.0	0.51	1		11/23/20 21:02	75-69-4	L1
1,1,2-Trichlorotrifluoroethane	50.0 U	ug/L	50.0	3.0	1		11/23/20 21:02	76-13-1	
Vinyl chloride	1.0 U	ug/L	1.0	0.29	1		11/23/20 21:02	75-01-4	L1
Xylene (Total)	3.0 U	ug/L	3.0	1.4	1		11/23/20 21:02	1330-20-7	
m&p-Xylene	2.0 U	ug/L	2.0	0.94	1		11/23/20 21:02	179601-23-1	
o-Xylene	1.0 U	ug/L	1.0	0.41	1		11/23/20 21:02	95-47-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	101	%	70-130		1		11/23/20 21:02	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	70-130		1		11/23/20 21:02	17060-07-0	
Toluene-d8 (S)	97	%	70-130		1		11/23/20 21:02	2037-26-5	
Dibromofluoromethane (S)	101	%	70-130		1		11/23/20 21:02	1868-53-7	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30393515

QC Batch: 424368 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30393515001, 30393515002, 30393515003, 30393515004, 30393515005, 30393515006

METHOD BLANK: 2051321 Matrix: Water  
Associated Lab Samples: 30393515001, 30393515002, 30393515003, 30393515004, 30393515005, 30393515006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	11/24/20 15:10	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	11/24/20 15:10	

LABORATORY CONTROL SAMPLE: 2051322

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	478	96	80-120	
Zinc, Dissolved	ug/L	500	476	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2051324 2051325

Parameter	Units	30393515001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	0.53J	500	500	518	520	103	104	75-125	0	20	
Zinc, Dissolved	ug/L	2750	500	500	3310	3310	112	112	75-125	0	20	

MATRIX SPIKE SAMPLE: 2051327

Parameter	Units	30393774005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	0.56J	500	522	104	75-125	
Zinc, Dissolved	ug/L	28.3	500	534	101	75-125	

SAMPLE DUPLICATE: 2051323

Parameter	Units	30393515001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	0.53J	0.50J		20	
Zinc, Dissolved	ug/L	2750	2720	1	20	

SAMPLE DUPLICATE: 2051326

Parameter	Units	30393774005 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	0.56J	0.67J		20	
Zinc, Dissolved	ug/L	28.3	28.0	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30393515

QC Batch: 424438 Analysis Method: EPA 8260B  
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV  
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30393515006, 30393515007

METHOD BLANK: 2051594 Matrix: Water

Associated Lab Samples: 30393515006, 30393515007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	1.0 U	1.0	0.38	11/23/20 12:45	
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0	0.47	11/23/20 12:45	
1,1,2-Trichloroethane	ug/L	1.0 U	1.0	0.33	11/23/20 12:45	
1,1,2-Trichlorotrifluoroethane	ug/L	50.0 U	50.0	3.0	11/23/20 12:45	
1,1-Dichloroethane	ug/L	1.0 U	1.0	0.24	11/23/20 12:45	
1,1-Dichloroethene	ug/L	1.0 U	1.0	0.24	11/23/20 12:45	
1,2,3-Trichlorobenzene	ug/L	2.0 U	2.0	0.89	11/23/20 12:45	
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0	0.73	11/23/20 12:45	
1,2-Dibromo-3-chloropropane	ug/L	5.0 U	5.0	0.55	11/23/20 12:45	
1,2-Dibromoethane (EDB)	ug/L	1.0 U	1.0	0.44	11/23/20 12:45	
1,2-Dichlorobenzene	ug/L	1.0 U	1.0	0.38	11/23/20 12:45	
1,2-Dichloroethane	ug/L	1.0 U	1.0	0.33	11/23/20 12:45	
1,2-Dichloroethene (Total)	ug/L	2.0 U	2.0	0.66	11/23/20 12:45	
1,2-Dichloropropane	ug/L	1.0 U	1.0	0.28	11/23/20 12:45	
1,3-Dichlorobenzene	ug/L	1.0 U	1.0	0.45	11/23/20 12:45	
1,4-Dichlorobenzene	ug/L	1.0 U	1.0	0.48	11/23/20 12:45	
2-Butanone (MEK)	ug/L	10.0 U	10.0	1.5	11/23/20 12:45	
2-Hexanone	ug/L	10.0 U	10.0	0.58	11/23/20 12:45	
4-Methyl-2-pentanone (MIBK)	ug/L	10.0 U	10.0	0.42	11/23/20 12:45	
Acetone	ug/L	10.0 U	10.0	5.6	11/23/20 12:45	
Benzene	ug/L	1.0 U	1.0	0.34	11/23/20 12:45	
Bromodichloromethane	ug/L	1.0 U	1.0	0.35	11/23/20 12:45	
Bromoform	ug/L	1.0 U	1.0	0.56	11/23/20 12:45	
Bromomethane	ug/L	1.0 U	1.0	0.73	11/23/20 12:45	
Carbon disulfide	ug/L	1.0 U	1.0	0.32	11/23/20 12:45	
Carbon tetrachloride	ug/L	1.0 U	1.0	0.44	11/23/20 12:45	
Chlorobenzene	ug/L	1.0 U	1.0	0.26	11/23/20 12:45	
Chloroethane	ug/L	1.0 U	1.0	0.64	11/23/20 12:45	
Chloroform	ug/L	1.0 U	1.0	0.39	11/23/20 12:45	
Chloromethane	ug/L	1.0 U	1.0	0.40	11/23/20 12:45	
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0	0.38	11/23/20 12:45	
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0	0.29	11/23/20 12:45	
Cyclohexane	ug/L	10.0 U	10.0	0.33	11/23/20 12:45	
Dibromochloromethane	ug/L	1.0 U	1.0	0.43	11/23/20 12:45	
Dichlorodifluoromethane	ug/L	1.0 U	1.0	0.63	11/23/20 12:45	
Ethylbenzene	ug/L	1.0 U	1.0	0.40	11/23/20 12:45	
Isopropylbenzene (Cumene)	ug/L	1.0 U	1.0	0.47	11/23/20 12:45	
m&p-Xylene	ug/L	2.0 U	2.0	0.94	11/23/20 12:45	
Methyl acetate	ug/L	5.0 U	5.0	0.55	11/23/20 12:45	IH
Methyl-tert-butyl ether	ug/L	1.0 U	1.0	0.25	11/23/20 12:45	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30393515

METHOD BLANK: 2051594 Matrix: Water  
Associated Lab Samples: 30393515006, 30393515007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Methylene Chloride	ug/L	1.0 U	1.0	0.64	11/23/20 12:45	
o-Xylene	ug/L	1.0 U	1.0	0.41	11/23/20 12:45	
Styrene	ug/L	1.0 U	1.0	0.33	11/23/20 12:45	
Tetrachloroethene	ug/L	1.0 U	1.0	0.39	11/23/20 12:45	
Toluene	ug/L	1.0 U	1.0	0.32	11/23/20 12:45	
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0	0.28	11/23/20 12:45	
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0	0.32	11/23/20 12:45	
Trichloroethene	ug/L	1.0 U	1.0	0.29	11/23/20 12:45	
Trichlorofluoromethane	ug/L	1.0 U	1.0	0.51	11/23/20 12:45	
Vinyl chloride	ug/L	1.0 U	1.0	0.29	11/23/20 12:45	
Xylene (Total)	ug/L	3.0 U	3.0	1.4	11/23/20 12:45	
1,2-Dichloroethane-d4 (S)	%	101	70-130		11/23/20 12:45	
4-Bromofluorobenzene (S)	%	106	70-130		11/23/20 12:45	
Dibromofluoromethane (S)	%	99	70-130		11/23/20 12:45	
Toluene-d8 (S)	%	104	70-130		11/23/20 12:45	

LABORATORY CONTROL SAMPLE: 2051595

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	26.3	132	70-130	L1
1,1,2,2-Tetrachloroethane	ug/L	20	22.6	113	70-130	
1,1,2-Trichloroethane	ug/L	20	23.1	116	70-130	
1,1,2-Trichlorotrifluoroethane	ug/L	20	24.6J	123	61-138	
1,1-Dichloroethane	ug/L	20	25.7	129	70-130	
1,1-Dichloroethene	ug/L	20	23.1	116	70-130	
1,2,3-Trichlorobenzene	ug/L	20	19.3	97	70-130	
1,2,4-Trichlorobenzene	ug/L	20	20.2	101	70-130	
1,2-Dibromo-3-chloropropane	ug/L	20	20.9	104	59-122	
1,2-Dibromoethane (EDB)	ug/L	20	22.2	111	70-130	
1,2-Dichlorobenzene	ug/L	20	22.7	113	70-130	
1,2-Dichloroethane	ug/L	20	22.5	112	70-130	
1,2-Dichloroethene (Total)	ug/L	40	48.7	122	70-130	
1,2-Dichloropropane	ug/L	20	24.3	122	70-130	
1,3-Dichlorobenzene	ug/L	20	23.7	118	70-130	
1,4-Dichlorobenzene	ug/L	20	23.0	115	70-130	
2-Butanone (MEK)	ug/L	20	18.2	91	70-130	
2-Hexanone	ug/L	20	18.6	93	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	20	19.9	99	70-130	
Acetone	ug/L	20	21.7	109	67-173	
Benzene	ug/L	20	23.1	115	70-130	
Bromodichloromethane	ug/L	20	25.2	126	70-130	
Bromoform	ug/L	20	25.8	129	63-119	L1
Bromomethane	ug/L	20	22.5	113	24-159	
Carbon disulfide	ug/L	20	22.3	112	57-132	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30393515

LABORATORY CONTROL SAMPLE: 2051595

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	ug/L	20	25.6	128	70-130	
Chlorobenzene	ug/L	20	23.6	118	70-130	
Chloroethane	ug/L	20	27.7	139	62-145	
Chloroform	ug/L	20	23.1	116	70-130	
Chloromethane	ug/L	20	25.3	126	66-140	
cis-1,2-Dichloroethene	ug/L	20	23.2	116	70-130	
cis-1,3-Dichloropropene	ug/L	20	24.9	124	70-130	
Cyclohexane	ug/L	20	23.6	118	63-128	
Dibromochloromethane	ug/L	20	23.3	116	70-130	
Dichlorodifluoromethane	ug/L	20	31.0	155	62-162	
Ethylbenzene	ug/L	20	23.2	116	70-130	
Isopropylbenzene (Cumene)	ug/L	20	28.3	142	70-130	L1
m&p-Xylene	ug/L	40	46.1	115	70-130	
Methyl acetate	ug/L	20	29.1	145	37-158	IH
Methyl-tert-butyl ether	ug/L	20	21.2	106	70-130	
Methylene Chloride	ug/L	20	24.8	124	70-130	
o-Xylene	ug/L	20	22.5	112	70-130	
Styrene	ug/L	20	23.8	119	70-130	
Tetrachloroethene	ug/L	20	22.9	114	70-130	
Toluene	ug/L	20	23.0	115	70-130	
trans-1,2-Dichloroethene	ug/L	20	25.5	128	70-130	
trans-1,3-Dichloropropene	ug/L	20	22.8	114	70-130	
Trichloroethene	ug/L	20	24.0	120	70-130	
Trichlorofluoromethane	ug/L	20	27.5	137	70-130	L1
Vinyl chloride	ug/L	20	27.6	138	70-130	L1
Xylene (Total)	ug/L	60	68.5	114	70-130	
1,2-Dichloroethane-d4 (S)	%			102	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Dibromofluoromethane (S)	%			100	70-130	
Toluene-d8 (S)	%			97	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2051596 2051597

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40218447002 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1-Trichloroethane	ug/L	<1.0	20	20	23.4	27.3	117	136	55-146	15	30		
1,1,2,2-Tetrachloroethane	ug/L	<1.0	20	20	20.8	20.5	104	102	55-118	2	30		
1,1,2-Trichloroethane	ug/L	<1.0	20	20	20.4	21.9	102	110	61-122	7	30		
1,1,2-Trichlorotrifluoroethane	ug/L	<50.0	20	20	23.9J	24.3J	119	121	42-134		30		
1,1-Dichloroethane	ug/L	<1.0	20	20	25.0	22.1	125	110	59-130	12	30		
1,1-Dichloroethene	ug/L	<1.0	20	20	21.8	21.9	109	109	52-119	0	30		
1,2,3-Trichlorobenzene	ug/L	<2.0	20	20	11.4	17.4	57	87	45-126	41	30	R1	
1,2,4-Trichlorobenzene	ug/L	<1.0	20	20	12.2	17.9	61	89	38-146	37	30	R1	
1,2-Dibromo-3-chloropropane	ug/L	<5.0	20	20	16.8	20.6	84	103	32-112	20	30		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling

Pace Project No.: 30393515

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2051596												2051597											
Parameter	Units	40218447002		MS	MSD	MS		MSD		% Rec		Max		Qual									
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD											
1,2-Dibromoethane (EDB)	ug/L	<1.0	20	20	19.1	21.2	95	106	61-116	11	30												
1,2-Dichlorobenzene	ug/L	<1.0	20	20	18.8	22.2	94	111	58-126	17	30												
1,2-Dichloroethane	ug/L	<1.0	20	20	20.5	23.3	103	116	49-135	13	30												
1,2-Dichloroethene (Total)	ug/L	<2.0	40	40	46.5	42.8	116	107	61-119	8	30												
1,2-Dichloropropane	ug/L	<1.0	20	20	21.5	20.2	108	101	67-121	7	30												
1,3-Dichlorobenzene	ug/L	<1.0	20	20	20.0	22.6	100	113	56-130	12	30												
1,4-Dichlorobenzene	ug/L	<1.0	20	20	19.8	21.5	99	108	60-121	8	30												
2-Butanone (MEK)	ug/L	<10.0	20	20	17.4	20.3	87	102	59-138	15	30												
2-Hexanone	ug/L	<10.0	20	20	18.4	20.2	92	101	66-123	9	30												
4-Methyl-2-pentanone (MIBK)	ug/L	<10.0	20	20	22.7	20.0	113	100	70-130	12	30												
Acetone	ug/L	<10.0	20	20	27.2	23.8	136	119	57-140	13	30												
Benzene	ug/L	<1.0	20	20	18.9	20.9	95	105	50-149	10	30												
Bromodichloromethane	ug/L	<1.0	20	20	23.8	23.7	119	119	46-131	0	30												
Bromoform	ug/L	<1.0	20	20	20.4	23.8	102	119	30-119	16	30												
Bromomethane	ug/L	<1.0	20	20	14.1	13.9	70	70	10-163	1	30												
Carbon disulfide	ug/L	<1.0	20	20	21.0	19.7	105	99	41-116	6	30												
Carbon tetrachloride	ug/L	<1.0	20	20	25.0	26.7	125	133	55-119	7	30	MH											
Chlorobenzene	ug/L	<1.0	20	20	20.4	22.6	102	113	66-124	10	30												
Chloroethane	ug/L	<1.0	20	20	26.5	17.9	133	90	45-162	39	30	R1											
Chloroform	ug/L	<1.0	20	20	22.6	21.7	113	109	56-123	4	30												
Chloromethane	ug/L	<1.0	20	20	25.9	20.9	130	104	49-150	22	30												
cis-1,2-Dichloroethene	ug/L	<1.0	20	20	21.0	20.9	105	105	63-116	0	30												
cis-1,3-Dichloropropene	ug/L	<1.0	20	20	23.4	20.3	117	101	46-119	14	30												
Cyclohexane	ug/L	<10.0	20	20	22.8	22.6	114	113	51-130	1	30												
Dibromochloromethane	ug/L	<1.0	20	20	20.1	23.4	101	117	42-120	15	30												
Dichlorodifluoromethane	ug/L	<1.0	20	20	31.9	23.0	159	115	59-155	33	30	MH,R1											
Ethylbenzene	ug/L	<1.0	20	20	20.6	22.5	103	112	63-135	9	30												
Isopropylbenzene (Cumene)	ug/L	<1.0	20	20	23.6	26.1	118	131	50-167	10	30												
m&p-Xylene	ug/L	<2.0	40	40	40.0	44.2	100	110	63-135	10	30												
Methyl acetate	ug/L	<5.0	20	20	26.3	20.7	131	103	17-145	24	30	IH											
Methyl-tert-butyl ether	ug/L	<1.0	20	20	22.6	19.5	113	97	53-123	15	30												
Methylene Chloride	ug/L	<1.0	20	20	22.6	19.1	113	95	57-132	17	30												
o-Xylene	ug/L	<1.0	20	20	19.3	21.6	97	108	57-133	11	30												
Styrene	ug/L	<1.0	20	20	20.2	22.2	101	111	58-130	9	30												
Tetrachloroethene	ug/L	<1.0	20	20	21.0	24.0	105	120	61-132	13	30												
Toluene	ug/L	<1.0	20	20	20.7	21.9	103	110	59-139	6	30												
trans-1,2-Dichloroethene	ug/L	<1.0	20	20	25.5	21.9	128	109	60-124	15	30	MH											
trans-1,3-Dichloropropene	ug/L	<1.0	20	20	19.5	21.0	97	105	48-121	7	30												
Trichloroethene	ug/L	<1.0	20	20	22.2	24.7	111	123	63-128	11	30												
Trichlorofluoromethane	ug/L	<1.0	20	20	25.9	26.5	129	133	70-152	2	30												
Vinyl chloride	ug/L	<1.0	20	20	27.5	21.1	137	105	67-141	26	30												
Xylene (Total)	ug/L	<3.0	60	60	59.3	65.7	99	110	63-135	10	30												
1,2-Dichloroethane-d4 (S)	%							105	109	70-130													
4-Bromofluorobenzene (S)	%							104	106	70-130													

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30393515

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2051596		2051597		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40218447002 Result	MS Spike Conc.	MSD Spike Conc.									
Dibromofluoromethane (S)	%.							97	103	70-130			
Toluene-d8 (S)	%.							99	99	70-130			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30393515

QC Batch: 424573      Analysis Method: EPA 8270D  
QC Batch Method: EPA 3510C      Analysis Description: 8270D Water MSSV  
Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30393515006, 30393515007

METHOD BLANK: 2052161      Matrix: Water

Associated Lab Samples: 30393515006, 30393515007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2,4,5-Tetrachlorobenzene	ug/L	1.0 U	1.0	0.31	11/24/20 21:42	
2,3,4,6-Tetrachlorophenol	ug/L	1.0 U	1.0	0.28	11/24/20 21:42	
2,4,5-Trichlorophenol	ug/L	2.5 U	2.5	0.67	11/24/20 21:42	
2,4,6-Trichlorophenol	ug/L	1.0 U	1.0	0.37	11/24/20 21:42	
2,4-Dichlorophenol	ug/L	1.0 U	1.0	0.34	11/24/20 21:42	
2,4-Dimethylphenol	ug/L	1.0 U	1.0	0.36	11/24/20 21:42	
2,4-Dinitrophenol	ug/L	2.5 U	2.5	0.58	11/24/20 21:42	2c
2,4-Dinitrotoluene	ug/L	1.0 U	1.0	0.36	11/24/20 21:42	
2,6-Dinitrotoluene	ug/L	1.0 U	1.0	0.40	11/24/20 21:42	
2-Chloronaphthalene	ug/L	1.0 U	1.0	0.33	11/24/20 21:42	
2-Chlorophenol	ug/L	1.0 U	1.0	0.32	11/24/20 21:42	
2-Methylnaphthalene	ug/L	1.0 U	1.0	0.34	11/24/20 21:42	
2-Methylphenol(o-Cresol)	ug/L	1.0 U	1.0	0.37	11/24/20 21:42	
2-Nitroaniline	ug/L	2.5 U	2.5	0.71	11/24/20 21:42	
3&4-Methylphenol(m&p Cresol)	ug/L	5.4	2.0	1.9	11/24/20 21:42	B
3,3'-Dichlorobenzidine	ug/L	1.0 U	1.0	0.23	11/24/20 21:42	
4-Chloroaniline	ug/L	1.0 U	1.0	0.21	11/24/20 21:42	
4-Nitroaniline	ug/L	2.5 U	2.5	1.9	11/24/20 21:42	
Acenaphthene	ug/L	1.0 U	1.0	0.39	11/24/20 21:42	
Acenaphthylene	ug/L	1.0 U	1.0	0.38	11/24/20 21:42	
Acetophenone	ug/L	1.0 U	1.0	0.42	11/24/20 21:42	
Anthracene	ug/L	1.0 U	1.0	0.27	11/24/20 21:42	
Benzaldehyde	ug/L	1.0 U	1.0	0.43	11/24/20 21:42	
Benzo(a)anthracene	ug/L	1.0 U	1.0	0.20	11/24/20 21:42	
Benzo(a)pyrene	ug/L	1.0 U	1.0	0.18	11/24/20 21:42	
Benzo(b)fluoranthene	ug/L	1.0 U	1.0	0.24	11/24/20 21:42	
Benzo(g,h,i)perylene	ug/L	1.0 U	1.0	0.30	11/24/20 21:42	
Benzo(k)fluoranthene	ug/L	1.0 U	1.0	0.26	11/24/20 21:42	
Biphenyl (Diphenyl)	ug/L	1.0 U	1.0	0.32	11/24/20 21:42	
bis(2-Chloroethoxy)methane	ug/L	1.0 U	1.0	0.36	11/24/20 21:42	
bis(2-Chloroethyl) ether	ug/L	1.0 U	1.0	0.41	11/24/20 21:42	
bis(2-Chloroisopropyl) ether	ug/L	1.0 U	1.0	0.40	11/24/20 21:42	
bis(2-Ethylhexyl)phthalate	ug/L	1.0 U	1.0	0.36	11/24/20 21:42	
Caprolactam	ug/L	2.5 U	2.5	0.32	11/24/20 21:42	
Carbazole	ug/L	1.0 U	1.0	0.23	11/24/20 21:42	
Chrysene	ug/L	1.0 U	1.0	0.21	11/24/20 21:42	
Di-n-butylphthalate	ug/L	1.0 U	1.0	0.32	11/24/20 21:42	
Di-n-octylphthalate	ug/L	1.0 U	1.0	0.27	11/24/20 21:42	
Dibenz(a,h)anthracene	ug/L	1.0 U	1.0	0.31	11/24/20 21:42	
Diethylphthalate	ug/L	1.0 U	1.0	0.36	11/24/20 21:42	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30393515

METHOD BLANK: 2052161 Matrix: Water  
Associated Lab Samples: 30393515006, 30393515007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoranthene	ug/L	1.0 U	1.0	0.23	11/24/20 21:42	
Fluorene	ug/L	1.0 U	1.0	0.37	11/24/20 21:42	
Hexachloro-1,3-butadiene	ug/L	1.0 U	1.0	0.33	11/24/20 21:42	
Hexachlorobenzene	ug/L	1.0 U	1.0	0.30	11/24/20 21:42	
Hexachlorocyclopentadiene	ug/L	1.0 U	1.0	0.19	11/24/20 21:42	
Hexachloroethane	ug/L	1.0 U	1.0	0.30	11/24/20 21:42	
Indeno(1,2,3-cd)pyrene	ug/L	1.0 U	1.0	0.30	11/24/20 21:42	
Isophorone	ug/L	1.0 U	1.0	0.57	11/24/20 21:42	
N-Nitroso-di-n-propylamine	ug/L	1.0 U	1.0	0.54	11/24/20 21:42	
N-Nitrosodiphenylamine	ug/L	1.0 U	1.0	0.25	11/24/20 21:42	
Naphthalene	ug/L	1.0 U	1.0	0.35	11/24/20 21:42	
Nitrobenzene	ug/L	1.0 U	1.0	0.38	11/24/20 21:42	
Pentachlorophenol	ug/L	2.5 U	2.5	1.0	11/24/20 21:42	
Phenanthrene	ug/L	1.0 U	1.0	0.34	11/24/20 21:42	
Phenol	ug/L	1.0 U	1.0	0.22	11/24/20 21:42	
Pyrene	ug/L	1.0 U	1.0	0.30	11/24/20 21:42	
2,4,6-Tribromophenol (S)	%	77	10-140		11/24/20 21:42	
2-Fluorobiphenyl (S)	%	58	10-135		11/24/20 21:42	
2-Fluorophenol (S)	%	39	10-142		11/24/20 21:42	
Nitrobenzene-d5 (S)	%	60	10-140		11/24/20 21:42	
Phenol-d6 (S)	%	29	10-145		11/24/20 21:42	
Terphenyl-d14 (S)	%	92	10-128		11/24/20 21:42	

LABORATORY CONTROL SAMPLE: 2052162

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4,5-Tetrachlorobenzene	ug/L	10	5.7	57	28-99	
2,3,4,6-Tetrachlorophenol	ug/L	10	8.0	80	33-115	
2,4,5-Trichlorophenol	ug/L	10	7.4	74	57-113	
2,4,6-Trichlorophenol	ug/L	10	7.4	74	45-122	
2,4-Dichlorophenol	ug/L	10	6.6	66	33-96	
2,4-Dimethylphenol	ug/L	10	6.5	65	19-87	
2,4-Dinitrophenol	ug/L	10	10	100	15-119	2c
2,4-Dinitrotoluene	ug/L	10	8.0	80	40-119	
2,6-Dinitrotoluene	ug/L	10	7.3	73	50-116	
2-Chloronaphthalene	ug/L	10	6.0	60	30-101	
2-Chlorophenol	ug/L	10	6.1	61	27-97	
2-Methylnaphthalene	ug/L	10	5.8	58	24-91	
2-Methylphenol(o-Cresol)	ug/L	10	5.9	59	10-175	
2-Nitroaniline	ug/L	10	7.2	72	48-120	
3&4-Methylphenol(m&p Cresol)	ug/L	20	25.7	129	21-131	E
3,3'-Dichlorobenzidine	ug/L	10	3.7	37	49-117	L2
4-Chloroaniline	ug/L	10	5.2	52	22-79	
4-Nitroaniline	ug/L	10	8.6	86	46-136	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling

Pace Project No.: 30393515

LABORATORY CONTROL SAMPLE: 2052162

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	10	6.0	60	36-106	
Acenaphthylene	ug/L	10	6.1	61	35-103	
Acetophenone	ug/L	10	6.4	64	30-107	
Anthracene	ug/L	10	7.7	77	56-106	
Benzaldehyde	ug/L	10	4.0	40	10-128	
Benzo(a)anthracene	ug/L	10	9.3	93	64-124	
Benzo(a)pyrene	ug/L	10	9.2	92	61-115	
Benzo(b)fluoranthene	ug/L	10	9.3	93	58-133	
Benzo(g,h,i)perylene	ug/L	10	9.3	93	40-142	
Benzo(k)fluoranthene	ug/L	10	9.7	97	61-121	
Biphenyl (Diphenyl)	ug/L	10	6.0	60	29-103	
bis(2-Chloroethoxy)methane	ug/L	10	6.3	63	33-96	
bis(2-Chloroethyl) ether	ug/L	10	5.9	59	25-98	
bis(2-Chloroisopropyl) ether	ug/L	10	5.9	59	23-104	
bis(2-Ethylhexyl)phthalate	ug/L	10	9.7	97	65-141	
Caprolactam	ug/L	10	3.2	32	10-39	
Carbazole	ug/L	10	7.7	77	59-112	
Chrysene	ug/L	10	9.1	91	63-120	
Di-n-butylphthalate	ug/L	10	9.2	92	69-126	
Di-n-octylphthalate	ug/L	10	9.9	99	61-145	
Dibenz(a,h)anthracene	ug/L	10	9.5	95	52-138	
Diethylphthalate	ug/L	10	8.0	80	61-117	
Fluoranthene	ug/L	10	8.8	88	65-119	
Fluorene	ug/L	10	6.8	68	44-110	
Hexachloro-1,3-butadiene	ug/L	10	5.2	52	13-112	
Hexachlorobenzene	ug/L	10	7.0	70	17-121	
Hexachlorocyclopentadiene	ug/L	10	5.5	55	10-83	
Hexachloroethane	ug/L	10	4.9	49	13-108	
Indeno(1,2,3-cd)pyrene	ug/L	10	9.5	95	48-140	
Isophorone	ug/L	10	6.4	64	34-93	
N-Nitroso-di-n-propylamine	ug/L	10	6.4	64	34-106	
N-Nitrosodiphenylamine	ug/L	10	6.3	63	34-97	
Naphthalene	ug/L	10	5.7	57	23-90	
Nitrobenzene	ug/L	10	6.0	60	26-128	
Pentachlorophenol	ug/L	10	12.0	120	37-125	
Phenanthrene	ug/L	10	7.8	78	56-112	
Phenol	ug/L	10	3.3	33	10-58	
Pyrene	ug/L	10	8.7	87	56-128	
2,4,6-Tribromophenol (S)	%			74	10-140	
2-Fluorobiphenyl (S)	%			57	10-135	
2-Fluorophenol (S)	%			39	10-142	
Nitrobenzene-d5 (S)	%			59	10-140	
Phenol-d6 (S)	%			29	10-145	
Terphenyl-d14 (S)	%			86	10-128	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## QUALIFIERS

Project: RWM GW Sampling  
Pace Project No.: 30393515

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### BATCH QUALIFIERS

Batch: 424573

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

1c A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

2c The read back of the low concentration calibration standard for this compound is not within 30% of the true value. The results may be biased low and should be considered estimated.

B Analyte was detected in the associated method blank.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

IH This analyte exceeded secondary source verification criteria high for the initial calibration. The reported results should be considered an estimated value.

L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

MH Matrix spike recovery and/or matrix spike duplicate recovery was above laboratory control limits. Result may be biased high.

R1 RPD value was outside control limits.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30393515

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30393515001	RWO-MWS	EPA 3005A	424368	EPA 6010C	424475
30393515002	RWO-MWI	EPA 3005A	424368	EPA 6010C	424475
30393515003	RWH-MWI	EPA 3005A	424368	EPA 6010C	424475
30393515004	RWH-MWS	EPA 3005A	424368	EPA 6010C	424475
30393515005	R21-MWI	EPA 3005A	424368	EPA 6010C	424475
30393515006	R21-MWS	EPA 3005A	424368	EPA 6010C	424475
30393515006	R21-MWS	EPA 3510C	424573	EPA 8270D	424673
30393515007	R21-MWP	EPA 3510C	424573	EPA 8270D	424673
30393515006	R21-MWS	EPA 8260B	424438		
30393515007	R21-MWP	EPA 8260B	424438		

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be complete



30393515

**Section A**  
Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To:  
Phone:  
Fax:  
Requested Due Date/TAT: 5 day

**Section B**  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis  
PO Number:  
Project Name: RWM GW Sampling  
Project Number: 20010103

**Section C**  
Invoice Information:  
At Attention: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, MD 21219  
Pace Quote Reference:  
Pace Project Manager: Samantha Bayura  
Pace Profile #:

**REGULATORY AGENCY**  
NPDES  GROUND WATER  DRINKING WATER   
UST  RORA  OTHER   
Site Location: MD  
STATE: MD

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WASTE WATER WW PRODUCT P SOILSOLID SL OIL OL WIPE WI AIR AR OTHER OT TISSUE TS	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES		Analysis Test ↑ DI Water Other Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> NaOH HCl HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> Unpreserved	Dissolved Cadmium Dissolved Zinc VOC SVOC	Pace Project No./ Lab I.D.	
		COMPOSITE START	COMPOSITE END/GRAB				DATE	TIME				DATE
1	RW0-MWS			WTG		1				X		001
2	RW0-MWI			WTG		1				X		002
3	RWH-MWI			WTG		1				X		003
4	RWH-MWS			WTG		1				X		004
5	RW21-MWS			WTG		62				X		005
6	RW21-MWS			WTG		52				X		006
7	RW21-MWP			WTG		3				X		007
8												
9												
10												
11												
12												

**Section D**  
Requested Analysis Filtered (Y/N)

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Stew Kabis	11/18/20	1600	Stew Kabis	11-18-20	1600	
Stew Kabis	11/18/20	1915	Stew Kabis	11/18/20	1930	Y
Stew Kabis	11/18/20	2015	Stew Kabis	11-18-200	2015	Y

Received on (Y/N) \_\_\_\_\_  
Cooler Sealed (Y/N) \_\_\_\_\_  
Samples Intact (Y/N) \_\_\_\_\_

DATE Signed (MM/DD/YY): 11/18/20

DATE Signed (MM/DD/YY): 11/18/20

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt

#30393515



Client Name: Tradeport Atlantic Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Label	MCC
LIMS Login	MCC

Tracking #: N/A

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Thermometer Used 9 Type of Ice:  Wet  Blue  None

Cooler Temperature Observed Temp 2.2 °C Correction Factor: -1 °C Final Temp: 2.1 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents: <u>MCC 11/19/2010</u>
	Yes	No	N/A	
Chain of Custody Present:	/			1.
Chain of Custody Filled Out:	/			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:	/			4.
Sample Labels match COC:	/			5.
-Includes date/time/ID Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	/			6.
Short Hold Time Analysis (<72hr remaining):	/			7.
Rush Turn Around Time Requested:	/			8.
Sufficient Volume:	/			9.
Correct Containers Used:	/			10.
-Pace Containers Used:	/			
Containers Intact:	/			11.
Orthophosphate field filtered			/	12.
Hex Cr Aqueous sample field filtered			/	13.
Organic Samples checked for dechlorination:	/			14.
Filtered volume received for Dissolved tests	/			15.
All containers have been checked for preservation.	/			16.
exceptions: <u>VOA</u> coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	/			Initial when completed: <u>MCC</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):	/			17.
Trip Blank Present:	/			18.
Trip Blank Custody Seals Present	/			
Rad Samples Screened < 0.5 mrem/hr	/			Initial when completed: _____ Date: _____

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)  
 \*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

November 25, 2020

Mr. Matthew Newman  
Tradepoint Atlantic  
1600 Sparrow's Point Boulevard  
Sparrows Point, MD 21219

RE: Project: RWM GW Sampling  
Pace Project No.: 30393774

Dear Mr. Newman:

Enclosed are the analytical results for sample(s) received by the laboratory on November 19, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Samantha Bayura  
samantha.bayura@pacelabs.com  
(724)850-5622  
Project Manager

Enclosures

cc: Ms. Penny Gardner, Environmental Data Quality, Inc.  
J.Price, ARM Group Inc.  
Mr. Stewart Kabis, ARM Group Inc.  
Mr. Eric S. Magdar, ARM Group Inc.  
Ms. Shawne M. Rodgers, Environmental Data Quality, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## CERTIFICATIONS

Project: RWM GW Sampling  
Pace Project No.: 30393774

---

### **Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## SAMPLE SUMMARY

Project: RWM GW Sampling  
Pace Project No.: 30393774

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30393774001	RW02-MWI	Water	11/19/20 08:50	11/19/20 22:15
30393774002	RW02-MWS	Water	11/19/20 09:35	11/19/20 22:15
30393774003	RW01-MWI	Water	11/19/20 10:25	11/19/20 22:15
30393774004	RW01-MWS	Water	11/19/20 11:15	11/19/20 22:15
30393774005	RW08-MWI	Water	11/19/20 12:45	11/19/20 22:15
30393774006	RW08-MWS	Water	11/19/20 14:00	11/19/20 22:15

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### SAMPLE ANALYTE COUNT

Project: RWM GW Sampling  
Pace Project No.: 30393774

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30393774001	RW02-MWI	EPA 6010C	KAS	2	PASI-PA
30393774002	RW02-MWS	EPA 6010C	KAS	2	PASI-PA
30393774003	RW01-MWI	EPA 6010C	KAS	2	PASI-PA
30393774004	RW01-MWS	EPA 6010C	KAS	2	PASI-PA
30393774005	RW08-MWI	EPA 6010C	KAS	2	PASI-PA
30393774006	RW08-MWS	EPA 6010C	KAS	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30393774

Sample: RW02-MWI		Lab ID: 30393774001		Collected: 11/19/20 08:50	Received: 11/19/20 22:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>208</b>	ug/L	3.0	0.34	1	11/23/20 08:02	11/24/20 15:51	7440-43-9	
Zinc, Dissolved	<b>20200</b>	ug/L	1000	238	100	11/23/20 08:02	11/24/20 16:25	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30393774

Sample: RW02-MWS		Lab ID: 30393774002		Collected: 11/19/20 09:35	Received: 11/19/20 22:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.58J</b>	ug/L	3.0	0.34	1	11/23/20 08:02	11/24/20 15:55	7440-43-9	
Zinc, Dissolved	<b>9950</b>	ug/L	1000	238	100	11/23/20 08:02	11/24/20 16:27	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30393774

**Sample: RW01-MWI**      **Lab ID: 30393774003**      Collected: 11/19/20 10:25      Received: 11/19/20 22:15      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A									
Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>162</b>	ug/L	3.0	0.34	1	11/23/20 08:02	11/24/20 15:57	7440-43-9	
Zinc, Dissolved	<b>15200</b>	ug/L	1000	238	100	11/23/20 08:02	11/24/20 16:29	7440-66-6	

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30393774

Sample: RW01-MWS		Lab ID: 30393774004		Collected: 11/19/20 11:15	Received: 11/19/20 22:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>1.1J</b>	ug/L	3.0	0.34	1	11/23/20 08:02	11/24/20 16:00	7440-43-9	
Zinc, Dissolved	<b>4140</b>	ug/L	10.0	2.4	1	11/23/20 08:02	11/24/20 16:00	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## ANALYTICAL RESULTS

Project: RWM GW Sampling  
Pace Project No.: 30393774

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: RW08-MWI      Lab ID: 30393774005      Collected: 11/19/20 12:45      Received: 11/19/20 22:15      Matrix: Water</b>									
<b>6010C MET ICP,Dissolved</b>									
Analytical Method: EPA 6010C    Preparation Method: EPA 3005A Pace Analytical Services - Greensburg									
Cadmium, Dissolved	<b>0.56J</b>	ug/L	3.0	0.34	1	11/23/20 08:02	11/24/20 16:02	7440-43-9	
Zinc, Dissolved	<b>28.3</b>	ug/L	10.0	2.4	1	11/23/20 08:02	11/24/20 16:02	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### ANALYTICAL RESULTS

Project: RWM GW Sampling

Pace Project No.: 30393774

Sample: RW08-MWS		Lab ID: 30393774006		Collected: 11/19/20 14:00	Received: 11/19/20 22:15	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010C MET ICP,Dissolved</b>		Analytical Method: EPA 6010C Preparation Method: EPA 3005A Pace Analytical Services - Greensburg							
Cadmium, Dissolved	<b>0.37J</b>	ug/L	3.0	0.34	1	11/23/20 08:02	11/24/20 16:14	7440-43-9	
Zinc, Dissolved	<b>1600</b>	ug/L	10.0	2.4	1	11/23/20 08:02	11/24/20 16:14	7440-66-6	

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA

Project: RWM GW Sampling  
Pace Project No.: 30393774

QC Batch: 424368 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3005A Analysis Description: 6010C MET Dissolved  
Laboratory: Pace Analytical Services - Greensburg  
Associated Lab Samples: 30393774001, 30393774002, 30393774003, 30393774004, 30393774005, 30393774006

METHOD BLANK: 2051321 Matrix: Water  
Associated Lab Samples: 30393774001, 30393774002, 30393774003, 30393774004, 30393774005, 30393774006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cadmium, Dissolved	ug/L	3.0 U	3.0	0.34	11/24/20 15:10	
Zinc, Dissolved	ug/L	10.0 U	10.0	2.4	11/24/20 15:10	

LABORATORY CONTROL SAMPLE: 2051322

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	500	478	96	80-120	
Zinc, Dissolved	ug/L	500	476	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2051324 2051325

Parameter	Units	30393515001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	ug/L	0.53J	500	500	518	520	103	104	75-125	0	20	
Zinc, Dissolved	ug/L	2750	500	500	3310	3310	112	112	75-125	0	20	

MATRIX SPIKE SAMPLE: 2051327

Parameter	Units	30393774005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	ug/L	0.56J	500	522	104	75-125	
Zinc, Dissolved	ug/L	28.3	500	534	101	75-125	

SAMPLE DUPLICATE: 2051323

Parameter	Units	30393515001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	0.53J	0.50J		20	
Zinc, Dissolved	ug/L	2750	2720	1	20	

SAMPLE DUPLICATE: 2051326

Parameter	Units	30393774005 Result	Dup Result	RPD	Max RPD	Qualifiers
Cadmium, Dissolved	ug/L	0.56J	0.67J		20	
Zinc, Dissolved	ug/L	28.3	28.0	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

## QUALIFIERS

Project: RWM GW Sampling

Pace Project No.: 30393774

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.



### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RWM GW Sampling  
Pace Project No.: 30393774

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30393774001	RW02-MWI	EPA 3005A	424368	EPA 6010C	424475
30393774002	RW02-MWS	EPA 3005A	424368	EPA 6010C	424475
30393774003	RW01-MWI	EPA 3005A	424368	EPA 6010C	424475
30393774004	RW01-MWS	EPA 3005A	424368	EPA 6010C	424475
30393774005	RW08-MWI	EPA 3005A	424368	EPA 6010C	424475
30393774006	RW08-MWS	EPA 3005A	424368	EPA 6010C	424475

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

**Section A**  
Required Client Information:  
Company: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd  
Sparrows Point, MD 21219  
Email To:  
Phone:  
Requested Due Date/TAT: 5 day

**Section B**  
Required Project Information:  
Report To: Matt Newman  
Copy To: Stew Kabis  
PO Number:  
Project Name: RWM GW Sampling  
Project Number: 20010103

**Section C**  
Invoice Information:  
Attention: Matt Newman  
Company Name: Tradepoint Atlantic  
Address: 1600 Sparrows Point Blvd Sparrows Point, Md 21219  
Pace Quote Reference:  
Pace Project Manager: Samantha Bayura  
Pace Profile #:



**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER  
**Site Location:** MD  
**STATE:** MD

ITEM #	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WT WASTE WATER WW PRODUCT P SOILSOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Preservatives						Analysis Test ↑	Requested Analysis Filtered (Y/N)	Pace Project No. / Lab I.D.
		COMPOSITE START	COMPOSITE END/GRAB				DATE	TIME	DATE	TIME	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>			
1	RW02-MWI			WTG		1								X	001
2	RW02-MUS			WTG		1	11/19/20	850						X	002
3	RW01-MWI			WTG		1		935						X	003
4	RW01-MUS			WTG		1		1025						X	004
5	RW02-MWI			WTG		1		1115						X	005
6	RW02-MUS			WTG		1		1245						X	006
7				WTG		1		1400						X	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Sample Conditions
Data Package Required? (Y/N)	<i>[Signature]</i>	11/19/20	1600	<i>[Signature]</i>	11/19/20	1400	
Data Validation Required? (Y/N)	<i>[Signature]</i>	11/19/20	1900	<i>[Signature]</i>	11/19/20	1910	✓
If data package is required, attach data package checklist.	<i>[Signature]</i>	11/19/20	2315	<i>[Signature]</i>	11/19/20	205	✓

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: *Lisa Perera*  
 SIGNATURE of SAMPLER: *[Signature]*  
 DATE Signed (MM/DD/YYYY): 11/19/20

Received on Ice (Y/N)  Cooler (Y/N)  Samples Intact (Y/N)

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt

#30393774



Client Name: Tredport Atlantic

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: VIA

Label	<u>MCC</u>
LIMS Login	<u>MCC</u>

Custody Seal on Cooler/Box Present:  yes  no    Seals intact:  yes  no

Thermometer Used 9    Type of Ice:  Wet    Blue    None

Cooler Temperature    Observed Temp 3.6 °C    Correction Factor: -0.1 °C    Final Temp: 3.5 °C

Temp should be above freezing to 6°C

Comments:	pH paper Lot#			Date and Initials of person examining contents:
	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1000001 11/19/2016
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-Includes date/time/ID      Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Short Hold Time Analysis (<72hr remaining):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix				
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	initial when completed: <u>MCC</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Samples Screened < 0.5 mrem/hr	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	initial when completed: _____    Date: _____

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

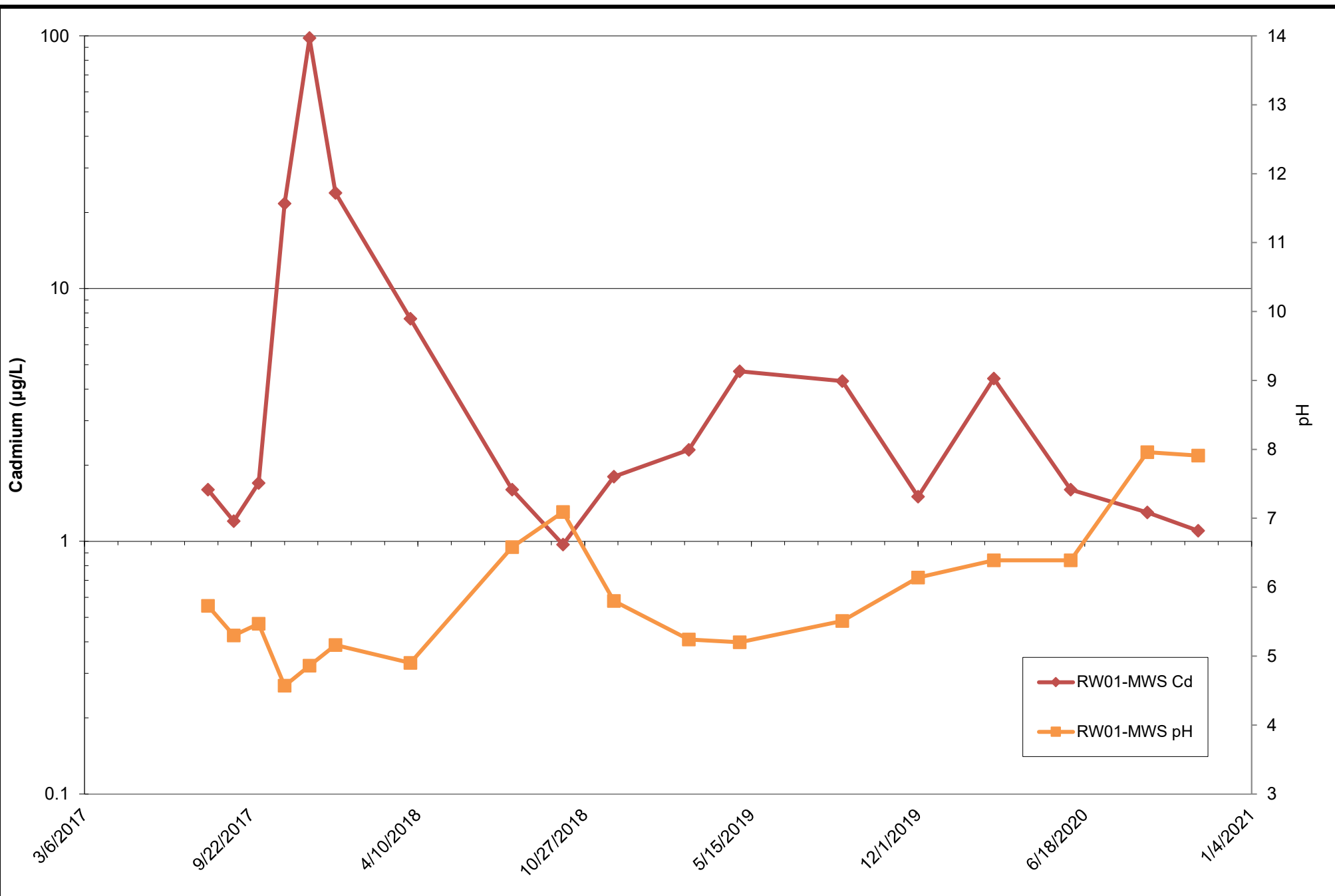
---

---

## **APPENDIX B**

---

---



**ARM Group LLC**  
Engineers and Scientists

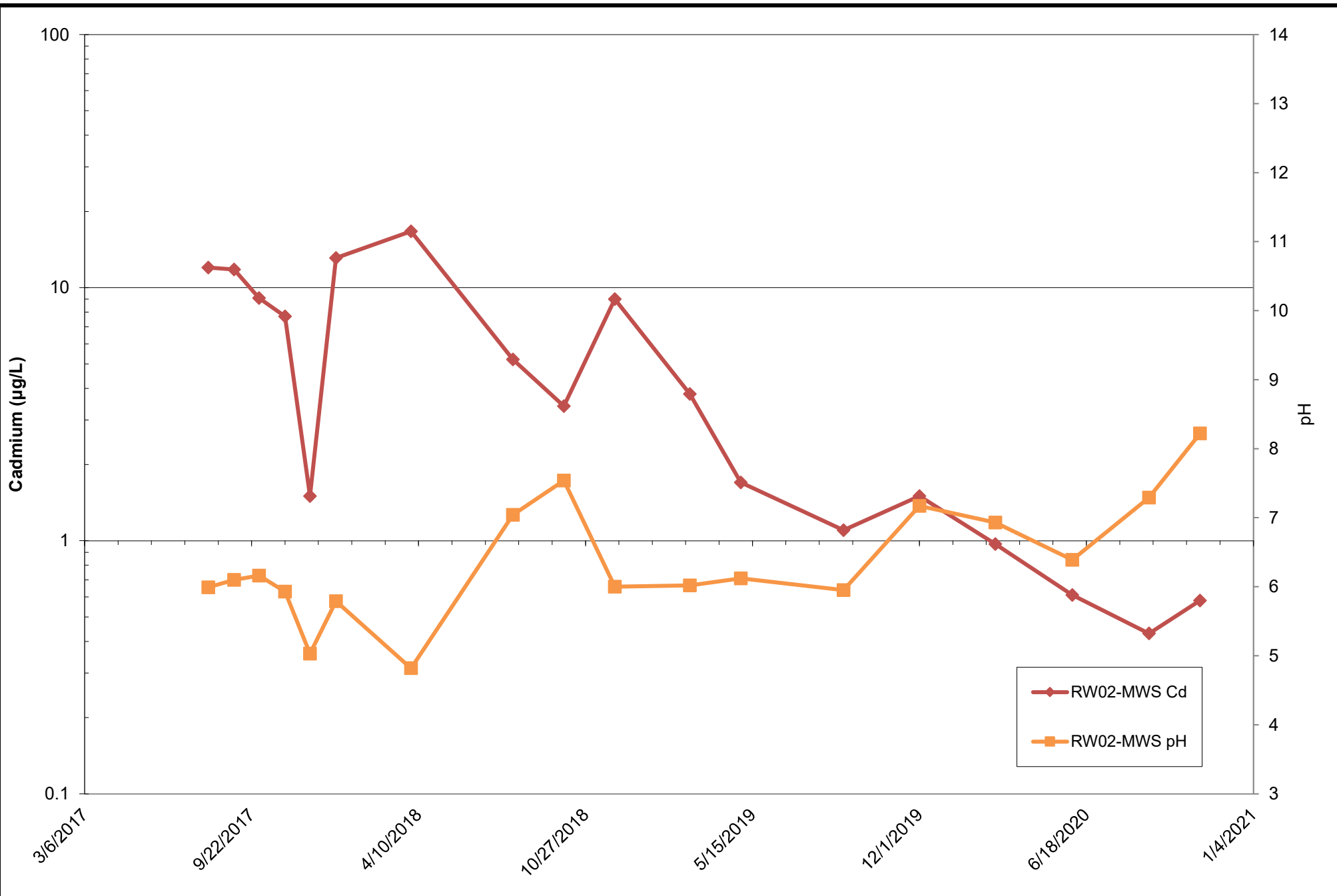
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW01-MWS pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

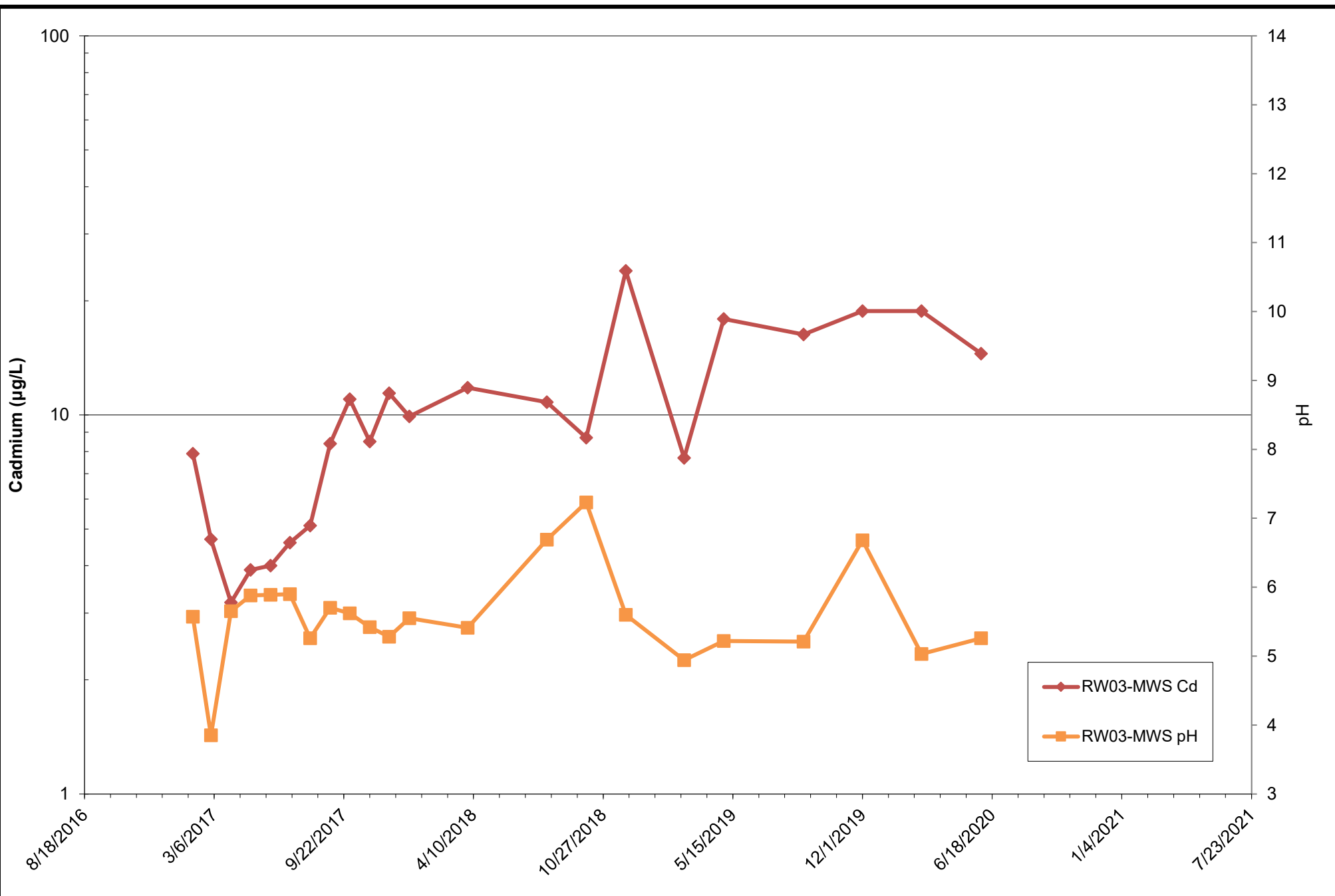
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW02-MWS pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

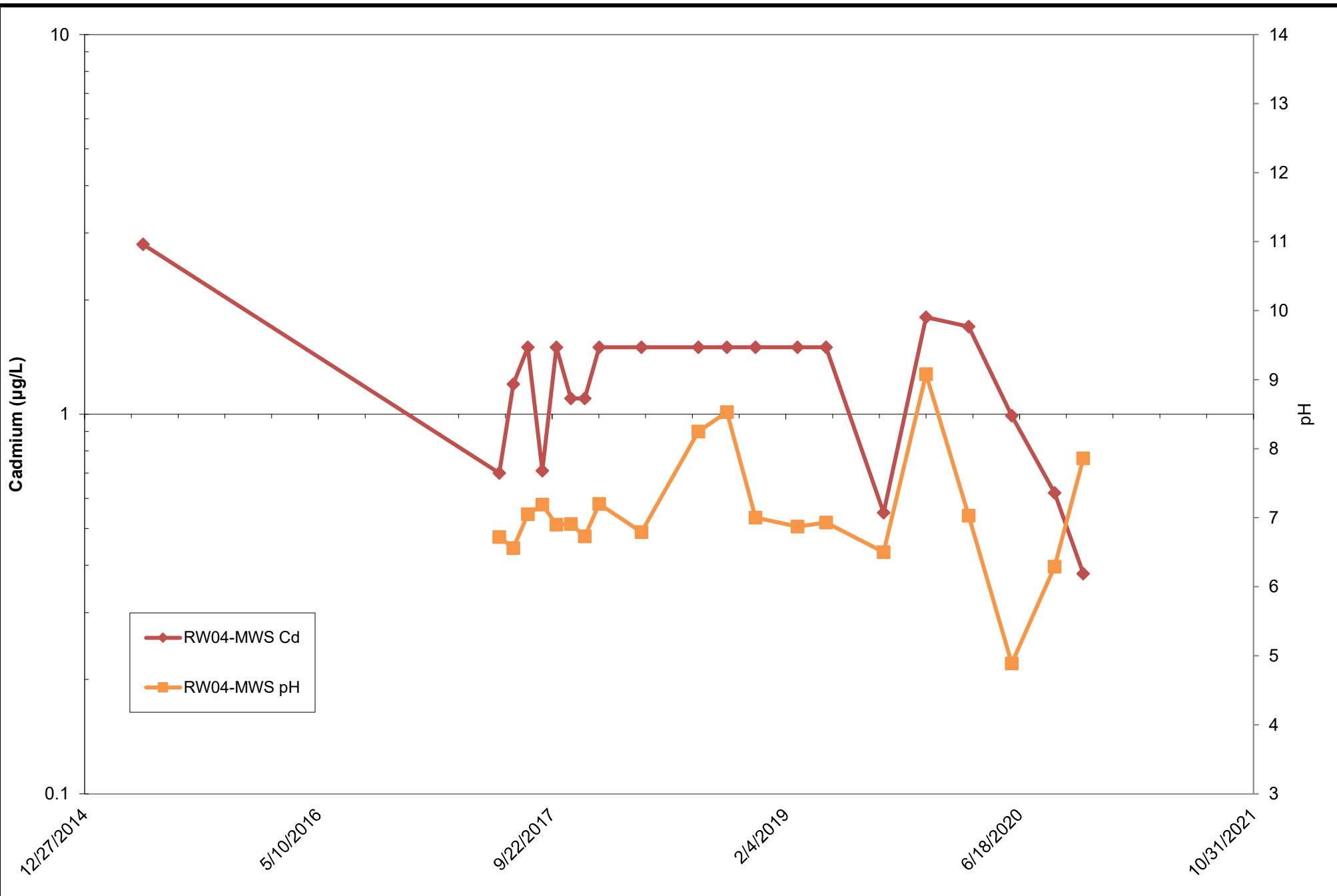
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW03-MWS pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

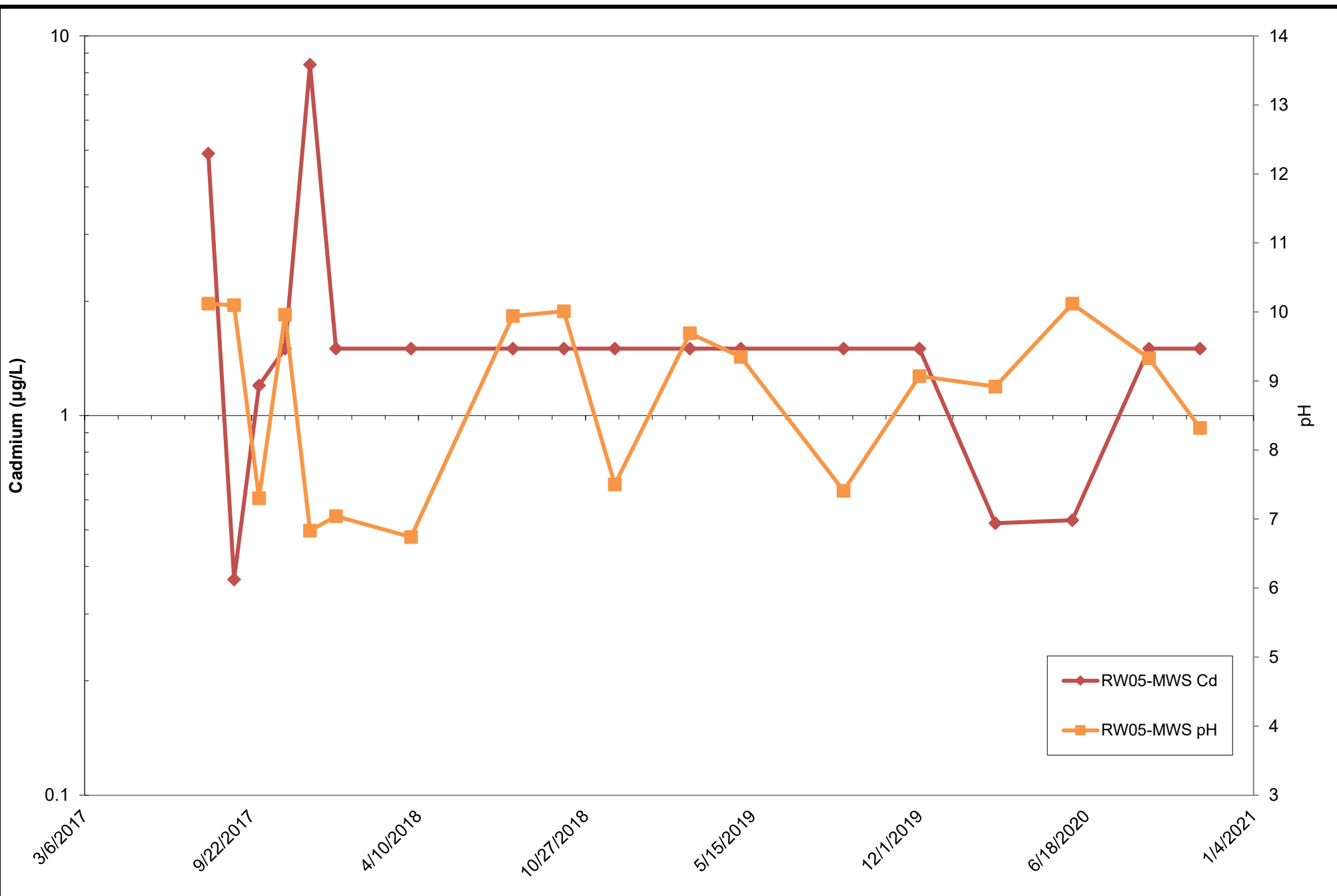
Sparrows Point, Maryland

**RW04-MWS pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
B**





**ARM Group LLC**  
Engineers and Scientists

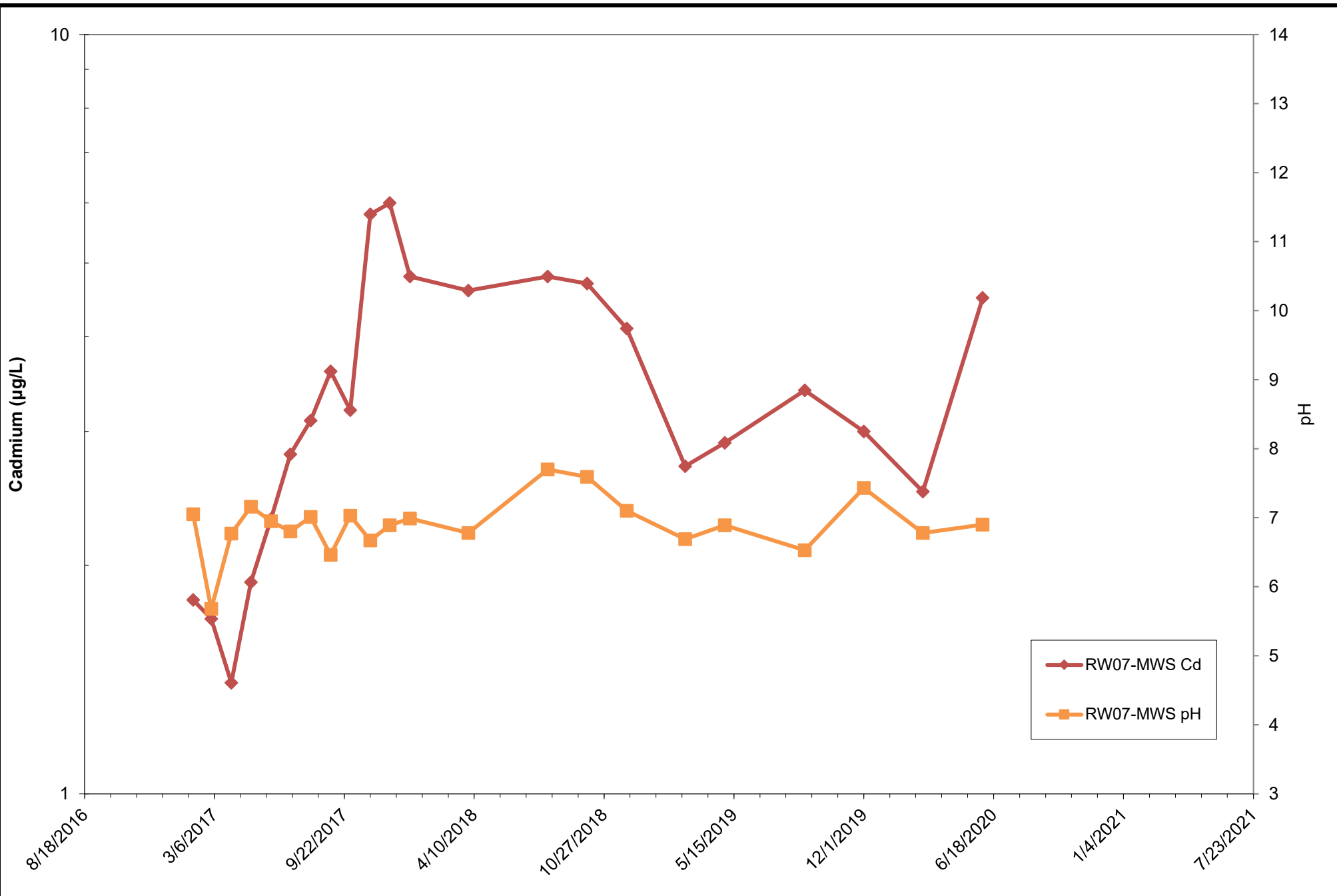
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW05-MWS pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

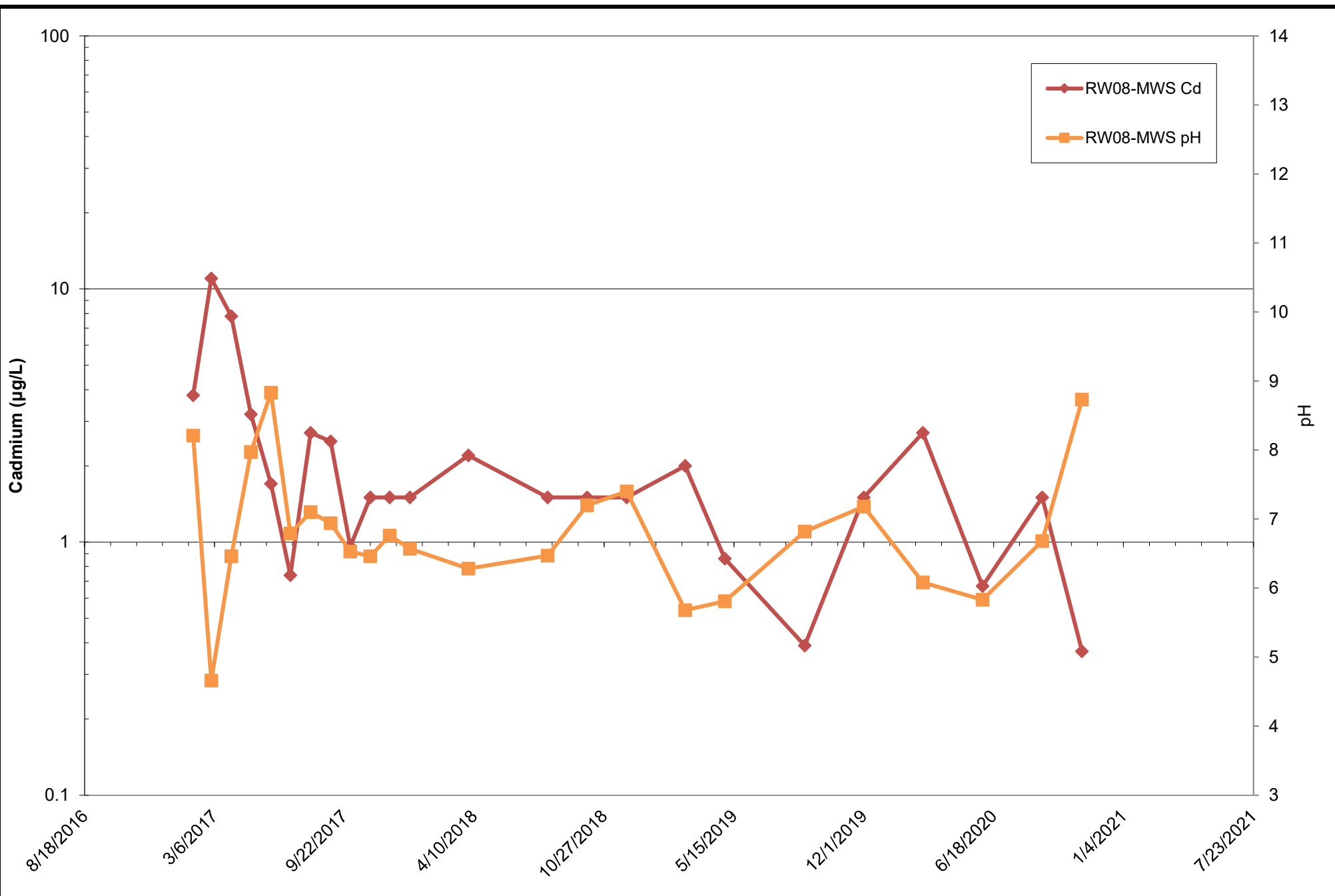
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW07-MWS pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

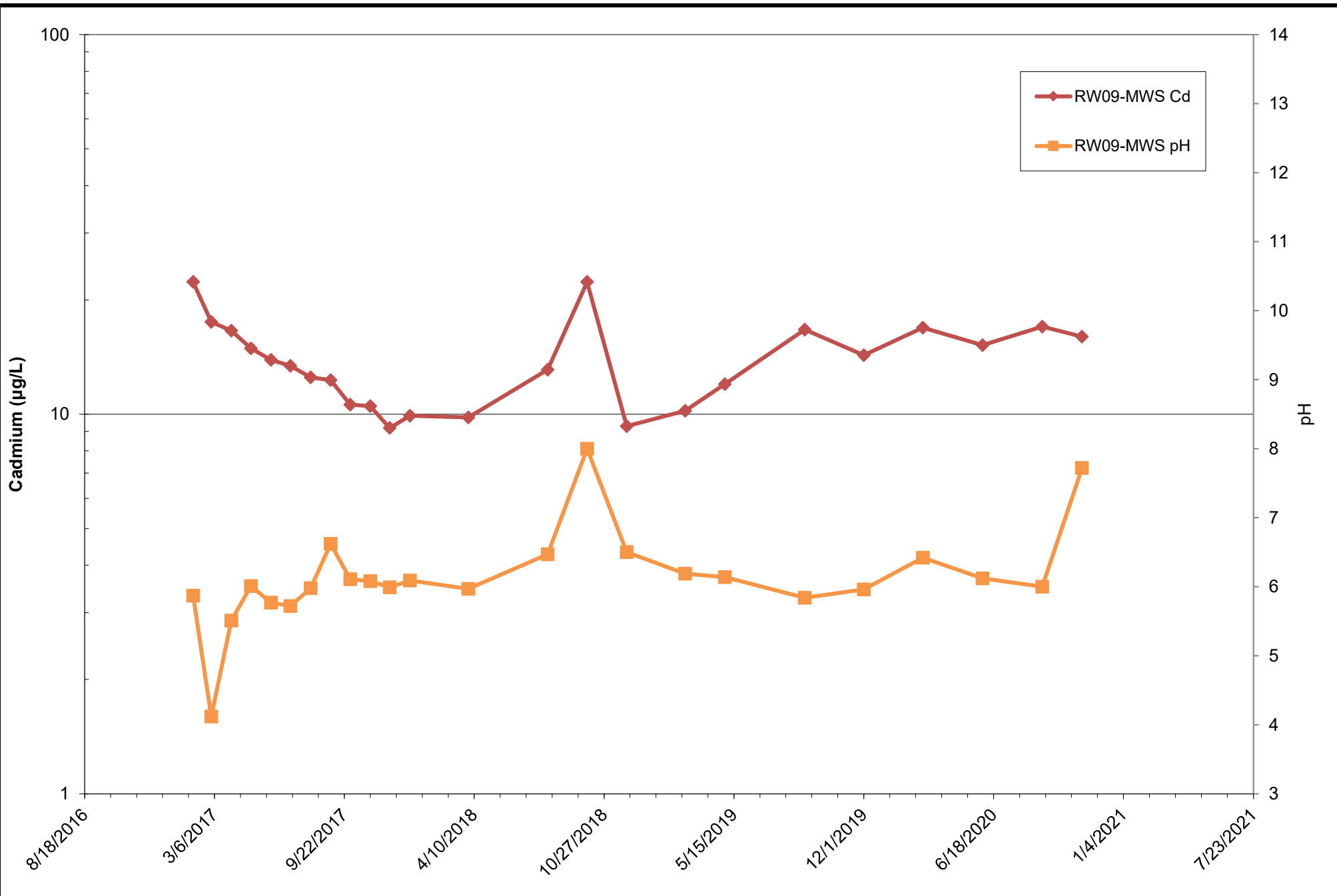
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW08-MWS pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

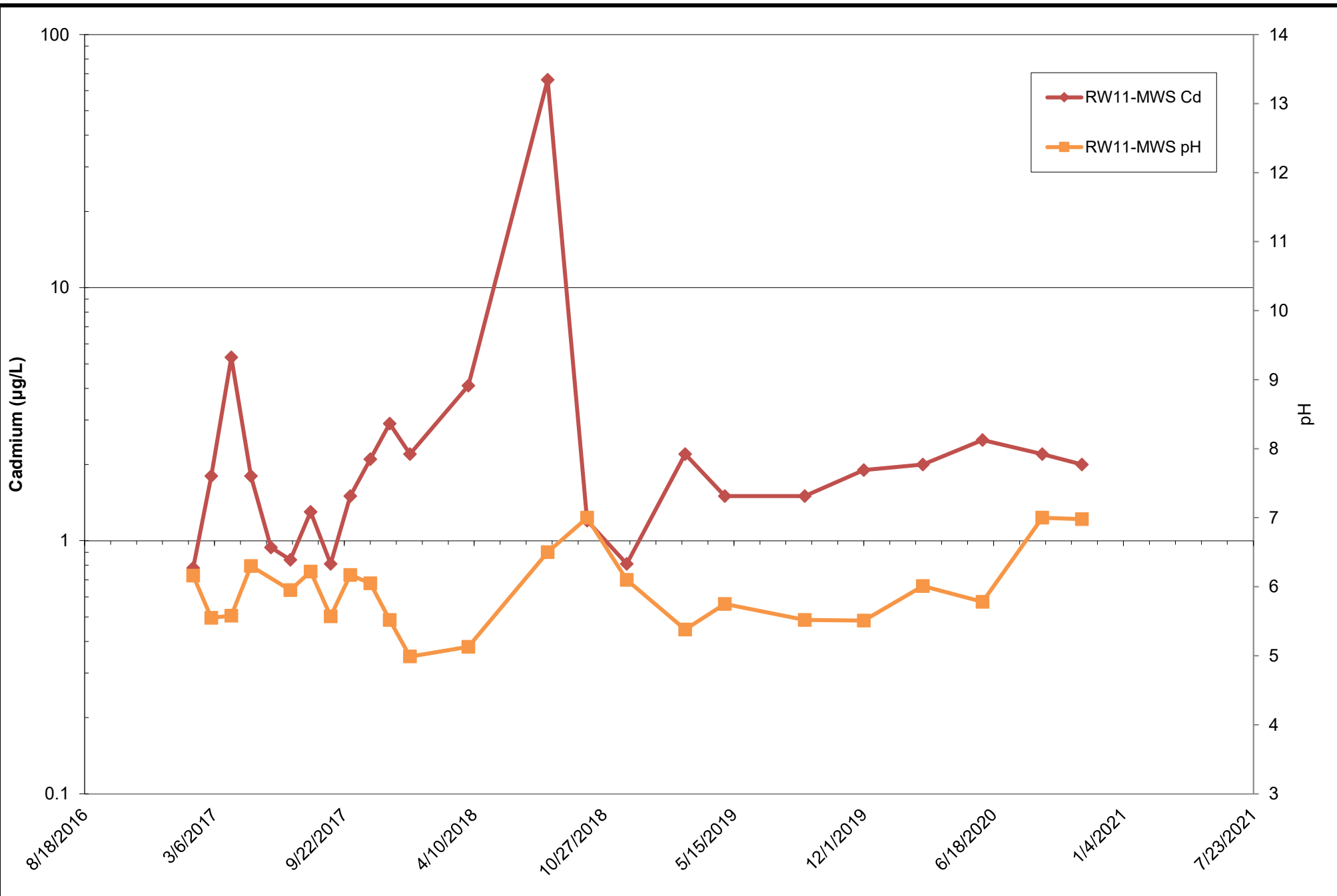
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW09-MWS pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

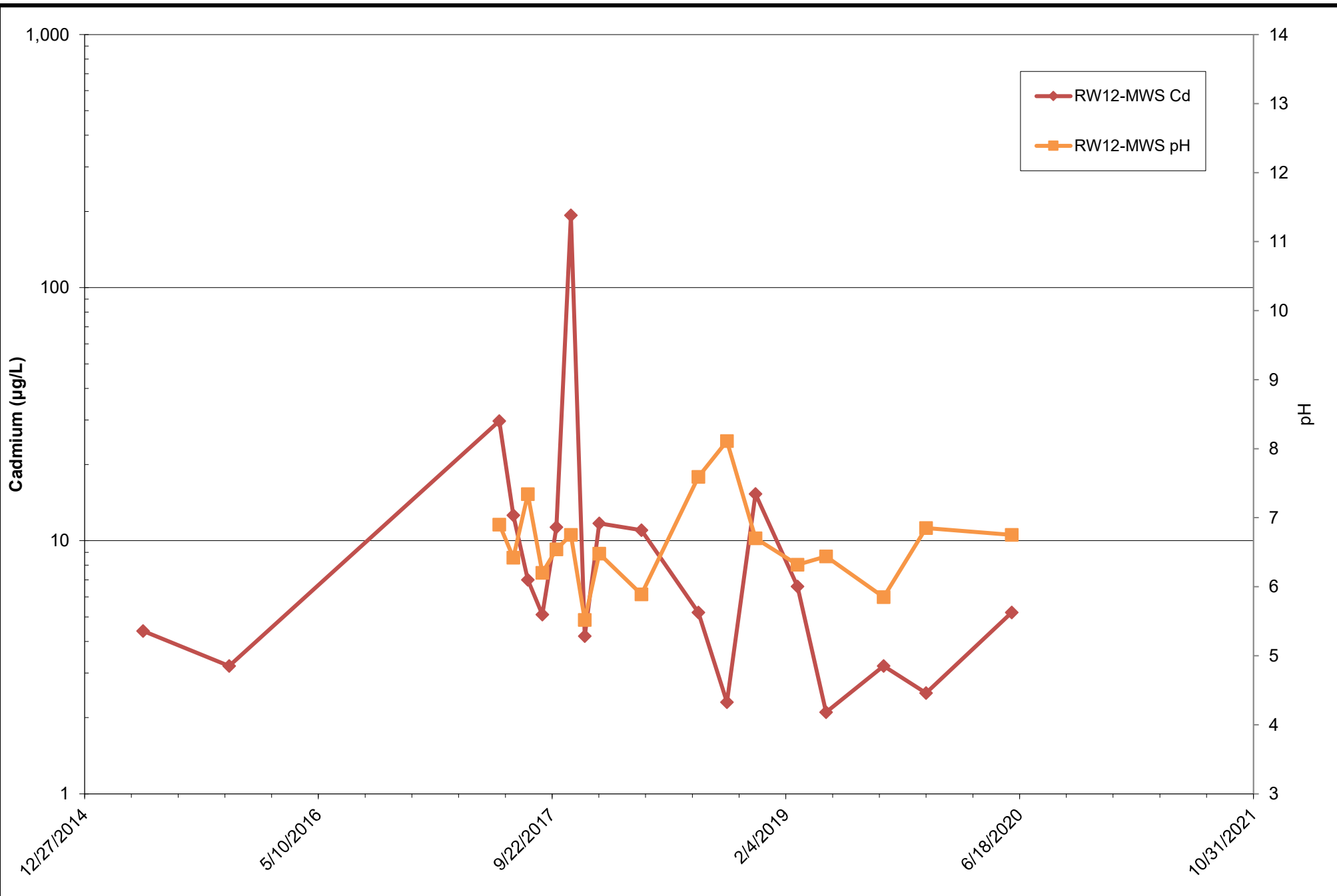
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RW11-MWS pH and Cadmium Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

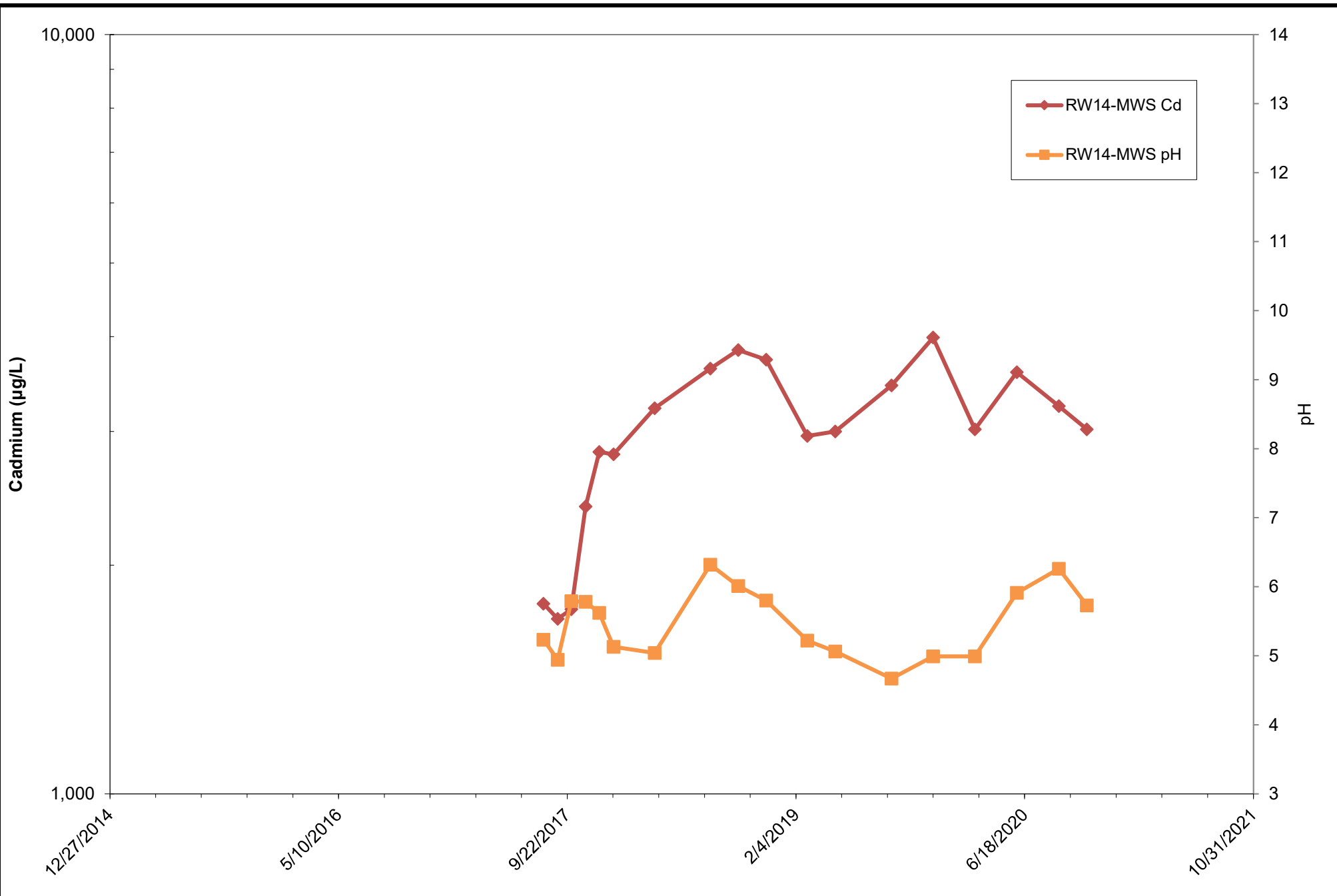
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW12-MWS pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

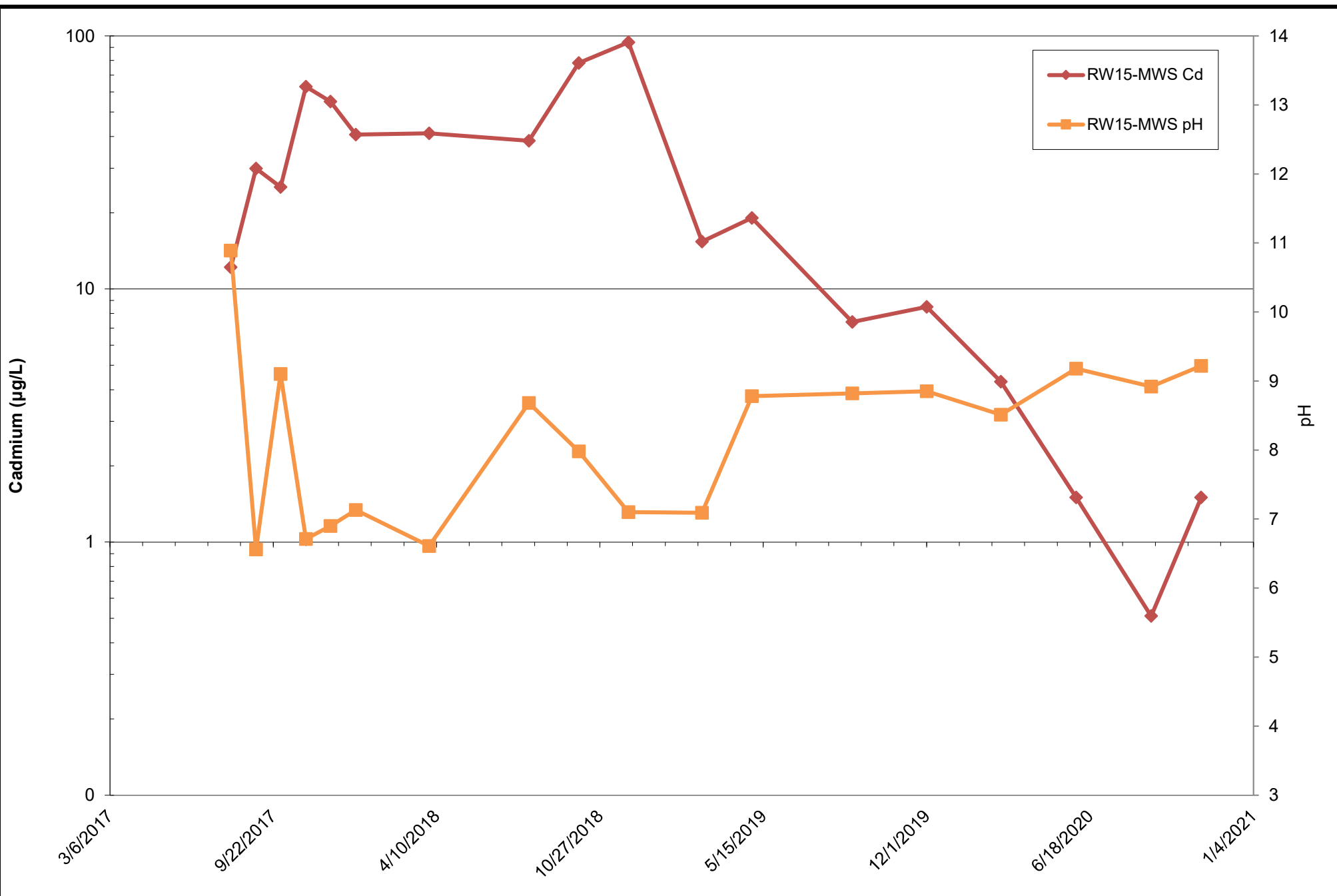
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW14-MWS pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

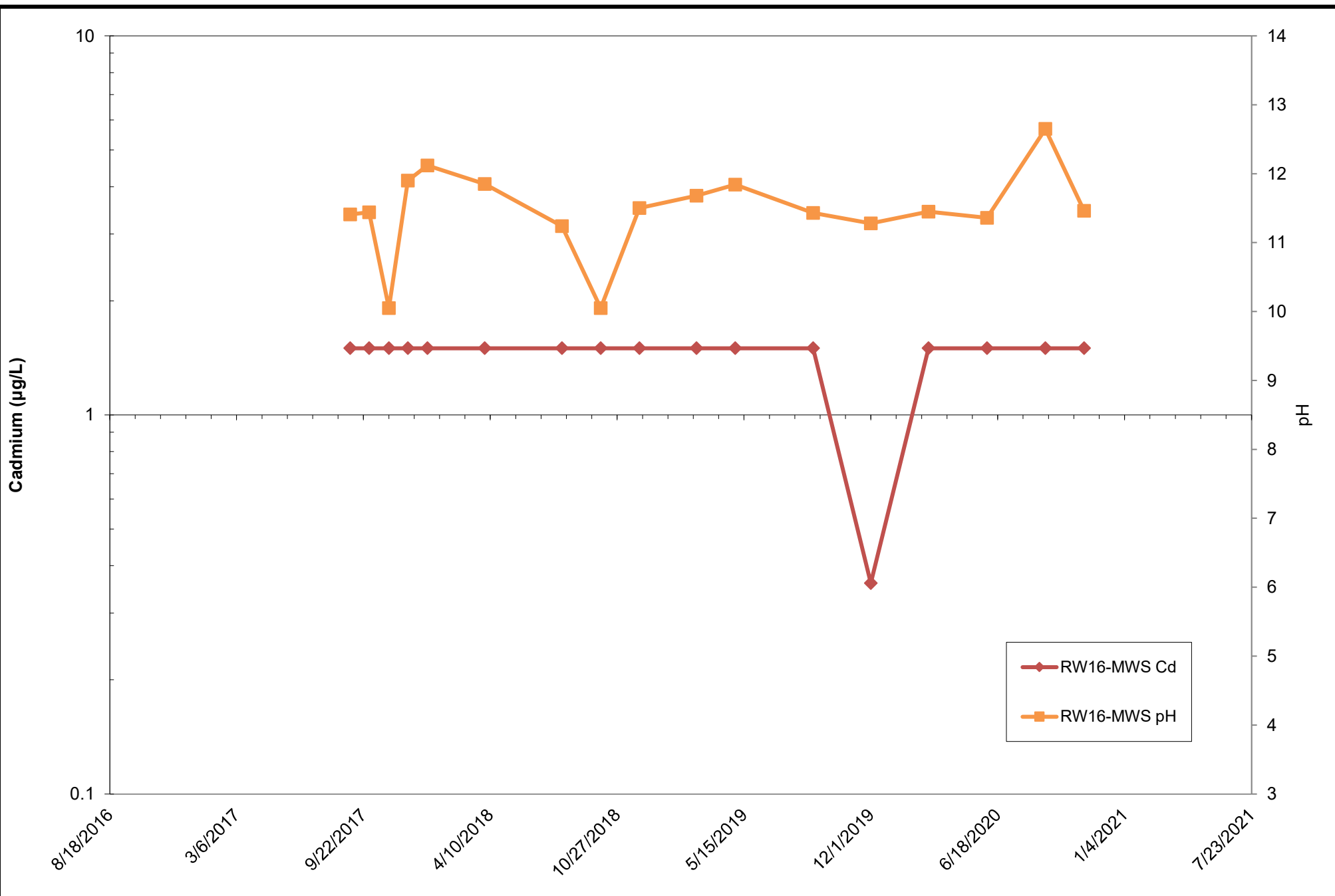
Sparrows Point, Maryland

**RW15-MWS pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
B**





**ARM Group LLC**  
Engineers and Scientists

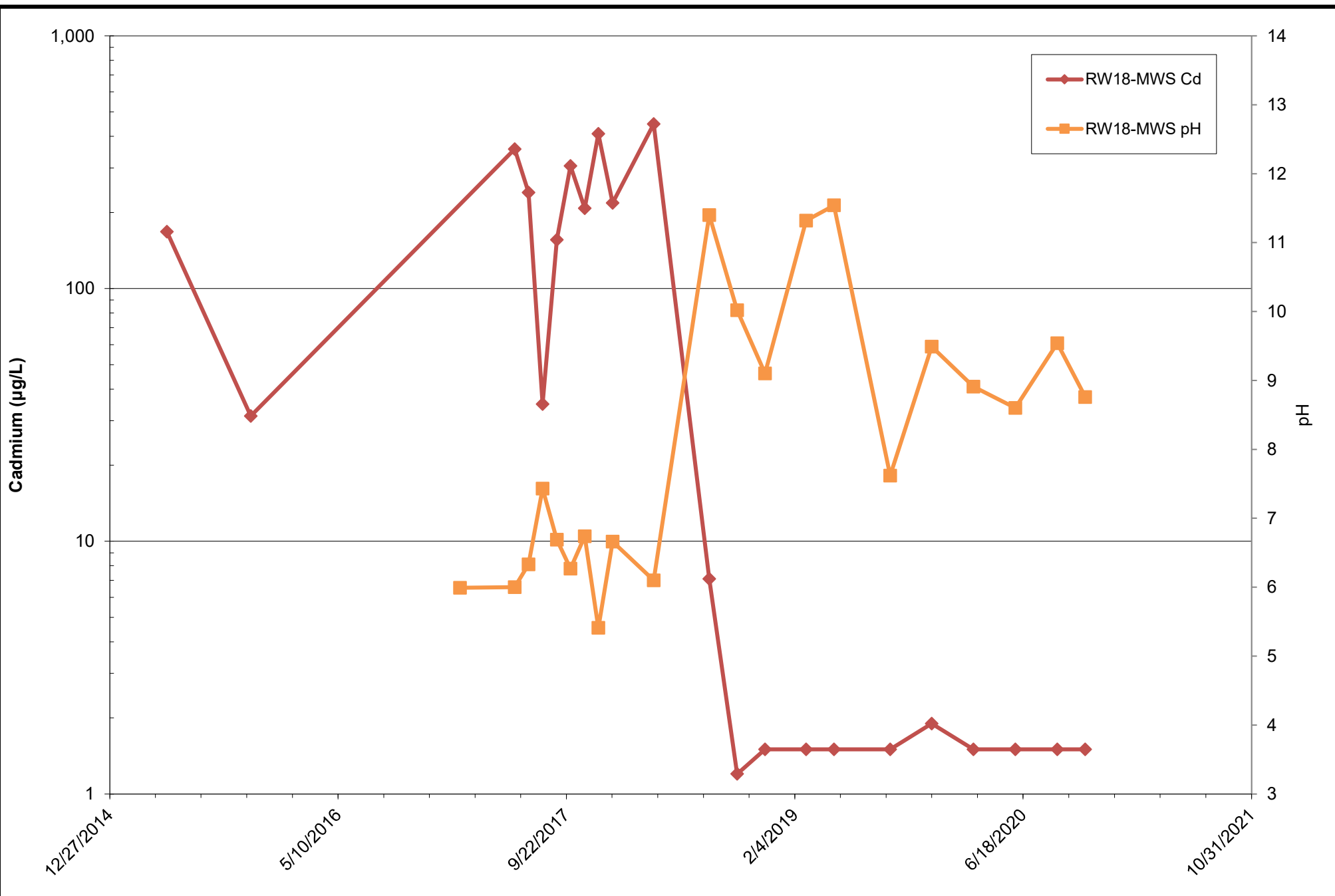
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW16-MWS pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

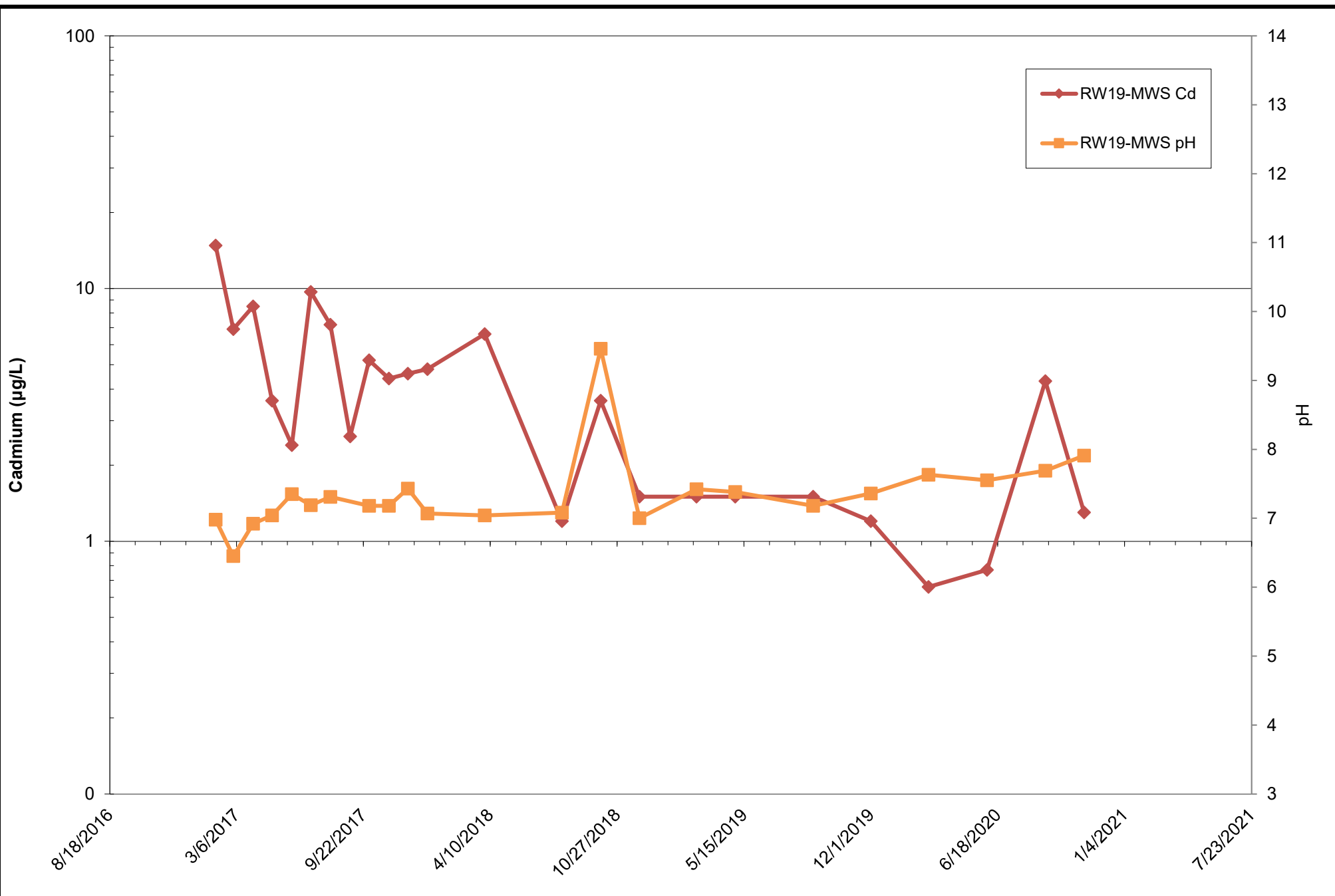
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW18-MWS pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

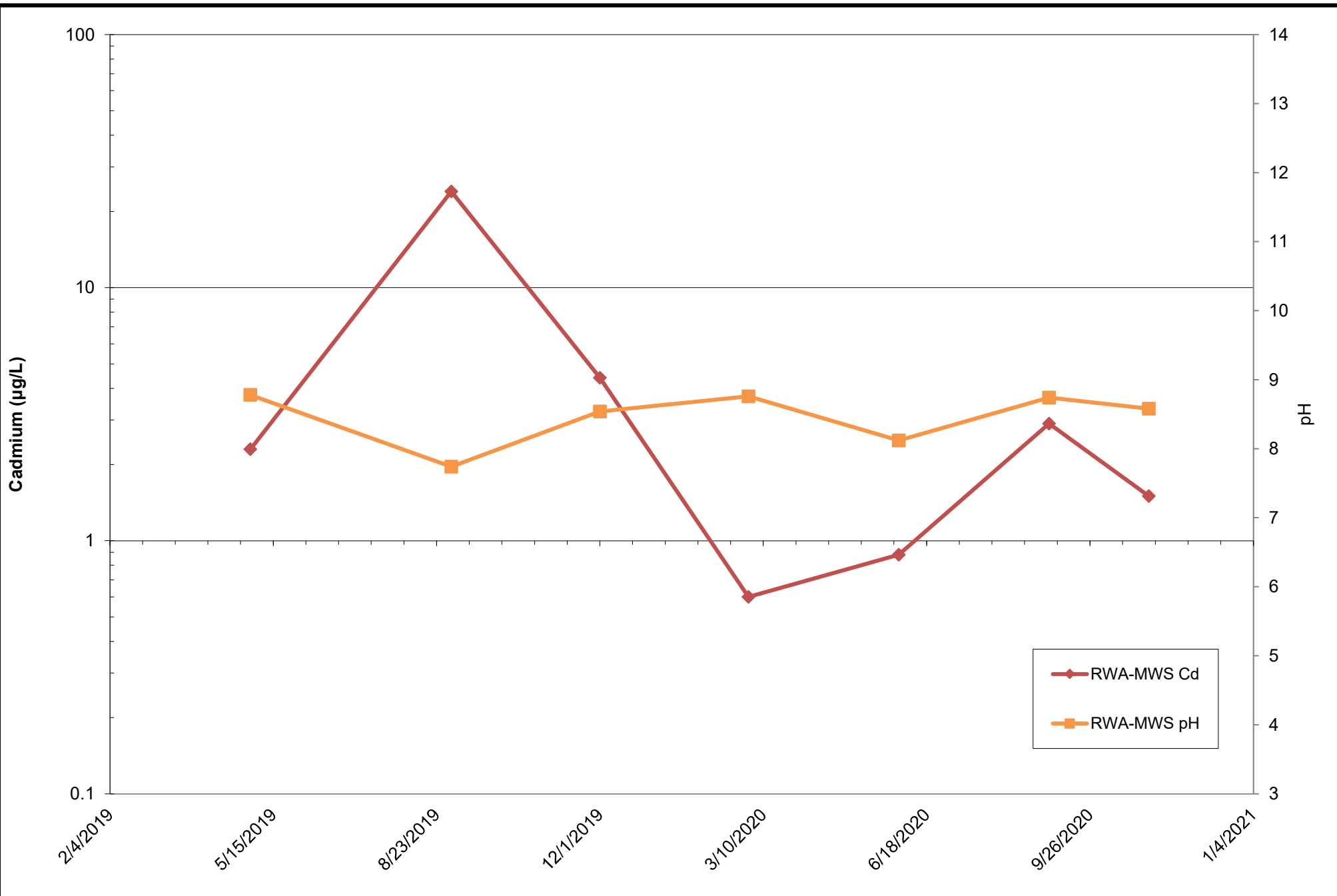
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW19-MWS pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

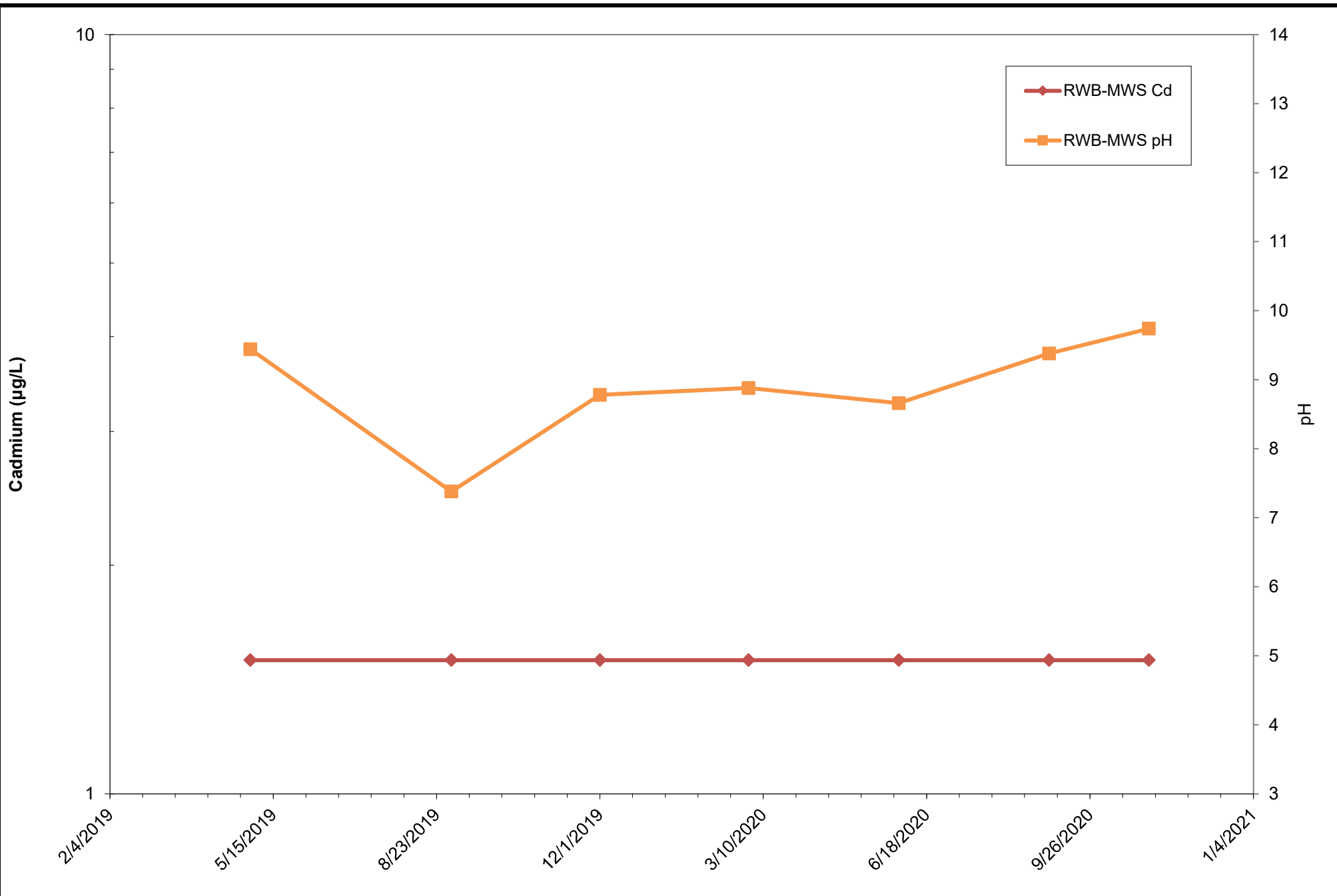
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWA-MWS pH and Cadmium Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

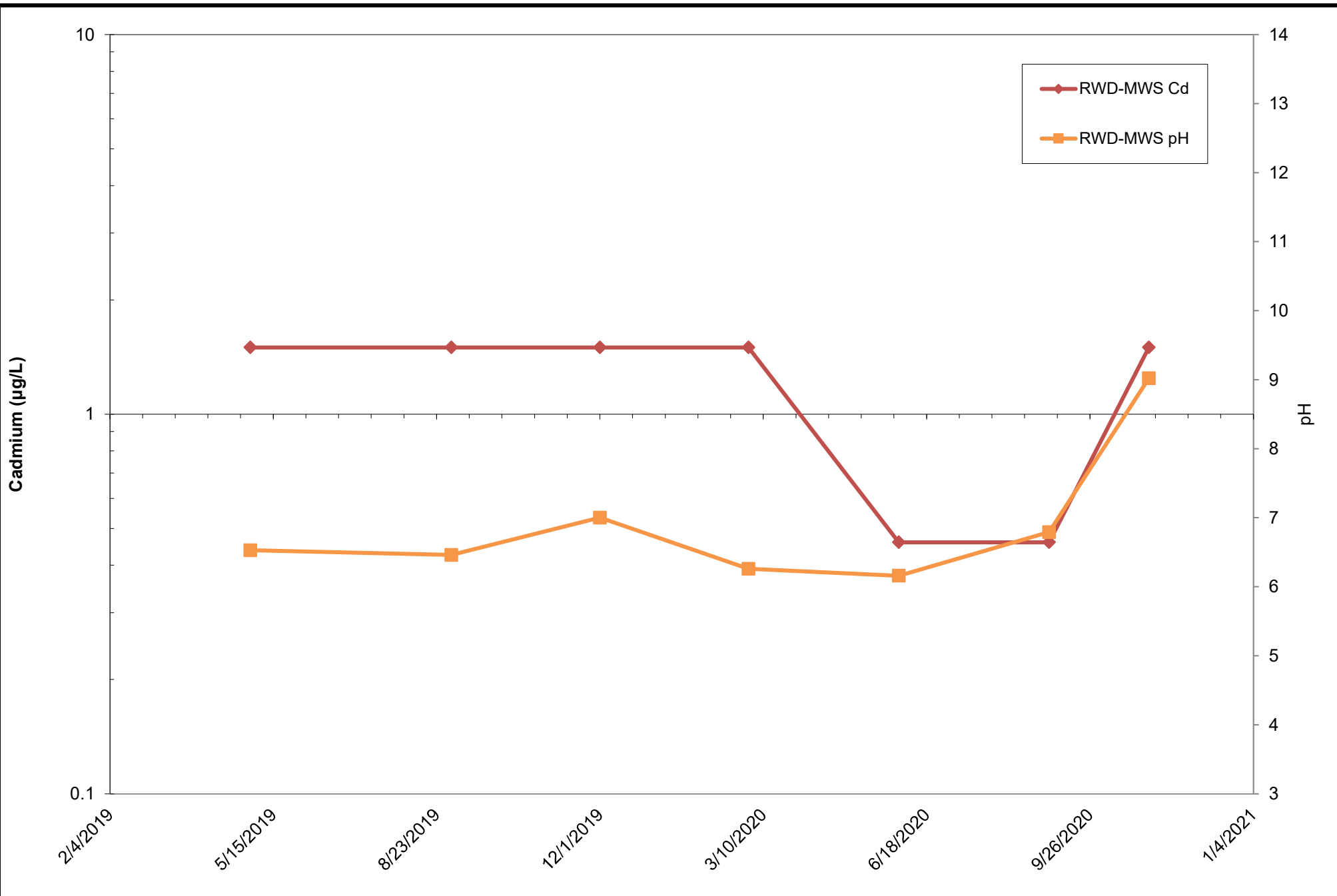
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

## RWB-MWS pH and Cadmium Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

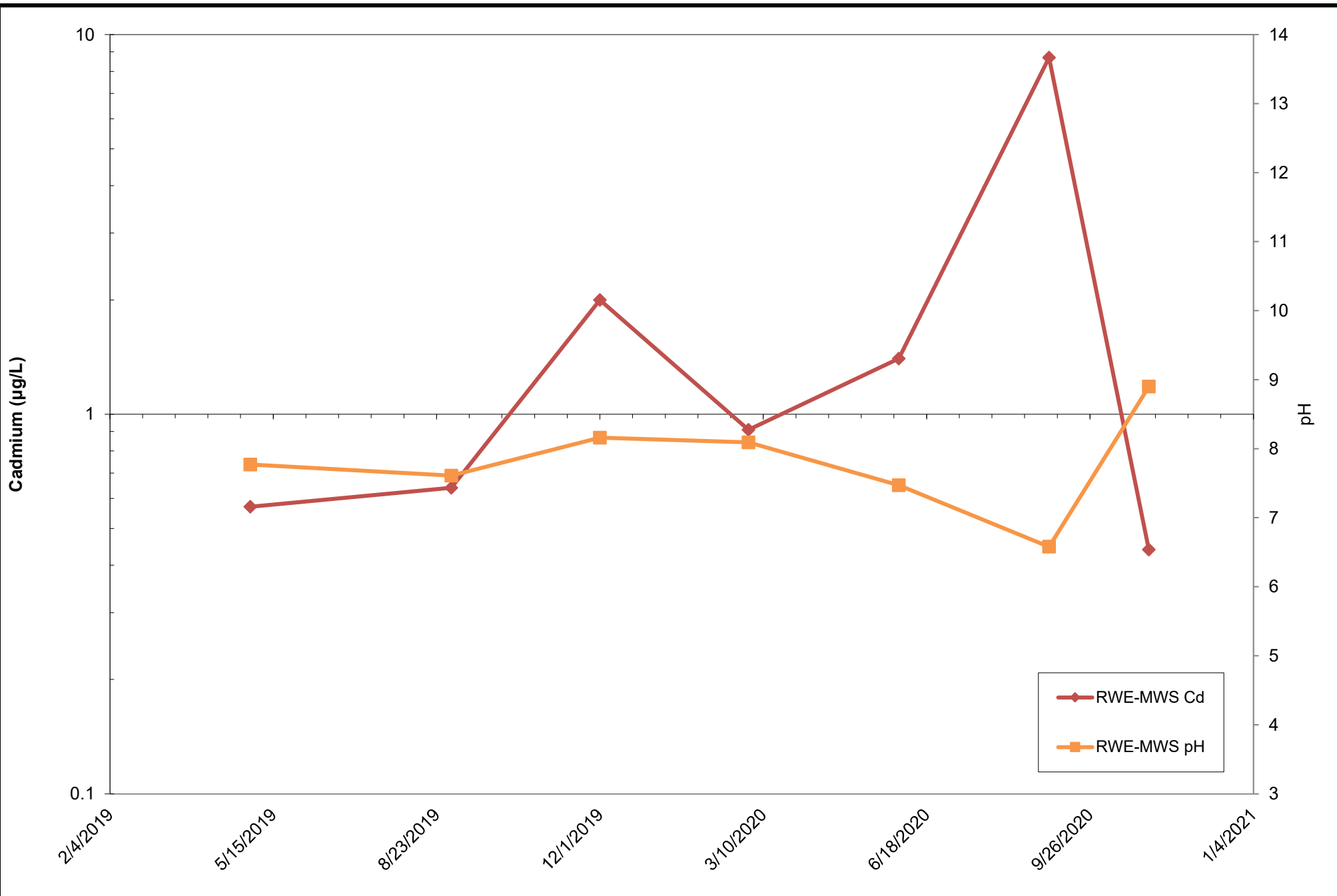
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWD-MWS pH and Cadmium Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

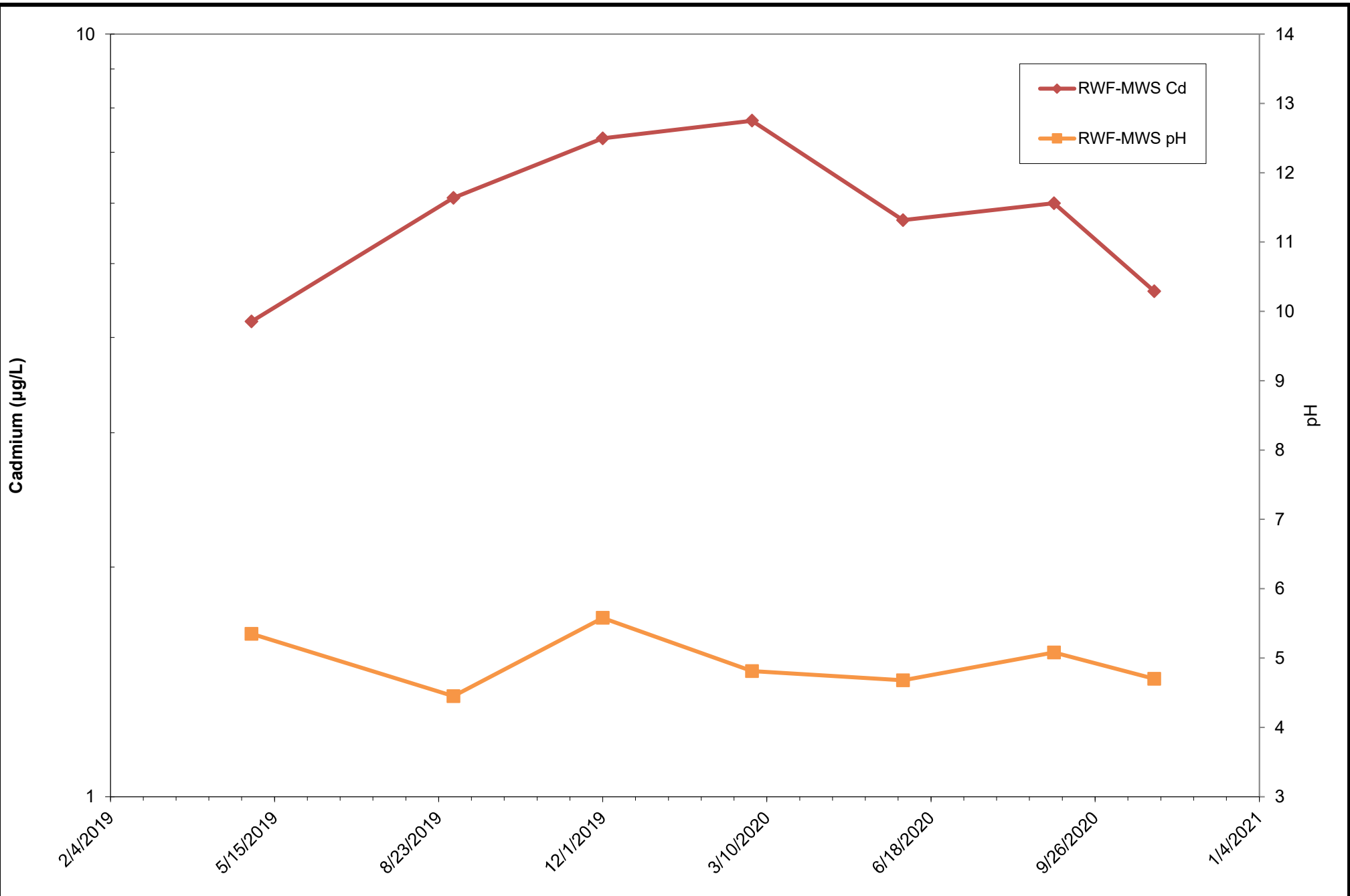
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWE-MWS pH and Cadmium Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

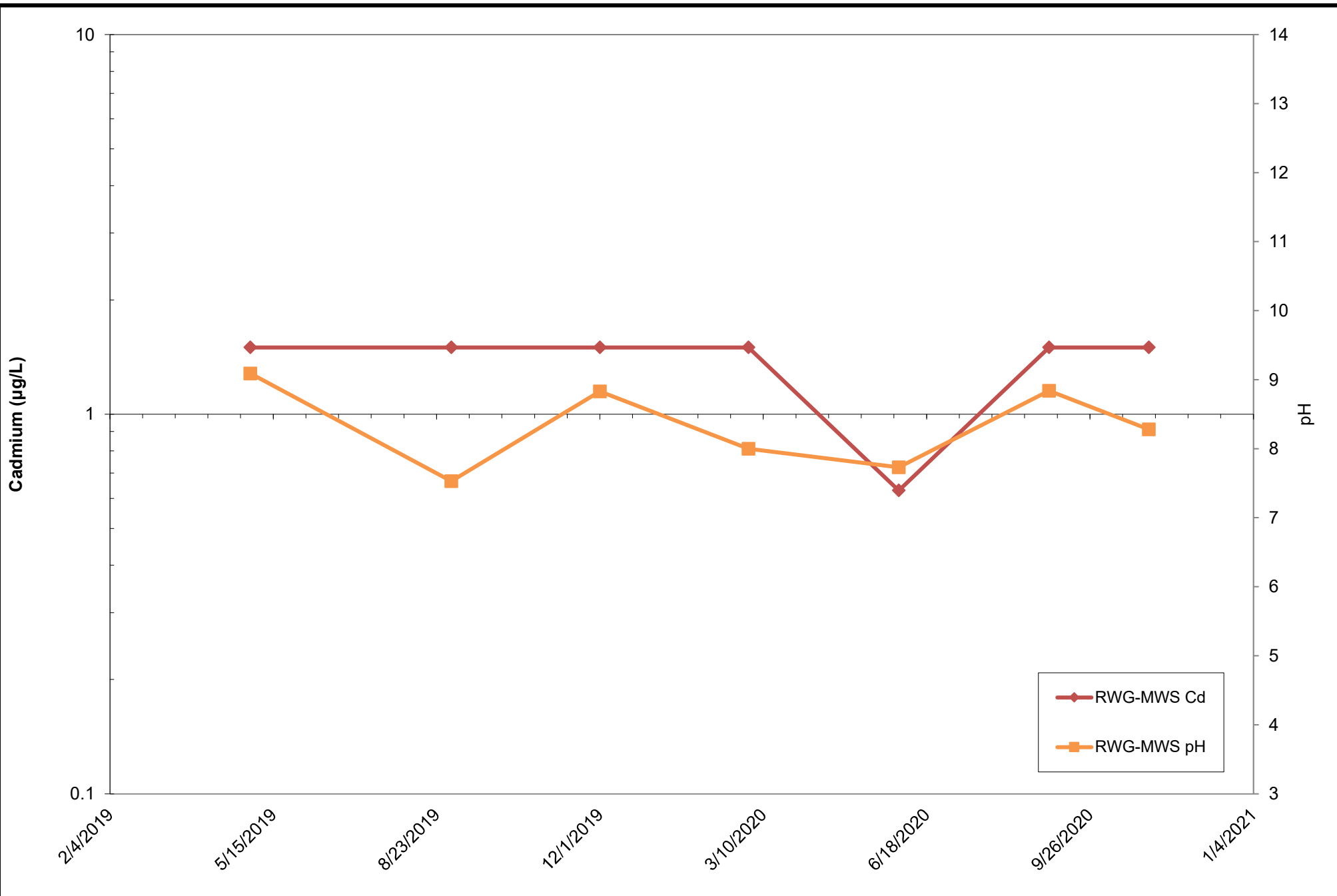
Sparrows Point, Maryland

**RWF-MWS pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
B**





**ARM Group LLC**  
Engineers and Scientists

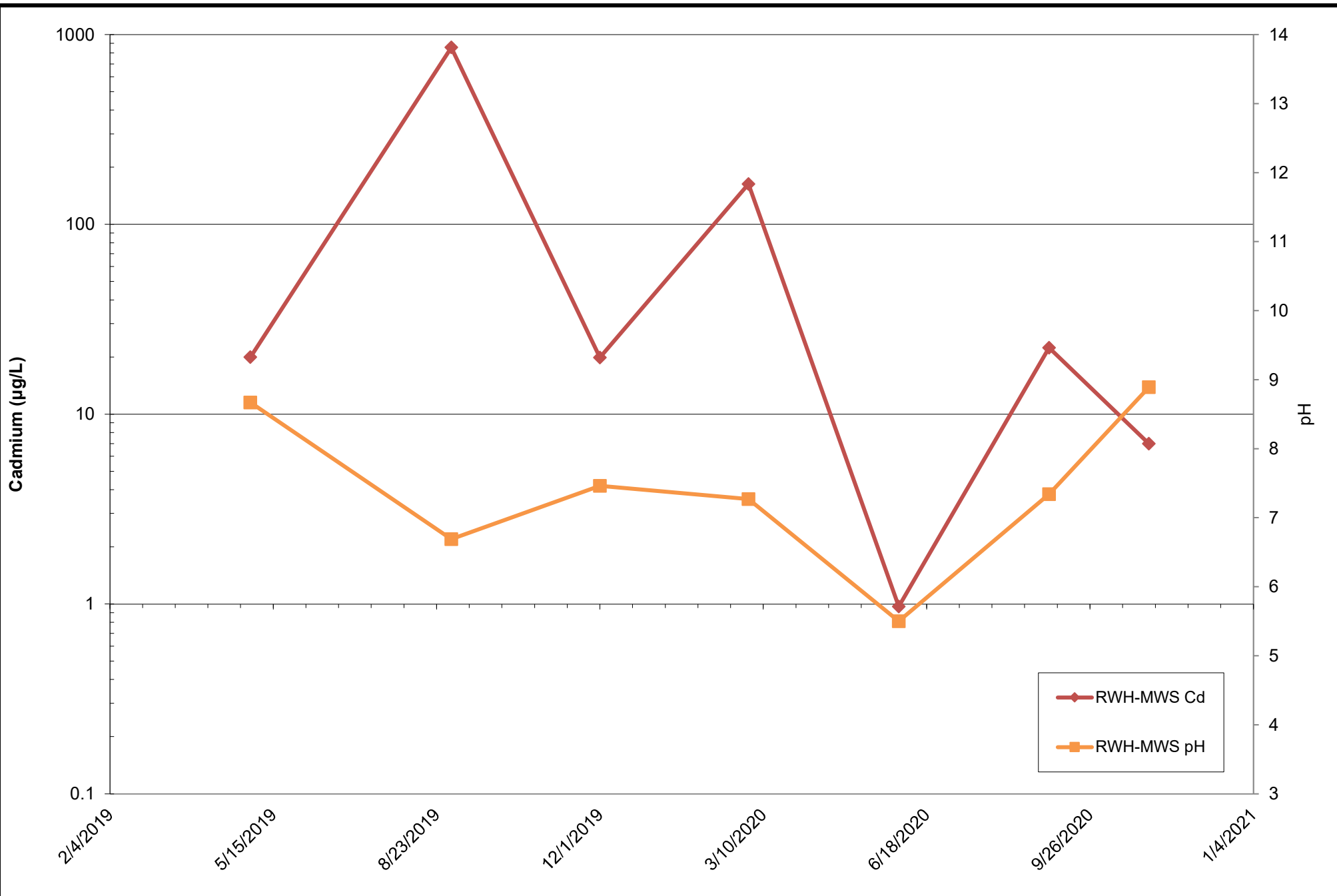
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

## RWG-MWS pH and Cadmium Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

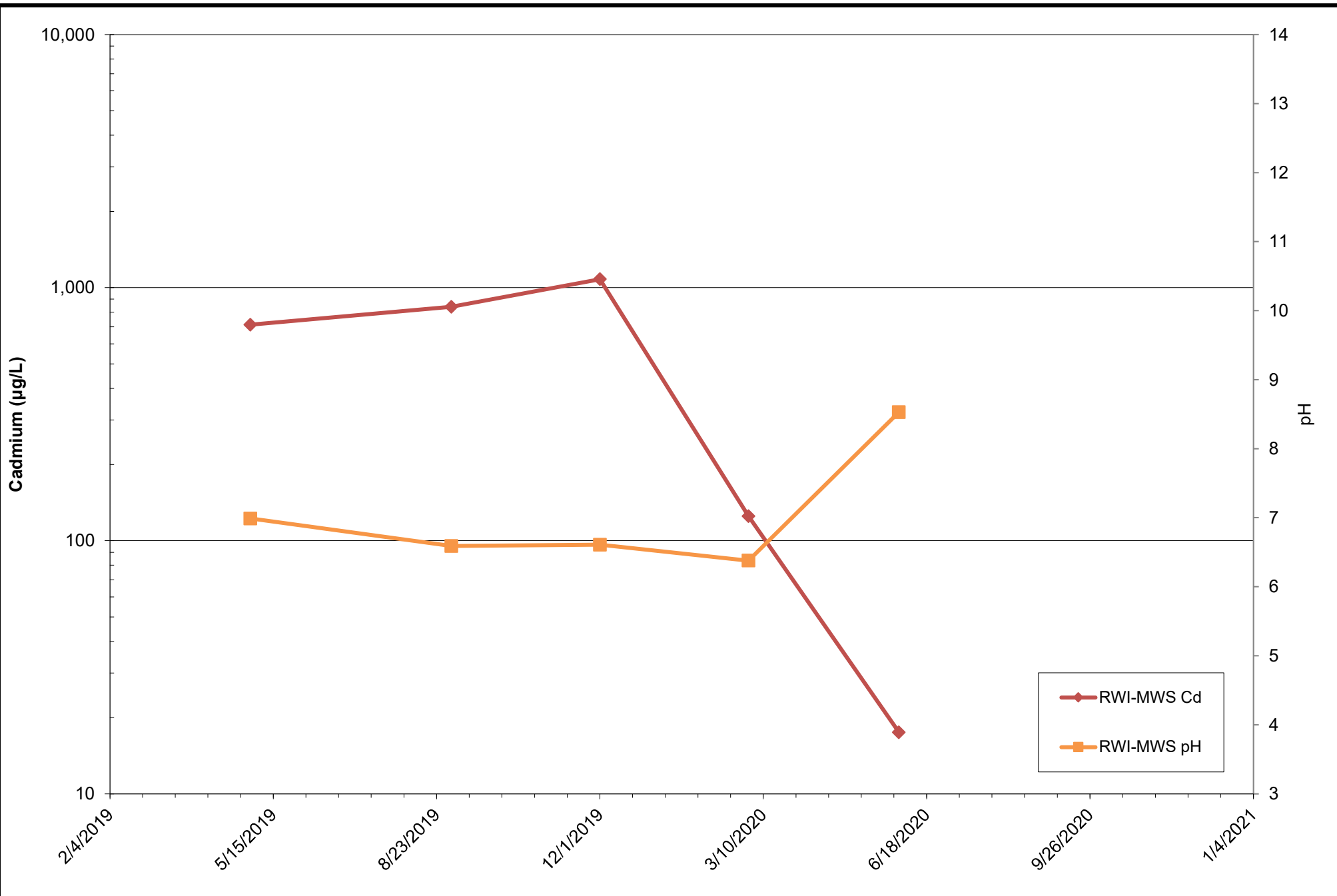
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWH-MWS pH and Cadmium Concentrations

January 27, 2021

**Appx B**



**ARM Group LLC**  
Engineers and Scientists

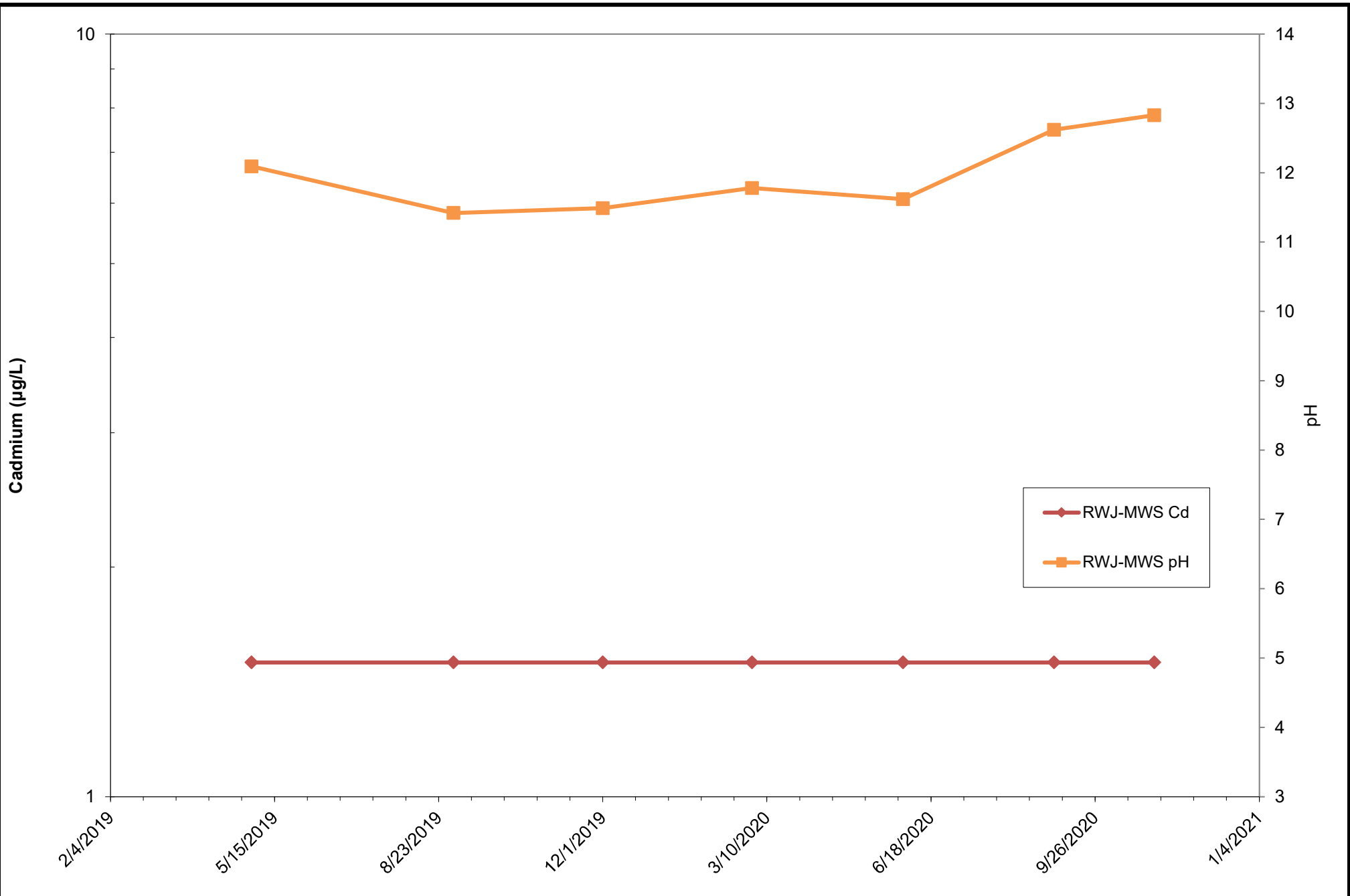
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWI-MWS pH and Cadmium Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

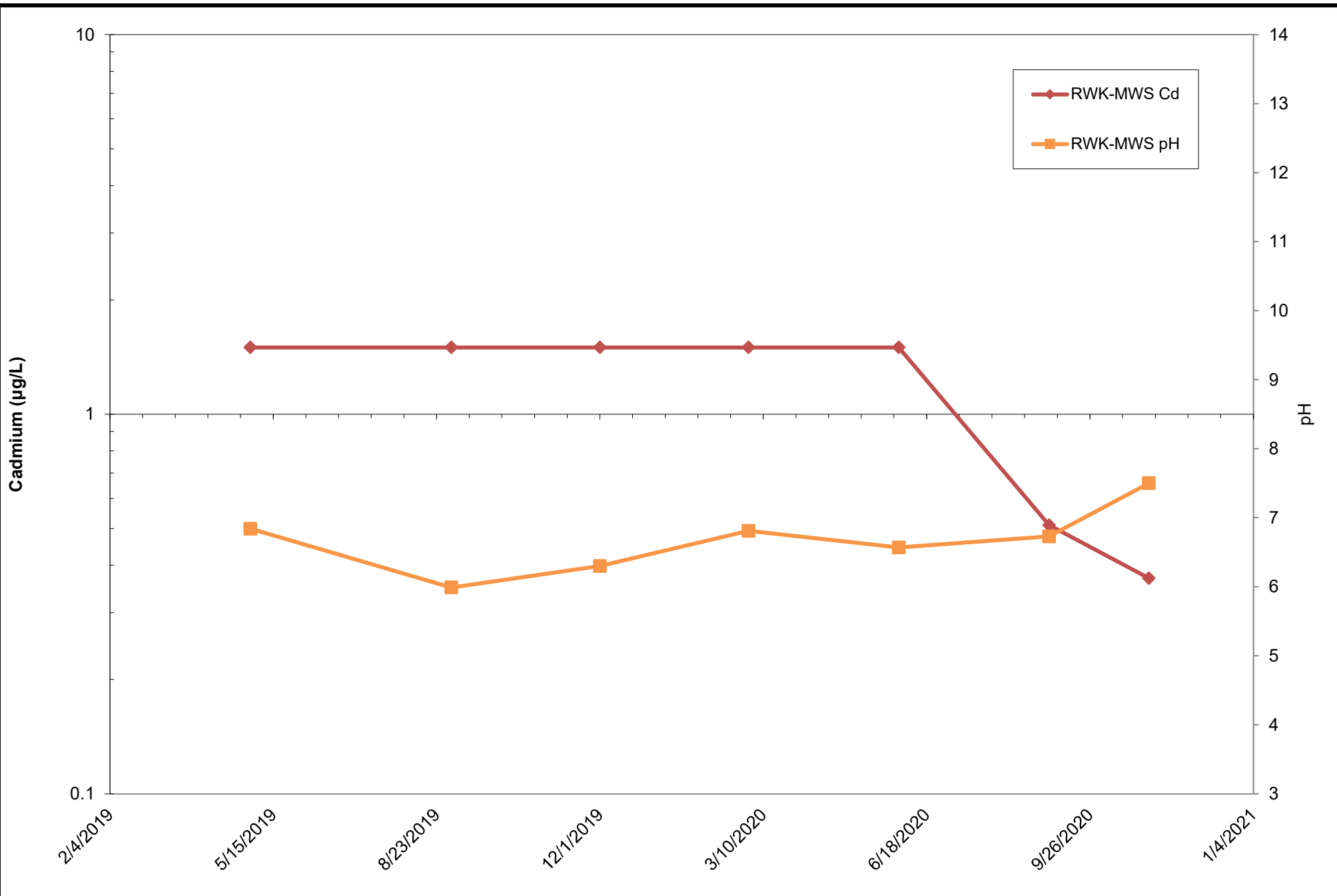
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWJ-MWS pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

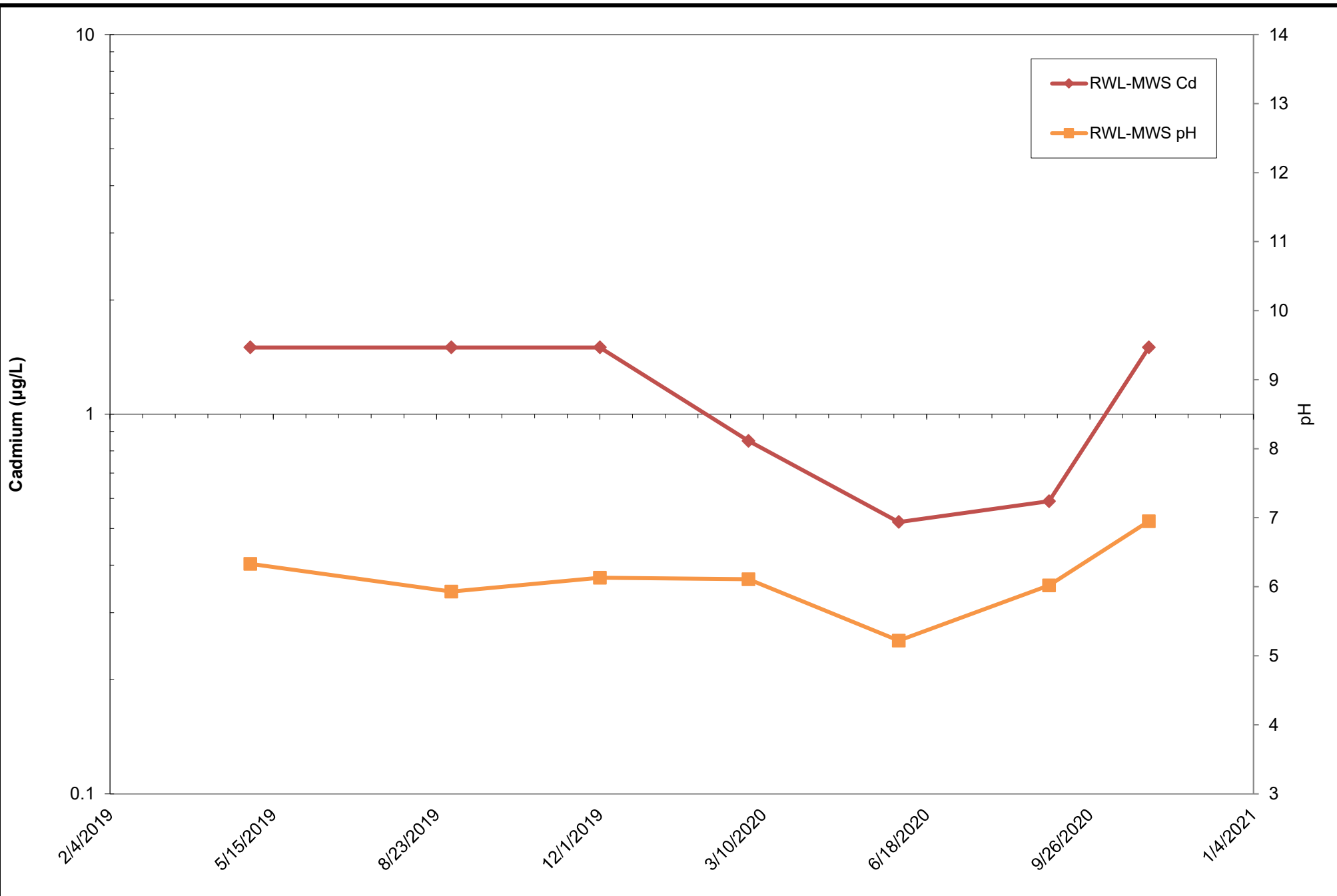
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

## RWK-MWS pH and Cadmium Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

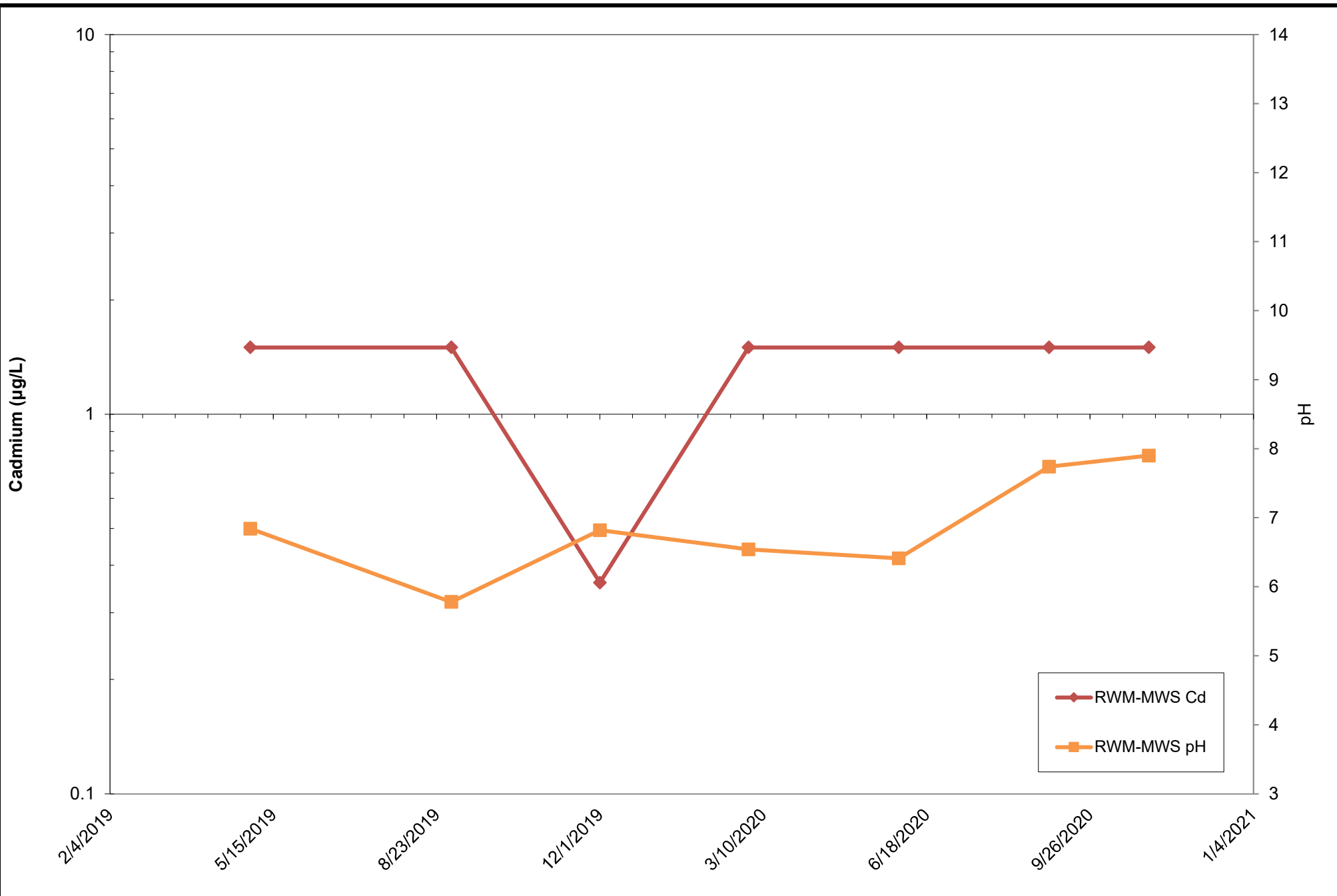
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

## RWL-MWS pH and Cadmium Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

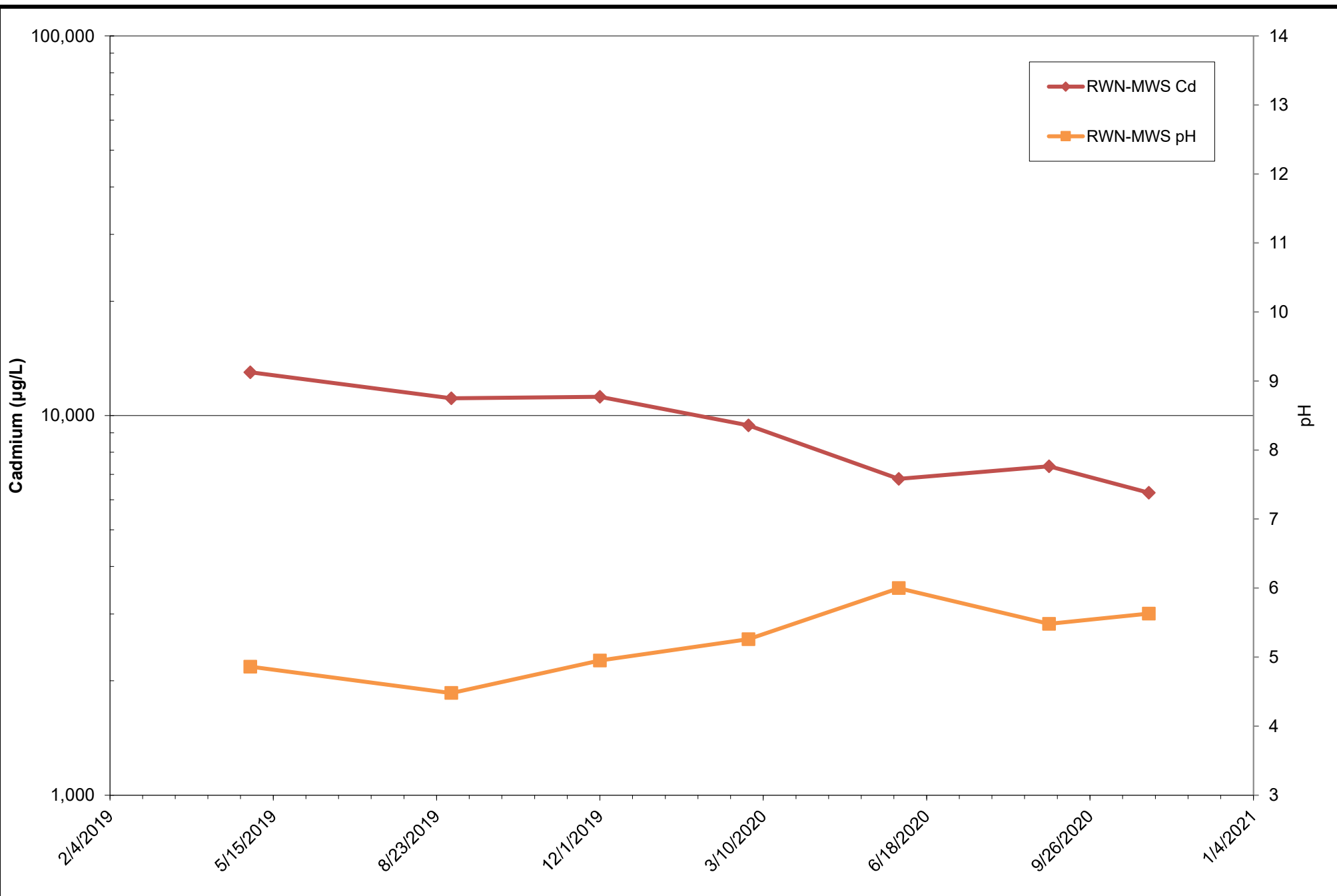
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWM-MWS pH and Cadmium Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

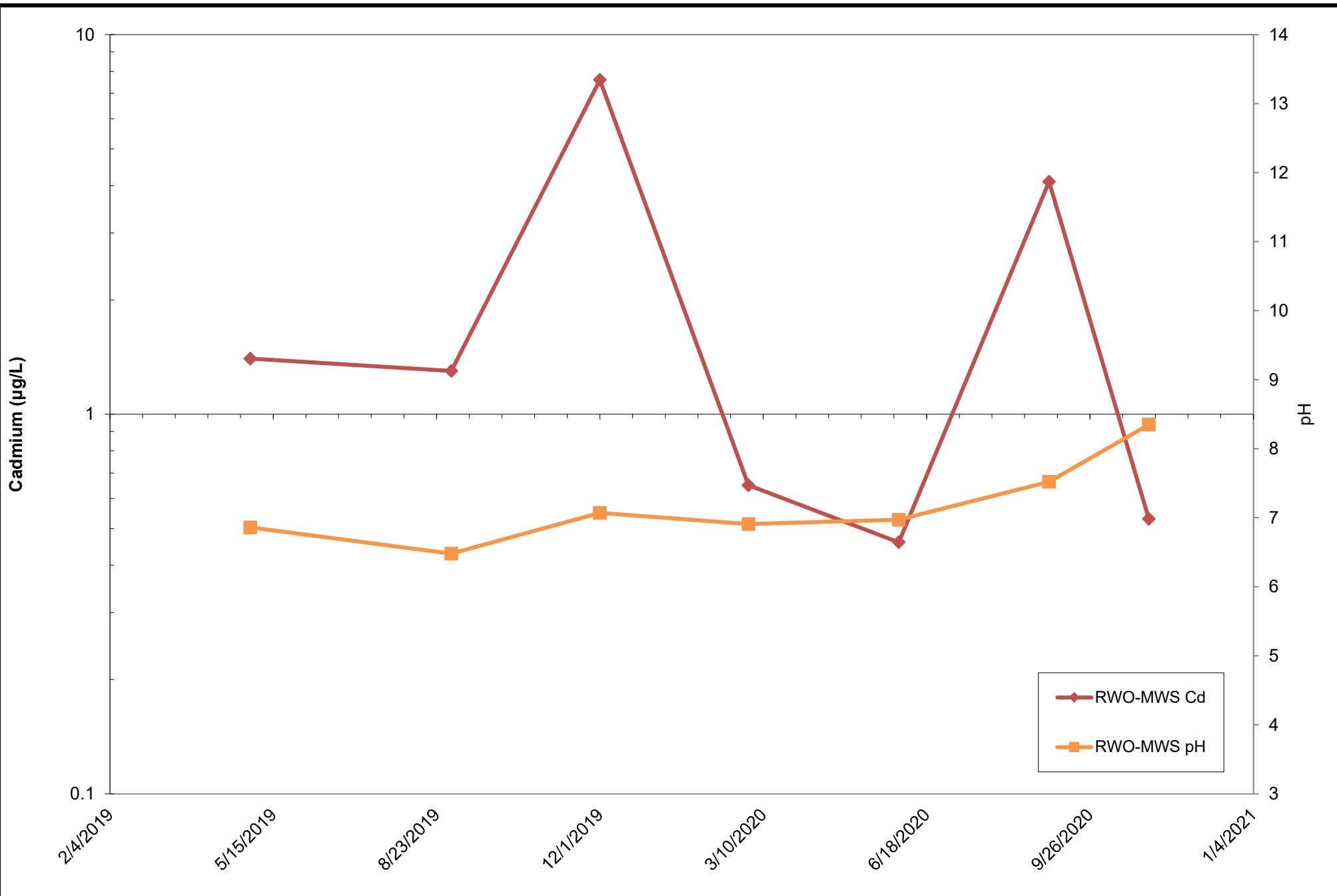
Sparrows Point, Maryland

## RWN-MWS pH and Cadmium Concentrations

January 27, 2021

**Appx  
B**





**ARM Group LLC**  
Engineers and Scientists

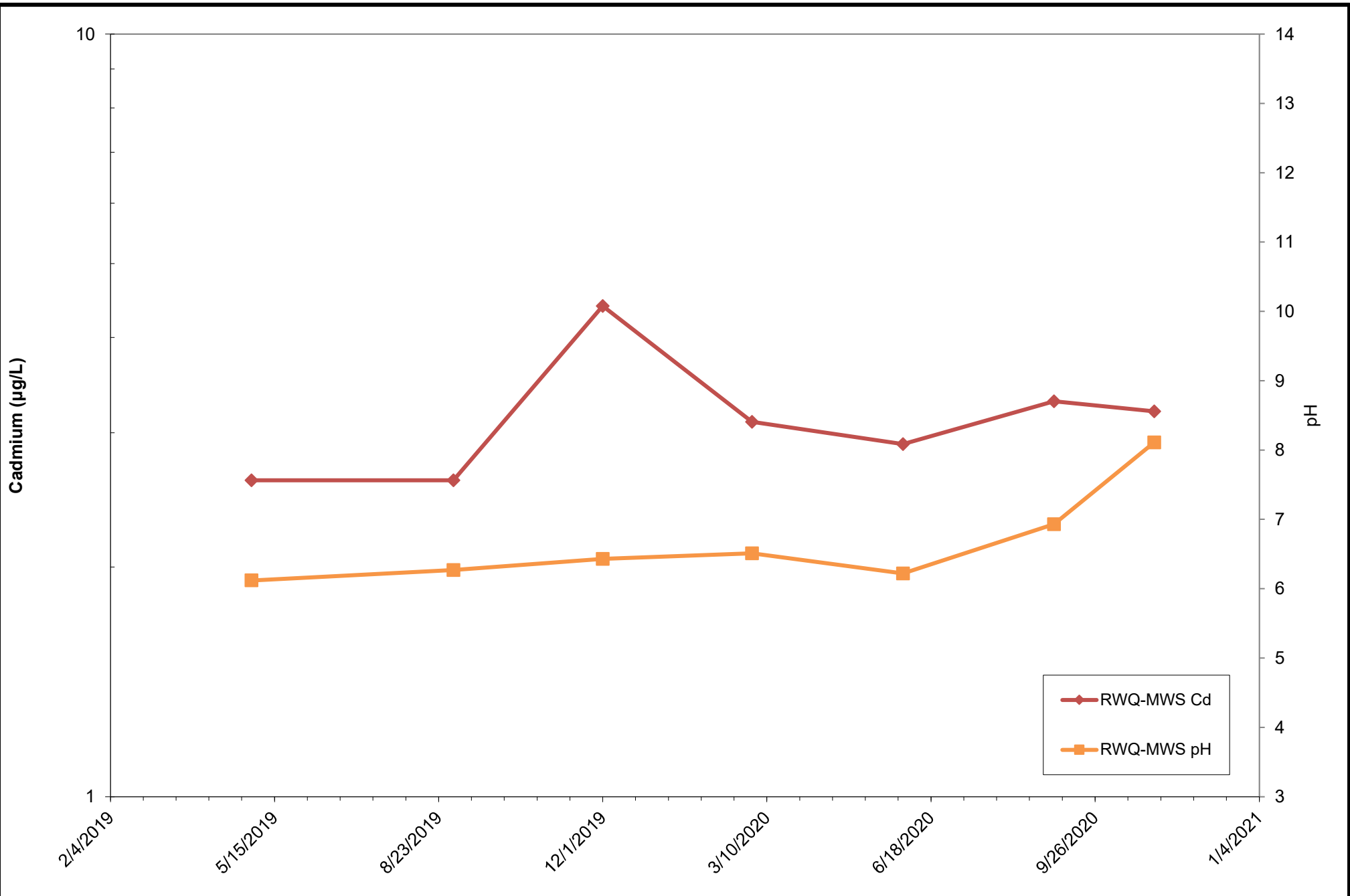
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

## RWO-MWS pH and Cadmium Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

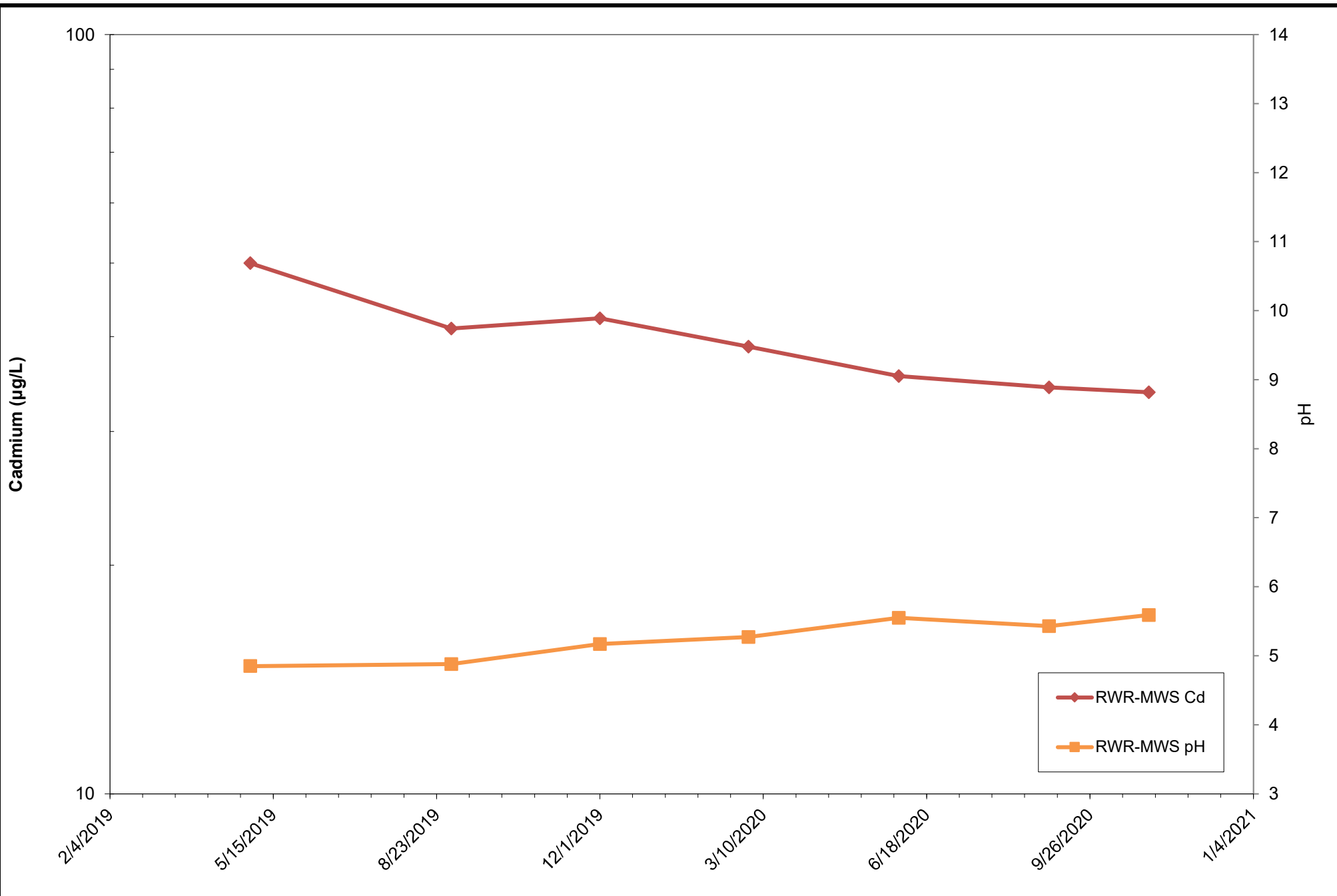
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWQ-MWS pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

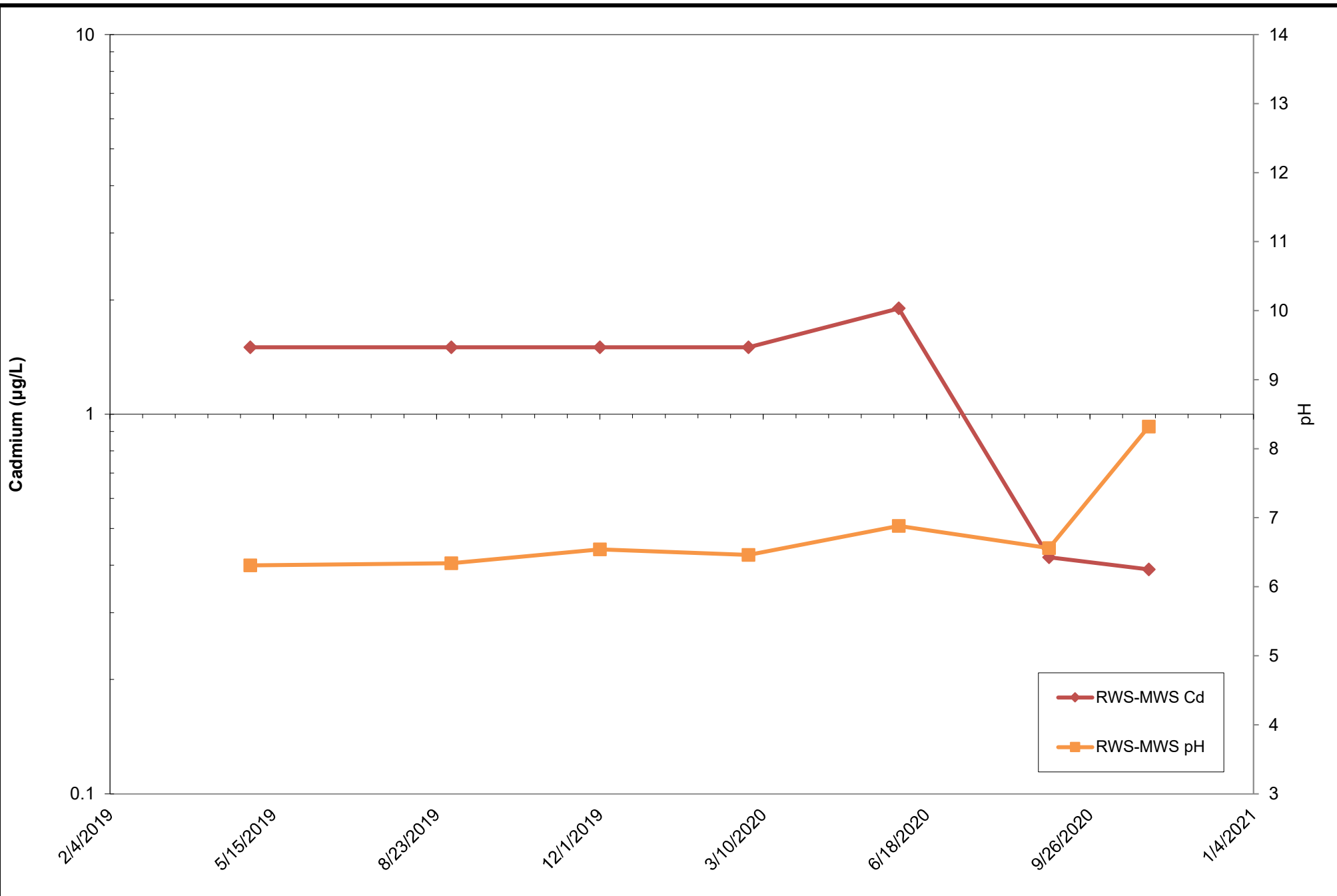
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWR-MWS pH and Cadmium Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

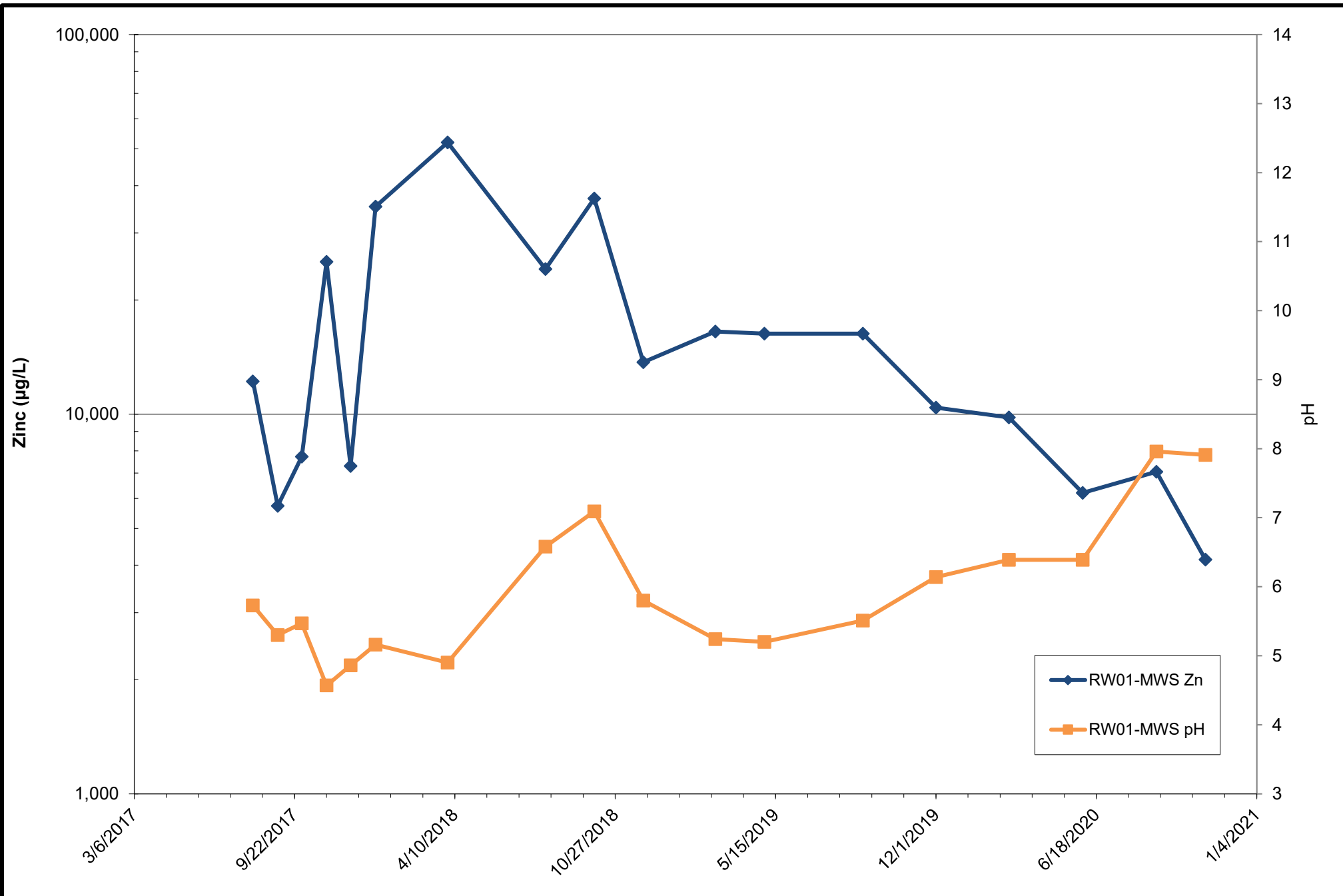
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWS-MWS pH and Cadmium Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

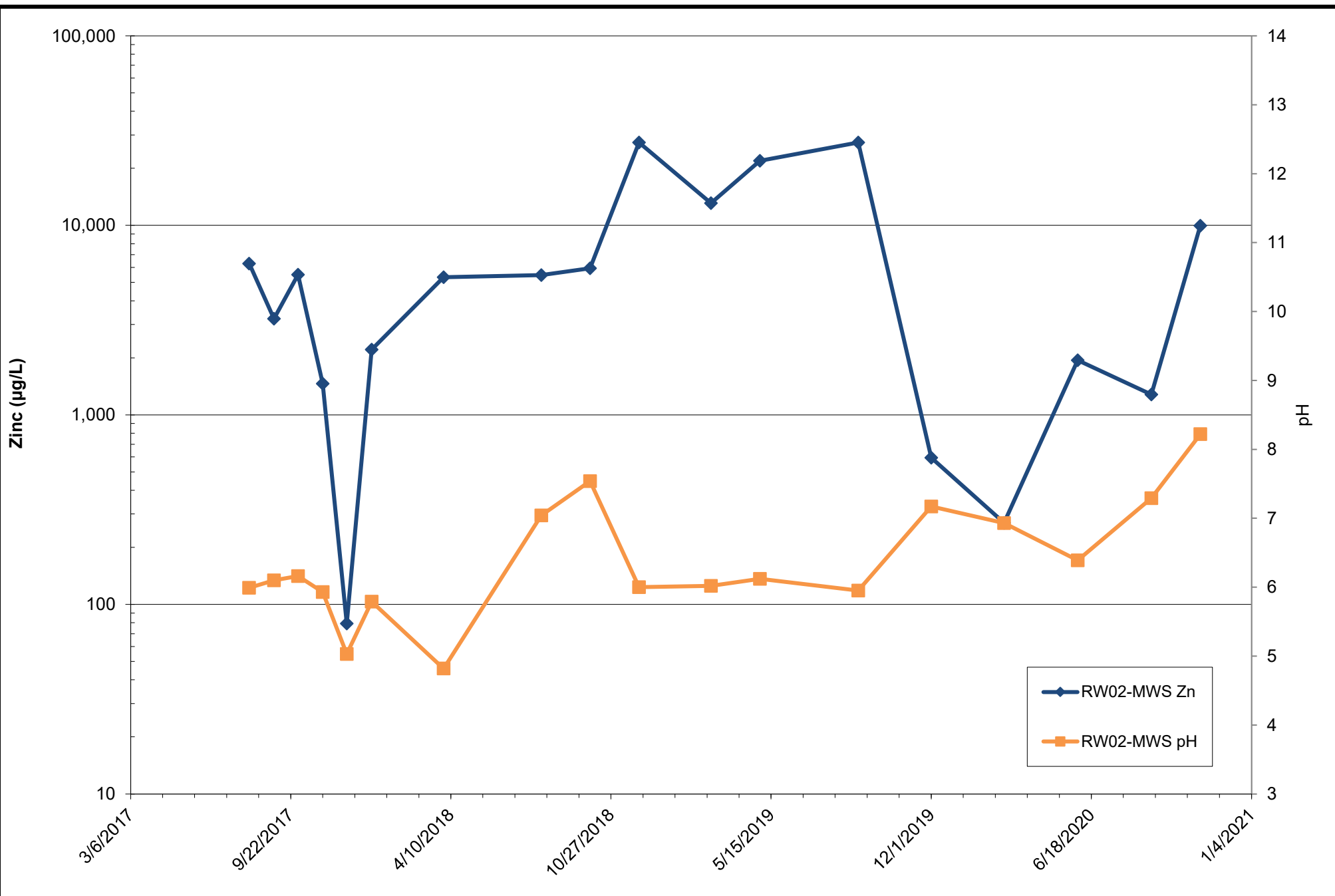
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW01-MWS pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

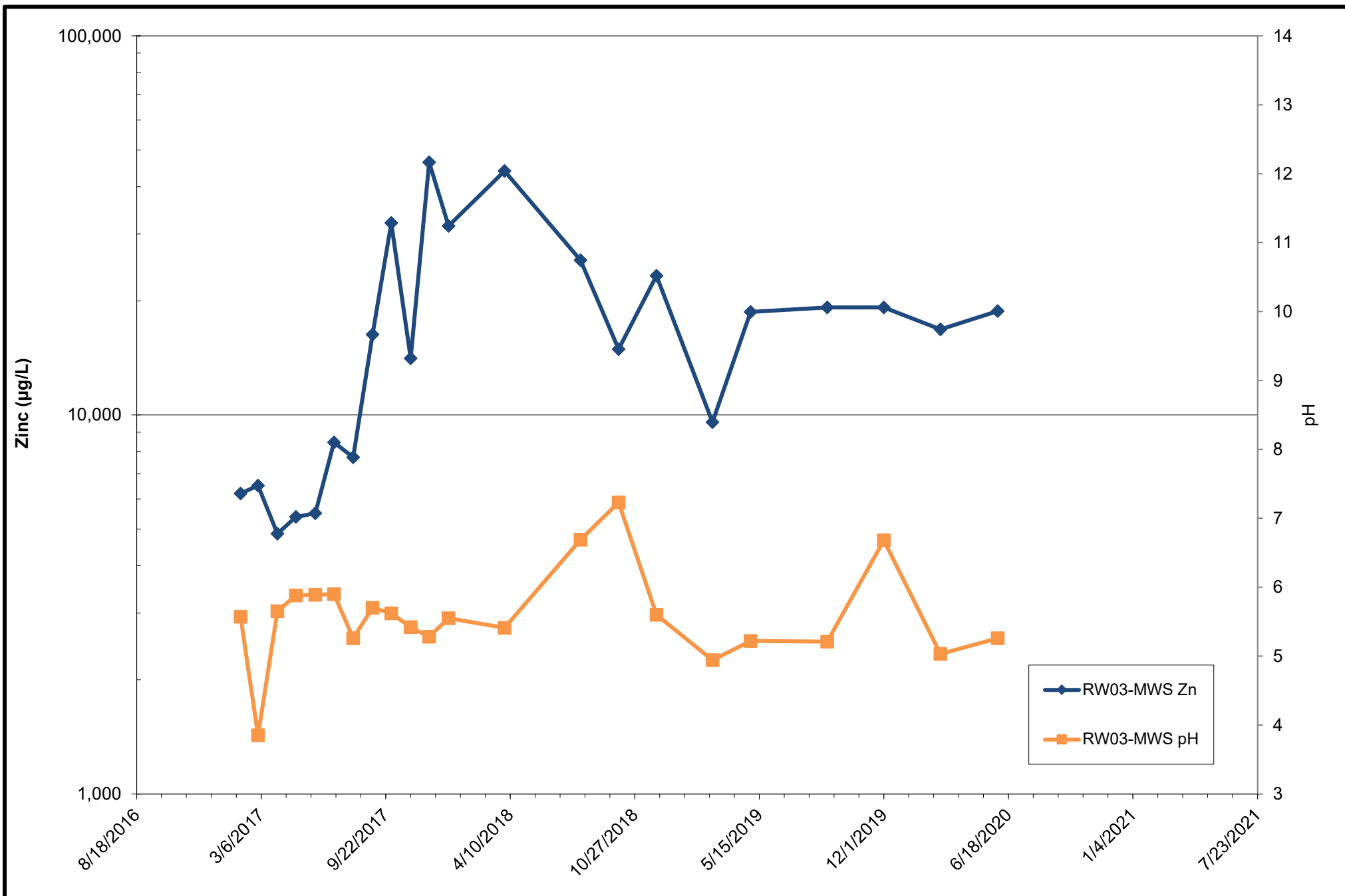
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

## RW02-MWS pH and Zinc Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

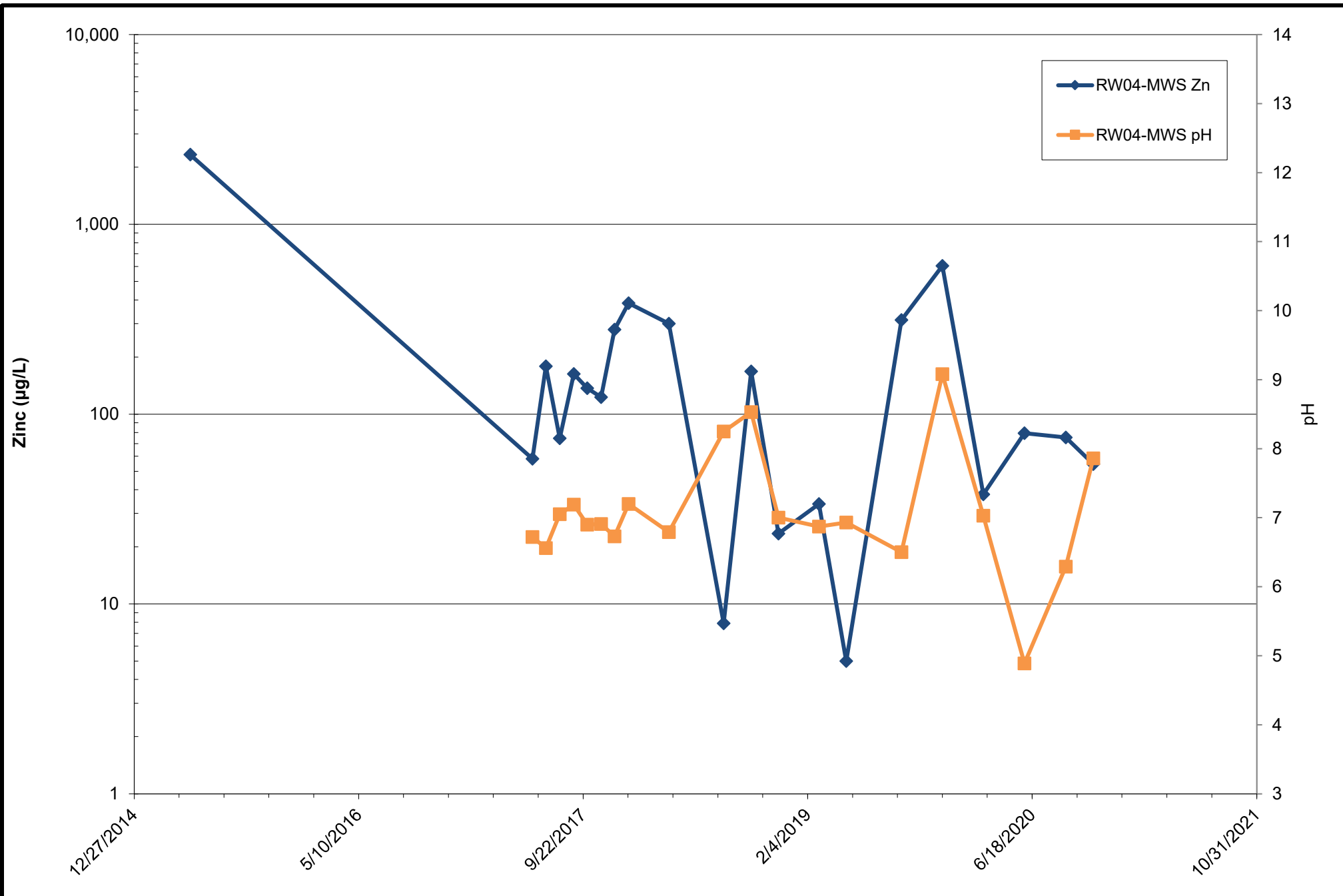
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW03-MWS pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

