Phase II Investigation
Work Plan

Area A: Parcel A8
Sparrows Point Terminal, LLC
Sparrows Point, Maryland

Prepared for:
EnviroAnalytics Group
1650 Des Peres Road, Suite 230
Saint Louis, Missouri 63131

Prepared by:
ARM Group Inc.
9175 Guilford Road
Suite 310
Columbia, MD 21046

October 23, 2015

ARM Project 150298M

Respectfully submitted,

Eric S. Magdar
Senior Geologist

T. Neil Peters, P.E.
Vice President

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1.0 INTRODUCTION

1.1 Introduction

ARM Group Inc. (ARM), on behalf of EnviroAnalytics Group (EAG), has prepared the following Work Plan to complete a Phase II site investigation on a portion of the Sparrows Point Terminal, LLC property that has been designated as Area A, Parcel A8 (the Site). Parcel A8 is comprised of 27.1 acres of the approximately 3,100-acre former plant property located as shown on **Figure 1**.

Site characterization of Parcel A8 will be performed in compliance with requirements pursuant to the following:

- Administrative Consent Order (ACO) between Sparrows Point Terminal, LLC (SPT) 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).

An application to enter the Site into the Maryland Department of the Environment Voluntary Cleanup Program (MDE-VCP) was submitted to MDE on September 10, 2014. The Site's current and anticipated future use is Tier 3 (Industrial), and plans for the Site include demolition and redevelopment over the next several years.

Parcel A8 is part of the acreage that was removed (Carveout Area) from inclusion in the Multimedia Consent Decree between Bethlehem Steel Corporation, the United States Environmental Protection Agency (EPA), and the Maryland Department of the Environment (MDE) (effective October 8, 1997) as documented in correspondence received from EPA on September 12, 2014. Based on this agreement, EPA has determined that no further investigation or corrective measures will be required under the terms of the Consent Decree for the Carveout Area. However, the SA reflects that the property within the Carveout Area will remain subject to the EPA's RCRA Corrective Action authorities.

1.2 Site Background

From the late 1800s until 2012, the production and manufacturing of steel was conducted at Sparrows Point. Iron and steel production operations and processes at Sparrows Point 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.

Groundcover at the Site is comprised of 97% natural soils and 3% slag fill based on the approximate shoreline of the Sparrows Point Peninsula in 1916, as provided on **Figure 2** (Adapted from Figure 3 on the Description of Current Conditions Report (DCC) report prepared by Rust Environmental and Infrastructure, dated January 1998). Parcel A8 was formerly partially occupied by several buildings making up the Oxygen Plant (also referred to as the Air Products Facility). The Oxygen Plant was an air separation unit. This facility supplied oxygen and nitrogen gas to RG Steel during its operation. Pure gases were separated from air by first cooling it until it liquefies, then selectively distilling the components at their various boiling temperatures. After its closure, equipment was salvaged from the facility and partial demolition occurred. Nearly all of these buildings have since been demolished, while concrete slabs remain on grade. There are no prior soil or soil gas samples from this parcel, and no groundwater data or existing groundwater wells located within the parcel boundaries.

1.3 Sampling Design and Rationale

Across the whole Sparrows Point property, several buildings and facilities may have been historical sources of environmental contamination. These areas were identified as targets for sampling through a careful review of historical documents. When a sampling target was identified, at least two borings were placed at or next to its location using GIS software (ArcMap Version 10.2.2). The first sampling targets to be identified were Recognized Environmental Conditions (RECs) located within the Site boundaries, as shown on the REC Location Map provided in the Phase I Environmental Site Assessment (ESA) prepared by Weaver Boos Consultants dated May 19, 2014. Additional Findings (non-RECs) from the Phase I ESA which were identified as Potential Environmental Concerns were also reviewed and targeted as applicable. The following RECs were identified within the Site boundaries: Exposed Cold Box Insulation (Finding 242, REC 11A) and Oily Surface Water Discharge (Finding 243, REC 11B). Finding 242 identifies cold boxes which were cut open and abandoned during the partial demolition of the site. The insulation of the cryogenic cold boxes was thought to contain asbestos which could enter water and soil in the area. Subsequent testing during demolition (**Appendix A**) revealed no presence of asbestos in the cold box insulation (Gypsum Insulation) samples, reducing the potential for environmental risk. Waste characterization testing of the cold box insulation (Caliber Analytical Services reports contained in **Appendix A**) indicated the insulation waste to be non-hazardous. However, the testing identified non-friable asbestos in some of the building materials (siding, floor tile, roofing, etc.), such that asbestos could be present in surficial soil in the vicinity of the demolished buildings.

Finding 243, REC 11B identifies a discharge pipe leading from beneath the Air Production Facility to the High Head Reservoir. According to the Phase I ESA (Weaver Boos), oily surface water was observed in the discharge area during a site visit. Booms were placed around the discharge pipe, although oil was observed on both sides of the booms. The source and nature of the oily surface layer were unknown. On October 15th, 2015, ARM personnel conducted a site

walk at the supposed location of REC 11B. ARM located a discharge pipe in the area, but observed no evidence of staining on the ground or oily sheen on the surface water. A baffle was observed in the reservoir at this location, but not a sorbent boom. Several photographs were taken during the site walk, which are included as **Appendix B.** The REC 11B area is still targeted for sampling as part of this work plan.

Following the identification and evaluation of all RECs at the Site, SWMUs and Areas of Concern (AOCs) were identified from the DCC report. There were no additional Findings, SWMUs, or AOCs that were identified at the Site.

Following the identification of all SWMUs and AOCs, four (4) sets of historical site drawings were reviewed to identify additional sampling targets. These site drawings included the 5000 Set (Plant Arrangement), the 5100 Set (Plant Index), the 5500 Set (Plant Sewer Lines), and a set of drawings indicating coke oven gas distribution drip leg locations. There were no drip legs identified inside the boundary of Parcel A8. A summary of the specific drawings covering the Site is presented in the table below:

Parcel A8 Historical Site Drawings Details

Set Name	Typical Features Shown	Drawing Number	Original Date Drawn	Latest Revision Date
Plant Arrangement	Roads, water bodies, building/structure footprints, electric lines, above-ground pipelines (e.g.: steam, nitrogen, etc.)	5056	4/27/1959	3/11/1982
		5061	2/8/1962	3/11/1982
Plant Index	Roads, water bodies, demolished buildings/structures, electric lines, above-ground pipelines	5156	*Unknown*	11/10/2008
		5161	*Unknown*	3/6/2008
Plant Sewer Lines	Same as above plus trenches, sumps, underground piping (includes pipe materials)	5556	4/5/1961	2/4/1976
		5561	2/5/1976	2/5/1976
Drip Legs	Coke Oven Gas Drip Legs Locations	5888	*Unknown*	Sept. 1988

Sampling target locations were identified if the historical site drawings depicted industrial activities or a specific feature at a location that may have been a source of environmental contamination that impacted the Site. Based on this criterion, additional sampling targets identified at the Site include a Flammable Materials Storage Building (identified during a Site-walk) and the general area formerly occupied by the Air Products Facility. The number of proposed borings that target a specific feature is directly related to the size and likely historical presence of materials that could have impacted the Site. The full list of sampling targets, along with the specific rationale for sampling each, is provided as **Appendix C.**

Additional sample locations were added to fill in areas with insufficient coverage (large spatial gaps between proposed borings) within the Site and to meet the sample density requirements set forth in Worksheet 17 – Sampling Design and Rationale. Parcel A8 contains a total of 27.1 acres: 25.1 acres without engineered barriers and 2.0 acres with engineered barriers (road paving). In accordance with the relevant sampling density requirements, a minimum of 17 soil boring locations are required in the area without engineered barriers, and a minimum of 2 soil boring locations are required in the paved areas. **Figures 3 through 7** show the proposed borings and the Site boundary overlain on the relevant figures and drawings from the historical documents.

2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

2.1 Project Personnel

The site characterization of Area A Parcel A8 will be conducted by ARM under a contract with EAG. ARM will provide project planning, field sampling and reporting support. The required drilling, Geoprobe® and laboratory services will be contracted directly by EAG. The management, field, and laboratory responsibilities of key project personnel are defined in this section.

The ARM Project Manager, Mr. Eric Magdar is responsible for ensuring that all activities are conducted in accordance with this Work Plan and the contract requirements. Mr. Magdar will provide technical coordination with the MDE, EPA and EAG. The ARM Project Manager is responsible for managing all operations conducted for this project including:

- Ensure all personnel assigned to this project review the technical project plans before initiation of all tasks associated with the project.
- Review of project plans in a timely manner.
- Ensure proper methods and procedures are implemented to collect representative samples.
- Monitor the project budget and schedule and ensure the availability of necessary personnel, equipment, subcontractors, and other necessary services.

The lead ARM Geologist, Mr. Stewart Kabis, will be responsible for coordinating field activities including the collection, preservation, documentation and shipment of samples. Mr. Kabis will directly communicate with the ARM Project Manager and Laboratory Project Manager on issues pertaining to sample shipments, schedules, container requirements, and other necessary issues. Mr. Kabis is also responsible for ensuring the accuracy of sample documentation including the completion of the chain-of-custody (CoC) forms.

Pace Analytical Services, Inc. (PACE) of Greensburg, Pennsylvania will provide the analytical services for this project. The address for the laboratory is as follows:

Pace Analytical
1638 Roseytown Road
Greensburg, PA 15601

During the field activities, the Laboratory Project Manager will coordinate directly with the ARM Project Manager on issues regarding sample shipments, schedules, container requirements, and other field-laboratory logistics. The Laboratory Project Manager will monitor the daily

activities of the laboratory, coordinate all production activities, and ensure that work is being conducted as specified in this document. Ms. Samantha Bayura will be the Laboratory Project Manager for PACE on this project.

2.2 Health and Safety Issues

Because of the potential presence of metals, petroleum hydrocarbons and chlorinated hydrocarbons in the soil and groundwater at the Site, the investigation will be conducted under a site-specific Health and Safety Plan, included as **Appendix D,** to protect investigation workers from possible exposure to contaminated soil and groundwater.

Based on information provided to ARM, the planned site activities will be conducted under modified Level D personal protection. The requirements of the modified Level D protection are defined in ARM's site specific Health and Safety Plan. All field personnel assigned for work at the Site have been trained in accordance with the Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response standard (29 CFR 1910.120) and other applicable OSHA training standards. All field staff will be experienced in hazardous waste site work, use of personal protective equipment (PPE), and emergency response procedures.

3.0 FIELD ACTIVITIES AND PROCEDURES

3.1 Utility Clearance

ARM will take appropriate precautions to avoid subsurface utilities and structures during the site investigation. Prior to initiating any subsurface investigations, ARM will attempt to determine the location of utilities in the project area using the Miss Utility system. Additionally, any required state or local permits will be acquired prior to the commencement of site activities.

In addition to the Miss Utility system, EAG will clear each proposed boring with utility personnel currently working on the property. To facilitate this, ARM will locate with a GPS and mark all proposed boring locations in the field.

3.2 Sampling Plan

The purpose of this site characterization is to identify any existing hazardous conditions across the entire Site. A summary of the RECs and other areas of concern that will be investigated, along with the proposed boring identification number and the analyses being performed, have been provided as **Appendix B.**

This Work Plan presents the methods and protocols to be used to complete the site characterization. These methods and procedures follow the MDE-VCP and EPA guidelines. Information regarding the project organization, field activities and sampling methods, sampling equipment, sample handling and management procedures, the laboratory analytical methods and selected laboratory, quality control and quality assurance procedures, investigation-derived waste (IDW) management methods, reporting requirements are described in detail in the Quality Assurance Project Plan (QAPP) that has been developed to support the investigation and remediation of the Sparrows Point Terminal Site (Sparrows Point Terminal Quality Assurance Project Plan, ARM Group Inc.).

The proposed schedule of this investigation is contained in this work plan. All site characterization activities will be conducted under the site-specific health and safety plan (HASP), which is provided as **Appendix D**.

3.3 Soil Investigation

Soil samples will be collected from the locations identified on **Figures 3 through 7**, and in accordance with procedures referenced in the Quality Assurance Plan (QAPP) Worksheet 21—Field SOPs (Standard Operating Procedures) and Appendix A of the QAPP.