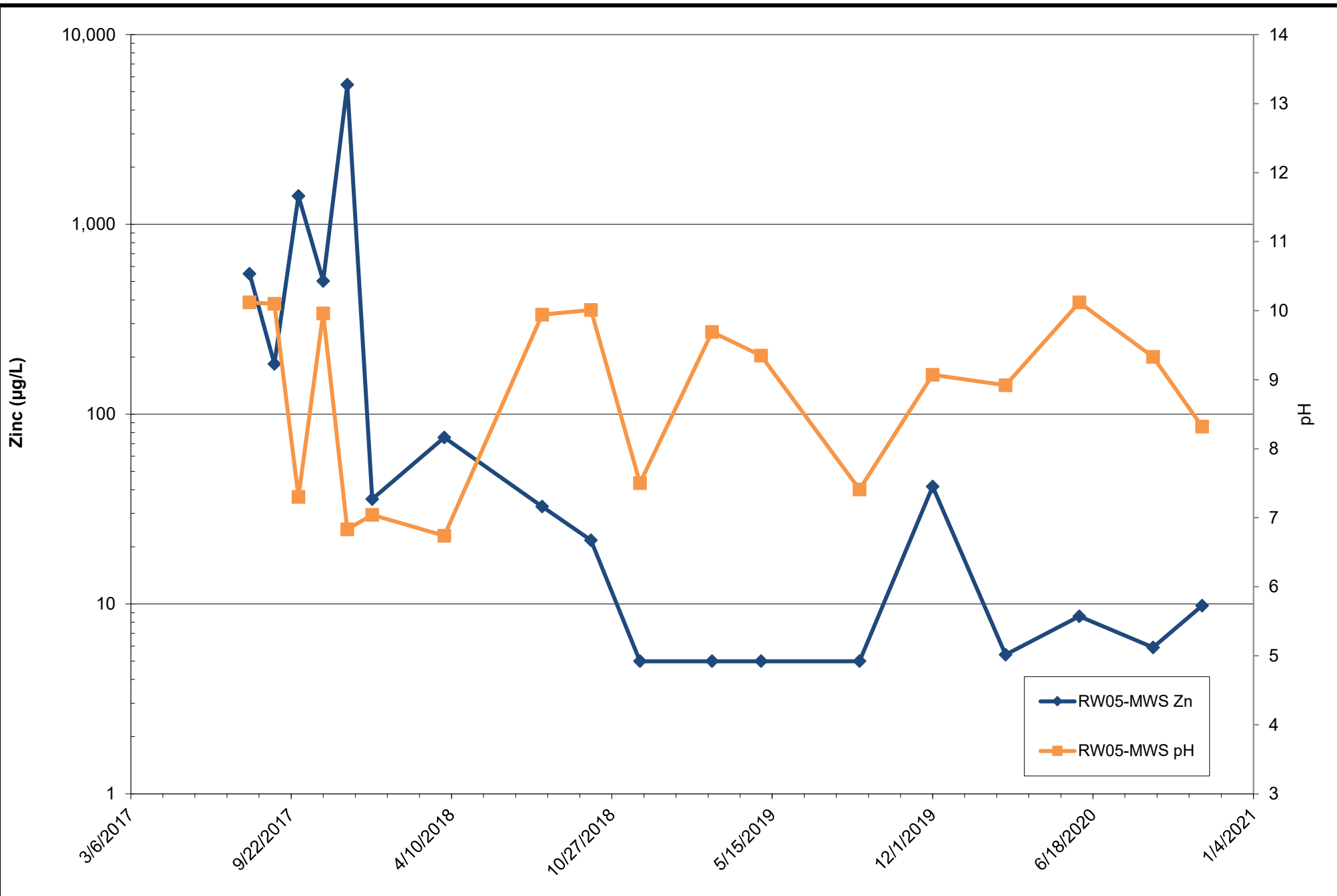
Sparrows Point, Maryland

### RW04-MWS pH and Zinc Concentrations

January 27, 2021

**Appx  
B**





**ARM Group LLC**  
Engineers and Scientists

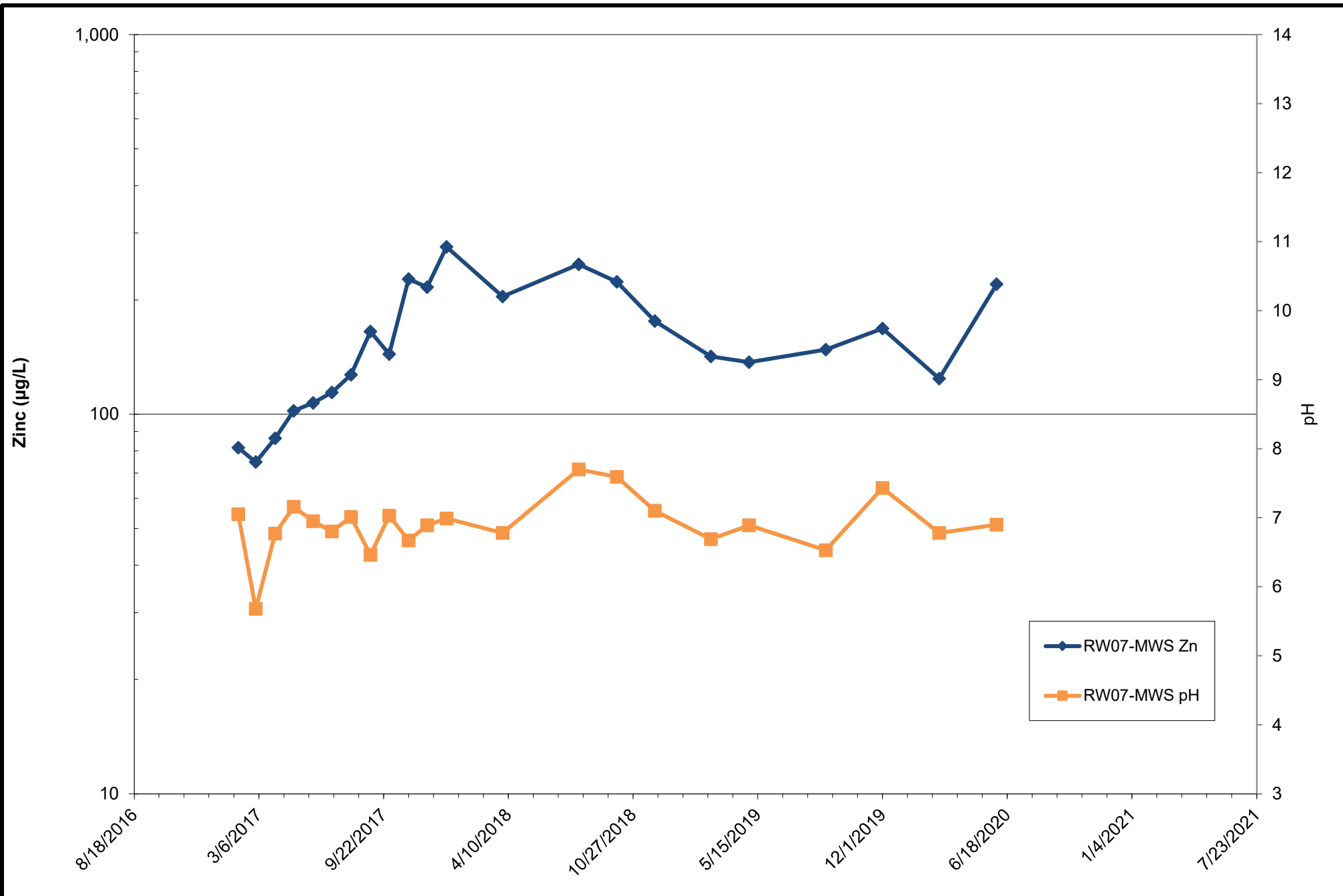
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

## RW05-MWS pH and Zinc Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

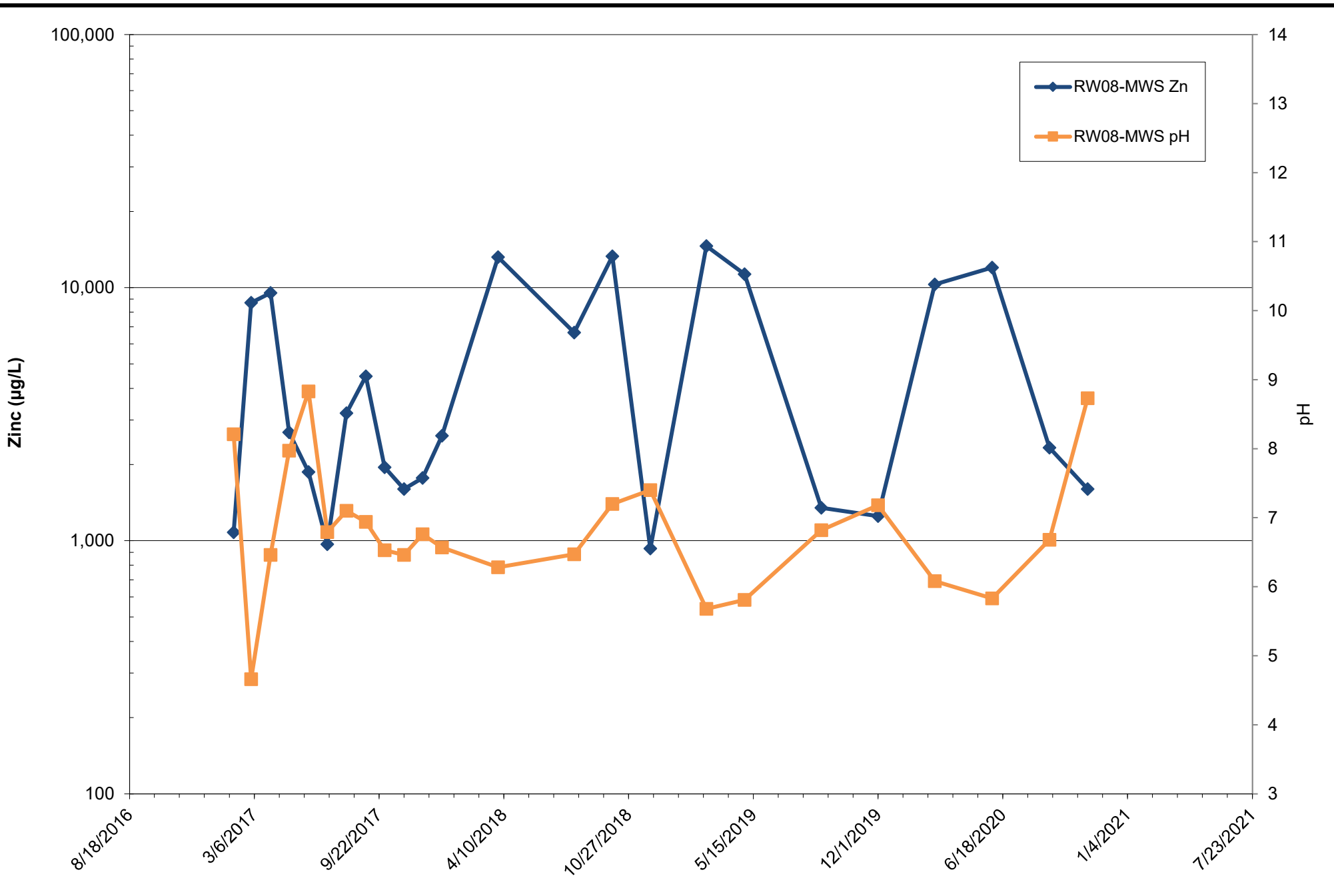
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW07-MWS pH and Zinc Concentrations**

January 27, 2021

**Appx B**



**ARM Group LLC**  
Engineers and Scientists

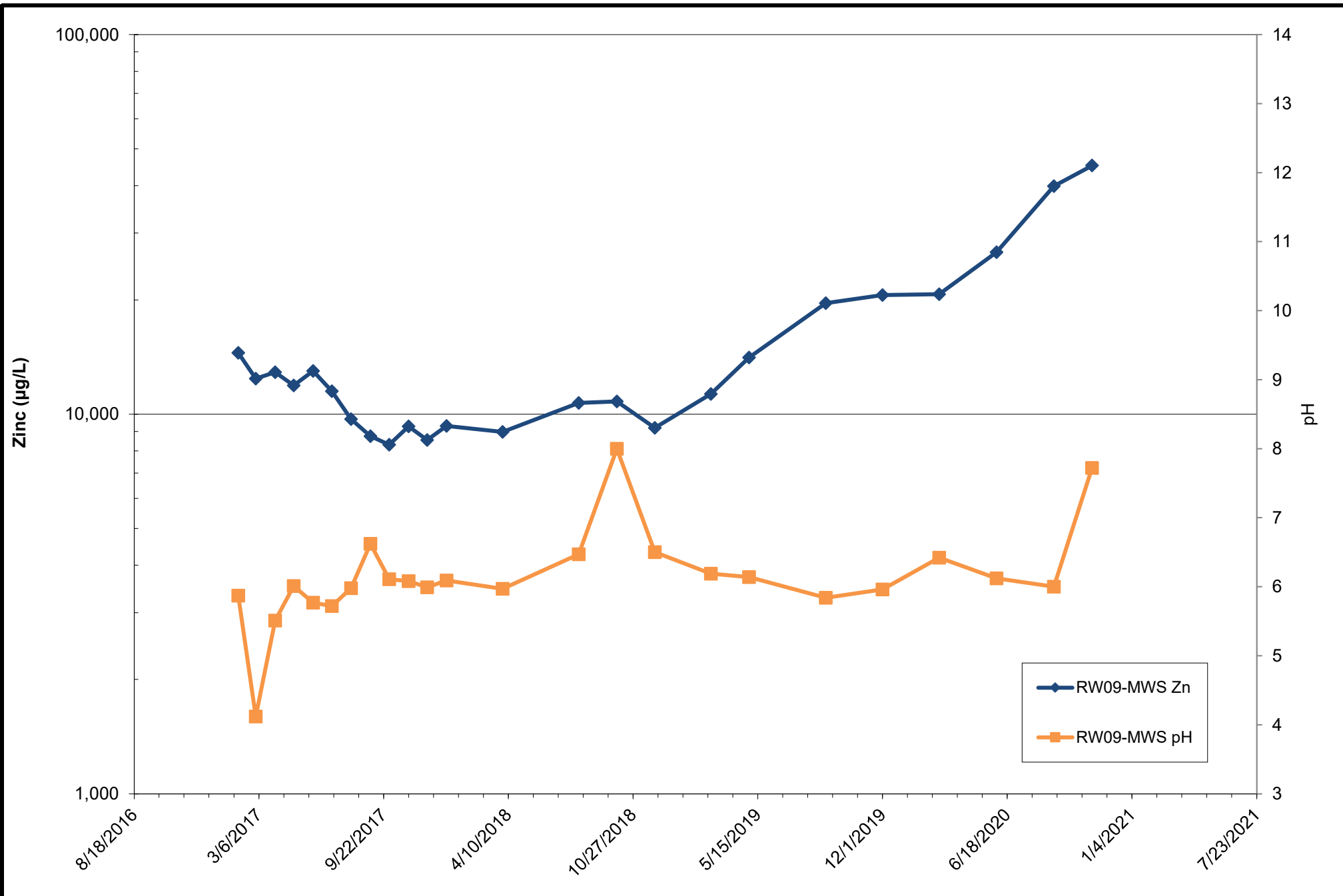
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

## RW08-MWS pH and Zinc Concentrations

January 27, 2021

**Appx**  
**B**



**ARM Group LLC**  
Engineers and Scientists

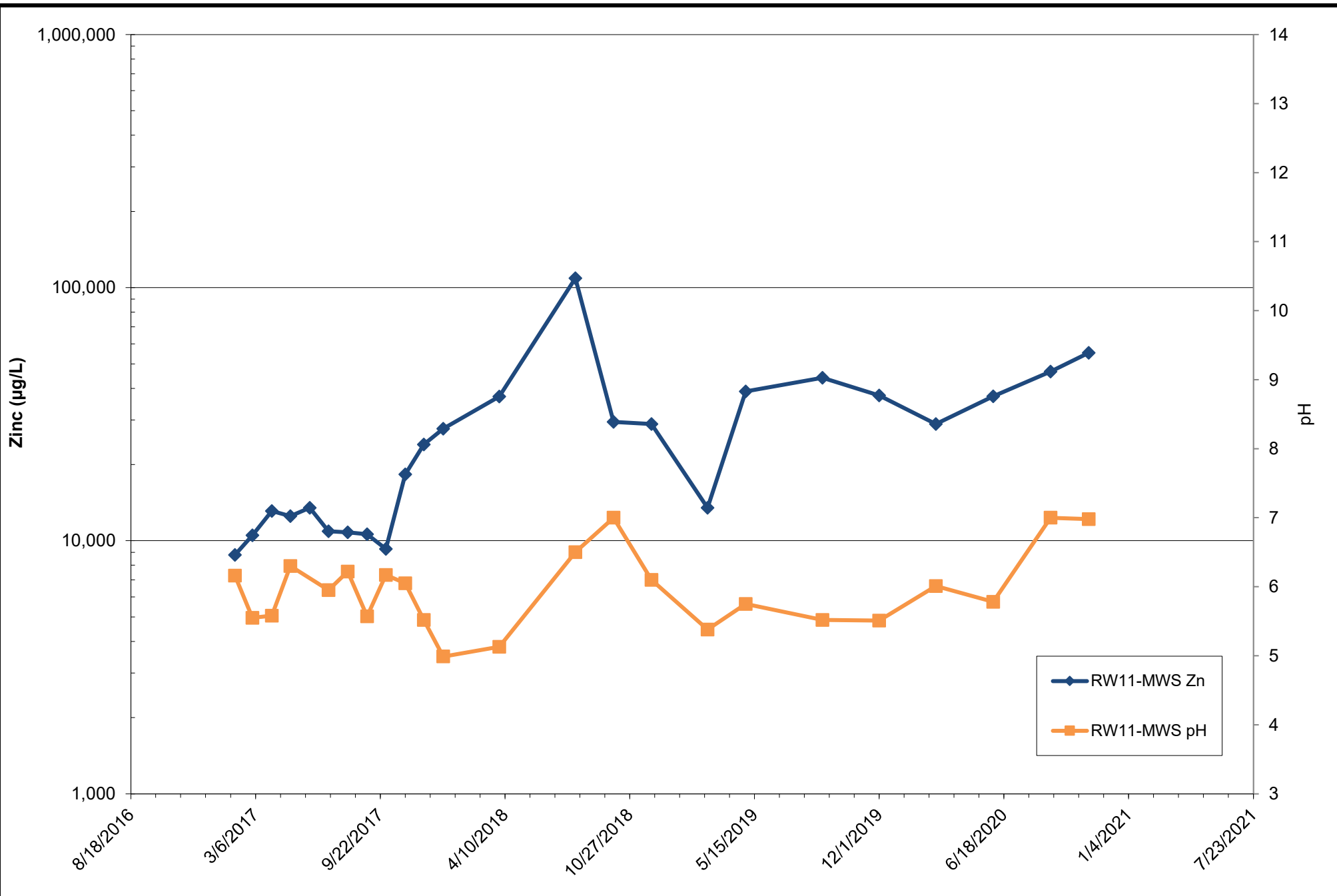
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW09-MWS pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

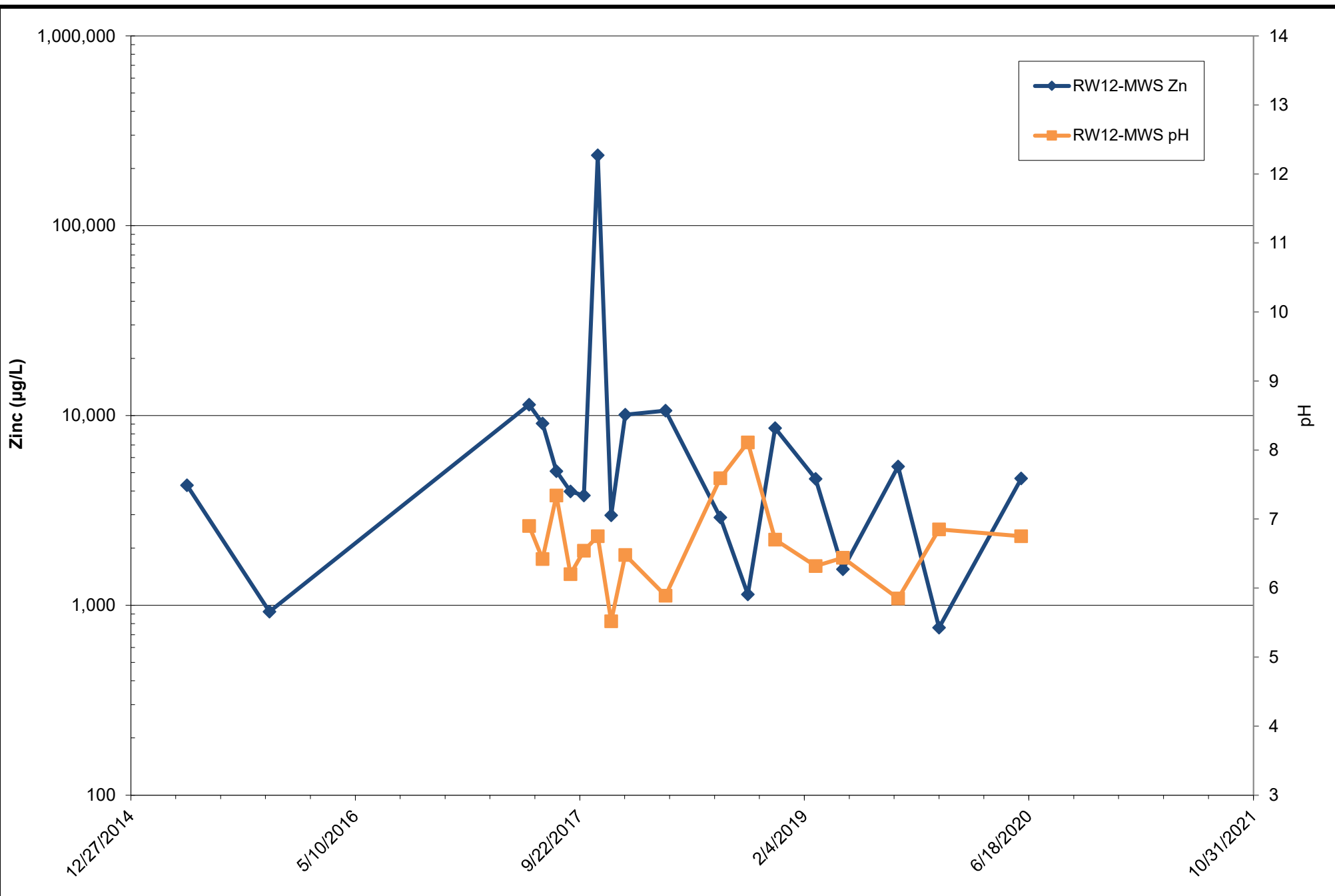
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW11-MWS pH and Zinc Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

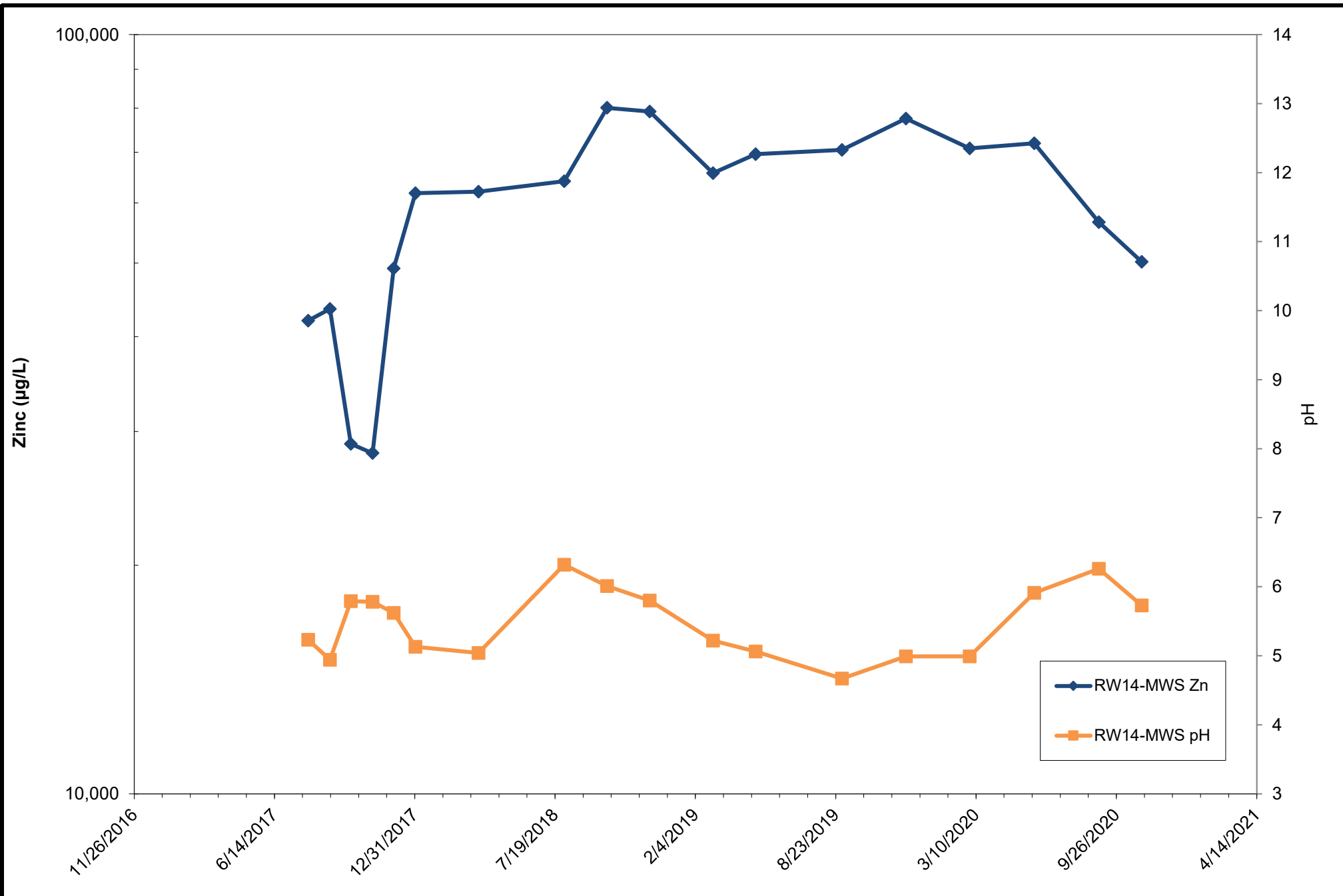
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

## RW12-MWS pH and Zinc Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

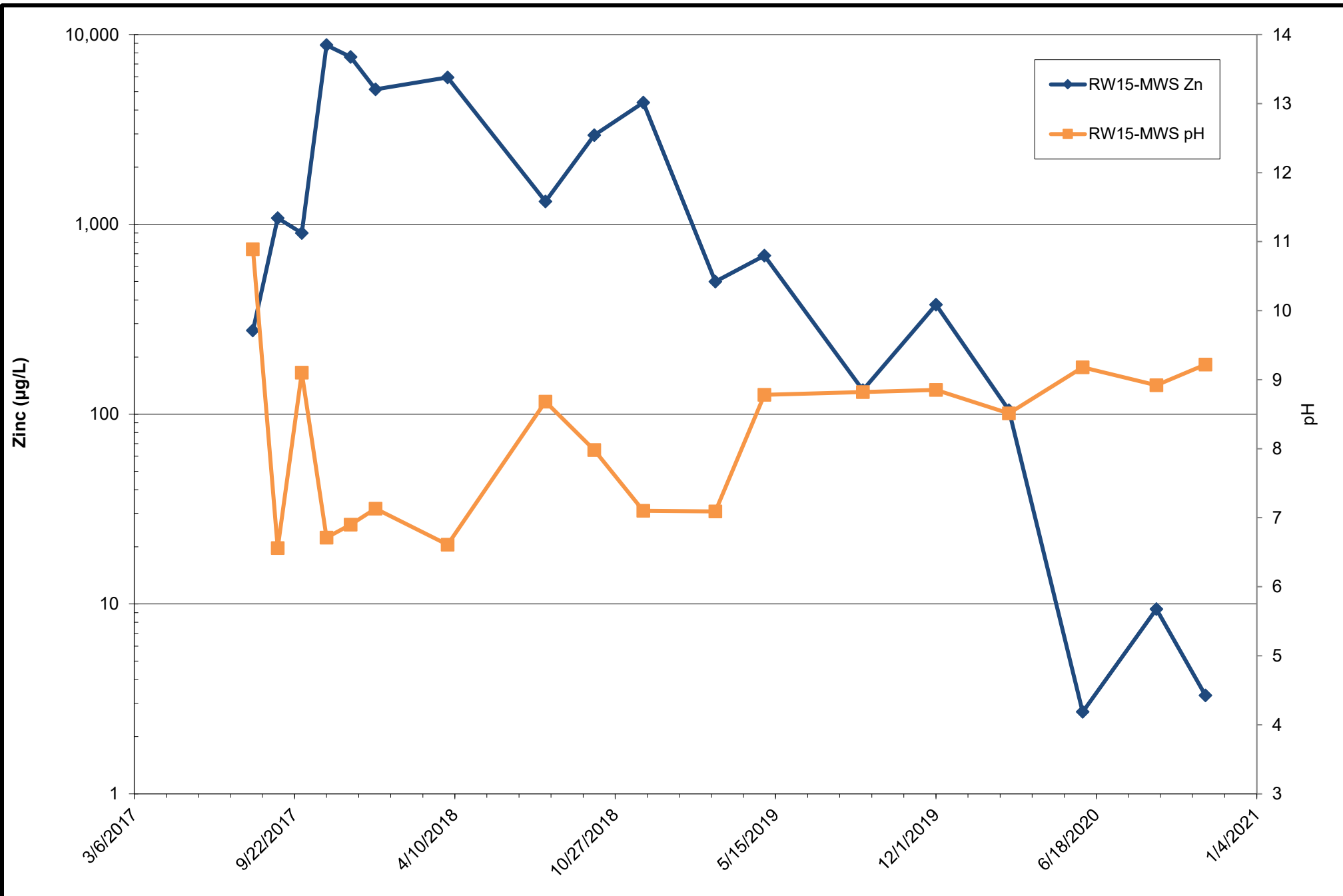
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

## RW14-MWS pH and Zinc Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

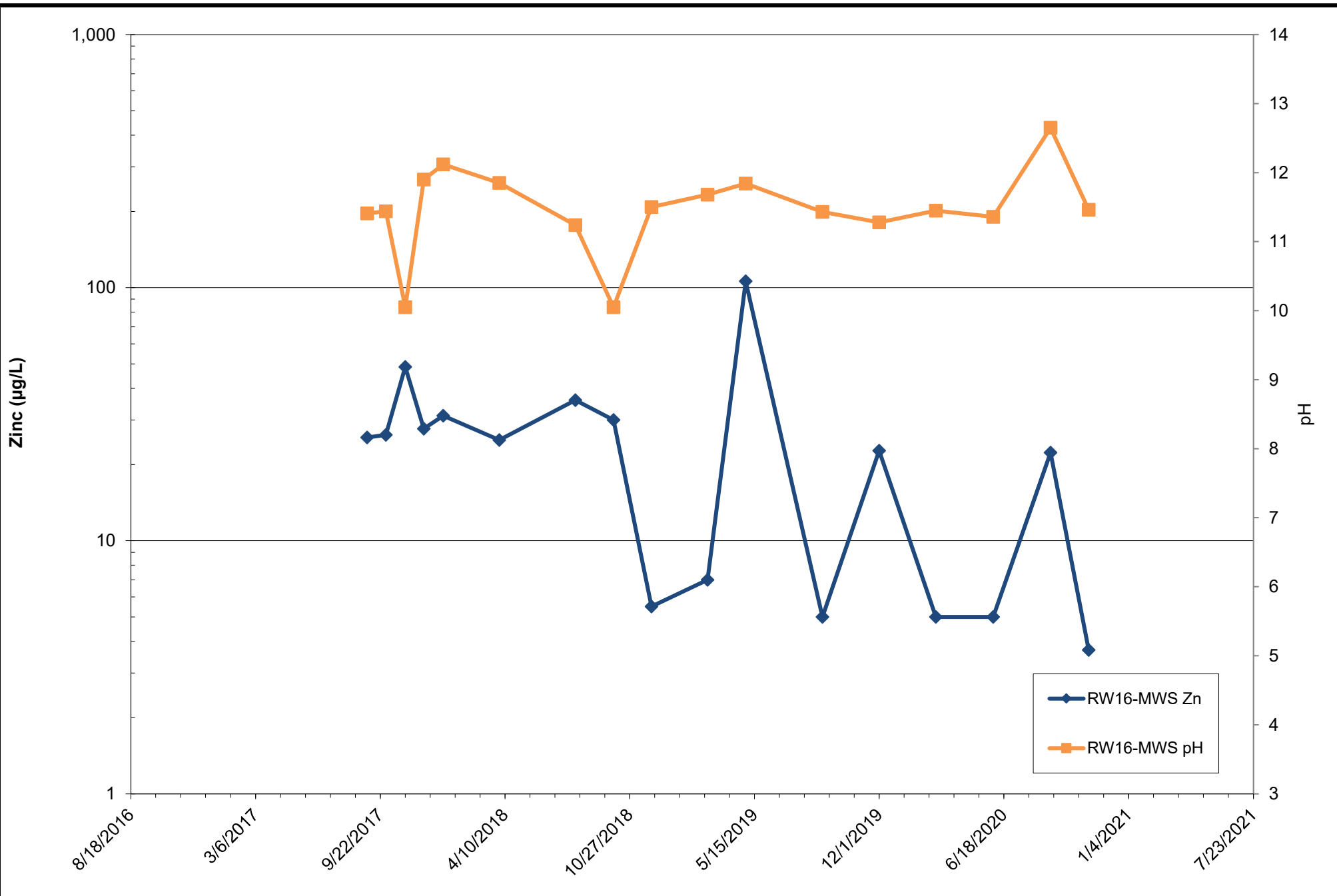
Sparrows Point, Maryland

**RW15-MWS pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
B**





**ARM Group LLC**  
Engineers and Scientists

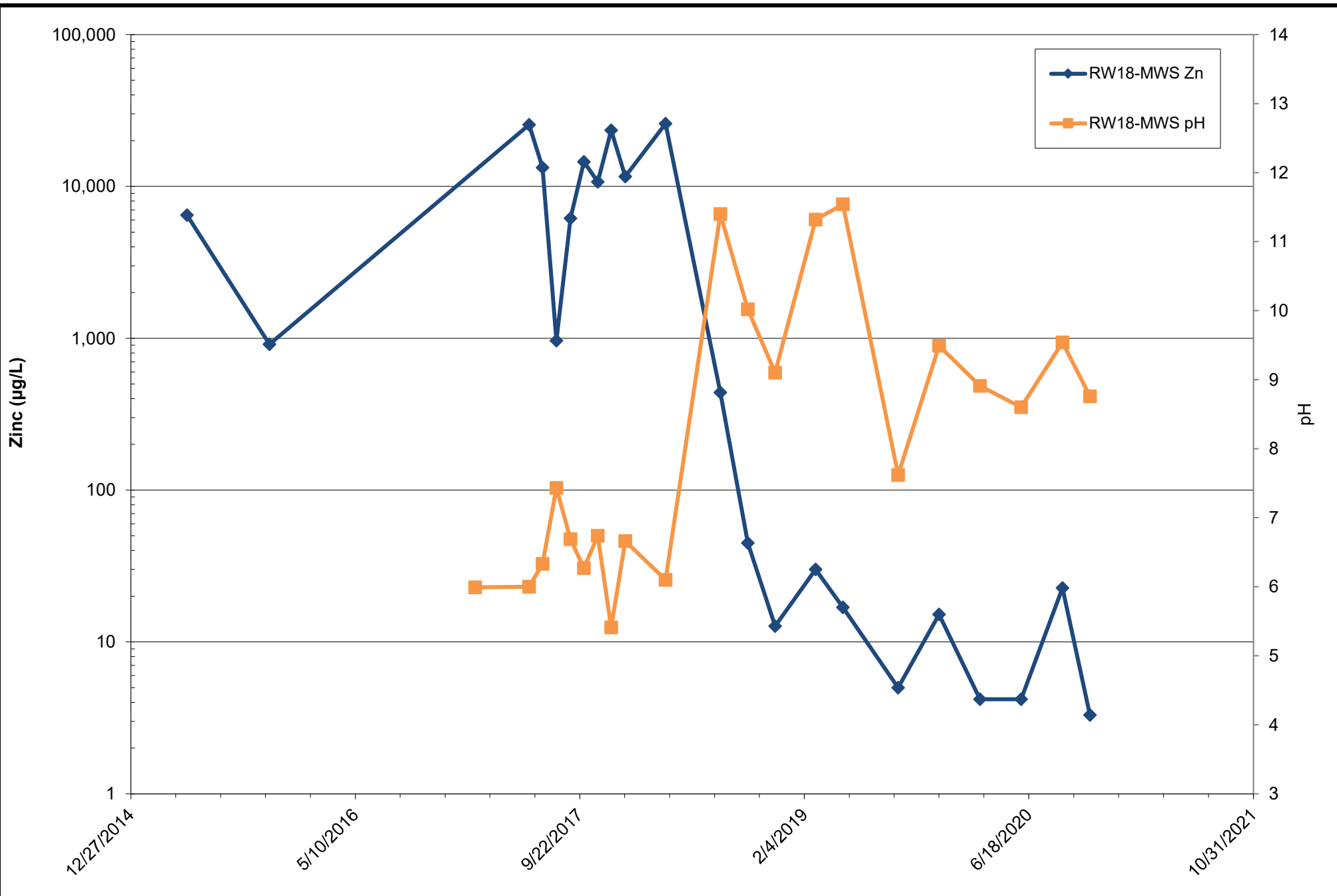
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

## RW16-MWS pH and Zinc Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

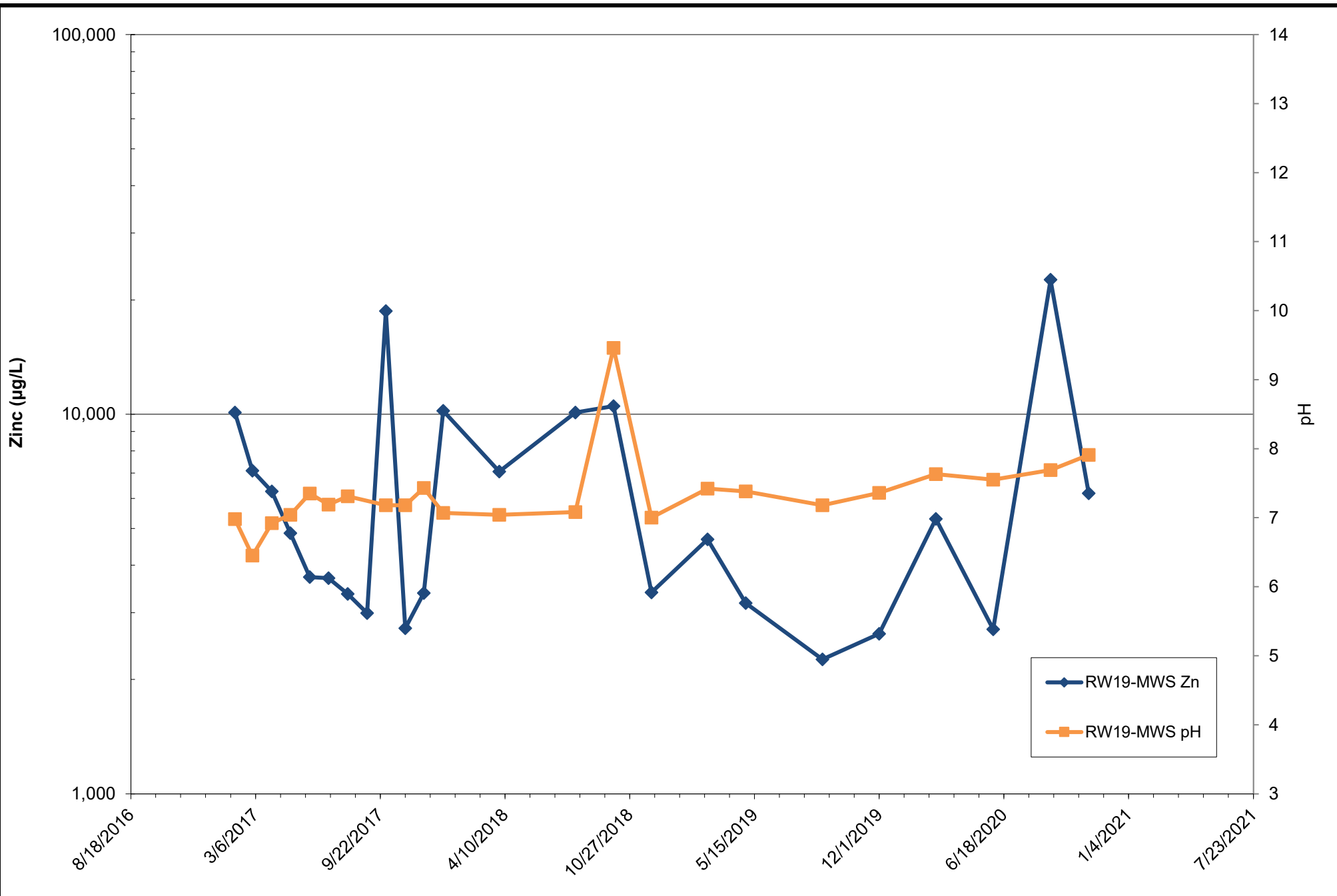
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RW18-MWS pH and Zinc Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

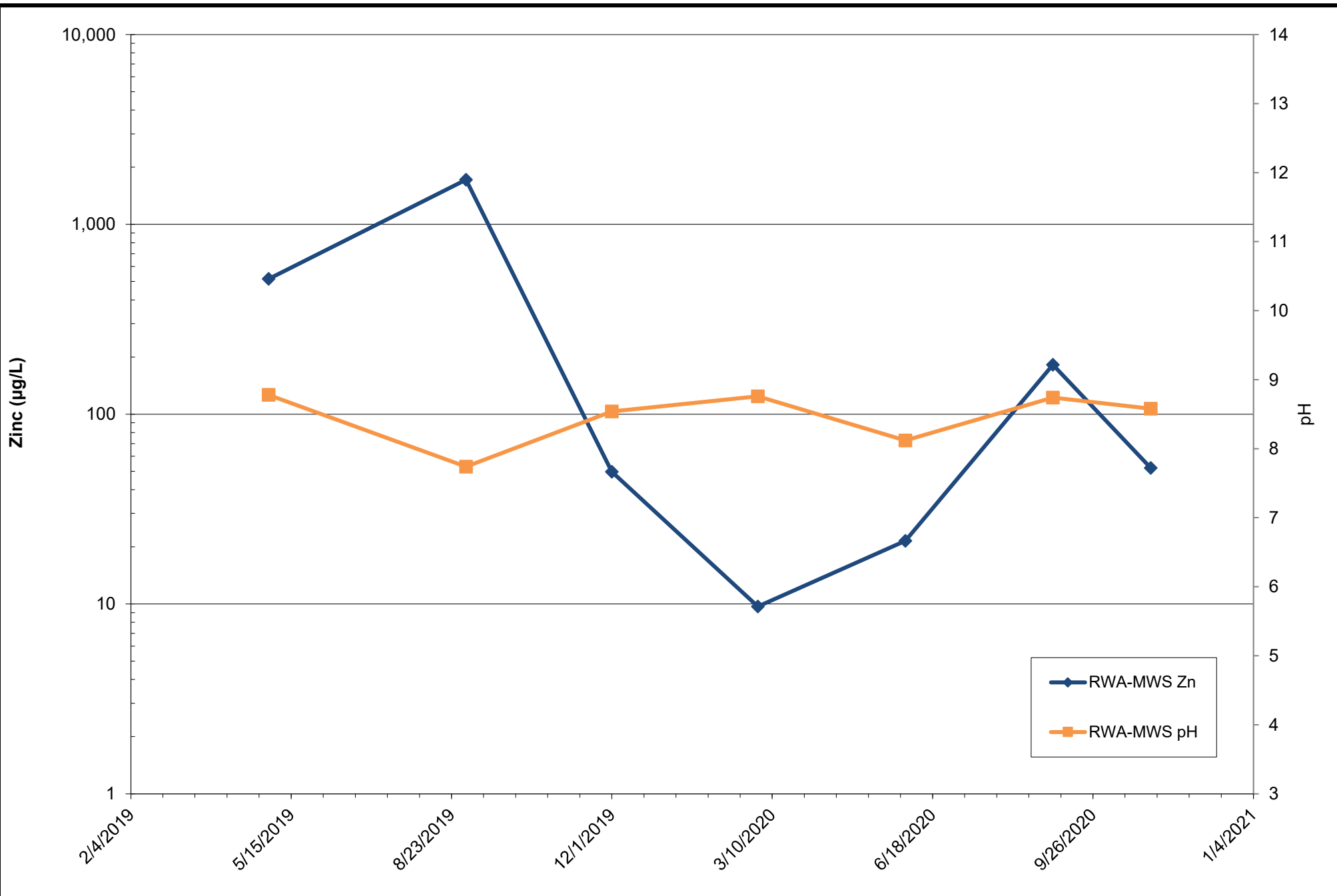
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RW19-MWS pH and Zinc Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

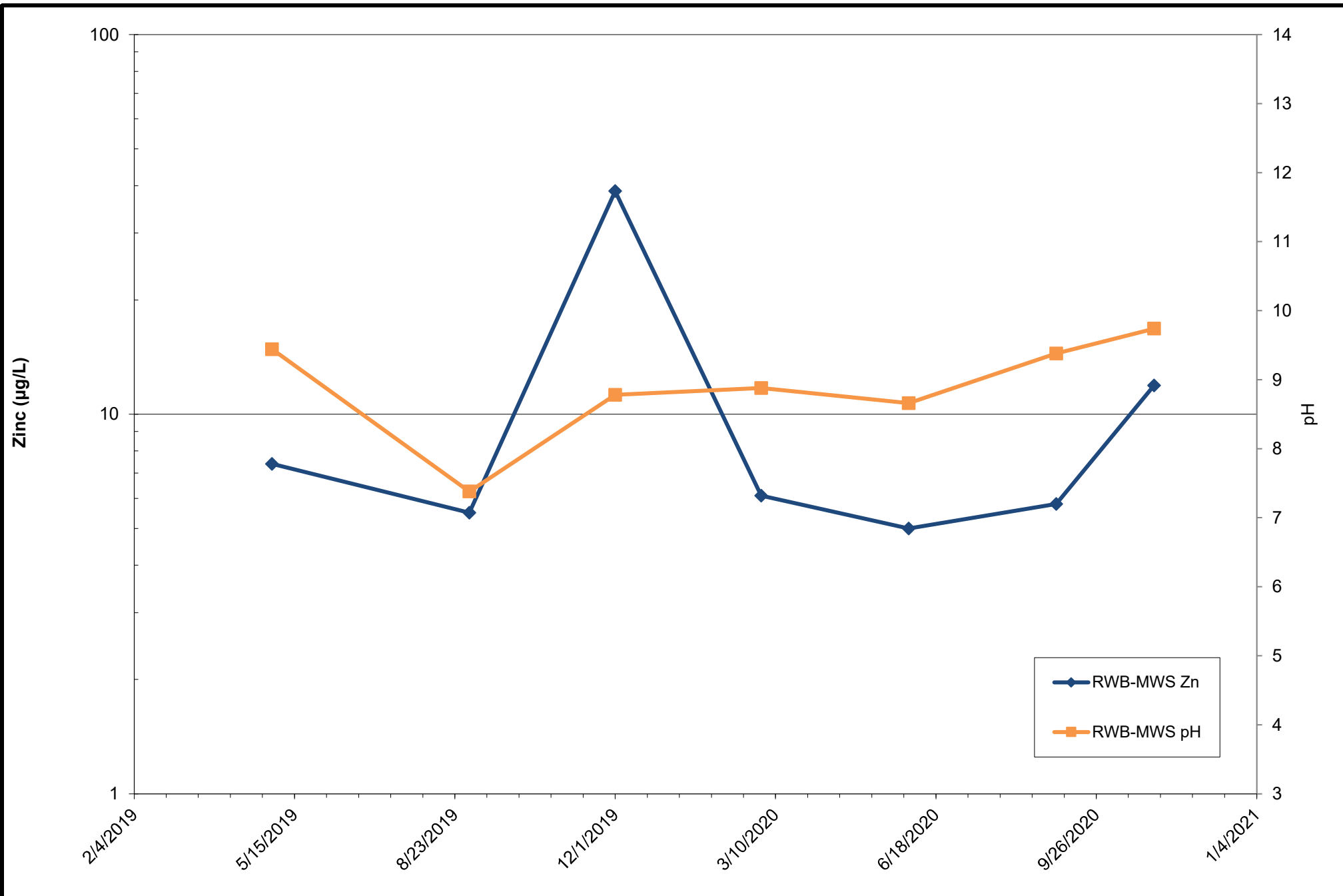
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWA-MWS pH and Zinc Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

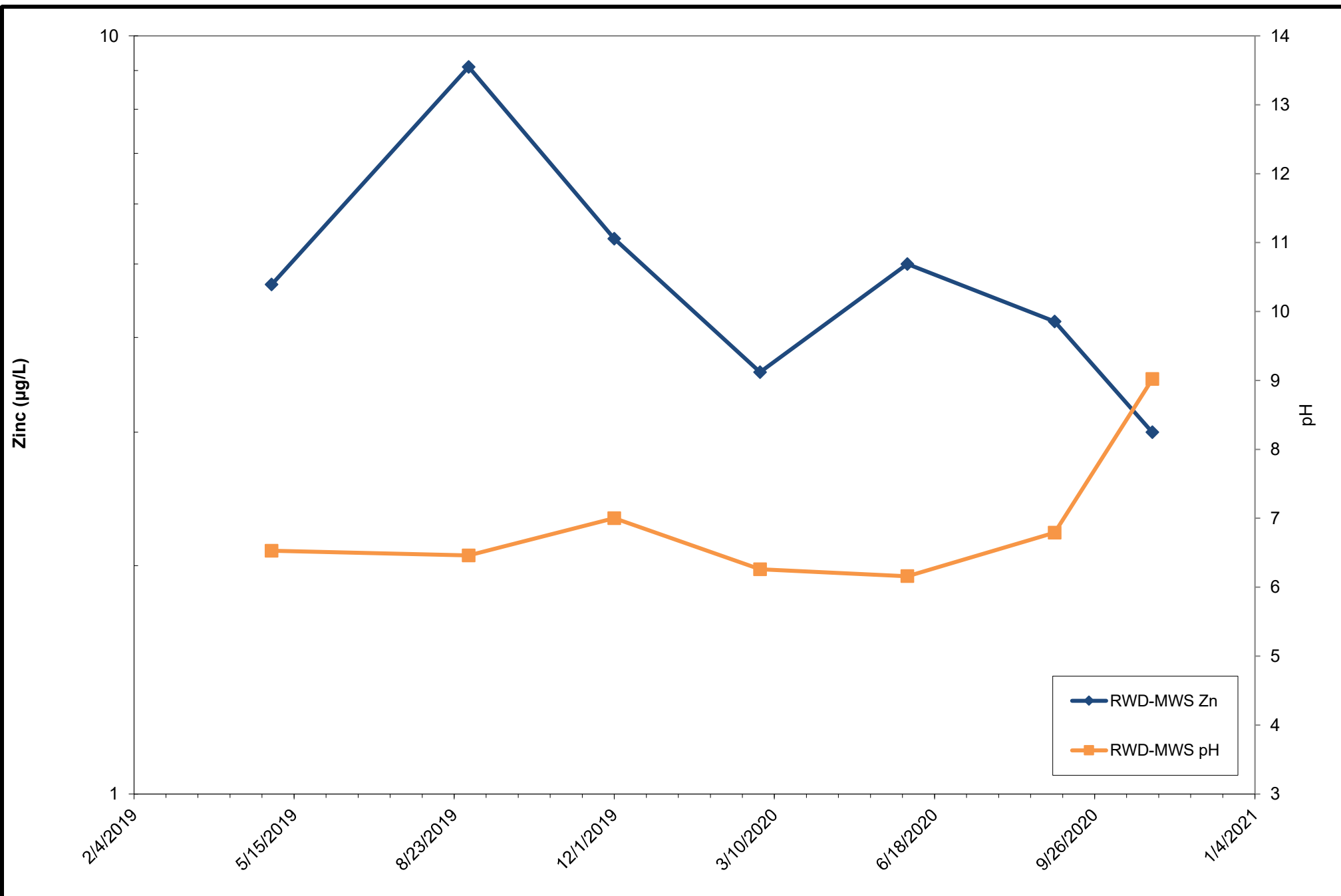
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWB-MWS pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

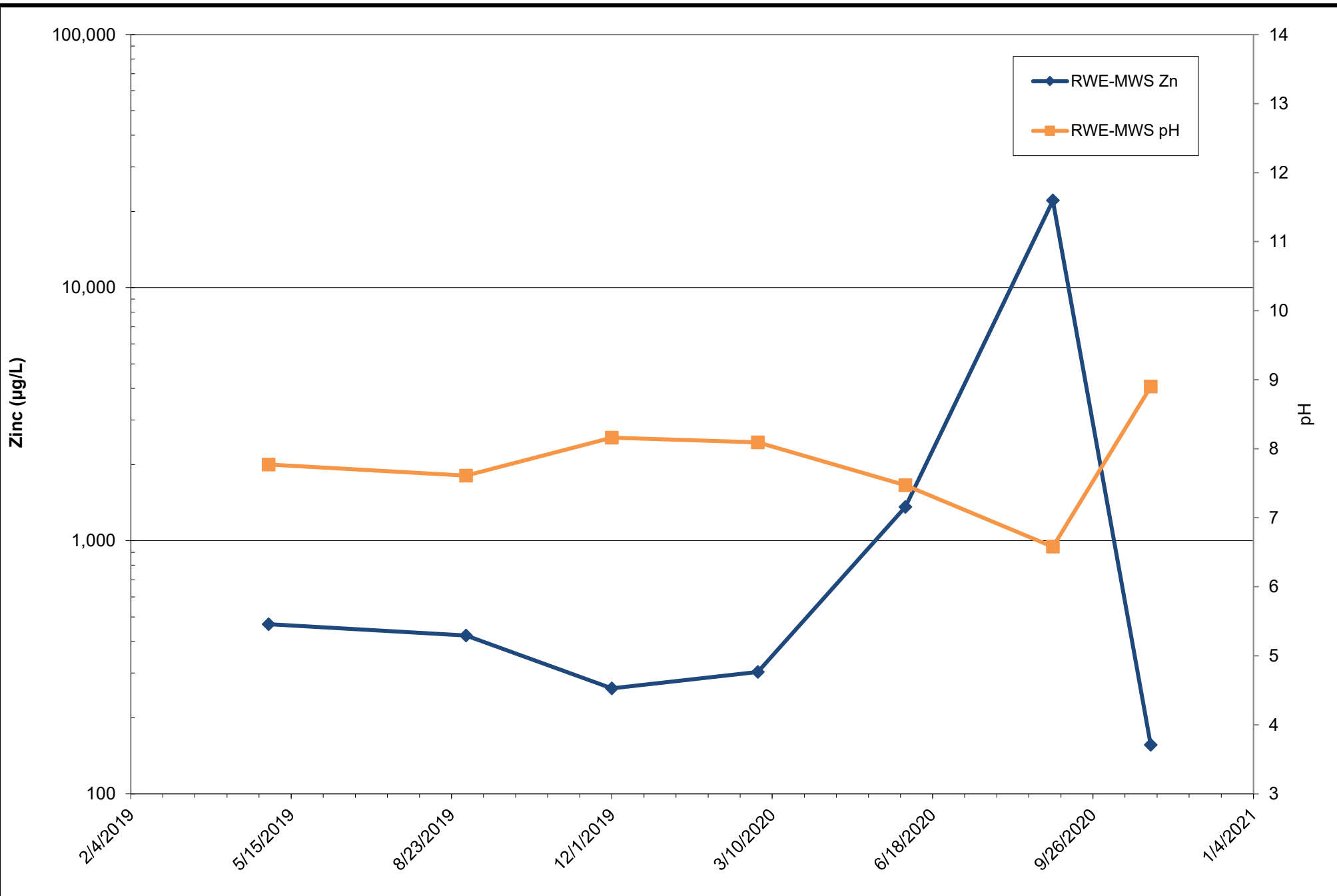
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWD-MWS pH and Zinc Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

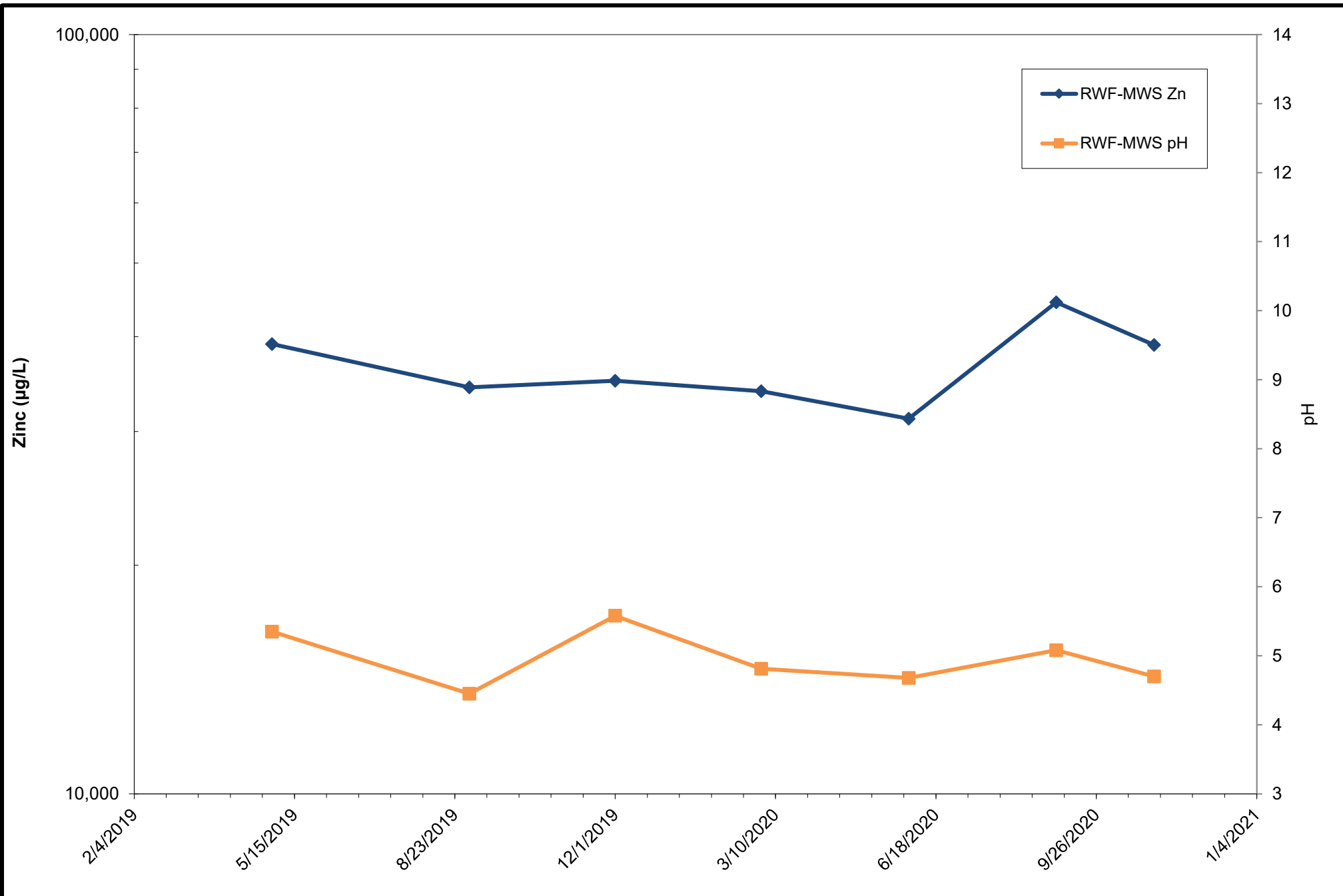
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWE-MWS pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

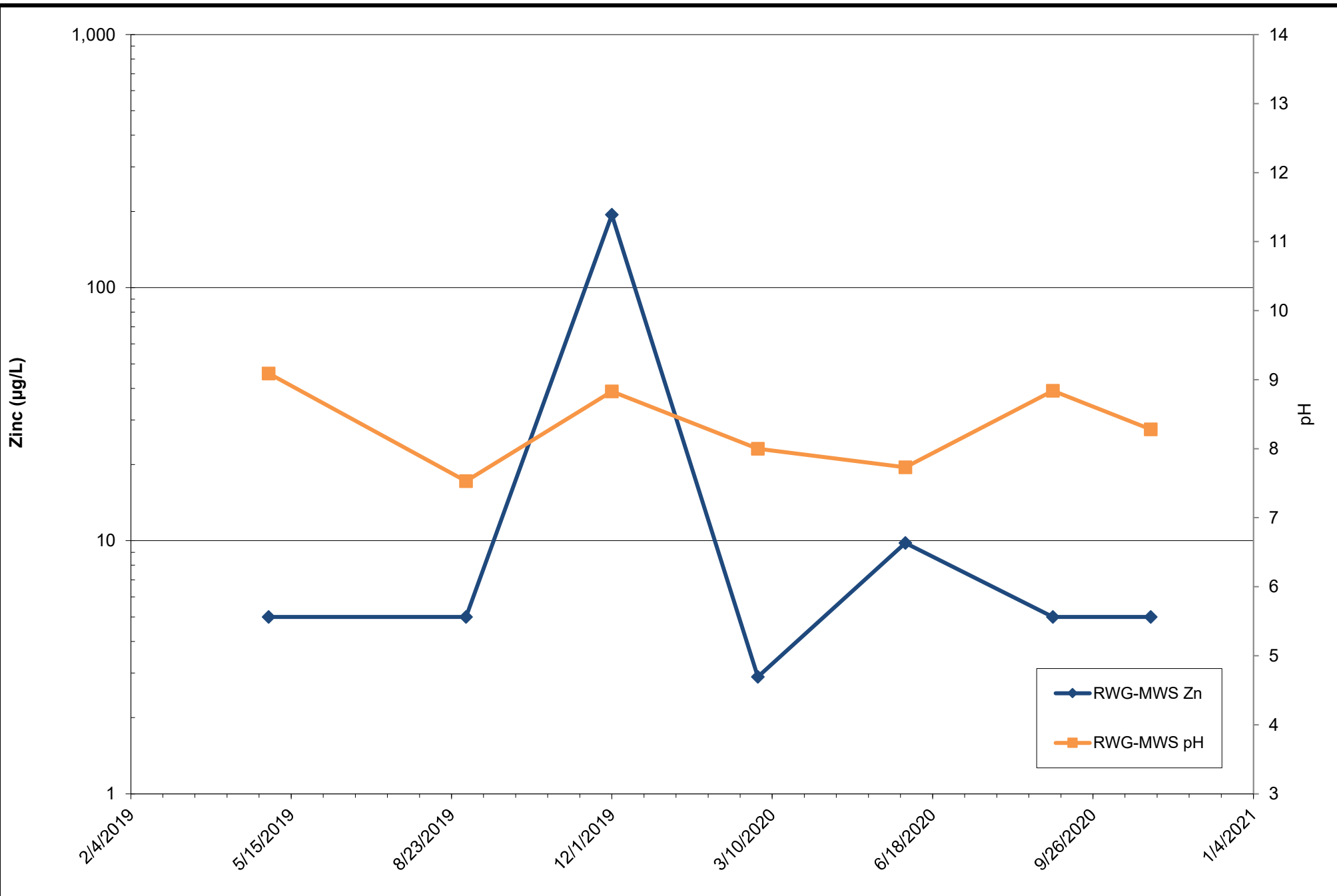
Sparrows Point, Maryland

**RWF-MWS pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
B**





**ARM Group LLC**  
Engineers and Scientists

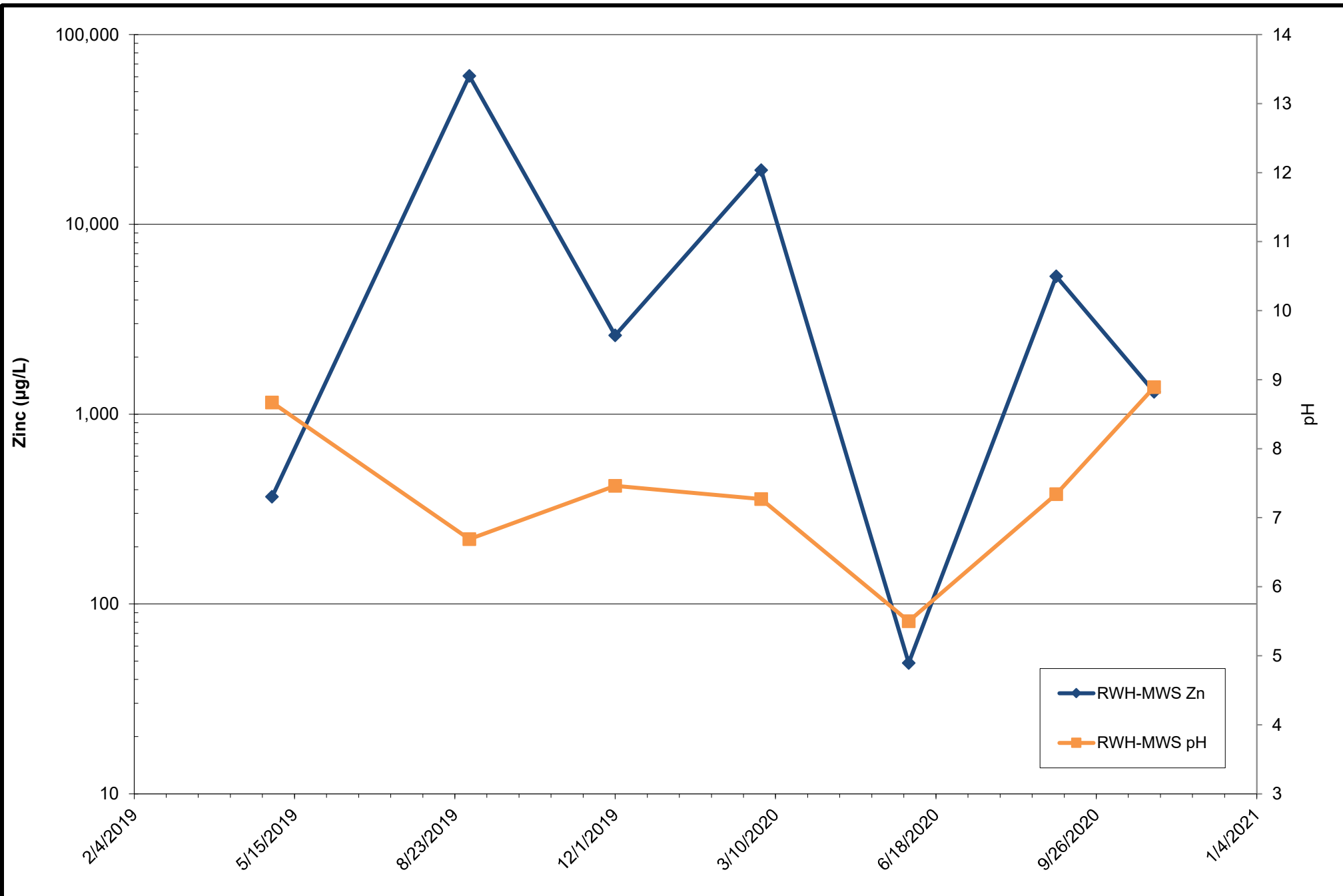
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWG-MWS pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

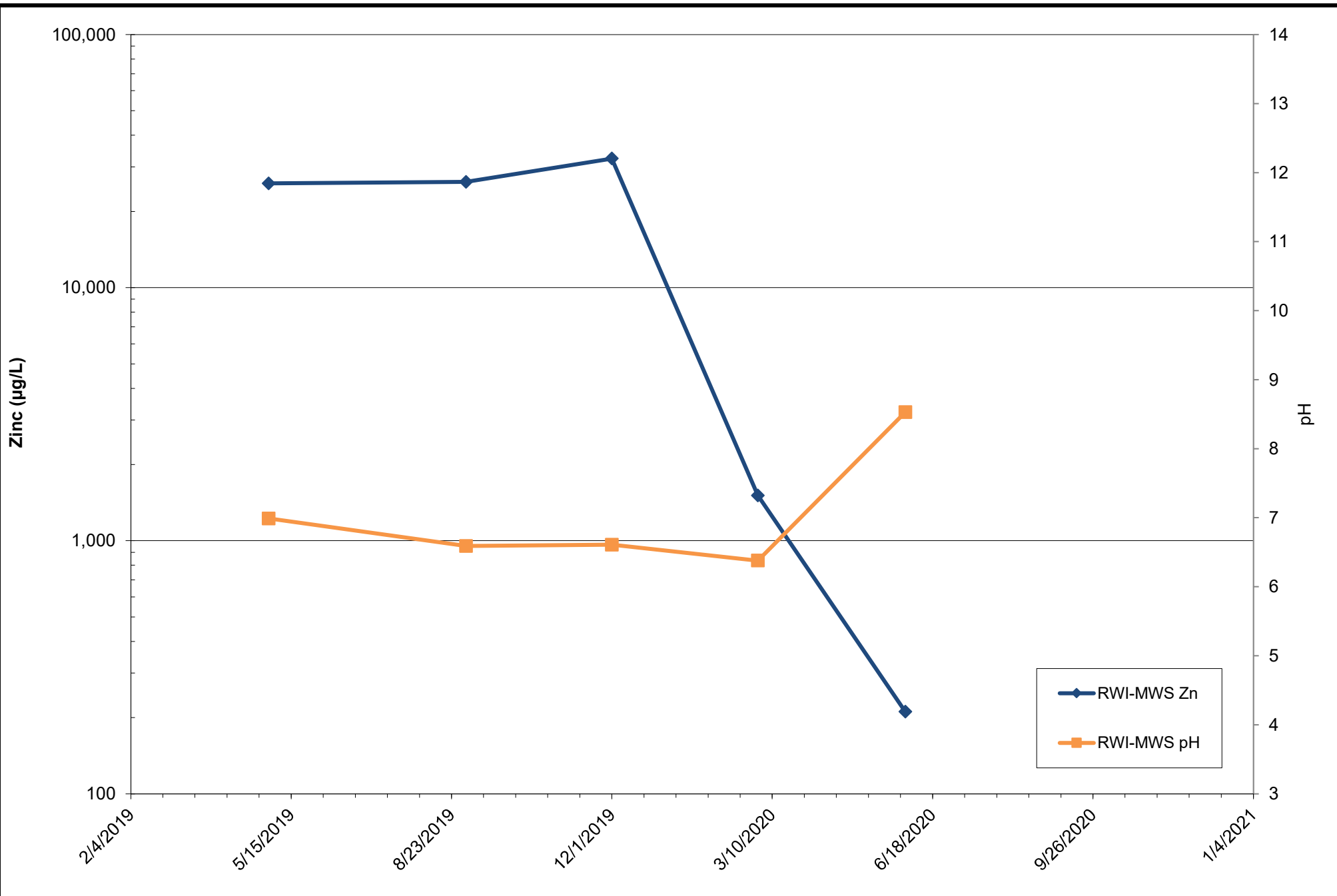
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWH-MWS pH and Zinc Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

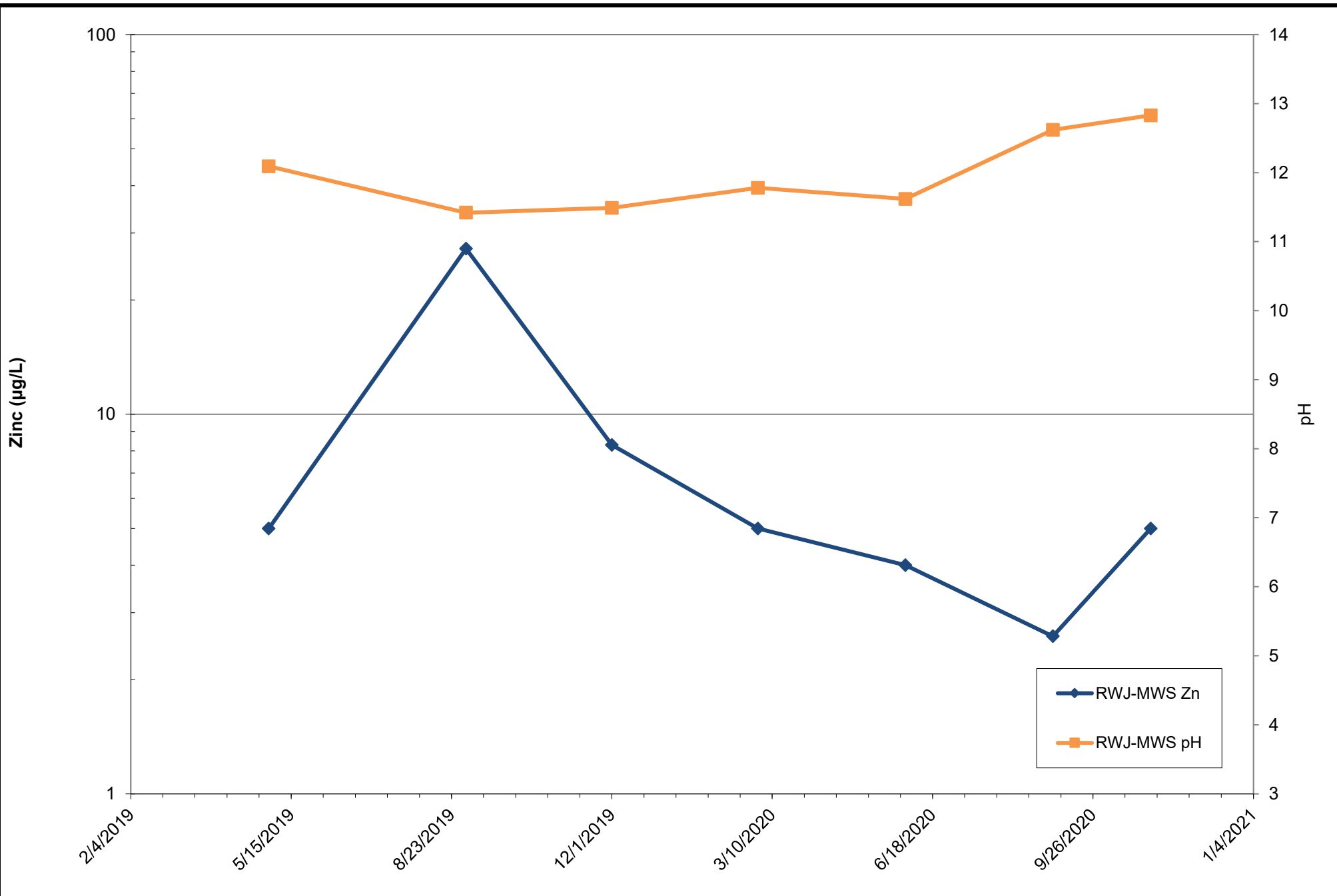
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWI-MWS pH and Zinc Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

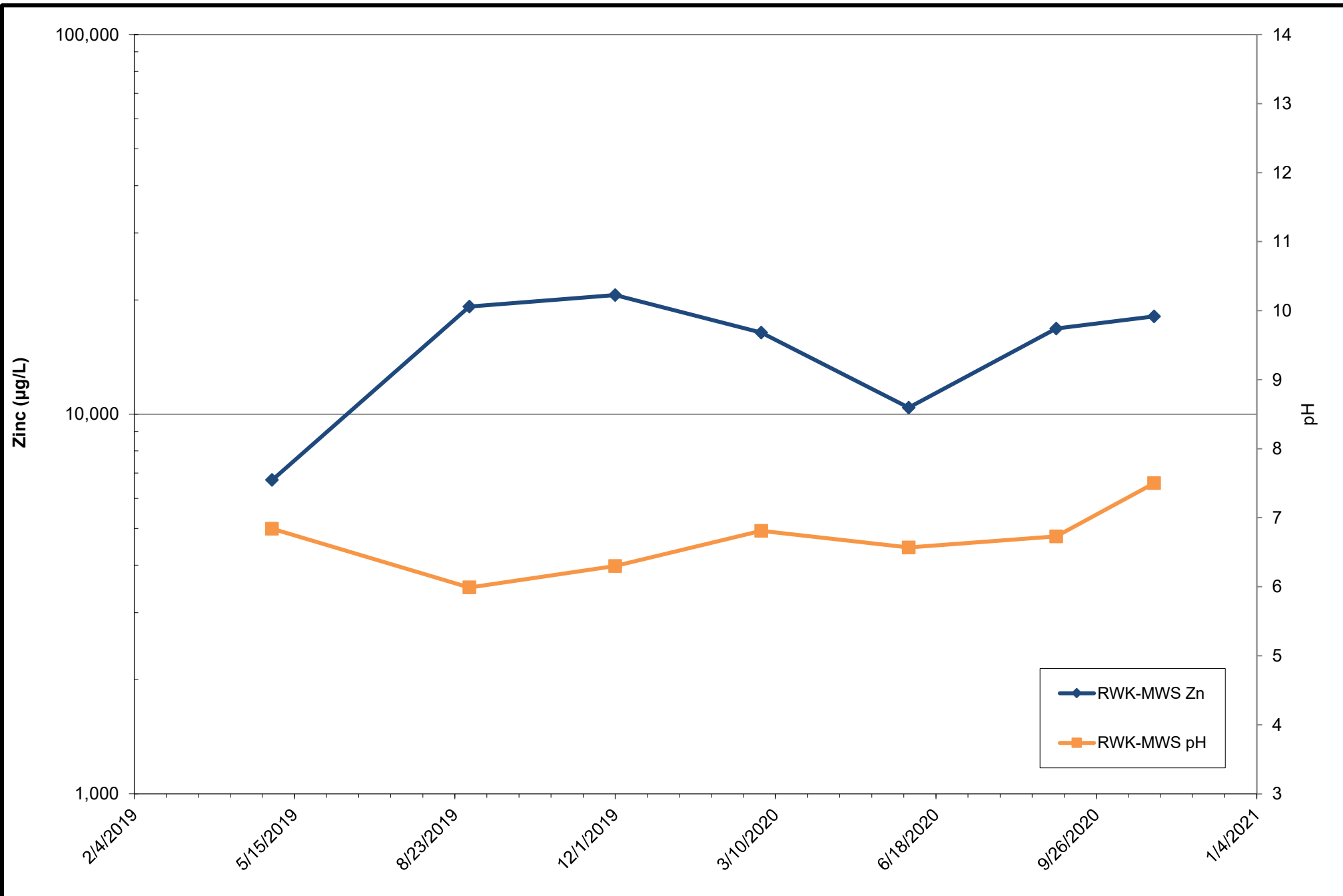
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWJ-MWS pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

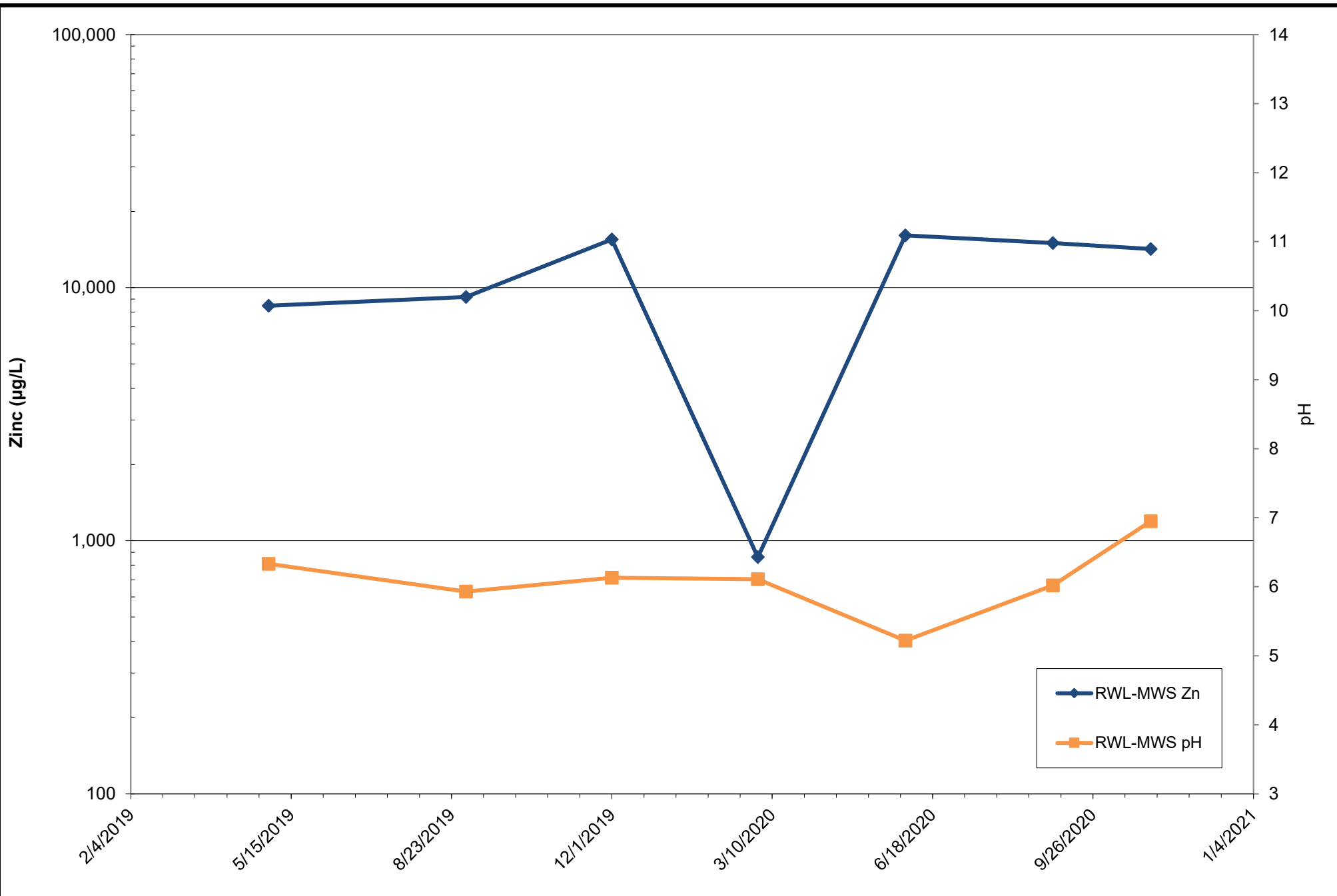
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWK-MWS pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

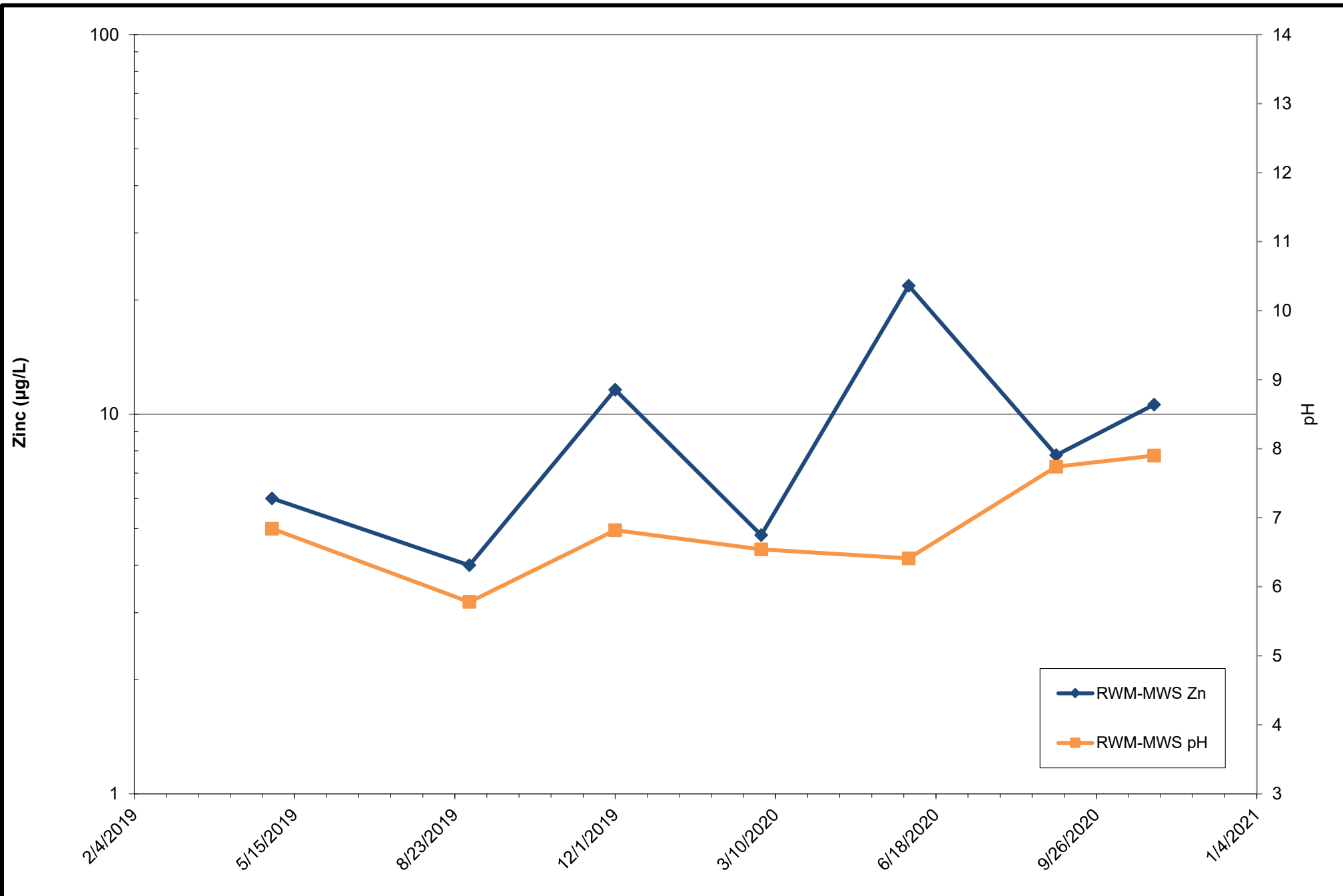
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWL-MWS pH and Zinc Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

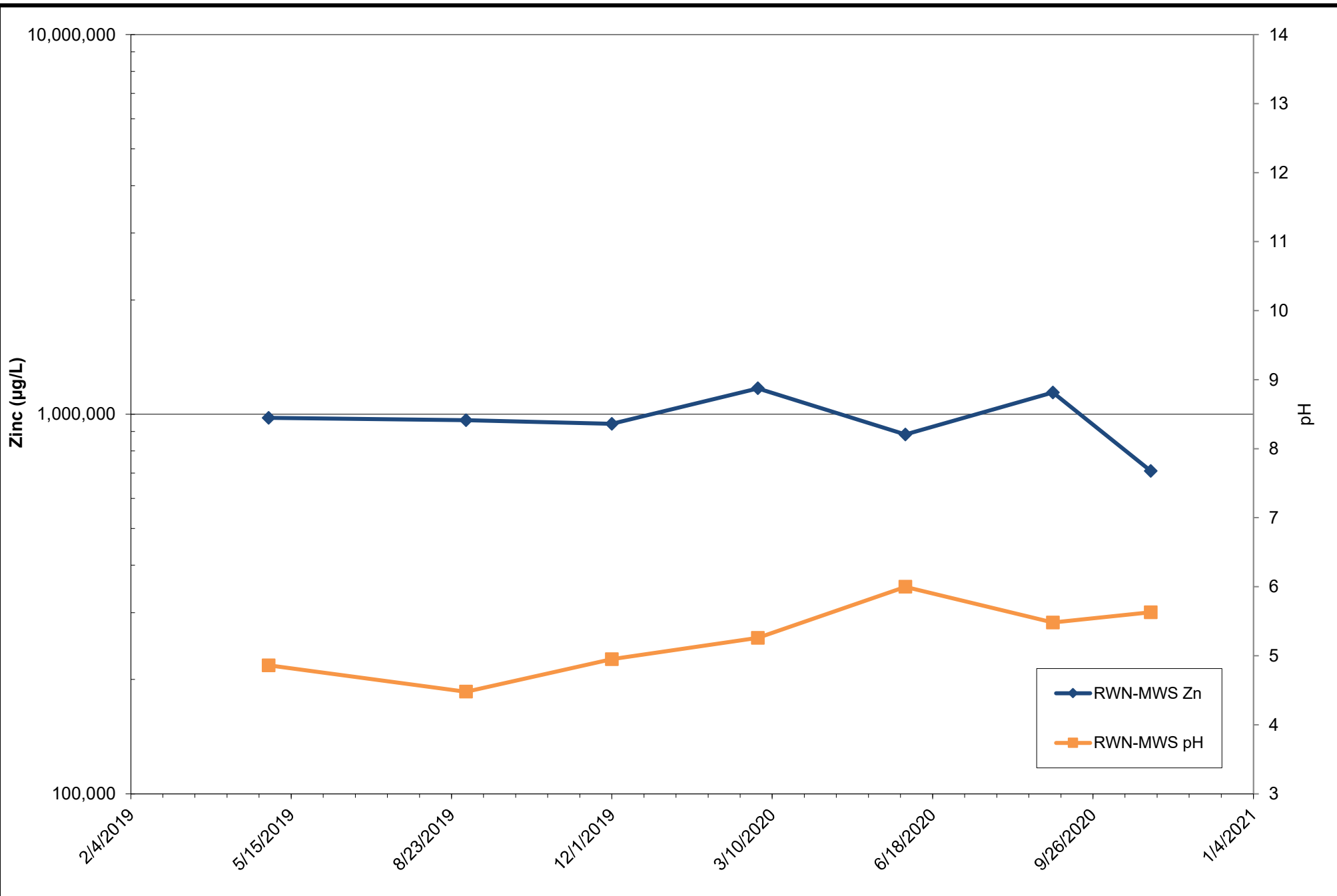
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWM-MWS pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

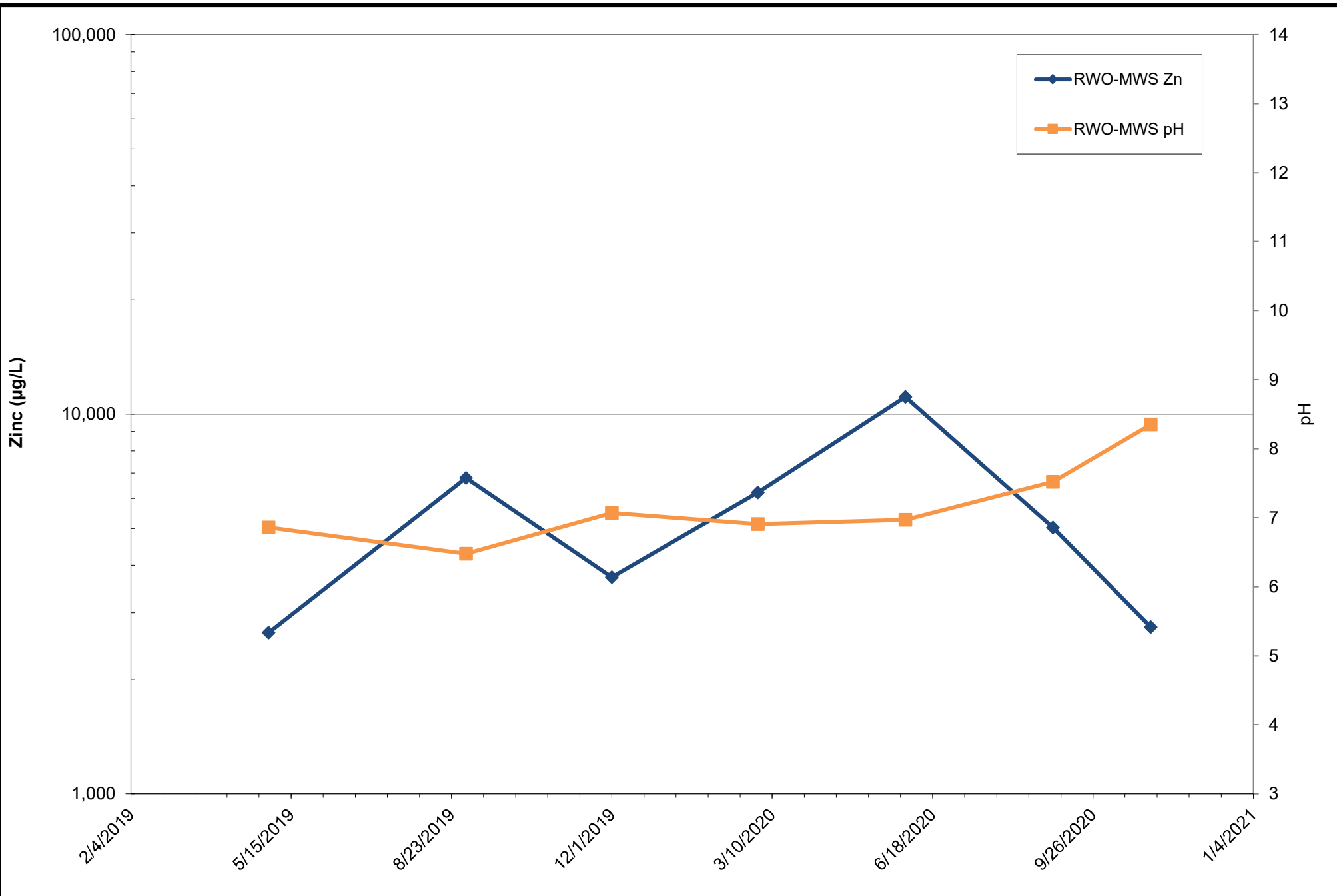
Sparrows Point, Maryland

**RWN-MWS pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
B**





**ARM Group LLC**  
Engineers and Scientists

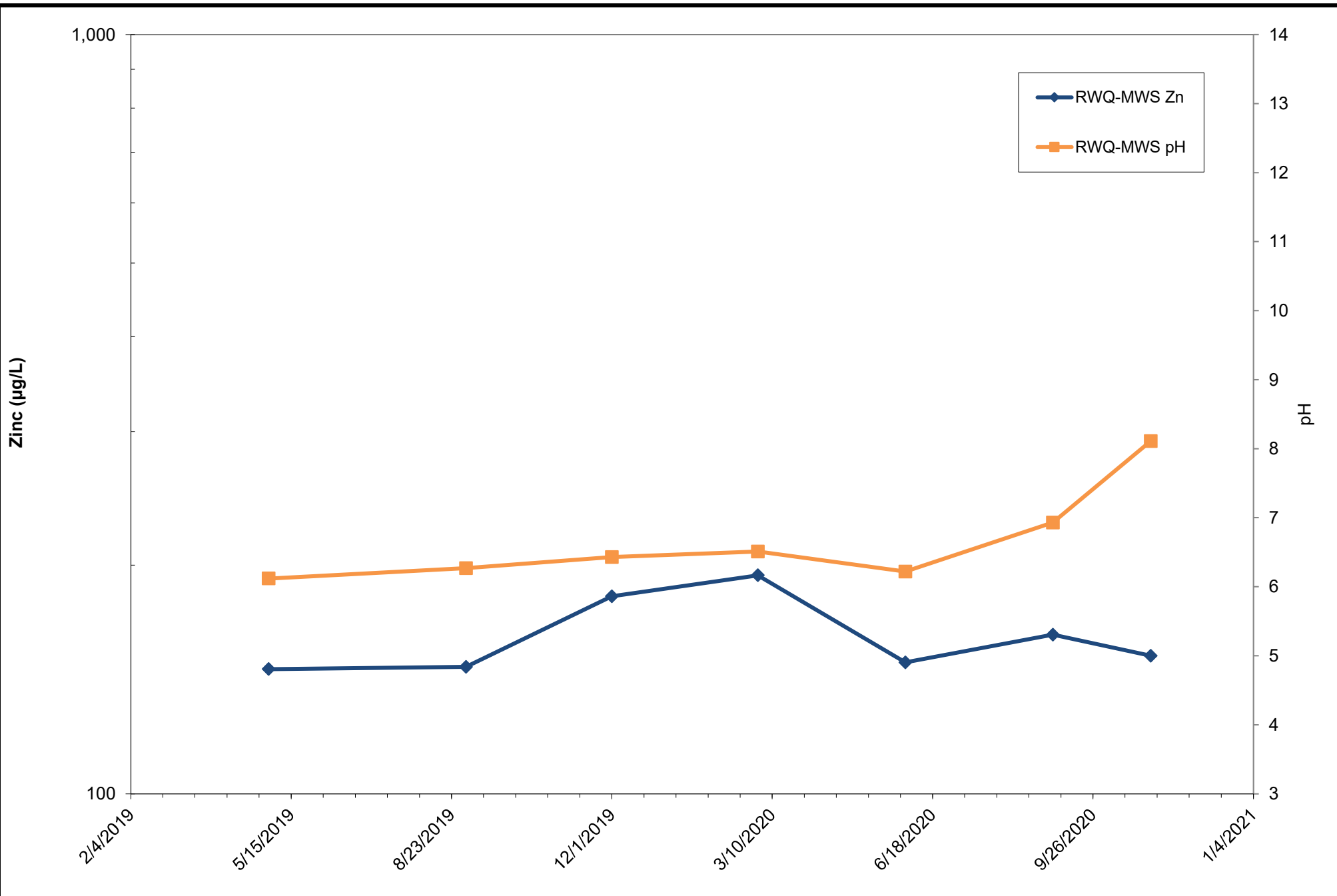
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWO-MWS pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

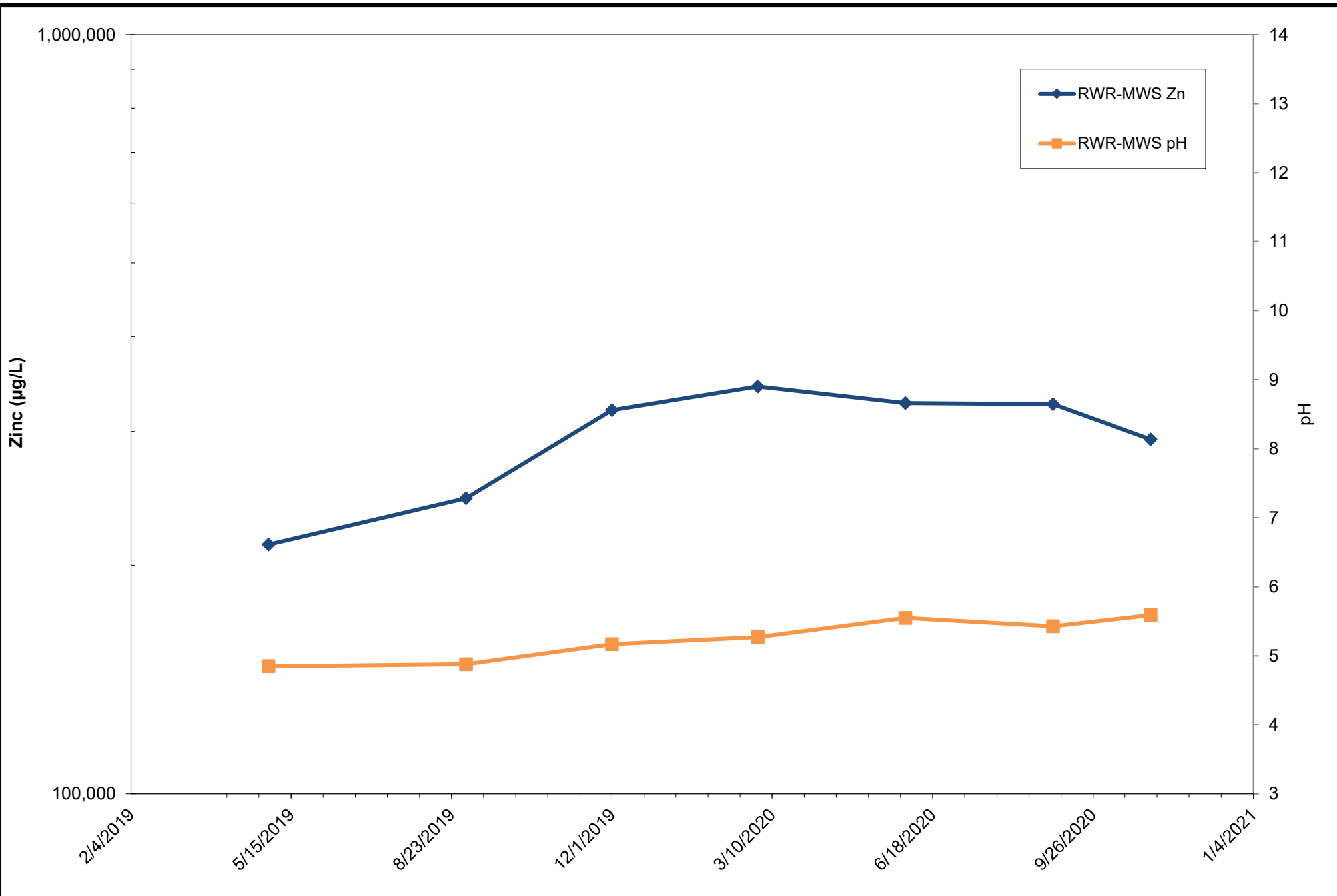
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWQ-MWS pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

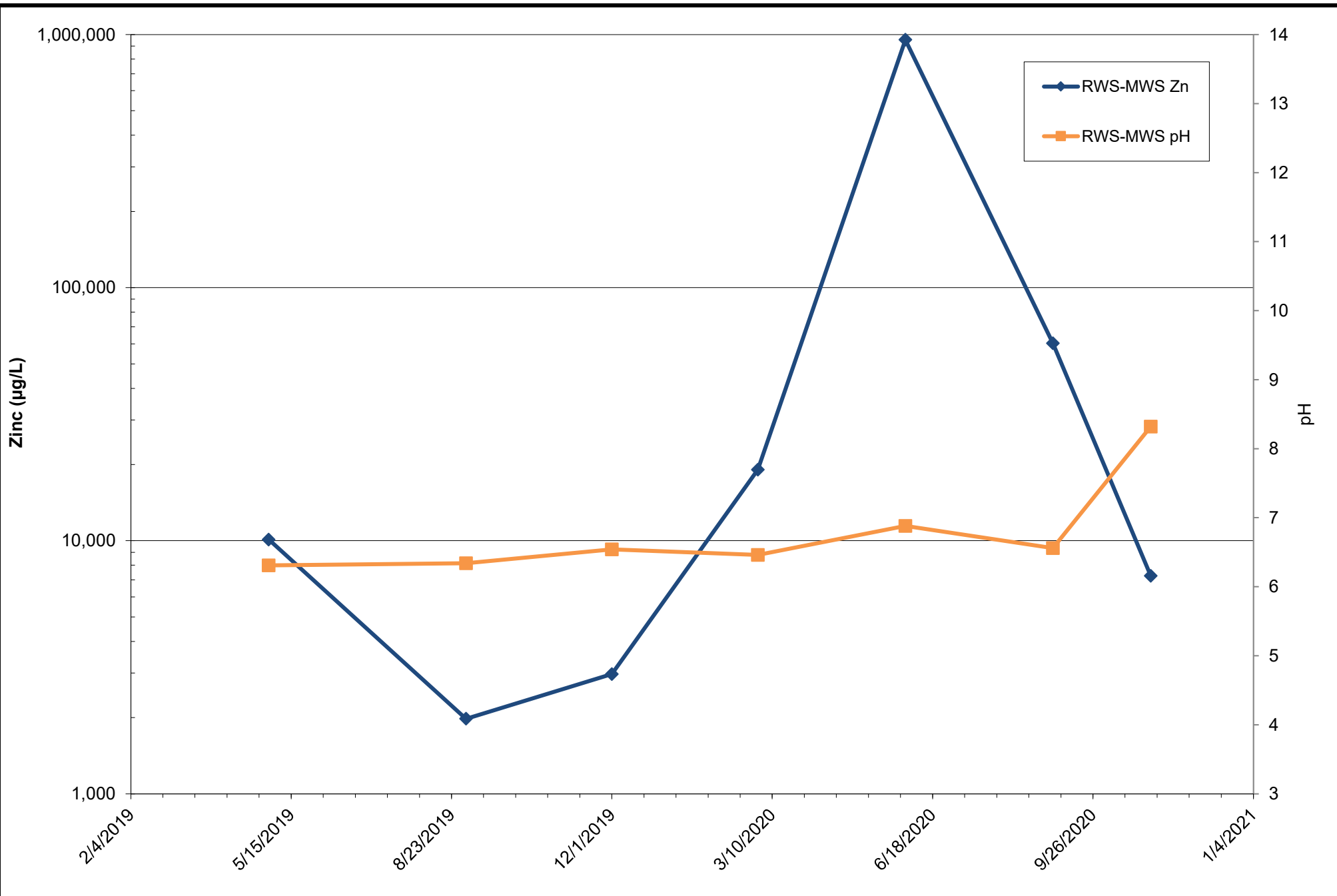
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWR-MWS pH and Zinc Concentrations

January 27, 2021

**Appx  
B**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWS-MWS pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
B**

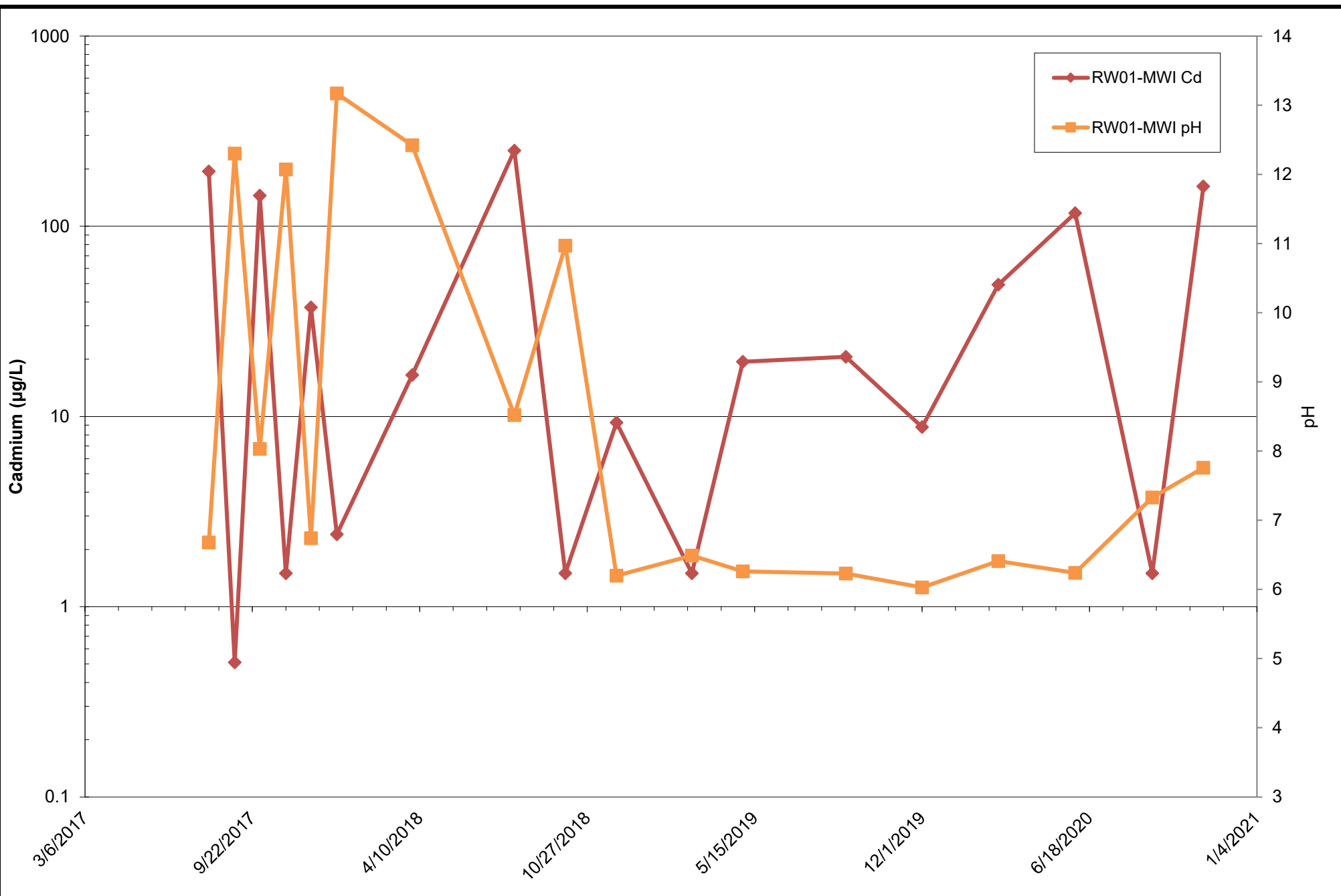
---

---

## **APPENDIX C**

---

---



**ARM Group LLC**  
Engineers and Scientists

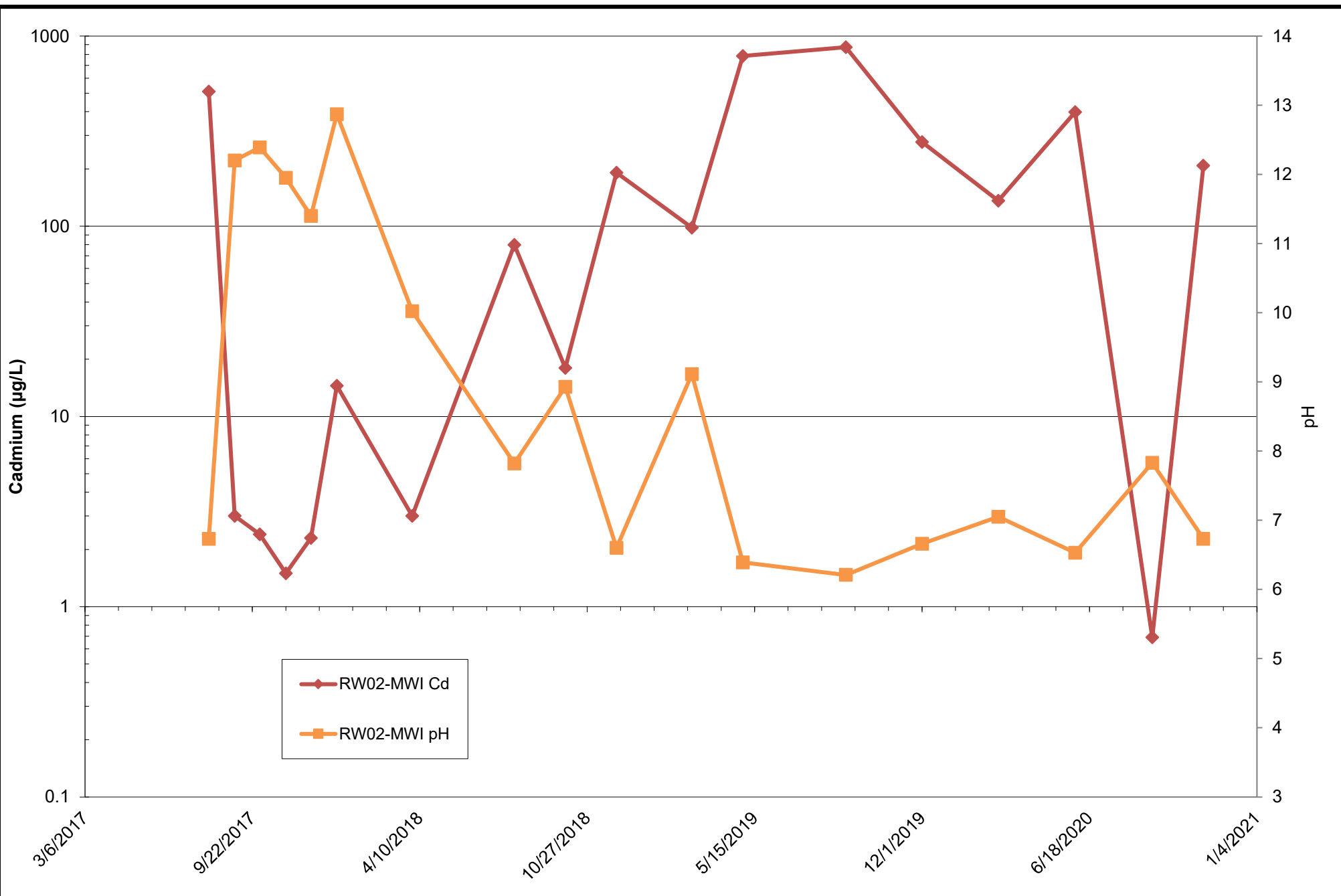
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RW01-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

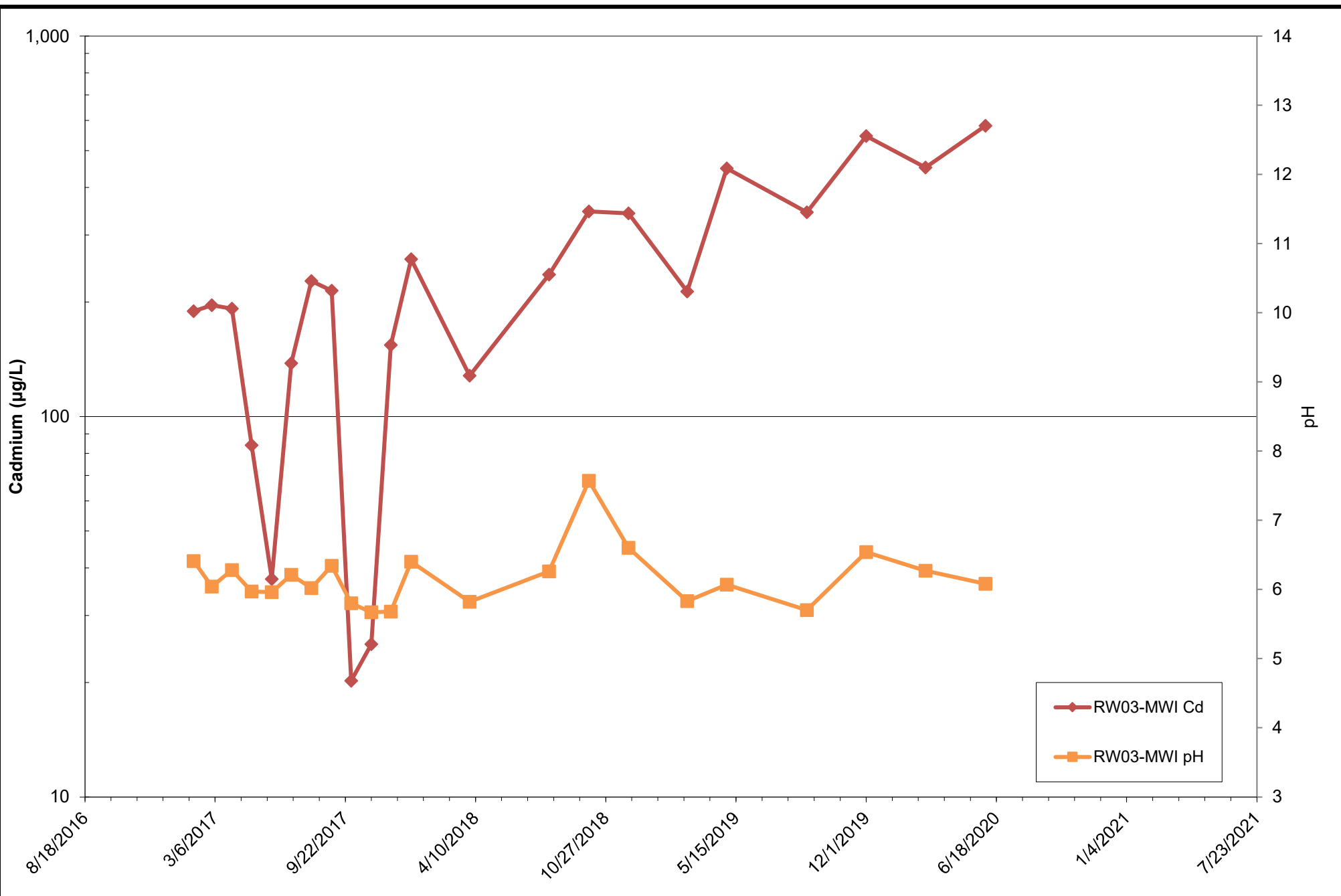
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW02-MWI pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

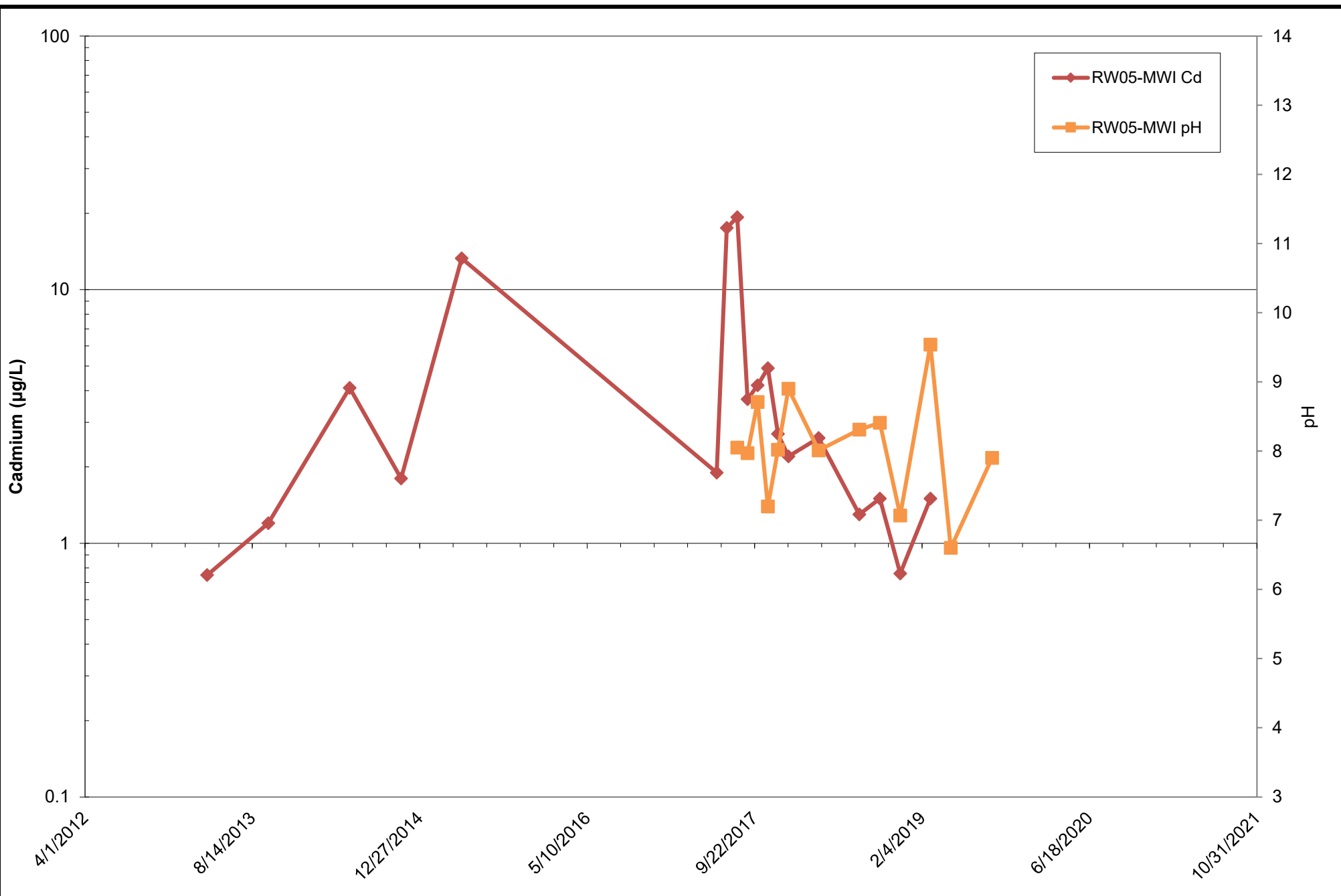
Sparrows Point, Maryland

**RW03-MWI pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
C**





**ARM Group LLC**  
Engineers and Scientists

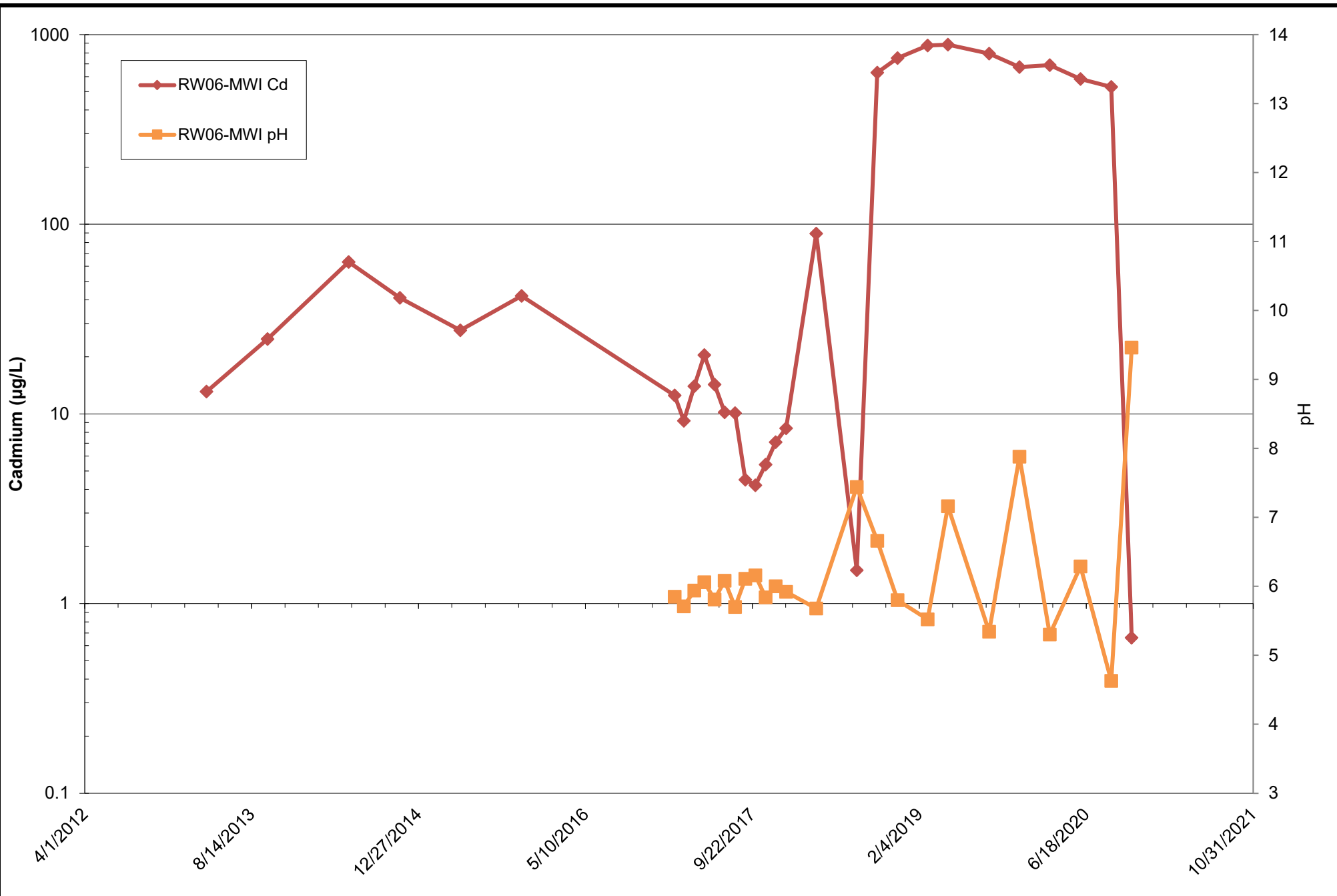
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW05-MWI pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

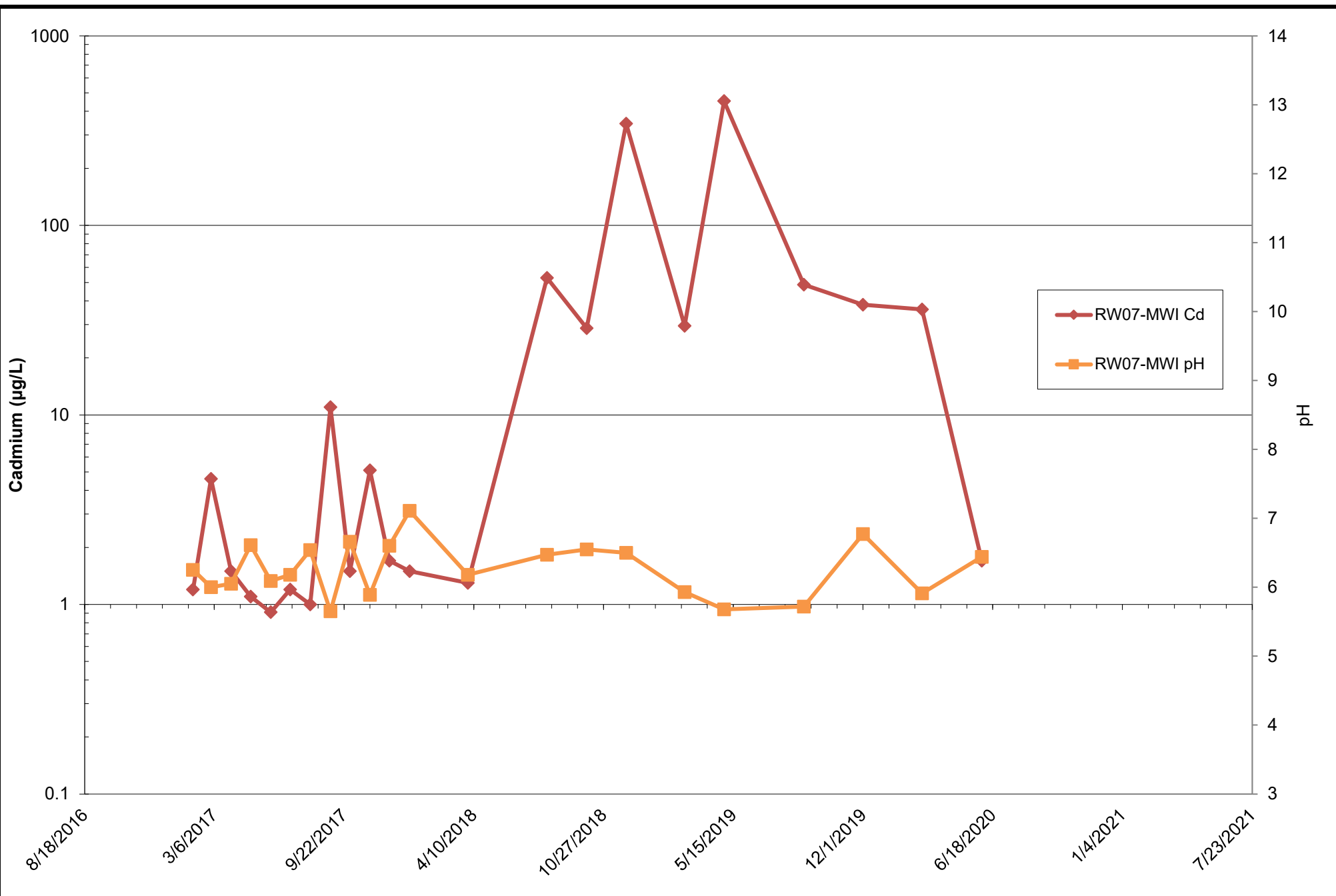
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RW06-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

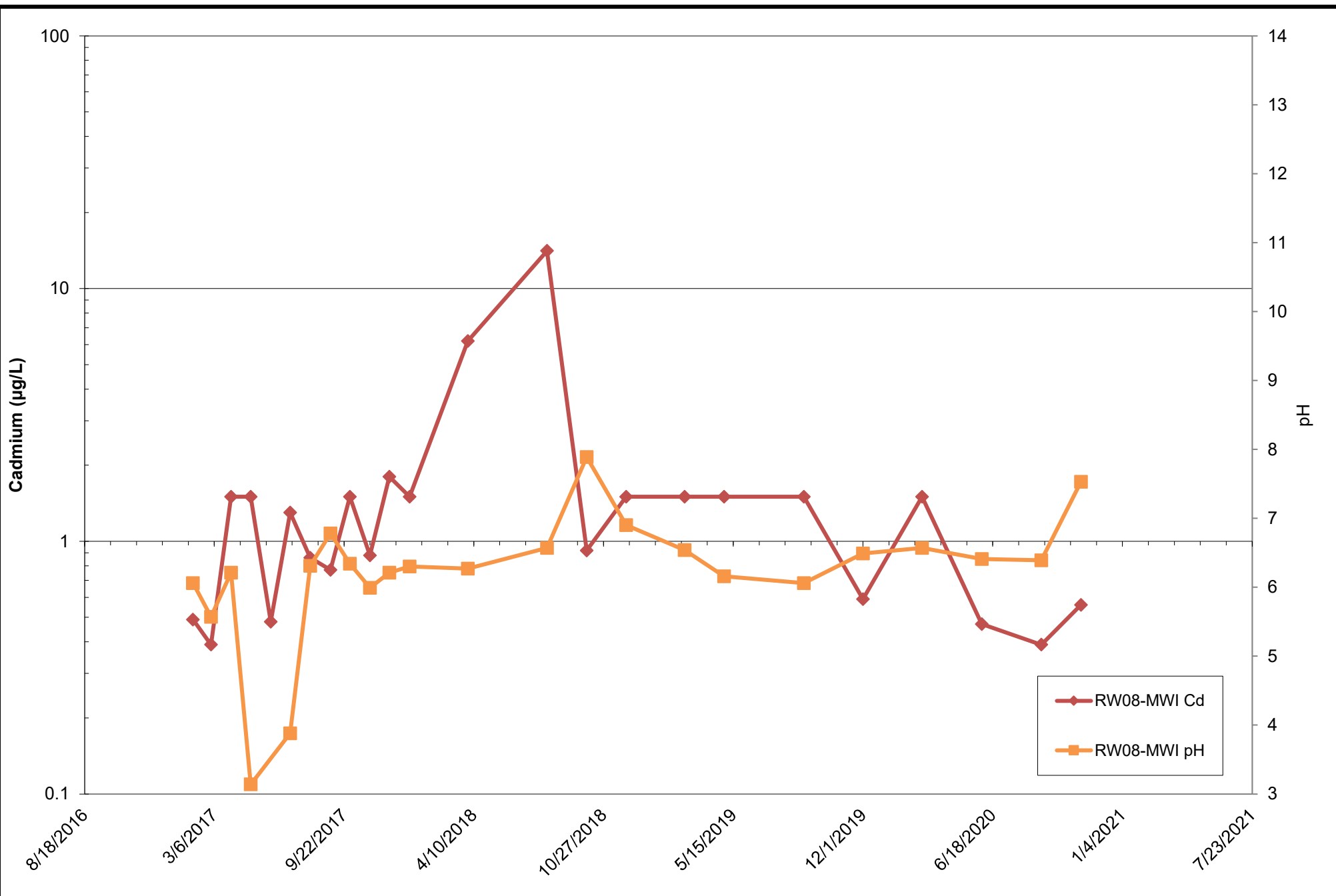
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW07-MWI pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

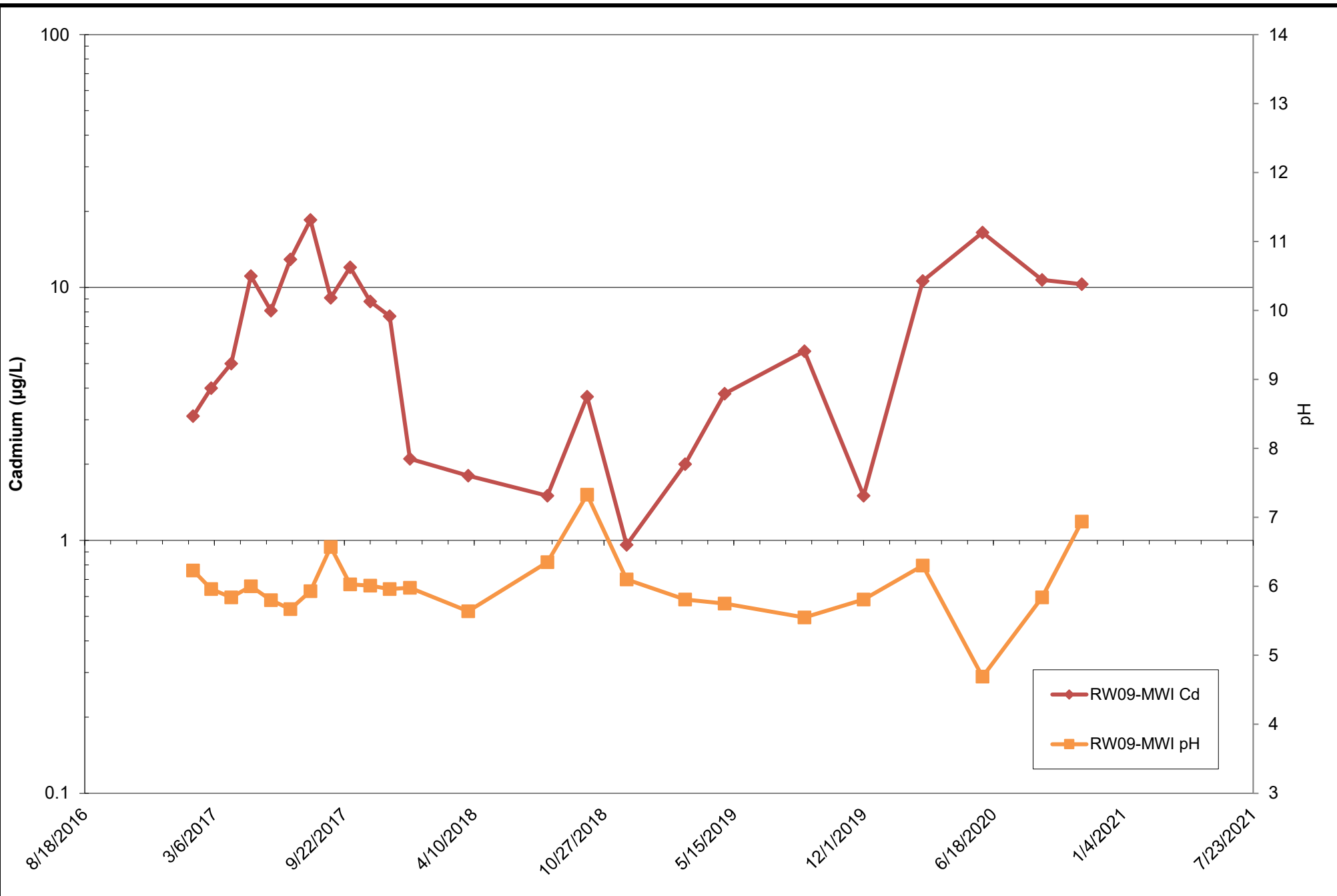
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RW08-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

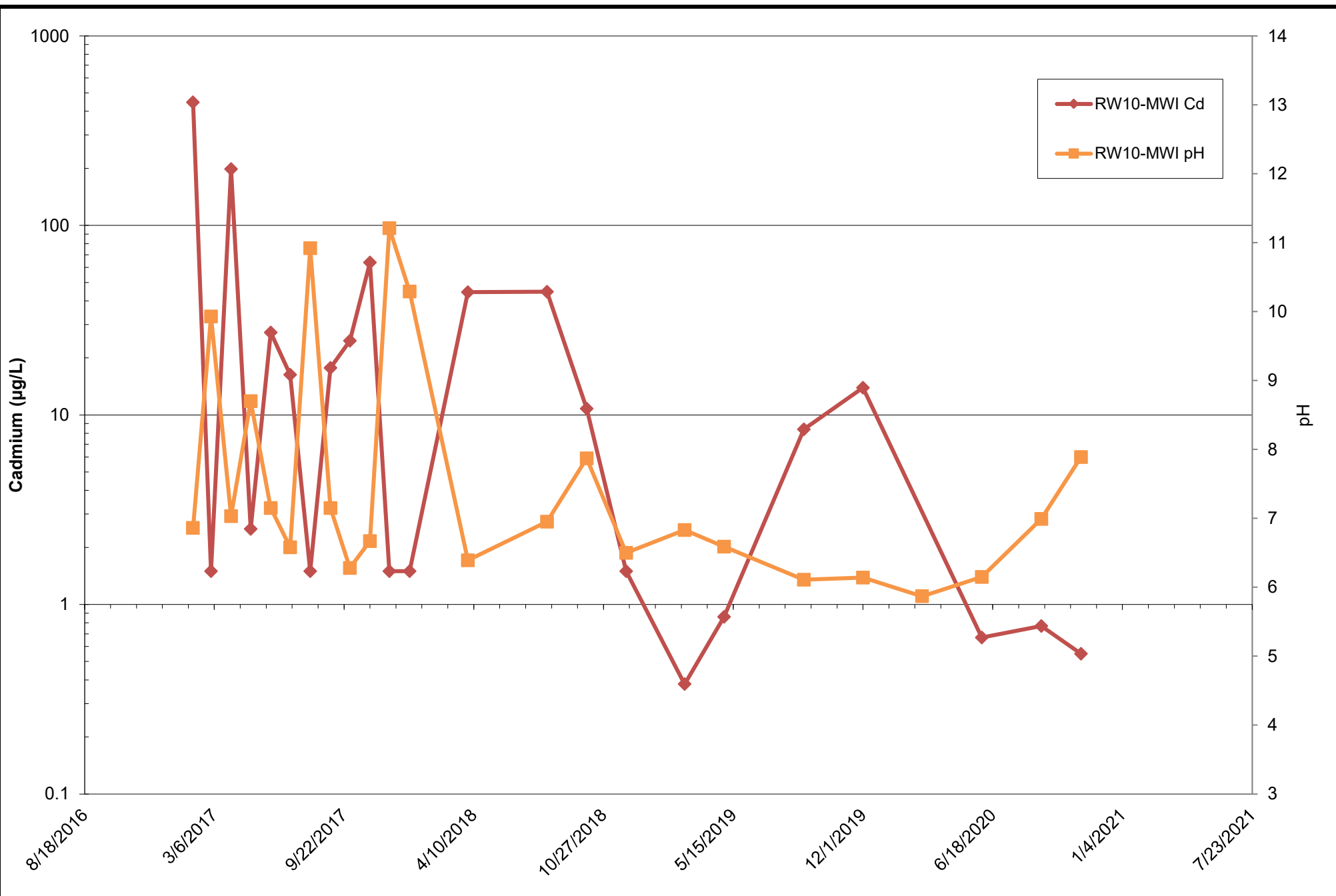
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RW09-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

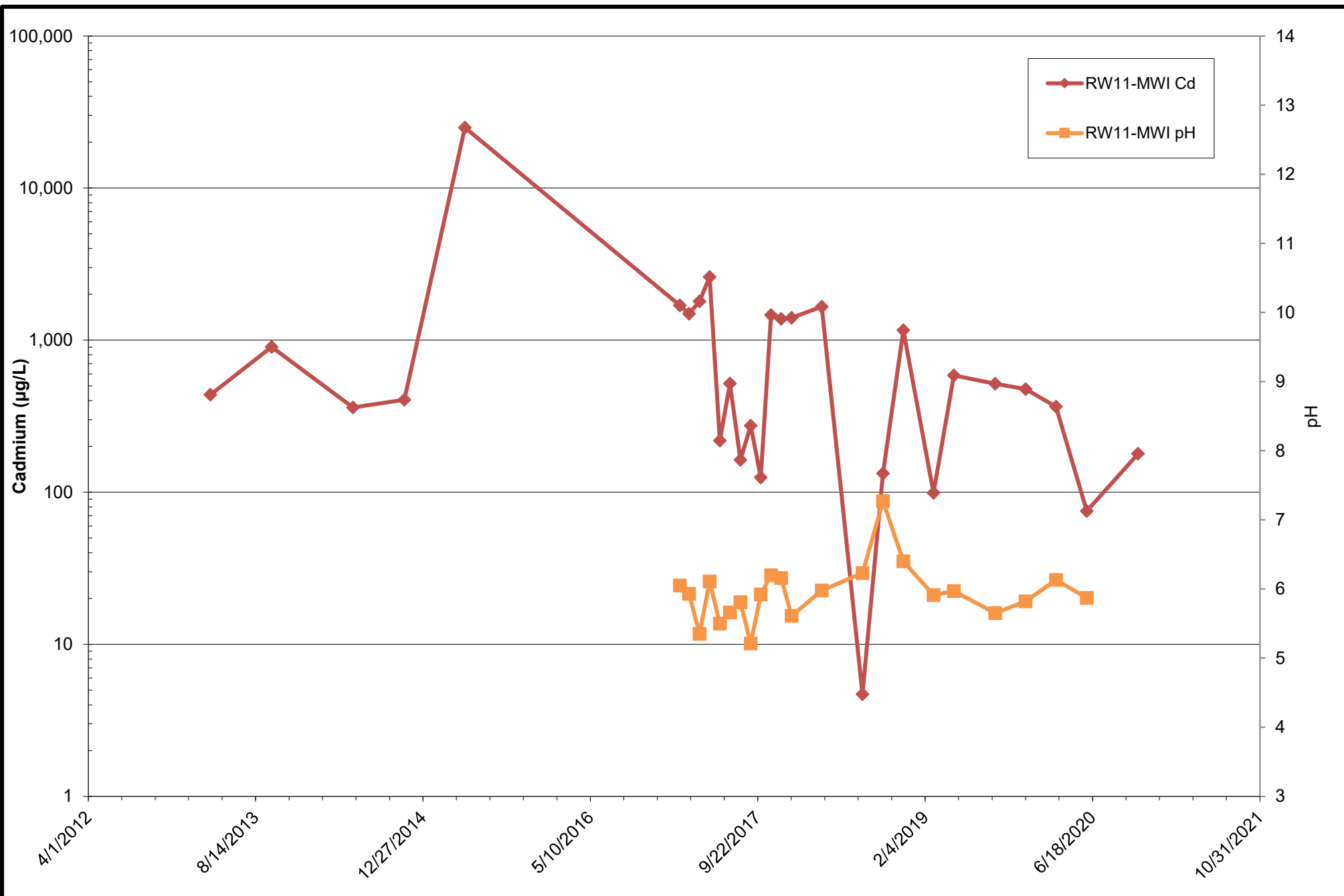
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW10-MWI pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

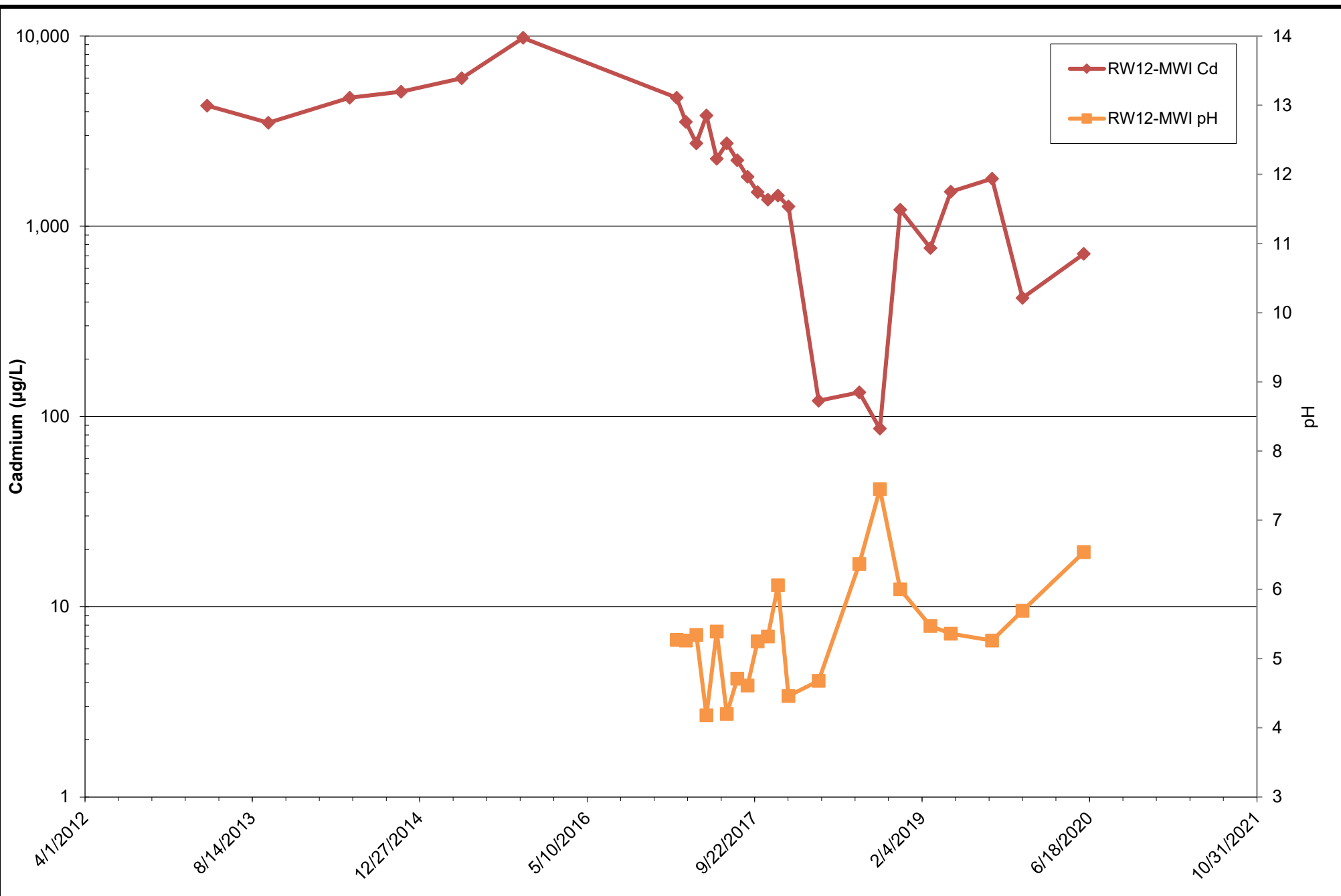
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RW11-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

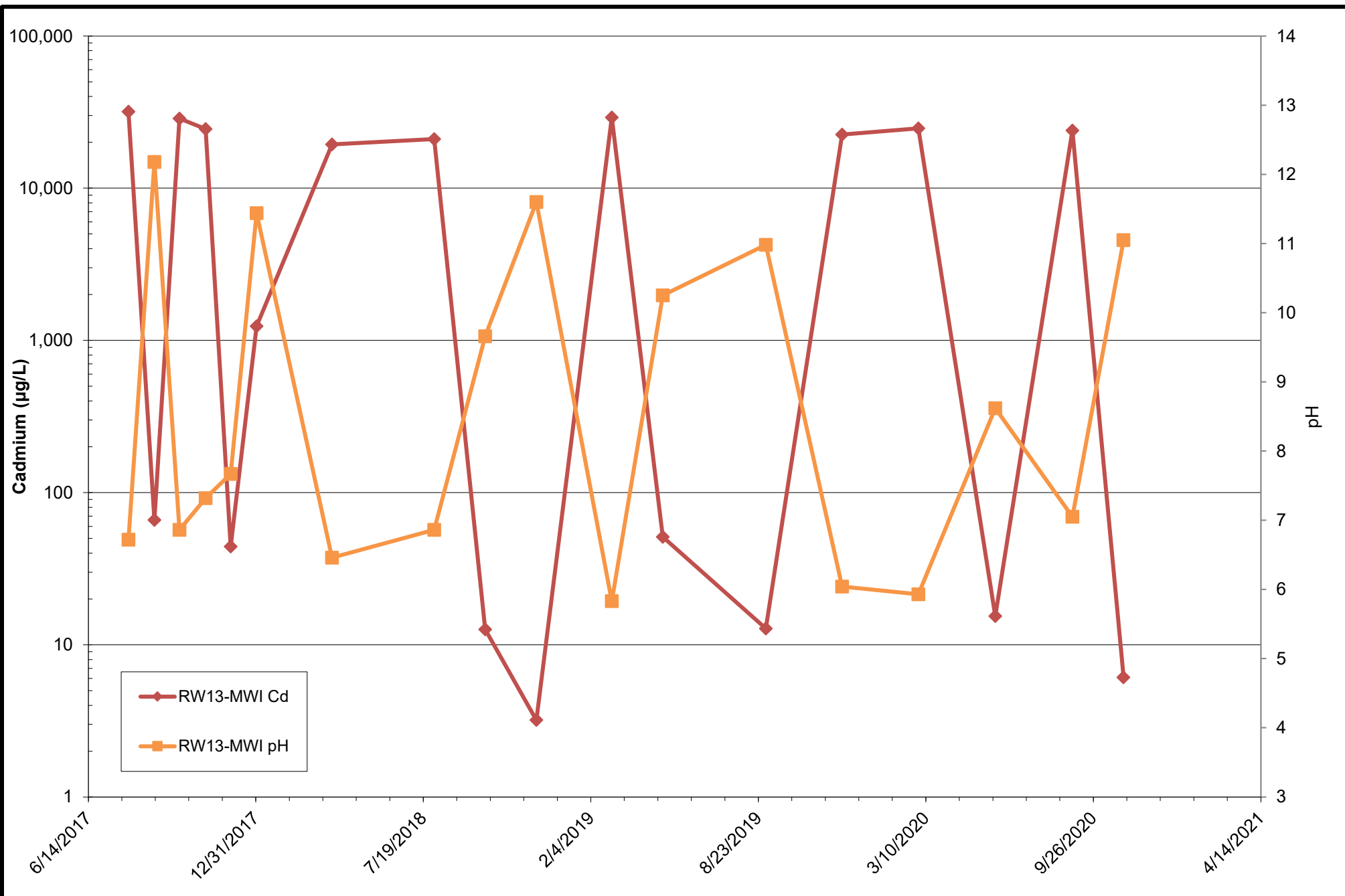
Sparrows Point, Maryland

### RW12-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**





**ARM Group LLC**  
Engineers and Scientists

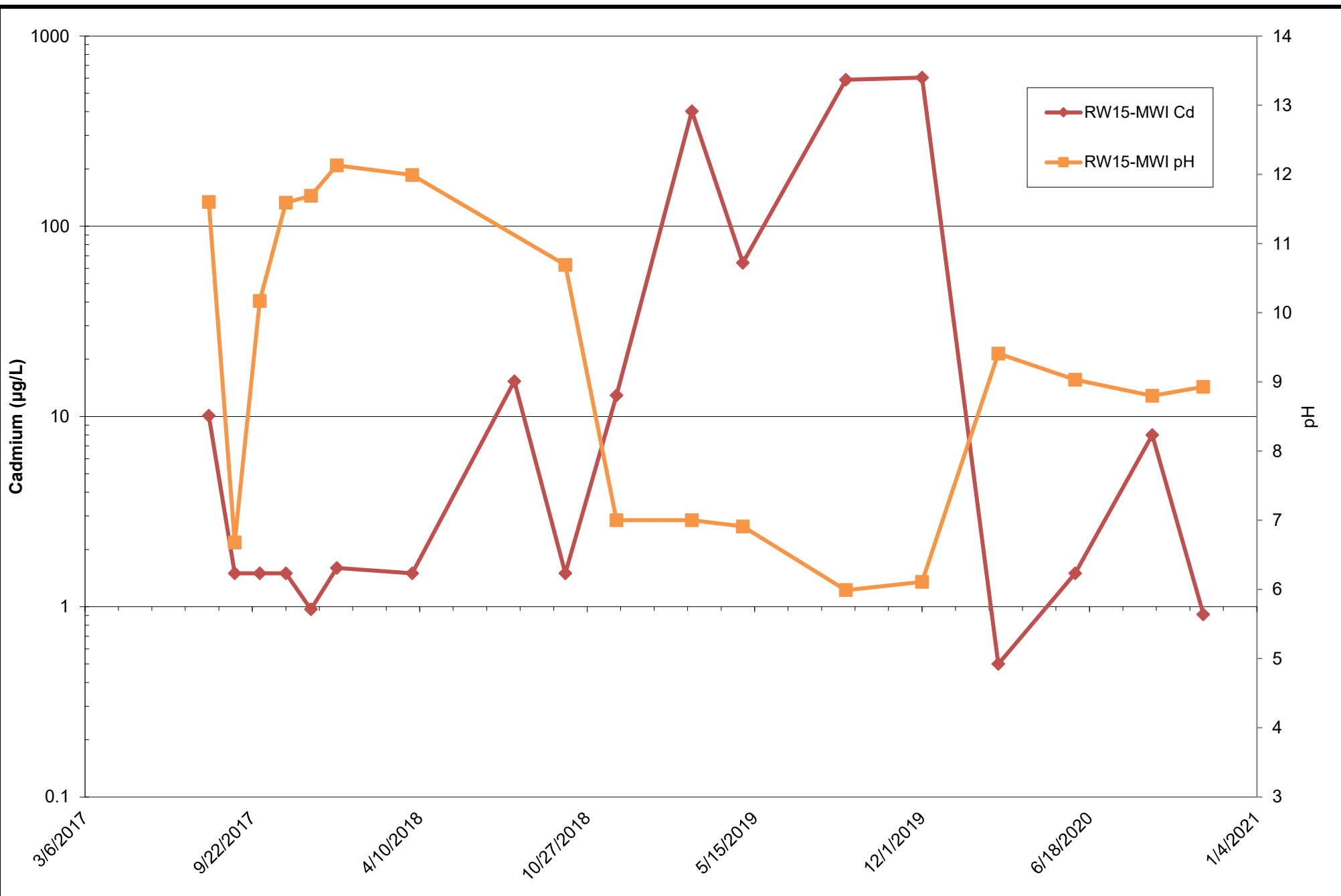
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW13-MWI pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

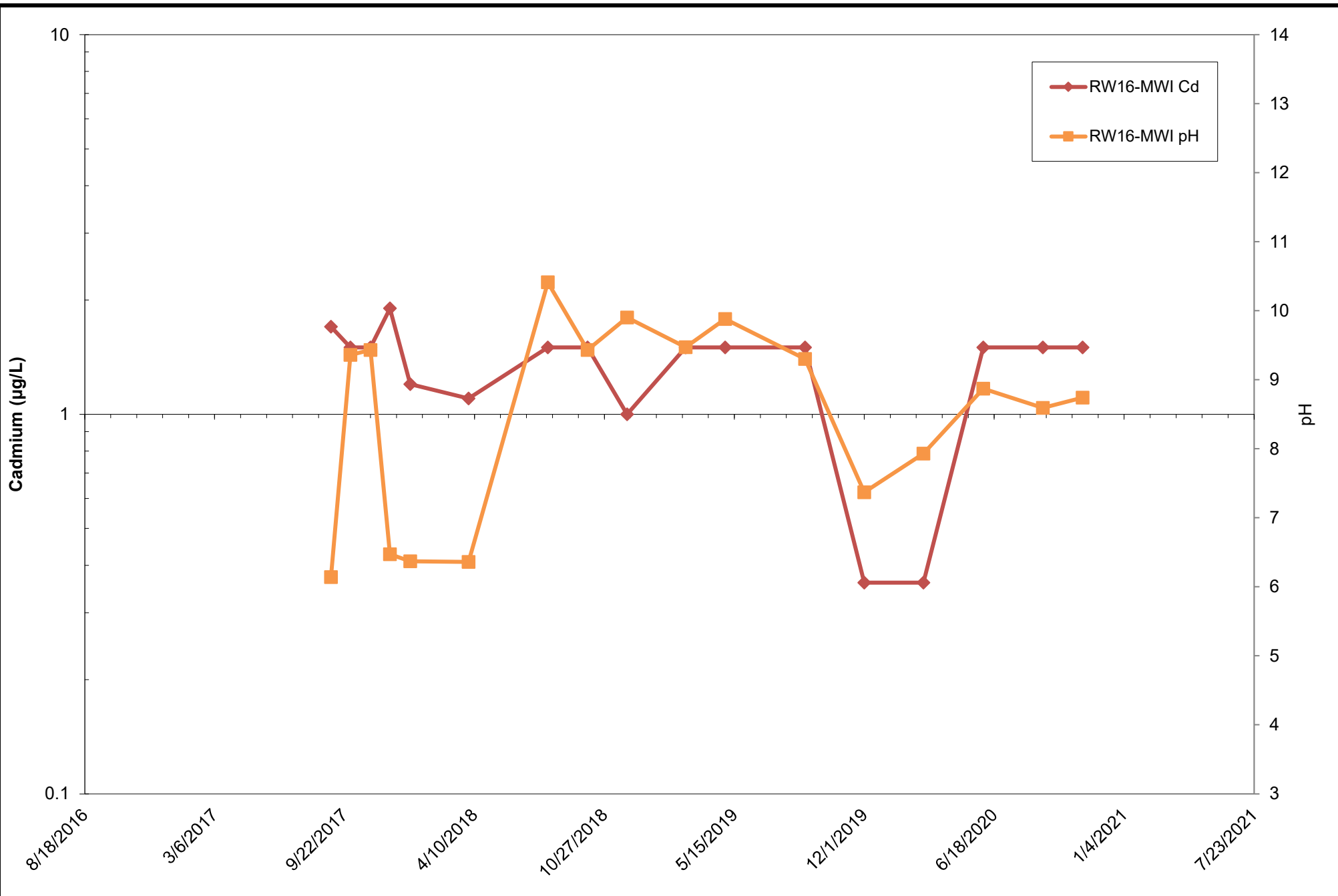
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW15-MWI pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

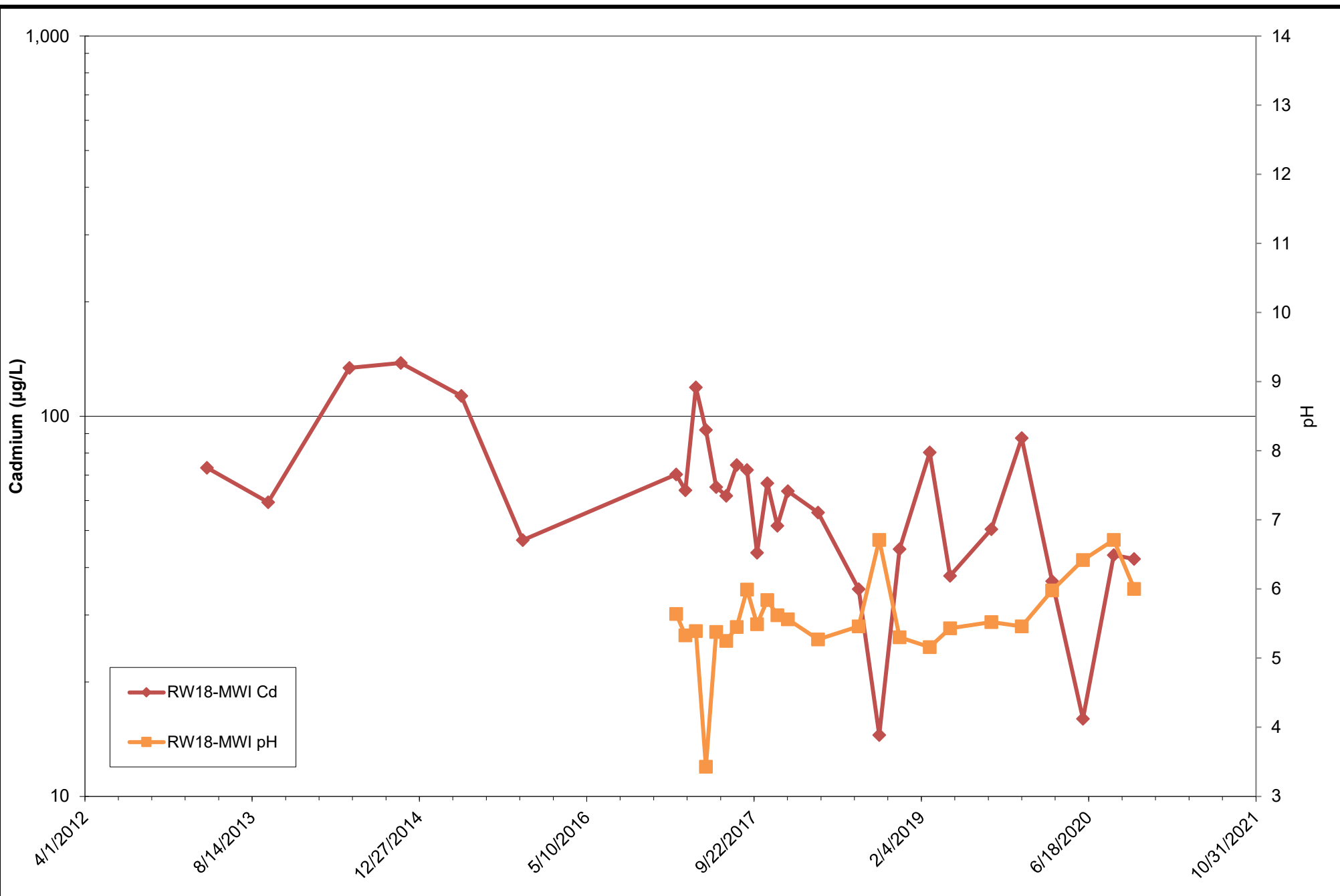
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW16-MWI pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

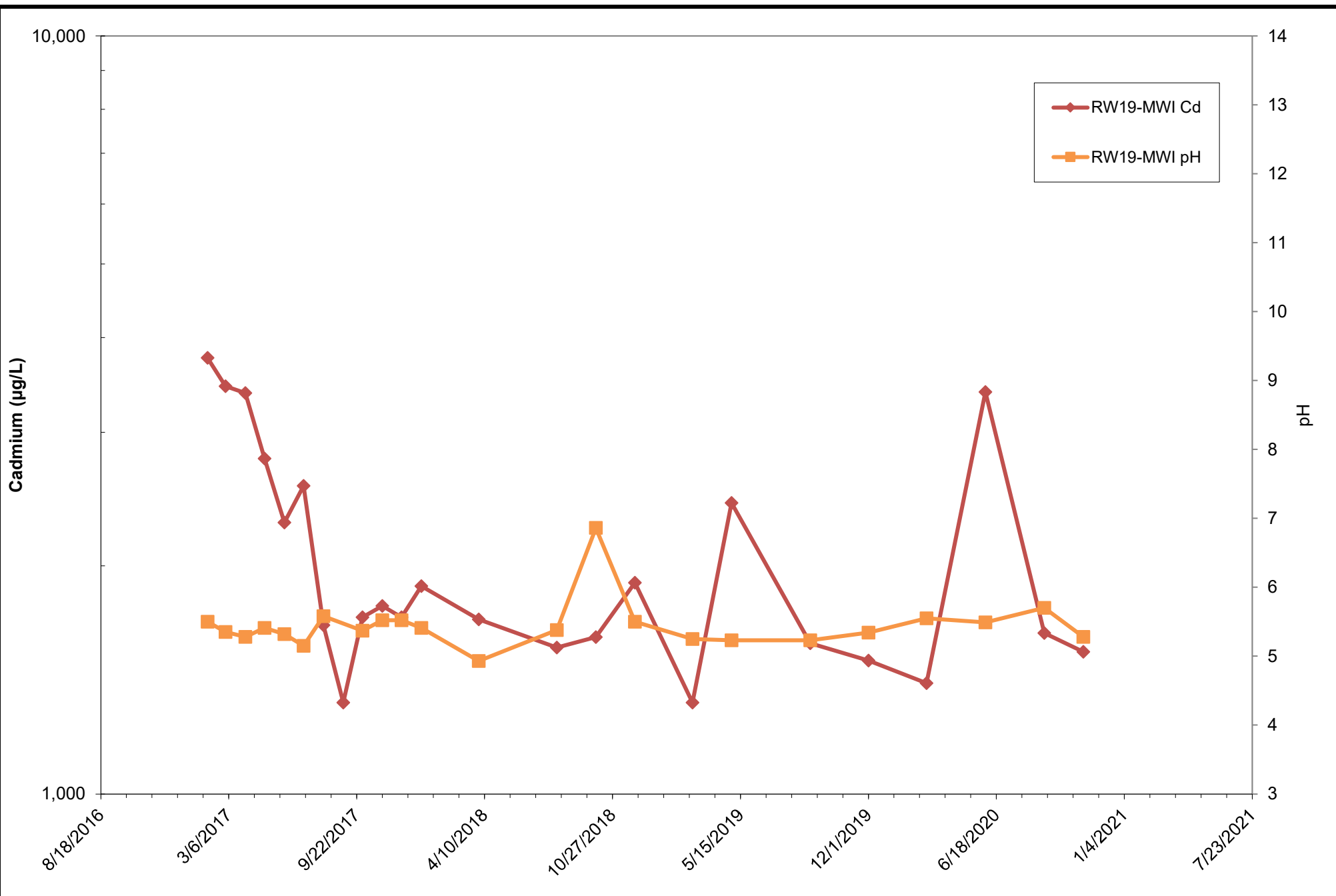
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW18-MWI pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

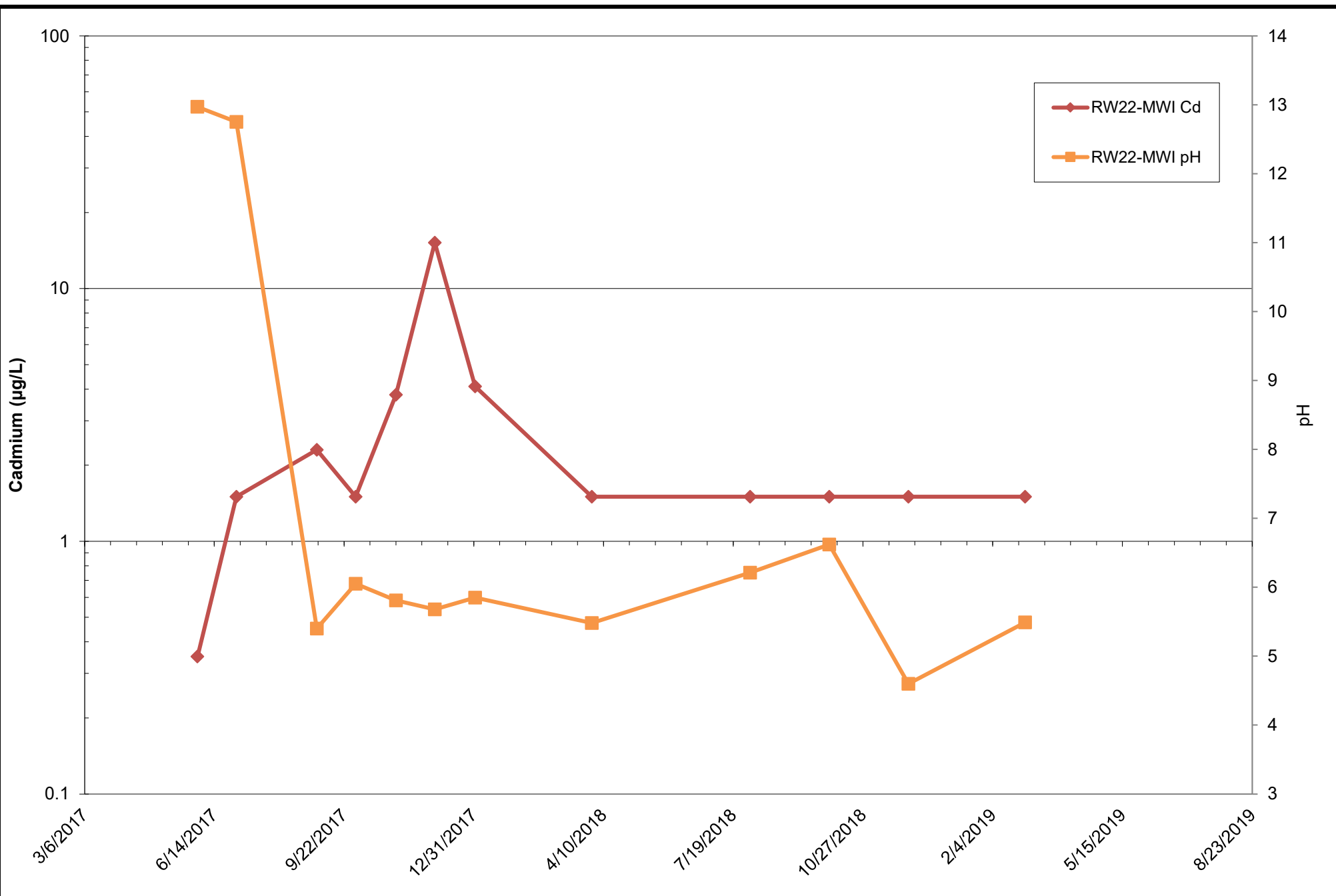
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW19-MWI pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

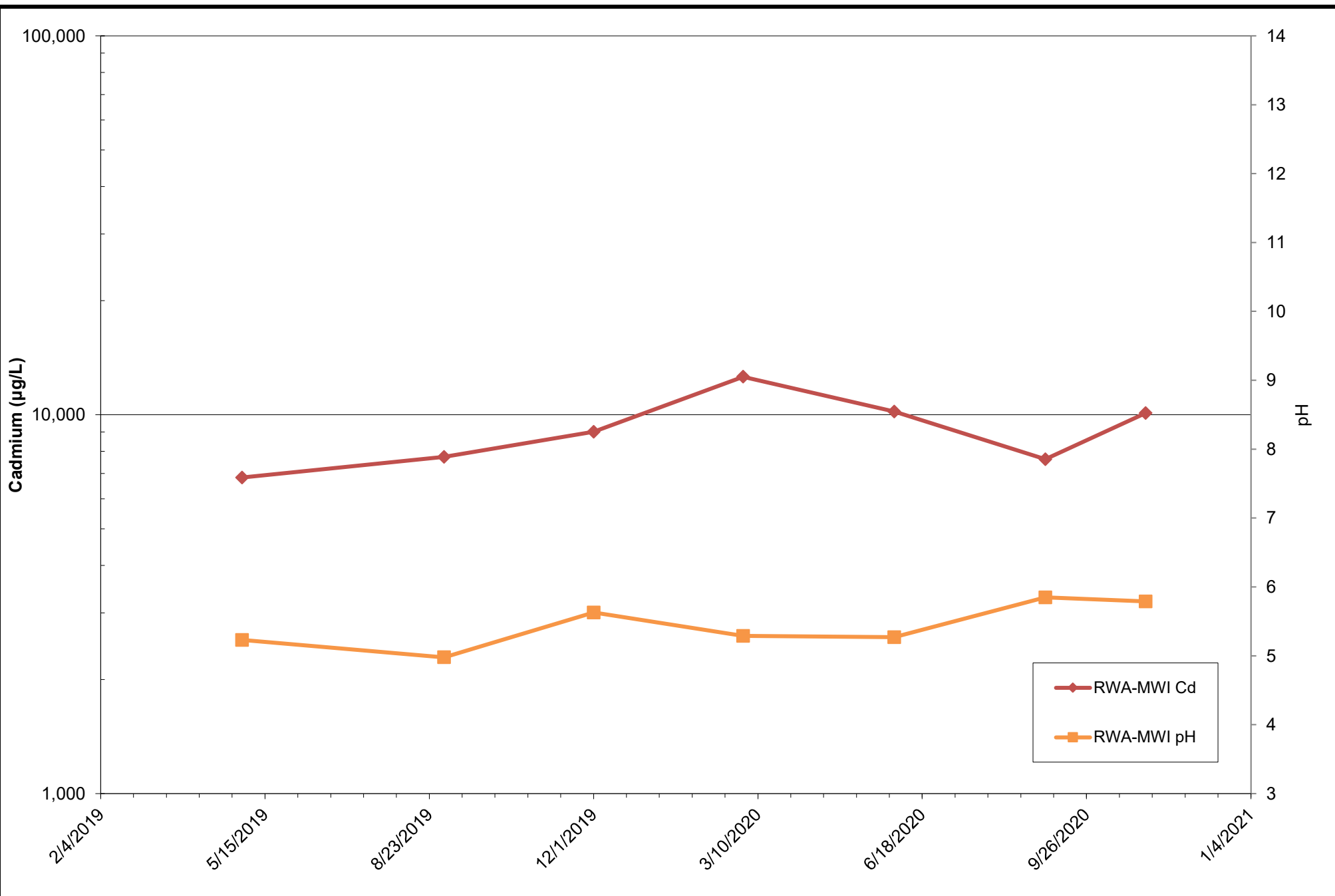
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RW22-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

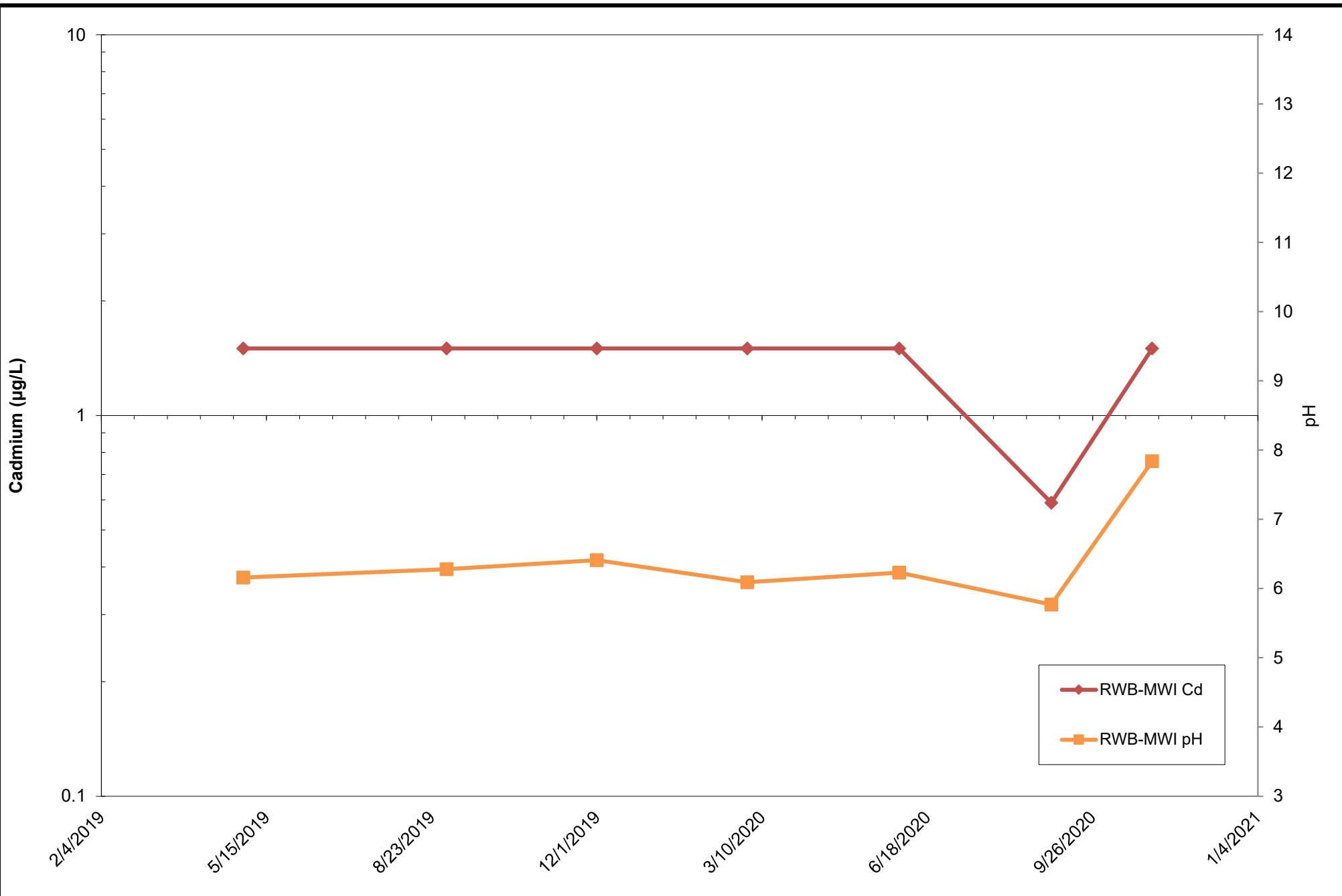
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWA-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

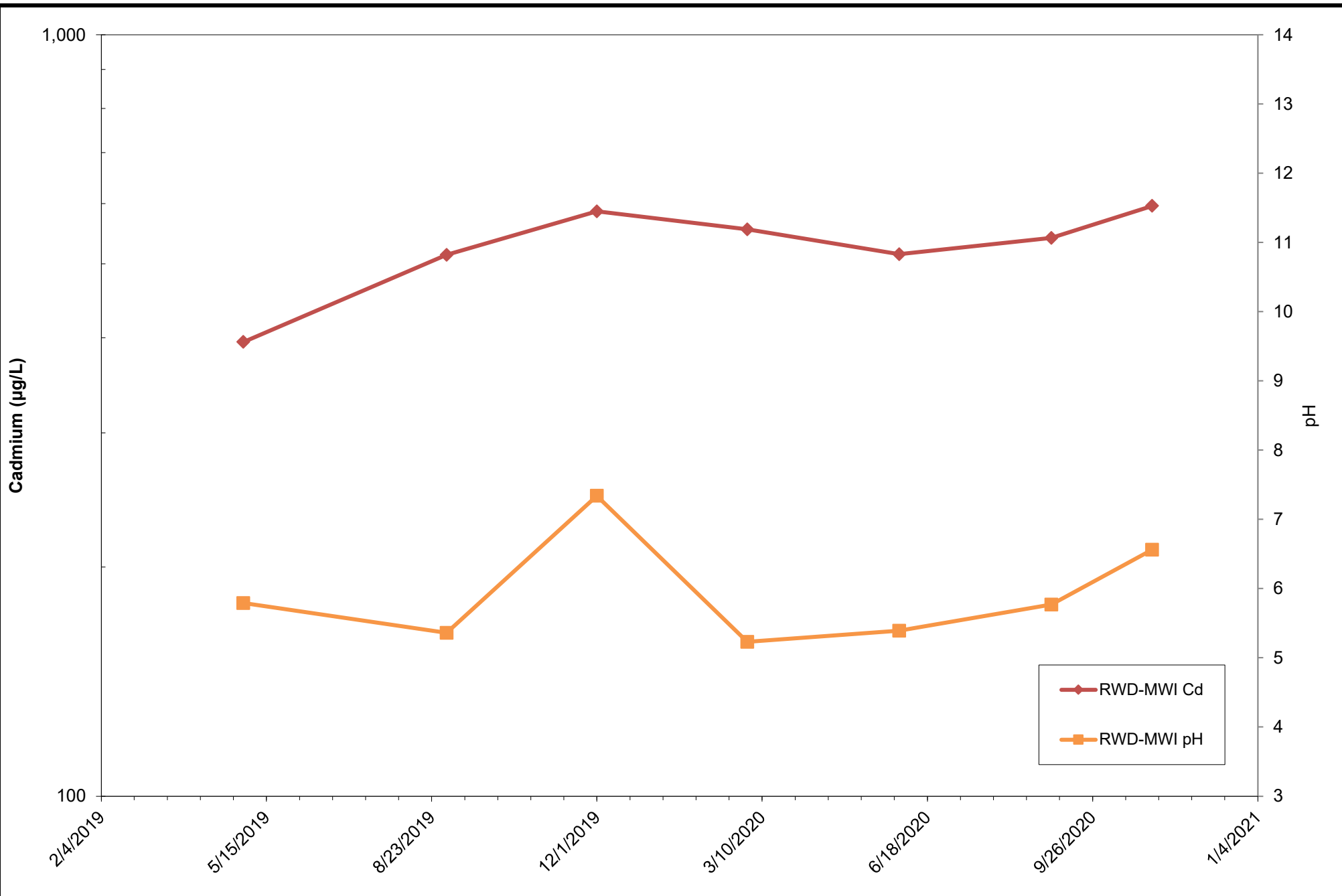
Sparrows Point, Maryland

### RWB-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**





**ARM Group LLC**  
Engineers and Scientists

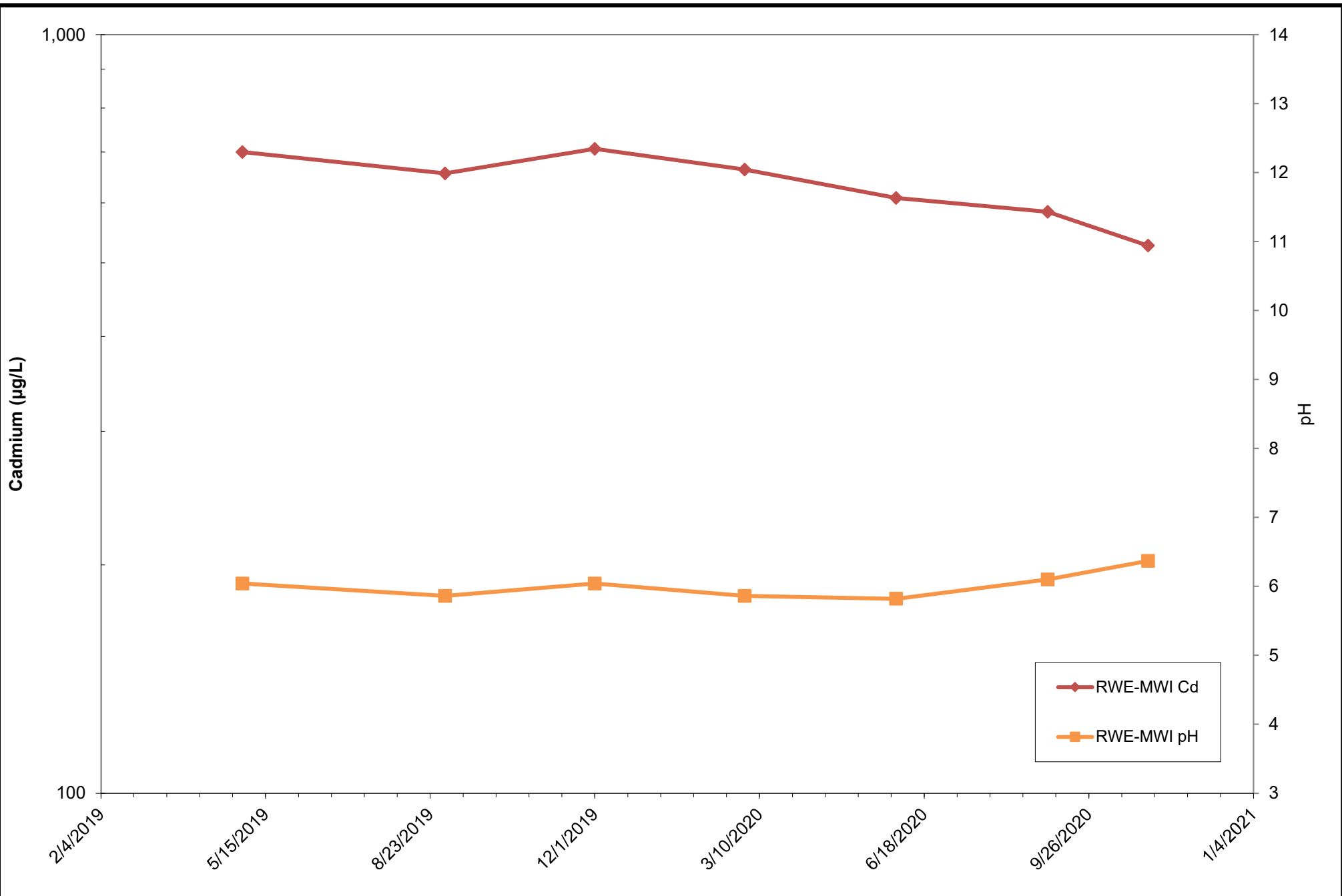
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWD-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

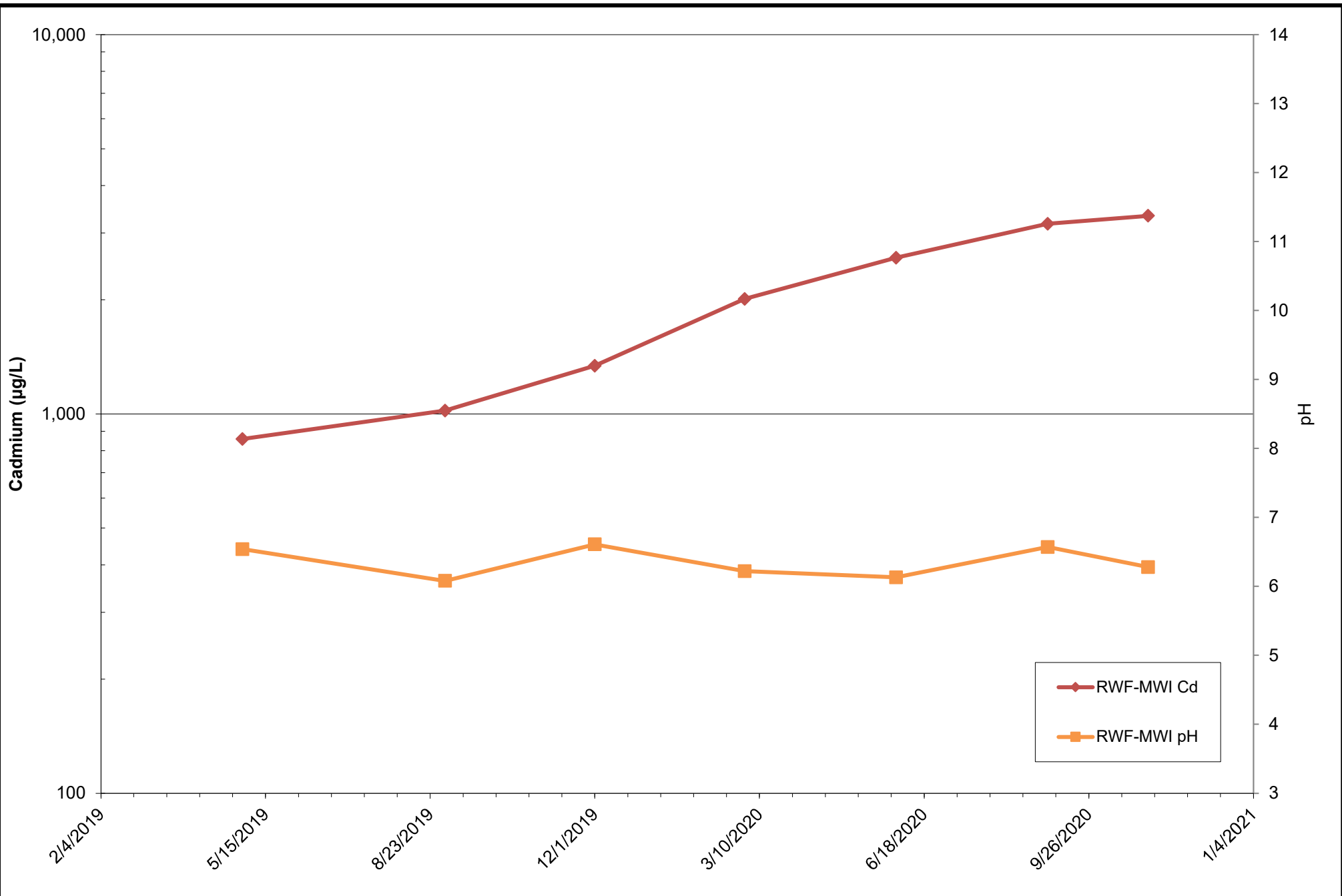
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWE-MWI pH and Cadmium  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

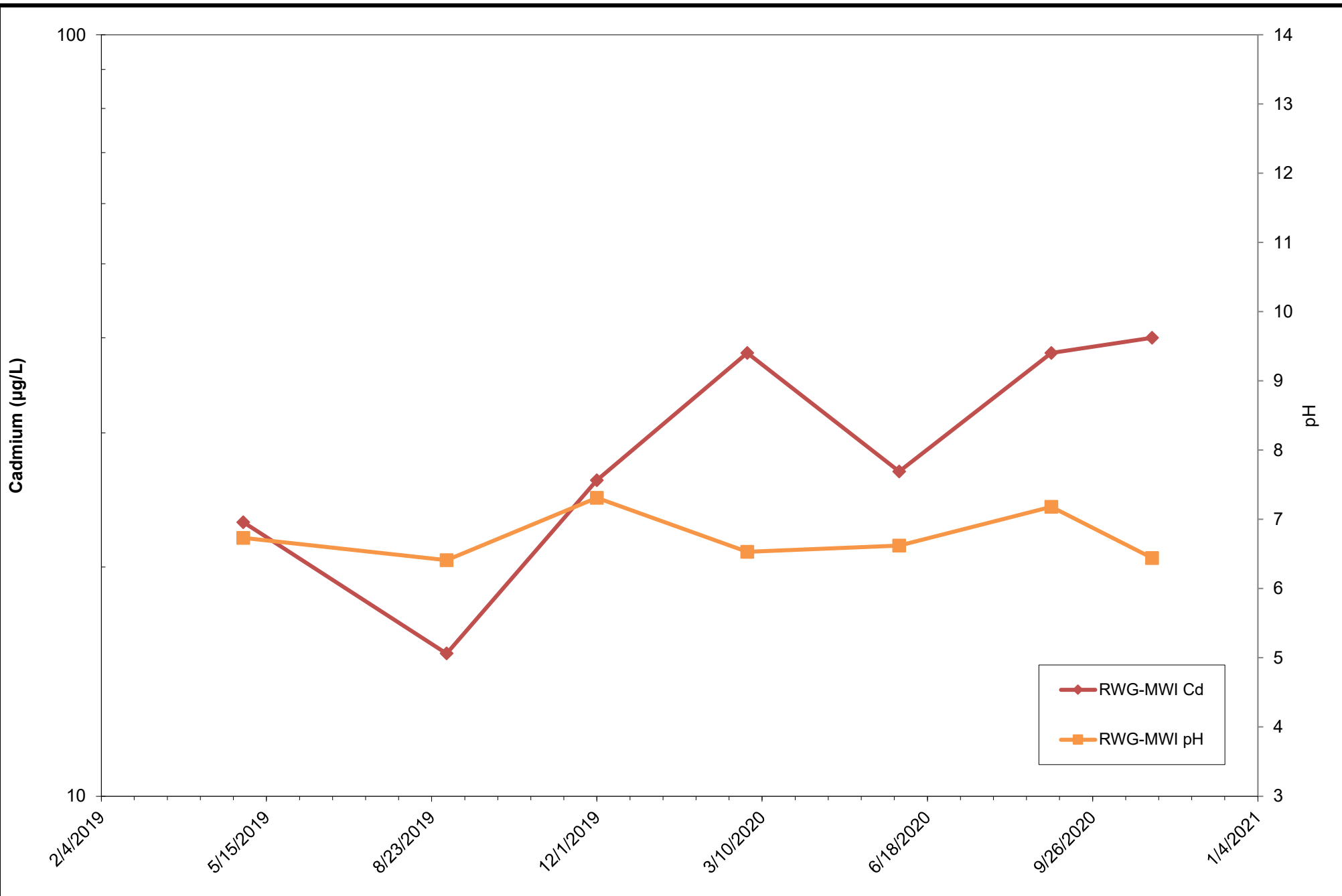
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWF-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

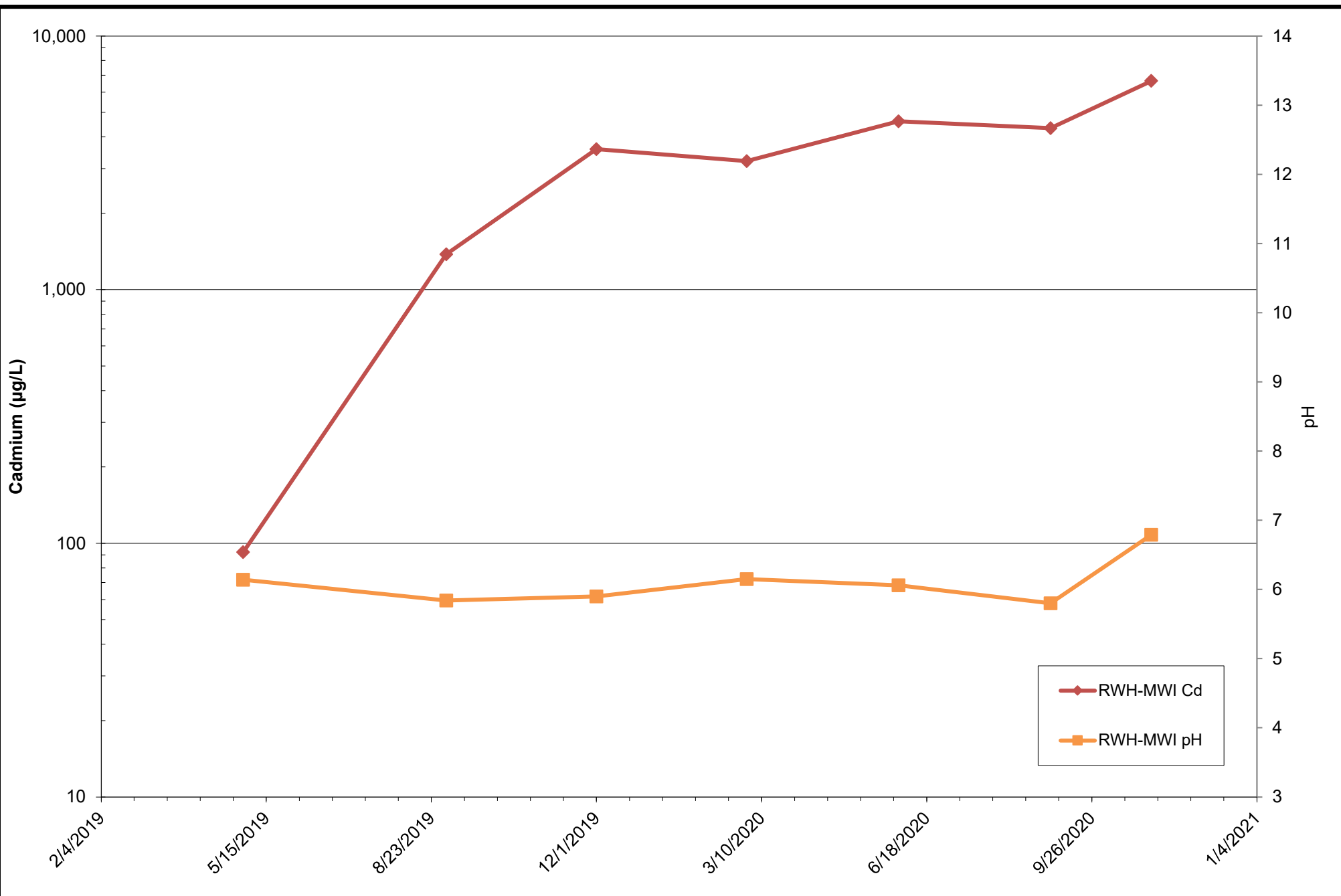
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWG-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

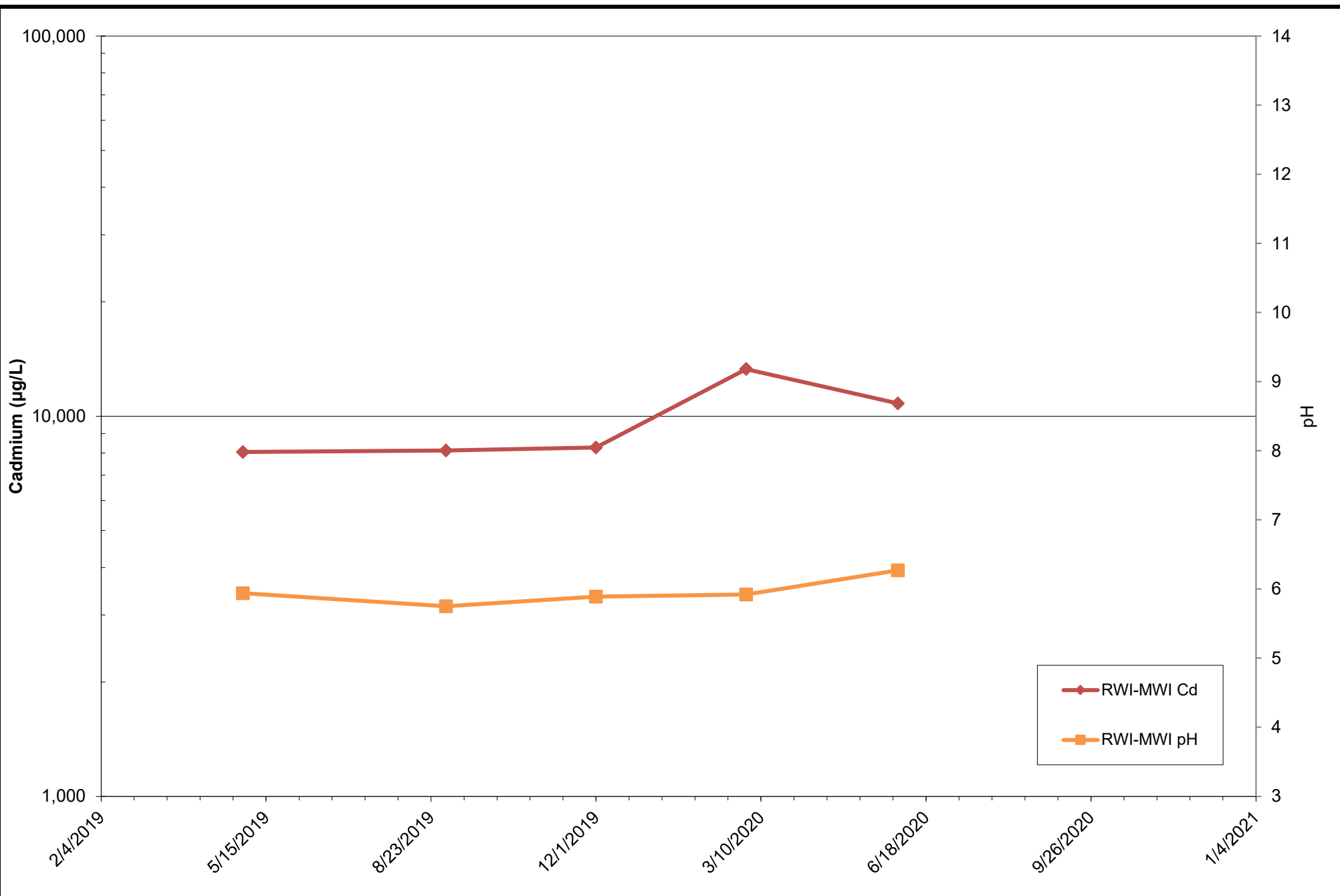
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWH-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

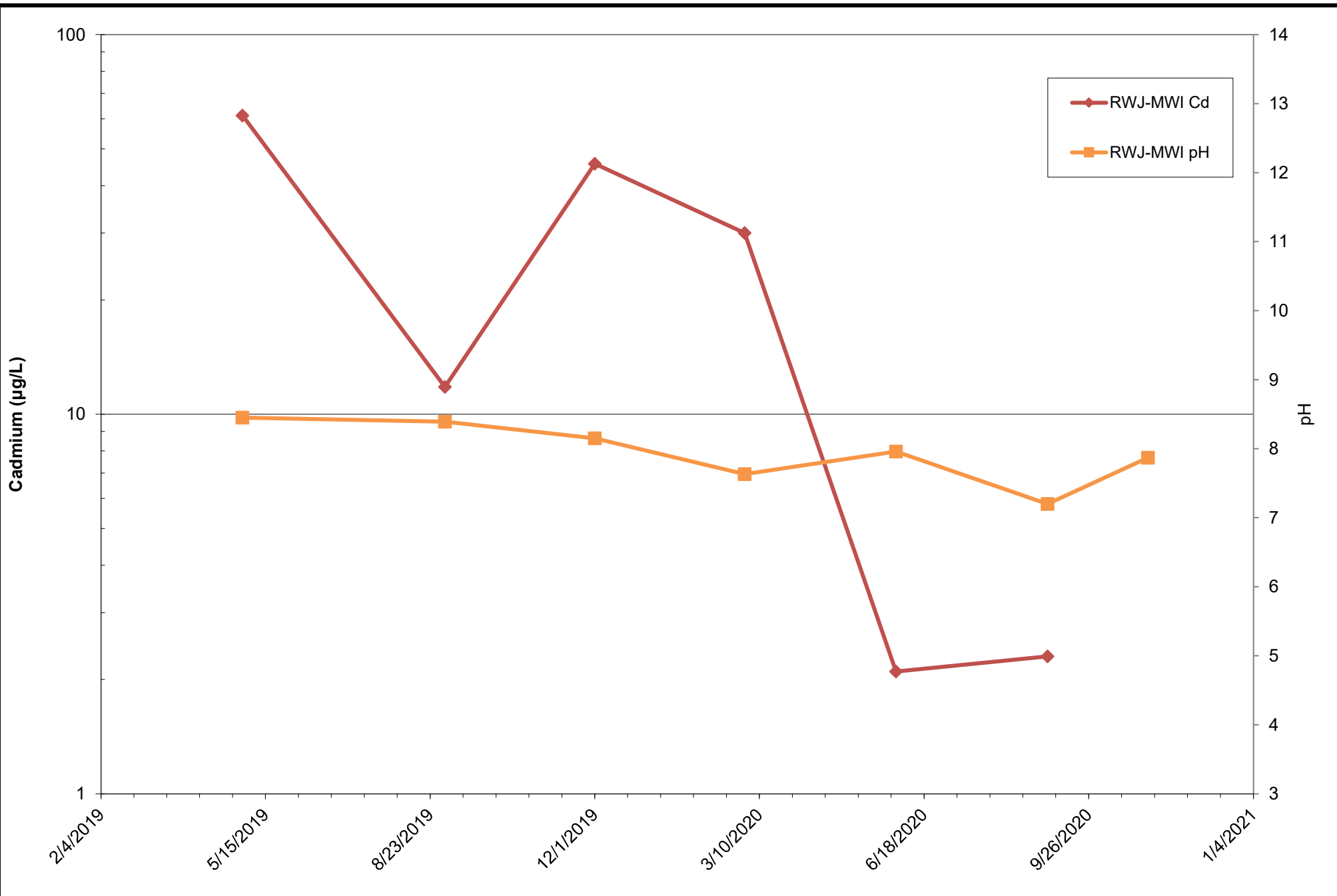
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWI-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

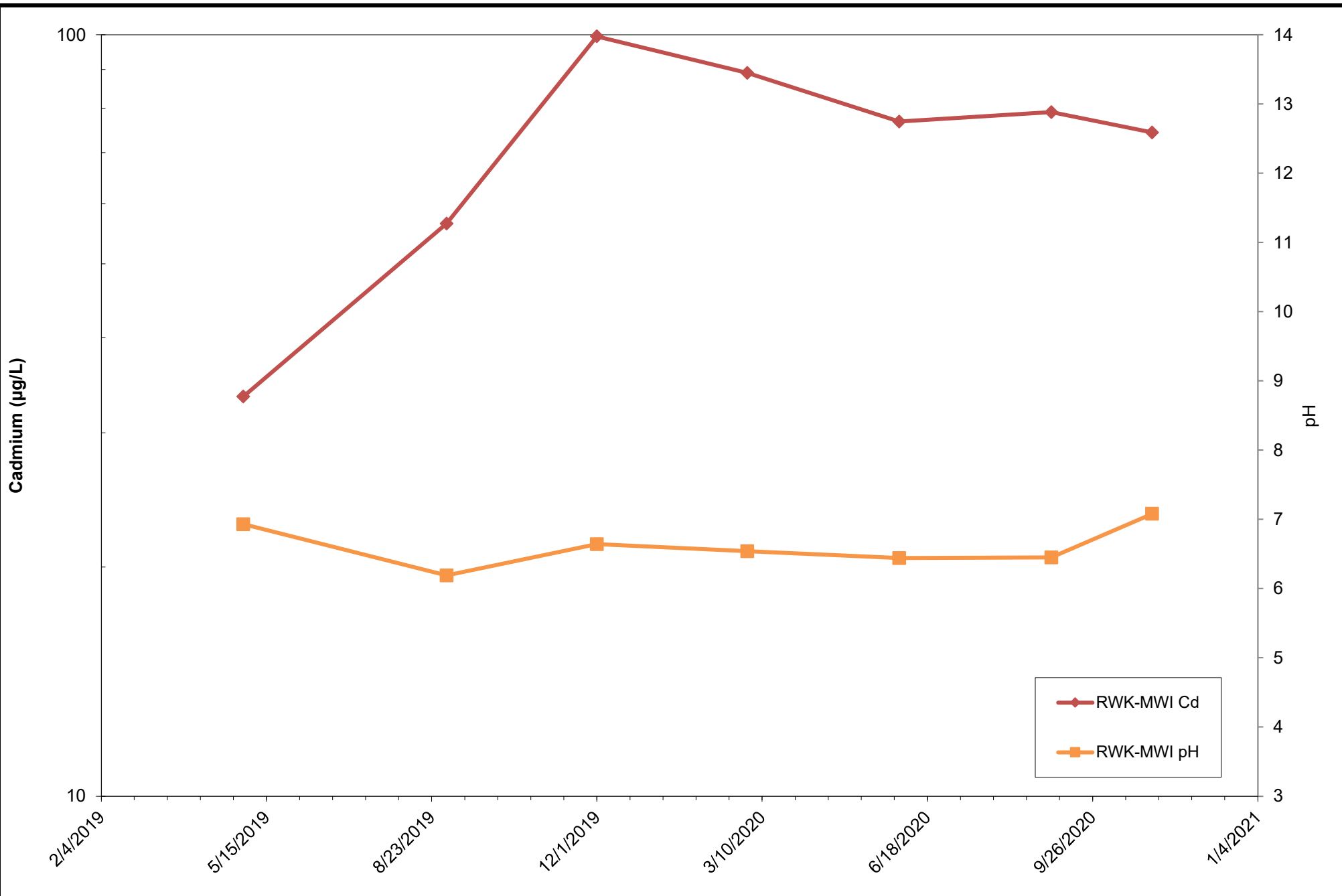
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWJ-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

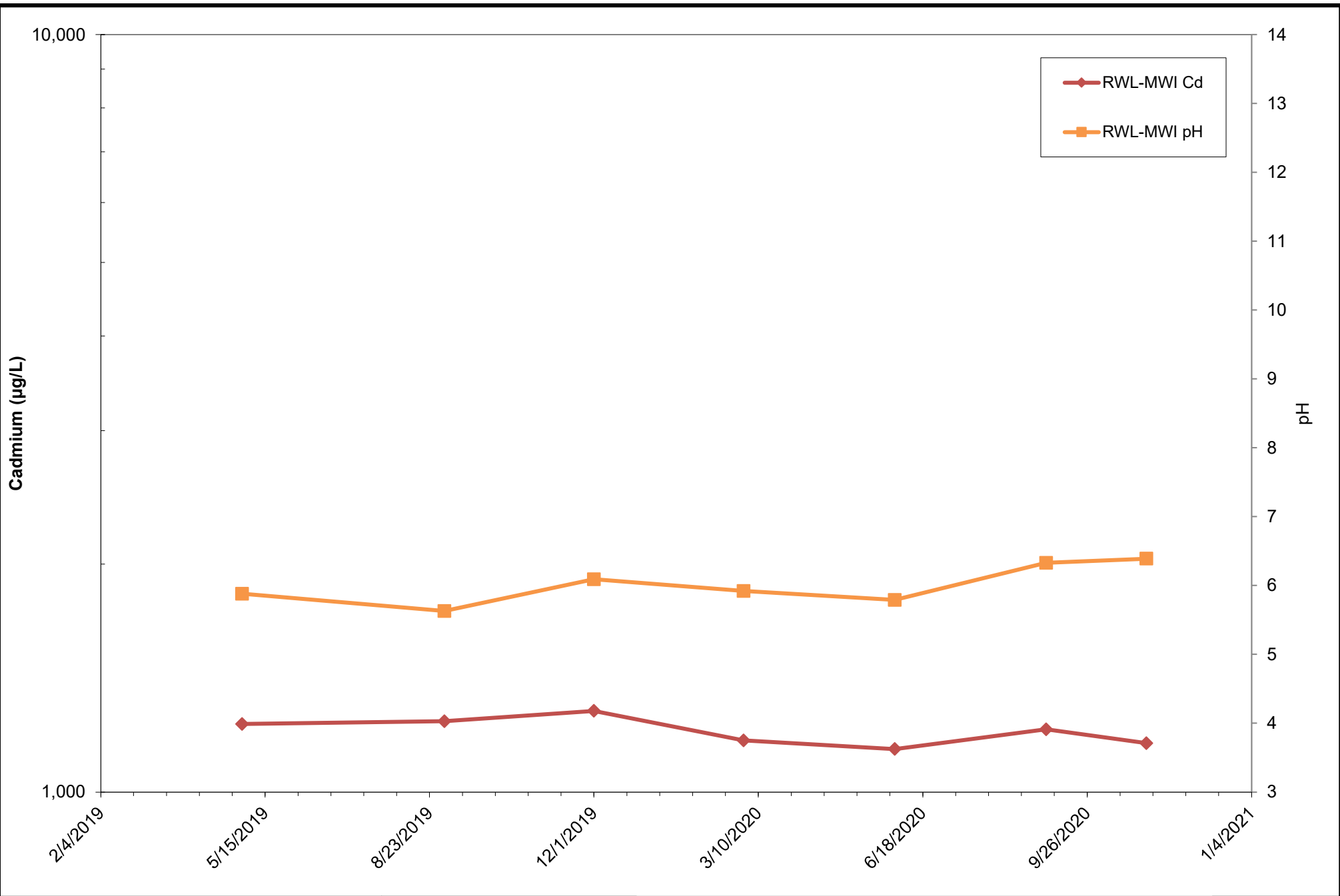
Sparrows Point, Maryland

### RWK-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**





**ARM Group LLC**  
Engineers and Scientists

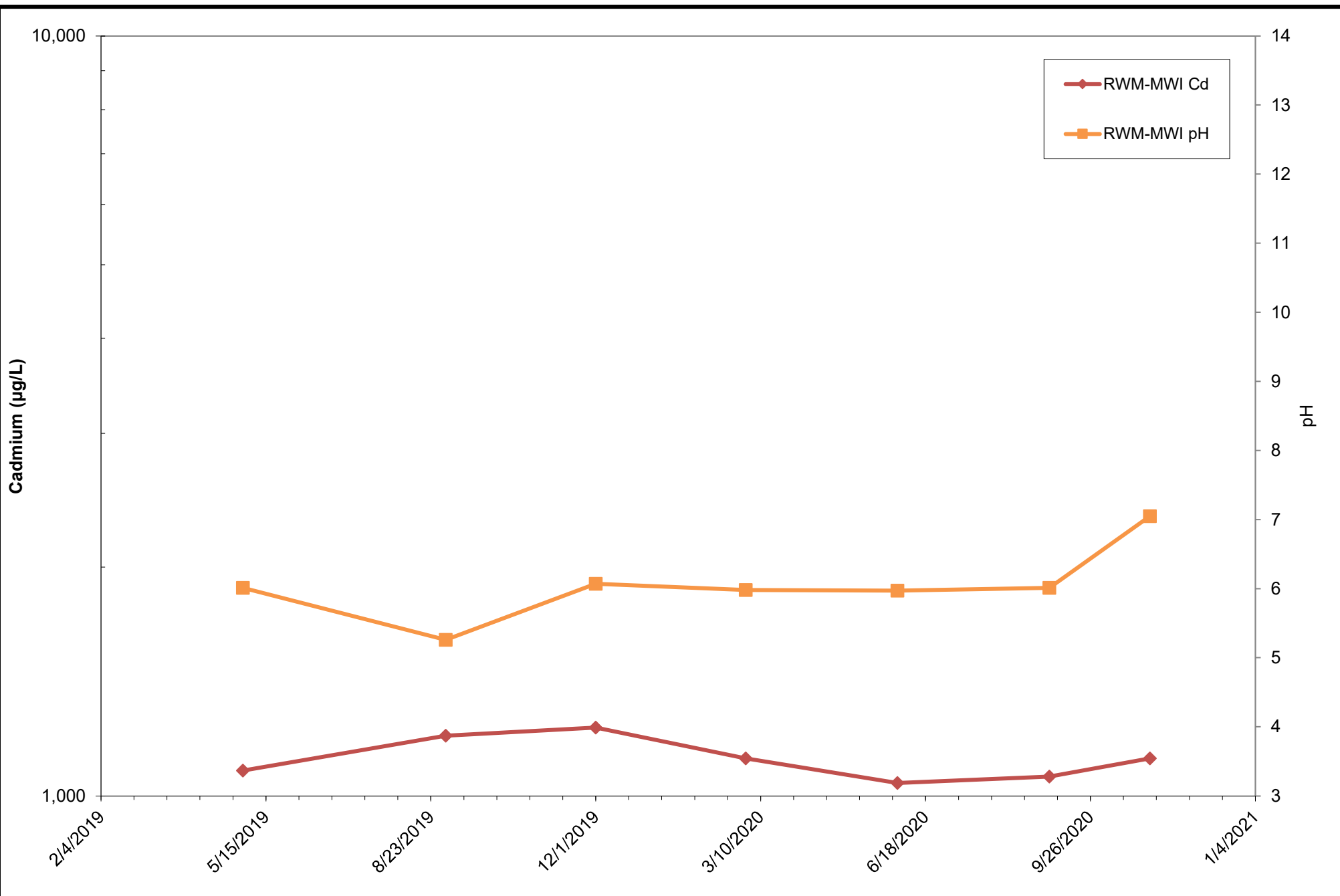
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWL-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

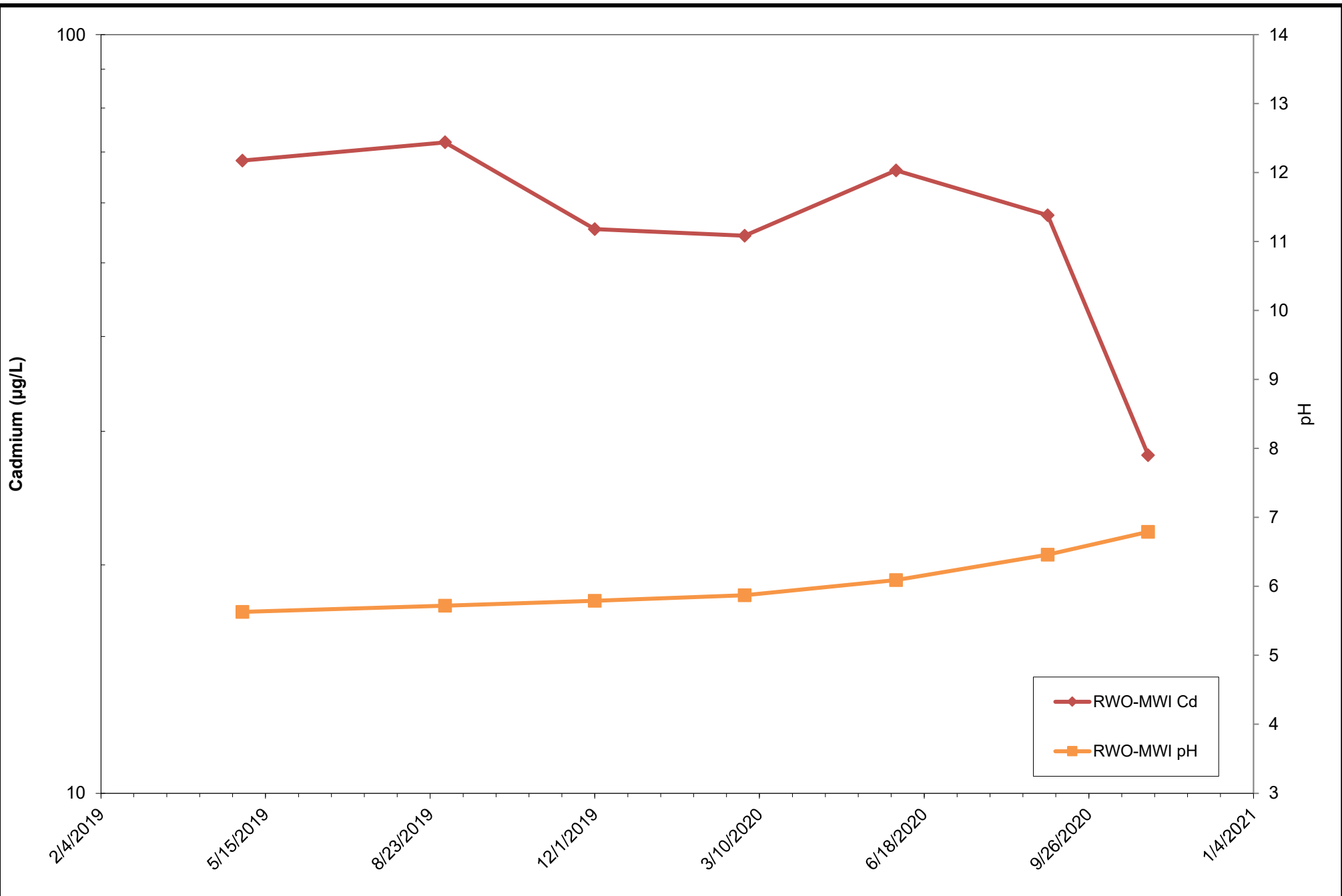
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWM-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

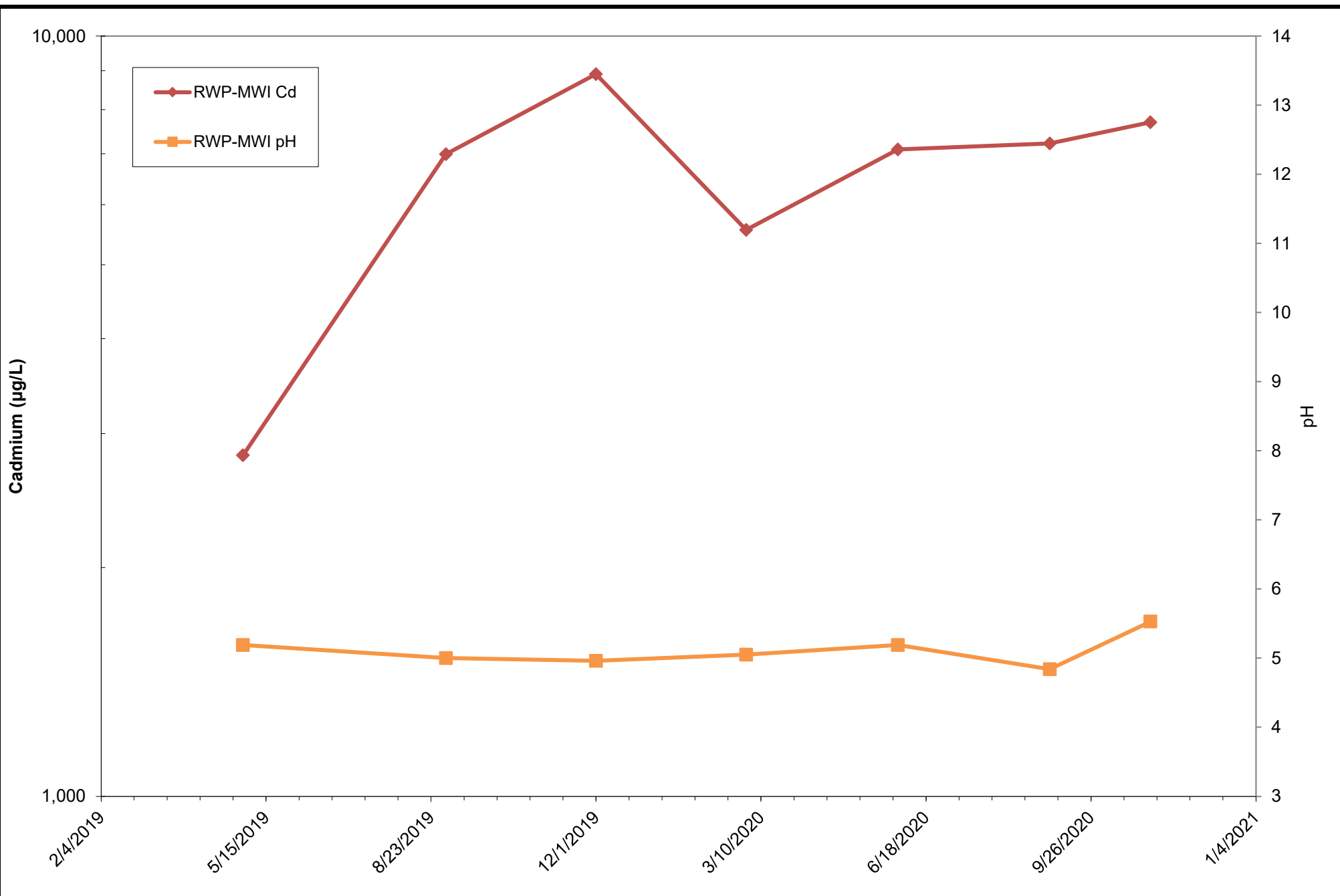
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWO-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

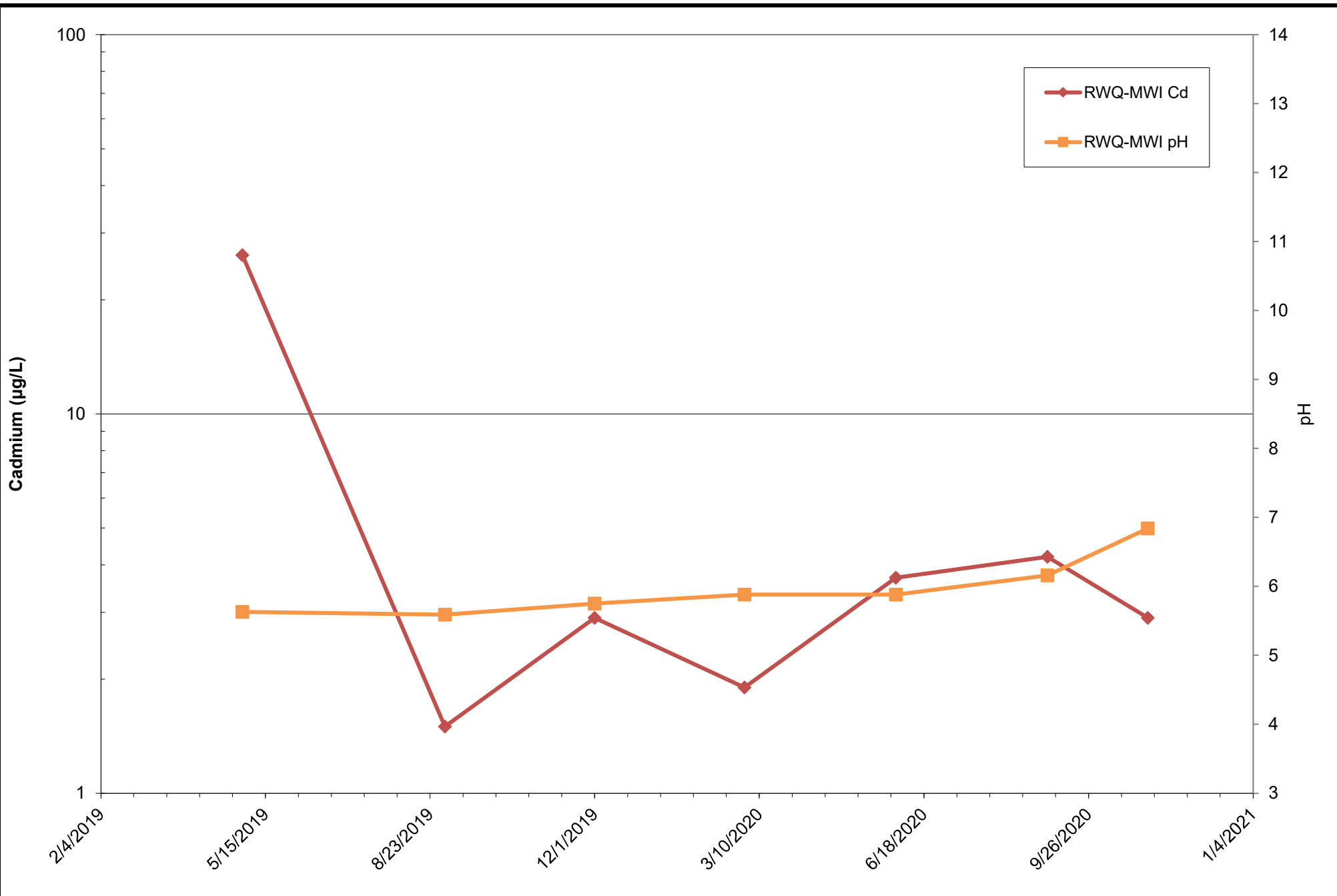
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWP-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

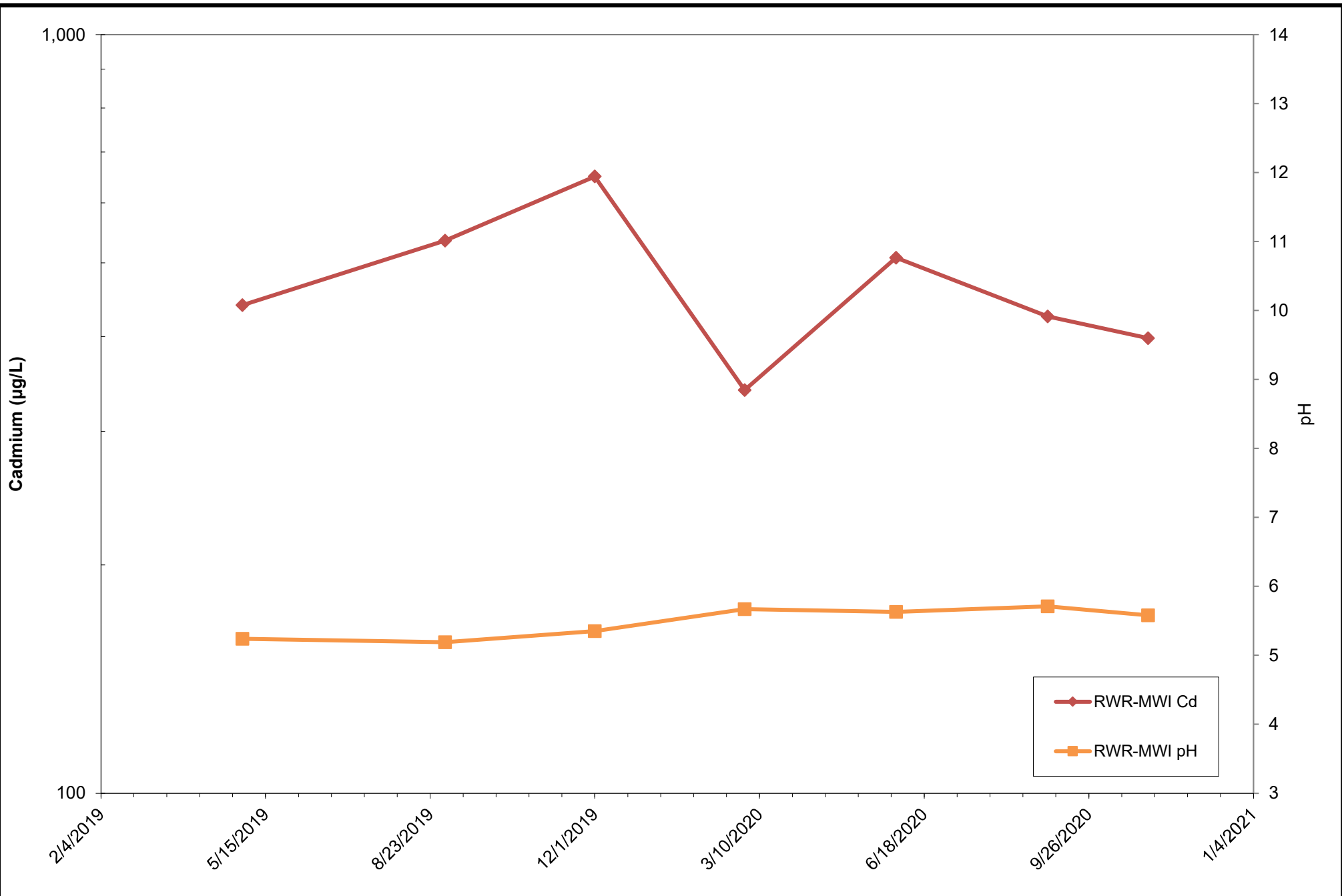
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWQ-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

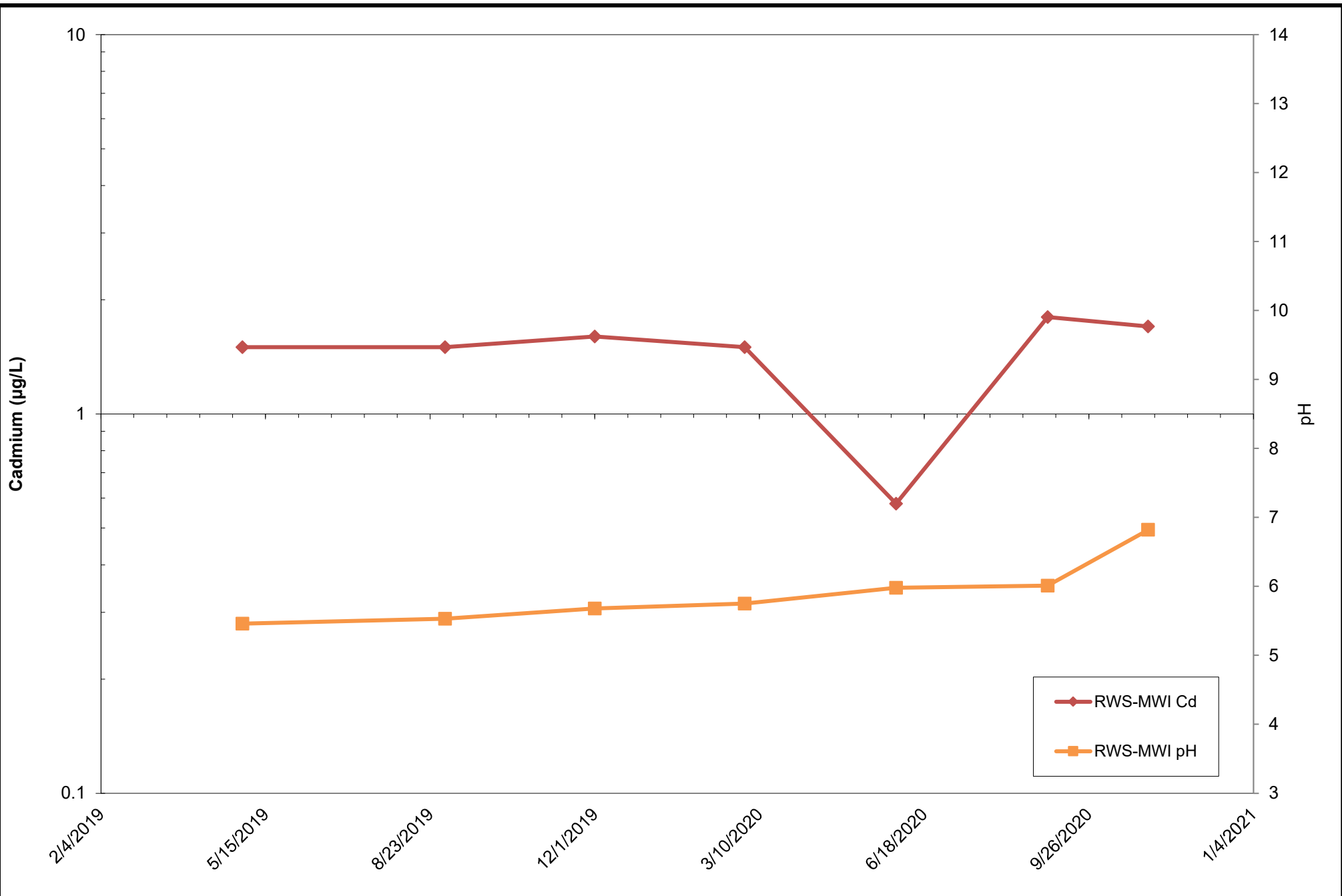
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWR-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

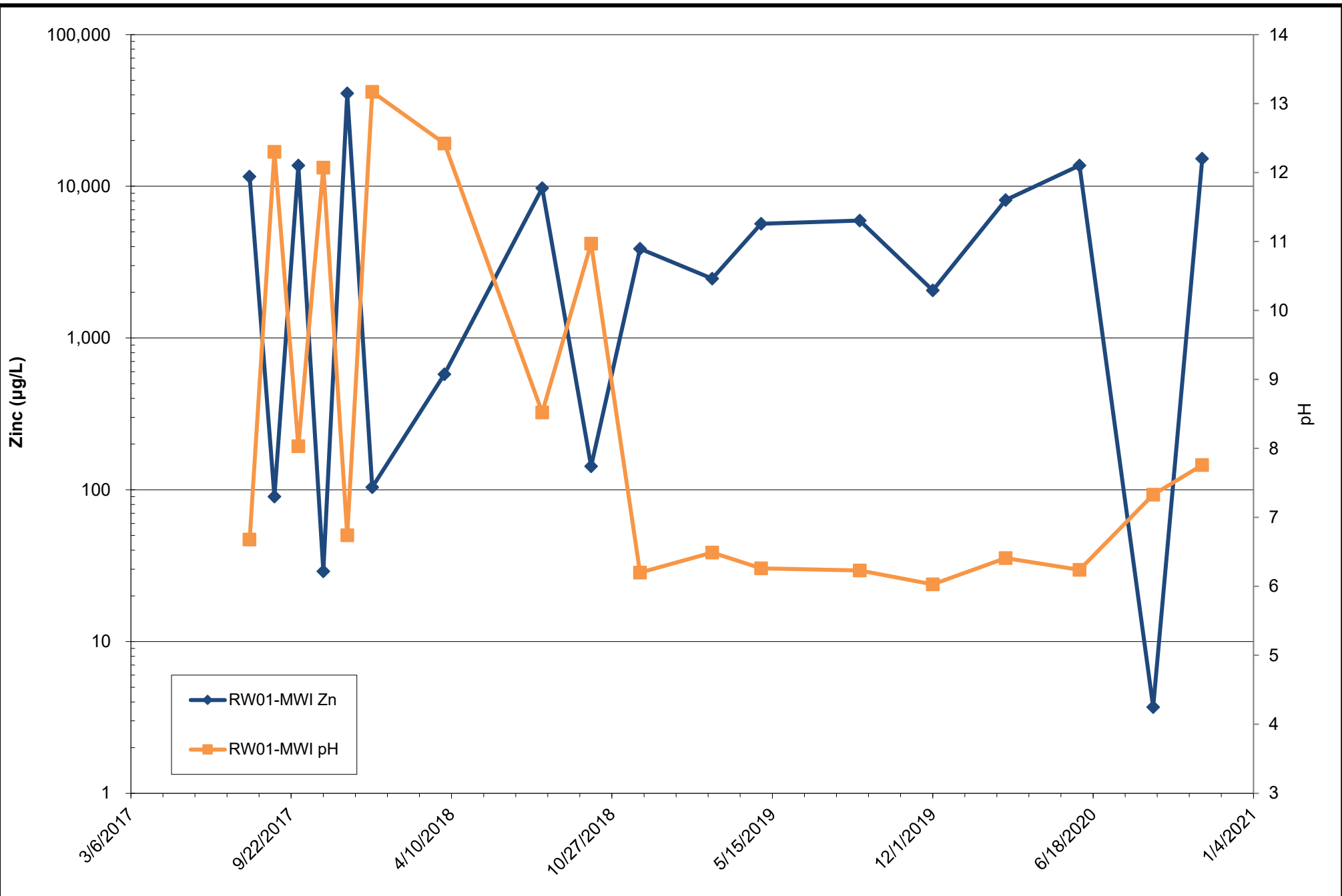
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWS-MWI pH and Cadmium Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

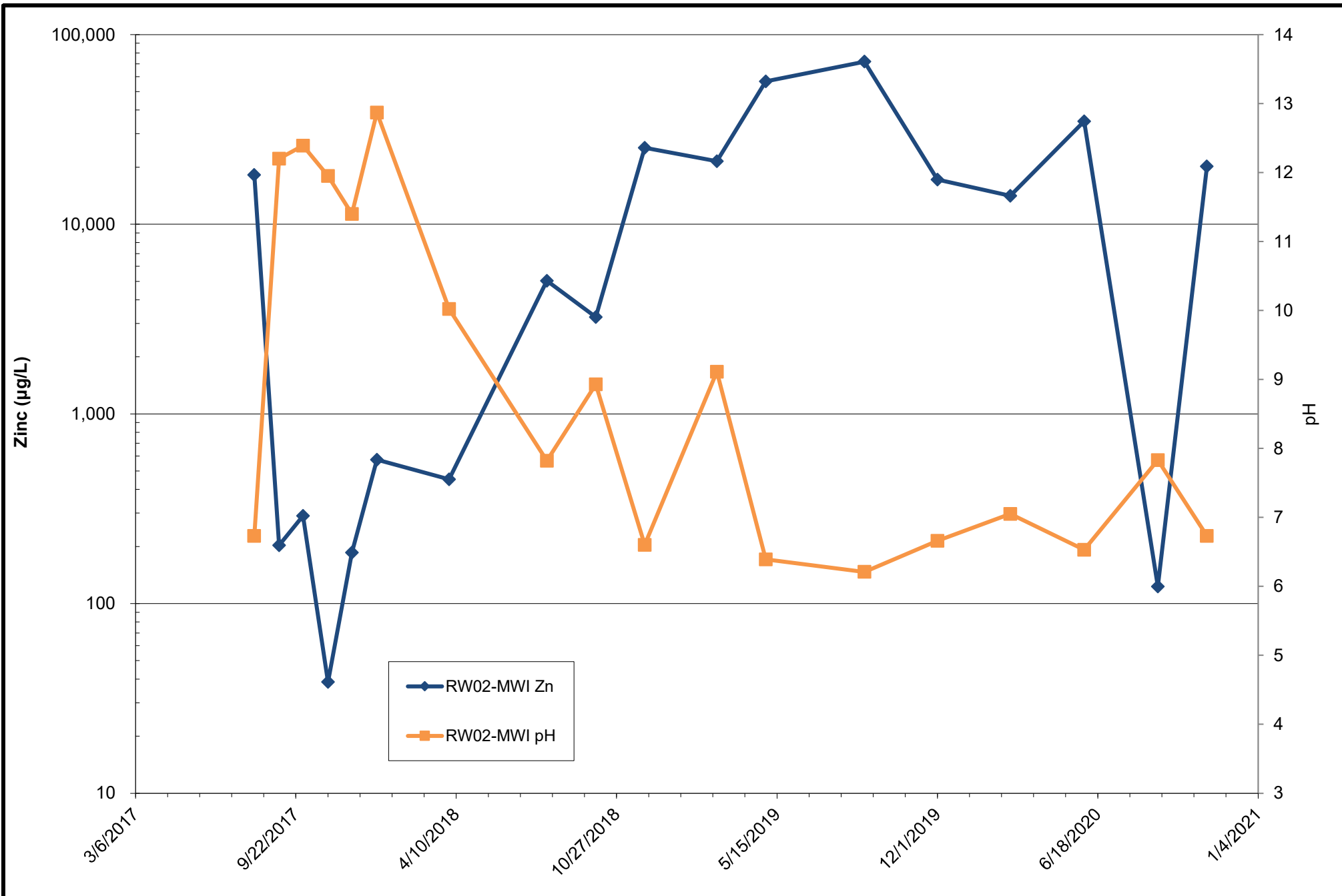
Sparrows Point, Maryland

**RW01-MWI pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
C**





**ARM Group LLC**  
Engineers and Scientists

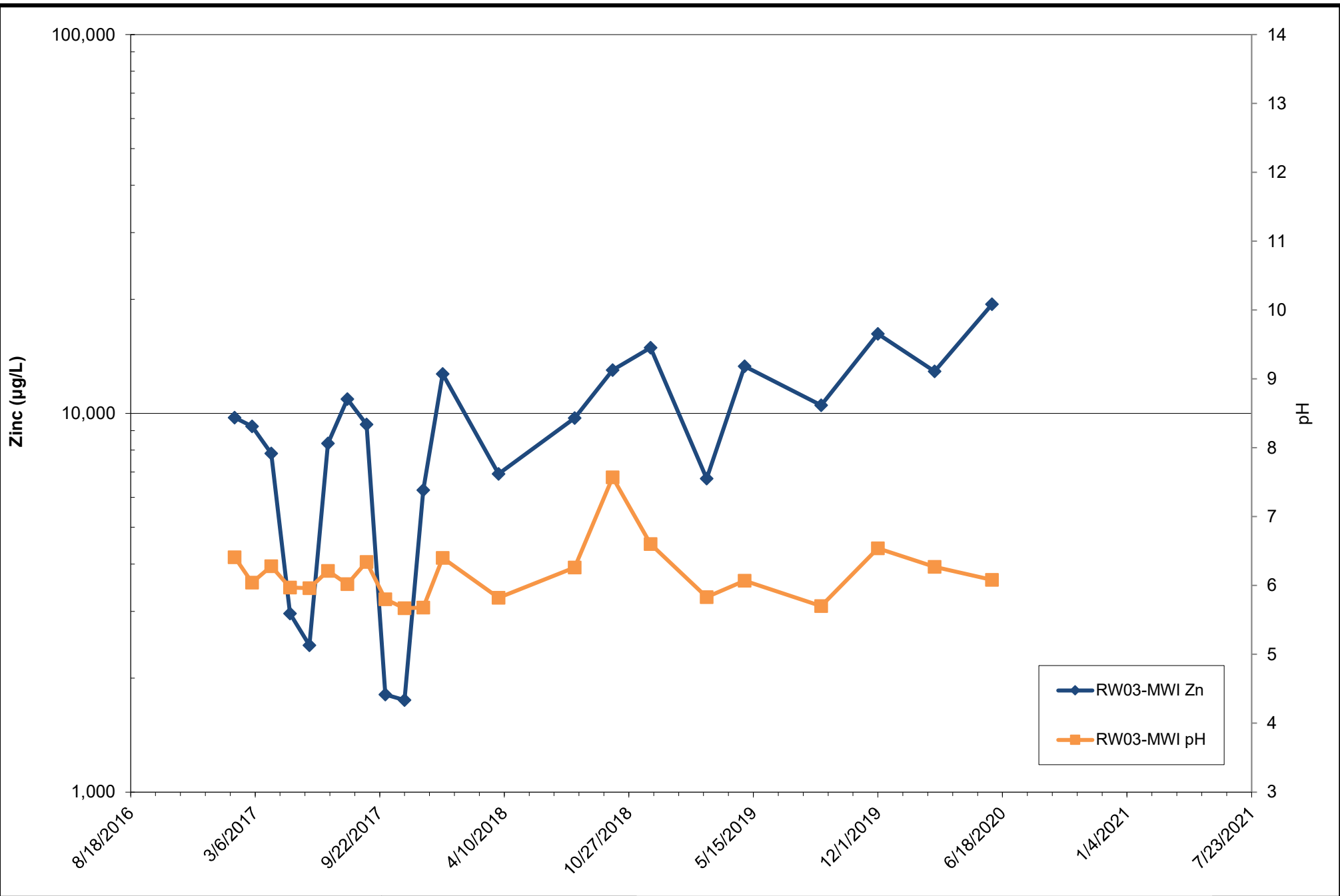
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW02-MWI pH and Zinc Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

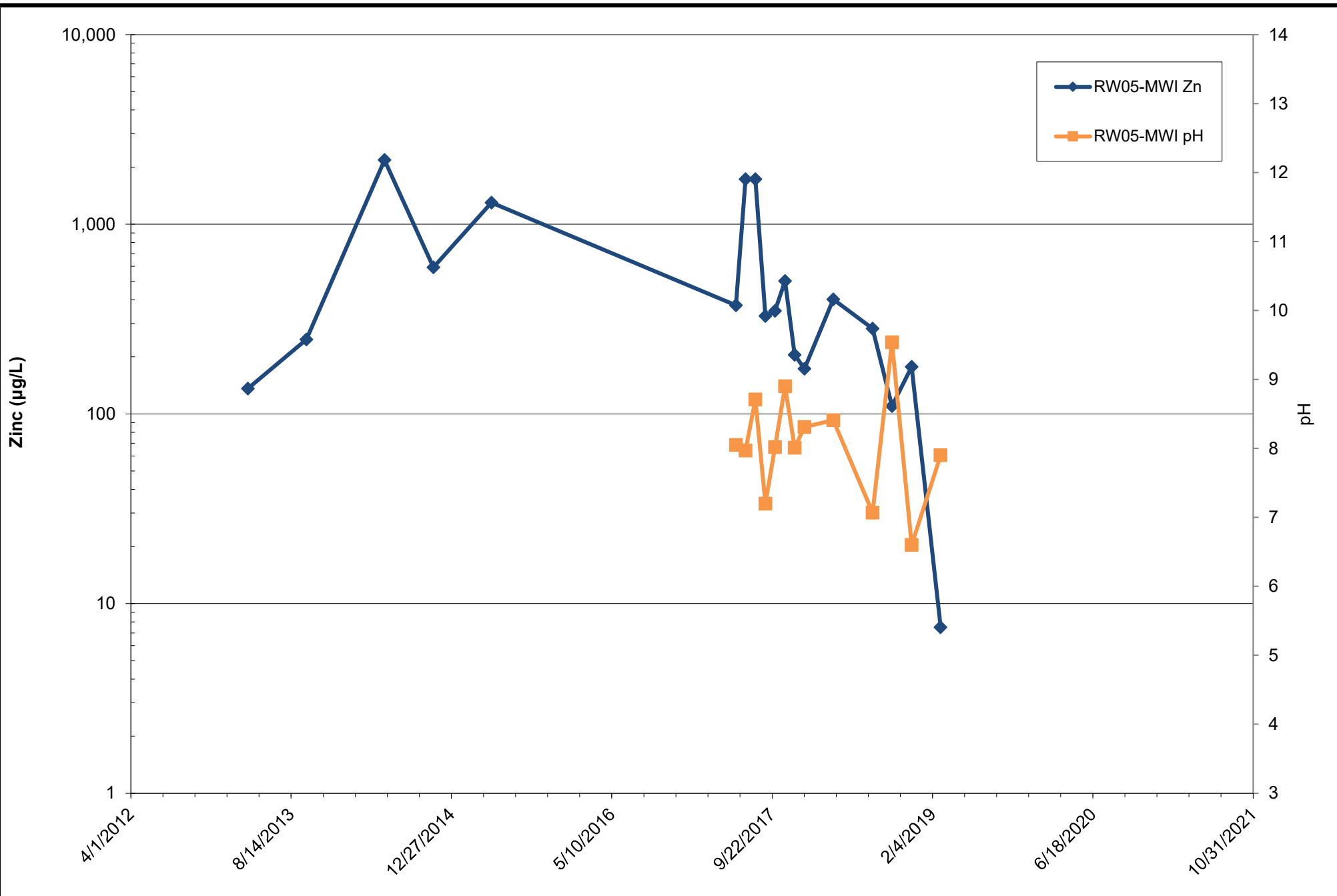
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW03-MWI pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

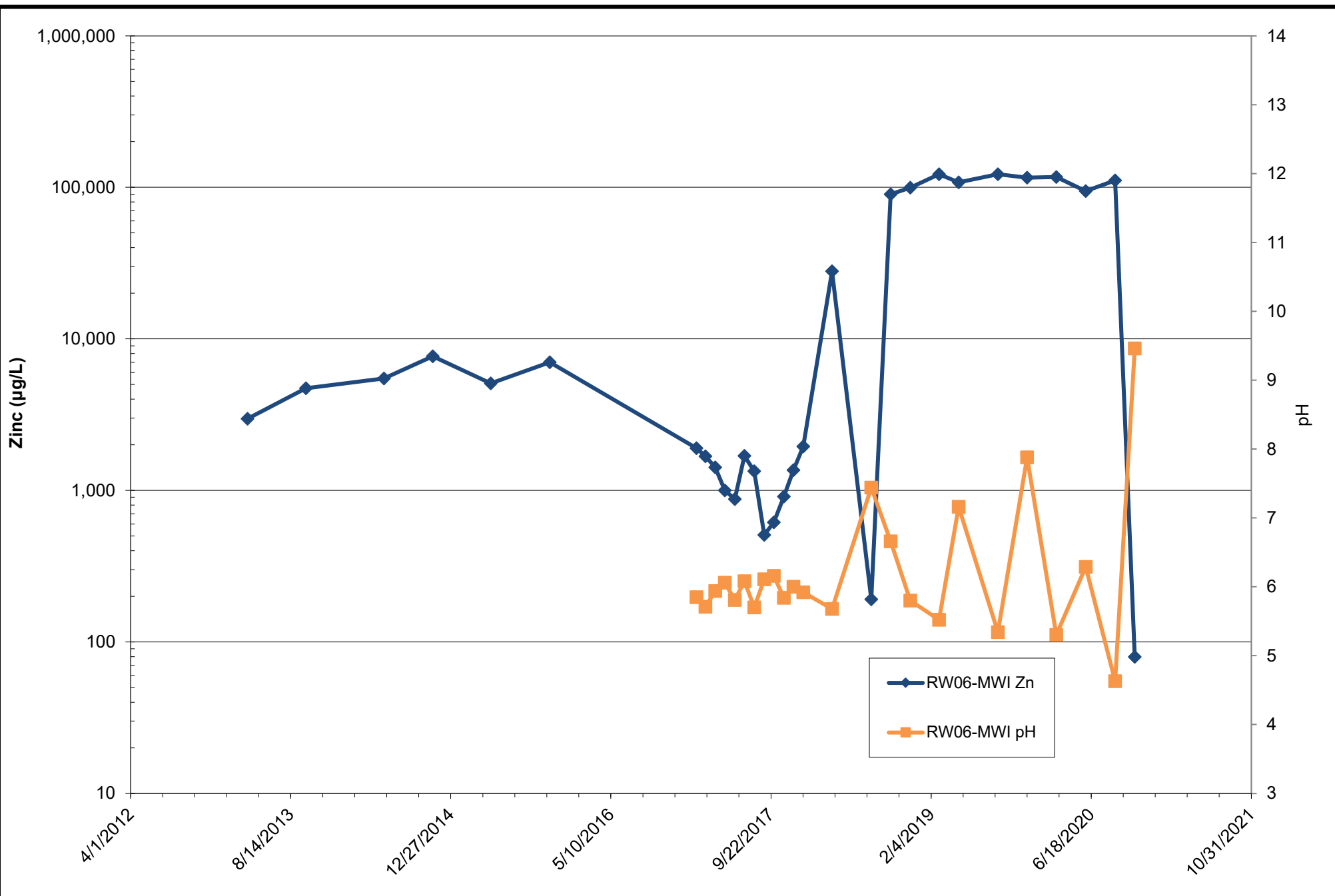
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW05-MWI pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

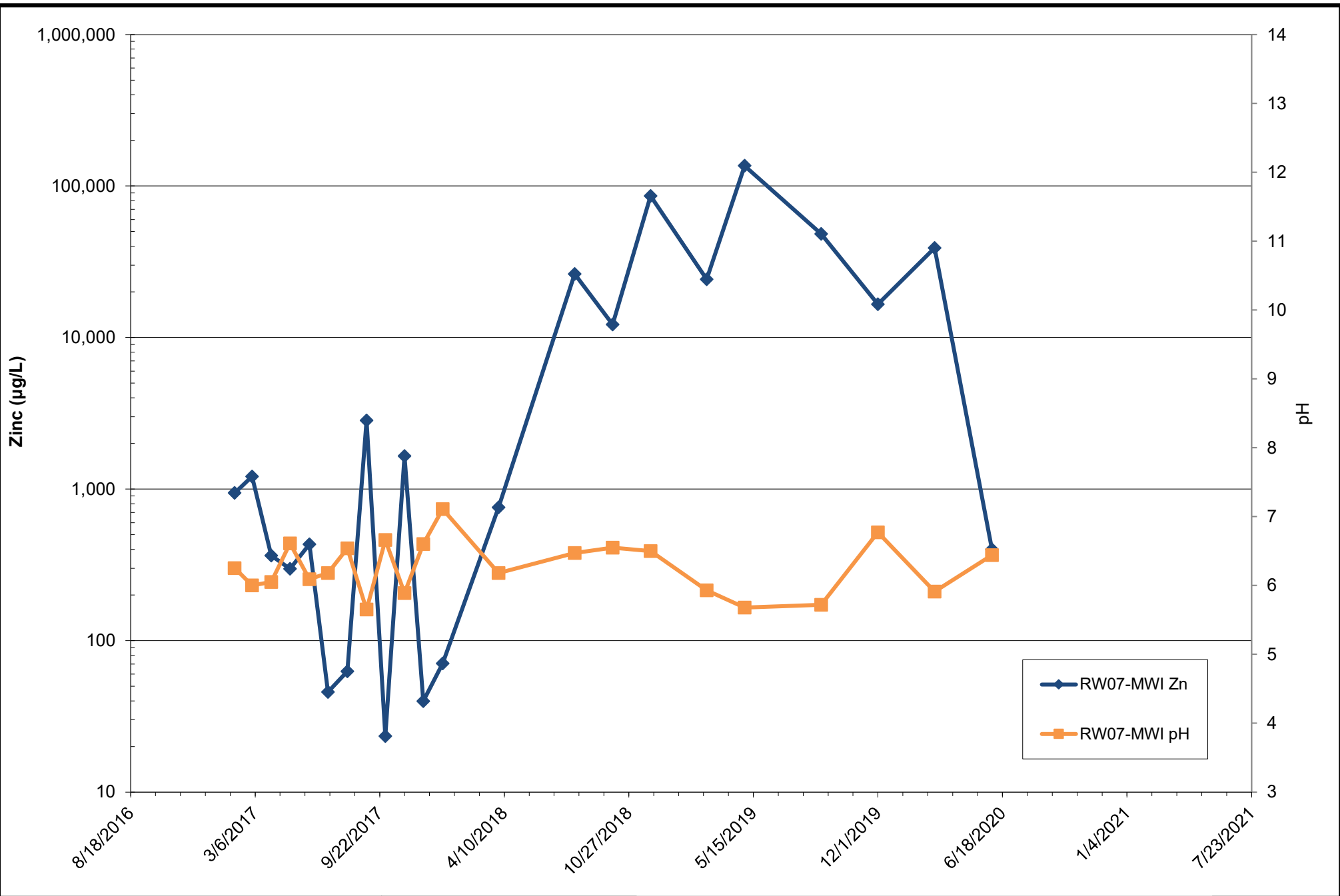
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW06-MWI pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

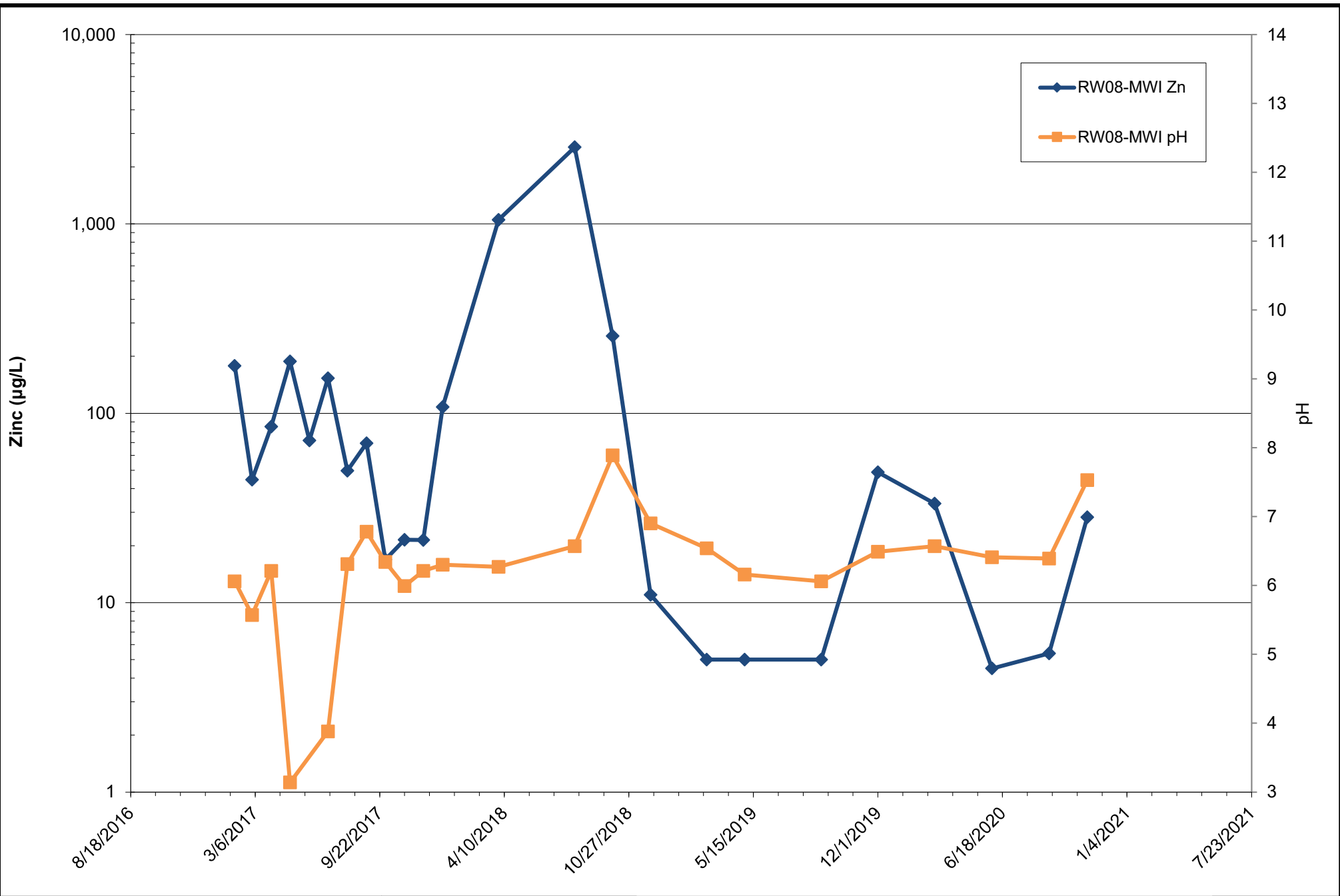
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW07-MWI pH and Zinc Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

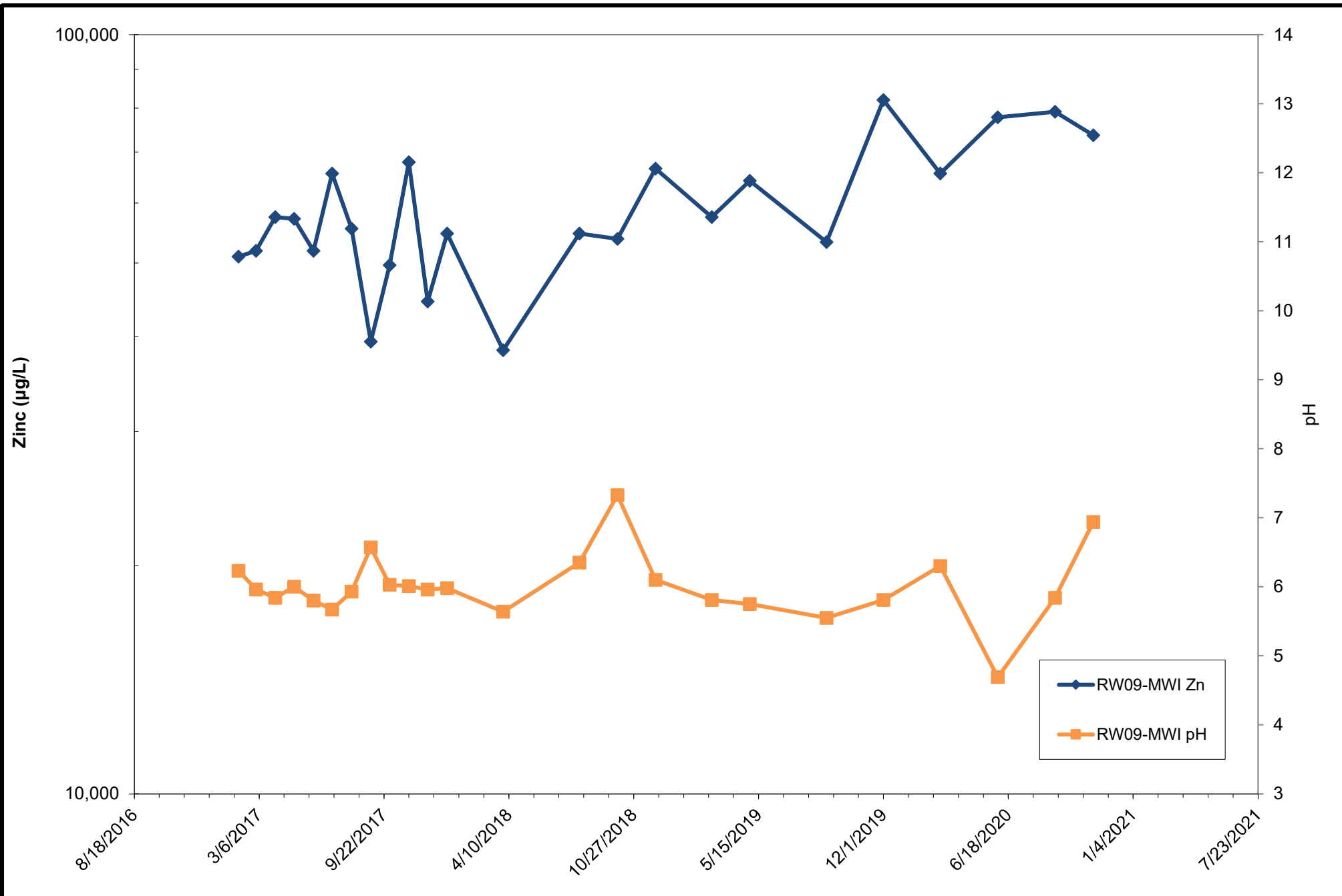
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW08-MWI pH and Zinc Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

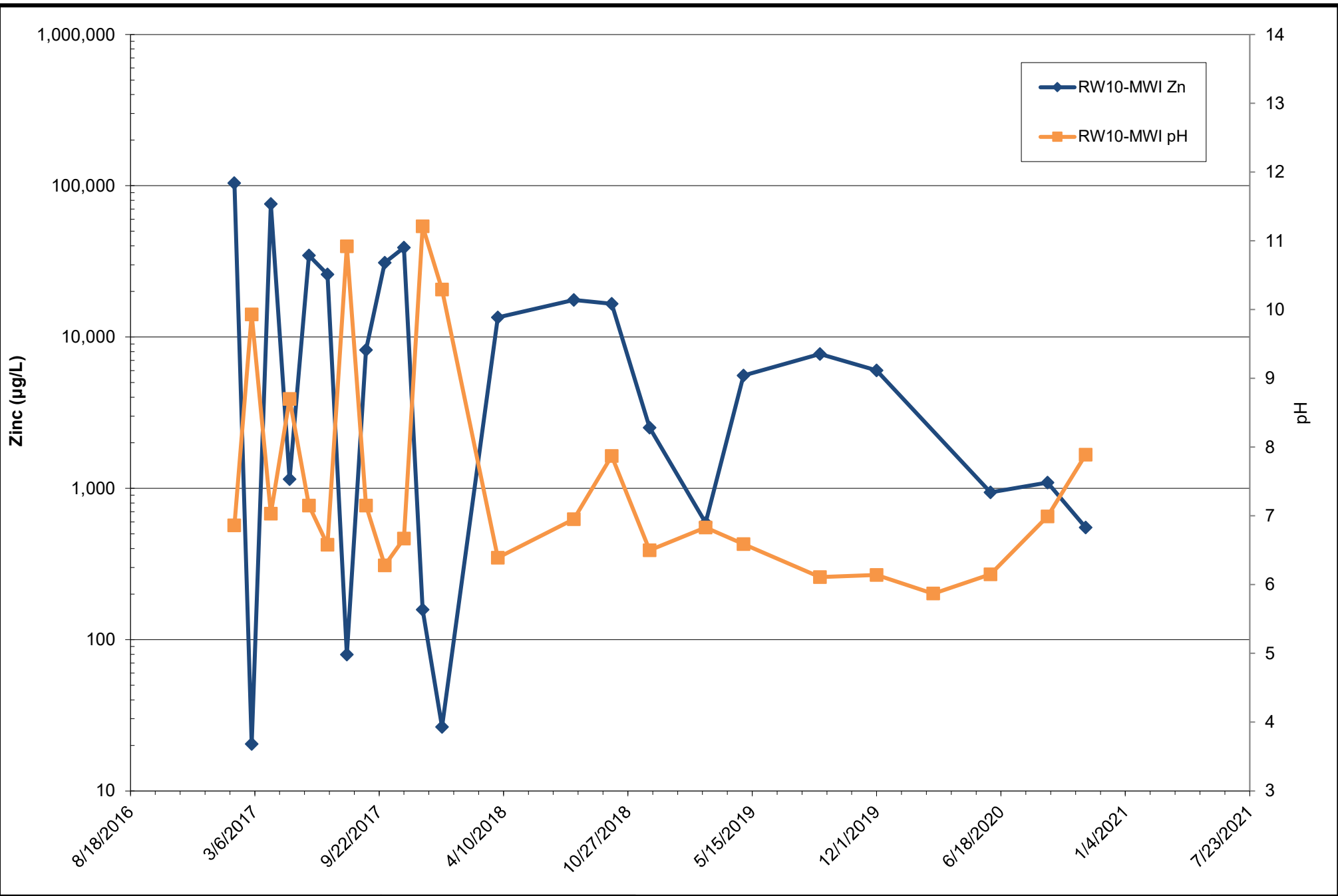
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW09-MWI pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

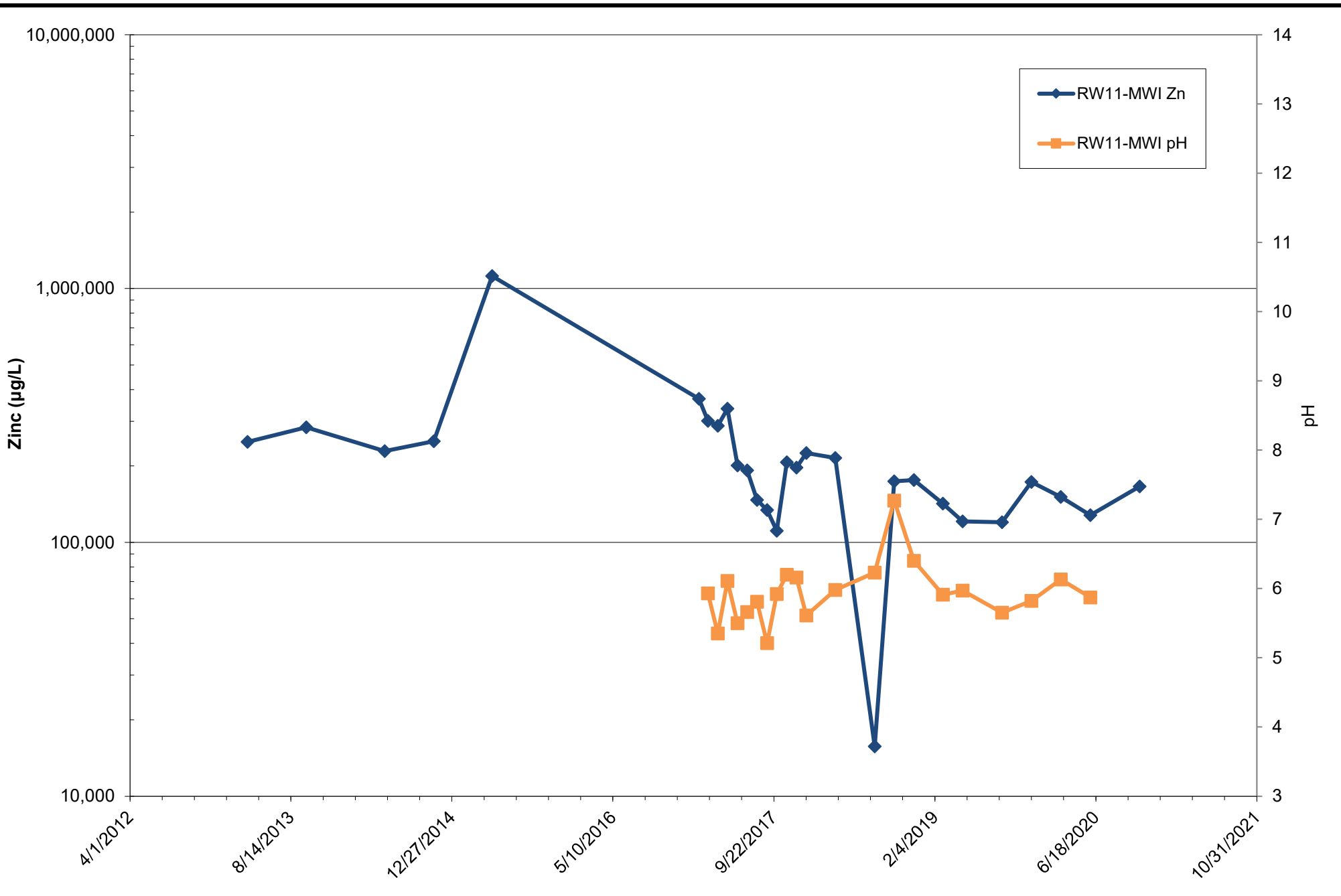
Sparrows Point, Maryland

**RW10-MWI pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
C**





**ARM Group LLC**  
Engineers and Scientists

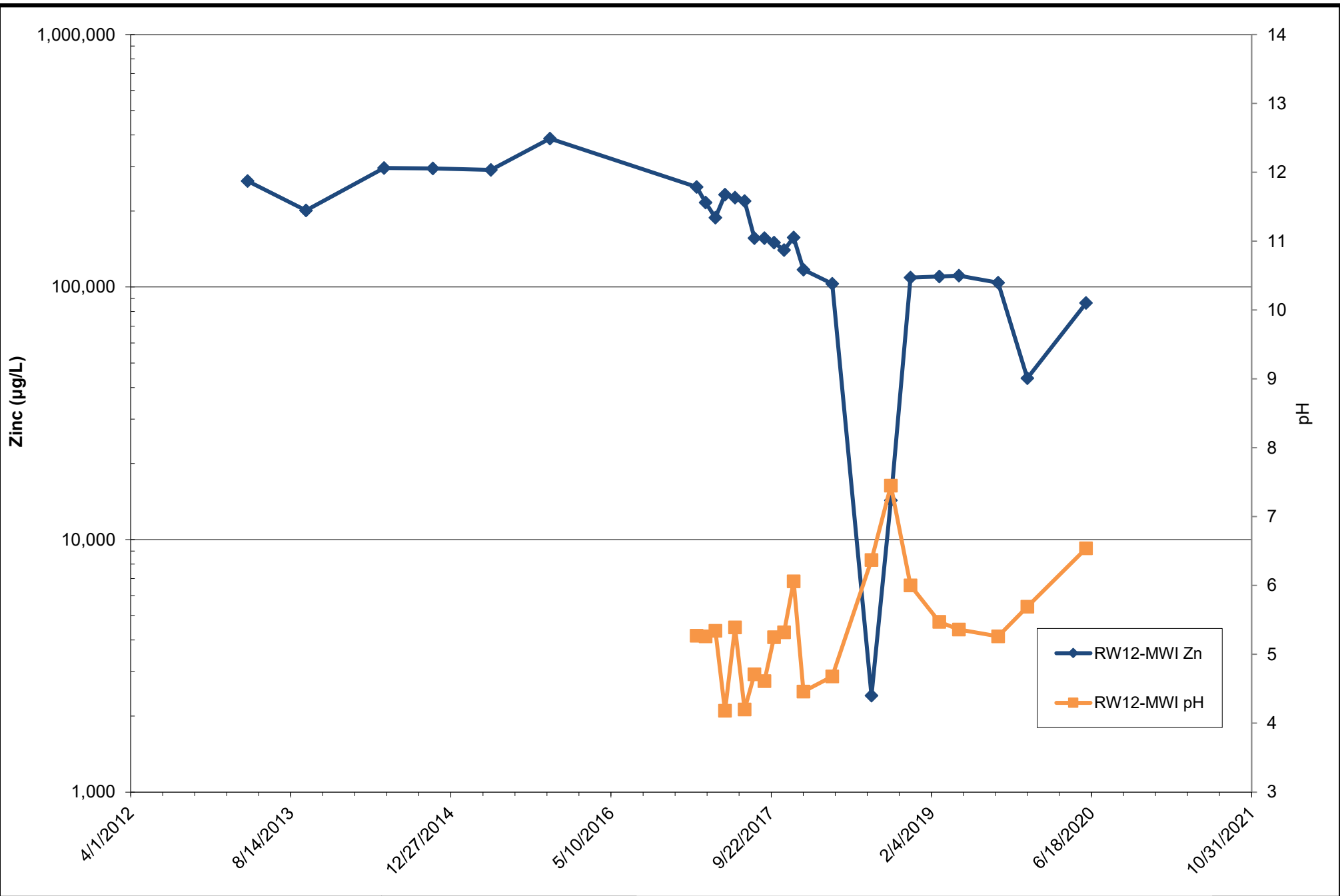
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RW11-MWI pH and Zinc Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

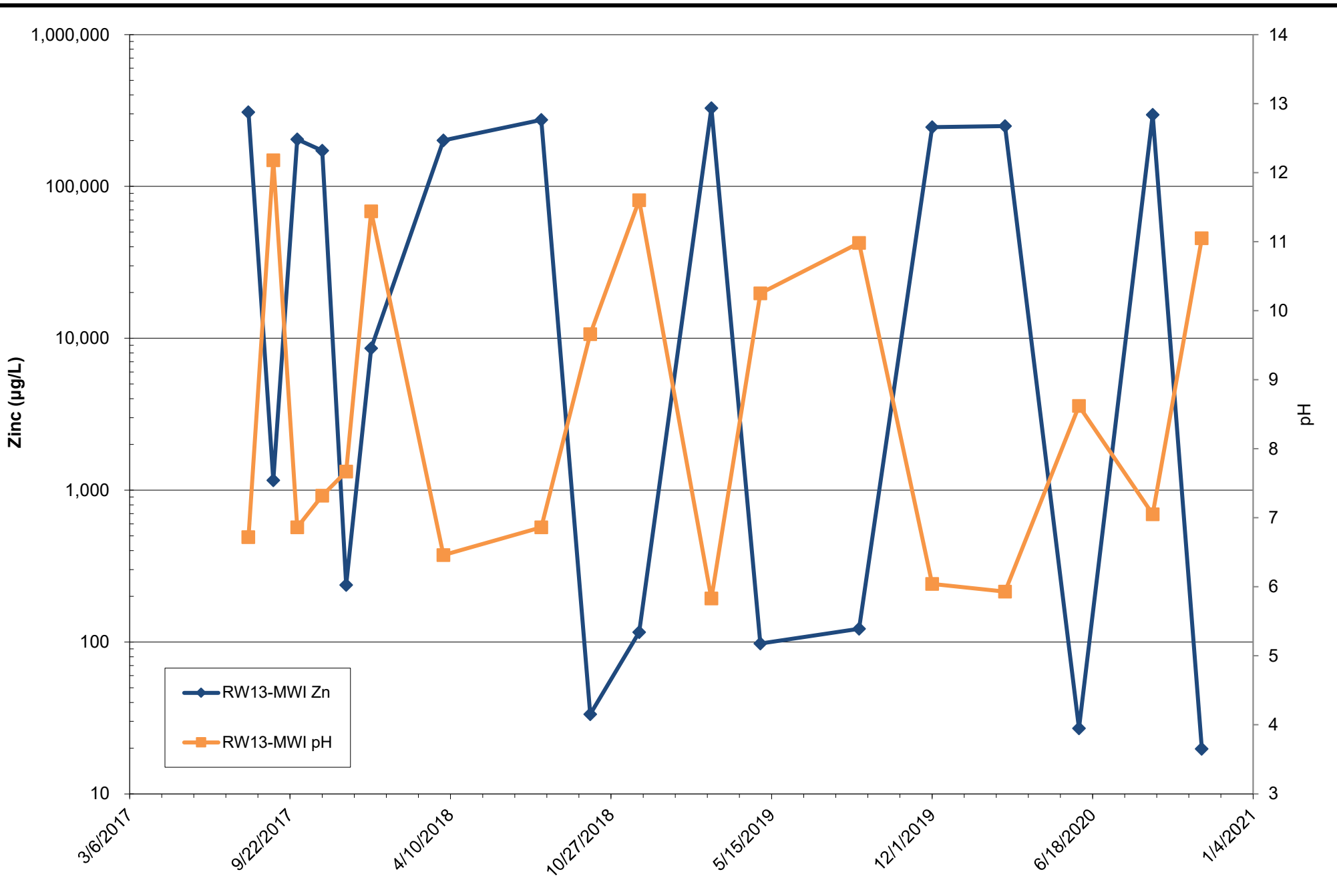
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RW12-MWI pH and Zinc Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

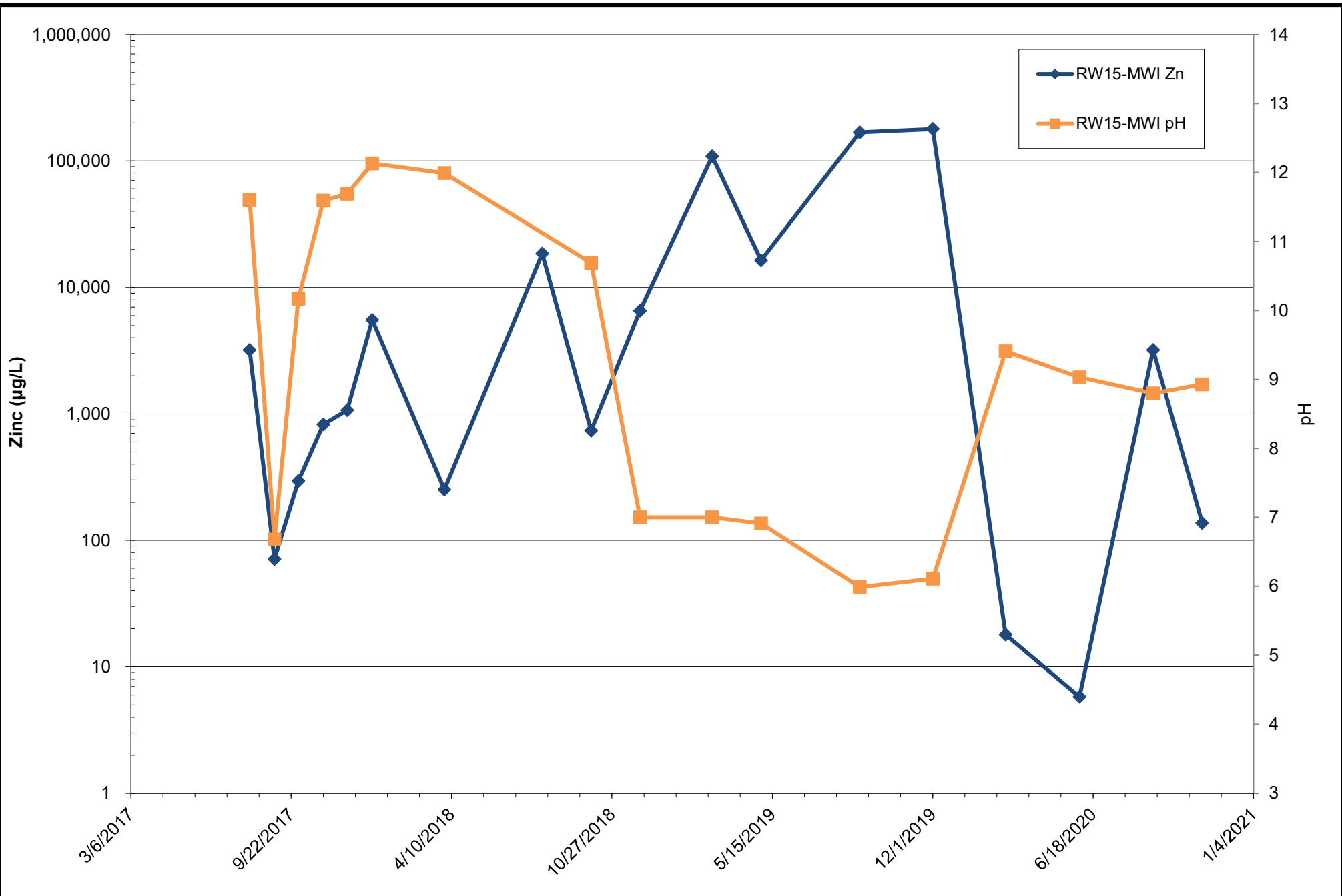
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW13-MWI pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

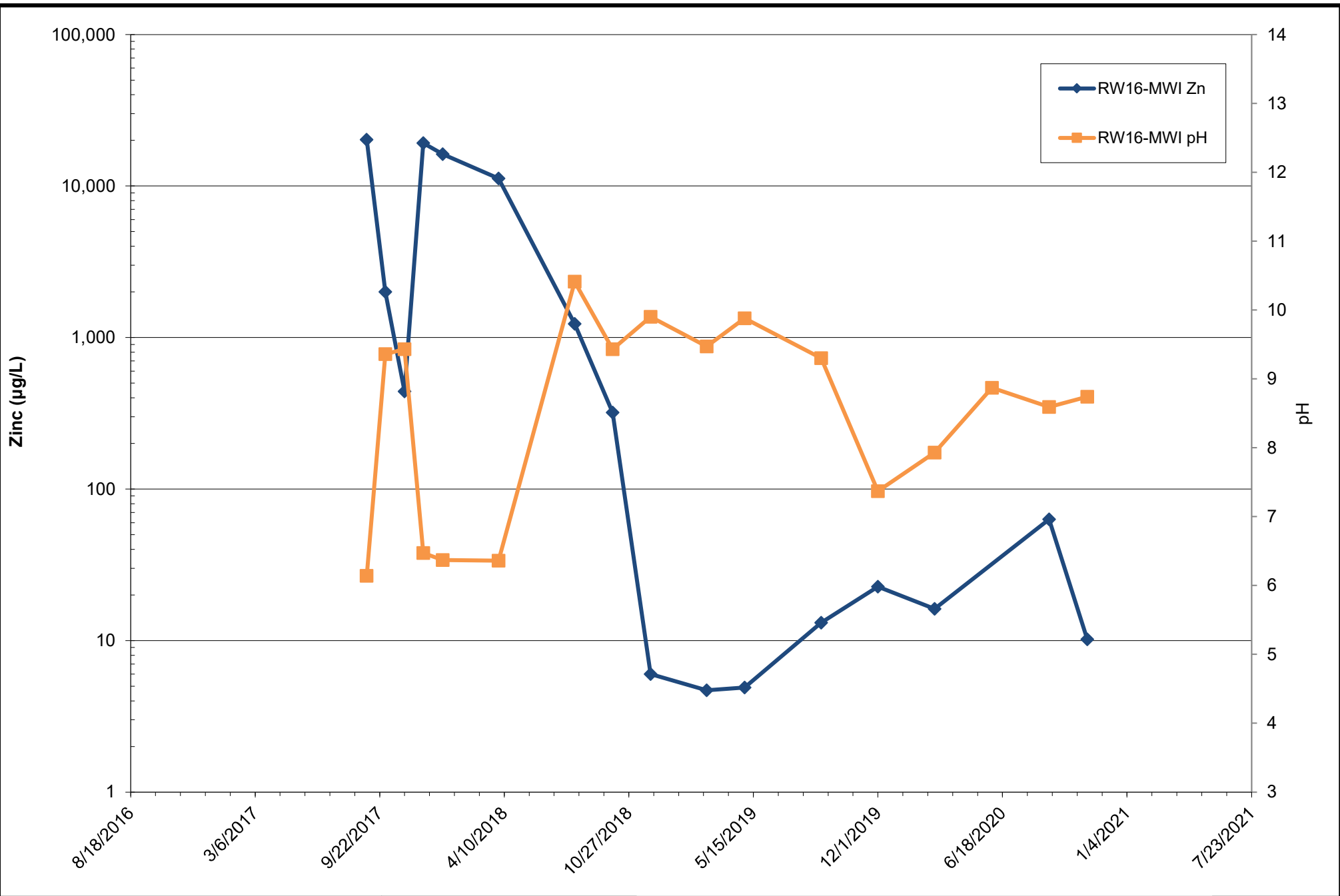
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RW15-MWI pH and Zinc Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

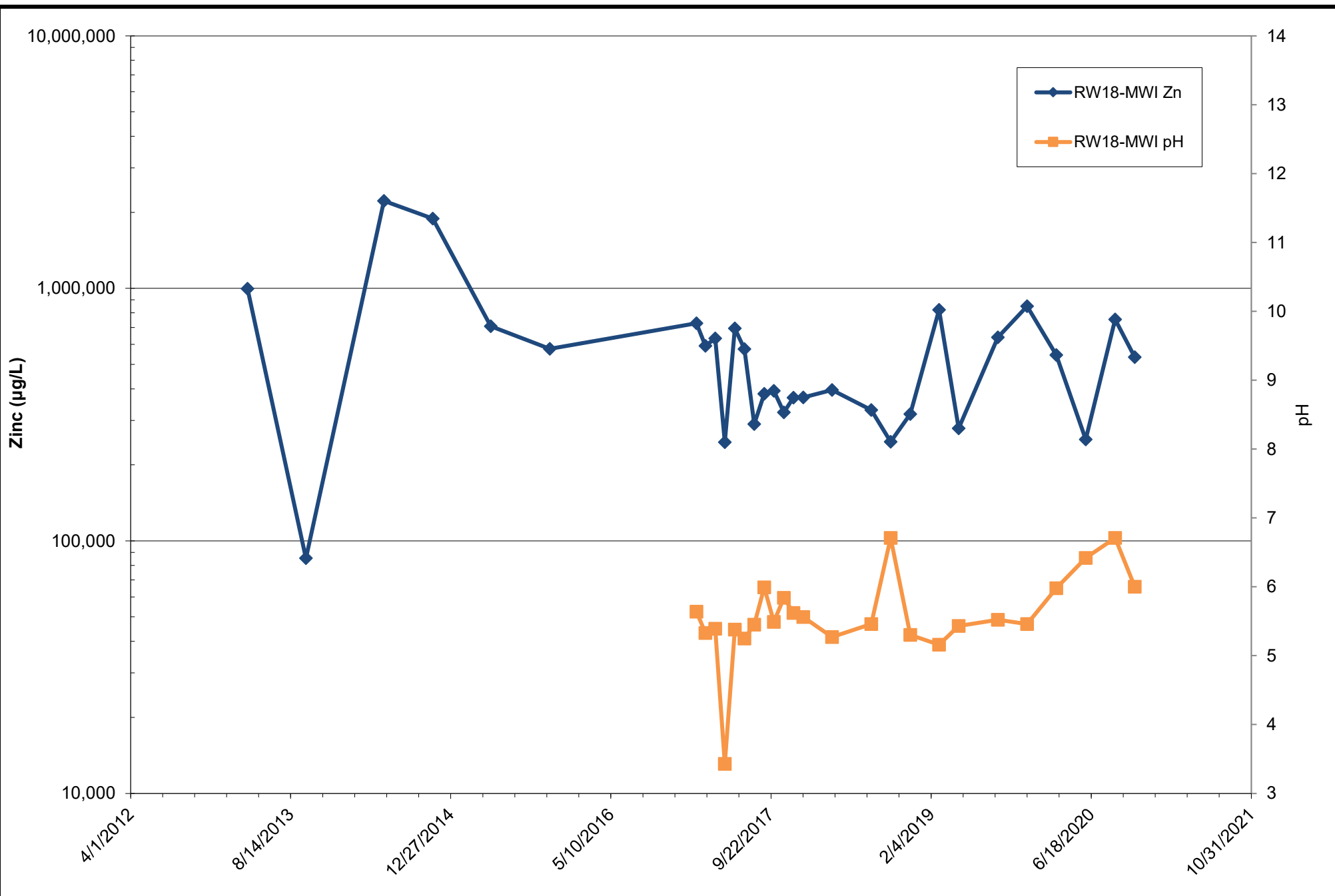
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW16-MWI pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

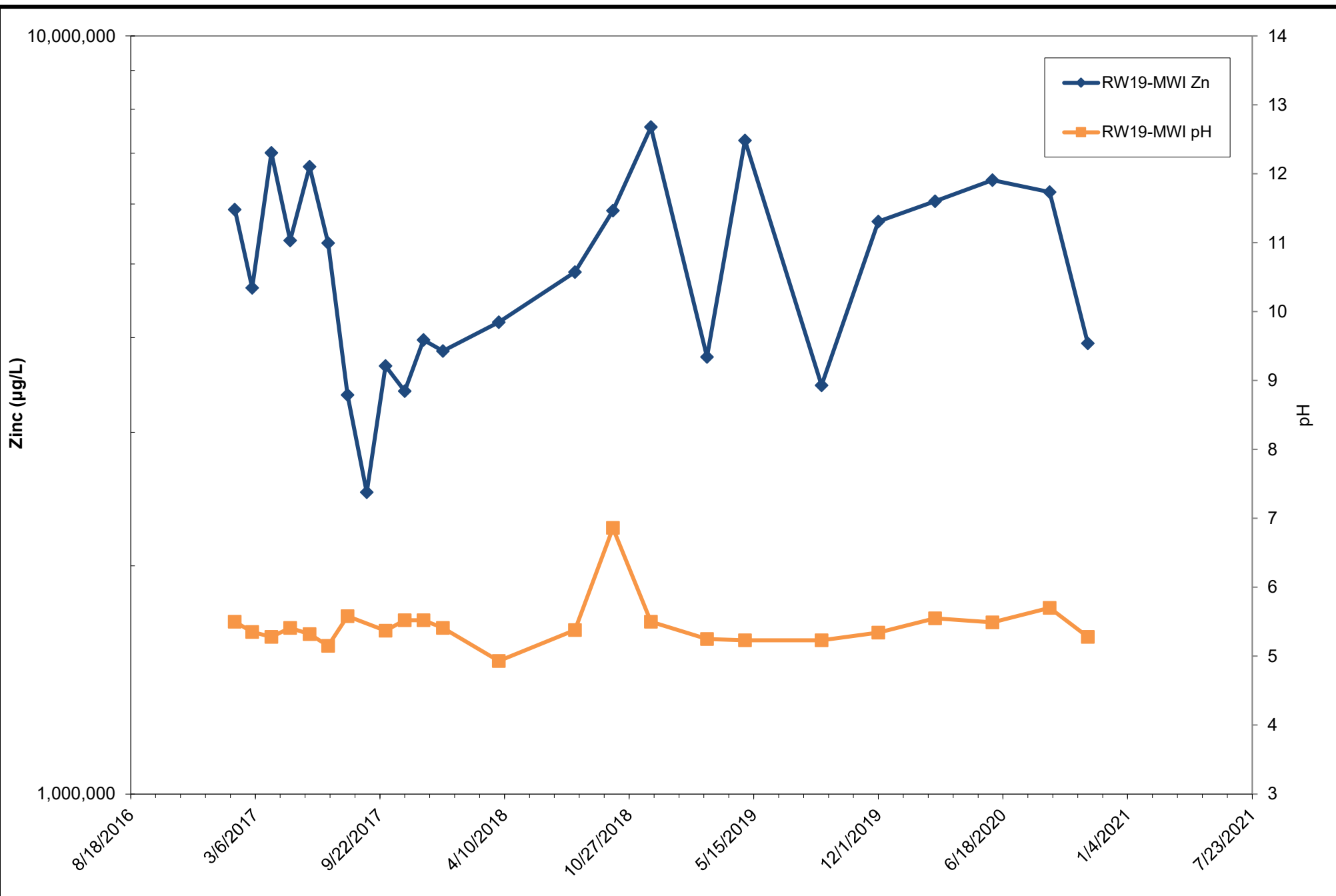
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW18-MWI pH and Zinc Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

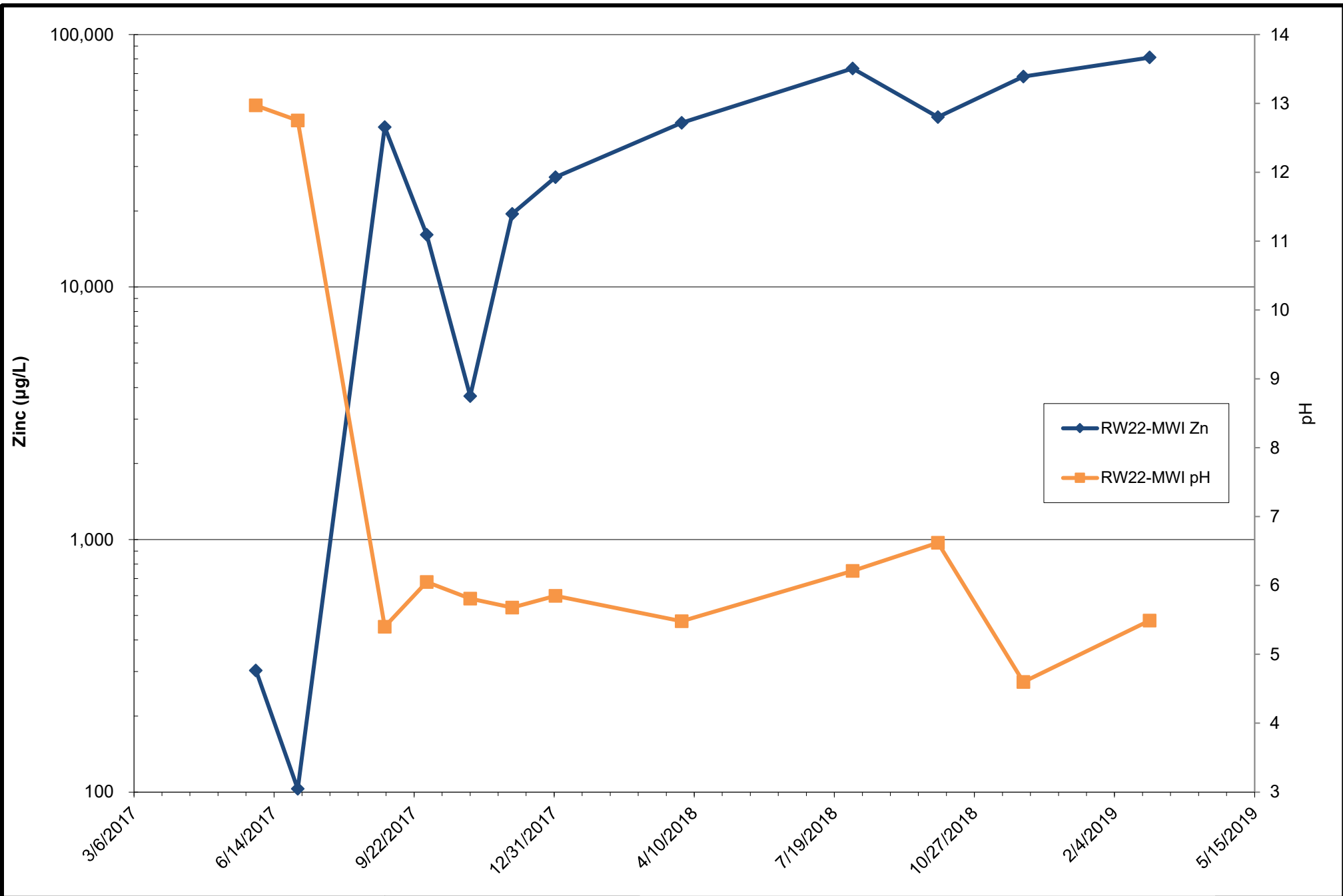
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RW19-MWI pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

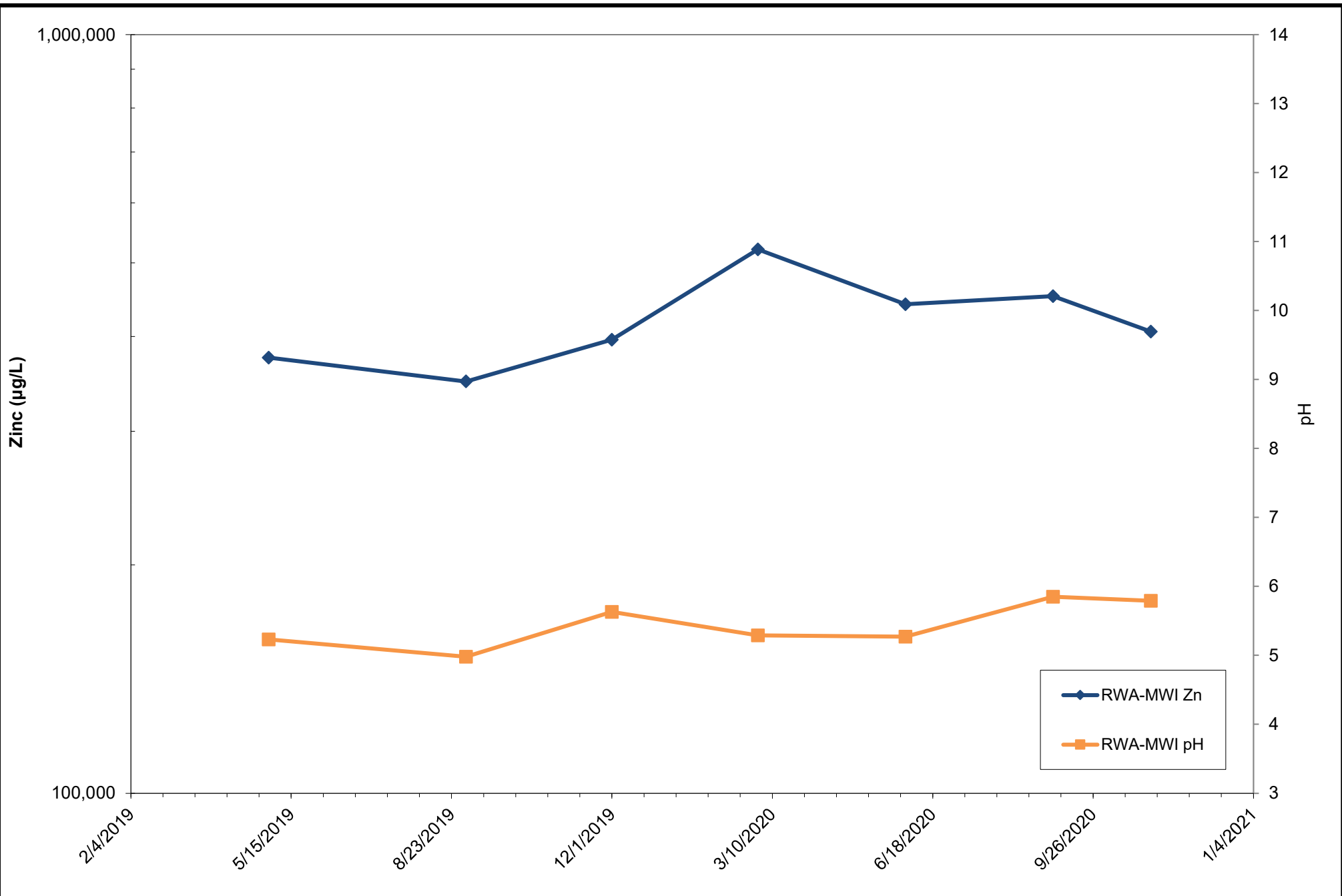
Sparrows Point, Maryland

**RW22-MWI pH and Zinc Concentrations**

January 27, 2021

**Appx  
C**





**ARM Group LLC**  
Engineers and Scientists

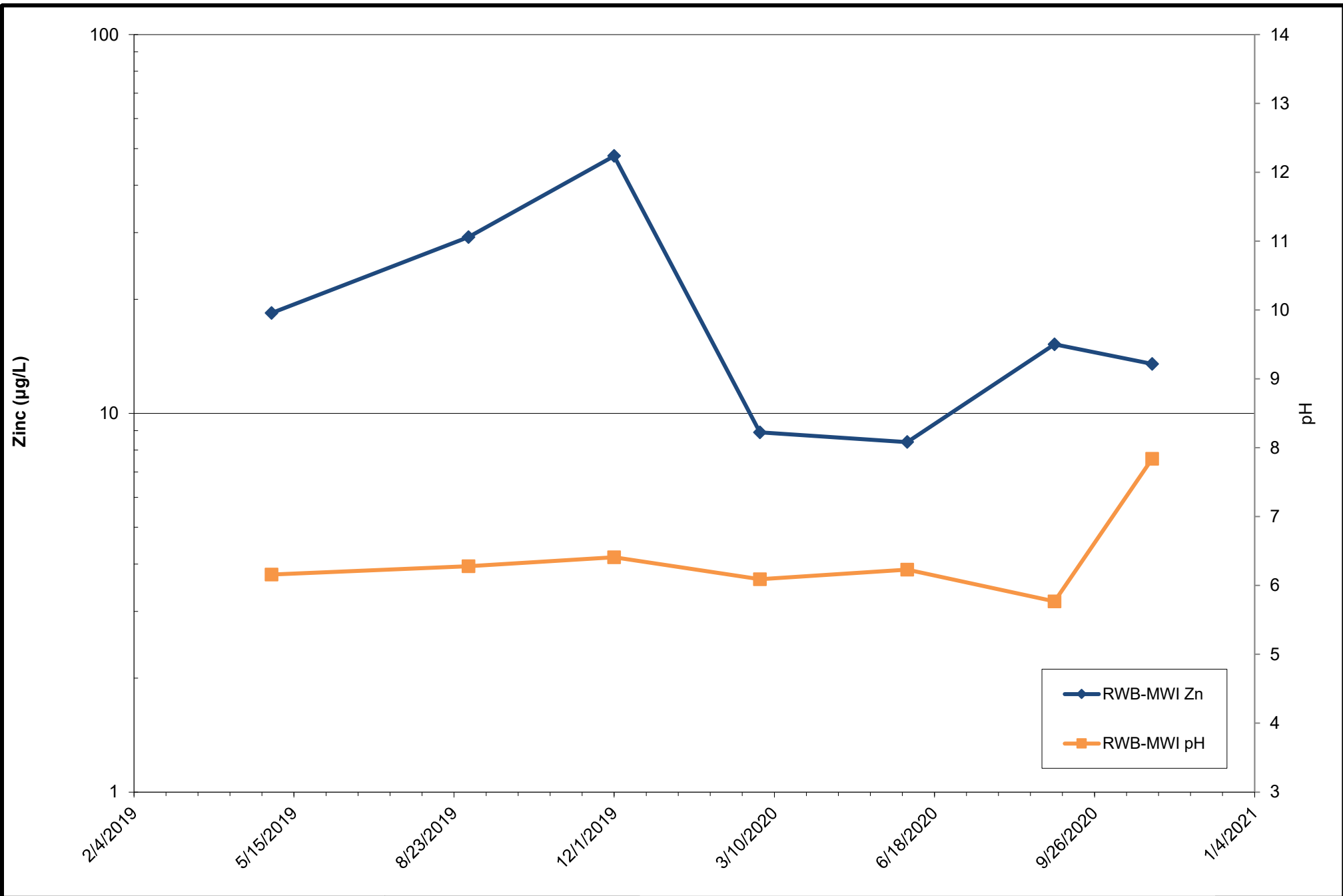
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWA-MWI pH and Zinc Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

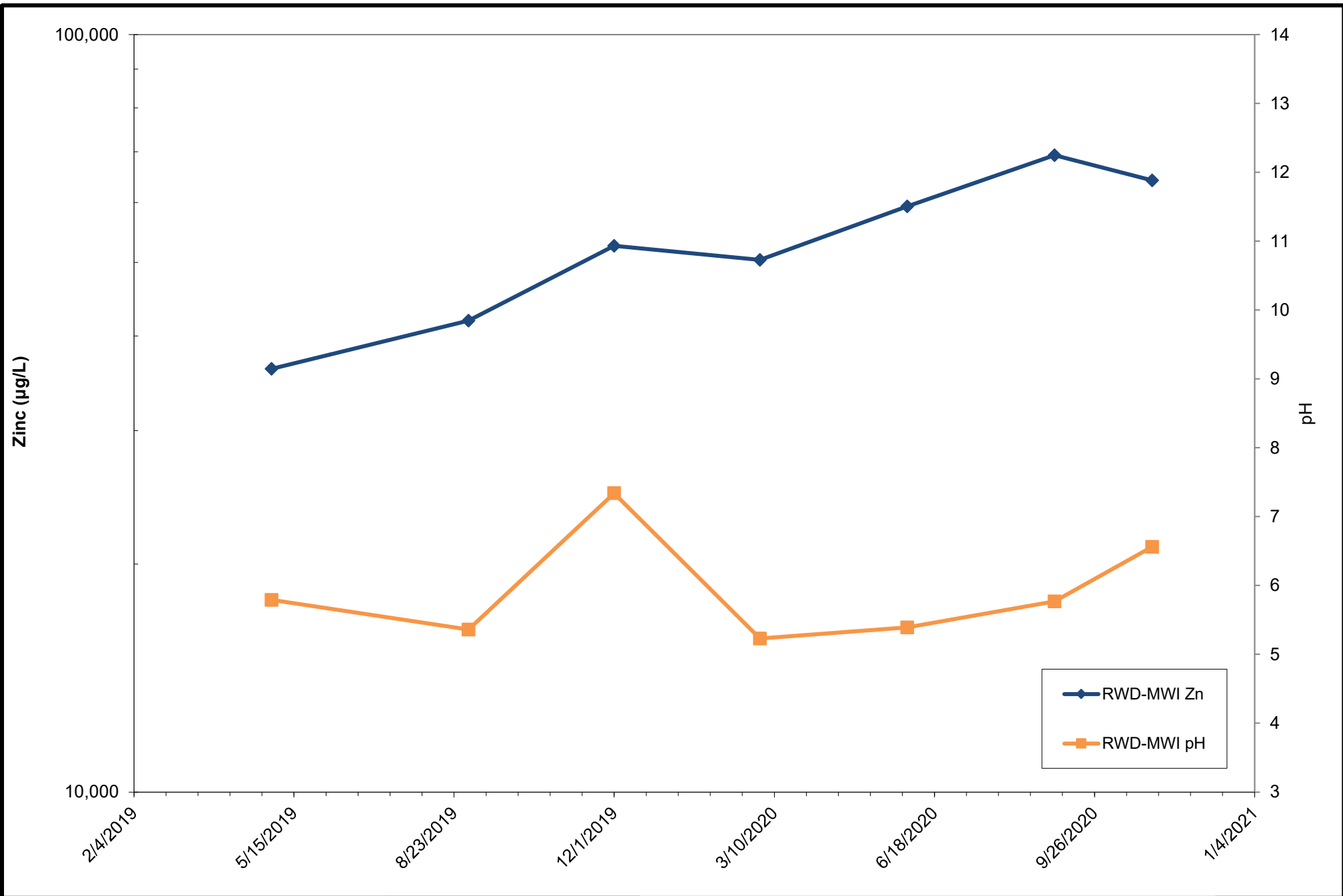
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWB-MWI pH and Zinc Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

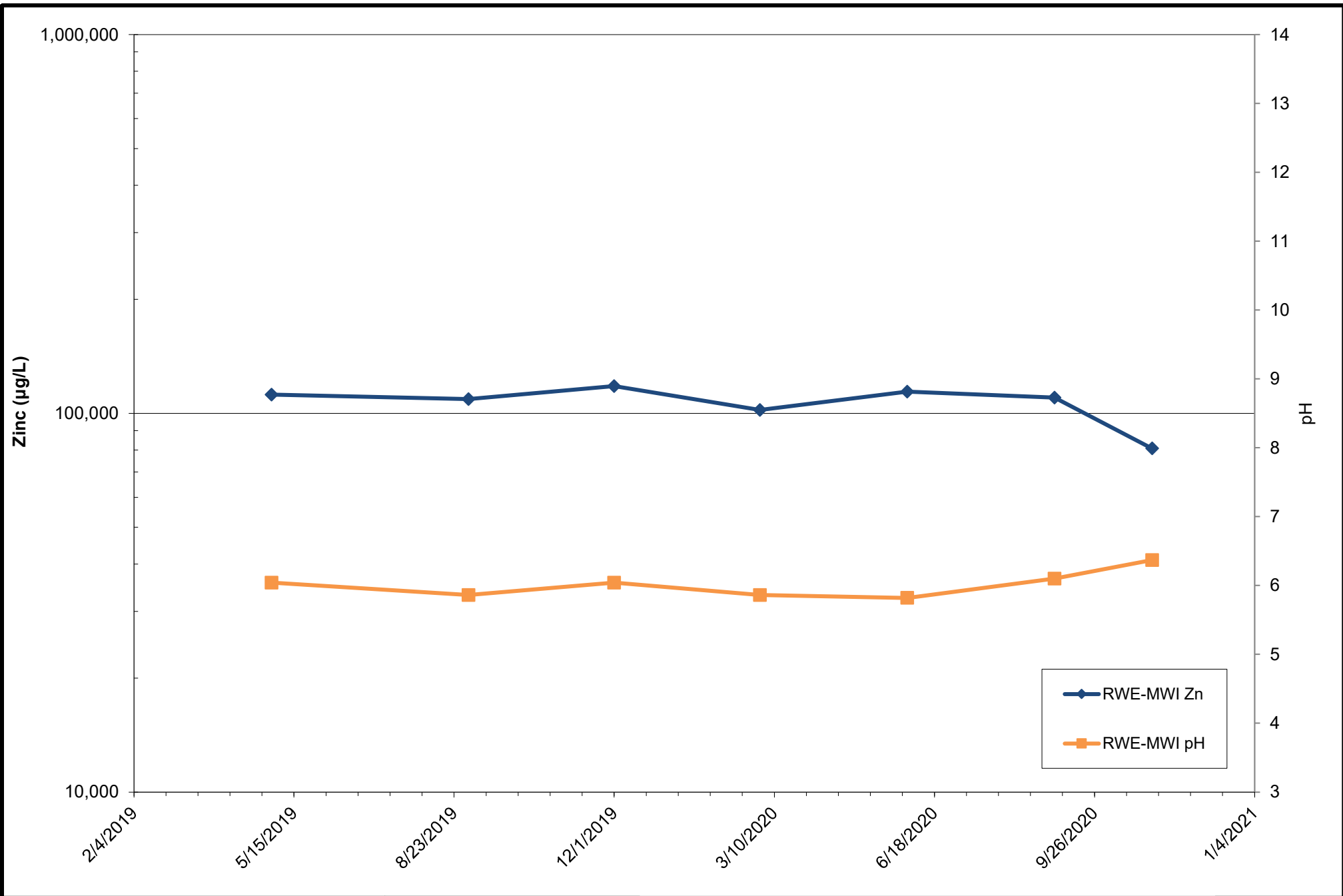
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWD-MWI pH and Zinc Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

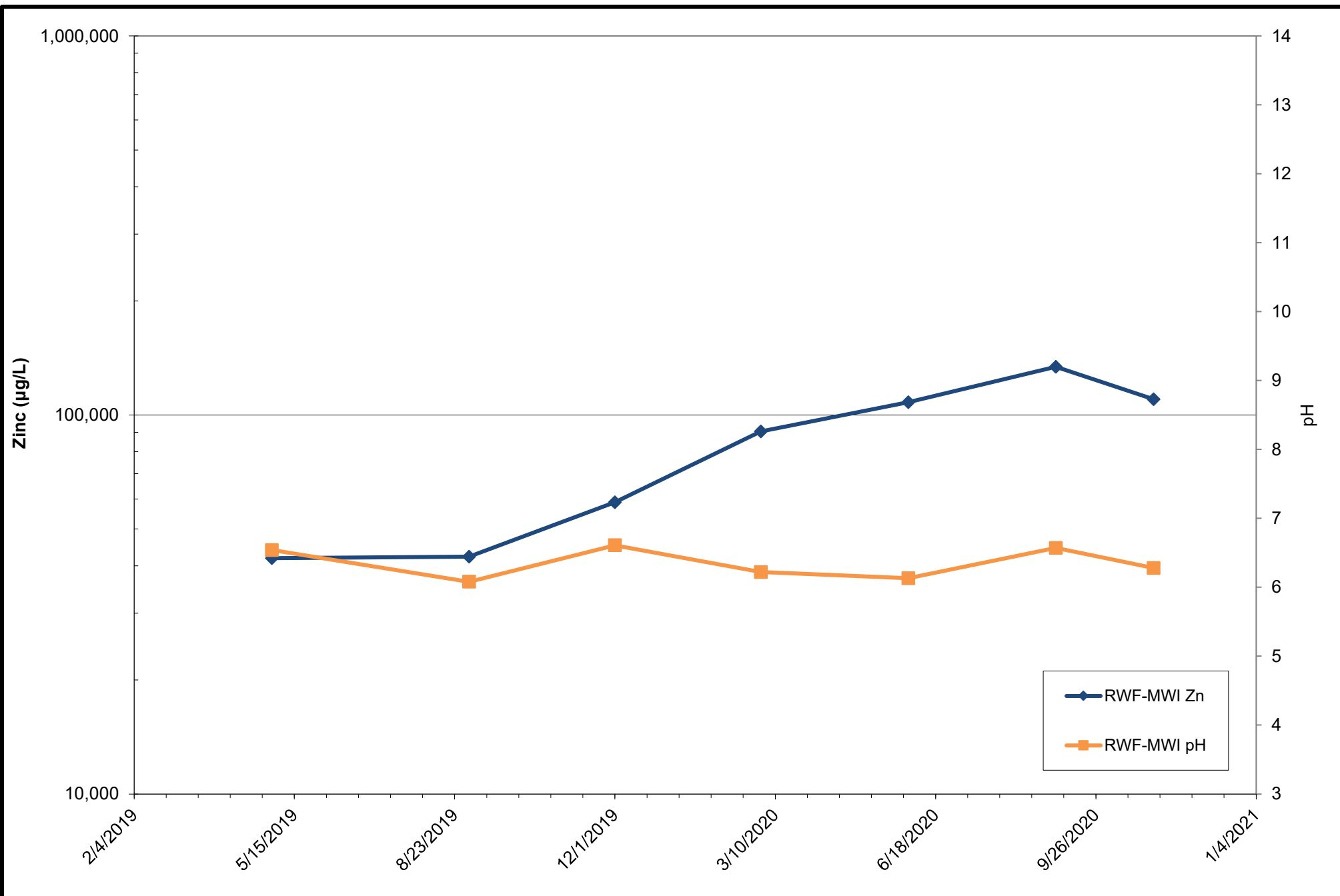
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWE-MWI pH and Zinc Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

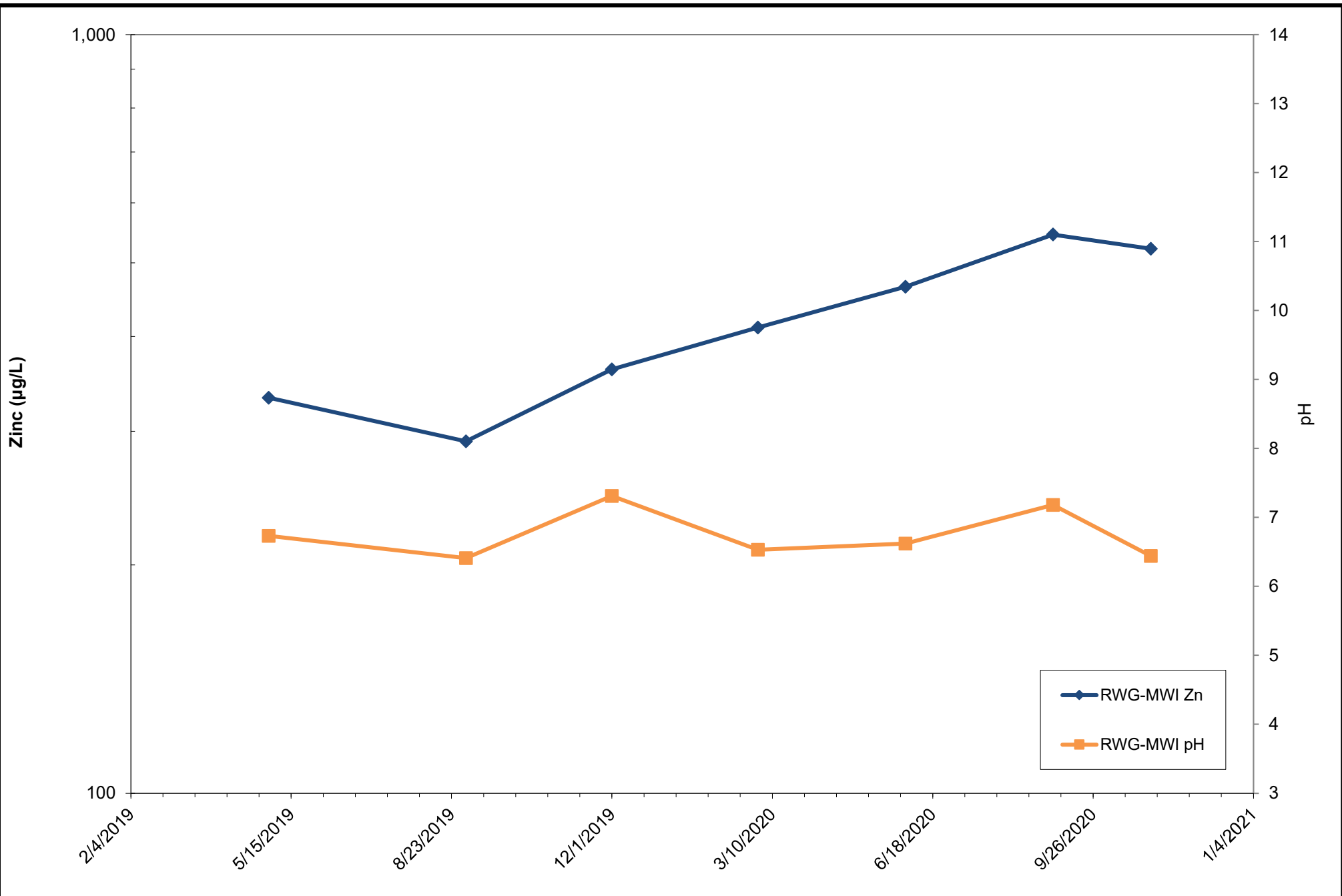
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWF-MWI pH and Zinc Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

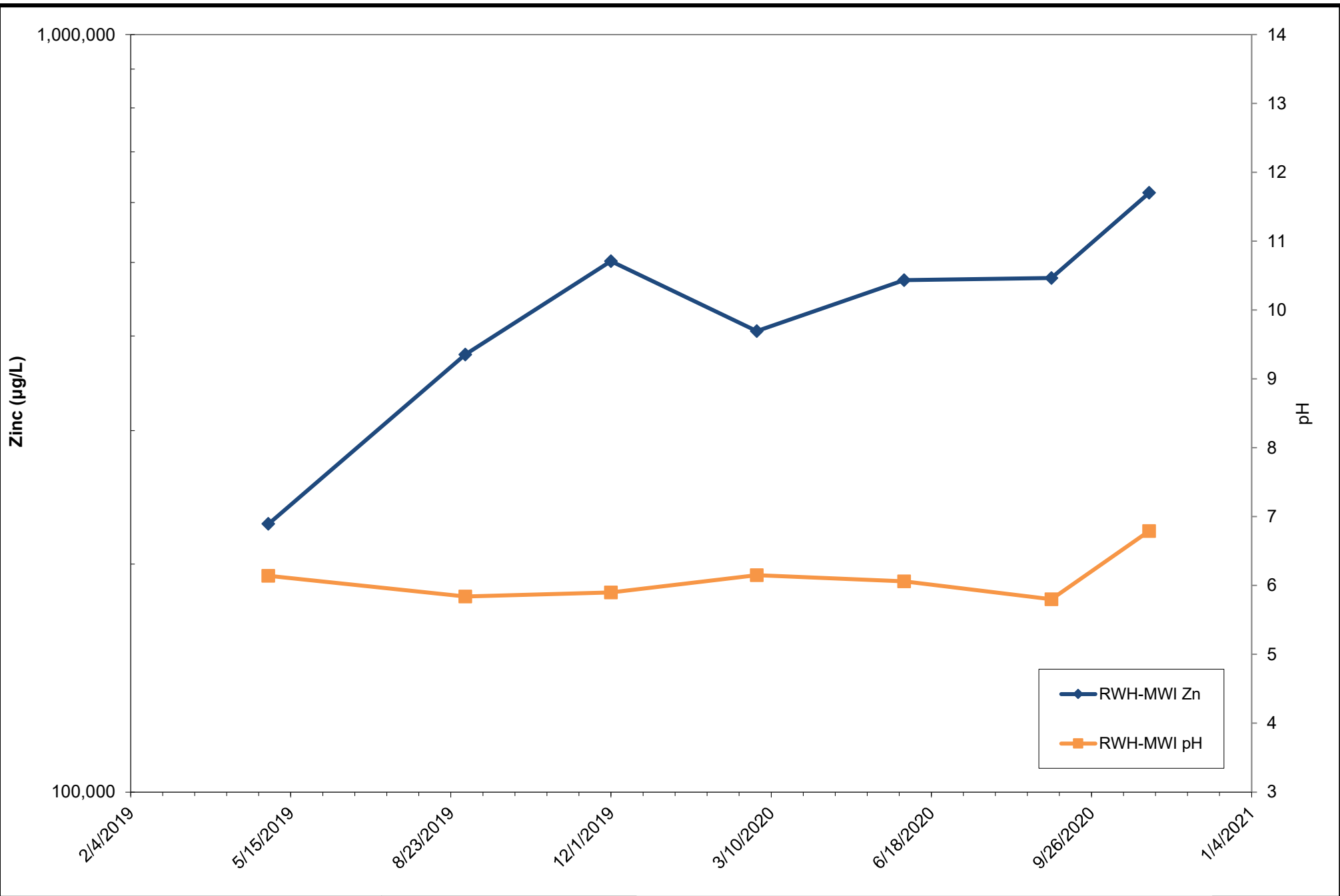
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWG-MWI pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

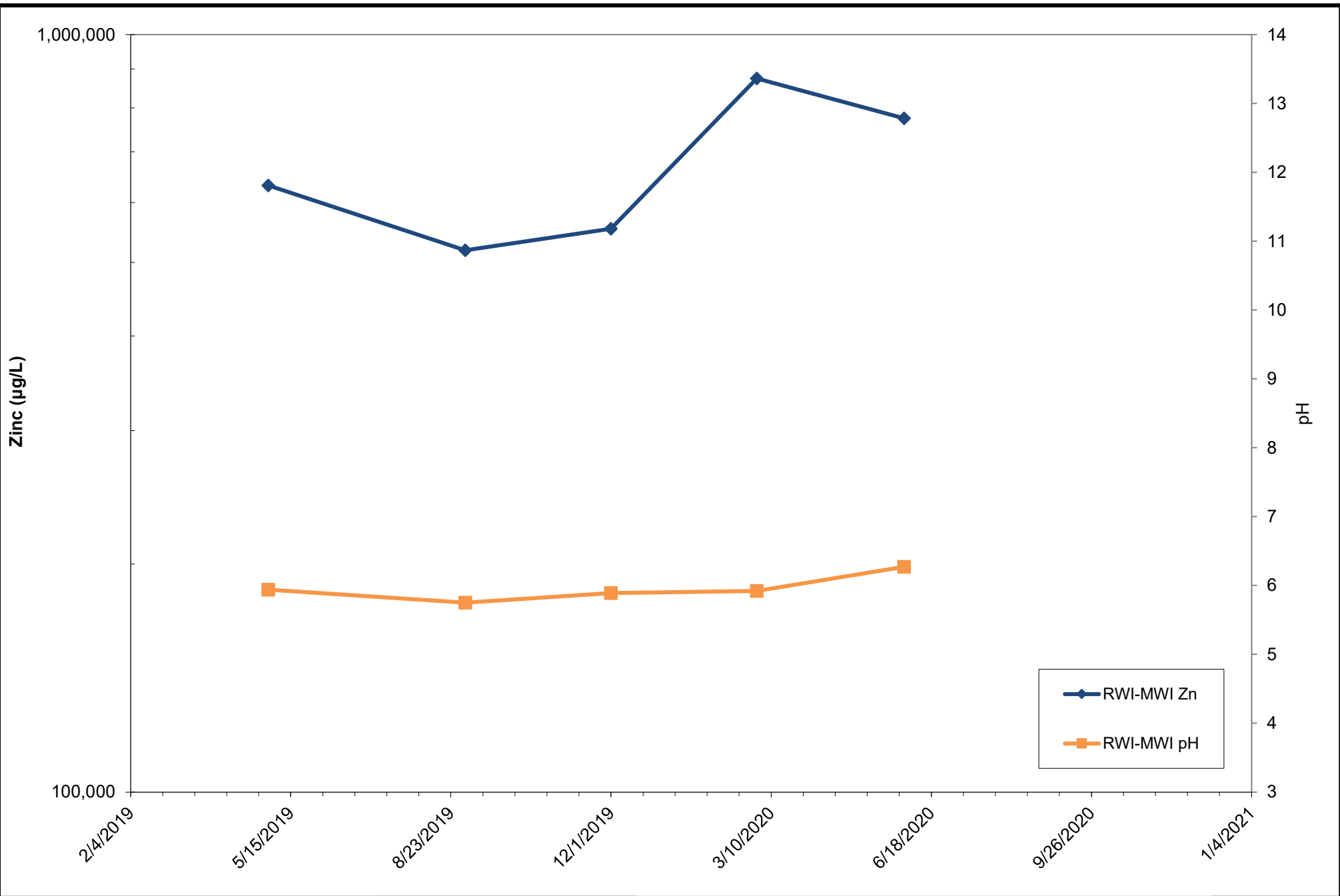
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWH-MWI pH and Zinc Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

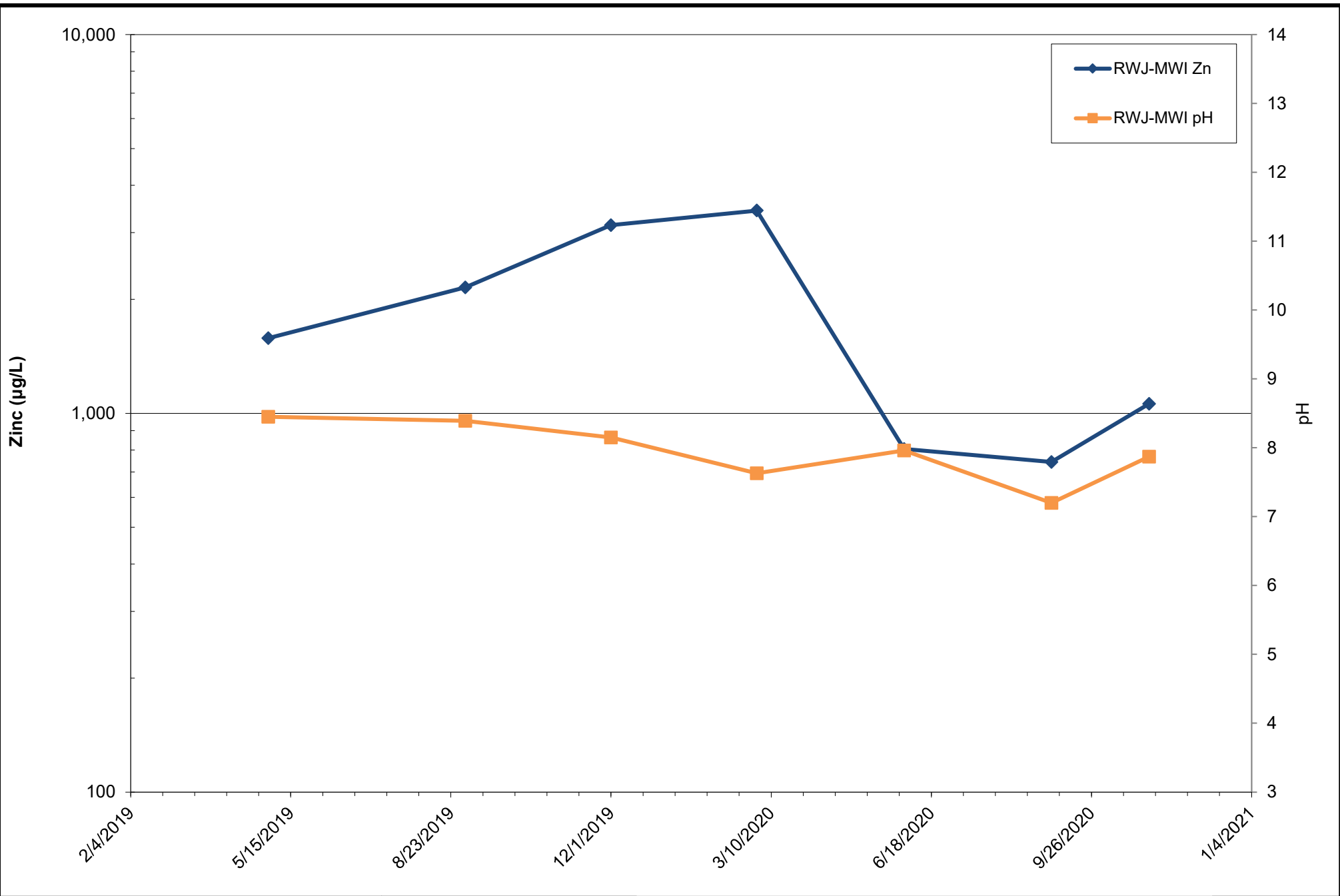
Sparrows Point, Maryland

### RWI-MWI pH and Zinc Concentrations

January 27, 2021

**Appx  
C**





**ARM Group LLC**  
Engineers and Scientists

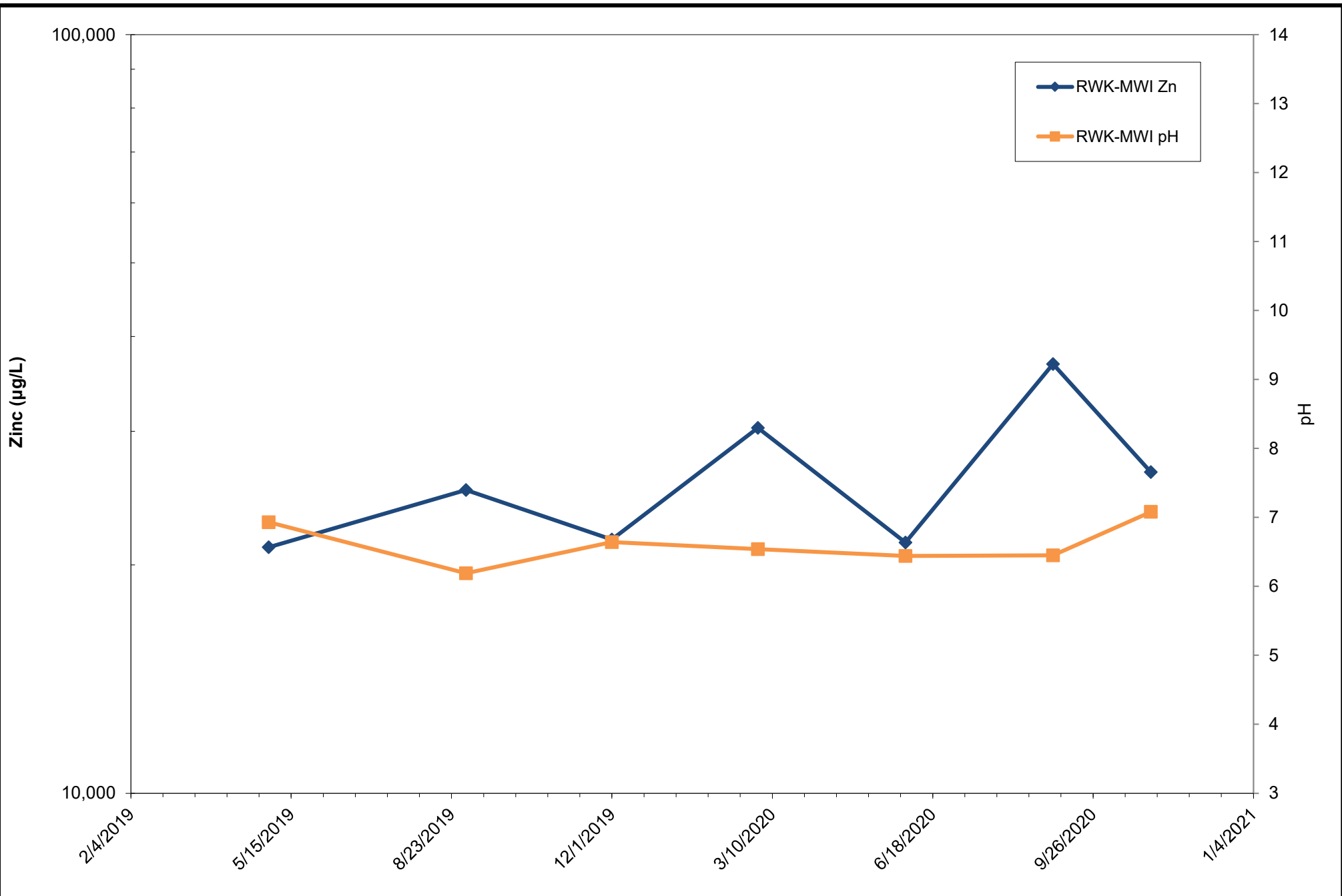
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWJ-MWI pH and Zinc Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

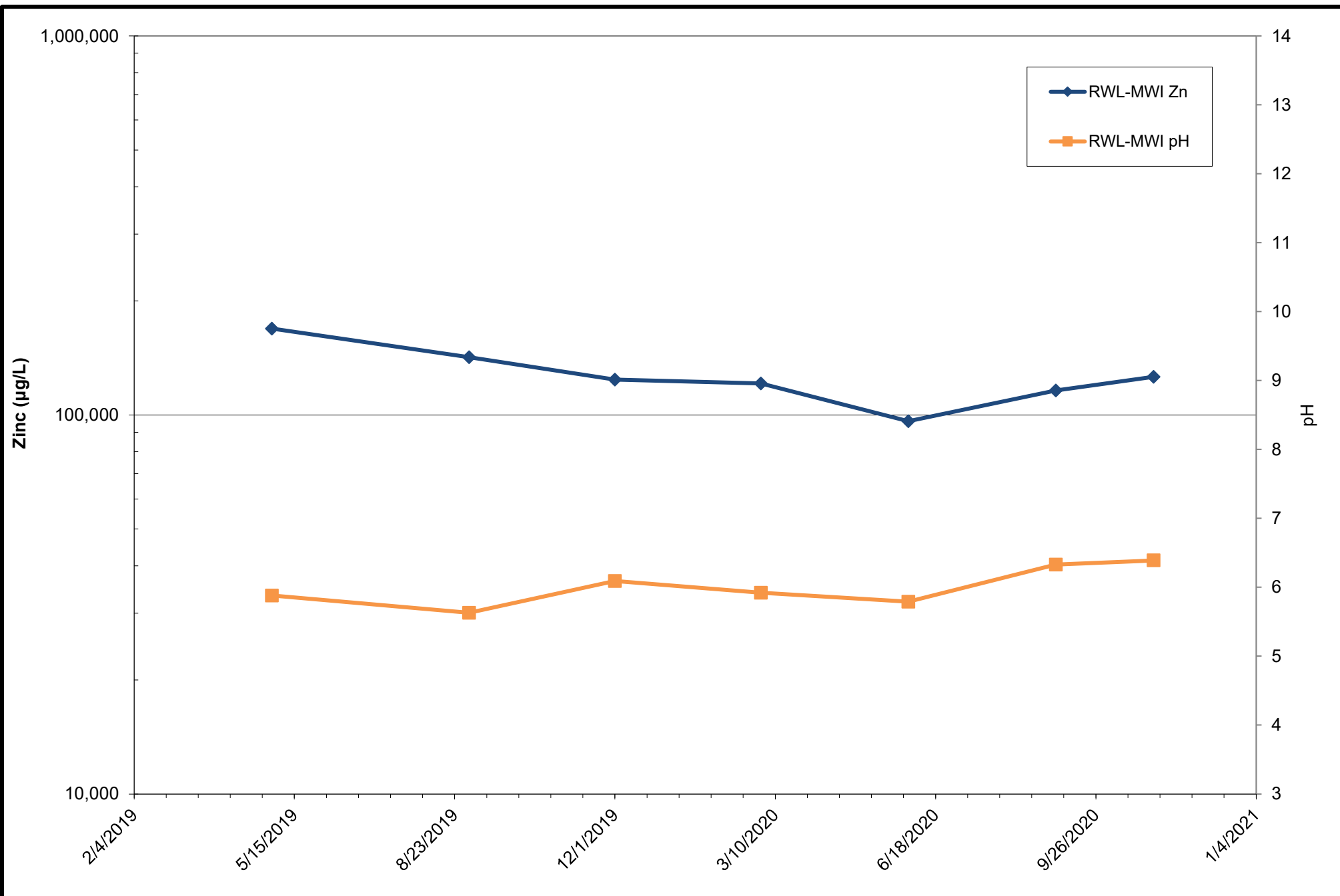
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWK-MWI pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

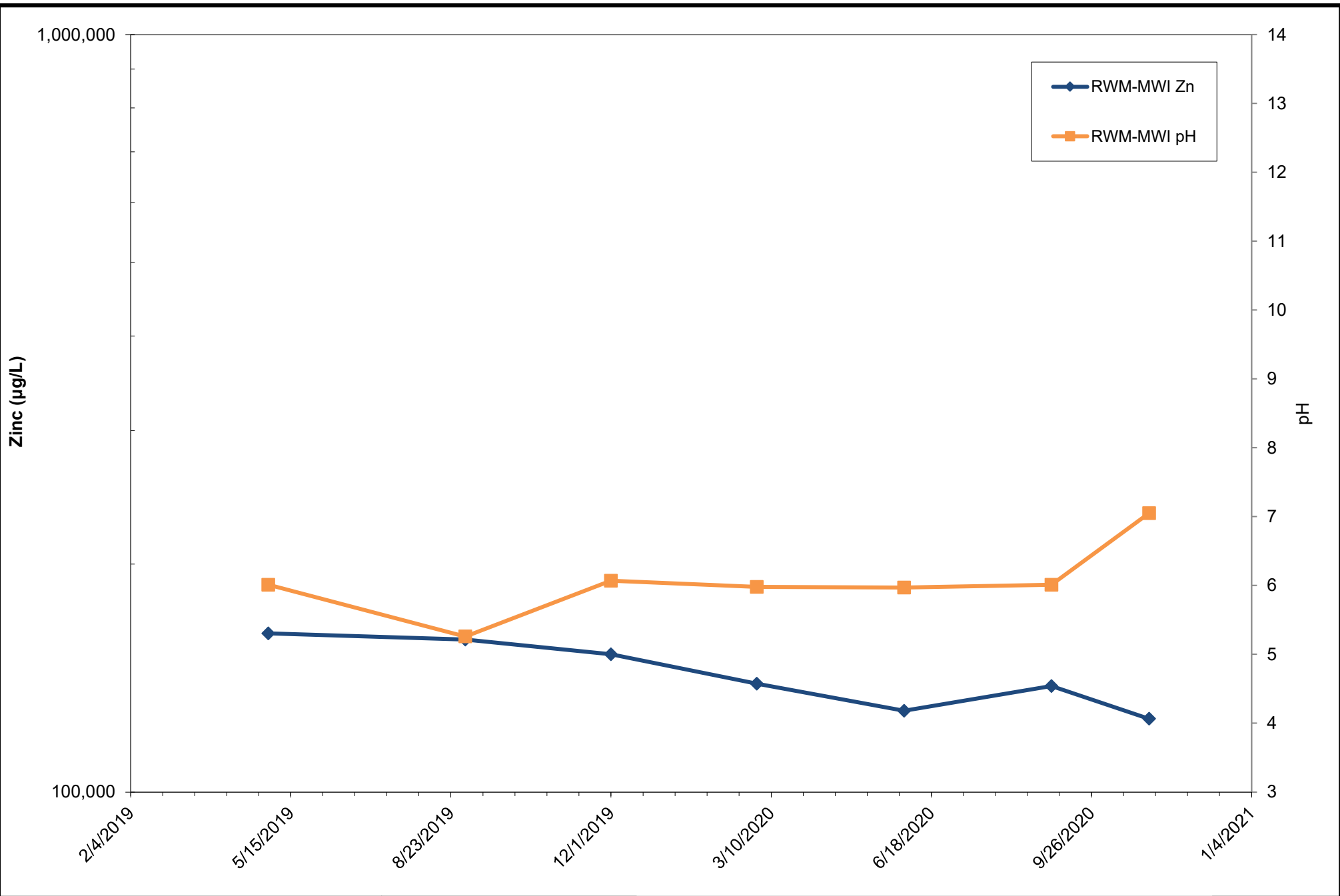
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWL-MWI pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

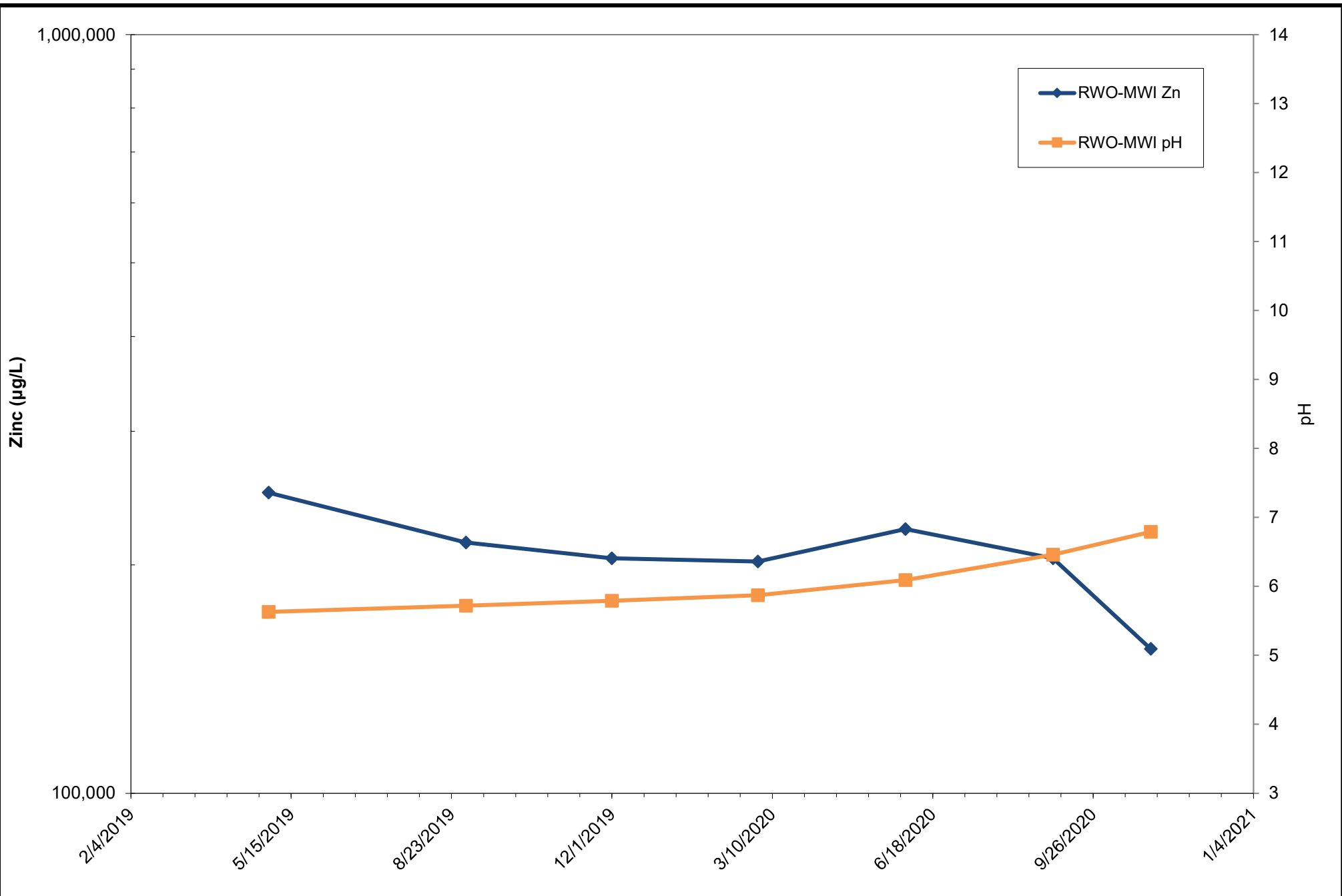
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWM-MWI pH and Zinc Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

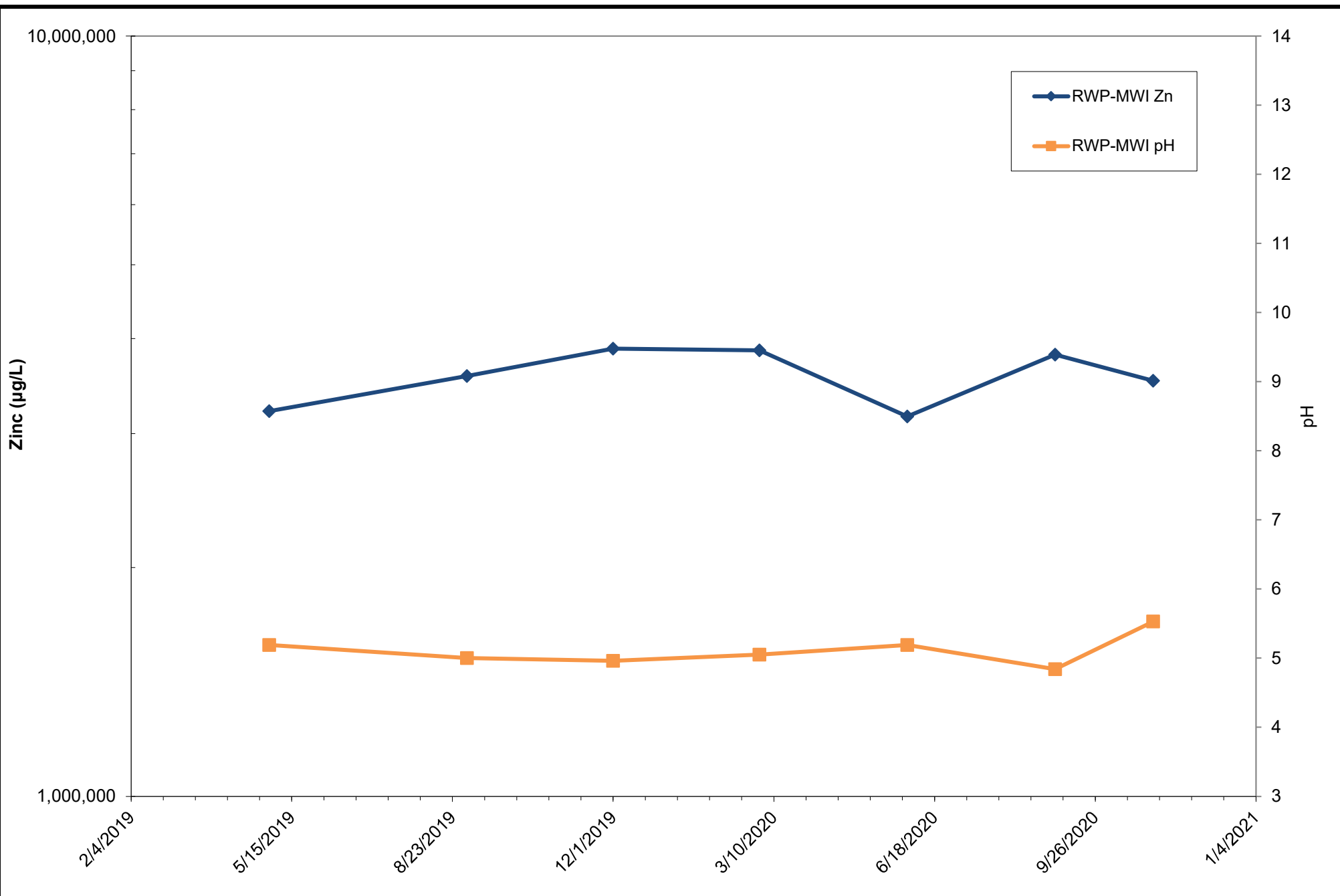
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWO-MWI pH and Zinc Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

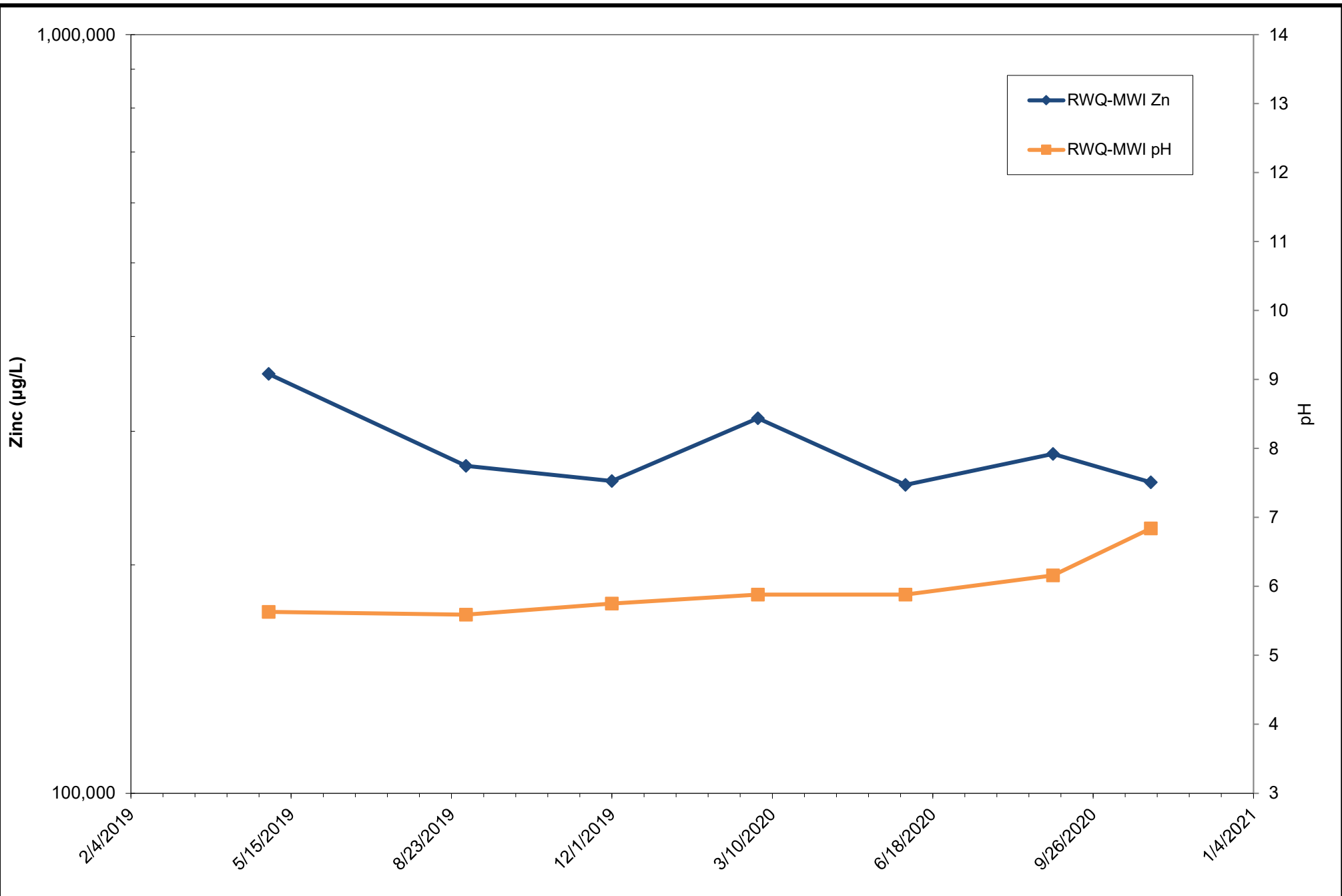
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWP-MWI pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

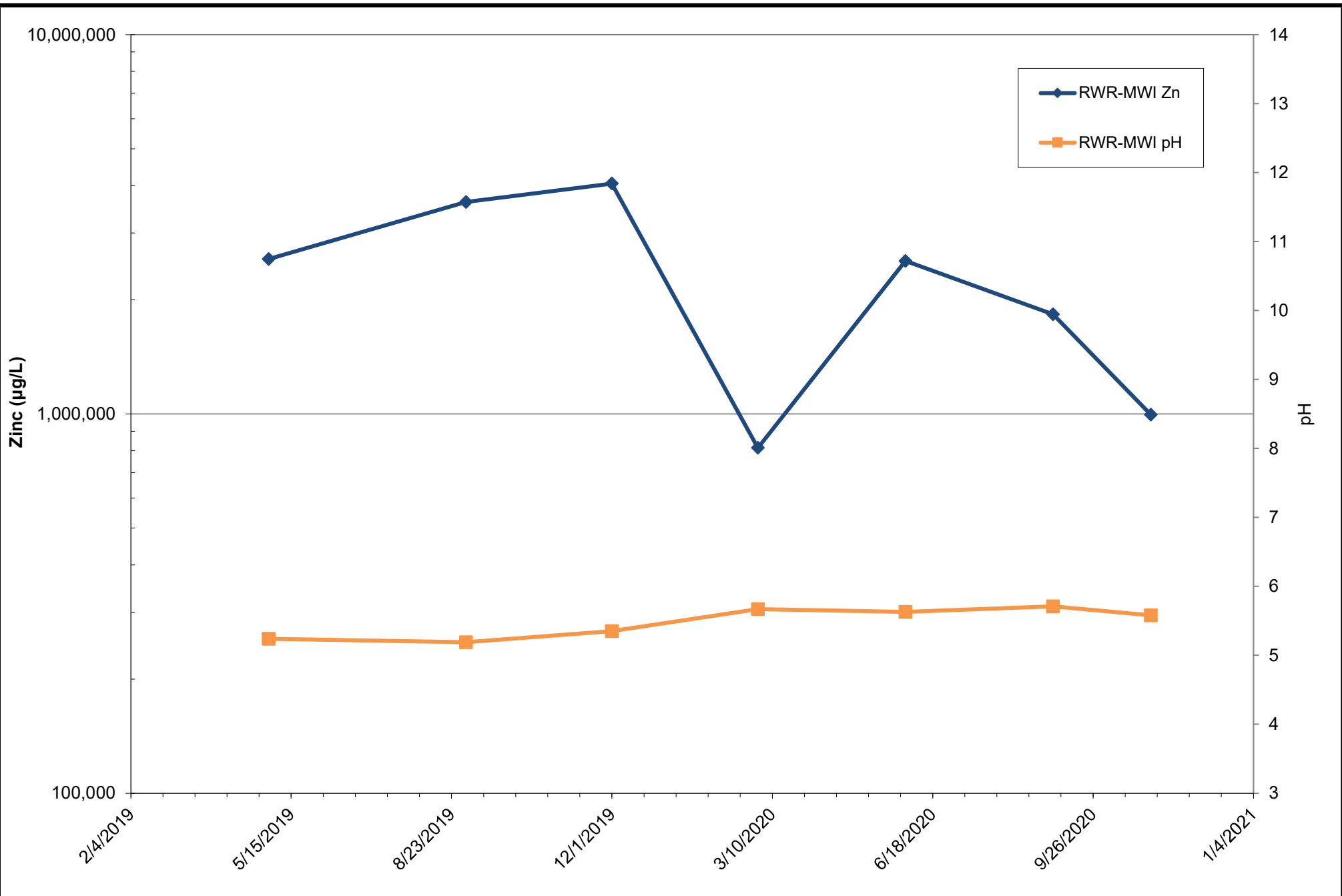
Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

### RWQ-MWI pH and Zinc Concentrations

January 27, 2021

**Appx  
C**



**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

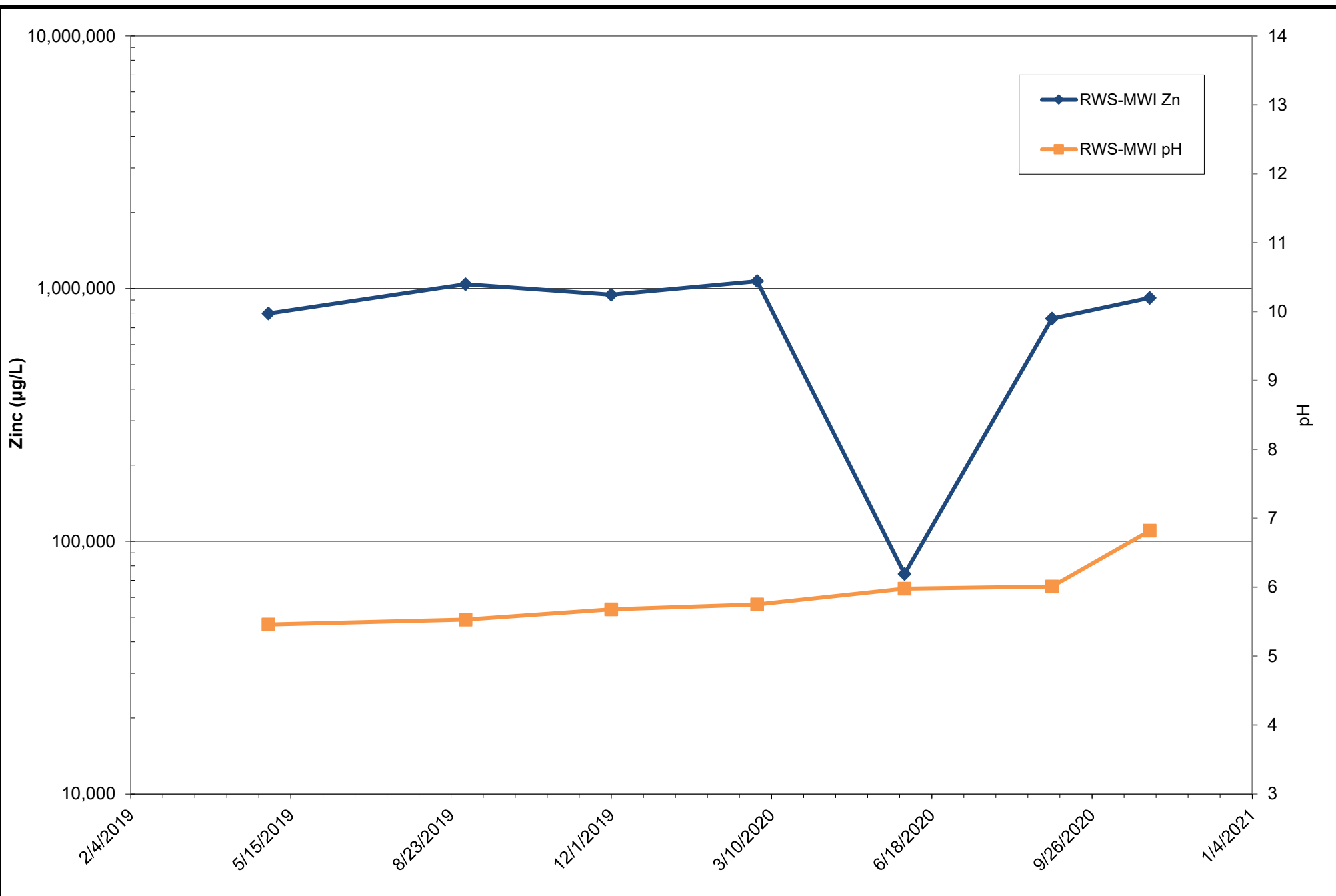
Sparrows Point, Maryland

### RWR-MWI pH and Zinc Concentrations

January 27, 2021

**Appx  
C**





**ARM Group LLC**  
Engineers and Scientists

Rod and Wire Mill  
Tradeport Atlantic

Sparrows Point, Maryland

**RWS-MWI pH and Zinc  
Concentrations**

January 27, 2021

**Appx  
C**

---

---

## **APPENDIX D**

---

---

# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW01-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.51	194	-193.49	0	1
145	194	-49	0	2
3 U	194	-191	0	3
37.5	194	-156.5	0	4
2.4	194	-191.6	0	5
16.5	194	-177.5	0	6
250	194	56	1	6
3 U	194	-191	1	7
9.3	194	-184.7	1	8
3 U	194	-191	1	9
19.4	194	-174.6	1	10
20.6	194	-173.4	1	11
8.8	194	-185.2	1	12
49.3	194	-144.7	1	13
117	194	-77	1	14
ND<1.5 U	194	-192.5	1	15
162	194	-32	1	16
145	0.51	144.49	2	16
3 U	0.51	2.49	3	16
37.5	0.51	36.99	4	16
2.4	0.51	1.89	5	16
16.5	0.51	15.99	6	16
250	0.51	249.49	7	16
3 U	0.51	2.49	8	16
9.3	0.51	8.79	9	16
3 U	0.51	2.49	10	16
19.4	0.51	18.89	11	16
20.6	0.51	20.09	12	16
8.8	0.51	8.29	13	16
49.3	0.51	48.79	14	16
117	0.51	116.49	15	16
ND<1.5 U	0.51	0.99	16	16
162	0.51	161.49	17	16
3 U	145	-142	17	17
37.5	145	-107.5	17	18
2.4	145	-142.6	17	19
16.5	145	-128.5	17	20
250	145	105	18	20
3 U	145	-142	18	21
9.3	145	-135.7	18	22
3 U	145	-142	18	23
19.4	145	-125.6	18	24
20.6	145	-124.4	18	25
8.8	145	-136.2	18	26
49.3	145	-95.7	18	27