Regarding soil sampling depth, a shallow sample will be collected from the 0 to 1 foot depth interval, and a deeper sample be collected from the 4 to 5 foot depth interval. One additional set of samples will also be collected from the 9 to 10 foot depth interval if groundwater has not been encountered; however, these samples will be held by the laboratory pending the analysis of the 0 to 1 and 4 to 5 foot depth interval samples. If the PID or other field observations indicate contamination to exist at a depth greater than 5 feet bgs but less than 9 feet bgs, and is above the water table, the sample from the 4-5 foot interval may be shifted to the depth interval indicated by the PID response. It should be noted that no soil samples will be collected from a depth that is below the water table. All boring samples will be collected using a Geoprobe in accordance with the methods specified in SOP No. 009 Sub-Surface Soil Sampling.

After soil sampling has been concluded at a location, all down-hole soil sampling equipment will be decontaminated according to procedures referenced in the QAPP Worksheet 21—Field SOPs and Appendix A of the QAPP, SOP No. 016 Equipment Decontamination. The decontamination procedures that will be used during the course of this investigation include Decontamination Area (Section 3.1 of the SOP), Decontamination of Sampling Equipment (Section 3.5), Decontamination of Groundwater Sampling Pumps (Section 3.6), Decontamination of Measurement Devices & Monitoring Equipment (Section 3.7), Decontamination of Subsurface Drilling Equipment (Section 3.8), and Document and Record Keeping (Section 5).

All soil samples will be analyzed for TCL-VOCs, TCL-SVOCs, TAL-Metals, Oil & Grease, hexavalent chromium, and cyanide. The shallow soil samples collected across the Site from the 0-1 foot bgs interval will also be analyzed for PCBs. Additionally, the soil samples collected within the 0-1 foot bgs interval will be analyzed for asbestos, since prior testing (**Appendix A**) identified asbestos at levels exceeding the EPA standard of 1% in some of the materials of the demolished buildings. Soil samples associated with the Oily Surface Water Discharge will also be analyzed for TPH-DRO and TPH-GRO. Analytical methods, sample containers, preservatives, and holding times for the sample analyses are listed in the QAPP Worksheet 19 & 30—Sample Containers, Preservation, and Holding Times.

3.4 Groundwater Investigation

There are no existing wells present within the boundaries of Parcel A8. Temporary piezometers will be installed at the locations identified on **Figure 7** in accordance with the procedures referenced in the QAPP Worksheet 21—Field SOPs (SOP No. 28 – Direct Push Installation and Construction of Temporary Groundwater Sample Collection Points. Sample locations where piezometers will be installed include: A8-002-PZ, A8-004-PZ, A8-007-PZ, A8-009-PZ, A8-013-PZ, A8-015-PZ, and A8-017-PZ. Groundwater samples will be collected from these temporary piezometers in accordance with the procedures referenced in the QAPP Worksheet 21—Field SOPs (SOP No. 6 – Groundwater Sampling).

All groundwater samples will be analyzed for TCL-VOCs, TCL-SVOCs, TAL-Dissolved Metals, Oil & Grease, hexavalent chromium, and cyanide. Additionally, groundwater samples associated with the Oily Surface Water Discharge will also be analyzed for TPH-DRO and TPH-GRO. Analytical methods, sample containers, preservatives, and holding times for the sample analyses are listed in the QAPP Worksheet 19 & 30—Sample Containers, Preservation, and Holding Times.

ARM will check each piezometer for the presence of LPH using an oil-water interface probe, in accordance with methods referenced in the QAPP Worksheet 21—Field SOPs (SOP No. 19 – Depth to Groundwater and NAPL Measurements) and Appendix A of the QAPP. All piezometers will also be surveyed to obtain groundwater elevation data. The elevation data from these piezometers will be used to create a groundwater contour map indicating groundwater flow direction.

Once each PVC piezometer has been sampled, surveyed and/or checked for LPH, it will be emptied, removed and discarded. The boreholes will then be abandoned in accordance with Maryland abandonment standards as stated in COMAR 26.04.04.34 through 36.

3.5 Sample Documentation

3.5.1 Sample Numbering

Samples will be numbered in accordance with the QAPP Appendix C—Data Management Plan.

3.5.2 Sample Labels & Chain-of-Custody Forms

Samples will be labeled and recorded on the Chain-of-Custody form in accordance with methods referenced in the QAPP Worksheet 26 & 27—Sample Handling, Custody and Disposal.

3.6 Laboratory Analysis

EAG has contracted PACE of Greensburg, Pennsylvania to perform the laboratory analysis for this project. All sample analyses to be performed are listed in **Appendix C**. The samples will be submitted for analysis with a standard turnaround time (approximately 5 work days). The specific list of compounds and analytes that the soil and groundwater samples will be analyzed for, as well as the quantitation limits and project action limits, is provided in Worksheet 15 – Project Action Limits and Laboratory-Specific Detection/Quantitation Limits.

4.0 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

All soil and groundwater samples will be collected using dedicated equipment including new soil core liners and polyethylene tubing. Each cooler temperature will be measured and documented by the laboratory upon receipt.

Quality control (QC) samples are collected during field studies for various purposes, among which are to isolate site effects (control samples), to define background conditions (background sample), and to evaluate field/laboratory variability (spikes and blanks, trip blanks, duplicates, etc.).

The following QC samples will be submitted for analysis to support the data validation:

- Trip Blank – at a rate of one per day
  - Soil – VOCs only
  - Water - VOCs only
- Blind Field Duplicate – at a rate of one duplicate per twenty samples
  - Soil - VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, Oil & Grease (O&G), PCBs, Hexavalent Chromium, and Cyanide
  - Water - VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, O&G, Hexavalent Chromium, and Cyanide
- Matrix Spike/Matrix Spike Duplicate – at a rate of one per twenty samples
  - Soil - VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, O&G, PCBs, Hexavalent Chromium, and Cyanide
  - Water - VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, O&G, Hexavalent Chromium, and Cyanide
- Field Blank and Equipment Blank
  - Soil - VOC, SVOC, Metals, TPH-DRO, TPH-GRO, O&G, Hexavalent Chromium, Cyanide
  - Water - VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, O&G, Hexavalent Chromium, and Cyanide

The QC samples will be collected and analyzed in accordance with the QAPP Worksheet 12—Measurement Performance Criteria, Worksheet 20—Field Quality Control and Worksheet 28—Analytical Quality Control and Corrective Action.

Since all samples will be collected using dedicated disposable sampling equipment, no equipment blanks will be required.

5.0 MANAGEMENT OF INVESTIGATION-DERIVED WASTE

All investigation derived waste (IDW) procedures will be carried out in accordance with methods referenced in the QAPP Worksheet 21—Field SOPs (SOP No. 5 – Investigation-Derived Wastes Management) and Appendix A of the QAPP**.**

6.0 DATA VALIDATION

All data validation procedures will be carried out in accordance with the QAPP Worksheet 34—Data Verification and Validation Inputs, Worksheet 35- Data Verification Procedures and Worksheet 36-Data Validation Procedures.

7.0 REPORTING

Following the receipt of all analytical results from "Area A Parcel A8", ARM will prepare a Phase II Site Investigation Report that will document the sample collection procedures and supporting rationale, and present and interpret the analytical results. All results will be presented in tabular and graphical formats as appropriate to best summarize the data for future use. The sample results will be compared against relevant criteria such as the MDE Generic Numeric Cleanup Standards and the EPA Regional Screening Levels, considering appropriate land use factors and institutional controls, to identify contaminants and exposure pathways of potential concern. ARM will also present recommendations for any additional site investigation activities if warranted.

8.0 SCHEDULE

The activities below are planned so that they may be completed within six months of agency approval of this Work Plan. In addition, the investigation report will be submitted to the regulatory authorities within two months of completion of the field investigation in accordance with these approximate timeframes:

- the sample collection activities will take approximately four (4) weeks to complete (including mobilization activities) once approval of the work plan is received;
- the soil and groundwater sample analysis, data validation and review is expected to require an additional six (6) weeks to complete; and
- the preparation of the investigation report, including an internal Quality Assurance Review cycle, will require another four (4) weeks.

FIGURES

ARM Group Inc.
Earth Resource Engineers and Consultants

0 375 750 1,500 Feet

- Site Boundary
- Area A Boundaries
- Area B Boundaries
- Private Property

Sparrows Point
Area A and Area B Parcels

September 17, 2015

EnviroAnalytics Group	Sparrows Point Terminal
Area A: Project 150298M Area B: Project 150300M	Baltimore County, MD

Figure 1

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0 375 750 1,500 Feet

Site Boundary
Area A Boundaries
Area B Boundaries
Land
Marsh
Water

Approximate Shoreline in 1916
September 17, 2015

Adapted from Figure 2-5 of the Description of Current Conditions Report prepared by Rust Environmental and Infrastructure, dated January 1998