117	145	-28	18	28
ND<1.5 U	145	-143.5	18	29
162	145	17	19	29
37.5	3 U	34.5	20	29
2.4	3 U	-0.6	20	30
16.5	3 U	13.5	21	30
250	3 U	247	22	30
3 U	3 U	0	22	30
9.3	3 U	6.3	23	30
3 U	3 U	0	23	30
19.4	3 U	16.4	24	30
20.6	3 U	17.6	25	30
8.8	3 U	5.8	26	30
49.3	3 U	46.3	27	30
117	3 U	114	28	30
ND<1.5 U	3 U	-1.5	28	31
162	3 U	159	29	31
2.4	37.5	-35.1	29	32
16.5	37.5	-21	29	33
250	37.5	212.5	30	33
3 U	37.5	-34.5	30	34
9.3	37.5	-28.2	30	35
3 U	37.5	-34.5	30	36
19.4	37.5	-18.1	30	37
20.6	37.5	-16.9	30	38
8.8	37.5	-28.7	30	39
49.3	37.5	11.8	31	39
117	37.5	79.5	32	39
ND<1.5 U	37.5	-36	32	40
162	37.5	124.5	33	40
16.5	2.4	14.1	34	40
250	2.4	247.6	35	40
3 U	2.4	0.6	36	40
9.3	2.4	6.9	37	40
3 U	2.4	0.6	38	40
19.4	2.4	17	39	40
20.6	2.4	18.2	40	40
8.8	2.4	6.4	41	40
49.3	2.4	46.9	42	40
117	2.4	114.6	43	40
ND<1.5 U	2.4	-0.9	43	41
162	2.4	159.6	44	41
250	16.5	233.5	45	41
3 U	16.5	-13.5	45	42
9.3	16.5	-7.2	45	43
3 U	16.5	-13.5	45	44
19.4	16.5	2.9	46	44
20.6	16.5	4.1	47	44
8.8	16.5	-7.7	47	45
49.3	16.5	32.8	48	45
117	16.5	100.5	49	45
ND<1.5 U	16.5	-15	49	46
162	16.5	145.5	50	46

3 U	250	-247	50	47
9.3	250	-240.7	50	48
3 U	250	-247	50	49
19.4	250	-230.6	50	50
20.6	250	-229.4	50	51
8.8	250	-241.2	50	52
49.3	250	-200.7	50	53
117	250	-133	50	54
ND<1.5 U	250	-248.5	50	55
162	250	-88	50	56
9.3	3 U	6.3	51	56
3 U	3 U	0	51	56
19.4	3 U	16.4	52	56
20.6	3 U	17.6	53	56
8.8	3 U	5.8	54	56
49.3	3 U	46.3	55	56
117	3 U	114	56	56
ND<1.5 U	3 U	-1.5	56	57
162	3 U	159	57	57
3 U	9.3	-6.3	57	58
19.4	9.3	10.1	58	58
20.6	9.3	11.3	59	58
8.8	9.3	-0.5	59	59
49.3	9.3	40	60	59
117	9.3	107.7	61	59
ND<1.5 U	9.3	-7.8	61	60
162	9.3	152.7	62	60
19.4	3 U	16.4	63	60
20.6	3 U	17.6	64	60
8.8	3 U	5.8	65	60
49.3	3 U	46.3	66	60
117	3 U	114	67	60
ND<1.5 U	3 U	-1.5	67	61
162	3 U	159	68	61
20.6	19.4	1.2	69	61
8.8	19.4	-10.6	69	62
49.3	19.4	29.9	70	62
117	19.4	97.6	71	62
ND<1.5 U	19.4	-17.9	71	63
162	19.4	142.6	72	63
8.8	20.6	-11.8	72	64
49.3	20.6	28.7	73	64
117	20.6	96.4	74	64
ND<1.5 U	20.6	-19.1	74	65
162	20.6	141.4	75	65
49.3	8.8	40.5	76	65
117	8.8	108.2	77	65
ND<1.5 U	8.8	-7.3	77	66
162	8.8	153.2	78	66

117	49.3	67.7	79	66
ND<1.5 U	49.3	-47.8	79	67
162	49.3	112.7	80	67
ND<1.5 U	117	-115.5	80	68
162	117	45	81	68
162	ND<1.5 U	160.5	82	68

S Statistic = 82 - 68 = 14

---

Tied Group	Value	Members
1	3	3

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/19/2020	1
6/8/2020	1
9/14/2020	1
11/19/2020	1

There are 0 time periods with multiple data

---

A = 66

B = 0

C = 6

D = 0

E = 6

F = 0

a = 12546

b = 44064

c = 612

Group Variance = 693.333

Z-Score = 0.49371

Comparison Level at 95% confidence level = 1.65463 (upward trend)

0.49371 <= 1.65463 indicating no evidence of an upward trend

# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW02-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
3	511	-508	0	1
2.4	511	-508.6	0	2
3 U	511	-508	0	3
2.3	511	-508.7	0	4
14.5	511	-496.5	0	5
3	511	-508	0	6
79.9	511	-431.1	0	7
18	511	-493	0	8
191	511	-320	0	9
98.3	511	-412.7	0	10
785	511	274	1	10
873	511	362	2	10
277	511	-234	2	11
136	511	-375	2	12
398	511	-113	2	13
0.69 J	511	-510.31	2	14
208	511	-303	2	15
2.4	3	-0.6	2	16
3 U	3	0	2	16
2.3	3	-0.7	2	17
14.5	3	11.5	3	17
3	3	0	3	17
79.9	3	76.9	4	17
18	3	15	5	17
191	3	188	6	17
98.3	3	95.3	7	17
785	3	782	8	17
873	3	870	9	17
277	3	274	10	17
136	3	133	11	17
398	3	395	12	17
0.69 J	3	-2.31	12	18
208	3	205	13	18
3 U	2.4	0.6	14	18
2.3	2.4	-0.1	14	19
14.5	2.4	12.1	15	19
3	2.4	0.6	16	19
79.9	2.4	77.5	17	19
18	2.4	15.6	18	19
191	2.4	188.6	19	19
98.3	2.4	95.9	20	19
785	2.4	782.6	21	19
873	2.4	870.6	22	19
277	2.4	274.6	23	19
136	2.4	133.6	24	19

398	2.4	395.6	25	19
0.69 J	2.4	-1.71	25	20
208	2.4	205.6	26	20
2.3	3 U	-0.7	26	21
14.5	3 U	11.5	27	21
3	3 U	0	27	21
79.9	3 U	76.9	28	21
18	3 U	15	29	21
191	3 U	188	30	21
98.3	3 U	95.3	31	21
785	3 U	782	32	21
873	3 U	870	33	21
277	3 U	274	34	21
136	3 U	133	35	21
398	3 U	395	36	21
0.69 J	3 U	-2.31	36	22
208	3 U	205	37	22
14.5	2.3	12.2	38	22
3	2.3	0.7	39	22
79.9	2.3	77.6	40	22
18	2.3	15.7	41	22
191	2.3	188.7	42	22
98.3	2.3	96	43	22
785	2.3	782.7	44	22
873	2.3	870.7	45	22
277	2.3	274.7	46	22
136	2.3	133.7	47	22
398	2.3	395.7	48	22
0.69 J	2.3	-1.61	48	23
208	2.3	205.7	49	23
3	14.5	-11.5	49	24
79.9	14.5	65.4	50	24
18	14.5	3.5	51	24
191	14.5	176.5	52	24
98.3	14.5	83.8	53	24
785	14.5	770.5	54	24
873	14.5	858.5	55	24
277	14.5	262.5	56	24
136	14.5	121.5	57	24
398	14.5	383.5	58	24
0.69 J	14.5	-13.81	58	25
208	14.5	193.5	59	25
79.9	3	76.9	60	25
18	3	15	61	25
191	3	188	62	25
98.3	3	95.3	63	25
785	3	782	64	25
873	3	870	65	25
277	3	274	66	25
136	3	133	67	25
398	3	395	68	25
0.69 J	3	-2.31	68	26
208	3	205	69	26



18	79.9	-61.9	69	27
191	79.9	111.1	70	27
98.3	79.9	18.4	71	27
785	79.9	705.1	72	27
873	79.9	793.1	73	27
277	79.9	197.1	74	27
136	79.9	56.1	75	27
398	79.9	318.1	76	27
0.69 J	79.9	-79.21	76	28
208	79.9	128.1	77	28
191	18	173	78	28
98.3	18	80.3	79	28
785	18	767	80	28
873	18	855	81	28
277	18	259	82	28
136	18	118	83	28
398	18	380	84	28
0.69 J	18	-17.31	84	29
208	18	190	85	29
98.3	191	-92.7	85	30
785	191	594	86	30
873	191	682	87	30
277	191	86	88	30
136	191	-55	88	31
398	191	207	89	31
0.69 J	191	-190.31	89	32
208	191	17	90	32
785	98.3	686.7	91	32
873	98.3	774.7	92	32
277	98.3	178.7	93	32
136	98.3	37.7	94	32
398	98.3	299.7	95	32
0.69 J	98.3	-97.61	95	33
208	98.3	109.7	96	33
873	785	88	97	33
277	785	-508	97	34
136	785	-649	97	35
398	785	-387	97	36
0.69 J	785	-784.31	97	37
208	785	-577	97	38
277	873	-596	97	39
136	873	-737	97	40
398	873	-475	97	41
0.69 J	873	-872.31	97	42
208	873	-665	97	43
136	277	-141	97	44
398	277	121	98	44
0.69 J	277	-276.31	98	45
208	277	-69	98	46

398	136	262	99	46
0.69 J	136	-135.31	99	47
208	136	72	100	47
0.69 J	398	-397.31	100	48
208	398	-190	100	49
208	0.69 J	207.31	101	49

S Statistic = 101 - 49 = 52

---

Tied Group	Value	Members
1	3	3

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/19/2020	1
6/9/2020	1
9/14/2020	1
11/19/2020	1

There are 0 time periods with multiple data

---

A = 66

B = 0

C = 6

D = 0

E = 6

F = 0

a = 12546

b = 44064

c = 612

Group Variance = 693.333

Z-Score = 1.93686

Comparison Level at 95% confidence level = 1.65463 (upward trend)

**1.93686 > 1.65463 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW03-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
196	189	7	1	0
192	189	3	2	0
84	189	-105	2	1
37.4	189	-151.6	2	2
138	189	-51	2	3
227	189	38	3	3
214	189	25	4	3
20.2	189	-168.8	4	4
25.2	189	-163.8	4	5
154	189	-35	4	6
259	189	70	5	6
128	189	-61	5	7
236	189	47	6	7
346	189	157	7	7
342	189	153	8	7
213	189	24	9	7
449	189	260	10	7
344	189	155	11	7
546	189	357	12	7
451	189	262	13	7
581	189	392	14	7
192	196	-4	14	8
84	196	-112	14	9
37.4	196	-158.6	14	10
138	196	-58	14	11
227	196	31	15	11
214	196	18	16	11
20.2	196	-175.8	16	12
25.2	196	-170.8	16	13
154	196	-42	16	14
259	196	63	17	14
128	196	-68	17	15
236	196	40	18	15
346	196	150	19	15
342	196	146	20	15
213	196	17	21	15
449	196	253	22	15
344	196	148	23	15
546	196	350	24	15
451	196	255	25	15
581	196	385	26	15
84	192	-108	26	16
37.4	192	-154.6	26	17
138	192	-54	26	18
227	192	35	27	18

214	192	22	28	18
20.2	192	-171.8	28	19
25.2	192	-166.8	28	20
154	192	-38	28	21
259	192	67	29	21
128	192	-64	29	22
236	192	44	30	22
346	192	154	31	22
342	192	150	32	22
213	192	21	33	22
449	192	257	34	22
344	192	152	35	22
546	192	354	36	22
451	192	259	37	22
581	192	389	38	22
37.4	84	-46.6	38	23
138	84	54	39	23
227	84	143	40	23
214	84	130	41	23
20.2	84	-63.8	41	24
25.2	84	-58.8	41	25
154	84	70	42	25
259	84	175	43	25
128	84	44	44	25
236	84	152	45	25
346	84	262	46	25
342	84	258	47	25
213	84	129	48	25
449	84	365	49	25
344	84	260	50	25
546	84	462	51	25
451	84	367	52	25
581	84	497	53	25
138	37.4	100.6	54	25
227	37.4	189.6	55	25
214	37.4	176.6	56	25
20.2	37.4	-17.2	56	26
25.2	37.4	-12.2	56	27
154	37.4	116.6	57	27
259	37.4	221.6	58	27
128	37.4	90.6	59	27
236	37.4	198.6	60	27
346	37.4	308.6	61	27
342	37.4	304.6	62	27
213	37.4	175.6	63	27
449	37.4	411.6	64	27
344	37.4	306.6	65	27
546	37.4	508.6	66	27
451	37.4	413.6	67	27
581	37.4	543.6	68	27
227	138	89	69	27
214	138	76	70	27
20.2	138	-117.8	70	28
25.2	138	-112.8	70	29

154	138	16	71	29
259	138	121	72	29
128	138	-10	72	30
236	138	98	73	30
346	138	208	74	30
342	138	204	75	30
213	138	75	76	30
449	138	311	77	30
344	138	206	78	30
546	138	408	79	30
451	138	313	80	30
581	138	443	81	30
214	227	-13	81	31
20.2	227	-206.8	81	32
25.2	227	-201.8	81	33
154	227	-73	81	34
259	227	32	82	34
128	227	-99	82	35
236	227	9	83	35
346	227	119	84	35
342	227	115	85	35
213	227	-14	85	36
449	227	222	86	36
344	227	117	87	36
546	227	319	88	36
451	227	224	89	36
581	227	354	90	36
20.2	214	-193.8	90	37
25.2	214	-188.8	90	38
154	214	-60	90	39
259	214	45	91	39
128	214	-86	91	40
236	214	22	92	40
346	214	132	93	40
342	214	128	94	40
213	214	-1	94	41
449	214	235	95	41
344	214	130	96	41
546	214	332	97	41
451	214	237	98	41
581	214	367	99	41
25.2	20.2	5	100	41
154	20.2	133.8	101	41
259	20.2	238.8	102	41
128	20.2	107.8	103	41
236	20.2	215.8	104	41
346	20.2	325.8	105	41
342	20.2	321.8	106	41
213	20.2	192.8	107	41
449	20.2	428.8	108	41
344	20.2	323.8	109	41
546	20.2	525.8	110	41
451	20.2	430.8	111	41
581	20.2	560.8	112	41

154	25.2	128.8	113	41
259	25.2	233.8	114	41
128	25.2	102.8	115	41
236	25.2	210.8	116	41
346	25.2	320.8	117	41
342	25.2	316.8	118	41
213	25.2	187.8	119	41
449	25.2	423.8	120	41
344	25.2	318.8	121	41
546	25.2	520.8	122	41
451	25.2	425.8	123	41
581	25.2	555.8	124	41
259	154	105	125	41
128	154	-26	125	42
236	154	82	126	42
346	154	192	127	42
342	154	188	128	42
213	154	59	129	42
449	154	295	130	42
344	154	190	131	42
546	154	392	132	42
451	154	297	133	42
581	154	427	134	42
128	259	-131	134	43
236	259	-23	134	44
346	259	87	135	44
342	259	83	136	44
213	259	-46	136	45
449	259	190	137	45
344	259	85	138	45
546	259	287	139	45
451	259	192	140	45
581	259	322	141	45
236	128	108	142	45
346	128	218	143	45
342	128	214	144	45
213	128	85	145	45
449	128	321	146	45
344	128	216	147	45
546	128	418	148	45
451	128	323	149	45
581	128	453	150	45
346	236	110	151	45
342	236	106	152	45
213	236	-23	152	46
449	236	213	153	46
344	236	108	154	46
546	236	310	155	46
451	236	215	156	46
581	236	345	157	46
342	346	-4	157	47

213	346	-133	157	48
449	346	103	158	48
344	346	-2	158	49
546	346	200	159	49
451	346	105	160	49
581	346	235	161	49
213	342	-129	161	50
449	342	107	162	50
344	342	2	163	50
546	342	204	164	50
451	342	109	165	50
581	342	239	166	50
449	213	236	167	50
344	213	131	168	50
546	213	333	169	50
451	213	238	170	50
581	213	368	171	50
344	449	-105	171	51
546	449	97	172	51
451	449	2	173	51
581	449	132	174	51
546	344	202	175	51
451	344	107	176	51
581	344	237	177	51
451	546	-95	177	52
581	546	35	178	52
581	451	130	179	52

S Statistic = 179 - 52 = 127

---

Tied Group	Value	Members
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1

6/1/2019	1
9/1/2019	1
12/1/2019	1
3/19/2020	1
6/9/2020	1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 22638

b = 83160

c = 924

Group Variance = 1257.67

Z-Score = 3.55294

Comparison Level at 95% confidence level = 1.65463 (upward trend)

**3.55294 > 1.65463 indicating an upward trend**



## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW05R-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
1930	1960	-30	0	1
1650	1960	-310	0	2
1790	1960	-170	0	3
1650	1930	-280	0	4
1790	1930	-140	0	5
1790	1650	140	1	5

S Statistic = 1 - 5 = -4

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -4$  is 0.167

$S < 0$  or  $0.167 \geq 0.05$  indicating no evidence of an upward trend

# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW06-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
9.2	12.5	-3.3	0	1
14	12.5	1.5	1	1
20.4	12.5	7.9	2	1
14.3	12.5	1.8	3	1
10.2	12.5	-2.3	3	2
10.1	12.5	-2.4	3	3
4.5	12.5	-8	3	4
4.2	12.5	-8.3	3	5
5.4	12.5	-7.1	3	6
7.1	12.5	-5.4	3	7
8.4	12.5	-4.1	3	8
89.2	12.5	76.7	4	8
3 U	12.5	-9.5	4	9
629	12.5	616.5	5	9
752	12.5	739.5	6	9
876	12.5	863.5	7	9
885	12.5	872.5	8	9
793	12.5	780.5	9	9
673	12.5	660.5	10	9
690	12.5	677.5	11	9
582	12.5	569.5	12	9
530	12.5	517.5	13	9
0.66 J	12.5	-11.84	13	10
14	9.2	4.8	14	10
20.4	9.2	11.2	15	10
14.3	9.2	5.1	16	10
10.2	9.2	1	17	10
10.1	9.2	0.9	18	10
4.5	9.2	-4.7	18	11
4.2	9.2	-5	18	12
5.4	9.2	-3.8	18	13
7.1	9.2	-2.1	18	14
8.4	9.2	-0.8	18	15
89.2	9.2	80	19	15
3 U	9.2	-6.2	19	16
629	9.2	619.8	20	16
752	9.2	742.8	21	16
876	9.2	866.8	22	16
885	9.2	875.8	23	16
793	9.2	783.8	24	16
673	9.2	663.8	25	16
690	9.2	680.8	26	16
582	9.2	572.8	27	16
530	9.2	520.8	28	16
0.66 J	9.2	-8.54	28	17

20.4	14	6.4	29	17
14.3	14	0.3	30	17
10.2	14	-3.8	30	18
10.1	14	-3.9	30	19
4.5	14	-9.5	30	20
4.2	14	-9.8	30	21
5.4	14	-8.6	30	22
7.1	14	-6.9	30	23
8.4	14	-5.6	30	24
89.2	14	75.2	31	24
3 U	14	-11	31	25
629	14	615	32	25
752	14	738	33	25
876	14	862	34	25
885	14	871	35	25
793	14	779	36	25
673	14	659	37	25
690	14	676	38	25
582	14	568	39	25
530	14	516	40	25
0.66 J	14	-13.34	40	26
14.3	20.4	-6.1	40	27
10.2	20.4	-10.2	40	28
10.1	20.4	-10.3	40	29
4.5	20.4	-15.9	40	30
4.2	20.4	-16.2	40	31
5.4	20.4	-15	40	32
7.1	20.4	-13.3	40	33
8.4	20.4	-12	40	34
89.2	20.4	68.8	41	34
3 U	20.4	-17.4	41	35
629	20.4	608.6	42	35
752	20.4	731.6	43	35
876	20.4	855.6	44	35
885	20.4	864.6	45	35
793	20.4	772.6	46	35
673	20.4	652.6	47	35
690	20.4	669.6	48	35
582	20.4	561.6	49	35
530	20.4	509.6	50	35
0.66 J	20.4	-19.74	50	36
10.2	14.3	-4.1	50	37
10.1	14.3	-4.2	50	38
4.5	14.3	-9.8	50	39
4.2	14.3	-10.1	50	40
5.4	14.3	-8.9	50	41
7.1	14.3	-7.2	50	42
8.4	14.3	-5.9	50	43
89.2	14.3	74.9	51	43
3 U	14.3	-11.3	51	44
629	14.3	614.7	52	44
752	14.3	737.7	53	44
876	14.3	861.7	54	44
885	14.3	870.7	55	44
793	14.3	778.7	56	44

673	14.3	658.7	57	44
690	14.3	675.7	58	44
582	14.3	567.7	59	44
530	14.3	515.7	60	44
0.66 J	14.3	-13.64	60	45
10.1	10.2	-0.1	60	46
4.5	10.2	-5.7	60	47
4.2	10.2	-6	60	48
5.4	10.2	-4.8	60	49
7.1	10.2	-3.1	60	50
8.4	10.2	-1.8	60	51
89.2	10.2	79	61	51
3 U	10.2	-7.2	61	52
629	10.2	618.8	62	52
752	10.2	741.8	63	52
876	10.2	865.8	64	52
885	10.2	874.8	65	52
793	10.2	782.8	66	52
673	10.2	662.8	67	52
690	10.2	679.8	68	52
582	10.2	571.8	69	52
530	10.2	519.8	70	52
0.66 J	10.2	-9.54	70	53
4.5	10.1	-5.6	70	54
4.2	10.1	-5.9	70	55
5.4	10.1	-4.7	70	56
7.1	10.1	-3	70	57
8.4	10.1	-1.7	70	58
89.2	10.1	79.1	71	58
3 U	10.1	-7.1	71	59
629	10.1	618.9	72	59
752	10.1	741.9	73	59
876	10.1	865.9	74	59
885	10.1	874.9	75	59
793	10.1	782.9	76	59
673	10.1	662.9	77	59
690	10.1	679.9	78	59
582	10.1	571.9	79	59
530	10.1	519.9	80	59
0.66 J	10.1	-9.44	80	60
4.2	4.5	-0.3	80	61
5.4	4.5	0.9	81	61
7.1	4.5	2.6	82	61
8.4	4.5	3.9	83	61
89.2	4.5	84.7	84	61
3 U	4.5	-1.5	84	62
629	4.5	624.5	85	62
752	4.5	747.5	86	62
876	4.5	871.5	87	62
885	4.5	880.5	88	62
793	4.5	788.5	89	62
673	4.5	668.5	90	62
690	4.5	685.5	91	62
582	4.5	577.5	92	62

530	4.5	525.5	93	62
0.66 J	4.5	-3.84	93	63
5.4	4.2	1.2	94	63
7.1	4.2	2.9	95	63
8.4	4.2	4.2	96	63
89.2	4.2	85	97	63
3 U	4.2	-1.2	97	64
629	4.2	624.8	98	64
752	4.2	747.8	99	64
876	4.2	871.8	100	64
885	4.2	880.8	101	64
793	4.2	788.8	102	64
673	4.2	668.8	103	64
690	4.2	685.8	104	64
582	4.2	577.8	105	64
530	4.2	525.8	106	64
0.66 J	4.2	-3.54	106	65
7.1	5.4	1.7	107	65
8.4	5.4	3	108	65
89.2	5.4	83.8	109	65
3 U	5.4	-2.4	109	66
629	5.4	623.6	110	66
752	5.4	746.6	111	66
876	5.4	870.6	112	66
885	5.4	879.6	113	66
793	5.4	787.6	114	66
673	5.4	667.6	115	66
690	5.4	684.6	116	66
582	5.4	576.6	117	66
530	5.4	524.6	118	66
0.66 J	5.4	-4.74	118	67
8.4	7.1	1.3	119	67
89.2	7.1	82.1	120	67
3 U	7.1	-4.1	120	68
629	7.1	621.9	121	68
752	7.1	744.9	122	68
876	7.1	868.9	123	68
885	7.1	877.9	124	68
793	7.1	785.9	125	68
673	7.1	665.9	126	68
690	7.1	682.9	127	68
582	7.1	574.9	128	68
530	7.1	522.9	129	68
0.66 J	7.1	-6.44	129	69
89.2	8.4	80.8	130	69
3 U	8.4	-5.4	130	70
629	8.4	620.6	131	70
752	8.4	743.6	132	70
876	8.4	867.6	133	70
885	8.4	876.6	134	70
793	8.4	784.6	135	70
673	8.4	664.6	136	70
690	8.4	681.6	137	70

582	8.4	573.6	138	70
530	8.4	521.6	139	70
0.66 J	8.4	-7.74	139	71
3 U	89.2	-86.2	139	72
629	89.2	539.8	140	72
752	89.2	662.8	141	72
876	89.2	786.8	142	72
885	89.2	795.8	143	72
793	89.2	703.8	144	72
673	89.2	583.8	145	72
690	89.2	600.8	146	72
582	89.2	492.8	147	72
530	89.2	440.8	148	72
0.66 J	89.2	-88.54	148	73
629	3 U	626	149	73
752	3 U	749	150	73
876	3 U	873	151	73
885	3 U	882	152	73
793	3 U	790	153	73
673	3 U	670	154	73
690	3 U	687	155	73
582	3 U	579	156	73
530	3 U	527	157	73
0.66 J	3 U	-2.34	157	74
752	629	123	158	74
876	629	247	159	74
885	629	256	160	74
793	629	164	161	74
673	629	44	162	74
690	629	61	163	74
582	629	-47	163	75
530	629	-99	163	76
0.66 J	629	-628.34	163	77
876	752	124	164	77
885	752	133	165	77
793	752	41	166	77
673	752	-79	166	78
690	752	-62	166	79
582	752	-170	166	80
530	752	-222	166	81
0.66 J	752	-751.34	166	82
885	876	9	167	82
793	876	-83	167	83
673	876	-203	167	84
690	876	-186	167	85
582	876	-294	167	86
530	876	-346	167	87
0.66 J	876	-875.34	167	88
793	885	-92	167	89
673	885	-212	167	90
690	885	-195	167	91

582	885	-303	167	92
530	885	-355	167	93
0.66 J	885	-884.34	167	94
673	793	-120	167	95
690	793	-103	167	96
582	793	-211	167	97
530	793	-263	167	98
0.66 J	793	-792.34	167	99
690	673	17	168	99
582	673	-91	168	100
530	673	-143	168	101
0.66 J	673	-672.34	168	102
582	690	-108	168	103
530	690	-160	168	104
0.66 J	690	-689.34	168	105
530	582	-52	168	106
0.66 J	582	-581.34	168	107
0.66 J	530	-529.34	168	108

S Statistic = 168 - 108 = 60

---

**Tied Group Value Members**

---

**Time Period Observations**

2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/18/2020	1
6/10/2020	1
9/14/2020	1
11/11/2020	1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1625.33

Z-Score = 1.46346

Comparison Level at 95% confidence level = 1.65463 (upward trend)

1.46346 <= 1.65463 indicating no evidence of an upward trend



# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW07-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
4.6	1.2	3.4	1	0
3 U	1.2	1.8	2	0
1.1	1.2	-0.1	2	1
0.91	1.2	-0.29	2	2
1.2	1.2	0	2	2
1	1.2	-0.2	2	3
11	1.2	9.8	3	3
3 U	1.2	1.8	4	3
5.1	1.2	3.9	5	3
1.7	1.2	0.5	6	3
3 U	1.2	1.8	7	3
1.3	1.2	0.1	8	3
52.9	1.2	51.7	9	3
28.7	1.2	27.5	10	3
344	1.2	342.8	11	3
29.5	1.2	28.3	12	3
453	1.2	451.8	13	3
48.7	1.2	47.5	14	3
38.1	1.2	36.9	15	3
36	1.2	34.8	16	3
1.7 J	1.2	0.5	17	3
3 U	4.6	-1.6	17	4
1.1	4.6	-3.5	17	5
0.91	4.6	-3.69	17	6
1.2	4.6	-3.4	17	7
1	4.6	-3.6	17	8
11	4.6	6.4	18	8
3 U	4.6	-1.6	18	9
5.1	4.6	0.5	19	9
1.7	4.6	-2.9	19	10
3 U	4.6	-1.6	19	11
1.3	4.6	-3.3	19	12
52.9	4.6	48.3	20	12
28.7	4.6	24.1	21	12
344	4.6	339.4	22	12
29.5	4.6	24.9	23	12
453	4.6	448.4	24	12
48.7	4.6	44.1	25	12
38.1	4.6	33.5	26	12
36	4.6	31.4	27	12
1.7 J	4.6	-2.9	27	13
1.1	3 U	-1.9	27	14
0.91	3 U	-2.09	27	15
1.2	3 U	-1.8	27	16
1	3 U	-2	27	17

11	3 U	8	28	17
3 U	3 U	0	28	17
5.1	3 U	2.1	29	17
1.7	3 U	-1.3	29	18
3 U	3 U	0	29	18
1.3	3 U	-1.7	29	19
52.9	3 U	49.9	30	19
28.7	3 U	25.7	31	19
344	3 U	341	32	19
29.5	3 U	26.5	33	19
453	3 U	450	34	19
48.7	3 U	45.7	35	19
38.1	3 U	35.1	36	19
36	3 U	33	37	19
1.7 J	3 U	-1.3	37	20
0.91	1.1	-0.19	37	21
1.2	1.1	0.1	38	21
1	1.1	-0.1	38	22
11	1.1	9.9	39	22
3 U	1.1	1.9	40	22
5.1	1.1	4	41	22
1.7	1.1	0.6	42	22
3 U	1.1	1.9	43	22
1.3	1.1	0.2	44	22
52.9	1.1	51.8	45	22
28.7	1.1	27.6	46	22
344	1.1	342.9	47	22
29.5	1.1	28.4	48	22
453	1.1	451.9	49	22
48.7	1.1	47.6	50	22
38.1	1.1	37	51	22
36	1.1	34.9	52	22
1.7 J	1.1	0.6	53	22
1.2	0.91	0.29	54	22
1	0.91	0.09	55	22
11	0.91	10.09	56	22
3 U	0.91	2.09	57	22
5.1	0.91	4.19	58	22
1.7	0.91	0.79	59	22
3 U	0.91	2.09	60	22
1.3	0.91	0.39	61	22
52.9	0.91	51.99	62	22
28.7	0.91	27.79	63	22
344	0.91	343.09	64	22
29.5	0.91	28.59	65	22
453	0.91	452.09	66	22
48.7	0.91	47.79	67	22
38.1	0.91	37.19	68	22
36	0.91	35.09	69	22
1.7 J	0.91	0.79	70	22
1	1.2	-0.2	70	23
11	1.2	9.8	71	23
3 U	1.2	1.8	72	23
5.1	1.2	3.9	73	23

1.7	1.2	0.5	74	23
3 U	1.2	1.8	75	23
1.3	1.2	0.1	76	23
52.9	1.2	51.7	77	23
28.7	1.2	27.5	78	23
344	1.2	342.8	79	23
29.5	1.2	28.3	80	23
453	1.2	451.8	81	23
48.7	1.2	47.5	82	23
38.1	1.2	36.9	83	23
36	1.2	34.8	84	23
1.7 J	1.2	0.5	85	23
11	1	10	86	23
3 U	1	2	87	23
5.1	1	4.1	88	23
1.7	1	0.7	89	23
3 U	1	2	90	23
1.3	1	0.3	91	23
52.9	1	51.9	92	23
28.7	1	27.7	93	23
344	1	343	94	23
29.5	1	28.5	95	23
453	1	452	96	23
48.7	1	47.7	97	23
38.1	1	37.1	98	23
36	1	35	99	23
1.7 J	1	0.7	100	23
3 U	11	-8	100	24
5.1	11	-5.9	100	25
1.7	11	-9.3	100	26
3 U	11	-8	100	27
1.3	11	-9.7	100	28
52.9	11	41.9	101	28
28.7	11	17.7	102	28
344	11	333	103	28
29.5	11	18.5	104	28
453	11	442	105	28
48.7	11	37.7	106	28
38.1	11	27.1	107	28
36	11	25	108	28
1.7 J	11	-9.3	108	29
5.1	3 U	2.1	109	29
1.7	3 U	-1.3	109	30
3 U	3 U	0	109	30
1.3	3 U	-1.7	109	31
52.9	3 U	49.9	110	31
28.7	3 U	25.7	111	31
344	3 U	341	112	31
29.5	3 U	26.5	113	31
453	3 U	450	114	31
48.7	3 U	45.7	115	31
38.1	3 U	35.1	116	31
36	3 U	33	117	31
1.7 J	3 U	-1.3	117	32

1.7	5.1	-3.4	117	33
3 U	5.1	-2.1	117	34
1.3	5.1	-3.8	117	35
52.9	5.1	47.8	118	35
28.7	5.1	23.6	119	35
344	5.1	338.9	120	35
29.5	5.1	24.4	121	35
453	5.1	447.9	122	35
48.7	5.1	43.6	123	35
38.1	5.1	33	124	35
36	5.1	30.9	125	35
1.7 J	5.1	-3.4	125	36
3 U	1.7	1.3	126	36
1.3	1.7	-0.4	126	37
52.9	1.7	51.2	127	37
28.7	1.7	27	128	37
344	1.7	342.3	129	37
29.5	1.7	27.8	130	37
453	1.7	451.3	131	37
48.7	1.7	47	132	37
38.1	1.7	36.4	133	37
36	1.7	34.3	134	37
1.7 J	1.7	0	134	37
1.3	3 U	-1.7	134	38
52.9	3 U	49.9	135	38
28.7	3 U	25.7	136	38
344	3 U	341	137	38
29.5	3 U	26.5	138	38
453	3 U	450	139	38
48.7	3 U	45.7	140	38
38.1	3 U	35.1	141	38
36	3 U	33	142	38
1.7 J	3 U	-1.3	142	39
52.9	1.3	51.6	143	39
28.7	1.3	27.4	144	39
344	1.3	342.7	145	39
29.5	1.3	28.2	146	39
453	1.3	451.7	147	39
48.7	1.3	47.4	148	39
38.1	1.3	36.8	149	39
36	1.3	34.7	150	39
1.7 J	1.3	0.4	151	39
28.7	52.9	-24.2	151	40
344	52.9	291.1	152	40
29.5	52.9	-23.4	152	41
453	52.9	400.1	153	41
48.7	52.9	-4.2	153	42
38.1	52.9	-14.8	153	43
36	52.9	-16.9	153	44
1.7 J	52.9	-51.2	153	45
344	28.7	315.3	154	45

29.5	28.7	0.8	155	45
453	28.7	424.3	156	45
48.7	28.7	20	157	45
38.1	28.7	9.4	158	45
36	28.7	7.3	159	45
1.7 J	28.7	-27	159	46
29.5	344	-314.5	159	47
453	344	109	160	47
48.7	344	-295.3	160	48
38.1	344	-305.9	160	49
36	344	-308	160	50
1.7 J	344	-342.3	160	51
453	29.5	423.5	161	51
48.7	29.5	19.2	162	51
38.1	29.5	8.6	163	51
36	29.5	6.5	164	51
1.7 J	29.5	-27.8	164	52
48.7	453	-404.3	164	53
38.1	453	-414.9	164	54
36	453	-417	164	55
1.7 J	453	-451.3	164	56
38.1	48.7	-10.6	164	57
36	48.7	-12.7	164	58
1.7 J	48.7	-47	164	59
36	38.1	-2.1	164	60
1.7 J	38.1	-36.4	164	61
1.7 J	36	-34.3	164	62

S Statistic = 164 - 62 = 102

---

Tied Group	Value	Members
1	1.2	2
2	3	3
3	1.7	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1

10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/18/2020	1
6/11/2020	1

There are 0 time periods with multiple data

---

A = 102

B = 0

C = 6

D = 0

E = 10

F = 0

a = 22638

b = 83160

c = 924

Group Variance = 1252

Z-Score = 2.85443

Comparison Level at 95% confidence level = 1.65463 (upward trend)

**2.85443 > 1.65463 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW08-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.39	0.49	-0.1	0	1
3 U	0.49	2.51	1	1
1.5	0.49	1.01	2	1
0.48	0.49	-0.01	2	2
1.3	0.49	0.81	3	2
0.86	0.49	0.37	4	2
0.77	0.49	0.28	5	2
3 U	0.49	2.51	6	2
0.88	0.49	0.39	7	2
1.8	0.49	1.31	8	2
3 U	0.49	2.51	9	2
6.2	0.49	5.71	10	2
14.1	0.49	13.61	11	2
0.92	0.49	0.43	12	2
3 U	0.49	2.51	13	2
3 U	0.49	2.51	14	2
3 U	0.49	2.51	15	2
3 U	0.49	2.51	16	2
0.59	0.49	0.1	17	2
ND<1.5 U	0.49	1.01	18	2
0.47 J	0.49	-0.02	18	3
0.39 J	0.49	-0.1	18	4
0.56 J	0.49	0.07	19	4
3 U	0.39	2.61	20	4
1.5	0.39	1.11	21	4
0.48	0.39	0.09	22	4
1.3	0.39	0.91	23	4
0.86	0.39	0.47	24	4
0.77	0.39	0.38	25	4
3 U	0.39	2.61	26	4
0.88	0.39	0.49	27	4
1.8	0.39	1.41	28	4
3 U	0.39	2.61	29	4
6.2	0.39	5.81	30	4
14.1	0.39	13.71	31	4
0.92	0.39	0.53	32	4
3 U	0.39	2.61	33	4
3 U	0.39	2.61	34	4
3 U	0.39	2.61	35	4
3 U	0.39	2.61	36	4
0.59	0.39	0.2	37	4
ND<1.5 U	0.39	1.11	38	4
0.47 J	0.39	0.08	39	4
0.39 J	0.39	0	39	4
0.56 J	0.39	0.17	40	4

1.5	3 U	-1.5	40	5
0.48	3 U	-2.52	40	6
1.3	3 U	-1.7	40	7
0.86	3 U	-2.14	40	8
0.77	3 U	-2.23	40	9
3 U	3 U	0	40	9
0.88	3 U	-2.12	40	10
1.8	3 U	-1.2	40	11
3 U	3 U	0	40	11
6.2	3 U	3.2	41	11
14.1	3 U	11.1	42	11
0.92	3 U	-2.08	42	12
3 U	3 U	0	42	12
3 U	3 U	0	42	12
3 U	3 U	0	42	12
3 U	3 U	0	42	12
0.59	3 U	-2.41	42	13
ND<1.5 U	3 U	-1.5	42	14
0.47 J	3 U	-2.53	42	15
0.39 J	3 U	-2.61	42	16
0.56 J	3 U	-2.44	42	17
0.48	1.5	-1.02	42	18
1.3	1.5	-0.2	42	19
0.86	1.5	-0.64	42	20
0.77	1.5	-0.73	42	21
3 U	1.5	1.5	43	21
0.88	1.5	-0.62	43	22
1.8	1.5	0.3	44	22
3 U	1.5	1.5	45	22
6.2	1.5	4.7	46	22
14.1	1.5	12.6	47	22
0.92	1.5	-0.58	47	23
3 U	1.5	1.5	48	23
3 U	1.5	1.5	49	23
3 U	1.5	1.5	50	23
3 U	1.5	1.5	51	23
0.59	1.5	-0.91	51	24
ND<1.5 U	1.5	0	51	24
0.47 J	1.5	-1.03	51	25
0.39 J	1.5	-1.11	51	26
0.56 J	1.5	-0.94	51	27
1.3	0.48	0.82	52	27
0.86	0.48	0.38	53	27
0.77	0.48	0.29	54	27
3 U	0.48	2.52	55	27
0.88	0.48	0.4	56	27
1.8	0.48	1.32	57	27
3 U	0.48	2.52	58	27
6.2	0.48	5.72	59	27
14.1	0.48	13.62	60	27
0.92	0.48	0.44	61	27
3 U	0.48	2.52	62	27
3 U	0.48	2.52	63	27
3 U	0.48	2.52	64	27
3 U	0.48	2.52	65	27



0.59	0.48	0.11	66	27
ND<1.5 U	0.48	1.02	67	27
0.47 J	0.48	-0.01	67	28
0.39 J	0.48	-0.09	67	29
0.56 J	0.48	0.08	68	29
0.86	1.3	-0.44	68	30
0.77	1.3	-0.53	68	31
3 U	1.3	1.7	69	31
0.88	1.3	-0.42	69	32
1.8	1.3	0.5	70	32
3 U	1.3	1.7	71	32
6.2	1.3	4.9	72	32
14.1	1.3	12.8	73	32
0.92	1.3	-0.38	73	33
3 U	1.3	1.7	74	33
3 U	1.3	1.7	75	33
3 U	1.3	1.7	76	33
3 U	1.3	1.7	77	33
0.59	1.3	-0.71	77	34
ND<1.5 U	1.3	0.2	78	34
0.47 J	1.3	-0.83	78	35
0.39 J	1.3	-0.91	78	36
0.56 J	1.3	-0.74	78	37
0.77	0.86	-0.09	78	38
3 U	0.86	2.14	79	38
0.88	0.86	0.02	80	38
1.8	0.86	0.94	81	38
3 U	0.86	2.14	82	38
6.2	0.86	5.34	83	38
14.1	0.86	13.24	84	38
0.92	0.86	0.06	85	38
3 U	0.86	2.14	86	38
3 U	0.86	2.14	87	38
3 U	0.86	2.14	88	38
3 U	0.86	2.14	89	38
0.59	0.86	-0.27	89	39
ND<1.5 U	0.86	0.64	90	39
0.47 J	0.86	-0.39	90	40
0.39 J	0.86	-0.47	90	41
0.56 J	0.86	-0.3	90	42
3 U	0.77	2.23	91	42
0.88	0.77	0.11	92	42
1.8	0.77	1.03	93	42
3 U	0.77	2.23	94	42
6.2	0.77	5.43	95	42
14.1	0.77	13.33	96	42
0.92	0.77	0.15	97	42
3 U	0.77	2.23	98	42
3 U	0.77	2.23	99	42
3 U	0.77	2.23	100	42
3 U	0.77	2.23	101	42
0.59	0.77	-0.18	101	43
ND<1.5 U	0.77	0.73	102	43
0.47 J	0.77	-0.3	102	44

0.39 J	0.77	-0.38	102	45
0.56 J	0.77	-0.21	102	46
0.88	3 U	-2.12	102	47
1.8	3 U	-1.2	102	48
3 U	3 U	0	102	48
6.2	3 U	3.2	103	48
14.1	3 U	11.1	104	48
0.92	3 U	-2.08	104	49
3 U	3 U	0	104	49
3 U	3 U	0	104	49
3 U	3 U	0	104	49
3 U	3 U	0	104	49
0.59	3 U	-2.41	104	50
ND<1.5 U	3 U	-1.5	104	51
0.47 J	3 U	-2.53	104	52
0.39 J	3 U	-2.61	104	53
0.56 J	3 U	-2.44	104	54
1.8	0.88	0.92	105	54
3 U	0.88	2.12	106	54
6.2	0.88	5.32	107	54
14.1	0.88	13.22	108	54
0.92	0.88	0.04	109	54
3 U	0.88	2.12	110	54
3 U	0.88	2.12	111	54
3 U	0.88	2.12	112	54
3 U	0.88	2.12	113	54
0.59	0.88	-0.29	113	55
ND<1.5 U	0.88	0.62	114	55
0.47 J	0.88	-0.41	114	56
0.39 J	0.88	-0.49	114	57
0.56 J	0.88	-0.32	114	58
3 U	1.8	1.2	115	58
6.2	1.8	4.4	116	58
14.1	1.8	12.3	117	58
0.92	1.8	-0.88	117	59
3 U	1.8	1.2	118	59
3 U	1.8	1.2	119	59
3 U	1.8	1.2	120	59
3 U	1.8	1.2	121	59
0.59	1.8	-1.21	121	60
ND<1.5 U	1.8	-0.3	121	61
0.47 J	1.8	-1.33	121	62
0.39 J	1.8	-1.41	121	63
0.56 J	1.8	-1.24	121	64
6.2	3 U	3.2	122	64
14.1	3 U	11.1	123	64
0.92	3 U	-2.08	123	65
3 U	3 U	0	123	65
3 U	3 U	0	123	65
3 U	3 U	0	123	65
3 U	3 U	0	123	65
0.59	3 U	-2.41	123	66
ND<1.5 U	3 U	-1.5	123	67

0.47 J	3 U	-2.53	123	68
0.39 J	3 U	-2.61	123	69
0.56 J	3 U	-2.44	123	70
14.1	6.2	7.9	124	70
0.92	6.2	-5.28	124	71
3 U	6.2	-3.2	124	72
3 U	6.2	-3.2	124	73
3 U	6.2	-3.2	124	74
3 U	6.2	-3.2	124	75
0.59	6.2	-5.61	124	76
ND<1.5 U	6.2	-4.7	124	77
0.47 J	6.2	-5.73	124	78
0.39 J	6.2	-5.81	124	79
0.56 J	6.2	-5.64	124	80
0.92	14.1	-13.18	124	81
3 U	14.1	-11.1	124	82
3 U	14.1	-11.1	124	83
3 U	14.1	-11.1	124	84
3 U	14.1	-11.1	124	85
0.59	14.1	-13.51	124	86
ND<1.5 U	14.1	-12.6	124	87
0.47 J	14.1	-13.63	124	88
0.39 J	14.1	-13.71	124	89
0.56 J	14.1	-13.54	124	90
3 U	0.92	2.08	125	90
3 U	0.92	2.08	126	90
3 U	0.92	2.08	127	90
3 U	0.92	2.08	128	90
0.59	0.92	-0.33	128	91
ND<1.5 U	0.92	0.58	129	91
0.47 J	0.92	-0.45	129	92
0.39 J	0.92	-0.53	129	93
0.56 J	0.92	-0.36	129	94
3 U	3 U	0	129	94
3 U	3 U	0	129	94
3 U	3 U	0	129	94
0.59	3 U	-2.41	129	95
ND<1.5 U	3 U	-1.5	129	96
0.47 J	3 U	-2.53	129	97
0.39 J	3 U	-2.61	129	98
0.56 J	3 U	-2.44	129	99
3 U	3 U	0	129	99
3 U	3 U	0	129	99
0.59	3 U	-2.41	129	100
ND<1.5 U	3 U	-1.5	129	101
0.47 J	3 U	-2.53	129	102
0.39 J	3 U	-2.61	129	103
0.56 J	3 U	-2.44	129	104
3 U	3 U	0	129	104
0.59	3 U	-2.41	129	105
ND<1.5 U	3 U	-1.5	129	106

0.47 J	3 U	-2.53	129	107
0.39 J	3 U	-2.61	129	108
0.56 J	3 U	-2.44	129	109
0.59	3 U	-2.41	129	110
ND<1.5 U	3 U	-1.5	129	111
0.47 J	3 U	-2.53	129	112
0.39 J	3 U	-2.61	129	113
0.56 J	3 U	-2.44	129	114
ND<1.5 U	0.59	0.91	130	114
0.47 J	0.59	-0.12	130	115
0.39 J	0.59	-0.2	130	116
0.56 J	0.59	-0.03	130	117
0.47 J	ND<1.5 U	-1.03	130	118
0.39 J	ND<1.5 U	-1.11	130	119
0.56 J	ND<1.5 U	-0.94	130	120
0.39 J	0.47 J	-0.08	130	121
0.56 J	0.47 J	0.09	131	121
0.56 J	0.39 J	0.17	132	121

S Statistic = 132 - 121 = 11

---

Tied Group	Value	Members
1	0.39	2
2	3	7
3	1.5	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/18/2020	1
6/11/2020	1
9/16/2020	1
11/19/2020	1

There are 0 time periods with multiple data

---

A = 834

B = 0

C = 210

D = 0

E = 46

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1579

Z-Score = 0.251657

Comparison Level at 95% confidence level = 1.65463 (upward trend)

0.251657 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW09-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
4	3.1	0.9	1	0
5	3.1	1.9	2	0
11.1	3.1	8	3	0
8.1	3.1	5	4	0
12.9	3.1	9.8	5	0
18.5	3.1	15.4	6	0
9.1	3.1	6	7	0
12	3.1	8.9	8	0
8.8	3.1	5.7	9	0
7.7	3.1	4.6	10	0
2.1	3.1	-1	10	1
1.8	3.1	-1.3	10	2
3 U	3.1	-0.1	10	3
3.7	3.1	0.6	11	3
0.96	3.1	-2.14	11	4
2	3.1	-1.1	11	5
3.8	3.1	0.7	12	5
5.6	3.1	2.5	13	5
4.2	3.1	1.1	14	5
10.6	3.1	7.5	15	5
16.5 1c	3.1	13.4	16	5
10.7	3.1	7.6	17	5
10.3	3.1	7.2	18	5
5	4	1	19	5
11.1	4	7.1	20	5
8.1	4	4.1	21	5
12.9	4	8.9	22	5
18.5	4	14.5	23	5
9.1	4	5.1	24	5
12	4	8	25	5
8.8	4	4.8	26	5
7.7	4	3.7	27	5
2.1	4	-1.9	27	6
1.8	4	-2.2	27	7
3 U	4	-1	27	8
3.7	4	-0.3	27	9
0.96	4	-3.04	27	10
2	4	-2	27	11
3.8	4	-0.2	27	12
5.6	4	1.6	28	12
4.2	4	0.2	29	12
10.6	4	6.6	30	12
16.5 1c	4	12.5	31	12
10.7	4	6.7	32	12
10.3	4	6.3	33	12

11.1	5	6.1	34	12
8.1	5	3.1	35	12
12.9	5	7.9	36	12
18.5	5	13.5	37	12
9.1	5	4.1	38	12
12	5	7	39	12
8.8	5	3.8	40	12
7.7	5	2.7	41	12
2.1	5	-2.9	41	13
1.8	5	-3.2	41	14
3 U	5	-2	41	15
3.7	5	-1.3	41	16
0.96	5	-4.04	41	17
2	5	-3	41	18
3.8	5	-1.2	41	19
5.6	5	0.6	42	19
4.2	5	-0.8	42	20
10.6	5	5.6	43	20
16.5 1c	5	11.5	44	20
10.7	5	5.7	45	20
10.3	5	5.3	46	20
8.1	11.1	-3	46	21
12.9	11.1	1.8	47	21
18.5	11.1	7.4	48	21
9.1	11.1	-2	48	22
12	11.1	0.9	49	22
8.8	11.1	-2.3	49	23
7.7	11.1	-3.4	49	24
2.1	11.1	-9	49	25
1.8	11.1	-9.3	49	26
3 U	11.1	-8.1	49	27
3.7	11.1	-7.4	49	28
0.96	11.1	-10.14	49	29
2	11.1	-9.1	49	30
3.8	11.1	-7.3	49	31
5.6	11.1	-5.5	49	32
4.2	11.1	-6.9	49	33
10.6	11.1	-0.5	49	34
16.5 1c	11.1	5.4	50	34
10.7	11.1	-0.4	50	35
10.3	11.1	-0.8	50	36
12.9	8.1	4.8	51	36
18.5	8.1	10.4	52	36
9.1	8.1	1	53	36
12	8.1	3.9	54	36
8.8	8.1	0.7	55	36
7.7	8.1	-0.4	55	37
2.1	8.1	-6	55	38
1.8	8.1	-6.3	55	39
3 U	8.1	-5.1	55	40
3.7	8.1	-4.4	55	41
0.96	8.1	-7.14	55	42
2	8.1	-6.1	55	43
3.8	8.1	-4.3	55	44
5.6	8.1	-2.5	55	45

4.2	8.1	-3.9	55	46
10.6	8.1	2.5	56	46
16.5 1c	8.1	8.4	57	46
10.7	8.1	2.6	58	46
10.3	8.1	2.2	59	46
18.5	12.9	5.6	60	46
9.1	12.9	-3.8	60	47
12	12.9	-0.9	60	48
8.8	12.9	-4.1	60	49
7.7	12.9	-5.2	60	50
2.1	12.9	-10.8	60	51
1.8	12.9	-11.1	60	52
3 U	12.9	-9.9	60	53
3.7	12.9	-9.2	60	54
0.96	12.9	-11.94	60	55
2	12.9	-10.9	60	56
3.8	12.9	-9.1	60	57
5.6	12.9	-7.3	60	58
4.2	12.9	-8.7	60	59
10.6	12.9	-2.3	60	60
16.5 1c	12.9	3.6	61	60
10.7	12.9	-2.2	61	61
10.3	12.9	-2.6	61	62
9.1	18.5	-9.4	61	63
12	18.5	-6.5	61	64
8.8	18.5	-9.7	61	65
7.7	18.5	-10.8	61	66
2.1	18.5	-16.4	61	67
1.8	18.5	-16.7	61	68
3 U	18.5	-15.5	61	69
3.7	18.5	-14.8	61	70
0.96	18.5	-17.54	61	71
2	18.5	-16.5	61	72
3.8	18.5	-14.7	61	73
5.6	18.5	-12.9	61	74
4.2	18.5	-14.3	61	75
10.6	18.5	-7.9	61	76
16.5 1c	18.5	-2	61	77
10.7	18.5	-7.8	61	78
10.3	18.5	-8.2	61	79
12	9.1	2.9	62	79
8.8	9.1	-0.3	62	80
7.7	9.1	-1.4	62	81
2.1	9.1	-7	62	82
1.8	9.1	-7.3	62	83
3 U	9.1	-6.1	62	84
3.7	9.1	-5.4	62	85
0.96	9.1	-8.14	62	86
2	9.1	-7.1	62	87
3.8	9.1	-5.3	62	88
5.6	9.1	-3.5	62	89
4.2	9.1	-4.9	62	90
10.6	9.1	1.5	63	90
16.5 1c	9.1	7.4	64	90



10.7	9.1	1.6	65	90
10.3	9.1	1.2	66	90
8.8	12	-3.2	66	91
7.7	12	-4.3	66	92
2.1	12	-9.9	66	93
1.8	12	-10.2	66	94
3 U	12	-9	66	95
3.7	12	-8.3	66	96
0.96	12	-11.04	66	97
2	12	-10	66	98
3.8	12	-8.2	66	99
5.6	12	-6.4	66	100
4.2	12	-7.8	66	101
10.6	12	-1.4	66	102
16.5 1c	12	4.5	67	102
10.7	12	-1.3	67	103
10.3	12	-1.7	67	104
7.7	8.8	-1.1	67	105
2.1	8.8	-6.7	67	106
1.8	8.8	-7	67	107
3 U	8.8	-5.8	67	108
3.7	8.8	-5.1	67	109
0.96	8.8	-7.84	67	110
2	8.8	-6.8	67	111
3.8	8.8	-5	67	112
5.6	8.8	-3.2	67	113
4.2	8.8	-4.6	67	114
10.6	8.8	1.8	68	114
16.5 1c	8.8	7.7	69	114
10.7	8.8	1.9	70	114
10.3	8.8	1.5	71	114
2.1	7.7	-5.6	71	115
1.8	7.7	-5.9	71	116
3 U	7.7	-4.7	71	117
3.7	7.7	-4	71	118
0.96	7.7	-6.74	71	119
2	7.7	-5.7	71	120
3.8	7.7	-3.9	71	121
5.6	7.7	-2.1	71	122
4.2	7.7	-3.5	71	123
10.6	7.7	2.9	72	123
16.5 1c	7.7	8.8	73	123
10.7	7.7	3	74	123
10.3	7.7	2.6	75	123
1.8	2.1	-0.3	75	124
3 U	2.1	0.9	76	124
3.7	2.1	1.6	77	124
0.96	2.1	-1.14	77	125
2	2.1	-0.1	77	126
3.8	2.1	1.7	78	126
5.6	2.1	3.5	79	126
4.2	2.1	2.1	80	126
10.6	2.1	8.5	81	126

16.5 1c	2.1	14.4	82	126
10.7	2.1	8.6	83	126
10.3	2.1	8.2	84	126
3 U	1.8	1.2	85	126
3.7	1.8	1.9	86	126
0.96	1.8	-0.84	86	127
2	1.8	0.2	87	127
3.8	1.8	2	88	127
5.6	1.8	3.8	89	127
4.2	1.8	2.4	90	127
10.6	1.8	8.8	91	127
16.5 1c	1.8	14.7	92	127
10.7	1.8	8.9	93	127
10.3	1.8	8.5	94	127
3.7	3 U	0.7	95	127
0.96	3 U	-2.04	95	128
2	3 U	-1	95	129
3.8	3 U	0.8	96	129
5.6	3 U	2.6	97	129
4.2	3 U	1.2	98	129
10.6	3 U	7.6	99	129
16.5 1c	3 U	13.5	100	129
10.7	3 U	7.7	101	129
10.3	3 U	7.3	102	129
0.96	3.7	-2.74	102	130
2	3.7	-1.7	102	131
3.8	3.7	0.1	103	131
5.6	3.7	1.9	104	131
4.2	3.7	0.5	105	131
10.6	3.7	6.9	106	131
16.5 1c	3.7	12.8	107	131
10.7	3.7	7	108	131
10.3	3.7	6.6	109	131
2	0.96	1.04	110	131
3.8	0.96	2.84	111	131
5.6	0.96	4.64	112	131
4.2	0.96	3.24	113	131
10.6	0.96	9.64	114	131
16.5 1c	0.96	15.54	115	131
10.7	0.96	9.74	116	131
10.3	0.96	9.34	117	131
3.8	2	1.8	118	131
5.6	2	3.6	119	131
4.2	2	2.2	120	131
10.6	2	8.6	121	131
16.5 1c	2	14.5	122	131
10.7	2	8.7	123	131
10.3	2	8.3	124	131
5.6	3.8	1.8	125	131
4.2	3.8	0.4	126	131
10.6	3.8	6.8	127	131

16.5 1c	3.8	12.7	128	131
10.7	3.8	6.9	129	131
10.3	3.8	6.5	130	131
4.2	5.6	-1.4	130	132
10.6	5.6	5	131	132
16.5 1c	5.6	10.9	132	132
10.7	5.6	5.1	133	132
10.3	5.6	4.7	134	132
10.6	4.2	6.4	135	132
16.5 1c	4.2	12.3	136	132
10.7	4.2	6.5	137	132
10.3	4.2	6.1	138	132
16.5 1c	10.6	5.9	139	132
10.7	10.6	0.1	140	132
10.3	10.6	-0.3	140	133
10.7	16.5 1c	-5.8	140	134
10.3	16.5 1c	-6.2	140	135
10.3	10.7	-0.4	140	136

S Statistic = 140 - 136 = 4

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1
6/1/2019		1
9/1/2019		1
12/1/2019		1
3/13/2020		1
6/25/2020		1
9/17/2020		1
11/16/2020		1

There are 0 time periods with multiple data

---

A = 0

B = 0  
C = 0  
D = 0  
E = 0  
F = 0  
a = 29256  
b = 109296  
c = 1104  
Group Variance = 1625.33  
Z-Score = 0.0744132  
Comparison Level at 95% confidence level = 1.65463 (upward trend)  
0.0744132 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW10-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
3 U	446	-443	0	1
198	446	-248	0	2
2.5	446	-443.5	0	3
27.2	446	-418.8	0	4
16.3	446	-429.7	0	5
3 U	446	-443	0	6
17.7	446	-428.3	0	7
24.6	446	-421.4	0	8
63.7	446	-382.3	0	9
3 U	446	-443	0	10
3 U	446	-443	0	11
44.4	446	-401.6	0	12
44.7	446	-401.3	0	13
10.8	446	-435.2	0	14
3 U	446	-443	0	15
0.38	446	-445.62	0	16
0.86	446	-445.14	0	17
8.4	446	-437.6	0	18
13.9	446	-432.1	0	19
0.67 J1c	446	-445.33	0	20
0.77 J1c	446	-445.23	0	21
0.55 J	446	-445.45	0	22
198	3 U	195	1	22
2.5	3 U	-0.5	1	23
27.2	3 U	24.2	2	23
16.3	3 U	13.3	3	23
3 U	3 U	0	3	23
17.7	3 U	14.7	4	23
24.6	3 U	21.6	5	23
63.7	3 U	60.7	6	23
3 U	3 U	0	6	23
3 U	3 U	0	6	23
44.4	3 U	41.4	7	23
44.7	3 U	41.7	8	23
10.8	3 U	7.8	9	23
3 U	3 U	0	9	23
0.38	3 U	-2.62	9	24
0.86	3 U	-2.14	9	25
8.4	3 U	5.4	10	25
13.9	3 U	10.9	11	25
0.67 J1c	3 U	-2.33	11	26
0.77 J1c	3 U	-2.23	11	27
0.55 J	3 U	-2.45	11	28
2.5	198	-195.5	11	29
27.2	198	-170.8	11	30

16.3	198	-181.7	11	31
3 U	198	-195	11	32
17.7	198	-180.3	11	33
24.6	198	-173.4	11	34
63.7	198	-134.3	11	35
3 U	198	-195	11	36
3 U	198	-195	11	37
44.4	198	-153.6	11	38
44.7	198	-153.3	11	39
10.8	198	-187.2	11	40
3 U	198	-195	11	41
0.38	198	-197.62	11	42
0.86	198	-197.14	11	43
8.4	198	-189.6	11	44
13.9	198	-184.1	11	45
0.67 J1c	198	-197.33	11	46
0.77 J1c	198	-197.23	11	47
0.55 J	198	-197.45	11	48
27.2	2.5	24.7	12	48
16.3	2.5	13.8	13	48
3 U	2.5	0.5	14	48
17.7	2.5	15.2	15	48
24.6	2.5	22.1	16	48
63.7	2.5	61.2	17	48
3 U	2.5	0.5	18	48
3 U	2.5	0.5	19	48
44.4	2.5	41.9	20	48
44.7	2.5	42.2	21	48
10.8	2.5	8.3	22	48
3 U	2.5	0.5	23	48
0.38	2.5	-2.12	23	49
0.86	2.5	-1.64	23	50
8.4	2.5	5.9	24	50
13.9	2.5	11.4	25	50
0.67 J1c	2.5	-1.83	25	51
0.77 J1c	2.5	-1.73	25	52
0.55 J	2.5	-1.95	25	53
16.3	27.2	-10.9	25	54
3 U	27.2	-24.2	25	55
17.7	27.2	-9.5	25	56
24.6	27.2	-2.6	25	57
63.7	27.2	36.5	26	57
3 U	27.2	-24.2	26	58
3 U	27.2	-24.2	26	59
44.4	27.2	17.2	27	59
44.7	27.2	17.5	28	59
10.8	27.2	-16.4	28	60
3 U	27.2	-24.2	28	61
0.38	27.2	-26.82	28	62
0.86	27.2	-26.34	28	63
8.4	27.2	-18.8	28	64
13.9	27.2	-13.3	28	65
0.67 J1c	27.2	-26.53	28	66
0.77 J1c	27.2	-26.43	28	67
0.55 J	27.2	-26.65	28	68

3 U	16.3	-13.3	28	69
17.7	16.3	1.4	29	69
24.6	16.3	8.3	30	69
63.7	16.3	47.4	31	69
3 U	16.3	-13.3	31	70
3 U	16.3	-13.3	31	71
44.4	16.3	28.1	32	71
44.7	16.3	28.4	33	71
10.8	16.3	-5.5	33	72
3 U	16.3	-13.3	33	73
0.38	16.3	-15.92	33	74
0.86	16.3	-15.44	33	75
8.4	16.3	-7.9	33	76
13.9	16.3	-2.4	33	77
0.67 J1c	16.3	-15.63	33	78
0.77 J1c	16.3	-15.53	33	79
0.55 J	16.3	-15.75	33	80
17.7	3 U	14.7	34	80
24.6	3 U	21.6	35	80
63.7	3 U	60.7	36	80
3 U	3 U	0	36	80
3 U	3 U	0	36	80
44.4	3 U	41.4	37	80
44.7	3 U	41.7	38	80
10.8	3 U	7.8	39	80
3 U	3 U	0	39	80
0.38	3 U	-2.62	39	81
0.86	3 U	-2.14	39	82
8.4	3 U	5.4	40	82
13.9	3 U	10.9	41	82
0.67 J1c	3 U	-2.33	41	83
0.77 J1c	3 U	-2.23	41	84
0.55 J	3 U	-2.45	41	85
24.6	17.7	6.9	42	85
63.7	17.7	46	43	85
3 U	17.7	-14.7	43	86
3 U	17.7	-14.7	43	87
44.4	17.7	26.7	44	87
44.7	17.7	27	45	87
10.8	17.7	-6.9	45	88
3 U	17.7	-14.7	45	89
0.38	17.7	-17.32	45	90
0.86	17.7	-16.84	45	91
8.4	17.7	-9.3	45	92
13.9	17.7	-3.8	45	93
0.67 J1c	17.7	-17.03	45	94
0.77 J1c	17.7	-16.93	45	95
0.55 J	17.7	-17.15	45	96
63.7	24.6	39.1	46	96
3 U	24.6	-21.6	46	97
3 U	24.6	-21.6	46	98
44.4	24.6	19.8	47	98
44.7	24.6	20.1	48	98

10.8	24.6	-13.8	48	99
3 U	24.6	-21.6	48	100
0.38	24.6	-24.22	48	101
0.86	24.6	-23.74	48	102
8.4	24.6	-16.2	48	103
13.9	24.6	-10.7	48	104
0.67 J1c	24.6	-23.93	48	105
0.77 J1c	24.6	-23.83	48	106
0.55 J	24.6	-24.05	48	107
3 U	63.7	-60.7	48	108
3 U	63.7	-60.7	48	109
44.4	63.7	-19.3	48	110
44.7	63.7	-19	48	111
10.8	63.7	-52.9	48	112
3 U	63.7	-60.7	48	113
0.38	63.7	-63.32	48	114
0.86	63.7	-62.84	48	115
8.4	63.7	-55.3	48	116
13.9	63.7	-49.8	48	117
0.67 J1c	63.7	-63.03	48	118
0.77 J1c	63.7	-62.93	48	119
0.55 J	63.7	-63.15	48	120
3 U	3 U	0	48	120
44.4	3 U	41.4	49	120
44.7	3 U	41.7	50	120
10.8	3 U	7.8	51	120
3 U	3 U	0	51	120
0.38	3 U	-2.62	51	121
0.86	3 U	-2.14	51	122
8.4	3 U	5.4	52	122
13.9	3 U	10.9	53	122
0.67 J1c	3 U	-2.33	53	123
0.77 J1c	3 U	-2.23	53	124
0.55 J	3 U	-2.45	53	125
44.4	3 U	41.4	54	125
44.7	3 U	41.7	55	125
10.8	3 U	7.8	56	125
3 U	3 U	0	56	125
0.38	3 U	-2.62	56	126
0.86	3 U	-2.14	56	127
8.4	3 U	5.4	57	127
13.9	3 U	10.9	58	127
0.67 J1c	3 U	-2.33	58	128
0.77 J1c	3 U	-2.23	58	129
0.55 J	3 U	-2.45	58	130
44.7	44.4	0.3	59	130
10.8	44.4	-33.6	59	131
3 U	44.4	-41.4	59	132
0.38	44.4	-44.02	59	133
0.86	44.4	-43.54	59	134
8.4	44.4	-36	59	135
13.9	44.4	-30.5	59	136
0.67 J1c	44.4	-43.73	59	137



0.77 J1c	44.4	-43.63	59	138
0.55 J	44.4	-43.85	59	139
10.8	44.7	-33.9	59	140
3 U	44.7	-41.7	59	141
0.38	44.7	-44.32	59	142
0.86	44.7	-43.84	59	143
8.4	44.7	-36.3	59	144
13.9	44.7	-30.8	59	145
0.67 J1c	44.7	-44.03	59	146
0.77 J1c	44.7	-43.93	59	147
0.55 J	44.7	-44.15	59	148
3 U	10.8	-7.8	59	149
0.38	10.8	-10.42	59	150
0.86	10.8	-9.94	59	151
8.4	10.8	-2.4	59	152
13.9	10.8	3.1	60	152
0.67 J1c	10.8	-10.13	60	153
0.77 J1c	10.8	-10.03	60	154
0.55 J	10.8	-10.25	60	155
0.38	3 U	-2.62	60	156
0.86	3 U	-2.14	60	157
8.4	3 U	5.4	61	157
13.9	3 U	10.9	62	157
0.67 J1c	3 U	-2.33	62	158
0.77 J1c	3 U	-2.23	62	159
0.55 J	3 U	-2.45	62	160
0.86	0.38	0.48	63	160
8.4	0.38	8.02	64	160
13.9	0.38	13.52	65	160
0.67 J1c	0.38	0.29	66	160
0.77 J1c	0.38	0.39	67	160
0.55 J	0.38	0.17	68	160
8.4	0.86	7.54	69	160
13.9	0.86	13.04	70	160
0.67 J1c	0.86	-0.19	70	161
0.77 J1c	0.86	-0.09	70	162
0.55 J	0.86	-0.31	70	163
13.9	8.4	5.5	71	163
0.67 J1c	8.4	-7.73	71	164
0.77 J1c	8.4	-7.63	71	165
0.55 J	8.4	-7.85	71	166
0.67 J1c	13.9	-13.23	71	167
0.77 J1c	13.9	-13.13	71	168
0.55 J	13.9	-13.35	71	169
0.77 J1c	0.67 J1c	0.1	72	169
0.55 J	0.67 J1c	-0.12	72	170
0.55 J	0.77 J1c	-0.22	72	171

S Statistic = 72 - 171 = -99

---

Tied Group	Value	Members
1	3	5

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
6/25/2020	1
9/22/2020	1
11/16/2020	1

There are 0 time periods with multiple data

---

A = 300

B = 0

C = 60

D = 0

E = 20

F = 0

a = 25806

b = 95634

c = 1012

Group Variance = 1417

Z-Score = -2.6034

Comparison Level at 95% confidence level = 1.65463 (upward trend)

-2.6034 <= 1.65463 indicating no evidence of an upward trend

# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW11-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
1490	1690	-200	0	1
1800	1690	110	1	1
2600	1690	910	2	1
218	1690	-1472	2	2
518	1690	-1172	2	3
163	1690	-1527	2	4
274	1690	-1416	2	5
125	1690	-1565	2	6
1460	1690	-230	2	7
1380	1690	-310	2	8
1400	1690	-290	2	9
1660	1690	-30	2	10
4.7	1690	-1685.3	2	11
133	1690	-1557	2	12
1160	1690	-530	2	13
98.9	1690	-1591.1	2	14
586	1690	-1104	2	15
517	1690	-1173	2	16
476	1690	-1214	2	17
365	1690	-1325	2	18
75.1	1690	-1614.9	2	19
179	1690	-1511	2	20
1800	1490	310	3	20
2600	1490	1110	4	20
218	1490	-1272	4	21
518	1490	-972	4	22
163	1490	-1327	4	23
274	1490	-1216	4	24
125	1490	-1365	4	25
1460	1490	-30	4	26
1380	1490	-110	4	27
1400	1490	-90	4	28
1660	1490	170	5	28
4.7	1490	-1485.3	5	29
133	1490	-1357	5	30
1160	1490	-330	5	31
98.9	1490	-1391.1	5	32
586	1490	-904	5	33
517	1490	-973	5	34
476	1490	-1014	5	35
365	1490	-1125	5	36
75.1	1490	-1414.9	5	37
179	1490	-1311	5	38
2600	1800	800	6	38
218	1800	-1582	6	39

518	1800	-1282	6	40
163	1800	-1637	6	41
274	1800	-1526	6	42
125	1800	-1675	6	43
1460	1800	-340	6	44
1380	1800	-420	6	45
1400	1800	-400	6	46
1660	1800	-140	6	47
4.7	1800	-1795.3	6	48
133	1800	-1667	6	49
1160	1800	-640	6	50
98.9	1800	-1701.1	6	51
586	1800	-1214	6	52
517	1800	-1283	6	53
476	1800	-1324	6	54
365	1800	-1435	6	55
75.1	1800	-1724.9	6	56
179	1800	-1621	6	57
218	2600	-2382	6	58
518	2600	-2082	6	59
163	2600	-2437	6	60
274	2600	-2326	6	61
125	2600	-2475	6	62
1460	2600	-1140	6	63
1380	2600	-1220	6	64
1400	2600	-1200	6	65
1660	2600	-940	6	66
4.7	2600	-2595.3	6	67
133	2600	-2467	6	68
1160	2600	-1440	6	69
98.9	2600	-2501.1	6	70
586	2600	-2014	6	71
517	2600	-2083	6	72
476	2600	-2124	6	73
365	2600	-2235	6	74
75.1	2600	-2524.9	6	75
179	2600	-2421	6	76
518	218	300	7	76
163	218	-55	7	77
274	218	56	8	77
125	218	-93	8	78
1460	218	1242	9	78
1380	218	1162	10	78
1400	218	1182	11	78
1660	218	1442	12	78
4.7	218	-213.3	12	79
133	218	-85	12	80
1160	218	942	13	80
98.9	218	-119.1	13	81
586	218	368	14	81
517	218	299	15	81
476	218	258	16	81
365	218	147	17	81
75.1	218	-142.9	17	82
179	218	-39	17	83

163	518	-355	17	84
274	518	-244	17	85
125	518	-393	17	86
1460	518	942	18	86
1380	518	862	19	86
1400	518	882	20	86
1660	518	1142	21	86
4.7	518	-513.3	21	87
133	518	-385	21	88
1160	518	642	22	88
98.9	518	-419.1	22	89
586	518	68	23	89
517	518	-1	23	90
476	518	-42	23	91
365	518	-153	23	92
75.1	518	-442.9	23	93
179	518	-339	23	94
274	163	111	24	94
125	163	-38	24	95
1460	163	1297	25	95
1380	163	1217	26	95
1400	163	1237	27	95
1660	163	1497	28	95
4.7	163	-158.3	28	96
133	163	-30	28	97
1160	163	997	29	97
98.9	163	-64.1	29	98
586	163	423	30	98
517	163	354	31	98
476	163	313	32	98
365	163	202	33	98
75.1	163	-87.9	33	99
179	163	16	34	99
125	274	-149	34	100
1460	274	1186	35	100
1380	274	1106	36	100
1400	274	1126	37	100
1660	274	1386	38	100
4.7	274	-269.3	38	101
133	274	-141	38	102
1160	274	886	39	102
98.9	274	-175.1	39	103
586	274	312	40	103
517	274	243	41	103
476	274	202	42	103
365	274	91	43	103
75.1	274	-198.9	43	104
179	274	-95	43	105
1460	125	1335	44	105
1380	125	1255	45	105
1400	125	1275	46	105
1660	125	1535	47	105
4.7	125	-120.3	47	106

133	125	8	48	106
1160	125	1035	49	106
98.9	125	-26.1	49	107
586	125	461	50	107
517	125	392	51	107
476	125	351	52	107
365	125	240	53	107
75.1	125	-49.9	53	108
179	125	54	54	108
1380	1460	-80	54	109
1400	1460	-60	54	110
1660	1460	200	55	110
4.7	1460	-1455.3	55	111
133	1460	-1327	55	112
1160	1460	-300	55	113
98.9	1460	-1361.1	55	114
586	1460	-874	55	115
517	1460	-943	55	116
476	1460	-984	55	117
365	1460	-1095	55	118
75.1	1460	-1384.9	55	119
179	1460	-1281	55	120
1400	1380	20	56	120
1660	1380	280	57	120
4.7	1380	-1375.3	57	121
133	1380	-1247	57	122
1160	1380	-220	57	123
98.9	1380	-1281.1	57	124
586	1380	-794	57	125
517	1380	-863	57	126
476	1380	-904	57	127
365	1380	-1015	57	128
75.1	1380	-1304.9	57	129
179	1380	-1201	57	130
1660	1400	260	58	130
4.7	1400	-1395.3	58	131
133	1400	-1267	58	132
1160	1400	-240	58	133
98.9	1400	-1301.1	58	134
586	1400	-814	58	135
517	1400	-883	58	136
476	1400	-924	58	137
365	1400	-1035	58	138
75.1	1400	-1324.9	58	139
179	1400	-1221	58	140
4.7	1660	-1655.3	58	141
133	1660	-1527	58	142
1160	1660	-500	58	143
98.9	1660	-1561.1	58	144
586	1660	-1074	58	145
517	1660	-1143	58	146
476	1660	-1184	58	147
365	1660	-1295	58	148

75.1	1660	-1584.9	58	149
179	1660	-1481	58	150
133	4.7	128.3	59	150
1160	4.7	1155.3	60	150
98.9	4.7	94.2	61	150
586	4.7	581.3	62	150
517	4.7	512.3	63	150
476	4.7	471.3	64	150
365	4.7	360.3	65	150
75.1	4.7	70.4	66	150
179	4.7	174.3	67	150
1160	133	1027	68	150
98.9	133	-34.1	68	151
586	133	453	69	151
517	133	384	70	151
476	133	343	71	151
365	133	232	72	151
75.1	133	-57.9	72	152
179	133	46	73	152
98.9	1160	-1061.1	73	153
586	1160	-574	73	154
517	1160	-643	73	155
476	1160	-684	73	156
365	1160	-795	73	157
75.1	1160	-1084.9	73	158
179	1160	-981	73	159
586	98.9	487.1	74	159
517	98.9	418.1	75	159
476	98.9	377.1	76	159
365	98.9	266.1	77	159
75.1	98.9	-23.8	77	160
179	98.9	80.1	78	160
517	586	-69	78	161
476	586	-110	78	162
365	586	-221	78	163
75.1	586	-510.9	78	164
179	586	-407	78	165
476	517	-41	78	166
365	517	-152	78	167
75.1	517	-441.9	78	168
179	517	-338	78	169
365	476	-111	78	170
75.1	476	-400.9	78	171
179	476	-297	78	172
75.1	365	-289.9	78	173
179	365	-186	78	174
179	75.1	103.9	79	174

S Statistic = 79 - 174 = -95

---

Tied Group	Value	Members
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1
6/1/2019		1
9/1/2019		1
12/1/2019		1
3/13/2020		1
6/11/2020		1
11/16/2020		1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 25806

b = 95634

c = 1012

Group Variance = 1433.67

Z-Score = -2.48258

Comparison Level at 95% confidence level = 1.65463 (upward trend)

-2.48258 <= 1.65463 indicating no evidence of an upward trend



## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW12-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
3530	4740	-1210	0	1
2730	4740	-2010	0	2
3820	4740	-920	0	3
2260	4740	-2480	0	4
2730	4740	-2010	0	5
2220	4740	-2520	0	6
1820	4740	-2920	0	7
1510	4740	-3230	0	8
1380	4740	-3360	0	9
1450	4740	-3290	0	10
1270	4740	-3470	0	11
121	4740	-4619	0	12
134	4740	-4606	0	13
86.3	4740	-4653.7	0	14
1220	4740	-3520	0	15
768	4740	-3972	0	16
1520	4740	-3220	0	17
1780	4740	-2960	0	18
420	4740	-4320	0	19
716	4740	-4024	0	20
2730	3530	-800	0	21
3820	3530	290	1	21
2260	3530	-1270	1	22
2730	3530	-800	1	23
2220	3530	-1310	1	24
1820	3530	-1710	1	25
1510	3530	-2020	1	26
1380	3530	-2150	1	27
1450	3530	-2080	1	28
1270	3530	-2260	1	29
121	3530	-3409	1	30
134	3530	-3396	1	31
86.3	3530	-3443.7	1	32
1220	3530	-2310	1	33
768	3530	-2762	1	34
1520	3530	-2010	1	35
1780	3530	-1750	1	36
420	3530	-3110	1	37
716	3530	-2814	1	38
3820	2730	1090	2	38
2260	2730	-470	2	39
2730	2730	0	2	39
2220	2730	-510	2	40
1820	2730	-910	2	41
1510	2730	-1220	2	42

1380	2730	-1350	2	43
1450	2730	-1280	2	44
1270	2730	-1460	2	45
121	2730	-2609	2	46
134	2730	-2596	2	47
86.3	2730	-2643.7	2	48
1220	2730	-1510	2	49
768	2730	-1962	2	50
1520	2730	-1210	2	51
1780	2730	-950	2	52
420	2730	-2310	2	53
716	2730	-2014	2	54
2260	3820	-1560	2	55
2730	3820	-1090	2	56
2220	3820	-1600	2	57
1820	3820	-2000	2	58
1510	3820	-2310	2	59
1380	3820	-2440	2	60
1450	3820	-2370	2	61
1270	3820	-2550	2	62
121	3820	-3699	2	63
134	3820	-3686	2	64
86.3	3820	-3733.7	2	65
1220	3820	-2600	2	66
768	3820	-3052	2	67
1520	3820	-2300	2	68
1780	3820	-2040	2	69
420	3820	-3400	2	70
716	3820	-3104	2	71
2730	2260	470	3	71
2220	2260	-40	3	72
1820	2260	-440	3	73
1510	2260	-750	3	74
1380	2260	-880	3	75
1450	2260	-810	3	76
1270	2260	-990	3	77
121	2260	-2139	3	78
134	2260	-2126	3	79
86.3	2260	-2173.7	3	80
1220	2260	-1040	3	81
768	2260	-1492	3	82
1520	2260	-740	3	83
1780	2260	-480	3	84
420	2260	-1840	3	85
716	2260	-1544	3	86
2220	2730	-510	3	87
1820	2730	-910	3	88
1510	2730	-1220	3	89
1380	2730	-1350	3	90
1450	2730	-1280	3	91
1270	2730	-1460	3	92
121	2730	-2609	3	93
134	2730	-2596	3	94
86.3	2730	-2643.7	3	95

1220	2730	-1510	3	96
768	2730	-1962	3	97
1520	2730	-1210	3	98
1780	2730	-950	3	99
420	2730	-2310	3	100
716	2730	-2014	3	101
1820	2220	-400	3	102
1510	2220	-710	3	103
1380	2220	-840	3	104
1450	2220	-770	3	105
1270	2220	-950	3	106
121	2220	-2099	3	107
134	2220	-2086	3	108
86.3	2220	-2133.7	3	109
1220	2220	-1000	3	110
768	2220	-1452	3	111
1520	2220	-700	3	112
1780	2220	-440	3	113
420	2220	-1800	3	114
716	2220	-1504	3	115
1510	1820	-310	3	116
1380	1820	-440	3	117
1450	1820	-370	3	118
1270	1820	-550	3	119
121	1820	-1699	3	120
134	1820	-1686	3	121
86.3	1820	-1733.7	3	122
1220	1820	-600	3	123
768	1820	-1052	3	124
1520	1820	-300	3	125
1780	1820	-40	3	126
420	1820	-1400	3	127
716	1820	-1104	3	128
1380	1510	-130	3	129
1450	1510	-60	3	130
1270	1510	-240	3	131
121	1510	-1389	3	132
134	1510	-1376	3	133
86.3	1510	-1423.7	3	134
1220	1510	-290	3	135
768	1510	-742	3	136
1520	1510	10	4	136
1780	1510	270	5	136
420	1510	-1090	5	137
716	1510	-794	5	138
1450	1380	70	6	138
1270	1380	-110	6	139
121	1380	-1259	6	140
134	1380	-1246	6	141
86.3	1380	-1293.7	6	142
1220	1380	-160	6	143
768	1380	-612	6	144
1520	1380	140	7	144

1780	1380	400	8	144
420	1380	-960	8	145
716	1380	-664	8	146
1270	1450	-180	8	147
121	1450	-1329	8	148
134	1450	-1316	8	149
86.3	1450	-1363.7	8	150
1220	1450	-230	8	151
768	1450	-682	8	152
1520	1450	70	9	152
1780	1450	330	10	152
420	1450	-1030	10	153
716	1450	-734	10	154
121	1270	-1149	10	155
134	1270	-1136	10	156
86.3	1270	-1183.7	10	157
1220	1270	-50	10	158
768	1270	-502	10	159
1520	1270	250	11	159
1780	1270	510	12	159
420	1270	-850	12	160
716	1270	-554	12	161
134	121	13	13	161
86.3	121	-34.7	13	162
1220	121	1099	14	162
768	121	647	15	162
1520	121	1399	16	162
1780	121	1659	17	162
420	121	299	18	162
716	121	595	19	162
86.3	134	-47.7	19	163
1220	134	1086	20	163
768	134	634	21	163
1520	134	1386	22	163
1780	134	1646	23	163
420	134	286	24	163
716	134	582	25	163
1220	86.3	1133.7	26	163
768	86.3	681.7	27	163
1520	86.3	1433.7	28	163
1780	86.3	1693.7	29	163
420	86.3	333.7	30	163
716	86.3	629.7	31	163
768	1220	-452	31	164
1520	1220	300	32	164
1780	1220	560	33	164
420	1220	-800	33	165
716	1220	-504	33	166
1520	768	752	34	166
1780	768	1012	35	166

420	768	-348	35	167
716	768	-52	35	168
1780	1520	260	36	168
420	1520	-1100	36	169
716	1520	-804	36	170
420	1780	-1360	36	171
716	1780	-1064	36	172
716	420	296	37	172

S Statistic = 37 - 172 = -135

---

Tied Group	Value	Members
1	2730	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
6/30/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 19740

b = 71820

c = 840

Group Variance = 1095.67

Z-Score = -4.04823

Comparison Level at 95% confidence level = 1.65463 (upward trend)

-4.04823 <= 1.65463 indicating no evidence of an upward trend

# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW13-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
66	31800	-31734	0	1
28700	31800	-3100	0	2
24500	31800	-7300	0	3
44.2	31800	-31755.8	0	4
1240	31800	-30560	0	5
19400	31800	-12400	0	6
21000	31800	-10800	0	7
12.6	31800	-31787.4	0	8
3.2	31800	-31796.8	0	9
29200	31800	-2600	0	10
51.1	31800	-31748.9	0	11
12.8	31800	-31787.2	0	12
22500	31800	-9300	0	13
24700	31800	-7100	0	14
15.4	31800	-31784.6	0	15
23900 ML	31800	-7900	0	16
6.1	31800	-31793.9	0	17
28700	66	28634	1	17
24500	66	24434	2	17
44.2	66	-21.8	2	18
1240	66	1174	3	18
19400	66	19334	4	18
21000	66	20934	5	18
12.6	66	-53.4	5	19
3.2	66	-62.8	5	20
29200	66	29134	6	20
51.1	66	-14.9	6	21
12.8	66	-53.2	6	22
22500	66	22434	7	22
24700	66	24634	8	22
15.4	66	-50.6	8	23
23900 ML	66	23834	9	23
6.1	66	-59.9	9	24
24500	28700	-4200	9	25
44.2	28700	-28655.8	9	26
1240	28700	-27460	9	27
19400	28700	-9300	9	28
21000	28700	-7700	9	29
12.6	28700	-28687.4	9	30
3.2	28700	-28696.8	9	31
29200	28700	500	10	31
51.1	28700	-28648.9	10	32
12.8	28700	-28687.2	10	33
22500	28700	-6200	10	34
24700	28700	-4000	10	35

15.4	28700	-28684.6	10	36
23900 ML	28700	-4800	10	37
6.1	28700	-28693.9	10	38
44.2	24500	-24455.8	10	39
1240	24500	-23260	10	40
19400	24500	-5100	10	41
21000	24500	-3500	10	42
12.6	24500	-24487.4	10	43
3.2	24500	-24496.8	10	44
29200	24500	4700	11	44
51.1	24500	-24448.9	11	45
12.8	24500	-24487.2	11	46
22500	24500	-2000	11	47
24700	24500	200	12	47
15.4	24500	-24484.6	12	48
23900 ML	24500	-600	12	49
6.1	24500	-24493.9	12	50
1240	44.2	1195.8	13	50
19400	44.2	19355.8	14	50
21000	44.2	20955.8	15	50
12.6	44.2	-31.6	15	51
3.2	44.2	-41	15	52
29200	44.2	29155.8	16	52
51.1	44.2	6.9	17	52
12.8	44.2	-31.4	17	53
22500	44.2	22455.8	18	53
24700	44.2	24655.8	19	53
15.4	44.2	-28.8	19	54
23900 ML	44.2	23855.8	20	54
6.1	44.2	-38.1	20	55
19400	1240	18160	21	55
21000	1240	19760	22	55
12.6	1240	-1227.4	22	56
3.2	1240	-1236.8	22	57
29200	1240	27960	23	57
51.1	1240	-1188.9	23	58
12.8	1240	-1227.2	23	59
22500	1240	21260	24	59
24700	1240	23460	25	59
15.4	1240	-1224.6	25	60
23900 ML	1240	22660	26	60
6.1	1240	-1233.9	26	61
21000	19400	1600	27	61
12.6	19400	-19387.4	27	62
3.2	19400	-19396.8	27	63
29200	19400	9800	28	63
51.1	19400	-19348.9	28	64
12.8	19400	-19387.2	28	65
22500	19400	3100	29	65
24700	19400	5300	30	65
15.4	19400	-19384.6	30	66
23900 ML	19400	4500	31	66
6.1	19400	-19393.9	31	67

12.6	21000	-20987.4	31	68
3.2	21000	-20996.8	31	69
29200	21000	8200	32	69
51.1	21000	-20948.9	32	70
12.8	21000	-20987.2	32	71
22500	21000	1500	33	71
24700	21000	3700	34	71
15.4	21000	-20984.6	34	72
23900 ML	21000	2900	35	72
6.1	21000	-20993.9	35	73
3.2	12.6	-9.4	35	74
29200	12.6	29187.4	36	74
51.1	12.6	38.5	37	74
12.8	12.6	0.2	38	74
22500	12.6	22487.4	39	74
24700	12.6	24687.4	40	74
15.4	12.6	2.8	41	74
23900 ML	12.6	23887.4	42	74
6.1	12.6	-6.5	42	75
29200	3.2	29196.8	43	75
51.1	3.2	47.9	44	75
12.8	3.2	9.6	45	75
22500	3.2	22496.8	46	75
24700	3.2	24696.8	47	75
15.4	3.2	12.2	48	75
23900 ML	3.2	23896.8	49	75
6.1	3.2	2.9	50	75
51.1	29200	-29148.9	50	76
12.8	29200	-29187.2	50	77
22500	29200	-6700	50	78
24700	29200	-4500	50	79
15.4	29200	-29184.6	50	80
23900 ML	29200	-5300	50	81
6.1	29200	-29193.9	50	82
12.8	51.1	-38.3	50	83
22500	51.1	22448.9	51	83
24700	51.1	24648.9	52	83
15.4	51.1	-35.7	52	84
23900 ML	51.1	23848.9	53	84
6.1	51.1	-45	53	85
22500	12.8	22487.2	54	85
24700	12.8	24687.2	55	85
15.4	12.8	2.6	56	85
23900 ML	12.8	23887.2	57	85
6.1	12.8	-6.7	57	86
24700	22500	2200	58	86
15.4	22500	-22484.6	58	87
23900 ML	22500	1400	59	87
6.1	22500	-22493.9	59	88



15.4	24700	-24684.6	59	89
23900 ML	24700	-800	59	90
6.1	24700	-24693.9	59	91
23900 ML	15.4	23884.6	60	91
6.1	15.4	-9.3	60	92
6.1	23900 ML	-23893.9	60	93

S Statistic = 60 - 93 = -33

---

Tied Group	Value	Members
------------	-------	---------

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/20/2020	1
6/15/2020	1
9/17/2020	1
11/10/2020	1

There are 0 time periods with multiple data

---

A = 0  
B = 0  
C = 0  
D = 0  
E = 0  
F = 0  
a = 12546  
b = 44064  
c = 612  
Group Variance = 697  
Z-Score = -1.21209  
Comparison Level at 95% confidence level = 1.65463 (upward trend)  
-1.21209 <= 1.65463 indicating no evidence of an upward trend

# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW15-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
3 U	10.1	-7.1	0	1
3 U	10.1	-7.1	0	2
3 U	10.1	-7.1	0	3
0.97	10.1	-9.13	0	4
1.6	10.1	-8.5	0	5
3 U	10.1	-7.1	0	6
15.3	10.1	5.2	1	6
3 U	10.1	-7.1	1	7
12.9	10.1	2.8	2	7
402	10.1	391.9	3	7
64.2	10.1	54.1	4	7
589	10.1	578.9	5	7
605	10.1	594.9	6	7
0.5 J	10.1	-9.6	6	8
ND<1.5 U	10.1	-8.6	6	9
8	10.1	-2.1	6	10
0.91 J	10.1	-9.19	6	11
3 U	3 U	0	6	11
3 U	3 U	0	6	11
0.97	3 U	-2.03	6	12
1.6	3 U	-1.4	6	13
3 U	3 U	0	6	13
15.3	3 U	12.3	7	13
3 U	3 U	0	7	13
12.9	3 U	9.9	8	13
402	3 U	399	9	13
64.2	3 U	61.2	10	13
589	3 U	586	11	13
605	3 U	602	12	13
0.5 J	3 U	-2.5	12	14
ND<1.5 U	3 U	-1.5	12	15
8	3 U	5	13	15
0.91 J	3 U	-2.09	13	16
3 U	3 U	0	13	16
0.97	3 U	-2.03	13	17
1.6	3 U	-1.4	13	18
3 U	3 U	0	13	18
15.3	3 U	12.3	14	18
3 U	3 U	0	14	18
12.9	3 U	9.9	15	18
402	3 U	399	16	18
64.2	3 U	61.2	17	18
589	3 U	586	18	18
605	3 U	602	19	18
0.5 J	3 U	-2.5	19	19

ND<1.5 U	3 U	-1.5	19	20
8	3 U	5	20	20
0.91 J	3 U	-2.09	20	21
0.97	3 U	-2.03	20	22
1.6	3 U	-1.4	20	23
3 U	3 U	0	20	23
15.3	3 U	12.3	21	23
3 U	3 U	0	21	23
12.9	3 U	9.9	22	23
402	3 U	399	23	23
64.2	3 U	61.2	24	23
589	3 U	586	25	23
605	3 U	602	26	23
0.5 J	3 U	-2.5	26	24
ND<1.5 U	3 U	-1.5	26	25
8	3 U	5	27	25
0.91 J	3 U	-2.09	27	26
1.6	0.97	0.63	28	26
3 U	0.97	2.03	29	26
15.3	0.97	14.33	30	26
3 U	0.97	2.03	31	26
12.9	0.97	11.93	32	26
402	0.97	401.03	33	26
64.2	0.97	63.23	34	26
589	0.97	588.03	35	26
605	0.97	604.03	36	26
0.5 J	0.97	-0.47	36	27
ND<1.5 U	0.97	0.53	37	27
8	0.97	7.03	38	27
0.91 J	0.97	-0.06	38	28
3 U	1.6	1.4	39	28
15.3	1.6	13.7	40	28
3 U	1.6	1.4	41	28
12.9	1.6	11.3	42	28
402	1.6	400.4	43	28
64.2	1.6	62.6	44	28
589	1.6	587.4	45	28
605	1.6	603.4	46	28
0.5 J	1.6	-1.1	46	29
ND<1.5 U	1.6	-0.1	46	30
8	1.6	6.4	47	30
0.91 J	1.6	-0.69	47	31
15.3	3 U	12.3	48	31
3 U	3 U	0	48	31
12.9	3 U	9.9	49	31
402	3 U	399	50	31
64.2	3 U	61.2	51	31
589	3 U	586	52	31
605	3 U	602	53	31
0.5 J	3 U	-2.5	53	32
ND<1.5 U	3 U	-1.5	53	33
8	3 U	5	54	33
0.91 J	3 U	-2.09	54	34

3 U	15.3	-12.3	54	35
12.9	15.3	-2.4	54	36
402	15.3	386.7	55	36
64.2	15.3	48.9	56	36
589	15.3	573.7	57	36
605	15.3	589.7	58	36
0.5 J	15.3	-14.8	58	37
ND<1.5 U	15.3	-13.8	58	38
8	15.3	-7.3	58	39
0.91 J	15.3	-14.39	58	40
12.9	3 U	9.9	59	40
402	3 U	399	60	40
64.2	3 U	61.2	61	40
589	3 U	586	62	40
605	3 U	602	63	40
0.5 J	3 U	-2.5	63	41
ND<1.5 U	3 U	-1.5	63	42
8	3 U	5	64	42
0.91 J	3 U	-2.09	64	43
402	12.9	389.1	65	43
64.2	12.9	51.3	66	43
589	12.9	576.1	67	43
605	12.9	592.1	68	43
0.5 J	12.9	-12.4	68	44
ND<1.5 U	12.9	-11.4	68	45
8	12.9	-4.9	68	46
0.91 J	12.9	-11.99	68	47
64.2	402	-337.8	68	48
589	402	187	69	48
605	402	203	70	48
0.5 J	402	-401.5	70	49
ND<1.5 U	402	-400.5	70	50
8	402	-394	70	51
0.91 J	402	-401.09	70	52
589	64.2	524.8	71	52
605	64.2	540.8	72	52
0.5 J	64.2	-63.7	72	53
ND<1.5 U	64.2	-62.7	72	54
8	64.2	-56.2	72	55
0.91 J	64.2	-63.29	72	56
605	589	16	73	56
0.5 J	589	-588.5	73	57
ND<1.5 U	589	-587.5	73	58
8	589	-581	73	59
0.91 J	589	-588.09	73	60
0.5 J	605	-604.5	73	61
ND<1.5 U	605	-603.5	73	62
8	605	-597	73	63
0.91 J	605	-604.09	73	64

ND<1.5 U	0.5 J	1	74	64
8	0.5 J	7.5	75	64
0.91 J	0.5 J	0.41	76	64
8	ND<1.5 U	6.5	77	64
0.91 J	ND<1.5 U	-0.59	77	65
0.91 J	8	-7.09	77	66

S Statistic = 77 - 66 = 11

---

Tied Group	Value	Members
1	3	5

---

Time Period	Observations
-------------	--------------

8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/16/2020	1
6/11/2020	1
9/16/2020	1
11/9/2020	1

There are 0 time periods with multiple data

---

A = 300

B = 0

C = 60

D = 0

E = 20

F = 0

a = 12546

b = 44064

c = 612

Group Variance = 680.333

Z-Score = 0.383389

Comparison Level at 95% confidence level = 1.65463 (upward trend)

0.383389 <= 1.65463 indicating no evidence of an upward trend

# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW16-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
28.6	12.1	16.5	1	0
194	12.1	181.9	2	0
73.9	12.1	61.8	3	0
1.7	12.1	-10.4	3	1
3 U	12.1	-9.1	3	2
3 U	12.1	-9.1	3	3
1.9	12.1	-10.2	3	4
1.2	12.1	-10.9	3	5
1.1	12.1	-11	3	6
3 U	12.1	-9.1	3	7
3 U	12.1	-9.1	3	8
3 U	12.1	-9.1	3	9
3 U	12.1	-9.1	3	10
3 U	12.1	-9.1	3	11
3 U	12.1	-9.1	3	12
0.36	12.1	-11.74	3	13
0.36 J	12.1	-11.74	3	14
ND<1.5 U	12.1	-10.6	3	15
ND<1.5 U	12.1	-10.6	3	16
ND<1.5 U	12.1	-10.6	3	17
194	28.6	165.4	4	17
73.9	28.6	45.3	5	17
1.7	28.6	-26.9	5	18
3 U	28.6	-25.6	5	19
3 U	28.6	-25.6	5	20
1.9	28.6	-26.7	5	21
1.2	28.6	-27.4	5	22
1.1	28.6	-27.5	5	23
3 U	28.6	-25.6	5	24
3 U	28.6	-25.6	5	25
3 U	28.6	-25.6	5	26
3 U	28.6	-25.6	5	27
3 U	28.6	-25.6	5	28
3 U	28.6	-25.6	5	29
0.36	28.6	-28.24	5	30
0.36 J	28.6	-28.24	5	31
ND<1.5 U	28.6	-27.1	5	32
ND<1.5 U	28.6	-27.1	5	33
ND<1.5 U	28.6	-27.1	5	34
73.9	194	-120.1	5	35
1.7	194	-192.3	5	36
3 U	194	-191	5	37
3 U	194	-191	5	38
1.9	194	-192.1	5	39
1.2	194	-192.8	5	40

1.1	194	-192.9	5	41
3 U	194	-191	5	42
3 U	194	-191	5	43
3 U	194	-191	5	44
3 U	194	-191	5	45
3 U	194	-191	5	46
3 U	194	-191	5	47
0.36	194	-193.64	5	48
0.36 J	194	-193.64	5	49
ND<1.5 U	194	-192.5	5	50
ND<1.5 U	194	-192.5	5	51
ND<1.5 U	194	-192.5	5	52
1.7	73.9	-72.2	5	53
3 U	73.9	-70.9	5	54
3 U	73.9	-70.9	5	55
1.9	73.9	-72	5	56
1.2	73.9	-72.7	5	57
1.1	73.9	-72.8	5	58
3 U	73.9	-70.9	5	59
3 U	73.9	-70.9	5	60
3 U	73.9	-70.9	5	61
3 U	73.9	-70.9	5	62
3 U	73.9	-70.9	5	63
3 U	73.9	-70.9	5	64
0.36	73.9	-73.54	5	65
0.36 J	73.9	-73.54	5	66
ND<1.5 U	73.9	-72.4	5	67
ND<1.5 U	73.9	-72.4	5	68
ND<1.5 U	73.9	-72.4	5	69
3 U	1.7	1.3	6	69
3 U	1.7	1.3	7	69
1.9	1.7	0.2	8	69
1.2	1.7	-0.5	8	70
1.1	1.7	-0.6	8	71
3 U	1.7	1.3	9	71
3 U	1.7	1.3	10	71
3 U	1.7	1.3	11	71
3 U	1.7	1.3	12	71
3 U	1.7	1.3	13	71
3 U	1.7	1.3	14	71
0.36	1.7	-1.34	14	72
0.36 J	1.7	-1.34	14	73
ND<1.5 U	1.7	-0.2	14	74
ND<1.5 U	1.7	-0.2	14	75
ND<1.5 U	1.7	-0.2	14	76
3 U	3 U	0	14	76
1.9	3 U	-1.1	14	77
1.2	3 U	-1.8	14	78
1.1	3 U	-1.9	14	79
3 U	3 U	0	14	79
3 U	3 U	0	14	79
3 U	3 U	0	14	79
3 U	3 U	0	14	79
3 U	3 U	0	14	79

3 U	3 U	0	14	79
0.36	3 U	-2.64	14	80
0.36 J	3 U	-2.64	14	81
ND<1.5 U	3 U	-1.5	14	82
ND<1.5 U	3 U	-1.5	14	83
ND<1.5 U	3 U	-1.5	14	84
1.9	3 U	-1.1	14	85
1.2	3 U	-1.8	14	86
1.1	3 U	-1.9	14	87
3 U	3 U	0	14	87
3 U	3 U	0	14	87
3 U	3 U	0	14	87
3 U	3 U	0	14	87
3 U	3 U	0	14	87
3 U	3 U	0	14	87
0.36	3 U	-2.64	14	88
0.36 J	3 U	-2.64	14	89
ND<1.5 U	3 U	-1.5	14	90
ND<1.5 U	3 U	-1.5	14	91
ND<1.5 U	3 U	-1.5	14	92
1.2	1.9	-0.7	14	93
1.1	1.9	-0.8	14	94
3 U	1.9	1.1	15	94
3 U	1.9	1.1	16	94
3 U	1.9	1.1	17	94
3 U	1.9	1.1	18	94
3 U	1.9	1.1	19	94
3 U	1.9	1.1	20	94
0.36	1.9	-1.54	20	95
0.36 J	1.9	-1.54	20	96
ND<1.5 U	1.9	-0.4	20	97
ND<1.5 U	1.9	-0.4	20	98
ND<1.5 U	1.9	-0.4	20	99
1.1	1.2	-0.1	20	100
3 U	1.2	1.8	21	100
3 U	1.2	1.8	22	100
3 U	1.2	1.8	23	100
3 U	1.2	1.8	24	100
3 U	1.2	1.8	25	100
3 U	1.2	1.8	26	100
0.36	1.2	-0.84	26	101
0.36 J	1.2	-0.84	26	102
ND<1.5 U	1.2	0.3	27	102
ND<1.5 U	1.2	0.3	28	102
ND<1.5 U	1.2	0.3	29	102
3 U	1.1	1.9	30	102
3 U	1.1	1.9	31	102
3 U	1.1	1.9	32	102
3 U	1.1	1.9	33	102
3 U	1.1	1.9	34	102
3 U	1.1	1.9	35	102
0.36	1.1	-0.74	35	103
0.36 J	1.1	-0.74	35	104



ND<1.5 U	1.1	0.4	36	104
ND<1.5 U	1.1	0.4	37	104
ND<1.5 U	1.1	0.4	38	104
3 U	3 U	0	38	104
3 U	3 U	0	38	104
3 U	3 U	0	38	104
3 U	3 U	0	38	104
3 U	3 U	0	38	104
0.36	3 U	-2.64	38	105
0.36 J	3 U	-2.64	38	106
ND<1.5 U	3 U	-1.5	38	107
ND<1.5 U	3 U	-1.5	38	108
ND<1.5 U	3 U	-1.5	38	109
3 U	3 U	0	38	109
3 U	3 U	0	38	109
3 U	3 U	0	38	109
3 U	3 U	0	38	109
0.36	3 U	-2.64	38	110
0.36 J	3 U	-2.64	38	111
ND<1.5 U	3 U	-1.5	38	112
ND<1.5 U	3 U	-1.5	38	113
ND<1.5 U	3 U	-1.5	38	114
3 U	3 U	0	38	114
3 U	3 U	0	38	114
3 U	3 U	0	38	114
0.36	3 U	-2.64	38	115
0.36 J	3 U	-2.64	38	116
ND<1.5 U	3 U	-1.5	38	117
ND<1.5 U	3 U	-1.5	38	118
ND<1.5 U	3 U	-1.5	38	119
3 U	3 U	0	38	119
3 U	3 U	0	38	119
0.36	3 U	-2.64	38	120
0.36 J	3 U	-2.64	38	121
ND<1.5 U	3 U	-1.5	38	122
ND<1.5 U	3 U	-1.5	38	123
ND<1.5 U	3 U	-1.5	38	124
3 U	3 U	0	38	124
0.36	3 U	-2.64	38	125
0.36 J	3 U	-2.64	38	126
ND<1.5 U	3 U	-1.5	38	127
ND<1.5 U	3 U	-1.5	38	128
ND<1.5 U	3 U	-1.5	38	129
0.36	3 U	-2.64	38	130
0.36 J	3 U	-2.64	38	131
ND<1.5 U	3 U	-1.5	38	132
ND<1.5 U	3 U	-1.5	38	133
ND<1.5 U	3 U	-1.5	38	134
0.36 J	0.36	0	38	134
ND<1.5 U	0.36	1.14	39	134

ND<1.5 U	0.36	1.14	40	134
ND<1.5 U	0.36	1.14	41	134
ND<1.5 U	0.36 J	1.14	42	134
ND<1.5 U	0.36 J	1.14	43	134
ND<1.5 U	0.36 J	1.14	44	134
ND<1.5 U	ND<1.5 U	0	44	134
ND<1.5 U	ND<1.5 U	0	44	134
ND<1.5 U	ND<1.5 U	0	44	134

S Statistic = 44 - 134 = -90

---

Tied Group	Value	Members
1	3	8
2	0.36	2
3	1.5	3

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/13/2020	1
6/18/2020	1
9/17/2020	1
11/9/2020	1

There are 0 time periods with multiple data

---

A = 1260

B = 0

C = 342

D = 0

E = 64

F = 0

a = 19740

b = 71820

c = 840

Group Variance = 1026.67

Z-Score = -2.77764

Comparison Level at 95% confidence level = 1.65463 (upward trend)

-2.77764 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW18-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
63.8	70.3	-6.5	0	1
119	70.3	48.7	1	1
92	70.3	21.7	2	1
65.1	70.3	-5.2	2	2
61.7	70.3	-8.6	2	3
74.4	70.3	4.1	3	3
72.2	70.3	1.9	4	3
43.7	70.3	-26.6	4	4
66.6	70.3	-3.7	4	5
51.5	70.3	-18.8	4	6
63.5	70.3	-6.8	4	7
55.8	70.3	-14.5	4	8
35.1	70.3	-35.2	4	9
14.5	70.3	-55.8	4	10
44.7	70.3	-25.6	4	11
80.3	70.3	10	5	11
38	70.3	-32.3	5	12
50.4	70.3	-19.9	5	13
87.6	70.3	17.3	6	13
36.8	70.3	-33.5	6	14
16	70.3	-54.3	6	15
43.1	70.3	-27.2	6	16
42.1	70.3	-28.2	6	17
119	63.8	55.2	7	17
92	63.8	28.2	8	17
65.1	63.8	1.3	9	17
61.7	63.8	-2.1	9	18
74.4	63.8	10.6	10	18
72.2	63.8	8.4	11	18
43.7	63.8	-20.1	11	19
66.6	63.8	2.8	12	19
51.5	63.8	-12.3	12	20
63.5	63.8	-0.3	12	21
55.8	63.8	-8	12	22
35.1	63.8	-28.7	12	23
14.5	63.8	-49.3	12	24
44.7	63.8	-19.1	12	25
80.3	63.8	16.5	13	25
38	63.8	-25.8	13	26
50.4	63.8	-13.4	13	27
87.6	63.8	23.8	14	27
36.8	63.8	-27	14	28
16	63.8	-47.8	14	29
43.1	63.8	-20.7	14	30
42.1	63.8	-21.7	14	31

92	119	-27	14	32
65.1	119	-53.9	14	33
61.7	119	-57.3	14	34
74.4	119	-44.6	14	35
72.2	119	-46.8	14	36
43.7	119	-75.3	14	37
66.6	119	-52.4	14	38
51.5	119	-67.5	14	39
63.5	119	-55.5	14	40
55.8	119	-63.2	14	41
35.1	119	-83.9	14	42
14.5	119	-104.5	14	43
44.7	119	-74.3	14	44
80.3	119	-38.7	14	45
38	119	-81	14	46
50.4	119	-68.6	14	47
87.6	119	-31.4	14	48
36.8	119	-82.2	14	49
16	119	-103	14	50
43.1	119	-75.9	14	51
42.1	119	-76.9	14	52
65.1	92	-26.9	14	53
61.7	92	-30.3	14	54
74.4	92	-17.6	14	55
72.2	92	-19.8	14	56
43.7	92	-48.3	14	57
66.6	92	-25.4	14	58
51.5	92	-40.5	14	59
63.5	92	-28.5	14	60
55.8	92	-36.2	14	61
35.1	92	-56.9	14	62
14.5	92	-77.5	14	63
44.7	92	-47.3	14	64
80.3	92	-11.7	14	65
38	92	-54	14	66
50.4	92	-41.6	14	67
87.6	92	-4.4	14	68
36.8	92	-55.2	14	69
16	92	-76	14	70
43.1	92	-48.9	14	71
42.1	92	-49.9	14	72
61.7	65.1	-3.4	14	73
74.4	65.1	9.3	15	73
72.2	65.1	7.1	16	73
43.7	65.1	-21.4	16	74
66.6	65.1	1.5	17	74
51.5	65.1	-13.6	17	75
63.5	65.1	-1.6	17	76
55.8	65.1	-9.3	17	77
35.1	65.1	-30	17	78
14.5	65.1	-50.6	17	79
44.7	65.1	-20.4	17	80
80.3	65.1	15.2	18	80
38	65.1	-27.1	18	81
50.4	65.1	-14.7	18	82

87.6	65.1	22.5	19	82
36.8	65.1	-28.3	19	83
16	65.1	-49.1	19	84
43.1	65.1	-22	19	85
42.1	65.1	-23	19	86
74.4	61.7	12.7	20	86
72.2	61.7	10.5	21	86
43.7	61.7	-18	21	87
66.6	61.7	4.9	22	87
51.5	61.7	-10.2	22	88
63.5	61.7	1.8	23	88
55.8	61.7	-5.9	23	89
35.1	61.7	-26.6	23	90
14.5	61.7	-47.2	23	91
44.7	61.7	-17	23	92
80.3	61.7	18.6	24	92
38	61.7	-23.7	24	93
50.4	61.7	-11.3	24	94
87.6	61.7	25.9	25	94
36.8	61.7	-24.9	25	95
16	61.7	-45.7	25	96
43.1	61.7	-18.6	25	97
42.1	61.7	-19.6	25	98
72.2	74.4	-2.2	25	99
43.7	74.4	-30.7	25	100
66.6	74.4	-7.8	25	101
51.5	74.4	-22.9	25	102
63.5	74.4	-10.9	25	103
55.8	74.4	-18.6	25	104
35.1	74.4	-39.3	25	105
14.5	74.4	-59.9	25	106
44.7	74.4	-29.7	25	107
80.3	74.4	5.9	26	107
38	74.4	-36.4	26	108
50.4	74.4	-24	26	109
87.6	74.4	13.2	27	109
36.8	74.4	-37.6	27	110
16	74.4	-58.4	27	111
43.1	74.4	-31.3	27	112
42.1	74.4	-32.3	27	113
43.7	72.2	-28.5	27	114
66.6	72.2	-5.6	27	115
51.5	72.2	-20.7	27	116
63.5	72.2	-8.7	27	117
55.8	72.2	-16.4	27	118
35.1	72.2	-37.1	27	119
14.5	72.2	-57.7	27	120
44.7	72.2	-27.5	27	121
80.3	72.2	8.1	28	121
38	72.2	-34.2	28	122
50.4	72.2	-21.8	28	123
87.6	72.2	15.4	29	123
36.8	72.2	-35.4	29	124
16	72.2	-56.2	29	125

43.1	72.2	-29.1	29	126
42.1	72.2	-30.1	29	127
66.6	43.7	22.9	30	127
51.5	43.7	7.8	31	127
63.5	43.7	19.8	32	127
55.8	43.7	12.1	33	127
35.1	43.7	-8.6	33	128
14.5	43.7	-29.2	33	129
44.7	43.7	1	34	129
80.3	43.7	36.6	35	129
38	43.7	-5.7	35	130
50.4	43.7	6.7	36	130
87.6	43.7	43.9	37	130
36.8	43.7	-6.9	37	131
16	43.7	-27.7	37	132
43.1	43.7	-0.6	37	133
42.1	43.7	-1.6	37	134
51.5	66.6	-15.1	37	135
63.5	66.6	-3.1	37	136
55.8	66.6	-10.8	37	137
35.1	66.6	-31.5	37	138
14.5	66.6	-52.1	37	139
44.7	66.6	-21.9	37	140
80.3	66.6	13.7	38	140
38	66.6	-28.6	38	141
50.4	66.6	-16.2	38	142
87.6	66.6	21	39	142
36.8	66.6	-29.8	39	143
16	66.6	-50.6	39	144
43.1	66.6	-23.5	39	145
42.1	66.6	-24.5	39	146
63.5	51.5	12	40	146
55.8	51.5	4.3	41	146
35.1	51.5	-16.4	41	147
14.5	51.5	-37	41	148
44.7	51.5	-6.8	41	149
80.3	51.5	28.8	42	149
38	51.5	-13.5	42	150
50.4	51.5	-1.1	42	151
87.6	51.5	36.1	43	151
36.8	51.5	-14.7	43	152
16	51.5	-35.5	43	153
43.1	51.5	-8.4	43	154
42.1	51.5	-9.4	43	155
55.8	63.5	-7.7	43	156
35.1	63.5	-28.4	43	157
14.5	63.5	-49	43	158
44.7	63.5	-18.8	43	159
80.3	63.5	16.8	44	159
38	63.5	-25.5	44	160
50.4	63.5	-13.1	44	161
87.6	63.5	24.1	45	161
36.8	63.5	-26.7	45	162

16	63.5	-47.5	45	163
43.1	63.5	-20.4	45	164
42.1	63.5	-21.4	45	165
35.1	55.8	-20.7	45	166
14.5	55.8	-41.3	45	167
44.7	55.8	-11.1	45	168
80.3	55.8	24.5	46	168
38	55.8	-17.8	46	169
50.4	55.8	-5.4	46	170
87.6	55.8	31.8	47	170
36.8	55.8	-19	47	171
16	55.8	-39.8	47	172
43.1	55.8	-12.7	47	173
42.1	55.8	-13.7	47	174
14.5	35.1	-20.6	47	175
44.7	35.1	9.6	48	175
80.3	35.1	45.2	49	175
38	35.1	2.9	50	175
50.4	35.1	15.3	51	175
87.6	35.1	52.5	52	175
36.8	35.1	1.7	53	175
16	35.1	-19.1	53	176
43.1	35.1	8	54	176
42.1	35.1	7	55	176
44.7	14.5	30.2	56	176
80.3	14.5	65.8	57	176
38	14.5	23.5	58	176
50.4	14.5	35.9	59	176
87.6	14.5	73.1	60	176
36.8	14.5	22.3	61	176
16	14.5	1.5	62	176
43.1	14.5	28.6	63	176
42.1	14.5	27.6	64	176
80.3	44.7	35.6	65	176
38	44.7	-6.7	65	177
50.4	44.7	5.7	66	177
87.6	44.7	42.9	67	177
36.8	44.7	-7.9	67	178
16	44.7	-28.7	67	179
43.1	44.7	-1.6	67	180
42.1	44.7	-2.6	67	181
38	80.3	-42.3	67	182
50.4	80.3	-29.9	67	183
87.6	80.3	7.3	68	183
36.8	80.3	-43.5	68	184
16	80.3	-64.3	68	185
43.1	80.3	-37.2	68	186
42.1	80.3	-38.2	68	187
50.4	38	12.4	69	187
87.6	38	49.6	70	187
36.8	38	-1.2	70	188

16	38	-22	70	189
43.1	38	5.1	71	189
42.1	38	4.1	72	189
87.6	50.4	37.2	73	189
36.8	50.4	-13.6	73	190
16	50.4	-34.4	73	191
43.1	50.4	-7.3	73	192
42.1	50.4	-8.3	73	193
36.8	87.6	-50.8	73	194
16	87.6	-71.6	73	195
43.1	87.6	-44.5	73	196
42.1	87.6	-45.5	73	197
16	36.8	-20.8	73	198
43.1	36.8	6.3	74	198
42.1	36.8	5.3	75	198
43.1	16	27.1	76	198
42.1	16	26.1	77	198
42.1	43.1	-1	77	199

S Statistic = 77 - 199 = -122

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1
6/1/2019		1
9/1/2019		1
12/1/2019		1
3/16/2020		1
6/18/2020		1
9/16/2020		1
11/9/2020		1

There are 0 time periods with multiple data

---

A = 0



B = 0  
C = 0  
D = 0  
E = 0  
F = 0  
a = 29256  
b = 109296  
c = 1104  
Group Variance = 1625.33  
Z-Score = -3.00133  
Comparison Level at 95% confidence level = 1.65463 (upward trend)  
-3.00133 <= 1.65463 indicating no evidence of an upward trend

# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW19-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
3450	3760	-310	0	1
3380	3760	-380	0	2
2770	3760	-990	0	3
2280	3760	-1480	0	4
2550	3760	-1210	0	5
1670	3760	-2090	0	6
1320	3760	-2440	0	7
1710	3760	-2050	0	8
1770	3760	-1990	0	9
1710	3760	-2050	0	10
1880	3760	-1880	0	11
1700	3760	-2060	0	12
1560	3760	-2200	0	13
1610	3760	-2150	0	14
1900	3760	-1860	0	15
1320	3760	-2440	0	16
2420	3760	-1340	0	17
1580	3760	-2180	0	18
1500	3760	-2260	0	19
1400	3760	-2360	0	20
3390	3760	-370	0	21
1630	3760	-2130	0	22
1540	3760	-2220	0	23
3380	3450	-70	0	24
2770	3450	-680	0	25
2280	3450	-1170	0	26
2550	3450	-900	0	27
1670	3450	-1780	0	28
1320	3450	-2130	0	29
1710	3450	-1740	0	30
1770	3450	-1680	0	31
1710	3450	-1740	0	32
1880	3450	-1570	0	33
1700	3450	-1750	0	34
1560	3450	-1890	0	35
1610	3450	-1840	0	36
1900	3450	-1550	0	37
1320	3450	-2130	0	38
2420	3450	-1030	0	39
1580	3450	-1870	0	40
1500	3450	-1950	0	41
1400	3450	-2050	0	42
3390	3450	-60	0	43
1630	3450	-1820	0	44
1540	3450	-1910	0	45

2770	3380	-610	0	46
2280	3380	-1100	0	47
2550	3380	-830	0	48
1670	3380	-1710	0	49
1320	3380	-2060	0	50
1710	3380	-1670	0	51
1770	3380	-1610	0	52
1710	3380	-1670	0	53
1880	3380	-1500	0	54
1700	3380	-1680	0	55
1560	3380	-1820	0	56
1610	3380	-1770	0	57
1900	3380	-1480	0	58
1320	3380	-2060	0	59
2420	3380	-960	0	60
1580	3380	-1800	0	61
1500	3380	-1880	0	62
1400	3380	-1980	0	63
3390	3380	10	1	63
1630	3380	-1750	1	64
1540	3380	-1840	1	65
2280	2770	-490	1	66
2550	2770	-220	1	67
1670	2770	-1100	1	68
1320	2770	-1450	1	69
1710	2770	-1060	1	70
1770	2770	-1000	1	71
1710	2770	-1060	1	72
1880	2770	-890	1	73
1700	2770	-1070	1	74
1560	2770	-1210	1	75
1610	2770	-1160	1	76
1900	2770	-870	1	77
1320	2770	-1450	1	78
2420	2770	-350	1	79
1580	2770	-1190	1	80
1500	2770	-1270	1	81
1400	2770	-1370	1	82
3390	2770	620	2	82
1630	2770	-1140	2	83
1540	2770	-1230	2	84
2550	2280	270	3	84
1670	2280	-610	3	85
1320	2280	-960	3	86
1710	2280	-570	3	87
1770	2280	-510	3	88
1710	2280	-570	3	89
1880	2280	-400	3	90
1700	2280	-580	3	91
1560	2280	-720	3	92
1610	2280	-670	3	93
1900	2280	-380	3	94
1320	2280	-960	3	95
2420	2280	140	4	95
1580	2280	-700	4	96

1500	2280	-780	4	97
1400	2280	-880	4	98
3390	2280	1110	5	98
1630	2280	-650	5	99
1540	2280	-740	5	100
1670	2550	-880	5	101
1320	2550	-1230	5	102
1710	2550	-840	5	103
1770	2550	-780	5	104
1710	2550	-840	5	105
1880	2550	-670	5	106
1700	2550	-850	5	107
1560	2550	-990	5	108
1610	2550	-940	5	109
1900	2550	-650	5	110
1320	2550	-1230	5	111
2420	2550	-130	5	112
1580	2550	-970	5	113
1500	2550	-1050	5	114
1400	2550	-1150	5	115
3390	2550	840	6	115
1630	2550	-920	6	116
1540	2550	-1010	6	117
1320	1670	-350	6	118
1710	1670	40	7	118
1770	1670	100	8	118
1710	1670	40	9	118
1880	1670	210	10	118
1700	1670	30	11	118
1560	1670	-110	11	119
1610	1670	-60	11	120
1900	1670	230	12	120
1320	1670	-350	12	121
2420	1670	750	13	121
1580	1670	-90	13	122
1500	1670	-170	13	123
1400	1670	-270	13	124
3390	1670	1720	14	124
1630	1670	-40	14	125
1540	1670	-130	14	126
1710	1320	390	15	126
1770	1320	450	16	126
1710	1320	390	17	126
1880	1320	560	18	126
1700	1320	380	19	126
1560	1320	240	20	126
1610	1320	290	21	126
1900	1320	580	22	126
1320	1320	0	22	126
2420	1320	1100	23	126
1580	1320	260	24	126
1500	1320	180	25	126
1400	1320	80	26	126
3390	1320	2070	27	126

1630	1320	310	28	126
1540	1320	220	29	126
1770	1710	60	30	126
1710	1710	0	30	126
1880	1710	170	31	126
1700	1710	-10	31	127
1560	1710	-150	31	128
1610	1710	-100	31	129
1900	1710	190	32	129
1320	1710	-390	32	130
2420	1710	710	33	130
1580	1710	-130	33	131
1500	1710	-210	33	132
1400	1710	-310	33	133
3390	1710	1680	34	133
1630	1710	-80	34	134
1540	1710	-170	34	135
1710	1770	-60	34	136
1880	1770	110	35	136
1700	1770	-70	35	137
1560	1770	-210	35	138
1610	1770	-160	35	139
1900	1770	130	36	139
1320	1770	-450	36	140
2420	1770	650	37	140
1580	1770	-190	37	141
1500	1770	-270	37	142
1400	1770	-370	37	143
3390	1770	1620	38	143
1630	1770	-140	38	144
1540	1770	-230	38	145
1880	1710	170	39	145
1700	1710	-10	39	146
1560	1710	-150	39	147
1610	1710	-100	39	148
1900	1710	190	40	148
1320	1710	-390	40	149
2420	1710	710	41	149
1580	1710	-130	41	150
1500	1710	-210	41	151
1400	1710	-310	41	152
3390	1710	1680	42	152
1630	1710	-80	42	153
1540	1710	-170	42	154
1700	1880	-180	42	155
1560	1880	-320	42	156
1610	1880	-270	42	157
1900	1880	20	43	157
1320	1880	-560	43	158
2420	1880	540	44	158
1580	1880	-300	44	159
1500	1880	-380	44	160
1400	1880	-480	44	161

3390	1880	1510	45	161
1630	1880	-250	45	162
1540	1880	-340	45	163
1560	1700	-140	45	164
1610	1700	-90	45	165
1900	1700	200	46	165
1320	1700	-380	46	166
2420	1700	720	47	166
1580	1700	-120	47	167
1500	1700	-200	47	168
1400	1700	-300	47	169
3390	1700	1690	48	169
1630	1700	-70	48	170
1540	1700	-160	48	171
1610	1560	50	49	171
1900	1560	340	50	171
1320	1560	-240	50	172
2420	1560	860	51	172
1580	1560	20	52	172
1500	1560	-60	52	173
1400	1560	-160	52	174
3390	1560	1830	53	174
1630	1560	70	54	174
1540	1560	-20	54	175
1900	1610	290	55	175
1320	1610	-290	55	176
2420	1610	810	56	176
1580	1610	-30	56	177
1500	1610	-110	56	178
1400	1610	-210	56	179
3390	1610	1780	57	179
1630	1610	20	58	179
1540	1610	-70	58	180
1320	1900	-580	58	181
2420	1900	520	59	181
1580	1900	-320	59	182
1500	1900	-400	59	183
1400	1900	-500	59	184
3390	1900	1490	60	184
1630	1900	-270	60	185
1540	1900	-360	60	186
2420	1320	1100	61	186
1580	1320	260	62	186
1500	1320	180	63	186
1400	1320	80	64	186
3390	1320	2070	65	186
1630	1320	310	66	186
1540	1320	220	67	186
1580	2420	-840	67	187
1500	2420	-920	67	188
1400	2420	-1020	67	189

3390	2420	970	68	189
1630	2420	-790	68	190
1540	2420	-880	68	191
1500	1580	-80	68	192
1400	1580	-180	68	193
3390	1580	1810	69	193
1630	1580	50	70	193
1540	1580	-40	70	194
1400	1500	-100	70	195
3390	1500	1890	71	195
1630	1500	130	72	195
1540	1500	40	73	195
3390	1400	1990	74	195
1630	1400	230	75	195
1540	1400	140	76	195
1630	3390	-1760	76	196
1540	3390	-1850	76	197
1540	1630	-90	76	198

S Statistic = 76 - 198 = -122

---

Tied Group	Value	Members
1	1320	2
2	1710	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/17/2020	1
6/24/2020	1
9/15/2020	1
11/17/2020	1

There are 0 time periods with multiple data

---

A = 36  
B = 0  
C = 0  
D = 0  
E = 4  
F = 0  
a = 29256  
b = 109296  
c = 1104  
Group Variance = 1623.33  
Z-Score = -3.00318  
Comparison Level at 95% confidence level = 1.65463 (upward trend)  
-3.00318 <= 1.65463 indicating no evidence of an upward trend



## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW21-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
34	39.8	-5.8	0	1
29.4 1c	39.8	-10.4	0	2
27.8	39.8	-12	0	3
29.4 1c	34	-4.6	0	4
27.8	34	-6.2	0	5
27.8	29.4 1c	-1.6	0	6

S Statistic = 0 - 6 = -6

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -6$  is 0.042

$S < 0$  or  $0.042 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW22R-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
2 J	ND<1.5 U	0.5	1	0
2.4 J	ND<1.5 U	0.9	2	0
1.6 J	ND<1.5 U	0.1	3	0
2.4 J	2 J	0.4	4	0
1.6 J	2 J	-0.4	4	1
1.6 J	2.4 J	-0.8	4	2

S Statistic = 4 - 2 = 2

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 2$  is 0.375

$S < 0$  or  $0.375 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW23-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
2740	2600	140	1	0
2500 1c	2600	-100	1	1
2340	2600	-260	1	2
2500 1c	2740	-240	1	3
2340	2740	-400	1	4
2340	2500 1c	-160	1	5

S Statistic = 1 - 5 = -4

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -4$  is 0.167

$S < 0$  or  $0.167 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW24-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
1050	1190	-140	0	1
922	1190	-268	0	2
842	1190	-348	0	3
922	1050	-128	0	4
842	1050	-208	0	5
842	922	-80	0	6

S Statistic = 0 - 6 = -6

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -6$  is 0.042

$S < 0$  or  $0.042 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW25-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
652	633	19	1	0
708	633	75	2	0
703	633	70	3	0
708	652	56	4	0
703	652	51	5	0
703	708	-5	5	1

S Statistic = 5 - 1 = 4

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 4$  is 0.167

$S < 0$  or  $0.167 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWA-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
7010 M6	6900	110	1	0
7740	6900	840	2	0
9020	6900	2120	3	0
12600	6900	5700	4	0
10200	6900	3300	5	0
7630	6900	730	6	0
10100 MH	6900	3200	7	0
7740	7010 M6	730	8	0
9020	7010 M6	2010	9	0
12600	7010 M6	5590	10	0
10200	7010 M6	3190	11	0
7630	7010 M6	620	12	0
10100 MH	7010 M6	3090	13	0
9020	7740	1280	14	0
12600	7740	4860	15	0
10200	7740	2460	16	0
7630	7740	-110	16	1
10100 MH	7740	2360	17	1
12600	9020	3580	18	1
10200	9020	1180	19	1
7630	9020	-1390	19	2
10100 MH	9020	1080	20	2
10200	12600	-2400	20	3
7630	12600	-4970	20	4
10100 MH	12600	-2500	20	5
7630	10200	-2570	20	6
10100 MH	10200	-100	20	7
10100 MH	7630	2470	21	7

S Statistic = 21 - 7 = 14

Comparing at 95% confidence level (upward trend)

Probability of obtaining S >= 14 is 0.054

S < 0 or 0.054 >= 0.05 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWB-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<1.5 U	ND<1.5 U	0	0	0
ND<1.5 U	ND<1.5 U	0	0	0
ND<1.5 U	ND<1.5 U	0	0	0
ND<1.5 U	ND<1.5 U	0	0	0
ND<1.5 U	ND<1.5 U	0	0	0
0.59 J	ND<1.5 U	-0.91	0	1
ND<1.5 U	ND<1.5 U	0	0	1
ND<1.5 U	ND<1.5 U	0	0	1
ND<1.5 U	ND<1.5 U	0	0	1
ND<1.5 U	ND<1.5 U	0	0	1
ND<1.5 U	ND<1.5 U	0	0	1
0.59 J	ND<1.5 U	-0.91	0	2
ND<1.5 U	ND<1.5 U	0	0	2
ND<1.5 U	ND<1.5 U	0	0	2
ND<1.5 U	ND<1.5 U	0	0	2
ND<1.5 U	ND<1.5 U	0	0	2
0.59 J	ND<1.5 U	-0.91	0	3
ND<1.5 U	ND<1.5 U	0	0	3
ND<1.5 U	ND<1.5 U	0	0	3
ND<1.5 U	ND<1.5 U	0	0	3
0.59 J	ND<1.5 U	-0.91	0	4
ND<1.5 U	ND<1.5 U	0	0	4
ND<1.5 U	ND<1.5 U	0	0	4
0.59 J	ND<1.5 U	-0.91	0	5
ND<1.5 U	ND<1.5 U	0	0	5
0.59 J	ND<1.5 U	-0.91	0	6
ND<1.5 U	ND<1.5 U	0	0	6
ND<1.5 U	0.59 J	0.91	1	6

S Statistic = 1 - 6 = -5

Comparing at 95% confidence level (upward trend)

Probability of obtaining S >= -5 is 0.317

S < 0 or 0.317 >= 0.05 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWD-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
514	398.5 1c3c	115.5	1	0
586	398.5 1c3c	187.5	2	0
555	398.5 1c3c	156.5	3	0
515	398.5 1c3c	116.5	4	0
541	398.5 1c3c	142.5	5	0
596	398.5 1c3c	197.5	6	0
586	514	72	7	0
555	514	41	8	0
515	514	1	9	0
541	514	27	10	0
596	514	82	11	0
555	586	-31	11	1
515	586	-71	11	2
541	586	-45	11	3
596	586	10	12	3
515	555	-40	12	4
541	555	-14	12	5
596	555	41	13	5
541	515	26	14	5
596	515	81	15	5
596	541	55	16	5

S Statistic = 16 - 5 = 11

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 11$  is 0.068

$S < 0$  or  $0.068 \geq 0.05$  indicating no evidence of an upward trend



## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWE-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
656	711 1c3c	-55	0	1
707	711 1c3c	-4	0	2
664	711 1c3c	-47	0	3
609	711 1c3c	-102	0	4
584	711 1c3c	-127	0	5
527	711 1c3c	-184	0	6
707	656	51	1	6
664	656	8	2	6
609	656	-47	2	7
584	656	-72	2	8
527	656	-129	2	9
664	707	-43	2	10
609	707	-98	2	11
584	707	-123	2	12
527	707	-180	2	13
609	664	-55	2	14
584	664	-80	2	15
527	664	-137	2	16
584	609	-25	2	17
527	609	-82	2	18
527	584	-57	2	19

S Statistic = 2 - 19 = -17

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -17$  is 0.0054

$S < 0$  or  $0.0054 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWF-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
1020	882.5	137.5	1	0
1340	882.5	457.5	2	0
2010	882.5	1127.5	3	0
2580	882.5	1697.5	4	0
3170	882.5	2287.5	5	0
3330	882.5	2447.5	6	0
1340	1020	320	7	0
2010	1020	990	8	0
2580	1020	1560	9	0
3170	1020	2150	10	0
3330	1020	2310	11	0
2010	1340	670	12	0
2580	1340	1240	13	0
3170	1340	1830	14	0
3330	1340	1990	15	0
2580	2010	570	16	0
3170	2010	1160	17	0
3330	2010	1320	18	0
3170	2580	590	19	0
3330	2580	750	20	0
3330	3170	160	21	0

S Statistic = 21 - 0 = 21

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 21$  is 0.0002

**S > 0 and 0.0002 < 0.05 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWG-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
15.4	23.4 1c3c	-8	0	1
26	23.4 1c3c	2.6	1	1
38.2	23.4 1c3c	14.8	2	1
26.7	23.4 1c3c	3.3	3	1
38.2	23.4 1c3c	14.8	4	1
40	23.4 1c3c	16.6	5	1
26	15.4	10.6	6	1
38.2	15.4	22.8	7	1
26.7	15.4	11.3	8	1
38.2	15.4	22.8	9	1
40	15.4	24.6	10	1
38.2	26	12.2	11	1
26.7	26	0.7	12	1
38.2	26	12.2	13	1
40	26	14	14	1
26.7	38.2	-11.5	14	2
38.2	38.2	0	14	2
40	38.2	1.8	15	2
38.2	26.7	11.5	16	2
40	26.7	13.3	17	2
40	38.2	1.8	18	2

S Statistic = 18 - 2 = 16

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 16$  is 0.0102

**S > 0 and 0.0102 < 0.05 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWH-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
1380 1c	97.7	1282.3	1	0
3580	97.7	3482.3	2	0
3210	97.7	3112.3	3	0
4610	97.7	4512.3	4	0
4330	97.7	4232.3	5	0
6650	97.7	6552.3	6	0
3580	1380 1c	2200	7	0
3210	1380 1c	1830	8	0
4610	1380 1c	3230	9	0
4330	1380 1c	2950	10	0
6650	1380 1c	5270	11	0
3210	3580	-370	11	1
4610	3580	1030	12	1
4330	3580	750	13	1
6650	3580	3070	14	1
4610	3210	1400	15	1
4330	3210	1120	16	1
6650	3210	3440	17	1
4330	4610	-280	17	2
6650	4610	2040	18	2
6650	4330	2320	19	2

S Statistic = 19 - 2 = 17

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 17$  is 0.0054

**S > 0 and 0.0054 < 0.05 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWI-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
8120 1c	8500	-380	0	1
8270	8500	-230	0	2
13300	8500	4800	1	2
10800	8500	2300	2	2
8270	8120 1c	150	3	2
13300	8120 1c	5180	4	2
10800	8120 1c	2680	5	2
13300	8270	5030	6	2
10800	8270	2530	7	2
10800	13300	-2500	7	3

S Statistic = 7 - 3 = 4

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 4$  is 0.242

$S < 0$  or  $0.242 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWJ-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
11.8 1c	61.3	-49.5	0	1
45.7	61.3	-15.6	0	2
30	61.3	-31.3	0	3
2.1 J	61.3	-59.2	0	4
2.3 J	61.3	-59	0	5
2.4 J	61.3	-58.9	0	6
45.7	11.8 1c	33.9	1	6
30	11.8 1c	18.2	2	6
2.1 J	11.8 1c	-9.7	2	7
2.3 J	11.8 1c	-9.5	2	8
2.4 J	11.8 1c	-9.4	2	9
30	45.7	-15.7	2	10
2.1 J	45.7	-43.6	2	11
2.3 J	45.7	-43.4	2	12
2.4 J	45.7	-43.3	2	13
2.1 J	30	-27.9	2	14
2.3 J	30	-27.7	2	15
2.4 J	30	-27.6	2	16
2.3 J	2.1 J	0.2	3	16
2.4 J	2.1 J	0.3	4	16
2.4 J	2.3 J	0.1	5	16

S Statistic = 5 - 16 = -11

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -11$  is 0.068

$S < 0$  or  $0.068 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWK-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
65.6 1c	40.1	25.5	1	0
99.5	40.1	59.4	2	0
89.1	40.1	49	3	0
76.9	40.1	36.8	4	0
79.1	40.1	39	5	0
74.4	40.1	34.3	6	0
99.5	65.6 1c	33.9	7	0
89.1	65.6 1c	23.5	8	0
76.9	65.6 1c	11.3	9	0
79.1	65.6 1c	13.5	10	0
74.4	65.6 1c	8.8	11	0
89.1	99.5	-10.4	11	1
76.9	99.5	-22.6	11	2
79.1	99.5	-20.4	11	3
74.4	99.5	-25.1	11	4
76.9	89.1	-12.2	11	5
79.1	89.1	-10	11	6
74.4	89.1	-14.7	11	7
79.1	76.9	2.2	12	7
74.4	76.9	-2.5	12	8
74.4	79.1	-4.7	12	9

S Statistic = 12 - 9 = 3

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 3$  is 0.386

$S < 0$  or  $0.386 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWL-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
1240 1c	1245	-5	0	1
1280	1245	35	1	1
1170	1245	-75	1	2
1140	1245	-105	1	3
1210 1c	1245	-35	1	4
1160	1245	-85	1	5
1280	1240 1c	40	2	5
1170	1240 1c	-70	2	6
1140	1240 1c	-100	2	7
1210 1c	1240 1c	-30	2	8
1160	1240 1c	-80	2	9
1170	1280	-110	2	10
1140	1280	-140	2	11
1210 1c	1280	-70	2	12
1160	1280	-120	2	13
1140	1170	-30	2	14
1210 1c	1170	40	3	14
1160	1170	-10	3	15
1210 1c	1140	70	4	15
1160	1140	20	5	15
1160	1210 1c	-50	5	16

S Statistic = 5 - 16 = -11

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -11$  is 0.068

$S < 0$  or  $0.068 \geq 0.05$  indicating no evidence of an upward trend



## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWM-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
1200	1105	95	1	0
1230	1105	125	2	0
1120	1105	15	3	0
1040	1105	-65	3	1
1060 1c	1105	-45	3	2
1120	1105	15	4	2
1230	1200	30	5	2
1120	1200	-80	5	3
1040	1200	-160	5	4
1060 1c	1200	-140	5	5
1120	1200	-80	5	6
1120	1230	-110	5	7
1040	1230	-190	5	8
1060 1c	1230	-170	5	9
1120	1230	-110	5	10
1040	1120	-80	5	11
1060 1c	1120	-60	5	12
1120	1120	0	5	12
1060 1c	1040	20	6	12
1120	1040	80	7	12
1120	1060 1c	60	8	12

S Statistic = 8 - 12 = -4

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -4$  is 0.3335

$S < 0$  or  $0.3335 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWO-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
72.1 1c	69.25 1c4c	2.85	1	0
55.4	69.25 1c4c	-13.85	1	1
54.3	69.25 1c4c	-14.95	1	2
66.2	69.25 1c4c	-3.05	1	3
57.8 1c	69.25 1c4c	-11.45	1	4
27.9	69.25 1c4c	-41.35	1	5
55.4	72.1 1c	-16.7	1	6
54.3	72.1 1c	-17.8	1	7
66.2	72.1 1c	-5.9	1	8
57.8 1c	72.1 1c	-14.3	1	9
27.9	72.1 1c	-44.2	1	10
54.3	55.4	-1.1	1	11
66.2	55.4	10.8	2	11
57.8 1c	55.4	2.4	3	11
27.9	55.4	-27.5	3	12
66.2	54.3	11.9	4	12
57.8 1c	54.3	3.5	5	12
27.9	54.3	-26.4	5	13
57.8 1c	66.2	-8.4	5	14
27.9	66.2	-38.3	5	15
27.9	57.8 1c	-29.9	5	16

S Statistic = 5 - 16 = -11

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -11$  is 0.068

$S < 0$  or  $0.068 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWP-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6990 1c	2800	4190	1	0
8910	2800	6110	2	0
5560	2800	2760	3	0
7090	2800	4290	4	0
7220	2800	4420	5	0
7700	2800	4900	6	0
8910	6990 1c	1920	7	0
5560	6990 1c	-1430	7	1
7090	6990 1c	100	8	1
7220	6990 1c	230	9	1
7700	6990 1c	710	10	1
5560	8910	-3350	10	2
7090	8910	-1820	10	3
7220	8910	-1690	10	4
7700	8910	-1210	10	5
7090	5560	1530	11	5
7220	5560	1660	12	5
7700	5560	2140	13	5
7220	7090	130	14	5
7700	7090	610	15	5
7700	7220	480	16	5

S Statistic = 16 - 5 = 11

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 11$  is 0.068

$S < 0$  or  $0.068 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWQ-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
ND<1.5 U1c	27.25	-25.75	0	1
2.9 J	27.25	-24.35	0	2
1.9 J	27.25	-25.35	0	3
3.7	27.25	-23.55	0	4
4.2 1c	27.25	-23.05	0	5
2.9 J	27.25	-24.35	0	6
2.9 J	ND<1.5 U1c	1.4	1	6
1.9 J	ND<1.5 U1c	0.4	2	6
3.7	ND<1.5 U1c	2.2	3	6
4.2 1c	ND<1.5 U1c	2.7	4	6
2.9 J	ND<1.5 U1c	1.4	5	6
1.9 J	2.9 J	-1	5	7
3.7	2.9 J	0.8	6	7
4.2 1c	2.9 J	1.3	7	7
2.9 J	2.9 J	0	7	7
3.7	1.9 J	1.8	8	7
4.2 1c	1.9 J	2.3	9	7
2.9 J	1.9 J	1	10	7
4.2 1c	3.7	0.5	11	7
2.9 J	3.7	-0.8	11	8
2.9 J	4.2 1c	-1.3	11	9

S Statistic = 11 - 9 = 2

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 2$  is 0.443

$S < 0$  or  $0.443 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWR-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
535 1c	448.5 1c4c	86.5	1	0
650	448.5 1c4c	201.5	2	0
340	448.5 1c4c	-108.5	2	1
508	448.5 1c4c	59.5	3	1
425	448.5 1c4c	-23.5	3	2
398	448.5 1c4c	-50.5	3	3
650	535 1c	115	4	3
340	535 1c	-195	4	4
508	535 1c	-27	4	5
425	535 1c	-110	4	6
398	535 1c	-137	4	7
340	650	-310	4	8
508	650	-142	4	9
425	650	-225	4	10
398	650	-252	4	11
508	340	168	5	11
425	340	85	6	11
398	340	58	7	11
425	508	-83	7	12
398	508	-110	7	13
398	425	-27	7	14

S Statistic = 7 - 14 = -7

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -7$  is 0.191

$S < 0$  or  $0.191 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWS-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
ND<1.5 U1c	ND<1.5 U	0	0	0
1.6 J	ND<1.5 U	0.1	1	0
ND<1.5 U	ND<1.5 U	0	1	0
0.58 J	ND<1.5 U	-0.92	1	1
1.8 J	ND<1.5 U	0.3	2	1
1.7 J	ND<1.5 U	0.2	3	1
1.6 J	ND<1.5 U1c	0.1	4	1
ND<1.5 U	ND<1.5 U1c	0	4	1
0.58 J	ND<1.5 U1c	-0.92	4	2
1.8 J	ND<1.5 U1c	0.3	5	2
1.7 J	ND<1.5 U1c	0.2	6	2
ND<1.5 U	1.6 J	-0.1	6	3
0.58 J	1.6 J	-1.02	6	4
1.8 J	1.6 J	0.2	7	4
1.7 J	1.6 J	0.1	8	4
0.58 J	ND<1.5 U	-0.92	8	5
1.8 J	ND<1.5 U	0.3	9	5
1.7 J	ND<1.5 U	0.2	10	5
1.8 J	0.58 J	1.22	11	5
1.7 J	0.58 J	1.12	12	5
1.7 J	1.8 J	-0.1	12	6

S Statistic = 12 - 6 = 6

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 6$  is 0.236

$S < 0$  or  $0.236 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW01-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
12.3	6.68	5.62	1	0
8.03	6.68	1.35	2	0
12.07	6.68	5.39	3	0
6.74	6.68	0.06	4	0
13.17	6.68	6.49	5	0
12.42	6.68	5.74	6	0
8.52	6.68	1.84	7	0
10.97	6.68	4.29	8	0
6.2	6.68	-0.48	8	1
6.49	6.68	-0.19	8	2
6.26	6.68	-0.42	8	3
6.23	6.68	-0.45	8	4
6.03	6.68	-0.65	8	5
6.41	6.68	-0.27	8	6
6.24	6.68	-0.44	8	7
7.33	6.68	0.65	9	7
7.76	6.68	1.08	10	7
8.03	12.3	-4.27	10	8
12.07	12.3	-0.23	10	9
6.74	12.3	-5.56	10	10
13.17	12.3	0.87	11	10
12.42	12.3	0.12	12	10
8.52	12.3	-3.78	12	11
10.97	12.3	-1.33	12	12
6.2	12.3	-6.1	12	13
6.49	12.3	-5.81	12	14
6.26	12.3	-6.04	12	15
6.23	12.3	-6.07	12	16
6.03	12.3	-6.27	12	17
6.41	12.3	-5.89	12	18
6.24	12.3	-6.06	12	19
7.33	12.3	-4.97	12	20
7.76	12.3	-4.54	12	21
12.07	8.03	4.04	13	21
6.74	8.03	-1.29	13	22
13.17	8.03	5.14	14	22
12.42	8.03	4.39	15	22
8.52	8.03	0.49	16	22
10.97	8.03	2.94	17	22
6.2	8.03	-1.83	17	23
6.49	8.03	-1.54	17	24
6.26	8.03	-1.77	17	25
6.23	8.03	-1.8	17	26
6.03	8.03	-2	17	27
6.41	8.03	-1.62	17	28

6.24	8.03	-1.79	17	29
7.33	8.03	-0.7	17	30
7.76	8.03	-0.27	17	31
6.74	12.07	-5.33	17	32
13.17	12.07	1.1	18	32
12.42	12.07	0.35	19	32
8.52	12.07	-3.55	19	33
10.97	12.07	-1.1	19	34
6.2	12.07	-5.87	19	35
6.49	12.07	-5.58	19	36
6.26	12.07	-5.81	19	37
6.23	12.07	-5.84	19	38
6.03	12.07	-6.04	19	39
6.41	12.07	-5.66	19	40
6.24	12.07	-5.83	19	41
7.33	12.07	-4.74	19	42
7.76	12.07	-4.31	19	43
13.17	6.74	6.43	20	43
12.42	6.74	5.68	21	43
8.52	6.74	1.78	22	43
10.97	6.74	4.23	23	43
6.2	6.74	-0.54	23	44
6.49	6.74	-0.25	23	45
6.26	6.74	-0.48	23	46
6.23	6.74	-0.51	23	47
6.03	6.74	-0.71	23	48
6.41	6.74	-0.33	23	49
6.24	6.74	-0.5	23	50
7.33	6.74	0.59	24	50
7.76	6.74	1.02	25	50
12.42	13.17	-0.75	25	51
8.52	13.17	-4.65	25	52
10.97	13.17	-2.2	25	53
6.2	13.17	-6.97	25	54
6.49	13.17	-6.68	25	55
6.26	13.17	-6.91	25	56
6.23	13.17	-6.94	25	57
6.03	13.17	-7.14	25	58
6.41	13.17	-6.76	25	59
6.24	13.17	-6.93	25	60
7.33	13.17	-5.84	25	61
7.76	13.17	-5.41	25	62
8.52	12.42	-3.9	25	63
10.97	12.42	-1.45	25	64
6.2	12.42	-6.22	25	65
6.49	12.42	-5.93	25	66
6.26	12.42	-6.16	25	67
6.23	12.42	-6.19	25	68
6.03	12.42	-6.39	25	69
6.41	12.42	-6.01	25	70
6.24	12.42	-6.18	25	71
7.33	12.42	-5.09	25	72
7.76	12.42	-4.66	25	73



10.97	8.52	2.45	26	73
6.2	8.52	-2.32	26	74
6.49	8.52	-2.03	26	75
6.26	8.52	-2.26	26	76
6.23	8.52	-2.29	26	77
6.03	8.52	-2.49	26	78
6.41	8.52	-2.11	26	79
6.24	8.52	-2.28	26	80
7.33	8.52	-1.19	26	81
7.76	8.52	-0.76	26	82
6.2	10.97	-4.77	26	83
6.49	10.97	-4.48	26	84
6.26	10.97	-4.71	26	85
6.23	10.97	-4.74	26	86
6.03	10.97	-4.94	26	87
6.41	10.97	-4.56	26	88
6.24	10.97	-4.73	26	89
7.33	10.97	-3.64	26	90
7.76	10.97	-3.21	26	91
6.49	6.2	0.29	27	91
6.26	6.2	0.06	28	91
6.23	6.2	0.03	29	91
6.03	6.2	-0.17	29	92
6.41	6.2	0.21	30	92
6.24	6.2	0.04	31	92
7.33	6.2	1.13	32	92
7.76	6.2	1.56	33	92
6.26	6.49	-0.23	33	93
6.23	6.49	-0.26	33	94
6.03	6.49	-0.46	33	95
6.41	6.49	-0.08	33	96
6.24	6.49	-0.25	33	97
7.33	6.49	0.84	34	97
7.76	6.49	1.27	35	97
6.23	6.26	-0.03	35	98
6.03	6.26	-0.23	35	99
6.41	6.26	0.15	36	99
6.24	6.26	-0.02	36	100
7.33	6.26	1.07	37	100
7.76	6.26	1.5	38	100
6.03	6.23	-0.2	38	101
6.41	6.23	0.18	39	101
6.24	6.23	0.01	40	101
7.33	6.23	1.1	41	101
7.76	6.23	1.53	42	101
6.41	6.03	0.38	43	101
6.24	6.03	0.21	44	101
7.33	6.03	1.3	45	101
7.76	6.03	1.73	46	101

6.24	6.41	-0.17	46	102
7.33	6.41	0.92	47	102
7.76	6.41	1.35	48	102
7.33	6.24	1.09	49	102
7.76	6.24	1.52	50	102
7.76	7.33	0.43	51	102

S Statistic = 51 - 102 = -51

---

Tied Group	Value	Members
------------	-------	---------

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 0  
B = 0  
C = 0  
D = 0  
E = 0  
F = 0  
a = 12546  
b = 44064  
c = 612  
Group Variance = 697  
Z-Score = -1.89389  
Comparison Level at 95% confidence level = 1.65463 (upward trend)  
-1.89389 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW02-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
12.2	6.73	5.47	1	0
12.39	6.73	5.66	2	0
11.95	6.73	5.22	3	0
11.4	6.73	4.67	4	0
12.87	6.73	6.14	5	0
10.02	6.73	3.29	6	0
7.82	6.73	1.09	7	0
8.93	6.73	2.2	8	0
6.6	6.73	-0.13	8	1
9.11	6.73	2.38	9	1
6.39	6.73	-0.34	9	2
6.21	6.73	-0.52	9	3
6.66	6.73	-0.07	9	4
7.05	6.73	0.32	10	4
6.53	6.73	-0.2	10	5
7.83	6.73	1.1	11	5
6.73	6.73	0	11	5
12.39	12.2	0.19	12	5
11.95	12.2	-0.25	12	6
11.4	12.2	-0.8	12	7
12.87	12.2	0.67	13	7
10.02	12.2	-2.18	13	8
7.82	12.2	-4.38	13	9
8.93	12.2	-3.27	13	10
6.6	12.2	-5.6	13	11
9.11	12.2	-3.09	13	12
6.39	12.2	-5.81	13	13
6.21	12.2	-5.99	13	14
6.66	12.2	-5.54	13	15
7.05	12.2	-5.15	13	16
6.53	12.2	-5.67	13	17
7.83	12.2	-4.37	13	18
6.73	12.2	-5.47	13	19
11.95	12.39	-0.44	13	20
11.4	12.39	-0.99	13	21
12.87	12.39	0.48	14	21
10.02	12.39	-2.37	14	22
7.82	12.39	-4.57	14	23
8.93	12.39	-3.46	14	24
6.6	12.39	-5.79	14	25
9.11	12.39	-3.28	14	26
6.39	12.39	-6	14	27
6.21	12.39	-6.18	14	28
6.66	12.39	-5.73	14	29
7.05	12.39	-5.34	14	30

6.53	12.39	-5.86	14	31
7.83	12.39	-4.56	14	32
6.73	12.39	-5.66	14	33
11.4	11.95	-0.55	14	34
12.87	11.95	0.92	15	34
10.02	11.95	-1.93	15	35
7.82	11.95	-4.13	15	36
8.93	11.95	-3.02	15	37
6.6	11.95	-5.35	15	38
9.11	11.95	-2.84	15	39
6.39	11.95	-5.56	15	40
6.21	11.95	-5.74	15	41
6.66	11.95	-5.29	15	42
7.05	11.95	-4.9	15	43
6.53	11.95	-5.42	15	44
7.83	11.95	-4.12	15	45
6.73	11.95	-5.22	15	46
12.87	11.4	1.47	16	46
10.02	11.4	-1.38	16	47
7.82	11.4	-3.58	16	48
8.93	11.4	-2.47	16	49
6.6	11.4	-4.8	16	50
9.11	11.4	-2.29	16	51
6.39	11.4	-5.01	16	52
6.21	11.4	-5.19	16	53
6.66	11.4	-4.74	16	54
7.05	11.4	-4.35	16	55
6.53	11.4	-4.87	16	56
7.83	11.4	-3.57	16	57
6.73	11.4	-4.67	16	58
10.02	12.87	-2.85	16	59
7.82	12.87	-5.05	16	60
8.93	12.87	-3.94	16	61
6.6	12.87	-6.27	16	62
9.11	12.87	-3.76	16	63
6.39	12.87	-6.48	16	64
6.21	12.87	-6.66	16	65
6.66	12.87	-6.21	16	66
7.05	12.87	-5.82	16	67
6.53	12.87	-6.34	16	68
7.83	12.87	-5.04	16	69
6.73	12.87	-6.14	16	70
7.82	10.02	-2.2	16	71
8.93	10.02	-1.09	16	72
6.6	10.02	-3.42	16	73
9.11	10.02	-0.91	16	74
6.39	10.02	-3.63	16	75
6.21	10.02	-3.81	16	76
6.66	10.02	-3.36	16	77
7.05	10.02	-2.97	16	78
6.53	10.02	-3.49	16	79
7.83	10.02	-2.19	16	80
6.73	10.02	-3.29	16	81

8.93	7.82	1.11	17	81
6.6	7.82	-1.22	17	82
9.11	7.82	1.29	18	82
6.39	7.82	-1.43	18	83
6.21	7.82	-1.61	18	84
6.66	7.82	-1.16	18	85
7.05	7.82	-0.77	18	86
6.53	7.82	-1.29	18	87
7.83	7.82	0.01	19	87
6.73	7.82	-1.09	19	88
6.6	8.93	-2.33	19	89
9.11	8.93	0.18	20	89
6.39	8.93	-2.54	20	90
6.21	8.93	-2.72	20	91
6.66	8.93	-2.27	20	92
7.05	8.93	-1.88	20	93
6.53	8.93	-2.4	20	94
7.83	8.93	-1.1	20	95
6.73	8.93	-2.2	20	96
9.11	6.6	2.51	21	96
6.39	6.6	-0.21	21	97
6.21	6.6	-0.39	21	98
6.66	6.6	0.06	22	98
7.05	6.6	0.45	23	98
6.53	6.6	-0.07	23	99
7.83	6.6	1.23	24	99
6.73	6.6	0.13	25	99
6.39	9.11	-2.72	25	100
6.21	9.11	-2.9	25	101
6.66	9.11	-2.45	25	102
7.05	9.11	-2.06	25	103
6.53	9.11	-2.58	25	104
7.83	9.11	-1.28	25	105
6.73	9.11	-2.38	25	106
6.21	6.39	-0.18	25	107
6.66	6.39	0.27	26	107
7.05	6.39	0.66	27	107
6.53	6.39	0.14	28	107
7.83	6.39	1.44	29	107
6.73	6.39	0.34	30	107
6.66	6.21	0.45	31	107
7.05	6.21	0.84	32	107
6.53	6.21	0.32	33	107
7.83	6.21	1.62	34	107
6.73	6.21	0.52	35	107
7.05	6.66	0.39	36	107
6.53	6.66	-0.13	36	108
7.83	6.66	1.17	37	108
6.73	6.66	0.07	38	108

6.53	7.05	-0.52	38	109
7.83	7.05	0.78	39	109
6.73	7.05	-0.32	39	110
7.83	6.53	1.3	40	110
6.73	6.53	0.2	41	110
6.73	7.83	-1.1	41	111

S Statistic = 41 - 111 = -70

---

Tied Group	Value	Members
1	6.73	2

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 12546

b = 44064

c = 612

Group Variance = 696

Z-Score = -2.61544

Comparison Level at 95% confidence level = 1.65463 (upward trend)

-2.61544 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW03-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6.04	6.41	-0.37	0	1
6.28	6.41	-0.13	0	2
5.97	6.41	-0.44	0	3
5.96	6.41	-0.45	0	4
6.21	6.41	-0.2	0	5
6.02	6.41	-0.39	0	6
6.34	6.41	-0.07	0	7
5.8	6.41	-0.61	0	8
5.67	6.41	-0.74	0	9
5.68	6.41	-0.73	0	10
6.4	6.41	-0.01	0	11
5.82	6.41	-0.59	0	12
6.26	6.41	-0.15	0	13
7.57	6.41	1.16	1	13
6.6	6.41	0.19	2	13
5.83	6.41	-0.58	2	14
6.07	6.41	-0.34	2	15
5.7	6.41	-0.71	2	16
6.54	6.41	0.13	3	16
6.27	6.41	-0.14	3	17
6.08	6.41	-0.33	3	18
6.28	6.04	0.24	4	18
5.97	6.04	-0.07	4	19
5.96	6.04	-0.08	4	20
6.21	6.04	0.17	5	20
6.02	6.04	-0.02	5	21
6.34	6.04	0.3	6	21
5.8	6.04	-0.24	6	22
5.67	6.04	-0.37	6	23
5.68	6.04	-0.36	6	24
6.4	6.04	0.36	7	24
5.82	6.04	-0.22	7	25
6.26	6.04	0.22	8	25
7.57	6.04	1.53	9	25
6.6	6.04	0.56	10	25
5.83	6.04	-0.21	10	26
6.07	6.04	0.03	11	26
5.7	6.04	-0.34	11	27
6.54	6.04	0.5	12	27
6.27	6.04	0.23	13	27
6.08	6.04	0.04	14	27
5.97	6.28	-0.31	14	28
5.96	6.28	-0.32	14	29
6.21	6.28	-0.07	14	30
6.02	6.28	-0.26	14	31

6.34	6.28	0.06	15	31
5.8	6.28	-0.48	15	32
5.67	6.28	-0.61	15	33
5.68	6.28	-0.6	15	34
6.4	6.28	0.12	16	34
5.82	6.28	-0.46	16	35
6.26	6.28	-0.02	16	36
7.57	6.28	1.29	17	36
6.6	6.28	0.32	18	36
5.83	6.28	-0.45	18	37
6.07	6.28	-0.21	18	38
5.7	6.28	-0.58	18	39
6.54	6.28	0.26	19	39
6.27	6.28	-0.01	19	40
6.08	6.28	-0.2	19	41
5.96	5.97	-0.01	19	42
6.21	5.97	0.24	20	42
6.02	5.97	0.05	21	42
6.34	5.97	0.37	22	42
5.8	5.97	-0.17	22	43
5.67	5.97	-0.3	22	44
5.68	5.97	-0.29	22	45
6.4	5.97	0.43	23	45
5.82	5.97	-0.15	23	46
6.26	5.97	0.29	24	46
7.57	5.97	1.6	25	46
6.6	5.97	0.63	26	46
5.83	5.97	-0.14	26	47
6.07	5.97	0.1	27	47
5.7	5.97	-0.27	27	48
6.54	5.97	0.57	28	48
6.27	5.97	0.3	29	48
6.08	5.97	0.11	30	48
6.21	5.96	0.25	31	48
6.02	5.96	0.06	32	48
6.34	5.96	0.38	33	48
5.8	5.96	-0.16	33	49
5.67	5.96	-0.29	33	50
5.68	5.96	-0.28	33	51
6.4	5.96	0.44	34	51
5.82	5.96	-0.14	34	52
6.26	5.96	0.3	35	52
7.57	5.96	1.61	36	52
6.6	5.96	0.64	37	52
5.83	5.96	-0.13	37	53
6.07	5.96	0.11	38	53
5.7	5.96	-0.26	38	54
6.54	5.96	0.58	39	54
6.27	5.96	0.31	40	54
6.08	5.96	0.12	41	54
6.02	6.21	-0.19	41	55
6.34	6.21	0.13	42	55
5.8	6.21	-0.41	42	56
5.67	6.21	-0.54	42	57



5.68	6.21	-0.53	42	58
6.4	6.21	0.19	43	58
5.82	6.21	-0.39	43	59
6.26	6.21	0.05	44	59
7.57	6.21	1.36	45	59
6.6	6.21	0.39	46	59
5.83	6.21	-0.38	46	60
6.07	6.21	-0.14	46	61
5.7	6.21	-0.51	46	62
6.54	6.21	0.33	47	62
6.27	6.21	0.06	48	62
6.08	6.21	-0.13	48	63
6.34	6.02	0.32	49	63
5.8	6.02	-0.22	49	64
5.67	6.02	-0.35	49	65
5.68	6.02	-0.34	49	66
6.4	6.02	0.38	50	66
5.82	6.02	-0.2	50	67
6.26	6.02	0.24	51	67
7.57	6.02	1.55	52	67
6.6	6.02	0.58	53	67
5.83	6.02	-0.19	53	68
6.07	6.02	0.05	54	68
5.7	6.02	-0.32	54	69
6.54	6.02	0.52	55	69
6.27	6.02	0.25	56	69
6.08	6.02	0.06	57	69
5.8	6.34	-0.54	57	70
5.67	6.34	-0.67	57	71
5.68	6.34	-0.66	57	72
6.4	6.34	0.06	58	72
5.82	6.34	-0.52	58	73
6.26	6.34	-0.08	58	74
7.57	6.34	1.23	59	74
6.6	6.34	0.26	60	74
5.83	6.34	-0.51	60	75
6.07	6.34	-0.27	60	76
5.7	6.34	-0.64	60	77
6.54	6.34	0.2	61	77
6.27	6.34	-0.07	61	78
6.08	6.34	-0.26	61	79
5.67	5.8	-0.13	61	80
5.68	5.8	-0.12	61	81
6.4	5.8	0.6	62	81
5.82	5.8	0.02	63	81
6.26	5.8	0.46	64	81
7.57	5.8	1.77	65	81
6.6	5.8	0.8	66	81
5.83	5.8	0.03	67	81
6.07	5.8	0.27	68	81
5.7	5.8	-0.1	68	82
6.54	5.8	0.74	69	82
6.27	5.8	0.47	70	82
6.08	5.8	0.28	71	82

5.68	5.67	0.01	72	82
6.4	5.67	0.73	73	82
5.82	5.67	0.15	74	82
6.26	5.67	0.59	75	82
7.57	5.67	1.9	76	82
6.6	5.67	0.93	77	82
5.83	5.67	0.16	78	82
6.07	5.67	0.4	79	82
5.7	5.67	0.03	80	82
6.54	5.67	0.87	81	82
6.27	5.67	0.6	82	82
6.08	5.67	0.41	83	82
6.4	5.68	0.72	84	82
5.82	5.68	0.14	85	82
6.26	5.68	0.58	86	82
7.57	5.68	1.89	87	82
6.6	5.68	0.92	88	82
5.83	5.68	0.15	89	82
6.07	5.68	0.39	90	82
5.7	5.68	0.02	91	82
6.54	5.68	0.86	92	82
6.27	5.68	0.59	93	82
6.08	5.68	0.4	94	82
5.82	6.4	-0.58	94	83
6.26	6.4	-0.14	94	84
7.57	6.4	1.17	95	84
6.6	6.4	0.2	96	84
5.83	6.4	-0.57	96	85
6.07	6.4	-0.33	96	86
5.7	6.4	-0.7	96	87
6.54	6.4	0.14	97	87
6.27	6.4	-0.13	97	88
6.08	6.4	-0.32	97	89
6.26	5.82	0.44	98	89
7.57	5.82	1.75	99	89
6.6	5.82	0.78	100	89
5.83	5.82	0.01	101	89
6.07	5.82	0.25	102	89
5.7	5.82	-0.12	102	90
6.54	5.82	0.72	103	90
6.27	5.82	0.45	104	90
6.08	5.82	0.26	105	90
7.57	6.26	1.31	106	90
6.6	6.26	0.34	107	90
5.83	6.26	-0.43	107	91
6.07	6.26	-0.19	107	92
5.7	6.26	-0.56	107	93
6.54	6.26	0.28	108	93
6.27	6.26	0.01	109	93
6.08	6.26	-0.18	109	94
6.6	7.57	-0.97	109	95

5.83	7.57	-1.74	109	96
6.07	7.57	-1.5	109	97
5.7	7.57	-1.87	109	98
6.54	7.57	-1.03	109	99
6.27	7.57	-1.3	109	100
6.08	7.57	-1.49	109	101
5.83	6.6	-0.77	109	102
6.07	6.6	-0.53	109	103
5.7	6.6	-0.9	109	104
6.54	6.6	-0.06	109	105
6.27	6.6	-0.33	109	106
6.08	6.6	-0.52	109	107
6.07	5.83	0.24	110	107
5.7	5.83	-0.13	110	108
6.54	5.83	0.71	111	108
6.27	5.83	0.44	112	108
6.08	5.83	0.25	113	108
5.7	6.07	-0.37	113	109
6.54	6.07	0.47	114	109
6.27	6.07	0.2	115	109
6.08	6.07	0.01	116	109
6.54	5.7	0.84	117	109
6.27	5.7	0.57	118	109
6.08	5.7	0.38	119	109
6.27	6.54	-0.27	119	110
6.08	6.54	-0.46	119	111
6.08	6.27	-0.19	119	112

S Statistic = 119 - 112 = 7

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1

6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 22638

b = 83160

c = 924

Group Variance = 1257.67

Z-Score = 0.169188

Comparison Level at 95% confidence level = 1.65463 (upward trend)

0.169188 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW05R-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6.14	6.46	-0.32	0	1
6.51	6.46	0.05	1	1
6.48	6.46	0.02	2	1
6.31	6.46	-0.15	2	2
6.37	6.46	-0.09	2	3
6.82	6.46	0.36	3	3
6.51	6.14	0.37	4	3
6.48	6.14	0.34	5	3
6.31	6.14	0.17	6	3
6.37	6.14	0.23	7	3
6.82	6.14	0.68	8	3
6.48	6.51	-0.03	8	4
6.31	6.51	-0.2	8	5
6.37	6.51	-0.14	8	6
6.82	6.51	0.31	9	6
6.31	6.48	-0.17	9	7
6.37	6.48	-0.11	9	8
6.82	6.48	0.34	10	8
6.37	6.31	0.06	11	8
6.82	6.31	0.51	12	8
6.82	6.37	0.45	13	8

S Statistic = 13 - 8 = 5

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 5$  is 0.281

$S < 0$  or  $0.281 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW06-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.71	5.85	-0.14	0	1
5.94	5.85	0.09	1	1
6.06	5.85	0.21	2	1
5.81	5.85	-0.04	2	2
6.08	5.85	0.23	3	2
5.7	5.85	-0.15	3	3
6.11	5.85	0.26	4	3
6.16	5.85	0.31	5	3
5.84	5.85	-0.01	5	4
6	5.85	0.15	6	4
5.92	5.85	0.07	7	4
5.68	5.85	-0.17	7	5
7.44	5.85	1.59	8	5
6.66	5.85	0.81	9	5
5.8	5.85	-0.05	9	6
5.52	5.85	-0.33	9	7
7.16	5.85	1.31	10	7
5.34	5.85	-0.51	10	8
7.88	5.85	2.03	11	8
5.3	5.85	-0.55	11	9
6.29	5.85	0.44	12	9
4.63	5.85	-1.22	12	10
9.46	5.85	3.61	13	10
5.94	5.71	0.23	14	10
6.06	5.71	0.35	15	10
5.81	5.71	0.1	16	10
6.08	5.71	0.37	17	10
5.7	5.71	-0.01	17	11
6.11	5.71	0.4	18	11
6.16	5.71	0.45	19	11
5.84	5.71	0.13	20	11
6	5.71	0.29	21	11
5.92	5.71	0.21	22	11
5.68	5.71	-0.03	22	12
7.44	5.71	1.73	23	12
6.66	5.71	0.95	24	12
5.8	5.71	0.09	25	12
5.52	5.71	-0.19	25	13
7.16	5.71	1.45	26	13
5.34	5.71	-0.37	26	14
7.88	5.71	2.17	27	14
5.3	5.71	-0.41	27	15
6.29	5.71	0.58	28	15
4.63	5.71	-1.08	28	16
9.46	5.71	3.75	29	16

6.06	5.94	0.12	30	16
5.81	5.94	-0.13	30	17
6.08	5.94	0.14	31	17
5.7	5.94	-0.24	31	18
6.11	5.94	0.17	32	18
6.16	5.94	0.22	33	18
5.84	5.94	-0.1	33	19
6	5.94	0.06	34	19
5.92	5.94	-0.02	34	20
5.68	5.94	-0.26	34	21
7.44	5.94	1.5	35	21
6.66	5.94	0.72	36	21
5.8	5.94	-0.14	36	22
5.52	5.94	-0.42	36	23
7.16	5.94	1.22	37	23
5.34	5.94	-0.6	37	24
7.88	5.94	1.94	38	24
5.3	5.94	-0.64	38	25
6.29	5.94	0.35	39	25
4.63	5.94	-1.31	39	26
9.46	5.94	3.52	40	26
5.81	6.06	-0.25	40	27
6.08	6.06	0.02	41	27
5.7	6.06	-0.36	41	28
6.11	6.06	0.05	42	28
6.16	6.06	0.1	43	28
5.84	6.06	-0.22	43	29
6	6.06	-0.06	43	30
5.92	6.06	-0.14	43	31
5.68	6.06	-0.38	43	32
7.44	6.06	1.38	44	32
6.66	6.06	0.6	45	32
5.8	6.06	-0.26	45	33
5.52	6.06	-0.54	45	34
7.16	6.06	1.1	46	34
5.34	6.06	-0.72	46	35
7.88	6.06	1.82	47	35
5.3	6.06	-0.76	47	36
6.29	6.06	0.23	48	36
4.63	6.06	-1.43	48	37
9.46	6.06	3.4	49	37
6.08	5.81	0.27	50	37
5.7	5.81	-0.11	50	38
6.11	5.81	0.3	51	38
6.16	5.81	0.35	52	38
5.84	5.81	0.03	53	38
6	5.81	0.19	54	38
5.92	5.81	0.11	55	38
5.68	5.81	-0.13	55	39
7.44	5.81	1.63	56	39
6.66	5.81	0.85	57	39
5.8	5.81	-0.01	57	40
5.52	5.81	-0.29	57	41
7.16	5.81	1.35	58	41
5.34	5.81	-0.47	58	42

7.88	5.81	2.07	59	42
5.3	5.81	-0.51	59	43
6.29	5.81	0.48	60	43
4.63	5.81	-1.18	60	44
9.46	5.81	3.65	61	44
5.7	6.08	-0.38	61	45
6.11	6.08	0.03	62	45
6.16	6.08	0.08	63	45
5.84	6.08	-0.24	63	46
6	6.08	-0.08	63	47
5.92	6.08	-0.16	63	48
5.68	6.08	-0.4	63	49
7.44	6.08	1.36	64	49
6.66	6.08	0.58	65	49
5.8	6.08	-0.28	65	50
5.52	6.08	-0.56	65	51
7.16	6.08	1.08	66	51
5.34	6.08	-0.74	66	52
7.88	6.08	1.8	67	52
5.3	6.08	-0.78	67	53
6.29	6.08	0.21	68	53
4.63	6.08	-1.45	68	54
9.46	6.08	3.38	69	54
6.11	5.7	0.41	70	54
6.16	5.7	0.46	71	54
5.84	5.7	0.14	72	54
6	5.7	0.3	73	54
5.92	5.7	0.22	74	54
5.68	5.7	-0.02	74	55
7.44	5.7	1.74	75	55
6.66	5.7	0.96	76	55
5.8	5.7	0.1	77	55
5.52	5.7	-0.18	77	56
7.16	5.7	1.46	78	56
5.34	5.7	-0.36	78	57
7.88	5.7	2.18	79	57
5.3	5.7	-0.4	79	58
6.29	5.7	0.59	80	58
4.63	5.7	-1.07	80	59
9.46	5.7	3.76	81	59
6.16	6.11	0.05	82	59
5.84	6.11	-0.27	82	60
6	6.11	-0.11	82	61
5.92	6.11	-0.19	82	62
5.68	6.11	-0.43	82	63
7.44	6.11	1.33	83	63
6.66	6.11	0.55	84	63
5.8	6.11	-0.31	84	64
5.52	6.11	-0.59	84	65
7.16	6.11	1.05	85	65
5.34	6.11	-0.77	85	66
7.88	6.11	1.77	86	66
5.3	6.11	-0.81	86	67
6.29	6.11	0.18	87	67



4.63	6.11	-1.48	87	68
9.46	6.11	3.35	88	68
5.84	6.16	-0.32	88	69
6	6.16	-0.16	88	70
5.92	6.16	-0.24	88	71
5.68	6.16	-0.48	88	72
7.44	6.16	1.28	89	72
6.66	6.16	0.5	90	72
5.8	6.16	-0.36	90	73
5.52	6.16	-0.64	90	74
7.16	6.16	1	91	74
5.34	6.16	-0.82	91	75
7.88	6.16	1.72	92	75
5.3	6.16	-0.86	92	76
6.29	6.16	0.13	93	76
4.63	6.16	-1.53	93	77
9.46	6.16	3.3	94	77
6	5.84	0.16	95	77
5.92	5.84	0.08	96	77
5.68	5.84	-0.16	96	78
7.44	5.84	1.6	97	78
6.66	5.84	0.82	98	78
5.8	5.84	-0.04	98	79
5.52	5.84	-0.32	98	80
7.16	5.84	1.32	99	80
5.34	5.84	-0.5	99	81
7.88	5.84	2.04	100	81
5.3	5.84	-0.54	100	82
6.29	5.84	0.45	101	82
4.63	5.84	-1.21	101	83
9.46	5.84	3.62	102	83
5.92	6	-0.08	102	84
5.68	6	-0.32	102	85
7.44	6	1.44	103	85
6.66	6	0.66	104	85
5.8	6	-0.2	104	86
5.52	6	-0.48	104	87
7.16	6	1.16	105	87
5.34	6	-0.66	105	88
7.88	6	1.88	106	88
5.3	6	-0.7	106	89
6.29	6	0.29	107	89
4.63	6	-1.37	107	90
9.46	6	3.46	108	90
5.68	5.92	-0.24	108	91
7.44	5.92	1.52	109	91
6.66	5.92	0.74	110	91
5.8	5.92	-0.12	110	92
5.52	5.92	-0.4	110	93
7.16	5.92	1.24	111	93
5.34	5.92	-0.58	111	94
7.88	5.92	1.96	112	94
5.3	5.92	-0.62	112	95

6.29	5.92	0.37	113	95
4.63	5.92	-1.29	113	96
9.46	5.92	3.54	114	96
7.44	5.68	1.76	115	96
6.66	5.68	0.98	116	96
5.8	5.68	0.12	117	96
5.52	5.68	-0.16	117	97
7.16	5.68	1.48	118	97
5.34	5.68	-0.34	118	98
7.88	5.68	2.2	119	98
5.3	5.68	-0.38	119	99
6.29	5.68	0.61	120	99
4.63	5.68	-1.05	120	100
9.46	5.68	3.78	121	100
6.66	7.44	-0.78	121	101
5.8	7.44	-1.64	121	102
5.52	7.44	-1.92	121	103
7.16	7.44	-0.28	121	104
5.34	7.44	-2.1	121	105
7.88	7.44	0.44	122	105
5.3	7.44	-2.14	122	106
6.29	7.44	-1.15	122	107
4.63	7.44	-2.81	122	108
9.46	7.44	2.02	123	108
5.8	6.66	-0.86	123	109
5.52	6.66	-1.14	123	110
7.16	6.66	0.5	124	110
5.34	6.66	-1.32	124	111
7.88	6.66	1.22	125	111
5.3	6.66	-1.36	125	112
6.29	6.66	-0.37	125	113
4.63	6.66	-2.03	125	114
9.46	6.66	2.8	126	114
5.52	5.8	-0.28	126	115
7.16	5.8	1.36	127	115
5.34	5.8	-0.46	127	116
7.88	5.8	2.08	128	116
5.3	5.8	-0.5	128	117
6.29	5.8	0.49	129	117
4.63	5.8	-1.17	129	118
9.46	5.8	3.66	130	118
7.16	5.52	1.64	131	118
5.34	5.52	-0.18	131	119
7.88	5.52	2.36	132	119
5.3	5.52	-0.22	132	120
6.29	5.52	0.77	133	120
4.63	5.52	-0.89	133	121
9.46	5.52	3.94	134	121
5.34	7.16	-1.82	134	122
7.88	7.16	0.72	135	122
5.3	7.16	-1.86	135	123

6.29	7.16	-0.87	135	124
4.63	7.16	-2.53	135	125
9.46	7.16	2.3	136	125
7.88	5.34	2.54	137	125
5.3	5.34	-0.04	137	126
6.29	5.34	0.95	138	126
4.63	5.34	-0.71	138	127
9.46	5.34	4.12	139	127
5.3	7.88	-2.58	139	128
6.29	7.88	-1.59	139	129
4.63	7.88	-3.25	139	130
9.46	7.88	1.58	140	130
6.29	5.3	0.99	141	130
4.63	5.3	-0.67	141	131
9.46	5.3	4.16	142	131
4.63	6.29	-1.66	142	132
9.46	6.29	3.17	143	132
9.46	4.63	4.83	144	132

S Statistic = 144 - 132 = 12

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1
6/1/2019		1
9/1/2019		1
12/1/2019		1
3/1/2020		1
6/1/2020		1
9/1/2020		1
11/1/2020		1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1625.33

Z-Score = 0.272848

Comparison Level at 95% confidence level = 1.65463 (upward trend)

0.272848 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW07-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6	6.25	-0.25	0	1
6.05	6.25	-0.2	0	2
6.61	6.25	0.36	1	2
6.09	6.25	-0.16	1	3
6.18	6.25	-0.07	1	4
6.54	6.25	0.29	2	4
5.65	6.25	-0.6	2	5
6.66	6.25	0.41	3	5
5.89	6.25	-0.36	3	6
6.6	6.25	0.35	4	6
7.11	6.25	0.86	5	6
6.18	6.25	-0.07	5	7
6.47	6.25	0.22	6	7
6.55	6.25	0.3	7	7
6.5	6.25	0.25	8	7
5.93	6.25	-0.32	8	8
5.68	6.25	-0.57	8	9
5.72	6.25	-0.53	8	10
6.77	6.25	0.52	9	10
5.91	6.25	-0.34	9	11
6.44	6.25	0.19	10	11
6.05	6	0.05	11	11
6.61	6	0.61	12	11
6.09	6	0.09	13	11
6.18	6	0.18	14	11
6.54	6	0.54	15	11
5.65	6	-0.35	15	12
6.66	6	0.66	16	12
5.89	6	-0.11	16	13
6.6	6	0.6	17	13
7.11	6	1.11	18	13
6.18	6	0.18	19	13
6.47	6	0.47	20	13
6.55	6	0.55	21	13
6.5	6	0.5	22	13
5.93	6	-0.07	22	14
5.68	6	-0.32	22	15
5.72	6	-0.28	22	16
6.77	6	0.77	23	16
5.91	6	-0.09	23	17
6.44	6	0.44	24	17
6.61	6.05	0.56	25	17
6.09	6.05	0.04	26	17
6.18	6.05	0.13	27	17
6.54	6.05	0.49	28	17

5.65	6.05	-0.4	28	18
6.66	6.05	0.61	29	18
5.89	6.05	-0.16	29	19
6.6	6.05	0.55	30	19
7.11	6.05	1.06	31	19
6.18	6.05	0.13	32	19
6.47	6.05	0.42	33	19
6.55	6.05	0.5	34	19
6.5	6.05	0.45	35	19
5.93	6.05	-0.12	35	20
5.68	6.05	-0.37	35	21
5.72	6.05	-0.33	35	22
6.77	6.05	0.72	36	22
5.91	6.05	-0.14	36	23
6.44	6.05	0.39	37	23
6.09	6.61	-0.52	37	24
6.18	6.61	-0.43	37	25
6.54	6.61	-0.07	37	26
5.65	6.61	-0.96	37	27
6.66	6.61	0.05	38	27
5.89	6.61	-0.72	38	28
6.6	6.61	-0.01	38	29
7.11	6.61	0.5	39	29
6.18	6.61	-0.43	39	30
6.47	6.61	-0.14	39	31
6.55	6.61	-0.06	39	32
6.5	6.61	-0.11	39	33
5.93	6.61	-0.68	39	34
5.68	6.61	-0.93	39	35
5.72	6.61	-0.89	39	36
6.77	6.61	0.16	40	36
5.91	6.61	-0.7	40	37
6.44	6.61	-0.17	40	38
6.18	6.09	0.09	41	38
6.54	6.09	0.45	42	38
5.65	6.09	-0.44	42	39
6.66	6.09	0.57	43	39
5.89	6.09	-0.2	43	40
6.6	6.09	0.51	44	40
7.11	6.09	1.02	45	40
6.18	6.09	0.09	46	40
6.47	6.09	0.38	47	40
6.55	6.09	0.46	48	40
6.5	6.09	0.41	49	40
5.93	6.09	-0.16	49	41
5.68	6.09	-0.41	49	42
5.72	6.09	-0.37	49	43
6.77	6.09	0.68	50	43
5.91	6.09	-0.18	50	44
6.44	6.09	0.35	51	44
6.54	6.18	0.36	52	44
5.65	6.18	-0.53	52	45
6.66	6.18	0.48	53	45
5.89	6.18	-0.29	53	46

6.6	6.18	0.42	54	46
7.11	6.18	0.93	55	46
6.18	6.18	0	55	46
6.47	6.18	0.29	56	46
6.55	6.18	0.37	57	46
6.5	6.18	0.32	58	46
5.93	6.18	-0.25	58	47
5.68	6.18	-0.5	58	48
5.72	6.18	-0.46	58	49
6.77	6.18	0.59	59	49
5.91	6.18	-0.27	59	50
6.44	6.18	0.26	60	50
5.65	6.54	-0.89	60	51
6.66	6.54	0.12	61	51
5.89	6.54	-0.65	61	52
6.6	6.54	0.06	62	52
7.11	6.54	0.57	63	52
6.18	6.54	-0.36	63	53
6.47	6.54	-0.07	63	54
6.55	6.54	0.01	64	54
6.5	6.54	-0.04	64	55
5.93	6.54	-0.61	64	56
5.68	6.54	-0.86	64	57
5.72	6.54	-0.82	64	58
6.77	6.54	0.23	65	58
5.91	6.54	-0.63	65	59
6.44	6.54	-0.1	65	60
6.66	5.65	1.01	66	60
5.89	5.65	0.24	67	60
6.6	5.65	0.95	68	60
7.11	5.65	1.46	69	60
6.18	5.65	0.53	70	60
6.47	5.65	0.82	71	60
6.55	5.65	0.9	72	60
6.5	5.65	0.85	73	60
5.93	5.65	0.28	74	60
5.68	5.65	0.03	75	60
5.72	5.65	0.07	76	60
6.77	5.65	1.12	77	60
5.91	5.65	0.26	78	60
6.44	5.65	0.79	79	60
5.89	6.66	-0.77	79	61
6.6	6.66	-0.06	79	62
7.11	6.66	0.45	80	62
6.18	6.66	-0.48	80	63
6.47	6.66	-0.19	80	64
6.55	6.66	-0.11	80	65
6.5	6.66	-0.16	80	66
5.93	6.66	-0.73	80	67
5.68	6.66	-0.98	80	68
5.72	6.66	-0.94	80	69
6.77	6.66	0.11	81	69
5.91	6.66	-0.75	81	70
6.44	6.66	-0.22	81	71

6.6	5.89	0.71	82	71
7.11	5.89	1.22	83	71
6.18	5.89	0.29	84	71
6.47	5.89	0.58	85	71
6.55	5.89	0.66	86	71
6.5	5.89	0.61	87	71
5.93	5.89	0.04	88	71
5.68	5.89	-0.21	88	72
5.72	5.89	-0.17	88	73
6.77	5.89	0.88	89	73
5.91	5.89	0.02	90	73
6.44	5.89	0.55	91	73
7.11	6.6	0.51	92	73
6.18	6.6	-0.42	92	74
6.47	6.6	-0.13	92	75
6.55	6.6	-0.05	92	76
6.5	6.6	-0.1	92	77
5.93	6.6	-0.67	92	78
5.68	6.6	-0.92	92	79
5.72	6.6	-0.88	92	80
6.77	6.6	0.17	93	80
5.91	6.6	-0.69	93	81
6.44	6.6	-0.16	93	82
6.18	7.11	-0.93	93	83
6.47	7.11	-0.64	93	84
6.55	7.11	-0.56	93	85
6.5	7.11	-0.61	93	86
5.93	7.11	-1.18	93	87
5.68	7.11	-1.43	93	88
5.72	7.11	-1.39	93	89
6.77	7.11	-0.34	93	90
5.91	7.11	-1.2	93	91
6.44	7.11	-0.67	93	92
6.47	6.18	0.29	94	92
6.55	6.18	0.37	95	92
6.5	6.18	0.32	96	92
5.93	6.18	-0.25	96	93
5.68	6.18	-0.5	96	94
5.72	6.18	-0.46	96	95
6.77	6.18	0.59	97	95
5.91	6.18	-0.27	97	96
6.44	6.18	0.26	98	96
6.55	6.47	0.08	99	96
6.5	6.47	0.03	100	96
5.93	6.47	-0.54	100	97
5.68	6.47	-0.79	100	98
5.72	6.47	-0.75	100	99
6.77	6.47	0.3	101	99
5.91	6.47	-0.56	101	100
6.44	6.47	-0.03	101	101
6.5	6.55	-0.05	101	102



5.93	6.55	-0.62	101	103
5.68	6.55	-0.87	101	104
5.72	6.55	-0.83	101	105
6.77	6.55	0.22	102	105
5.91	6.55	-0.64	102	106
6.44	6.55	-0.11	102	107
5.93	6.5	-0.57	102	108
5.68	6.5	-0.82	102	109
5.72	6.5	-0.78	102	110
6.77	6.5	0.27	103	110
5.91	6.5	-0.59	103	111
6.44	6.5	-0.06	103	112
5.68	5.93	-0.25	103	113
5.72	5.93	-0.21	103	114
6.77	5.93	0.84	104	114
5.91	5.93	-0.02	104	115
6.44	5.93	0.51	105	115
5.72	5.68	0.04	106	115
6.77	5.68	1.09	107	115
5.91	5.68	0.23	108	115
6.44	5.68	0.76	109	115
6.77	5.72	1.05	110	115
5.91	5.72	0.19	111	115
6.44	5.72	0.72	112	115
5.91	6.77	-0.86	112	116
6.44	6.77	-0.33	112	117
6.44	5.91	0.53	113	117

S Statistic = 113 - 117 = -4

---

Tied Group	Value	Members
1	6.18	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1

3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 22638

b = 83160

c = 924

Group Variance = 1256.67

Z-Score = -0.0846274

Comparison Level at 95% confidence level = 1.65463 (upward trend)

-0.0846274 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW08-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.57	6.06	-0.49	0	1
6.21	6.06	0.15	1	1
3.14	6.06	-2.92	1	2
3.88	6.06	-2.18	1	3
6.31	6.06	0.25	2	3
6.78	6.06	0.72	3	3
6.34	6.06	0.28	4	3
5.99	6.06	-0.07	4	4
6.21	6.06	0.15	5	4
6.3	6.06	0.24	6	4
6.27	6.06	0.21	7	4
6.57	6.06	0.51	8	4
7.89	6.06	1.83	9	4
6.9	6.06	0.84	10	4
6.54	6.06	0.48	11	4
6.16	6.06	0.1	12	4
6.06	6.06	0	12	4
6.49	6.06	0.43	13	4
6.57	6.06	0.51	14	4
6.41	6.06	0.35	15	4
6.39	6.06	0.33	16	4
7.53	6.06	1.47	17	4
6.21	5.57	0.64	18	4
3.14	5.57	-2.43	18	5
3.88	5.57	-1.69	18	6
6.31	5.57	0.74	19	6
6.78	5.57	1.21	20	6
6.34	5.57	0.77	21	6
5.99	5.57	0.42	22	6
6.21	5.57	0.64	23	6
6.3	5.57	0.73	24	6
6.27	5.57	0.7	25	6
6.57	5.57	1	26	6
7.89	5.57	2.32	27	6
6.9	5.57	1.33	28	6
6.54	5.57	0.97	29	6
6.16	5.57	0.59	30	6
6.06	5.57	0.49	31	6
6.49	5.57	0.92	32	6
6.57	5.57	1	33	6
6.41	5.57	0.84	34	6
6.39	5.57	0.82	35	6
7.53	5.57	1.96	36	6
3.14	6.21	-3.07	36	7
3.88	6.21	-2.33	36	8

6.31	6.21	0.1	37	8
6.78	6.21	0.57	38	8
6.34	6.21	0.13	39	8
5.99	6.21	-0.22	39	9
6.21	6.21	0	39	9
6.3	6.21	0.09	40	9
6.27	6.21	0.06	41	9
6.57	6.21	0.36	42	9
7.89	6.21	1.68	43	9
6.9	6.21	0.69	44	9
6.54	6.21	0.33	45	9
6.16	6.21	-0.05	45	10
6.06	6.21	-0.15	45	11
6.49	6.21	0.28	46	11
6.57	6.21	0.36	47	11
6.41	6.21	0.2	48	11
6.39	6.21	0.18	49	11
7.53	6.21	1.32	50	11
3.88	3.14	0.74	51	11
6.31	3.14	3.17	52	11
6.78	3.14	3.64	53	11
6.34	3.14	3.2	54	11
5.99	3.14	2.85	55	11
6.21	3.14	3.07	56	11
6.3	3.14	3.16	57	11
6.27	3.14	3.13	58	11
6.57	3.14	3.43	59	11
7.89	3.14	4.75	60	11
6.9	3.14	3.76	61	11
6.54	3.14	3.4	62	11
6.16	3.14	3.02	63	11
6.06	3.14	2.92	64	11
6.49	3.14	3.35	65	11
6.57	3.14	3.43	66	11
6.41	3.14	3.27	67	11
6.39	3.14	3.25	68	11
7.53	3.14	4.39	69	11
6.31	3.88	2.43	70	11
6.78	3.88	2.9	71	11
6.34	3.88	2.46	72	11
5.99	3.88	2.11	73	11
6.21	3.88	2.33	74	11
6.3	3.88	2.42	75	11
6.27	3.88	2.39	76	11
6.57	3.88	2.69	77	11
7.89	3.88	4.01	78	11
6.9	3.88	3.02	79	11
6.54	3.88	2.66	80	11
6.16	3.88	2.28	81	11
6.06	3.88	2.18	82	11
6.49	3.88	2.61	83	11
6.57	3.88	2.69	84	11
6.41	3.88	2.53	85	11
6.39	3.88	2.51	86	11
7.53	3.88	3.65	87	11

6.78	6.31	0.47	88	11
6.34	6.31	0.03	89	11
5.99	6.31	-0.32	89	12
6.21	6.31	-0.1	89	13
6.3	6.31	-0.01	89	14
6.27	6.31	-0.04	89	15
6.57	6.31	0.26	90	15
7.89	6.31	1.58	91	15
6.9	6.31	0.59	92	15
6.54	6.31	0.23	93	15
6.16	6.31	-0.15	93	16
6.06	6.31	-0.25	93	17
6.49	6.31	0.18	94	17
6.57	6.31	0.26	95	17
6.41	6.31	0.1	96	17
6.39	6.31	0.08	97	17
7.53	6.31	1.22	98	17
6.34	6.78	-0.44	98	18
5.99	6.78	-0.79	98	19
6.21	6.78	-0.57	98	20
6.3	6.78	-0.48	98	21
6.27	6.78	-0.51	98	22
6.57	6.78	-0.21	98	23
7.89	6.78	1.11	99	23
6.9	6.78	0.12	100	23
6.54	6.78	-0.24	100	24
6.16	6.78	-0.62	100	25
6.06	6.78	-0.72	100	26
6.49	6.78	-0.29	100	27
6.57	6.78	-0.21	100	28
6.41	6.78	-0.37	100	29
6.39	6.78	-0.39	100	30
7.53	6.78	0.75	101	30
5.99	6.34	-0.35	101	31
6.21	6.34	-0.13	101	32
6.3	6.34	-0.04	101	33
6.27	6.34	-0.07	101	34
6.57	6.34	0.23	102	34
7.89	6.34	1.55	103	34
6.9	6.34	0.56	104	34
6.54	6.34	0.2	105	34
6.16	6.34	-0.18	105	35
6.06	6.34	-0.28	105	36
6.49	6.34	0.15	106	36
6.57	6.34	0.23	107	36
6.41	6.34	0.07	108	36
6.39	6.34	0.05	109	36
7.53	6.34	1.19	110	36
6.21	5.99	0.22	111	36
6.3	5.99	0.31	112	36
6.27	5.99	0.28	113	36
6.57	5.99	0.58	114	36
7.89	5.99	1.9	115	36

6.9	5.99	0.91	116	36
6.54	5.99	0.55	117	36
6.16	5.99	0.17	118	36
6.06	5.99	0.07	119	36
6.49	5.99	0.5	120	36
6.57	5.99	0.58	121	36
6.41	5.99	0.42	122	36
6.39	5.99	0.4	123	36
7.53	5.99	1.54	124	36
6.3	6.21	0.09	125	36
6.27	6.21	0.06	126	36
6.57	6.21	0.36	127	36
7.89	6.21	1.68	128	36
6.9	6.21	0.69	129	36
6.54	6.21	0.33	130	36
6.16	6.21	-0.05	130	37
6.06	6.21	-0.15	130	38
6.49	6.21	0.28	131	38
6.57	6.21	0.36	132	38
6.41	6.21	0.2	133	38
6.39	6.21	0.18	134	38
7.53	6.21	1.32	135	38
6.27	6.3	-0.03	135	39
6.57	6.3	0.27	136	39
7.89	6.3	1.59	137	39
6.9	6.3	0.6	138	39
6.54	6.3	0.24	139	39
6.16	6.3	-0.14	139	40
6.06	6.3	-0.24	139	41
6.49	6.3	0.19	140	41
6.57	6.3	0.27	141	41
6.41	6.3	0.11	142	41
6.39	6.3	0.09	143	41
7.53	6.3	1.23	144	41
6.57	6.27	0.3	145	41
7.89	6.27	1.62	146	41
6.9	6.27	0.63	147	41
6.54	6.27	0.27	148	41
6.16	6.27	-0.11	148	42
6.06	6.27	-0.21	148	43
6.49	6.27	0.22	149	43
6.57	6.27	0.3	150	43
6.41	6.27	0.14	151	43
6.39	6.27	0.12	152	43
7.53	6.27	1.26	153	43
7.89	6.57	1.32	154	43
6.9	6.57	0.33	155	43
6.54	6.57	-0.03	155	44
6.16	6.57	-0.41	155	45
6.06	6.57	-0.51	155	46
6.49	6.57	-0.08	155	47
6.57	6.57	0	155	47
6.41	6.57	-0.16	155	48

6.39	6.57	-0.18	155	49
7.53	6.57	0.96	156	49
6.9	7.89	-0.99	156	50
6.54	7.89	-1.35	156	51
6.16	7.89	-1.73	156	52
6.06	7.89	-1.83	156	53
6.49	7.89	-1.4	156	54
6.57	7.89	-1.32	156	55
6.41	7.89	-1.48	156	56
6.39	7.89	-1.5	156	57
7.53	7.89	-0.36	156	58
6.54	6.9	-0.36	156	59
6.16	6.9	-0.74	156	60
6.06	6.9	-0.84	156	61
6.49	6.9	-0.41	156	62
6.57	6.9	-0.33	156	63
6.41	6.9	-0.49	156	64
6.39	6.9	-0.51	156	65
7.53	6.9	0.63	157	65
6.16	6.54	-0.38	157	66
6.06	6.54	-0.48	157	67
6.49	6.54	-0.05	157	68
6.57	6.54	0.03	158	68
6.41	6.54	-0.13	158	69
6.39	6.54	-0.15	158	70
7.53	6.54	0.99	159	70
6.06	6.16	-0.1	159	71
6.49	6.16	0.33	160	71
6.57	6.16	0.41	161	71
6.41	6.16	0.25	162	71
6.39	6.16	0.23	163	71
7.53	6.16	1.37	164	71
6.49	6.06	0.43	165	71
6.57	6.06	0.51	166	71
6.41	6.06	0.35	167	71
6.39	6.06	0.33	168	71
7.53	6.06	1.47	169	71
6.57	6.49	0.08	170	71
6.41	6.49	-0.08	170	72
6.39	6.49	-0.1	170	73
7.53	6.49	1.04	171	73
6.41	6.57	-0.16	171	74
6.39	6.57	-0.18	171	75
7.53	6.57	0.96	172	75
6.39	6.41	-0.02	172	76
7.53	6.41	1.12	173	76
7.53	6.39	1.14	174	76

S Statistic = 174 - 76 = 98

---

Tied Group	Value	Members
1	6.06	2
2	6.21	2
3	6.57	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 54

B = 0

C = 0

D = 0

E = 6

F = 0

a = 25806

b = 95634

c = 1012

Group Variance = 1430.67

Z-Score = 2.5645

Comparison Level at 95% confidence level = 1.65463 (upward trend)

**2.5645 > 1.65463 indicating an upward trend**



## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW09-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.96	6.23	-0.27	0	1
5.84	6.23	-0.39	0	2
6	6.23	-0.23	0	3
5.8	6.23	-0.43	0	4
5.67	6.23	-0.56	0	5
5.93	6.23	-0.3	0	6
6.57	6.23	0.34	1	6
6.03	6.23	-0.2	1	7
6.01	6.23	-0.22	1	8
5.96	6.23	-0.27	1	9
5.98	6.23	-0.25	1	10
5.64	6.23	-0.59	1	11
6.35	6.23	0.12	2	11
7.33	6.23	1.1	3	11
6.1	6.23	-0.13	3	12
5.81	6.23	-0.42	3	13
5.75	6.23	-0.48	3	14
5.55	6.23	-0.68	3	15
5.81	6.23	-0.42	3	16
6.3	6.23	0.07	4	16
4.69	6.23	-1.54	4	17
5.84	6.23	-0.39	4	18
6.94	6.23	0.71	5	18
5.84	5.96	-0.12	5	19
6	5.96	0.04	6	19
5.8	5.96	-0.16	6	20
5.67	5.96	-0.29	6	21
5.93	5.96	-0.03	6	22
6.57	5.96	0.61	7	22
6.03	5.96	0.07	8	22
6.01	5.96	0.05	9	22
5.96	5.96	0	9	22
5.98	5.96	0.02	10	22
5.64	5.96	-0.32	10	23
6.35	5.96	0.39	11	23
7.33	5.96	1.37	12	23
6.1	5.96	0.14	13	23
5.81	5.96	-0.15	13	24
5.75	5.96	-0.21	13	25
5.55	5.96	-0.41	13	26
5.81	5.96	-0.15	13	27
6.3	5.96	0.34	14	27
4.69	5.96	-1.27	14	28
5.84	5.96	-0.12	14	29
6.94	5.96	0.98	15	29

6	5.84	0.16	16	29
5.8	5.84	-0.04	16	30
5.67	5.84	-0.17	16	31
5.93	5.84	0.09	17	31
6.57	5.84	0.73	18	31
6.03	5.84	0.19	19	31
6.01	5.84	0.17	20	31
5.96	5.84	0.12	21	31
5.98	5.84	0.14	22	31
5.64	5.84	-0.2	22	32
6.35	5.84	0.51	23	32
7.33	5.84	1.49	24	32
6.1	5.84	0.26	25	32
5.81	5.84	-0.03	25	33
5.75	5.84	-0.09	25	34
5.55	5.84	-0.29	25	35
5.81	5.84	-0.03	25	36
6.3	5.84	0.46	26	36
4.69	5.84	-1.15	26	37
5.84	5.84	0	26	37
6.94	5.84	1.1	27	37
5.8	6	-0.2	27	38
5.67	6	-0.33	27	39
5.93	6	-0.07	27	40
6.57	6	0.57	28	40
6.03	6	0.03	29	40
6.01	6	0.01	30	40
5.96	6	-0.04	30	41
5.98	6	-0.02	30	42
5.64	6	-0.36	30	43
6.35	6	0.35	31	43
7.33	6	1.33	32	43
6.1	6	0.1	33	43
5.81	6	-0.19	33	44
5.75	6	-0.25	33	45
5.55	6	-0.45	33	46
5.81	6	-0.19	33	47
6.3	6	0.3	34	47
4.69	6	-1.31	34	48
5.84	6	-0.16	34	49
6.94	6	0.94	35	49
5.67	5.8	-0.13	35	50
5.93	5.8	0.13	36	50
6.57	5.8	0.77	37	50
6.03	5.8	0.23	38	50
6.01	5.8	0.21	39	50
5.96	5.8	0.16	40	50
5.98	5.8	0.18	41	50
5.64	5.8	-0.16	41	51
6.35	5.8	0.55	42	51
7.33	5.8	1.53	43	51
6.1	5.8	0.3	44	51
5.81	5.8	0.01	45	51
5.75	5.8	-0.05	45	52
5.55	5.8	-0.25	45	53

5.81	5.8	0.01	46	53
6.3	5.8	0.5	47	53
4.69	5.8	-1.11	47	54
5.84	5.8	0.04	48	54
6.94	5.8	1.14	49	54
5.93	5.67	0.26	50	54
6.57	5.67	0.9	51	54
6.03	5.67	0.36	52	54
6.01	5.67	0.34	53	54
5.96	5.67	0.29	54	54
5.98	5.67	0.31	55	54
5.64	5.67	-0.03	55	55
6.35	5.67	0.68	56	55
7.33	5.67	1.66	57	55
6.1	5.67	0.43	58	55
5.81	5.67	0.14	59	55
5.75	5.67	0.08	60	55
5.55	5.67	-0.12	60	56
5.81	5.67	0.14	61	56
6.3	5.67	0.63	62	56
4.69	5.67	-0.98	62	57
5.84	5.67	0.17	63	57
6.94	5.67	1.27	64	57
6.57	5.93	0.64	65	57
6.03	5.93	0.1	66	57
6.01	5.93	0.08	67	57
5.96	5.93	0.03	68	57
5.98	5.93	0.05	69	57
5.64	5.93	-0.29	69	58
6.35	5.93	0.42	70	58
7.33	5.93	1.4	71	58
6.1	5.93	0.17	72	58
5.81	5.93	-0.12	72	59
5.75	5.93	-0.18	72	60
5.55	5.93	-0.38	72	61
5.81	5.93	-0.12	72	62
6.3	5.93	0.37	73	62
4.69	5.93	-1.24	73	63
5.84	5.93	-0.09	73	64
6.94	5.93	1.01	74	64
6.03	6.57	-0.54	74	65
6.01	6.57	-0.56	74	66
5.96	6.57	-0.61	74	67
5.98	6.57	-0.59	74	68
5.64	6.57	-0.93	74	69
6.35	6.57	-0.22	74	70
7.33	6.57	0.76	75	70
6.1	6.57	-0.47	75	71
5.81	6.57	-0.76	75	72
5.75	6.57	-0.82	75	73
5.55	6.57	-1.02	75	74
5.81	6.57	-0.76	75	75
6.3	6.57	-0.27	75	76
4.69	6.57	-1.88	75	77

5.84	6.57	-0.73	75	78
6.94	6.57	0.37	76	78
6.01	6.03	-0.02	76	79
5.96	6.03	-0.07	76	80
5.98	6.03	-0.05	76	81
5.64	6.03	-0.39	76	82
6.35	6.03	0.32	77	82
7.33	6.03	1.3	78	82
6.1	6.03	0.07	79	82
5.81	6.03	-0.22	79	83
5.75	6.03	-0.28	79	84
5.55	6.03	-0.48	79	85
5.81	6.03	-0.22	79	86
6.3	6.03	0.27	80	86
4.69	6.03	-1.34	80	87
5.84	6.03	-0.19	80	88
6.94	6.03	0.91	81	88
5.96	6.01	-0.05	81	89
5.98	6.01	-0.03	81	90
5.64	6.01	-0.37	81	91
6.35	6.01	0.34	82	91
7.33	6.01	1.32	83	91
6.1	6.01	0.09	84	91
5.81	6.01	-0.2	84	92
5.75	6.01	-0.26	84	93
5.55	6.01	-0.46	84	94
5.81	6.01	-0.2	84	95
6.3	6.01	0.29	85	95
4.69	6.01	-1.32	85	96
5.84	6.01	-0.17	85	97
6.94	6.01	0.93	86	97
5.98	5.96	0.02	87	97
5.64	5.96	-0.32	87	98
6.35	5.96	0.39	88	98
7.33	5.96	1.37	89	98
6.1	5.96	0.14	90	98
5.81	5.96	-0.15	90	99
5.75	5.96	-0.21	90	100
5.55	5.96	-0.41	90	101
5.81	5.96	-0.15	90	102
6.3	5.96	0.34	91	102
4.69	5.96	-1.27	91	103
5.84	5.96	-0.12	91	104
6.94	5.96	0.98	92	104
5.64	5.98	-0.34	92	105
6.35	5.98	0.37	93	105
7.33	5.98	1.35	94	105
6.1	5.98	0.12	95	105
5.81	5.98	-0.17	95	106
5.75	5.98	-0.23	95	107
5.55	5.98	-0.43	95	108
5.81	5.98	-0.17	95	109
6.3	5.98	0.32	96	109

4.69	5.98	-1.29	96	110
5.84	5.98	-0.14	96	111
6.94	5.98	0.96	97	111
6.35	5.64	0.71	98	111
7.33	5.64	1.69	99	111
6.1	5.64	0.46	100	111
5.81	5.64	0.17	101	111
5.75	5.64	0.11	102	111
5.55	5.64	-0.09	102	112
5.81	5.64	0.17	103	112
6.3	5.64	0.66	104	112
4.69	5.64	-0.95	104	113
5.84	5.64	0.2	105	113
6.94	5.64	1.3	106	113
7.33	6.35	0.98	107	113
6.1	6.35	-0.25	107	114
5.81	6.35	-0.54	107	115
5.75	6.35	-0.6	107	116
5.55	6.35	-0.8	107	117
5.81	6.35	-0.54	107	118
6.3	6.35	-0.05	107	119
4.69	6.35	-1.66	107	120
5.84	6.35	-0.51	107	121
6.94	6.35	0.59	108	121
6.1	7.33	-1.23	108	122
5.81	7.33	-1.52	108	123
5.75	7.33	-1.58	108	124
5.55	7.33	-1.78	108	125
5.81	7.33	-1.52	108	126
6.3	7.33	-1.03	108	127
4.69	7.33	-2.64	108	128
5.84	7.33	-1.49	108	129
6.94	7.33	-0.39	108	130
5.81	6.1	-0.29	108	131
5.75	6.1	-0.35	108	132
5.55	6.1	-0.55	108	133
5.81	6.1	-0.29	108	134
6.3	6.1	0.2	109	134
4.69	6.1	-1.41	109	135
5.84	6.1	-0.26	109	136
6.94	6.1	0.84	110	136
5.75	5.81	-0.06	110	137
5.55	5.81	-0.26	110	138
5.81	5.81	0	110	138
6.3	5.81	0.49	111	138
4.69	5.81	-1.12	111	139
5.84	5.81	0.03	112	139
6.94	5.81	1.13	113	139
5.55	5.75	-0.2	113	140
5.81	5.75	0.06	114	140
6.3	5.75	0.55	115	140

4.69	5.75	-1.06	115	141
5.84	5.75	0.09	116	141
6.94	5.75	1.19	117	141
5.81	5.55	0.26	118	141
6.3	5.55	0.75	119	141
4.69	5.55	-0.86	119	142
5.84	5.55	0.29	120	142
6.94	5.55	1.39	121	142
6.3	5.81	0.49	122	142
4.69	5.81	-1.12	122	143
5.84	5.81	0.03	123	143
6.94	5.81	1.13	124	143
4.69	6.3	-1.61	124	144
5.84	6.3	-0.46	124	145
6.94	6.3	0.64	125	145
5.84	4.69	1.15	126	145
6.94	4.69	2.25	127	145
6.94	5.84	1.1	128	145

S Statistic = 128 - 145 = -17

---

Tied Group	Value	Members
1	5.96	2
2	5.84	2
3	5.81	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 54

B = 0

C = 0

D = 0

E = 6

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1622.33

Z-Score = -0.397237

Comparison Level at 95% confidence level = 1.65463 (upward trend)

-0.397237 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW10-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
9.93	6.86	3.07	1	0
7.03	6.86	0.17	2	0
8.7	6.86	1.84	3	0
7.15	6.86	0.29	4	0
6.58	6.86	-0.28	4	1
10.92	6.86	4.06	5	1
7.15	6.86	0.29	6	1
6.28	6.86	-0.58	6	2
6.67	6.86	-0.19	6	3
11.21	6.86	4.35	7	3
10.29	6.86	3.43	8	3
6.39	6.86	-0.47	8	4
6.95	6.86	0.09	9	4
7.87	6.86	1.01	10	4
6.5	6.86	-0.36	10	5
6.83	6.86	-0.03	10	6
6.59	6.86	-0.27	10	7
6.11	6.86	-0.75	10	8
6.14	6.86	-0.72	10	9
5.87	6.86	-0.99	10	10
6.15	6.86	-0.71	10	11
6.99	6.86	0.13	11	11
7.89	6.86	1.03	12	11
7.03	9.93	-2.9	12	12
8.7	9.93	-1.23	12	13
7.15	9.93	-2.78	12	14
6.58	9.93	-3.35	12	15
10.92	9.93	0.99	13	15
7.15	9.93	-2.78	13	16
6.28	9.93	-3.65	13	17
6.67	9.93	-3.26	13	18
11.21	9.93	1.28	14	18
10.29	9.93	0.36	15	18
6.39	9.93	-3.54	15	19
6.95	9.93	-2.98	15	20
7.87	9.93	-2.06	15	21
6.5	9.93	-3.43	15	22
6.83	9.93	-3.1	15	23
6.59	9.93	-3.34	15	24
6.11	9.93	-3.82	15	25
6.14	9.93	-3.79	15	26
5.87	9.93	-4.06	15	27
6.15	9.93	-3.78	15	28
6.99	9.93	-2.94	15	29
7.89	9.93	-2.04	15	30



8.7	7.03	1.67	16	30
7.15	7.03	0.12	17	30
6.58	7.03	-0.45	17	31
10.92	7.03	3.89	18	31
7.15	7.03	0.12	19	31
6.28	7.03	-0.75	19	32
6.67	7.03	-0.36	19	33
11.21	7.03	4.18	20	33
10.29	7.03	3.26	21	33
6.39	7.03	-0.64	21	34
6.95	7.03	-0.08	21	35
7.87	7.03	0.84	22	35
6.5	7.03	-0.53	22	36
6.83	7.03	-0.2	22	37
6.59	7.03	-0.44	22	38
6.11	7.03	-0.92	22	39
6.14	7.03	-0.89	22	40
5.87	7.03	-1.16	22	41
6.15	7.03	-0.88	22	42
6.99	7.03	-0.04	22	43
7.89	7.03	0.86	23	43
7.15	8.7	-1.55	23	44
6.58	8.7	-2.12	23	45
10.92	8.7	2.22	24	45
7.15	8.7	-1.55	24	46
6.28	8.7	-2.42	24	47
6.67	8.7	-2.03	24	48
11.21	8.7	2.51	25	48
10.29	8.7	1.59	26	48
6.39	8.7	-2.31	26	49
6.95	8.7	-1.75	26	50
7.87	8.7	-0.83	26	51
6.5	8.7	-2.2	26	52
6.83	8.7	-1.87	26	53
6.59	8.7	-2.11	26	54
6.11	8.7	-2.59	26	55
6.14	8.7	-2.56	26	56
5.87	8.7	-2.83	26	57
6.15	8.7	-2.55	26	58
6.99	8.7	-1.71	26	59
7.89	8.7	-0.81	26	60
6.58	7.15	-0.57	26	61
10.92	7.15	3.77	27	61
7.15	7.15	0	27	61
6.28	7.15	-0.87	27	62
6.67	7.15	-0.48	27	63
11.21	7.15	4.06	28	63
10.29	7.15	3.14	29	63
6.39	7.15	-0.76	29	64
6.95	7.15	-0.2	29	65
7.87	7.15	0.72	30	65
6.5	7.15	-0.65	30	66
6.83	7.15	-0.32	30	67
6.59	7.15	-0.56	30	68
6.11	7.15	-1.04	30	69

6.14	7.15	-1.01	30	70
5.87	7.15	-1.28	30	71
6.15	7.15	-1	30	72
6.99	7.15	-0.16	30	73
7.89	7.15	0.74	31	73
10.92	6.58	4.34	32	73
7.15	6.58	0.57	33	73
6.28	6.58	-0.3	33	74
6.67	6.58	0.09	34	74
11.21	6.58	4.63	35	74
10.29	6.58	3.71	36	74
6.39	6.58	-0.19	36	75
6.95	6.58	0.37	37	75
7.87	6.58	1.29	38	75
6.5	6.58	-0.08	38	76
6.83	6.58	0.25	39	76
6.59	6.58	0.01	40	76
6.11	6.58	-0.47	40	77
6.14	6.58	-0.44	40	78
5.87	6.58	-0.71	40	79
6.15	6.58	-0.43	40	80
6.99	6.58	0.41	41	80
7.89	6.58	1.31	42	80
7.15	10.92	-3.77	42	81
6.28	10.92	-4.64	42	82
6.67	10.92	-4.25	42	83
11.21	10.92	0.29	43	83
10.29	10.92	-0.63	43	84
6.39	10.92	-4.53	43	85
6.95	10.92	-3.97	43	86
7.87	10.92	-3.05	43	87
6.5	10.92	-4.42	43	88
6.83	10.92	-4.09	43	89
6.59	10.92	-4.33	43	90
6.11	10.92	-4.81	43	91
6.14	10.92	-4.78	43	92
5.87	10.92	-5.05	43	93
6.15	10.92	-4.77	43	94
6.99	10.92	-3.93	43	95
7.89	10.92	-3.03	43	96
6.28	7.15	-0.87	43	97
6.67	7.15	-0.48	43	98
11.21	7.15	4.06	44	98
10.29	7.15	3.14	45	98
6.39	7.15	-0.76	45	99
6.95	7.15	-0.2	45	100
7.87	7.15	0.72	46	100
6.5	7.15	-0.65	46	101
6.83	7.15	-0.32	46	102
6.59	7.15	-0.56	46	103
6.11	7.15	-1.04	46	104
6.14	7.15	-1.01	46	105
5.87	7.15	-1.28	46	106
6.15	7.15	-1	46	107

6.99	7.15	-0.16	46	108
7.89	7.15	0.74	47	108
6.67	6.28	0.39	48	108
11.21	6.28	4.93	49	108
10.29	6.28	4.01	50	108
6.39	6.28	0.11	51	108
6.95	6.28	0.67	52	108
7.87	6.28	1.59	53	108
6.5	6.28	0.22	54	108
6.83	6.28	0.55	55	108
6.59	6.28	0.31	56	108
6.11	6.28	-0.17	56	109
6.14	6.28	-0.14	56	110
5.87	6.28	-0.41	56	111
6.15	6.28	-0.13	56	112
6.99	6.28	0.71	57	112
7.89	6.28	1.61	58	112
11.21	6.67	4.54	59	112
10.29	6.67	3.62	60	112
6.39	6.67	-0.28	60	113
6.95	6.67	0.28	61	113
7.87	6.67	1.2	62	113
6.5	6.67	-0.17	62	114
6.83	6.67	0.16	63	114
6.59	6.67	-0.08	63	115
6.11	6.67	-0.56	63	116
6.14	6.67	-0.53	63	117
5.87	6.67	-0.8	63	118
6.15	6.67	-0.52	63	119
6.99	6.67	0.32	64	119
7.89	6.67	1.22	65	119
10.29	11.21	-0.92	65	120
6.39	11.21	-4.82	65	121
6.95	11.21	-4.26	65	122
7.87	11.21	-3.34	65	123
6.5	11.21	-4.71	65	124
6.83	11.21	-4.38	65	125
6.59	11.21	-4.62	65	126
6.11	11.21	-5.1	65	127
6.14	11.21	-5.07	65	128
5.87	11.21	-5.34	65	129
6.15	11.21	-5.06	65	130
6.99	11.21	-4.22	65	131
7.89	11.21	-3.32	65	132
6.39	10.29	-3.9	65	133
6.95	10.29	-3.34	65	134
7.87	10.29	-2.42	65	135
6.5	10.29	-3.79	65	136
6.83	10.29	-3.46	65	137
6.59	10.29	-3.7	65	138
6.11	10.29	-4.18	65	139
6.14	10.29	-4.15	65	140
5.87	10.29	-4.42	65	141

6.15	10.29	-4.14	65	142
6.99	10.29	-3.3	65	143
7.89	10.29	-2.4	65	144
6.95	6.39	0.56	66	144
7.87	6.39	1.48	67	144
6.5	6.39	0.11	68	144
6.83	6.39	0.44	69	144
6.59	6.39	0.2	70	144
6.11	6.39	-0.28	70	145
6.14	6.39	-0.25	70	146
5.87	6.39	-0.52	70	147
6.15	6.39	-0.24	70	148
6.99	6.39	0.6	71	148
7.89	6.39	1.5	72	148
7.87	6.95	0.92	73	148
6.5	6.95	-0.45	73	149
6.83	6.95	-0.12	73	150
6.59	6.95	-0.36	73	151
6.11	6.95	-0.84	73	152
6.14	6.95	-0.81	73	153
5.87	6.95	-1.08	73	154
6.15	6.95	-0.8	73	155
6.99	6.95	0.04	74	155
7.89	6.95	0.94	75	155
6.5	7.87	-1.37	75	156
6.83	7.87	-1.04	75	157
6.59	7.87	-1.28	75	158
6.11	7.87	-1.76	75	159
6.14	7.87	-1.73	75	160
5.87	7.87	-2	75	161
6.15	7.87	-1.72	75	162
6.99	7.87	-0.88	75	163
7.89	7.87	0.02	76	163
6.83	6.5	0.33	77	163
6.59	6.5	0.09	78	163
6.11	6.5	-0.39	78	164
6.14	6.5	-0.36	78	165
5.87	6.5	-0.63	78	166
6.15	6.5	-0.35	78	167
6.99	6.5	0.49	79	167
7.89	6.5	1.39	80	167
6.59	6.83	-0.24	80	168
6.11	6.83	-0.72	80	169
6.14	6.83	-0.69	80	170
5.87	6.83	-0.96	80	171
6.15	6.83	-0.68	80	172
6.99	6.83	0.16	81	172
7.89	6.83	1.06	82	172
6.11	6.59	-0.48	82	173
6.14	6.59	-0.45	82	174
5.87	6.59	-0.72	82	175

6.15	6.59	-0.44	82	176
6.99	6.59	0.4	83	176
7.89	6.59	1.3	84	176
6.14	6.11	0.03	85	176
5.87	6.11	-0.24	85	177
6.15	6.11	0.04	86	177
6.99	6.11	0.88	87	177
7.89	6.11	1.78	88	177
5.87	6.14	-0.27	88	178
6.15	6.14	0.01	89	178
6.99	6.14	0.85	90	178
7.89	6.14	1.75	91	178
6.15	5.87	0.28	92	178
6.99	5.87	1.12	93	178
7.89	5.87	2.02	94	178
6.99	6.15	0.84	95	178
7.89	6.15	1.74	96	178
7.89	6.99	0.9	97	178

S Statistic = 97 - 178 = -81

---

Tied Group	Value	Members
1	7.15	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 18  
B = 0  
C = 0  
D = 0  
E = 2  
F = 0  
a = 29256  
b = 109296  
c = 1104  
Group Variance = 1624.33  
Z-Score = -1.98496  
Comparison Level at 95% confidence level = 1.65463 (upward trend)  
-1.98496 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW11-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.93	6.05	-0.12	0	1
5.35	6.05	-0.7	0	2
6.11	6.05	0.06	1	2
5.5	6.05	-0.55	1	3
5.66	6.05	-0.39	1	4
5.81	6.05	-0.24	1	5
5.21	6.05	-0.84	1	6
5.92	6.05	-0.13	1	7
6.2	6.05	0.15	2	7
6.16	6.05	0.11	3	7
5.61	6.05	-0.44	3	8
5.98	6.05	-0.07	3	9
6.23	6.05	0.18	4	9
7.27	6.05	1.22	5	9
6.4	6.05	0.35	6	9
5.91	6.05	-0.14	6	10
5.97	6.05	-0.08	6	11
5.65	6.05	-0.4	6	12
5.82	6.05	-0.23	6	13
6.13	6.05	0.08	7	13
5.87	6.05	-0.18	7	14
5.35	5.93	-0.58	7	15
6.11	5.93	0.18	8	15
5.5	5.93	-0.43	8	16
5.66	5.93	-0.27	8	17
5.81	5.93	-0.12	8	18
5.21	5.93	-0.72	8	19
5.92	5.93	-0.01	8	20
6.2	5.93	0.27	9	20
6.16	5.93	0.23	10	20
5.61	5.93	-0.32	10	21
5.98	5.93	0.05	11	21
6.23	5.93	0.3	12	21
7.27	5.93	1.34	13	21
6.4	5.93	0.47	14	21
5.91	5.93	-0.02	14	22
5.97	5.93	0.04	15	22
5.65	5.93	-0.28	15	23
5.82	5.93	-0.11	15	24
6.13	5.93	0.2	16	24
5.87	5.93	-0.06	16	25
6.11	5.35	0.76	17	25
5.5	5.35	0.15	18	25
5.66	5.35	0.31	19	25
5.81	5.35	0.46	20	25

5.21	5.35	-0.14	20	26
5.92	5.35	0.57	21	26
6.2	5.35	0.85	22	26
6.16	5.35	0.81	23	26
5.61	5.35	0.26	24	26
5.98	5.35	0.63	25	26
6.23	5.35	0.88	26	26
7.27	5.35	1.92	27	26
6.4	5.35	1.05	28	26
5.91	5.35	0.56	29	26
5.97	5.35	0.62	30	26
5.65	5.35	0.3	31	26
5.82	5.35	0.47	32	26
6.13	5.35	0.78	33	26
5.87	5.35	0.52	34	26
5.5	6.11	-0.61	34	27
5.66	6.11	-0.45	34	28
5.81	6.11	-0.3	34	29
5.21	6.11	-0.9	34	30
5.92	6.11	-0.19	34	31
6.2	6.11	0.09	35	31
6.16	6.11	0.05	36	31
5.61	6.11	-0.5	36	32
5.98	6.11	-0.13	36	33
6.23	6.11	0.12	37	33
7.27	6.11	1.16	38	33
6.4	6.11	0.29	39	33
5.91	6.11	-0.2	39	34
5.97	6.11	-0.14	39	35
5.65	6.11	-0.46	39	36
5.82	6.11	-0.29	39	37
6.13	6.11	0.02	40	37
5.87	6.11	-0.24	40	38
5.66	5.5	0.16	41	38
5.81	5.5	0.31	42	38
5.21	5.5	-0.29	42	39
5.92	5.5	0.42	43	39
6.2	5.5	0.7	44	39
6.16	5.5	0.66	45	39
5.61	5.5	0.11	46	39
5.98	5.5	0.48	47	39
6.23	5.5	0.73	48	39
7.27	5.5	1.77	49	39
6.4	5.5	0.9	50	39
5.91	5.5	0.41	51	39
5.97	5.5	0.47	52	39
5.65	5.5	0.15	53	39
5.82	5.5	0.32	54	39
6.13	5.5	0.63	55	39
5.87	5.5	0.37	56	39
5.81	5.66	0.15	57	39
5.21	5.66	-0.45	57	40
5.92	5.66	0.26	58	40
6.2	5.66	0.54	59	40



6.16	5.66	0.5	60	40
5.61	5.66	-0.05	60	41
5.98	5.66	0.32	61	41
6.23	5.66	0.57	62	41
7.27	5.66	1.61	63	41
6.4	5.66	0.74	64	41
5.91	5.66	0.25	65	41
5.97	5.66	0.31	66	41
5.65	5.66	-0.01	66	42
5.82	5.66	0.16	67	42
6.13	5.66	0.47	68	42
5.87	5.66	0.21	69	42
5.21	5.81	-0.6	69	43
5.92	5.81	0.11	70	43
6.2	5.81	0.39	71	43
6.16	5.81	0.35	72	43
5.61	5.81	-0.2	72	44
5.98	5.81	0.17	73	44
6.23	5.81	0.42	74	44
7.27	5.81	1.46	75	44
6.4	5.81	0.59	76	44
5.91	5.81	0.1	77	44
5.97	5.81	0.16	78	44
5.65	5.81	-0.16	78	45
5.82	5.81	0.01	79	45
6.13	5.81	0.32	80	45
5.87	5.81	0.06	81	45
5.92	5.21	0.71	82	45
6.2	5.21	0.99	83	45
6.16	5.21	0.95	84	45
5.61	5.21	0.4	85	45
5.98	5.21	0.77	86	45
6.23	5.21	1.02	87	45
7.27	5.21	2.06	88	45
6.4	5.21	1.19	89	45
5.91	5.21	0.7	90	45
5.97	5.21	0.76	91	45
5.65	5.21	0.44	92	45
5.82	5.21	0.61	93	45
6.13	5.21	0.92	94	45
5.87	5.21	0.66	95	45
6.2	5.92	0.28	96	45
6.16	5.92	0.24	97	45
5.61	5.92	-0.31	97	46
5.98	5.92	0.06	98	46
6.23	5.92	0.31	99	46
7.27	5.92	1.35	100	46
6.4	5.92	0.48	101	46
5.91	5.92	-0.01	101	47
5.97	5.92	0.05	102	47
5.65	5.92	-0.27	102	48
5.82	5.92	-0.1	102	49
6.13	5.92	0.21	103	49
5.87	5.92	-0.05	103	50

6.16	6.2	-0.04	103	51
5.61	6.2	-0.59	103	52
5.98	6.2	-0.22	103	53
6.23	6.2	0.03	104	53
7.27	6.2	1.07	105	53
6.4	6.2	0.2	106	53
5.91	6.2	-0.29	106	54
5.97	6.2	-0.23	106	55
5.65	6.2	-0.55	106	56
5.82	6.2	-0.38	106	57
6.13	6.2	-0.07	106	58
5.87	6.2	-0.33	106	59
5.61	6.16	-0.55	106	60
5.98	6.16	-0.18	106	61
6.23	6.16	0.07	107	61
7.27	6.16	1.11	108	61
6.4	6.16	0.24	109	61
5.91	6.16	-0.25	109	62
5.97	6.16	-0.19	109	63
5.65	6.16	-0.51	109	64
5.82	6.16	-0.34	109	65
6.13	6.16	-0.03	109	66
5.87	6.16	-0.29	109	67
5.98	5.61	0.37	110	67
6.23	5.61	0.62	111	67
7.27	5.61	1.66	112	67
6.4	5.61	0.79	113	67
5.91	5.61	0.3	114	67
5.97	5.61	0.36	115	67
5.65	5.61	0.04	116	67
5.82	5.61	0.21	117	67
6.13	5.61	0.52	118	67
5.87	5.61	0.26	119	67
6.23	5.98	0.25	120	67
7.27	5.98	1.29	121	67
6.4	5.98	0.42	122	67
5.91	5.98	-0.07	122	68
5.97	5.98	-0.01	122	69
5.65	5.98	-0.33	122	70
5.82	5.98	-0.16	122	71
6.13	5.98	0.15	123	71
5.87	5.98	-0.11	123	72
7.27	6.23	1.04	124	72
6.4	6.23	0.17	125	72
5.91	6.23	-0.32	125	73
5.97	6.23	-0.26	125	74
5.65	6.23	-0.58	125	75
5.82	6.23	-0.41	125	76
6.13	6.23	-0.1	125	77
5.87	6.23	-0.36	125	78
6.4	7.27	-0.87	125	79

5.91	7.27	-1.36	125	80
5.97	7.27	-1.3	125	81
5.65	7.27	-1.62	125	82
5.82	7.27	-1.45	125	83
6.13	7.27	-1.14	125	84
5.87	7.27	-1.4	125	85
5.91	6.4	-0.49	125	86
5.97	6.4	-0.43	125	87
5.65	6.4	-0.75	125	88
5.82	6.4	-0.58	125	89
6.13	6.4	-0.27	125	90
5.87	6.4	-0.53	125	91
5.97	5.91	0.06	126	91
5.65	5.91	-0.26	126	92
5.82	5.91	-0.09	126	93
6.13	5.91	0.22	127	93
5.87	5.91	-0.04	127	94
5.65	5.97	-0.32	127	95
5.82	5.97	-0.15	127	96
6.13	5.97	0.16	128	96
5.87	5.97	-0.1	128	97
5.82	5.65	0.17	129	97
6.13	5.65	0.48	130	97
5.87	5.65	0.22	131	97
6.13	5.82	0.31	132	97
5.87	5.82	0.05	133	97
5.87	6.13	-0.26	133	98

S Statistic = 133 - 98 = 35

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1

6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 22638

b = 83160

c = 924

Group Variance = 1257.67

Z-Score = 0.95873

Comparison Level at 95% confidence level = 1.65463 (upward trend)

0.95873 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW12-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.26	5.27	-0.01	0	1
5.34	5.27	0.07	1	1
4.18	5.27	-1.09	1	2
5.39	5.27	0.12	2	2
4.2	5.27	-1.07	2	3
4.71	5.27	-0.56	2	4
4.61	5.27	-0.66	2	5
5.25	5.27	-0.02	2	6
5.32	5.27	0.05	3	6
6.06	5.27	0.79	4	6
4.46	5.27	-0.81	4	7
4.68	5.27	-0.59	4	8
6.37	5.27	1.1	5	8
7.45	5.27	2.18	6	8
6	5.27	0.73	7	8
5.47	5.27	0.2	8	8
5.36	5.27	0.09	9	8
5.26	5.27	-0.01	9	9
5.69	5.27	0.42	10	9
6.54	5.27	1.27	11	9
5.34	5.26	0.08	12	9
4.18	5.26	-1.08	12	10
5.39	5.26	0.13	13	10
4.2	5.26	-1.06	13	11
4.71	5.26	-0.55	13	12
4.61	5.26	-0.65	13	13
5.25	5.26	-0.01	13	14
5.32	5.26	0.06	14	14
6.06	5.26	0.8	15	14
4.46	5.26	-0.8	15	15
4.68	5.26	-0.58	15	16
6.37	5.26	1.11	16	16
7.45	5.26	2.19	17	16
6	5.26	0.74	18	16
5.47	5.26	0.21	19	16
5.36	5.26	0.1	20	16
5.26	5.26	0	20	16
5.69	5.26	0.43	21	16
6.54	5.26	1.28	22	16
4.18	5.34	-1.16	22	17
5.39	5.34	0.05	23	17
4.2	5.34	-1.14	23	18
4.71	5.34	-0.63	23	19
4.61	5.34	-0.73	23	20
5.25	5.34	-0.09	23	21

5.32	5.34	-0.02	23	22
6.06	5.34	0.72	24	22
4.46	5.34	-0.88	24	23
4.68	5.34	-0.66	24	24
6.37	5.34	1.03	25	24
7.45	5.34	2.11	26	24
6	5.34	0.66	27	24
5.47	5.34	0.13	28	24
5.36	5.34	0.02	29	24
5.26	5.34	-0.08	29	25
5.69	5.34	0.35	30	25
6.54	5.34	1.2	31	25
5.39	4.18	1.21	32	25
4.2	4.18	0.02	33	25
4.71	4.18	0.53	34	25
4.61	4.18	0.43	35	25
5.25	4.18	1.07	36	25
5.32	4.18	1.14	37	25
6.06	4.18	1.88	38	25
4.46	4.18	0.28	39	25
4.68	4.18	0.5	40	25
6.37	4.18	2.19	41	25
7.45	4.18	3.27	42	25
6	4.18	1.82	43	25
5.47	4.18	1.29	44	25
5.36	4.18	1.18	45	25
5.26	4.18	1.08	46	25
5.69	4.18	1.51	47	25
6.54	4.18	2.36	48	25
4.2	5.39	-1.19	48	26
4.71	5.39	-0.68	48	27
4.61	5.39	-0.78	48	28
5.25	5.39	-0.14	48	29
5.32	5.39	-0.07	48	30
6.06	5.39	0.67	49	30
4.46	5.39	-0.93	49	31
4.68	5.39	-0.71	49	32
6.37	5.39	0.98	50	32
7.45	5.39	2.06	51	32
6	5.39	0.61	52	32
5.47	5.39	0.08	53	32
5.36	5.39	-0.03	53	33
5.26	5.39	-0.13	53	34
5.69	5.39	0.3	54	34
6.54	5.39	1.15	55	34
4.71	4.2	0.51	56	34
4.61	4.2	0.41	57	34
5.25	4.2	1.05	58	34
5.32	4.2	1.12	59	34
6.06	4.2	1.86	60	34
4.46	4.2	0.26	61	34
4.68	4.2	0.48	62	34
6.37	4.2	2.17	63	34
7.45	4.2	3.25	64	34

6	4.2	1.8	65	34
5.47	4.2	1.27	66	34
5.36	4.2	1.16	67	34
5.26	4.2	1.06	68	34
5.69	4.2	1.49	69	34
6.54	4.2	2.34	70	34
4.61	4.71	-0.1	70	35
5.25	4.71	0.54	71	35
5.32	4.71	0.61	72	35
6.06	4.71	1.35	73	35
4.46	4.71	-0.25	73	36
4.68	4.71	-0.03	73	37
6.37	4.71	1.66	74	37
7.45	4.71	2.74	75	37
6	4.71	1.29	76	37
5.47	4.71	0.76	77	37
5.36	4.71	0.65	78	37
5.26	4.71	0.55	79	37
5.69	4.71	0.98	80	37
6.54	4.71	1.83	81	37
5.25	4.61	0.64	82	37
5.32	4.61	0.71	83	37
6.06	4.61	1.45	84	37
4.46	4.61	-0.15	84	38
4.68	4.61	0.07	85	38
6.37	4.61	1.76	86	38
7.45	4.61	2.84	87	38
6	4.61	1.39	88	38
5.47	4.61	0.86	89	38
5.36	4.61	0.75	90	38
5.26	4.61	0.65	91	38
5.69	4.61	1.08	92	38
6.54	4.61	1.93	93	38
5.32	5.25	0.07	94	38
6.06	5.25	0.81	95	38
4.46	5.25	-0.79	95	39
4.68	5.25	-0.57	95	40
6.37	5.25	1.12	96	40
7.45	5.25	2.2	97	40
6	5.25	0.75	98	40
5.47	5.25	0.22	99	40
5.36	5.25	0.11	100	40
5.26	5.25	0.01	101	40
5.69	5.25	0.44	102	40
6.54	5.25	1.29	103	40
6.06	5.32	0.74	104	40
4.46	5.32	-0.86	104	41
4.68	5.32	-0.64	104	42
6.37	5.32	1.05	105	42
7.45	5.32	2.13	106	42
6	5.32	0.68	107	42
5.47	5.32	0.15	108	42
5.36	5.32	0.04	109	42

5.26	5.32	-0.06	109	43
5.69	5.32	0.37	110	43
6.54	5.32	1.22	111	43
4.46	6.06	-1.6	111	44
4.68	6.06	-1.38	111	45
6.37	6.06	0.31	112	45
7.45	6.06	1.39	113	45
6	6.06	-0.06	113	46
5.47	6.06	-0.59	113	47
5.36	6.06	-0.7	113	48
5.26	6.06	-0.8	113	49
5.69	6.06	-0.37	113	50
6.54	6.06	0.48	114	50
4.68	4.46	0.22	115	50
6.37	4.46	1.91	116	50
7.45	4.46	2.99	117	50
6	4.46	1.54	118	50
5.47	4.46	1.01	119	50
5.36	4.46	0.9	120	50
5.26	4.46	0.8	121	50
5.69	4.46	1.23	122	50
6.54	4.46	2.08	123	50
6.37	4.68	1.69	124	50
7.45	4.68	2.77	125	50
6	4.68	1.32	126	50
5.47	4.68	0.79	127	50
5.36	4.68	0.68	128	50
5.26	4.68	0.58	129	50
5.69	4.68	1.01	130	50
6.54	4.68	1.86	131	50
7.45	6.37	1.08	132	50
6	6.37	-0.37	132	51
5.47	6.37	-0.9	132	52
5.36	6.37	-1.01	132	53
5.26	6.37	-1.11	132	54
5.69	6.37	-0.68	132	55
6.54	6.37	0.17	133	55
6	7.45	-1.45	133	56
5.47	7.45	-1.98	133	57
5.36	7.45	-2.09	133	58
5.26	7.45	-2.19	133	59
5.69	7.45	-1.76	133	60
6.54	7.45	-0.91	133	61
5.47	6	-0.53	133	62
5.36	6	-0.64	133	63
5.26	6	-0.74	133	64
5.69	6	-0.31	133	65
6.54	6	0.54	134	65
5.36	5.47	-0.11	134	66
5.26	5.47	-0.21	134	67



5.69	5.47	0.22	135	67
6.54	5.47	1.07	136	67
5.26	5.36	-0.1	136	68
5.69	5.36	0.33	137	68
6.54	5.36	1.18	138	68
5.69	5.26	0.43	139	68
6.54	5.26	1.28	140	68
6.54	5.69	0.85	141	68

S Statistic = 141 - 68 = 73

---

Tied Group	Value	Members
1	5.26	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
6/1/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 19740

b = 71820

c = 840

Group Variance = 1095.67

Z-Score = 2.17517

Comparison Level at 95% confidence level = 1.65463 (upward trend)

**2.17517 > 1.65463 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW13-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
12.18	6.72	5.46	1	0
6.86	6.72	0.14	2	0
7.32	6.72	0.6	3	0
7.67	6.72	0.95	4	0
11.44	6.72	4.72	5	0
6.46	6.72	-0.26	5	1
6.86	6.72	0.14	6	1
9.66	6.72	2.94	7	1
11.6	6.72	4.88	8	1
5.83	6.72	-0.89	8	2
10.25	6.72	3.53	9	2
10.98	6.72	4.26	10	2
6.04	6.72	-0.68	10	3
5.93	6.72	-0.79	10	4
8.62	6.72	1.9	11	4
7.05	6.72	0.33	12	4
11.05	6.72	4.33	13	4
6.86	12.18	-5.32	13	5
7.32	12.18	-4.86	13	6
7.67	12.18	-4.51	13	7
11.44	12.18	-0.74	13	8
6.46	12.18	-5.72	13	9
6.86	12.18	-5.32	13	10
9.66	12.18	-2.52	13	11
11.6	12.18	-0.58	13	12
5.83	12.18	-6.35	13	13
10.25	12.18	-1.93	13	14
10.98	12.18	-1.2	13	15
6.04	12.18	-6.14	13	16
5.93	12.18	-6.25	13	17
8.62	12.18	-3.56	13	18
7.05	12.18	-5.13	13	19
11.05	12.18	-1.13	13	20
7.32	6.86	0.46	14	20
7.67	6.86	0.81	15	20
11.44	6.86	4.58	16	20
6.46	6.86	-0.4	16	21
6.86	6.86	0	16	21
9.66	6.86	2.8	17	21
11.6	6.86	4.74	18	21
5.83	6.86	-1.03	18	22
10.25	6.86	3.39	19	22
10.98	6.86	4.12	20	22
6.04	6.86	-0.82	20	23
5.93	6.86	-0.93	20	24

8.62	6.86	1.76	21	24
7.05	6.86	0.19	22	24
11.05	6.86	4.19	23	24
7.67	7.32	0.35	24	24
11.44	7.32	4.12	25	24
6.46	7.32	-0.86	25	25
6.86	7.32	-0.46	25	26
9.66	7.32	2.34	26	26
11.6	7.32	4.28	27	26
5.83	7.32	-1.49	27	27
10.25	7.32	2.93	28	27
10.98	7.32	3.66	29	27
6.04	7.32	-1.28	29	28
5.93	7.32	-1.39	29	29
8.62	7.32	1.3	30	29
7.05	7.32	-0.27	30	30
11.05	7.32	3.73	31	30
11.44	7.67	3.77	32	30
6.46	7.67	-1.21	32	31
6.86	7.67	-0.81	32	32
9.66	7.67	1.99	33	32
11.6	7.67	3.93	34	32
5.83	7.67	-1.84	34	33
10.25	7.67	2.58	35	33
10.98	7.67	3.31	36	33
6.04	7.67	-1.63	36	34
5.93	7.67	-1.74	36	35
8.62	7.67	0.95	37	35
7.05	7.67	-0.62	37	36
11.05	7.67	3.38	38	36
6.46	11.44	-4.98	38	37
6.86	11.44	-4.58	38	38
9.66	11.44	-1.78	38	39
11.6	11.44	0.16	39	39
5.83	11.44	-5.61	39	40
10.25	11.44	-1.19	39	41
10.98	11.44	-0.46	39	42
6.04	11.44	-5.4	39	43
5.93	11.44	-5.51	39	44
8.62	11.44	-2.82	39	45
7.05	11.44	-4.39	39	46
11.05	11.44	-0.39	39	47
6.86	6.46	0.4	40	47
9.66	6.46	3.2	41	47
11.6	6.46	5.14	42	47
5.83	6.46	-0.63	42	48
10.25	6.46	3.79	43	48
10.98	6.46	4.52	44	48
6.04	6.46	-0.42	44	49
5.93	6.46	-0.53	44	50
8.62	6.46	2.16	45	50
7.05	6.46	0.59	46	50
11.05	6.46	4.59	47	50

9.66	6.86	2.8	48	50
11.6	6.86	4.74	49	50
5.83	6.86	-1.03	49	51
10.25	6.86	3.39	50	51
10.98	6.86	4.12	51	51
6.04	6.86	-0.82	51	52
5.93	6.86	-0.93	51	53
8.62	6.86	1.76	52	53
7.05	6.86	0.19	53	53
11.05	6.86	4.19	54	53
11.6	9.66	1.94	55	53
5.83	9.66	-3.83	55	54
10.25	9.66	0.59	56	54
10.98	9.66	1.32	57	54
6.04	9.66	-3.62	57	55
5.93	9.66	-3.73	57	56
8.62	9.66	-1.04	57	57
7.05	9.66	-2.61	57	58
11.05	9.66	1.39	58	58
5.83	11.6	-5.77	58	59
10.25	11.6	-1.35	58	60
10.98	11.6	-0.62	58	61
6.04	11.6	-5.56	58	62
5.93	11.6	-5.67	58	63
8.62	11.6	-2.98	58	64
7.05	11.6	-4.55	58	65
11.05	11.6	-0.55	58	66
10.25	5.83	4.42	59	66
10.98	5.83	5.15	60	66
6.04	5.83	0.21	61	66
5.93	5.83	0.1	62	66
8.62	5.83	2.79	63	66
7.05	5.83	1.22	64	66
11.05	5.83	5.22	65	66
10.98	10.25	0.73	66	66
6.04	10.25	-4.21	66	67
5.93	10.25	-4.32	66	68
8.62	10.25	-1.63	66	69
7.05	10.25	-3.2	66	70
11.05	10.25	0.8	67	70
6.04	10.98	-4.94	67	71
5.93	10.98	-5.05	67	72
8.62	10.98	-2.36	67	73
7.05	10.98	-3.93	67	74
11.05	10.98	0.07	68	74
5.93	6.04	-0.11	68	75
8.62	6.04	2.58	69	75
7.05	6.04	1.01	70	75
11.05	6.04	5.01	71	75

8.62	5.93	2.69	72	75
7.05	5.93	1.12	73	75
11.05	5.93	5.12	74	75
7.05	8.62	-1.57	74	76
11.05	8.62	2.43	75	76
11.05	7.05	4	76	76

S Statistic = 76 - 76 = 0

---

Tied Group	Value	Members
1	6.86	2

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 12546

b = 44064

c = 612

Group Variance = 696

Z-Score = 0

Comparison Level at 95% confidence level = 1.65463 (upward trend)

0 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW15-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6.68	11.6	-4.92	0	1
10.17	11.6	-1.43	0	2
11.59	11.6	-0.01	0	3
11.69	11.6	0.09	1	3
12.13	11.6	0.53	2	3
11.99	11.6	0.39	3	3
10.69	11.6	-0.91	3	4
7	11.6	-4.6	3	5
7	11.6	-4.6	3	6
6.91	11.6	-4.69	3	7
5.99	11.6	-5.61	3	8
6.11	11.6	-5.49	3	9
9.41	11.6	-2.19	3	10
9.03	11.6	-2.57	3	11
8.8	11.6	-2.8	3	12
8.93	11.6	-2.67	3	13
10.17	6.68	3.49	4	13
11.59	6.68	4.91	5	13
11.69	6.68	5.01	6	13
12.13	6.68	5.45	7	13
11.99	6.68	5.31	8	13
10.69	6.68	4.01	9	13
7	6.68	0.32	10	13
7	6.68	0.32	11	13
6.91	6.68	0.23	12	13
5.99	6.68	-0.69	12	14
6.11	6.68	-0.57	12	15
9.41	6.68	2.73	13	15
9.03	6.68	2.35	14	15
8.8	6.68	2.12	15	15
8.93	6.68	2.25	16	15
11.59	10.17	1.42	17	15
11.69	10.17	1.52	18	15
12.13	10.17	1.96	19	15
11.99	10.17	1.82	20	15
10.69	10.17	0.52	21	15
7	10.17	-3.17	21	16
7	10.17	-3.17	21	17
6.91	10.17	-3.26	21	18
5.99	10.17	-4.18	21	19
6.11	10.17	-4.06	21	20
9.41	10.17	-0.76	21	21
9.03	10.17	-1.14	21	22
8.8	10.17	-1.37	21	23
8.93	10.17	-1.24	21	24

11.69	11.59	0.1	22	24
12.13	11.59	0.54	23	24
11.99	11.59	0.4	24	24
10.69	11.59	-0.9	24	25
7	11.59	-4.59	24	26
7	11.59	-4.59	24	27
6.91	11.59	-4.68	24	28
5.99	11.59	-5.6	24	29
6.11	11.59	-5.48	24	30
9.41	11.59	-2.18	24	31
9.03	11.59	-2.56	24	32
8.8	11.59	-2.79	24	33
8.93	11.59	-2.66	24	34
12.13	11.69	0.44	25	34
11.99	11.69	0.3	26	34
10.69	11.69	-1	26	35
7	11.69	-4.69	26	36
7	11.69	-4.69	26	37
6.91	11.69	-4.78	26	38
5.99	11.69	-5.7	26	39
6.11	11.69	-5.58	26	40
9.41	11.69	-2.28	26	41
9.03	11.69	-2.66	26	42
8.8	11.69	-2.89	26	43
8.93	11.69	-2.76	26	44
11.99	12.13	-0.14	26	45
10.69	12.13	-1.44	26	46
7	12.13	-5.13	26	47
7	12.13	-5.13	26	48
6.91	12.13	-5.22	26	49
5.99	12.13	-6.14	26	50
6.11	12.13	-6.02	26	51
9.41	12.13	-2.72	26	52
9.03	12.13	-3.1	26	53
8.8	12.13	-3.33	26	54
8.93	12.13	-3.2	26	55
10.69	11.99	-1.3	26	56
7	11.99	-4.99	26	57
7	11.99	-4.99	26	58
6.91	11.99	-5.08	26	59
5.99	11.99	-6	26	60
6.11	11.99	-5.88	26	61
9.41	11.99	-2.58	26	62
9.03	11.99	-2.96	26	63
8.8	11.99	-3.19	26	64
8.93	11.99	-3.06	26	65
7	10.69	-3.69	26	66
7	10.69	-3.69	26	67
6.91	10.69	-3.78	26	68
5.99	10.69	-4.7	26	69
6.11	10.69	-4.58	26	70
9.41	10.69	-1.28	26	71

9.03	10.69	-1.66	26	72
8.8	10.69	-1.89	26	73
8.93	10.69	-1.76	26	74
7	7	0	26	74
6.91	7	-0.09	26	75
5.99	7	-1.01	26	76
6.11	7	-0.89	26	77
9.41	7	2.41	27	77
9.03	7	2.03	28	77
8.8	7	1.8	29	77
8.93	7	1.93	30	77
6.91	7	-0.09	30	78
5.99	7	-1.01	30	79
6.11	7	-0.89	30	80
9.41	7	2.41	31	80
9.03	7	2.03	32	80
8.8	7	1.8	33	80
8.93	7	1.93	34	80
5.99	6.91	-0.92	34	81
6.11	6.91	-0.8	34	82
9.41	6.91	2.5	35	82
9.03	6.91	2.12	36	82
8.8	6.91	1.89	37	82
8.93	6.91	2.02	38	82
6.11	5.99	0.12	39	82
9.41	5.99	3.42	40	82
9.03	5.99	3.04	41	82
8.8	5.99	2.81	42	82
8.93	5.99	2.94	43	82
9.41	6.11	3.3	44	82
9.03	6.11	2.92	45	82
8.8	6.11	2.69	46	82
8.93	6.11	2.82	47	82
9.03	9.41	-0.38	47	83
8.8	9.41	-0.61	47	84
8.93	9.41	-0.48	47	85
8.8	9.03	-0.23	47	86
8.93	9.03	-0.1	47	87
8.93	8.8	0.13	48	87

S Statistic = 48 - 87 = -39

---

Tied Group	Value	Members
1	7	2

---

Time Period	Observations
8/1/2017	1
9/1/2017	1



10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 10608

b = 36720

c = 544

Group Variance = 588.333

Z-Score = -1.56665

Comparison Level at 95% confidence level = 1.65463 (upward trend)

-1.56665 <= 1.65463 indicating no evidence of an upward trend

# Mann-Kendall Trend Analysis

Parameter: pH

Location: RW16-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
9.36	6.14	3.22	1	0
9.43	6.14	3.29	2	0
6.47	6.14	0.33	3	0
6.37	6.14	0.23	4	0
6.36	6.14	0.22	5	0
10.41	6.14	4.27	6	0
9.43	6.14	3.29	7	0
9.9	6.14	3.76	8	0
9.47	6.14	3.33	9	0
9.88	6.14	3.74	10	0
9.3	6.14	3.16	11	0
7.37	6.14	1.23	12	0
7.93	6.14	1.79	13	0
8.87	6.14	2.73	14	0
8.59	6.14	2.45	15	0
8.74	6.14	2.6	16	0
9.43	9.36	0.07	17	0
6.47	9.36	-2.89	17	1
6.37	9.36	-2.99	17	2
6.36	9.36	-3	17	3
10.41	9.36	1.05	18	3
9.43	9.36	0.07	19	3
9.9	9.36	0.54	20	3
9.47	9.36	0.11	21	3
9.88	9.36	0.52	22	3
9.3	9.36	-0.06	22	4
7.37	9.36	-1.99	22	5
7.93	9.36	-1.43	22	6
8.87	9.36	-0.49	22	7
8.59	9.36	-0.77	22	8
8.74	9.36	-0.62	22	9
6.47	9.43	-2.96	22	10
6.37	9.43	-3.06	22	11
6.36	9.43	-3.07	22	12
10.41	9.43	0.98	23	12
9.43	9.43	0	23	12
9.9	9.43	0.47	24	12
9.47	9.43	0.04	25	12
9.88	9.43	0.45	26	12
9.3	9.43	-0.13	26	13
7.37	9.43	-2.06	26	14
7.93	9.43	-1.5	26	15
8.87	9.43	-0.56	26	16
8.59	9.43	-0.84	26	17
8.74	9.43	-0.69	26	18

6.37	6.47	-0.1	26	19
6.36	6.47	-0.11	26	20
10.41	6.47	3.94	27	20
9.43	6.47	2.96	28	20
9.9	6.47	3.43	29	20
9.47	6.47	3	30	20
9.88	6.47	3.41	31	20
9.3	6.47	2.83	32	20
7.37	6.47	0.9	33	20
7.93	6.47	1.46	34	20
8.87	6.47	2.4	35	20
8.59	6.47	2.12	36	20
8.74	6.47	2.27	37	20
6.36	6.37	-0.01	37	21
10.41	6.37	4.04	38	21
9.43	6.37	3.06	39	21
9.9	6.37	3.53	40	21
9.47	6.37	3.1	41	21
9.88	6.37	3.51	42	21
9.3	6.37	2.93	43	21
7.37	6.37	1	44	21
7.93	6.37	1.56	45	21
8.87	6.37	2.5	46	21
8.59	6.37	2.22	47	21
8.74	6.37	2.37	48	21
10.41	6.36	4.05	49	21
9.43	6.36	3.07	50	21
9.9	6.36	3.54	51	21
9.47	6.36	3.11	52	21
9.88	6.36	3.52	53	21
9.3	6.36	2.94	54	21
7.37	6.36	1.01	55	21
7.93	6.36	1.57	56	21
8.87	6.36	2.51	57	21
8.59	6.36	2.23	58	21
8.74	6.36	2.38	59	21
9.43	10.41	-0.98	59	22
9.9	10.41	-0.51	59	23
9.47	10.41	-0.94	59	24
9.88	10.41	-0.53	59	25
9.3	10.41	-1.11	59	26
7.37	10.41	-3.04	59	27
7.93	10.41	-2.48	59	28
8.87	10.41	-1.54	59	29
8.59	10.41	-1.82	59	30
8.74	10.41	-1.67	59	31
9.9	9.43	0.47	60	31
9.47	9.43	0.04	61	31
9.88	9.43	0.45	62	31
9.3	9.43	-0.13	62	32
7.37	9.43	-2.06	62	33
7.93	9.43	-1.5	62	34

8.87	9.43	-0.56	62	35
8.59	9.43	-0.84	62	36
8.74	9.43	-0.69	62	37
9.47	9.9	-0.43	62	38
9.88	9.9	-0.02	62	39
9.3	9.9	-0.6	62	40
7.37	9.9	-2.53	62	41
7.93	9.9	-1.97	62	42
8.87	9.9	-1.03	62	43
8.59	9.9	-1.31	62	44
8.74	9.9	-1.16	62	45
9.88	9.47	0.41	63	45
9.3	9.47	-0.17	63	46
7.37	9.47	-2.1	63	47
7.93	9.47	-1.54	63	48
8.87	9.47	-0.6	63	49
8.59	9.47	-0.88	63	50
8.74	9.47	-0.73	63	51
9.3	9.88	-0.58	63	52
7.37	9.88	-2.51	63	53
7.93	9.88	-1.95	63	54
8.87	9.88	-1.01	63	55
8.59	9.88	-1.29	63	56
8.74	9.88	-1.14	63	57
7.37	9.3	-1.93	63	58
7.93	9.3	-1.37	63	59
8.87	9.3	-0.43	63	60
8.59	9.3	-0.71	63	61
8.74	9.3	-0.56	63	62
7.93	7.37	0.56	64	62
8.87	7.37	1.5	65	62
8.59	7.37	1.22	66	62
8.74	7.37	1.37	67	62
8.87	7.93	0.94	68	62
8.59	7.93	0.66	69	62
8.74	7.93	0.81	70	62
8.59	8.87	-0.28	70	63
8.74	8.87	-0.13	70	64
8.74	8.59	0.15	71	64

S Statistic = 71 - 64 = 7

---

Tied Group	Value	Members
1	9.43	2

---

Time Period	Observations
9/1/2017	1
10/1/2017	1

11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 10608

b = 36720

c = 544

Group Variance = 588.333

Z-Score = 0.247366

Comparison Level at 95% confidence level = 1.65463 (upward trend)

0.247366 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW18-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.33	5.64	-0.31	0	1
5.39	5.64	-0.25	0	2
3.43	5.64	-2.21	0	3
5.38	5.64	-0.26	0	4
5.25	5.64	-0.39	0	5
5.45	5.64	-0.19	0	6
5.99	5.64	0.35	1	6
5.49	5.64	-0.15	1	7
5.84	5.64	0.2	2	7
5.62	5.64	-0.02	2	8
5.56	5.64	-0.08	2	9
5.27	5.64	-0.37	2	10
5.46	5.64	-0.18	2	11
6.71	5.64	1.07	3	11
5.3	5.64	-0.34	3	12
5.16	5.64	-0.48	3	13
5.43	5.64	-0.21	3	14
5.52	5.64	-0.12	3	15
5.46	5.64	-0.18	3	16
5.98	5.64	0.34	4	16
6.42	5.64	0.78	5	16
6.71	5.64	1.07	6	16
6	5.64	0.36	7	16
5.39	5.33	0.06	8	16
3.43	5.33	-1.9	8	17
5.38	5.33	0.05	9	17
5.25	5.33	-0.08	9	18
5.45	5.33	0.12	10	18
5.99	5.33	0.66	11	18
5.49	5.33	0.16	12	18
5.84	5.33	0.51	13	18
5.62	5.33	0.29	14	18
5.56	5.33	0.23	15	18
5.27	5.33	-0.06	15	19
5.46	5.33	0.13	16	19
6.71	5.33	1.38	17	19
5.3	5.33	-0.03	17	20
5.16	5.33	-0.17	17	21
5.43	5.33	0.1	18	21
5.52	5.33	0.19	19	21
5.46	5.33	0.13	20	21
5.98	5.33	0.65	21	21
6.42	5.33	1.09	22	21
6.71	5.33	1.38	23	21
6	5.33	0.67	24	21

3.43	5.39	-1.96	24	22
5.38	5.39	-0.01	24	23
5.25	5.39	-0.14	24	24
5.45	5.39	0.06	25	24
5.99	5.39	0.6	26	24
5.49	5.39	0.1	27	24
5.84	5.39	0.45	28	24
5.62	5.39	0.23	29	24
5.56	5.39	0.17	30	24
5.27	5.39	-0.12	30	25
5.46	5.39	0.07	31	25
6.71	5.39	1.32	32	25
5.3	5.39	-0.09	32	26
5.16	5.39	-0.23	32	27
5.43	5.39	0.04	33	27
5.52	5.39	0.13	34	27
5.46	5.39	0.07	35	27
5.98	5.39	0.59	36	27
6.42	5.39	1.03	37	27
6.71	5.39	1.32	38	27
6	5.39	0.61	39	27
5.38	3.43	1.95	40	27
5.25	3.43	1.82	41	27
5.45	3.43	2.02	42	27
5.99	3.43	2.56	43	27
5.49	3.43	2.06	44	27
5.84	3.43	2.41	45	27
5.62	3.43	2.19	46	27
5.56	3.43	2.13	47	27
5.27	3.43	1.84	48	27
5.46	3.43	2.03	49	27
6.71	3.43	3.28	50	27
5.3	3.43	1.87	51	27
5.16	3.43	1.73	52	27
5.43	3.43	2	53	27
5.52	3.43	2.09	54	27
5.46	3.43	2.03	55	27
5.98	3.43	2.55	56	27
6.42	3.43	2.99	57	27
6.71	3.43	3.28	58	27
6	3.43	2.57	59	27
5.25	5.38	-0.13	59	28
5.45	5.38	0.07	60	28
5.99	5.38	0.61	61	28
5.49	5.38	0.11	62	28
5.84	5.38	0.46	63	28
5.62	5.38	0.24	64	28
5.56	5.38	0.18	65	28
5.27	5.38	-0.11	65	29
5.46	5.38	0.08	66	29
6.71	5.38	1.33	67	29
5.3	5.38	-0.08	67	30
5.16	5.38	-0.22	67	31
5.43	5.38	0.05	68	31
5.52	5.38	0.14	69	31

5.46	5.38	0.08	70	31
5.98	5.38	0.6	71	31
6.42	5.38	1.04	72	31
6.71	5.38	1.33	73	31
6	5.38	0.62	74	31
5.45	5.25	0.2	75	31
5.99	5.25	0.74	76	31
5.49	5.25	0.24	77	31
5.84	5.25	0.59	78	31
5.62	5.25	0.37	79	31
5.56	5.25	0.31	80	31
5.27	5.25	0.02	81	31
5.46	5.25	0.21	82	31
6.71	5.25	1.46	83	31
5.3	5.25	0.05	84	31
5.16	5.25	-0.09	84	32
5.43	5.25	0.18	85	32
5.52	5.25	0.27	86	32
5.46	5.25	0.21	87	32
5.98	5.25	0.73	88	32
6.42	5.25	1.17	89	32
6.71	5.25	1.46	90	32
6	5.25	0.75	91	32
5.99	5.45	0.54	92	32
5.49	5.45	0.04	93	32
5.84	5.45	0.39	94	32
5.62	5.45	0.17	95	32
5.56	5.45	0.11	96	32
5.27	5.45	-0.18	96	33
5.46	5.45	0.01	97	33
6.71	5.45	1.26	98	33
5.3	5.45	-0.15	98	34
5.16	5.45	-0.29	98	35
5.43	5.45	-0.02	98	36
5.52	5.45	0.07	99	36
5.46	5.45	0.01	100	36
5.98	5.45	0.53	101	36
6.42	5.45	0.97	102	36
6.71	5.45	1.26	103	36
6	5.45	0.55	104	36
5.49	5.99	-0.5	104	37
5.84	5.99	-0.15	104	38
5.62	5.99	-0.37	104	39
5.56	5.99	-0.43	104	40
5.27	5.99	-0.72	104	41
5.46	5.99	-0.53	104	42
6.71	5.99	0.72	105	42
5.3	5.99	-0.69	105	43
5.16	5.99	-0.83	105	44
5.43	5.99	-0.56	105	45
5.52	5.99	-0.47	105	46
5.46	5.99	-0.53	105	47
5.98	5.99	-0.01	105	48
6.42	5.99	0.43	106	48



6.71	5.99	0.72	107	48
6	5.99	0.01	108	48
5.84	5.49	0.35	109	48
5.62	5.49	0.13	110	48
5.56	5.49	0.07	111	48
5.27	5.49	-0.22	111	49
5.46	5.49	-0.03	111	50
6.71	5.49	1.22	112	50
5.3	5.49	-0.19	112	51
5.16	5.49	-0.33	112	52
5.43	5.49	-0.06	112	53
5.52	5.49	0.03	113	53
5.46	5.49	-0.03	113	54
5.98	5.49	0.49	114	54
6.42	5.49	0.93	115	54
6.71	5.49	1.22	116	54
6	5.49	0.51	117	54
5.62	5.84	-0.22	117	55
5.56	5.84	-0.28	117	56
5.27	5.84	-0.57	117	57
5.46	5.84	-0.38	117	58
6.71	5.84	0.87	118	58
5.3	5.84	-0.54	118	59
5.16	5.84	-0.68	118	60
5.43	5.84	-0.41	118	61
5.52	5.84	-0.32	118	62
5.46	5.84	-0.38	118	63
5.98	5.84	0.14	119	63
6.42	5.84	0.58	120	63
6.71	5.84	0.87	121	63
6	5.84	0.16	122	63
5.56	5.62	-0.06	122	64
5.27	5.62	-0.35	122	65
5.46	5.62	-0.16	122	66
6.71	5.62	1.09	123	66
5.3	5.62	-0.32	123	67
5.16	5.62	-0.46	123	68
5.43	5.62	-0.19	123	69
5.52	5.62	-0.1	123	70
5.46	5.62	-0.16	123	71
5.98	5.62	0.36	124	71
6.42	5.62	0.8	125	71
6.71	5.62	1.09	126	71
6	5.62	0.38	127	71
5.27	5.56	-0.29	127	72
5.46	5.56	-0.1	127	73
6.71	5.56	1.15	128	73
5.3	5.56	-0.26	128	74
5.16	5.56	-0.4	128	75
5.43	5.56	-0.13	128	76
5.52	5.56	-0.04	128	77
5.46	5.56	-0.1	128	78
5.98	5.56	0.42	129	78

6.42	5.56	0.86	130	78
6.71	5.56	1.15	131	78
6	5.56	0.44	132	78
5.46	5.27	0.19	133	78
6.71	5.27	1.44	134	78
5.3	5.27	0.03	135	78
5.16	5.27	-0.11	135	79
5.43	5.27	0.16	136	79
5.52	5.27	0.25	137	79
5.46	5.27	0.19	138	79
5.98	5.27	0.71	139	79
6.42	5.27	1.15	140	79
6.71	5.27	1.44	141	79
6	5.27	0.73	142	79
6.71	5.46	1.25	143	79
5.3	5.46	-0.16	143	80
5.16	5.46	-0.3	143	81
5.43	5.46	-0.03	143	82
5.52	5.46	0.06	144	82
5.46	5.46	0	144	82
5.98	5.46	0.52	145	82
6.42	5.46	0.96	146	82
6.71	5.46	1.25	147	82
6	5.46	0.54	148	82
5.3	6.71	-1.41	148	83
5.16	6.71	-1.55	148	84
5.43	6.71	-1.28	148	85
5.52	6.71	-1.19	148	86
5.46	6.71	-1.25	148	87
5.98	6.71	-0.73	148	88
6.42	6.71	-0.29	148	89
6.71	6.71	0	148	89
6	6.71	-0.71	148	90
5.16	5.3	-0.14	148	91
5.43	5.3	0.13	149	91
5.52	5.3	0.22	150	91
5.46	5.3	0.16	151	91
5.98	5.3	0.68	152	91
6.42	5.3	1.12	153	91
6.71	5.3	1.41	154	91
6	5.3	0.7	155	91
5.43	5.16	0.27	156	91
5.52	5.16	0.36	157	91
5.46	5.16	0.3	158	91
5.98	5.16	0.82	159	91
6.42	5.16	1.26	160	91
6.71	5.16	1.55	161	91
6	5.16	0.84	162	91
5.52	5.43	0.09	163	91
5.46	5.43	0.03	164	91
5.98	5.43	0.55	165	91

6.42	5.43	0.99	166	91
6.71	5.43	1.28	167	91
6	5.43	0.57	168	91
5.46	5.52	-0.06	168	92
5.98	5.52	0.46	169	92
6.42	5.52	0.9	170	92
6.71	5.52	1.19	171	92
6	5.52	0.48	172	92
5.98	5.46	0.52	173	92
6.42	5.46	0.96	174	92
6.71	5.46	1.25	175	92
6	5.46	0.54	176	92
6.42	5.98	0.44	177	92
6.71	5.98	0.73	178	92
6	5.98	0.02	179	92
6.71	6.42	0.29	180	92
6	6.42	-0.42	180	93
6	6.71	-0.71	180	94

S Statistic = 180 - 94 = 86

---

Tied Group	Value	Members
1	5.46	2
2	6.71	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 36  
B = 0  
C = 0  
D = 0  
E = 4  
F = 0  
a = 29256  
b = 109296  
c = 1104  
Group Variance = 1623.33  
Z-Score = 2.10967  
Comparison Level at 95% confidence level = 1.65463 (upward trend)  
**2.10967 > 1.65463 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW19-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.35	5.5	-0.15	0	1
5.28	5.5	-0.22	0	2
5.41	5.5	-0.09	0	3
5.32	5.5	-0.18	0	4
5.15	5.5	-0.35	0	5
5.58	5.5	0.08	1	5
5.37	5.5	-0.13	1	6
5.52	5.5	0.02	2	6
5.52	5.5	0.02	3	6
5.41	5.5	-0.09	3	7
4.93	5.5	-0.57	3	8
5.38	5.5	-0.12	3	9
6.86	5.5	1.36	4	9
5.5	5.5	0	4	9
5.25	5.5	-0.25	4	10
5.23	5.5	-0.27	4	11
5.23	5.5	-0.27	4	12
5.34	5.5	-0.16	4	13
5.55	5.5	0.05	5	13
5.49	5.5	-0.01	5	14
5.7	5.5	0.2	6	14
5.28	5.5	-0.22	6	15
5.28	5.35	-0.07	6	16
5.41	5.35	0.06	7	16
5.32	5.35	-0.03	7	17
5.15	5.35	-0.2	7	18
5.58	5.35	0.23	8	18
5.37	5.35	0.02	9	18
5.52	5.35	0.17	10	18
5.52	5.35	0.17	11	18
5.41	5.35	0.06	12	18
4.93	5.35	-0.42	12	19
5.38	5.35	0.03	13	19
6.86	5.35	1.51	14	19
5.5	5.35	0.15	15	19
5.25	5.35	-0.1	15	20
5.23	5.35	-0.12	15	21
5.23	5.35	-0.12	15	22
5.34	5.35	-0.01	15	23
5.55	5.35	0.2	16	23
5.49	5.35	0.14	17	23
5.7	5.35	0.35	18	23
5.28	5.35	-0.07	18	24
5.41	5.28	0.13	19	24
5.32	5.28	0.04	20	24

5.15	5.28	-0.13	20	25
5.58	5.28	0.3	21	25
5.37	5.28	0.09	22	25
5.52	5.28	0.24	23	25
5.52	5.28	0.24	24	25
5.41	5.28	0.13	25	25
4.93	5.28	-0.35	25	26
5.38	5.28	0.1	26	26
6.86	5.28	1.58	27	26
5.5	5.28	0.22	28	26
5.25	5.28	-0.03	28	27
5.23	5.28	-0.05	28	28
5.23	5.28	-0.05	28	29
5.34	5.28	0.06	29	29
5.55	5.28	0.27	30	29
5.49	5.28	0.21	31	29
5.7	5.28	0.42	32	29
5.28	5.28	0	32	29
5.32	5.41	-0.09	32	30
5.15	5.41	-0.26	32	31
5.58	5.41	0.17	33	31
5.37	5.41	-0.04	33	32
5.52	5.41	0.11	34	32
5.52	5.41	0.11	35	32
5.41	5.41	0	35	32
4.93	5.41	-0.48	35	33
5.38	5.41	-0.03	35	34
6.86	5.41	1.45	36	34
5.5	5.41	0.09	37	34
5.25	5.41	-0.16	37	35
5.23	5.41	-0.18	37	36
5.23	5.41	-0.18	37	37
5.34	5.41	-0.07	37	38
5.55	5.41	0.14	38	38
5.49	5.41	0.08	39	38
5.7	5.41	0.29	40	38
5.28	5.41	-0.13	40	39
5.15	5.32	-0.17	40	40
5.58	5.32	0.26	41	40
5.37	5.32	0.05	42	40
5.52	5.32	0.2	43	40
5.52	5.32	0.2	44	40
5.41	5.32	0.09	45	40
4.93	5.32	-0.39	45	41
5.38	5.32	0.06	46	41
6.86	5.32	1.54	47	41
5.5	5.32	0.18	48	41
5.25	5.32	-0.07	48	42
5.23	5.32	-0.09	48	43
5.23	5.32	-0.09	48	44
5.34	5.32	0.02	49	44
5.55	5.32	0.23	50	44
5.49	5.32	0.17	51	44
5.7	5.32	0.38	52	44
5.28	5.32	-0.04	52	45

5.58	5.15	0.43	53	45
5.37	5.15	0.22	54	45
5.52	5.15	0.37	55	45
5.52	5.15	0.37	56	45
5.41	5.15	0.26	57	45
4.93	5.15	-0.22	57	46
5.38	5.15	0.23	58	46
6.86	5.15	1.71	59	46
5.5	5.15	0.35	60	46
5.25	5.15	0.1	61	46
5.23	5.15	0.08	62	46
5.23	5.15	0.08	63	46
5.34	5.15	0.19	64	46
5.55	5.15	0.4	65	46
5.49	5.15	0.34	66	46
5.7	5.15	0.55	67	46
5.28	5.15	0.13	68	46
5.37	5.58	-0.21	68	47
5.52	5.58	-0.06	68	48
5.52	5.58	-0.06	68	49
5.41	5.58	-0.17	68	50
4.93	5.58	-0.65	68	51
5.38	5.58	-0.2	68	52
6.86	5.58	1.28	69	52
5.5	5.58	-0.08	69	53
5.25	5.58	-0.33	69	54
5.23	5.58	-0.35	69	55
5.23	5.58	-0.35	69	56
5.34	5.58	-0.24	69	57
5.55	5.58	-0.03	69	58
5.49	5.58	-0.09	69	59
5.7	5.58	0.12	70	59
5.28	5.58	-0.3	70	60
5.52	5.37	0.15	71	60
5.52	5.37	0.15	72	60
5.41	5.37	0.04	73	60
4.93	5.37	-0.44	73	61
5.38	5.37	0.01	74	61
6.86	5.37	1.49	75	61
5.5	5.37	0.13	76	61
5.25	5.37	-0.12	76	62
5.23	5.37	-0.14	76	63
5.23	5.37	-0.14	76	64
5.34	5.37	-0.03	76	65
5.55	5.37	0.18	77	65
5.49	5.37	0.12	78	65
5.7	5.37	0.33	79	65
5.28	5.37	-0.09	79	66
5.52	5.52	0	79	66
5.41	5.52	-0.11	79	67
4.93	5.52	-0.59	79	68
5.38	5.52	-0.14	79	69
6.86	5.52	1.34	80	69

5.5	5.52	-0.02	80	70
5.25	5.52	-0.27	80	71
5.23	5.52	-0.29	80	72
5.23	5.52	-0.29	80	73
5.34	5.52	-0.18	80	74
5.55	5.52	0.03	81	74
5.49	5.52	-0.03	81	75
5.7	5.52	0.18	82	75
5.28	5.52	-0.24	82	76
5.41	5.52	-0.11	82	77
4.93	5.52	-0.59	82	78
5.38	5.52	-0.14	82	79
6.86	5.52	1.34	83	79
5.5	5.52	-0.02	83	80
5.25	5.52	-0.27	83	81
5.23	5.52	-0.29	83	82
5.23	5.52	-0.29	83	83
5.34	5.52	-0.18	83	84
5.55	5.52	0.03	84	84
5.49	5.52	-0.03	84	85
5.7	5.52	0.18	85	85
5.28	5.52	-0.24	85	86
4.93	5.41	-0.48	85	87
5.38	5.41	-0.03	85	88
6.86	5.41	1.45	86	88
5.5	5.41	0.09	87	88
5.25	5.41	-0.16	87	89
5.23	5.41	-0.18	87	90
5.23	5.41	-0.18	87	91
5.34	5.41	-0.07	87	92
5.55	5.41	0.14	88	92
5.49	5.41	0.08	89	92
5.7	5.41	0.29	90	92
5.28	5.41	-0.13	90	93
5.38	4.93	0.45	91	93
6.86	4.93	1.93	92	93
5.5	4.93	0.57	93	93
5.25	4.93	0.32	94	93
5.23	4.93	0.3	95	93
5.23	4.93	0.3	96	93
5.34	4.93	0.41	97	93
5.55	4.93	0.62	98	93
5.49	4.93	0.56	99	93
5.7	4.93	0.77	100	93
5.28	4.93	0.35	101	93
6.86	5.38	1.48	102	93
5.5	5.38	0.12	103	93
5.25	5.38	-0.13	103	94
5.23	5.38	-0.15	103	95
5.23	5.38	-0.15	103	96
5.34	5.38	-0.04	103	97
5.55	5.38	0.17	104	97
5.49	5.38	0.11	105	97



5.7	5.38	0.32	106	97
5.28	5.38	-0.1	106	98
5.5	6.86	-1.36	106	99
5.25	6.86	-1.61	106	100
5.23	6.86	-1.63	106	101
5.23	6.86	-1.63	106	102
5.34	6.86	-1.52	106	103
5.55	6.86	-1.31	106	104
5.49	6.86	-1.37	106	105
5.7	6.86	-1.16	106	106
5.28	6.86	-1.58	106	107
5.25	5.5	-0.25	106	108
5.23	5.5	-0.27	106	109
5.23	5.5	-0.27	106	110
5.34	5.5	-0.16	106	111
5.55	5.5	0.05	107	111
5.49	5.5	-0.01	107	112
5.7	5.5	0.2	108	112
5.28	5.5	-0.22	108	113
5.23	5.25	-0.02	108	114
5.23	5.25	-0.02	108	115
5.34	5.25	0.09	109	115
5.55	5.25	0.3	110	115
5.49	5.25	0.24	111	115
5.7	5.25	0.45	112	115
5.28	5.25	0.03	113	115
5.23	5.23	0	113	115
5.34	5.23	0.11	114	115
5.55	5.23	0.32	115	115
5.49	5.23	0.26	116	115
5.7	5.23	0.47	117	115
5.28	5.23	0.05	118	115
5.34	5.23	0.11	119	115
5.55	5.23	0.32	120	115
5.49	5.23	0.26	121	115
5.7	5.23	0.47	122	115
5.28	5.23	0.05	123	115
5.55	5.34	0.21	124	115
5.49	5.34	0.15	125	115
5.7	5.34	0.36	126	115
5.28	5.34	-0.06	126	116
5.49	5.55	-0.06	126	117
5.7	5.55	0.15	127	117
5.28	5.55	-0.27	127	118
5.7	5.49	0.21	128	118
5.28	5.49	-0.21	128	119
5.28	5.7	-0.42	128	120

S Statistic = 128 - 120 = 8

---

Tied Group	Value	Members
1	5.5	2
2	5.28	2
3	5.41	2
4	5.52	2
5	5.23	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 90

B = 0

C = 0

D = 0

E = 10

F = 0

a = 25806

b = 95634

c = 1012

Group Variance = 1428.67

Z-Score = 0.185196

Comparison Level at 95% confidence level = 1.65463 (upward trend)

0.185196 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW21-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.63	5.4	0.23	1	0
5.61	5.4	0.21	2	0
5.61	5.63	-0.02	2	1

S Statistic = 2 - 1 = 1

Comparing at 95% confidence level (upward trend)

**Failed to calculate probability for S = 1**

**Table out of range**

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW22R-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.68	6.08	-0.4	0	1
6.28	6.08	0.2	1	1
5.95	6.08	-0.13	1	2
4.83	6.08	-1.25	1	3
6.15	6.08	0.07	2	3
6.89	6.08	0.81	3	3
6.28	5.68	0.6	4	3
5.95	5.68	0.27	5	3
4.83	5.68	-0.85	5	4
6.15	5.68	0.47	6	4
6.89	5.68	1.21	7	4
5.95	6.28	-0.33	7	5
4.83	6.28	-1.45	7	6
6.15	6.28	-0.13	7	7
6.89	6.28	0.61	8	7
4.83	5.95	-1.12	8	8
6.15	5.95	0.2	9	8
6.89	5.95	0.94	10	8
6.15	4.83	1.32	11	8
6.89	4.83	2.06	12	8
6.89	6.15	0.74	13	8

S Statistic = 13 - 8 = 5

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 5$  is 0.281

$S < 0$  or  $0.281 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW23-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.23	5.72	-0.49	0	1
6.1	5.72	0.38	1	1
5.8	5.72	0.08	2	1
5.86	5.72	0.14	3	1
6.35	5.72	0.63	4	1
6.83	5.72	1.11	5	1
6.1	5.23	0.87	6	1
5.8	5.23	0.57	7	1
5.86	5.23	0.63	8	1
6.35	5.23	1.12	9	1
6.83	5.23	1.6	10	1
5.8	6.1	-0.3	10	2
5.86	6.1	-0.24	10	3
6.35	6.1	0.25	11	3
6.83	6.1	0.73	12	3
5.86	5.8	0.06	13	3
6.35	5.8	0.55	14	3
6.83	5.8	1.03	15	3
6.35	5.86	0.49	16	3
6.83	5.86	0.97	17	3
6.83	6.35	0.48	18	3

S Statistic = 18 - 3 = 15

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 15$  is 0.015

**S > 0 and 0.015 < 0.05 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW24-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
4.66	5.02	-0.36	0	1
5.35	5.02	0.33	1	1
5.73	5.02	0.71	2	1
5.51	5.02	0.49	3	1
6.1	5.02	1.08	4	1
5.64	5.02	0.62	5	1
5.35	4.66	0.69	6	1
5.73	4.66	1.07	7	1
5.51	4.66	0.85	8	1
6.1	4.66	1.44	9	1
5.64	4.66	0.98	10	1
5.73	5.35	0.38	11	1
5.51	5.35	0.16	12	1
6.1	5.35	0.75	13	1
5.64	5.35	0.29	14	1
5.51	5.73	-0.22	14	2
6.1	5.73	0.37	15	2
5.64	5.73	-0.09	15	3
6.1	5.51	0.59	16	3
5.64	5.51	0.13	17	3
5.64	6.1	-0.46	17	4

S Statistic = 17 - 4 = 13

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 13$  is 0.035

**S > 0 and 0.035 < 0.05 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW25-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.12	5.66	-0.54	0	1
5.1	5.66	-0.56	0	2
5.28	5.66	-0.38	0	3
5.69	5.66	0.03	1	3
5.27	5.66	-0.39	1	4
5.21	5.66	-0.45	1	5
5.1	5.12	-0.02	1	6
5.28	5.12	0.16	2	6
5.69	5.12	0.57	3	6
5.27	5.12	0.15	4	6
5.21	5.12	0.09	5	6
5.28	5.1	0.18	6	6
5.69	5.1	0.59	7	6
5.27	5.1	0.17	8	6
5.21	5.1	0.11	9	6
5.69	5.28	0.41	10	6
5.27	5.28	-0.01	10	7
5.21	5.28	-0.07	10	8
5.27	5.69	-0.42	10	9
5.21	5.69	-0.48	10	10
5.21	5.27	-0.06	10	11

S Statistic = 10 - 11 = -1

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -1$  is 0.5

$S < 0$  or  $0.5 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWA-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
4.98	5.39	-0.41	0	1
5.63	5.39	0.24	1	1
5.29	5.39	-0.1	1	2
5.27	5.39	-0.12	1	3
5.85	5.39	0.46	2	3
5.79	5.39	0.4	3	3
5.63	4.98	0.65	4	3
5.29	4.98	0.31	5	3
5.27	4.98	0.29	6	3
5.85	4.98	0.87	7	3
5.79	4.98	0.81	8	3
5.29	5.63	-0.34	8	4
5.27	5.63	-0.36	8	5
5.85	5.63	0.22	9	5
5.79	5.63	0.16	10	5
5.27	5.29	-0.02	10	6
5.85	5.29	0.56	11	6
5.79	5.29	0.5	12	6
5.85	5.27	0.58	13	6
5.79	5.27	0.52	14	6
5.79	5.85	-0.06	14	7

S Statistic = 14 - 7 = 7

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 7$  is 0.191

$S < 0$  or  $0.191 \geq 0.05$  indicating no evidence of an upward trend



## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWB-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6.28	6.43	-0.15	0	1
6.41	6.43	-0.02	0	2
6.09	6.43	-0.34	0	3
6.23	6.43	-0.2	0	4
5.77	6.43	-0.66	0	5
7.84	6.43	1.41	1	5
6.41	6.28	0.13	2	5
6.09	6.28	-0.19	2	6
6.23	6.28	-0.05	2	7
5.77	6.28	-0.51	2	8
7.84	6.28	1.56	3	8
6.09	6.41	-0.32	3	9
6.23	6.41	-0.18	3	10
5.77	6.41	-0.64	3	11
7.84	6.41	1.43	4	11
6.23	6.09	0.14	5	11
5.77	6.09	-0.32	5	12
7.84	6.09	1.75	6	12
5.77	6.23	-0.46	6	13
7.84	6.23	1.61	7	13
7.84	5.77	2.07	8	13

S Statistic = 8 - 13 = -5

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -5$  is 0.281

$S < 0$  or  $0.281 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWD-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.36	5.79	-0.43	0	1
7.34	5.79	1.55	1	1
5.23	5.79	-0.56	1	2
5.39	5.79	-0.4	1	3
5.77	5.79	-0.02	1	4
6.56	5.79	0.77	2	4
7.34	5.36	1.98	3	4
5.23	5.36	-0.13	3	5
5.39	5.36	0.03	4	5
5.77	5.36	0.41	5	5
6.56	5.36	1.2	6	5
5.23	7.34	-2.11	6	6
5.39	7.34	-1.95	6	7
5.77	7.34	-1.57	6	8
6.56	7.34	-0.78	6	9
5.39	5.23	0.16	7	9
5.77	5.23	0.54	8	9
6.56	5.23	1.33	9	9
5.77	5.39	0.38	10	9
6.56	5.39	1.17	11	9
6.56	5.77	0.79	12	9

S Statistic = 12 - 9 = 3

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 3$  is 0.386

$S < 0$  or  $0.386 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWE-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.86	6.04	-0.18	0	1
6.04	6.04	0	0	1
5.86	6.04	-0.18	0	2
5.82	6.04	-0.22	0	3
6.1	6.04	0.06	1	3
6.37	6.04	0.33	2	3
6.04	5.86	0.18	3	3
5.86	5.86	0	3	3
5.82	5.86	-0.04	3	4
6.1	5.86	0.24	4	4
6.37	5.86	0.51	5	4
5.86	6.04	-0.18	5	5
5.82	6.04	-0.22	5	6
6.1	6.04	0.06	6	6
6.37	6.04	0.33	7	6
5.82	5.86	-0.04	7	7
6.1	5.86	0.24	8	7
6.37	5.86	0.51	9	7
6.1	5.82	0.28	10	7
6.37	5.82	0.55	11	7
6.37	6.1	0.27	12	7

S Statistic = 12 - 7 = 5

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 5$  is 0.281

$S < 0$  or  $0.281 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWF-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6.08	6.54	-0.46	0	1
6.61	6.54	0.07	1	1
6.22	6.54	-0.32	1	2
6.13	6.54	-0.41	1	3
6.57	6.54	0.03	2	3
6.28	6.54	-0.26	2	4
6.61	6.08	0.53	3	4
6.22	6.08	0.14	4	4
6.13	6.08	0.05	5	4
6.57	6.08	0.49	6	4
6.28	6.08	0.2	7	4
6.22	6.61	-0.39	7	5
6.13	6.61	-0.48	7	6
6.57	6.61	-0.04	7	7
6.28	6.61	-0.33	7	8
6.13	6.22	-0.09	7	9
6.57	6.22	0.35	8	9
6.28	6.22	0.06	9	9
6.57	6.13	0.44	10	9
6.28	6.13	0.15	11	9
6.28	6.57	-0.29	11	10

S Statistic = 11 - 10 = 1

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 1$  is 0.5

$S < 0$  or  $0.5 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWG-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6.41	6.73	-0.32	0	1
7.31	6.73	0.58	1	1
6.53	6.73	-0.2	1	2
6.62	6.73	-0.11	1	3
7.18	6.73	0.45	2	3
6.44	6.73	-0.29	2	4
7.31	6.41	0.9	3	4
6.53	6.41	0.12	4	4
6.62	6.41	0.21	5	4
7.18	6.41	0.77	6	4
6.44	6.41	0.03	7	4
6.53	7.31	-0.78	7	5
6.62	7.31	-0.69	7	6
7.18	7.31	-0.13	7	7
6.44	7.31	-0.87	7	8
6.62	6.53	0.09	8	8
7.18	6.53	0.65	9	8
6.44	6.53	-0.09	9	9
7.18	6.62	0.56	10	9
6.44	6.62	-0.18	10	10
6.44	7.18	-0.74	10	11

S Statistic = 10 - 11 = -1

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -1$  is 0.5

$S < 0$  or  $0.5 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWH-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.84	6.14	-0.3	0	1
5.9	6.14	-0.24	0	2
6.15	6.14	0.01	1	2
6.06	6.14	-0.08	1	3
5.8	6.14	-0.34	1	4
6.79	6.14	0.65	2	4
5.9	5.84	0.06	3	4
6.15	5.84	0.31	4	4
6.06	5.84	0.22	5	4
5.8	5.84	-0.04	5	5
6.79	5.84	0.95	6	5
6.15	5.9	0.25	7	5
6.06	5.9	0.16	8	5
5.8	5.9	-0.1	8	6
6.79	5.9	0.89	9	6
6.06	6.15	-0.09	9	7
5.8	6.15	-0.35	9	8
6.79	6.15	0.64	10	8
5.8	6.06	-0.26	10	9
6.79	6.06	0.73	11	9
6.79	5.8	0.99	12	9

S Statistic = 12 - 9 = 3

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 3$  is 0.386

$S < 0$  or  $0.386 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWI-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.75	5.94	-0.19	0	1
5.89	5.94	-0.05	0	2
5.92	5.94	-0.02	0	3
6.27	5.94	0.33	1	3
5.89	5.75	0.14	2	3
5.92	5.75	0.17	3	3
6.27	5.75	0.52	4	3
5.92	5.89	0.03	5	3
6.27	5.89	0.38	6	3
6.27	5.92	0.35	7	3

S Statistic = 7 - 3 = 4

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 4$  is 0.242

$S < 0$  or  $0.242 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWJ-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
8.39	8.45	-0.06	0	1
8.15	8.45	-0.3	0	2
7.63	8.45	-0.82	0	3
7.96	8.45	-0.49	0	4
7.2	8.45	-1.25	0	5
7.87	8.45	-0.58	0	6
8.15	8.39	-0.24	0	7
7.63	8.39	-0.76	0	8
7.96	8.39	-0.43	0	9
7.2	8.39	-1.19	0	10
7.87	8.39	-0.52	0	11
7.63	8.15	-0.52	0	12
7.96	8.15	-0.19	0	13
7.2	8.15	-0.95	0	14
7.87	8.15	-0.28	0	15
7.96	7.63	0.33	1	15
7.2	7.63	-0.43	1	16
7.87	7.63	0.24	2	16
7.2	7.96	-0.76	2	17
7.87	7.96	-0.09	2	18
7.87	7.2	0.67	3	18

S Statistic = 3 - 18 = -15

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -15$  is 0.015

$S < 0$  or  $0.015 \geq 0.05$  indicating no evidence of an upward trend



## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWK-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6.19	6.93	-0.74	0	1
6.64	6.93	-0.29	0	2
6.54	6.93	-0.39	0	3
6.44	6.93	-0.49	0	4
6.45	6.93	-0.48	0	5
7.08	6.93	0.15	1	5
6.64	6.19	0.45	2	5
6.54	6.19	0.35	3	5
6.44	6.19	0.25	4	5
6.45	6.19	0.26	5	5
7.08	6.19	0.89	6	5
6.54	6.64	-0.1	6	6
6.44	6.64	-0.2	6	7
6.45	6.64	-0.19	6	8
7.08	6.64	0.44	7	8
6.44	6.54	-0.1	7	9
6.45	6.54	-0.09	7	10
7.08	6.54	0.54	8	10
6.45	6.44	0.01	9	10
7.08	6.44	0.64	10	10
7.08	6.45	0.63	11	10

S Statistic = 11 - 10 = 1

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 1$  is 0.5

$S < 0$  or  $0.5 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWL-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.63	5.88	-0.25	0	1
6.09	5.88	0.21	1	1
5.92	5.88	0.04	2	1
5.79	5.88	-0.09	2	2
6.33	5.88	0.45	3	2
6.39	5.88	0.51	4	2
6.09	5.63	0.46	5	2
5.92	5.63	0.29	6	2
5.79	5.63	0.16	7	2
6.33	5.63	0.7	8	2
6.39	5.63	0.76	9	2
5.92	6.09	-0.17	9	3
5.79	6.09	-0.3	9	4
6.33	6.09	0.24	10	4
6.39	6.09	0.3	11	4
5.79	5.92	-0.13	11	5
6.33	5.92	0.41	12	5
6.39	5.92	0.47	13	5
6.33	5.79	0.54	14	5
6.39	5.79	0.6	15	5
6.39	6.33	0.06	16	5

S Statistic = 16 - 5 = 11

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 11$  is 0.068

$S < 0$  or  $0.068 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWM-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.26	6.01	-0.75	0	1
6.07	6.01	0.06	1	1
5.98	6.01	-0.03	1	2
5.97	6.01	-0.04	1	3
6.01	6.01	0	1	3
7.05	6.01	1.04	2	3
6.07	5.26	0.81	3	3
5.98	5.26	0.72	4	3
5.97	5.26	0.71	5	3
6.01	5.26	0.75	6	3
7.05	5.26	1.79	7	3
5.98	6.07	-0.09	7	4
5.97	6.07	-0.1	7	5
6.01	6.07	-0.06	7	6
7.05	6.07	0.98	8	6
5.97	5.98	-0.01	8	7
6.01	5.98	0.03	9	7
7.05	5.98	1.07	10	7
6.01	5.97	0.04	11	7
7.05	5.97	1.08	12	7
7.05	6.01	1.04	13	7

S Statistic = 13 - 7 = 6

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 6$  is 0.236

$S < 0$  or  $0.236 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWO-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.72	5.63	0.09	1	0
5.79	5.63	0.16	2	0
5.87	5.63	0.24	3	0
6.09	5.63	0.46	4	0
6.46	5.63	0.83	5	0
6.79	5.63	1.16	6	0
5.79	5.72	0.07	7	0
5.87	5.72	0.15	8	0
6.09	5.72	0.37	9	0
6.46	5.72	0.74	10	0
6.79	5.72	1.07	11	0
5.87	5.79	0.08	12	0
6.09	5.79	0.3	13	0
6.46	5.79	0.67	14	0
6.79	5.79	1	15	0
6.09	5.87	0.22	16	0
6.46	5.87	0.59	17	0
6.79	5.87	0.92	18	0
6.46	6.09	0.37	19	0
6.79	6.09	0.7	20	0
6.79	6.46	0.33	21	0

S Statistic = 21 - 0 = 21

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 21$  is 0.0002

**S > 0 and 0.0002 < 0.05 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWP-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5	5.19	-0.19	0	1
4.96	5.19	-0.23	0	2
5.05	5.19	-0.14	0	3
5.19	5.19	0	0	3
4.84	5.19	-0.35	0	4
5.53	5.19	0.34	1	4
4.96	5	-0.04	1	5
5.05	5	0.05	2	5
5.19	5	0.19	3	5
4.84	5	-0.16	3	6
5.53	5	0.53	4	6
5.05	4.96	0.09	5	6
5.19	4.96	0.23	6	6
4.84	4.96	-0.12	6	7
5.53	4.96	0.57	7	7
5.19	5.05	0.14	8	7
4.84	5.05	-0.21	8	8
5.53	5.05	0.48	9	8
4.84	5.19	-0.35	9	9
5.53	5.19	0.34	10	9
5.53	4.84	0.69	11	9

S Statistic = 11 - 9 = 2

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 2$  is 0.443

$S < 0$  or  $0.443 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWQ-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.59	5.63	-0.04	0	1
5.75	5.63	0.12	1	1
5.88	5.63	0.25	2	1
5.88	5.63	0.25	3	1
6.16	5.63	0.53	4	1
6.84	5.63	1.21	5	1
5.75	5.59	0.16	6	1
5.88	5.59	0.29	7	1
5.88	5.59	0.29	8	1
6.16	5.59	0.57	9	1
6.84	5.59	1.25	10	1
5.88	5.75	0.13	11	1
5.88	5.75	0.13	12	1
6.16	5.75	0.41	13	1
6.84	5.75	1.09	14	1
5.88	5.88	0	14	1
6.16	5.88	0.28	15	1
6.84	5.88	0.96	16	1
6.16	5.88	0.28	17	1
6.84	5.88	0.96	18	1
6.84	6.16	0.68	19	1

S Statistic = 19 - 1 = 18

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 18$  is 0.0034

**S > 0 and 0.0034 < 0.05 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWR-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.19	5.24	-0.05	0	1
5.35	5.24	0.11	1	1
5.67	5.24	0.43	2	1
5.63	5.24	0.39	3	1
5.71	5.24	0.47	4	1
5.58	5.24	0.34	5	1
5.35	5.19	0.16	6	1
5.67	5.19	0.48	7	1
5.63	5.19	0.44	8	1
5.71	5.19	0.52	9	1
5.58	5.19	0.39	10	1
5.67	5.35	0.32	11	1
5.63	5.35	0.28	12	1
5.71	5.35	0.36	13	1
5.58	5.35	0.23	14	1
5.63	5.67	-0.04	14	2
5.71	5.67	0.04	15	2
5.58	5.67	-0.09	15	3
5.71	5.63	0.08	16	3
5.58	5.63	-0.05	16	4
5.58	5.71	-0.13	16	5

S Statistic = 16 - 5 = 11

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 11$  is 0.068

$S < 0$  or  $0.068 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWS-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.53	5.46	0.07	1	0
5.68	5.46	0.22	2	0
5.75	5.46	0.29	3	0
5.98	5.46	0.52	4	0
6.01	5.46	0.55	5	0
6.82	5.46	1.36	6	0
5.68	5.53	0.15	7	0
5.75	5.53	0.22	8	0
5.98	5.53	0.45	9	0
6.01	5.53	0.48	10	0
6.82	5.53	1.29	11	0
5.75	5.68	0.07	12	0
5.98	5.68	0.3	13	0
6.01	5.68	0.33	14	0
6.82	5.68	1.14	15	0
5.98	5.75	0.23	16	0
6.01	5.75	0.26	17	0
6.82	5.75	1.07	18	0
6.01	5.98	0.03	19	0
6.82	5.98	0.84	20	0
6.82	6.01	0.81	21	0

S Statistic = 21 - 0 = 21

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 21$  is 0.0002

**S > 0 and 0.0002 < 0.05 indicating an upward trend**



## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW01-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
90	11600	-11510	0	1
13700	11600	2100	1	1
29	11600	-11571	1	2
41000	11600	29400	2	2
104	11600	-11496	2	3
576	11600	-11024	2	4
9710	11600	-1890	2	5
143	11600	-11457	2	6
3880	11600	-7720	2	7
2460	11600	-9140	2	8
5670	11600	-5930	2	9
5940	11600	-5660	2	10
2060	11600	-9540	2	11
8120	11600	-3480	2	12
13700	11600	2100	3	12
3.7 J	11600	-11596.3	3	13
15200	11600	3600	4	13
13700	90	13610	5	13
29	90	-61	5	14
41000	90	40910	6	14
104	90	14	7	14
576	90	486	8	14
9710	90	9620	9	14
143	90	53	10	14
3880	90	3790	11	14
2460	90	2370	12	14
5670	90	5580	13	14
5940	90	5850	14	14
2060	90	1970	15	14
8120	90	8030	16	14
13700	90	13610	17	14
3.7 J	90	-86.3	17	15
15200	90	15110	18	15
29	13700	-13671	18	16
41000	13700	27300	19	16
104	13700	-13596	19	17
576	13700	-13124	19	18
9710	13700	-3990	19	19
143	13700	-13557	19	20
3880	13700	-9820	19	21
2460	13700	-11240	19	22
5670	13700	-8030	19	23
5940	13700	-7760	19	24
2060	13700	-11640	19	25
8120	13700	-5580	19	26

13700	13700	0	19	26
3.7 J	13700	-13696.3	19	27
15200	13700	1500	20	27
41000	29	40971	21	27
104	29	75	22	27
576	29	547	23	27
9710	29	9681	24	27
143	29	114	25	27
3880	29	3851	26	27
2460	29	2431	27	27
5670	29	5641	28	27
5940	29	5911	29	27
2060	29	2031	30	27
8120	29	8091	31	27
13700	29	13671	32	27
3.7 J	29	-25.3	32	28
15200	29	15171	33	28
104	41000	-40896	33	29
576	41000	-40424	33	30
9710	41000	-31290	33	31
143	41000	-40857	33	32
3880	41000	-37120	33	33
2460	41000	-38540	33	34
5670	41000	-35330	33	35
5940	41000	-35060	33	36
2060	41000	-38940	33	37
8120	41000	-32880	33	38
13700	41000	-27300	33	39
3.7 J	41000	-40996.3	33	40
15200	41000	-25800	33	41
576	104	472	34	41
9710	104	9606	35	41
143	104	39	36	41
3880	104	3776	37	41
2460	104	2356	38	41
5670	104	5566	39	41
5940	104	5836	40	41
2060	104	1956	41	41
8120	104	8016	42	41
13700	104	13596	43	41
3.7 J	104	-100.3	43	42
15200	104	15096	44	42
9710	576	9134	45	42
143	576	-433	45	43
3880	576	3304	46	43
2460	576	1884	47	43
5670	576	5094	48	43
5940	576	5364	49	43
2060	576	1484	50	43
8120	576	7544	51	43
13700	576	13124	52	43
3.7 J	576	-572.3	52	44
15200	576	14624	53	44

143	9710	-9567	53	45
3880	9710	-5830	53	46
2460	9710	-7250	53	47
5670	9710	-4040	53	48
5940	9710	-3770	53	49
2060	9710	-7650	53	50
8120	9710	-1590	53	51
13700	9710	3990	54	51
3.7 J	9710	-9706.3	54	52
15200	9710	5490	55	52
3880	143	3737	56	52
2460	143	2317	57	52
5670	143	5527	58	52
5940	143	5797	59	52
2060	143	1917	60	52
8120	143	7977	61	52
13700	143	13557	62	52
3.7 J	143	-139.3	62	53
15200	143	15057	63	53
2460	3880	-1420	63	54
5670	3880	1790	64	54
5940	3880	2060	65	54
2060	3880	-1820	65	55
8120	3880	4240	66	55
13700	3880	9820	67	55
3.7 J	3880	-3876.3	67	56
15200	3880	11320	68	56
5670	2460	3210	69	56
5940	2460	3480	70	56
2060	2460	-400	70	57
8120	2460	5660	71	57
13700	2460	11240	72	57
3.7 J	2460	-2456.3	72	58
15200	2460	12740	73	58
5940	5670	270	74	58
2060	5670	-3610	74	59
8120	5670	2450	75	59
13700	5670	8030	76	59
3.7 J	5670	-5666.3	76	60
15200	5670	9530	77	60
2060	5940	-3880	77	61
8120	5940	2180	78	61
13700	5940	7760	79	61
3.7 J	5940	-5936.3	79	62
15200	5940	9260	80	62
8120	2060	6060	81	62
13700	2060	11640	82	62
3.7 J	2060	-2056.3	82	63
15200	2060	13140	83	63

13700	8120	5580	84	63
3.7 J	8120	-8116.3	84	64
15200	8120	7080	85	64
3.7 J	13700	-13696.3	85	65
15200	13700	1500	86	65
15200	3.7 J	15196.3	87	65

S Statistic = 87 - 65 = 22

---

Tied Group	Value	Members
1	13700	2

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/19/2020	1
6/8/2020	1
9/14/2020	1
11/19/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 12546

b = 44064

c = 612

Group Variance = 696

Z-Score = 0.796003

Comparison Level at 95% confidence level = 1.65463 (upward trend)

0.796003 <= 1.65463 indicating no evidence of an upward trend

# Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW02-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
203	18200	-17997	0	1
290	18200	-17910	0	2
38.6	18200	-18161.4	0	3
186	18200	-18014	0	4
573	18200	-17627	0	5
452	18200	-17748	0	6
5030	18200	-13170	0	7
3240	18200	-14960	0	8
25300	18200	7100	1	8
21500	18200	3300	2	8
56600	18200	38400	3	8
72000	18200	53800	4	8
17200	18200	-1000	4	9
14100	18200	-4100	4	10
34900	18200	16700	5	10
123	18200	-18077	5	11
20200	18200	2000	6	11
290	203	87	7	11
38.6	203	-164.4	7	12
186	203	-17	7	13
573	203	370	8	13
452	203	249	9	13
5030	203	4827	10	13
3240	203	3037	11	13
25300	203	25097	12	13
21500	203	21297	13	13
56600	203	56397	14	13
72000	203	71797	15	13
17200	203	16997	16	13
14100	203	13897	17	13
34900	203	34697	18	13
123	203	-80	18	14
20200	203	19997	19	14
38.6	290	-251.4	19	15
186	290	-104	19	16
573	290	283	20	16
452	290	162	21	16
5030	290	4740	22	16
3240	290	2950	23	16
25300	290	25010	24	16
21500	290	21210	25	16
56600	290	56310	26	16
72000	290	71710	27	16
17200	290	16910	28	16
14100	290	13810	29	16

34900	290	34610	30	16
123	290	-167	30	17
20200	290	19910	31	17
186	38.6	147.4	32	17
573	38.6	534.4	33	17
452	38.6	413.4	34	17
5030	38.6	4991.4	35	17
3240	38.6	3201.4	36	17
25300	38.6	25261.4	37	17
21500	38.6	21461.4	38	17
56600	38.6	56561.4	39	17
72000	38.6	71961.4	40	17
17200	38.6	17161.4	41	17
14100	38.6	14061.4	42	17
34900	38.6	34861.4	43	17
123	38.6	84.4	44	17
20200	38.6	20161.4	45	17
573	186	387	46	17
452	186	266	47	17
5030	186	4844	48	17
3240	186	3054	49	17
25300	186	25114	50	17
21500	186	21314	51	17
56600	186	56414	52	17
72000	186	71814	53	17
17200	186	17014	54	17
14100	186	13914	55	17
34900	186	34714	56	17
123	186	-63	56	18
20200	186	20014	57	18
452	573	-121	57	19
5030	573	4457	58	19
3240	573	2667	59	19
25300	573	24727	60	19
21500	573	20927	61	19
56600	573	56027	62	19
72000	573	71427	63	19
17200	573	16627	64	19
14100	573	13527	65	19
34900	573	34327	66	19
123	573	-450	66	20
20200	573	19627	67	20
5030	452	4578	68	20
3240	452	2788	69	20
25300	452	24848	70	20
21500	452	21048	71	20
56600	452	56148	72	20
72000	452	71548	73	20
17200	452	16748	74	20
14100	452	13648	75	20
34900	452	34448	76	20
123	452	-329	76	21
20200	452	19748	77	21

3240	5030	-1790	77	22
25300	5030	20270	78	22
21500	5030	16470	79	22
56600	5030	51570	80	22
72000	5030	66970	81	22
17200	5030	12170	82	22
14100	5030	9070	83	22
34900	5030	29870	84	22
123	5030	-4907	84	23
20200	5030	15170	85	23
25300	3240	22060	86	23
21500	3240	18260	87	23
56600	3240	53360	88	23
72000	3240	68760	89	23
17200	3240	13960	90	23
14100	3240	10860	91	23
34900	3240	31660	92	23
123	3240	-3117	92	24
20200	3240	16960	93	24
21500	25300	-3800	93	25
56600	25300	31300	94	25
72000	25300	46700	95	25
17200	25300	-8100	95	26
14100	25300	-11200	95	27
34900	25300	9600	96	27
123	25300	-25177	96	28
20200	25300	-5100	96	29
56600	21500	35100	97	29
72000	21500	50500	98	29
17200	21500	-4300	98	30
14100	21500	-7400	98	31
34900	21500	13400	99	31
123	21500	-21377	99	32
20200	21500	-1300	99	33
72000	56600	15400	100	33
17200	56600	-39400	100	34
14100	56600	-42500	100	35
34900	56600	-21700	100	36
123	56600	-56477	100	37
20200	56600	-36400	100	38
17200	72000	-54800	100	39
14100	72000	-57900	100	40
34900	72000	-37100	100	41
123	72000	-71877	100	42
20200	72000	-51800	100	43
14100	17200	-3100	100	44
34900	17200	17700	101	44
123	17200	-17077	101	45
20200	17200	3000	102	45

34900	14100	20800	103	45
123	14100	-13977	103	46
20200	14100	6100	104	46
123	34900	-34777	104	47
20200	34900	-14700	104	48
20200	123	20077	105	48

S Statistic = 105 - 48 = 57

---

Tied Group	Value	Members
------------	-------	---------

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/19/2020	1
6/9/2020	1
9/14/2020	1
11/19/2020	1

There are 0 time periods with multiple data

---

A = 0  
 B = 0  
 C = 0  
 D = 0  
 E = 0  
 F = 0  
 a = 12546  
 b = 44064  
 c = 612  
 Group Variance = 697  
 Z-Score = 2.12115  
 Comparison Level at 95% confidence level = 1.65463 (upward trend)  
**2.12115 > 1.65463 indicating an upward trend**



## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW03-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
9240	9740	-500	0	1
7830	9740	-1910	0	2
2960	9740	-6780	0	3
2440	9740	-7300	0	4
8330	9740	-1410	0	5
10900	9740	1160	1	5
9340	9740	-400	1	6
1810	9740	-7930	1	7
1750	9740	-7990	1	8
6270	9740	-3470	1	9
12700	9740	2960	2	9
6920	9740	-2820	2	10
9710	9740	-30	2	11
13000	9740	3260	3	11
14900	9740	5160	4	11
6720	9740	-3020	4	12
13300	9740	3560	5	12
10500	9740	760	6	12
16200	9740	6460	7	12
12900	9740	3160	8	12
19400	9740	9660	9	12
7830	9240	-1410	9	13
2960	9240	-6280	9	14
2440	9240	-6800	9	15
8330	9240	-910	9	16
10900	9240	1660	10	16
9340	9240	100	11	16
1810	9240	-7430	11	17
1750	9240	-7490	11	18
6270	9240	-2970	11	19
12700	9240	3460	12	19
6920	9240	-2320	12	20
9710	9240	470	13	20
13000	9240	3760	14	20
14900	9240	5660	15	20
6720	9240	-2520	15	21
13300	9240	4060	16	21
10500	9240	1260	17	21
16200	9240	6960	18	21
12900	9240	3660	19	21
19400	9240	10160	20	21
2960	7830	-4870	20	22
2440	7830	-5390	20	23
8330	7830	500	21	23
10900	7830	3070	22	23

9340	7830	1510	23	23
1810	7830	-6020	23	24
1750	7830	-6080	23	25
6270	7830	-1560	23	26
12700	7830	4870	24	26
6920	7830	-910	24	27
9710	7830	1880	25	27
13000	7830	5170	26	27
14900	7830	7070	27	27
6720	7830	-1110	27	28
13300	7830	5470	28	28
10500	7830	2670	29	28
16200	7830	8370	30	28
12900	7830	5070	31	28
19400	7830	11570	32	28
2440	2960	-520	32	29
8330	2960	5370	33	29
10900	2960	7940	34	29
9340	2960	6380	35	29
1810	2960	-1150	35	30
1750	2960	-1210	35	31
6270	2960	3310	36	31
12700	2960	9740	37	31
6920	2960	3960	38	31
9710	2960	6750	39	31
13000	2960	10040	40	31
14900	2960	11940	41	31
6720	2960	3760	42	31
13300	2960	10340	43	31
10500	2960	7540	44	31
16200	2960	13240	45	31
12900	2960	9940	46	31
19400	2960	16440	47	31
8330	2440	5890	48	31
10900	2440	8460	49	31
9340	2440	6900	50	31
1810	2440	-630	50	32
1750	2440	-690	50	33
6270	2440	3830	51	33
12700	2440	10260	52	33
6920	2440	4480	53	33
9710	2440	7270	54	33
13000	2440	10560	55	33
14900	2440	12460	56	33
6720	2440	4280	57	33
13300	2440	10860	58	33
10500	2440	8060	59	33
16200	2440	13760	60	33
12900	2440	10460	61	33
19400	2440	16960	62	33
10900	8330	2570	63	33
9340	8330	1010	64	33
1810	8330	-6520	64	34
1750	8330	-6580	64	35

6270	8330	-2060	64	36
12700	8330	4370	65	36
6920	8330	-1410	65	37
9710	8330	1380	66	37
13000	8330	4670	67	37
14900	8330	6570	68	37
6720	8330	-1610	68	38
13300	8330	4970	69	38
10500	8330	2170	70	38
16200	8330	7870	71	38
12900	8330	4570	72	38
19400	8330	11070	73	38
9340	10900	-1560	73	39
1810	10900	-9090	73	40
1750	10900	-9150	73	41
6270	10900	-4630	73	42
12700	10900	1800	74	42
6920	10900	-3980	74	43
9710	10900	-1190	74	44
13000	10900	2100	75	44
14900	10900	4000	76	44
6720	10900	-4180	76	45
13300	10900	2400	77	45
10500	10900	-400	77	46
16200	10900	5300	78	46
12900	10900	2000	79	46
19400	10900	8500	80	46
1810	9340	-7530	80	47
1750	9340	-7590	80	48
6270	9340	-3070	80	49
12700	9340	3360	81	49
6920	9340	-2420	81	50
9710	9340	370	82	50
13000	9340	3660	83	50
14900	9340	5560	84	50
6720	9340	-2620	84	51
13300	9340	3960	85	51
10500	9340	1160	86	51
16200	9340	6860	87	51
12900	9340	3560	88	51
19400	9340	10060	89	51
1750	1810	-60	89	52
6270	1810	4460	90	52
12700	1810	10890	91	52
6920	1810	5110	92	52
9710	1810	7900	93	52
13000	1810	11190	94	52
14900	1810	13090	95	52
6720	1810	4910	96	52
13300	1810	11490	97	52
10500	1810	8690	98	52
16200	1810	14390	99	52
12900	1810	11090	100	52
19400	1810	17590	101	52

6270	1750	4520	102	52
12700	1750	10950	103	52
6920	1750	5170	104	52
9710	1750	7960	105	52
13000	1750	11250	106	52
14900	1750	13150	107	52
6720	1750	4970	108	52
13300	1750	11550	109	52
10500	1750	8750	110	52
16200	1750	14450	111	52
12900	1750	11150	112	52
19400	1750	17650	113	52
12700	6270	6430	114	52
6920	6270	650	115	52
9710	6270	3440	116	52
13000	6270	6730	117	52
14900	6270	8630	118	52
6720	6270	450	119	52
13300	6270	7030	120	52
10500	6270	4230	121	52
16200	6270	9930	122	52
12900	6270	6630	123	52
19400	6270	13130	124	52
6920	12700	-5780	124	53
9710	12700	-2990	124	54
13000	12700	300	125	54
14900	12700	2200	126	54
6720	12700	-5980	126	55
13300	12700	600	127	55
10500	12700	-2200	127	56
16200	12700	3500	128	56
12900	12700	200	129	56
19400	12700	6700	130	56
9710	6920	2790	131	56
13000	6920	6080	132	56
14900	6920	7980	133	56
6720	6920	-200	133	57
13300	6920	6380	134	57
10500	6920	3580	135	57
16200	6920	9280	136	57
12900	6920	5980	137	57
19400	6920	12480	138	57
13000	9710	3290	139	57
14900	9710	5190	140	57
6720	9710	-2990	140	58
13300	9710	3590	141	58
10500	9710	790	142	58
16200	9710	6490	143	58
12900	9710	3190	144	58
19400	9710	9690	145	58
14900	13000	1900	146	58

6720	13000	-6280	146	59
13300	13000	300	147	59
10500	13000	-2500	147	60
16200	13000	3200	148	60
12900	13000	-100	148	61
19400	13000	6400	149	61
6720	14900	-8180	149	62
13300	14900	-1600	149	63
10500	14900	-4400	149	64
16200	14900	1300	150	64
12900	14900	-2000	150	65
19400	14900	4500	151	65
13300	6720	6580	152	65
10500	6720	3780	153	65
16200	6720	9480	154	65
12900	6720	6180	155	65
19400	6720	12680	156	65
10500	13300	-2800	156	66
16200	13300	2900	157	66
12900	13300	-400	157	67
19400	13300	6100	158	67
16200	10500	5700	159	67
12900	10500	2400	160	67
19400	10500	8900	161	67
12900	16200	-3300	161	68
19400	16200	3200	162	68
19400	12900	6500	163	68

S Statistic = 163 - 68 = 95

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1

6/1/2019	1
9/1/2019	1
12/1/2019	1
3/19/2020	1
6/9/2020	1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 22638

b = 83160

c = 924

Group Variance = 1257.67

Z-Score = 2.65061

Comparison Level at 95% confidence level = 1.65463 (upward trend)

**2.65061 > 1.65463 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW05R-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
76600	70700	5900	1	0
80000 ML1c	70700	9300	2	0
68200 1c	70700	-2500	2	1
80000 ML1c	76600	3400	3	1
68200 1c	76600	-8400	3	2
68200 1c	80000 ML1c	-11800	3	3

S Statistic = 3 - 3 = 0

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 0$  is 0.625

$S < 0$  or  $0.625 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW06-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
1680	1900	-220	0	1
1420	1900	-480	0	2
999	1900	-901	0	3
876	1900	-1024	0	4
1690	1900	-210	0	5
1340	1900	-560	0	6
508	1900	-1392	0	7
615	1900	-1285	0	8
909	1900	-991	0	9
1360	1900	-540	0	10
1950	1900	50	1	10
27900	1900	26000	2	10
191	1900	-1709	2	11
90100	1900	88200	3	11
99600	1900	97700	4	11
122000	1900	120100	5	11
108000	1900	106100	6	11
122000	1900	120100	7	11
116000	1900	114100	8	11
117000	1900	115100	9	11
94400	1900	92500	10	11
111000 ML	1900	109100	11	11
79.7	1900	-1820.3	11	12
1420	1680	-260	11	13
999	1680	-681	11	14
876	1680	-804	11	15
1690	1680	10	12	15
1340	1680	-340	12	16
508	1680	-1172	12	17
615	1680	-1065	12	18
909	1680	-771	12	19
1360	1680	-320	12	20
1950	1680	270	13	20
27900	1680	26220	14	20
191	1680	-1489	14	21
90100	1680	88420	15	21
99600	1680	97920	16	21
122000	1680	120320	17	21
108000	1680	106320	18	21
122000	1680	120320	19	21
116000	1680	114320	20	21
117000	1680	115320	21	21
94400	1680	92720	22	21
111000 ML	1680	109320	23	21
79.7	1680	-1600.3	23	22



999	1420	-421	23	23
876	1420	-544	23	24
1690	1420	270	24	24
1340	1420	-80	24	25
508	1420	-912	24	26
615	1420	-805	24	27
909	1420	-511	24	28
1360	1420	-60	24	29
1950	1420	530	25	29
27900	1420	26480	26	29
191	1420	-1229	26	30
90100	1420	88680	27	30
99600	1420	98180	28	30
122000	1420	120580	29	30
108000	1420	106580	30	30
122000	1420	120580	31	30
116000	1420	114580	32	30
117000	1420	115580	33	30
94400	1420	92980	34	30
111000 ML	1420	109580	35	30
79.7	1420	-1340.3	35	31
876	999	-123	35	32
1690	999	691	36	32
1340	999	341	37	32
508	999	-491	37	33
615	999	-384	37	34
909	999	-90	37	35
1360	999	361	38	35
1950	999	951	39	35
27900	999	26901	40	35
191	999	-808	40	36
90100	999	89101	41	36
99600	999	98601	42	36
122000	999	121001	43	36
108000	999	107001	44	36
122000	999	121001	45	36
116000	999	115001	46	36
117000	999	116001	47	36
94400	999	93401	48	36
111000 ML	999	110001	49	36
79.7	999	-919.3	49	37
1690	876	814	50	37
1340	876	464	51	37
508	876	-368	51	38
615	876	-261	51	39
909	876	33	52	39
1360	876	484	53	39
1950	876	1074	54	39
27900	876	27024	55	39
191	876	-685	55	40
90100	876	89224	56	40
99600	876	98724	57	40
122000	876	121124	58	40
108000	876	107124	59	40
122000	876	121124	60	40

116000	876	115124	61	40
117000	876	116124	62	40
94400	876	93524	63	40
111000 ML	876	110124	64	40
79.7	876	-796.3	64	41
1340	1690	-350	64	42
508	1690	-1182	64	43
615	1690	-1075	64	44
909	1690	-781	64	45
1360	1690	-330	64	46
1950	1690	260	65	46
27900	1690	26210	66	46
191	1690	-1499	66	47
90100	1690	88410	67	47
99600	1690	97910	68	47
122000	1690	120310	69	47
108000	1690	106310	70	47
122000	1690	120310	71	47
116000	1690	114310	72	47
117000	1690	115310	73	47
94400	1690	92710	74	47
111000 ML	1690	109310	75	47
79.7	1690	-1610.3	75	48
508	1340	-832	75	49
615	1340	-725	75	50
909	1340	-431	75	51
1360	1340	20	76	51
1950	1340	610	77	51
27900	1340	26560	78	51
191	1340	-1149	78	52
90100	1340	88760	79	52
99600	1340	98260	80	52
122000	1340	120660	81	52
108000	1340	106660	82	52
122000	1340	120660	83	52
116000	1340	114660	84	52
117000	1340	115660	85	52
94400	1340	93060	86	52
111000 ML	1340	109660	87	52
79.7	1340	-1260.3	87	53
615	508	107	88	53
909	508	401	89	53
1360	508	852	90	53
1950	508	1442	91	53
27900	508	27392	92	53
191	508	-317	92	54
90100	508	89592	93	54
99600	508	99092	94	54
122000	508	121492	95	54
108000	508	107492	96	54
122000	508	121492	97	54
116000	508	115492	98	54
117000	508	116492	99	54
94400	508	93892	100	54

111000 ML	508	110492	101	54
79.7	508	-428.3	101	55
909	615	294	102	55
1360	615	745	103	55
1950	615	1335	104	55
27900	615	27285	105	55
191	615	-424	105	56
90100	615	89485	106	56
99600	615	98985	107	56
122000	615	121385	108	56
108000	615	107385	109	56
122000	615	121385	110	56
116000	615	115385	111	56
117000	615	116385	112	56
94400	615	93785	113	56
111000 ML	615	110385	114	56
79.7	615	-535.3	114	57
1360	909	451	115	57
1950	909	1041	116	57
27900	909	26991	117	57
191	909	-718	117	58
90100	909	89191	118	58
99600	909	98691	119	58
122000	909	121091	120	58
108000	909	107091	121	58
122000	909	121091	122	58
116000	909	115091	123	58
117000	909	116091	124	58
94400	909	93491	125	58
111000 ML	909	110091	126	58
79.7	909	-829.3	126	59
1950	1360	590	127	59
27900	1360	26540	128	59
191	1360	-1169	128	60
90100	1360	88740	129	60
99600	1360	98240	130	60
122000	1360	120640	131	60
108000	1360	106640	132	60
122000	1360	120640	133	60
116000	1360	114640	134	60
117000	1360	115640	135	60
94400	1360	93040	136	60
111000 ML	1360	109640	137	60
79.7	1360	-1280.3	137	61
27900	1950	25950	138	61
191	1950	-1759	138	62
90100	1950	88150	139	62
99600	1950	97650	140	62
122000	1950	120050	141	62
108000	1950	106050	142	62
122000	1950	120050	143	62
116000	1950	114050	144	62
117000	1950	115050	145	62

94400	1950	92450	146	62
111000 ML	1950	109050	147	62
79.7	1950	-1870.3	147	63
191	27900	-27709	147	64
90100	27900	62200	148	64
99600	27900	71700	149	64
122000	27900	94100	150	64
108000	27900	80100	151	64
122000	27900	94100	152	64
116000	27900	88100	153	64
117000	27900	89100	154	64
94400	27900	66500	155	64
111000 ML	27900	83100	156	64
79.7	27900	-27820.3	156	65
90100	191	89909	157	65
99600	191	99409	158	65
122000	191	121809	159	65
108000	191	107809	160	65
122000	191	121809	161	65
116000	191	115809	162	65
117000	191	116809	163	65
94400	191	94209	164	65
111000 ML	191	110809	165	65
79.7	191	-111.3	165	66
99600	90100	9500	166	66
122000	90100	31900	167	66
108000	90100	17900	168	66
122000	90100	31900	169	66
116000	90100	25900	170	66
117000	90100	26900	171	66
94400	90100	4300	172	66
111000 ML	90100	20900	173	66
79.7	90100	-90020.3	173	67
122000	99600	22400	174	67
108000	99600	8400	175	67
122000	99600	22400	176	67
116000	99600	16400	177	67
117000	99600	17400	178	67
94400	99600	-5200	178	68
111000 ML	99600	11400	179	68
79.7	99600	-99520.3	179	69
108000	122000	-14000	179	70
122000	122000	0	179	70
116000	122000	-6000	179	71
117000	122000	-5000	179	72
94400	122000	-27600	179	73
111000 ML	122000	-11000	179	74
79.7	122000	-121920	179	75
122000	108000	14000	180	75
116000	108000	8000	181	75
117000	108000	9000	182	75

94400	108000	-13600	182	76
111000 ML	108000	3000	183	76
79.7	108000	-107920	183	77
116000	122000	-6000	183	78
117000	122000	-5000	183	79
94400	122000	-27600	183	80
111000 ML	122000	-11000	183	81
79.7	122000	-121920	183	82
117000	116000	1000	184	82
94400	116000	-21600	184	83
111000 ML	116000	-5000	184	84
79.7	116000	-115920	184	85
94400	117000	-22600	184	86
111000 ML	117000	-6000	184	87
79.7	117000	-116920	184	88
111000 ML	94400	16600	185	88
79.7	94400	-94320.3	185	89
79.7	111000 ML	-110920	185	90

S Statistic = 185 - 90 = 95

---

Tied Group	Value	Members
1	122000	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/18/2020	1
6/10/2020	1
9/14/2020	1
11/11/2020	1

There are 0 time periods with multiple data

---

A = 18  
B = 0  
C = 0  
D = 0  
E = 2  
F = 0  
a = 29256  
b = 109296  
c = 1104  
Group Variance = 1624.33  
Z-Score = 2.33233  
Comparison Level at 95% confidence level = 1.65463 (upward trend)  
**2.33233 > 1.65463 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW07-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
1210	944	266	1	0
364	944	-580	1	1
298	944	-646	1	2
432	944	-512	1	3
45.7	944	-898.3	1	4
62.7	944	-881.3	1	5
2840	944	1896	2	5
23.4	944	-920.6	2	6
1650	944	706	3	6
39.8	944	-904.2	3	7
70.6	944	-873.4	3	8
756	944	-188	3	9
26300	944	25356	4	9
12200	944	11256	5	9
86000	944	85056	6	9
24200	944	23256	7	9
136000	944	135056	8	9
48300	944	47356	9	9
16600	944	15656	10	9
39000	944	38056	11	9
400	944	-544	11	10
364	1210	-846	11	11
298	1210	-912	11	12
432	1210	-778	11	13
45.7	1210	-1164.3	11	14
62.7	1210	-1147.3	11	15
2840	1210	1630	12	15
23.4	1210	-1186.6	12	16
1650	1210	440	13	16
39.8	1210	-1170.2	13	17
70.6	1210	-1139.4	13	18
756	1210	-454	13	19
26300	1210	25090	14	19
12200	1210	10990	15	19
86000	1210	84790	16	19
24200	1210	22990	17	19
136000	1210	134790	18	19
48300	1210	47090	19	19
16600	1210	15390	20	19
39000	1210	37790	21	19
400	1210	-810	21	20
298	364	-66	21	21
432	364	68	22	21
45.7	364	-318.3	22	22
62.7	364	-301.3	22	23

2840	364	2476	23	23
23.4	364	-340.6	23	24
1650	364	1286	24	24
39.8	364	-324.2	24	25
70.6	364	-293.4	24	26
756	364	392	25	26
26300	364	25936	26	26
12200	364	11836	27	26
86000	364	85636	28	26
24200	364	23836	29	26
136000	364	135636	30	26
48300	364	47936	31	26
16600	364	16236	32	26
39000	364	38636	33	26
400	364	36	34	26
432	298	134	35	26
45.7	298	-252.3	35	27
62.7	298	-235.3	35	28
2840	298	2542	36	28
23.4	298	-274.6	36	29
1650	298	1352	37	29
39.8	298	-258.2	37	30
70.6	298	-227.4	37	31
756	298	458	38	31
26300	298	26002	39	31
12200	298	11902	40	31
86000	298	85702	41	31
24200	298	23902	42	31
136000	298	135702	43	31
48300	298	48002	44	31
16600	298	16302	45	31
39000	298	38702	46	31
400	298	102	47	31
45.7	432	-386.3	47	32
62.7	432	-369.3	47	33
2840	432	2408	48	33
23.4	432	-408.6	48	34
1650	432	1218	49	34
39.8	432	-392.2	49	35
70.6	432	-361.4	49	36
756	432	324	50	36
26300	432	25868	51	36
12200	432	11768	52	36
86000	432	85568	53	36
24200	432	23768	54	36
136000	432	135568	55	36
48300	432	47868	56	36
16600	432	16168	57	36
39000	432	38568	58	36
400	432	-32	58	37
62.7	45.7	17	59	37
2840	45.7	2794.3	60	37
23.4	45.7	-22.3	60	38
1650	45.7	1604.3	61	38



39.8	45.7	-5.9	61	39
70.6	45.7	24.9	62	39
756	45.7	710.3	63	39
26300	45.7	26254.3	64	39
12200	45.7	12154.3	65	39
86000	45.7	85954.3	66	39
24200	45.7	24154.3	67	39
136000	45.7	135954	68	39
48300	45.7	48254.3	69	39
16600	45.7	16554.3	70	39
39000	45.7	38954.3	71	39
400	45.7	354.3	72	39
2840	62.7	2777.3	73	39
23.4	62.7	-39.3	73	40
1650	62.7	1587.3	74	40
39.8	62.7	-22.9	74	41
70.6	62.7	7.9	75	41
756	62.7	693.3	76	41
26300	62.7	26237.3	77	41
12200	62.7	12137.3	78	41
86000	62.7	85937.3	79	41
24200	62.7	24137.3	80	41
136000	62.7	135937	81	41
48300	62.7	48237.3	82	41
16600	62.7	16537.3	83	41
39000	62.7	38937.3	84	41
400	62.7	337.3	85	41
23.4	2840	-2816.6	85	42
1650	2840	-1190	85	43
39.8	2840	-2800.2	85	44
70.6	2840	-2769.4	85	45
756	2840	-2084	85	46
26300	2840	23460	86	46
12200	2840	9360	87	46
86000	2840	83160	88	46
24200	2840	21360	89	46
136000	2840	133160	90	46
48300	2840	45460	91	46
16600	2840	13760	92	46
39000	2840	36160	93	46
400	2840	-2440	93	47
1650	23.4	1626.6	94	47
39.8	23.4	16.4	95	47
70.6	23.4	47.2	96	47
756	23.4	732.6	97	47
26300	23.4	26276.6	98	47
12200	23.4	12176.6	99	47
86000	23.4	85976.6	100	47
24200	23.4	24176.6	101	47
136000	23.4	135977	102	47
48300	23.4	48276.6	103	47
16600	23.4	16576.6	104	47
39000	23.4	38976.6	105	47
400	23.4	376.6	106	47

39.8	1650	-1610.2	106	48
70.6	1650	-1579.4	106	49
756	1650	-894	106	50
26300	1650	24650	107	50
12200	1650	10550	108	50
86000	1650	84350	109	50
24200	1650	22550	110	50
136000	1650	134350	111	50
48300	1650	46650	112	50
16600	1650	14950	113	50
39000	1650	37350	114	50
400	1650	-1250	114	51
70.6	39.8	30.8	115	51
756	39.8	716.2	116	51
26300	39.8	26260.2	117	51
12200	39.8	12160.2	118	51
86000	39.8	85960.2	119	51
24200	39.8	24160.2	120	51
136000	39.8	135960	121	51
48300	39.8	48260.2	122	51
16600	39.8	16560.2	123	51
39000	39.8	38960.2	124	51
400	39.8	360.2	125	51
756	70.6	685.4	126	51
26300	70.6	26229.4	127	51
12200	70.6	12129.4	128	51
86000	70.6	85929.4	129	51
24200	70.6	24129.4	130	51
136000	70.6	135929	131	51
48300	70.6	48229.4	132	51
16600	70.6	16529.4	133	51
39000	70.6	38929.4	134	51
400	70.6	329.4	135	51
26300	756	25544	136	51
12200	756	11444	137	51
86000	756	85244	138	51
24200	756	23444	139	51
136000	756	135244	140	51
48300	756	47544	141	51
16600	756	15844	142	51
39000	756	38244	143	51
400	756	-356	143	52
12200	26300	-14100	143	53
86000	26300	59700	144	53
24200	26300	-2100	144	54
136000	26300	109700	145	54
48300	26300	22000	146	54
16600	26300	-9700	146	55
39000	26300	12700	147	55
400	26300	-25900	147	56
86000	12200	73800	148	56

24200	12200	12000	149	56
136000	12200	123800	150	56
48300	12200	36100	151	56
16600	12200	4400	152	56
39000	12200	26800	153	56
400	12200	-11800	153	57
24200	86000	-61800	153	58
136000	86000	50000	154	58
48300	86000	-37700	154	59
16600	86000	-69400	154	60
39000	86000	-47000	154	61
400	86000	-85600	154	62
136000	24200	111800	155	62
48300	24200	24100	156	62
16600	24200	-7600	156	63
39000	24200	14800	157	63
400	24200	-23800	157	64
48300	136000	-87700	157	65
16600	136000	-119400	157	66
39000	136000	-97000	157	67
400	136000	-135600	157	68
16600	48300	-31700	157	69
39000	48300	-9300	157	70
400	48300	-47900	157	71
39000	16600	22400	158	71
400	16600	-16200	158	72
400	39000	-38600	158	73

S Statistic = 158 - 73 = 85

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1

6/1/2019	1
9/1/2019	1
12/1/2019	1
3/18/2020	1
6/11/2020	1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 22638

b = 83160

c = 924

Group Variance = 1257.67

Z-Score = 2.36863

Comparison Level at 95% confidence level = 1.65463 (upward trend)

**2.36863 > 1.65463 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW08-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
44.6	178	-133.4	0	1
85	178	-93	0	2
188	178	10	1	2
71.9	178	-106.1	1	3
153	178	-25	1	4
49.8	178	-128.2	1	5
69.4	178	-108.6	1	6
16.9	178	-161.1	1	7
21.5	178	-156.5	1	8
21.4	178	-156.6	1	9
108	178	-70	1	10
1050	178	872	2	10
2540	178	2362	3	10
256	178	78	4	10
11	178	-167	4	11
10 U	178	-168	4	12
10 U	178	-168	4	13
11.2	178	-166.8	4	14
48.9	178	-129.1	4	15
33.4	178	-144.6	4	16
4.5 J	178	-173.5	4	17
5.4 J1c	178	-172.6	4	18
28.3	178	-149.7	4	19
85	44.6	40.4	5	19
188	44.6	143.4	6	19
71.9	44.6	27.3	7	19
153	44.6	108.4	8	19
49.8	44.6	5.2	9	19
69.4	44.6	24.8	10	19
16.9	44.6	-27.7	10	20
21.5	44.6	-23.1	10	21
21.4	44.6	-23.2	10	22
108	44.6	63.4	11	22
1050	44.6	1005.4	12	22
2540	44.6	2495.4	13	22
256	44.6	211.4	14	22
11	44.6	-33.6	14	23
10 U	44.6	-34.6	14	24
10 U	44.6	-34.6	14	25
11.2	44.6	-33.4	14	26
48.9	44.6	4.3	15	26
33.4	44.6	-11.2	15	27
4.5 J	44.6	-40.1	15	28
5.4 J1c	44.6	-39.2	15	29
28.3	44.6	-16.3	15	30

188	85	103	16	30
71.9	85	-13.1	16	31
153	85	68	17	31
49.8	85	-35.2	17	32
69.4	85	-15.6	17	33
16.9	85	-68.1	17	34
21.5	85	-63.5	17	35
21.4	85	-63.6	17	36
108	85	23	18	36
1050	85	965	19	36
2540	85	2455	20	36
256	85	171	21	36
11	85	-74	21	37
10 U	85	-75	21	38
10 U	85	-75	21	39
11.2	85	-73.8	21	40
48.9	85	-36.1	21	41
33.4	85	-51.6	21	42
4.5 J	85	-80.5	21	43
5.4 J1c	85	-79.6	21	44
28.3	85	-56.7	21	45
71.9	188	-116.1	21	46
153	188	-35	21	47
49.8	188	-138.2	21	48
69.4	188	-118.6	21	49
16.9	188	-171.1	21	50
21.5	188	-166.5	21	51
21.4	188	-166.6	21	52
108	188	-80	21	53
1050	188	862	22	53
2540	188	2352	23	53
256	188	68	24	53
11	188	-177	24	54
10 U	188	-178	24	55
10 U	188	-178	24	56
11.2	188	-176.8	24	57
48.9	188	-139.1	24	58
33.4	188	-154.6	24	59
4.5 J	188	-183.5	24	60
5.4 J1c	188	-182.6	24	61
28.3	188	-159.7	24	62
153	71.9	81.1	25	62
49.8	71.9	-22.1	25	63
69.4	71.9	-2.5	25	64
16.9	71.9	-55	25	65
21.5	71.9	-50.4	25	66
21.4	71.9	-50.5	25	67
108	71.9	36.1	26	67
1050	71.9	978.1	27	67
2540	71.9	2468.1	28	67
256	71.9	184.1	29	67
11	71.9	-60.9	29	68
10 U	71.9	-61.9	29	69
10 U	71.9	-61.9	29	70
11.2	71.9	-60.7	29	71

48.9	71.9	-23	29	72
33.4	71.9	-38.5	29	73
4.5 J	71.9	-67.4	29	74
5.4 J1c	71.9	-66.5	29	75
28.3	71.9	-43.6	29	76
49.8	153	-103.2	29	77
69.4	153	-83.6	29	78
16.9	153	-136.1	29	79
21.5	153	-131.5	29	80
21.4	153	-131.6	29	81
108	153	-45	29	82
1050	153	897	30	82
2540	153	2387	31	82
256	153	103	32	82
11	153	-142	32	83
10 U	153	-143	32	84
10 U	153	-143	32	85
11.2	153	-141.8	32	86
48.9	153	-104.1	32	87
33.4	153	-119.6	32	88
4.5 J	153	-148.5	32	89
5.4 J1c	153	-147.6	32	90
28.3	153	-124.7	32	91
69.4	49.8	19.6	33	91
16.9	49.8	-32.9	33	92
21.5	49.8	-28.3	33	93
21.4	49.8	-28.4	33	94
108	49.8	58.2	34	94
1050	49.8	1000.2	35	94
2540	49.8	2490.2	36	94
256	49.8	206.2	37	94
11	49.8	-38.8	37	95
10 U	49.8	-39.8	37	96
10 U	49.8	-39.8	37	97
11.2	49.8	-38.6	37	98
48.9	49.8	-0.9	37	99
33.4	49.8	-16.4	37	100
4.5 J	49.8	-45.3	37	101
5.4 J1c	49.8	-44.4	37	102
28.3	49.8	-21.5	37	103
16.9	69.4	-52.5	37	104
21.5	69.4	-47.9	37	105
21.4	69.4	-48	37	106
108	69.4	38.6	38	106
1050	69.4	980.6	39	106
2540	69.4	2470.6	40	106
256	69.4	186.6	41	106
11	69.4	-58.4	41	107
10 U	69.4	-59.4	41	108
10 U	69.4	-59.4	41	109
11.2	69.4	-58.2	41	110
48.9	69.4	-20.5	41	111
33.4	69.4	-36	41	112
4.5 J	69.4	-64.9	41	113

5.4 J1c	69.4	-64	41	114
28.3	69.4	-41.1	41	115
21.5	16.9	4.6	42	115
21.4	16.9	4.5	43	115
108	16.9	91.1	44	115
1050	16.9	1033.1	45	115
2540	16.9	2523.1	46	115
256	16.9	239.1	47	115
11	16.9	-5.9	47	116
10 U	16.9	-6.9	47	117
10 U	16.9	-6.9	47	118
11.2	16.9	-5.7	47	119
48.9	16.9	32	48	119
33.4	16.9	16.5	49	119
4.5 J	16.9	-12.4	49	120
5.4 J1c	16.9	-11.5	49	121
28.3	16.9	11.4	50	121
21.4	21.5	-0.1	50	122
108	21.5	86.5	51	122
1050	21.5	1028.5	52	122
2540	21.5	2518.5	53	122
256	21.5	234.5	54	122
11	21.5	-10.5	54	123
10 U	21.5	-11.5	54	124
10 U	21.5	-11.5	54	125
11.2	21.5	-10.3	54	126
48.9	21.5	27.4	55	126
33.4	21.5	11.9	56	126
4.5 J	21.5	-17	56	127
5.4 J1c	21.5	-16.1	56	128
28.3	21.5	6.8	57	128
108	21.4	86.6	58	128
1050	21.4	1028.6	59	128
2540	21.4	2518.6	60	128
256	21.4	234.6	61	128
11	21.4	-10.4	61	129
10 U	21.4	-11.4	61	130
10 U	21.4	-11.4	61	131
11.2	21.4	-10.2	61	132
48.9	21.4	27.5	62	132
33.4	21.4	12	63	132
4.5 J	21.4	-16.9	63	133
5.4 J1c	21.4	-16	63	134
28.3	21.4	6.9	64	134
1050	108	942	65	134
2540	108	2432	66	134
256	108	148	67	134
11	108	-97	67	135
10 U	108	-98	67	136
10 U	108	-98	67	137
11.2	108	-96.8	67	138
48.9	108	-59.1	67	139
33.4	108	-74.6	67	140



4.5 J	108	-103.5	67	141
5.4 J1c	108	-102.6	67	142
28.3	108	-79.7	67	143
2540	1050	1490	68	143
256	1050	-794	68	144
11	1050	-1039	68	145
10 U	1050	-1040	68	146
10 U	1050	-1040	68	147
11.2	1050	-1038.8	68	148
48.9	1050	-1001.1	68	149
33.4	1050	-1016.6	68	150
4.5 J	1050	-1045.5	68	151
5.4 J1c	1050	-1044.6	68	152
28.3	1050	-1021.7	68	153
256	2540	-2284	68	154
11	2540	-2529	68	155
10 U	2540	-2530	68	156
10 U	2540	-2530	68	157
11.2	2540	-2528.8	68	158
48.9	2540	-2491.1	68	159
33.4	2540	-2506.6	68	160
4.5 J	2540	-2535.5	68	161
5.4 J1c	2540	-2534.6	68	162
28.3	2540	-2511.7	68	163
11	256	-245	68	164
10 U	256	-246	68	165
10 U	256	-246	68	166
11.2	256	-244.8	68	167
48.9	256	-207.1	68	168
33.4	256	-222.6	68	169
4.5 J	256	-251.5	68	170
5.4 J1c	256	-250.6	68	171
28.3	256	-227.7	68	172
10 U	11	-1	68	173
10 U	11	-1	68	174
11.2	11	0.2	69	174
48.9	11	37.9	70	174
33.4	11	22.4	71	174
4.5 J	11	-6.5	71	175
5.4 J1c	11	-5.6	71	176
28.3	11	17.3	72	176
10 U	10 U	0	72	176
11.2	10 U	1.2	73	176
48.9	10 U	38.9	74	176
33.4	10 U	23.4	75	176
4.5 J	10 U	-5.5	75	177
5.4 J1c	10 U	-4.6	75	178
28.3	10 U	18.3	76	178
11.2	10 U	1.2	77	178
48.9	10 U	38.9	78	178
33.4	10 U	23.4	79	178

4.5 J	10 U	-5.5	79	179
5.4 J1c	10 U	-4.6	79	180
28.3	10 U	18.3	80	180
48.9	11.2	37.7	81	180
33.4	11.2	22.2	82	180
4.5 J	11.2	-6.7	82	181
5.4 J1c	11.2	-5.8	82	182
28.3	11.2	17.1	83	182
33.4	48.9	-15.5	83	183
4.5 J	48.9	-44.4	83	184
5.4 J1c	48.9	-43.5	83	185
28.3	48.9	-20.6	83	186
4.5 J	33.4	-28.9	83	187
5.4 J1c	33.4	-28	83	188
28.3	33.4	-5.1	83	189
5.4 J1c	4.5 J	0.9	84	189
28.3	4.5 J	23.8	85	189
28.3	5.4 J1c	22.9	86	189

S Statistic = 86 - 189 = -103

---

Tied Group	Value	Members
1	10	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/18/2020	1
6/11/2020	1
9/16/2020	1
11/19/2020	1

There are 0 time periods with multiple data

---

A = 18  
B = 0  
C = 0  
D = 0  
E = 2  
F = 0  
a = 29256  
b = 109296  
c = 1104  
Group Variance = 1624.33  
Z-Score = -2.53083  
Comparison Level at 95% confidence level = 1.65463 (upward trend)  
-2.53083 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW09-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
51900	51000	900	1	0
57500	51000	6500	2	0
57200	51000	6200	3	0
51900	51000	900	4	0
65600	51000	14600	5	0
55500	51000	4500	6	0
39400	51000	-11600	6	1
49700	51000	-1300	6	2
67900	51000	16900	7	2
44500	51000	-6500	7	3
54700	51000	3700	8	3
38400	51000	-12600	8	4
54700	51000	3700	9	4
53800	51000	2800	10	4
66600	51000	15600	11	4
57500	51000	6500	12	4
64200	51000	13200	13	4
53300	51000	2300	14	4
82000	51000	31000	15	4
65600	51000	14600	16	4
77800 1c	51000	26800	17	4
79100	51000	28100	18	4
73700	51000	22700	19	4
57500	51900	5600	20	4
57200	51900	5300	21	4
51900	51900	0	21	4
65600	51900	13700	22	4
55500	51900	3600	23	4
39400	51900	-12500	23	5
49700	51900	-2200	23	6
67900	51900	16000	24	6
44500	51900	-7400	24	7
54700	51900	2800	25	7
38400	51900	-13500	25	8
54700	51900	2800	26	8
53800	51900	1900	27	8
66600	51900	14700	28	8
57500	51900	5600	29	8
64200	51900	12300	30	8
53300	51900	1400	31	8
82000	51900	30100	32	8
65600	51900	13700	33	8
77800 1c	51900	25900	34	8
79100	51900	27200	35	8
73700	51900	21800	36	8

57200	57500	-300	36	9
51900	57500	-5600	36	10
65600	57500	8100	37	10
55500	57500	-2000	37	11
39400	57500	-18100	37	12
49700	57500	-7800	37	13
67900	57500	10400	38	13
44500	57500	-13000	38	14
54700	57500	-2800	38	15
38400	57500	-19100	38	16
54700	57500	-2800	38	17
53800	57500	-3700	38	18
66600	57500	9100	39	18
57500	57500	0	39	18
64200	57500	6700	40	18
53300	57500	-4200	40	19
82000	57500	24500	41	19
65600	57500	8100	42	19
77800 1c	57500	20300	43	19
79100	57500	21600	44	19
73700	57500	16200	45	19
51900	57200	-5300	45	20
65600	57200	8400	46	20
55500	57200	-1700	46	21
39400	57200	-17800	46	22
49700	57200	-7500	46	23
67900	57200	10700	47	23
44500	57200	-12700	47	24
54700	57200	-2500	47	25
38400	57200	-18800	47	26
54700	57200	-2500	47	27
53800	57200	-3400	47	28
66600	57200	9400	48	28
57500	57200	300	49	28
64200	57200	7000	50	28
53300	57200	-3900	50	29
82000	57200	24800	51	29
65600	57200	8400	52	29
77800 1c	57200	20600	53	29
79100	57200	21900	54	29
73700	57200	16500	55	29
65600	51900	13700	56	29
55500	51900	3600	57	29
39400	51900	-12500	57	30
49700	51900	-2200	57	31
67900	51900	16000	58	31
44500	51900	-7400	58	32
54700	51900	2800	59	32
38400	51900	-13500	59	33
54700	51900	2800	60	33
53800	51900	1900	61	33
66600	51900	14700	62	33
57500	51900	5600	63	33
64200	51900	12300	64	33
53300	51900	1400	65	33

82000	51900	30100	66	33
65600	51900	13700	67	33
77800 1c	51900	25900	68	33
79100	51900	27200	69	33
73700	51900	21800	70	33
55500	65600	-10100	70	34
39400	65600	-26200	70	35
49700	65600	-15900	70	36
67900	65600	2300	71	36
44500	65600	-21100	71	37
54700	65600	-10900	71	38
38400	65600	-27200	71	39
54700	65600	-10900	71	40
53800	65600	-11800	71	41
66600	65600	1000	72	41
57500	65600	-8100	72	42
64200	65600	-1400	72	43
53300	65600	-12300	72	44
82000	65600	16400	73	44
65600	65600	0	73	44
77800 1c	65600	12200	74	44
79100	65600	13500	75	44
73700	65600	8100	76	44
39400	55500	-16100	76	45
49700	55500	-5800	76	46
67900	55500	12400	77	46
44500	55500	-11000	77	47
54700	55500	-800	77	48
38400	55500	-17100	77	49
54700	55500	-800	77	50
53800	55500	-1700	77	51
66600	55500	11100	78	51
57500	55500	2000	79	51
64200	55500	8700	80	51
53300	55500	-2200	80	52
82000	55500	26500	81	52
65600	55500	10100	82	52
77800 1c	55500	22300	83	52
79100	55500	23600	84	52
73700	55500	18200	85	52
49700	39400	10300	86	52
67900	39400	28500	87	52
44500	39400	5100	88	52
54700	39400	15300	89	52
38400	39400	-1000	89	53
54700	39400	15300	90	53
53800	39400	14400	91	53
66600	39400	27200	92	53
57500	39400	18100	93	53
64200	39400	24800	94	53
53300	39400	13900	95	53
82000	39400	42600	96	53
65600	39400	26200	97	53
77800 1c	39400	38400	98	53

79100	39400	39700	99	53
73700	39400	34300	100	53
67900	49700	18200	101	53
44500	49700	-5200	101	54
54700	49700	5000	102	54
38400	49700	-11300	102	55
54700	49700	5000	103	55
53800	49700	4100	104	55
66600	49700	16900	105	55
57500	49700	7800	106	55
64200	49700	14500	107	55
53300	49700	3600	108	55
82000	49700	32300	109	55
65600	49700	15900	110	55
77800 1c	49700	28100	111	55
79100	49700	29400	112	55
73700	49700	24000	113	55
44500	67900	-23400	113	56
54700	67900	-13200	113	57
38400	67900	-29500	113	58
54700	67900	-13200	113	59
53800	67900	-14100	113	60
66600	67900	-1300	113	61
57500	67900	-10400	113	62
64200	67900	-3700	113	63
53300	67900	-14600	113	64
82000	67900	14100	114	64
65600	67900	-2300	114	65
77800 1c	67900	9900	115	65
79100	67900	11200	116	65
73700	67900	5800	117	65
54700	44500	10200	118	65
38400	44500	-6100	118	66
54700	44500	10200	119	66
53800	44500	9300	120	66
66600	44500	22100	121	66
57500	44500	13000	122	66
64200	44500	19700	123	66
53300	44500	8800	124	66
82000	44500	37500	125	66
65600	44500	21100	126	66
77800 1c	44500	33300	127	66
79100	44500	34600	128	66
73700	44500	29200	129	66
38400	54700	-16300	129	67
54700	54700	0	129	67
53800	54700	-900	129	68
66600	54700	11900	130	68
57500	54700	2800	131	68
64200	54700	9500	132	68
53300	54700	-1400	132	69
82000	54700	27300	133	69
65600	54700	10900	134	69

77800 1c	54700	23100	135	69
79100	54700	24400	136	69
73700	54700	19000	137	69
54700	38400	16300	138	69
53800	38400	15400	139	69
66600	38400	28200	140	69
57500	38400	19100	141	69
64200	38400	25800	142	69
53300	38400	14900	143	69
82000	38400	43600	144	69
65600	38400	27200	145	69
77800 1c	38400	39400	146	69
79100	38400	40700	147	69
73700	38400	35300	148	69
53800	54700	-900	148	70
66600	54700	11900	149	70
57500	54700	2800	150	70
64200	54700	9500	151	70
53300	54700	-1400	151	71
82000	54700	27300	152	71
65600	54700	10900	153	71
77800 1c	54700	23100	154	71
79100	54700	24400	155	71
73700	54700	19000	156	71
66600	53800	12800	157	71
57500	53800	3700	158	71
64200	53800	10400	159	71
53300	53800	-500	159	72
82000	53800	28200	160	72
65600	53800	11800	161	72
77800 1c	53800	24000	162	72
79100	53800	25300	163	72
73700	53800	19900	164	72
57500	66600	-9100	164	73
64200	66600	-2400	164	74
53300	66600	-13300	164	75
82000	66600	15400	165	75
65600	66600	-1000	165	76
77800 1c	66600	11200	166	76
79100	66600	12500	167	76
73700	66600	7100	168	76
64200	57500	6700	169	76
53300	57500	-4200	169	77
82000	57500	24500	170	77
65600	57500	8100	171	77
77800 1c	57500	20300	172	77
79100	57500	21600	173	77
73700	57500	16200	174	77
53300	64200	-10900	174	78
82000	64200	17800	175	78
65600	64200	1400	176	78



77800 1c	64200	13600	177	78
79100	64200	14900	178	78
73700	64200	9500	179	78
82000	53300	28700	180	78
65600	53300	12300	181	78
77800 1c	53300	24500	182	78
79100	53300	25800	183	78
73700	53300	20400	184	78
65600	82000	-16400	184	79
77800 1c	82000	-4200	184	80
79100	82000	-2900	184	81
73700	82000	-8300	184	82
77800 1c	65600	12200	185	82
79100	65600	13500	186	82
73700	65600	8100	187	82
79100	77800 1c	1300	188	82
73700	77800 1c	-4100	188	83
73700	79100	-5400	188	84

S Statistic = 188 - 84 = 104

---

Tied Group	Value	Members
1	51900	2
2	57500	2
3	65600	2
4	54700	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/13/2020	1
6/25/2020	1
9/17/2020	1

11/16/2020

1

There are 0 time periods with multiple data

---

A = 72

B = 0

C = 0

D = 0

E = 8

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1621.33

Z-Score = 2.558

Comparison Level at 95% confidence level = 1.65463 (upward trend)