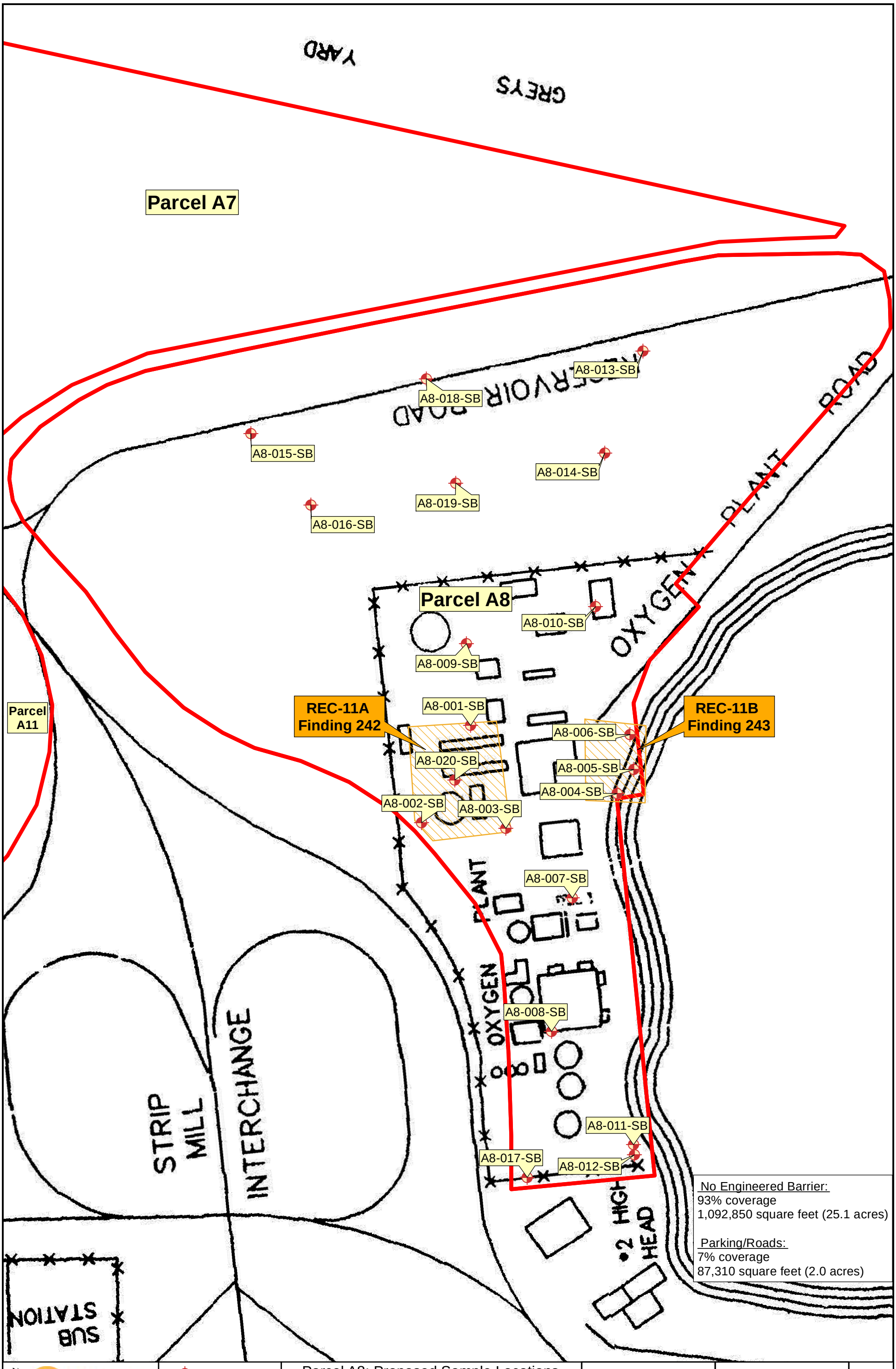
EnviroAnalytics Group

Area A: Project 150298M
Area B: Project 150300M

Sparrows Point Terminal

Baltimore County, MD

Figure 2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Parcel A8
Parcel A11
REC-11A Finding 242
REC-11B Finding 243
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A8-005-SB
A8-006-SB
A8-007-SB
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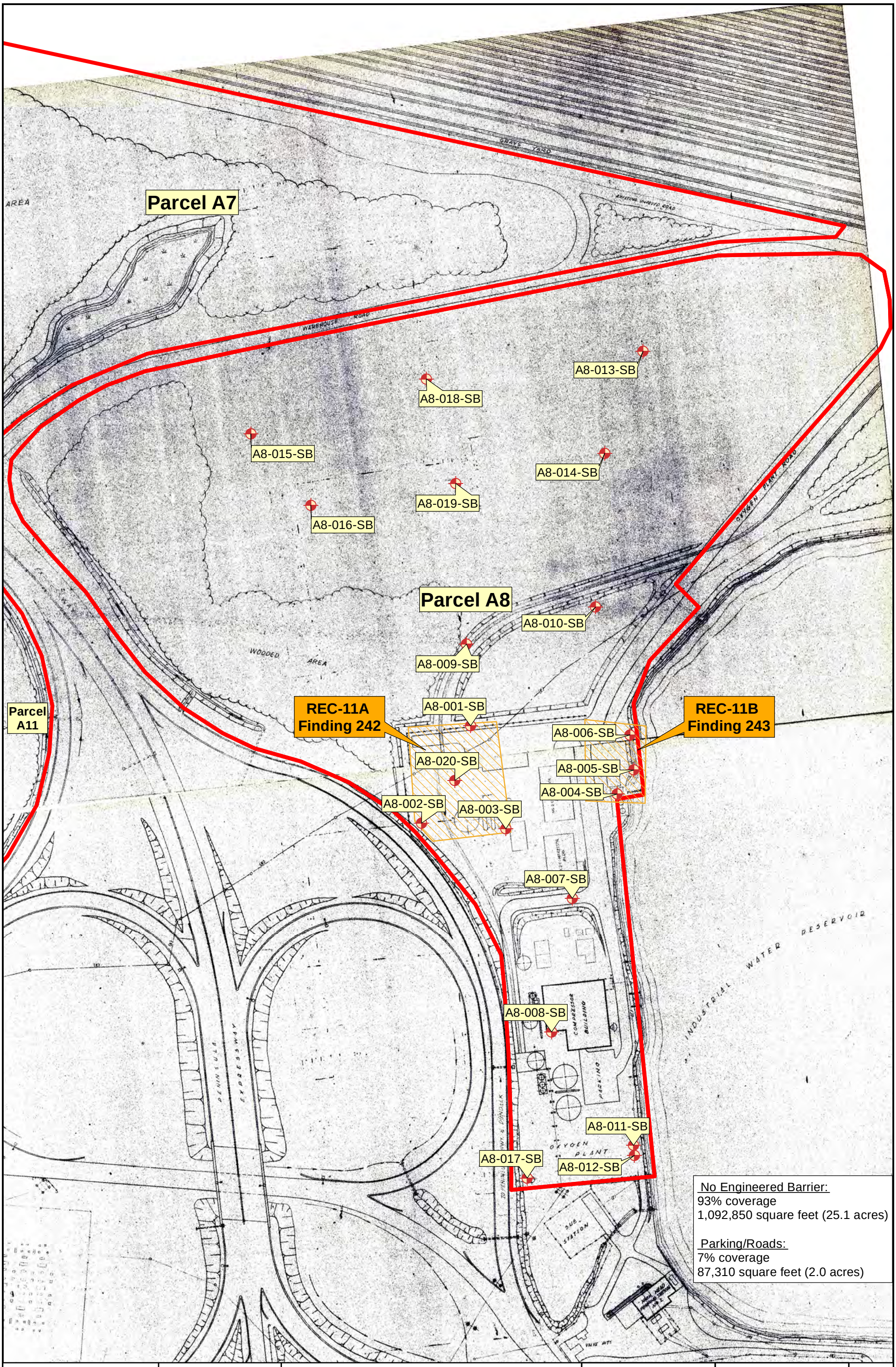
A8-014-SB
A8-015-SB
A8-016-SB
A8-017-SB
A8-018-SB
A8-019-SB
A8-020-SB
YARD
GREYS
RESERVOIR ROAD
PLANT ROAD
OXYGEN PLANT
OXYGEN
STRIP MILL
INTERCHANGE
SUB STATION
#2 HIGH HEAD
No Engineered Barrier:
93% coverage
1,092,850 square feet (25.1 acres)
Parking/Roads:
7% coverage
87,310 square feet (2.0 acres)
ARM Group Inc.
Earth Resource Engineers and Consultants
0 40 80 160
Feet
Proposed Boring
A8 REC Areas
A8 Boundary
Parcel A8: Proposed Sample Locations
Locations of SWMUs, AOCs,
and Facility Areas
October 23, 2015
EnviroAnalytics Group
Sparrows Point Terminal
ARM Project 150298M
Baltimore County, MD
Figure
3



ARM Group Inc.
Earth Resource Engineers and Consultants

0 40 80 160 Feet

Proposed Boring
A8 REC Areas
A8 Boundary

Parcel A8: Proposed Sample Locations
Historical Site Drawings - 5000 Set

October 23, 2015

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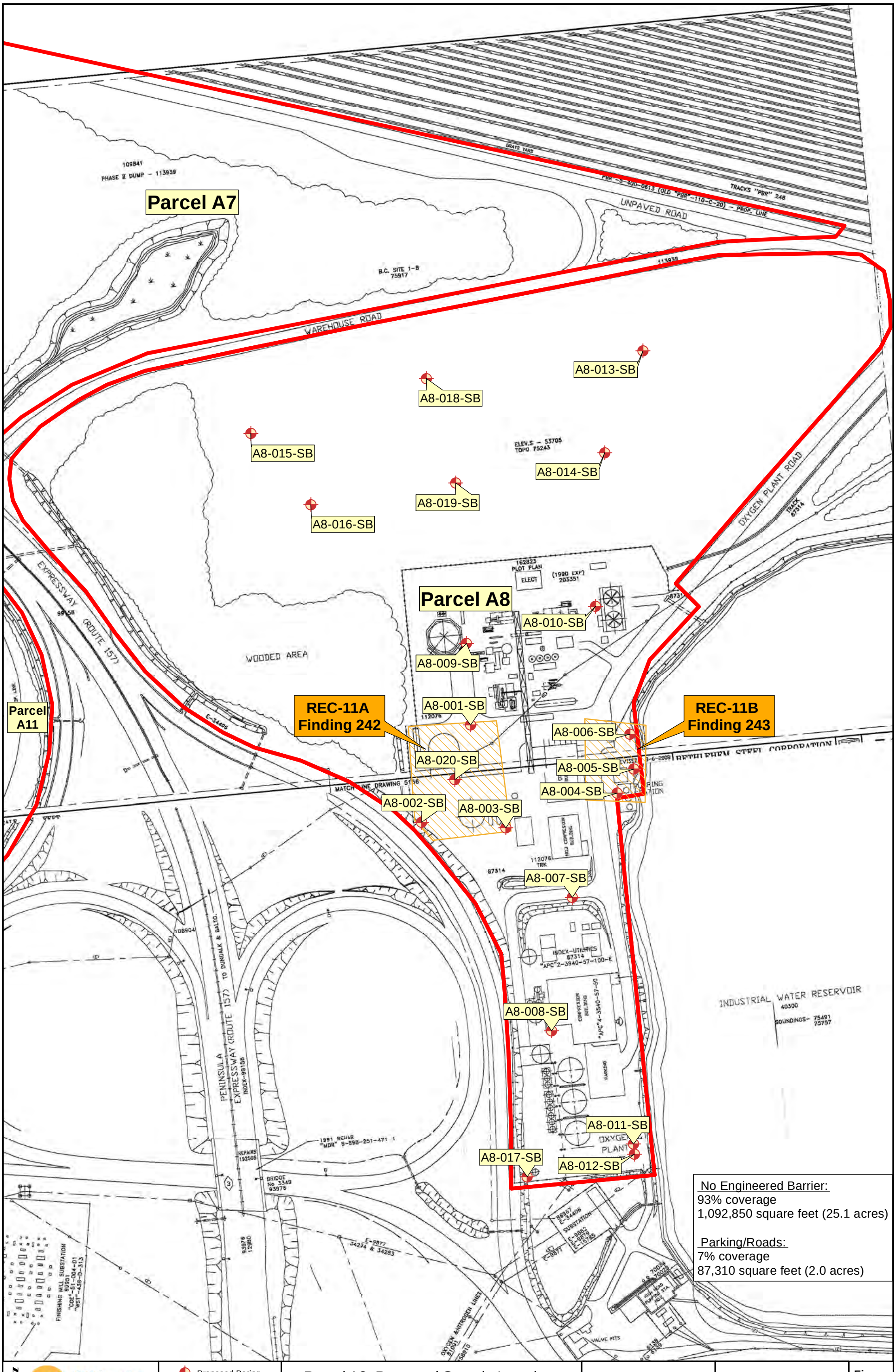
ARM Project 150298M	Baltimore County, MD

Figure 4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A8-008-SB
A8-009-SB
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A8-013-SB
A8-014-SB
A8-015-SB
A8-016-SB
A8-017-SB
A8-018-SB
A8-019-SB
A8-020-SB
WAREHOUSE ROAD
UNPAVED ROAD
GRAYS YARD
TRACKS "PBR" 248
PBR-S-400-0613 (OLD "PBR"-110-C-20) - PROP. LINE
PHASE II DUMP - 113939
B.C. SITE 1-B 75917
WOODED AREA
EXPRESSWAY (ROUTE 157)
PENINSULA EXPRESSWAY (ROUTE 157)
OXYGEN PLANT ROAD
INDUSTRIAL WATER RESERVOIR
BETHLEHEM STEEL CORPORATION
No Engineered Barrier:
93% coverage
1,092,850 square feet (25.1 acres)
Parking/Roads:
7% coverage
87,310 square feet (2.0 acres)
ARM Group Inc.
Earth Resource Engineers and Consultants
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Parcel A8: Proposed Sample Locations
Historical Site Drawings - 5100 Set
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EnviroAnalytics Group
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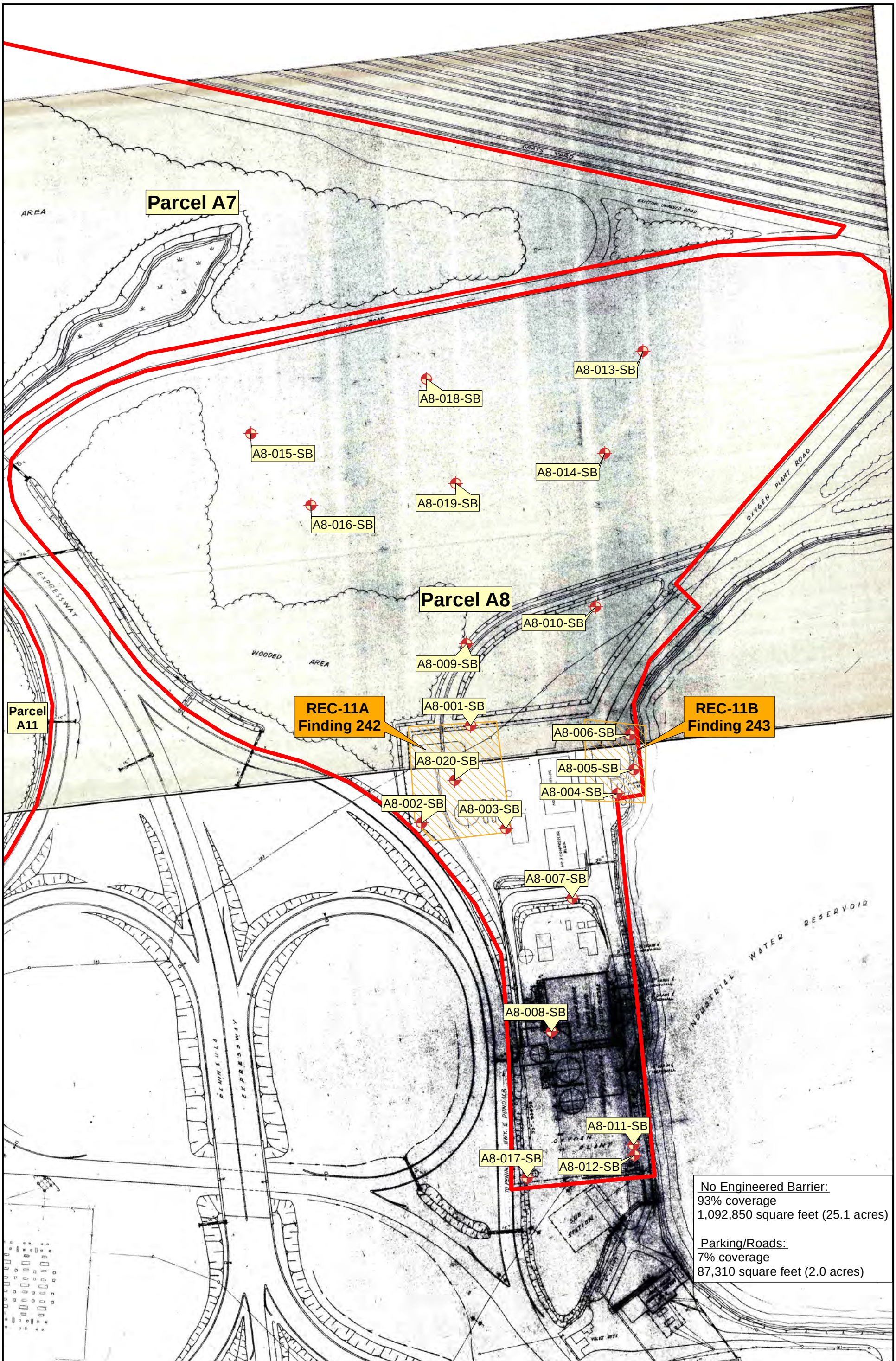
Figure
5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A8-019-SB
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OXYGEN PLANT ROAD
EXPRESSWAY
WOODED AREA
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WATER RESERVOIR
No Engineered Barrier:
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Historical Site Drawings - 5500 Set
October 23, 2015
EnviroAnalytics Group
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ARM Project 150298M
Baltimore County, MD
Figure
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ARM Group Inc.
Earth Resource Engineers and Consultants