**2.558 > 1.65463 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW10-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
20.4	104000	-103980	0	1
75800	104000	-28200	0	2
1150	104000	-102850	0	3
34600	104000	-69400	0	4
25900	104000	-78100	0	5
79.7	104000	-103920	0	6
8220	104000	-95780	0	7
31000	104000	-73000	0	8
39000	104000	-65000	0	9
158	104000	-103842	0	10
26.5	104000	-103974	0	11
13500	104000	-90500	0	12
17600	104000	-86400	0	13
16600	104000	-87400	0	14
2520	104000	-101480	0	15
591	104000	-103409	0	16
5560	104000	-98440	0	17
7730	104000	-96270	0	18
6020	104000	-97980	0	19
940 1c	104000	-103060	0	20
1090 2c	104000	-102910	0	21
550	104000	-103450	0	22
75800	20.4	75779.6	1	22
1150	20.4	1129.6	2	22
34600	20.4	34579.6	3	22
25900	20.4	25879.6	4	22
79.7	20.4	59.3	5	22
8220	20.4	8199.6	6	22
31000	20.4	30979.6	7	22
39000	20.4	38979.6	8	22
158	20.4	137.6	9	22
26.5	20.4	6.1	10	22
13500	20.4	13479.6	11	22
17600	20.4	17579.6	12	22
16600	20.4	16579.6	13	22
2520	20.4	2499.6	14	22
591	20.4	570.6	15	22
5560	20.4	5539.6	16	22
7730	20.4	7709.6	17	22
6020	20.4	5999.6	18	22
940 1c	20.4	919.6	19	22
1090 2c	20.4	1069.6	20	22
550	20.4	529.6	21	22
1150	75800	-74650	21	23
34600	75800	-41200	21	24

25900	75800	-49900	21	25
79.7	75800	-75720.3	21	26
8220	75800	-67580	21	27
31000	75800	-44800	21	28
39000	75800	-36800	21	29
158	75800	-75642	21	30
26.5	75800	-75773.5	21	31
13500	75800	-62300	21	32
17600	75800	-58200	21	33
16600	75800	-59200	21	34
2520	75800	-73280	21	35
591	75800	-75209	21	36
5560	75800	-70240	21	37
7730	75800	-68070	21	38
6020	75800	-69780	21	39
940 1c	75800	-74860	21	40
1090 2c	75800	-74710	21	41
550	75800	-75250	21	42
34600	1150	33450	22	42
25900	1150	24750	23	42
79.7	1150	-1070.3	23	43
8220	1150	7070	24	43
31000	1150	29850	25	43
39000	1150	37850	26	43
158	1150	-992	26	44
26.5	1150	-1123.5	26	45
13500	1150	12350	27	45
17600	1150	16450	28	45
16600	1150	15450	29	45
2520	1150	1370	30	45
591	1150	-559	30	46
5560	1150	4410	31	46
7730	1150	6580	32	46
6020	1150	4870	33	46
940 1c	1150	-210	33	47
1090 2c	1150	-60	33	48
550	1150	-600	33	49
25900	34600	-8700	33	50
79.7	34600	-34520.3	33	51
8220	34600	-26380	33	52
31000	34600	-3600	33	53
39000	34600	4400	34	53
158	34600	-34442	34	54
26.5	34600	-34573.5	34	55
13500	34600	-21100	34	56
17600	34600	-17000	34	57
16600	34600	-18000	34	58
2520	34600	-32080	34	59
591	34600	-34009	34	60
5560	34600	-29040	34	61
7730	34600	-26870	34	62
6020	34600	-28580	34	63
940 1c	34600	-33660	34	64
1090 2c	34600	-33510	34	65
550	34600	-34050	34	66

79.7	25900	-25820.3	34	67
8220	25900	-17680	34	68
31000	25900	5100	35	68
39000	25900	13100	36	68
158	25900	-25742	36	69
26.5	25900	-25873.5	36	70
13500	25900	-12400	36	71
17600	25900	-8300	36	72
16600	25900	-9300	36	73
2520	25900	-23380	36	74
591	25900	-25309	36	75
5560	25900	-20340	36	76
7730	25900	-18170	36	77
6020	25900	-19880	36	78
940 1c	25900	-24960	36	79
1090 2c	25900	-24810	36	80
550	25900	-25350	36	81
8220	79.7	8140.3	37	81
31000	79.7	30920.3	38	81
39000	79.7	38920.3	39	81
158	79.7	78.3	40	81
26.5	79.7	-53.2	40	82
13500	79.7	13420.3	41	82
17600	79.7	17520.3	42	82
16600	79.7	16520.3	43	82
2520	79.7	2440.3	44	82
591	79.7	511.3	45	82
5560	79.7	5480.3	46	82
7730	79.7	7650.3	47	82
6020	79.7	5940.3	48	82
940 1c	79.7	860.3	49	82
1090 2c	79.7	1010.3	50	82
550	79.7	470.3	51	82
31000	8220	22780	52	82
39000	8220	30780	53	82
158	8220	-8062	53	83
26.5	8220	-8193.5	53	84
13500	8220	5280	54	84
17600	8220	9380	55	84
16600	8220	8380	56	84
2520	8220	-5700	56	85
591	8220	-7629	56	86
5560	8220	-2660	56	87
7730	8220	-490	56	88
6020	8220	-2200	56	89
940 1c	8220	-7280	56	90
1090 2c	8220	-7130	56	91
550	8220	-7670	56	92
39000	31000	8000	57	92
158	31000	-30842	57	93
26.5	31000	-30973.5	57	94
13500	31000	-17500	57	95
17600	31000	-13400	57	96

16600	31000	-14400	57	97
2520	31000	-28480	57	98
591	31000	-30409	57	99
5560	31000	-25440	57	100
7730	31000	-23270	57	101
6020	31000	-24980	57	102
940 1c	31000	-30060	57	103
1090 2c	31000	-29910	57	104
550	31000	-30450	57	105
158	39000	-38842	57	106
26.5	39000	-38973.5	57	107
13500	39000	-25500	57	108
17600	39000	-21400	57	109
16600	39000	-22400	57	110
2520	39000	-36480	57	111
591	39000	-38409	57	112
5560	39000	-33440	57	113
7730	39000	-31270	57	114
6020	39000	-32980	57	115
940 1c	39000	-38060	57	116
1090 2c	39000	-37910	57	117
550	39000	-38450	57	118
26.5	158	-131.5	57	119
13500	158	13342	58	119
17600	158	17442	59	119
16600	158	16442	60	119
2520	158	2362	61	119
591	158	433	62	119
5560	158	5402	63	119
7730	158	7572	64	119
6020	158	5862	65	119
940 1c	158	782	66	119
1090 2c	158	932	67	119
550	158	392	68	119
13500	26.5	13473.5	69	119
17600	26.5	17573.5	70	119
16600	26.5	16573.5	71	119
2520	26.5	2493.5	72	119
591	26.5	564.5	73	119
5560	26.5	5533.5	74	119
7730	26.5	7703.5	75	119
6020	26.5	5993.5	76	119
940 1c	26.5	913.5	77	119
1090 2c	26.5	1063.5	78	119
550	26.5	523.5	79	119
17600	13500	4100	80	119
16600	13500	3100	81	119
2520	13500	-10980	81	120
591	13500	-12909	81	121
5560	13500	-7940	81	122
7730	13500	-5770	81	123
6020	13500	-7480	81	124
940 1c	13500	-12560	81	125

1090 2c	13500	-12410	81	126
550	13500	-12950	81	127
16600	17600	-1000	81	128
2520	17600	-15080	81	129
591	17600	-17009	81	130
5560	17600	-12040	81	131
7730	17600	-9870	81	132
6020	17600	-11580	81	133
940 1c	17600	-16660	81	134
1090 2c	17600	-16510	81	135
550	17600	-17050	81	136
2520	16600	-14080	81	137
591	16600	-16009	81	138
5560	16600	-11040	81	139
7730	16600	-8870	81	140
6020	16600	-10580	81	141
940 1c	16600	-15660	81	142
1090 2c	16600	-15510	81	143
550	16600	-16050	81	144
591	2520	-1929	81	145
5560	2520	3040	82	145
7730	2520	5210	83	145
6020	2520	3500	84	145
940 1c	2520	-1580	84	146
1090 2c	2520	-1430	84	147
550	2520	-1970	84	148
5560	591	4969	85	148
7730	591	7139	86	148
6020	591	5429	87	148
940 1c	591	349	88	148
1090 2c	591	499	89	148
550	591	-41	89	149
7730	5560	2170	90	149
6020	5560	460	91	149
940 1c	5560	-4620	91	150
1090 2c	5560	-4470	91	151
550	5560	-5010	91	152
6020	7730	-1710	91	153
940 1c	7730	-6790	91	154
1090 2c	7730	-6640	91	155
550	7730	-7180	91	156
940 1c	6020	-5080	91	157
1090 2c	6020	-4930	91	158
550	6020	-5470	91	159
1090 2c	940 1c	150	92	159
550	940 1c	-390	92	160
550	1090 2c	-540	92	161

S Statistic = 92 - 161 = -69

---

Tied Group	Value	Members
------------	-------	---------

---

Time Period	Observations
-------------	--------------

2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
6/25/2020	1
9/22/2020	1
11/16/2020	1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 25806

b = 95634

c = 1012

Group Variance = 1433.67

Z-Score = -1.79591

Comparison Level at 95% confidence level = 1.65463 (upward trend)

-1.79591 <= 1.65463 indicating no evidence of an upward trend



# Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW11-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
301000	368000	-67000	0	1
288000	368000	-80000	0	2
336000	368000	-32000	0	3
201000	368000	-167000	0	4
192000	368000	-176000	0	5
147000	368000	-221000	0	6
134000	368000	-234000	0	7
111000	368000	-257000	0	8
207000	368000	-161000	0	9
197000	368000	-171000	0	10
225000	368000	-143000	0	11
215000	368000	-153000	0	12
15700	368000	-352300	0	13
174000	368000	-194000	0	14
176000	368000	-192000	0	15
142000	368000	-226000	0	16
121000	368000	-247000	0	17
120000	368000	-248000	0	18
173000	368000	-195000	0	19
151000	368000	-217000	0	20
128000	368000	-240000	0	21
166000	368000	-202000	0	22
288000	301000	-13000	0	23
336000	301000	35000	1	23
201000	301000	-100000	1	24
192000	301000	-109000	1	25
147000	301000	-154000	1	26
134000	301000	-167000	1	27
111000	301000	-190000	1	28
207000	301000	-94000	1	29
197000	301000	-104000	1	30
225000	301000	-76000	1	31
215000	301000	-86000	1	32
15700	301000	-285300	1	33
174000	301000	-127000	1	34
176000	301000	-125000	1	35
142000	301000	-159000	1	36
121000	301000	-180000	1	37
120000	301000	-181000	1	38
173000	301000	-128000	1	39
151000	301000	-150000	1	40
128000	301000	-173000	1	41
166000	301000	-135000	1	42
336000	288000	48000	2	42
201000	288000	-87000	2	43

192000	288000	-96000	2	44
147000	288000	-141000	2	45
134000	288000	-154000	2	46
111000	288000	-177000	2	47
207000	288000	-81000	2	48
197000	288000	-91000	2	49
225000	288000	-63000	2	50
215000	288000	-73000	2	51
15700	288000	-272300	2	52
174000	288000	-114000	2	53
176000	288000	-112000	2	54
142000	288000	-146000	2	55
121000	288000	-167000	2	56
120000	288000	-168000	2	57
173000	288000	-115000	2	58
151000	288000	-137000	2	59
128000	288000	-160000	2	60
166000	288000	-122000	2	61
201000	336000	-135000	2	62
192000	336000	-144000	2	63
147000	336000	-189000	2	64
134000	336000	-202000	2	65
111000	336000	-225000	2	66
207000	336000	-129000	2	67
197000	336000	-139000	2	68
225000	336000	-111000	2	69
215000	336000	-121000	2	70
15700	336000	-320300	2	71
174000	336000	-162000	2	72
176000	336000	-160000	2	73
142000	336000	-194000	2	74
121000	336000	-215000	2	75
120000	336000	-216000	2	76
173000	336000	-163000	2	77
151000	336000	-185000	2	78
128000	336000	-208000	2	79
166000	336000	-170000	2	80
192000	201000	-9000	2	81
147000	201000	-54000	2	82
134000	201000	-67000	2	83
111000	201000	-90000	2	84
207000	201000	6000	3	84
197000	201000	-4000	3	85
225000	201000	24000	4	85
215000	201000	14000	5	85
15700	201000	-185300	5	86
174000	201000	-27000	5	87
176000	201000	-25000	5	88
142000	201000	-59000	5	89
121000	201000	-80000	5	90
120000	201000	-81000	5	91
173000	201000	-28000	5	92
151000	201000	-50000	5	93
128000	201000	-73000	5	94
166000	201000	-35000	5	95

147000	192000	-45000	5	96
134000	192000	-58000	5	97
111000	192000	-81000	5	98
207000	192000	15000	6	98
197000	192000	5000	7	98
225000	192000	33000	8	98
215000	192000	23000	9	98
15700	192000	-176300	9	99
174000	192000	-18000	9	100
176000	192000	-16000	9	101
142000	192000	-50000	9	102
121000	192000	-71000	9	103
120000	192000	-72000	9	104
173000	192000	-19000	9	105
151000	192000	-41000	9	106
128000	192000	-64000	9	107
166000	192000	-26000	9	108
134000	147000	-13000	9	109
111000	147000	-36000	9	110
207000	147000	60000	10	110
197000	147000	50000	11	110
225000	147000	78000	12	110
215000	147000	68000	13	110
15700	147000	-131300	13	111
174000	147000	27000	14	111
176000	147000	29000	15	111
142000	147000	-5000	15	112
121000	147000	-26000	15	113
120000	147000	-27000	15	114
173000	147000	26000	16	114
151000	147000	4000	17	114
128000	147000	-19000	17	115
166000	147000	19000	18	115
111000	134000	-23000	18	116
207000	134000	73000	19	116
197000	134000	63000	20	116
225000	134000	91000	21	116
215000	134000	81000	22	116
15700	134000	-118300	22	117
174000	134000	40000	23	117
176000	134000	42000	24	117
142000	134000	8000	25	117
121000	134000	-13000	25	118
120000	134000	-14000	25	119
173000	134000	39000	26	119
151000	134000	17000	27	119
128000	134000	-6000	27	120
166000	134000	32000	28	120
207000	111000	96000	29	120
197000	111000	86000	30	120
225000	111000	114000	31	120
215000	111000	104000	32	120
15700	111000	-95300	32	121

174000	111000	63000	33	121
176000	111000	65000	34	121
142000	111000	31000	35	121
121000	111000	10000	36	121
120000	111000	9000	37	121
173000	111000	62000	38	121
151000	111000	40000	39	121
128000	111000	17000	40	121
166000	111000	55000	41	121
197000	207000	-10000	41	122
225000	207000	18000	42	122
215000	207000	8000	43	122
15700	207000	-191300	43	123
174000	207000	-33000	43	124
176000	207000	-31000	43	125
142000	207000	-65000	43	126
121000	207000	-86000	43	127
120000	207000	-87000	43	128
173000	207000	-34000	43	129
151000	207000	-56000	43	130
128000	207000	-79000	43	131
166000	207000	-41000	43	132
225000	197000	28000	44	132
215000	197000	18000	45	132
15700	197000	-181300	45	133
174000	197000	-23000	45	134
176000	197000	-21000	45	135
142000	197000	-55000	45	136
121000	197000	-76000	45	137
120000	197000	-77000	45	138
173000	197000	-24000	45	139
151000	197000	-46000	45	140
128000	197000	-69000	45	141
166000	197000	-31000	45	142
215000	225000	-10000	45	143
15700	225000	-209300	45	144
174000	225000	-51000	45	145
176000	225000	-49000	45	146
142000	225000	-83000	45	147
121000	225000	-104000	45	148
120000	225000	-105000	45	149
173000	225000	-52000	45	150
151000	225000	-74000	45	151
128000	225000	-97000	45	152
166000	225000	-59000	45	153
15700	215000	-199300	45	154
174000	215000	-41000	45	155
176000	215000	-39000	45	156
142000	215000	-73000	45	157
121000	215000	-94000	45	158
120000	215000	-95000	45	159
173000	215000	-42000	45	160
151000	215000	-64000	45	161

128000	215000	-87000	45	162
166000	215000	-49000	45	163
174000	15700	158300	46	163
176000	15700	160300	47	163
142000	15700	126300	48	163
121000	15700	105300	49	163
120000	15700	104300	50	163
173000	15700	157300	51	163
151000	15700	135300	52	163
128000	15700	112300	53	163
166000	15700	150300	54	163
176000	174000	2000	55	163
142000	174000	-32000	55	164
121000	174000	-53000	55	165
120000	174000	-54000	55	166
173000	174000	-1000	55	167
151000	174000	-23000	55	168
128000	174000	-46000	55	169
166000	174000	-8000	55	170
142000	176000	-34000	55	171
121000	176000	-55000	55	172
120000	176000	-56000	55	173
173000	176000	-3000	55	174
151000	176000	-25000	55	175
128000	176000	-48000	55	176
166000	176000	-10000	55	177
121000	142000	-21000	55	178
120000	142000	-22000	55	179
173000	142000	31000	56	179
151000	142000	9000	57	179
128000	142000	-14000	57	180
166000	142000	24000	58	180
120000	121000	-1000	58	181
173000	121000	52000	59	181
151000	121000	30000	60	181
128000	121000	7000	61	181
166000	121000	45000	62	181
173000	120000	53000	63	181
151000	120000	31000	64	181
128000	120000	8000	65	181
166000	120000	46000	66	181
151000	173000	-22000	66	182
128000	173000	-45000	66	183
166000	173000	-7000	66	184
128000	151000	-23000	66	185
166000	151000	15000	67	185
166000	128000	38000	68	185

S Statistic = 68 - 185 = -117

---

Tied Group	Value	Members
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1
6/1/2019		1
9/1/2019		1
12/1/2019		1
3/13/2020		1
6/11/2020		1
11/16/2020		1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 25806

b = 95634

c = 1012

Group Variance = 1433.67

Z-Score = -3.06361

Comparison Level at 95% confidence level = 1.65463 (upward trend)

-3.06361 <= 1.65463 indicating no evidence of an upward trend

# Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW12-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
216000	249000	-33000	0	1
188000	249000	-61000	0	2
232000	249000	-17000	0	3
226000	249000	-23000	0	4
219000	249000	-30000	0	5
156000	249000	-93000	0	6
156000	249000	-93000	0	7
150000	249000	-99000	0	8
140000	249000	-109000	0	9
157000	249000	-92000	0	10
117000	249000	-132000	0	11
103000	249000	-146000	0	12
2410	249000	-246590	0	13
14300	249000	-234700	0	14
109000	249000	-140000	0	15
110000	249000	-139000	0	16
111000	249000	-138000	0	17
104000	249000	-145000	0	18
43500	249000	-205500	0	19
86400	249000	-162600	0	20
188000	216000	-28000	0	21
232000	216000	16000	1	21
226000	216000	10000	2	21
219000	216000	3000	3	21
156000	216000	-60000	3	22
156000	216000	-60000	3	23
150000	216000	-66000	3	24
140000	216000	-76000	3	25
157000	216000	-59000	3	26
117000	216000	-99000	3	27
103000	216000	-113000	3	28
2410	216000	-213590	3	29
14300	216000	-201700	3	30
109000	216000	-107000	3	31
110000	216000	-106000	3	32
111000	216000	-105000	3	33
104000	216000	-112000	3	34
43500	216000	-172500	3	35
86400	216000	-129600	3	36
232000	188000	44000	4	36
226000	188000	38000	5	36
219000	188000	31000	6	36
156000	188000	-32000	6	37
156000	188000	-32000	6	38
150000	188000	-38000	6	39

140000	188000	-48000	6	40
157000	188000	-31000	6	41
117000	188000	-71000	6	42
103000	188000	-85000	6	43
2410	188000	-185590	6	44
14300	188000	-173700	6	45
109000	188000	-79000	6	46
110000	188000	-78000	6	47
111000	188000	-77000	6	48
104000	188000	-84000	6	49
43500	188000	-144500	6	50
86400	188000	-101600	6	51
226000	232000	-6000	6	52
219000	232000	-13000	6	53
156000	232000	-76000	6	54
156000	232000	-76000	6	55
150000	232000	-82000	6	56
140000	232000	-92000	6	57
157000	232000	-75000	6	58
117000	232000	-115000	6	59
103000	232000	-129000	6	60
2410	232000	-229590	6	61
14300	232000	-217700	6	62
109000	232000	-123000	6	63
110000	232000	-122000	6	64
111000	232000	-121000	6	65
104000	232000	-128000	6	66
43500	232000	-188500	6	67
86400	232000	-145600	6	68
219000	226000	-7000	6	69
156000	226000	-70000	6	70
156000	226000	-70000	6	71
150000	226000	-76000	6	72
140000	226000	-86000	6	73
157000	226000	-69000	6	74
117000	226000	-109000	6	75
103000	226000	-123000	6	76
2410	226000	-223590	6	77
14300	226000	-211700	6	78
109000	226000	-117000	6	79
110000	226000	-116000	6	80
111000	226000	-115000	6	81
104000	226000	-122000	6	82
43500	226000	-182500	6	83
86400	226000	-139600	6	84
156000	219000	-63000	6	85
156000	219000	-63000	6	86
150000	219000	-69000	6	87
140000	219000	-79000	6	88
157000	219000	-62000	6	89
117000	219000	-102000	6	90
103000	219000	-116000	6	91
2410	219000	-216590	6	92
14300	219000	-204700	6	93



109000	219000	-110000	6	94
110000	219000	-109000	6	95
111000	219000	-108000	6	96
104000	219000	-115000	6	97
43500	219000	-175500	6	98
86400	219000	-132600	6	99
156000	156000	0	6	99
150000	156000	-6000	6	100
140000	156000	-16000	6	101
157000	156000	1000	7	101
117000	156000	-39000	7	102
103000	156000	-53000	7	103
2410	156000	-153590	7	104
14300	156000	-141700	7	105
109000	156000	-47000	7	106
110000	156000	-46000	7	107
111000	156000	-45000	7	108
104000	156000	-52000	7	109
43500	156000	-112500	7	110
86400	156000	-69600	7	111
150000	156000	-6000	7	112
140000	156000	-16000	7	113
157000	156000	1000	8	113
117000	156000	-39000	8	114
103000	156000	-53000	8	115
2410	156000	-153590	8	116
14300	156000	-141700	8	117
109000	156000	-47000	8	118
110000	156000	-46000	8	119
111000	156000	-45000	8	120
104000	156000	-52000	8	121
43500	156000	-112500	8	122
86400	156000	-69600	8	123
140000	150000	-10000	8	124
157000	150000	7000	9	124
117000	150000	-33000	9	125
103000	150000	-47000	9	126
2410	150000	-147590	9	127
14300	150000	-135700	9	128
109000	150000	-41000	9	129
110000	150000	-40000	9	130
111000	150000	-39000	9	131
104000	150000	-46000	9	132
43500	150000	-106500	9	133
86400	150000	-63600	9	134
157000	140000	17000	10	134
117000	140000	-23000	10	135
103000	140000	-37000	10	136
2410	140000	-137590	10	137
14300	140000	-125700	10	138
109000	140000	-31000	10	139
110000	140000	-30000	10	140
111000	140000	-29000	10	141

104000	140000	-36000	10	142
43500	140000	-96500	10	143
86400	140000	-53600	10	144
117000	157000	-40000	10	145
103000	157000	-54000	10	146
2410	157000	-154590	10	147
14300	157000	-142700	10	148
109000	157000	-48000	10	149
110000	157000	-47000	10	150
111000	157000	-46000	10	151
104000	157000	-53000	10	152
43500	157000	-113500	10	153
86400	157000	-70600	10	154
103000	117000	-14000	10	155
2410	117000	-114590	10	156
14300	117000	-102700	10	157
109000	117000	-8000	10	158
110000	117000	-7000	10	159
111000	117000	-6000	10	160
104000	117000	-13000	10	161
43500	117000	-73500	10	162
86400	117000	-30600	10	163
2410	103000	-100590	10	164
14300	103000	-88700	10	165
109000	103000	6000	11	165
110000	103000	7000	12	165
111000	103000	8000	13	165
104000	103000	1000	14	165
43500	103000	-59500	14	166
86400	103000	-16600	14	167
14300	2410	11890	15	167
109000	2410	106590	16	167
110000	2410	107590	17	167
111000	2410	108590	18	167
104000	2410	101590	19	167
43500	2410	41090	20	167
86400	2410	83990	21	167
109000	14300	94700	22	167
110000	14300	95700	23	167
111000	14300	96700	24	167
104000	14300	89700	25	167
43500	14300	29200	26	167
86400	14300	72100	27	167
110000	109000	1000	28	167
111000	109000	2000	29	167
104000	109000	-5000	29	168
43500	109000	-65500	29	169
86400	109000	-22600	29	170
111000	110000	1000	30	170
104000	110000	-6000	30	171

43500	110000	-66500	30	172
86400	110000	-23600	30	173
104000	111000	-7000	30	174
43500	111000	-67500	30	175
86400	111000	-24600	30	176
43500	104000	-60500	30	177
86400	104000	-17600	30	178
86400	43500	42900	31	178

S Statistic = 31 - 178 = -147

---

Tied Group	Value	Members
1	156000	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
6/30/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 19740

b = 71820

c = 840

Group Variance = 1095.67

Z-Score = -4.41076

Comparison Level at 95% confidence level = 1.65463 (upward trend)

-4.41076 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW13-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
1160	308000	-306840	0	1
204000	308000	-104000	0	2
172000	308000	-136000	0	3
237	308000	-307763	0	4
8600	308000	-299400	0	5
201000	308000	-107000	0	6
274000	308000	-34000	0	7
33.4	308000	-307967	0	8
116	308000	-307884	0	9
328000	308000	20000	1	9
97.7	308000	-307902	1	10
122	308000	-307878	1	11
246000	308000	-62000	1	12
250000	308000	-58000	1	13
27	308000	-307973	1	14
296000 ML	308000	-12000	1	15
19.8 1c	308000	-307980	1	16
204000	1160	202840	2	16
172000	1160	170840	3	16
237	1160	-923	3	17
8600	1160	7440	4	17
201000	1160	199840	5	17
274000	1160	272840	6	17
33.4	1160	-1126.6	6	18
116	1160	-1044	6	19
328000	1160	326840	7	19
97.7	1160	-1062.3	7	20
122	1160	-1038	7	21
246000	1160	244840	8	21
250000	1160	248840	9	21
27	1160	-1133	9	22
296000 ML	1160	294840	10	22
19.8 1c	1160	-1140.2	10	23
172000	204000	-32000	10	24
237	204000	-203763	10	25
8600	204000	-195400	10	26
201000	204000	-3000	10	27
274000	204000	70000	11	27
33.4	204000	-203967	11	28
116	204000	-203884	11	29
328000	204000	124000	12	29
97.7	204000	-203902	12	30
122	204000	-203878	12	31
246000	204000	42000	13	31
250000	204000	46000	14	31

27	204000	-203973	14	32
296000 ML	204000	92000	15	32
19.8 1c	204000	-203980	15	33
237	172000	-171763	15	34
8600	172000	-163400	15	35
201000	172000	29000	16	35
274000	172000	102000	17	35
33.4	172000	-171967	17	36
116	172000	-171884	17	37
328000	172000	156000	18	37
97.7	172000	-171902	18	38
122	172000	-171878	18	39
246000	172000	74000	19	39
250000	172000	78000	20	39
27	172000	-171973	20	40
296000 ML	172000	124000	21	40
19.8 1c	172000	-171980	21	41
8600	237	8363	22	41
201000	237	200763	23	41
274000	237	273763	24	41
33.4	237	-203.6	24	42
116	237	-121	24	43
328000	237	327763	25	43
97.7	237	-139.3	25	44
122	237	-115	25	45
246000	237	245763	26	45
250000	237	249763	27	45
27	237	-210	27	46
296000 ML	237	295763	28	46
19.8 1c	237	-217.2	28	47
201000	8600	192400	29	47
274000	8600	265400	30	47
33.4	8600	-8566.6	30	48
116	8600	-8484	30	49
328000	8600	319400	31	49
97.7	8600	-8502.3	31	50
122	8600	-8478	31	51
246000	8600	237400	32	51
250000	8600	241400	33	51
27	8600	-8573	33	52
296000 ML	8600	287400	34	52
19.8 1c	8600	-8580.2	34	53
274000	201000	73000	35	53
33.4	201000	-200967	35	54
116	201000	-200884	35	55
328000	201000	127000	36	55
97.7	201000	-200902	36	56
122	201000	-200878	36	57
246000	201000	45000	37	57
250000	201000	49000	38	57
27	201000	-200973	38	58
296000 ML	201000	95000	39	58
19.8 1c	201000	-200980	39	59

33.4	274000	-273967	39	60
116	274000	-273884	39	61
328000	274000	54000	40	61
97.7	274000	-273902	40	62
122	274000	-273878	40	63
246000	274000	-28000	40	64
250000	274000	-24000	40	65
27	274000	-273973	40	66
296000 ML	274000	22000	41	66
19.8 1c	274000	-273980	41	67
116	33.4	82.6	42	67
328000	33.4	327967	43	67
97.7	33.4	64.3	44	67
122	33.4	88.6	45	67
246000	33.4	245967	46	67
250000	33.4	249967	47	67
27	33.4	-6.4	47	68
296000 ML	33.4	295967	48	68
19.8 1c	33.4	-13.6	48	69
328000	116	327884	49	69
97.7	116	-18.3	49	70
122	116	6	50	70
246000	116	245884	51	70
250000	116	249884	52	70
27	116	-89	52	71
296000 ML	116	295884	53	71
19.8 1c	116	-96.2	53	72
97.7	328000	-327902	53	73
122	328000	-327878	53	74
246000	328000	-82000	53	75
250000	328000	-78000	53	76
27	328000	-327973	53	77
296000 ML	328000	-32000	53	78
19.8 1c	328000	-327980	53	79
122	97.7	24.3	54	79
246000	97.7	245902	55	79
250000	97.7	249902	56	79
27	97.7	-70.7	56	80
296000 ML	97.7	295902	57	80
19.8 1c	97.7	-77.9	57	81
246000	122	245878	58	81
250000	122	249878	59	81
27	122	-95	59	82
296000 ML	122	295878	60	82
19.8 1c	122	-102.2	60	83
250000	246000	4000	61	83
27	246000	-245973	61	84
296000 ML	246000	50000	62	84
19.8 1c	246000	-245980	62	85

27	250000	-249973	62	86
296000 ML	250000	46000	63	86
19.8 1c	250000	-249980	63	87
296000 ML	27	295973	64	87
19.8 1c	27	-7.2	64	88
19.8 1c	296000 ML	-295980	64	89

S Statistic = 64 - 89 = -25

---

Tied Group	Value	Members
------------	-------	---------

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/20/2020	1
6/15/2020	1
9/17/2020	1
11/10/2020	1

There are 0 time periods with multiple data

---

A = 0  
B = 0  
C = 0  
D = 0  
E = 0  
F = 0  
a = 12546  
b = 44064  
c = 612  
Group Variance = 697  
Z-Score = -0.909065  
Comparison Level at 95% confidence level = 1.65463 (upward trend)  
-0.909065 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW15-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
71.1	3210	-3138.9	0	1
295	3210	-2915	0	2
825	3210	-2385	0	3
1070	3210	-2140	0	4
5540	3210	2330	1	4
252	3210	-2958	1	5
18600	3210	15390	2	5
736	3210	-2474	2	6
6540	3210	3330	3	6
109000	3210	105790	4	6
16400	3210	13190	5	6
168000	3210	164790	6	6
179000	3210	175790	7	6
17.9	3210	-3192.1	7	7
5.8 J	3210	-3204.2	7	8
3210 1c	3210	0	7	8
137 1c	3210	-3073	7	9
295	71.1	223.9	8	9
825	71.1	753.9	9	9
1070	71.1	998.9	10	9
5540	71.1	5468.9	11	9
252	71.1	180.9	12	9
18600	71.1	18528.9	13	9
736	71.1	664.9	14	9
6540	71.1	6468.9	15	9
109000	71.1	108929	16	9
16400	71.1	16328.9	17	9
168000	71.1	167929	18	9
179000	71.1	178929	19	9
17.9	71.1	-53.2	19	10
5.8 J	71.1	-65.3	19	11
3210 1c	71.1	3138.9	20	11
137 1c	71.1	65.9	21	11
825	295	530	22	11
1070	295	775	23	11
5540	295	5245	24	11
252	295	-43	24	12
18600	295	18305	25	12
736	295	441	26	12
6540	295	6245	27	12
109000	295	108705	28	12
16400	295	16105	29	12
168000	295	167705	30	12
179000	295	178705	31	12
17.9	295	-277.1	31	13



5.8 J	295	-289.2	31	14
3210 1c	295	2915	32	14
137 1c	295	-158	32	15
1070	825	245	33	15
5540	825	4715	34	15
252	825	-573	34	16
18600	825	17775	35	16
736	825	-89	35	17
6540	825	5715	36	17
109000	825	108175	37	17
16400	825	15575	38	17
168000	825	167175	39	17
179000	825	178175	40	17
17.9	825	-807.1	40	18
5.8 J	825	-819.2	40	19
3210 1c	825	2385	41	19
137 1c	825	-688	41	20
5540	1070	4470	42	20
252	1070	-818	42	21
18600	1070	17530	43	21
736	1070	-334	43	22
6540	1070	5470	44	22
109000	1070	107930	45	22
16400	1070	15330	46	22
168000	1070	166930	47	22
179000	1070	177930	48	22
17.9	1070	-1052.1	48	23
5.8 J	1070	-1064.2	48	24
3210 1c	1070	2140	49	24
137 1c	1070	-933	49	25
252	5540	-5288	49	26
18600	5540	13060	50	26
736	5540	-4804	50	27
6540	5540	1000	51	27
109000	5540	103460	52	27
16400	5540	10860	53	27
168000	5540	162460	54	27
179000	5540	173460	55	27
17.9	5540	-5522.1	55	28
5.8 J	5540	-5534.2	55	29
3210 1c	5540	-2330	55	30
137 1c	5540	-5403	55	31
18600	252	18348	56	31
736	252	484	57	31
6540	252	6288	58	31
109000	252	108748	59	31
16400	252	16148	60	31
168000	252	167748	61	31
179000	252	178748	62	31
17.9	252	-234.1	62	32
5.8 J	252	-246.2	62	33
3210 1c	252	2958	63	33
137 1c	252	-115	63	34

736	18600	-17864	63	35
6540	18600	-12060	63	36
109000	18600	90400	64	36
16400	18600	-2200	64	37
168000	18600	149400	65	37
179000	18600	160400	66	37
17.9	18600	-18582.1	66	38
5.8 J	18600	-18594.2	66	39
3210 1c	18600	-15390	66	40
137 1c	18600	-18463	66	41
6540	736	5804	67	41
109000	736	108264	68	41
16400	736	15664	69	41
168000	736	167264	70	41
179000	736	178264	71	41
17.9	736	-718.1	71	42
5.8 J	736	-730.2	71	43
3210 1c	736	2474	72	43
137 1c	736	-599	72	44
109000	6540	102460	73	44
16400	6540	9860	74	44
168000	6540	161460	75	44
179000	6540	172460	76	44
17.9	6540	-6522.1	76	45
5.8 J	6540	-6534.2	76	46
3210 1c	6540	-3330	76	47
137 1c	6540	-6403	76	48
16400	109000	-92600	76	49
168000	109000	59000	77	49
179000	109000	70000	78	49
17.9	109000	-108982	78	50
5.8 J	109000	-108994	78	51
3210 1c	109000	-105790	78	52
137 1c	109000	-108863	78	53
168000	16400	151600	79	53
179000	16400	162600	80	53
17.9	16400	-16382.1	80	54
5.8 J	16400	-16394.2	80	55
3210 1c	16400	-13190	80	56
137 1c	16400	-16263	80	57
179000	168000	11000	81	57
17.9	168000	-167982	81	58
5.8 J	168000	-167994	81	59
3210 1c	168000	-164790	81	60
137 1c	168000	-167863	81	61
17.9	179000	-178982	81	62
5.8 J	179000	-178994	81	63
3210 1c	179000	-175790	81	64
137 1c	179000	-178863	81	65

5.8 J	17.9	-12.1	81	66
3210 1c	17.9	3192.1	82	66
137 1c	17.9	119.1	83	66
3210 1c	5.8 J	3204.2	84	66
137 1c	5.8 J	131.2	85	66
137 1c	3210 1c	-3073	85	67

S Statistic = 85 - 67 = 18

---

Tied Group	Value	Members
1	3210	2

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/16/2020	1
6/11/2020	1
9/16/2020	1
11/9/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 12546

b = 44064

c = 612

Group Variance = 696

Z-Score = 0.644383

Comparison Level at 95% confidence level = 1.65463 (upward trend)

0.644383 <= 1.65463 indicating no evidence of an upward trend

# Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW16-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
90300	86300	4000	1	0
314000	86300	227700	2	0
207000	86300	120700	3	0
20200	86300	-66100	3	1
2000	86300	-84300	3	2
441	86300	-85859	3	3
19200	86300	-67100	3	4
16200	86300	-70100	3	5
11200	86300	-75100	3	6
1230	86300	-85070	3	7
320	86300	-85980	3	8
6	86300	-86294	3	9
4.7	86300	-86295.3	3	10
4.9	86300	-86295.1	3	11
13.1	86300	-86286.9	3	12
22.7	86300	-86277.3	3	13
16.2	86300	-86283.8	3	14
7.3 J	86300	-86292.7	3	15
63.1	86300	-86236.9	3	16
10.2 1c	86300	-86289.8	3	17
314000	90300	223700	4	17
207000	90300	116700	5	17
20200	90300	-70100	5	18
2000	90300	-88300	5	19
441	90300	-89859	5	20
19200	90300	-71100	5	21
16200	90300	-74100	5	22
11200	90300	-79100	5	23
1230	90300	-89070	5	24
320	90300	-89980	5	25
6	90300	-90294	5	26
4.7	90300	-90295.3	5	27
4.9	90300	-90295.1	5	28
13.1	90300	-90286.9	5	29
22.7	90300	-90277.3	5	30
16.2	90300	-90283.8	5	31
7.3 J	90300	-90292.7	5	32
63.1	90300	-90236.9	5	33
10.2 1c	90300	-90289.8	5	34
207000	314000	-107000	5	35
20200	314000	-293800	5	36
2000	314000	-312000	5	37
441	314000	-313559	5	38
19200	314000	-294800	5	39
16200	314000	-297800	5	40

11200	314000	-302800	5	41
1230	314000	-312770	5	42
320	314000	-313680	5	43
6	314000	-313994	5	44
4.7	314000	-313995	5	45
4.9	314000	-313995	5	46
13.1	314000	-313987	5	47
22.7	314000	-313977	5	48
16.2	314000	-313984	5	49
7.3 J	314000	-313993	5	50
63.1	314000	-313937	5	51
10.2 1c	314000	-313990	5	52
20200	207000	-186800	5	53
2000	207000	-205000	5	54
441	207000	-206559	5	55
19200	207000	-187800	5	56
16200	207000	-190800	5	57
11200	207000	-195800	5	58
1230	207000	-205770	5	59
320	207000	-206680	5	60
6	207000	-206994	5	61
4.7	207000	-206995	5	62
4.9	207000	-206995	5	63
13.1	207000	-206987	5	64
22.7	207000	-206977	5	65
16.2	207000	-206984	5	66
7.3 J	207000	-206993	5	67
63.1	207000	-206937	5	68
10.2 1c	207000	-206990	5	69
2000	20200	-18200	5	70
441	20200	-19759	5	71
19200	20200	-1000	5	72
16200	20200	-4000	5	73
11200	20200	-9000	5	74
1230	20200	-18970	5	75
320	20200	-19880	5	76
6	20200	-20194	5	77
4.7	20200	-20195.3	5	78
4.9	20200	-20195.1	5	79
13.1	20200	-20186.9	5	80
22.7	20200	-20177.3	5	81
16.2	20200	-20183.8	5	82
7.3 J	20200	-20192.7	5	83
63.1	20200	-20136.9	5	84
10.2 1c	20200	-20189.8	5	85
441	2000	-1559	5	86
19200	2000	17200	6	86
16200	2000	14200	7	86
11200	2000	9200	8	86
1230	2000	-770	8	87
320	2000	-1680	8	88
6	2000	-1994	8	89
4.7	2000	-1995.3	8	90
4.9	2000	-1995.1	8	91

13.1	2000	-1986.9	8	92
22.7	2000	-1977.3	8	93
16.2	2000	-1983.8	8	94
7.3 J	2000	-1992.7	8	95
63.1	2000	-1936.9	8	96
10.2 1c	2000	-1989.8	8	97
19200	441	18759	9	97
16200	441	15759	10	97
11200	441	10759	11	97
1230	441	789	12	97
320	441	-121	12	98
6	441	-435	12	99
4.7	441	-436.3	12	100
4.9	441	-436.1	12	101
13.1	441	-427.9	12	102
22.7	441	-418.3	12	103
16.2	441	-424.8	12	104
7.3 J	441	-433.7	12	105
63.1	441	-377.9	12	106
10.2 1c	441	-430.8	12	107
16200	19200	-3000	12	108
11200	19200	-8000	12	109
1230	19200	-17970	12	110
320	19200	-18880	12	111
6	19200	-19194	12	112
4.7	19200	-19195.3	12	113
4.9	19200	-19195.1	12	114
13.1	19200	-19186.9	12	115
22.7	19200	-19177.3	12	116
16.2	19200	-19183.8	12	117
7.3 J	19200	-19192.7	12	118
63.1	19200	-19136.9	12	119
10.2 1c	19200	-19189.8	12	120
11200	16200	-5000	12	121
1230	16200	-14970	12	122
320	16200	-15880	12	123
6	16200	-16194	12	124
4.7	16200	-16195.3	12	125
4.9	16200	-16195.1	12	126
13.1	16200	-16186.9	12	127
22.7	16200	-16177.3	12	128
16.2	16200	-16183.8	12	129
7.3 J	16200	-16192.7	12	130
63.1	16200	-16136.9	12	131
10.2 1c	16200	-16189.8	12	132
1230	11200	-9970	12	133
320	11200	-10880	12	134
6	11200	-11194	12	135
4.7	11200	-11195.3	12	136
4.9	11200	-11195.1	12	137
13.1	11200	-11186.9	12	138
22.7	11200	-11177.3	12	139
16.2	11200	-11183.8	12	140

7.3 J	11200	-11192.7	12	141
63.1	11200	-11136.9	12	142
10.2 1c	11200	-11189.8	12	143
320	1230	-910	12	144
6	1230	-1224	12	145
4.7	1230	-1225.3	12	146
4.9	1230	-1225.1	12	147
13.1	1230	-1216.9	12	148
22.7	1230	-1207.3	12	149
16.2	1230	-1213.8	12	150
7.3 J	1230	-1222.7	12	151
63.1	1230	-1166.9	12	152
10.2 1c	1230	-1219.8	12	153
6	320	-314	12	154
4.7	320	-315.3	12	155
4.9	320	-315.1	12	156
13.1	320	-306.9	12	157
22.7	320	-297.3	12	158
16.2	320	-303.8	12	159
7.3 J	320	-312.7	12	160
63.1	320	-256.9	12	161
10.2 1c	320	-309.8	12	162
4.7	6	-1.3	12	163
4.9	6	-1.1	12	164
13.1	6	7.1	13	164
22.7	6	16.7	14	164
16.2	6	10.2	15	164
7.3 J	6	1.3	16	164
63.1	6	57.1	17	164
10.2 1c	6	4.2	18	164
4.9	4.7	0.2	19	164
13.1	4.7	8.4	20	164
22.7	4.7	18	21	164
16.2	4.7	11.5	22	164
7.3 J	4.7	2.6	23	164
63.1	4.7	58.4	24	164
10.2 1c	4.7	5.5	25	164
13.1	4.9	8.2	26	164
22.7	4.9	17.8	27	164
16.2	4.9	11.3	28	164
7.3 J	4.9	2.4	29	164
63.1	4.9	58.2	30	164
10.2 1c	4.9	5.3	31	164
22.7	13.1	9.6	32	164
16.2	13.1	3.1	33	164
7.3 J	13.1	-5.8	33	165
63.1	13.1	50	34	165
10.2 1c	13.1	-2.9	34	166
16.2	22.7	-6.5	34	167
7.3 J	22.7	-15.4	34	168

63.1	22.7	40.4	35	168
10.2 1c	22.7	-12.5	35	169
7.3 J	16.2	-8.9	35	170
63.1	16.2	46.9	36	170
10.2 1c	16.2	-6	36	171
63.1	7.3 J	55.8	37	171
10.2 1c	7.3 J	2.9	38	171
10.2 1c	63.1	-52.9	38	172

S Statistic = 38 - 172 = -134

---

Tied Group	Value	Members
------------	-------	---------

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/13/2020	1
6/18/2020	1
9/17/2020	1
11/9/2020	1

There are 0 time periods with multiple data

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 19740

b = 71820

c = 840

Group Variance = 1096.67

Z-Score = -4.01619

Comparison Level at 95% confidence level = 1.65463 (upward trend)

-4.01619 <= 1.65463 indicating no evidence of an upward trend



## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW18-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
592000	728000	-136000	0	1
633000	728000	-95000	0	2
246000	728000	-482000	0	3
694000	728000	-34000	0	4
575000	728000	-153000	0	5
290000	728000	-438000	0	6
382000	728000	-346000	0	7
393000	728000	-335000	0	8
323000	728000	-405000	0	9
369000	728000	-359000	0	10
370000	728000	-358000	0	11
396000	728000	-332000	0	12
330000	728000	-398000	0	13
247000	728000	-481000	0	14
318000	728000	-410000	0	15
822000	728000	94000	1	15
279000	728000	-449000	1	16
640000	728000	-88000	1	17
849000	728000	121000	2	17
545000	728000	-183000	2	18
252000	728000	-476000	2	19
753000 1c	728000	25000	3	19
534000 1c	728000	-194000	3	20
633000	592000	41000	4	20
246000	592000	-346000	4	21
694000	592000	102000	5	21
575000	592000	-17000	5	22
290000	592000	-302000	5	23
382000	592000	-210000	5	24
393000	592000	-199000	5	25
323000	592000	-269000	5	26
369000	592000	-223000	5	27
370000	592000	-222000	5	28
396000	592000	-196000	5	29
330000	592000	-262000	5	30
247000	592000	-345000	5	31
318000	592000	-274000	5	32
822000	592000	230000	6	32
279000	592000	-313000	6	33
640000	592000	48000	7	33
849000	592000	257000	8	33
545000	592000	-47000	8	34
252000	592000	-340000	8	35
753000 1c	592000	161000	9	35
534000 1c	592000	-58000	9	36

246000	633000	-387000	9	37
694000	633000	61000	10	37
575000	633000	-58000	10	38
290000	633000	-343000	10	39
382000	633000	-251000	10	40
393000	633000	-240000	10	41
323000	633000	-310000	10	42
369000	633000	-264000	10	43
370000	633000	-263000	10	44
396000	633000	-237000	10	45
330000	633000	-303000	10	46
247000	633000	-386000	10	47
318000	633000	-315000	10	48
822000	633000	189000	11	48
279000	633000	-354000	11	49
640000	633000	7000	12	49
849000	633000	216000	13	49
545000	633000	-88000	13	50
252000	633000	-381000	13	51
753000 1c	633000	120000	14	51
534000 1c	633000	-99000	14	52
694000	246000	448000	15	52
575000	246000	329000	16	52
290000	246000	44000	17	52
382000	246000	136000	18	52
393000	246000	147000	19	52
323000	246000	77000	20	52
369000	246000	123000	21	52
370000	246000	124000	22	52
396000	246000	150000	23	52
330000	246000	84000	24	52
247000	246000	1000	25	52
318000	246000	72000	26	52
822000	246000	576000	27	52
279000	246000	33000	28	52
640000	246000	394000	29	52
849000	246000	603000	30	52
545000	246000	299000	31	52
252000	246000	6000	32	52
753000 1c	246000	507000	33	52
534000 1c	246000	288000	34	52
575000	694000	-119000	34	53
290000	694000	-404000	34	54
382000	694000	-312000	34	55
393000	694000	-301000	34	56
323000	694000	-371000	34	57
369000	694000	-325000	34	58
370000	694000	-324000	34	59
396000	694000	-298000	34	60
330000	694000	-364000	34	61
247000	694000	-447000	34	62
318000	694000	-376000	34	63
822000	694000	128000	35	63
279000	694000	-415000	35	64
640000	694000	-54000	35	65

849000	694000	155000	36	65
545000	694000	-149000	36	66
252000	694000	-442000	36	67
753000 1c	694000	59000	37	67
534000 1c	694000	-160000	37	68
290000	575000	-285000	37	69
382000	575000	-193000	37	70
393000	575000	-182000	37	71
323000	575000	-252000	37	72
369000	575000	-206000	37	73
370000	575000	-205000	37	74
396000	575000	-179000	37	75
330000	575000	-245000	37	76
247000	575000	-328000	37	77
318000	575000	-257000	37	78
822000	575000	247000	38	78
279000	575000	-296000	38	79
640000	575000	65000	39	79
849000	575000	274000	40	79
545000	575000	-30000	40	80
252000	575000	-323000	40	81
753000 1c	575000	178000	41	81
534000 1c	575000	-41000	41	82
382000	290000	92000	42	82
393000	290000	103000	43	82
323000	290000	33000	44	82
369000	290000	79000	45	82
370000	290000	80000	46	82
396000	290000	106000	47	82
330000	290000	40000	48	82
247000	290000	-43000	48	83
318000	290000	28000	49	83
822000	290000	532000	50	83
279000	290000	-11000	50	84
640000	290000	350000	51	84
849000	290000	559000	52	84
545000	290000	255000	53	84
252000	290000	-38000	53	85
753000 1c	290000	463000	54	85
534000 1c	290000	244000	55	85
393000	382000	11000	56	85
323000	382000	-59000	56	86
369000	382000	-13000	56	87
370000	382000	-12000	56	88
396000	382000	14000	57	88
330000	382000	-52000	57	89
247000	382000	-135000	57	90
318000	382000	-64000	57	91
822000	382000	440000	58	91
279000	382000	-103000	58	92
640000	382000	258000	59	92
849000	382000	467000	60	92
545000	382000	163000	61	92
252000	382000	-130000	61	93

753000 1c	382000	371000	62	93
534000 1c	382000	152000	63	93
323000	393000	-70000	63	94
369000	393000	-24000	63	95
370000	393000	-23000	63	96
396000	393000	3000	64	96
330000	393000	-63000	64	97
247000	393000	-146000	64	98
318000	393000	-75000	64	99
822000	393000	429000	65	99
279000	393000	-114000	65	100
640000	393000	247000	66	100
849000	393000	456000	67	100
545000	393000	152000	68	100
252000	393000	-141000	68	101
753000 1c	393000	360000	69	101
534000 1c	393000	141000	70	101
369000	323000	46000	71	101
370000	323000	47000	72	101
396000	323000	73000	73	101
330000	323000	7000	74	101
247000	323000	-76000	74	102
318000	323000	-5000	74	103
822000	323000	499000	75	103
279000	323000	-44000	75	104
640000	323000	317000	76	104
849000	323000	526000	77	104
545000	323000	222000	78	104
252000	323000	-71000	78	105
753000 1c	323000	430000	79	105
534000 1c	323000	211000	80	105
370000	369000	1000	81	105
396000	369000	27000	82	105
330000	369000	-39000	82	106
247000	369000	-122000	82	107
318000	369000	-51000	82	108
822000	369000	453000	83	108
279000	369000	-90000	83	109
640000	369000	271000	84	109
849000	369000	480000	85	109
545000	369000	176000	86	109
252000	369000	-117000	86	110
753000 1c	369000	384000	87	110
534000 1c	369000	165000	88	110
396000	370000	26000	89	110
330000	370000	-40000	89	111
247000	370000	-123000	89	112
318000	370000	-52000	89	113
822000	370000	452000	90	113
279000	370000	-91000	90	114
640000	370000	270000	91	114
849000	370000	479000	92	114
545000	370000	175000	93	114

252000	370000	-118000	93	115
753000 1c	370000	383000	94	115
534000 1c	370000	164000	95	115
330000	396000	-66000	95	116
247000	396000	-149000	95	117
318000	396000	-78000	95	118
822000	396000	426000	96	118
279000	396000	-117000	96	119
640000	396000	244000	97	119
849000	396000	453000	98	119
545000	396000	149000	99	119
252000	396000	-144000	99	120
753000 1c	396000	357000	100	120
534000 1c	396000	138000	101	120
247000	330000	-83000	101	121
318000	330000	-12000	101	122
822000	330000	492000	102	122
279000	330000	-51000	102	123
640000	330000	310000	103	123
849000	330000	519000	104	123
545000	330000	215000	105	123
252000	330000	-78000	105	124
753000 1c	330000	423000	106	124
534000 1c	330000	204000	107	124
318000	247000	71000	108	124
822000	247000	575000	109	124
279000	247000	32000	110	124
640000	247000	393000	111	124
849000	247000	602000	112	124
545000	247000	298000	113	124
252000	247000	5000	114	124
753000 1c	247000	506000	115	124
534000 1c	247000	287000	116	124
822000	318000	504000	117	124
279000	318000	-39000	117	125
640000	318000	322000	118	125
849000	318000	531000	119	125
545000	318000	227000	120	125
252000	318000	-66000	120	126
753000 1c	318000	435000	121	126
534000 1c	318000	216000	122	126
279000	822000	-543000	122	127
640000	822000	-182000	122	128
849000	822000	27000	123	128
545000	822000	-277000	123	129
252000	822000	-570000	123	130
753000 1c	822000	-69000	123	131
534000 1c	822000	-288000	123	132
640000	279000	361000	124	132
849000	279000	570000	125	132
545000	279000	266000	126	132

252000	279000	-27000	126	133
753000 1c	279000	474000	127	133
534000 1c	279000	255000	128	133
849000	640000	209000	129	133
545000	640000	-95000	129	134
252000	640000	-388000	129	135
753000 1c	640000	113000	130	135
534000 1c	640000	-106000	130	136
545000	849000	-304000	130	137
252000	849000	-597000	130	138
753000 1c	849000	-96000	130	139
534000 1c	849000	-315000	130	140
252000	545000	-293000	130	141
753000 1c	545000	208000	131	141
534000 1c	545000	-11000	131	142
753000 1c	252000	501000	132	142
534000 1c	252000	282000	133	142
534000 1c	753000 1c	-219000	133	143

S Statistic = 133 - 143 = -10

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1
6/1/2019		1
9/1/2019		1
12/1/2019		1
3/16/2020		1
6/18/2020		1
9/16/2020		1
11/9/2020		1

There are 0 time periods with multiple data

---

A = 0

B = 0  
C = 0  
D = 0  
E = 0  
F = 0  
a = 29256  
b = 109296  
c = 1104  
Group Variance = 1625.33  
Z-Score = -0.22324  
Comparison Level at 95% confidence level = 1.65463 (upward trend)  
-0.22324 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW19-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
4.65e+006	5.9e+006	-1.25e+006	0	1
7.01e+006	5.9e+006	1.11e+006	1	1
5.37e+006	5.9e+006	-530000	1	2
6.72e+006	5.9e+006	820000	2	2
5.33e+006	5.9e+006	-570000	2	3
3.36e+006	5.9e+006	-2.54e+006	2	4
2.5e+006	5.9e+006	-3.4e+006	2	5
3.67e+006	5.9e+006	-2.23e+006	2	6
3.4e+006	5.9e+006	-2.5e+006	2	7
3.97e+006	5.9e+006	-1.93e+006	2	8
3.84e+006	5.9e+006	-2.06e+006	2	9
4.19e+006	5.9e+006	-1.71e+006	2	10
4.88e+006	5.9e+006	-1.02e+006	2	11
5.88e+006	5.9e+006	-20000	2	12
7.58e+006	5.9e+006	1.68e+006	3	12
3.77e+006	5.9e+006	-2.13e+006	3	13
7.28e+006	5.9e+006	1.38e+006	4	13
3.46e+006	5.9e+006	-2.44e+006	4	14
5.69e+006	5.9e+006	-210000	4	15
6.05e+006 ML	5.9e+006	150000	5	15
6.45e+006	5.9e+006	550000	6	15
6.22e+006	5.9e+006	320000	7	15
3.93e+006	5.9e+006	-1.97e+006	7	16
7.01e+006	4.65e+006	2.36e+006	8	16
5.37e+006	4.65e+006	720000	9	16
6.72e+006	4.65e+006	2.07e+006	10	16
5.33e+006	4.65e+006	680000	11	16
3.36e+006	4.65e+006	-1.29e+006	11	17
2.5e+006	4.65e+006	-2.15e+006	11	18
3.67e+006	4.65e+006	-980000	11	19
3.4e+006	4.65e+006	-1.25e+006	11	20
3.97e+006	4.65e+006	-680000	11	21
3.84e+006	4.65e+006	-810000	11	22
4.19e+006	4.65e+006	-460000	11	23
4.88e+006	4.65e+006	230000	12	23
5.88e+006	4.65e+006	1.23e+006	13	23
7.58e+006	4.65e+006	2.93e+006	14	23
3.77e+006	4.65e+006	-880000	14	24
7.28e+006	4.65e+006	2.63e+006	15	24
3.46e+006	4.65e+006	-1.19e+006	15	25
5.69e+006	4.65e+006	1.04e+006	16	25
6.05e+006 ML	4.65e+006	1.4e+006	17	25
6.45e+006	4.65e+006	1.8e+006	18	25
6.22e+006	4.65e+006	1.57e+006	19	25
3.93e+006	4.65e+006	-720000	19	26



5.37e+006	7.01e+006	-1.64e+006	19	27
6.72e+006	7.01e+006	-290000	19	28
5.33e+006	7.01e+006	-1.68e+006	19	29
3.36e+006	7.01e+006	-3.65e+006	19	30
2.5e+006	7.01e+006	-4.51e+006	19	31
3.67e+006	7.01e+006	-3.34e+006	19	32
3.4e+006	7.01e+006	-3.61e+006	19	33
3.97e+006	7.01e+006	-3.04e+006	19	34
3.84e+006	7.01e+006	-3.17e+006	19	35
4.19e+006	7.01e+006	-2.82e+006	19	36
4.88e+006	7.01e+006	-2.13e+006	19	37
5.88e+006	7.01e+006	-1.13e+006	19	38
7.58e+006	7.01e+006	570000	20	38
3.77e+006	7.01e+006	-3.24e+006	20	39
7.28e+006	7.01e+006	270000	21	39
3.46e+006	7.01e+006	-3.55e+006	21	40
5.69e+006	7.01e+006	-1.32e+006	21	41
6.05e+006 ML	7.01e+006	-960000	21	42
6.45e+006	7.01e+006	-560000	21	43
6.22e+006	7.01e+006	-790000	21	44
3.93e+006	7.01e+006	-3.08e+006	21	45
6.72e+006	5.37e+006	1.35e+006	22	45
5.33e+006	5.37e+006	-40000	22	46
3.36e+006	5.37e+006	-2.01e+006	22	47
2.5e+006	5.37e+006	-2.87e+006	22	48
3.67e+006	5.37e+006	-1.7e+006	22	49
3.4e+006	5.37e+006	-1.97e+006	22	50
3.97e+006	5.37e+006	-1.4e+006	22	51
3.84e+006	5.37e+006	-1.53e+006	22	52
4.19e+006	5.37e+006	-1.18e+006	22	53
4.88e+006	5.37e+006	-490000	22	54
5.88e+006	5.37e+006	510000	23	54
7.58e+006	5.37e+006	2.21e+006	24	54
3.77e+006	5.37e+006	-1.6e+006	24	55
7.28e+006	5.37e+006	1.91e+006	25	55
3.46e+006	5.37e+006	-1.91e+006	25	56
5.69e+006	5.37e+006	320000	26	56
6.05e+006 ML	5.37e+006	680000	27	56
6.45e+006	5.37e+006	1.08e+006	28	56
6.22e+006	5.37e+006	850000	29	56
3.93e+006	5.37e+006	-1.44e+006	29	57
5.33e+006	6.72e+006	-1.39e+006	29	58
3.36e+006	6.72e+006	-3.36e+006	29	59
2.5e+006	6.72e+006	-4.22e+006	29	60
3.67e+006	6.72e+006	-3.05e+006	29	61
3.4e+006	6.72e+006	-3.32e+006	29	62
3.97e+006	6.72e+006	-2.75e+006	29	63
3.84e+006	6.72e+006	-2.88e+006	29	64
4.19e+006	6.72e+006	-2.53e+006	29	65
4.88e+006	6.72e+006	-1.84e+006	29	66
5.88e+006	6.72e+006	-840000	29	67
7.58e+006	6.72e+006	860000	30	67
3.77e+006	6.72e+006	-2.95e+006	30	68
7.28e+006	6.72e+006	560000	31	68
3.46e+006	6.72e+006	-3.26e+006	31	69

5.69e+006	6.72e+006	-1.03e+006	31	70
6.05e+006 ML	6.72e+006	-670000	31	71
6.45e+006	6.72e+006	-270000	31	72
6.22e+006	6.72e+006	-500000	31	73
3.93e+006	6.72e+006	-2.79e+006	31	74
3.36e+006	5.33e+006	-1.97e+006	31	75
2.5e+006	5.33e+006	-2.83e+006	31	76
3.67e+006	5.33e+006	-1.66e+006	31	77
3.4e+006	5.33e+006	-1.93e+006	31	78
3.97e+006	5.33e+006	-1.36e+006	31	79
3.84e+006	5.33e+006	-1.49e+006	31	80
4.19e+006	5.33e+006	-1.14e+006	31	81
4.88e+006	5.33e+006	-450000	31	82
5.88e+006	5.33e+006	550000	32	82
7.58e+006	5.33e+006	2.25e+006	33	82
3.77e+006	5.33e+006	-1.56e+006	33	83
7.28e+006	5.33e+006	1.95e+006	34	83
3.46e+006	5.33e+006	-1.87e+006	34	84
5.69e+006	5.33e+006	360000	35	84
6.05e+006 ML	5.33e+006	720000	36	84
6.45e+006	5.33e+006	1.12e+006	37	84
6.22e+006	5.33e+006	890000	38	84
3.93e+006	5.33e+006	-1.4e+006	38	85
2.5e+006	3.36e+006	-860000	38	86
3.67e+006	3.36e+006	310000	39	86
3.4e+006	3.36e+006	40000	40	86
3.97e+006	3.36e+006	610000	41	86
3.84e+006	3.36e+006	480000	42	86
4.19e+006	3.36e+006	830000	43	86
4.88e+006	3.36e+006	1.52e+006	44	86
5.88e+006	3.36e+006	2.52e+006	45	86
7.58e+006	3.36e+006	4.22e+006	46	86
3.77e+006	3.36e+006	410000	47	86
7.28e+006	3.36e+006	3.92e+006	48	86
3.46e+006	3.36e+006	100000	49	86
5.69e+006	3.36e+006	2.33e+006	50	86
6.05e+006 ML	3.36e+006	2.69e+006	51	86
6.45e+006	3.36e+006	3.09e+006	52	86
6.22e+006	3.36e+006	2.86e+006	53	86
3.93e+006	3.36e+006	570000	54	86
3.67e+006	2.5e+006	1.17e+006	55	86
3.4e+006	2.5e+006	900000	56	86
3.97e+006	2.5e+006	1.47e+006	57	86
3.84e+006	2.5e+006	1.34e+006	58	86
4.19e+006	2.5e+006	1.69e+006	59	86
4.88e+006	2.5e+006	2.38e+006	60	86
5.88e+006	2.5e+006	3.38e+006	61	86
7.58e+006	2.5e+006	5.08e+006	62	86
3.77e+006	2.5e+006	1.27e+006	63	86
7.28e+006	2.5e+006	4.78e+006	64	86
3.46e+006	2.5e+006	960000	65	86
5.69e+006	2.5e+006	3.19e+006	66	86
6.05e+006 ML	2.5e+006	3.55e+006	67	86
6.45e+006	2.5e+006	3.95e+006	68	86

6.22e+006	2.5e+006	3.72e+006	69	86
3.93e+006	2.5e+006	1.43e+006	70	86
3.4e+006	3.67e+006	-270000	70	87
3.97e+006	3.67e+006	300000	71	87
3.84e+006	3.67e+006	170000	72	87
4.19e+006	3.67e+006	520000	73	87
4.88e+006	3.67e+006	1.21e+006	74	87
5.88e+006	3.67e+006	2.21e+006	75	87
7.58e+006	3.67e+006	3.91e+006	76	87
3.77e+006	3.67e+006	100000	77	87
7.28e+006	3.67e+006	3.61e+006	78	87
3.46e+006	3.67e+006	-210000	78	88
5.69e+006	3.67e+006	2.02e+006	79	88
6.05e+006 ML	3.67e+006	2.38e+006	80	88
6.45e+006	3.67e+006	2.78e+006	81	88
6.22e+006	3.67e+006	2.55e+006	82	88
3.93e+006	3.67e+006	260000	83	88
3.97e+006	3.4e+006	570000	84	88
3.84e+006	3.4e+006	440000	85	88
4.19e+006	3.4e+006	790000	86	88
4.88e+006	3.4e+006	1.48e+006	87	88
5.88e+006	3.4e+006	2.48e+006	88	88
7.58e+006	3.4e+006	4.18e+006	89	88
3.77e+006	3.4e+006	370000	90	88
7.28e+006	3.4e+006	3.88e+006	91	88
3.46e+006	3.4e+006	60000	92	88
5.69e+006	3.4e+006	2.29e+006	93	88
6.05e+006 ML	3.4e+006	2.65e+006	94	88
6.45e+006	3.4e+006	3.05e+006	95	88
6.22e+006	3.4e+006	2.82e+006	96	88
3.93e+006	3.4e+006	530000	97	88
3.84e+006	3.97e+006	-130000	97	89
4.19e+006	3.97e+006	220000	98	89
4.88e+006	3.97e+006	910000	99	89
5.88e+006	3.97e+006	1.91e+006	100	89
7.58e+006	3.97e+006	3.61e+006	101	89
3.77e+006	3.97e+006	-200000	101	90
7.28e+006	3.97e+006	3.31e+006	102	90
3.46e+006	3.97e+006	-510000	102	91
5.69e+006	3.97e+006	1.72e+006	103	91
6.05e+006 ML	3.97e+006	2.08e+006	104	91
6.45e+006	3.97e+006	2.48e+006	105	91
6.22e+006	3.97e+006	2.25e+006	106	91
3.93e+006	3.97e+006	-40000	106	92
4.19e+006	3.84e+006	350000	107	92
4.88e+006	3.84e+006	1.04e+006	108	92
5.88e+006	3.84e+006	2.04e+006	109	92
7.58e+006	3.84e+006	3.74e+006	110	92
3.77e+006	3.84e+006	-70000	110	93
7.28e+006	3.84e+006	3.44e+006	111	93
3.46e+006	3.84e+006	-380000	111	94
5.69e+006	3.84e+006	1.85e+006	112	94
6.05e+006 ML	3.84e+006	2.21e+006	113	94

6.45e+006	3.84e+006	2.61e+006	114	94
6.22e+006	3.84e+006	2.38e+006	115	94
3.93e+006	3.84e+006	90000	116	94
4.88e+006	4.19e+006	690000	117	94
5.88e+006	4.19e+006	1.69e+006	118	94
7.58e+006	4.19e+006	3.39e+006	119	94
3.77e+006	4.19e+006	-420000	119	95
7.28e+006	4.19e+006	3.09e+006	120	95
3.46e+006	4.19e+006	-730000	120	96
5.69e+006	4.19e+006	1.5e+006	121	96
6.05e+006 ML	4.19e+006	1.86e+006	122	96
6.45e+006	4.19e+006	2.26e+006	123	96
6.22e+006	4.19e+006	2.03e+006	124	96
3.93e+006	4.19e+006	-260000	124	97
5.88e+006	4.88e+006	1e+006	125	97
7.58e+006	4.88e+006	2.7e+006	126	97
3.77e+006	4.88e+006	-1.11e+006	126	98
7.28e+006	4.88e+006	2.4e+006	127	98
3.46e+006	4.88e+006	-1.42e+006	127	99
5.69e+006	4.88e+006	810000	128	99
6.05e+006 ML	4.88e+006	1.17e+006	129	99
6.45e+006	4.88e+006	1.57e+006	130	99
6.22e+006	4.88e+006	1.34e+006	131	99
3.93e+006	4.88e+006	-950000	131	100
7.58e+006	5.88e+006	1.7e+006	132	100
3.77e+006	5.88e+006	-2.11e+006	132	101
7.28e+006	5.88e+006	1.4e+006	133	101
3.46e+006	5.88e+006	-2.42e+006	133	102
5.69e+006	5.88e+006	-190000	133	103
6.05e+006 ML	5.88e+006	170000	134	103
6.45e+006	5.88e+006	570000	135	103
6.22e+006	5.88e+006	340000	136	103
3.93e+006	5.88e+006	-1.95e+006	136	104
3.77e+006	7.58e+006	-3.81e+006	136	105
7.28e+006	7.58e+006	-300000	136	106
3.46e+006	7.58e+006	-4.12e+006	136	107
5.69e+006	7.58e+006	-1.89e+006	136	108
6.05e+006 ML	7.58e+006	-1.53e+006	136	109
6.45e+006	7.58e+006	-1.13e+006	136	110
6.22e+006	7.58e+006	-1.36e+006	136	111
3.93e+006	7.58e+006	-3.65e+006	136	112
7.28e+006	3.77e+006	3.51e+006	137	112
3.46e+006	3.77e+006	-310000	137	113
5.69e+006	3.77e+006	1.92e+006	138	113
6.05e+006 ML	3.77e+006	2.28e+006	139	113
6.45e+006	3.77e+006	2.68e+006	140	113
6.22e+006	3.77e+006	2.45e+006	141	113
3.93e+006	3.77e+006	160000	142	113
3.46e+006	7.28e+006	-3.82e+006	142	114
5.69e+006	7.28e+006	-1.59e+006	142	115
6.05e+006 ML	7.28e+006	-1.23e+006	142	116

6.45e+006	7.28e+006	-830000	142	117
6.22e+006	7.28e+006	-1.06e+006	142	118
3.93e+006	7.28e+006	-3.35e+006	142	119
5.69e+006	3.46e+006	2.23e+006	143	119
6.05e+006 ML	3.46e+006	2.59e+006	144	119
6.45e+006	3.46e+006	2.99e+006	145	119
6.22e+006	3.46e+006	2.76e+006	146	119
3.93e+006	3.46e+006	470000	147	119
6.05e+006 ML	5.69e+006	360000	148	119
6.45e+006	5.69e+006	760000	149	119
6.22e+006	5.69e+006	530000	150	119
3.93e+006	5.69e+006	-1.76e+006	150	120
6.45e+006	6.05e+006 ML	400000	151	120
6.22e+006	6.05e+006 ML	170000	152	120
3.93e+006	6.05e+006 ML	-2.12e+006	152	121
6.22e+006	6.45e+006	-230000	152	122
3.93e+006	6.45e+006	-2.52e+006	152	123
3.93e+006	6.22e+006	-2.29e+006	152	124

S Statistic = 152 - 124 = 28

---

Tied Group	Value	Members
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1
6/1/2019		1
9/1/2019		1
12/1/2019		1
3/17/2020		1
6/24/2020		1
9/15/2020		1
11/17/2020		1
There are 0 time periods with multiple data		

---

A = 0

B = 0  
C = 0  
D = 0  
E = 0  
F = 0  
a = 29256  
b = 109296  
c = 1104  
Group Variance = 1625.33  
Z-Score = 0.669719  
Comparison Level at 95% confidence level = 1.65463 (upward trend)  
0.669719 <= 1.65463 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW21-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
470000	648000	-178000	0	1
536000 ML3c	648000	-112000	0	2
562000	648000	-86000	0	3
536000 ML3c	470000	66000	1	3
562000	470000	92000	2	3
562000	536000 ML3c	26000	3	3

S Statistic = 3 - 3 = 0

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 0$  is 0.625

$S < 0$  or  $0.625 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW22R-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
4350	1810	2540	1	0
5340	1810	3530	2	0
4520	1810	2710	3	0
5340	4350	990	4	0
4520	4350	170	5	0
4520	5340	-820	5	1

S Statistic = 5 - 1 = 4

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 4$  is 0.167

$S < 0$  or  $0.167 \geq 0.05$  indicating no evidence of an upward trend



## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW23-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
116000	100000	16000	1	0
105000 2c	100000	5000	2	0
95600	100000	-4400	2	1
105000 2c	116000	-11000	2	2
95600	116000	-20400	2	3
95600	105000 2c	-9400	2	4

S Statistic = 2 - 4 = -2

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -2$  is 0.375

$S < 0$  or  $0.375 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW24-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
378000	466000	-88000	0	1
364000	466000	-102000	0	2
258000 1c	466000	-208000	0	3
364000	378000	-14000	0	4
258000 1c	378000	-120000	0	5
258000 1c	364000	-106000	0	6

S Statistic = 0 - 6 = -6

Comparing at 95% confidence level (upward trend)

Probability of obtaining S >= -6 is 0.042

S < 0 or 0.042 >= 0.05 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW25-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
443000	355000	88000	1	0
477000	355000	122000	2	0
445000 1c	355000	90000	3	0
477000	443000	34000	4	0
445000 1c	443000	2000	5	0
445000 1c	477000	-32000	5	1

S Statistic = 5 - 1 = 4

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 4$  is 0.167

$S < 0$  or  $0.167 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWA-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
359000 M6	383000	-24000	0	1
349000	383000	-34000	0	2
396000	383000	13000	1	2
521000	383000	138000	2	2
441000	383000	58000	3	2
452000	383000	69000	4	2
406000 MHML1	383000	23000	5	2
349000	359000 M6	-10000	5	3
396000	359000 M6	37000	6	3
521000	359000 M6	162000	7	3
441000	359000 M6	82000	8	3
452000	359000 M6	93000	9	3
406000 MHML1	359000 M6	47000	10	3
396000	349000	47000	11	3
521000	349000	172000	12	3
441000	349000	92000	13	3
452000	349000	103000	14	3
406000 MHML1	349000	57000	15	3
521000	396000	125000	16	3
441000	396000	45000	17	3
452000	396000	56000	18	3
406000 MHML1	396000	10000	19	3
441000	521000	-80000	19	4
452000	521000	-69000	19	5
406000 MHML1	521000	-115000	19	6
452000	441000	11000	20	6
406000 MHML1	441000	-35000	20	7
406000 MHML1	452000	-46000	20	8

S Statistic = 20 - 8 = 12

Comparing at 95% confidence level (upward trend)

Probability of obtaining S >= 12 is 0.089

S < 0 or 0.089 >= 0.05 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWB-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
14.6	18	-3.4	0	1
29.2	18	11.2	1	1
47.8	18	29.8	2	1
8.9 J	18	-9.1	2	2
8.4 J	18	-9.6	2	3
15.2 1c	18	-2.8	2	4
13.5 1c	18	-4.5	2	5
29.2	14.6	14.6	3	5
47.8	14.6	33.2	4	5
8.9 J	14.6	-5.7	4	6
8.4 J	14.6	-6.2	4	7
15.2 1c	14.6	0.6	5	7
13.5 1c	14.6	-1.1	5	8
47.8	29.2	18.6	6	8
8.9 J	29.2	-20.3	6	9
8.4 J	29.2	-20.8	6	10
15.2 1c	29.2	-14	6	11
13.5 1c	29.2	-15.7	6	12
8.9 J	47.8	-38.9	6	13
8.4 J	47.8	-39.4	6	14
15.2 1c	47.8	-32.6	6	15
13.5 1c	47.8	-34.3	6	16
8.4 J	8.9 J	-0.5	6	17
15.2 1c	8.9 J	6.3	7	17
13.5 1c	8.9 J	4.6	8	17
15.2 1c	8.4 J	6.8	9	17
13.5 1c	8.4 J	5.1	10	17
13.5 1c	15.2 1c	-1.7	10	18

S Statistic = 10 - 18 = -8

Comparing at 95% confidence level (upward trend)

Probability of obtaining S >= -8 is 0.199

S < 0 or 0.199 >= 0.05 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWD-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
41900	36950 1c3c	4950	1	0
52600	36950 1c3c	15650	2	0
50400	36950 1c3c	13450	3	0
59300	36950 1c3c	22350	4	0
69300 1c	36950 1c3c	32350	5	0
64200 1c	36950 1c3c	27250	6	0
52600	41900	10700	7	0
50400	41900	8500	8	0
59300	41900	17400	9	0
69300 1c	41900	27400	10	0
64200 1c	41900	22300	11	0
50400	52600	-2200	11	1
59300	52600	6700	12	1
69300 1c	52600	16700	13	1
64200 1c	52600	11600	14	1
59300	50400	8900	15	1
69300 1c	50400	18900	16	1
64200 1c	50400	13800	17	1
69300 1c	59300	10000	18	1
64200 1c	59300	4900	19	1
64200 1c	69300 1c	-5100	19	2

S Statistic = 19 - 2 = 17

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 17$  is 0.0054

**S > 0 and 0.0054 < 0.05 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWE-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
109000	116500 2c	-7500	0	1
118000	116500 2c	1500	1	1
102000 ML	116500 2c	-14500	1	2
114000 ML	116500 2c	-2500	1	3
110000 1c	116500 2c	-6500	1	4
80800 1c	116500 2c	-35700	1	5
118000	109000	9000	2	5
102000 ML	109000	-7000	2	6
114000 ML	109000	5000	3	6
110000 1c	109000	1000	4	6
80800 1c	109000	-28200	4	7
102000 ML	118000	-16000	4	8
114000 ML	118000	-4000	4	9
110000 1c	118000	-8000	4	10
80800 1c	118000	-37200	4	11
114000 ML	102000 ML	12000	5	11
110000 1c	102000 ML	8000	6	11
80800 1c	102000 ML	-21200	6	12
110000 1c	114000 ML	-4000	6	13
80800 1c	114000 ML	-33200	6	14
80800 1c	110000 1c	-29200	6	15

S Statistic = 6 - 15 = -9

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -9$  is 0.119

$S < 0$  or  $0.119 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWF-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
42300 M6	41300	1000	1	0
58800	41300	17500	2	0
90400	41300	49100	3	0
108000	41300	66700	4	0
134000 1c	41300	92700	5	0
110000 1c	41300	68700	6	0
58800	42300 M6	16500	7	0
90400	42300 M6	48100	8	0
108000	42300 M6	65700	9	0
134000 1c	42300 M6	91700	10	0
110000 1c	42300 M6	67700	11	0
90400	58800	31600	12	0
108000	58800	49200	13	0
134000 1c	58800	75200	14	0
110000 1c	58800	51200	15	0
108000	90400	17600	16	0
134000 1c	90400	43600	17	0
110000 1c	90400	19600	18	0
134000 1c	108000	26000	19	0
110000 1c	108000	2000	20	0
110000 1c	134000 1c	-24000	20	1

S Statistic = 20 - 1 = 19

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 19$  is 0.0014

**S > 0 and 0.0014 < 0.05 indicating an upward trend**



## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWG-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
291	344.5 1c3c	-53.5	0	1
362	344.5 1c3c	17.5	1	1
411	344.5 1c3c	66.5	2	1
465	344.5 1c3c	120.5	3	1
545 1c	344.5 1c3c	200.5	4	1
522 1c	344.5 1c3c	177.5	5	1
362	291	71	6	1
411	291	120	7	1
465	291	174	8	1
545 1c	291	254	9	1
522 1c	291	231	10	1
411	362	49	11	1
465	362	103	12	1
545 1c	362	183	13	1
522 1c	362	160	14	1
465	411	54	15	1
545 1c	411	134	16	1
522 1c	411	111	17	1
545 1c	465	80	18	1
522 1c	465	57	19	1
522 1c	545 1c	-23	19	2

S Statistic = 19 - 2 = 17

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 17$  is 0.0054

**S > 0 and 0.0054 < 0.05 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWH-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
378000 1c	230000	148000	1	0
502000	230000	272000	2	0
406000	230000	176000	3	0
474000 M6	230000	244000	4	0
477000	230000	247000	5	0
618000	230000	388000	6	0
502000	378000 1c	124000	7	0
406000	378000 1c	28000	8	0
474000 M6	378000 1c	96000	9	0
477000	378000 1c	99000	10	0
618000	378000 1c	240000	11	0
406000	502000	-96000	11	1
474000 M6	502000	-28000	11	2
477000	502000	-25000	11	3
618000	502000	116000	12	3
474000 M6	406000	68000	13	3
477000	406000	71000	14	3
618000	406000	212000	15	3
477000	474000 M6	3000	16	3
618000	474000 M6	144000	17	3
618000	477000	141000	18	3

S Statistic = 18 - 3 = 15

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 15$  is 0.015

**S > 0 and 0.015 < 0.05 indicating an upward trend**

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWI-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
519000 1c	642000	-123000	0	1
544000	642000	-98000	0	2
875000	642000	233000	1	2
775000	642000	133000	2	2
544000	519000 1c	25000	3	2
875000	519000 1c	356000	4	2
775000	519000 1c	256000	5	2
875000	544000	331000	6	2
775000	544000	231000	7	2
775000	875000	-100000	7	3

S Statistic = 7 - 3 = 4

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 4$  is 0.242

$S < 0$  or  $0.242 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWJ-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
2150 1c	2330	-180	0	1
3140	2330	810	1	1
3430	2330	1100	2	1
805	2330	-1525	2	2
744	2330	-1586	2	3
1060	2330	-1270	2	4
3140	2150 1c	990	3	4
3430	2150 1c	1280	4	4
805	2150 1c	-1345	4	5
744	2150 1c	-1406	4	6
1060	2150 1c	-1090	4	7
3430	3140	290	5	7
805	3140	-2335	5	8
744	3140	-2396	5	9
1060	3140	-2080	5	10
805	3430	-2625	5	11
744	3430	-2686	5	12
1060	3430	-2370	5	13
744	805	-61	5	14
1060	805	255	6	14
1060	744	316	7	14

S Statistic = 7 - 14 = -7

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -7$  is 0.191

$S < 0$  or  $0.191 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWK-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
25100 1c	21200	3900	1	0
21600	21200	400	2	0
30300	21200	9100	3	0
21400	21200	200	4	0
36800	21200	15600	5	0
26500	21200	5300	6	0
21600	25100 1c	-3500	6	1
30300	25100 1c	5200	7	1
21400	25100 1c	-3700	7	2
36800	25100 1c	11700	8	2
26500	25100 1c	1400	9	2
30300	21600	8700	10	2
21400	21600	-200	10	3
36800	21600	15200	11	3
26500	21600	4900	12	3
21400	30300	-8900	12	4
36800	30300	6500	13	4
26500	30300	-3800	13	5
36800	21400	15400	14	5
26500	21400	5100	15	5
26500	36800	-10300	15	6

S Statistic = 15 - 6 = 9

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 9$  is 0.119

$S < 0$  or  $0.119 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWL-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
142000 1c	166000	-24000	0	1
124000	166000	-42000	0	2
121000	166000	-45000	0	3
96300	166000	-69700	0	4
116000 2c	166000	-50000	0	5
126000	166000	-40000	0	6
124000	142000 1c	-18000	0	7
121000	142000 1c	-21000	0	8
96300	142000 1c	-45700	0	9
116000 2c	142000 1c	-26000	0	10
126000	142000 1c	-16000	0	11
121000	124000	-3000	0	12
96300	124000	-27700	0	13
116000 2c	124000	-8000	0	14
126000	124000	2000	1	14
96300	121000	-24700	1	15
116000 2c	121000	-5000	1	16
126000	121000	5000	2	16
116000 2c	96300	19700	3	16
126000	96300	29700	4	16
126000	116000 2c	10000	5	16

S Statistic = 5 - 16 = -11

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -11$  is 0.068

$S < 0$  or  $0.068 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWM-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
159000	163500	-4500	0	1
152000 M61c	163500	-11500	0	2
139000	163500	-24500	0	3
128000	163500	-35500	0	4
138000 2c	163500	-25500	0	5
125000	163500	-38500	0	6
152000 M61c	159000	-7000	0	7
139000	159000	-20000	0	8
128000	159000	-31000	0	9
138000 2c	159000	-21000	0	10
125000	159000	-34000	0	11
139000	152000 M61c	-13000	0	12
128000	152000 M61c	-24000	0	13
138000 2c	152000 M61c	-14000	0	14
125000	152000 M61c	-27000	0	15
128000	139000	-11000	0	16
138000 2c	139000	-1000	0	17
125000	139000	-14000	0	18
138000 2c	128000	10000	1	18
125000	128000	-3000	1	19
125000	138000 2c	-13000	1	20

S Statistic = 1 - 20 = -19

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -19$  is 0.0014

$S < 0$  or  $0.0014 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWO-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
214000 1c	246000 M61c4c	-32000	0	1
204000	246000 M61c4c	-42000	0	2
202000	246000 M61c4c	-44000	0	3
223000	246000 M61c4c	-23000	0	4
204000 3c	246000 M61c4c	-42000	0	5
155000	246000 M61c4c	-91000	0	6
204000	214000 1c	-10000	0	7
202000	214000 1c	-12000	0	8
223000	214000 1c	9000	1	8
204000 3c	214000 1c	-10000	1	9
155000	214000 1c	-59000	1	10
202000	204000	-2000	1	11
223000	204000	19000	2	11
204000 3c	204000	0	2	11
155000	204000	-49000	2	12
223000	202000	21000	3	12
204000 3c	202000	2000	4	12
155000	202000	-47000	4	13
204000 3c	223000	-19000	4	14
155000	223000	-68000	4	15
155000	204000 3c	-49000	4	16

S Statistic = 4 - 16 = -12

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -12$  is 0.0515

$S < 0$  or  $0.0515 \geq 0.05$  indicating no evidence of an upward trend



## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWP-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
3.57e+006 1c	3.09e+006	480000	1	0
3.88e+006	3.09e+006	790000	2	0
3.86e+006	3.09e+006	770000	3	0
3.16e+006	3.09e+006	70000	4	0
3.81e+006	3.09e+006	720000	5	0
3.52e+006 MH	3.09e+006	430000	6	0
3.88e+006	3.57e+006 1c	310000	7	0
3.86e+006	3.57e+006 1c	290000	8	0
3.16e+006	3.57e+006 1c	-410000	8	1
3.81e+006	3.57e+006 1c	240000	9	1
3.52e+006 MH	3.57e+006 1c	-50000	9	2
3.86e+006	3.88e+006	-20000	9	3
3.16e+006	3.88e+006	-720000	9	4
3.81e+006	3.88e+006	-70000	9	5
3.52e+006 MH	3.88e+006	-360000	9	6
3.16e+006	3.86e+006	-700000	9	7
3.81e+006	3.86e+006	-50000	9	8
3.52e+006 MH	3.86e+006	-340000	9	9
3.81e+006	3.16e+006	650000	10	9
3.52e+006 MH	3.16e+006	360000	11	9
3.52e+006 MH	3.81e+006	-290000	11	10

S Statistic = 11 - 10 = 1

Comparing at 95% confidence level (upward trend)

Probability of obtaining S >= 1 is 0.5

S < 0 or 0.5 >= 0.05 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWQ-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
270000 1c	348000	-78000	0	1
258000	348000	-90000	0	2
312000	348000	-36000	0	3
255000	348000	-93000	0	4
280000 3c	348000	-68000	0	5
257000	348000	-91000	0	6
258000	270000 1c	-12000	0	7
312000	270000 1c	42000	1	7
255000	270000 1c	-15000	1	8
280000 3c	270000 1c	10000	2	8
257000	270000 1c	-13000	2	9
312000	258000	54000	3	9
255000	258000	-3000	3	10
280000 3c	258000	22000	4	10
257000	258000	-1000	4	11
255000	312000	-57000	4	12
280000 3c	312000	-32000	4	13
257000	312000	-55000	4	14
280000 3c	255000	25000	5	14
257000	255000	2000	6	14
257000	280000 3c	-23000	6	15

S Statistic = 6 - 15 = -9

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -9$  is 0.119

$S < 0$  or  $0.119 \geq 0.05$  indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWR-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
3.62e+006 1c	2.61e+006 1c4c	1.01e+006	1	0
4.05e+006	2.61e+006 1c4c	1.44e+006	2	0
814000	2.61e+006 1c4c	-1.796e+006	2	1
2.53e+006	2.61e+006 1c4c	-80000	2	2
1.83e+006	2.61e+006 1c4c	-780000	2	3
996000 1c	2.61e+006 1c4c	-1.614e+006	2	4
4.05e+006	3.62e+006 1c	430000	3	4
814000	3.62e+006 1c	-2.806e+006	3	5
2.53e+006	3.62e+006 1c	-1.09e+006	3	6
1.83e+006	3.62e+006 1c	-1.79e+006	3	7
996000 1c	3.62e+006 1c	-2.624e+006	3	8
814000	4.05e+006	-3.236e+006	3	9
2.53e+006	4.05e+006	-1.52e+006	3	10
1.83e+006	4.05e+006	-2.22e+006	3	11
996000 1c	4.05e+006	-3.054e+006	3	12
2.53e+006	814000	1.716e+006	4	12
1.83e+006	814000	1.016e+006	5	12
996000 1c	814000	182000	6	12
1.83e+006	2.53e+006	-700000	6	13
996000 1c	2.53e+006	-1.534e+006	6	14
996000 1c	1.83e+006	-834000	6	15

S Statistic = 6 - 15 = -9

Comparing at 95% confidence level (upward trend)

Probability of obtaining S >= -9 is 0.119

S < 0 or 0.119 >= 0.05 indicating no evidence of an upward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWS-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
1.04e+006 1c	820000	220000	1	0
946000	820000	126000	2	0
1.07e+006	820000	250000	3	0
74300	820000	-745700	3	1
760000	820000	-60000	3	2
919000	820000	99000	4	2
946000	1.04e+006 1c	-94000	4	3
1.07e+006	1.04e+006 1c	30000	5	3
74300	1.04e+006 1c	-965700	5	4
760000	1.04e+006 1c	-280000	5	5
919000	1.04e+006 1c	-121000	5	6
1.07e+006	946000	124000	6	6
74300	946000	-871700	6	7
760000	946000	-186000	6	8
919000	946000	-27000	6	9
74300	1.07e+006	-995700	6	10
760000	1.07e+006	-310000	6	11
919000	1.07e+006	-151000	6	12
760000	74300	685700	7	12
919000	74300	844700	8	12
919000	760000	159000	9	12

S Statistic = 9 - 12 = -3

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -3$  is 0.386

$S < 0$  or  $0.386 \geq 0.05$  indicating no evidence of an upward trend

# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW01-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.51	194	-193.49	0	1
145	194	-49	0	2
3 U	194	-191	0	3
37.5	194	-156.5	0	4
2.4	194	-191.6	0	5
16.5	194	-177.5	0	6
250	194	56	1	6
3 U	194	-191	1	7
9.3	194	-184.7	1	8
3 U	194	-191	1	9
19.4	194	-174.6	1	10
20.6	194	-173.4	1	11
8.8	194	-185.2	1	12
49.3	194	-144.7	1	13
117	194	-77	1	14
ND<1.5 U	194	-192.5	1	15
162	194	-32	1	16
145	0.51	144.49	2	16
3 U	0.51	2.49	3	16
37.5	0.51	36.99	4	16
2.4	0.51	1.89	5	16
16.5	0.51	15.99	6	16
250	0.51	249.49	7	16
3 U	0.51	2.49	8	16
9.3	0.51	8.79	9	16
3 U	0.51	2.49	10	16
19.4	0.51	18.89	11	16
20.6	0.51	20.09	12	16
8.8	0.51	8.29	13	16
49.3	0.51	48.79	14	16
117	0.51	116.49	15	16
ND<1.5 U	0.51	0.99	16	16
162	0.51	161.49	17	16
3 U	145	-142	17	17
37.5	145	-107.5	17	18
2.4	145	-142.6	17	19
16.5	145	-128.5	17	20
250	145	105	18	20
3 U	145	-142	18	21
9.3	145	-135.7	18	22
3 U	145	-142	18	23
19.4	145	-125.6	18	24
20.6	145	-124.4	18	25
8.8	145	-136.2	18	26
49.3	145	-95.7	18	27

117	145	-28	18	28
ND<1.5 U	145	-143.5	18	29
162	145	17	19	29
37.5	3 U	34.5	20	29
2.4	3 U	-0.6	20	30
16.5	3 U	13.5	21	30
250	3 U	247	22	30
3 U	3 U	0	22	30
9.3	3 U	6.3	23	30
3 U	3 U	0	23	30
19.4	3 U	16.4	24	30
20.6	3 U	17.6	25	30
8.8	3 U	5.8	26	30
49.3	3 U	46.3	27	30
117	3 U	114	28	30
ND<1.5 U	3 U	-1.5	28	31
162	3 U	159	29	31
2.4	37.5	-35.1	29	32
16.5	37.5	-21	29	33
250	37.5	212.5	30	33
3 U	37.5	-34.5	30	34
9.3	37.5	-28.2	30	35
3 U	37.5	-34.5	30	36
19.4	37.5	-18.1	30	37
20.6	37.5	-16.9	30	38
8.8	37.5	-28.7	30	39
49.3	37.5	11.8	31	39
117	37.5	79.5	32	39
ND<1.5 U	37.5	-36	32	40
162	37.5	124.5	33	40
16.5	2.4	14.1	34	40
250	2.4	247.6	35	40
3 U	2.4	0.6	36	40
9.3	2.4	6.9	37	40
3 U	2.4	0.6	38	40
19.4	2.4	17	39	40
20.6	2.4	18.2	40	40
8.8	2.4	6.4	41	40
49.3	2.4	46.9	42	40
117	2.4	114.6	43	40
ND<1.5 U	2.4	-0.9	43	41
162	2.4	159.6	44	41
250	16.5	233.5	45	41
3 U	16.5	-13.5	45	42
9.3	16.5	-7.2	45	43
3 U	16.5	-13.5	45	44
19.4	16.5	2.9	46	44
20.6	16.5	4.1	47	44
8.8	16.5	-7.7	47	45
49.3	16.5	32.8	48	45
117	16.5	100.5	49	45
ND<1.5 U	16.5	-15	49	46
162	16.5	145.5	50	46

3 U	250	-247	50	47
9.3	250	-240.7	50	48
3 U	250	-247	50	49
19.4	250	-230.6	50	50
20.6	250	-229.4	50	51
8.8	250	-241.2	50	52
49.3	250	-200.7	50	53
117	250	-133	50	54
ND<1.5 U	250	-248.5	50	55
162	250	-88	50	56
9.3	3 U	6.3	51	56
3 U	3 U	0	51	56
19.4	3 U	16.4	52	56
20.6	3 U	17.6	53	56
8.8	3 U	5.8	54	56
49.3	3 U	46.3	55	56
117	3 U	114	56	56
ND<1.5 U	3 U	-1.5	56	57
162	3 U	159	57	57
3 U	9.3	-6.3	57	58
19.4	9.3	10.1	58	58
20.6	9.3	11.3	59	58
8.8	9.3	-0.5	59	59
49.3	9.3	40	60	59
117	9.3	107.7	61	59
ND<1.5 U	9.3	-7.8	61	60
162	9.3	152.7	62	60
19.4	3 U	16.4	63	60
20.6	3 U	17.6	64	60
8.8	3 U	5.8	65	60
49.3	3 U	46.3	66	60
117	3 U	114	67	60
ND<1.5 U	3 U	-1.5	67	61
162	3 U	159	68	61
20.6	19.4	1.2	69	61
8.8	19.4	-10.6	69	62
49.3	19.4	29.9	70	62
117	19.4	97.6	71	62
ND<1.5 U	19.4	-17.9	71	63
162	19.4	142.6	72	63
8.8	20.6	-11.8	72	64
49.3	20.6	28.7	73	64
117	20.6	96.4	74	64
ND<1.5 U	20.6	-19.1	74	65
162	20.6	141.4	75	65
49.3	8.8	40.5	76	65
117	8.8	108.2	77	65
ND<1.5 U	8.8	-7.3	77	66
162	8.8	153.2	78	66

117	49.3	67.7	79	66
ND<1.5 U	49.3	-47.8	79	67
162	49.3	112.7	80	67
ND<1.5 U	117	-115.5	80	68
162	117	45	81	68
162	ND<1.5 U	160.5	82	68

S Statistic = 82 - 68 = 14

---

Tied Group	Value	Members
1	3	3

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/19/2020	1
6/8/2020	1
9/14/2020	1
11/19/2020	1

There are 0 time periods with multiple data

---

A = 66

B = 0

C = 6

D = 0

E = 6

F = 0

a = 12546

b = 44064

c = 612

Group Variance = 693.333

Z-Score = 0.49371

Comparison Level at 95% confidence level = -1.65463 (downward trend)

0.49371 >= -1.65463 indicating no evidence of a downward trend



# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW02-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
3	511	-508	0	1
2.4	511	-508.6	0	2
3 U	511	-508	0	3
2.3	511	-508.7	0	4
14.5	511	-496.5	0	5
3	511	-508	0	6
79.9	511	-431.1	0	7
18	511	-493	0	8
191	511	-320	0	9
98.3	511	-412.7	0	10
785	511	274	1	10
873	511	362	2	10
277	511	-234	2	11
136	511	-375	2	12
398	511	-113	2	13
0.69 J	511	-510.31	2	14
208	511	-303	2	15
2.4	3	-0.6	2	16
3 U	3	0	2	16
2.3	3	-0.7	2	17
14.5	3	11.5	3	17
3	3	0	3	17
79.9	3	76.9	4	17
18	3	15	5	17
191	3	188	6	17
98.3	3	95.3	7	17
785	3	782	8	17
873	3	870	9	17
277	3	274	10	17
136	3	133	11	17
398	3	395	12	17
0.69 J	3	-2.31	12	18
208	3	205	13	18
3 U	2.4	0.6	14	18
2.3	2.4	-0.1	14	19
14.5	2.4	12.1	15	19
3	2.4	0.6	16	19
79.9	2.4	77.5	17	19
18	2.4	15.6	18	19
191	2.4	188.6	19	19
98.3	2.4	95.9	20	19
785	2.4	782.6	21	19
873	2.4	870.6	22	19
277	2.4	274.6	23	19
136	2.4	133.6	24	19

398	2.4	395.6	25	19
0.69 J	2.4	-1.71	25	20
208	2.4	205.6	26	20
2.3	3 U	-0.7	26	21
14.5	3 U	11.5	27	21
3	3 U	0	27	21
79.9	3 U	76.9	28	21
18	3 U	15	29	21
191	3 U	188	30	21
98.3	3 U	95.3	31	21
785	3 U	782	32	21
873	3 U	870	33	21
277	3 U	274	34	21
136	3 U	133	35	21
398	3 U	395	36	21
0.69 J	3 U	-2.31	36	22
208	3 U	205	37	22
14.5	2.3	12.2	38	22
3	2.3	0.7	39	22
79.9	2.3	77.6	40	22
18	2.3	15.7	41	22
191	2.3	188.7	42	22
98.3	2.3	96	43	22
785	2.3	782.7	44	22
873	2.3	870.7	45	22
277	2.3	274.7	46	22
136	2.3	133.7	47	22
398	2.3	395.7	48	22
0.69 J	2.3	-1.61	48	23
208	2.3	205.7	49	23
3	14.5	-11.5	49	24
79.9	14.5	65.4	50	24
18	14.5	3.5	51	24
191	14.5	176.5	52	24
98.3	14.5	83.8	53	24
785	14.5	770.5	54	24
873	14.5	858.5	55	24
277	14.5	262.5	56	24
136	14.5	121.5	57	24
398	14.5	383.5	58	24
0.69 J	14.5	-13.81	58	25
208	14.5	193.5	59	25
79.9	3	76.9	60	25
18	3	15	61	25
191	3	188	62	25
98.3	3	95.3	63	25
785	3	782	64	25
873	3	870	65	25
277	3	274	66	25
136	3	133	67	25
398	3	395	68	25
0.69 J	3	-2.31	68	26
208	3	205	69	26

18	79.9	-61.9	69	27
191	79.9	111.1	70	27
98.3	79.9	18.4	71	27
785	79.9	705.1	72	27
873	79.9	793.1	73	27
277	79.9	197.1	74	27
136	79.9	56.1	75	27
398	79.9	318.1	76	27
0.69 J	79.9	-79.21	76	28
208	79.9	128.1	77	28
191	18	173	78	28
98.3	18	80.3	79	28
785	18	767	80	28
873	18	855	81	28
277	18	259	82	28
136	18	118	83	28
398	18	380	84	28
0.69 J	18	-17.31	84	29
208	18	190	85	29
98.3	191	-92.7	85	30
785	191	594	86	30
873	191	682	87	30
277	191	86	88	30
136	191	-55	88	31
398	191	207	89	31
0.69 J	191	-190.31	89	32
208	191	17	90	32
785	98.3	686.7	91	32
873	98.3	774.7	92	32
277	98.3	178.7	93	32
136	98.3	37.7	94	32
398	98.3	299.7	95	32
0.69 J	98.3	-97.61	95	33
208	98.3	109.7	96	33
873	785	88	97	33
277	785	-508	97	34
136	785	-649	97	35
398	785	-387	97	36
0.69 J	785	-784.31	97	37
208	785	-577	97	38
277	873	-596	97	39
136	873	-737	97	40
398	873	-475	97	41
0.69 J	873	-872.31	97	42
208	873	-665	97	43
136	277	-141	97	44
398	277	121	98	44
0.69 J	277	-276.31	98	45
208	277	-69	98	46

398	136	262	99	46
0.69 J	136	-135.31	99	47
208	136	72	100	47
0.69 J	398	-397.31	100	48
208	398	-190	100	49
208	0.69 J	207.31	101	49

S Statistic = 101 - 49 = 52

---

Tied Group	Value	Members
1	3	3

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/19/2020	1
6/9/2020	1
9/14/2020	1
11/19/2020	1

There are 0 time periods with multiple data

---

A = 66

B = 0

C = 6

D = 0

E = 6

F = 0

a = 12546

b = 44064

c = 612

Group Variance = 693.333

Z-Score = 1.93686

Comparison Level at 95% confidence level = -1.65463 (downward trend)

1.93686 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW03-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
196	189	7	1	0
192	189	3	2	0
84	189	-105	2	1
37.4	189	-151.6	2	2
138	189	-51	2	3
227	189	38	3	3
214	189	25	4	3
20.2	189	-168.8	4	4
25.2	189	-163.8	4	5
154	189	-35	4	6
259	189	70	5	6
128	189	-61	5	7
236	189	47	6	7
346	189	157	7	7
342	189	153	8	7
213	189	24	9	7
449	189	260	10	7
344	189	155	11	7
546	189	357	12	7
451	189	262	13	7
581	189	392	14	7
192	196	-4	14	8
84	196	-112	14	9
37.4	196	-158.6	14	10
138	196	-58	14	11
227	196	31	15	11
214	196	18	16	11
20.2	196	-175.8	16	12
25.2	196	-170.8	16	13
154	196	-42	16	14
259	196	63	17	14
128	196	-68	17	15
236	196	40	18	15
346	196	150	19	15
342	196	146	20	15
213	196	17	21	15
449	196	253	22	15
344	196	148	23	15
546	196	350	24	15
451	196	255	25	15
581	196	385	26	15
84	192	-108	26	16
37.4	192	-154.6	26	17
138	192	-54	26	18
227	192	35	27	18

214	192	22	28	18
20.2	192	-171.8	28	19
25.2	192	-166.8	28	20
154	192	-38	28	21
259	192	67	29	21
128	192	-64	29	22
236	192	44	30	22
346	192	154	31	22
342	192	150	32	22
213	192	21	33	22
449	192	257	34	22
344	192	152	35	22
546	192	354	36	22
451	192	259	37	22
581	192	389	38	22
37.4	84	-46.6	38	23
138	84	54	39	23
227	84	143	40	23
214	84	130	41	23
20.2	84	-63.8	41	24
25.2	84	-58.8	41	25
154	84	70	42	25
259	84	175	43	25
128	84	44	44	25
236	84	152	45	25
346	84	262	46	25
342	84	258	47	25
213	84	129	48	25
449	84	365	49	25
344	84	260	50	25
546	84	462	51	25
451	84	367	52	25
581	84	497	53	25
138	37.4	100.6	54	25
227	37.4	189.6	55	25
214	37.4	176.6	56	25
20.2	37.4	-17.2	56	26
25.2	37.4	-12.2	56	27
154	37.4	116.6	57	27
259	37.4	221.6	58	27
128	37.4	90.6	59	27
236	37.4	198.6	60	27
346	37.4	308.6	61	27
342	37.4	304.6	62	27
213	37.4	175.6	63	27
449	37.4	411.6	64	27
344	37.4	306.6	65	27
546	37.4	508.6	66	27
451	37.4	413.6	67	27
581	37.4	543.6	68	27
227	138	89	69	27
214	138	76	70	27
20.2	138	-117.8	70	28
25.2	138	-112.8	70	29

154	138	16	71	29
259	138	121	72	29
128	138	-10	72	30
236	138	98	73	30
346	138	208	74	30
342	138	204	75	30
213	138	75	76	30
449	138	311	77	30
344	138	206	78	30
546	138	408	79	30
451	138	313	80	30
581	138	443	81	30
214	227	-13	81	31
20.2	227	-206.8	81	32
25.2	227	-201.8	81	33
154	227	-73	81	34
259	227	32	82	34
128	227	-99	82	35
236	227	9	83	35
346	227	119	84	35
342	227	115	85	35
213	227	-14	85	36
449	227	222	86	36
344	227	117	87	36
546	227	319	88	36
451	227	224	89	36
581	227	354	90	36
20.2	214	-193.8	90	37
25.2	214	-188.8	90	38
154	214	-60	90	39
259	214	45	91	39
128	214	-86	91	40
236	214	22	92	40
346	214	132	93	40
342	214	128	94	40
213	214	-1	94	41
449	214	235	95	41
344	214	130	96	41
546	214	332	97	41
451	214	237	98	41
581	214	367	99	41
25.2	20.2	5	100	41
154	20.2	133.8	101	41
259	20.2	238.8	102	41
128	20.2	107.8	103	41
236	20.2	215.8	104	41
346	20.2	325.8	105	41
342	20.2	321.8	106	41
213	20.2	192.8	107	41
449	20.2	428.8	108	41
344	20.2	323.8	109	41
546	20.2	525.8	110	41
451	20.2	430.8	111	41
581	20.2	560.8	112	41

154	25.2	128.8	113	41
259	25.2	233.8	114	41
128	25.2	102.8	115	41
236	25.2	210.8	116	41
346	25.2	320.8	117	41
342	25.2	316.8	118	41
213	25.2	187.8	119	41
449	25.2	423.8	120	41
344	25.2	318.8	121	41
546	25.2	520.8	122	41
451	25.2	425.8	123	41
581	25.2	555.8	124	41
259	154	105	125	41
128	154	-26	125	42
236	154	82	126	42
346	154	192	127	42
342	154	188	128	42
213	154	59	129	42
449	154	295	130	42
344	154	190	131	42
546	154	392	132	42
451	154	297	133	42
581	154	427	134	42
128	259	-131	134	43
236	259	-23	134	44
346	259	87	135	44
342	259	83	136	44
213	259	-46	136	45
449	259	190	137	45
344	259	85	138	45
546	259	287	139	45
451	259	192	140	45
581	259	322	141	45
236	128	108	142	45
346	128	218	143	45
342	128	214	144	45
213	128	85	145	45
449	128	321	146	45
344	128	216	147	45
546	128	418	148	45
451	128	323	149	45
581	128	453	150	45
346	236	110	151	45
342	236	106	152	45
213	236	-23	152	46
449	236	213	153	46
344	236	108	154	46
546	236	310	155	46
451	236	215	156	46
581	236	345	157	46
342	346	-4	157	47



213	346	-133	157	48
449	346	103	158	48
344	346	-2	158	49
546	346	200	159	49
451	346	105	160	49
581	346	235	161	49
213	342	-129	161	50
449	342	107	162	50
344	342	2	163	50
546	342	204	164	50
451	342	109	165	50
581	342	239	166	50
449	213	236	167	50
344	213	131	168	50
546	213	333	169	50
451	213	238	170	50
581	213	368	171	50
344	449	-105	171	51
546	449	97	172	51
451	449	2	173	51
581	449	132	174	51
546	344	202	175	51
451	344	107	176	51
581	344	237	177	51
451	546	-95	177	52
581	546	35	178	52
581	451	130	179	52

S Statistic = 179 - 52 = 127

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1

6/1/2019	1
9/1/2019	1
12/1/2019	1
3/19/2020	1
6/9/2020	1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 22638

b = 83160

c = 924

Group Variance = 1257.67

Z-Score = 3.55294

Comparison Level at 95% confidence level = -1.65463 (downward trend)

3.55294 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW05R-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
1930	1960	-30	0	1
1650	1960	-310	0	2
1790	1960	-170	0	3
1650	1930	-280	0	4
1790	1930	-140	0	5
1790	1650	140	1	5

S Statistic = 1 - 5 = -4

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 4$  is 0.167

$S > 0$  or  $0.167 > 0.05$  indicating no evidence of a downward trend

# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW06-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
9.2	12.5	-3.3	0	1
14	12.5	1.5	1	1
20.4	12.5	7.9	2	1
14.3	12.5	1.8	3	1
10.2	12.5	-2.3	3	2
10.1	12.5	-2.4	3	3
4.5	12.5	-8	3	4
4.2	12.5	-8.3	3	5
5.4	12.5	-7.1	3	6
7.1	12.5	-5.4	3	7
8.4	12.5	-4.1	3	8
89.2	12.5	76.7	4	8
3 U	12.5	-9.5	4	9
629	12.5	616.5	5	9
752	12.5	739.5	6	9
876	12.5	863.5	7	9
885	12.5	872.5	8	9
793	12.5	780.5	9	9
673	12.5	660.5	10	9
690	12.5	677.5	11	9
582	12.5	569.5	12	9
530	12.5	517.5	13	9
0.66 J	12.5	-11.84	13	10
14	9.2	4.8	14	10
20.4	9.2	11.2	15	10
14.3	9.2	5.1	16	10
10.2	9.2	1	17	10
10.1	9.2	0.9	18	10
4.5	9.2	-4.7	18	11
4.2	9.2	-5	18	12
5.4	9.2	-3.8	18	13
7.1	9.2	-2.1	18	14
8.4	9.2	-0.8	18	15
89.2	9.2	80	19	15
3 U	9.2	-6.2	19	16
629	9.2	619.8	20	16
752	9.2	742.8	21	16
876	9.2	866.8	22	16
885	9.2	875.8	23	16
793	9.2	783.8	24	16
673	9.2	663.8	25	16
690	9.2	680.8	26	16
582	9.2	572.8	27	16
530	9.2	520.8	28	16
0.66 J	9.2	-8.54	28	17

20.4	14	6.4	29	17
14.3	14	0.3	30	17
10.2	14	-3.8	30	18
10.1	14	-3.9	30	19
4.5	14	-9.5	30	20
4.2	14	-9.8	30	21
5.4	14	-8.6	30	22
7.1	14	-6.9	30	23
8.4	14	-5.6	30	24
89.2	14	75.2	31	24
3 U	14	-11	31	25
629	14	615	32	25
752	14	738	33	25
876	14	862	34	25
885	14	871	35	25
793	14	779	36	25
673	14	659	37	25
690	14	676	38	25
582	14	568	39	25
530	14	516	40	25
0.66 J	14	-13.34	40	26
14.3	20.4	-6.1	40	27
10.2	20.4	-10.2	40	28
10.1	20.4	-10.3	40	29
4.5	20.4	-15.9	40	30
4.2	20.4	-16.2	40	31
5.4	20.4	-15	40	32
7.1	20.4	-13.3	40	33
8.4	20.4	-12	40	34
89.2	20.4	68.8	41	34
3 U	20.4	-17.4	41	35
629	20.4	608.6	42	35
752	20.4	731.6	43	35
876	20.4	855.6	44	35
885	20.4	864.6	45	35
793	20.4	772.6	46	35
673	20.4	652.6	47	35
690	20.4	669.6	48	35
582	20.4	561.6	49	35
530	20.4	509.6	50	35
0.66 J	20.4	-19.74	50	36
10.2	14.3	-4.1	50	37
10.1	14.3	-4.2	50	38
4.5	14.3	-9.8	50	39
4.2	14.3	-10.1	50	40
5.4	14.3	-8.9	50	41
7.1	14.3	-7.2	50	42
8.4	14.3	-5.9	50	43
89.2	14.3	74.9	51	43
3 U	14.3	-11.3	51	44
629	14.3	614.7	52	44
752	14.3	737.7	53	44
876	14.3	861.7	54	44
885	14.3	870.7	55	44
793	14.3	778.7	56	44

673	14.3	658.7	57	44
690	14.3	675.7	58	44
582	14.3	567.7	59	44
530	14.3	515.7	60	44
0.66 J	14.3	-13.64	60	45
10.1	10.2	-0.1	60	46
4.5	10.2	-5.7	60	47
4.2	10.2	-6	60	48
5.4	10.2	-4.8	60	49
7.1	10.2	-3.1	60	50
8.4	10.2	-1.8	60	51
89.2	10.2	79	61	51
3 U	10.2	-7.2	61	52
629	10.2	618.8	62	52
752	10.2	741.8	63	52
876	10.2	865.8	64	52
885	10.2	874.8	65	52
793	10.2	782.8	66	52
673	10.2	662.8	67	52
690	10.2	679.8	68	52
582	10.2	571.8	69	52
530	10.2	519.8	70	52
0.66 J	10.2	-9.54	70	53
4.5	10.1	-5.6	70	54
4.2	10.1	-5.9	70	55
5.4	10.1	-4.7	70	56
7.1	10.1	-3	70	57
8.4	10.1	-1.7	70	58
89.2	10.1	79.1	71	58
3 U	10.1	-7.1	71	59
629	10.1	618.9	72	59
752	10.1	741.9	73	59
876	10.1	865.9	74	59
885	10.1	874.9	75	59
793	10.1	782.9	76	59
673	10.1	662.9	77	59
690	10.1	679.9	78	59
582	10.1	571.9	79	59
530	10.1	519.9	80	59
0.66 J	10.1	-9.44	80	60
4.2	4.5	-0.3	80	61
5.4	4.5	0.9	81	61
7.1	4.5	2.6	82	61
8.4	4.5	3.9	83	61
89.2	4.5	84.7	84	61
3 U	4.5	-1.5	84	62
629	4.5	624.5	85	62
752	4.5	747.5	86	62
876	4.5	871.5	87	62
885	4.5	880.5	88	62
793	4.5	788.5	89	62
673	4.5	668.5	90	62
690	4.5	685.5	91	62
582	4.5	577.5	92	62

530	4.5	525.5	93	62
0.66 J	4.5	-3.84	93	63
5.4	4.2	1.2	94	63
7.1	4.2	2.9	95	63
8.4	4.2	4.2	96	63
89.2	4.2	85	97	63
3 U	4.2	-1.2	97	64
629	4.2	624.8	98	64
752	4.2	747.8	99	64
876	4.2	871.8	100	64
885	4.2	880.8	101	64
793	4.2	788.8	102	64
673	4.2	668.8	103	64
690	4.2	685.8	104	64
582	4.2	577.8	105	64
530	4.2	525.8	106	64
0.66 J	4.2	-3.54	106	65
7.1	5.4	1.7	107	65
8.4	5.4	3	108	65
89.2	5.4	83.8	109	65
3 U	5.4	-2.4	109	66
629	5.4	623.6	110	66
752	5.4	746.6	111	66
876	5.4	870.6	112	66
885	5.4	879.6	113	66
793	5.4	787.6	114	66
673	5.4	667.6	115	66
690	5.4	684.6	116	66
582	5.4	576.6	117	66
530	5.4	524.6	118	66
0.66 J	5.4	-4.74	118	67
8.4	7.1	1.3	119	67
89.2	7.1	82.1	120	67
3 U	7.1	-4.1	120	68
629	7.1	621.9	121	68
752	7.1	744.9	122	68
876	7.1	868.9	123	68
885	7.1	877.9	124	68
793	7.1	785.9	125	68
673	7.1	665.9	126	68
690	7.1	682.9	127	68
582	7.1	574.9	128	68
530	7.1	522.9	129	68
0.66 J	7.1	-6.44	129	69
89.2	8.4	80.8	130	69
3 U	8.4	-5.4	130	70
629	8.4	620.6	131	70
752	8.4	743.6	132	70
876	8.4	867.6	133	70
885	8.4	876.6	134	70
793	8.4	784.6	135	70
673	8.4	664.6	136	70
690	8.4	681.6	137	70

582	8.4	573.6	138	70
530	8.4	521.6	139	70
0.66 J	8.4	-7.74	139	71
3 U	89.2	-86.2	139	72
629	89.2	539.8	140	72
752	89.2	662.8	141	72
876	89.2	786.8	142	72
885	89.2	795.8	143	72
793	89.2	703.8	144	72
673	89.2	583.8	145	72
690	89.2	600.8	146	72
582	89.2	492.8	147	72
530	89.2	440.8	148	72
0.66 J	89.2	-88.54	148	73
629	3 U	626	149	73
752	3 U	749	150	73
876	3 U	873	151	73
885	3 U	882	152	73
793	3 U	790	153	73
673	3 U	670	154	73
690	3 U	687	155	73
582	3 U	579	156	73
530	3 U	527	157	73
0.66 J	3 U	-2.34	157	74
752	629	123	158	74
876	629	247	159	74
885	629	256	160	74
793	629	164	161	74
673	629	44	162	74
690	629	61	163	74
582	629	-47	163	75
530	629	-99	163	76
0.66 J	629	-628.34	163	77
876	752	124	164	77
885	752	133	165	77
793	752	41	166	77
673	752	-79	166	78
690	752	-62	166	79
582	752	-170	166	80
530	752	-222	166	81
0.66 J	752	-751.34	166	82
885	876	9	167	82
793	876	-83	167	83
673	876	-203	167	84
690	876	-186	167	85
582	876	-294	167	86
530	876	-346	167	87
0.66 J	876	-875.34	167	88
793	885	-92	167	89
673	885	-212	167	90
690	885	-195	167	91



582	885	-303	167	92
530	885	-355	167	93
0.66 J	885	-884.34	167	94
673	793	-120	167	95
690	793	-103	167	96
582	793	-211	167	97
530	793	-263	167	98
0.66 J	793	-792.34	167	99
690	673	17	168	99
582	673	-91	168	100
530	673	-143	168	101
0.66 J	673	-672.34	168	102
582	690	-108	168	103
530	690	-160	168	104
0.66 J	690	-689.34	168	105
530	582	-52	168	106
0.66 J	582	-581.34	168	107
0.66 J	530	-529.34	168	108

S Statistic = 168 - 108 = 60

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1
6/1/2019		1
9/1/2019		1
12/1/2019		1
3/18/2020		1
6/10/2020		1
9/14/2020		1
11/11/2020		1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1625.33

Z-Score = 1.46346

Comparison Level at 95% confidence level = -1.65463 (downward trend)

1.46346  $\geq$  -1.65463 indicating no evidence of a downward trend

# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW07-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
4.6	1.2	3.4	1	0
3 U	1.2	1.8	2	0
1.1	1.2	-0.1	2	1
0.91	1.2	-0.29	2	2
1.2	1.2	0	2	2
1	1.2	-0.2	2	3
11	1.2	9.8	3	3
3 U	1.2	1.8	4	3
5.1	1.2	3.9	5	3
1.7	1.2	0.5	6	3
3 U	1.2	1.8	7	3
1.3	1.2	0.1	8	3
52.9	1.2	51.7	9	3
28.7	1.2	27.5	10	3
344	1.2	342.8	11	3
29.5	1.2	28.3	12	3
453	1.2	451.8	13	3
48.7	1.2	47.5	14	3
38.1	1.2	36.9	15	3
36	1.2	34.8	16	3
1.7 J	1.2	0.5	17	3
3 U	4.6	-1.6	17	4
1.1	4.6	-3.5	17	5
0.91	4.6	-3.69	17	6
1.2	4.6	-3.4	17	7
1	4.6	-3.6	17	8
11	4.6	6.4	18	8
3 U	4.6	-1.6	18	9
5.1	4.6	0.5	19	9
1.7	4.6	-2.9	19	10
3 U	4.6	-1.6	19	11
1.3	4.6	-3.3	19	12
52.9	4.6	48.3	20	12
28.7	4.6	24.1	21	12
344	4.6	339.4	22	12
29.5	4.6	24.9	23	12
453	4.6	448.4	24	12
48.7	4.6	44.1	25	12
38.1	4.6	33.5	26	12
36	4.6	31.4	27	12
1.7 J	4.6	-2.9	27	13
1.1	3 U	-1.9	27	14
0.91	3 U	-2.09	27	15
1.2	3 U	-1.8	27	16
1	3 U	-2	27	17

11	3 U	8	28	17
3 U	3 U	0	28	17
5.1	3 U	2.1	29	17
1.7	3 U	-1.3	29	18
3 U	3 U	0	29	18
1.3	3 U	-1.7	29	19
52.9	3 U	49.9	30	19
28.7	3 U	25.7	31	19
344	3 U	341	32	19
29.5	3 U	26.5	33	19
453	3 U	450	34	19
48.7	3 U	45.7	35	19
38.1	3 U	35.1	36	19
36	3 U	33	37	19
1.7 J	3 U	-1.3	37	20
0.91	1.1	-0.19	37	21
1.2	1.1	0.1	38	21
1	1.1	-0.1	38	22
11	1.1	9.9	39	22
3 U	1.1	1.9	40	22
5.1	1.1	4	41	22
1.7	1.1	0.6	42	22
3 U	1.1	1.9	43	22
1.3	1.1	0.2	44	22
52.9	1.1	51.8	45	22
28.7	1.1	27.6	46	22
344	1.1	342.9	47	22
29.5	1.1	28.4	48	22
453	1.1	451.9	49	22
48.7	1.1	47.6	50	22
38.1	1.1	37	51	22
36	1.1	34.9	52	22
1.7 J	1.1	0.6	53	22
1.2	0.91	0.29	54	22
1	0.91	0.09	55	22
11	0.91	10.09	56	22
3 U	0.91	2.09	57	22
5.1	0.91	4.19	58	22
1.7	0.91	0.79	59	22
3 U	0.91	2.09	60	22
1.3	0.91	0.39	61	22
52.9	0.91	51.99	62	22
28.7	0.91	27.79	63	22
344	0.91	343.09	64	22
29.5	0.91	28.59	65	22
453	0.91	452.09	66	22
48.7	0.91	47.79	67	22
38.1	0.91	37.19	68	22
36	0.91	35.09	69	22
1.7 J	0.91	0.79	70	22
1	1.2	-0.2	70	23
11	1.2	9.8	71	23
3 U	1.2	1.8	72	23
5.1	1.2	3.9	73	23

1.7	1.2	0.5	74	23
3 U	1.2	1.8	75	23
1.3	1.2	0.1	76	23
52.9	1.2	51.7	77	23
28.7	1.2	27.5	78	23
344	1.2	342.8	79	23
29.5	1.2	28.3	80	23
453	1.2	451.8	81	23
48.7	1.2	47.5	82	23
38.1	1.2	36.9	83	23
36	1.2	34.8	84	23
1.7 J	1.2	0.5	85	23
11	1	10	86	23
3 U	1	2	87	23
5.1	1	4.1	88	23
1.7	1	0.7	89	23
3 U	1	2	90	23
1.3	1	0.3	91	23
52.9	1	51.9	92	23
28.7	1	27.7	93	23
344	1	343	94	23
29.5	1	28.5	95	23
453	1	452	96	23
48.7	1	47.7	97	23
38.1	1	37.1	98	23
36	1	35	99	23
1.7 J	1	0.7	100	23
3 U	11	-8	100	24
5.1	11	-5.9	100	25
1.7	11	-9.3	100	26
3 U	11	-8	100	27
1.3	11	-9.7	100	28
52.9	11	41.9	101	28
28.7	11	17.7	102	28
344	11	333	103	28
29.5	11	18.5	104	28
453	11	442	105	28
48.7	11	37.7	106	28
38.1	11	27.1	107	28
36	11	25	108	28
1.7 J	11	-9.3	108	29
5.1	3 U	2.1	109	29
1.7	3 U	-1.3	109	30
3 U	3 U	0	109	30
1.3	3 U	-1.7	109	31
52.9	3 U	49.9	110	31
28.7	3 U	25.7	111	31
344	3 U	341	112	31
29.5	3 U	26.5	113	31
453	3 U	450	114	31
48.7	3 U	45.7	115	31
38.1	3 U	35.1	116	31
36	3 U	33	117	31
1.7 J	3 U	-1.3	117	32

1.7	5.1	-3.4	117	33
3 U	5.1	-2.1	117	34
1.3	5.1	-3.8	117	35
52.9	5.1	47.8	118	35
28.7	5.1	23.6	119	35
344	5.1	338.9	120	35
29.5	5.1	24.4	121	35
453	5.1	447.9	122	35
48.7	5.1	43.6	123	35
38.1	5.1	33	124	35
36	5.1	30.9	125	35
1.7 J	5.1	-3.4	125	36
3 U	1.7	1.3	126	36
1.3	1.7	-0.4	126	37
52.9	1.7	51.2	127	37
28.7	1.7	27	128	37
344	1.7	342.3	129	37
29.5	1.7	27.8	130	37
453	1.7	451.3	131	37
48.7	1.7	47	132	37
38.1	1.7	36.4	133	37
36	1.7	34.3	134	37
1.7 J	1.7	0	134	37
1.3	3 U	-1.7	134	38
52.9	3 U	49.9	135	38
28.7	3 U	25.7	136	38
344	3 U	341	137	38
29.5	3 U	26.5	138	38
453	3 U	450	139	38
48.7	3 U	45.7	140	38
38.1	3 U	35.1	141	38
36	3 U	33	142	38
1.7 J	3 U	-1.3	142	39
52.9	1.3	51.6	143	39
28.7	1.3	27.4	144	39
344	1.3	342.7	145	39
29.5	1.3	28.2	146	39
453	1.3	451.7	147	39
48.7	1.3	47.4	148	39
38.1	1.3	36.8	149	39
36	1.3	34.7	150	39
1.7 J	1.3	0.4	151	39
28.7	52.9	-24.2	151	40
344	52.9	291.1	152	40
29.5	52.9	-23.4	152	41
453	52.9	400.1	153	41
48.7	52.9	-4.2	153	42
38.1	52.9	-14.8	153	43
36	52.9	-16.9	153	44
1.7 J	52.9	-51.2	153	45
344	28.7	315.3	154	45

29.5	28.7	0.8	155	45
453	28.7	424.3	156	45
48.7	28.7	20	157	45
38.1	28.7	9.4	158	45
36	28.7	7.3	159	45
1.7 J	28.7	-27	159	46
29.5	344	-314.5	159	47
453	344	109	160	47
48.7	344	-295.3	160	48
38.1	344	-305.9	160	49
36	344	-308	160	50
1.7 J	344	-342.3	160	51
453	29.5	423.5	161	51
48.7	29.5	19.2	162	51
38.1	29.5	8.6	163	51
36	29.5	6.5	164	51
1.7 J	29.5	-27.8	164	52
48.7	453	-404.3	164	53
38.1	453	-414.9	164	54
36	453	-417	164	55
1.7 J	453	-451.3	164	56
38.1	48.7	-10.6	164	57
36	48.7	-12.7	164	58
1.7 J	48.7	-47	164	59
36	38.1	-2.1	164	60
1.7 J	38.1	-36.4	164	61
1.7 J	36	-34.3	164	62

S Statistic = 164 - 62 = 102

---

Tied Group	Value	Members
1	1.2	2
2	3	3
3	1.7	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1

10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/18/2020	1
6/11/2020	1

There are 0 time periods with multiple data

---

A = 102

B = 0

C = 6

D = 0

E = 10

F = 0

a = 22638

b = 83160

c = 924

Group Variance = 1252

Z-Score = 2.85443

Comparison Level at 95% confidence level = -1.65463 (downward trend)

2.85443 >= -1.65463 indicating no evidence of a downward trend



## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW08-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
0.39	0.49	-0.1	0	1
3 U	0.49	2.51	1	1
1.5	0.49	1.01	2	1
0.48	0.49	-0.01	2	2
1.3	0.49	0.81	3	2
0.86	0.49	0.37	4	2
0.77	0.49	0.28	5	2
3 U	0.49	2.51	6	2
0.88	0.49	0.39	7	2
1.8	0.49	1.31	8	2
3 U	0.49	2.51	9	2
6.2	0.49	5.71	10	2
14.1	0.49	13.61	11	2
0.92	0.49	0.43	12	2
3 U	0.49	2.51	13	2
3 U	0.49	2.51	14	2
3 U	0.49	2.51	15	2
3 U	0.49	2.51	16	2
0.59	0.49	0.1	17	2
ND<1.5 U	0.49	1.01	18	2
0.47 J	0.49	-0.02	18	3
0.39 J	0.49	-0.1	18	4
0.56 J	0.49	0.07	19	4
3 U	0.39	2.61	20	4
1.5	0.39	1.11	21	4
0.48	0.39	0.09	22	4
1.3	0.39	0.91	23	4
0.86	0.39	0.47	24	4
0.77	0.39	0.38	25	4
3 U	0.39	2.61	26	4
0.88	0.39	0.49	27	4
1.8	0.39	1.41	28	4
3 U	0.39	2.61	29	4
6.2	0.39	5.81	30	4
14.1	0.39	13.71	31	4
0.92	0.39	0.53	32	4
3 U	0.39	2.61	33	4
3 U	0.39	2.61	34	4
3 U	0.39	2.61	35	4
3 U	0.39	2.61	36	4
0.59	0.39	0.2	37	4
ND<1.5 U	0.39	1.11	38	4
0.47 J	0.39	0.08	39	4
0.39 J	0.39	0	39	4
0.56 J	0.39	0.17	40	4

1.5	3 U	-1.5	40	5
0.48	3 U	-2.52	40	6
1.3	3 U	-1.7	40	7
0.86	3 U	-2.14	40	8
0.77	3 U	-2.23	40	9
3 U	3 U	0	40	9
0.88	3 U	-2.12	40	10
1.8	3 U	-1.2	40	11
3 U	3 U	0	40	11
6.2	3 U	3.2	41	11
14.1	3 U	11.1	42	11
0.92	3 U	-2.08	42	12
3 U	3 U	0	42	12
3 U	3 U	0	42	12
3 U	3 U	0	42	12
3 U	3 U	0	42	12
0.59	3 U	-2.41	42	13
ND<1.5 U	3 U	-1.5	42	14
0.47 J	3 U	-2.53	42	15
0.39 J	3 U	-2.61	42	16
0.56 J	3 U	-2.44	42	17
0.48	1.5	-1.02	42	18
1.3	1.5	-0.2	42	19
0.86	1.5	-0.64	42	20
0.77	1.5	-0.73	42	21
3 U	1.5	1.5	43	21
0.88	1.5	-0.62	43	22
1.8	1.5	0.3	44	22
3 U	1.5	1.5	45	22
6.2	1.5	4.7	46	22
14.1	1.5	12.6	47	22
0.92	1.5	-0.58	47	23
3 U	1.5	1.5	48	23
3 U	1.5	1.5	49	23
3 U	1.5	1.5	50	23
3 U	1.5	1.5	51	23
0.59	1.5	-0.91	51	24
ND<1.5 U	1.5	0	51	24
0.47 J	1.5	-1.03	51	25
0.39 J	1.5	-1.11	51	26
0.56 J	1.5	-0.94	51	27
1.3	0.48	0.82	52	27
0.86	0.48	0.38	53	27
0.77	0.48	0.29	54	27
3 U	0.48	2.52	55	27
0.88	0.48	0.4	56	27
1.8	0.48	1.32	57	27
3 U	0.48	2.52	58	27
6.2	0.48	5.72	59	27
14.1	0.48	13.62	60	27
0.92	0.48	0.44	61	27
3 U	0.48	2.52	62	27
3 U	0.48	2.52	63	27
3 U	0.48	2.52	64	27
3 U	0.48	2.52	65	27

0.59	0.48	0.11	66	27
ND<1.5 U	0.48	1.02	67	27
0.47 J	0.48	-0.01	67	28
0.39 J	0.48	-0.09	67	29
0.56 J	0.48	0.08	68	29
0.86	1.3	-0.44	68	30
0.77	1.3	-0.53	68	31
3 U	1.3	1.7	69	31
0.88	1.3	-0.42	69	32
1.8	1.3	0.5	70	32
3 U	1.3	1.7	71	32
6.2	1.3	4.9	72	32
14.1	1.3	12.8	73	32
0.92	1.3	-0.38	73	33
3 U	1.3	1.7	74	33
3 U	1.3	1.7	75	33
3 U	1.3	1.7	76	33
3 U	1.3	1.7	77	33
0.59	1.3	-0.71	77	34
ND<1.5 U	1.3	0.2	78	34
0.47 J	1.3	-0.83	78	35
0.39 J	1.3	-0.91	78	36
0.56 J	1.3	-0.74	78	37
0.77	0.86	-0.09	78	38
3 U	0.86	2.14	79	38
0.88	0.86	0.02	80	38
1.8	0.86	0.94	81	38
3 U	0.86	2.14	82	38
6.2	0.86	5.34	83	38
14.1	0.86	13.24	84	38
0.92	0.86	0.06	85	38
3 U	0.86	2.14	86	38
3 U	0.86	2.14	87	38
3 U	0.86	2.14	88	38
3 U	0.86	2.14	89	38
0.59	0.86	-0.27	89	39
ND<1.5 U	0.86	0.64	90	39
0.47 J	0.86	-0.39	90	40
0.39 J	0.86	-0.47	90	41
0.56 J	0.86	-0.3	90	42
3 U	0.77	2.23	91	42
0.88	0.77	0.11	92	42
1.8	0.77	1.03	93	42
3 U	0.77	2.23	94	42
6.2	0.77	5.43	95	42
14.1	0.77	13.33	96	42
0.92	0.77	0.15	97	42
3 U	0.77	2.23	98	42
3 U	0.77	2.23	99	42
3 U	0.77	2.23	100	42
3 U	0.77	2.23	101	42
0.59	0.77	-0.18	101	43
ND<1.5 U	0.77	0.73	102	43
0.47 J	0.77	-0.3	102	44

0.39 J	0.77	-0.38	102	45
0.56 J	0.77	-0.21	102	46
0.88	3 U	-2.12	102	47
1.8	3 U	-1.2	102	48
3 U	3 U	0	102	48
6.2	3 U	3.2	103	48
14.1	3 U	11.1	104	48
0.92	3 U	-2.08	104	49
3 U	3 U	0	104	49
3 U	3 U	0	104	49
3 U	3 U	0	104	49
3 U	3 U	0	104	49
0.59	3 U	-2.41	104	50
ND<1.5 U	3 U	-1.5	104	51
0.47 J	3 U	-2.53	104	52
0.39 J	3 U	-2.61	104	53
0.56 J	3 U	-2.44	104	54
1.8	0.88	0.92	105	54
3 U	0.88	2.12	106	54
6.2	0.88	5.32	107	54
14.1	0.88	13.22	108	54
0.92	0.88	0.04	109	54
3 U	0.88	2.12	110	54
3 U	0.88	2.12	111	54
3 U	0.88	2.12	112	54
3 U	0.88	2.12	113	54
0.59	0.88	-0.29	113	55
ND<1.5 U	0.88	0.62	114	55
0.47 J	0.88	-0.41	114	56
0.39 J	0.88	-0.49	114	57
0.56 J	0.88	-0.32	114	58
3 U	1.8	1.2	115	58
6.2	1.8	4.4	116	58
14.1	1.8	12.3	117	58
0.92	1.8	-0.88	117	59
3 U	1.8	1.2	118	59
3 U	1.8	1.2	119	59
3 U	1.8	1.2	120	59
3 U	1.8	1.2	121	59
0.59	1.8	-1.21	121	60
ND<1.5 U	1.8	-0.3	121	61
0.47 J	1.8	-1.33	121	62
0.39 J	1.8	-1.41	121	63
0.56 J	1.8	-1.24	121	64
6.2	3 U	3.2	122	64
14.1	3 U	11.1	123	64
0.92	3 U	-2.08	123	65
3 U	3 U	0	123	65
3 U	3 U	0	123	65
3 U	3 U	0	123	65
3 U	3 U	0	123	65
0.59	3 U	-2.41	123	66
ND<1.5 U	3 U	-1.5	123	67

0.47 J	3 U	-2.53	123	68
0.39 J	3 U	-2.61	123	69
0.56 J	3 U	-2.44	123	70
14.1	6.2	7.9	124	70
0.92	6.2	-5.28	124	71
3 U	6.2	-3.2	124	72
3 U	6.2	-3.2	124	73
3 U	6.2	-3.2	124	74
3 U	6.2	-3.2	124	75
0.59	6.2	-5.61	124	76
ND<1.5 U	6.2	-4.7	124	77
0.47 J	6.2	-5.73	124	78
0.39 J	6.2	-5.81	124	79
0.56 J	6.2	-5.64	124	80
0.92	14.1	-13.18	124	81
3 U	14.1	-11.1	124	82
3 U	14.1	-11.1	124	83
3 U	14.1	-11.1	124	84
3 U	14.1	-11.1	124	85
0.59	14.1	-13.51	124	86
ND<1.5 U	14.1	-12.6	124	87
0.47 J	14.1	-13.63	124	88
0.39 J	14.1	-13.71	124	89
0.56 J	14.1	-13.54	124	90
3 U	0.92	2.08	125	90
3 U	0.92	2.08	126	90
3 U	0.92	2.08	127	90
3 U	0.92	2.08	128	90
0.59	0.92	-0.33	128	91
ND<1.5 U	0.92	0.58	129	91
0.47 J	0.92	-0.45	129	92
0.39 J	0.92	-0.53	129	93
0.56 J	0.92	-0.36	129	94
3 U	3 U	0	129	94
3 U	3 U	0	129	94
3 U	3 U	0	129	94
0.59	3 U	-2.41	129	95
ND<1.5 U	3 U	-1.5	129	96
0.47 J	3 U	-2.53	129	97
0.39 J	3 U	-2.61	129	98
0.56 J	3 U	-2.44	129	99
3 U	3 U	0	129	99
3 U	3 U	0	129	99
0.59	3 U	-2.41	129	100
ND<1.5 U	3 U	-1.5	129	101
0.47 J	3 U	-2.53	129	102
0.39 J	3 U	-2.61	129	103
0.56 J	3 U	-2.44	129	104
3 U	3 U	0	129	104
0.59	3 U	-2.41	129	105
ND<1.5 U	3 U	-1.5	129	106

0.47 J	3 U	-2.53	129	107
0.39 J	3 U	-2.61	129	108
0.56 J	3 U	-2.44	129	109
0.59	3 U	-2.41	129	110
ND<1.5 U	3 U	-1.5	129	111
0.47 J	3 U	-2.53	129	112
0.39 J	3 U	-2.61	129	113
0.56 J	3 U	-2.44	129	114
ND<1.5 U	0.59	0.91	130	114
0.47 J	0.59	-0.12	130	115
0.39 J	0.59	-0.2	130	116
0.56 J	0.59	-0.03	130	117
0.47 J	ND<1.5 U	-1.03	130	118
0.39 J	ND<1.5 U	-1.11	130	119
0.56 J	ND<1.5 U	-0.94	130	120
0.39 J	0.47 J	-0.08	130	121
0.56 J	0.47 J	0.09	131	121
0.56 J	0.39 J	0.17	132	121

S Statistic = 132 - 121 = 11

---

Tied Group	Value	Members
1	0.39	2
2	3	7
3	1.5	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/18/2020	1
6/11/2020	1
9/16/2020	1
11/19/2020	1

There are 0 time periods with multiple data

---

A = 834

B = 0

C = 210

D = 0

E = 46

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1579

Z-Score = 0.251657

Comparison Level at 95% confidence level = -1.65463 (downward trend)

0.251657 >= -1.65463 indicating no evidence of a downward trend

# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW09-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
4	3.1	0.9	1	0
5	3.1	1.9	2	0
11.1	3.1	8	3	0
8.1	3.1	5	4	0
12.9	3.1	9.8	5	0
18.5	3.1	15.4	6	0
9.1	3.1	6	7	0
12	3.1	8.9	8	0
8.8	3.1	5.7	9	0
7.7	3.1	4.6	10	0
2.1	3.1	-1	10	1
1.8	3.1	-1.3	10	2
3 U	3.1	-0.1	10	3
3.7	3.1	0.6	11	3
0.96	3.1	-2.14	11	4
2	3.1	-1.1	11	5
3.8	3.1	0.7	12	5
5.6	3.1	2.5	13	5
4.2	3.1	1.1	14	5
10.6	3.1	7.5	15	5
16.5 1c	3.1	13.4	16	5
10.7	3.1	7.6	17	5
10.3	3.1	7.2	18	5
5	4	1	19	5
11.1	4	7.1	20	5
8.1	4	4.1	21	5
12.9	4	8.9	22	5
18.5	4	14.5	23	5
9.1	4	5.1	24	5
12	4	8	25	5
8.8	4	4.8	26	5
7.7	4	3.7	27	5
2.1	4	-1.9	27	6
1.8	4	-2.2	27	7
3 U	4	-1	27	8
3.7	4	-0.3	27	9
0.96	4	-3.04	27	10
2	4	-2	27	11
3.8	4	-0.2	27	12
5.6	4	1.6	28	12
4.2	4	0.2	29	12
10.6	4	6.6	30	12
16.5 1c	4	12.5	31	12
10.7	4	6.7	32	12
10.3	4	6.3	33	12



11.1	5	6.1	34	12
8.1	5	3.1	35	12
12.9	5	7.9	36	12
18.5	5	13.5	37	12
9.1	5	4.1	38	12
12	5	7	39	12
8.8	5	3.8	40	12
7.7	5	2.7	41	12
2.1	5	-2.9	41	13
1.8	5	-3.2	41	14
3 U	5	-2	41	15
3.7	5	-1.3	41	16
0.96	5	-4.04	41	17
2	5	-3	41	18
3.8	5	-1.2	41	19
5.6	5	0.6	42	19
4.2	5	-0.8	42	20
10.6	5	5.6	43	20
16.5 1c	5	11.5	44	20
10.7	5	5.7	45	20
10.3	5	5.3	46	20
8.1	11.1	-3	46	21
12.9	11.1	1.8	47	21
18.5	11.1	7.4	48	21
9.1	11.1	-2	48	22
12	11.1	0.9	49	22
8.8	11.1	-2.3	49	23
7.7	11.1	-3.4	49	24
2.1	11.1	-9	49	25
1.8	11.1	-9.3	49	26
3 U	11.1	-8.1	49	27
3.7	11.1	-7.4	49	28
0.96	11.1	-10.14	49	29
2	11.1	-9.1	49	30
3.8	11.1	-7.3	49	31
5.6	11.1	-5.5	49	32
4.2	11.1	-6.9	49	33
10.6	11.1	-0.5	49	34
16.5 1c	11.1	5.4	50	34
10.7	11.1	-0.4	50	35
10.3	11.1	-0.8	50	36
12.9	8.1	4.8	51	36
18.5	8.1	10.4	52	36
9.1	8.1	1	53	36
12	8.1	3.9	54	36
8.8	8.1	0.7	55	36
7.7	8.1	-0.4	55	37
2.1	8.1	-6	55	38
1.8	8.1	-6.3	55	39
3 U	8.1	-5.1	55	40
3.7	8.1	-4.4	55	41
0.96	8.1	-7.14	55	42
2	8.1	-6.1	55	43
3.8	8.1	-4.3	55	44
5.6	8.1	-2.5	55	45

4.2	8.1	-3.9	55	46
10.6	8.1	2.5	56	46
16.5 1c	8.1	8.4	57	46
10.7	8.1	2.6	58	46
10.3	8.1	2.2	59	46
18.5	12.9	5.6	60	46
9.1	12.9	-3.8	60	47
12	12.9	-0.9	60	48
8.8	12.9	-4.1	60	49
7.7	12.9	-5.2	60	50
2.1	12.9	-10.8	60	51
1.8	12.9	-11.1	60	52
3 U	12.9	-9.9	60	53
3.7	12.9	-9.2	60	54
0.96	12.9	-11.94	60	55
2	12.9	-10.9	60	56
3.8	12.9	-9.1	60	57
5.6	12.9	-7.3	60	58
4.2	12.9	-8.7	60	59
10.6	12.9	-2.3	60	60
16.5 1c	12.9	3.6	61	60
10.7	12.9	-2.2	61	61
10.3	12.9	-2.6	61	62
9.1	18.5	-9.4	61	63
12	18.5	-6.5	61	64
8.8	18.5	-9.7	61	65
7.7	18.5	-10.8	61	66
2.1	18.5	-16.4	61	67
1.8	18.5	-16.7	61	68
3 U	18.5	-15.5	61	69
3.7	18.5	-14.8	61	70
0.96	18.5	-17.54	61	71
2	18.5	-16.5	61	72
3.8	18.5	-14.7	61	73
5.6	18.5	-12.9	61	74
4.2	18.5	-14.3	61	75
10.6	18.5	-7.9	61	76
16.5 1c	18.5	-2	61	77
10.7	18.5	-7.8	61	78
10.3	18.5	-8.2	61	79
12	9.1	2.9	62	79
8.8	9.1	-0.3	62	80
7.7	9.1	-1.4	62	81
2.1	9.1	-7	62	82
1.8	9.1	-7.3	62	83
3 U	9.1	-6.1	62	84
3.7	9.1	-5.4	62	85
0.96	9.1	-8.14	62	86
2	9.1	-7.1	62	87
3.8	9.1	-5.3	62	88
5.6	9.1	-3.5	62	89
4.2	9.1	-4.9	62	90
10.6	9.1	1.5	63	90
16.5 1c	9.1	7.4	64	90

10.7	9.1	1.6	65	90
10.3	9.1	1.2	66	90
8.8	12	-3.2	66	91
7.7	12	-4.3	66	92
2.1	12	-9.9	66	93
1.8	12	-10.2	66	94
3 U	12	-9	66	95
3.7	12	-8.3	66	96
0.96	12	-11.04	66	97
2	12	-10	66	98
3.8	12	-8.2	66	99
5.6	12	-6.4	66	100
4.2	12	-7.8	66	101
10.6	12	-1.4	66	102
16.5 1c	12	4.5	67	102
10.7	12	-1.3	67	103
10.3	12	-1.7	67	104
7.7	8.8	-1.1	67	105
2.1	8.8	-6.7	67	106
1.8	8.8	-7	67	107
3 U	8.8	-5.8	67	108
3.7	8.8	-5.1	67	109
0.96	8.8	-7.84	67	110
2	8.8	-6.8	67	111
3.8	8.8	-5	67	112
5.6	8.8	-3.2	67	113
4.2	8.8	-4.6	67	114
10.6	8.8	1.8	68	114
16.5 1c	8.8	7.7	69	114
10.7	8.8	1.9	70	114
10.3	8.8	1.5	71	114
2.1	7.7	-5.6	71	115
1.8	7.7	-5.9	71	116
3 U	7.7	-4.7	71	117
3.7	7.7	-4	71	118
0.96	7.7	-6.74	71	119
2	7.7	-5.7	71	120
3.8	7.7	-3.9	71	121
5.6	7.7	-2.1	71	122
4.2	7.7	-3.5	71	123
10.6	7.7	2.9	72	123
16.5 1c	7.7	8.8	73	123
10.7	7.7	3	74	123
10.3	7.7	2.6	75	123
1.8	2.1	-0.3	75	124
3 U	2.1	0.9	76	124
3.7	2.1	1.6	77	124
0.96	2.1	-1.14	77	125
2	2.1	-0.1	77	126
3.8	2.1	1.7	78	126
5.6	2.1	3.5	79	126
4.2	2.1	2.1	80	126
10.6	2.1	8.5	81	126

16.5 1c	2.1	14.4	82	126
10.7	2.1	8.6	83	126
10.3	2.1	8.2	84	126
3 U	1.8	1.2	85	126
3.7	1.8	1.9	86	126
0.96	1.8	-0.84	86	127
2	1.8	0.2	87	127
3.8	1.8	2	88	127
5.6	1.8	3.8	89	127
4.2	1.8	2.4	90	127
10.6	1.8	8.8	91	127
16.5 1c	1.8	14.7	92	127
10.7	1.8	8.9	93	127
10.3	1.8	8.5	94	127
3.7	3 U	0.7	95	127
0.96	3 U	-2.04	95	128
2	3 U	-1	95	129
3.8	3 U	0.8	96	129
5.6	3 U	2.6	97	129
4.2	3 U	1.2	98	129
10.6	3 U	7.6	99	129
16.5 1c	3 U	13.5	100	129
10.7	3 U	7.7	101	129
10.3	3 U	7.3	102	129
0.96	3.7	-2.74	102	130
2	3.7	-1.7	102	131
3.8	3.7	0.1	103	131
5.6	3.7	1.9	104	131
4.2	3.7	0.5	105	131
10.6	3.7	6.9	106	131
16.5 1c	3.7	12.8	107	131
10.7	3.7	7	108	131
10.3	3.7	6.6	109	131
2	0.96	1.04	110	131
3.8	0.96	2.84	111	131
5.6	0.96	4.64	112	131
4.2	0.96	3.24	113	131
10.6	0.96	9.64	114	131
16.5 1c	0.96	15.54	115	131
10.7	0.96	9.74	116	131
10.3	0.96	9.34	117	131
3.8	2	1.8	118	131
5.6	2	3.6	119	131
4.2	2	2.2	120	131
10.6	2	8.6	121	131
16.5 1c	2	14.5	122	131
10.7	2	8.7	123	131
10.3	2	8.3	124	131
5.6	3.8	1.8	125	131
4.2	3.8	0.4	126	131
10.6	3.8	6.8	127	131

16.5 1c	3.8	12.7	128	131
10.7	3.8	6.9	129	131
10.3	3.8	6.5	130	131
4.2	5.6	-1.4	130	132
10.6	5.6	5	131	132
16.5 1c	5.6	10.9	132	132
10.7	5.6	5.1	133	132
10.3	5.6	4.7	134	132
10.6	4.2	6.4	135	132
16.5 1c	4.2	12.3	136	132
10.7	4.2	6.5	137	132
10.3	4.2	6.1	138	132
16.5 1c	10.6	5.9	139	132
10.7	10.6	0.1	140	132
10.3	10.6	-0.3	140	133
10.7	16.5 1c	-5.8	140	134
10.3	16.5 1c	-6.2	140	135
10.3	10.7	-0.4	140	136

S Statistic = 140 - 136 = 4

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1
6/1/2019		1
9/1/2019		1
12/1/2019		1
3/13/2020		1
6/25/2020		1
9/17/2020		1
11/16/2020		1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1625.33

Z-Score = 0.0744132

Comparison Level at 95% confidence level = -1.65463 (downward trend)

0.0744132 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW10-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
3 U	446	-443	0	1
198	446	-248	0	2
2.5	446	-443.5	0	3
27.2	446	-418.8	0	4
16.3	446	-429.7	0	5
3 U	446	-443	0	6
17.7	446	-428.3	0	7
24.6	446	-421.4	0	8
63.7	446	-382.3	0	9
3 U	446	-443	0	10
3 U	446	-443	0	11
44.4	446	-401.6	0	12
44.7	446	-401.3	0	13
10.8	446	-435.2	0	14
3 U	446	-443	0	15
0.38	446	-445.62	0	16
0.86	446	-445.14	0	17
8.4	446	-437.6	0	18
13.9	446	-432.1	0	19
0.67 J1c	446	-445.33	0	20
0.77 J1c	446	-445.23	0	21
0.55 J	446	-445.45	0	22
198	3 U	195	1	22
2.5	3 U	-0.5	1	23
27.2	3 U	24.2	2	23
16.3	3 U	13.3	3	23
3 U	3 U	0	3	23
17.7	3 U	14.7	4	23
24.6	3 U	21.6	5	23
63.7	3 U	60.7	6	23
3 U	3 U	0	6	23
3 U	3 U	0	6	23
44.4	3 U	41.4	7	23
44.7	3 U	41.7	8	23
10.8	3 U	7.8	9	23
3 U	3 U	0	9	23
0.38	3 U	-2.62	9	24
0.86	3 U	-2.14	9	25
8.4	3 U	5.4	10	25
13.9	3 U	10.9	11	25
0.67 J1c	3 U	-2.33	11	26
0.77 J1c	3 U	-2.23	11	27
0.55 J	3 U	-2.45	11	28
2.5	198	-195.5	11	29
27.2	198	-170.8	11	30

16.3	198	-181.7	11	31
3 U	198	-195	11	32
17.7	198	-180.3	11	33
24.6	198	-173.4	11	34
63.7	198	-134.3	11	35
3 U	198	-195	11	36
3 U	198	-195	11	37
44.4	198	-153.6	11	38
44.7	198	-153.3	11	39
10.8	198	-187.2	11	40
3 U	198	-195	11	41
0.38	198	-197.62	11	42
0.86	198	-197.14	11	43
8.4	198	-189.6	11	44
13.9	198	-184.1	11	45
0.67 J1c	198	-197.33	11	46
0.77 J1c	198	-197.23	11	47
0.55 J	198	-197.45	11	48
27.2	2.5	24.7	12	48
16.3	2.5	13.8	13	48
3 U	2.5	0.5	14	48
17.7	2.5	15.2	15	48
24.6	2.5	22.1	16	48
63.7	2.5	61.2	17	48
3 U	2.5	0.5	18	48
3 U	2.5	0.5	19	48
44.4	2.5	41.9	20	48
44.7	2.5	42.2	21	48
10.8	2.5	8.3	22	48
3 U	2.5	0.5	23	48
0.38	2.5	-2.12	23	49
0.86	2.5	-1.64	23	50
8.4	2.5	5.9	24	50
13.9	2.5	11.4	25	50
0.67 J1c	2.5	-1.83	25	51
0.77 J1c	2.5	-1.73	25	52
0.55 J	2.5	-1.95	25	53
16.3	27.2	-10.9	25	54
3 U	27.2	-24.2	25	55
17.7	27.2	-9.5	25	56
24.6	27.2	-2.6	25	57
63.7	27.2	36.5	26	57
3 U	27.2	-24.2	26	58
3 U	27.2	-24.2	26	59
44.4	27.2	17.2	27	59
44.7	27.2	17.5	28	59
10.8	27.2	-16.4	28	60
3 U	27.2	-24.2	28	61
0.38	27.2	-26.82	28	62
0.86	27.2	-26.34	28	63
8.4	27.2	-18.8	28	64
13.9	27.2	-13.3	28	65
0.67 J1c	27.2	-26.53	28	66
0.77 J1c	27.2	-26.43	28	67
0.55 J	27.2	-26.65	28	68



3 U	16.3	-13.3	28	69
17.7	16.3	1.4	29	69
24.6	16.3	8.3	30	69
63.7	16.3	47.4	31	69
3 U	16.3	-13.3	31	70
3 U	16.3	-13.3	31	71
44.4	16.3	28.1	32	71
44.7	16.3	28.4	33	71
10.8	16.3	-5.5	33	72
3 U	16.3	-13.3	33	73
0.38	16.3	-15.92	33	74
0.86	16.3	-15.44	33	75
8.4	16.3	-7.9	33	76
13.9	16.3	-2.4	33	77
0.67 J1c	16.3	-15.63	33	78
0.77 J1c	16.3	-15.53	33	79
0.55 J	16.3	-15.75	33	80
17.7	3 U	14.7	34	80
24.6	3 U	21.6	35	80
63.7	3 U	60.7	36	80
3 U	3 U	0	36	80
3 U	3 U	0	36	80
44.4	3 U	41.4	37	80
44.7	3 U	41.7	38	80
10.8	3 U	7.8	39	80
3 U	3 U	0	39	80
0.38	3 U	-2.62	39	81
0.86	3 U	-2.14	39	82
8.4	3 U	5.4	40	82
13.9	3 U	10.9	41	82
0.67 J1c	3 U	-2.33	41	83
0.77 J1c	3 U	-2.23	41	84
0.55 J	3 U	-2.45	41	85
24.6	17.7	6.9	42	85
63.7	17.7	46	43	85
3 U	17.7	-14.7	43	86
3 U	17.7	-14.7	43	87
44.4	17.7	26.7	44	87
44.7	17.7	27	45	87
10.8	17.7	-6.9	45	88
3 U	17.7	-14.7	45	89
0.38	17.7	-17.32	45	90
0.86	17.7	-16.84	45	91
8.4	17.7	-9.3	45	92
13.9	17.7	-3.8	45	93
0.67 J1c	17.7	-17.03	45	94
0.77 J1c	17.7	-16.93	45	95
0.55 J	17.7	-17.15	45	96
63.7	24.6	39.1	46	96
3 U	24.6	-21.6	46	97
3 U	24.6	-21.6	46	98
44.4	24.6	19.8	47	98
44.7	24.6	20.1	48	98

10.8	24.6	-13.8	48	99
3 U	24.6	-21.6	48	100
0.38	24.6	-24.22	48	101
0.86	24.6	-23.74	48	102
8.4	24.6	-16.2	48	103
13.9	24.6	-10.7	48	104
0.67 J1c	24.6	-23.93	48	105
0.77 J1c	24.6	-23.83	48	106
0.55 J	24.6	-24.05	48	107
3 U	63.7	-60.7	48	108
3 U	63.7	-60.7	48	109
44.4	63.7	-19.3	48	110
44.7	63.7	-19	48	111
10.8	63.7	-52.9	48	112
3 U	63.7	-60.7	48	113
0.38	63.7	-63.32	48	114
0.86	63.7	-62.84	48	115
8.4	63.7	-55.3	48	116
13.9	63.7	-49.8	48	117
0.67 J1c	63.7	-63.03	48	118
0.77 J1c	63.7	-62.93	48	119
0.55 J	63.7	-63.15	48	120
3 U	3 U	0	48	120
44.4	3 U	41.4	49	120
44.7	3 U	41.7	50	120
10.8	3 U	7.8	51	120
3 U	3 U	0	51	120
0.38	3 U	-2.62	51	121
0.86	3 U	-2.14	51	122
8.4	3 U	5.4	52	122
13.9	3 U	10.9	53	122
0.67 J1c	3 U	-2.33	53	123
0.77 J1c	3 U	-2.23	53	124
0.55 J	3 U	-2.45	53	125
44.4	3 U	41.4	54	125
44.7	3 U	41.7	55	125
10.8	3 U	7.8	56	125
3 U	3 U	0	56	125
0.38	3 U	-2.62	56	126
0.86	3 U	-2.14	56	127
8.4	3 U	5.4	57	127
13.9	3 U	10.9	58	127
0.67 J1c	3 U	-2.33	58	128
0.77 J1c	3 U	-2.23	58	129
0.55 J	3 U	-2.45	58	130
44.7	44.4	0.3	59	130
10.8	44.4	-33.6	59	131
3 U	44.4	-41.4	59	132
0.38	44.4	-44.02	59	133
0.86	44.4	-43.54	59	134
8.4	44.4	-36	59	135
13.9	44.4	-30.5	59	136
0.67 J1c	44.4	-43.73	59	137

0.77 J1c	44.4	-43.63	59	138
0.55 J	44.4	-43.85	59	139
10.8	44.7	-33.9	59	140
3 U	44.7	-41.7	59	141
0.38	44.7	-44.32	59	142
0.86	44.7	-43.84	59	143
8.4	44.7	-36.3	59	144
13.9	44.7	-30.8	59	145
0.67 J1c	44.7	-44.03	59	146
0.77 J1c	44.7	-43.93	59	147
0.55 J	44.7	-44.15	59	148
3 U	10.8	-7.8	59	149
0.38	10.8	-10.42	59	150
0.86	10.8	-9.94	59	151
8.4	10.8	-2.4	59	152
13.9	10.8	3.1	60	152
0.67 J1c	10.8	-10.13	60	153
0.77 J1c	10.8	-10.03	60	154
0.55 J	10.8	-10.25	60	155
0.38	3 U	-2.62	60	156
0.86	3 U	-2.14	60	157
8.4	3 U	5.4	61	157
13.9	3 U	10.9	62	157
0.67 J1c	3 U	-2.33	62	158
0.77 J1c	3 U	-2.23	62	159
0.55 J	3 U	-2.45	62	160
0.86	0.38	0.48	63	160
8.4	0.38	8.02	64	160
13.9	0.38	13.52	65	160
0.67 J1c	0.38	0.29	66	160
0.77 J1c	0.38	0.39	67	160
0.55 J	0.38	0.17	68	160
8.4	0.86	7.54	69	160
13.9	0.86	13.04	70	160
0.67 J1c	0.86	-0.19	70	161
0.77 J1c	0.86	-0.09	70	162
0.55 J	0.86	-0.31	70	163
13.9	8.4	5.5	71	163
0.67 J1c	8.4	-7.73	71	164
0.77 J1c	8.4	-7.63	71	165
0.55 J	8.4	-7.85	71	166
0.67 J1c	13.9	-13.23	71	167
0.77 J1c	13.9	-13.13	71	168
0.55 J	13.9	-13.35	71	169
0.77 J1c	0.67 J1c	0.1	72	169
0.55 J	0.67 J1c	-0.12	72	170
0.55 J	0.77 J1c	-0.22	72	171

S Statistic = 72 - 171 = -99

---

Tied Group	Value	Members
1	3	5

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
6/25/2020	1
9/22/2020	1
11/16/2020	1

There are 0 time periods with multiple data

---

A = 300

B = 0

C = 60

D = 0

E = 20

F = 0

a = 25806

b = 95634

c = 1012

Group Variance = 1417

Z-Score = -2.6034

Comparison Level at 95% confidence level = -1.65463 (downward trend)

**-2.6034 < -1.65463 indicating a downward trend**

# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW11-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
1490	1690	-200	0	1
1800	1690	110	1	1
2600	1690	910	2	1
218	1690	-1472	2	2
518	1690	-1172	2	3
163	1690	-1527	2	4
274	1690	-1416	2	5
125	1690	-1565	2	6
1460	1690	-230	2	7
1380	1690	-310	2	8
1400	1690	-290	2	9
1660	1690	-30	2	10
4.7	1690	-1685.3	2	11
133	1690	-1557	2	12
1160	1690	-530	2	13
98.9	1690	-1591.1	2	14
586	1690	-1104	2	15
517	1690	-1173	2	16
476	1690	-1214	2	17
365	1690	-1325	2	18
75.1	1690	-1614.9	2	19
179	1690	-1511	2	20
1800	1490	310	3	20
2600	1490	1110	4	20
218	1490	-1272	4	21
518	1490	-972	4	22
163	1490	-1327	4	23
274	1490	-1216	4	24
125	1490	-1365	4	25
1460	1490	-30	4	26
1380	1490	-110	4	27
1400	1490	-90	4	28
1660	1490	170	5	28
4.7	1490	-1485.3	5	29
133	1490	-1357	5	30
1160	1490	-330	5	31
98.9	1490	-1391.1	5	32
586	1490	-904	5	33
517	1490	-973	5	34
476	1490	-1014	5	35
365	1490	-1125	5	36
75.1	1490	-1414.9	5	37
179	1490	-1311	5	38
2600	1800	800	6	38
218	1800	-1582	6	39

518	1800	-1282	6	40
163	1800	-1637	6	41
274	1800	-1526	6	42
125	1800	-1675	6	43
1460	1800	-340	6	44
1380	1800	-420	6	45
1400	1800	-400	6	46
1660	1800	-140	6	47
4.7	1800	-1795.3	6	48
133	1800	-1667	6	49
1160	1800	-640	6	50
98.9	1800	-1701.1	6	51
586	1800	-1214	6	52
517	1800	-1283	6	53
476	1800	-1324	6	54
365	1800	-1435	6	55
75.1	1800	-1724.9	6	56
179	1800	-1621	6	57
218	2600	-2382	6	58
518	2600	-2082	6	59
163	2600	-2437	6	60
274	2600	-2326	6	61
125	2600	-2475	6	62
1460	2600	-1140	6	63
1380	2600	-1220	6	64
1400	2600	-1200	6	65
1660	2600	-940	6	66
4.7	2600	-2595.3	6	67
133	2600	-2467	6	68
1160	2600	-1440	6	69
98.9	2600	-2501.1	6	70
586	2600	-2014	6	71
517	2600	-2083	6	72
476	2600	-2124	6	73
365	2600	-2235	6	74
75.1	2600	-2524.9	6	75
179	2600	-2421	6	76
518	218	300	7	76
163	218	-55	7	77
274	218	56	8	77
125	218	-93	8	78
1460	218	1242	9	78
1380	218	1162	10	78
1400	218	1182	11	78
1660	218	1442	12	78
4.7	218	-213.3	12	79
133	218	-85	12	80
1160	218	942	13	80
98.9	218	-119.1	13	81
586	218	368	14	81
517	218	299	15	81
476	218	258	16	81
365	218	147	17	81
75.1	218	-142.9	17	82
179	218	-39	17	83

163	518	-355	17	84
274	518	-244	17	85
125	518	-393	17	86
1460	518	942	18	86
1380	518	862	19	86
1400	518	882	20	86
1660	518	1142	21	86
4.7	518	-513.3	21	87
133	518	-385	21	88
1160	518	642	22	88
98.9	518	-419.1	22	89
586	518	68	23	89
517	518	-1	23	90
476	518	-42	23	91
365	518	-153	23	92
75.1	518	-442.9	23	93
179	518	-339	23	94
274	163	111	24	94
125	163	-38	24	95
1460	163	1297	25	95
1380	163	1217	26	95
1400	163	1237	27	95
1660	163	1497	28	95
4.7	163	-158.3	28	96
133	163	-30	28	97
1160	163	997	29	97
98.9	163	-64.1	29	98
586	163	423	30	98
517	163	354	31	98
476	163	313	32	98
365	163	202	33	98
75.1	163	-87.9	33	99
179	163	16	34	99
125	274	-149	34	100
1460	274	1186	35	100
1380	274	1106	36	100
1400	274	1126	37	100
1660	274	1386	38	100
4.7	274	-269.3	38	101
133	274	-141	38	102
1160	274	886	39	102
98.9	274	-175.1	39	103
586	274	312	40	103
517	274	243	41	103
476	274	202	42	103
365	274	91	43	103
75.1	274	-198.9	43	104
179	274	-95	43	105
1460	125	1335	44	105
1380	125	1255	45	105
1400	125	1275	46	105
1660	125	1535	47	105
4.7	125	-120.3	47	106

133	125	8	48	106
1160	125	1035	49	106
98.9	125	-26.1	49	107
586	125	461	50	107
517	125	392	51	107
476	125	351	52	107
365	125	240	53	107
75.1	125	-49.9	53	108
179	125	54	54	108
1380	1460	-80	54	109
1400	1460	-60	54	110
1660	1460	200	55	110
4.7	1460	-1455.3	55	111
133	1460	-1327	55	112
1160	1460	-300	55	113
98.9	1460	-1361.1	55	114
586	1460	-874	55	115
517	1460	-943	55	116
476	1460	-984	55	117
365	1460	-1095	55	118
75.1	1460	-1384.9	55	119
179	1460	-1281	55	120
1400	1380	20	56	120
1660	1380	280	57	120
4.7	1380	-1375.3	57	121
133	1380	-1247	57	122
1160	1380	-220	57	123
98.9	1380	-1281.1	57	124
586	1380	-794	57	125
517	1380	-863	57	126
476	1380	-904	57	127
365	1380	-1015	57	128
75.1	1380	-1304.9	57	129
179	1380	-1201	57	130
1660	1400	260	58	130
4.7	1400	-1395.3	58	131
133	1400	-1267	58	132
1160	1400	-240	58	133
98.9	1400	-1301.1	58	134
586	1400	-814	58	135
517	1400	-883	58	136
476	1400	-924	58	137
365	1400	-1035	58	138
75.1	1400	-1324.9	58	139
179	1400	-1221	58	140
4.7	1660	-1655.3	58	141
133	1660	-1527	58	142
1160	1660	-500	58	143
98.9	1660	-1561.1	58	144
586	1660	-1074	58	145
517	1660	-1143	58	146
476	1660	-1184	58	147
365	1660	-1295	58	148



75.1	1660	-1584.9	58	149
179	1660	-1481	58	150
133	4.7	128.3	59	150
1160	4.7	1155.3	60	150
98.9	4.7	94.2	61	150
586	4.7	581.3	62	150
517	4.7	512.3	63	150
476	4.7	471.3	64	150
365	4.7	360.3	65	150
75.1	4.7	70.4	66	150
179	4.7	174.3	67	150
1160	133	1027	68	150
98.9	133	-34.1	68	151
586	133	453	69	151
517	133	384	70	151
476	133	343	71	151
365	133	232	72	151
75.1	133	-57.9	72	152
179	133	46	73	152
98.9	1160	-1061.1	73	153
586	1160	-574	73	154
517	1160	-643	73	155
476	1160	-684	73	156
365	1160	-795	73	157
75.1	1160	-1084.9	73	158
179	1160	-981	73	159
586	98.9	487.1	74	159
517	98.9	418.1	75	159
476	98.9	377.1	76	159
365	98.9	266.1	77	159
75.1	98.9	-23.8	77	160
179	98.9	80.1	78	160
517	586	-69	78	161
476	586	-110	78	162
365	586	-221	78	163
75.1	586	-510.9	78	164
179	586	-407	78	165
476	517	-41	78	166
365	517	-152	78	167
75.1	517	-441.9	78	168
179	517	-338	78	169
365	476	-111	78	170
75.1	476	-400.9	78	171
179	476	-297	78	172
75.1	365	-289.9	78	173
179	365	-186	78	174
179	75.1	103.9	79	174

S Statistic = 79 - 174 = -95

---

Tied Group	Value	Members
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1
6/1/2019		1
9/1/2019		1
12/1/2019		1
3/13/2020		1
6/1/2020		1
11/16/2020		1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 25806

b = 95634

c = 1012

Group Variance = 1433.67

Z-Score = -2.48258

Comparison Level at 95% confidence level = -1.65463 (downward trend)

**-2.48258 < -1.65463 indicating a downward trend**

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW12-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
3530	4740	-1210	0	1
2730	4740	-2010	0	2
3820	4740	-920	0	3
2260	4740	-2480	0	4
2730	4740	-2010	0	5
2220	4740	-2520	0	6
1820	4740	-2920	0	7
1510	4740	-3230	0	8
1380	4740	-3360	0	9
1450	4740	-3290	0	10
1270	4740	-3470	0	11
121	4740	-4619	0	12
134	4740	-4606	0	13
86.3	4740	-4653.7	0	14
1220	4740	-3520	0	15
768	4740	-3972	0	16
1520	4740	-3220	0	17
1780	4740	-2960	0	18
420	4740	-4320	0	19
716	4740	-4024	0	20
2730	3530	-800	0	21
3820	3530	290	1	21
2260	3530	-1270	1	22
2730	3530	-800	1	23
2220	3530	-1310	1	24
1820	3530	-1710	1	25
1510	3530	-2020	1	26
1380	3530	-2150	1	27
1450	3530	-2080	1	28
1270	3530	-2260	1	29
121	3530	-3409	1	30
134	3530	-3396	1	31
86.3	3530	-3443.7	1	32
1220	3530	-2310	1	33
768	3530	-2762	1	34
1520	3530	-2010	1	35
1780	3530	-1750	1	36
420	3530	-3110	1	37
716	3530	-2814	1	38
3820	2730	1090	2	38
2260	2730	-470	2	39
2730	2730	0	2	39
2220	2730	-510	2	40
1820	2730	-910	2	41
1510	2730	-1220	2	42

1380	2730	-1350	2	43
1450	2730	-1280	2	44
1270	2730	-1460	2	45
121	2730	-2609	2	46
134	2730	-2596	2	47
86.3	2730	-2643.7	2	48
1220	2730	-1510	2	49
768	2730	-1962	2	50
1520	2730	-1210	2	51
1780	2730	-950	2	52
420	2730	-2310	2	53
716	2730	-2014	2	54
2260	3820	-1560	2	55
2730	3820	-1090	2	56
2220	3820	-1600	2	57
1820	3820	-2000	2	58
1510	3820	-2310	2	59
1380	3820	-2440	2	60
1450	3820	-2370	2	61
1270	3820	-2550	2	62
121	3820	-3699	2	63
134	3820	-3686	2	64
86.3	3820	-3733.7	2	65
1220	3820	-2600	2	66
768	3820	-3052	2	67
1520	3820	-2300	2	68
1780	3820	-2040	2	69
420	3820	-3400	2	70
716	3820	-3104	2	71
2730	2260	470	3	71
2220	2260	-40	3	72
1820	2260	-440	3	73
1510	2260	-750	3	74
1380	2260	-880	3	75
1450	2260	-810	3	76
1270	2260	-990	3	77
121	2260	-2139	3	78
134	2260	-2126	3	79
86.3	2260	-2173.7	3	80
1220	2260	-1040	3	81
768	2260	-1492	3	82
1520	2260	-740	3	83
1780	2260	-480	3	84
420	2260	-1840	3	85
716	2260	-1544	3	86
2220	2730	-510	3	87
1820	2730	-910	3	88
1510	2730	-1220	3	89
1380	2730	-1350	3	90
1450	2730	-1280	3	91
1270	2730	-1460	3	92
121	2730	-2609	3	93
134	2730	-2596	3	94
86.3	2730	-2643.7	3	95

1220	2730	-1510	3	96
768	2730	-1962	3	97
1520	2730	-1210	3	98
1780	2730	-950	3	99
420	2730	-2310	3	100
716	2730	-2014	3	101
1820	2220	-400	3	102
1510	2220	-710	3	103
1380	2220	-840	3	104
1450	2220	-770	3	105
1270	2220	-950	3	106
121	2220	-2099	3	107
134	2220	-2086	3	108
86.3	2220	-2133.7	3	109
1220	2220	-1000	3	110
768	2220	-1452	3	111
1520	2220	-700	3	112
1780	2220	-440	3	113
420	2220	-1800	3	114
716	2220	-1504	3	115
1510	1820	-310	3	116
1380	1820	-440	3	117
1450	1820	-370	3	118
1270	1820	-550	3	119
121	1820	-1699	3	120
134	1820	-1686	3	121
86.3	1820	-1733.7	3	122
1220	1820	-600	3	123
768	1820	-1052	3	124
1520	1820	-300	3	125
1780	1820	-40	3	126
420	1820	-1400	3	127
716	1820	-1104	3	128
1380	1510	-130	3	129
1450	1510	-60	3	130
1270	1510	-240	3	131
121	1510	-1389	3	132
134	1510	-1376	3	133
86.3	1510	-1423.7	3	134
1220	1510	-290	3	135
768	1510	-742	3	136
1520	1510	10	4	136
1780	1510	270	5	136
420	1510	-1090	5	137
716	1510	-794	5	138
1450	1380	70	6	138
1270	1380	-110	6	139
121	1380	-1259	6	140
134	1380	-1246	6	141
86.3	1380	-1293.7	6	142
1220	1380	-160	6	143
768	1380	-612	6	144
1520	1380	140	7	144

1780	1380	400	8	144
420	1380	-960	8	145
716	1380	-664	8	146
1270	1450	-180	8	147
121	1450	-1329	8	148
134	1450	-1316	8	149
86.3	1450	-1363.7	8	150
1220	1450	-230	8	151
768	1450	-682	8	152
1520	1450	70	9	152
1780	1450	330	10	152
420	1450	-1030	10	153
716	1450	-734	10	154
121	1270	-1149	10	155
134	1270	-1136	10	156
86.3	1270	-1183.7	10	157
1220	1270	-50	10	158
768	1270	-502	10	159
1520	1270	250	11	159
1780	1270	510	12	159
420	1270	-850	12	160
716	1270	-554	12	161
134	121	13	13	161
86.3	121	-34.7	13	162
1220	121	1099	14	162
768	121	647	15	162
1520	121	1399	16	162
1780	121	1659	17	162
420	121	299	18	162
716	121	595	19	162
86.3	134	-47.7	19	163
1220	134	1086	20	163
768	134	634	21	163
1520	134	1386	22	163
1780	134	1646	23	163
420	134	286	24	163
716	134	582	25	163
1220	86.3	1133.7	26	163
768	86.3	681.7	27	163
1520	86.3	1433.7	28	163
1780	86.3	1693.7	29	163
420	86.3	333.7	30	163
716	86.3	629.7	31	163
768	1220	-452	31	164
1520	1220	300	32	164
1780	1220	560	33	164
420	1220	-800	33	165
716	1220	-504	33	166
1520	768	752	34	166
1780	768	1012	35	166

420	768	-348	35	167
716	768	-52	35	168
1780	1520	260	36	168
420	1520	-1100	36	169
716	1520	-804	36	170
420	1780	-1360	36	171
716	1780	-1064	36	172
716	420	296	37	172

S Statistic = 37 - 172 = -135

---

Tied Group	Value	Members
1	2730	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
6/30/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 19740

b = 71820

c = 840

Group Variance = 1095.67

Z-Score = -4.04823

Comparison Level at 95% confidence level = -1.65463 (downward trend)

**-4.04823 < -1.65463 indicating a downward trend**

# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW13-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
66	31800	-31734	0	1
28700	31800	-3100	0	2
24500	31800	-7300	0	3
44.2	31800	-31755.8	0	4
1240	31800	-30560	0	5
19400	31800	-12400	0	6
21000	31800	-10800	0	7
12.6	31800	-31787.4	0	8
3.2	31800	-31796.8	0	9
29200	31800	-2600	0	10
51.1	31800	-31748.9	0	11
12.8	31800	-31787.2	0	12
22500	31800	-9300	0	13
24700	31800	-7100	0	14
15.4	31800	-31784.6	0	15
23900 ML	31800	-7900	0	16
6.1	31800	-31793.9	0	17
28700	66	28634	1	17
24500	66	24434	2	17
44.2	66	-21.8	2	18
1240	66	1174	3	18
19400	66	19334	4	18
21000	66	20934	5	18
12.6	66	-53.4	5	19
3.2	66	-62.8	5	20
29200	66	29134	6	20
51.1	66	-14.9	6	21
12.8	66	-53.2	6	22
22500	66	22434	7	22
24700	66	24634	8	22
15.4	66	-50.6	8	23
23900 ML	66	23834	9	23
6.1	66	-59.9	9	24
24500	28700	-4200	9	25
44.2	28700	-28655.8	9	26
1240	28700	-27460	9	27
19400	28700	-9300	9	28
21000	28700	-7700	9	29
12.6	28700	-28687.4	9	30
3.2	28700	-28696.8	9	31
29200	28700	500	10	31
51.1	28700	-28648.9	10	32
12.8	28700	-28687.2	10	33
22500	28700	-6200	10	34
24700	28700	-4000	10	35