0 40 80 160 Feet

Piezometer
A8 REC Areas
A8 Boundary

Parcel A8: Groundwater Sample Locations Proposed Piezometer Locations

October 23, 2015

EnviroAnalytics Group	Sparrows Point Terminal
ARM Project 150298M	Baltimore County, MD

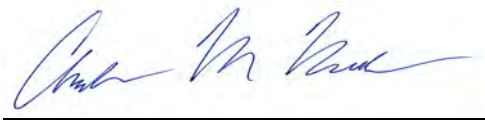
Figure 7

Appendix A

EXECUTIVE SUMMARY

Arc Environmental, Inc. performed an asbestos-containing materials (ACMs) survey of the Air Products Complex to include the following structures: Cooling Towers, Plant PCU Rooms Building, Scale House, Plant #3 Recycle Compressor Building, Compressor Structure, Maintenance Shop, Radial Head Heater Control Building, Cooling Box 1, 2, 3, & 4, Plant #2 Recycle Compressor Building, Liquid Storage, and Trailer located at Oxygen Plant Road in Sparrows Point, Maryland. Arc Environmental conducted the survey on November 11, 2014

The survey included the identification and sampling of suspect ACMs associated with buildings within the Air Products Complex. Eight of the 59 sampled homogeneous materials were confirmed to be asbestos-containing, including galbestos, window glaze, 9x9 off white floor tile w/mastic, 2"-4" Pipe TSI, 12x12 off white floor tile w/mastic, 12x12 white dotted ceiling tile, and sheet metal siding paint. Section 2.0 of this report discusses the ACBM survey and provides a table summary of the identified asbestos-containing materials. This table includes the material description, location, and estimated quantities of each ACBM.



Andrew Bresko
Arc Environmental, Inc.

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1.0 Introduction

Arc Environmental, Inc. (Arc Environmental) of Baltimore, Maryland, was retained by MCM Management to conduct an asbestos-containing materials (ACMs) survey at the plant complex located at Oxygen Plant Road in Sparrows Point, Maryland. The findings of the survey are presented in this report.

Arc Environmental conducted the survey on November 11, 2014.

2.0 Asbestos-containing Materials Survey

2.1 Methodology

The ACBMs survey was performed by EPA trained and Maryland-accredited asbestos inspector Mr. Andy Bresko. A copy of the inspector's accreditation is included in Appendix C. The survey was conducted under protocols established by the Environmental Protection Agency (EPA) 40 Code of Federal Regulations (CFR) 763 Asbestos Hazard Emergency Response Act (AHERA) and 40 CFR 61 Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP).

Every reasonable attempt was made to locate ACMs present as thermal system insulation (TSI), surfacing material, or other miscellaneous materials at the complex. Specifically, Arc Environmental employed the following protocols while performing the survey. Flooring materials were penetrated to the slab to determine how many layers of flooring were present. Wall systems and HVAC systems were evaluated to identify suspect materials associated with systems themselves as well as any accessible cavities.

During the survey, Arc Environmental collected a total of 59 bulk samples. The collected samples were submitted, along with the corresponding chain-of-custody forms, to Scientific Analytical Institute, Inc. (SAI) to determine the presence of asbestos in the sampled materials. SAI is accredited for asbestos analysis through the National Voluntary Laboratory Accreditation Program (NVLAP). A copy of the laboratory's NVLAP certification is included in Appendix A of this report.

SAI analyzed the samples using polarized light microscopy (PLM/Dispersion Staining following the EPA method 600/ R-93/116, July 1993, Method for the Determination of Asbestos in Bulk Building Materials). Based on the United States Environmental Protection Agency's (USEPA's) definition, a material which contains greater than one percent (1%) asbestos, as determined using the methods specified in Appendix E, Subpart E, 40 CFR Part 763, Section 1, Polarized Light Microscopy (PLM), is considered an ACM and must be handled according to OSHA, State of Maryland, and USEPA regulations if disturbed.

The findings and quantities of verified ACM are summarized in Tables 1 through 3, *Asbestos-containing Building Materials Identified.* Copies of the chain of custody forms and Laboratory Analytical Results are included in Appendix A.

2.2 Findings and Recommendations

Tables 1 through 3 below lists the ACMs identified at the buildings within the plant complex. A complete list of suspect materials sampled during this survey is presented in Appendix B. It is recommended that suspect materials not identified within this report, which may potentially be uncovered during any renovation activities, should be assumed to contain asbestos or sampled and analyzed for asbestos content to determine if they are regulated materials. Photos of the identified ACBMs are provided in Appendix D of this report.

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Table 1: Asbestos-containing Building Materials Identified Plant #3 Recycle Compressor Building			
Description	**Location**	**Total Quantity**	**NESHAP Category**
Galbestos	Walls/Roof	15,900 SF	Category II Non-friable
Window Glaze	Windows	6 Windows	Category II Non-friable
9x9 Off White Floor Tile w/Black Mastic	1st Floor Office under carpet	353 SF	Category I Non-friable
2"-4" Pipe TSI	1st Floor Office to Locker Room/Rest Room	150 LF	RACM
12x12 Off White Floor Tile w/Black Mastic	2nd Floor	2000 SF	Category I Non-friable

Table 2: Asbestos-containing Building Materials Identified Compressor Structure			
Description	**Location**	**Total Quantity**	**NESHAP Category**
Galbestos	Walls/Roof	11,240 SF	Category II Non-friable

Table 3: Asbestos-containing Building Materials Identified Plant #2 Recycle Compressor Building			
Description	**Location**	**Total Quantity**	**NESHAP Category**
Sheet Metal Siding Paint	Walls/Roof	24,600 SF	RACM
Window Glaze	Windows	22 Windows	Category II Non-friable
12x12 Off White Floor Tile w/Black Mastic	Office	308 SF	Category I Non-friable
12x12 White Dotted Ceiling Tile	Office	308 SF	Category II Non-friable

The identified asbestos-containing materials should be removed prior to disturbance if they are to be impacted by any demolition activities. It is recommended that personnel trained in accordance with EPA, OSHA, and Maryland regulations for asbestos-related activities conduct abatement of these materials. ACMs should be removed prior to disturbance and/or alteration.

A Maryland-licensed asbestos contractor should be retained to conduct asbestos abatement of the identified materials if required. In addition, a licensed asbestos consultant should be retained to conduct oversight and air monitoring prior to and during any abatement activities.

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Appendix A
Asbestos Bulk Sampling Results & Laboratory Accreditations

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020

AIHA LAP, LLC ACCREDITED LABORATORY LAB #173190

NVLAP Lab Code: 200664-0

Customer: ARC Environmental
1311 Haubert Rd
Baltimore MD 21230

Attn: Andy Bresko

Lab Order ID: 1422201
Analysis ID: 1422201_PLM
Date Received: 11/12/2014
Date Reported: 11/18/2014

Project: Sparrows Point

Sample ID / *Lab Sample ID*	Description / *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes / Treatment
111114-01 - A	12"x12" Beige Floor Tile w/Yellow Mastic	**None Detected**		**100% Other**	Beige Non Fibrous Homogeneous
1422201PLM_1	*tile*				Dissolved
111114-01 - B	12"x12" Beige Floor Tile w/Yellow Mastic	**None Detected**		**100% Other**	Yellow Non Fibrous Homogeneous
1422201PLM_60	*mastic*				Dissolved
111114-02 - A	12"x12" Beige Floor Tile w/Yellow Mastic	**None Detected**		**100% Other**	Beige Non Fibrous Homogeneous
1422201PLM_2	*tile*				Dissolved
111114-02 - B	12"x12" Beige Floor Tile w/Yellow Mastic	**None Detected**		**100% Other**	Yellow Non Fibrous Homogeneous
1422201PLM_61	*mastic*				Dissolved
111114-03 - A	12"x12" Beige Floor Tile w/Yellow Mastic	**None Detected**		**100% Other**	Beige Non Fibrous Homogeneous
1422201PLM_3	*tile*				Dissolved
111114-03 - B	12"x12" Beige Floor Tile w/Yellow Mastic	**None Detected**		**100% Other**	Yellow Non Fibrous Homogeneous
1422201PLM_62	*mastic*				Dissolved
111114-04	2'x4' White Ceiling Tile	**None Detected**	**40% Cellulose** **40% Fiber Glass**	**20% Other**	Gray Fibrous Heterogeneous
1422201PLM_4					Teased
111114-05	2'x4' White Ceiling Tile	**None Detected**	**40% Cellulose** **40% Fiber Glass**	**20% Other**	Gray Fibrous Heterogeneous
1422201PLM_5					Teased

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Analyst

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111114-06 / *1422201PLM_6*	2'x4' White Ceiling Tile	**None Detected**	**40% Cellulose** **40% Fiber Glass**	**20% Other**	Gray Fibrous Heterogeneous / Teased
111114-07 - A / *1422201PLM_7*	Brown Covebase w/Yellow Mastic / *covebase*	**None Detected**		**100% Other**	Brown Non Fibrous Homogeneous / Dissolved
111114-07 - B / *1422201PLM_63*	Brown Covebase w/Yellow Mastic / *mastic*	**None Detected**		**100% Other**	Yellow Non Fibrous Homogeneous / Dissolved
111114-08 / *1422201PLM_8*	Galbestos	**30% Chrysotile**		**70% Other**	Brown Fibrous Heterogeneous / Teased
111114-09 / *1422201PLM_9*	Galbestos	**Not Analyzed**			
111114-10 / *1422201PLM_10*	Galbestos	**Not Analyzed**			
111114-11 / *1422201PLM_11*	Window Glaze	**3% Chrysotile**		**97% Other**	Gray Non Fibrous Heterogeneous / Crushed, Dissolved
111114-12 / *1422201PLM_12*	Window Glaze	**Not Analyzed**			