15.4	28700	-28684.6	10	36
23900 ML	28700	-4800	10	37
6.1	28700	-28693.9	10	38
44.2	24500	-24455.8	10	39
1240	24500	-23260	10	40
19400	24500	-5100	10	41
21000	24500	-3500	10	42
12.6	24500	-24487.4	10	43
3.2	24500	-24496.8	10	44
29200	24500	4700	11	44
51.1	24500	-24448.9	11	45
12.8	24500	-24487.2	11	46
22500	24500	-2000	11	47
24700	24500	200	12	47
15.4	24500	-24484.6	12	48
23900 ML	24500	-600	12	49
6.1	24500	-24493.9	12	50
1240	44.2	1195.8	13	50
19400	44.2	19355.8	14	50
21000	44.2	20955.8	15	50
12.6	44.2	-31.6	15	51
3.2	44.2	-41	15	52
29200	44.2	29155.8	16	52
51.1	44.2	6.9	17	52
12.8	44.2	-31.4	17	53
22500	44.2	22455.8	18	53
24700	44.2	24655.8	19	53
15.4	44.2	-28.8	19	54
23900 ML	44.2	23855.8	20	54
6.1	44.2	-38.1	20	55
19400	1240	18160	21	55
21000	1240	19760	22	55
12.6	1240	-1227.4	22	56
3.2	1240	-1236.8	22	57
29200	1240	27960	23	57
51.1	1240	-1188.9	23	58
12.8	1240	-1227.2	23	59
22500	1240	21260	24	59
24700	1240	23460	25	59
15.4	1240	-1224.6	25	60
23900 ML	1240	22660	26	60
6.1	1240	-1233.9	26	61
21000	19400	1600	27	61
12.6	19400	-19387.4	27	62
3.2	19400	-19396.8	27	63
29200	19400	9800	28	63
51.1	19400	-19348.9	28	64
12.8	19400	-19387.2	28	65
22500	19400	3100	29	65
24700	19400	5300	30	65
15.4	19400	-19384.6	30	66
23900 ML	19400	4500	31	66
6.1	19400	-19393.9	31	67

12.6	21000	-20987.4	31	68
3.2	21000	-20996.8	31	69
29200	21000	8200	32	69
51.1	21000	-20948.9	32	70
12.8	21000	-20987.2	32	71
22500	21000	1500	33	71
24700	21000	3700	34	71
15.4	21000	-20984.6	34	72
23900 ML	21000	2900	35	72
6.1	21000	-20993.9	35	73
3.2	12.6	-9.4	35	74
29200	12.6	29187.4	36	74
51.1	12.6	38.5	37	74
12.8	12.6	0.2	38	74
22500	12.6	22487.4	39	74
24700	12.6	24687.4	40	74
15.4	12.6	2.8	41	74
23900 ML	12.6	23887.4	42	74
6.1	12.6	-6.5	42	75
29200	3.2	29196.8	43	75
51.1	3.2	47.9	44	75
12.8	3.2	9.6	45	75
22500	3.2	22496.8	46	75
24700	3.2	24696.8	47	75
15.4	3.2	12.2	48	75
23900 ML	3.2	23896.8	49	75
6.1	3.2	2.9	50	75
51.1	29200	-29148.9	50	76
12.8	29200	-29187.2	50	77
22500	29200	-6700	50	78
24700	29200	-4500	50	79
15.4	29200	-29184.6	50	80
23900 ML	29200	-5300	50	81
6.1	29200	-29193.9	50	82
12.8	51.1	-38.3	50	83
22500	51.1	22448.9	51	83
24700	51.1	24648.9	52	83
15.4	51.1	-35.7	52	84
23900 ML	51.1	23848.9	53	84
6.1	51.1	-45	53	85
22500	12.8	22487.2	54	85
24700	12.8	24687.2	55	85
15.4	12.8	2.6	56	85
23900 ML	12.8	23887.2	57	85
6.1	12.8	-6.7	57	86
24700	22500	2200	58	86
15.4	22500	-22484.6	58	87
23900 ML	22500	1400	59	87
6.1	22500	-22493.9	59	88

15.4	24700	-24684.6	59	89
23900 ML	24700	-800	59	90
6.1	24700	-24693.9	59	91
23900 ML	15.4	23884.6	60	91
6.1	15.4	-9.3	60	92
6.1	23900 ML	-23893.9	60	93

S Statistic = 60 - 93 = -33

---

Tied Group	Value	Members
------------	-------	---------

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/20/2020	1
6/15/2020	1
9/17/2020	1
11/10/2020	1

There are 0 time periods with multiple data

---

A = 0  
 B = 0  
 C = 0  
 D = 0  
 E = 0  
 F = 0  
 a = 12546  
 b = 44064  
 c = 612  
 Group Variance = 697  
 Z-Score = -1.21209  
 Comparison Level at 95% confidence level = -1.65463 (downward trend)  
 -1.21209 >= -1.65463 indicating no evidence of a downward trend

# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW15-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
3 U	10.1	-7.1	0	1
3 U	10.1	-7.1	0	2
3 U	10.1	-7.1	0	3
0.97	10.1	-9.13	0	4
1.6	10.1	-8.5	0	5
3 U	10.1	-7.1	0	6
15.3	10.1	5.2	1	6
3 U	10.1	-7.1	1	7
12.9	10.1	2.8	2	7
402	10.1	391.9	3	7
64.2	10.1	54.1	4	7
589	10.1	578.9	5	7
605	10.1	594.9	6	7
0.5 J	10.1	-9.6	6	8
ND<1.5 U	10.1	-8.6	6	9
8	10.1	-2.1	6	10
0.91 J	10.1	-9.19	6	11
3 U	3 U	0	6	11
3 U	3 U	0	6	11
0.97	3 U	-2.03	6	12
1.6	3 U	-1.4	6	13
3 U	3 U	0	6	13
15.3	3 U	12.3	7	13
3 U	3 U	0	7	13
12.9	3 U	9.9	8	13
402	3 U	399	9	13
64.2	3 U	61.2	10	13
589	3 U	586	11	13
605	3 U	602	12	13
0.5 J	3 U	-2.5	12	14
ND<1.5 U	3 U	-1.5	12	15
8	3 U	5	13	15
0.91 J	3 U	-2.09	13	16
3 U	3 U	0	13	16
0.97	3 U	-2.03	13	17
1.6	3 U	-1.4	13	18
3 U	3 U	0	13	18
15.3	3 U	12.3	14	18
3 U	3 U	0	14	18
12.9	3 U	9.9	15	18
402	3 U	399	16	18
64.2	3 U	61.2	17	18
589	3 U	586	18	18
605	3 U	602	19	18
0.5 J	3 U	-2.5	19	19

ND<1.5 U	3 U	-1.5	19	20
8	3 U	5	20	20
0.91 J	3 U	-2.09	20	21
0.97	3 U	-2.03	20	22
1.6	3 U	-1.4	20	23
3 U	3 U	0	20	23
15.3	3 U	12.3	21	23
3 U	3 U	0	21	23
12.9	3 U	9.9	22	23
402	3 U	399	23	23
64.2	3 U	61.2	24	23
589	3 U	586	25	23
605	3 U	602	26	23
0.5 J	3 U	-2.5	26	24
ND<1.5 U	3 U	-1.5	26	25
8	3 U	5	27	25
0.91 J	3 U	-2.09	27	26
1.6	0.97	0.63	28	26
3 U	0.97	2.03	29	26
15.3	0.97	14.33	30	26
3 U	0.97	2.03	31	26
12.9	0.97	11.93	32	26
402	0.97	401.03	33	26
64.2	0.97	63.23	34	26
589	0.97	588.03	35	26
605	0.97	604.03	36	26
0.5 J	0.97	-0.47	36	27
ND<1.5 U	0.97	0.53	37	27
8	0.97	7.03	38	27
0.91 J	0.97	-0.06	38	28
3 U	1.6	1.4	39	28
15.3	1.6	13.7	40	28
3 U	1.6	1.4	41	28
12.9	1.6	11.3	42	28
402	1.6	400.4	43	28
64.2	1.6	62.6	44	28
589	1.6	587.4	45	28
605	1.6	603.4	46	28
0.5 J	1.6	-1.1	46	29
ND<1.5 U	1.6	-0.1	46	30
8	1.6	6.4	47	30
0.91 J	1.6	-0.69	47	31
15.3	3 U	12.3	48	31
3 U	3 U	0	48	31
12.9	3 U	9.9	49	31
402	3 U	399	50	31
64.2	3 U	61.2	51	31
589	3 U	586	52	31
605	3 U	602	53	31
0.5 J	3 U	-2.5	53	32
ND<1.5 U	3 U	-1.5	53	33
8	3 U	5	54	33
0.91 J	3 U	-2.09	54	34

3 U	15.3	-12.3	54	35
12.9	15.3	-2.4	54	36
402	15.3	386.7	55	36
64.2	15.3	48.9	56	36
589	15.3	573.7	57	36
605	15.3	589.7	58	36
0.5 J	15.3	-14.8	58	37
ND<1.5 U	15.3	-13.8	58	38
8	15.3	-7.3	58	39
0.91 J	15.3	-14.39	58	40
12.9	3 U	9.9	59	40
402	3 U	399	60	40
64.2	3 U	61.2	61	40
589	3 U	586	62	40
605	3 U	602	63	40
0.5 J	3 U	-2.5	63	41
ND<1.5 U	3 U	-1.5	63	42
8	3 U	5	64	42
0.91 J	3 U	-2.09	64	43
402	12.9	389.1	65	43
64.2	12.9	51.3	66	43
589	12.9	576.1	67	43
605	12.9	592.1	68	43
0.5 J	12.9	-12.4	68	44
ND<1.5 U	12.9	-11.4	68	45
8	12.9	-4.9	68	46
0.91 J	12.9	-11.99	68	47
64.2	402	-337.8	68	48
589	402	187	69	48
605	402	203	70	48
0.5 J	402	-401.5	70	49
ND<1.5 U	402	-400.5	70	50
8	402	-394	70	51
0.91 J	402	-401.09	70	52
589	64.2	524.8	71	52
605	64.2	540.8	72	52
0.5 J	64.2	-63.7	72	53
ND<1.5 U	64.2	-62.7	72	54
8	64.2	-56.2	72	55
0.91 J	64.2	-63.29	72	56
605	589	16	73	56
0.5 J	589	-588.5	73	57
ND<1.5 U	589	-587.5	73	58
8	589	-581	73	59
0.91 J	589	-588.09	73	60
0.5 J	605	-604.5	73	61
ND<1.5 U	605	-603.5	73	62
8	605	-597	73	63
0.91 J	605	-604.09	73	64

ND<1.5 U	0.5 J	1	74	64
8	0.5 J	7.5	75	64
0.91 J	0.5 J	0.41	76	64
8	ND<1.5 U	6.5	77	64
0.91 J	ND<1.5 U	-0.59	77	65
0.91 J	8	-7.09	77	66

S Statistic = 77 - 66 = 11

---

Tied Group	Value	Members
1	3	5

---

Time Period	Observations
-------------	--------------

8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/16/2020	1
6/11/2020	1
9/16/2020	1
11/9/2020	1

There are 0 time periods with multiple data

---

A = 300

B = 0

C = 60

D = 0

E = 20

F = 0

a = 12546

b = 44064

c = 612

Group Variance = 680.333

Z-Score = 0.383389

Comparison Level at 95% confidence level = -1.65463 (downward trend)

0.383389 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW16-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
28.6	12.1	16.5	1	0
194	12.1	181.9	2	0
73.9	12.1	61.8	3	0
1.7	12.1	-10.4	3	1
3 U	12.1	-9.1	3	2
3 U	12.1	-9.1	3	3
1.9	12.1	-10.2	3	4
1.2	12.1	-10.9	3	5
1.1	12.1	-11	3	6
3 U	12.1	-9.1	3	7
3 U	12.1	-9.1	3	8
3 U	12.1	-9.1	3	9
3 U	12.1	-9.1	3	10
3 U	12.1	-9.1	3	11
3 U	12.1	-9.1	3	12
0.36	12.1	-11.74	3	13
0.36 J	12.1	-11.74	3	14
ND<1.5 U	12.1	-10.6	3	15
ND<1.5 U	12.1	-10.6	3	16
ND<1.5 U	12.1	-10.6	3	17
194	28.6	165.4	4	17
73.9	28.6	45.3	5	17
1.7	28.6	-26.9	5	18
3 U	28.6	-25.6	5	19
3 U	28.6	-25.6	5	20
1.9	28.6	-26.7	5	21
1.2	28.6	-27.4	5	22
1.1	28.6	-27.5	5	23
3 U	28.6	-25.6	5	24
3 U	28.6	-25.6	5	25
3 U	28.6	-25.6	5	26
3 U	28.6	-25.6	5	27
3 U	28.6	-25.6	5	28
3 U	28.6	-25.6	5	29
0.36	28.6	-28.24	5	30
0.36 J	28.6	-28.24	5	31
ND<1.5 U	28.6	-27.1	5	32
ND<1.5 U	28.6	-27.1	5	33
ND<1.5 U	28.6	-27.1	5	34
73.9	194	-120.1	5	35
1.7	194	-192.3	5	36
3 U	194	-191	5	37
3 U	194	-191	5	38
1.9	194	-192.1	5	39
1.2	194	-192.8	5	40



1.1	194	-192.9	5	41
3 U	194	-191	5	42
3 U	194	-191	5	43
3 U	194	-191	5	44
3 U	194	-191	5	45
3 U	194	-191	5	46
3 U	194	-191	5	47
0.36	194	-193.64	5	48
0.36 J	194	-193.64	5	49
ND<1.5 U	194	-192.5	5	50
ND<1.5 U	194	-192.5	5	51
ND<1.5 U	194	-192.5	5	52
1.7	73.9	-72.2	5	53
3 U	73.9	-70.9	5	54
3 U	73.9	-70.9	5	55
1.9	73.9	-72	5	56
1.2	73.9	-72.7	5	57
1.1	73.9	-72.8	5	58
3 U	73.9	-70.9	5	59
3 U	73.9	-70.9	5	60
3 U	73.9	-70.9	5	61
3 U	73.9	-70.9	5	62
3 U	73.9	-70.9	5	63
3 U	73.9	-70.9	5	64
0.36	73.9	-73.54	5	65
0.36 J	73.9	-73.54	5	66
ND<1.5 U	73.9	-72.4	5	67
ND<1.5 U	73.9	-72.4	5	68
ND<1.5 U	73.9	-72.4	5	69
3 U	1.7	1.3	6	69
3 U	1.7	1.3	7	69
1.9	1.7	0.2	8	69
1.2	1.7	-0.5	8	70
1.1	1.7	-0.6	8	71
3 U	1.7	1.3	9	71
3 U	1.7	1.3	10	71
3 U	1.7	1.3	11	71
3 U	1.7	1.3	12	71
3 U	1.7	1.3	13	71
3 U	1.7	1.3	14	71
0.36	1.7	-1.34	14	72
0.36 J	1.7	-1.34	14	73
ND<1.5 U	1.7	-0.2	14	74
ND<1.5 U	1.7	-0.2	14	75
ND<1.5 U	1.7	-0.2	14	76
3 U	3 U	0	14	76
1.9	3 U	-1.1	14	77
1.2	3 U	-1.8	14	78
1.1	3 U	-1.9	14	79
3 U	3 U	0	14	79
3 U	3 U	0	14	79
3 U	3 U	0	14	79
3 U	3 U	0	14	79
3 U	3 U	0	14	79

3 U	3 U	0	14	79
0.36	3 U	-2.64	14	80
0.36 J	3 U	-2.64	14	81
ND<1.5 U	3 U	-1.5	14	82
ND<1.5 U	3 U	-1.5	14	83
ND<1.5 U	3 U	-1.5	14	84
1.9	3 U	-1.1	14	85
1.2	3 U	-1.8	14	86
1.1	3 U	-1.9	14	87
3 U	3 U	0	14	87
3 U	3 U	0	14	87
3 U	3 U	0	14	87
3 U	3 U	0	14	87
3 U	3 U	0	14	87
3 U	3 U	0	14	87
0.36	3 U	-2.64	14	88
0.36 J	3 U	-2.64	14	89
ND<1.5 U	3 U	-1.5	14	90
ND<1.5 U	3 U	-1.5	14	91
ND<1.5 U	3 U	-1.5	14	92
1.2	1.9	-0.7	14	93
1.1	1.9	-0.8	14	94
3 U	1.9	1.1	15	94
3 U	1.9	1.1	16	94
3 U	1.9	1.1	17	94
3 U	1.9	1.1	18	94
3 U	1.9	1.1	19	94
3 U	1.9	1.1	20	94
0.36	1.9	-1.54	20	95
0.36 J	1.9	-1.54	20	96
ND<1.5 U	1.9	-0.4	20	97
ND<1.5 U	1.9	-0.4	20	98
ND<1.5 U	1.9	-0.4	20	99
1.1	1.2	-0.1	20	100
3 U	1.2	1.8	21	100
3 U	1.2	1.8	22	100
3 U	1.2	1.8	23	100
3 U	1.2	1.8	24	100
3 U	1.2	1.8	25	100
3 U	1.2	1.8	26	100
0.36	1.2	-0.84	26	101
0.36 J	1.2	-0.84	26	102
ND<1.5 U	1.2	0.3	27	102
ND<1.5 U	1.2	0.3	28	102
ND<1.5 U	1.2	0.3	29	102
3 U	1.1	1.9	30	102
3 U	1.1	1.9	31	102
3 U	1.1	1.9	32	102
3 U	1.1	1.9	33	102
3 U	1.1	1.9	34	102
3 U	1.1	1.9	35	102
0.36	1.1	-0.74	35	103
0.36 J	1.1	-0.74	35	104

ND<1.5 U	1.1	0.4	36	104
ND<1.5 U	1.1	0.4	37	104
ND<1.5 U	1.1	0.4	38	104
3 U	3 U	0	38	104
3 U	3 U	0	38	104
3 U	3 U	0	38	104
3 U	3 U	0	38	104
3 U	3 U	0	38	104
0.36	3 U	-2.64	38	105
0.36 J	3 U	-2.64	38	106
ND<1.5 U	3 U	-1.5	38	107
ND<1.5 U	3 U	-1.5	38	108
ND<1.5 U	3 U	-1.5	38	109
3 U	3 U	0	38	109
3 U	3 U	0	38	109
3 U	3 U	0	38	109
3 U	3 U	0	38	109
0.36	3 U	-2.64	38	110
0.36 J	3 U	-2.64	38	111
ND<1.5 U	3 U	-1.5	38	112
ND<1.5 U	3 U	-1.5	38	113
ND<1.5 U	3 U	-1.5	38	114
3 U	3 U	0	38	114
3 U	3 U	0	38	114
3 U	3 U	0	38	114
0.36	3 U	-2.64	38	115
0.36 J	3 U	-2.64	38	116
ND<1.5 U	3 U	-1.5	38	117
ND<1.5 U	3 U	-1.5	38	118
ND<1.5 U	3 U	-1.5	38	119
3 U	3 U	0	38	119
3 U	3 U	0	38	119
0.36	3 U	-2.64	38	120
0.36 J	3 U	-2.64	38	121
ND<1.5 U	3 U	-1.5	38	122
ND<1.5 U	3 U	-1.5	38	123
ND<1.5 U	3 U	-1.5	38	124
3 U	3 U	0	38	124
0.36	3 U	-2.64	38	125
0.36 J	3 U	-2.64	38	126
ND<1.5 U	3 U	-1.5	38	127
ND<1.5 U	3 U	-1.5	38	128
ND<1.5 U	3 U	-1.5	38	129
0.36	3 U	-2.64	38	130
0.36 J	3 U	-2.64	38	131
ND<1.5 U	3 U	-1.5	38	132
ND<1.5 U	3 U	-1.5	38	133
ND<1.5 U	3 U	-1.5	38	134
0.36 J	0.36	0	38	134
ND<1.5 U	0.36	1.14	39	134

ND<1.5 U	0.36	1.14	40	134
ND<1.5 U	0.36	1.14	41	134
ND<1.5 U	0.36 J	1.14	42	134
ND<1.5 U	0.36 J	1.14	43	134
ND<1.5 U	0.36 J	1.14	44	134
ND<1.5 U	ND<1.5 U	0	44	134
ND<1.5 U	ND<1.5 U	0	44	134
ND<1.5 U	ND<1.5 U	0	44	134

S Statistic = 44 - 134 = -90

---

Tied Group	Value	Members
1	3	8
2	0.36	2
3	1.5	3

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/13/2020	1
6/18/2020	1
9/17/2020	1
11/9/2020	1

There are 0 time periods with multiple data

---

A = 1260

B = 0

C = 342

D = 0

E = 64

F = 0

a = 19740

b = 71820

c = 840

Group Variance = 1026.67

Z-Score = -2.77764

Comparison Level at 95% confidence level = -1.65463 (downward trend)

**-2.77764 < -1.65463 indicating a downward trend**

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW18-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
63.8	70.3	-6.5	0	1
119	70.3	48.7	1	1
92	70.3	21.7	2	1
65.1	70.3	-5.2	2	2
61.7	70.3	-8.6	2	3
74.4	70.3	4.1	3	3
72.2	70.3	1.9	4	3
43.7	70.3	-26.6	4	4
66.6	70.3	-3.7	4	5
51.5	70.3	-18.8	4	6
63.5	70.3	-6.8	4	7
55.8	70.3	-14.5	4	8
35.1	70.3	-35.2	4	9
14.5	70.3	-55.8	4	10
44.7	70.3	-25.6	4	11
80.3	70.3	10	5	11
38	70.3	-32.3	5	12
50.4	70.3	-19.9	5	13
87.6	70.3	17.3	6	13
36.8	70.3	-33.5	6	14
16	70.3	-54.3	6	15
43.1	70.3	-27.2	6	16
42.1	70.3	-28.2	6	17
119	63.8	55.2	7	17
92	63.8	28.2	8	17
65.1	63.8	1.3	9	17
61.7	63.8	-2.1	9	18
74.4	63.8	10.6	10	18
72.2	63.8	8.4	11	18
43.7	63.8	-20.1	11	19
66.6	63.8	2.8	12	19
51.5	63.8	-12.3	12	20
63.5	63.8	-0.3	12	21
55.8	63.8	-8	12	22
35.1	63.8	-28.7	12	23
14.5	63.8	-49.3	12	24
44.7	63.8	-19.1	12	25
80.3	63.8	16.5	13	25
38	63.8	-25.8	13	26
50.4	63.8	-13.4	13	27
87.6	63.8	23.8	14	27
36.8	63.8	-27	14	28
16	63.8	-47.8	14	29
43.1	63.8	-20.7	14	30
42.1	63.8	-21.7	14	31

92	119	-27	14	32
65.1	119	-53.9	14	33
61.7	119	-57.3	14	34
74.4	119	-44.6	14	35
72.2	119	-46.8	14	36
43.7	119	-75.3	14	37
66.6	119	-52.4	14	38
51.5	119	-67.5	14	39
63.5	119	-55.5	14	40
55.8	119	-63.2	14	41
35.1	119	-83.9	14	42
14.5	119	-104.5	14	43
44.7	119	-74.3	14	44
80.3	119	-38.7	14	45
38	119	-81	14	46
50.4	119	-68.6	14	47
87.6	119	-31.4	14	48
36.8	119	-82.2	14	49
16	119	-103	14	50
43.1	119	-75.9	14	51
42.1	119	-76.9	14	52
65.1	92	-26.9	14	53
61.7	92	-30.3	14	54
74.4	92	-17.6	14	55
72.2	92	-19.8	14	56
43.7	92	-48.3	14	57
66.6	92	-25.4	14	58
51.5	92	-40.5	14	59
63.5	92	-28.5	14	60
55.8	92	-36.2	14	61
35.1	92	-56.9	14	62
14.5	92	-77.5	14	63
44.7	92	-47.3	14	64
80.3	92	-11.7	14	65
38	92	-54	14	66
50.4	92	-41.6	14	67
87.6	92	-4.4	14	68
36.8	92	-55.2	14	69
16	92	-76	14	70
43.1	92	-48.9	14	71
42.1	92	-49.9	14	72
61.7	65.1	-3.4	14	73
74.4	65.1	9.3	15	73
72.2	65.1	7.1	16	73
43.7	65.1	-21.4	16	74
66.6	65.1	1.5	17	74
51.5	65.1	-13.6	17	75
63.5	65.1	-1.6	17	76
55.8	65.1	-9.3	17	77
35.1	65.1	-30	17	78
14.5	65.1	-50.6	17	79
44.7	65.1	-20.4	17	80
80.3	65.1	15.2	18	80
38	65.1	-27.1	18	81
50.4	65.1	-14.7	18	82

87.6	65.1	22.5	19	82
36.8	65.1	-28.3	19	83
16	65.1	-49.1	19	84
43.1	65.1	-22	19	85
42.1	65.1	-23	19	86
74.4	61.7	12.7	20	86
72.2	61.7	10.5	21	86
43.7	61.7	-18	21	87
66.6	61.7	4.9	22	87
51.5	61.7	-10.2	22	88
63.5	61.7	1.8	23	88
55.8	61.7	-5.9	23	89
35.1	61.7	-26.6	23	90
14.5	61.7	-47.2	23	91
44.7	61.7	-17	23	92
80.3	61.7	18.6	24	92
38	61.7	-23.7	24	93
50.4	61.7	-11.3	24	94
87.6	61.7	25.9	25	94
36.8	61.7	-24.9	25	95
16	61.7	-45.7	25	96
43.1	61.7	-18.6	25	97
42.1	61.7	-19.6	25	98
72.2	74.4	-2.2	25	99
43.7	74.4	-30.7	25	100
66.6	74.4	-7.8	25	101
51.5	74.4	-22.9	25	102
63.5	74.4	-10.9	25	103
55.8	74.4	-18.6	25	104
35.1	74.4	-39.3	25	105
14.5	74.4	-59.9	25	106
44.7	74.4	-29.7	25	107
80.3	74.4	5.9	26	107
38	74.4	-36.4	26	108
50.4	74.4	-24	26	109
87.6	74.4	13.2	27	109
36.8	74.4	-37.6	27	110
16	74.4	-58.4	27	111
43.1	74.4	-31.3	27	112
42.1	74.4	-32.3	27	113
43.7	72.2	-28.5	27	114
66.6	72.2	-5.6	27	115
51.5	72.2	-20.7	27	116
63.5	72.2	-8.7	27	117
55.8	72.2	-16.4	27	118
35.1	72.2	-37.1	27	119
14.5	72.2	-57.7	27	120
44.7	72.2	-27.5	27	121
80.3	72.2	8.1	28	121
38	72.2	-34.2	28	122
50.4	72.2	-21.8	28	123
87.6	72.2	15.4	29	123
36.8	72.2	-35.4	29	124
16	72.2	-56.2	29	125

43.1	72.2	-29.1	29	126
42.1	72.2	-30.1	29	127
66.6	43.7	22.9	30	127
51.5	43.7	7.8	31	127
63.5	43.7	19.8	32	127
55.8	43.7	12.1	33	127
35.1	43.7	-8.6	33	128
14.5	43.7	-29.2	33	129
44.7	43.7	1	34	129
80.3	43.7	36.6	35	129
38	43.7	-5.7	35	130
50.4	43.7	6.7	36	130
87.6	43.7	43.9	37	130
36.8	43.7	-6.9	37	131
16	43.7	-27.7	37	132
43.1	43.7	-0.6	37	133
42.1	43.7	-1.6	37	134
51.5	66.6	-15.1	37	135
63.5	66.6	-3.1	37	136
55.8	66.6	-10.8	37	137
35.1	66.6	-31.5	37	138
14.5	66.6	-52.1	37	139
44.7	66.6	-21.9	37	140
80.3	66.6	13.7	38	140
38	66.6	-28.6	38	141
50.4	66.6	-16.2	38	142
87.6	66.6	21	39	142
36.8	66.6	-29.8	39	143
16	66.6	-50.6	39	144
43.1	66.6	-23.5	39	145
42.1	66.6	-24.5	39	146
63.5	51.5	12	40	146
55.8	51.5	4.3	41	146
35.1	51.5	-16.4	41	147
14.5	51.5	-37	41	148
44.7	51.5	-6.8	41	149
80.3	51.5	28.8	42	149
38	51.5	-13.5	42	150
50.4	51.5	-1.1	42	151
87.6	51.5	36.1	43	151
36.8	51.5	-14.7	43	152
16	51.5	-35.5	43	153
43.1	51.5	-8.4	43	154
42.1	51.5	-9.4	43	155
55.8	63.5	-7.7	43	156
35.1	63.5	-28.4	43	157
14.5	63.5	-49	43	158
44.7	63.5	-18.8	43	159
80.3	63.5	16.8	44	159
38	63.5	-25.5	44	160
50.4	63.5	-13.1	44	161
87.6	63.5	24.1	45	161
36.8	63.5	-26.7	45	162



16	63.5	-47.5	45	163
43.1	63.5	-20.4	45	164
42.1	63.5	-21.4	45	165
35.1	55.8	-20.7	45	166
14.5	55.8	-41.3	45	167
44.7	55.8	-11.1	45	168
80.3	55.8	24.5	46	168
38	55.8	-17.8	46	169
50.4	55.8	-5.4	46	170
87.6	55.8	31.8	47	170
36.8	55.8	-19	47	171
16	55.8	-39.8	47	172
43.1	55.8	-12.7	47	173
42.1	55.8	-13.7	47	174
14.5	35.1	-20.6	47	175
44.7	35.1	9.6	48	175
80.3	35.1	45.2	49	175
38	35.1	2.9	50	175
50.4	35.1	15.3	51	175
87.6	35.1	52.5	52	175
36.8	35.1	1.7	53	175
16	35.1	-19.1	53	176
43.1	35.1	8	54	176
42.1	35.1	7	55	176
44.7	14.5	30.2	56	176
80.3	14.5	65.8	57	176
38	14.5	23.5	58	176
50.4	14.5	35.9	59	176
87.6	14.5	73.1	60	176
36.8	14.5	22.3	61	176
16	14.5	1.5	62	176
43.1	14.5	28.6	63	176
42.1	14.5	27.6	64	176
80.3	44.7	35.6	65	176
38	44.7	-6.7	65	177
50.4	44.7	5.7	66	177
87.6	44.7	42.9	67	177
36.8	44.7	-7.9	67	178
16	44.7	-28.7	67	179
43.1	44.7	-1.6	67	180
42.1	44.7	-2.6	67	181
38	80.3	-42.3	67	182
50.4	80.3	-29.9	67	183
87.6	80.3	7.3	68	183
36.8	80.3	-43.5	68	184
16	80.3	-64.3	68	185
43.1	80.3	-37.2	68	186
42.1	80.3	-38.2	68	187
50.4	38	12.4	69	187
87.6	38	49.6	70	187
36.8	38	-1.2	70	188

16	38	-22	70	189
43.1	38	5.1	71	189
42.1	38	4.1	72	189
87.6	50.4	37.2	73	189
36.8	50.4	-13.6	73	190
16	50.4	-34.4	73	191
43.1	50.4	-7.3	73	192
42.1	50.4	-8.3	73	193
36.8	87.6	-50.8	73	194
16	87.6	-71.6	73	195
43.1	87.6	-44.5	73	196
42.1	87.6	-45.5	73	197
16	36.8	-20.8	73	198
43.1	36.8	6.3	74	198
42.1	36.8	5.3	75	198
43.1	16	27.1	76	198
42.1	16	26.1	77	198
42.1	43.1	-1	77	199

S Statistic = 77 - 199 = -122

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1
6/1/2019		1
9/1/2019		1
12/1/2019		1
3/16/2020		1
6/18/2020		1
9/16/2020		1
11/9/2020		1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1625.33

Z-Score = -3.00133

Comparison Level at 95% confidence level = -1.65463 (downward trend)

**-3.00133 < -1.65463 indicating a downward trend**

# Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW19-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
3450	3760	-310	0	1
3380	3760	-380	0	2
2770	3760	-990	0	3
2280	3760	-1480	0	4
2550	3760	-1210	0	5
1670	3760	-2090	0	6
1320	3760	-2440	0	7
1710	3760	-2050	0	8
1770	3760	-1990	0	9
1710	3760	-2050	0	10
1880	3760	-1880	0	11
1700	3760	-2060	0	12
1560	3760	-2200	0	13
1610	3760	-2150	0	14
1900	3760	-1860	0	15
1320	3760	-2440	0	16
2420	3760	-1340	0	17
1580	3760	-2180	0	18
1500	3760	-2260	0	19
1400	3760	-2360	0	20
3390	3760	-370	0	21
1630	3760	-2130	0	22
1540	3760	-2220	0	23
3380	3450	-70	0	24
2770	3450	-680	0	25
2280	3450	-1170	0	26
2550	3450	-900	0	27
1670	3450	-1780	0	28
1320	3450	-2130	0	29
1710	3450	-1740	0	30
1770	3450	-1680	0	31
1710	3450	-1740	0	32
1880	3450	-1570	0	33
1700	3450	-1750	0	34
1560	3450	-1890	0	35
1610	3450	-1840	0	36
1900	3450	-1550	0	37
1320	3450	-2130	0	38
2420	3450	-1030	0	39
1580	3450	-1870	0	40
1500	3450	-1950	0	41
1400	3450	-2050	0	42
3390	3450	-60	0	43
1630	3450	-1820	0	44
1540	3450	-1910	0	45

2770	3380	-610	0	46
2280	3380	-1100	0	47
2550	3380	-830	0	48
1670	3380	-1710	0	49
1320	3380	-2060	0	50
1710	3380	-1670	0	51
1770	3380	-1610	0	52
1710	3380	-1670	0	53
1880	3380	-1500	0	54
1700	3380	-1680	0	55
1560	3380	-1820	0	56
1610	3380	-1770	0	57
1900	3380	-1480	0	58
1320	3380	-2060	0	59
2420	3380	-960	0	60
1580	3380	-1800	0	61
1500	3380	-1880	0	62
1400	3380	-1980	0	63
3390	3380	10	1	63
1630	3380	-1750	1	64
1540	3380	-1840	1	65
2280	2770	-490	1	66
2550	2770	-220	1	67
1670	2770	-1100	1	68
1320	2770	-1450	1	69
1710	2770	-1060	1	70
1770	2770	-1000	1	71
1710	2770	-1060	1	72
1880	2770	-890	1	73
1700	2770	-1070	1	74
1560	2770	-1210	1	75
1610	2770	-1160	1	76
1900	2770	-870	1	77
1320	2770	-1450	1	78
2420	2770	-350	1	79
1580	2770	-1190	1	80
1500	2770	-1270	1	81
1400	2770	-1370	1	82
3390	2770	620	2	82
1630	2770	-1140	2	83
1540	2770	-1230	2	84
2550	2280	270	3	84
1670	2280	-610	3	85
1320	2280	-960	3	86
1710	2280	-570	3	87
1770	2280	-510	3	88
1710	2280	-570	3	89
1880	2280	-400	3	90
1700	2280	-580	3	91
1560	2280	-720	3	92
1610	2280	-670	3	93
1900	2280	-380	3	94
1320	2280	-960	3	95
2420	2280	140	4	95
1580	2280	-700	4	96

1500	2280	-780	4	97
1400	2280	-880	4	98
3390	2280	1110	5	98
1630	2280	-650	5	99
1540	2280	-740	5	100
1670	2550	-880	5	101
1320	2550	-1230	5	102
1710	2550	-840	5	103
1770	2550	-780	5	104
1710	2550	-840	5	105
1880	2550	-670	5	106
1700	2550	-850	5	107
1560	2550	-990	5	108
1610	2550	-940	5	109
1900	2550	-650	5	110
1320	2550	-1230	5	111
2420	2550	-130	5	112
1580	2550	-970	5	113
1500	2550	-1050	5	114
1400	2550	-1150	5	115
3390	2550	840	6	115
1630	2550	-920	6	116
1540	2550	-1010	6	117
1320	1670	-350	6	118
1710	1670	40	7	118
1770	1670	100	8	118
1710	1670	40	9	118
1880	1670	210	10	118
1700	1670	30	11	118
1560	1670	-110	11	119
1610	1670	-60	11	120
1900	1670	230	12	120
1320	1670	-350	12	121
2420	1670	750	13	121
1580	1670	-90	13	122
1500	1670	-170	13	123
1400	1670	-270	13	124
3390	1670	1720	14	124
1630	1670	-40	14	125
1540	1670	-130	14	126
1710	1320	390	15	126
1770	1320	450	16	126
1710	1320	390	17	126
1880	1320	560	18	126
1700	1320	380	19	126
1560	1320	240	20	126
1610	1320	290	21	126
1900	1320	580	22	126
1320	1320	0	22	126
2420	1320	1100	23	126
1580	1320	260	24	126
1500	1320	180	25	126
1400	1320	80	26	126
3390	1320	2070	27	126

1630	1320	310	28	126
1540	1320	220	29	126
1770	1710	60	30	126
1710	1710	0	30	126
1880	1710	170	31	126
1700	1710	-10	31	127
1560	1710	-150	31	128
1610	1710	-100	31	129
1900	1710	190	32	129
1320	1710	-390	32	130
2420	1710	710	33	130
1580	1710	-130	33	131
1500	1710	-210	33	132
1400	1710	-310	33	133
3390	1710	1680	34	133
1630	1710	-80	34	134
1540	1710	-170	34	135
1710	1770	-60	34	136
1880	1770	110	35	136
1700	1770	-70	35	137
1560	1770	-210	35	138
1610	1770	-160	35	139
1900	1770	130	36	139
1320	1770	-450	36	140
2420	1770	650	37	140
1580	1770	-190	37	141
1500	1770	-270	37	142
1400	1770	-370	37	143
3390	1770	1620	38	143
1630	1770	-140	38	144
1540	1770	-230	38	145
1880	1710	170	39	145
1700	1710	-10	39	146
1560	1710	-150	39	147
1610	1710	-100	39	148
1900	1710	190	40	148
1320	1710	-390	40	149
2420	1710	710	41	149
1580	1710	-130	41	150
1500	1710	-210	41	151
1400	1710	-310	41	152
3390	1710	1680	42	152
1630	1710	-80	42	153
1540	1710	-170	42	154
1700	1880	-180	42	155
1560	1880	-320	42	156
1610	1880	-270	42	157
1900	1880	20	43	157
1320	1880	-560	43	158
2420	1880	540	44	158
1580	1880	-300	44	159
1500	1880	-380	44	160
1400	1880	-480	44	161

3390	1880	1510	45	161
1630	1880	-250	45	162
1540	1880	-340	45	163
1560	1700	-140	45	164
1610	1700	-90	45	165
1900	1700	200	46	165
1320	1700	-380	46	166
2420	1700	720	47	166
1580	1700	-120	47	167
1500	1700	-200	47	168
1400	1700	-300	47	169
3390	1700	1690	48	169
1630	1700	-70	48	170
1540	1700	-160	48	171
1610	1560	50	49	171
1900	1560	340	50	171
1320	1560	-240	50	172
2420	1560	860	51	172
1580	1560	20	52	172
1500	1560	-60	52	173
1400	1560	-160	52	174
3390	1560	1830	53	174
1630	1560	70	54	174
1540	1560	-20	54	175
1900	1610	290	55	175
1320	1610	-290	55	176
2420	1610	810	56	176
1580	1610	-30	56	177
1500	1610	-110	56	178
1400	1610	-210	56	179
3390	1610	1780	57	179
1630	1610	20	58	179
1540	1610	-70	58	180
1320	1900	-580	58	181
2420	1900	520	59	181
1580	1900	-320	59	182
1500	1900	-400	59	183
1400	1900	-500	59	184
3390	1900	1490	60	184
1630	1900	-270	60	185
1540	1900	-360	60	186
2420	1320	1100	61	186
1580	1320	260	62	186
1500	1320	180	63	186
1400	1320	80	64	186
3390	1320	2070	65	186
1630	1320	310	66	186
1540	1320	220	67	186
1580	2420	-840	67	187
1500	2420	-920	67	188
1400	2420	-1020	67	189



3390	2420	970	68	189
1630	2420	-790	68	190
1540	2420	-880	68	191
1500	1580	-80	68	192
1400	1580	-180	68	193
3390	1580	1810	69	193
1630	1580	50	70	193
1540	1580	-40	70	194
1400	1500	-100	70	195
3390	1500	1890	71	195
1630	1500	130	72	195
1540	1500	40	73	195
3390	1400	1990	74	195
1630	1400	230	75	195
1540	1400	140	76	195
1630	3390	-1760	76	196
1540	3390	-1850	76	197
1540	1630	-90	76	198

S Statistic = 76 - 198 = -122

---

Tied Group	Value	Members
1	1320	2
2	1710	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/17/2020	1
6/24/2020	1
9/15/2020	1
11/17/2020	1

There are 0 time periods with multiple data

---

A = 36

B = 0

C = 0

D = 0

E = 4

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1623.33

Z-Score = -3.00318

Comparison Level at 95% confidence level = -1.65463 (downward trend)

**-3.00318 < -1.65463 indicating a downward trend**

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW21-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
34	39.8	-5.8	0	1
29.4 1c	39.8	-10.4	0	2
27.8	39.8	-12	0	3
29.4 1c	34	-4.6	0	4
27.8	34	-6.2	0	5
27.8	29.4 1c	-1.6	0	6

S Statistic = 0 - 6 = -6

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 6$  is 0.042

**S < 0 and 0.042 < 0.05 indicating a downward trend**

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW22R-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
2 J	ND<1.5 U	0.5	1	0
2.4 J	ND<1.5 U	0.9	2	0
1.6 J	ND<1.5 U	0.1	3	0
2.4 J	2 J	0.4	4	0
1.6 J	2 J	-0.4	4	1
1.6 J	2.4 J	-0.8	4	2

S Statistic = 4 - 2 = 2

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 2$  is 0.375

$S > 0$  or  $0.375 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW23-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
2740	2600	140	1	0
2500 1c	2600	-100	1	1
2340	2600	-260	1	2
2500 1c	2740	-240	1	3
2340	2740	-400	1	4
2340	2500 1c	-160	1	5

S Statistic = 1 - 5 = -4

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 4$  is 0.167

$S > 0$  or  $0.167 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW24-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
1050	1190	-140	0	1
922	1190	-268	0	2
842	1190	-348	0	3
922	1050	-128	0	4
842	1050	-208	0	5
842	922	-80	0	6

S Statistic = 0 - 6 = -6

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 6$  is 0.042

**S < 0 and 0.042 < 0.05 indicating a downward trend**

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RW25-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
652	633	19	1	0
708	633	75	2	0
703	633	70	3	0
708	652	56	4	0
703	652	51	5	0
703	708	-5	5	1

S Statistic = 5 - 1 = 4

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 4$  is 0.167

$S > 0$  or  $0.167 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWA-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
7010 M6	6900	110	1	0
7740	6900	840	2	0
9020	6900	2120	3	0
12600	6900	5700	4	0
10200	6900	3300	5	0
7630	6900	730	6	0
10100 MH	6900	3200	7	0
7740	7010 M6	730	8	0
9020	7010 M6	2010	9	0
12600	7010 M6	5590	10	0
10200	7010 M6	3190	11	0
7630	7010 M6	620	12	0
10100 MH	7010 M6	3090	13	0
9020	7740	1280	14	0
12600	7740	4860	15	0
10200	7740	2460	16	0
7630	7740	-110	16	1
10100 MH	7740	2360	17	1
12600	9020	3580	18	1
10200	9020	1180	19	1
7630	9020	-1390	19	2
10100 MH	9020	1080	20	2
10200	12600	-2400	20	3
7630	12600	-4970	20	4
10100 MH	12600	-2500	20	5
7630	10200	-2570	20	6
10100 MH	10200	-100	20	7
10100 MH	7630	2470	21	7

S Statistic = 21 - 7 = 14

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 14$  is 0.054

$S > 0$  or  $0.054 > 0.05$  indicating no evidence of a downward trend



## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWB-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
ND<1.5 U	ND<1.5 U	0	0	0
ND<1.5 U	ND<1.5 U	0	0	0
ND<1.5 U	ND<1.5 U	0	0	0
ND<1.5 U	ND<1.5 U	0	0	0
ND<1.5 U	ND<1.5 U	0	0	0
0.59 J	ND<1.5 U	-0.91	0	1
ND<1.5 U	ND<1.5 U	0	0	1
ND<1.5 U	ND<1.5 U	0	0	1
ND<1.5 U	ND<1.5 U	0	0	1
ND<1.5 U	ND<1.5 U	0	0	1
ND<1.5 U	ND<1.5 U	0	0	1
0.59 J	ND<1.5 U	-0.91	0	2
ND<1.5 U	ND<1.5 U	0	0	2
ND<1.5 U	ND<1.5 U	0	0	2
ND<1.5 U	ND<1.5 U	0	0	2
ND<1.5 U	ND<1.5 U	0	0	2
0.59 J	ND<1.5 U	-0.91	0	3
ND<1.5 U	ND<1.5 U	0	0	3
ND<1.5 U	ND<1.5 U	0	0	3
ND<1.5 U	ND<1.5 U	0	0	3
0.59 J	ND<1.5 U	-0.91	0	4
ND<1.5 U	ND<1.5 U	0	0	4
ND<1.5 U	ND<1.5 U	0	0	4
0.59 J	ND<1.5 U	-0.91	0	5
ND<1.5 U	ND<1.5 U	0	0	5
0.59 J	ND<1.5 U	-0.91	0	6
ND<1.5 U	ND<1.5 U	0	0	6
ND<1.5 U	0.59 J	0.91	1	6

S Statistic = 1 - 6 = -5

Comparing at 95% confidence level (downward trend)

Probability of obtaining S >= 5 is 0.317

S > 0 or 0.317 > 0.05 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWD-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
514	398.5 1c3c	115.5	1	0
586	398.5 1c3c	187.5	2	0
555	398.5 1c3c	156.5	3	0
515	398.5 1c3c	116.5	4	0
541	398.5 1c3c	142.5	5	0
596	398.5 1c3c	197.5	6	0
586	514	72	7	0
555	514	41	8	0
515	514	1	9	0
541	514	27	10	0
596	514	82	11	0
555	586	-31	11	1
515	586	-71	11	2
541	586	-45	11	3
596	586	10	12	3
515	555	-40	12	4
541	555	-14	12	5
596	555	41	13	5
541	515	26	14	5
596	515	81	15	5
596	541	55	16	5

S Statistic = 16 - 5 = 11

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 11$  is 0.068

$S > 0$  or  $0.068 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWE-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
656	711 1c3c	-55	0	1
707	711 1c3c	-4	0	2
664	711 1c3c	-47	0	3
609	711 1c3c	-102	0	4
584	711 1c3c	-127	0	5
527	711 1c3c	-184	0	6
707	656	51	1	6
664	656	8	2	6
609	656	-47	2	7
584	656	-72	2	8
527	656	-129	2	9
664	707	-43	2	10
609	707	-98	2	11
584	707	-123	2	12
527	707	-180	2	13
609	664	-55	2	14
584	664	-80	2	15
527	664	-137	2	16
584	609	-25	2	17
527	609	-82	2	18
527	584	-57	2	19

S Statistic = 2 - 19 = -17

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 17$  is 0.0054

**S < 0 and 0.0054 < 0.05 indicating a downward trend**

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWF-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
1020	882.5	137.5	1	0
1340	882.5	457.5	2	0
2010	882.5	1127.5	3	0
2580	882.5	1697.5	4	0
3170	882.5	2287.5	5	0
3330	882.5	2447.5	6	0
1340	1020	320	7	0
2010	1020	990	8	0
2580	1020	1560	9	0
3170	1020	2150	10	0
3330	1020	2310	11	0
2010	1340	670	12	0
2580	1340	1240	13	0
3170	1340	1830	14	0
3330	1340	1990	15	0
2580	2010	570	16	0
3170	2010	1160	17	0
3330	2010	1320	18	0
3170	2580	590	19	0
3330	2580	750	20	0
3330	3170	160	21	0

S Statistic = 21 - 0 = 21

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 21$  is 0.0002

$S > 0$  or  $0.0002 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWG-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
15.4	23.4 1c3c	-8	0	1
26	23.4 1c3c	2.6	1	1
38.2	23.4 1c3c	14.8	2	1
26.7	23.4 1c3c	3.3	3	1
38.2	23.4 1c3c	14.8	4	1
40	23.4 1c3c	16.6	5	1
26	15.4	10.6	6	1
38.2	15.4	22.8	7	1
26.7	15.4	11.3	8	1
38.2	15.4	22.8	9	1
40	15.4	24.6	10	1
38.2	26	12.2	11	1
26.7	26	0.7	12	1
38.2	26	12.2	13	1
40	26	14	14	1
26.7	38.2	-11.5	14	2
38.2	38.2	0	14	2
40	38.2	1.8	15	2
38.2	26.7	11.5	16	2
40	26.7	13.3	17	2
40	38.2	1.8	18	2

S Statistic = 18 - 2 = 16

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 16$  is 0.0102

$S > 0$  or  $0.0102 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWH-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
1380 1c	97.7	1282.3	1	0
3580	97.7	3482.3	2	0
3210	97.7	3112.3	3	0
4610	97.7	4512.3	4	0
4330	97.7	4232.3	5	0
6650	97.7	6552.3	6	0
3580	1380 1c	2200	7	0
3210	1380 1c	1830	8	0
4610	1380 1c	3230	9	0
4330	1380 1c	2950	10	0
6650	1380 1c	5270	11	0
3210	3580	-370	11	1
4610	3580	1030	12	1
4330	3580	750	13	1
6650	3580	3070	14	1
4610	3210	1400	15	1
4330	3210	1120	16	1
6650	3210	3440	17	1
4330	4610	-280	17	2
6650	4610	2040	18	2
6650	4330	2320	19	2

S Statistic = 19 - 2 = 17

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 17$  is 0.0054

$S > 0$  or  $0.0054 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWI-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
8120 1c	8500	-380	0	1
8270	8500	-230	0	2
13300	8500	4800	1	2
10800	8500	2300	2	2
8270	8120 1c	150	3	2
13300	8120 1c	5180	4	2
10800	8120 1c	2680	5	2
13300	8270	5030	6	2
10800	8270	2530	7	2
10800	13300	-2500	7	3

S Statistic = 7 - 3 = 4

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 4$  is 0.242

$S > 0$  or  $0.242 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWJ-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
11.8 1c	61.3	-49.5	0	1
45.7	61.3	-15.6	0	2
30	61.3	-31.3	0	3
2.1 J	61.3	-59.2	0	4
2.3 J	61.3	-59	0	5
2.4 J	61.3	-58.9	0	6
45.7	11.8 1c	33.9	1	6
30	11.8 1c	18.2	2	6
2.1 J	11.8 1c	-9.7	2	7
2.3 J	11.8 1c	-9.5	2	8
2.4 J	11.8 1c	-9.4	2	9
30	45.7	-15.7	2	10
2.1 J	45.7	-43.6	2	11
2.3 J	45.7	-43.4	2	12
2.4 J	45.7	-43.3	2	13
2.1 J	30	-27.9	2	14
2.3 J	30	-27.7	2	15
2.4 J	30	-27.6	2	16
2.3 J	2.1 J	0.2	3	16
2.4 J	2.1 J	0.3	4	16
2.4 J	2.3 J	0.1	5	16

S Statistic = 5 - 16 = -11

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 11$  is 0.068

$S > 0$  or  $0.068 > 0.05$  indicating no evidence of a downward trend



## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWK-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
65.6 1c	40.1	25.5	1	0
99.5	40.1	59.4	2	0
89.1	40.1	49	3	0
76.9	40.1	36.8	4	0
79.1	40.1	39	5	0
74.4	40.1	34.3	6	0
99.5	65.6 1c	33.9	7	0
89.1	65.6 1c	23.5	8	0
76.9	65.6 1c	11.3	9	0
79.1	65.6 1c	13.5	10	0
74.4	65.6 1c	8.8	11	0
89.1	99.5	-10.4	11	1
76.9	99.5	-22.6	11	2
79.1	99.5	-20.4	11	3
74.4	99.5	-25.1	11	4
76.9	89.1	-12.2	11	5
79.1	89.1	-10	11	6
74.4	89.1	-14.7	11	7
79.1	76.9	2.2	12	7
74.4	76.9	-2.5	12	8
74.4	79.1	-4.7	12	9

S Statistic = 12 - 9 = 3

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 3$  is 0.386

$S > 0$  or  $0.386 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWL-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
1240 1c	1245	-5	0	1
1280	1245	35	1	1
1170	1245	-75	1	2
1140	1245	-105	1	3
1210 1c	1245	-35	1	4
1160	1245	-85	1	5
1280	1240 1c	40	2	5
1170	1240 1c	-70	2	6
1140	1240 1c	-100	2	7
1210 1c	1240 1c	-30	2	8
1160	1240 1c	-80	2	9
1170	1280	-110	2	10
1140	1280	-140	2	11
1210 1c	1280	-70	2	12
1160	1280	-120	2	13
1140	1170	-30	2	14
1210 1c	1170	40	3	14
1160	1170	-10	3	15
1210 1c	1140	70	4	15
1160	1140	20	5	15
1160	1210 1c	-50	5	16

S Statistic = 5 - 16 = -11

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 11$  is 0.068

$S > 0$  or  $0.068 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWM-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
1200	1105	95	1	0
1230	1105	125	2	0
1120	1105	15	3	0
1040	1105	-65	3	1
1060 1c	1105	-45	3	2
1120	1105	15	4	2
1230	1200	30	5	2
1120	1200	-80	5	3
1040	1200	-160	5	4
1060 1c	1200	-140	5	5
1120	1200	-80	5	6
1120	1230	-110	5	7
1040	1230	-190	5	8
1060 1c	1230	-170	5	9
1120	1230	-110	5	10
1040	1120	-80	5	11
1060 1c	1120	-60	5	12
1120	1120	0	5	12
1060 1c	1040	20	6	12
1120	1040	80	7	12
1120	1060 1c	60	8	12

S Statistic = 8 - 12 = -4

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 4$  is 0.3335

$S > 0$  or  $0.3335 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWO-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
72.1 1c	69.25 1c4c	2.85	1	0
55.4	69.25 1c4c	-13.85	1	1
54.3	69.25 1c4c	-14.95	1	2
66.2	69.25 1c4c	-3.05	1	3
57.8 1c	69.25 1c4c	-11.45	1	4
27.9	69.25 1c4c	-41.35	1	5
55.4	72.1 1c	-16.7	1	6
54.3	72.1 1c	-17.8	1	7
66.2	72.1 1c	-5.9	1	8
57.8 1c	72.1 1c	-14.3	1	9
27.9	72.1 1c	-44.2	1	10
54.3	55.4	-1.1	1	11
66.2	55.4	10.8	2	11
57.8 1c	55.4	2.4	3	11
27.9	55.4	-27.5	3	12
66.2	54.3	11.9	4	12
57.8 1c	54.3	3.5	5	12
27.9	54.3	-26.4	5	13
57.8 1c	66.2	-8.4	5	14
27.9	66.2	-38.3	5	15
27.9	57.8 1c	-29.9	5	16

S Statistic = 5 - 16 = -11

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 11$  is 0.068

$S > 0$  or  $0.068 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWP-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6990 1c	2800	4190	1	0
8910	2800	6110	2	0
5560	2800	2760	3	0
7090	2800	4290	4	0
7220	2800	4420	5	0
7700	2800	4900	6	0
8910	6990 1c	1920	7	0
5560	6990 1c	-1430	7	1
7090	6990 1c	100	8	1
7220	6990 1c	230	9	1
7700	6990 1c	710	10	1
5560	8910	-3350	10	2
7090	8910	-1820	10	3
7220	8910	-1690	10	4
7700	8910	-1210	10	5
7090	5560	1530	11	5
7220	5560	1660	12	5
7700	5560	2140	13	5
7220	7090	130	14	5
7700	7090	610	15	5
7700	7220	480	16	5

S Statistic = 16 - 5 = 11

Comparing at 95% confidence level (downward trend)

Probability of obtaining S >= 11 is 0.068

S > 0 or 0.068 > 0.05 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWQ-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<1.5 U1c	27.25	-25.75	0	1
2.9 J	27.25	-24.35	0	2
1.9 J	27.25	-25.35	0	3
3.7	27.25	-23.55	0	4
4.2 1c	27.25	-23.05	0	5
2.9 J	27.25	-24.35	0	6
2.9 J	ND<1.5 U1c	1.4	1	6
1.9 J	ND<1.5 U1c	0.4	2	6
3.7	ND<1.5 U1c	2.2	3	6
4.2 1c	ND<1.5 U1c	2.7	4	6
2.9 J	ND<1.5 U1c	1.4	5	6
1.9 J	2.9 J	-1	5	7
3.7	2.9 J	0.8	6	7
4.2 1c	2.9 J	1.3	7	7
2.9 J	2.9 J	0	7	7
3.7	1.9 J	1.8	8	7
4.2 1c	1.9 J	2.3	9	7
2.9 J	1.9 J	1	10	7
4.2 1c	3.7	0.5	11	7
2.9 J	3.7	-0.8	11	8
2.9 J	4.2 1c	-1.3	11	9

S Statistic = 11 - 9 = 2

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 2$  is 0.443

$S > 0$  or  $0.443 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWR-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
535 1c	448.5 1c4c	86.5	1	0
650	448.5 1c4c	201.5	2	0
340	448.5 1c4c	-108.5	2	1
508	448.5 1c4c	59.5	3	1
425	448.5 1c4c	-23.5	3	2
398	448.5 1c4c	-50.5	3	3
650	535 1c	115	4	3
340	535 1c	-195	4	4
508	535 1c	-27	4	5
425	535 1c	-110	4	6
398	535 1c	-137	4	7
340	650	-310	4	8
508	650	-142	4	9
425	650	-225	4	10
398	650	-252	4	11
508	340	168	5	11
425	340	85	6	11
398	340	58	7	11
425	508	-83	7	12
398	508	-110	7	13
398	425	-27	7	14

S Statistic = 7 - 14 = -7

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 7$  is 0.191

$S > 0$  or  $0.191 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Cadmium

Location: RWS-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
ND<1.5 U1c	ND<1.5 U	0	0	0
1.6 J	ND<1.5 U	0.1	1	0
ND<1.5 U	ND<1.5 U	0	1	0
0.58 J	ND<1.5 U	-0.92	1	1
1.8 J	ND<1.5 U	0.3	2	1
1.7 J	ND<1.5 U	0.2	3	1
1.6 J	ND<1.5 U1c	0.1	4	1
ND<1.5 U	ND<1.5 U1c	0	4	1
0.58 J	ND<1.5 U1c	-0.92	4	2
1.8 J	ND<1.5 U1c	0.3	5	2
1.7 J	ND<1.5 U1c	0.2	6	2
ND<1.5 U	1.6 J	-0.1	6	3
0.58 J	1.6 J	-1.02	6	4
1.8 J	1.6 J	0.2	7	4
1.7 J	1.6 J	0.1	8	4
0.58 J	ND<1.5 U	-0.92	8	5
1.8 J	ND<1.5 U	0.3	9	5
1.7 J	ND<1.5 U	0.2	10	5
1.8 J	0.58 J	1.22	11	5
1.7 J	0.58 J	1.12	12	5
1.7 J	1.8 J	-0.1	12	6

S Statistic = 12 - 6 = 6

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 6$  is 0.236

$S > 0$  or  $0.236 > 0.05$  indicating no evidence of a downward trend



## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW01-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
12.3	6.68	5.62	1	0
8.03	6.68	1.35	2	0
12.07	6.68	5.39	3	0
6.74	6.68	0.06	4	0
13.17	6.68	6.49	5	0
12.42	6.68	5.74	6	0
8.52	6.68	1.84	7	0
10.97	6.68	4.29	8	0
6.2	6.68	-0.48	8	1
6.49	6.68	-0.19	8	2
6.26	6.68	-0.42	8	3
6.23	6.68	-0.45	8	4
6.03	6.68	-0.65	8	5
6.41	6.68	-0.27	8	6
6.24	6.68	-0.44	8	7
7.33	6.68	0.65	9	7
7.76	6.68	1.08	10	7
8.03	12.3	-4.27	10	8
12.07	12.3	-0.23	10	9
6.74	12.3	-5.56	10	10
13.17	12.3	0.87	11	10
12.42	12.3	0.12	12	10
8.52	12.3	-3.78	12	11
10.97	12.3	-1.33	12	12
6.2	12.3	-6.1	12	13
6.49	12.3	-5.81	12	14
6.26	12.3	-6.04	12	15
6.23	12.3	-6.07	12	16
6.03	12.3	-6.27	12	17
6.41	12.3	-5.89	12	18
6.24	12.3	-6.06	12	19
7.33	12.3	-4.97	12	20
7.76	12.3	-4.54	12	21
12.07	8.03	4.04	13	21
6.74	8.03	-1.29	13	22
13.17	8.03	5.14	14	22
12.42	8.03	4.39	15	22
8.52	8.03	0.49	16	22
10.97	8.03	2.94	17	22
6.2	8.03	-1.83	17	23
6.49	8.03	-1.54	17	24
6.26	8.03	-1.77	17	25
6.23	8.03	-1.8	17	26
6.03	8.03	-2	17	27
6.41	8.03	-1.62	17	28

6.24	8.03	-1.79	17	29
7.33	8.03	-0.7	17	30
7.76	8.03	-0.27	17	31
6.74	12.07	-5.33	17	32
13.17	12.07	1.1	18	32
12.42	12.07	0.35	19	32
8.52	12.07	-3.55	19	33
10.97	12.07	-1.1	19	34
6.2	12.07	-5.87	19	35
6.49	12.07	-5.58	19	36
6.26	12.07	-5.81	19	37
6.23	12.07	-5.84	19	38
6.03	12.07	-6.04	19	39
6.41	12.07	-5.66	19	40
6.24	12.07	-5.83	19	41
7.33	12.07	-4.74	19	42
7.76	12.07	-4.31	19	43
13.17	6.74	6.43	20	43
12.42	6.74	5.68	21	43
8.52	6.74	1.78	22	43
10.97	6.74	4.23	23	43
6.2	6.74	-0.54	23	44
6.49	6.74	-0.25	23	45
6.26	6.74	-0.48	23	46
6.23	6.74	-0.51	23	47
6.03	6.74	-0.71	23	48
6.41	6.74	-0.33	23	49
6.24	6.74	-0.5	23	50
7.33	6.74	0.59	24	50
7.76	6.74	1.02	25	50
12.42	13.17	-0.75	25	51
8.52	13.17	-4.65	25	52
10.97	13.17	-2.2	25	53
6.2	13.17	-6.97	25	54
6.49	13.17	-6.68	25	55
6.26	13.17	-6.91	25	56
6.23	13.17	-6.94	25	57
6.03	13.17	-7.14	25	58
6.41	13.17	-6.76	25	59
6.24	13.17	-6.93	25	60
7.33	13.17	-5.84	25	61
7.76	13.17	-5.41	25	62
8.52	12.42	-3.9	25	63
10.97	12.42	-1.45	25	64
6.2	12.42	-6.22	25	65
6.49	12.42	-5.93	25	66
6.26	12.42	-6.16	25	67
6.23	12.42	-6.19	25	68
6.03	12.42	-6.39	25	69
6.41	12.42	-6.01	25	70
6.24	12.42	-6.18	25	71
7.33	12.42	-5.09	25	72
7.76	12.42	-4.66	25	73

10.97	8.52	2.45	26	73
6.2	8.52	-2.32	26	74
6.49	8.52	-2.03	26	75
6.26	8.52	-2.26	26	76
6.23	8.52	-2.29	26	77
6.03	8.52	-2.49	26	78
6.41	8.52	-2.11	26	79
6.24	8.52	-2.28	26	80
7.33	8.52	-1.19	26	81
7.76	8.52	-0.76	26	82
6.2	10.97	-4.77	26	83
6.49	10.97	-4.48	26	84
6.26	10.97	-4.71	26	85
6.23	10.97	-4.74	26	86
6.03	10.97	-4.94	26	87
6.41	10.97	-4.56	26	88
6.24	10.97	-4.73	26	89
7.33	10.97	-3.64	26	90
7.76	10.97	-3.21	26	91
6.49	6.2	0.29	27	91
6.26	6.2	0.06	28	91
6.23	6.2	0.03	29	91
6.03	6.2	-0.17	29	92
6.41	6.2	0.21	30	92
6.24	6.2	0.04	31	92
7.33	6.2	1.13	32	92
7.76	6.2	1.56	33	92
6.26	6.49	-0.23	33	93
6.23	6.49	-0.26	33	94
6.03	6.49	-0.46	33	95
6.41	6.49	-0.08	33	96
6.24	6.49	-0.25	33	97
7.33	6.49	0.84	34	97
7.76	6.49	1.27	35	97
6.23	6.26	-0.03	35	98
6.03	6.26	-0.23	35	99
6.41	6.26	0.15	36	99
6.24	6.26	-0.02	36	100
7.33	6.26	1.07	37	100
7.76	6.26	1.5	38	100
6.03	6.23	-0.2	38	101
6.41	6.23	0.18	39	101
6.24	6.23	0.01	40	101
7.33	6.23	1.1	41	101
7.76	6.23	1.53	42	101
6.41	6.03	0.38	43	101
6.24	6.03	0.21	44	101
7.33	6.03	1.3	45	101
7.76	6.03	1.73	46	101

6.24	6.41	-0.17	46	102
7.33	6.41	0.92	47	102
7.76	6.41	1.35	48	102
7.33	6.24	1.09	49	102
7.76	6.24	1.52	50	102
7.76	7.33	0.43	51	102

S Statistic = 51 - 102 = -51

---

Tied Group	Value	Members
------------	-------	---------

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 12546

b = 44064

c = 612

Group Variance = 697

Z-Score = -1.89389

Comparison Level at 95% confidence level = -1.65463 (downward trend)

**-1.89389 < -1.65463 indicating a downward trend**

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW02-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
12.2	6.73	5.47	1	0
12.39	6.73	5.66	2	0
11.95	6.73	5.22	3	0
11.4	6.73	4.67	4	0
12.87	6.73	6.14	5	0
10.02	6.73	3.29	6	0
7.82	6.73	1.09	7	0
8.93	6.73	2.2	8	0
6.6	6.73	-0.13	8	1
9.11	6.73	2.38	9	1
6.39	6.73	-0.34	9	2
6.21	6.73	-0.52	9	3
6.66	6.73	-0.07	9	4
7.05	6.73	0.32	10	4
6.53	6.73	-0.2	10	5
7.83	6.73	1.1	11	5
6.73	6.73	0	11	5
12.39	12.2	0.19	12	5
11.95	12.2	-0.25	12	6
11.4	12.2	-0.8	12	7
12.87	12.2	0.67	13	7
10.02	12.2	-2.18	13	8
7.82	12.2	-4.38	13	9
8.93	12.2	-3.27	13	10
6.6	12.2	-5.6	13	11
9.11	12.2	-3.09	13	12
6.39	12.2	-5.81	13	13
6.21	12.2	-5.99	13	14
6.66	12.2	-5.54	13	15
7.05	12.2	-5.15	13	16
6.53	12.2	-5.67	13	17
7.83	12.2	-4.37	13	18
6.73	12.2	-5.47	13	19
11.95	12.39	-0.44	13	20
11.4	12.39	-0.99	13	21
12.87	12.39	0.48	14	21
10.02	12.39	-2.37	14	22
7.82	12.39	-4.57	14	23
8.93	12.39	-3.46	14	24
6.6	12.39	-5.79	14	25
9.11	12.39	-3.28	14	26
6.39	12.39	-6	14	27
6.21	12.39	-6.18	14	28
6.66	12.39	-5.73	14	29
7.05	12.39	-5.34	14	30

6.53	12.39	-5.86	14	31
7.83	12.39	-4.56	14	32
6.73	12.39	-5.66	14	33
11.4	11.95	-0.55	14	34
12.87	11.95	0.92	15	34
10.02	11.95	-1.93	15	35
7.82	11.95	-4.13	15	36
8.93	11.95	-3.02	15	37
6.6	11.95	-5.35	15	38
9.11	11.95	-2.84	15	39
6.39	11.95	-5.56	15	40
6.21	11.95	-5.74	15	41
6.66	11.95	-5.29	15	42
7.05	11.95	-4.9	15	43
6.53	11.95	-5.42	15	44
7.83	11.95	-4.12	15	45
6.73	11.95	-5.22	15	46
12.87	11.4	1.47	16	46
10.02	11.4	-1.38	16	47
7.82	11.4	-3.58	16	48
8.93	11.4	-2.47	16	49
6.6	11.4	-4.8	16	50
9.11	11.4	-2.29	16	51
6.39	11.4	-5.01	16	52
6.21	11.4	-5.19	16	53
6.66	11.4	-4.74	16	54
7.05	11.4	-4.35	16	55
6.53	11.4	-4.87	16	56
7.83	11.4	-3.57	16	57
6.73	11.4	-4.67	16	58
10.02	12.87	-2.85	16	59
7.82	12.87	-5.05	16	60
8.93	12.87	-3.94	16	61
6.6	12.87	-6.27	16	62
9.11	12.87	-3.76	16	63
6.39	12.87	-6.48	16	64
6.21	12.87	-6.66	16	65
6.66	12.87	-6.21	16	66
7.05	12.87	-5.82	16	67
6.53	12.87	-6.34	16	68
7.83	12.87	-5.04	16	69
6.73	12.87	-6.14	16	70
7.82	10.02	-2.2	16	71
8.93	10.02	-1.09	16	72
6.6	10.02	-3.42	16	73
9.11	10.02	-0.91	16	74
6.39	10.02	-3.63	16	75
6.21	10.02	-3.81	16	76
6.66	10.02	-3.36	16	77
7.05	10.02	-2.97	16	78
6.53	10.02	-3.49	16	79
7.83	10.02	-2.19	16	80
6.73	10.02	-3.29	16	81

8.93	7.82	1.11	17	81
6.6	7.82	-1.22	17	82
9.11	7.82	1.29	18	82
6.39	7.82	-1.43	18	83
6.21	7.82	-1.61	18	84
6.66	7.82	-1.16	18	85
7.05	7.82	-0.77	18	86
6.53	7.82	-1.29	18	87
7.83	7.82	0.01	19	87
6.73	7.82	-1.09	19	88
6.6	8.93	-2.33	19	89
9.11	8.93	0.18	20	89
6.39	8.93	-2.54	20	90
6.21	8.93	-2.72	20	91
6.66	8.93	-2.27	20	92
7.05	8.93	-1.88	20	93
6.53	8.93	-2.4	20	94
7.83	8.93	-1.1	20	95
6.73	8.93	-2.2	20	96
9.11	6.6	2.51	21	96
6.39	6.6	-0.21	21	97
6.21	6.6	-0.39	21	98
6.66	6.6	0.06	22	98
7.05	6.6	0.45	23	98
6.53	6.6	-0.07	23	99
7.83	6.6	1.23	24	99
6.73	6.6	0.13	25	99
6.39	9.11	-2.72	25	100
6.21	9.11	-2.9	25	101
6.66	9.11	-2.45	25	102
7.05	9.11	-2.06	25	103
6.53	9.11	-2.58	25	104
7.83	9.11	-1.28	25	105
6.73	9.11	-2.38	25	106
6.21	6.39	-0.18	25	107
6.66	6.39	0.27	26	107
7.05	6.39	0.66	27	107
6.53	6.39	0.14	28	107
7.83	6.39	1.44	29	107
6.73	6.39	0.34	30	107
6.66	6.21	0.45	31	107
7.05	6.21	0.84	32	107
6.53	6.21	0.32	33	107
7.83	6.21	1.62	34	107
6.73	6.21	0.52	35	107
7.05	6.66	0.39	36	107
6.53	6.66	-0.13	36	108
7.83	6.66	1.17	37	108
6.73	6.66	0.07	38	108

6.53	7.05	-0.52	38	109
7.83	7.05	0.78	39	109
6.73	7.05	-0.32	39	110
7.83	6.53	1.3	40	110
6.73	6.53	0.2	41	110
6.73	7.83	-1.1	41	111

S Statistic = 41 - 111 = -70

---

Tied Group	Value	Members
1	6.73	2

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 12546

b = 44064

c = 612

Group Variance = 696

Z-Score = -2.61544

Comparison Level at 95% confidence level = -1.65463 (downward trend)

**-2.61544 < -1.65463 indicating a downward trend**



## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW03-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6.04	6.41	-0.37	0	1
6.28	6.41	-0.13	0	2
5.97	6.41	-0.44	0	3
5.96	6.41	-0.45	0	4
6.21	6.41	-0.2	0	5
6.02	6.41	-0.39	0	6
6.34	6.41	-0.07	0	7
5.8	6.41	-0.61	0	8
5.67	6.41	-0.74	0	9
5.68	6.41	-0.73	0	10
6.4	6.41	-0.01	0	11
5.82	6.41	-0.59	0	12
6.26	6.41	-0.15	0	13
7.57	6.41	1.16	1	13
6.6	6.41	0.19	2	13
5.83	6.41	-0.58	2	14
6.07	6.41	-0.34	2	15
5.7	6.41	-0.71	2	16
6.54	6.41	0.13	3	16
6.27	6.41	-0.14	3	17
6.08	6.41	-0.33	3	18
6.28	6.04	0.24	4	18
5.97	6.04	-0.07	4	19
5.96	6.04	-0.08	4	20
6.21	6.04	0.17	5	20
6.02	6.04	-0.02	5	21
6.34	6.04	0.3	6	21
5.8	6.04	-0.24	6	22
5.67	6.04	-0.37	6	23
5.68	6.04	-0.36	6	24
6.4	6.04	0.36	7	24
5.82	6.04	-0.22	7	25
6.26	6.04	0.22	8	25
7.57	6.04	1.53	9	25
6.6	6.04	0.56	10	25
5.83	6.04	-0.21	10	26
6.07	6.04	0.03	11	26
5.7	6.04	-0.34	11	27
6.54	6.04	0.5	12	27
6.27	6.04	0.23	13	27
6.08	6.04	0.04	14	27
5.97	6.28	-0.31	14	28
5.96	6.28	-0.32	14	29
6.21	6.28	-0.07	14	30
6.02	6.28	-0.26	14	31

6.34	6.28	0.06	15	31
5.8	6.28	-0.48	15	32
5.67	6.28	-0.61	15	33
5.68	6.28	-0.6	15	34
6.4	6.28	0.12	16	34
5.82	6.28	-0.46	16	35
6.26	6.28	-0.02	16	36
7.57	6.28	1.29	17	36
6.6	6.28	0.32	18	36
5.83	6.28	-0.45	18	37
6.07	6.28	-0.21	18	38
5.7	6.28	-0.58	18	39
6.54	6.28	0.26	19	39
6.27	6.28	-0.01	19	40
6.08	6.28	-0.2	19	41
5.96	5.97	-0.01	19	42
6.21	5.97	0.24	20	42
6.02	5.97	0.05	21	42
6.34	5.97	0.37	22	42
5.8	5.97	-0.17	22	43
5.67	5.97	-0.3	22	44
5.68	5.97	-0.29	22	45
6.4	5.97	0.43	23	45
5.82	5.97	-0.15	23	46
6.26	5.97	0.29	24	46
7.57	5.97	1.6	25	46
6.6	5.97	0.63	26	46
5.83	5.97	-0.14	26	47
6.07	5.97	0.1	27	47
5.7	5.97	-0.27	27	48
6.54	5.97	0.57	28	48
6.27	5.97	0.3	29	48
6.08	5.97	0.11	30	48
6.21	5.96	0.25	31	48
6.02	5.96	0.06	32	48
6.34	5.96	0.38	33	48
5.8	5.96	-0.16	33	49
5.67	5.96	-0.29	33	50
5.68	5.96	-0.28	33	51
6.4	5.96	0.44	34	51
5.82	5.96	-0.14	34	52
6.26	5.96	0.3	35	52
7.57	5.96	1.61	36	52
6.6	5.96	0.64	37	52
5.83	5.96	-0.13	37	53
6.07	5.96	0.11	38	53
5.7	5.96	-0.26	38	54
6.54	5.96	0.58	39	54
6.27	5.96	0.31	40	54
6.08	5.96	0.12	41	54
6.02	6.21	-0.19	41	55
6.34	6.21	0.13	42	55
5.8	6.21	-0.41	42	56
5.67	6.21	-0.54	42	57

5.68	6.21	-0.53	42	58
6.4	6.21	0.19	43	58
5.82	6.21	-0.39	43	59
6.26	6.21	0.05	44	59
7.57	6.21	1.36	45	59
6.6	6.21	0.39	46	59
5.83	6.21	-0.38	46	60
6.07	6.21	-0.14	46	61
5.7	6.21	-0.51	46	62
6.54	6.21	0.33	47	62
6.27	6.21	0.06	48	62
6.08	6.21	-0.13	48	63
6.34	6.02	0.32	49	63
5.8	6.02	-0.22	49	64
5.67	6.02	-0.35	49	65
5.68	6.02	-0.34	49	66
6.4	6.02	0.38	50	66
5.82	6.02	-0.2	50	67
6.26	6.02	0.24	51	67
7.57	6.02	1.55	52	67
6.6	6.02	0.58	53	67
5.83	6.02	-0.19	53	68
6.07	6.02	0.05	54	68
5.7	6.02	-0.32	54	69
6.54	6.02	0.52	55	69
6.27	6.02	0.25	56	69
6.08	6.02	0.06	57	69
5.8	6.34	-0.54	57	70
5.67	6.34	-0.67	57	71
5.68	6.34	-0.66	57	72
6.4	6.34	0.06	58	72
5.82	6.34	-0.52	58	73
6.26	6.34	-0.08	58	74
7.57	6.34	1.23	59	74
6.6	6.34	0.26	60	74
5.83	6.34	-0.51	60	75
6.07	6.34	-0.27	60	76
5.7	6.34	-0.64	60	77
6.54	6.34	0.2	61	77
6.27	6.34	-0.07	61	78
6.08	6.34	-0.26	61	79
5.67	5.8	-0.13	61	80
5.68	5.8	-0.12	61	81
6.4	5.8	0.6	62	81
5.82	5.8	0.02	63	81
6.26	5.8	0.46	64	81
7.57	5.8	1.77	65	81
6.6	5.8	0.8	66	81
5.83	5.8	0.03	67	81
6.07	5.8	0.27	68	81
5.7	5.8	-0.1	68	82
6.54	5.8	0.74	69	82
6.27	5.8	0.47	70	82
6.08	5.8	0.28	71	82

5.68	5.67	0.01	72	82
6.4	5.67	0.73	73	82
5.82	5.67	0.15	74	82
6.26	5.67	0.59	75	82
7.57	5.67	1.9	76	82
6.6	5.67	0.93	77	82
5.83	5.67	0.16	78	82
6.07	5.67	0.4	79	82
5.7	5.67	0.03	80	82
6.54	5.67	0.87	81	82
6.27	5.67	0.6	82	82
6.08	5.67	0.41	83	82
6.4	5.68	0.72	84	82
5.82	5.68	0.14	85	82
6.26	5.68	0.58	86	82
7.57	5.68	1.89	87	82
6.6	5.68	0.92	88	82
5.83	5.68	0.15	89	82
6.07	5.68	0.39	90	82
5.7	5.68	0.02	91	82
6.54	5.68	0.86	92	82
6.27	5.68	0.59	93	82
6.08	5.68	0.4	94	82
5.82	6.4	-0.58	94	83
6.26	6.4	-0.14	94	84
7.57	6.4	1.17	95	84
6.6	6.4	0.2	96	84
5.83	6.4	-0.57	96	85
6.07	6.4	-0.33	96	86
5.7	6.4	-0.7	96	87
6.54	6.4	0.14	97	87
6.27	6.4	-0.13	97	88
6.08	6.4	-0.32	97	89
6.26	5.82	0.44	98	89
7.57	5.82	1.75	99	89
6.6	5.82	0.78	100	89
5.83	5.82	0.01	101	89
6.07	5.82	0.25	102	89
5.7	5.82	-0.12	102	90
6.54	5.82	0.72	103	90
6.27	5.82	0.45	104	90
6.08	5.82	0.26	105	90
7.57	6.26	1.31	106	90
6.6	6.26	0.34	107	90
5.83	6.26	-0.43	107	91
6.07	6.26	-0.19	107	92
5.7	6.26	-0.56	107	93
6.54	6.26	0.28	108	93
6.27	6.26	0.01	109	93
6.08	6.26	-0.18	109	94
6.6	7.57	-0.97	109	95

5.83	7.57	-1.74	109	96
6.07	7.57	-1.5	109	97
5.7	7.57	-1.87	109	98
6.54	7.57	-1.03	109	99
6.27	7.57	-1.3	109	100
6.08	7.57	-1.49	109	101
5.83	6.6	-0.77	109	102
6.07	6.6	-0.53	109	103
5.7	6.6	-0.9	109	104
6.54	6.6	-0.06	109	105
6.27	6.6	-0.33	109	106
6.08	6.6	-0.52	109	107
6.07	5.83	0.24	110	107
5.7	5.83	-0.13	110	108
6.54	5.83	0.71	111	108
6.27	5.83	0.44	112	108
6.08	5.83	0.25	113	108
5.7	6.07	-0.37	113	109
6.54	6.07	0.47	114	109
6.27	6.07	0.2	115	109
6.08	6.07	0.01	116	109
6.54	5.7	0.84	117	109
6.27	5.7	0.57	118	109
6.08	5.7	0.38	119	109
6.27	6.54	-0.27	119	110
6.08	6.54	-0.46	119	111
6.08	6.27	-0.19	119	112

S Statistic = 119 - 112 = 7

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1

6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 22638

b = 83160

c = 924

Group Variance = 1257.67

Z-Score = 0.169188

Comparison Level at 95% confidence level = -1.65463 (downward trend)

0.169188 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW05R-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6.14	6.46	-0.32	0	1
6.51	6.46	0.05	1	1
6.48	6.46	0.02	2	1
6.31	6.46	-0.15	2	2
6.37	6.46	-0.09	2	3
6.82	6.46	0.36	3	3
6.51	6.14	0.37	4	3
6.48	6.14	0.34	5	3
6.31	6.14	0.17	6	3
6.37	6.14	0.23	7	3
6.82	6.14	0.68	8	3
6.48	6.51	-0.03	8	4
6.31	6.51	-0.2	8	5
6.37	6.51	-0.14	8	6
6.82	6.51	0.31	9	6
6.31	6.48	-0.17	9	7
6.37	6.48	-0.11	9	8
6.82	6.48	0.34	10	8
6.37	6.31	0.06	11	8
6.82	6.31	0.51	12	8
6.82	6.37	0.45	13	8

S Statistic = 13 - 8 = 5

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 5$  is 0.281

$S > 0$  or  $0.281 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW06-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.71	5.85	-0.14	0	1
5.94	5.85	0.09	1	1
6.06	5.85	0.21	2	1
5.81	5.85	-0.04	2	2
6.08	5.85	0.23	3	2
5.7	5.85	-0.15	3	3
6.11	5.85	0.26	4	3
6.16	5.85	0.31	5	3
5.84	5.85	-0.01	5	4
6	5.85	0.15	6	4
5.92	5.85	0.07	7	4
5.68	5.85	-0.17	7	5
7.44	5.85	1.59	8	5
6.66	5.85	0.81	9	5
5.8	5.85	-0.05	9	6
5.52	5.85	-0.33	9	7
7.16	5.85	1.31	10	7
5.34	5.85	-0.51	10	8
7.88	5.85	2.03	11	8
5.3	5.85	-0.55	11	9
6.29	5.85	0.44	12	9
4.63	5.85	-1.22	12	10
9.46	5.85	3.61	13	10
5.94	5.71	0.23	14	10
6.06	5.71	0.35	15	10
5.81	5.71	0.1	16	10
6.08	5.71	0.37	17	10
5.7	5.71	-0.01	17	11
6.11	5.71	0.4	18	11
6.16	5.71	0.45	19	11
5.84	5.71	0.13	20	11
6	5.71	0.29	21	11
5.92	5.71	0.21	22	11
5.68	5.71	-0.03	22	12
7.44	5.71	1.73	23	12
6.66	5.71	0.95	24	12
5.8	5.71	0.09	25	12
5.52	5.71	-0.19	25	13
7.16	5.71	1.45	26	13
5.34	5.71	-0.37	26	14
7.88	5.71	2.17	27	14
5.3	5.71	-0.41	27	15
6.29	5.71	0.58	28	15
4.63	5.71	-1.08	28	16
9.46	5.71	3.75	29	16



6.06	5.94	0.12	30	16
5.81	5.94	-0.13	30	17
6.08	5.94	0.14	31	17
5.7	5.94	-0.24	31	18
6.11	5.94	0.17	32	18
6.16	5.94	0.22	33	18
5.84	5.94	-0.1	33	19
6	5.94	0.06	34	19
5.92	5.94	-0.02	34	20
5.68	5.94	-0.26	34	21
7.44	5.94	1.5	35	21
6.66	5.94	0.72	36	21
5.8	5.94	-0.14	36	22
5.52	5.94	-0.42	36	23
7.16	5.94	1.22	37	23
5.34	5.94	-0.6	37	24
7.88	5.94	1.94	38	24
5.3	5.94	-0.64	38	25
6.29	5.94	0.35	39	25
4.63	5.94	-1.31	39	26
9.46	5.94	3.52	40	26
5.81	6.06	-0.25	40	27
6.08	6.06	0.02	41	27
5.7	6.06	-0.36	41	28
6.11	6.06	0.05	42	28
6.16	6.06	0.1	43	28
5.84	6.06	-0.22	43	29
6	6.06	-0.06	43	30
5.92	6.06	-0.14	43	31
5.68	6.06	-0.38	43	32
7.44	6.06	1.38	44	32
6.66	6.06	0.6	45	32
5.8	6.06	-0.26	45	33
5.52	6.06	-0.54	45	34
7.16	6.06	1.1	46	34
5.34	6.06	-0.72	46	35
7.88	6.06	1.82	47	35
5.3	6.06	-0.76	47	36
6.29	6.06	0.23	48	36
4.63	6.06	-1.43	48	37
9.46	6.06	3.4	49	37
6.08	5.81	0.27	50	37
5.7	5.81	-0.11	50	38
6.11	5.81	0.3	51	38
6.16	5.81	0.35	52	38
5.84	5.81	0.03	53	38
6	5.81	0.19	54	38
5.92	5.81	0.11	55	38
5.68	5.81	-0.13	55	39
7.44	5.81	1.63	56	39
6.66	5.81	0.85	57	39
5.8	5.81	-0.01	57	40
5.52	5.81	-0.29	57	41
7.16	5.81	1.35	58	41
5.34	5.81	-0.47	58	42

7.88	5.81	2.07	59	42
5.3	5.81	-0.51	59	43
6.29	5.81	0.48	60	43
4.63	5.81	-1.18	60	44
9.46	5.81	3.65	61	44
5.7	6.08	-0.38	61	45
6.11	6.08	0.03	62	45
6.16	6.08	0.08	63	45
5.84	6.08	-0.24	63	46
6	6.08	-0.08	63	47
5.92	6.08	-0.16	63	48
5.68	6.08	-0.4	63	49
7.44	6.08	1.36	64	49
6.66	6.08	0.58	65	49
5.8	6.08	-0.28	65	50
5.52	6.08	-0.56	65	51
7.16	6.08	1.08	66	51
5.34	6.08	-0.74	66	52
7.88	6.08	1.8	67	52
5.3	6.08	-0.78	67	53
6.29	6.08	0.21	68	53
4.63	6.08	-1.45	68	54
9.46	6.08	3.38	69	54
6.11	5.7	0.41	70	54
6.16	5.7	0.46	71	54
5.84	5.7	0.14	72	54
6	5.7	0.3	73	54
5.92	5.7	0.22	74	54
5.68	5.7	-0.02	74	55
7.44	5.7	1.74	75	55
6.66	5.7	0.96	76	55
5.8	5.7	0.1	77	55
5.52	5.7	-0.18	77	56
7.16	5.7	1.46	78	56
5.34	5.7	-0.36	78	57
7.88	5.7	2.18	79	57
5.3	5.7	-0.4	79	58
6.29	5.7	0.59	80	58
4.63	5.7	-1.07	80	59
9.46	5.7	3.76	81	59
6.16	6.11	0.05	82	59
5.84	6.11	-0.27	82	60
6	6.11	-0.11	82	61
5.92	6.11	-0.19	82	62
5.68	6.11	-0.43	82	63
7.44	6.11	1.33	83	63
6.66	6.11	0.55	84	63
5.8	6.11	-0.31	84	64
5.52	6.11	-0.59	84	65
7.16	6.11	1.05	85	65
5.34	6.11	-0.77	85	66
7.88	6.11	1.77	86	66
5.3	6.11	-0.81	86	67
6.29	6.11	0.18	87	67

4.63	6.11	-1.48	87	68
9.46	6.11	3.35	88	68
5.84	6.16	-0.32	88	69
6	6.16	-0.16	88	70
5.92	6.16	-0.24	88	71
5.68	6.16	-0.48	88	72
7.44	6.16	1.28	89	72
6.66	6.16	0.5	90	72
5.8	6.16	-0.36	90	73
5.52	6.16	-0.64	90	74
7.16	6.16	1	91	74
5.34	6.16	-0.82	91	75
7.88	6.16	1.72	92	75
5.3	6.16	-0.86	92	76
6.29	6.16	0.13	93	76
4.63	6.16	-1.53	93	77
9.46	6.16	3.3	94	77
6	5.84	0.16	95	77
5.92	5.84	0.08	96	77
5.68	5.84	-0.16	96	78
7.44	5.84	1.6	97	78
6.66	5.84	0.82	98	78
5.8	5.84	-0.04	98	79
5.52	5.84	-0.32	98	80
7.16	5.84	1.32	99	80
5.34	5.84	-0.5	99	81
7.88	5.84	2.04	100	81
5.3	5.84	-0.54	100	82
6.29	5.84	0.45	101	82
4.63	5.84	-1.21	101	83
9.46	5.84	3.62	102	83
5.92	6	-0.08	102	84
5.68	6	-0.32	102	85
7.44	6	1.44	103	85
6.66	6	0.66	104	85
5.8	6	-0.2	104	86
5.52	6	-0.48	104	87
7.16	6	1.16	105	87
5.34	6	-0.66	105	88
7.88	6	1.88	106	88
5.3	6	-0.7	106	89
6.29	6	0.29	107	89
4.63	6	-1.37	107	90
9.46	6	3.46	108	90
5.68	5.92	-0.24	108	91
7.44	5.92	1.52	109	91
6.66	5.92	0.74	110	91
5.8	5.92	-0.12	110	92
5.52	5.92	-0.4	110	93
7.16	5.92	1.24	111	93
5.34	5.92	-0.58	111	94
7.88	5.92	1.96	112	94
5.3	5.92	-0.62	112	95

6.29	5.92	0.37	113	95
4.63	5.92	-1.29	113	96
9.46	5.92	3.54	114	96
7.44	5.68	1.76	115	96
6.66	5.68	0.98	116	96
5.8	5.68	0.12	117	96
5.52	5.68	-0.16	117	97
7.16	5.68	1.48	118	97
5.34	5.68	-0.34	118	98
7.88	5.68	2.2	119	98
5.3	5.68	-0.38	119	99
6.29	5.68	0.61	120	99
4.63	5.68	-1.05	120	100
9.46	5.68	3.78	121	100
6.66	7.44	-0.78	121	101
5.8	7.44	-1.64	121	102
5.52	7.44	-1.92	121	103
7.16	7.44	-0.28	121	104
5.34	7.44	-2.1	121	105
7.88	7.44	0.44	122	105
5.3	7.44	-2.14	122	106
6.29	7.44	-1.15	122	107
4.63	7.44	-2.81	122	108
9.46	7.44	2.02	123	108
5.8	6.66	-0.86	123	109
5.52	6.66	-1.14	123	110
7.16	6.66	0.5	124	110
5.34	6.66	-1.32	124	111
7.88	6.66	1.22	125	111
5.3	6.66	-1.36	125	112
6.29	6.66	-0.37	125	113
4.63	6.66	-2.03	125	114
9.46	6.66	2.8	126	114
5.52	5.8	-0.28	126	115
7.16	5.8	1.36	127	115
5.34	5.8	-0.46	127	116
7.88	5.8	2.08	128	116
5.3	5.8	-0.5	128	117
6.29	5.8	0.49	129	117
4.63	5.8	-1.17	129	118
9.46	5.8	3.66	130	118
7.16	5.52	1.64	131	118
5.34	5.52	-0.18	131	119
7.88	5.52	2.36	132	119
5.3	5.52	-0.22	132	120
6.29	5.52	0.77	133	120
4.63	5.52	-0.89	133	121
9.46	5.52	3.94	134	121
5.34	7.16	-1.82	134	122
7.88	7.16	0.72	135	122
5.3	7.16	-1.86	135	123

6.29	7.16	-0.87	135	124
4.63	7.16	-2.53	135	125
9.46	7.16	2.3	136	125
7.88	5.34	2.54	137	125
5.3	5.34	-0.04	137	126
6.29	5.34	0.95	138	126
4.63	5.34	-0.71	138	127
9.46	5.34	4.12	139	127
5.3	7.88	-2.58	139	128
6.29	7.88	-1.59	139	129
4.63	7.88	-3.25	139	130
9.46	7.88	1.58	140	130
6.29	5.3	0.99	141	130
4.63	5.3	-0.67	141	131
9.46	5.3	4.16	142	131
4.63	6.29	-1.66	142	132
9.46	6.29	3.17	143	132
9.46	4.63	4.83	144	132

S Statistic = 144 - 132 = 12

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1
6/1/2019		1
9/1/2019		1
12/1/2019		1
3/1/2020		1
6/1/2020		1
9/1/2020		1
11/1/2020		1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1625.33

Z-Score = 0.272848

Comparison Level at 95% confidence level = -1.65463 (downward trend)

0.272848  $\geq$  -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW07-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6	6.25	-0.25	0	1
6.05	6.25	-0.2	0	2
6.61	6.25	0.36	1	2
6.09	6.25	-0.16	1	3
6.18	6.25	-0.07	1	4
6.54	6.25	0.29	2	4
5.65	6.25	-0.6	2	5
6.66	6.25	0.41	3	5
5.89	6.25	-0.36	3	6
6.6	6.25	0.35	4	6
7.11	6.25	0.86	5	6
6.18	6.25	-0.07	5	7
6.47	6.25	0.22	6	7
6.55	6.25	0.3	7	7
6.5	6.25	0.25	8	7
5.93	6.25	-0.32	8	8
5.68	6.25	-0.57	8	9
5.72	6.25	-0.53	8	10
6.77	6.25	0.52	9	10
5.91	6.25	-0.34	9	11
6.44	6.25	0.19	10	11
6.05	6	0.05	11	11
6.61	6	0.61	12	11
6.09	6	0.09	13	11
6.18	6	0.18	14	11
6.54	6	0.54	15	11
5.65	6	-0.35	15	12
6.66	6	0.66	16	12
5.89	6	-0.11	16	13
6.6	6	0.6	17	13
7.11	6	1.11	18	13
6.18	6	0.18	19	13
6.47	6	0.47	20	13
6.55	6	0.55	21	13
6.5	6	0.5	22	13
5.93	6	-0.07	22	14
5.68	6	-0.32	22	15
5.72	6	-0.28	22	16
6.77	6	0.77	23	16
5.91	6	-0.09	23	17
6.44	6	0.44	24	17
6.61	6.05	0.56	25	17
6.09	6.05	0.04	26	17
6.18	6.05	0.13	27	17
6.54	6.05	0.49	28	17

5.65	6.05	-0.4	28	18
6.66	6.05	0.61	29	18
5.89	6.05	-0.16	29	19
6.6	6.05	0.55	30	19
7.11	6.05	1.06	31	19
6.18	6.05	0.13	32	19
6.47	6.05	0.42	33	19
6.55	6.05	0.5	34	19
6.5	6.05	0.45	35	19
5.93	6.05	-0.12	35	20
5.68	6.05	-0.37	35	21
5.72	6.05	-0.33	35	22
6.77	6.05	0.72	36	22
5.91	6.05	-0.14	36	23
6.44	6.05	0.39	37	23
6.09	6.61	-0.52	37	24
6.18	6.61	-0.43	37	25
6.54	6.61	-0.07	37	26
5.65	6.61	-0.96	37	27
6.66	6.61	0.05	38	27
5.89	6.61	-0.72	38	28
6.6	6.61	-0.01	38	29
7.11	6.61	0.5	39	29
6.18	6.61	-0.43	39	30
6.47	6.61	-0.14	39	31
6.55	6.61	-0.06	39	32
6.5	6.61	-0.11	39	33
5.93	6.61	-0.68	39	34
5.68	6.61	-0.93	39	35
5.72	6.61	-0.89	39	36
6.77	6.61	0.16	40	36
5.91	6.61	-0.7	40	37
6.44	6.61	-0.17	40	38
6.18	6.09	0.09	41	38
6.54	6.09	0.45	42	38
5.65	6.09	-0.44	42	39
6.66	6.09	0.57	43	39
5.89	6.09	-0.2	43	40
6.6	6.09	0.51	44	40
7.11	6.09	1.02	45	40
6.18	6.09	0.09	46	40
6.47	6.09	0.38	47	40
6.55	6.09	0.46	48	40
6.5	6.09	0.41	49	40
5.93	6.09	-0.16	49	41
5.68	6.09	-0.41	49	42
5.72	6.09	-0.37	49	43
6.77	6.09	0.68	50	43
5.91	6.09	-0.18	50	44
6.44	6.09	0.35	51	44
6.54	6.18	0.36	52	44
5.65	6.18	-0.53	52	45
6.66	6.18	0.48	53	45
5.89	6.18	-0.29	53	46



6.6	6.18	0.42	54	46
7.11	6.18	0.93	55	46
6.18	6.18	0	55	46
6.47	6.18	0.29	56	46
6.55	6.18	0.37	57	46
6.5	6.18	0.32	58	46
5.93	6.18	-0.25	58	47
5.68	6.18	-0.5	58	48
5.72	6.18	-0.46	58	49
6.77	6.18	0.59	59	49
5.91	6.18	-0.27	59	50
6.44	6.18	0.26	60	50
5.65	6.54	-0.89	60	51
6.66	6.54	0.12	61	51
5.89	6.54	-0.65	61	52
6.6	6.54	0.06	62	52
7.11	6.54	0.57	63	52
6.18	6.54	-0.36	63	53
6.47	6.54	-0.07	63	54
6.55	6.54	0.01	64	54
6.5	6.54	-0.04	64	55
5.93	6.54	-0.61	64	56
5.68	6.54	-0.86	64	57
5.72	6.54	-0.82	64	58
6.77	6.54	0.23	65	58
5.91	6.54	-0.63	65	59
6.44	6.54	-0.1	65	60
6.66	5.65	1.01	66	60
5.89	5.65	0.24	67	60
6.6	5.65	0.95	68	60
7.11	5.65	1.46	69	60
6.18	5.65	0.53	70	60
6.47	5.65	0.82	71	60
6.55	5.65	0.9	72	60
6.5	5.65	0.85	73	60
5.93	5.65	0.28	74	60
5.68	5.65	0.03	75	60
5.72	5.65	0.07	76	60
6.77	5.65	1.12	77	60
5.91	5.65	0.26	78	60
6.44	5.65	0.79	79	60
5.89	6.66	-0.77	79	61
6.6	6.66	-0.06	79	62
7.11	6.66	0.45	80	62
6.18	6.66	-0.48	80	63
6.47	6.66	-0.19	80	64
6.55	6.66	-0.11	80	65
6.5	6.66	-0.16	80	66
5.93	6.66	-0.73	80	67
5.68	6.66	-0.98	80	68
5.72	6.66	-0.94	80	69
6.77	6.66	0.11	81	69
5.91	6.66	-0.75	81	70
6.44	6.66	-0.22	81	71

6.6	5.89	0.71	82	71
7.11	5.89	1.22	83	71
6.18	5.89	0.29	84	71
6.47	5.89	0.58	85	71
6.55	5.89	0.66	86	71
6.5	5.89	0.61	87	71
5.93	5.89	0.04	88	71
5.68	5.89	-0.21	88	72
5.72	5.89	-0.17	88	73
6.77	5.89	0.88	89	73
5.91	5.89	0.02	90	73
6.44	5.89	0.55	91	73
7.11	6.6	0.51	92	73
6.18	6.6	-0.42	92	74
6.47	6.6	-0.13	92	75
6.55	6.6	-0.05	92	76
6.5	6.6	-0.1	92	77
5.93	6.6	-0.67	92	78
5.68	6.6	-0.92	92	79
5.72	6.6	-0.88	92	80
6.77	6.6	0.17	93	80
5.91	6.6	-0.69	93	81
6.44	6.6	-0.16	93	82
6.18	7.11	-0.93	93	83
6.47	7.11	-0.64	93	84
6.55	7.11	-0.56	93	85
6.5	7.11	-0.61	93	86
5.93	7.11	-1.18	93	87
5.68	7.11	-1.43	93	88
5.72	7.11	-1.39	93	89
6.77	7.11	-0.34	93	90
5.91	7.11	-1.2	93	91
6.44	7.11	-0.67	93	92
6.47	6.18	0.29	94	92
6.55	6.18	0.37	95	92
6.5	6.18	0.32	96	92
5.93	6.18	-0.25	96	93
5.68	6.18	-0.5	96	94
5.72	6.18	-0.46	96	95
6.77	6.18	0.59	97	95
5.91	6.18	-0.27	97	96
6.44	6.18	0.26	98	96
6.55	6.47	0.08	99	96
6.5	6.47	0.03	100	96
5.93	6.47	-0.54	100	97
5.68	6.47	-0.79	100	98
5.72	6.47	-0.75	100	99
6.77	6.47	0.3	101	99
5.91	6.47	-0.56	101	100
6.44	6.47	-0.03	101	101
6.5	6.55	-0.05	101	102

5.93	6.55	-0.62	101	103
5.68	6.55	-0.87	101	104
5.72	6.55	-0.83	101	105
6.77	6.55	0.22	102	105
5.91	6.55	-0.64	102	106
6.44	6.55	-0.11	102	107
5.93	6.5	-0.57	102	108
5.68	6.5	-0.82	102	109
5.72	6.5	-0.78	102	110
6.77	6.5	0.27	103	110
5.91	6.5	-0.59	103	111
6.44	6.5	-0.06	103	112
5.68	5.93	-0.25	103	113
5.72	5.93	-0.21	103	114
6.77	5.93	0.84	104	114
5.91	5.93	-0.02	104	115
6.44	5.93	0.51	105	115
5.72	5.68	0.04	106	115
6.77	5.68	1.09	107	115
5.91	5.68	0.23	108	115
6.44	5.68	0.76	109	115
6.77	5.72	1.05	110	115
5.91	5.72	0.19	111	115
6.44	5.72	0.72	112	115
5.91	6.77	-0.86	112	116
6.44	6.77	-0.33	112	117
6.44	5.91	0.53	113	117

S Statistic = 113 - 117 = -4

---

Tied Group	Value	Members
1	6.18	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1

3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 22638

b = 83160

c = 924

Group Variance = 1256.67

Z-Score = -0.0846274

Comparison Level at 95% confidence level = -1.65463 (downward trend)

-0.0846274 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW08-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.57	6.06	-0.49	0	1
6.21	6.06	0.15	1	1
3.14	6.06	-2.92	1	2
3.88	6.06	-2.18	1	3
6.31	6.06	0.25	2	3
6.78	6.06	0.72	3	3
6.34	6.06	0.28	4	3
5.99	6.06	-0.07	4	4
6.21	6.06	0.15	5	4
6.3	6.06	0.24	6	4
6.27	6.06	0.21	7	4
6.57	6.06	0.51	8	4
7.89	6.06	1.83	9	4
6.9	6.06	0.84	10	4
6.54	6.06	0.48	11	4
6.16	6.06	0.1	12	4
6.06	6.06	0	12	4
6.49	6.06	0.43	13	4
6.57	6.06	0.51	14	4
6.41	6.06	0.35	15	4
6.39	6.06	0.33	16	4
7.53	6.06	1.47	17	4
6.21	5.57	0.64	18	4
3.14	5.57	-2.43	18	5
3.88	5.57	-1.69	18	6
6.31	5.57	0.74	19	6
6.78	5.57	1.21	20	6
6.34	5.57	0.77	21	6
5.99	5.57	0.42	22	6
6.21	5.57	0.64	23	6
6.3	5.57	0.73	24	6
6.27	5.57	0.7	25	6
6.57	5.57	1	26	6
7.89	5.57	2.32	27	6
6.9	5.57	1.33	28	6
6.54	5.57	0.97	29	6
6.16	5.57	0.59	30	6
6.06	5.57	0.49	31	6
6.49	5.57	0.92	32	6
6.57	5.57	1	33	6
6.41	5.57	0.84	34	6
6.39	5.57	0.82	35	6
7.53	5.57	1.96	36	6
3.14	6.21	-3.07	36	7
3.88	6.21	-2.33	36	8

6.31	6.21	0.1	37	8
6.78	6.21	0.57	38	8
6.34	6.21	0.13	39	8
5.99	6.21	-0.22	39	9
6.21	6.21	0	39	9
6.3	6.21	0.09	40	9
6.27	6.21	0.06	41	9
6.57	6.21	0.36	42	9
7.89	6.21	1.68	43	9
6.9	6.21	0.69	44	9
6.54	6.21	0.33	45	9
6.16	6.21	-0.05	45	10
6.06	6.21	-0.15	45	11
6.49	6.21	0.28	46	11
6.57	6.21	0.36	47	11
6.41	6.21	0.2	48	11
6.39	6.21	0.18	49	11
7.53	6.21	1.32	50	11
3.88	3.14	0.74	51	11
6.31	3.14	3.17	52	11
6.78	3.14	3.64	53	11
6.34	3.14	3.2	54	11
5.99	3.14	2.85	55	11
6.21	3.14	3.07	56	11
6.3	3.14	3.16	57	11
6.27	3.14	3.13	58	11
6.57	3.14	3.43	59	11
7.89	3.14	4.75	60	11
6.9	3.14	3.76	61	11
6.54	3.14	3.4	62	11
6.16	3.14	3.02	63	11
6.06	3.14	2.92	64	11
6.49	3.14	3.35	65	11
6.57	3.14	3.43	66	11
6.41	3.14	3.27	67	11
6.39	3.14	3.25	68	11
7.53	3.14	4.39	69	11
6.31	3.88	2.43	70	11
6.78	3.88	2.9	71	11
6.34	3.88	2.46	72	11
5.99	3.88	2.11	73	11
6.21	3.88	2.33	74	11
6.3	3.88	2.42	75	11
6.27	3.88	2.39	76	11
6.57	3.88	2.69	77	11
7.89	3.88	4.01	78	11
6.9	3.88	3.02	79	11
6.54	3.88	2.66	80	11
6.16	3.88	2.28	81	11
6.06	3.88	2.18	82	11
6.49	3.88	2.61	83	11
6.57	3.88	2.69	84	11
6.41	3.88	2.53	85	11
6.39	3.88	2.51	86	11
7.53	3.88	3.65	87	11

6.78	6.31	0.47	88	11
6.34	6.31	0.03	89	11
5.99	6.31	-0.32	89	12
6.21	6.31	-0.1	89	13
6.3	6.31	-0.01	89	14
6.27	6.31	-0.04	89	15
6.57	6.31	0.26	90	15
7.89	6.31	1.58	91	15
6.9	6.31	0.59	92	15
6.54	6.31	0.23	93	15
6.16	6.31	-0.15	93	16
6.06	6.31	-0.25	93	17
6.49	6.31	0.18	94	17
6.57	6.31	0.26	95	17
6.41	6.31	0.1	96	17
6.39	6.31	0.08	97	17
7.53	6.31	1.22	98	17
6.34	6.78	-0.44	98	18
5.99	6.78	-0.79	98	19
6.21	6.78	-0.57	98	20
6.3	6.78	-0.48	98	21
6.27	6.78	-0.51	98	22
6.57	6.78	-0.21	98	23
7.89	6.78	1.11	99	23
6.9	6.78	0.12	100	23
6.54	6.78	-0.24	100	24
6.16	6.78	-0.62	100	25
6.06	6.78	-0.72	100	26
6.49	6.78	-0.29	100	27
6.57	6.78	-0.21	100	28
6.41	6.78	-0.37	100	29
6.39	6.78	-0.39	100	30
7.53	6.78	0.75	101	30
5.99	6.34	-0.35	101	31
6.21	6.34	-0.13	101	32
6.3	6.34	-0.04	101	33
6.27	6.34	-0.07	101	34
6.57	6.34	0.23	102	34
7.89	6.34	1.55	103	34
6.9	6.34	0.56	104	34
6.54	6.34	0.2	105	34
6.16	6.34	-0.18	105	35
6.06	6.34	-0.28	105	36
6.49	6.34	0.15	106	36
6.57	6.34	0.23	107	36
6.41	6.34	0.07	108	36
6.39	6.34	0.05	109	36
7.53	6.34	1.19	110	36
6.21	5.99	0.22	111	36
6.3	5.99	0.31	112	36
6.27	5.99	0.28	113	36
6.57	5.99	0.58	114	36
7.89	5.99	1.9	115	36

6.9	5.99	0.91	116	36
6.54	5.99	0.55	117	36
6.16	5.99	0.17	118	36
6.06	5.99	0.07	119	36
6.49	5.99	0.5	120	36
6.57	5.99	0.58	121	36
6.41	5.99	0.42	122	36
6.39	5.99	0.4	123	36
7.53	5.99	1.54	124	36
6.3	6.21	0.09	125	36
6.27	6.21	0.06	126	36
6.57	6.21	0.36	127	36
7.89	6.21	1.68	128	36
6.9	6.21	0.69	129	36
6.54	6.21	0.33	130	36
6.16	6.21	-0.05	130	37
6.06	6.21	-0.15	130	38
6.49	6.21	0.28	131	38
6.57	6.21	0.36	132	38
6.41	6.21	0.2	133	38
6.39	6.21	0.18	134	38
7.53	6.21	1.32	135	38
6.27	6.3	-0.03	135	39
6.57	6.3	0.27	136	39
7.89	6.3	1.59	137	39
6.9	6.3	0.6	138	39
6.54	6.3	0.24	139	39
6.16	6.3	-0.14	139	40
6.06	6.3	-0.24	139	41
6.49	6.3	0.19	140	41
6.57	6.3	0.27	141	41
6.41	6.3	0.11	142	41
6.39	6.3	0.09	143	41
7.53	6.3	1.23	144	41
6.57	6.27	0.3	145	41
7.89	6.27	1.62	146	41
6.9	6.27	0.63	147	41
6.54	6.27	0.27	148	41
6.16	6.27	-0.11	148	42
6.06	6.27	-0.21	148	43
6.49	6.27	0.22	149	43
6.57	6.27	0.3	150	43
6.41	6.27	0.14	151	43
6.39	6.27	0.12	152	43
7.53	6.27	1.26	153	43
7.89	6.57	1.32	154	43
6.9	6.57	0.33	155	43
6.54	6.57	-0.03	155	44
6.16	6.57	-0.41	155	45
6.06	6.57	-0.51	155	46
6.49	6.57	-0.08	155	47
6.57	6.57	0	155	47
6.41	6.57	-0.16	155	48



6.39	6.57	-0.18	155	49
7.53	6.57	0.96	156	49
6.9	7.89	-0.99	156	50
6.54	7.89	-1.35	156	51
6.16	7.89	-1.73	156	52
6.06	7.89	-1.83	156	53
6.49	7.89	-1.4	156	54
6.57	7.89	-1.32	156	55
6.41	7.89	-1.48	156	56
6.39	7.89	-1.5	156	57
7.53	7.89	-0.36	156	58
6.54	6.9	-0.36	156	59
6.16	6.9	-0.74	156	60
6.06	6.9	-0.84	156	61
6.49	6.9	-0.41	156	62
6.57	6.9	-0.33	156	63
6.41	6.9	-0.49	156	64
6.39	6.9	-0.51	156	65
7.53	6.9	0.63	157	65
6.16	6.54	-0.38	157	66
6.06	6.54	-0.48	157	67
6.49	6.54	-0.05	157	68
6.57	6.54	0.03	158	68
6.41	6.54	-0.13	158	69
6.39	6.54	-0.15	158	70
7.53	6.54	0.99	159	70
6.06	6.16	-0.1	159	71
6.49	6.16	0.33	160	71
6.57	6.16	0.41	161	71
6.41	6.16	0.25	162	71
6.39	6.16	0.23	163	71
7.53	6.16	1.37	164	71
6.49	6.06	0.43	165	71
6.57	6.06	0.51	166	71
6.41	6.06	0.35	167	71
6.39	6.06	0.33	168	71
7.53	6.06	1.47	169	71
6.57	6.49	0.08	170	71
6.41	6.49	-0.08	170	72
6.39	6.49	-0.1	170	73
7.53	6.49	1.04	171	73
6.41	6.57	-0.16	171	74
6.39	6.57	-0.18	171	75
7.53	6.57	0.96	172	75
6.39	6.41	-0.02	172	76
7.53	6.41	1.12	173	76
7.53	6.39	1.14	174	76

S Statistic = 174 - 76 = 98

---

Tied Group	Value	Members
1	6.06	2
2	6.21	2
3	6.57	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 54

B = 0

C = 0

D = 0

E = 6

F = 0

a = 25806

b = 95634

c = 1012

Group Variance = 1430.67

Z-Score = 2.5645

Comparison Level at 95% confidence level = -1.65463 (downward trend)

2.5645 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW09-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.96	6.23	-0.27	0	1
5.84	6.23	-0.39	0	2
6	6.23	-0.23	0	3
5.8	6.23	-0.43	0	4
5.67	6.23	-0.56	0	5
5.93	6.23	-0.3	0	6
6.57	6.23	0.34	1	6
6.03	6.23	-0.2	1	7
6.01	6.23	-0.22	1	8
5.96	6.23	-0.27	1	9
5.98	6.23	-0.25	1	10
5.64	6.23	-0.59	1	11
6.35	6.23	0.12	2	11
7.33	6.23	1.1	3	11
6.1	6.23	-0.13	3	12
5.81	6.23	-0.42	3	13
5.75	6.23	-0.48	3	14
5.55	6.23	-0.68	3	15
5.81	6.23	-0.42	3	16
6.3	6.23	0.07	4	16
4.69	6.23	-1.54	4	17
5.84	6.23	-0.39	4	18
6.94	6.23	0.71	5	18
5.84	5.96	-0.12	5	19
6	5.96	0.04	6	19
5.8	5.96	-0.16	6	20
5.67	5.96	-0.29	6	21
5.93	5.96	-0.03	6	22
6.57	5.96	0.61	7	22
6.03	5.96	0.07	8	22
6.01	5.96	0.05	9	22
5.96	5.96	0	9	22
5.98	5.96	0.02	10	22
5.64	5.96	-0.32	10	23
6.35	5.96	0.39	11	23
7.33	5.96	1.37	12	23
6.1	5.96	0.14	13	23
5.81	5.96	-0.15	13	24
5.75	5.96	-0.21	13	25
5.55	5.96	-0.41	13	26
5.81	5.96	-0.15	13	27
6.3	5.96	0.34	14	27
4.69	5.96	-1.27	14	28
5.84	5.96	-0.12	14	29
6.94	5.96	0.98	15	29

6	5.84	0.16	16	29
5.8	5.84	-0.04	16	30
5.67	5.84	-0.17	16	31
5.93	5.84	0.09	17	31
6.57	5.84	0.73	18	31
6.03	5.84	0.19	19	31
6.01	5.84	0.17	20	31
5.96	5.84	0.12	21	31
5.98	5.84	0.14	22	31
5.64	5.84	-0.2	22	32
6.35	5.84	0.51	23	32
7.33	5.84	1.49	24	32
6.1	5.84	0.26	25	32
5.81	5.84	-0.03	25	33
5.75	5.84	-0.09	25	34
5.55	5.84	-0.29	25	35
5.81	5.84	-0.03	25	36
6.3	5.84	0.46	26	36
4.69	5.84	-1.15	26	37
5.84	5.84	0	26	37
6.94	5.84	1.1	27	37
5.8	6	-0.2	27	38
5.67	6	-0.33	27	39
5.93	6	-0.07	27	40
6.57	6	0.57	28	40
6.03	6	0.03	29	40
6.01	6	0.01	30	40
5.96	6	-0.04	30	41
5.98	6	-0.02	30	42
5.64	6	-0.36	30	43
6.35	6	0.35	31	43
7.33	6	1.33	32	43
6.1	6	0.1	33	43
5.81	6	-0.19	33	44
5.75	6	-0.25	33	45
5.55	6	-0.45	33	46
5.81	6	-0.19	33	47
6.3	6	0.3	34	47
4.69	6	-1.31	34	48
5.84	6	-0.16	34	49
6.94	6	0.94	35	49
5.67	5.8	-0.13	35	50
5.93	5.8	0.13	36	50
6.57	5.8	0.77	37	50
6.03	5.8	0.23	38	50
6.01	5.8	0.21	39	50
5.96	5.8	0.16	40	50
5.98	5.8	0.18	41	50
5.64	5.8	-0.16	41	51
6.35	5.8	0.55	42	51
7.33	5.8	1.53	43	51
6.1	5.8	0.3	44	51
5.81	5.8	0.01	45	51
5.75	5.8	-0.05	45	52
5.55	5.8	-0.25	45	53

5.81	5.8	0.01	46	53
6.3	5.8	0.5	47	53
4.69	5.8	-1.11	47	54
5.84	5.8	0.04	48	54
6.94	5.8	1.14	49	54
5.93	5.67	0.26	50	54
6.57	5.67	0.9	51	54
6.03	5.67	0.36	52	54
6.01	5.67	0.34	53	54
5.96	5.67	0.29	54	54
5.98	5.67	0.31	55	54
5.64	5.67	-0.03	55	55
6.35	5.67	0.68	56	55
7.33	5.67	1.66	57	55
6.1	5.67	0.43	58	55
5.81	5.67	0.14	59	55
5.75	5.67	0.08	60	55
5.55	5.67	-0.12	60	56
5.81	5.67	0.14	61	56
6.3	5.67	0.63	62	56
4.69	5.67	-0.98	62	57
5.84	5.67	0.17	63	57
6.94	5.67	1.27	64	57
6.57	5.93	0.64	65	57
6.03	5.93	0.1	66	57
6.01	5.93	0.08	67	57
5.96	5.93	0.03	68	57
5.98	5.93	0.05	69	57
5.64	5.93	-0.29	69	58
6.35	5.93	0.42	70	58
7.33	5.93	1.4	71	58
6.1	5.93	0.17	72	58
5.81	5.93	-0.12	72	59
5.75	5.93	-0.18	72	60
5.55	5.93	-0.38	72	61
5.81	5.93	-0.12	72	62
6.3	5.93	0.37	73	62
4.69	5.93	-1.24	73	63
5.84	5.93	-0.09	73	64
6.94	5.93	1.01	74	64
6.03	6.57	-0.54	74	65
6.01	6.57	-0.56	74	66
5.96	6.57	-0.61	74	67
5.98	6.57	-0.59	74	68
5.64	6.57	-0.93	74	69
6.35	6.57	-0.22	74	70
7.33	6.57	0.76	75	70
6.1	6.57	-0.47	75	71
5.81	6.57	-0.76	75	72
5.75	6.57	-0.82	75	73
5.55	6.57	-1.02	75	74
5.81	6.57	-0.76	75	75
6.3	6.57	-0.27	75	76
4.69	6.57	-1.88	75	77

5.84	6.57	-0.73	75	78
6.94	6.57	0.37	76	78
6.01	6.03	-0.02	76	79
5.96	6.03	-0.07	76	80
5.98	6.03	-0.05	76	81
5.64	6.03	-0.39	76	82
6.35	6.03	0.32	77	82
7.33	6.03	1.3	78	82
6.1	6.03	0.07	79	82
5.81	6.03	-0.22	79	83
5.75	6.03	-0.28	79	84
5.55	6.03	-0.48	79	85
5.81	6.03	-0.22	79	86
6.3	6.03	0.27	80	86
4.69	6.03	-1.34	80	87
5.84	6.03	-0.19	80	88
6.94	6.03	0.91	81	88
5.96	6.01	-0.05	81	89
5.98	6.01	-0.03	81	90
5.64	6.01	-0.37	81	91
6.35	6.01	0.34	82	91
7.33	6.01	1.32	83	91
6.1	6.01	0.09	84	91
5.81	6.01	-0.2	84	92
5.75	6.01	-0.26	84	93
5.55	6.01	-0.46	84	94
5.81	6.01	-0.2	84	95
6.3	6.01	0.29	85	95
4.69	6.01	-1.32	85	96
5.84	6.01	-0.17	85	97
6.94	6.01	0.93	86	97
5.98	5.96	0.02	87	97
5.64	5.96	-0.32	87	98
6.35	5.96	0.39	88	98
7.33	5.96	1.37	89	98
6.1	5.96	0.14	90	98
5.81	5.96	-0.15	90	99
5.75	5.96	-0.21	90	100
5.55	5.96	-0.41	90	101
5.81	5.96	-0.15	90	102
6.3	5.96	0.34	91	102
4.69	5.96	-1.27	91	103
5.84	5.96	-0.12	91	104
6.94	5.96	0.98	92	104
5.64	5.98	-0.34	92	105
6.35	5.98	0.37	93	105
7.33	5.98	1.35	94	105
6.1	5.98	0.12	95	105
5.81	5.98	-0.17	95	106
5.75	5.98	-0.23	95	107
5.55	5.98	-0.43	95	108
5.81	5.98	-0.17	95	109
6.3	5.98	0.32	96	109

4.69	5.98	-1.29	96	110
5.84	5.98	-0.14	96	111
6.94	5.98	0.96	97	111
6.35	5.64	0.71	98	111
7.33	5.64	1.69	99	111
6.1	5.64	0.46	100	111
5.81	5.64	0.17	101	111
5.75	5.64	0.11	102	111
5.55	5.64	-0.09	102	112
5.81	5.64	0.17	103	112
6.3	5.64	0.66	104	112
4.69	5.64	-0.95	104	113
5.84	5.64	0.2	105	113
6.94	5.64	1.3	106	113
7.33	6.35	0.98	107	113
6.1	6.35	-0.25	107	114
5.81	6.35	-0.54	107	115
5.75	6.35	-0.6	107	116
5.55	6.35	-0.8	107	117
5.81	6.35	-0.54	107	118
6.3	6.35	-0.05	107	119
4.69	6.35	-1.66	107	120
5.84	6.35	-0.51	107	121
6.94	6.35	0.59	108	121
6.1	7.33	-1.23	108	122
5.81	7.33	-1.52	108	123
5.75	7.33	-1.58	108	124
5.55	7.33	-1.78	108	125
5.81	7.33	-1.52	108	126
6.3	7.33	-1.03	108	127
4.69	7.33	-2.64	108	128
5.84	7.33	-1.49	108	129
6.94	7.33	-0.39	108	130
5.81	6.1	-0.29	108	131
5.75	6.1	-0.35	108	132
5.55	6.1	-0.55	108	133
5.81	6.1	-0.29	108	134
6.3	6.1	0.2	109	134
4.69	6.1	-1.41	109	135
5.84	6.1	-0.26	109	136
6.94	6.1	0.84	110	136
5.75	5.81	-0.06	110	137
5.55	5.81	-0.26	110	138
5.81	5.81	0	110	138
6.3	5.81	0.49	111	138
4.69	5.81	-1.12	111	139
5.84	5.81	0.03	112	139
6.94	5.81	1.13	113	139
5.55	5.75	-0.2	113	140
5.81	5.75	0.06	114	140
6.3	5.75	0.55	115	140

4.69	5.75	-1.06	115	141
5.84	5.75	0.09	116	141
6.94	5.75	1.19	117	141
5.81	5.55	0.26	118	141
6.3	5.55	0.75	119	141
4.69	5.55	-0.86	119	142
5.84	5.55	0.29	120	142
6.94	5.55	1.39	121	142
6.3	5.81	0.49	122	142
4.69	5.81	-1.12	122	143
5.84	5.81	0.03	123	143
6.94	5.81	1.13	124	143
4.69	6.3	-1.61	124	144
5.84	6.3	-0.46	124	145
6.94	6.3	0.64	125	145
5.84	4.69	1.15	126	145
6.94	4.69	2.25	127	145
6.94	5.84	1.1	128	145

S Statistic = 128 - 145 = -17

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
1	5.96	2
2	5.84	2
3	5.81	2

---

<b>Time Period</b>	<b>Observations</b>
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1



There are 0 time periods with multiple data

---

A = 54

B = 0

C = 0

D = 0

E = 6

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1622.33

Z-Score = -0.397237

Comparison Level at 95% confidence level = -1.65463 (downward trend)

-0.397237 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW10-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
9.93	6.86	3.07	1	0
7.03	6.86	0.17	2	0
8.7	6.86	1.84	3	0
7.15	6.86	0.29	4	0
6.58	6.86	-0.28	4	1
10.92	6.86	4.06	5	1
7.15	6.86	0.29	6	1
6.28	6.86	-0.58	6	2
6.67	6.86	-0.19	6	3
11.21	6.86	4.35	7	3
10.29	6.86	3.43	8	3
6.39	6.86	-0.47	8	4
6.95	6.86	0.09	9	4
7.87	6.86	1.01	10	4
6.5	6.86	-0.36	10	5
6.83	6.86	-0.03	10	6
6.59	6.86	-0.27	10	7
6.11	6.86	-0.75	10	8
6.14	6.86	-0.72	10	9
5.87	6.86	-0.99	10	10
6.15	6.86	-0.71	10	11
6.99	6.86	0.13	11	11
7.89	6.86	1.03	12	11
7.03	9.93	-2.9	12	12
8.7	9.93	-1.23	12	13
7.15	9.93	-2.78	12	14
6.58	9.93	-3.35	12	15
10.92	9.93	0.99	13	15
7.15	9.93	-2.78	13	16
6.28	9.93	-3.65	13	17
6.67	9.93	-3.26	13	18
11.21	9.93	1.28	14	18
10.29	9.93	0.36	15	18
6.39	9.93	-3.54	15	19
6.95	9.93	-2.98	15	20
7.87	9.93	-2.06	15	21
6.5	9.93	-3.43	15	22
6.83	9.93	-3.1	15	23
6.59	9.93	-3.34	15	24
6.11	9.93	-3.82	15	25
6.14	9.93	-3.79	15	26
5.87	9.93	-4.06	15	27
6.15	9.93	-3.78	15	28
6.99	9.93	-2.94	15	29
7.89	9.93	-2.04	15	30

8.7	7.03	1.67	16	30
7.15	7.03	0.12	17	30
6.58	7.03	-0.45	17	31
10.92	7.03	3.89	18	31
7.15	7.03	0.12	19	31
6.28	7.03	-0.75	19	32
6.67	7.03	-0.36	19	33
11.21	7.03	4.18	20	33
10.29	7.03	3.26	21	33
6.39	7.03	-0.64	21	34
6.95	7.03	-0.08	21	35
7.87	7.03	0.84	22	35
6.5	7.03	-0.53	22	36
6.83	7.03	-0.2	22	37
6.59	7.03	-0.44	22	38
6.11	7.03	-0.92	22	39
6.14	7.03	-0.89	22	40
5.87	7.03	-1.16	22	41
6.15	7.03	-0.88	22	42
6.99	7.03	-0.04	22	43
7.89	7.03	0.86	23	43
7.15	8.7	-1.55	23	44
6.58	8.7	-2.12	23	45
10.92	8.7	2.22	24	45
7.15	8.7	-1.55	24	46
6.28	8.7	-2.42	24	47
6.67	8.7	-2.03	24	48
11.21	8.7	2.51	25	48
10.29	8.7	1.59	26	48
6.39	8.7	-2.31	26	49
6.95	8.7	-1.75	26	50
7.87	8.7	-0.83	26	51
6.5	8.7	-2.2	26	52
6.83	8.7	-1.87	26	53
6.59	8.7	-2.11	26	54
6.11	8.7	-2.59	26	55
6.14	8.7	-2.56	26	56
5.87	8.7	-2.83	26	57
6.15	8.7	-2.55	26	58
6.99	8.7	-1.71	26	59
7.89	8.7	-0.81	26	60
6.58	7.15	-0.57	26	61
10.92	7.15	3.77	27	61
7.15	7.15	0	27	61
6.28	7.15	-0.87	27	62
6.67	7.15	-0.48	27	63
11.21	7.15	4.06	28	63
10.29	7.15	3.14	29	63
6.39	7.15	-0.76	29	64
6.95	7.15	-0.2	29	65
7.87	7.15	0.72	30	65
6.5	7.15	-0.65	30	66
6.83	7.15	-0.32	30	67
6.59	7.15	-0.56	30	68
6.11	7.15	-1.04	30	69

6.14	7.15	-1.01	30	70
5.87	7.15	-1.28	30	71
6.15	7.15	-1	30	72
6.99	7.15	-0.16	30	73
7.89	7.15	0.74	31	73
10.92	6.58	4.34	32	73
7.15	6.58	0.57	33	73
6.28	6.58	-0.3	33	74
6.67	6.58	0.09	34	74
11.21	6.58	4.63	35	74
10.29	6.58	3.71	36	74
6.39	6.58	-0.19	36	75
6.95	6.58	0.37	37	75
7.87	6.58	1.29	38	75
6.5	6.58	-0.08	38	76
6.83	6.58	0.25	39	76
6.59	6.58	0.01	40	76
6.11	6.58	-0.47	40	77
6.14	6.58	-0.44	40	78
5.87	6.58	-0.71	40	79
6.15	6.58	-0.43	40	80
6.99	6.58	0.41	41	80
7.89	6.58	1.31	42	80
7.15	10.92	-3.77	42	81
6.28	10.92	-4.64	42	82
6.67	10.92	-4.25	42	83
11.21	10.92	0.29	43	83
10.29	10.92	-0.63	43	84
6.39	10.92	-4.53	43	85
6.95	10.92	-3.97	43	86
7.87	10.92	-3.05	43	87
6.5	10.92	-4.42	43	88
6.83	10.92	-4.09	43	89
6.59	10.92	-4.33	43	90
6.11	10.92	-4.81	43	91
6.14	10.92	-4.78	43	92
5.87	10.92	-5.05	43	93
6.15	10.92	-4.77	43	94
6.99	10.92	-3.93	43	95
7.89	10.92	-3.03	43	96
6.28	7.15	-0.87	43	97
6.67	7.15	-0.48	43	98
11.21	7.15	4.06	44	98
10.29	7.15	3.14	45	98
6.39	7.15	-0.76	45	99
6.95	7.15	-0.2	45	100
7.87	7.15	0.72	46	100
6.5	7.15	-0.65	46	101
6.83	7.15	-0.32	46	102
6.59	7.15	-0.56	46	103
6.11	7.15	-1.04	46	104
6.14	7.15	-1.01	46	105
5.87	7.15	-1.28	46	106
6.15	7.15	-1	46	107

6.99	7.15	-0.16	46	108
7.89	7.15	0.74	47	108
6.67	6.28	0.39	48	108
11.21	6.28	4.93	49	108
10.29	6.28	4.01	50	108
6.39	6.28	0.11	51	108
6.95	6.28	0.67	52	108
7.87	6.28	1.59	53	108
6.5	6.28	0.22	54	108
6.83	6.28	0.55	55	108
6.59	6.28	0.31	56	108
6.11	6.28	-0.17	56	109
6.14	6.28	-0.14	56	110
5.87	6.28	-0.41	56	111
6.15	6.28	-0.13	56	112
6.99	6.28	0.71	57	112
7.89	6.28	1.61	58	112
11.21	6.67	4.54	59	112
10.29	6.67	3.62	60	112
6.39	6.67	-0.28	60	113
6.95	6.67	0.28	61	113
7.87	6.67	1.2	62	113
6.5	6.67	-0.17	62	114
6.83	6.67	0.16	63	114
6.59	6.67	-0.08	63	115
6.11	6.67	-0.56	63	116
6.14	6.67	-0.53	63	117
5.87	6.67	-0.8	63	118
6.15	6.67	-0.52	63	119
6.99	6.67	0.32	64	119
7.89	6.67	1.22	65	119
10.29	11.21	-0.92	65	120
6.39	11.21	-4.82	65	121
6.95	11.21	-4.26	65	122
7.87	11.21	-3.34	65	123
6.5	11.21	-4.71	65	124
6.83	11.21	-4.38	65	125
6.59	11.21	-4.62	65	126
6.11	11.21	-5.1	65	127
6.14	11.21	-5.07	65	128
5.87	11.21	-5.34	65	129
6.15	11.21	-5.06	65	130
6.99	11.21	-4.22	65	131
7.89	11.21	-3.32	65	132
6.39	10.29	-3.9	65	133
6.95	10.29	-3.34	65	134
7.87	10.29	-2.42	65	135
6.5	10.29	-3.79	65	136
6.83	10.29	-3.46	65	137
6.59	10.29	-3.7	65	138
6.11	10.29	-4.18	65	139
6.14	10.29	-4.15	65	140
5.87	10.29	-4.42	65	141

6.15	10.29	-4.14	65	142
6.99	10.29	-3.3	65	143
7.89	10.29	-2.4	65	144
6.95	6.39	0.56	66	144
7.87	6.39	1.48	67	144
6.5	6.39	0.11	68	144
6.83	6.39	0.44	69	144
6.59	6.39	0.2	70	144
6.11	6.39	-0.28	70	145
6.14	6.39	-0.25	70	146
5.87	6.39	-0.52	70	147
6.15	6.39	-0.24	70	148
6.99	6.39	0.6	71	148
7.89	6.39	1.5	72	148
7.87	6.95	0.92	73	148
6.5	6.95	-0.45	73	149
6.83	6.95	-0.12	73	150
6.59	6.95	-0.36	73	151
6.11	6.95	-0.84	73	152
6.14	6.95	-0.81	73	153
5.87	6.95	-1.08	73	154
6.15	6.95	-0.8	73	155
6.99	6.95	0.04	74	155
7.89	6.95	0.94	75	155
6.5	7.87	-1.37	75	156
6.83	7.87	-1.04	75	157
6.59	7.87	-1.28	75	158
6.11	7.87	-1.76	75	159
6.14	7.87	-1.73	75	160
5.87	7.87	-2	75	161
6.15	7.87	-1.72	75	162
6.99	7.87	-0.88	75	163
7.89	7.87	0.02	76	163
6.83	6.5	0.33	77	163
6.59	6.5	0.09	78	163
6.11	6.5	-0.39	78	164
6.14	6.5	-0.36	78	165
5.87	6.5	-0.63	78	166
6.15	6.5	-0.35	78	167
6.99	6.5	0.49	79	167
7.89	6.5	1.39	80	167
6.59	6.83	-0.24	80	168
6.11	6.83	-0.72	80	169
6.14	6.83	-0.69	80	170
5.87	6.83	-0.96	80	171
6.15	6.83	-0.68	80	172
6.99	6.83	0.16	81	172
7.89	6.83	1.06	82	172
6.11	6.59	-0.48	82	173
6.14	6.59	-0.45	82	174
5.87	6.59	-0.72	82	175

6.15	6.59	-0.44	82	176
6.99	6.59	0.4	83	176
7.89	6.59	1.3	84	176
6.14	6.11	0.03	85	176
5.87	6.11	-0.24	85	177
6.15	6.11	0.04	86	177
6.99	6.11	0.88	87	177
7.89	6.11	1.78	88	177
5.87	6.14	-0.27	88	178
6.15	6.14	0.01	89	178
6.99	6.14	0.85	90	178
7.89	6.14	1.75	91	178
6.15	5.87	0.28	92	178
6.99	5.87	1.12	93	178
7.89	5.87	2.02	94	178
6.99	6.15	0.84	95	178
7.89	6.15	1.74	96	178
7.89	6.99	0.9	97	178

S Statistic = 97 - 178 = -81

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
1	7.15	2

---

<b>Time Period</b>	<b>Observations</b>
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1624.33

Z-Score = -1.98496

Comparison Level at 95% confidence level = -1.65463 (downward trend)

**-1.98496 < -1.65463 indicating a downward trend**



## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW11-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.93	6.05	-0.12	0	1
5.35	6.05	-0.7	0	2
6.11	6.05	0.06	1	2
5.5	6.05	-0.55	1	3
5.66	6.05	-0.39	1	4
5.81	6.05	-0.24	1	5
5.21	6.05	-0.84	1	6
5.92	6.05	-0.13	1	7
6.2	6.05	0.15	2	7
6.16	6.05	0.11	3	7
5.61	6.05	-0.44	3	8
5.98	6.05	-0.07	3	9
6.23	6.05	0.18	4	9
7.27	6.05	1.22	5	9
6.4	6.05	0.35	6	9
5.91	6.05	-0.14	6	10
5.97	6.05	-0.08	6	11
5.65	6.05	-0.4	6	12
5.82	6.05	-0.23	6	13
6.13	6.05	0.08	7	13
5.87	6.05	-0.18	7	14
5.35	5.93	-0.58	7	15
6.11	5.93	0.18	8	15
5.5	5.93	-0.43	8	16
5.66	5.93	-0.27	8	17
5.81	5.93	-0.12	8	18
5.21	5.93	-0.72	8	19
5.92	5.93	-0.01	8	20
6.2	5.93	0.27	9	20
6.16	5.93	0.23	10	20
5.61	5.93	-0.32	10	21
5.98	5.93	0.05	11	21
6.23	5.93	0.3	12	21
7.27	5.93	1.34	13	21
6.4	5.93	0.47	14	21
5.91	5.93	-0.02	14	22
5.97	5.93	0.04	15	22
5.65	5.93	-0.28	15	23
5.82	5.93	-0.11	15	24
6.13	5.93	0.2	16	24
5.87	5.93	-0.06	16	25
6.11	5.35	0.76	17	25
5.5	5.35	0.15	18	25
5.66	5.35	0.31	19	25
5.81	5.35	0.46	20	25

5.21	5.35	-0.14	20	26
5.92	5.35	0.57	21	26
6.2	5.35	0.85	22	26
6.16	5.35	0.81	23	26
5.61	5.35	0.26	24	26
5.98	5.35	0.63	25	26
6.23	5.35	0.88	26	26
7.27	5.35	1.92	27	26
6.4	5.35	1.05	28	26
5.91	5.35	0.56	29	26
5.97	5.35	0.62	30	26
5.65	5.35	0.3	31	26
5.82	5.35	0.47	32	26
6.13	5.35	0.78	33	26
5.87	5.35	0.52	34	26
5.5	6.11	-0.61	34	27
5.66	6.11	-0.45	34	28
5.81	6.11	-0.3	34	29
5.21	6.11	-0.9	34	30
5.92	6.11	-0.19	34	31
6.2	6.11	0.09	35	31
6.16	6.11	0.05	36	31
5.61	6.11	-0.5	36	32
5.98	6.11	-0.13	36	33
6.23	6.11	0.12	37	33
7.27	6.11	1.16	38	33
6.4	6.11	0.29	39	33
5.91	6.11	-0.2	39	34
5.97	6.11	-0.14	39	35
5.65	6.11	-0.46	39	36
5.82	6.11	-0.29	39	37
6.13	6.11	0.02	40	37
5.87	6.11	-0.24	40	38
5.66	5.5	0.16	41	38
5.81	5.5	0.31	42	38
5.21	5.5	-0.29	42	39
5.92	5.5	0.42	43	39
6.2	5.5	0.7	44	39
6.16	5.5	0.66	45	39
5.61	5.5	0.11	46	39
5.98	5.5	0.48	47	39
6.23	5.5	0.73	48	39
7.27	5.5	1.77	49	39
6.4	5.5	0.9	50	39
5.91	5.5	0.41	51	39
5.97	5.5	0.47	52	39
5.65	5.5	0.15	53	39
5.82	5.5	0.32	54	39
6.13	5.5	0.63	55	39
5.87	5.5	0.37	56	39
5.81	5.66	0.15	57	39
5.21	5.66	-0.45	57	40
5.92	5.66	0.26	58	40
6.2	5.66	0.54	59	40

6.16	5.66	0.5	60	40
5.61	5.66	-0.05	60	41
5.98	5.66	0.32	61	41
6.23	5.66	0.57	62	41
7.27	5.66	1.61	63	41
6.4	5.66	0.74	64	41
5.91	5.66	0.25	65	41
5.97	5.66	0.31	66	41
5.65	5.66	-0.01	66	42
5.82	5.66	0.16	67	42
6.13	5.66	0.47	68	42
5.87	5.66	0.21	69	42
5.21	5.81	-0.6	69	43
5.92	5.81	0.11	70	43
6.2	5.81	0.39	71	43
6.16	5.81	0.35	72	43
5.61	5.81	-0.2	72	44
5.98	5.81	0.17	73	44
6.23	5.81	0.42	74	44
7.27	5.81	1.46	75	44
6.4	5.81	0.59	76	44
5.91	5.81	0.1	77	44
5.97	5.81	0.16	78	44
5.65	5.81	-0.16	78	45
5.82	5.81	0.01	79	45
6.13	5.81	0.32	80	45
5.87	5.81	0.06	81	45
5.92	5.21	0.71	82	45
6.2	5.21	0.99	83	45
6.16	5.21	0.95	84	45
5.61	5.21	0.4	85	45
5.98	5.21	0.77	86	45
6.23	5.21	1.02	87	45
7.27	5.21	2.06	88	45
6.4	5.21	1.19	89	45
5.91	5.21	0.7	90	45
5.97	5.21	0.76	91	45
5.65	5.21	0.44	92	45
5.82	5.21	0.61	93	45
6.13	5.21	0.92	94	45
5.87	5.21	0.66	95	45
6.2	5.92	0.28	96	45
6.16	5.92	0.24	97	45
5.61	5.92	-0.31	97	46
5.98	5.92	0.06	98	46
6.23	5.92	0.31	99	46
7.27	5.92	1.35	100	46
6.4	5.92	0.48	101	46
5.91	5.92	-0.01	101	47
5.97	5.92	0.05	102	47
5.65	5.92	-0.27	102	48
5.82	5.92	-0.1	102	49
6.13	5.92	0.21	103	49
5.87	5.92	-0.05	103	50

6.16	6.2	-0.04	103	51
5.61	6.2	-0.59	103	52
5.98	6.2	-0.22	103	53
6.23	6.2	0.03	104	53
7.27	6.2	1.07	105	53
6.4	6.2	0.2	106	53
5.91	6.2	-0.29	106	54
5.97	6.2	-0.23	106	55
5.65	6.2	-0.55	106	56
5.82	6.2	-0.38	106	57
6.13	6.2	-0.07	106	58
5.87	6.2	-0.33	106	59
5.61	6.16	-0.55	106	60
5.98	6.16	-0.18	106	61
6.23	6.16	0.07	107	61
7.27	6.16	1.11	108	61
6.4	6.16	0.24	109	61
5.91	6.16	-0.25	109	62
5.97	6.16	-0.19	109	63
5.65	6.16	-0.51	109	64
5.82	6.16	-0.34	109	65
6.13	6.16	-0.03	109	66
5.87	6.16	-0.29	109	67
5.98	5.61	0.37	110	67
6.23	5.61	0.62	111	67
7.27	5.61	1.66	112	67
6.4	5.61	0.79	113	67
5.91	5.61	0.3	114	67
5.97	5.61	0.36	115	67
5.65	5.61	0.04	116	67
5.82	5.61	0.21	117	67
6.13	5.61	0.52	118	67
5.87	5.61	0.26	119	67
6.23	5.98	0.25	120	67
7.27	5.98	1.29	121	67
6.4	5.98	0.42	122	67
5.91	5.98	-0.07	122	68
5.97	5.98	-0.01	122	69
5.65	5.98	-0.33	122	70
5.82	5.98	-0.16	122	71
6.13	5.98	0.15	123	71
5.87	5.98	-0.11	123	72
7.27	6.23	1.04	124	72
6.4	6.23	0.17	125	72
5.91	6.23	-0.32	125	73
5.97	6.23	-0.26	125	74
5.65	6.23	-0.58	125	75
5.82	6.23	-0.41	125	76
6.13	6.23	-0.1	125	77
5.87	6.23	-0.36	125	78
6.4	7.27	-0.87	125	79

5.91	7.27	-1.36	125	80
5.97	7.27	-1.3	125	81
5.65	7.27	-1.62	125	82
5.82	7.27	-1.45	125	83
6.13	7.27	-1.14	125	84
5.87	7.27	-1.4	125	85
5.91	6.4	-0.49	125	86
5.97	6.4	-0.43	125	87
5.65	6.4	-0.75	125	88
5.82	6.4	-0.58	125	89
6.13	6.4	-0.27	125	90
5.87	6.4	-0.53	125	91
5.97	5.91	0.06	126	91
5.65	5.91	-0.26	126	92
5.82	5.91	-0.09	126	93
6.13	5.91	0.22	127	93
5.87	5.91	-0.04	127	94
5.65	5.97	-0.32	127	95
5.82	5.97	-0.15	127	96
6.13	5.97	0.16	128	96
5.87	5.97	-0.1	128	97
5.82	5.65	0.17	129	97
6.13	5.65	0.48	130	97
5.87	5.65	0.22	131	97
6.13	5.82	0.31	132	97
5.87	5.82	0.05	133	97
5.87	6.13	-0.26	133	98

S Statistic = 133 - 98 = 35

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1

6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 22638

b = 83160

c = 924

Group Variance = 1257.67

Z-Score = 0.95873

Comparison Level at 95% confidence level = -1.65463 (downward trend)

0.95873 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW12-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.26	5.27	-0.01	0	1
5.34	5.27	0.07	1	1
4.18	5.27	-1.09	1	2
5.39	5.27	0.12	2	2
4.2	5.27	-1.07	2	3
4.71	5.27	-0.56	2	4
4.61	5.27	-0.66	2	5
5.25	5.27	-0.02	2	6
5.32	5.27	0.05	3	6
6.06	5.27	0.79	4	6
4.46	5.27	-0.81	4	7
4.68	5.27	-0.59	4	8
6.37	5.27	1.1	5	8
7.45	5.27	2.18	6	8
6	5.27	0.73	7	8
5.47	5.27	0.2	8	8
5.36	5.27	0.09	9	8
5.26	5.27	-0.01	9	9
5.69	5.27	0.42	10	9
6.54	5.27	1.27	11	9
5.34	5.26	0.08	12	9
4.18	5.26	-1.08	12	10
5.39	5.26	0.13	13	10
4.2	5.26	-1.06	13	11
4.71	5.26	-0.55	13	12
4.61	5.26	-0.65	13	13
5.25	5.26	-0.01	13	14
5.32	5.26	0.06	14	14
6.06	5.26	0.8	15	14
4.46	5.26	-0.8	15	15
4.68	5.26	-0.58	15	16
6.37	5.26	1.11	16	16
7.45	5.26	2.19	17	16
6	5.26	0.74	18	16
5.47	5.26	0.21	19	16
5.36	5.26	0.1	20	16
5.26	5.26	0	20	16
5.69	5.26	0.43	21	16
6.54	5.26	1.28	22	16
4.18	5.34	-1.16	22	17
5.39	5.34	0.05	23	17
4.2	5.34	-1.14	23	18
4.71	5.34	-0.63	23	19
4.61	5.34	-0.73	23	20
5.25	5.34	-0.09	23	21

5.32	5.34	-0.02	23	22
6.06	5.34	0.72	24	22
4.46	5.34	-0.88	24	23
4.68	5.34	-0.66	24	24
6.37	5.34	1.03	25	24
7.45	5.34	2.11	26	24
6	5.34	0.66	27	24
5.47	5.34	0.13	28	24
5.36	5.34	0.02	29	24
5.26	5.34	-0.08	29	25
5.69	5.34	0.35	30	25
6.54	5.34	1.2	31	25
5.39	4.18	1.21	32	25
4.2	4.18	0.02	33	25
4.71	4.18	0.53	34	25
4.61	4.18	0.43	35	25
5.25	4.18	1.07	36	25
5.32	4.18	1.14	37	25
6.06	4.18	1.88	38	25
4.46	4.18	0.28	39	25
4.68	4.18	0.5	40	25
6.37	4.18	2.19	41	25
7.45	4.18	3.27	42	25
6	4.18	1.82	43	25
5.47	4.18	1.29	44	25
5.36	4.18	1.18	45	25
5.26	4.18	1.08	46	25
5.69	4.18	1.51	47	25
6.54	4.18	2.36	48	25
4.2	5.39	-1.19	48	26
4.71	5.39	-0.68	48	27
4.61	5.39	-0.78	48	28
5.25	5.39	-0.14	48	29
5.32	5.39	-0.07	48	30
6.06	5.39	0.67	49	30
4.46	5.39	-0.93	49	31
4.68	5.39	-0.71	49	32
6.37	5.39	0.98	50	32
7.45	5.39	2.06	51	32
6	5.39	0.61	52	32
5.47	5.39	0.08	53	32
5.36	5.39	-0.03	53	33
5.26	5.39	-0.13	53	34
5.69	5.39	0.3	54	34
6.54	5.39	1.15	55	34
4.71	4.2	0.51	56	34
4.61	4.2	0.41	57	34
5.25	4.2	1.05	58	34
5.32	4.2	1.12	59	34
6.06	4.2	1.86	60	34
4.46	4.2	0.26	61	34
4.68	4.2	0.48	62	34
6.37	4.2	2.17	63	34
7.45	4.2	3.25	64	34



6	4.2	1.8	65	34
5.47	4.2	1.27	66	34
5.36	4.2	1.16	67	34
5.26	4.2	1.06	68	34
5.69	4.2	1.49	69	34
6.54	4.2	2.34	70	34
4.61	4.71	-0.1	70	35
5.25	4.71	0.54	71	35
5.32	4.71	0.61	72	35
6.06	4.71	1.35	73	35
4.46	4.71	-0.25	73	36
4.68	4.71	-0.03	73	37
6.37	4.71	1.66	74	37
7.45	4.71	2.74	75	37
6	4.71	1.29	76	37
5.47	4.71	0.76	77	37
5.36	4.71	0.65	78	37
5.26	4.71	0.55	79	37
5.69	4.71	0.98	80	37
6.54	4.71	1.83	81	37
5.25	4.61	0.64	82	37
5.32	4.61	0.71	83	37
6.06	4.61	1.45	84	37
4.46	4.61	-0.15	84	38
4.68	4.61	0.07	85	38
6.37	4.61	1.76	86	38
7.45	4.61	2.84	87	38
6	4.61	1.39	88	38
5.47	4.61	0.86	89	38
5.36	4.61	0.75	90	38
5.26	4.61	0.65	91	38
5.69	4.61	1.08	92	38
6.54	4.61	1.93	93	38
5.32	5.25	0.07	94	38
6.06	5.25	0.81	95	38
4.46	5.25	-0.79	95	39
4.68	5.25	-0.57	95	40
6.37	5.25	1.12	96	40
7.45	5.25	2.2	97	40
6	5.25	0.75	98	40
5.47	5.25	0.22	99	40
5.36	5.25	0.11	100	40
5.26	5.25	0.01	101	40
5.69	5.25	0.44	102	40
6.54	5.25	1.29	103	40
6.06	5.32	0.74	104	40
4.46	5.32	-0.86	104	41
4.68	5.32	-0.64	104	42
6.37	5.32	1.05	105	42
7.45	5.32	2.13	106	42
6	5.32	0.68	107	42
5.47	5.32	0.15	108	42
5.36	5.32	0.04	109	42

5.26	5.32	-0.06	109	43
5.69	5.32	0.37	110	43
6.54	5.32	1.22	111	43
4.46	6.06	-1.6	111	44
4.68	6.06	-1.38	111	45
6.37	6.06	0.31	112	45
7.45	6.06	1.39	113	45
6	6.06	-0.06	113	46
5.47	6.06	-0.59	113	47
5.36	6.06	-0.7	113	48
5.26	6.06	-0.8	113	49
5.69	6.06	-0.37	113	50
6.54	6.06	0.48	114	50
4.68	4.46	0.22	115	50
6.37	4.46	1.91	116	50
7.45	4.46	2.99	117	50
6	4.46	1.54	118	50
5.47	4.46	1.01	119	50
5.36	4.46	0.9	120	50
5.26	4.46	0.8	121	50
5.69	4.46	1.23	122	50
6.54	4.46	2.08	123	50
6.37	4.68	1.69	124	50
7.45	4.68	2.77	125	50
6	4.68	1.32	126	50
5.47	4.68	0.79	127	50
5.36	4.68	0.68	128	50
5.26	4.68	0.58	129	50
5.69	4.68	1.01	130	50
6.54	4.68	1.86	131	50
7.45	6.37	1.08	132	50
6	6.37	-0.37	132	51
5.47	6.37	-0.9	132	52
5.36	6.37	-1.01	132	53
5.26	6.37	-1.11	132	54
5.69	6.37	-0.68	132	55
6.54	6.37	0.17	133	55
6	7.45	-1.45	133	56
5.47	7.45	-1.98	133	57
5.36	7.45	-2.09	133	58
5.26	7.45	-2.19	133	59
5.69	7.45	-1.76	133	60
6.54	7.45	-0.91	133	61
5.47	6	-0.53	133	62
5.36	6	-0.64	133	63
5.26	6	-0.74	133	64
5.69	6	-0.31	133	65
6.54	6	0.54	134	65
5.36	5.47	-0.11	134	66
5.26	5.47	-0.21	134	67

5.69	5.47	0.22	135	67
6.54	5.47	1.07	136	67
5.26	5.36	-0.1	136	68
5.69	5.36	0.33	137	68
6.54	5.36	1.18	138	68
5.69	5.26	0.43	139	68
6.54	5.26	1.28	140	68
6.54	5.69	0.85	141	68

S Statistic = 141 - 68 = 73

---

Tied Group	Value	Members
1	5.26	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
6/1/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 19740

b = 71820

c = 840

Group Variance = 1095.67

Z-Score = 2.17517

Comparison Level at 95% confidence level = -1.65463 (downward trend)

2.17517 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW13-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
12.18	6.72	5.46	1	0
6.86	6.72	0.14	2	0
7.32	6.72	0.6	3	0
7.67	6.72	0.95	4	0
11.44	6.72	4.72	5	0
6.46	6.72	-0.26	5	1
6.86	6.72	0.14	6	1
9.66	6.72	2.94	7	1
11.6	6.72	4.88	8	1
5.83	6.72	-0.89	8	2
10.25	6.72	3.53	9	2
10.98	6.72	4.26	10	2
6.04	6.72	-0.68	10	3
5.93	6.72	-0.79	10	4
8.62	6.72	1.9	11	4
7.05	6.72	0.33	12	4
11.05	6.72	4.33	13	4
6.86	12.18	-5.32	13	5
7.32	12.18	-4.86	13	6
7.67	12.18	-4.51	13	7
11.44	12.18	-0.74	13	8
6.46	12.18	-5.72	13	9
6.86	12.18	-5.32	13	10
9.66	12.18	-2.52	13	11
11.6	12.18	-0.58	13	12
5.83	12.18	-6.35	13	13
10.25	12.18	-1.93	13	14
10.98	12.18	-1.2	13	15
6.04	12.18	-6.14	13	16
5.93	12.18	-6.25	13	17
8.62	12.18	-3.56	13	18
7.05	12.18	-5.13	13	19
11.05	12.18	-1.13	13	20
7.32	6.86	0.46	14	20
7.67	6.86	0.81	15	20
11.44	6.86	4.58	16	20
6.46	6.86	-0.4	16	21
6.86	6.86	0	16	21
9.66	6.86	2.8	17	21
11.6	6.86	4.74	18	21
5.83	6.86	-1.03	18	22
10.25	6.86	3.39	19	22
10.98	6.86	4.12	20	22
6.04	6.86	-0.82	20	23
5.93	6.86	-0.93	20	24

8.62	6.86	1.76	21	24
7.05	6.86	0.19	22	24
11.05	6.86	4.19	23	24
7.67	7.32	0.35	24	24
11.44	7.32	4.12	25	24
6.46	7.32	-0.86	25	25
6.86	7.32	-0.46	25	26
9.66	7.32	2.34	26	26
11.6	7.32	4.28	27	26
5.83	7.32	-1.49	27	27
10.25	7.32	2.93	28	27
10.98	7.32	3.66	29	27
6.04	7.32	-1.28	29	28
5.93	7.32	-1.39	29	29
8.62	7.32	1.3	30	29
7.05	7.32	-0.27	30	30
11.05	7.32	3.73	31	30
11.44	7.67	3.77	32	30
6.46	7.67	-1.21	32	31
6.86	7.67	-0.81	32	32
9.66	7.67	1.99	33	32
11.6	7.67	3.93	34	32
5.83	7.67	-1.84	34	33
10.25	7.67	2.58	35	33
10.98	7.67	3.31	36	33
6.04	7.67	-1.63	36	34
5.93	7.67	-1.74	36	35
8.62	7.67	0.95	37	35
7.05	7.67	-0.62	37	36
11.05	7.67	3.38	38	36
6.46	11.44	-4.98	38	37
6.86	11.44	-4.58	38	38
9.66	11.44	-1.78	38	39
11.6	11.44	0.16	39	39
5.83	11.44	-5.61	39	40
10.25	11.44	-1.19	39	41
10.98	11.44	-0.46	39	42
6.04	11.44	-5.4	39	43
5.93	11.44	-5.51	39	44
8.62	11.44	-2.82	39	45
7.05	11.44	-4.39	39	46
11.05	11.44	-0.39	39	47
6.86	6.46	0.4	40	47
9.66	6.46	3.2	41	47
11.6	6.46	5.14	42	47
5.83	6.46	-0.63	42	48
10.25	6.46	3.79	43	48
10.98	6.46	4.52	44	48
6.04	6.46	-0.42	44	49
5.93	6.46	-0.53	44	50
8.62	6.46	2.16	45	50
7.05	6.46	0.59	46	50
11.05	6.46	4.59	47	50

9.66	6.86	2.8	48	50
11.6	6.86	4.74	49	50
5.83	6.86	-1.03	49	51
10.25	6.86	3.39	50	51
10.98	6.86	4.12	51	51
6.04	6.86	-0.82	51	52
5.93	6.86	-0.93	51	53
8.62	6.86	1.76	52	53
7.05	6.86	0.19	53	53
11.05	6.86	4.19	54	53
11.6	9.66	1.94	55	53
5.83	9.66	-3.83	55	54
10.25	9.66	0.59	56	54
10.98	9.66	1.32	57	54
6.04	9.66	-3.62	57	55
5.93	9.66	-3.73	57	56
8.62	9.66	-1.04	57	57
7.05	9.66	-2.61	57	58
11.05	9.66	1.39	58	58
5.83	11.6	-5.77	58	59
10.25	11.6	-1.35	58	60
10.98	11.6	-0.62	58	61
6.04	11.6	-5.56	58	62
5.93	11.6	-5.67	58	63
8.62	11.6	-2.98	58	64
7.05	11.6	-4.55	58	65
11.05	11.6	-0.55	58	66
10.25	5.83	4.42	59	66
10.98	5.83	5.15	60	66
6.04	5.83	0.21	61	66
5.93	5.83	0.1	62	66
8.62	5.83	2.79	63	66
7.05	5.83	1.22	64	66
11.05	5.83	5.22	65	66
10.98	10.25	0.73	66	66
6.04	10.25	-4.21	66	67
5.93	10.25	-4.32	66	68
8.62	10.25	-1.63	66	69
7.05	10.25	-3.2	66	70
11.05	10.25	0.8	67	70
6.04	10.98	-4.94	67	71
5.93	10.98	-5.05	67	72
8.62	10.98	-2.36	67	73
7.05	10.98	-3.93	67	74
11.05	10.98	0.07	68	74
5.93	6.04	-0.11	68	75
8.62	6.04	2.58	69	75
7.05	6.04	1.01	70	75
11.05	6.04	5.01	71	75

8.62	5.93	2.69	72	75
7.05	5.93	1.12	73	75
11.05	5.93	5.12	74	75
7.05	8.62	-1.57	74	76
11.05	8.62	2.43	75	76
11.05	7.05	4	76	76

S Statistic = 76 - 76 = 0

---

Tied Group	Value	Members
1	6.86	2

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 12546

b = 44064

c = 612

Group Variance = 696

Z-Score = 0

Comparison Level at 95% confidence level = -1.65463 (downward trend)

0 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW15-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6.68	11.6	-4.92	0	1
10.17	11.6	-1.43	0	2
11.59	11.6	-0.01	0	3
11.69	11.6	0.09	1	3
12.13	11.6	0.53	2	3
11.99	11.6	0.39	3	3
10.69	11.6	-0.91	3	4
7	11.6	-4.6	3	5
7	11.6	-4.6	3	6
6.91	11.6	-4.69	3	7
5.99	11.6	-5.61	3	8
6.11	11.6	-5.49	3	9
9.41	11.6	-2.19	3	10
9.03	11.6	-2.57	3	11
8.8	11.6	-2.8	3	12
8.93	11.6	-2.67	3	13
10.17	6.68	3.49	4	13
11.59	6.68	4.91	5	13
11.69	6.68	5.01	6	13
12.13	6.68	5.45	7	13
11.99	6.68	5.31	8	13
10.69	6.68	4.01	9	13
7	6.68	0.32	10	13
7	6.68	0.32	11	13
6.91	6.68	0.23	12	13
5.99	6.68	-0.69	12	14
6.11	6.68	-0.57	12	15
9.41	6.68	2.73	13	15
9.03	6.68	2.35	14	15
8.8	6.68	2.12	15	15
8.93	6.68	2.25	16	15
11.59	10.17	1.42	17	15
11.69	10.17	1.52	18	15
12.13	10.17	1.96	19	15
11.99	10.17	1.82	20	15
10.69	10.17	0.52	21	15
7	10.17	-3.17	21	16
7	10.17	-3.17	21	17
6.91	10.17	-3.26	21	18
5.99	10.17	-4.18	21	19
6.11	10.17	-4.06	21	20
9.41	10.17	-0.76	21	21
9.03	10.17	-1.14	21	22
8.8	10.17	-1.37	21	23
8.93	10.17	-1.24	21	24



11.69	11.59	0.1	22	24
12.13	11.59	0.54	23	24
11.99	11.59	0.4	24	24
10.69	11.59	-0.9	24	25
7	11.59	-4.59	24	26
7	11.59	-4.59	24	27
6.91	11.59	-4.68	24	28
5.99	11.59	-5.6	24	29
6.11	11.59	-5.48	24	30
9.41	11.59	-2.18	24	31
9.03	11.59	-2.56	24	32
8.8	11.59	-2.79	24	33
8.93	11.59	-2.66	24	34
12.13	11.69	0.44	25	34
11.99	11.69	0.3	26	34
10.69	11.69	-1	26	35
7	11.69	-4.69	26	36
7	11.69	-4.69	26	37
6.91	11.69	-4.78	26	38
5.99	11.69	-5.7	26	39
6.11	11.69	-5.58	26	40
9.41	11.69	-2.28	26	41
9.03	11.69	-2.66	26	42
8.8	11.69	-2.89	26	43
8.93	11.69	-2.76	26	44
11.99	12.13	-0.14	26	45
10.69	12.13	-1.44	26	46
7	12.13	-5.13	26	47
7	12.13	-5.13	26	48
6.91	12.13	-5.22	26	49
5.99	12.13	-6.14	26	50
6.11	12.13	-6.02	26	51
9.41	12.13	-2.72	26	52
9.03	12.13	-3.1	26	53
8.8	12.13	-3.33	26	54
8.93	12.13	-3.2	26	55
10.69	11.99	-1.3	26	56
7	11.99	-4.99	26	57
7	11.99	-4.99	26	58
6.91	11.99	-5.08	26	59
5.99	11.99	-6	26	60
6.11	11.99	-5.88	26	61
9.41	11.99	-2.58	26	62
9.03	11.99	-2.96	26	63
8.8	11.99	-3.19	26	64
8.93	11.99	-3.06	26	65
7	10.69	-3.69	26	66
7	10.69	-3.69	26	67
6.91	10.69	-3.78	26	68
5.99	10.69	-4.7	26	69
6.11	10.69	-4.58	26	70
9.41	10.69	-1.28	26	71

9.03	10.69	-1.66	26	72
8.8	10.69	-1.89	26	73
8.93	10.69	-1.76	26	74
7	7	0	26	74
6.91	7	-0.09	26	75
5.99	7	-1.01	26	76
6.11	7	-0.89	26	77
9.41	7	2.41	27	77
9.03	7	2.03	28	77
8.8	7	1.8	29	77
8.93	7	1.93	30	77
6.91	7	-0.09	30	78
5.99	7	-1.01	30	79
6.11	7	-0.89	30	80
9.41	7	2.41	31	80
9.03	7	2.03	32	80
8.8	7	1.8	33	80
8.93	7	1.93	34	80
5.99	6.91	-0.92	34	81
6.11	6.91	-0.8	34	82
9.41	6.91	2.5	35	82
9.03	6.91	2.12	36	82
8.8	6.91	1.89	37	82
8.93	6.91	2.02	38	82
6.11	5.99	0.12	39	82
9.41	5.99	3.42	40	82
9.03	5.99	3.04	41	82
8.8	5.99	2.81	42	82
8.93	5.99	2.94	43	82
9.41	6.11	3.3	44	82
9.03	6.11	2.92	45	82
8.8	6.11	2.69	46	82
8.93	6.11	2.82	47	82
9.03	9.41	-0.38	47	83
8.8	9.41	-0.61	47	84
8.93	9.41	-0.48	47	85
8.8	9.03	-0.23	47	86
8.93	9.03	-0.1	47	87
8.93	8.8	0.13	48	87

S Statistic = 48 - 87 = -39

---

Tied Group	Value	Members
1	7	2

---

Time Period	Observations
8/1/2017	1
9/1/2017	1

10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 10608

b = 36720

c = 544

Group Variance = 588.333

Z-Score = -1.56665

Comparison Level at 95% confidence level = -1.65463 (downward trend)

-1.56665 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW16-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
9.36	6.14	3.22	1	0
9.43	6.14	3.29	2	0
6.47	6.14	0.33	3	0
6.37	6.14	0.23	4	0
6.36	6.14	0.22	5	0
10.41	6.14	4.27	6	0
9.43	6.14	3.29	7	0
9.9	6.14	3.76	8	0
9.47	6.14	3.33	9	0
9.88	6.14	3.74	10	0
9.3	6.14	3.16	11	0
7.37	6.14	1.23	12	0
7.93	6.14	1.79	13	0
8.87	6.14	2.73	14	0
8.59	6.14	2.45	15	0
8.74	6.14	2.6	16	0
9.43	9.36	0.07	17	0
6.47	9.36	-2.89	17	1
6.37	9.36	-2.99	17	2
6.36	9.36	-3	17	3
10.41	9.36	1.05	18	3
9.43	9.36	0.07	19	3
9.9	9.36	0.54	20	3
9.47	9.36	0.11	21	3
9.88	9.36	0.52	22	3
9.3	9.36	-0.06	22	4
7.37	9.36	-1.99	22	5
7.93	9.36	-1.43	22	6
8.87	9.36	-0.49	22	7
8.59	9.36	-0.77	22	8
8.74	9.36	-0.62	22	9
6.47	9.43	-2.96	22	10
6.37	9.43	-3.06	22	11
6.36	9.43	-3.07	22	12
10.41	9.43	0.98	23	12
9.43	9.43	0	23	12
9.9	9.43	0.47	24	12
9.47	9.43	0.04	25	12
9.88	9.43	0.45	26	12
9.3	9.43	-0.13	26	13
7.37	9.43	-2.06	26	14
7.93	9.43	-1.5	26	15
8.87	9.43	-0.56	26	16
8.59	9.43	-0.84	26	17
8.74	9.43	-0.69	26	18

6.37	6.47	-0.1	26	19
6.36	6.47	-0.11	26	20
10.41	6.47	3.94	27	20
9.43	6.47	2.96	28	20
9.9	6.47	3.43	29	20
9.47	6.47	3	30	20
9.88	6.47	3.41	31	20
9.3	6.47	2.83	32	20
7.37	6.47	0.9	33	20
7.93	6.47	1.46	34	20
8.87	6.47	2.4	35	20
8.59	6.47	2.12	36	20
8.74	6.47	2.27	37	20
6.36	6.37	-0.01	37	21
10.41	6.37	4.04	38	21
9.43	6.37	3.06	39	21
9.9	6.37	3.53	40	21
9.47	6.37	3.1	41	21
9.88	6.37	3.51	42	21
9.3	6.37	2.93	43	21
7.37	6.37	1	44	21
7.93	6.37	1.56	45	21
8.87	6.37	2.5	46	21
8.59	6.37	2.22	47	21
8.74	6.37	2.37	48	21
10.41	6.36	4.05	49	21
9.43	6.36	3.07	50	21
9.9	6.36	3.54	51	21
9.47	6.36	3.11	52	21
9.88	6.36	3.52	53	21
9.3	6.36	2.94	54	21
7.37	6.36	1.01	55	21
7.93	6.36	1.57	56	21
8.87	6.36	2.51	57	21
8.59	6.36	2.23	58	21
8.74	6.36	2.38	59	21
9.43	10.41	-0.98	59	22
9.9	10.41	-0.51	59	23
9.47	10.41	-0.94	59	24
9.88	10.41	-0.53	59	25
9.3	10.41	-1.11	59	26
7.37	10.41	-3.04	59	27
7.93	10.41	-2.48	59	28
8.87	10.41	-1.54	59	29
8.59	10.41	-1.82	59	30
8.74	10.41	-1.67	59	31
9.9	9.43	0.47	60	31
9.47	9.43	0.04	61	31
9.88	9.43	0.45	62	31
9.3	9.43	-0.13	62	32
7.37	9.43	-2.06	62	33
7.93	9.43	-1.5	62	34

8.87	9.43	-0.56	62	35
8.59	9.43	-0.84	62	36
8.74	9.43	-0.69	62	37
9.47	9.9	-0.43	62	38
9.88	9.9	-0.02	62	39
9.3	9.9	-0.6	62	40
7.37	9.9	-2.53	62	41
7.93	9.9	-1.97	62	42
8.87	9.9	-1.03	62	43
8.59	9.9	-1.31	62	44
8.74	9.9	-1.16	62	45
9.88	9.47	0.41	63	45
9.3	9.47	-0.17	63	46
7.37	9.47	-2.1	63	47
7.93	9.47	-1.54	63	48
8.87	9.47	-0.6	63	49
8.59	9.47	-0.88	63	50
8.74	9.47	-0.73	63	51
9.3	9.88	-0.58	63	52
7.37	9.88	-2.51	63	53
7.93	9.88	-1.95	63	54
8.87	9.88	-1.01	63	55
8.59	9.88	-1.29	63	56
8.74	9.88	-1.14	63	57
7.37	9.3	-1.93	63	58
7.93	9.3	-1.37	63	59
8.87	9.3	-0.43	63	60
8.59	9.3	-0.71	63	61
8.74	9.3	-0.56	63	62
7.93	7.37	0.56	64	62
8.87	7.37	1.5	65	62
8.59	7.37	1.22	66	62
8.74	7.37	1.37	67	62
8.87	7.93	0.94	68	62
8.59	7.93	0.66	69	62
8.74	7.93	0.81	70	62
8.59	8.87	-0.28	70	63
8.74	8.87	-0.13	70	64
8.74	8.59	0.15	71	64

S Statistic = 71 - 64 = 7

---

Tied Group	Value	Members
1	9.43	2

---

Time Period	Observations
9/1/2017	1
10/1/2017	1

11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 10608

b = 36720

c = 544

Group Variance = 588.333

Z-Score = 0.247366

Comparison Level at 95% confidence level = -1.65463 (downward trend)

0.247366 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW18-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.33	5.64	-0.31	0	1
5.39	5.64	-0.25	0	2
3.43	5.64	-2.21	0	3
5.38	5.64	-0.26	0	4
5.25	5.64	-0.39	0	5
5.45	5.64	-0.19	0	6
5.99	5.64	0.35	1	6
5.49	5.64	-0.15	1	7
5.84	5.64	0.2	2	7
5.62	5.64	-0.02	2	8
5.56	5.64	-0.08	2	9
5.27	5.64	-0.37	2	10
5.46	5.64	-0.18	2	11
6.71	5.64	1.07	3	11
5.3	5.64	-0.34	3	12
5.16	5.64	-0.48	3	13
5.43	5.64	-0.21	3	14
5.52	5.64	-0.12	3	15
5.46	5.64	-0.18	3	16
5.98	5.64	0.34	4	16
6.42	5.64	0.78	5	16
6.71	5.64	1.07	6	16
6	5.64	0.36	7	16
5.39	5.33	0.06	8	16
3.43	5.33	-1.9	8	17
5.38	5.33	0.05	9	17
5.25	5.33	-0.08	9	18
5.45	5.33	0.12	10	18
5.99	5.33	0.66	11	18
5.49	5.33	0.16	12	18
5.84	5.33	0.51	13	18
5.62	5.33	0.29	14	18
5.56	5.33	0.23	15	18
5.27	5.33	-0.06	15	19
5.46	5.33	0.13	16	19
6.71	5.33	1.38	17	19
5.3	5.33	-0.03	17	20
5.16	5.33	-0.17	17	21
5.43	5.33	0.1	18	21
5.52	5.33	0.19	19	21
5.46	5.33	0.13	20	21
5.98	5.33	0.65	21	21
6.42	5.33	1.09	22	21
6.71	5.33	1.38	23	21
6	5.33	0.67	24	21



3.43	5.39	-1.96	24	22
5.38	5.39	-0.01	24	23
5.25	5.39	-0.14	24	24
5.45	5.39	0.06	25	24
5.99	5.39	0.6	26	24
5.49	5.39	0.1	27	24
5.84	5.39	0.45	28	24
5.62	5.39	0.23	29	24
5.56	5.39	0.17	30	24
5.27	5.39	-0.12	30	25
5.46	5.39	0.07	31	25
6.71	5.39	1.32	32	25
5.3	5.39	-0.09	32	26
5.16	5.39	-0.23	32	27
5.43	5.39	0.04	33	27
5.52	5.39	0.13	34	27
5.46	5.39	0.07	35	27
5.98	5.39	0.59	36	27
6.42	5.39	1.03	37	27
6.71	5.39	1.32	38	27
6	5.39	0.61	39	27
5.38	3.43	1.95	40	27
5.25	3.43	1.82	41	27
5.45	3.43	2.02	42	27
5.99	3.43	2.56	43	27
5.49	3.43	2.06	44	27
5.84	3.43	2.41	45	27
5.62	3.43	2.19	46	27
5.56	3.43	2.13	47	27
5.27	3.43	1.84	48	27
5.46	3.43	2.03	49	27
6.71	3.43	3.28	50	27
5.3	3.43	1.87	51	27
5.16	3.43	1.73	52	27
5.43	3.43	2	53	27
5.52	3.43	2.09	54	27
5.46	3.43	2.03	55	27
5.98	3.43	2.55	56	27
6.42	3.43	2.99	57	27
6.71	3.43	3.28	58	27
6	3.43	2.57	59	27
5.25	5.38	-0.13	59	28
5.45	5.38	0.07	60	28
5.99	5.38	0.61	61	28
5.49	5.38	0.11	62	28
5.84	5.38	0.46	63	28
5.62	5.38	0.24	64	28
5.56	5.38	0.18	65	28
5.27	5.38	-0.11	65	29
5.46	5.38	0.08	66	29
6.71	5.38	1.33	67	29
5.3	5.38	-0.08	67	30
5.16	5.38	-0.22	67	31
5.43	5.38	0.05	68	31
5.52	5.38	0.14	69	31

5.46	5.38	0.08	70	31
5.98	5.38	0.6	71	31
6.42	5.38	1.04	72	31
6.71	5.38	1.33	73	31
6	5.38	0.62	74	31
5.45	5.25	0.2	75	31
5.99	5.25	0.74	76	31
5.49	5.25	0.24	77	31
5.84	5.25	0.59	78	31
5.62	5.25	0.37	79	31
5.56	5.25	0.31	80	31
5.27	5.25	0.02	81	31
5.46	5.25	0.21	82	31
6.71	5.25	1.46	83	31
5.3	5.25	0.05	84	31
5.16	5.25	-0.09	84	32
5.43	5.25	0.18	85	32
5.52	5.25	0.27	86	32
5.46	5.25	0.21	87	32
5.98	5.25	0.73	88	32
6.42	5.25	1.17	89	32
6.71	5.25	1.46	90	32
6	5.25	0.75	91	32
5.99	5.45	0.54	92	32
5.49	5.45	0.04	93	32
5.84	5.45	0.39	94	32
5.62	5.45	0.17	95	32
5.56	5.45	0.11	96	32
5.27	5.45	-0.18	96	33
5.46	5.45	0.01	97	33
6.71	5.45	1.26	98	33
5.3	5.45	-0.15	98	34
5.16	5.45	-0.29	98	35
5.43	5.45	-0.02	98	36
5.52	5.45	0.07	99	36
5.46	5.45	0.01	100	36
5.98	5.45	0.53	101	36
6.42	5.45	0.97	102	36
6.71	5.45	1.26	103	36
6	5.45	0.55	104	36
5.49	5.99	-0.5	104	37
5.84	5.99	-0.15	104	38
5.62	5.99	-0.37	104	39
5.56	5.99	-0.43	104	40
5.27	5.99	-0.72	104	41
5.46	5.99	-0.53	104	42
6.71	5.99	0.72	105	42
5.3	5.99	-0.69	105	43
5.16	5.99	-0.83	105	44
5.43	5.99	-0.56	105	45
5.52	5.99	-0.47	105	46
5.46	5.99	-0.53	105	47
5.98	5.99	-0.01	105	48
6.42	5.99	0.43	106	48

6.71	5.99	0.72	107	48
6	5.99	0.01	108	48
5.84	5.49	0.35	109	48
5.62	5.49	0.13	110	48
5.56	5.49	0.07	111	48
5.27	5.49	-0.22	111	49
5.46	5.49	-0.03	111	50
6.71	5.49	1.22	112	50
5.3	5.49	-0.19	112	51
5.16	5.49	-0.33	112	52
5.43	5.49	-0.06	112	53
5.52	5.49	0.03	113	53
5.46	5.49	-0.03	113	54
5.98	5.49	0.49	114	54
6.42	5.49	0.93	115	54
6.71	5.49	1.22	116	54
6	5.49	0.51	117	54
5.62	5.84	-0.22	117	55
5.56	5.84	-0.28	117	56
5.27	5.84	-0.57	117	57
5.46	5.84	-0.38	117	58
6.71	5.84	0.87	118	58
5.3	5.84	-0.54	118	59
5.16	5.84	-0.68	118	60
5.43	5.84	-0.41	118	61
5.52	5.84	-0.32	118	62
5.46	5.84	-0.38	118	63
5.98	5.84	0.14	119	63
6.42	5.84	0.58	120	63
6.71	5.84	0.87	121	63
6	5.84	0.16	122	63
5.56	5.62	-0.06	122	64
5.27	5.62	-0.35	122	65
5.46	5.62	-0.16	122	66
6.71	5.62	1.09	123	66
5.3	5.62	-0.32	123	67
5.16	5.62	-0.46	123	68
5.43	5.62	-0.19	123	69
5.52	5.62	-0.1	123	70
5.46	5.62	-0.16	123	71
5.98	5.62	0.36	124	71
6.42	5.62	0.8	125	71
6.71	5.62	1.09	126	71
6	5.62	0.38	127	71
5.27	5.56	-0.29	127	72
5.46	5.56	-0.1	127	73
6.71	5.56	1.15	128	73
5.3	5.56	-0.26	128	74
5.16	5.56	-0.4	128	75
5.43	5.56	-0.13	128	76
5.52	5.56	-0.04	128	77
5.46	5.56	-0.1	128	78
5.98	5.56	0.42	129	78