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111114-13	Window Glaze	**Not Analyzed**			
1422201PLM_13					
111114-14	2'x2" White Textured Ceiling Tile	**None Detected**	**80% Fiber Glass**	**20% Other**	Gray Fibrous Heterogeneous
1422201PLM_14					Teased
111114-15	2'x2" White Textured Ceiling Tile	**None Detected**	**80% Fiber Glass**	**20% Other**	Gray Fibrous Heterogeneous
1422201PLM_15					Teased
111114-16	2'x2" White Textured Ceiling Tile	**None Detected**	**80% Fiber Glass**	**20% Other**	Gray Fibrous Heterogeneous
1422201PLM_16					Teased
111114-17	Textured Drywall	**None Detected**	**3% Cellulose**	**97% Other**	White Non Fibrous Heterogeneous
1422201PLM_17					Crushed
111114-18	Textured Drywall	**None Detected**	**3% Cellulose**	**97% Other**	White Non Fibrous Heterogeneous
1422201PLM_18					Crushed
111114-19	Textured Drywall	**None Detected**	**3% Cellulose**	**97% Other**	White Non Fibrous Heterogeneous
1422201PLM_19					Crushed
111114-20 - A	9"x9" Off White Floor Tile w/Black Mastic	**None Detected**		**100% Other**	Yellow Non Fibrous Homogeneous
1422201PLM_20	*mastic 1*				Dissolved

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111114-20 - B	9"x9" Off White Floor Tile w/Black Mastic	3% Chrysotile		97% Other	Cream Non Fibrous Homogeneous
1422201PLM_64	*tile*				Dissolved
111114-20 - C	9"x9" Off White Floor Tile w/Black Mastic	5% Chrysotile		95% Other	Black Non Fibrous Homogeneous
1422201PLM_65	*mastic 2*				Dissolved
111114-21 - A	9"x9" Off White Floor Tile w/Black Mastic	None Detected		100% Other	Yellow Non Fibrous Homogeneous
1422201PLM_21	*mastic 1*				Dissolved
111114-21 - B	9"x9" Off White Floor Tile w/Black Mastic	Not Analyzed			
1422201PLM_66	*tile*				
111114-21 - C	9"x9" Off White Floor Tile w/Black Mastic	Not Analyzed			
1422201PLM_67	*mastic 2*				
111114-22 - A	9"x9" Off White Floor Tile w/Black Mastic	None Detected		100% Other	Yellow Non Fibrous Homogeneous
1422201PLM_22	*mastic 1*				Dissolved
111114-22 - B	9"x9" Off White Floor Tile w/Black Mastic	Not Analyzed			
1422201PLM_68	*tile*				
111114-22 - C	9"x9" Off White Floor Tile w/Black Mastic	Not Analyzed			
1422201PLM_69	*mastic 2*				

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111114-23	2-4" Pipe TSI	**5% Amosite**	**5% Cellulose**	**90% Other**	Gray Fibrous Heterogeneous
1422201PLM_23					Teased
111114-24	2-4" Pipe TSI	**Not Analyzed**			
1422201PLM_24					
111114-25	2-4" Pipe TSI	**Not Analyzed**			
1422201PLM_25					
111114-26	2'x2" White w/Swirls Ceiling Tile	**None Detected**	**40% Cellulose** **40% Fiber Glass**	**20% Other**	Gray Fibrous Heterogeneous
1422201PLM_26					Teased
111114-27	2'x2" White w/Swirls Ceiling Tile	**None Detected**	**40% Cellulose** **40% Fiber Glass**	**20% Other**	Gray Fibrous Heterogeneous
1422201PLM_27					Teased
111114-28	2'x2" White w/Swirls Ceiling Tile	**None Detected**	**40% Cellulose** **40% Fiber Glass**	**20% Other**	Gray Fibrous Heterogeneous
1422201PLM_28					Teased
111114-29 - A	12"x12" Off White Floor Tile w/Black Mastic	**None Detected**		**100% Other**	Cream Non Fibrous Homogeneous
1422201PLM_29	*tile*				Dissolved
111114-29 - B	12"x12" Off White Floor Tile w/Black Mastic	**5% Chrysotile**		**95% Other**	Black Non Fibrous Homogeneous
1422201PLM_70	*mastic*				Dissolved

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Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
111114-30 - A *1422201PLM_30*	12"x12" Off White Floor Tile w/Black Mastic *tile*	**None Detected**		**100% Other**	Cream Non Fibrous Homogeneous Dissolved
111114-30 - B *1422201PLM_71*	12"x12" Off White Floor Tile w/Black Mastic *mastic*	**Not Analyzed**			
111114-31 - A *1422201PLM_31*	12"x12" Off White Floor Tile w/Black Mastic *tile*	**None Detected**		**100% Other**	Cream Non Fibrous Homogeneous Dissolved
111114-31 - B *1422201PLM_72*	12"x12" Off White Floor Tile w/Black Mastic *mastic*	**Not Analyzed**			
111114-32 *1422201PLM_32*	4" Pipe TSI	**None Detected**	**5% Cellulose**	**95% Other**	Tan Non Fibrous Heterogeneous Crushed
111114-33 *1422201PLM_33*	4" Pipe TSI	**None Detected**	**5% Cellulose**	**95% Other**	Tan Non Fibrous Heterogeneous Crushed
111114-34 *1422201PLM_34*	4" Pipe TSI	**None Detected**	**5% Cellulose**	**95% Other**	Tan Non Fibrous Heterogeneous Crushed
111114-35 *1422201PLM_35*	Asphalt Roofing Sheeting *tar/felt*	**None Detected**	**70% Cellulose**	**30% Other**	Black Fibrous Heterogeneous Teased, Dissolved

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Sample ID / *Lab Sample ID*	Description / *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes / Treatment
111114-36	Asphalt Roofing Sheeting	None Detected	70% Cellulose	30% Other	Black Fibrous Heterogeneous
1422201PLM_36					Teased, Dissolved
111114-37	Asphalt Roofing Sheeting	None Detected	70% Cellulose	30% Other	Black Fibrous Heterogeneous
1422201PLM_37					Teased, Dissolved
111114-38	Gypsum Insulation	None Detected	80% Fiber Glass	20% Other	Gray Fibrous Heterogeneous
1422201PLM_38					Teased
111114-39	Gypsum Insulation	None Detected	80% Fiber Glass	20% Other	Gray Fibrous Heterogeneous
1422201PLM_39					Teased
111114-40	Gypsum Insulation	None Detected	80% Fiber Glass	20% Other	Gray Fibrous Heterogeneous
1422201PLM_40					Teased
111114-41	Elbow	None Detected	20% Wollastonite 10% Fiber Glass	70% Other	White Non Fibrous Heterogeneous
1422201PLM_41					Teased, Dissolved
111114-42	Elbow	None Detected	20% Wollastonite 10% Fiber Glass	70% Other	White Fibrous Heterogeneous
1422201PLM_42					Teased, Dissolved
111114-43	Elbow	None Detected	20% Wollastonite 10% Fiber Glass	70% Other	White Fibrous Heterogeneous
1422201PLM_43					Teased, Dissolved

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111114-44 - A	12"x12" Off White Floor Tile w/Black Mastic	**None Detected**		**100% Other**	Cream Non Fibrous Homogeneous
1422201PLM_44	*tile*				Dissolved
111114-44 - B	12"x12" Off White Floor Tile w/Black Mastic	**5% Chrysotile**		**95% Other**	Black, Yellow Non Fibrous Heterogeneous
1422201PLM_73	*mixed mastics*				Dissolved
111114-45 - A	12"x12" Off White Floor Tile w/Black Mastic	**None Detected**		**100% Other**	Cream Non Fibrous Homogeneous
1422201PLM_45	*tile*				Dissolved
111114-45 - B	12"x12" Off White Floor Tile w/Black Mastic	**Not Analyzed**			
1422201PLM_74	*mixed mastics*				
111114-46 - A	12"x12" Off White Floor Tile w/Black Mastic	**None Detected**		**100% Other**	Cream Non Fibrous Homogeneous
1422201PLM_46	*tile*				Dissolved
111114-46 - B	12"x12" Off White Floor Tile w/Black Mastic	**Not Analyzed**			
1422201PLM_75	*mixed mastics*				
111114-47	12"x12" White Dotted Ceiling Tile	**5% Amosite**	**70% Fiber Glass** **5% Cellulose**	**20% Other**	Gray Fibrous Heterogeneous
1422201PLM_47					Teased
111114-48	12"x12" White Dotted Ceiling Tile	**Not Analyzed**			
1422201PLM_48					

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Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
111114-49 *1422201PLM_49*	12"x12" White Dotted Ceiling Tile	**Not Analyzed**			
111114-50 *1422201PLM_50*	Fiberglass Tank Cap	**None Detected**	**15% Fiber Glass** **5% Cellulose**	**80% Other**	Gray Fibrous Heterogeneous Teased
111114-51 *1422201PLM_51*	Fiberglass Tank Cap	**None Detected**	**15% Fiber Glass** **5% Cellulose**	**80% Other**	Gray Fibrous Heterogeneous Teased
111114-52 *1422201PLM_52*	Fiberglass Tank Cap	**None Detected**	**15% Fiber Glass** **5% Cellulose**	**80% Other**	Gray Fibrous Heterogeneous Teased
111114-53 *1422201PLM_53*	Pipe Fittings	**None Detected**	**20% Fiber Glass** **5% Wollastonite**	**75% Other**	Gray Fibrous Heterogeneous Teased
111114-54 *1422201PLM_54*	Pipe Fittings	**None Detected**	**20% Fiber Glass** **5% Wollastonite**	**75% Other**	Gray Fibrous Heterogeneous Teased
111114-55 *1422201PLM_55*	Pipe Fittings	**None Detected**	**20% Fiber Glass** **5% Wollastonite**	**75% Other**	Gray Fibrous Heterogeneous Teased
111114-56 - A *1422201PLM_56*	12"x12" Gray Floor Tile w/Yellow Mastic *tile*	**None Detected**		**100% Other**	Gray Non Fibrous Homogeneous Dissolved

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Project: Sparrows Point

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
111114-56 - B *1422201PLM_76*	12"x12" Gray Floor Tile w/Yellow Mastic *mastic*	**None Detected**		**100% Other**	Yellow Non Fibrous Homogeneous Dissolved
111114-57 *1422201PLM_57*	Sheet Metal Paint	**15% Chrysotile**		**85% Other**	Gray Fibrous Heterogeneous Teased
111114-58 *1422201PLM_58*	Sheet Metal Paint	**Not Analyzed**			
111114-59 *1422201PLM_59*	Sheet Metal Paint	**Not Analyzed**			

Bobby Wheatley (76)

Analyst

Approved Signatory

Client:	Arc Environmental Environmental	*Instructions:*	**Scientific Analytical Institute, Inc.**
Contact:	Andy Bresko	*Use Column "B" for your contact info*	
Address:	1311 Haubert St, Baltimore, MD 21230	*To See an Example Click the bottom Example Tab.*	302-L Pomona Dr.
Phone:	757-870-6121		Greensboro, NC 27407
Fax:			Phone: 336.292.3888
Email:	abresko@arcenvironmental.com	***Enter samples between "<<" and ">>"***	Fax: 336.292.3313
Project:	Sparrows Point	***Begin Samples with a "<<" above the first sample and end with a ">>" below the last sample.***	Email: lab@sailab.com
Client Notes:		*Only Enter your data on the first sheet "Sheet1"*	
P.O. #:	493-3	*Note: Data 1 and Data 2 are optional fields that do not show up on the official report, however they will be included in the electronic data returned to you to facilitate your reintegration of the report data*	
Date Submitted:			
Analysis:	PLM		
TurnAroundTime:	5 Days		

1422201

Sample Number	Data 1	Sample Description	Data 2
<<			
111114-01		12"x12" Beige Floor Tile w/Yellow Mastic	Positive Stop
111114-02		12"x12" Beige Floor Tile w/Yellow Mastic	
111114-03		12"x12" Beige Floor Tile w/Yellow Mastic	
111114-04		2'x4' White Ceiling Tile	Positive Stop
111114-05		2'x4' White Ceiling Tile	
111114-06		2'x4' White Ceiling Tile	
111114-07		Brown Covebase w/Yellow Mastic	
111114-08		Galbestos	Positive Stop
111114-09		Galbestos	
111114-10		Galbestos	
111114-11		Window Glaze	Positive Stop
111114-12		Window Glaze	
111114-13		Window Glaze	
111114-14		2'x2' White Textured Ceiling Tile	Positive Stop
111114-15		2'x2' White Textured Ceiling Tile	
111114-16		2'x2' White Textured Ceiling Tile	
111114-17		Textured Drywall	Positive Stop
111114-18		Textured Drywall	
111114-19		Textured Drywall	
111114-20		9"x9" Off White Floor Tile w/Black Mastic	Positive Stop
111114-21		9"x9" Off White Floor Tile w/Black Mastic	
111114-22		9"x9" Off White Floor Tile w/Black Mastic	
111114-23		2-4" Pipe TSI	Positive Stop
111114-24		2-4" Pipe TSI	
111114-25		2-4" Pipe TSI	
111114-26		2'x2' White w/Swirls Ceiling Tile	Positive Stop
111114-27		2'x2' White w/Swirls Ceiling Tile	
111114-28		2'x2' White w/Swirls Ceiling Tile	
111114-29		12"x12" Off White Floor Tile w/Black Mastic	Positive Stop
111114-30		12"x12" Off White Floor Tile w/Black Mastic	
111114-31		12"x12" Off White Floor Tile w/Black Mastic	
111114-32		4" Pipe TSI	Positive Stop
111114-33		4" Pipe TSI	
111114-34		4" Pipe TSI	
111114-35		Asphalt Roofing Sheeting	Positive Stop
111114-36		Asphalt Roofing Sheeting	
111114-37		Asphalt Roofing Sheeting	
111114-38		Gypsum Insulation	Positive Stop
111114-39		Gypsum Insulation	
111114-40		Gypsum Insulation	
111114-41		Elbow	Positive Stop
111114-42		Elbow	
111114-43		Elbow	
111114-44		12"x12" Off White Floor Tile w/Black Mastic	Positive Stop
111114-45		12"x12" Off White Floor Tile w/Black Mastic	
111114-46		12"x12" Off White Floor Tile w/Black Mastic	
111114-47		12"x12" White Dotted Ceiling Tile	Positive Stop
111114-48		12"x12" White Dotted Ceiling Tile	
111114-49		12"x12" White Dotted Ceiling Tile	
111114-50		Fiberglass Tank Cap	Positive Stop
111114-51		Fiberglass Tank Cap	
111114-52		Fiberglass Tank Cap	
111114-53		Pipe Fittings	Positive Stop
111114-54		Pipe Fittings	
111114-55		Pipe Fittings	
111114-56		12"x12" Gray Floor Tile w/Yellow Mastic	
111114-57		Sheet Metal Paint	Positive Stop
111114-58		Sheet Metal Paint	
111114-59		Sheet Metal Paint	

Accepted ☑

Rejected ☐

M. Ivey Pebles

11-12-1

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200664-0

Scientific Analytical Institute

Greensboro, NC

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2014-01-01 through 2014-12-31

Effective dates

For the National Institute of Standards and Technology

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

Scientific Analytical Institute
4604 Dundas Drive
Greensboro, NC 27407
Mr. Nathaniel Durham
Phone: 336-292-3888 Fax: 336-292-3313
E-Mail: ndurham@sailab.com
URL: http://www.sailab.com

BULK ASBESTOS FIBER ANALYSIS (PLM) **NVLAP LAB CODE 200664-0**

NVLAP Code	*Designation / Description*
18/A01	EPA 600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

2014-01-01 through 2014-12-31

Effective dates

For the National Institute of Standards and Technology

Appendix B
Summary of Materials Tested for Asbestos

Summary of Material Tested for Asbestos			
HA	**Material Description**	**Sample Number**	**Analytical Results**
FT1	12 X 12 Floor Tile	111114-01-A	NAD
M1	Mastic	111114-01-B	NAD
FT1	12 X 12 Floor Tile	111114-02-A	NAD
M1	Mastic	111114-02-B	NAD
FT1	12 X 12 Floor Tile	111114-03-A	NAD
M1	Mastic	111114-03-B	NAD
CT1	2x4 Ceiling Tile	111114-004	NAD
CT1	2x4 Ceiling Tile	111114-05	NAD
CT1	2x4 Ceiling Tile	111114-06	NAD
CB1	Covebase	111114-07-A	NAD
M2	Mastic	111114-07-B	NAD
G1	**Galbestos**	**111114-08**	**30% Chrysotile**
G1	Galbestos	111114-09	Not Analyzed
G1	Galbestos	111114-10	Not Analyzed
WG1	**Window Glazing**	**111114-11**	**3% Chrysotile**
WG1	Window Glazing	111114-12	Not Analyzed
WG1	Window Glazing	111114-13	Not Analyzed
CT2	2x2 Ceiling Tile	111114-14	NAD
CT2	2x2 Ceiling Tile	111114-15	NAD
CT2	2x2 Ceiling Tile	111114-16	NAD
DW1	Textured Drywall	111114-17	NAD
DW1	Textured Drywall	111114-18	NAD
DW1	Textured Drywall	111114-19	NAD
M3	Mastic	111114-20-A	NAD
FT2	9x9 Floor Tile	111114-20-B	3% Chrysotile
M4	Mastic	111114-20-C	5% Chrysotile
M3	Mastic	111114-21-A	NAD
FT2	9x9 Floor Tile	111114-21-B	Not Analyzed
M4	Mastic	111114-21-C	Not Analyzed
M3	Mastic	111114-22-A	NAD
FT2	9x9 Floor Tile	111114-22-B	Not Analyzed
M4	Mastic	111114-22-C	Not Analyzed
TSI1	TSI Pipe Insulation	111114-23	5% Amosite
TSI1	TSI Pipe Insulation	111114-24	Not Analyzed
TSI1	TSI Pipe Insulation	111114-25	Not Analyzed
CT3	2 x2 Ceiling Tile	111114-26	NAD
CT3	2 x2 Ceiling Tile	111114-27	NAD
CT3	2 x2 Ceiling Tile	111114-28	NAD

Summary of Material Tested for Asbestos			
HA	**Material Description**	**Sample Number**	**Analytical Results**
FT3	12 x 12 Floor Tile	111114-29-A	NAD
M5	Mastic	111114-29-B	5% Chrysotile
FT3	12 x 12 Floor Tile	111114-30-A	NAD
M5	Mastic	111114-30-B	Not Analyzed
FT3	12 x 12 Floor Tile	111114-31-A	NAD
M5	Mastic	111114-31-B	Not Analyzed
TSI2	TSI Pipe Insulation	111114-32	NAD
TSI2	TSI Pipe Insulation	111114-33	NAD
TSI2	TSI Pipe Insulation	111114-34	NAD
R1	Asphalt Roof Sheeting	111114-35	NAD
R1	Asphalt Roof Sheeting	111114-36	NAD
R1	Asphalt Roof Sheeting	111114-37	NAD
GI1	Gypsum Insulation	111114-38	NAD
GI1	Gypsum Insulation	111114-39	NAD
GI1	Gypsum Insulation	111114-40	NAD
TSI3	TSI Elbow	111114-41	NAD
TSI3	TSI Elbow	111114-42	NAD
TSI3	TSI Elbow	111114-43	NAD
FT4	12 x 12 Floor Tile	111114-44-A	NAD
M6	Mastic	111114-44-B	5% Chrysotile
FT4	12 x 12 Floor Tile	111114-45-A	NAD
M6	Mastic	111114-45-B	Not Analyzed
FT4	12 x 12 Floor Tile	111114-46-A	NAD
M6	Mastic	111114-46-B	Not Analyzed
CT4	12 x 12 Ceiling Tile	111114-47	5% Amosite
CT4	12 x 12 Ceiling Tile	111114-48	Not Analyzed
CT4	12 x 12 Ceiling Tile	111114-49	Not Analyzed
TSI4	Fiberglass Tank Cap	111114-50	NAD
TSI4	Fiberglass Tank Cap	111114-51	NAD
TSI4	Fiberglass Tank Cap	111114-52	NAD
TSI5	Pipe Fitting	111114-53	NAD
TSI5	Pipe Fitting	111114-54	NAD
TSI5	Pipe Fitting	111114-55	NAD
FT5	12 x 12 Floor Tile	111114-56-A	NAD
M7	Mastic	111114-56-B	NAD
P1	Sheet Metal Paint	111114-57	15% Chrysotile
P1	Sheet Metal Paint	111114-58	Not Analyzed
P1	Sheet Metal Paint	111114-59	Not Analyzed

NAD: No Asbestos Detected

Appendix C
Inspector's Accreditations

CARDNO ATC

9231 RUMSEY ROAD COLUMBIA, MD 21045 (410) 381-0232

CERTIFICATE OF ACHIEVEMENT

AWARDED TO

Andrew Bresko

IN RECOGNITION OF SUCCESSFUL COMPLETION OF THE COURSE

ASBESTOS INSPECTOR REVIEW

A 4-HOUR ANNUAL REVIEW PROGRAM OF STUDY PRESENTED IN ACCORDANCE WITH THE PROVISIONS OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY MODEL ACCREDITATION PLAN, 40 CFR PART 763, APPENDIX C TO SUBPART E, FOR ACCREDITATION UNDER TSCA TITLE II.

PRESENTED BY

13-0070	Cardno ATC	Clayton E. Miller
CERTIFICATE #		COURSE DIRECTOR CLAYTON E. MILLER
December 18, 2013	**December 18, 2013**	**December 18, 2014**
COURSE DATE	EXAMINATION DATE	EXPIRATION DATE

Andrew Breske
Name

Signature

HAS ATTENDED AND PASSED THE EXAM IN AN ASBESTOS TRAINING COURSE ENTITLED:

INSPECTOR REVIEW
Course Name

FOR ACCREDITATION UNDER TSCA TITLE II.

(STATE SEAL IS BLUE)

12/13/2013 — Course Date(s)
12/18/2014 — Expiration Date
4/10/2014 — Exam Date

NO. 127186

STATE OF MARYLAND

Cardno ATC
Training Provider

9231 Rumsey Road
Address

Columbia — City
MD — State
21045- — Zip

(410) 381-0232
Phone Number

Approval Number

Lorraine Anderson
Name of Training Director

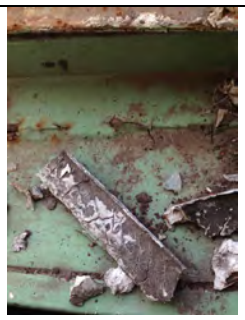
Signature of Training Director

For additional information, call MDE (410) 537-3200

127186

Appendix D
Photo Log

Plant #3 Compressor Building
Sparrows Point, MD

	
Photo 1: Galbestos Exterior Walls and Roof	Photo 2: Window Glaze
	
Photo 3: 9x9 Off White Floor Tile w/Black Mastic Under Carpet in Office	Photo 4: Pipes with TSI Hallway between Office and Locker Room/Restroom
	
Photo 5: 12x12 Off White Floor Tile w/Black Mastic 2nd Floor	

Plant #2 Compressor Building
Sparrows Point, MD

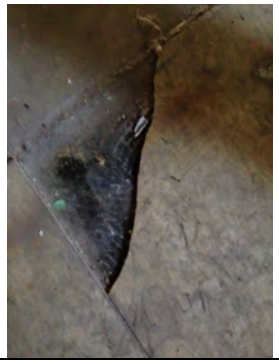


Photo 6: 12x12 Off White Floor Tile w/Black Mastic	Photo 7: 12x12 White Dotted Ceiling Tile
	
Photo 8: Sheet Metal Siding Paint Exterior Walls/Roof	

Arc Environmental, Inc.

January 7, 2015

Dr. Steve Martin
MCM Management
39580 Woodward Avenue
Suite 200
Bloomfield Hills, MI 48304

RE: Final Clearance Report
Air Products Oxygen Plant
Sparrows Point (Oxygen Plant Road, Sparrows Point, MD)
Project No. 466-3

Dear Dr. Martin:

Arc Environmental, Inc. performed final air clearance sampling and analysis Air Products Oxygen Plant located at 123 Oxygen Plant Road, Sparrows Point, MD. The final clearance air sampling was performed following the removal of approximately 2,661 square feet of floor tile and mastic, 150 linear feet of pipe insulation, and 308 square feet of ceiling tile. The abatement was performed from December 18, 2014 through January 6, 2015 by MCM Management.

Arc Environmental mobilized to the site on January 6, 2015 and performed a final visual inspection prior to conducting the final air sampling. Mr. Jim Lovell performed the visual assessment and determined that the work area was free of visible dust and debris; two air samples were collected. The samples were analyzed on site by Phase Contrast Microscopy (PCM) in accordance with the National Institute for Occupational Safety and Health (NIOSH) Method 7400.