6.42	5.56	0.86	130	78
6.71	5.56	1.15	131	78
6	5.56	0.44	132	78
5.46	5.27	0.19	133	78
6.71	5.27	1.44	134	78
5.3	5.27	0.03	135	78
5.16	5.27	-0.11	135	79
5.43	5.27	0.16	136	79
5.52	5.27	0.25	137	79
5.46	5.27	0.19	138	79
5.98	5.27	0.71	139	79
6.42	5.27	1.15	140	79
6.71	5.27	1.44	141	79
6	5.27	0.73	142	79
6.71	5.46	1.25	143	79
5.3	5.46	-0.16	143	80
5.16	5.46	-0.3	143	81
5.43	5.46	-0.03	143	82
5.52	5.46	0.06	144	82
5.46	5.46	0	144	82
5.98	5.46	0.52	145	82
6.42	5.46	0.96	146	82
6.71	5.46	1.25	147	82
6	5.46	0.54	148	82
5.3	6.71	-1.41	148	83
5.16	6.71	-1.55	148	84
5.43	6.71	-1.28	148	85
5.52	6.71	-1.19	148	86
5.46	6.71	-1.25	148	87
5.98	6.71	-0.73	148	88
6.42	6.71	-0.29	148	89
6.71	6.71	0	148	89
6	6.71	-0.71	148	90
5.16	5.3	-0.14	148	91
5.43	5.3	0.13	149	91
5.52	5.3	0.22	150	91
5.46	5.3	0.16	151	91
5.98	5.3	0.68	152	91
6.42	5.3	1.12	153	91
6.71	5.3	1.41	154	91
6	5.3	0.7	155	91
5.43	5.16	0.27	156	91
5.52	5.16	0.36	157	91
5.46	5.16	0.3	158	91
5.98	5.16	0.82	159	91
6.42	5.16	1.26	160	91
6.71	5.16	1.55	161	91
6	5.16	0.84	162	91
5.52	5.43	0.09	163	91
5.46	5.43	0.03	164	91
5.98	5.43	0.55	165	91

6.42	5.43	0.99	166	91
6.71	5.43	1.28	167	91
6	5.43	0.57	168	91
5.46	5.52	-0.06	168	92
5.98	5.52	0.46	169	92
6.42	5.52	0.9	170	92
6.71	5.52	1.19	171	92
6	5.52	0.48	172	92
5.98	5.46	0.52	173	92
6.42	5.46	0.96	174	92
6.71	5.46	1.25	175	92
6	5.46	0.54	176	92
6.42	5.98	0.44	177	92
6.71	5.98	0.73	178	92
6	5.98	0.02	179	92
6.71	6.42	0.29	180	92
6	6.42	-0.42	180	93
6	6.71	-0.71	180	94

S Statistic = 180 - 94 = 86

---

Tied Group	Value	Members
1	5.46	2
2	6.71	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 36

B = 0

C = 0

D = 0

E = 4

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1623.33

Z-Score = 2.10967

Comparison Level at 95% confidence level = -1.65463 (downward trend)

2.10967 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW19-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.35	5.5	-0.15	0	1
5.28	5.5	-0.22	0	2
5.41	5.5	-0.09	0	3
5.32	5.5	-0.18	0	4
5.15	5.5	-0.35	0	5
5.58	5.5	0.08	1	5
5.37	5.5	-0.13	1	6
5.52	5.5	0.02	2	6
5.52	5.5	0.02	3	6
5.41	5.5	-0.09	3	7
4.93	5.5	-0.57	3	8
5.38	5.5	-0.12	3	9
6.86	5.5	1.36	4	9
5.5	5.5	0	4	9
5.25	5.5	-0.25	4	10
5.23	5.5	-0.27	4	11
5.23	5.5	-0.27	4	12
5.34	5.5	-0.16	4	13
5.55	5.5	0.05	5	13
5.49	5.5	-0.01	5	14
5.7	5.5	0.2	6	14
5.28	5.5	-0.22	6	15
5.28	5.35	-0.07	6	16
5.41	5.35	0.06	7	16
5.32	5.35	-0.03	7	17
5.15	5.35	-0.2	7	18
5.58	5.35	0.23	8	18
5.37	5.35	0.02	9	18
5.52	5.35	0.17	10	18
5.52	5.35	0.17	11	18
5.41	5.35	0.06	12	18
4.93	5.35	-0.42	12	19
5.38	5.35	0.03	13	19
6.86	5.35	1.51	14	19
5.5	5.35	0.15	15	19
5.25	5.35	-0.1	15	20
5.23	5.35	-0.12	15	21
5.23	5.35	-0.12	15	22
5.34	5.35	-0.01	15	23
5.55	5.35	0.2	16	23
5.49	5.35	0.14	17	23
5.7	5.35	0.35	18	23
5.28	5.35	-0.07	18	24
5.41	5.28	0.13	19	24
5.32	5.28	0.04	20	24

5.15	5.28	-0.13	20	25
5.58	5.28	0.3	21	25
5.37	5.28	0.09	22	25
5.52	5.28	0.24	23	25
5.52	5.28	0.24	24	25
5.41	5.28	0.13	25	25
4.93	5.28	-0.35	25	26
5.38	5.28	0.1	26	26
6.86	5.28	1.58	27	26
5.5	5.28	0.22	28	26
5.25	5.28	-0.03	28	27
5.23	5.28	-0.05	28	28
5.23	5.28	-0.05	28	29
5.34	5.28	0.06	29	29
5.55	5.28	0.27	30	29
5.49	5.28	0.21	31	29
5.7	5.28	0.42	32	29
5.28	5.28	0	32	29
5.32	5.41	-0.09	32	30
5.15	5.41	-0.26	32	31
5.58	5.41	0.17	33	31
5.37	5.41	-0.04	33	32
5.52	5.41	0.11	34	32
5.52	5.41	0.11	35	32
5.41	5.41	0	35	32
4.93	5.41	-0.48	35	33
5.38	5.41	-0.03	35	34
6.86	5.41	1.45	36	34
5.5	5.41	0.09	37	34
5.25	5.41	-0.16	37	35
5.23	5.41	-0.18	37	36
5.23	5.41	-0.18	37	37
5.34	5.41	-0.07	37	38
5.55	5.41	0.14	38	38
5.49	5.41	0.08	39	38
5.7	5.41	0.29	40	38
5.28	5.41	-0.13	40	39
5.15	5.32	-0.17	40	40
5.58	5.32	0.26	41	40
5.37	5.32	0.05	42	40
5.52	5.32	0.2	43	40
5.52	5.32	0.2	44	40
5.41	5.32	0.09	45	40
4.93	5.32	-0.39	45	41
5.38	5.32	0.06	46	41
6.86	5.32	1.54	47	41
5.5	5.32	0.18	48	41
5.25	5.32	-0.07	48	42
5.23	5.32	-0.09	48	43
5.23	5.32	-0.09	48	44
5.34	5.32	0.02	49	44
5.55	5.32	0.23	50	44
5.49	5.32	0.17	51	44
5.7	5.32	0.38	52	44
5.28	5.32	-0.04	52	45



5.58	5.15	0.43	53	45
5.37	5.15	0.22	54	45
5.52	5.15	0.37	55	45
5.52	5.15	0.37	56	45
5.41	5.15	0.26	57	45
4.93	5.15	-0.22	57	46
5.38	5.15	0.23	58	46
6.86	5.15	1.71	59	46
5.5	5.15	0.35	60	46
5.25	5.15	0.1	61	46
5.23	5.15	0.08	62	46
5.23	5.15	0.08	63	46
5.34	5.15	0.19	64	46
5.55	5.15	0.4	65	46
5.49	5.15	0.34	66	46
5.7	5.15	0.55	67	46
5.28	5.15	0.13	68	46
5.37	5.58	-0.21	68	47
5.52	5.58	-0.06	68	48
5.52	5.58	-0.06	68	49
5.41	5.58	-0.17	68	50
4.93	5.58	-0.65	68	51
5.38	5.58	-0.2	68	52
6.86	5.58	1.28	69	52
5.5	5.58	-0.08	69	53
5.25	5.58	-0.33	69	54
5.23	5.58	-0.35	69	55
5.23	5.58	-0.35	69	56
5.34	5.58	-0.24	69	57
5.55	5.58	-0.03	69	58
5.49	5.58	-0.09	69	59
5.7	5.58	0.12	70	59
5.28	5.58	-0.3	70	60
5.52	5.37	0.15	71	60
5.52	5.37	0.15	72	60
5.41	5.37	0.04	73	60
4.93	5.37	-0.44	73	61
5.38	5.37	0.01	74	61
6.86	5.37	1.49	75	61
5.5	5.37	0.13	76	61
5.25	5.37	-0.12	76	62
5.23	5.37	-0.14	76	63
5.23	5.37	-0.14	76	64
5.34	5.37	-0.03	76	65
5.55	5.37	0.18	77	65
5.49	5.37	0.12	78	65
5.7	5.37	0.33	79	65
5.28	5.37	-0.09	79	66
5.52	5.52	0	79	66
5.41	5.52	-0.11	79	67
4.93	5.52	-0.59	79	68
5.38	5.52	-0.14	79	69
6.86	5.52	1.34	80	69

5.5	5.52	-0.02	80	70
5.25	5.52	-0.27	80	71
5.23	5.52	-0.29	80	72
5.23	5.52	-0.29	80	73
5.34	5.52	-0.18	80	74
5.55	5.52	0.03	81	74
5.49	5.52	-0.03	81	75
5.7	5.52	0.18	82	75
5.28	5.52	-0.24	82	76
5.41	5.52	-0.11	82	77
4.93	5.52	-0.59	82	78
5.38	5.52	-0.14	82	79
6.86	5.52	1.34	83	79
5.5	5.52	-0.02	83	80
5.25	5.52	-0.27	83	81
5.23	5.52	-0.29	83	82
5.23	5.52	-0.29	83	83
5.34	5.52	-0.18	83	84
5.55	5.52	0.03	84	84
5.49	5.52	-0.03	84	85
5.7	5.52	0.18	85	85
5.28	5.52	-0.24	85	86
4.93	5.41	-0.48	85	87
5.38	5.41	-0.03	85	88
6.86	5.41	1.45	86	88
5.5	5.41	0.09	87	88
5.25	5.41	-0.16	87	89
5.23	5.41	-0.18	87	90
5.23	5.41	-0.18	87	91
5.34	5.41	-0.07	87	92
5.55	5.41	0.14	88	92
5.49	5.41	0.08	89	92
5.7	5.41	0.29	90	92
5.28	5.41	-0.13	90	93
5.38	4.93	0.45	91	93
6.86	4.93	1.93	92	93
5.5	4.93	0.57	93	93
5.25	4.93	0.32	94	93
5.23	4.93	0.3	95	93
5.23	4.93	0.3	96	93
5.34	4.93	0.41	97	93
5.55	4.93	0.62	98	93
5.49	4.93	0.56	99	93
5.7	4.93	0.77	100	93
5.28	4.93	0.35	101	93
6.86	5.38	1.48	102	93
5.5	5.38	0.12	103	93
5.25	5.38	-0.13	103	94
5.23	5.38	-0.15	103	95
5.23	5.38	-0.15	103	96
5.34	5.38	-0.04	103	97
5.55	5.38	0.17	104	97
5.49	5.38	0.11	105	97

5.7	5.38	0.32	106	97
5.28	5.38	-0.1	106	98
5.5	6.86	-1.36	106	99
5.25	6.86	-1.61	106	100
5.23	6.86	-1.63	106	101
5.23	6.86	-1.63	106	102
5.34	6.86	-1.52	106	103
5.55	6.86	-1.31	106	104
5.49	6.86	-1.37	106	105
5.7	6.86	-1.16	106	106
5.28	6.86	-1.58	106	107
5.25	5.5	-0.25	106	108
5.23	5.5	-0.27	106	109
5.23	5.5	-0.27	106	110
5.34	5.5	-0.16	106	111
5.55	5.5	0.05	107	111
5.49	5.5	-0.01	107	112
5.7	5.5	0.2	108	112
5.28	5.5	-0.22	108	113
5.23	5.25	-0.02	108	114
5.23	5.25	-0.02	108	115
5.34	5.25	0.09	109	115
5.55	5.25	0.3	110	115
5.49	5.25	0.24	111	115
5.7	5.25	0.45	112	115
5.28	5.25	0.03	113	115
5.23	5.23	0	113	115
5.34	5.23	0.11	114	115
5.55	5.23	0.32	115	115
5.49	5.23	0.26	116	115
5.7	5.23	0.47	117	115
5.28	5.23	0.05	118	115
5.34	5.23	0.11	119	115
5.55	5.23	0.32	120	115
5.49	5.23	0.26	121	115
5.7	5.23	0.47	122	115
5.28	5.23	0.05	123	115
5.55	5.34	0.21	124	115
5.49	5.34	0.15	125	115
5.7	5.34	0.36	126	115
5.28	5.34	-0.06	126	116
5.49	5.55	-0.06	126	117
5.7	5.55	0.15	127	117
5.28	5.55	-0.27	127	118
5.7	5.49	0.21	128	118
5.28	5.49	-0.21	128	119
5.28	5.7	-0.42	128	120

S Statistic = 128 - 120 = 8

---

Tied Group	Value	Members
1	5.5	2
2	5.28	2
3	5.41	2
4	5.52	2
5	5.23	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/1/2020	1
6/1/2020	1
9/1/2020	1
11/1/2020	1

There are 0 time periods with multiple data

---

A = 90

B = 0

C = 0

D = 0

E = 10

F = 0

a = 25806

b = 95634

c = 1012

Group Variance = 1428.67

Z-Score = 0.185196

Comparison Level at 95% confidence level = -1.65463 (downward trend)

0.185196 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW21-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.63	5.4	0.23	1	0
5.61	5.4	0.21	2	0
5.61	5.63	-0.02	2	1

S Statistic = 2 - 1 = 1

Comparing at 95% confidence level (downward trend)

**Failed to calculate probability for S = 1**

**Table out of range**

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW22R-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.68	6.08	-0.4	0	1
6.28	6.08	0.2	1	1
5.95	6.08	-0.13	1	2
4.83	6.08	-1.25	1	3
6.15	6.08	0.07	2	3
6.89	6.08	0.81	3	3
6.28	5.68	0.6	4	3
5.95	5.68	0.27	5	3
4.83	5.68	-0.85	5	4
6.15	5.68	0.47	6	4
6.89	5.68	1.21	7	4
5.95	6.28	-0.33	7	5
4.83	6.28	-1.45	7	6
6.15	6.28	-0.13	7	7
6.89	6.28	0.61	8	7
4.83	5.95	-1.12	8	8
6.15	5.95	0.2	9	8
6.89	5.95	0.94	10	8
6.15	4.83	1.32	11	8
6.89	4.83	2.06	12	8
6.89	6.15	0.74	13	8

S Statistic = 13 - 8 = 5

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 5$  is 0.281

$S > 0$  or  $0.281 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW23-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.23	5.72	-0.49	0	1
6.1	5.72	0.38	1	1
5.8	5.72	0.08	2	1
5.86	5.72	0.14	3	1
6.35	5.72	0.63	4	1
6.83	5.72	1.11	5	1
6.1	5.23	0.87	6	1
5.8	5.23	0.57	7	1
5.86	5.23	0.63	8	1
6.35	5.23	1.12	9	1
6.83	5.23	1.6	10	1
5.8	6.1	-0.3	10	2
5.86	6.1	-0.24	10	3
6.35	6.1	0.25	11	3
6.83	6.1	0.73	12	3
5.86	5.8	0.06	13	3
6.35	5.8	0.55	14	3
6.83	5.8	1.03	15	3
6.35	5.86	0.49	16	3
6.83	5.86	0.97	17	3
6.83	6.35	0.48	18	3

S Statistic = 18 - 3 = 15

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 15$  is 0.015

$S > 0$  or  $0.015 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW24-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
4.66	5.02	-0.36	0	1
5.35	5.02	0.33	1	1
5.73	5.02	0.71	2	1
5.51	5.02	0.49	3	1
6.1	5.02	1.08	4	1
5.64	5.02	0.62	5	1
5.35	4.66	0.69	6	1
5.73	4.66	1.07	7	1
5.51	4.66	0.85	8	1
6.1	4.66	1.44	9	1
5.64	4.66	0.98	10	1
5.73	5.35	0.38	11	1
5.51	5.35	0.16	12	1
6.1	5.35	0.75	13	1
5.64	5.35	0.29	14	1
5.51	5.73	-0.22	14	2
6.1	5.73	0.37	15	2
5.64	5.73	-0.09	15	3
6.1	5.51	0.59	16	3
5.64	5.51	0.13	17	3
5.64	6.1	-0.46	17	4

S Statistic = 17 - 4 = 13

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 13$  is 0.035

$S > 0$  or  $0.035 > 0.05$  indicating no evidence of a downward trend



## Mann-Kendall Trend Analysis

Parameter: pH

Location: RW25-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.12	5.66	-0.54	0	1
5.1	5.66	-0.56	0	2
5.28	5.66	-0.38	0	3
5.69	5.66	0.03	1	3
5.27	5.66	-0.39	1	4
5.21	5.66	-0.45	1	5
5.1	5.12	-0.02	1	6
5.28	5.12	0.16	2	6
5.69	5.12	0.57	3	6
5.27	5.12	0.15	4	6
5.21	5.12	0.09	5	6
5.28	5.1	0.18	6	6
5.69	5.1	0.59	7	6
5.27	5.1	0.17	8	6
5.21	5.1	0.11	9	6
5.69	5.28	0.41	10	6
5.27	5.28	-0.01	10	7
5.21	5.28	-0.07	10	8
5.27	5.69	-0.42	10	9
5.21	5.69	-0.48	10	10
5.21	5.27	-0.06	10	11

S Statistic = 10 - 11 = -1

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 1$  is 0.5

$S > 0$  or  $0.5 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWA-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
4.98	5.39	-0.41	0	1
5.63	5.39	0.24	1	1
5.29	5.39	-0.1	1	2
5.27	5.39	-0.12	1	3
5.85	5.39	0.46	2	3
5.79	5.39	0.4	3	3
5.63	4.98	0.65	4	3
5.29	4.98	0.31	5	3
5.27	4.98	0.29	6	3
5.85	4.98	0.87	7	3
5.79	4.98	0.81	8	3
5.29	5.63	-0.34	8	4
5.27	5.63	-0.36	8	5
5.85	5.63	0.22	9	5
5.79	5.63	0.16	10	5
5.27	5.29	-0.02	10	6
5.85	5.29	0.56	11	6
5.79	5.29	0.5	12	6
5.85	5.27	0.58	13	6
5.79	5.27	0.52	14	6
5.79	5.85	-0.06	14	7

S Statistic = 14 - 7 = 7

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 7$  is 0.191

$S > 0$  or  $0.191 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWB-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6.28	6.43	-0.15	0	1
6.41	6.43	-0.02	0	2
6.09	6.43	-0.34	0	3
6.23	6.43	-0.2	0	4
5.77	6.43	-0.66	0	5
7.84	6.43	1.41	1	5
6.41	6.28	0.13	2	5
6.09	6.28	-0.19	2	6
6.23	6.28	-0.05	2	7
5.77	6.28	-0.51	2	8
7.84	6.28	1.56	3	8
6.09	6.41	-0.32	3	9
6.23	6.41	-0.18	3	10
5.77	6.41	-0.64	3	11
7.84	6.41	1.43	4	11
6.23	6.09	0.14	5	11
5.77	6.09	-0.32	5	12
7.84	6.09	1.75	6	12
5.77	6.23	-0.46	6	13
7.84	6.23	1.61	7	13
7.84	5.77	2.07	8	13

S Statistic = 8 - 13 = -5

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 5$  is 0.281

$S > 0$  or  $0.281 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWD-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.36	5.79	-0.43	0	1
7.34	5.79	1.55	1	1
5.23	5.79	-0.56	1	2
5.39	5.79	-0.4	1	3
5.77	5.79	-0.02	1	4
6.56	5.79	0.77	2	4
7.34	5.36	1.98	3	4
5.23	5.36	-0.13	3	5
5.39	5.36	0.03	4	5
5.77	5.36	0.41	5	5
6.56	5.36	1.2	6	5
5.23	7.34	-2.11	6	6
5.39	7.34	-1.95	6	7
5.77	7.34	-1.57	6	8
6.56	7.34	-0.78	6	9
5.39	5.23	0.16	7	9
5.77	5.23	0.54	8	9
6.56	5.23	1.33	9	9
5.77	5.39	0.38	10	9
6.56	5.39	1.17	11	9
6.56	5.77	0.79	12	9

S Statistic = 12 - 9 = 3

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 3$  is 0.386

$S > 0$  or  $0.386 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWE-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.86	6.04	-0.18	0	1
6.04	6.04	0	0	1
5.86	6.04	-0.18	0	2
5.82	6.04	-0.22	0	3
6.1	6.04	0.06	1	3
6.37	6.04	0.33	2	3
6.04	5.86	0.18	3	3
5.86	5.86	0	3	3
5.82	5.86	-0.04	3	4
6.1	5.86	0.24	4	4
6.37	5.86	0.51	5	4
5.86	6.04	-0.18	5	5
5.82	6.04	-0.22	5	6
6.1	6.04	0.06	6	6
6.37	6.04	0.33	7	6
5.82	5.86	-0.04	7	7
6.1	5.86	0.24	8	7
6.37	5.86	0.51	9	7
6.1	5.82	0.28	10	7
6.37	5.82	0.55	11	7
6.37	6.1	0.27	12	7

S Statistic = 12 - 7 = 5

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 5$  is 0.281

$S > 0$  or  $0.281 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWF-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6.08	6.54	-0.46	0	1
6.61	6.54	0.07	1	1
6.22	6.54	-0.32	1	2
6.13	6.54	-0.41	1	3
6.57	6.54	0.03	2	3
6.28	6.54	-0.26	2	4
6.61	6.08	0.53	3	4
6.22	6.08	0.14	4	4
6.13	6.08	0.05	5	4
6.57	6.08	0.49	6	4
6.28	6.08	0.2	7	4
6.22	6.61	-0.39	7	5
6.13	6.61	-0.48	7	6
6.57	6.61	-0.04	7	7
6.28	6.61	-0.33	7	8
6.13	6.22	-0.09	7	9
6.57	6.22	0.35	8	9
6.28	6.22	0.06	9	9
6.57	6.13	0.44	10	9
6.28	6.13	0.15	11	9
6.28	6.57	-0.29	11	10

S Statistic = 11 - 10 = 1

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 1$  is 0.5

$S > 0$  or  $0.5 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWG-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6.41	6.73	-0.32	0	1
7.31	6.73	0.58	1	1
6.53	6.73	-0.2	1	2
6.62	6.73	-0.11	1	3
7.18	6.73	0.45	2	3
6.44	6.73	-0.29	2	4
7.31	6.41	0.9	3	4
6.53	6.41	0.12	4	4
6.62	6.41	0.21	5	4
7.18	6.41	0.77	6	4
6.44	6.41	0.03	7	4
6.53	7.31	-0.78	7	5
6.62	7.31	-0.69	7	6
7.18	7.31	-0.13	7	7
6.44	7.31	-0.87	7	8
6.62	6.53	0.09	8	8
7.18	6.53	0.65	9	8
6.44	6.53	-0.09	9	9
7.18	6.62	0.56	10	9
6.44	6.62	-0.18	10	10
6.44	7.18	-0.74	10	11

S Statistic = 10 - 11 = -1

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 1$  is 0.5

$S > 0$  or  $0.5 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWH-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.84	6.14	-0.3	0	1
5.9	6.14	-0.24	0	2
6.15	6.14	0.01	1	2
6.06	6.14	-0.08	1	3
5.8	6.14	-0.34	1	4
6.79	6.14	0.65	2	4
5.9	5.84	0.06	3	4
6.15	5.84	0.31	4	4
6.06	5.84	0.22	5	4
5.8	5.84	-0.04	5	5
6.79	5.84	0.95	6	5
6.15	5.9	0.25	7	5
6.06	5.9	0.16	8	5
5.8	5.9	-0.1	8	6
6.79	5.9	0.89	9	6
6.06	6.15	-0.09	9	7
5.8	6.15	-0.35	9	8
6.79	6.15	0.64	10	8
5.8	6.06	-0.26	10	9
6.79	6.06	0.73	11	9
6.79	5.8	0.99	12	9

S Statistic = 12 - 9 = 3

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 3$  is 0.386

$S > 0$  or  $0.386 > 0.05$  indicating no evidence of a downward trend



## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWI-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.75	5.94	-0.19	0	1
5.89	5.94	-0.05	0	2
5.92	5.94	-0.02	0	3
6.27	5.94	0.33	1	3
5.89	5.75	0.14	2	3
5.92	5.75	0.17	3	3
6.27	5.75	0.52	4	3
5.92	5.89	0.03	5	3
6.27	5.89	0.38	6	3
6.27	5.92	0.35	7	3

S Statistic = 7 - 3 = 4

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 4$  is 0.242

$S > 0$  or  $0.242 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWJ-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
8.39	8.45	-0.06	0	1
8.15	8.45	-0.3	0	2
7.63	8.45	-0.82	0	3
7.96	8.45	-0.49	0	4
7.2	8.45	-1.25	0	5
7.87	8.45	-0.58	0	6
8.15	8.39	-0.24	0	7
7.63	8.39	-0.76	0	8
7.96	8.39	-0.43	0	9
7.2	8.39	-1.19	0	10
7.87	8.39	-0.52	0	11
7.63	8.15	-0.52	0	12
7.96	8.15	-0.19	0	13
7.2	8.15	-0.95	0	14
7.87	8.15	-0.28	0	15
7.96	7.63	0.33	1	15
7.2	7.63	-0.43	1	16
7.87	7.63	0.24	2	16
7.2	7.96	-0.76	2	17
7.87	7.96	-0.09	2	18
7.87	7.2	0.67	3	18

S Statistic = 3 - 18 = -15

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 15$  is 0.015

**S < 0 and 0.015 < 0.05 indicating a downward trend**

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWK-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
6.19	6.93	-0.74	0	1
6.64	6.93	-0.29	0	2
6.54	6.93	-0.39	0	3
6.44	6.93	-0.49	0	4
6.45	6.93	-0.48	0	5
7.08	6.93	0.15	1	5
6.64	6.19	0.45	2	5
6.54	6.19	0.35	3	5
6.44	6.19	0.25	4	5
6.45	6.19	0.26	5	5
7.08	6.19	0.89	6	5
6.54	6.64	-0.1	6	6
6.44	6.64	-0.2	6	7
6.45	6.64	-0.19	6	8
7.08	6.64	0.44	7	8
6.44	6.54	-0.1	7	9
6.45	6.54	-0.09	7	10
7.08	6.54	0.54	8	10
6.45	6.44	0.01	9	10
7.08	6.44	0.64	10	10
7.08	6.45	0.63	11	10

S Statistic = 11 - 10 = 1

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 1$  is 0.5

$S > 0$  or  $0.5 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWL-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.63	5.88	-0.25	0	1
6.09	5.88	0.21	1	1
5.92	5.88	0.04	2	1
5.79	5.88	-0.09	2	2
6.33	5.88	0.45	3	2
6.39	5.88	0.51	4	2
6.09	5.63	0.46	5	2
5.92	5.63	0.29	6	2
5.79	5.63	0.16	7	2
6.33	5.63	0.7	8	2
6.39	5.63	0.76	9	2
5.92	6.09	-0.17	9	3
5.79	6.09	-0.3	9	4
6.33	6.09	0.24	10	4
6.39	6.09	0.3	11	4
5.79	5.92	-0.13	11	5
6.33	5.92	0.41	12	5
6.39	5.92	0.47	13	5
6.33	5.79	0.54	14	5
6.39	5.79	0.6	15	5
6.39	6.33	0.06	16	5

S Statistic = 16 - 5 = 11

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 11$  is 0.068

$S > 0$  or  $0.068 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWM-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.26	6.01	-0.75	0	1
6.07	6.01	0.06	1	1
5.98	6.01	-0.03	1	2
5.97	6.01	-0.04	1	3
6.01	6.01	0	1	3
7.05	6.01	1.04	2	3
6.07	5.26	0.81	3	3
5.98	5.26	0.72	4	3
5.97	5.26	0.71	5	3
6.01	5.26	0.75	6	3
7.05	5.26	1.79	7	3
5.98	6.07	-0.09	7	4
5.97	6.07	-0.1	7	5
6.01	6.07	-0.06	7	6
7.05	6.07	0.98	8	6
5.97	5.98	-0.01	8	7
6.01	5.98	0.03	9	7
7.05	5.98	1.07	10	7
6.01	5.97	0.04	11	7
7.05	5.97	1.08	12	7
7.05	6.01	1.04	13	7

S Statistic = 13 - 7 = 6

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 6$  is 0.236

$S > 0$  or  $0.236 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWO-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.72	5.63	0.09	1	0
5.79	5.63	0.16	2	0
5.87	5.63	0.24	3	0
6.09	5.63	0.46	4	0
6.46	5.63	0.83	5	0
6.79	5.63	1.16	6	0
5.79	5.72	0.07	7	0
5.87	5.72	0.15	8	0
6.09	5.72	0.37	9	0
6.46	5.72	0.74	10	0
6.79	5.72	1.07	11	0
5.87	5.79	0.08	12	0
6.09	5.79	0.3	13	0
6.46	5.79	0.67	14	0
6.79	5.79	1	15	0
6.09	5.87	0.22	16	0
6.46	5.87	0.59	17	0
6.79	5.87	0.92	18	0
6.46	6.09	0.37	19	0
6.79	6.09	0.7	20	0
6.79	6.46	0.33	21	0

S Statistic = 21 - 0 = 21

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 21$  is 0.0002

$S > 0$  or  $0.0002 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWP-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5	5.19	-0.19	0	1
4.96	5.19	-0.23	0	2
5.05	5.19	-0.14	0	3
5.19	5.19	0	0	3
4.84	5.19	-0.35	0	4
5.53	5.19	0.34	1	4
4.96	5	-0.04	1	5
5.05	5	0.05	2	5
5.19	5	0.19	3	5
4.84	5	-0.16	3	6
5.53	5	0.53	4	6
5.05	4.96	0.09	5	6
5.19	4.96	0.23	6	6
4.84	4.96	-0.12	6	7
5.53	4.96	0.57	7	7
5.19	5.05	0.14	8	7
4.84	5.05	-0.21	8	8
5.53	5.05	0.48	9	8
4.84	5.19	-0.35	9	9
5.53	5.19	0.34	10	9
5.53	4.84	0.69	11	9

S Statistic = 11 - 9 = 2

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 2$  is 0.443

$S > 0$  or  $0.443 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWQ-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.59	5.63	-0.04	0	1
5.75	5.63	0.12	1	1
5.88	5.63	0.25	2	1
5.88	5.63	0.25	3	1
6.16	5.63	0.53	4	1
6.84	5.63	1.21	5	1
5.75	5.59	0.16	6	1
5.88	5.59	0.29	7	1
5.88	5.59	0.29	8	1
6.16	5.59	0.57	9	1
6.84	5.59	1.25	10	1
5.88	5.75	0.13	11	1
5.88	5.75	0.13	12	1
6.16	5.75	0.41	13	1
6.84	5.75	1.09	14	1
5.88	5.88	0	14	1
6.16	5.88	0.28	15	1
6.84	5.88	0.96	16	1
6.16	5.88	0.28	17	1
6.84	5.88	0.96	18	1
6.84	6.16	0.68	19	1

S Statistic = 19 - 1 = 18

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 18$  is 0.0034

$S > 0$  or  $0.0034 > 0.05$  indicating no evidence of a downward trend



## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWR-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.19	5.24	-0.05	0	1
5.35	5.24	0.11	1	1
5.67	5.24	0.43	2	1
5.63	5.24	0.39	3	1
5.71	5.24	0.47	4	1
5.58	5.24	0.34	5	1
5.35	5.19	0.16	6	1
5.67	5.19	0.48	7	1
5.63	5.19	0.44	8	1
5.71	5.19	0.52	9	1
5.58	5.19	0.39	10	1
5.67	5.35	0.32	11	1
5.63	5.35	0.28	12	1
5.71	5.35	0.36	13	1
5.58	5.35	0.23	14	1
5.63	5.67	-0.04	14	2
5.71	5.67	0.04	15	2
5.58	5.67	-0.09	15	3
5.71	5.63	0.08	16	3
5.58	5.63	-0.05	16	4
5.58	5.71	-0.13	16	5

S Statistic = 16 - 5 = 11

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 11$  is 0.068

$S > 0$  or  $0.068 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: pH

Location: RWS-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
5.53	5.46	0.07	1	0
5.68	5.46	0.22	2	0
5.75	5.46	0.29	3	0
5.98	5.46	0.52	4	0
6.01	5.46	0.55	5	0
6.82	5.46	1.36	6	0
5.68	5.53	0.15	7	0
5.75	5.53	0.22	8	0
5.98	5.53	0.45	9	0
6.01	5.53	0.48	10	0
6.82	5.53	1.29	11	0
5.75	5.68	0.07	12	0
5.98	5.68	0.3	13	0
6.01	5.68	0.33	14	0
6.82	5.68	1.14	15	0
5.98	5.75	0.23	16	0
6.01	5.75	0.26	17	0
6.82	5.75	1.07	18	0
6.01	5.98	0.03	19	0
6.82	5.98	0.84	20	0
6.82	6.01	0.81	21	0

S Statistic = 21 - 0 = 21

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 21$  is 0.0002

$S > 0$  or  $0.0002 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW01-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
90	11600	-11510	0	1
13700	11600	2100	1	1
29	11600	-11571	1	2
41000	11600	29400	2	2
104	11600	-11496	2	3
576	11600	-11024	2	4
9710	11600	-1890	2	5
143	11600	-11457	2	6
3880	11600	-7720	2	7
2460	11600	-9140	2	8
5670	11600	-5930	2	9
5940	11600	-5660	2	10
2060	11600	-9540	2	11
8120	11600	-3480	2	12
13700	11600	2100	3	12
3.7 J	11600	-11596.3	3	13
15200	11600	3600	4	13
13700	90	13610	5	13
29	90	-61	5	14
41000	90	40910	6	14
104	90	14	7	14
576	90	486	8	14
9710	90	9620	9	14
143	90	53	10	14
3880	90	3790	11	14
2460	90	2370	12	14
5670	90	5580	13	14
5940	90	5850	14	14
2060	90	1970	15	14
8120	90	8030	16	14
13700	90	13610	17	14
3.7 J	90	-86.3	17	15
15200	90	15110	18	15
29	13700	-13671	18	16
41000	13700	27300	19	16
104	13700	-13596	19	17
576	13700	-13124	19	18
9710	13700	-3990	19	19
143	13700	-13557	19	20
3880	13700	-9820	19	21
2460	13700	-11240	19	22
5670	13700	-8030	19	23
5940	13700	-7760	19	24
2060	13700	-11640	19	25
8120	13700	-5580	19	26

13700	13700	0	19	26
3.7 J	13700	-13696.3	19	27
15200	13700	1500	20	27
41000	29	40971	21	27
104	29	75	22	27
576	29	547	23	27
9710	29	9681	24	27
143	29	114	25	27
3880	29	3851	26	27
2460	29	2431	27	27
5670	29	5641	28	27
5940	29	5911	29	27
2060	29	2031	30	27
8120	29	8091	31	27
13700	29	13671	32	27
3.7 J	29	-25.3	32	28
15200	29	15171	33	28
104	41000	-40896	33	29
576	41000	-40424	33	30
9710	41000	-31290	33	31
143	41000	-40857	33	32
3880	41000	-37120	33	33
2460	41000	-38540	33	34
5670	41000	-35330	33	35
5940	41000	-35060	33	36
2060	41000	-38940	33	37
8120	41000	-32880	33	38
13700	41000	-27300	33	39
3.7 J	41000	-40996.3	33	40
15200	41000	-25800	33	41
576	104	472	34	41
9710	104	9606	35	41
143	104	39	36	41
3880	104	3776	37	41
2460	104	2356	38	41
5670	104	5566	39	41
5940	104	5836	40	41
2060	104	1956	41	41
8120	104	8016	42	41
13700	104	13596	43	41
3.7 J	104	-100.3	43	42
15200	104	15096	44	42
9710	576	9134	45	42
143	576	-433	45	43
3880	576	3304	46	43
2460	576	1884	47	43
5670	576	5094	48	43
5940	576	5364	49	43
2060	576	1484	50	43
8120	576	7544	51	43
13700	576	13124	52	43
3.7 J	576	-572.3	52	44
15200	576	14624	53	44

143	9710	-9567	53	45
3880	9710	-5830	53	46
2460	9710	-7250	53	47
5670	9710	-4040	53	48
5940	9710	-3770	53	49
2060	9710	-7650	53	50
8120	9710	-1590	53	51
13700	9710	3990	54	51
3.7 J	9710	-9706.3	54	52
15200	9710	5490	55	52
3880	143	3737	56	52
2460	143	2317	57	52
5670	143	5527	58	52
5940	143	5797	59	52
2060	143	1917	60	52
8120	143	7977	61	52
13700	143	13557	62	52
3.7 J	143	-139.3	62	53
15200	143	15057	63	53
2460	3880	-1420	63	54
5670	3880	1790	64	54
5940	3880	2060	65	54
2060	3880	-1820	65	55
8120	3880	4240	66	55
13700	3880	9820	67	55
3.7 J	3880	-3876.3	67	56
15200	3880	11320	68	56
5670	2460	3210	69	56
5940	2460	3480	70	56
2060	2460	-400	70	57
8120	2460	5660	71	57
13700	2460	11240	72	57
3.7 J	2460	-2456.3	72	58
15200	2460	12740	73	58
5940	5670	270	74	58
2060	5670	-3610	74	59
8120	5670	2450	75	59
13700	5670	8030	76	59
3.7 J	5670	-5666.3	76	60
15200	5670	9530	77	60
2060	5940	-3880	77	61
8120	5940	2180	78	61
13700	5940	7760	79	61
3.7 J	5940	-5936.3	79	62
15200	5940	9260	80	62
8120	2060	6060	81	62
13700	2060	11640	82	62
3.7 J	2060	-2056.3	82	63
15200	2060	13140	83	63

13700	8120	5580	84	63
3.7 J	8120	-8116.3	84	64
15200	8120	7080	85	64
3.7 J	13700	-13696.3	85	65
15200	13700	1500	86	65
15200	3.7 J	15196.3	87	65

S Statistic = 87 - 65 = 22

---

Tied Group	Value	Members
1	13700	2

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/19/2020	1
6/8/2020	1
9/14/2020	1
11/19/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 12546

b = 44064

c = 612

Group Variance = 696

Z-Score = 0.796003

Comparison Level at 95% confidence level = -1.65463 (downward trend)

0.796003 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW02-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
203	18200	-17997	0	1
290	18200	-17910	0	2
38.6	18200	-18161.4	0	3
186	18200	-18014	0	4
573	18200	-17627	0	5
452	18200	-17748	0	6
5030	18200	-13170	0	7
3240	18200	-14960	0	8
25300	18200	7100	1	8
21500	18200	3300	2	8
56600	18200	38400	3	8
72000	18200	53800	4	8
17200	18200	-1000	4	9
14100	18200	-4100	4	10
34900	18200	16700	5	10
123	18200	-18077	5	11
20200	18200	2000	6	11
290	203	87	7	11
38.6	203	-164.4	7	12
186	203	-17	7	13
573	203	370	8	13
452	203	249	9	13
5030	203	4827	10	13
3240	203	3037	11	13
25300	203	25097	12	13
21500	203	21297	13	13
56600	203	56397	14	13
72000	203	71797	15	13
17200	203	16997	16	13
14100	203	13897	17	13
34900	203	34697	18	13
123	203	-80	18	14
20200	203	19997	19	14
38.6	290	-251.4	19	15
186	290	-104	19	16
573	290	283	20	16
452	290	162	21	16
5030	290	4740	22	16
3240	290	2950	23	16
25300	290	25010	24	16
21500	290	21210	25	16
56600	290	56310	26	16
72000	290	71710	27	16
17200	290	16910	28	16
14100	290	13810	29	16

34900	290	34610	30	16
123	290	-167	30	17
20200	290	19910	31	17
186	38.6	147.4	32	17
573	38.6	534.4	33	17
452	38.6	413.4	34	17
5030	38.6	4991.4	35	17
3240	38.6	3201.4	36	17
25300	38.6	25261.4	37	17
21500	38.6	21461.4	38	17
56600	38.6	56561.4	39	17
72000	38.6	71961.4	40	17
17200	38.6	17161.4	41	17
14100	38.6	14061.4	42	17
34900	38.6	34861.4	43	17
123	38.6	84.4	44	17
20200	38.6	20161.4	45	17
573	186	387	46	17
452	186	266	47	17
5030	186	4844	48	17
3240	186	3054	49	17
25300	186	25114	50	17
21500	186	21314	51	17
56600	186	56414	52	17
72000	186	71814	53	17
17200	186	17014	54	17
14100	186	13914	55	17
34900	186	34714	56	17
123	186	-63	56	18
20200	186	20014	57	18
452	573	-121	57	19
5030	573	4457	58	19
3240	573	2667	59	19
25300	573	24727	60	19
21500	573	20927	61	19
56600	573	56027	62	19
72000	573	71427	63	19
17200	573	16627	64	19
14100	573	13527	65	19
34900	573	34327	66	19
123	573	-450	66	20
20200	573	19627	67	20
5030	452	4578	68	20
3240	452	2788	69	20
25300	452	24848	70	20
21500	452	21048	71	20
56600	452	56148	72	20
72000	452	71548	73	20
17200	452	16748	74	20
14100	452	13648	75	20
34900	452	34448	76	20
123	452	-329	76	21
20200	452	19748	77	21



3240	5030	-1790	77	22
25300	5030	20270	78	22
21500	5030	16470	79	22
56600	5030	51570	80	22
72000	5030	66970	81	22
17200	5030	12170	82	22
14100	5030	9070	83	22
34900	5030	29870	84	22
123	5030	-4907	84	23
20200	5030	15170	85	23
25300	3240	22060	86	23
21500	3240	18260	87	23
56600	3240	53360	88	23
72000	3240	68760	89	23
17200	3240	13960	90	23
14100	3240	10860	91	23
34900	3240	31660	92	23
123	3240	-3117	92	24
20200	3240	16960	93	24
21500	25300	-3800	93	25
56600	25300	31300	94	25
72000	25300	46700	95	25
17200	25300	-8100	95	26
14100	25300	-11200	95	27
34900	25300	9600	96	27
123	25300	-25177	96	28
20200	25300	-5100	96	29
56600	21500	35100	97	29
72000	21500	50500	98	29
17200	21500	-4300	98	30
14100	21500	-7400	98	31
34900	21500	13400	99	31
123	21500	-21377	99	32
20200	21500	-1300	99	33
72000	56600	15400	100	33
17200	56600	-39400	100	34
14100	56600	-42500	100	35
34900	56600	-21700	100	36
123	56600	-56477	100	37
20200	56600	-36400	100	38
17200	72000	-54800	100	39
14100	72000	-57900	100	40
34900	72000	-37100	100	41
123	72000	-71877	100	42
20200	72000	-51800	100	43
14100	17200	-3100	100	44
34900	17200	17700	101	44
123	17200	-17077	101	45
20200	17200	3000	102	45

34900	14100	20800	103	45
123	14100	-13977	103	46
20200	14100	6100	104	46
123	34900	-34777	104	47
20200	34900	-14700	104	48
20200	123	20077	105	48

S Statistic = 105 - 48 = 57

---

Tied Group	Value	Members
------------	-------	---------

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/19/2020	1
6/9/2020	1
9/14/2020	1
11/19/2020	1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 12546

b = 44064

c = 612

Group Variance = 697

Z-Score = 2.12115

Comparison Level at 95% confidence level = -1.65463 (downward trend)

2.12115 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW03-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
9240	9740	-500	0	1
7830	9740	-1910	0	2
2960	9740	-6780	0	3
2440	9740	-7300	0	4
8330	9740	-1410	0	5
10900	9740	1160	1	5
9340	9740	-400	1	6
1810	9740	-7930	1	7
1750	9740	-7990	1	8
6270	9740	-3470	1	9
12700	9740	2960	2	9
6920	9740	-2820	2	10
9710	9740	-30	2	11
13000	9740	3260	3	11
14900	9740	5160	4	11
6720	9740	-3020	4	12
13300	9740	3560	5	12
10500	9740	760	6	12
16200	9740	6460	7	12
12900	9740	3160	8	12
19400	9740	9660	9	12
7830	9240	-1410	9	13
2960	9240	-6280	9	14
2440	9240	-6800	9	15
8330	9240	-910	9	16
10900	9240	1660	10	16
9340	9240	100	11	16
1810	9240	-7430	11	17
1750	9240	-7490	11	18
6270	9240	-2970	11	19
12700	9240	3460	12	19
6920	9240	-2320	12	20
9710	9240	470	13	20
13000	9240	3760	14	20
14900	9240	5660	15	20
6720	9240	-2520	15	21
13300	9240	4060	16	21
10500	9240	1260	17	21
16200	9240	6960	18	21
12900	9240	3660	19	21
19400	9240	10160	20	21
2960	7830	-4870	20	22
2440	7830	-5390	20	23
8330	7830	500	21	23
10900	7830	3070	22	23

9340	7830	1510	23	23
1810	7830	-6020	23	24
1750	7830	-6080	23	25
6270	7830	-1560	23	26
12700	7830	4870	24	26
6920	7830	-910	24	27
9710	7830	1880	25	27
13000	7830	5170	26	27
14900	7830	7070	27	27
6720	7830	-1110	27	28
13300	7830	5470	28	28
10500	7830	2670	29	28
16200	7830	8370	30	28
12900	7830	5070	31	28
19400	7830	11570	32	28
2440	2960	-520	32	29
8330	2960	5370	33	29
10900	2960	7940	34	29
9340	2960	6380	35	29
1810	2960	-1150	35	30
1750	2960	-1210	35	31
6270	2960	3310	36	31
12700	2960	9740	37	31
6920	2960	3960	38	31
9710	2960	6750	39	31
13000	2960	10040	40	31
14900	2960	11940	41	31
6720	2960	3760	42	31
13300	2960	10340	43	31
10500	2960	7540	44	31
16200	2960	13240	45	31
12900	2960	9940	46	31
19400	2960	16440	47	31
8330	2440	5890	48	31
10900	2440	8460	49	31
9340	2440	6900	50	31
1810	2440	-630	50	32
1750	2440	-690	50	33
6270	2440	3830	51	33
12700	2440	10260	52	33
6920	2440	4480	53	33
9710	2440	7270	54	33
13000	2440	10560	55	33
14900	2440	12460	56	33
6720	2440	4280	57	33
13300	2440	10860	58	33
10500	2440	8060	59	33
16200	2440	13760	60	33
12900	2440	10460	61	33
19400	2440	16960	62	33
10900	8330	2570	63	33
9340	8330	1010	64	33
1810	8330	-6520	64	34
1750	8330	-6580	64	35

6270	8330	-2060	64	36
12700	8330	4370	65	36
6920	8330	-1410	65	37
9710	8330	1380	66	37
13000	8330	4670	67	37
14900	8330	6570	68	37
6720	8330	-1610	68	38
13300	8330	4970	69	38
10500	8330	2170	70	38
16200	8330	7870	71	38
12900	8330	4570	72	38
19400	8330	11070	73	38
9340	10900	-1560	73	39
1810	10900	-9090	73	40
1750	10900	-9150	73	41
6270	10900	-4630	73	42
12700	10900	1800	74	42
6920	10900	-3980	74	43
9710	10900	-1190	74	44
13000	10900	2100	75	44
14900	10900	4000	76	44
6720	10900	-4180	76	45
13300	10900	2400	77	45
10500	10900	-400	77	46
16200	10900	5300	78	46
12900	10900	2000	79	46
19400	10900	8500	80	46
1810	9340	-7530	80	47
1750	9340	-7590	80	48
6270	9340	-3070	80	49
12700	9340	3360	81	49
6920	9340	-2420	81	50
9710	9340	370	82	50
13000	9340	3660	83	50
14900	9340	5560	84	50
6720	9340	-2620	84	51
13300	9340	3960	85	51
10500	9340	1160	86	51
16200	9340	6860	87	51
12900	9340	3560	88	51
19400	9340	10060	89	51
1750	1810	-60	89	52
6270	1810	4460	90	52
12700	1810	10890	91	52
6920	1810	5110	92	52
9710	1810	7900	93	52
13000	1810	11190	94	52
14900	1810	13090	95	52
6720	1810	4910	96	52
13300	1810	11490	97	52
10500	1810	8690	98	52
16200	1810	14390	99	52
12900	1810	11090	100	52
19400	1810	17590	101	52

6270	1750	4520	102	52
12700	1750	10950	103	52
6920	1750	5170	104	52
9710	1750	7960	105	52
13000	1750	11250	106	52
14900	1750	13150	107	52
6720	1750	4970	108	52
13300	1750	11550	109	52
10500	1750	8750	110	52
16200	1750	14450	111	52
12900	1750	11150	112	52
19400	1750	17650	113	52
12700	6270	6430	114	52
6920	6270	650	115	52
9710	6270	3440	116	52
13000	6270	6730	117	52
14900	6270	8630	118	52
6720	6270	450	119	52
13300	6270	7030	120	52
10500	6270	4230	121	52
16200	6270	9930	122	52
12900	6270	6630	123	52
19400	6270	13130	124	52
6920	12700	-5780	124	53
9710	12700	-2990	124	54
13000	12700	300	125	54
14900	12700	2200	126	54
6720	12700	-5980	126	55
13300	12700	600	127	55
10500	12700	-2200	127	56
16200	12700	3500	128	56
12900	12700	200	129	56
19400	12700	6700	130	56
9710	6920	2790	131	56
13000	6920	6080	132	56
14900	6920	7980	133	56
6720	6920	-200	133	57
13300	6920	6380	134	57
10500	6920	3580	135	57
16200	6920	9280	136	57
12900	6920	5980	137	57
19400	6920	12480	138	57
13000	9710	3290	139	57
14900	9710	5190	140	57
6720	9710	-2990	140	58
13300	9710	3590	141	58
10500	9710	790	142	58
16200	9710	6490	143	58
12900	9710	3190	144	58
19400	9710	9690	145	58
14900	13000	1900	146	58

6720	13000	-6280	146	59
13300	13000	300	147	59
10500	13000	-2500	147	60
16200	13000	3200	148	60
12900	13000	-100	148	61
19400	13000	6400	149	61
6720	14900	-8180	149	62
13300	14900	-1600	149	63
10500	14900	-4400	149	64
16200	14900	1300	150	64
12900	14900	-2000	150	65
19400	14900	4500	151	65
13300	6720	6580	152	65
10500	6720	3780	153	65
16200	6720	9480	154	65
12900	6720	6180	155	65
19400	6720	12680	156	65
10500	13300	-2800	156	66
16200	13300	2900	157	66
12900	13300	-400	157	67
19400	13300	6100	158	67
16200	10500	5700	159	67
12900	10500	2400	160	67
19400	10500	8900	161	67
12900	16200	-3300	161	68
19400	16200	3200	162	68
19400	12900	6500	163	68

S Statistic = 163 - 68 = 95

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1

6/1/2019	1
9/1/2019	1
12/1/2019	1
3/19/2020	1
6/9/2020	1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 22638

b = 83160

c = 924

Group Variance = 1257.67

Z-Score = 2.65061

Comparison Level at 95% confidence level = -1.65463 (downward trend)

2.65061 >= -1.65463 indicating no evidence of a downward trend



## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW05R-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
76600	70700	5900	1	0
80000 ML1c	70700	9300	2	0
68200 1c	70700	-2500	2	1
80000 ML1c	76600	3400	3	1
68200 1c	76600	-8400	3	2
68200 1c	80000 ML1c	-11800	3	3

S Statistic = 3 - 3 = 0

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 0$  is 0.625

$S > 0$  or  $0.625 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW06-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
1680	1900	-220	0	1
1420	1900	-480	0	2
999	1900	-901	0	3
876	1900	-1024	0	4
1690	1900	-210	0	5
1340	1900	-560	0	6
508	1900	-1392	0	7
615	1900	-1285	0	8
909	1900	-991	0	9
1360	1900	-540	0	10
1950	1900	50	1	10
27900	1900	26000	2	10
191	1900	-1709	2	11
90100	1900	88200	3	11
99600	1900	97700	4	11
122000	1900	120100	5	11
108000	1900	106100	6	11
122000	1900	120100	7	11
116000	1900	114100	8	11
117000	1900	115100	9	11
94400	1900	92500	10	11
111000 ML	1900	109100	11	11
79.7	1900	-1820.3	11	12
1420	1680	-260	11	13
999	1680	-681	11	14
876	1680	-804	11	15
1690	1680	10	12	15
1340	1680	-340	12	16
508	1680	-1172	12	17
615	1680	-1065	12	18
909	1680	-771	12	19
1360	1680	-320	12	20
1950	1680	270	13	20
27900	1680	26220	14	20
191	1680	-1489	14	21
90100	1680	88420	15	21
99600	1680	97920	16	21
122000	1680	120320	17	21
108000	1680	106320	18	21
122000	1680	120320	19	21
116000	1680	114320	20	21
117000	1680	115320	21	21
94400	1680	92720	22	21
111000 ML	1680	109320	23	21
79.7	1680	-1600.3	23	22

999	1420	-421	23	23
876	1420	-544	23	24
1690	1420	270	24	24
1340	1420	-80	24	25
508	1420	-912	24	26
615	1420	-805	24	27
909	1420	-511	24	28
1360	1420	-60	24	29
1950	1420	530	25	29
27900	1420	26480	26	29
191	1420	-1229	26	30
90100	1420	88680	27	30
99600	1420	98180	28	30
122000	1420	120580	29	30
108000	1420	106580	30	30
122000	1420	120580	31	30
116000	1420	114580	32	30
117000	1420	115580	33	30
94400	1420	92980	34	30
111000 ML	1420	109580	35	30
79.7	1420	-1340.3	35	31
876	999	-123	35	32
1690	999	691	36	32
1340	999	341	37	32
508	999	-491	37	33
615	999	-384	37	34
909	999	-90	37	35
1360	999	361	38	35
1950	999	951	39	35
27900	999	26901	40	35
191	999	-808	40	36
90100	999	89101	41	36
99600	999	98601	42	36
122000	999	121001	43	36
108000	999	107001	44	36
122000	999	121001	45	36
116000	999	115001	46	36
117000	999	116001	47	36
94400	999	93401	48	36
111000 ML	999	110001	49	36
79.7	999	-919.3	49	37
1690	876	814	50	37
1340	876	464	51	37
508	876	-368	51	38
615	876	-261	51	39
909	876	33	52	39
1360	876	484	53	39
1950	876	1074	54	39
27900	876	27024	55	39
191	876	-685	55	40
90100	876	89224	56	40
99600	876	98724	57	40
122000	876	121124	58	40
108000	876	107124	59	40
122000	876	121124	60	40

116000	876	115124	61	40
117000	876	116124	62	40
94400	876	93524	63	40
111000 ML	876	110124	64	40
79.7	876	-796.3	64	41
1340	1690	-350	64	42
508	1690	-1182	64	43
615	1690	-1075	64	44
909	1690	-781	64	45
1360	1690	-330	64	46
1950	1690	260	65	46
27900	1690	26210	66	46
191	1690	-1499	66	47
90100	1690	88410	67	47
99600	1690	97910	68	47
122000	1690	120310	69	47
108000	1690	106310	70	47
122000	1690	120310	71	47
116000	1690	114310	72	47
117000	1690	115310	73	47
94400	1690	92710	74	47
111000 ML	1690	109310	75	47
79.7	1690	-1610.3	75	48
508	1340	-832	75	49
615	1340	-725	75	50
909	1340	-431	75	51
1360	1340	20	76	51
1950	1340	610	77	51
27900	1340	26560	78	51
191	1340	-1149	78	52
90100	1340	88760	79	52
99600	1340	98260	80	52
122000	1340	120660	81	52
108000	1340	106660	82	52
122000	1340	120660	83	52
116000	1340	114660	84	52
117000	1340	115660	85	52
94400	1340	93060	86	52
111000 ML	1340	109660	87	52
79.7	1340	-1260.3	87	53
615	508	107	88	53
909	508	401	89	53
1360	508	852	90	53
1950	508	1442	91	53
27900	508	27392	92	53
191	508	-317	92	54
90100	508	89592	93	54
99600	508	99092	94	54
122000	508	121492	95	54
108000	508	107492	96	54
122000	508	121492	97	54
116000	508	115492	98	54
117000	508	116492	99	54
94400	508	93892	100	54

111000 ML	508	110492	101	54
79.7	508	-428.3	101	55
909	615	294	102	55
1360	615	745	103	55
1950	615	1335	104	55
27900	615	27285	105	55
191	615	-424	105	56
90100	615	89485	106	56
99600	615	98985	107	56
122000	615	121385	108	56
108000	615	107385	109	56
122000	615	121385	110	56
116000	615	115385	111	56
117000	615	116385	112	56
94400	615	93785	113	56
111000 ML	615	110385	114	56
79.7	615	-535.3	114	57
1360	909	451	115	57
1950	909	1041	116	57
27900	909	26991	117	57
191	909	-718	117	58
90100	909	89191	118	58
99600	909	98691	119	58
122000	909	121091	120	58
108000	909	107091	121	58
122000	909	121091	122	58
116000	909	115091	123	58
117000	909	116091	124	58
94400	909	93491	125	58
111000 ML	909	110091	126	58
79.7	909	-829.3	126	59
1950	1360	590	127	59
27900	1360	26540	128	59
191	1360	-1169	128	60
90100	1360	88740	129	60
99600	1360	98240	130	60
122000	1360	120640	131	60
108000	1360	106640	132	60
122000	1360	120640	133	60
116000	1360	114640	134	60
117000	1360	115640	135	60
94400	1360	93040	136	60
111000 ML	1360	109640	137	60
79.7	1360	-1280.3	137	61
27900	1950	25950	138	61
191	1950	-1759	138	62
90100	1950	88150	139	62
99600	1950	97650	140	62
122000	1950	120050	141	62
108000	1950	106050	142	62
122000	1950	120050	143	62
116000	1950	114050	144	62
117000	1950	115050	145	62

94400	1950	92450	146	62
111000 ML	1950	109050	147	62
79.7	1950	-1870.3	147	63
191	27900	-27709	147	64
90100	27900	62200	148	64
99600	27900	71700	149	64
122000	27900	94100	150	64
108000	27900	80100	151	64
122000	27900	94100	152	64
116000	27900	88100	153	64
117000	27900	89100	154	64
94400	27900	66500	155	64
111000 ML	27900	83100	156	64
79.7	27900	-27820.3	156	65
90100	191	89909	157	65
99600	191	99409	158	65
122000	191	121809	159	65
108000	191	107809	160	65
122000	191	121809	161	65
116000	191	115809	162	65
117000	191	116809	163	65
94400	191	94209	164	65
111000 ML	191	110809	165	65
79.7	191	-111.3	165	66
99600	90100	9500	166	66
122000	90100	31900	167	66
108000	90100	17900	168	66
122000	90100	31900	169	66
116000	90100	25900	170	66
117000	90100	26900	171	66
94400	90100	4300	172	66
111000 ML	90100	20900	173	66
79.7	90100	-90020.3	173	67
122000	99600	22400	174	67
108000	99600	8400	175	67
122000	99600	22400	176	67
116000	99600	16400	177	67
117000	99600	17400	178	67
94400	99600	-5200	178	68
111000 ML	99600	11400	179	68
79.7	99600	-99520.3	179	69
108000	122000	-14000	179	70
122000	122000	0	179	70
116000	122000	-6000	179	71
117000	122000	-5000	179	72
94400	122000	-27600	179	73
111000 ML	122000	-11000	179	74
79.7	122000	-121920	179	75
122000	108000	14000	180	75
116000	108000	8000	181	75
117000	108000	9000	182	75

94400	108000	-13600	182	76
111000 ML	108000	3000	183	76
79.7	108000	-107920	183	77
116000	122000	-6000	183	78
117000	122000	-5000	183	79
94400	122000	-27600	183	80
111000 ML	122000	-11000	183	81
79.7	122000	-121920	183	82
117000	116000	1000	184	82
94400	116000	-21600	184	83
111000 ML	116000	-5000	184	84
79.7	116000	-115920	184	85
94400	117000	-22600	184	86
111000 ML	117000	-6000	184	87
79.7	117000	-116920	184	88
111000 ML	94400	16600	185	88
79.7	94400	-94320.3	185	89
79.7	111000 ML	-110920	185	90

S Statistic = 185 - 90 = 95

---

Tied Group	Value	Members
1	122000	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/18/2020	1
6/10/2020	1
9/14/2020	1
11/11/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1624.33

Z-Score = 2.33233

Comparison Level at 95% confidence level = -1.65463 (downward trend)

2.33233 >= -1.65463 indicating no evidence of a downward trend



## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW07-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
1210	944	266	1	0
364	944	-580	1	1
298	944	-646	1	2
432	944	-512	1	3
45.7	944	-898.3	1	4
62.7	944	-881.3	1	5
2840	944	1896	2	5
23.4	944	-920.6	2	6
1650	944	706	3	6
39.8	944	-904.2	3	7
70.6	944	-873.4	3	8
756	944	-188	3	9
26300	944	25356	4	9
12200	944	11256	5	9
86000	944	85056	6	9
24200	944	23256	7	9
136000	944	135056	8	9
48300	944	47356	9	9
16600	944	15656	10	9
39000	944	38056	11	9
400	944	-544	11	10
364	1210	-846	11	11
298	1210	-912	11	12
432	1210	-778	11	13
45.7	1210	-1164.3	11	14
62.7	1210	-1147.3	11	15
2840	1210	1630	12	15
23.4	1210	-1186.6	12	16
1650	1210	440	13	16
39.8	1210	-1170.2	13	17
70.6	1210	-1139.4	13	18
756	1210	-454	13	19
26300	1210	25090	14	19
12200	1210	10990	15	19
86000	1210	84790	16	19
24200	1210	22990	17	19
136000	1210	134790	18	19
48300	1210	47090	19	19
16600	1210	15390	20	19
39000	1210	37790	21	19
400	1210	-810	21	20
298	364	-66	21	21
432	364	68	22	21
45.7	364	-318.3	22	22
62.7	364	-301.3	22	23

2840	364	2476	23	23
23.4	364	-340.6	23	24
1650	364	1286	24	24
39.8	364	-324.2	24	25
70.6	364	-293.4	24	26
756	364	392	25	26
26300	364	25936	26	26
12200	364	11836	27	26
86000	364	85636	28	26
24200	364	23836	29	26
136000	364	135636	30	26
48300	364	47936	31	26
16600	364	16236	32	26
39000	364	38636	33	26
400	364	36	34	26
432	298	134	35	26
45.7	298	-252.3	35	27
62.7	298	-235.3	35	28
2840	298	2542	36	28
23.4	298	-274.6	36	29
1650	298	1352	37	29
39.8	298	-258.2	37	30
70.6	298	-227.4	37	31
756	298	458	38	31
26300	298	26002	39	31
12200	298	11902	40	31
86000	298	85702	41	31
24200	298	23902	42	31
136000	298	135702	43	31
48300	298	48002	44	31
16600	298	16302	45	31
39000	298	38702	46	31
400	298	102	47	31
45.7	432	-386.3	47	32
62.7	432	-369.3	47	33
2840	432	2408	48	33
23.4	432	-408.6	48	34
1650	432	1218	49	34
39.8	432	-392.2	49	35
70.6	432	-361.4	49	36
756	432	324	50	36
26300	432	25868	51	36
12200	432	11768	52	36
86000	432	85568	53	36
24200	432	23768	54	36
136000	432	135568	55	36
48300	432	47868	56	36
16600	432	16168	57	36
39000	432	38568	58	36
400	432	-32	58	37
62.7	45.7	17	59	37
2840	45.7	2794.3	60	37
23.4	45.7	-22.3	60	38
1650	45.7	1604.3	61	38

39.8	45.7	-5.9	61	39
70.6	45.7	24.9	62	39
756	45.7	710.3	63	39
26300	45.7	26254.3	64	39
12200	45.7	12154.3	65	39
86000	45.7	85954.3	66	39
24200	45.7	24154.3	67	39
136000	45.7	135954	68	39
48300	45.7	48254.3	69	39
16600	45.7	16554.3	70	39
39000	45.7	38954.3	71	39
400	45.7	354.3	72	39
2840	62.7	2777.3	73	39
23.4	62.7	-39.3	73	40
1650	62.7	1587.3	74	40
39.8	62.7	-22.9	74	41
70.6	62.7	7.9	75	41
756	62.7	693.3	76	41
26300	62.7	26237.3	77	41
12200	62.7	12137.3	78	41
86000	62.7	85937.3	79	41
24200	62.7	24137.3	80	41
136000	62.7	135937	81	41
48300	62.7	48237.3	82	41
16600	62.7	16537.3	83	41
39000	62.7	38937.3	84	41
400	62.7	337.3	85	41
23.4	2840	-2816.6	85	42
1650	2840	-1190	85	43
39.8	2840	-2800.2	85	44
70.6	2840	-2769.4	85	45
756	2840	-2084	85	46
26300	2840	23460	86	46
12200	2840	9360	87	46
86000	2840	83160	88	46
24200	2840	21360	89	46
136000	2840	133160	90	46
48300	2840	45460	91	46
16600	2840	13760	92	46
39000	2840	36160	93	46
400	2840	-2440	93	47
1650	23.4	1626.6	94	47
39.8	23.4	16.4	95	47
70.6	23.4	47.2	96	47
756	23.4	732.6	97	47
26300	23.4	26276.6	98	47
12200	23.4	12176.6	99	47
86000	23.4	85976.6	100	47
24200	23.4	24176.6	101	47
136000	23.4	135977	102	47
48300	23.4	48276.6	103	47
16600	23.4	16576.6	104	47
39000	23.4	38976.6	105	47
400	23.4	376.6	106	47

39.8	1650	-1610.2	106	48
70.6	1650	-1579.4	106	49
756	1650	-894	106	50
26300	1650	24650	107	50
12200	1650	10550	108	50
86000	1650	84350	109	50
24200	1650	22550	110	50
136000	1650	134350	111	50
48300	1650	46650	112	50
16600	1650	14950	113	50
39000	1650	37350	114	50
400	1650	-1250	114	51
70.6	39.8	30.8	115	51
756	39.8	716.2	116	51
26300	39.8	26260.2	117	51
12200	39.8	12160.2	118	51
86000	39.8	85960.2	119	51
24200	39.8	24160.2	120	51
136000	39.8	135960	121	51
48300	39.8	48260.2	122	51
16600	39.8	16560.2	123	51
39000	39.8	38960.2	124	51
400	39.8	360.2	125	51
756	70.6	685.4	126	51
26300	70.6	26229.4	127	51
12200	70.6	12129.4	128	51
86000	70.6	85929.4	129	51
24200	70.6	24129.4	130	51
136000	70.6	135929	131	51
48300	70.6	48229.4	132	51
16600	70.6	16529.4	133	51
39000	70.6	38929.4	134	51
400	70.6	329.4	135	51
26300	756	25544	136	51
12200	756	11444	137	51
86000	756	85244	138	51
24200	756	23444	139	51
136000	756	135244	140	51
48300	756	47544	141	51
16600	756	15844	142	51
39000	756	38244	143	51
400	756	-356	143	52
12200	26300	-14100	143	53
86000	26300	59700	144	53
24200	26300	-2100	144	54
136000	26300	109700	145	54
48300	26300	22000	146	54
16600	26300	-9700	146	55
39000	26300	12700	147	55
400	26300	-25900	147	56
86000	12200	73800	148	56

24200	12200	12000	149	56
136000	12200	123800	150	56
48300	12200	36100	151	56
16600	12200	4400	152	56
39000	12200	26800	153	56
400	12200	-11800	153	57
24200	86000	-61800	153	58
136000	86000	50000	154	58
48300	86000	-37700	154	59
16600	86000	-69400	154	60
39000	86000	-47000	154	61
400	86000	-85600	154	62
136000	24200	111800	155	62
48300	24200	24100	156	62
16600	24200	-7600	156	63
39000	24200	14800	157	63
400	24200	-23800	157	64
48300	136000	-87700	157	65
16600	136000	-119400	157	66
39000	136000	-97000	157	67
400	136000	-135600	157	68
16600	48300	-31700	157	69
39000	48300	-9300	157	70
400	48300	-47900	157	71
39000	16600	22400	158	71
400	16600	-16200	158	72
400	39000	-38600	158	73

S Statistic = 158 - 73 = 85

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1

6/1/2019	1
9/1/2019	1
12/1/2019	1
3/18/2020	1
6/11/2020	1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 22638

b = 83160

c = 924

Group Variance = 1257.67

Z-Score = 2.36863

Comparison Level at 95% confidence level = -1.65463 (downward trend)

2.36863 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW08-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
44.6	178	-133.4	0	1
85	178	-93	0	2
188	178	10	1	2
71.9	178	-106.1	1	3
153	178	-25	1	4
49.8	178	-128.2	1	5
69.4	178	-108.6	1	6
16.9	178	-161.1	1	7
21.5	178	-156.5	1	8
21.4	178	-156.6	1	9
108	178	-70	1	10
1050	178	872	2	10
2540	178	2362	3	10
256	178	78	4	10
11	178	-167	4	11
10 U	178	-168	4	12
10 U	178	-168	4	13
11.2	178	-166.8	4	14
48.9	178	-129.1	4	15
33.4	178	-144.6	4	16
4.5 J	178	-173.5	4	17
5.4 J1c	178	-172.6	4	18
28.3	178	-149.7	4	19
85	44.6	40.4	5	19
188	44.6	143.4	6	19
71.9	44.6	27.3	7	19
153	44.6	108.4	8	19
49.8	44.6	5.2	9	19
69.4	44.6	24.8	10	19
16.9	44.6	-27.7	10	20
21.5	44.6	-23.1	10	21
21.4	44.6	-23.2	10	22
108	44.6	63.4	11	22
1050	44.6	1005.4	12	22
2540	44.6	2495.4	13	22
256	44.6	211.4	14	22
11	44.6	-33.6	14	23
10 U	44.6	-34.6	14	24
10 U	44.6	-34.6	14	25
11.2	44.6	-33.4	14	26
48.9	44.6	4.3	15	26
33.4	44.6	-11.2	15	27
4.5 J	44.6	-40.1	15	28
5.4 J1c	44.6	-39.2	15	29
28.3	44.6	-16.3	15	30

188	85	103	16	30
71.9	85	-13.1	16	31
153	85	68	17	31
49.8	85	-35.2	17	32
69.4	85	-15.6	17	33
16.9	85	-68.1	17	34
21.5	85	-63.5	17	35
21.4	85	-63.6	17	36
108	85	23	18	36
1050	85	965	19	36
2540	85	2455	20	36
256	85	171	21	36
11	85	-74	21	37
10 U	85	-75	21	38
10 U	85	-75	21	39
11.2	85	-73.8	21	40
48.9	85	-36.1	21	41
33.4	85	-51.6	21	42
4.5 J	85	-80.5	21	43
5.4 J1c	85	-79.6	21	44
28.3	85	-56.7	21	45
71.9	188	-116.1	21	46
153	188	-35	21	47
49.8	188	-138.2	21	48
69.4	188	-118.6	21	49
16.9	188	-171.1	21	50
21.5	188	-166.5	21	51
21.4	188	-166.6	21	52
108	188	-80	21	53
1050	188	862	22	53
2540	188	2352	23	53
256	188	68	24	53
11	188	-177	24	54
10 U	188	-178	24	55
10 U	188	-178	24	56
11.2	188	-176.8	24	57
48.9	188	-139.1	24	58
33.4	188	-154.6	24	59
4.5 J	188	-183.5	24	60
5.4 J1c	188	-182.6	24	61
28.3	188	-159.7	24	62
153	71.9	81.1	25	62
49.8	71.9	-22.1	25	63
69.4	71.9	-2.5	25	64
16.9	71.9	-55	25	65
21.5	71.9	-50.4	25	66
21.4	71.9	-50.5	25	67
108	71.9	36.1	26	67
1050	71.9	978.1	27	67
2540	71.9	2468.1	28	67
256	71.9	184.1	29	67
11	71.9	-60.9	29	68
10 U	71.9	-61.9	29	69
10 U	71.9	-61.9	29	70
11.2	71.9	-60.7	29	71



48.9	71.9	-23	29	72
33.4	71.9	-38.5	29	73
4.5 J	71.9	-67.4	29	74
5.4 J1c	71.9	-66.5	29	75
28.3	71.9	-43.6	29	76
49.8	153	-103.2	29	77
69.4	153	-83.6	29	78
16.9	153	-136.1	29	79
21.5	153	-131.5	29	80
21.4	153	-131.6	29	81
108	153	-45	29	82
1050	153	897	30	82
2540	153	2387	31	82
256	153	103	32	82
11	153	-142	32	83
10 U	153	-143	32	84
10 U	153	-143	32	85
11.2	153	-141.8	32	86
48.9	153	-104.1	32	87
33.4	153	-119.6	32	88
4.5 J	153	-148.5	32	89
5.4 J1c	153	-147.6	32	90
28.3	153	-124.7	32	91
69.4	49.8	19.6	33	91
16.9	49.8	-32.9	33	92
21.5	49.8	-28.3	33	93
21.4	49.8	-28.4	33	94
108	49.8	58.2	34	94
1050	49.8	1000.2	35	94
2540	49.8	2490.2	36	94
256	49.8	206.2	37	94
11	49.8	-38.8	37	95
10 U	49.8	-39.8	37	96
10 U	49.8	-39.8	37	97
11.2	49.8	-38.6	37	98
48.9	49.8	-0.9	37	99
33.4	49.8	-16.4	37	100
4.5 J	49.8	-45.3	37	101
5.4 J1c	49.8	-44.4	37	102
28.3	49.8	-21.5	37	103
16.9	69.4	-52.5	37	104
21.5	69.4	-47.9	37	105
21.4	69.4	-48	37	106
108	69.4	38.6	38	106
1050	69.4	980.6	39	106
2540	69.4	2470.6	40	106
256	69.4	186.6	41	106
11	69.4	-58.4	41	107
10 U	69.4	-59.4	41	108
10 U	69.4	-59.4	41	109
11.2	69.4	-58.2	41	110
48.9	69.4	-20.5	41	111
33.4	69.4	-36	41	112
4.5 J	69.4	-64.9	41	113

5.4 J1c	69.4	-64	41	114
28.3	69.4	-41.1	41	115
21.5	16.9	4.6	42	115
21.4	16.9	4.5	43	115
108	16.9	91.1	44	115
1050	16.9	1033.1	45	115
2540	16.9	2523.1	46	115
256	16.9	239.1	47	115
11	16.9	-5.9	47	116
10 U	16.9	-6.9	47	117
10 U	16.9	-6.9	47	118
11.2	16.9	-5.7	47	119
48.9	16.9	32	48	119
33.4	16.9	16.5	49	119
4.5 J	16.9	-12.4	49	120
5.4 J1c	16.9	-11.5	49	121
28.3	16.9	11.4	50	121
21.4	21.5	-0.1	50	122
108	21.5	86.5	51	122
1050	21.5	1028.5	52	122
2540	21.5	2518.5	53	122
256	21.5	234.5	54	122
11	21.5	-10.5	54	123
10 U	21.5	-11.5	54	124
10 U	21.5	-11.5	54	125
11.2	21.5	-10.3	54	126
48.9	21.5	27.4	55	126
33.4	21.5	11.9	56	126
4.5 J	21.5	-17	56	127
5.4 J1c	21.5	-16.1	56	128
28.3	21.5	6.8	57	128
108	21.4	86.6	58	128
1050	21.4	1028.6	59	128
2540	21.4	2518.6	60	128
256	21.4	234.6	61	128
11	21.4	-10.4	61	129
10 U	21.4	-11.4	61	130
10 U	21.4	-11.4	61	131
11.2	21.4	-10.2	61	132
48.9	21.4	27.5	62	132
33.4	21.4	12	63	132
4.5 J	21.4	-16.9	63	133
5.4 J1c	21.4	-16	63	134
28.3	21.4	6.9	64	134
1050	108	942	65	134
2540	108	2432	66	134
256	108	148	67	134
11	108	-97	67	135
10 U	108	-98	67	136
10 U	108	-98	67	137
11.2	108	-96.8	67	138
48.9	108	-59.1	67	139
33.4	108	-74.6	67	140

4.5 J	108	-103.5	67	141
5.4 J1c	108	-102.6	67	142
28.3	108	-79.7	67	143
2540	1050	1490	68	143
256	1050	-794	68	144
11	1050	-1039	68	145
10 U	1050	-1040	68	146
10 U	1050	-1040	68	147
11.2	1050	-1038.8	68	148
48.9	1050	-1001.1	68	149
33.4	1050	-1016.6	68	150
4.5 J	1050	-1045.5	68	151
5.4 J1c	1050	-1044.6	68	152
28.3	1050	-1021.7	68	153
256	2540	-2284	68	154
11	2540	-2529	68	155
10 U	2540	-2530	68	156
10 U	2540	-2530	68	157
11.2	2540	-2528.8	68	158
48.9	2540	-2491.1	68	159
33.4	2540	-2506.6	68	160
4.5 J	2540	-2535.5	68	161
5.4 J1c	2540	-2534.6	68	162
28.3	2540	-2511.7	68	163
11	256	-245	68	164
10 U	256	-246	68	165
10 U	256	-246	68	166
11.2	256	-244.8	68	167
48.9	256	-207.1	68	168
33.4	256	-222.6	68	169
4.5 J	256	-251.5	68	170
5.4 J1c	256	-250.6	68	171
28.3	256	-227.7	68	172
10 U	11	-1	68	173
10 U	11	-1	68	174
11.2	11	0.2	69	174
48.9	11	37.9	70	174
33.4	11	22.4	71	174
4.5 J	11	-6.5	71	175
5.4 J1c	11	-5.6	71	176
28.3	11	17.3	72	176
10 U	10 U	0	72	176
11.2	10 U	1.2	73	176
48.9	10 U	38.9	74	176
33.4	10 U	23.4	75	176
4.5 J	10 U	-5.5	75	177
5.4 J1c	10 U	-4.6	75	178
28.3	10 U	18.3	76	178
11.2	10 U	1.2	77	178
48.9	10 U	38.9	78	178
33.4	10 U	23.4	79	178

4.5 J	10 U	-5.5	79	179
5.4 J1c	10 U	-4.6	79	180
28.3	10 U	18.3	80	180
48.9	11.2	37.7	81	180
33.4	11.2	22.2	82	180
4.5 J	11.2	-6.7	82	181
5.4 J1c	11.2	-5.8	82	182
28.3	11.2	17.1	83	182
33.4	48.9	-15.5	83	183
4.5 J	48.9	-44.4	83	184
5.4 J1c	48.9	-43.5	83	185
28.3	48.9	-20.6	83	186
4.5 J	33.4	-28.9	83	187
5.4 J1c	33.4	-28	83	188
28.3	33.4	-5.1	83	189
5.4 J1c	4.5 J	0.9	84	189
28.3	4.5 J	23.8	85	189
28.3	5.4 J1c	22.9	86	189

S Statistic = 86 - 189 = -103

---

Tied Group	Value	Members
1	10	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/18/2020	1
6/11/2020	1
9/16/2020	1
11/19/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1624.33

Z-Score = -2.53083

Comparison Level at 95% confidence level = -1.65463 (downward trend)

**-2.53083 < -1.65463 indicating a downward trend**

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW09-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
51900	51000	900	1	0
57500	51000	6500	2	0
57200	51000	6200	3	0
51900	51000	900	4	0
65600	51000	14600	5	0
55500	51000	4500	6	0
39400	51000	-11600	6	1
49700	51000	-1300	6	2
67900	51000	16900	7	2
44500	51000	-6500	7	3
54700	51000	3700	8	3
38400	51000	-12600	8	4
54700	51000	3700	9	4
53800	51000	2800	10	4
66600	51000	15600	11	4
57500	51000	6500	12	4
64200	51000	13200	13	4
53300	51000	2300	14	4
82000	51000	31000	15	4
65600	51000	14600	16	4
77800 1c	51000	26800	17	4
79100	51000	28100	18	4
73700	51000	22700	19	4
57500	51900	5600	20	4
57200	51900	5300	21	4
51900	51900	0	21	4
65600	51900	13700	22	4
55500	51900	3600	23	4
39400	51900	-12500	23	5
49700	51900	-2200	23	6
67900	51900	16000	24	6
44500	51900	-7400	24	7
54700	51900	2800	25	7
38400	51900	-13500	25	8
54700	51900	2800	26	8
53800	51900	1900	27	8
66600	51900	14700	28	8
57500	51900	5600	29	8
64200	51900	12300	30	8
53300	51900	1400	31	8
82000	51900	30100	32	8
65600	51900	13700	33	8
77800 1c	51900	25900	34	8
79100	51900	27200	35	8
73700	51900	21800	36	8

57200	57500	-300	36	9
51900	57500	-5600	36	10
65600	57500	8100	37	10
55500	57500	-2000	37	11
39400	57500	-18100	37	12
49700	57500	-7800	37	13
67900	57500	10400	38	13
44500	57500	-13000	38	14
54700	57500	-2800	38	15
38400	57500	-19100	38	16
54700	57500	-2800	38	17
53800	57500	-3700	38	18
66600	57500	9100	39	18
57500	57500	0	39	18
64200	57500	6700	40	18
53300	57500	-4200	40	19
82000	57500	24500	41	19
65600	57500	8100	42	19
77800 1c	57500	20300	43	19
79100	57500	21600	44	19
73700	57500	16200	45	19
51900	57200	-5300	45	20
65600	57200	8400	46	20
55500	57200	-1700	46	21
39400	57200	-17800	46	22
49700	57200	-7500	46	23
67900	57200	10700	47	23
44500	57200	-12700	47	24
54700	57200	-2500	47	25
38400	57200	-18800	47	26
54700	57200	-2500	47	27
53800	57200	-3400	47	28
66600	57200	9400	48	28
57500	57200	300	49	28
64200	57200	7000	50	28
53300	57200	-3900	50	29
82000	57200	24800	51	29
65600	57200	8400	52	29
77800 1c	57200	20600	53	29
79100	57200	21900	54	29
73700	57200	16500	55	29
65600	51900	13700	56	29
55500	51900	3600	57	29
39400	51900	-12500	57	30
49700	51900	-2200	57	31
67900	51900	16000	58	31
44500	51900	-7400	58	32
54700	51900	2800	59	32
38400	51900	-13500	59	33
54700	51900	2800	60	33
53800	51900	1900	61	33
66600	51900	14700	62	33
57500	51900	5600	63	33
64200	51900	12300	64	33
53300	51900	1400	65	33

82000	51900	30100	66	33
65600	51900	13700	67	33
77800 1c	51900	25900	68	33
79100	51900	27200	69	33
73700	51900	21800	70	33
55500	65600	-10100	70	34
39400	65600	-26200	70	35
49700	65600	-15900	70	36
67900	65600	2300	71	36
44500	65600	-21100	71	37
54700	65600	-10900	71	38
38400	65600	-27200	71	39
54700	65600	-10900	71	40
53800	65600	-11800	71	41
66600	65600	1000	72	41
57500	65600	-8100	72	42
64200	65600	-1400	72	43
53300	65600	-12300	72	44
82000	65600	16400	73	44
65600	65600	0	73	44
77800 1c	65600	12200	74	44
79100	65600	13500	75	44
73700	65600	8100	76	44
39400	55500	-16100	76	45
49700	55500	-5800	76	46
67900	55500	12400	77	46
44500	55500	-11000	77	47
54700	55500	-800	77	48
38400	55500	-17100	77	49
54700	55500	-800	77	50
53800	55500	-1700	77	51
66600	55500	11100	78	51
57500	55500	2000	79	51
64200	55500	8700	80	51
53300	55500	-2200	80	52
82000	55500	26500	81	52
65600	55500	10100	82	52
77800 1c	55500	22300	83	52
79100	55500	23600	84	52
73700	55500	18200	85	52
49700	39400	10300	86	52
67900	39400	28500	87	52
44500	39400	5100	88	52
54700	39400	15300	89	52
38400	39400	-1000	89	53
54700	39400	15300	90	53
53800	39400	14400	91	53
66600	39400	27200	92	53
57500	39400	18100	93	53
64200	39400	24800	94	53
53300	39400	13900	95	53
82000	39400	42600	96	53
65600	39400	26200	97	53
77800 1c	39400	38400	98	53



79100	39400	39700	99	53
73700	39400	34300	100	53
67900	49700	18200	101	53
44500	49700	-5200	101	54
54700	49700	5000	102	54
38400	49700	-11300	102	55
54700	49700	5000	103	55
53800	49700	4100	104	55
66600	49700	16900	105	55
57500	49700	7800	106	55
64200	49700	14500	107	55
53300	49700	3600	108	55
82000	49700	32300	109	55
65600	49700	15900	110	55
77800 1c	49700	28100	111	55
79100	49700	29400	112	55
73700	49700	24000	113	55
44500	67900	-23400	113	56
54700	67900	-13200	113	57
38400	67900	-29500	113	58
54700	67900	-13200	113	59
53800	67900	-14100	113	60
66600	67900	-1300	113	61
57500	67900	-10400	113	62
64200	67900	-3700	113	63
53300	67900	-14600	113	64
82000	67900	14100	114	64
65600	67900	-2300	114	65
77800 1c	67900	9900	115	65
79100	67900	11200	116	65
73700	67900	5800	117	65
54700	44500	10200	118	65
38400	44500	-6100	118	66
54700	44500	10200	119	66
53800	44500	9300	120	66
66600	44500	22100	121	66
57500	44500	13000	122	66
64200	44500	19700	123	66
53300	44500	8800	124	66
82000	44500	37500	125	66
65600	44500	21100	126	66
77800 1c	44500	33300	127	66
79100	44500	34600	128	66
73700	44500	29200	129	66
38400	54700	-16300	129	67
54700	54700	0	129	67
53800	54700	-900	129	68
66600	54700	11900	130	68
57500	54700	2800	131	68
64200	54700	9500	132	68
53300	54700	-1400	132	69
82000	54700	27300	133	69
65600	54700	10900	134	69

77800 1c	54700	23100	135	69
79100	54700	24400	136	69
73700	54700	19000	137	69
54700	38400	16300	138	69
53800	38400	15400	139	69
66600	38400	28200	140	69
57500	38400	19100	141	69
64200	38400	25800	142	69
53300	38400	14900	143	69
82000	38400	43600	144	69
65600	38400	27200	145	69
77800 1c	38400	39400	146	69
79100	38400	40700	147	69
73700	38400	35300	148	69
53800	54700	-900	148	70
66600	54700	11900	149	70
57500	54700	2800	150	70
64200	54700	9500	151	70
53300	54700	-1400	151	71
82000	54700	27300	152	71
65600	54700	10900	153	71
77800 1c	54700	23100	154	71
79100	54700	24400	155	71
73700	54700	19000	156	71
66600	53800	12800	157	71
57500	53800	3700	158	71
64200	53800	10400	159	71
53300	53800	-500	159	72
82000	53800	28200	160	72
65600	53800	11800	161	72
77800 1c	53800	24000	162	72
79100	53800	25300	163	72
73700	53800	19900	164	72
57500	66600	-9100	164	73
64200	66600	-2400	164	74
53300	66600	-13300	164	75
82000	66600	15400	165	75
65600	66600	-1000	165	76
77800 1c	66600	11200	166	76
79100	66600	12500	167	76
73700	66600	7100	168	76
64200	57500	6700	169	76
53300	57500	-4200	169	77
82000	57500	24500	170	77
65600	57500	8100	171	77
77800 1c	57500	20300	172	77
79100	57500	21600	173	77
73700	57500	16200	174	77
53300	64200	-10900	174	78
82000	64200	17800	175	78
65600	64200	1400	176	78

77800 1c	64200	13600	177	78
79100	64200	14900	178	78
73700	64200	9500	179	78
82000	53300	28700	180	78
65600	53300	12300	181	78
77800 1c	53300	24500	182	78
79100	53300	25800	183	78
73700	53300	20400	184	78
65600	82000	-16400	184	79
77800 1c	82000	-4200	184	80
79100	82000	-2900	184	81
73700	82000	-8300	184	82
77800 1c	65600	12200	185	82
79100	65600	13500	186	82
73700	65600	8100	187	82
79100	77800 1c	1300	188	82
73700	77800 1c	-4100	188	83
73700	79100	-5400	188	84

S Statistic = 188 - 84 = 104

---

Tied Group	Value	Members
1	51900	2
2	57500	2
3	65600	2
4	54700	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/13/2020	1
6/25/2020	1
9/17/2020	1

11/16/2020

1

There are 0 time periods with multiple data

---

A = 72

B = 0

C = 0

D = 0

E = 8

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1621.33

Z-Score = 2.558

Comparison Level at 95% confidence level = -1.65463 (downward trend)

2.558 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW10-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
20.4	104000	-103980	0	1
75800	104000	-28200	0	2
1150	104000	-102850	0	3
34600	104000	-69400	0	4
25900	104000	-78100	0	5
79.7	104000	-103920	0	6
8220	104000	-95780	0	7
31000	104000	-73000	0	8
39000	104000	-65000	0	9
158	104000	-103842	0	10
26.5	104000	-103974	0	11
13500	104000	-90500	0	12
17600	104000	-86400	0	13
16600	104000	-87400	0	14
2520	104000	-101480	0	15
591	104000	-103409	0	16
5560	104000	-98440	0	17
7730	104000	-96270	0	18
6020	104000	-97980	0	19
940 1c	104000	-103060	0	20
1090 2c	104000	-102910	0	21
550	104000	-103450	0	22
75800	20.4	75779.6	1	22
1150	20.4	1129.6	2	22
34600	20.4	34579.6	3	22
25900	20.4	25879.6	4	22
79.7	20.4	59.3	5	22
8220	20.4	8199.6	6	22
31000	20.4	30979.6	7	22
39000	20.4	38979.6	8	22
158	20.4	137.6	9	22
26.5	20.4	6.1	10	22
13500	20.4	13479.6	11	22
17600	20.4	17579.6	12	22
16600	20.4	16579.6	13	22
2520	20.4	2499.6	14	22
591	20.4	570.6	15	22
5560	20.4	5539.6	16	22
7730	20.4	7709.6	17	22
6020	20.4	5999.6	18	22
940 1c	20.4	919.6	19	22
1090 2c	20.4	1069.6	20	22
550	20.4	529.6	21	22
1150	75800	-74650	21	23
34600	75800	-41200	21	24

25900	75800	-49900	21	25
79.7	75800	-75720.3	21	26
8220	75800	-67580	21	27
31000	75800	-44800	21	28
39000	75800	-36800	21	29
158	75800	-75642	21	30
26.5	75800	-75773.5	21	31
13500	75800	-62300	21	32
17600	75800	-58200	21	33
16600	75800	-59200	21	34
2520	75800	-73280	21	35
591	75800	-75209	21	36
5560	75800	-70240	21	37
7730	75800	-68070	21	38
6020	75800	-69780	21	39
940 1c	75800	-74860	21	40
1090 2c	75800	-74710	21	41
550	75800	-75250	21	42
34600	1150	33450	22	42
25900	1150	24750	23	42
79.7	1150	-1070.3	23	43
8220	1150	7070	24	43
31000	1150	29850	25	43
39000	1150	37850	26	43
158	1150	-992	26	44
26.5	1150	-1123.5	26	45
13500	1150	12350	27	45
17600	1150	16450	28	45
16600	1150	15450	29	45
2520	1150	1370	30	45
591	1150	-559	30	46
5560	1150	4410	31	46
7730	1150	6580	32	46
6020	1150	4870	33	46
940 1c	1150	-210	33	47
1090 2c	1150	-60	33	48
550	1150	-600	33	49
25900	34600	-8700	33	50
79.7	34600	-34520.3	33	51
8220	34600	-26380	33	52
31000	34600	-3600	33	53
39000	34600	4400	34	53
158	34600	-34442	34	54
26.5	34600	-34573.5	34	55
13500	34600	-21100	34	56
17600	34600	-17000	34	57
16600	34600	-18000	34	58
2520	34600	-32080	34	59
591	34600	-34009	34	60
5560	34600	-29040	34	61
7730	34600	-26870	34	62
6020	34600	-28580	34	63
940 1c	34600	-33660	34	64
1090 2c	34600	-33510	34	65
550	34600	-34050	34	66

79.7	25900	-25820.3	34	67
8220	25900	-17680	34	68
31000	25900	5100	35	68
39000	25900	13100	36	68
158	25900	-25742	36	69
26.5	25900	-25873.5	36	70
13500	25900	-12400	36	71
17600	25900	-8300	36	72
16600	25900	-9300	36	73
2520	25900	-23380	36	74
591	25900	-25309	36	75
5560	25900	-20340	36	76
7730	25900	-18170	36	77
6020	25900	-19880	36	78
940 1c	25900	-24960	36	79
1090 2c	25900	-24810	36	80
550	25900	-25350	36	81
8220	79.7	8140.3	37	81
31000	79.7	30920.3	38	81
39000	79.7	38920.3	39	81
158	79.7	78.3	40	81
26.5	79.7	-53.2	40	82
13500	79.7	13420.3	41	82
17600	79.7	17520.3	42	82
16600	79.7	16520.3	43	82
2520	79.7	2440.3	44	82
591	79.7	511.3	45	82
5560	79.7	5480.3	46	82
7730	79.7	7650.3	47	82
6020	79.7	5940.3	48	82
940 1c	79.7	860.3	49	82
1090 2c	79.7	1010.3	50	82
550	79.7	470.3	51	82
31000	8220	22780	52	82
39000	8220	30780	53	82
158	8220	-8062	53	83
26.5	8220	-8193.5	53	84
13500	8220	5280	54	84
17600	8220	9380	55	84
16600	8220	8380	56	84
2520	8220	-5700	56	85
591	8220	-7629	56	86
5560	8220	-2660	56	87
7730	8220	-490	56	88
6020	8220	-2200	56	89
940 1c	8220	-7280	56	90
1090 2c	8220	-7130	56	91
550	8220	-7670	56	92
39000	31000	8000	57	92
158	31000	-30842	57	93
26.5	31000	-30973.5	57	94
13500	31000	-17500	57	95
17600	31000	-13400	57	96

16600	31000	-14400	57	97
2520	31000	-28480	57	98
591	31000	-30409	57	99
5560	31000	-25440	57	100
7730	31000	-23270	57	101
6020	31000	-24980	57	102
940 1c	31000	-30060	57	103
1090 2c	31000	-29910	57	104
550	31000	-30450	57	105
158	39000	-38842	57	106
26.5	39000	-38973.5	57	107
13500	39000	-25500	57	108
17600	39000	-21400	57	109
16600	39000	-22400	57	110
2520	39000	-36480	57	111
591	39000	-38409	57	112
5560	39000	-33440	57	113
7730	39000	-31270	57	114
6020	39000	-32980	57	115
940 1c	39000	-38060	57	116
1090 2c	39000	-37910	57	117
550	39000	-38450	57	118
26.5	158	-131.5	57	119
13500	158	13342	58	119
17600	158	17442	59	119
16600	158	16442	60	119
2520	158	2362	61	119
591	158	433	62	119
5560	158	5402	63	119
7730	158	7572	64	119
6020	158	5862	65	119
940 1c	158	782	66	119
1090 2c	158	932	67	119
550	158	392	68	119
13500	26.5	13473.5	69	119
17600	26.5	17573.5	70	119
16600	26.5	16573.5	71	119
2520	26.5	2493.5	72	119
591	26.5	564.5	73	119
5560	26.5	5533.5	74	119
7730	26.5	7703.5	75	119
6020	26.5	5993.5	76	119
940 1c	26.5	913.5	77	119
1090 2c	26.5	1063.5	78	119
550	26.5	523.5	79	119
17600	13500	4100	80	119
16600	13500	3100	81	119
2520	13500	-10980	81	120
591	13500	-12909	81	121
5560	13500	-7940	81	122
7730	13500	-5770	81	123
6020	13500	-7480	81	124
940 1c	13500	-12560	81	125



1090 2c	13500	-12410	81	126
550	13500	-12950	81	127
16600	17600	-1000	81	128
2520	17600	-15080	81	129
591	17600	-17009	81	130
5560	17600	-12040	81	131
7730	17600	-9870	81	132
6020	17600	-11580	81	133
940 1c	17600	-16660	81	134
1090 2c	17600	-16510	81	135
550	17600	-17050	81	136
2520	16600	-14080	81	137
591	16600	-16009	81	138
5560	16600	-11040	81	139
7730	16600	-8870	81	140
6020	16600	-10580	81	141
940 1c	16600	-15660	81	142
1090 2c	16600	-15510	81	143
550	16600	-16050	81	144
591	2520	-1929	81	145
5560	2520	3040	82	145
7730	2520	5210	83	145
6020	2520	3500	84	145
940 1c	2520	-1580	84	146
1090 2c	2520	-1430	84	147
550	2520	-1970	84	148
5560	591	4969	85	148
7730	591	7139	86	148
6020	591	5429	87	148
940 1c	591	349	88	148
1090 2c	591	499	89	148
550	591	-41	89	149
7730	5560	2170	90	149
6020	5560	460	91	149
940 1c	5560	-4620	91	150
1090 2c	5560	-4470	91	151
550	5560	-5010	91	152
6020	7730	-1710	91	153
940 1c	7730	-6790	91	154
1090 2c	7730	-6640	91	155
550	7730	-7180	91	156
940 1c	6020	-5080	91	157
1090 2c	6020	-4930	91	158
550	6020	-5470	91	159
1090 2c	940 1c	150	92	159
550	940 1c	-390	92	160
550	1090 2c	-540	92	161

S Statistic = 92 - 161 = -69

---

Tied Group	Value	Members
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1
6/1/2019		1
9/1/2019		1
12/1/2019		1
6/25/2020		1
9/22/2020		1
11/16/2020		1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 25806

b = 95634

c = 1012

Group Variance = 1433.67

Z-Score = -1.79591

Comparison Level at 95% confidence level = -1.65463 (downward trend)

**-1.79591 < -1.65463 indicating a downward trend**

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW11-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
301000	368000	-67000	0	1
288000	368000	-80000	0	2
336000	368000	-32000	0	3
201000	368000	-167000	0	4
192000	368000	-176000	0	5
147000	368000	-221000	0	6
134000	368000	-234000	0	7
111000	368000	-257000	0	8
207000	368000	-161000	0	9
197000	368000	-171000	0	10
225000	368000	-143000	0	11
215000	368000	-153000	0	12
15700	368000	-352300	0	13
174000	368000	-194000	0	14
176000	368000	-192000	0	15
142000	368000	-226000	0	16
121000	368000	-247000	0	17
120000	368000	-248000	0	18
173000	368000	-195000	0	19
151000	368000	-217000	0	20
128000	368000	-240000	0	21
166000	368000	-202000	0	22
288000	301000	-13000	0	23
336000	301000	35000	1	23
201000	301000	-100000	1	24
192000	301000	-109000	1	25
147000	301000	-154000	1	26
134000	301000	-167000	1	27
111000	301000	-190000	1	28
207000	301000	-94000	1	29
197000	301000	-104000	1	30
225000	301000	-76000	1	31
215000	301000	-86000	1	32
15700	301000	-285300	1	33
174000	301000	-127000	1	34
176000	301000	-125000	1	35
142000	301000	-159000	1	36
121000	301000	-180000	1	37
120000	301000	-181000	1	38
173000	301000	-128000	1	39
151000	301000	-150000	1	40
128000	301000	-173000	1	41
166000	301000	-135000	1	42
336000	288000	48000	2	42
201000	288000	-87000	2	43

192000	288000	-96000	2	44
147000	288000	-141000	2	45
134000	288000	-154000	2	46
111000	288000	-177000	2	47
207000	288000	-81000	2	48
197000	288000	-91000	2	49
225000	288000	-63000	2	50
215000	288000	-73000	2	51
15700	288000	-272300	2	52
174000	288000	-114000	2	53
176000	288000	-112000	2	54
142000	288000	-146000	2	55
121000	288000	-167000	2	56
120000	288000	-168000	2	57
173000	288000	-115000	2	58
151000	288000	-137000	2	59
128000	288000	-160000	2	60
166000	288000	-122000	2	61
201000	336000	-135000	2	62
192000	336000	-144000	2	63
147000	336000	-189000	2	64
134000	336000	-202000	2	65
111000	336000	-225000	2	66
207000	336000	-129000	2	67
197000	336000	-139000	2	68
225000	336000	-111000	2	69
215000	336000	-121000	2	70
15700	336000	-320300	2	71
174000	336000	-162000	2	72
176000	336000	-160000	2	73
142000	336000	-194000	2	74
121000	336000	-215000	2	75
120000	336000	-216000	2	76
173000	336000	-163000	2	77
151000	336000	-185000	2	78
128000	336000	-208000	2	79
166000	336000	-170000	2	80
192000	201000	-9000	2	81
147000	201000	-54000	2	82
134000	201000	-67000	2	83
111000	201000	-90000	2	84
207000	201000	6000	3	84
197000	201000	-4000	3	85
225000	201000	24000	4	85
215000	201000	14000	5	85
15700	201000	-185300	5	86
174000	201000	-27000	5	87
176000	201000	-25000	5	88
142000	201000	-59000	5	89
121000	201000	-80000	5	90
120000	201000	-81000	5	91
173000	201000	-28000	5	92
151000	201000	-50000	5	93
128000	201000	-73000	5	94
166000	201000	-35000	5	95

147000	192000	-45000	5	96
134000	192000	-58000	5	97
111000	192000	-81000	5	98
207000	192000	15000	6	98
197000	192000	5000	7	98
225000	192000	33000	8	98
215000	192000	23000	9	98
15700	192000	-176300	9	99
174000	192000	-18000	9	100
176000	192000	-16000	9	101
142000	192000	-50000	9	102
121000	192000	-71000	9	103
120000	192000	-72000	9	104
173000	192000	-19000	9	105
151000	192000	-41000	9	106
128000	192000	-64000	9	107
166000	192000	-26000	9	108
134000	147000	-13000	9	109
111000	147000	-36000	9	110
207000	147000	60000	10	110
197000	147000	50000	11	110
225000	147000	78000	12	110
215000	147000	68000	13	110
15700	147000	-131300	13	111
174000	147000	27000	14	111
176000	147000	29000	15	111
142000	147000	-5000	15	112
121000	147000	-26000	15	113
120000	147000	-27000	15	114
173000	147000	26000	16	114
151000	147000	4000	17	114
128000	147000	-19000	17	115
166000	147000	19000	18	115
111000	134000	-23000	18	116
207000	134000	73000	19	116
197000	134000	63000	20	116
225000	134000	91000	21	116
215000	134000	81000	22	116
15700	134000	-118300	22	117
174000	134000	40000	23	117
176000	134000	42000	24	117
142000	134000	8000	25	117
121000	134000	-13000	25	118
120000	134000	-14000	25	119
173000	134000	39000	26	119
151000	134000	17000	27	119
128000	134000	-6000	27	120
166000	134000	32000	28	120
207000	111000	96000	29	120
197000	111000	86000	30	120
225000	111000	114000	31	120
215000	111000	104000	32	120
15700	111000	-95300	32	121

174000	111000	63000	33	121
176000	111000	65000	34	121
142000	111000	31000	35	121
121000	111000	10000	36	121
120000	111000	9000	37	121
173000	111000	62000	38	121
151000	111000	40000	39	121
128000	111000	17000	40	121
166000	111000	55000	41	121
197000	207000	-10000	41	122
225000	207000	18000	42	122
215000	207000	8000	43	122
15700	207000	-191300	43	123
174000	207000	-33000	43	124
176000	207000	-31000	43	125
142000	207000	-65000	43	126
121000	207000	-86000	43	127
120000	207000	-87000	43	128
173000	207000	-34000	43	129
151000	207000	-56000	43	130
128000	207000	-79000	43	131
166000	207000	-41000	43	132
225000	197000	28000	44	132
215000	197000	18000	45	132
15700	197000	-181300	45	133
174000	197000	-23000	45	134
176000	197000	-21000	45	135
142000	197000	-55000	45	136
121000	197000	-76000	45	137
120000	197000	-77000	45	138
173000	197000	-24000	45	139
151000	197000	-46000	45	140
128000	197000	-69000	45	141
166000	197000	-31000	45	142
215000	225000	-10000	45	143
15700	225000	-209300	45	144
174000	225000	-51000	45	145
176000	225000	-49000	45	146
142000	225000	-83000	45	147
121000	225000	-104000	45	148
120000	225000	-105000	45	149
173000	225000	-52000	45	150
151000	225000	-74000	45	151
128000	225000	-97000	45	152
166000	225000	-59000	45	153
15700	215000	-199300	45	154
174000	215000	-41000	45	155
176000	215000	-39000	45	156
142000	215000	-73000	45	157
121000	215000	-94000	45	158
120000	215000	-95000	45	159
173000	215000	-42000	45	160
151000	215000	-64000	45	161

128000	215000	-87000	45	162
166000	215000	-49000	45	163
174000	15700	158300	46	163
176000	15700	160300	47	163
142000	15700	126300	48	163
121000	15700	105300	49	163
120000	15700	104300	50	163
173000	15700	157300	51	163
151000	15700	135300	52	163
128000	15700	112300	53	163
166000	15700	150300	54	163
176000	174000	2000	55	163
142000	174000	-32000	55	164
121000	174000	-53000	55	165
120000	174000	-54000	55	166
173000	174000	-1000	55	167
151000	174000	-23000	55	168
128000	174000	-46000	55	169
166000	174000	-8000	55	170
142000	176000	-34000	55	171
121000	176000	-55000	55	172
120000	176000	-56000	55	173
173000	176000	-3000	55	174
151000	176000	-25000	55	175
128000	176000	-48000	55	176
166000	176000	-10000	55	177
121000	142000	-21000	55	178
120000	142000	-22000	55	179
173000	142000	31000	56	179
151000	142000	9000	57	179
128000	142000	-14000	57	180
166000	142000	24000	58	180
120000	121000	-1000	58	181
173000	121000	52000	59	181
151000	121000	30000	60	181
128000	121000	7000	61	181
166000	121000	45000	62	181
173000	120000	53000	63	181
151000	120000	31000	64	181
128000	120000	8000	65	181
166000	120000	46000	66	181
151000	173000	-22000	66	182
128000	173000	-45000	66	183
166000	173000	-7000	66	184
128000	151000	-23000	66	185
166000	151000	15000	67	185
166000	128000	38000	68	185

S Statistic = 68 - 185 = -117

---

Tied Group	Value	Members
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1
6/1/2019		1
9/1/2019		1
12/1/2019		1
3/13/2020		1
6/11/2020		1
11/16/2020		1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 25806

b = 95634

c = 1012

Group Variance = 1433.67

Z-Score = -3.06361

Comparison Level at 95% confidence level = -1.65463 (downward trend)

**-3.06361 < -1.65463 indicating a downward trend**



# Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW12-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
216000	249000	-33000	0	1
188000	249000	-61000	0	2
232000	249000	-17000	0	3
226000	249000	-23000	0	4
219000	249000	-30000	0	5
156000	249000	-93000	0	6
156000	249000	-93000	0	7
150000	249000	-99000	0	8
140000	249000	-109000	0	9
157000	249000	-92000	0	10
117000	249000	-132000	0	11
103000	249000	-146000	0	12
2410	249000	-246590	0	13
14300	249000	-234700	0	14
109000	249000	-140000	0	15
110000	249000	-139000	0	16
111000	249000	-138000	0	17
104000	249000	-145000	0	18
43500	249000	-205500	0	19
86400	249000	-162600	0	20
188000	216000	-28000	0	21
232000	216000	16000	1	21
226000	216000	10000	2	21
219000	216000	3000	3	21
156000	216000	-60000	3	22
156000	216000	-60000	3	23
150000	216000	-66000	3	24
140000	216000	-76000	3	25
157000	216000	-59000	3	26
117000	216000	-99000	3	27
103000	216000	-113000	3	28
2410	216000	-213590	3	29
14300	216000	-201700	3	30
109000	216000	-107000	3	31
110000	216000	-106000	3	32
111000	216000	-105000	3	33
104000	216000	-112000	3	34
43500	216000	-172500	3	35
86400	216000	-129600	3	36
232000	188000	44000	4	36
226000	188000	38000	5	36
219000	188000	31000	6	36
156000	188000	-32000	6	37
156000	188000	-32000	6	38
150000	188000	-38000	6	39

140000	188000	-48000	6	40
157000	188000	-31000	6	41
117000	188000	-71000	6	42
103000	188000	-85000	6	43
2410	188000	-185590	6	44
14300	188000	-173700	6	45
109000	188000	-79000	6	46
110000	188000	-78000	6	47
111000	188000	-77000	6	48
104000	188000	-84000	6	49
43500	188000	-144500	6	50
86400	188000	-101600	6	51
226000	232000	-6000	6	52
219000	232000	-13000	6	53
156000	232000	-76000	6	54
156000	232000	-76000	6	55
150000	232000	-82000	6	56
140000	232000	-92000	6	57
157000	232000	-75000	6	58
117000	232000	-115000	6	59
103000	232000	-129000	6	60
2410	232000	-229590	6	61
14300	232000	-217700	6	62
109000	232000	-123000	6	63
110000	232000	-122000	6	64
111000	232000	-121000	6	65
104000	232000	-128000	6	66
43500	232000	-188500	6	67
86400	232000	-145600	6	68
219000	226000	-7000	6	69
156000	226000	-70000	6	70
156000	226000	-70000	6	71
150000	226000	-76000	6	72
140000	226000	-86000	6	73
157000	226000	-69000	6	74
117000	226000	-109000	6	75
103000	226000	-123000	6	76
2410	226000	-223590	6	77
14300	226000	-211700	6	78
109000	226000	-117000	6	79
110000	226000	-116000	6	80
111000	226000	-115000	6	81
104000	226000	-122000	6	82
43500	226000	-182500	6	83
86400	226000	-139600	6	84
156000	219000	-63000	6	85
156000	219000	-63000	6	86
150000	219000	-69000	6	87
140000	219000	-79000	6	88
157000	219000	-62000	6	89
117000	219000	-102000	6	90
103000	219000	-116000	6	91
2410	219000	-216590	6	92
14300	219000	-204700	6	93

109000	219000	-110000	6	94
110000	219000	-109000	6	95
111000	219000	-108000	6	96
104000	219000	-115000	6	97
43500	219000	-175500	6	98
86400	219000	-132600	6	99
156000	156000	0	6	99
150000	156000	-6000	6	100
140000	156000	-16000	6	101
157000	156000	1000	7	101
117000	156000	-39000	7	102
103000	156000	-53000	7	103
2410	156000	-153590	7	104
14300	156000	-141700	7	105
109000	156000	-47000	7	106
110000	156000	-46000	7	107
111000	156000	-45000	7	108
104000	156000	-52000	7	109
43500	156000	-112500	7	110
86400	156000	-69600	7	111
150000	156000	-6000	7	112
140000	156000	-16000	7	113
157000	156000	1000	8	113
117000	156000	-39000	8	114
103000	156000	-53000	8	115
2410	156000	-153590	8	116
14300	156000	-141700	8	117
109000	156000	-47000	8	118
110000	156000	-46000	8	119
111000	156000	-45000	8	120
104000	156000	-52000	8	121
43500	156000	-112500	8	122
86400	156000	-69600	8	123
140000	150000	-10000	8	124
157000	150000	7000	9	124
117000	150000	-33000	9	125
103000	150000	-47000	9	126
2410	150000	-147590	9	127
14300	150000	-135700	9	128
109000	150000	-41000	9	129
110000	150000	-40000	9	130
111000	150000	-39000	9	131
104000	150000	-46000	9	132
43500	150000	-106500	9	133
86400	150000	-63600	9	134
157000	140000	17000	10	134
117000	140000	-23000	10	135
103000	140000	-37000	10	136
2410	140000	-137590	10	137
14300	140000	-125700	10	138
109000	140000	-31000	10	139
110000	140000	-30000	10	140
111000	140000	-29000	10	141

104000	140000	-36000	10	142
43500	140000	-96500	10	143
86400	140000	-53600	10	144
117000	157000	-40000	10	145
103000	157000	-54000	10	146
2410	157000	-154590	10	147
14300	157000	-142700	10	148
109000	157000	-48000	10	149
110000	157000	-47000	10	150
111000	157000	-46000	10	151
104000	157000	-53000	10	152
43500	157000	-113500	10	153
86400	157000	-70600	10	154
103000	117000	-14000	10	155
2410	117000	-114590	10	156
14300	117000	-102700	10	157
109000	117000	-8000	10	158
110000	117000	-7000	10	159
111000	117000	-6000	10	160
104000	117000	-13000	10	161
43500	117000	-73500	10	162
86400	117000	-30600	10	163
2410	103000	-100590	10	164
14300	103000	-88700	10	165
109000	103000	6000	11	165
110000	103000	7000	12	165
111000	103000	8000	13	165
104000	103000	1000	14	165
43500	103000	-59500	14	166
86400	103000	-16600	14	167
14300	2410	11890	15	167
109000	2410	106590	16	167
110000	2410	107590	17	167
111000	2410	108590	18	167
104000	2410	101590	19	167
43500	2410	41090	20	167
86400	2410	83990	21	167
109000	14300	94700	22	167
110000	14300	95700	23	167
111000	14300	96700	24	167
104000	14300	89700	25	167
43500	14300	29200	26	167
86400	14300	72100	27	167
110000	109000	1000	28	167
111000	109000	2000	29	167
104000	109000	-5000	29	168
43500	109000	-65500	29	169
86400	109000	-22600	29	170
111000	110000	1000	30	170
104000	110000	-6000	30	171

43500	110000	-66500	30	172
86400	110000	-23600	30	173
104000	111000	-7000	30	174
43500	111000	-67500	30	175
86400	111000	-24600	30	176
43500	104000	-60500	30	177
86400	104000	-17600	30	178
86400	43500	42900	31	178

S Statistic = 31 - 178 = -147

---

Tied Group	Value	Members
1	156000	2

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
6/1/2017	1
7/1/2017	1
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
6/30/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 19740

b = 71820

c = 840

Group Variance = 1095.67

Z-Score = -4.41076

Comparison Level at 95% confidence level = -1.65463 (downward trend)

**-4.41076 < -1.65463 indicating a downward trend**

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW13-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
1160	308000	-306840	0	1
204000	308000	-104000	0	2
172000	308000	-136000	0	3
237	308000	-307763	0	4
8600	308000	-299400	0	5
201000	308000	-107000	0	6
274000	308000	-34000	0	7
33.4	308000	-307967	0	8
116	308000	-307884	0	9
328000	308000	20000	1	9
97.7	308000	-307902	1	10
122	308000	-307878	1	11
246000	308000	-62000	1	12
250000	308000	-58000	1	13
27	308000	-307973	1	14
296000 ML	308000	-12000	1	15
19.8 1c	308000	-307980	1	16
204000	1160	202840	2	16
172000	1160	170840	3	16
237	1160	-923	3	17
8600	1160	7440	4	17
201000	1160	199840	5	17
274000	1160	272840	6	17
33.4	1160	-1126.6	6	18
116	1160	-1044	6	19
328000	1160	326840	7	19
97.7	1160	-1062.3	7	20
122	1160	-1038	7	21
246000	1160	244840	8	21
250000	1160	248840	9	21
27	1160	-1133	9	22
296000 ML	1160	294840	10	22
19.8 1c	1160	-1140.2	10	23
172000	204000	-32000	10	24
237	204000	-203763	10	25
8600	204000	-195400	10	26
201000	204000	-3000	10	27
274000	204000	70000	11	27
33.4	204000	-203967	11	28
116	204000	-203884	11	29
328000	204000	124000	12	29
97.7	204000	-203902	12	30
122	204000	-203878	12	31
246000	204000	42000	13	31
250000	204000	46000	14	31

27	204000	-203973	14	32
296000 ML	204000	92000	15	32
19.8 1c	204000	-203980	15	33
237	172000	-171763	15	34
8600	172000	-163400	15	35
201000	172000	29000	16	35
274000	172000	102000	17	35
33.4	172000	-171967	17	36
116	172000	-171884	17	37
328000	172000	156000	18	37
97.7	172000	-171902	18	38
122	172000	-171878	18	39
246000	172000	74000	19	39
250000	172000	78000	20	39
27	172000	-171973	20	40
296000 ML	172000	124000	21	40
19.8 1c	172000	-171980	21	41
8600	237	8363	22	41
201000	237	200763	23	41
274000	237	273763	24	41
33.4	237	-203.6	24	42
116	237	-121	24	43
328000	237	327763	25	43
97.7	237	-139.3	25	44
122	237	-115	25	45
246000	237	245763	26	45
250000	237	249763	27	45
27	237	-210	27	46
296000 ML	237	295763	28	46
19.8 1c	237	-217.2	28	47
201000	8600	192400	29	47
274000	8600	265400	30	47
33.4	8600	-8566.6	30	48
116	8600	-8484	30	49
328000	8600	319400	31	49
97.7	8600	-8502.3	31	50
122	8600	-8478	31	51
246000	8600	237400	32	51
250000	8600	241400	33	51
27	8600	-8573	33	52
296000 ML	8600	287400	34	52
19.8 1c	8600	-8580.2	34	53
274000	201000	73000	35	53
33.4	201000	-200967	35	54
116	201000	-200884	35	55
328000	201000	127000	36	55
97.7	201000	-200902	36	56
122	201000	-200878	36	57
246000	201000	45000	37	57
250000	201000	49000	38	57
27	201000	-200973	38	58
296000 ML	201000	95000	39	58
19.8 1c	201000	-200980	39	59

33.4	274000	-273967	39	60
116	274000	-273884	39	61
328000	274000	54000	40	61
97.7	274000	-273902	40	62
122	274000	-273878	40	63
246000	274000	-28000	40	64
250000	274000	-24000	40	65
27	274000	-273973	40	66
296000 ML	274000	22000	41	66
19.8 1c	274000	-273980	41	67
116	33.4	82.6	42	67
328000	33.4	327967	43	67
97.7	33.4	64.3	44	67
122	33.4	88.6	45	67
246000	33.4	245967	46	67
250000	33.4	249967	47	67
27	33.4	-6.4	47	68
296000 ML	33.4	295967	48	68
19.8 1c	33.4	-13.6	48	69
328000	116	327884	49	69
97.7	116	-18.3	49	70
122	116	6	50	70
246000	116	245884	51	70
250000	116	249884	52	70
27	116	-89	52	71
296000 ML	116	295884	53	71
19.8 1c	116	-96.2	53	72
97.7	328000	-327902	53	73
122	328000	-327878	53	74
246000	328000	-82000	53	75
250000	328000	-78000	53	76
27	328000	-327973	53	77
296000 ML	328000	-32000	53	78
19.8 1c	328000	-327980	53	79
122	97.7	24.3	54	79
246000	97.7	245902	55	79
250000	97.7	249902	56	79
27	97.7	-70.7	56	80
296000 ML	97.7	295902	57	80
19.8 1c	97.7	-77.9	57	81
246000	122	245878	58	81
250000	122	249878	59	81
27	122	-95	59	82
296000 ML	122	295878	60	82
19.8 1c	122	-102.2	60	83
250000	246000	4000	61	83
27	246000	-245973	61	84
296000 ML	246000	50000	62	84
19.8 1c	246000	-245980	62	85



27	250000	-249973	62	86
296000 ML	250000	46000	63	86
19.8 1c	250000	-249980	63	87
296000 ML	27	295973	64	87
19.8 1c	27	-7.2	64	88
19.8 1c	296000 ML	-295980	64	89

S Statistic = 64 - 89 = -25

---

Tied Group	Value	Members
<b>Time Period</b>		<b>Observations</b>
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1
6/1/2019		1
9/1/2019		1
12/1/2019		1
3/20/2020		1
6/15/2020		1
9/17/2020		1
11/10/2020		1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 12546

b = 44064

c = 612

Group Variance = 697

Z-Score = -0.909065

Comparison Level at 95% confidence level = -1.65463 (downward trend)

-0.909065 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW15-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
71.1	3210	-3138.9	0	1
295	3210	-2915	0	2
825	3210	-2385	0	3
1070	3210	-2140	0	4
5540	3210	2330	1	4
252	3210	-2958	1	5
18600	3210	15390	2	5
736	3210	-2474	2	6
6540	3210	3330	3	6
109000	3210	105790	4	6
16400	3210	13190	5	6
168000	3210	164790	6	6
179000	3210	175790	7	6
17.9	3210	-3192.1	7	7
5.8 J	3210	-3204.2	7	8
3210 1c	3210	0	7	8
137 1c	3210	-3073	7	9
295	71.1	223.9	8	9
825	71.1	753.9	9	9
1070	71.1	998.9	10	9
5540	71.1	5468.9	11	9
252	71.1	180.9	12	9
18600	71.1	18528.9	13	9
736	71.1	664.9	14	9
6540	71.1	6468.9	15	9
109000	71.1	108929	16	9
16400	71.1	16328.9	17	9
168000	71.1	167929	18	9
179000	71.1	178929	19	9
17.9	71.1	-53.2	19	10
5.8 J	71.1	-65.3	19	11
3210 1c	71.1	3138.9	20	11
137 1c	71.1	65.9	21	11
825	295	530	22	11
1070	295	775	23	11
5540	295	5245	24	11
252	295	-43	24	12
18600	295	18305	25	12
736	295	441	26	12
6540	295	6245	27	12
109000	295	108705	28	12
16400	295	16105	29	12
168000	295	167705	30	12
179000	295	178705	31	12
17.9	295	-277.1	31	13

5.8 J	295	-289.2	31	14
3210 1c	295	2915	32	14
137 1c	295	-158	32	15
1070	825	245	33	15
5540	825	4715	34	15
252	825	-573	34	16
18600	825	17775	35	16
736	825	-89	35	17
6540	825	5715	36	17
109000	825	108175	37	17
16400	825	15575	38	17
168000	825	167175	39	17
179000	825	178175	40	17
17.9	825	-807.1	40	18
5.8 J	825	-819.2	40	19
3210 1c	825	2385	41	19
137 1c	825	-688	41	20
5540	1070	4470	42	20
252	1070	-818	42	21
18600	1070	17530	43	21
736	1070	-334	43	22
6540	1070	5470	44	22
109000	1070	107930	45	22
16400	1070	15330	46	22
168000	1070	166930	47	22
179000	1070	177930	48	22
17.9	1070	-1052.1	48	23
5.8 J	1070	-1064.2	48	24
3210 1c	1070	2140	49	24
137 1c	1070	-933	49	25
252	5540	-5288	49	26
18600	5540	13060	50	26
736	5540	-4804	50	27
6540	5540	1000	51	27
109000	5540	103460	52	27
16400	5540	10860	53	27
168000	5540	162460	54	27
179000	5540	173460	55	27
17.9	5540	-5522.1	55	28
5.8 J	5540	-5534.2	55	29
3210 1c	5540	-2330	55	30
137 1c	5540	-5403	55	31
18600	252	18348	56	31
736	252	484	57	31
6540	252	6288	58	31
109000	252	108748	59	31
16400	252	16148	60	31
168000	252	167748	61	31
179000	252	178748	62	31
17.9	252	-234.1	62	32
5.8 J	252	-246.2	62	33
3210 1c	252	2958	63	33
137 1c	252	-115	63	34

736	18600	-17864	63	35
6540	18600	-12060	63	36
109000	18600	90400	64	36
16400	18600	-2200	64	37
168000	18600	149400	65	37
179000	18600	160400	66	37
17.9	18600	-18582.1	66	38
5.8 J	18600	-18594.2	66	39
3210 1c	18600	-15390	66	40
137 1c	18600	-18463	66	41
6540	736	5804	67	41
109000	736	108264	68	41
16400	736	15664	69	41
168000	736	167264	70	41
179000	736	178264	71	41
17.9	736	-718.1	71	42
5.8 J	736	-730.2	71	43
3210 1c	736	2474	72	43
137 1c	736	-599	72	44
109000	6540	102460	73	44
16400	6540	9860	74	44
168000	6540	161460	75	44
179000	6540	172460	76	44
17.9	6540	-6522.1	76	45
5.8 J	6540	-6534.2	76	46
3210 1c	6540	-3330	76	47
137 1c	6540	-6403	76	48
16400	109000	-92600	76	49
168000	109000	59000	77	49
179000	109000	70000	78	49
17.9	109000	-108982	78	50
5.8 J	109000	-108994	78	51
3210 1c	109000	-105790	78	52
137 1c	109000	-108863	78	53
168000	16400	151600	79	53
179000	16400	162600	80	53
17.9	16400	-16382.1	80	54
5.8 J	16400	-16394.2	80	55
3210 1c	16400	-13190	80	56
137 1c	16400	-16263	80	57
179000	168000	11000	81	57
17.9	168000	-167982	81	58
5.8 J	168000	-167994	81	59
3210 1c	168000	-164790	81	60
137 1c	168000	-167863	81	61
17.9	179000	-178982	81	62
5.8 J	179000	-178994	81	63
3210 1c	179000	-175790	81	64
137 1c	179000	-178863	81	65

5.8 J	17.9	-12.1	81	66
3210 1c	17.9	3192.1	82	66
137 1c	17.9	119.1	83	66
3210 1c	5.8 J	3204.2	84	66
137 1c	5.8 J	131.2	85	66
137 1c	3210 1c	-3073	85	67

S Statistic = 85 - 67 = 18

---

Tied Group	Value	Members
1	3210	2

---

Time Period	Observations
8/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/16/2020	1
6/11/2020	1
9/16/2020	1
11/9/2020	1

There are 0 time periods with multiple data

---

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 12546

b = 44064

c = 612

Group Variance = 696

Z-Score = 0.644383

Comparison Level at 95% confidence level = -1.65463 (downward trend)

0.644383 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW16-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
90300	86300	4000	1	0
314000	86300	227700	2	0
207000	86300	120700	3	0
20200	86300	-66100	3	1
2000	86300	-84300	3	2
441	86300	-85859	3	3
19200	86300	-67100	3	4
16200	86300	-70100	3	5
11200	86300	-75100	3	6
1230	86300	-85070	3	7
320	86300	-85980	3	8
6	86300	-86294	3	9
4.7	86300	-86295.3	3	10
4.9	86300	-86295.1	3	11
13.1	86300	-86286.9	3	12
22.7	86300	-86277.3	3	13
16.2	86300	-86283.8	3	14
7.3 J	86300	-86292.7	3	15
63.1	86300	-86236.9	3	16
10.2 1c	86300	-86289.8	3	17
314000	90300	223700	4	17
207000	90300	116700	5	17
20200	90300	-70100	5	18
2000	90300	-88300	5	19
441	90300	-89859	5	20
19200	90300	-71100	5	21
16200	90300	-74100	5	22
11200	90300	-79100	5	23
1230	90300	-89070	5	24
320	90300	-89980	5	25
6	90300	-90294	5	26
4.7	90300	-90295.3	5	27
4.9	90300	-90295.1	5	28
13.1	90300	-90286.9	5	29
22.7	90300	-90277.3	5	30
16.2	90300	-90283.8	5	31
7.3 J	90300	-90292.7	5	32
63.1	90300	-90236.9	5	33
10.2 1c	90300	-90289.8	5	34
207000	314000	-107000	5	35
20200	314000	-293800	5	36
2000	314000	-312000	5	37
441	314000	-313559	5	38
19200	314000	-294800	5	39
16200	314000	-297800	5	40

11200	314000	-302800	5	41
1230	314000	-312770	5	42
320	314000	-313680	5	43
6	314000	-313994	5	44
4.7	314000	-313995	5	45
4.9	314000	-313995	5	46
13.1	314000	-313987	5	47
22.7	314000	-313977	5	48
16.2	314000	-313984	5	49
7.3 J	314000	-313993	5	50
63.1	314000	-313937	5	51
10.2 1c	314000	-313990	5	52
20200	207000	-186800	5	53
2000	207000	-205000	5	54
441	207000	-206559	5	55
19200	207000	-187800	5	56
16200	207000	-190800	5	57
11200	207000	-195800	5	58
1230	207000	-205770	5	59
320	207000	-206680	5	60
6	207000	-206994	5	61
4.7	207000	-206995	5	62
4.9	207000	-206995	5	63
13.1	207000	-206987	5	64
22.7	207000	-206977	5	65
16.2	207000	-206984	5	66
7.3 J	207000	-206993	5	67
63.1	207000	-206937	5	68
10.2 1c	207000	-206990	5	69
2000	20200	-18200	5	70
441	20200	-19759	5	71
19200	20200	-1000	5	72
16200	20200	-4000	5	73
11200	20200	-9000	5	74
1230	20200	-18970	5	75
320	20200	-19880	5	76
6	20200	-20194	5	77
4.7	20200	-20195.3	5	78
4.9	20200	-20195.1	5	79
13.1	20200	-20186.9	5	80
22.7	20200	-20177.3	5	81
16.2	20200	-20183.8	5	82
7.3 J	20200	-20192.7	5	83
63.1	20200	-20136.9	5	84
10.2 1c	20200	-20189.8	5	85
441	2000	-1559	5	86
19200	2000	17200	6	86
16200	2000	14200	7	86
11200	2000	9200	8	86
1230	2000	-770	8	87
320	2000	-1680	8	88
6	2000	-1994	8	89
4.7	2000	-1995.3	8	90
4.9	2000	-1995.1	8	91

13.1	2000	-1986.9	8	92
22.7	2000	-1977.3	8	93
16.2	2000	-1983.8	8	94
7.3 J	2000	-1992.7	8	95
63.1	2000	-1936.9	8	96
10.2 1c	2000	-1989.8	8	97
19200	441	18759	9	97
16200	441	15759	10	97
11200	441	10759	11	97
1230	441	789	12	97
320	441	-121	12	98
6	441	-435	12	99
4.7	441	-436.3	12	100
4.9	441	-436.1	12	101
13.1	441	-427.9	12	102
22.7	441	-418.3	12	103
16.2	441	-424.8	12	104
7.3 J	441	-433.7	12	105
63.1	441	-377.9	12	106
10.2 1c	441	-430.8	12	107
16200	19200	-3000	12	108
11200	19200	-8000	12	109
1230	19200	-17970	12	110
320	19200	-18880	12	111
6	19200	-19194	12	112
4.7	19200	-19195.3	12	113
4.9	19200	-19195.1	12	114
13.1	19200	-19186.9	12	115
22.7	19200	-19177.3	12	116
16.2	19200	-19183.8	12	117
7.3 J	19200	-19192.7	12	118
63.1	19200	-19136.9	12	119
10.2 1c	19200	-19189.8	12	120
11200	16200	-5000	12	121
1230	16200	-14970	12	122
320	16200	-15880	12	123
6	16200	-16194	12	124
4.7	16200	-16195.3	12	125
4.9	16200	-16195.1	12	126
13.1	16200	-16186.9	12	127
22.7	16200	-16177.3	12	128
16.2	16200	-16183.8	12	129
7.3 J	16200	-16192.7	12	130
63.1	16200	-16136.9	12	131
10.2 1c	16200	-16189.8	12	132
1230	11200	-9970	12	133
320	11200	-10880	12	134
6	11200	-11194	12	135
4.7	11200	-11195.3	12	136
4.9	11200	-11195.1	12	137
13.1	11200	-11186.9	12	138
22.7	11200	-11177.3	12	139
16.2	11200	-11183.8	12	140



7.3 J	11200	-11192.7	12	141
63.1	11200	-11136.9	12	142
10.2 1c	11200	-11189.8	12	143
320	1230	-910	12	144
6	1230	-1224	12	145
4.7	1230	-1225.3	12	146
4.9	1230	-1225.1	12	147
13.1	1230	-1216.9	12	148
22.7	1230	-1207.3	12	149
16.2	1230	-1213.8	12	150
7.3 J	1230	-1222.7	12	151
63.1	1230	-1166.9	12	152
10.2 1c	1230	-1219.8	12	153
6	320	-314	12	154
4.7	320	-315.3	12	155
4.9	320	-315.1	12	156
13.1	320	-306.9	12	157
22.7	320	-297.3	12	158
16.2	320	-303.8	12	159
7.3 J	320	-312.7	12	160
63.1	320	-256.9	12	161
10.2 1c	320	-309.8	12	162
4.7	6	-1.3	12	163
4.9	6	-1.1	12	164
13.1	6	7.1	13	164
22.7	6	16.7	14	164
16.2	6	10.2	15	164
7.3 J	6	1.3	16	164
63.1	6	57.1	17	164
10.2 1c	6	4.2	18	164
4.9	4.7	0.2	19	164
13.1	4.7	8.4	20	164
22.7	4.7	18	21	164
16.2	4.7	11.5	22	164
7.3 J	4.7	2.6	23	164
63.1	4.7	58.4	24	164
10.2 1c	4.7	5.5	25	164
13.1	4.9	8.2	26	164
22.7	4.9	17.8	27	164
16.2	4.9	11.3	28	164
7.3 J	4.9	2.4	29	164
63.1	4.9	58.2	30	164
10.2 1c	4.9	5.3	31	164
22.7	13.1	9.6	32	164
16.2	13.1	3.1	33	164
7.3 J	13.1	-5.8	33	165
63.1	13.1	50	34	165
10.2 1c	13.1	-2.9	34	166
16.2	22.7	-6.5	34	167
7.3 J	22.7	-15.4	34	168

63.1	22.7	40.4	35	168
10.2 1c	22.7	-12.5	35	169
7.3 J	16.2	-8.9	35	170
63.1	16.2	46.9	36	170
10.2 1c	16.2	-6	36	171
63.1	7.3 J	55.8	37	171
10.2 1c	7.3 J	2.9	38	171
10.2 1c	63.1	-52.9	38	172

S Statistic = 38 - 172 = -134

---

Tied Group	Value	Members
------------	-------	---------

---

Time Period	Observations
2/1/2017	1
3/1/2017	1
4/1/2017	1
5/1/2017	1
9/1/2017	1
10/1/2017	1
11/1/2017	1
12/1/2017	1
1/1/2018	1
4/1/2018	1
8/1/2018	1
10/1/2018	1
12/1/2018	1
3/1/2019	1
6/1/2019	1
9/1/2019	1
12/1/2019	1
3/13/2020	1
6/18/2020	1
9/17/2020	1
11/9/2020	1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 19740

b = 71820

c = 840

Group Variance = 1096.67

Z-Score = -4.01619

Comparison Level at 95% confidence level = -1.65463 (downward trend)

**-4.01619 < -1.65463 indicating a downward trend**

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW18-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
592000	728000	-136000	0	1
633000	728000	-95000	0	2
246000	728000	-482000	0	3
694000	728000	-34000	0	4
575000	728000	-153000	0	5
290000	728000	-438000	0	6
382000	728000	-346000	0	7
393000	728000	-335000	0	8
323000	728000	-405000	0	9
369000	728000	-359000	0	10
370000	728000	-358000	0	11
396000	728000	-332000	0	12
330000	728000	-398000	0	13
247000	728000	-481000	0	14
318000	728000	-410000	0	15
822000	728000	94000	1	15
279000	728000	-449000	1	16
640000	728000	-88000	1	17
849000	728000	121000	2	17
545000	728000	-183000	2	18
252000	728000	-476000	2	19
753000 1c	728000	25000	3	19
534000 1c	728000	-194000	3	20
633000	592000	41000	4	20
246000	592000	-346000	4	21
694000	592000	102000	5	21
575000	592000	-17000	5	22
290000	592000	-302000	5	23
382000	592000	-210000	5	24
393000	592000	-199000	5	25
323000	592000	-269000	5	26
369000	592000	-223000	5	27
370000	592000	-222000	5	28
396000	592000	-196000	5	29
330000	592000	-262000	5	30
247000	592000	-345000	5	31
318000	592000	-274000	5	32
822000	592000	230000	6	32
279000	592000	-313000	6	33
640000	592000	48000	7	33
849000	592000	257000	8	33
545000	592000	-47000	8	34
252000	592000	-340000	8	35
753000 1c	592000	161000	9	35
534000 1c	592000	-58000	9	36

246000	633000	-387000	9	37
694000	633000	61000	10	37
575000	633000	-58000	10	38
290000	633000	-343000	10	39
382000	633000	-251000	10	40
393000	633000	-240000	10	41
323000	633000	-310000	10	42
369000	633000	-264000	10	43
370000	633000	-263000	10	44
396000	633000	-237000	10	45
330000	633000	-303000	10	46
247000	633000	-386000	10	47
318000	633000	-315000	10	48
822000	633000	189000	11	48
279000	633000	-354000	11	49
640000	633000	7000	12	49
849000	633000	216000	13	49
545000	633000	-88000	13	50
252000	633000	-381000	13	51
753000 1c	633000	120000	14	51
534000 1c	633000	-99000	14	52
694000	246000	448000	15	52
575000	246000	329000	16	52
290000	246000	44000	17	52
382000	246000	136000	18	52
393000	246000	147000	19	52
323000	246000	77000	20	52
369000	246000	123000	21	52
370000	246000	124000	22	52
396000	246000	150000	23	52
330000	246000	84000	24	52
247000	246000	1000	25	52
318000	246000	72000	26	52
822000	246000	576000	27	52
279000	246000	33000	28	52
640000	246000	394000	29	52
849000	246000	603000	30	52
545000	246000	299000	31	52
252000	246000	6000	32	52
753000 1c	246000	507000	33	52
534000 1c	246000	288000	34	52
575000	694000	-119000	34	53
290000	694000	-404000	34	54
382000	694000	-312000	34	55
393000	694000	-301000	34	56
323000	694000	-371000	34	57
369000	694000	-325000	34	58
370000	694000	-324000	34	59
396000	694000	-298000	34	60
330000	694000	-364000	34	61
247000	694000	-447000	34	62
318000	694000	-376000	34	63
822000	694000	128000	35	63
279000	694000	-415000	35	64
640000	694000	-54000	35	65

849000	694000	155000	36	65
545000	694000	-149000	36	66
252000	694000	-442000	36	67
753000 1c	694000	59000	37	67
534000 1c	694000	-160000	37	68
290000	575000	-285000	37	69
382000	575000	-193000	37	70
393000	575000	-182000	37	71
323000	575000	-252000	37	72
369000	575000	-206000	37	73
370000	575000	-205000	37	74
396000	575000	-179000	37	75
330000	575000	-245000	37	76
247000	575000	-328000	37	77
318000	575000	-257000	37	78
822000	575000	247000	38	78
279000	575000	-296000	38	79
640000	575000	65000	39	79
849000	575000	274000	40	79
545000	575000	-30000	40	80
252000	575000	-323000	40	81
753000 1c	575000	178000	41	81
534000 1c	575000	-41000	41	82
382000	290000	92000	42	82
393000	290000	103000	43	82
323000	290000	33000	44	82
369000	290000	79000	45	82
370000	290000	80000	46	82
396000	290000	106000	47	82
330000	290000	40000	48	82
247000	290000	-43000	48	83
318000	290000	28000	49	83
822000	290000	532000	50	83
279000	290000	-11000	50	84
640000	290000	350000	51	84
849000	290000	559000	52	84
545000	290000	255000	53	84
252000	290000	-38000	53	85
753000 1c	290000	463000	54	85
534000 1c	290000	244000	55	85
393000	382000	11000	56	85
323000	382000	-59000	56	86
369000	382000	-13000	56	87
370000	382000	-12000	56	88
396000	382000	14000	57	88
330000	382000	-52000	57	89
247000	382000	-135000	57	90
318000	382000	-64000	57	91
822000	382000	440000	58	91
279000	382000	-103000	58	92
640000	382000	258000	59	92
849000	382000	467000	60	92
545000	382000	163000	61	92
252000	382000	-130000	61	93

753000 1c	382000	371000	62	93
534000 1c	382000	152000	63	93
323000	393000	-70000	63	94
369000	393000	-24000	63	95
370000	393000	-23000	63	96
396000	393000	3000	64	96
330000	393000	-63000	64	97
247000	393000	-146000	64	98
318000	393000	-75000	64	99
822000	393000	429000	65	99
279000	393000	-114000	65	100
640000	393000	247000	66	100
849000	393000	456000	67	100
545000	393000	152000	68	100
252000	393000	-141000	68	101
753000 1c	393000	360000	69	101
534000 1c	393000	141000	70	101
369000	323000	46000	71	101
370000	323000	47000	72	101
396000	323000	73000	73	101
330000	323000	7000	74	101
247000	323000	-76000	74	102
318000	323000	-5000	74	103
822000	323000	499000	75	103
279000	323000	-44000	75	104
640000	323000	317000	76	104
849000	323000	526000	77	104
545000	323000	222000	78	104
252000	323000	-71000	78	105
753000 1c	323000	430000	79	105
534000 1c	323000	211000	80	105
370000	369000	1000	81	105
396000	369000	27000	82	105
330000	369000	-39000	82	106
247000	369000	-122000	82	107
318000	369000	-51000	82	108
822000	369000	453000	83	108
279000	369000	-90000	83	109
640000	369000	271000	84	109
849000	369000	480000	85	109
545000	369000	176000	86	109
252000	369000	-117000	86	110
753000 1c	369000	384000	87	110
534000 1c	369000	165000	88	110
396000	370000	26000	89	110
330000	370000	-40000	89	111
247000	370000	-123000	89	112
318000	370000	-52000	89	113
822000	370000	452000	90	113
279000	370000	-91000	90	114
640000	370000	270000	91	114
849000	370000	479000	92	114
545000	370000	175000	93	114

252000	370000	-118000	93	115
753000 1c	370000	383000	94	115
534000 1c	370000	164000	95	115
330000	396000	-66000	95	116
247000	396000	-149000	95	117
318000	396000	-78000	95	118
822000	396000	426000	96	118
279000	396000	-117000	96	119
640000	396000	244000	97	119
849000	396000	453000	98	119
545000	396000	149000	99	119
252000	396000	-144000	99	120
753000 1c	396000	357000	100	120
534000 1c	396000	138000	101	120
247000	330000	-83000	101	121
318000	330000	-12000	101	122
822000	330000	492000	102	122
279000	330000	-51000	102	123
640000	330000	310000	103	123
849000	330000	519000	104	123
545000	330000	215000	105	123
252000	330000	-78000	105	124
753000 1c	330000	423000	106	124
534000 1c	330000	204000	107	124
318000	247000	71000	108	124
822000	247000	575000	109	124
279000	247000	32000	110	124
640000	247000	393000	111	124
849000	247000	602000	112	124
545000	247000	298000	113	124
252000	247000	5000	114	124
753000 1c	247000	506000	115	124
534000 1c	247000	287000	116	124
822000	318000	504000	117	124
279000	318000	-39000	117	125
640000	318000	322000	118	125
849000	318000	531000	119	125
545000	318000	227000	120	125
252000	318000	-66000	120	126
753000 1c	318000	435000	121	126
534000 1c	318000	216000	122	126
279000	822000	-543000	122	127
640000	822000	-182000	122	128
849000	822000	27000	123	128
545000	822000	-277000	123	129
252000	822000	-570000	123	130
753000 1c	822000	-69000	123	131
534000 1c	822000	-288000	123	132
640000	279000	361000	124	132
849000	279000	570000	125	132
545000	279000	266000	126	132

252000	279000	-27000	126	133
753000 1c	279000	474000	127	133
534000 1c	279000	255000	128	133
849000	640000	209000	129	133
545000	640000	-95000	129	134
252000	640000	-388000	129	135
753000 1c	640000	113000	130	135
534000 1c	640000	-106000	130	136
545000	849000	-304000	130	137
252000	849000	-597000	130	138
753000 1c	849000	-96000	130	139
534000 1c	849000	-315000	130	140
252000	545000	-293000	130	141
753000 1c	545000	208000	131	141
534000 1c	545000	-11000	131	142
753000 1c	252000	501000	132	142
534000 1c	252000	282000	133	142
534000 1c	753000 1c	-219000	133	143

S Statistic = 133 - 143 = -10

---

<b>Tied Group</b>	<b>Value</b>	<b>Members</b>
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1
6/1/2019		1
9/1/2019		1
12/1/2019		1
3/16/2020		1
6/18/2020		1
9/16/2020		1
11/9/2020		1

There are 0 time periods with multiple data

---

A = 0



B = 0

C = 0

D = 0

E = 0

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1625.33

Z-Score = -0.22324

Comparison Level at 95% confidence level = -1.65463 (downward trend)

-0.22324 >= -1.65463 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW19-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
4.65e+006	5.9e+006	-1.25e+006	0	1
7.01e+006	5.9e+006	1.11e+006	1	1
5.37e+006	5.9e+006	-530000	1	2
6.72e+006	5.9e+006	820000	2	2
5.33e+006	5.9e+006	-570000	2	3
3.36e+006	5.9e+006	-2.54e+006	2	4
2.5e+006	5.9e+006	-3.4e+006	2	5
3.67e+006	5.9e+006	-2.23e+006	2	6
3.4e+006	5.9e+006	-2.5e+006	2	7
3.97e+006	5.9e+006	-1.93e+006	2	8
3.84e+006	5.9e+006	-2.06e+006	2	9
4.19e+006	5.9e+006	-1.71e+006	2	10
4.88e+006	5.9e+006	-1.02e+006	2	11
5.88e+006	5.9e+006	-20000	2	12
7.58e+006	5.9e+006	1.68e+006	3	12
3.77e+006	5.9e+006	-2.13e+006	3	13
7.28e+006	5.9e+006	1.38e+006	4	13
3.46e+006	5.9e+006	-2.44e+006	4	14
5.69e+006	5.9e+006	-210000	4	15
6.05e+006 ML	5.9e+006	150000	5	15
6.45e+006	5.9e+006	550000	6	15
6.22e+006	5.9e+006	320000	7	15
3.93e+006	5.9e+006	-1.97e+006	7	16
7.01e+006	4.65e+006	2.36e+006	8	16
5.37e+006	4.65e+006	720000	9	16
6.72e+006	4.65e+006	2.07e+006	10	16
5.33e+006	4.65e+006	680000	11	16
3.36e+006	4.65e+006	-1.29e+006	11	17
2.5e+006	4.65e+006	-2.15e+006	11	18
3.67e+006	4.65e+006	-980000	11	19
3.4e+006	4.65e+006	-1.25e+006	11	20
3.97e+006	4.65e+006	-680000	11	21
3.84e+006	4.65e+006	-810000	11	22
4.19e+006	4.65e+006	-460000	11	23
4.88e+006	4.65e+006	230000	12	23
5.88e+006	4.65e+006	1.23e+006	13	23
7.58e+006	4.65e+006	2.93e+006	14	23
3.77e+006	4.65e+006	-880000	14	24
7.28e+006	4.65e+006	2.63e+006	15	24
3.46e+006	4.65e+006	-1.19e+006	15	25
5.69e+006	4.65e+006	1.04e+006	16	25
6.05e+006 ML	4.65e+006	1.4e+006	17	25
6.45e+006	4.65e+006	1.8e+006	18	25
6.22e+006	4.65e+006	1.57e+006	19	25
3.93e+006	4.65e+006	-720000	19	26

5.37e+006	7.01e+006	-1.64e+006	19	27
6.72e+006	7.01e+006	-290000	19	28
5.33e+006	7.01e+006	-1.68e+006	19	29
3.36e+006	7.01e+006	-3.65e+006	19	30
2.5e+006	7.01e+006	-4.51e+006	19	31
3.67e+006	7.01e+006	-3.34e+006	19	32
3.4e+006	7.01e+006	-3.61e+006	19	33
3.97e+006	7.01e+006	-3.04e+006	19	34
3.84e+006	7.01e+006	-3.17e+006	19	35
4.19e+006	7.01e+006	-2.82e+006	19	36
4.88e+006	7.01e+006	-2.13e+006	19	37
5.88e+006	7.01e+006	-1.13e+006	19	38
7.58e+006	7.01e+006	570000	20	38
3.77e+006	7.01e+006	-3.24e+006	20	39
7.28e+006	7.01e+006	270000	21	39
3.46e+006	7.01e+006	-3.55e+006	21	40
5.69e+006	7.01e+006	-1.32e+006	21	41
6.05e+006 ML	7.01e+006	-960000	21	42
6.45e+006	7.01e+006	-560000	21	43
6.22e+006	7.01e+006	-790000	21	44
3.93e+006	7.01e+006	-3.08e+006	21	45
6.72e+006	5.37e+006	1.35e+006	22	45
5.33e+006	5.37e+006	-40000	22	46
3.36e+006	5.37e+006	-2.01e+006	22	47
2.5e+006	5.37e+006	-2.87e+006	22	48
3.67e+006	5.37e+006	-1.7e+006	22	49
3.4e+006	5.37e+006	-1.97e+006	22	50
3.97e+006	5.37e+006	-1.4e+006	22	51
3.84e+006	5.37e+006	-1.53e+006	22	52
4.19e+006	5.37e+006	-1.18e+006	22	53
4.88e+006	5.37e+006	-490000	22	54
5.88e+006	5.37e+006	510000	23	54
7.58e+006	5.37e+006	2.21e+006	24	54
3.77e+006	5.37e+006	-1.6e+006	24	55
7.28e+006	5.37e+006	1.91e+006	25	55
3.46e+006	5.37e+006	-1.91e+006	25	56
5.69e+006	5.37e+006	320000	26	56
6.05e+006 ML	5.37e+006	680000	27	56
6.45e+006	5.37e+006	1.08e+006	28	56
6.22e+006	5.37e+006	850000	29	56
3.93e+006	5.37e+006	-1.44e+006	29	57
5.33e+006	6.72e+006	-1.39e+006	29	58
3.36e+006	6.72e+006	-3.36e+006	29	59
2.5e+006	6.72e+006	-4.22e+006	29	60
3.67e+006	6.72e+006	-3.05e+006	29	61
3.4e+006	6.72e+006	-3.32e+006	29	62
3.97e+006	6.72e+006	-2.75e+006	29	63
3.84e+006	6.72e+006	-2.88e+006	29	64
4.19e+006	6.72e+006	-2.53e+006	29	65
4.88e+006	6.72e+006	-1.84e+006	29	66
5.88e+006	6.72e+006	-840000	29	67
7.58e+006	6.72e+006	860000	30	67
3.77e+006	6.72e+006	-2.95e+006	30	68
7.28e+006	6.72e+006	560000	31	68
3.46e+006	6.72e+006	-3.26e+006	31	69

5.69e+006	6.72e+006	-1.03e+006	31	70
6.05e+006 ML	6.72e+006	-670000	31	71
6.45e+006	6.72e+006	-270000	31	72
6.22e+006	6.72e+006	-500000	31	73
3.93e+006	6.72e+006	-2.79e+006	31	74
3.36e+006	5.33e+006	-1.97e+006	31	75
2.5e+006	5.33e+006	-2.83e+006	31	76
3.67e+006	5.33e+006	-1.66e+006	31	77
3.4e+006	5.33e+006	-1.93e+006	31	78
3.97e+006	5.33e+006	-1.36e+006	31	79
3.84e+006	5.33e+006	-1.49e+006	31	80
4.19e+006	5.33e+006	-1.14e+006	31	81
4.88e+006	5.33e+006	-450000	31	82
5.88e+006	5.33e+006	550000	32	82
7.58e+006	5.33e+006	2.25e+006	33	82
3.77e+006	5.33e+006	-1.56e+006	33	83
7.28e+006	5.33e+006	1.95e+006	34	83
3.46e+006	5.33e+006	-1.87e+006	34	84
5.69e+006	5.33e+006	360000	35	84
6.05e+006 ML	5.33e+006	720000	36	84
6.45e+006	5.33e+006	1.12e+006	37	84
6.22e+006	5.33e+006	890000	38	84
3.93e+006	5.33e+006	-1.4e+006	38	85
2.5e+006	3.36e+006	-860000	38	86
3.67e+006	3.36e+006	310000	39	86
3.4e+006	3.36e+006	40000	40	86
3.97e+006	3.36e+006	610000	41	86
3.84e+006	3.36e+006	480000	42	86
4.19e+006	3.36e+006	830000	43	86
4.88e+006	3.36e+006	1.52e+006	44	86
5.88e+006	3.36e+006	2.52e+006	45	86
7.58e+006	3.36e+006	4.22e+006	46	86
3.77e+006	3.36e+006	410000	47	86
7.28e+006	3.36e+006	3.92e+006	48	86
3.46e+006	3.36e+006	100000	49	86
5.69e+006	3.36e+006	2.33e+006	50	86
6.05e+006 ML	3.36e+006	2.69e+006	51	86
6.45e+006	3.36e+006	3.09e+006	52	86
6.22e+006	3.36e+006	2.86e+006	53	86
3.93e+006	3.36e+006	570000	54	86
3.67e+006	2.5e+006	1.17e+006	55	86
3.4e+006	2.5e+006	900000	56	86
3.97e+006	2.5e+006	1.47e+006	57	86
3.84e+006	2.5e+006	1.34e+006	58	86
4.19e+006	2.5e+006	1.69e+006	59	86
4.88e+006	2.5e+006	2.38e+006	60	86
5.88e+006	2.5e+006	3.38e+006	61	86
7.58e+006	2.5e+006	5.08e+006	62	86
3.77e+006	2.5e+006	1.27e+006	63	86
7.28e+006	2.5e+006	4.78e+006	64	86
3.46e+006	2.5e+006	960000	65	86
5.69e+006	2.5e+006	3.19e+006	66	86
6.05e+006 ML	2.5e+006	3.55e+006	67	86
6.45e+006	2.5e+006	3.95e+006	68	86

6.22e+006	2.5e+006	3.72e+006	69	86
3.93e+006	2.5e+006	1.43e+006	70	86
3.4e+006	3.67e+006	-270000	70	87
3.97e+006	3.67e+006	300000	71	87
3.84e+006	3.67e+006	170000	72	87
4.19e+006	3.67e+006	520000	73	87
4.88e+006	3.67e+006	1.21e+006	74	87
5.88e+006	3.67e+006	2.21e+006	75	87
7.58e+006	3.67e+006	3.91e+006	76	87
3.77e+006	3.67e+006	100000	77	87
7.28e+006	3.67e+006	3.61e+006	78	87
3.46e+006	3.67e+006	-210000	78	88
5.69e+006	3.67e+006	2.02e+006	79	88
6.05e+006 ML	3.67e+006	2.38e+006	80	88
6.45e+006	3.67e+006	2.78e+006	81	88
6.22e+006	3.67e+006	2.55e+006	82	88
3.93e+006	3.67e+006	260000	83	88
3.97e+006	3.4e+006	570000	84	88
3.84e+006	3.4e+006	440000	85	88
4.19e+006	3.4e+006	790000	86	88
4.88e+006	3.4e+006	1.48e+006	87	88
5.88e+006	3.4e+006	2.48e+006	88	88
7.58e+006	3.4e+006	4.18e+006	89	88
3.77e+006	3.4e+006	370000	90	88
7.28e+006	3.4e+006	3.88e+006	91	88
3.46e+006	3.4e+006	60000	92	88
5.69e+006	3.4e+006	2.29e+006	93	88
6.05e+006 ML	3.4e+006	2.65e+006	94	88
6.45e+006	3.4e+006	3.05e+006	95	88
6.22e+006	3.4e+006	2.82e+006	96	88
3.93e+006	3.4e+006	530000	97	88
3.84e+006	3.97e+006	-130000	97	89
4.19e+006	3.97e+006	220000	98	89
4.88e+006	3.97e+006	910000	99	89
5.88e+006	3.97e+006	1.91e+006	100	89
7.58e+006	3.97e+006	3.61e+006	101	89
3.77e+006	3.97e+006	-200000	101	90
7.28e+006	3.97e+006	3.31e+006	102	90
3.46e+006	3.97e+006	-510000	102	91
5.69e+006	3.97e+006	1.72e+006	103	91
6.05e+006 ML	3.97e+006	2.08e+006	104	91
6.45e+006	3.97e+006	2.48e+006	105	91
6.22e+006	3.97e+006	2.25e+006	106	91
3.93e+006	3.97e+006	-40000	106	92
4.19e+006	3.84e+006	350000	107	92
4.88e+006	3.84e+006	1.04e+006	108	92
5.88e+006	3.84e+006	2.04e+006	109	92
7.58e+006	3.84e+006	3.74e+006	110	92
3.77e+006	3.84e+006	-70000	110	93
7.28e+006	3.84e+006	3.44e+006	111	93
3.46e+006	3.84e+006	-380000	111	94
5.69e+006	3.84e+006	1.85e+006	112	94
6.05e+006 ML	3.84e+006	2.21e+006	113	94

6.45e+006	3.84e+006	2.61e+006	114	94
6.22e+006	3.84e+006	2.38e+006	115	94
3.93e+006	3.84e+006	90000	116	94
4.88e+006	4.19e+006	690000	117	94
5.88e+006	4.19e+006	1.69e+006	118	94
7.58e+006	4.19e+006	3.39e+006	119	94
3.77e+006	4.19e+006	-420000	119	95
7.28e+006	4.19e+006	3.09e+006	120	95
3.46e+006	4.19e+006	-730000	120	96
5.69e+006	4.19e+006	1.5e+006	121	96
6.05e+006 ML	4.19e+006	1.86e+006	122	96
6.45e+006	4.19e+006	2.26e+006	123	96
6.22e+006	4.19e+006	2.03e+006	124	96
3.93e+006	4.19e+006	-260000	124	97
5.88e+006	4.88e+006	1e+006	125	97
7.58e+006	4.88e+006	2.7e+006	126	97
3.77e+006	4.88e+006	-1.11e+006	126	98
7.28e+006	4.88e+006	2.4e+006	127	98
3.46e+006	4.88e+006	-1.42e+006	127	99
5.69e+006	4.88e+006	810000	128	99
6.05e+006 ML	4.88e+006	1.17e+006	129	99
6.45e+006	4.88e+006	1.57e+006	130	99
6.22e+006	4.88e+006	1.34e+006	131	99
3.93e+006	4.88e+006	-950000	131	100
7.58e+006	5.88e+006	1.7e+006	132	100
3.77e+006	5.88e+006	-2.11e+006	132	101
7.28e+006	5.88e+006	1.4e+006	133	101
3.46e+006	5.88e+006	-2.42e+006	133	102
5.69e+006	5.88e+006	-190000	133	103
6.05e+006 ML	5.88e+006	170000	134	103
6.45e+006	5.88e+006	570000	135	103
6.22e+006	5.88e+006	340000	136	103
3.93e+006	5.88e+006	-1.95e+006	136	104
3.77e+006	7.58e+006	-3.81e+006	136	105
7.28e+006	7.58e+006	-300000	136	106
3.46e+006	7.58e+006	-4.12e+006	136	107
5.69e+006	7.58e+006	-1.89e+006	136	108
6.05e+006 ML	7.58e+006	-1.53e+006	136	109
6.45e+006	7.58e+006	-1.13e+006	136	110
6.22e+006	7.58e+006	-1.36e+006	136	111
3.93e+006	7.58e+006	-3.65e+006	136	112
7.28e+006	3.77e+006	3.51e+006	137	112
3.46e+006	3.77e+006	-310000	137	113
5.69e+006	3.77e+006	1.92e+006	138	113
6.05e+006 ML	3.77e+006	2.28e+006	139	113
6.45e+006	3.77e+006	2.68e+006	140	113
6.22e+006	3.77e+006	2.45e+006	141	113
3.93e+006	3.77e+006	160000	142	113
3.46e+006	7.28e+006	-3.82e+006	142	114
5.69e+006	7.28e+006	-1.59e+006	142	115
6.05e+006 ML	7.28e+006	-1.23e+006	142	116

6.45e+006	7.28e+006	-830000	142	117
6.22e+006	7.28e+006	-1.06e+006	142	118
3.93e+006	7.28e+006	-3.35e+006	142	119
5.69e+006	3.46e+006	2.23e+006	143	119
6.05e+006 ML	3.46e+006	2.59e+006	144	119
6.45e+006	3.46e+006	2.99e+006	145	119
6.22e+006	3.46e+006	2.76e+006	146	119
3.93e+006	3.46e+006	470000	147	119
6.05e+006 ML	5.69e+006	360000	148	119
6.45e+006	5.69e+006	760000	149	119
6.22e+006	5.69e+006	530000	150	119
3.93e+006	5.69e+006	-1.76e+006	150	120
6.45e+006	6.05e+006 ML	400000	151	120
6.22e+006	6.05e+006 ML	170000	152	120
3.93e+006	6.05e+006 ML	-2.12e+006	152	121
6.22e+006	6.45e+006	-230000	152	122
3.93e+006	6.45e+006	-2.52e+006	152	123
3.93e+006	6.22e+006	-2.29e+006	152	124

S Statistic = 152 - 124 = 28

---

Tied Group	Value	Members
<b>Time Period</b>		<b>Observations</b>
2/1/2017		1
3/1/2017		1
4/1/2017		1
5/1/2017		1
6/1/2017		1
7/1/2017		1
8/1/2017		1
9/1/2017		1
10/1/2017		1
11/1/2017		1
12/1/2017		1
1/1/2018		1
4/1/2018		1
8/1/2018		1
10/1/2018		1
12/1/2018		1
3/1/2019		1
6/1/2019		1
9/1/2019		1
12/1/2019		1
3/17/2020		1
6/24/2020		1
9/15/2020		1
11/17/2020		1

There are 0 time periods with multiple data

---

A = 0

B = 0

C = 0

D = 0

E = 0

F = 0

a = 29256

b = 109296

c = 1104

Group Variance = 1625.33

Z-Score = 0.669719

Comparison Level at 95% confidence level = -1.65463 (downward trend)

0.669719 >= -1.65463 indicating no evidence of a downward trend



## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW21-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
470000	648000	-178000	0	1
536000 ML3c	648000	-112000	0	2
562000	648000	-86000	0	3
536000 ML3c	470000	66000	1	3
562000	470000	92000	2	3
562000	536000 ML3c	26000	3	3

S Statistic = 3 - 3 = 0

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 0$  is 0.625

$S > 0$  or  $0.625 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW22R-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
4350	1810	2540	1	0
5340	1810	3530	2	0
4520	1810	2710	3	0
5340	4350	990	4	0
4520	4350	170	5	0
4520	5340	-820	5	1

S Statistic = 5 - 1 = 4

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 4$  is 0.167

$S > 0$  or  $0.167 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW23-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
116000	100000	16000	1	0
105000 2c	100000	5000	2	0
95600	100000	-4400	2	1
105000 2c	116000	-11000	2	2
95600	116000	-20400	2	3
95600	105000 2c	-9400	2	4

S Statistic = 2 - 4 = -2

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 2$  is 0.375

$S > 0$  or  $0.375 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW24-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
378000	466000	-88000	0	1
364000	466000	-102000	0	2
258000 1c	466000	-208000	0	3
364000	378000	-14000	0	4
258000 1c	378000	-120000	0	5
258000 1c	364000	-106000	0	6

S Statistic = 0 - 6 = -6

Comparing at 95% confidence level (downward trend)

Probability of obtaining S >= 6 is 0.042

**S < 0 and 0.042 < 0.05 indicating a downward trend**

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RW25-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
443000	355000	88000	1	0
477000	355000	122000	2	0
445000 1c	355000	90000	3	0
477000	443000	34000	4	0
445000 1c	443000	2000	5	0
445000 1c	477000	-32000	5	1

S Statistic = 5 - 1 = 4

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 4$  is 0.167

$S > 0$  or  $0.167 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWA-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
359000 M6	383000	-24000	0	1
349000	383000	-34000	0	2
396000	383000	13000	1	2
521000	383000	138000	2	2
441000	383000	58000	3	2
452000	383000	69000	4	2
406000 MHML1	383000	23000	5	2
349000	359000 M6	-10000	5	3
396000	359000 M6	37000	6	3
521000	359000 M6	162000	7	3
441000	359000 M6	82000	8	3
452000	359000 M6	93000	9	3
406000 MHML1	359000 M6	47000	10	3
396000	349000	47000	11	3
521000	349000	172000	12	3
441000	349000	92000	13	3
452000	349000	103000	14	3
406000 MHML1	349000	57000	15	3
521000	396000	125000	16	3
441000	396000	45000	17	3
452000	396000	56000	18	3
406000 MHML1	396000	10000	19	3
441000	521000	-80000	19	4
452000	521000	-69000	19	5
406000 MHML1	521000	-115000	19	6
452000	441000	11000	20	6
406000 MHML1	441000	-35000	20	7
406000 MHML1	452000	-46000	20	8

S Statistic = 20 - 8 = 12

Comparing at 95% confidence level (downward trend)

Probability of obtaining S >= 12 is 0.089

S > 0 or 0.089 > 0.05 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWB-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
14.6	18	-3.4	0	1
29.2	18	11.2	1	1
47.8	18	29.8	2	1
8.9 J	18	-9.1	2	2
8.4 J	18	-9.6	2	3
15.2 1c	18	-2.8	2	4
13.5 1c	18	-4.5	2	5
29.2	14.6	14.6	3	5
47.8	14.6	33.2	4	5
8.9 J	14.6	-5.7	4	6
8.4 J	14.6	-6.2	4	7
15.2 1c	14.6	0.6	5	7
13.5 1c	14.6	-1.1	5	8
47.8	29.2	18.6	6	8
8.9 J	29.2	-20.3	6	9
8.4 J	29.2	-20.8	6	10
15.2 1c	29.2	-14	6	11
13.5 1c	29.2	-15.7	6	12
8.9 J	47.8	-38.9	6	13
8.4 J	47.8	-39.4	6	14
15.2 1c	47.8	-32.6	6	15
13.5 1c	47.8	-34.3	6	16
8.4 J	8.9 J	-0.5	6	17
15.2 1c	8.9 J	6.3	7	17
13.5 1c	8.9 J	4.6	8	17
15.2 1c	8.4 J	6.8	9	17
13.5 1c	8.4 J	5.1	10	17
13.5 1c	15.2 1c	-1.7	10	18

S Statistic = 10 - 18 = -8

Comparing at 95% confidence level (downward trend)

Probability of obtaining S >= 8 is 0.199

S > 0 or 0.199 > 0.05 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWD-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
41900	36950 1c3c	4950	1	0
52600	36950 1c3c	15650	2	0
50400	36950 1c3c	13450	3	0
59300	36950 1c3c	22350	4	0
69300 1c	36950 1c3c	32350	5	0
64200 1c	36950 1c3c	27250	6	0
52600	41900	10700	7	0
50400	41900	8500	8	0
59300	41900	17400	9	0
69300 1c	41900	27400	10	0
64200 1c	41900	22300	11	0
50400	52600	-2200	11	1
59300	52600	6700	12	1
69300 1c	52600	16700	13	1
64200 1c	52600	11600	14	1
59300	50400	8900	15	1
69300 1c	50400	18900	16	1
64200 1c	50400	13800	17	1
69300 1c	59300	10000	18	1
64200 1c	59300	4900	19	1
64200 1c	69300 1c	-5100	19	2

S Statistic = 19 - 2 = 17

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 17$  is 0.0054

$S > 0$  or  $0.0054 > 0.05$  indicating no evidence of a downward trend



## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWE-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
109000	116500 2c	-7500	0	1
118000	116500 2c	1500	1	1
102000 ML	116500 2c	-14500	1	2
114000 ML	116500 2c	-2500	1	3
110000 1c	116500 2c	-6500	1	4
80800 1c	116500 2c	-35700	1	5
118000	109000	9000	2	5
102000 ML	109000	-7000	2	6
114000 ML	109000	5000	3	6
110000 1c	109000	1000	4	6
80800 1c	109000	-28200	4	7
102000 ML	118000	-16000	4	8
114000 ML	118000	-4000	4	9
110000 1c	118000	-8000	4	10
80800 1c	118000	-37200	4	11
114000 ML	102000 ML	12000	5	11
110000 1c	102000 ML	8000	6	11
80800 1c	102000 ML	-21200	6	12
110000 1c	114000 ML	-4000	6	13
80800 1c	114000 ML	-33200	6	14
80800 1c	110000 1c	-29200	6	15

S Statistic = 6 - 15 = -9

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 9$  is 0.119

$S > 0$  or  $0.119 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWF-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
42300 M6	41300	1000	1	0
58800	41300	17500	2	0
90400	41300	49100	3	0
108000	41300	66700	4	0
134000 1c	41300	92700	5	0
110000 1c	41300	68700	6	0
58800	42300 M6	16500	7	0
90400	42300 M6	48100	8	0
108000	42300 M6	65700	9	0
134000 1c	42300 M6	91700	10	0
110000 1c	42300 M6	67700	11	0
90400	58800	31600	12	0
108000	58800	49200	13	0
134000 1c	58800	75200	14	0
110000 1c	58800	51200	15	0
108000	90400	17600	16	0
134000 1c	90400	43600	17	0
110000 1c	90400	19600	18	0
134000 1c	108000	26000	19	0
110000 1c	108000	2000	20	0
110000 1c	134000 1c	-24000	20	1

S Statistic = 20 - 1 = 19

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 19$  is 0.0014

$S > 0$  or  $0.0014 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWG-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
291	344.5 1c3c	-53.5	0	1
362	344.5 1c3c	17.5	1	1
411	344.5 1c3c	66.5	2	1
465	344.5 1c3c	120.5	3	1
545 1c	344.5 1c3c	200.5	4	1
522 1c	344.5 1c3c	177.5	5	1
362	291	71	6	1
411	291	120	7	1
465	291	174	8	1
545 1c	291	254	9	1
522 1c	291	231	10	1
411	362	49	11	1
465	362	103	12	1
545 1c	362	183	13	1
522 1c	362	160	14	1
465	411	54	15	1
545 1c	411	134	16	1
522 1c	411	111	17	1
545 1c	465	80	18	1
522 1c	465	57	19	1
522 1c	545 1c	-23	19	2

S Statistic = 19 - 2 = 17

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 17$  is 0.0054

$S > 0$  or  $0.0054 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWH-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
378000 1c	230000	148000	1	0
502000	230000	272000	2	0
406000	230000	176000	3	0
474000 M6	230000	244000	4	0
477000	230000	247000	5	0
618000	230000	388000	6	0
502000	378000 1c	124000	7	0
406000	378000 1c	28000	8	0
474000 M6	378000 1c	96000	9	0
477000	378000 1c	99000	10	0
618000	378000 1c	240000	11	0
406000	502000	-96000	11	1
474000 M6	502000	-28000	11	2
477000	502000	-25000	11	3
618000	502000	116000	12	3
474000 M6	406000	68000	13	3
477000	406000	71000	14	3
618000	406000	212000	15	3
477000	474000 M6	3000	16	3
618000	474000 M6	144000	17	3
618000	477000	141000	18	3

S Statistic = 18 - 3 = 15

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 15$  is 0.015

$S > 0$  or  $0.015 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWI-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
519000 1c	642000	-123000	0	1
544000	642000	-98000	0	2
875000	642000	233000	1	2
775000	642000	133000	2	2
544000	519000 1c	25000	3	2
875000	519000 1c	356000	4	2
775000	519000 1c	256000	5	2
875000	544000	331000	6	2
775000	544000	231000	7	2
775000	875000	-100000	7	3

S Statistic = 7 - 3 = 4

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 4$  is 0.242

$S > 0$  or  $0.242 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWJ-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
2150 1c	2330	-180	0	1
3140	2330	810	1	1
3430	2330	1100	2	1
805	2330	-1525	2	2
744	2330	-1586	2	3
1060	2330	-1270	2	4
3140	2150 1c	990	3	4
3430	2150 1c	1280	4	4
805	2150 1c	-1345	4	5
744	2150 1c	-1406	4	6
1060	2150 1c	-1090	4	7
3430	3140	290	5	7
805	3140	-2335	5	8
744	3140	-2396	5	9
1060	3140	-2080	5	10
805	3430	-2625	5	11
744	3430	-2686	5	12
1060	3430	-2370	5	13
744	805	-61	5	14
1060	805	255	6	14
1060	744	316	7	14

S Statistic = 7 - 14 = -7

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 7$  is 0.191

$S > 0$  or  $0.191 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWK-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
25100 1c	21200	3900	1	0
21600	21200	400	2	0
30300	21200	9100	3	0
21400	21200	200	4	0
36800	21200	15600	5	0
26500	21200	5300	6	0
21600	25100 1c	-3500	6	1
30300	25100 1c	5200	7	1
21400	25100 1c	-3700	7	2
36800	25100 1c	11700	8	2
26500	25100 1c	1400	9	2
30300	21600	8700	10	2
21400	21600	-200	10	3
36800	21600	15200	11	3
26500	21600	4900	12	3
21400	30300	-8900	12	4
36800	30300	6500	13	4
26500	30300	-3800	13	5
36800	21400	15400	14	5
26500	21400	5100	15	5
26500	36800	-10300	15	6

S Statistic = 15 - 6 = 9

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 9$  is 0.119

$S > 0$  or  $0.119 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWL-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
142000 1c	166000	-24000	0	1
124000	166000	-42000	0	2
121000	166000	-45000	0	3
96300	166000	-69700	0	4
116000 2c	166000	-50000	0	5
126000	166000	-40000	0	6
124000	142000 1c	-18000	0	7
121000	142000 1c	-21000	0	8
96300	142000 1c	-45700	0	9
116000 2c	142000 1c	-26000	0	10
126000	142000 1c	-16000	0	11
121000	124000	-3000	0	12
96300	124000	-27700	0	13
116000 2c	124000	-8000	0	14
126000	124000	2000	1	14
96300	121000	-24700	1	15
116000 2c	121000	-5000	1	16
126000	121000	5000	2	16
116000 2c	96300	19700	3	16
126000	96300	29700	4	16
126000	116000 2c	10000	5	16

S Statistic = 5 - 16 = -11

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 11$  is 0.068

$S > 0$  or  $0.068 > 0.05$  indicating no evidence of a downward trend



## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWM-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
159000	163500	-4500	0	1
152000 M61c	163500	-11500	0	2
139000	163500	-24500	0	3
128000	163500	-35500	0	4
138000 2c	163500	-25500	0	5
125000	163500	-38500	0	6
152000 M61c	159000	-7000	0	7
139000	159000	-20000	0	8
128000	159000	-31000	0	9
138000 2c	159000	-21000	0	10
125000	159000	-34000	0	11
139000	152000 M61c	-13000	0	12
128000	152000 M61c	-24000	0	13
138000 2c	152000 M61c	-14000	0	14
125000	152000 M61c	-27000	0	15
128000	139000	-11000	0	16
138000 2c	139000	-1000	0	17
125000	139000	-14000	0	18
138000 2c	128000	10000	1	18
125000	128000	-3000	1	19
125000	138000 2c	-13000	1	20

S Statistic = 1 - 20 = -19

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 19$  is 0.0014

**S < 0 and 0.0014 < 0.05 indicating a downward trend**

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWO-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
214000 1c	246000 M61c4c	-32000	0	1
204000	246000 M61c4c	-42000	0	2
202000	246000 M61c4c	-44000	0	3
223000	246000 M61c4c	-23000	0	4
204000 3c	246000 M61c4c	-42000	0	5
155000	246000 M61c4c	-91000	0	6
204000	214000 1c	-10000	0	7
202000	214000 1c	-12000	0	8
223000	214000 1c	9000	1	8
204000 3c	214000 1c	-10000	1	9
155000	214000 1c	-59000	1	10
202000	204000	-2000	1	11
223000	204000	19000	2	11
204000 3c	204000	0	2	11
155000	204000	-49000	2	12
223000	202000	21000	3	12
204000 3c	202000	2000	4	12
155000	202000	-47000	4	13
204000 3c	223000	-19000	4	14
155000	223000	-68000	4	15
155000	204000 3c	-49000	4	16

S Statistic = 4 - 16 = -12

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 12$  is 0.0515

$S > 0$  or  $0.0515 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWP-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
3.57e+006 1c	3.09e+006	480000	1	0
3.88e+006	3.09e+006	790000	2	0
3.86e+006	3.09e+006	770000	3	0
3.16e+006	3.09e+006	70000	4	0
3.81e+006	3.09e+006	720000	5	0
3.52e+006 MH	3.09e+006	430000	6	0
3.88e+006	3.57e+006 1c	310000	7	0
3.86e+006	3.57e+006 1c	290000	8	0
3.16e+006	3.57e+006 1c	-410000	8	1
3.81e+006	3.57e+006 1c	240000	9	1
3.52e+006 MH	3.57e+006 1c	-50000	9	2
3.86e+006	3.88e+006	-20000	9	3
3.16e+006	3.88e+006	-720000	9	4
3.81e+006	3.88e+006	-70000	9	5
3.52e+006 MH	3.88e+006	-360000	9	6
3.16e+006	3.86e+006	-700000	9	7
3.81e+006	3.86e+006	-50000	9	8
3.52e+006 MH	3.86e+006	-340000	9	9
3.81e+006	3.16e+006	650000	10	9
3.52e+006 MH	3.16e+006	360000	11	9
3.52e+006 MH	3.81e+006	-290000	11	10

S Statistic = 11 - 10 = 1

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 1$  is 0.5

$S > 0$  or  $0.5 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWQ-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

---

<b>Xj</b>	<b>Xk</b>	<b>Xj - Xk</b>	<b>Positives</b>	<b>Negatives</b>
270000 1c	348000	-78000	0	1
258000	348000	-90000	0	2
312000	348000	-36000	0	3
255000	348000	-93000	0	4
280000 3c	348000	-68000	0	5
257000	348000	-91000	0	6
258000	270000 1c	-12000	0	7
312000	270000 1c	42000	1	7
255000	270000 1c	-15000	1	8
280000 3c	270000 1c	10000	2	8
257000	270000 1c	-13000	2	9
312000	258000	54000	3	9
255000	258000	-3000	3	10
280000 3c	258000	22000	4	10
257000	258000	-1000	4	11
255000	312000	-57000	4	12
280000 3c	312000	-32000	4	13
257000	312000	-55000	4	14
280000 3c	255000	25000	5	14
257000	255000	2000	6	14
257000	280000 3c	-23000	6	15

S Statistic = 6 - 15 = -9

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 9$  is 0.119

$S > 0$  or  $0.119 > 0.05$  indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWR-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
3.62e+006 1c	2.61e+006 1c4c	1.01e+006	1	0
4.05e+006	2.61e+006 1c4c	1.44e+006	2	0
814000	2.61e+006 1c4c	-1.796e+006	2	1
2.53e+006	2.61e+006 1c4c	-80000	2	2
1.83e+006	2.61e+006 1c4c	-780000	2	3
996000 1c	2.61e+006 1c4c	-1.614e+006	2	4
4.05e+006	3.62e+006 1c	430000	3	4
814000	3.62e+006 1c	-2.806e+006	3	5
2.53e+006	3.62e+006 1c	-1.09e+006	3	6
1.83e+006	3.62e+006 1c	-1.79e+006	3	7
996000 1c	3.62e+006 1c	-2.624e+006	3	8
814000	4.05e+006	-3.236e+006	3	9
2.53e+006	4.05e+006	-1.52e+006	3	10
1.83e+006	4.05e+006	-2.22e+006	3	11
996000 1c	4.05e+006	-3.054e+006	3	12
2.53e+006	814000	1.716e+006	4	12
1.83e+006	814000	1.016e+006	5	12
996000 1c	814000	182000	6	12
1.83e+006	2.53e+006	-700000	6	13
996000 1c	2.53e+006	-1.534e+006	6	14
996000 1c	1.83e+006	-834000	6	15

S Statistic = 6 - 15 = -9

Comparing at 95% confidence level (downward trend)

Probability of obtaining S >= 9 is 0.119

S > 0 or 0.119 > 0.05 indicating no evidence of a downward trend

## Mann-Kendall Trend Analysis

Parameter: Zinc

Location: RWS-MWI

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
1.04e+006 1c	820000	220000	1	0
946000	820000	126000	2	0
1.07e+006	820000	250000	3	0
74300	820000	-745700	3	1
760000	820000	-60000	3	2
919000	820000	99000	4	2
946000	1.04e+006 1c	-94000	4	3
1.07e+006	1.04e+006 1c	30000	5	3
74300	1.04e+006 1c	-965700	5	4
760000	1.04e+006 1c	-280000	5	5
919000	1.04e+006 1c	-121000	5	6
1.07e+006	946000	124000	6	6
74300	946000	-871700	6	7
760000	946000	-186000	6	8
919000	946000	-27000	6	9
74300	1.07e+006	-995700	6	10
760000	1.07e+006	-310000	6	11
919000	1.07e+006	-151000	6	12
760000	74300	685700	7	12
919000	74300	844700	8	12
919000	760000	159000	9	12

S Statistic = 9 - 12 = -3

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 3$  is 0.386

$S > 0$  or  $0.386 > 0.05$  indicating no evidence of a downward trend