Upon analysis and confirmation that fiber levels were below the re-occupancy threshold, Arc Environmental informed MCM Management that the enclosure could be removed. The PCM final air clearance samples were analyzed on site by Mr. Lovell who has completed a NIOSH 582 equivalency course. The air sampling data sheets specific to this abatement project are included in Appendix A of this report.

Arc Environmental is pleased to have performed this final air clearance sampling and analysis. If you have any questions please call us at (410) 659-9971.

Sincerely,
Arc Environmental, Inc.

Andrew Bresko
Project Manager

Appendix A: Air Sampling Data Sheet

Asbestos Monitoring Data Sheet

Date: January 7, 2015
Client: MCM Management
Project: Sparrows Point **Contractor:** MCM Management

Industrial Hygienist: Jim Lovell

Sample ID	Sampling Location	Sample Type	Flow rate L/Minute	Start Time	Stop Time	Total Minutes	Total Volume	Fibers/Field	Results F/cc
C-1	North Building	FC	9.9	1115	1317	122	1208	7/100	<0.01
C-2	South Building	FC	9.9	1115	1317	122	1208	3/100	<0.01
010614-B1		FB						0/100	
010614-B2		FB						0/100	

Key
EV: Environmental BG: Background WA: Work Area FC: Final Clearance PS: Personal FB: Field Blank EX: Excursion

COMMENTS:

CALIBER ANALYTICAL SERVICES

Certificate of Analysis

Jenkins Environmental, Inc.
8600 LaSalle Road
York Building, Suite 509
Towson, MD 21286

Date Sampled: 02/05/15 9:45
Date Received: 02/05/15 11:37
Date Issued: 02/11/15

Project: Sparrows PT- Airpax
Site Location: Sparrows PT, MD
Project Number: 2015-028

SDG Number: 15020504

Field Sample ID: 015-028-261 **Matrix: Soil** **Lab ID: 15020504-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Corrosivity / pH								
pH	**10.06**	pH units		>2 - <12.5	EPA 9045	02/05/15	02/05/15 15:00	MEL
Polychlorinated Biphenyls								
Aroclor 1016	ND	mg/kg	0.055	50	EPA 8082	02/06/15	02/06/15 19:11	AC
Aroclor 1221	ND	mg/kg	0.055	50	EPA 8082	02/06/15	02/06/15 19:11	AC
Aroclor 1232	ND	mg/kg	0.055	50	EPA 8082	02/06/15	02/06/15 19:11	AC
Aroclor 1242	ND	mg/kg	0.055	50	EPA 8082	02/06/15	02/06/15 19:11	AC
Aroclor 1248	ND	mg/kg	0.055	50	EPA 8082	02/06/15	02/06/15 19:11	AC
Aroclor 1254	ND	mg/kg	0.055	50	EPA 8082	02/06/15	02/06/15 19:11	AC
Aroclor 1260	ND	mg/kg	0.055	50	EPA 8082	02/06/15	02/06/15 19:11	AC
TCLP Metals								
Arsenic	ND	mg/L	0.5	5	1311/6020A	02/06/15	02/09/15 12:32	MEL
Barium	ND	mg/L	10	100	1311/6020A	02/06/15	02/09/15 12:32	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	02/06/15	02/09/15 12:32	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	02/06/15	02/09/15 12:32	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	02/06/15	02/09/15 12:32	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	02/06/15	02/09/15 12:32	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	02/06/15	02/09/15 12:32	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	02/06/15	02/09/15 12:32	MEL
TCLP Semi-Volatiles								
2-Methylphenol	ND	ug/L	100	200000	1311/8270	02/06/15	02/06/15 23:57	GFH
3+4-Methylphenol	ND	ug/L	200	200000	1311/8270	02/06/15	02/06/15 23:57	GFH
2,4-Dinitrotoluene	ND	ug/L	100	130	1311/8270	02/06/15	02/06/15 23:57	GFH
Hexachloroethane	ND	ug/L	100	3000	1311/8270	02/06/15	02/06/15 23:57	GFH
Hexachlorobenzene	ND	ug/L	100	130	1311/8270	02/06/15	02/06/15 23:57	GFH
Nitrobenzene	ND	ug/L	100	2000	1311/8270	02/06/15	02/06/15 23:57	GFH
Pentachlorophenol	ND	ug/L	500	100000	1311/8270	02/06/15	02/06/15 23:57	GFH
Pyridine	ND	ug/L	100	5000	1311/8270	02/06/15	02/06/15 23:57	GFH
2,4,5-Trichlorophenol	ND	ug/L	100	400000	1311/8270	02/06/15	02/06/15 23:57	GFH
2,4,6-Trichlorophenol	ND	ug/L	100	2000	1311/8270	02/06/15	02/06/15 23:57	GFH
Hexachlorobutadiene`	ND	ug/L	100	500	1311/8270	02/06/15	02/06/15 23:57	GFH

8851 Orchard Tree Lane Towson, Maryland 21286
tel: 410.825.1151 fax: 410.825.2126 www.caslabs.net

CALIBER ANALYTICAL SERVICES

Certificate of Analysis

Jenkins Environmental, Inc.
8600 LaSalle Road
York Building, Suite 509
Towson, MD 21286

Date Sampled: 02/05/15 9:45
Date Received: 02/05/15 11:37
Date Issued: 02/11/15

Project: Sparrows PT- Airpax
Site Location: Sparrows PT, MD
Project Number: 2015-028

SDG Number: 15020504

Field Sample ID: 015-028-261 **Matrix: Soil** **Lab ID: 15020504-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
TCLP Volatiles								
Benzene	ND	ug/L	21	500	1311/8260	02/09/15	02/09/15 17:56	GFH
Carbon Tetrachloride	ND	ug/L	21	500	1311/8260	02/09/15	02/09/15 17:56	GFH
Chloroform	ND	ug/L	21	6000	1311/8260	02/09/15	02/09/15 17:56	GFH
1,2-Dichloroethane	ND	ug/L	21	500	1311/8260	02/09/15	02/09/15 17:56	GFH
Tetrachloroethene	ND	ug/L	21	700	1311/8260	02/09/15	02/09/15 17:56	GFH
Vinyl Chloride	ND	ug/L	21	200	1311/8260	02/09/15	02/09/15 17:56	GFH
2-Butanone (MEK)	ND	ug/L	42	200000	1311/8260	02/09/15	02/09/15 17:56	GFH
Chlorobenzene	ND	ug/L	21	100000	1311/8260	02/09/15	02/09/15 17:56	GFH
1,4-Dichlorobenzene	ND	ug/L	21	7500	1311/8260	02/09/15	02/09/15 17:56	GFH
1,1-Dichloroethene	ND	ug/L	21	700	1311/8260	02/09/15	02/09/15 17:56	GFH
Trichloroethene	ND	ug/L	21	500	1311/8260	02/09/15	02/09/15 17:56	GFH

Approved by: Matt Ober
QC Chemist

Notes/Qualifiers:
LLQ- Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
REGL - RCRA Regulatory Limit. For TCLP reference 40CFR, Part 261.24, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic
NRM - Non-Reactive Matrix as defined by D003
Results reported on a dry weight basis.

8851 Orchard Tree Lane Towson, Maryland 21286
tel: 410.825.1151 fax: 410.825.2126 www.caslabs.net

Certificate of Analysis

Jenkins Environmental, Inc.
8600 LaSalle Road
York Building, Suite 509
Towson, MD 21286

Date Sampled: 02/05/15 9:55
Date Received: 02/05/15 11:37
Date Issued: 02/11/15

Project: Sparrows PT- Airpax
Site Location: Sparrows PT, MD
Project Number: 2015-028

SDG Number: 15020504

Field Sample ID: 015-028-262 **Matrix: Soil** **Lab ID: 15020504-02**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Corrosivity / pH								
pH	**8.39**	pH units		>2 - <12.5	EPA 9045	02/05/15	02/05/15 15:00	MEL
Polychlorinated Biphenyls								
Aroclor 1016	ND	mg/kg	0.053	50	EPA 8082	02/06/15	02/06/15 19:40	AC
Aroclor 1221	ND	mg/kg	0.053	50	EPA 8082	02/06/15	02/06/15 19:40	AC
Aroclor 1232	ND	mg/kg	0.053	50	EPA 8082	02/06/15	02/06/15 19:40	AC
Aroclor 1242	ND	mg/kg	0.053	50	EPA 8082	02/06/15	02/06/15 19:40	AC
Aroclor 1248	ND	mg/kg	0.053	50	EPA 8082	02/06/15	02/06/15 19:40	AC
Aroclor 1254	ND	mg/kg	0.053	50	EPA 8082	02/06/15	02/06/15 19:40	AC
Aroclor 1260	ND	mg/kg	0.053	50	EPA 8082	02/06/15	02/06/15 19:40	AC
TCLP Metals								
Arsenic	ND	mg/L	0.5	5	1311/6020A	02/06/15	02/09/15 12:38	MEL
Barium	ND	mg/L	10	100	1311/6020A	02/06/15	02/09/15 12:38	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	02/06/15	02/09/15 12:38	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	02/06/15	02/09/15 12:38	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	02/06/15	02/09/15 12:38	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	02/06/15	02/09/15 12:38	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	02/06/15	02/09/15 12:38	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	02/06/15	02/09/15 12:38	MEL
TCLP Semi-Volatiles								
2-Methylphenol	ND	ug/L	100	200000	1311/8270	02/06/15	02/07/15 0:32	GFH
3+4-Methylphenol	ND	ug/L	200	200000	1311/8270	02/06/15	02/07/15 0:32	GFH
2,4-Dinitrotoluene	ND	ug/L	100	130	1311/8270	02/06/15	02/07/15 0:32	GFH
Hexachloroethane	ND	ug/L	100	3000	1311/8270	02/06/15	02/07/15 0:32	GFH
Hexachlorobenzene	ND	ug/L	100	130	1311/8270	02/06/15	02/07/15 0:32	GFH
Nitrobenzene	ND	ug/L	100	2000	1311/8270	02/06/15	02/07/15 0:32	GFH
Pentachlorophenol	ND	ug/L	500	100000	1311/8270	02/06/15	02/07/15 0:32	GFH
Pyridine	ND	ug/L	100	5000	1311/8270	02/06/15	02/07/15 0:32	GFH
2,4,5-Trichlorophenol	ND	ug/L	100	400000	1311/8270	02/06/15	02/07/15 0:32	GFH
2,4,6-Trichlorophenol	ND	ug/L	100	2000	1311/8270	02/06/15	02/07/15 0:32	GFH
Hexachlorobutadiene`	ND	ug/L	100	500	1311/8270	02/06/15	02/07/15 0:32	GFH

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Certificate of Analysis

Jenkins Environmental, Inc.
8600 LaSalle Road
York Building, Suite 509
Towson, MD 21286

Date Sampled: 02/05/15 9:55
Date Received: 02/05/15 11:37
Date Issued: 02/11/15

Project: Sparrows PT- Airpax
Site Location: Sparrows PT, MD
Project Number: 2015-028

SDG Number: 15020504

Field Sample ID: 015-028-262 **Matrix: Soil** **Lab ID: 15020504-02**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
TCLP Volatiles								
Benzene	ND	ug/L	20	500	1311/8260	02/09/15	02/09/15 18:25	GFH
Carbon Tetrachloride	ND	ug/L	20	500	1311/8260	02/09/15	02/09/15 18:25	GFH
Chloroform	ND	ug/L	20	6000	1311/8260	02/09/15	02/09/15 18:25	GFH
1,2-Dichloroethane	ND	ug/L	20	500	1311/8260	02/09/15	02/09/15 18:25	GFH
Tetrachloroethene	ND	ug/L	20	700	1311/8260	02/09/15	02/09/15 18:25	GFH
Vinyl Chloride	ND	ug/L	20	200	1311/8260	02/09/15	02/09/15 18:25	GFH
2-Butanone (MEK)	ND	ug/L	40	200000	1311/8260	02/09/15	02/09/15 18:25	GFH
Chlorobenzene	ND	ug/L	20	100000	1311/8260	02/09/15	02/09/15 18:25	GFH
1,4-Dichlorobenzene	ND	ug/L	20	7500	1311/8260	02/09/15	02/09/15 18:25	GFH
1,1-Dichloroethene	ND	ug/L	20	700	1311/8260	02/09/15	02/09/15 18:25	GFH
Trichloroethene	ND	ug/L	20	500	1311/8260	02/09/15	02/09/15 18:25	GFH

Approved by: Matt Cohen
QC Chemist

Notes/Qualifiers:
LLQ- Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
REGL - RCRA Regulatory Limit. For TCLP reference 40CFR, Part 261.24, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic
NRM - Non-Reactive Matrix as defined by D003
Results reported on a dry weight basis.

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8600 LaSalle Road
York Building, Suite 509
Towson, MD 21286

Date Sampled: 02/05/15 9:59
Date Received: 02/05/15 11:37
Date Issued: 02/11/15

Project: Sparrows PT- Airpax
Site Location: Sparrows PT, MD
Project Number: 2015-028

SDG Number: 15020504

Field Sample ID: 015-028-263 **Matrix: Soil** **Lab ID: 15020504-03**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Corrosivity / pH								
pH	**9.44**	pH units		>2 - <12.5	EPA 9045	02/05/15	02/05/15 15:00	MEL
Polychlorinated Biphenyls								
Aroclor 1016	ND	mg/kg	0.049	50	EPA 8082	02/06/15	02/06/15 20:09	AC
Aroclor 1221	ND	mg/kg	0.049	50	EPA 8082	02/06/15	02/06/15 20:09	AC
Aroclor 1232	ND	mg/kg	0.049	50	EPA 8082	02/06/15	02/06/15 20:09	AC
Aroclor 1242	ND	mg/kg	0.049	50	EPA 8082	02/06/15	02/06/15 20:09	AC
Aroclor 1248	ND	mg/kg	0.049	50	EPA 8082	02/06/15	02/06/15 20:09	AC
Aroclor 1254	ND	mg/kg	0.049	50	EPA 8082	02/06/15	02/06/15 20:09	AC
Aroclor 1260	ND	mg/kg	0.049	50	EPA 8082	02/06/15	02/06/15 20:09	AC
TCLP Metals								
Arsenic	ND	mg/L	0.5	5	1311/6020A	02/06/15	02/09/15 12:44	MEL
Barium	ND	mg/L	10	100	1311/6020A	02/06/15	02/09/15 12:44	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	02/06/15	02/09/15 12:44	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	02/06/15	02/09/15 12:44	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	02/06/15	02/09/15 12:44	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	02/06/15	02/09/15 12:44	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	02/06/15	02/09/15 12:44	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	02/06/15	02/09/15 12:44	MEL
TCLP Semi-Volatiles								
2-Methylphenol	ND	ug/L	100	200000	1311/8270	02/06/15	02/07/15 1:08	GFH
3+4-Methylphenol	ND	ug/L	200	200000	1311/8270	02/06/15	02/07/15 1:08	GFH
2,4-Dinitrotoluene	ND	ug/L	100	130	1311/8270	02/06/15	02/07/15 1:08	GFH
Hexachloroethane	ND	ug/L	100	3000	1311/8270	02/06/15	02/07/15 1:08	GFH
Hexachlorobenzene	ND	ug/L	100	130	1311/8270	02/06/15	02/07/15 1:08	GFH
Nitrobenzene	ND	ug/L	100	2000	1311/8270	02/06/15	02/07/15 1:08	GFH
Pentachlorophenol	ND	ug/L	500	100000	1311/8270	02/06/15	02/07/15 1:08	GFH
Pyridine	ND	ug/L	100	5000	1311/8270	02/06/15	02/07/15 1:08	GFH
2,4,5-Trichlorophenol	ND	ug/L	100	400000	1311/8270	02/06/15	02/07/15 1:08	GFH
2,4,6-Trichlorophenol	ND	ug/L	100	2000	1311/8270	02/06/15	02/07/15 1:08	GFH
Hexachlorobutadiene`	ND	ug/L	100	500	1311/8270	02/06/15	02/07/15 1:08	GFH

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Date Sampled: 02/05/15 9:59
Date Received: 02/05/15 11:37
Date Issued: 02/11/15

Project: Sparrows PT- Airpax
Site Location: Sparrows PT, MD
Project Number: 2015-028

SDG Number: 15020504

Field Sample ID: 015-028-263 **Matrix: Soil** **Lab ID: 15020504-03**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
TCLP Volatiles								
Benzene	ND	ug/L	21	500	1311/8260	02/09/15	02/09/15 18:55	GFH
Carbon Tetrachloride	ND	ug/L	21	500	1311/8260	02/09/15	02/09/15 18:55	GFH
Chloroform	ND	ug/L	21	6000	1311/8260	02/09/15	02/09/15 18:55	GFH
1,2-Dichloroethane	ND	ug/L	21	500	1311/8260	02/09/15	02/09/15 18:55	GFH
Tetrachloroethene	ND	ug/L	21	700	1311/8260	02/09/15	02/09/15 18:55	GFH
Vinyl Chloride	ND	ug/L	21	200	1311/8260	02/09/15	02/09/15 18:55	GFH
2-Butanone (MEK)	ND	ug/L	42	200000	1311/8260	02/09/15	02/09/15 18:55	GFH
Chlorobenzene	ND	ug/L	21	100000	1311/8260	02/09/15	02/09/15 18:55	GFH
1,4-Dichlorobenzene	ND	ug/L	21	7500	1311/8260	02/09/15	02/09/15 18:55	GFH
1,1-Dichloroethene	ND	ug/L	21	700	1311/8260	02/09/15	02/09/15 18:55	GFH
Trichloroethene	ND	ug/L	21	500	1311/8260	02/09/15	02/09/15 18:55	GFH

Approved by: Matt Oshe
QC Chemist

Notes/Qualifiers:
LLQ- Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
REGL - RCRA Regulatory Limit. For TCLP reference 40CFR, Part 261.24, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic
NRM - Non-Reactive Matrix as defined by D003
Results reported on a dry weight basis.

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Chain of Custody Record

Customer:	JENKINS ENVIRONMENTAL
Contact/Report to:	M. CIRRI
Phone:	410-828-9888
Fax:	410-828-9899

E-mail address:	MCIRRI@JEINC.ORG
Project Name:	SPARROW PT - AIRPAX
Project Number:	2015-028
Location:	SPARROW PT., MD

SDG Number:	15020504

Sampled by:	MJC
PO Number:	

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Matrix / Preservative	RCRA CHR	PCB's	TCLP METALS	TCLP VOC/SVOC							Sampling Remarks/ Comments
	015-028-261	2/5/15	0945	1	SOLID	✓	✓	✓	✓							
	015-028-262	2/5/15	0955	1	SOLID	✓	✓	✓	✓							
	015-028-263	2/5/15	0959	1	SOLID	✓	✓	✓	✓							

Relinquished by:	M. Cirri	Date/Time:	2/5/15 1137	Deliverables:	Receipt Temperature:	Turnaround Time:
Received by:		Date/Time:	2/5/15 1137	I II III CLP EDD	Temp:____ On Ice	(STD) Next Day 2-Day Other____
Relinquished by:		Date/Time:		Custody Seals:	Comments/Special Instructions:	
Received by:		Date/Time:		Sample Cooler		
Relinquished by:		Date/Time:		Delivered by client		
Received by:		Date/Time:				

SAME DAY

Appendix B

Site Walk—REC 11B
Parcel A8

October 15, 2015

Photo 1: Outfall/drain pipe in REC 11B area.

Photo 2: Looking west at headwall with outfall/drain pipe and shallow culvert filled with gravel.

Photo 3: Looking southeast. Pipe discharges into shallow culvert filled with gravel prior to discharging to High Head Reservoir.

Photo 4: Looking northeast from shore towards end of culvert (the discharge point), baffle (boom), and concrete platform.

Photo 5: Looking south from concrete platform. Discharge pipe and culvert are to the west.

Photo 6: Looking northeast from concrete platform at baffle (boom) on High Head Reservoir.

Appendix C

Parcel A8 Sampling Plan Summary
Former Sparrows Point Steel Mill
Sparrows Point, Maryland

Table 1 - Soil Sampling Summary

Source Area/ Description	REC & Finding/ SWMU/ AOC	Figure or Drawing of Reference	RATIONALE	Number of Locations	Sample Locations	Boring Depth	Sample Depth	Analytical Parameters: Soil Samples
Exposed Cold Box Insulation	Finding 242, REC 11A	REC Location Map	Investigate potenital impacts from released insulation. When the Air Products Facility was abandoned, partial demolition occurred and cold boxes were cut open. The friable insulation of the cryogenic cold boxes was thought to contain asbestos which could enter water and soil in the area. Subsequent testing of the insulation revealed no evidence of asbestos.	4	A8-001 through A8-003; A8-020	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC, SVOC, Metals, O&G, PCBs (0-1'), Asbestos (0-1')
Oily Surface Water Discharge	Finding 243, REC 11B	REC Location Map	Investigate potential impacts from the oily surface water discharge pipe. During a site visit, oily surface water was observed on the High Head Reservoir. Booms were placed around a discharge pipe coming from the Air Products Facility, although oil was observed on both sides of the booms. The source and nature of the oily surface layer are unknown.	3	A8-004 through A8-006	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC, SVOC, Metals, O&G, PCBs (0-1'), Asbestos (0-1'), DRO/GRO
Air Products Facility		Drawings 5156 and 5161	Investigate potential impacts related to historical activities at the Air Products Facility. The facility supplied oxygen and nitrogen gas to RG Steel during its operation.	4	A8-007 through A8-010	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC, SVOC, Metals, O&G, PCBs (0-1'), Asbestos (0-1')
Flammable Material Storage Area			Investigate potential impacts related to the Flammable Material Storage Area observed during an MDE site visit.	2	A8-011 and A8-012	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC, SVOC, Metals, O&G, PCBs (0-1'), Asbestos (0-1')
Parcel A8 coverage			Investigate potential impacts related to historical activities and characterize groundwater conditions.	7	A8-013 through A8-019	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC, SVOC, Metals, O&G, PCBs (0-1'), Asbestos (0-1')
			Total:	20				

Soil Borings Sampling Density Requirements (from **Worksheet 17 - Sampling Design and Rationale**)
Engineered Barrier (1-15 acres): 0.5 boring per acre with no less than 2 borings
No Engineered Barrier (16 to 40 acres): 1 boring per 1.5 acres with no less than 15
No Engineered Barrier (25.1 acres) = **17 Borings**
Engineered Barrier - Paving (2.0 acres) = **2 Borings**

VOCs - Volatile Organic Compounds (Target Compound List)
SVOCs - Semivolatile Organic Compounds (Target Compound List)
Metals - (Target Analyte List plus Hexavalent Chromium and Cyanide)
PCBs - Polychlorinated Biphenyls
O&G - Oil and Grease
DRO/GRO - Diesel Range Organics/Gasoline Range Organics
bgs - Below Ground Surface

Parcel A8 Sampling Plan Summary
Former Sparrows Point Steel Mill
Sparrows Point, Maryland

Table 2 - Groundwater Samples

Source Area/ Description	REC & Finding/ SWMU/ AOC	Figure or Drawing of Reference	Condition of Existing Well	Number of Locations	Sample Locations	Boring Depth	Screen Interval	Analytical Parameters: Groundwater Samples†
Exposed Cold Box Insulation	Finding 242, REC 11A	REC Location Map	*N/A*	1	A8-002	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, O&G, Dissolved Metals
Oily Surface Water Discharge	Finding 243, REC 11B	REC Location Map	*N/A*	1	A8-004	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, O&G, Dissolved Metals, DRO/GRO
Air Products Facility		Drawings 5156 and 5161	*N/A*	2	A8-007 and A8-009	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, O&G, Dissolved Metals
Parcel A8 coverage			*N/A*	3	A8-013, A8-015, A8-017	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, O&G, Dissolved Metals
			Total:	7				

†Field measurements include pH, DO, ORP, conductivity, temperature.

Appendix D

Health and Safety Plan

Area A: Parcel A8
Sparrows Point Terminal, LLC
Sparrows Point, Maryland

Prepared for:
EnviroAnalytics Group
1650 Des Peres Road
Suite 230
Saint Louis, Missouri 63131

Prepared by:
ARM Group Inc.
9175 Guilford Road
Suite 310
Columbia, MD 21046

October 2015

ARM Project 150298M

Respectfully submitted,

Eric S. Magdar
Senior Geologist

T. Neil Peters
Vice President

TABLE OF CONTENTS

1.0 INTRODUCTION

This Health and Safety Plan (HASP) has been prepared for employees of ARM Group Inc. (ARM) to address personnel health and safety requirements for employees of ARM and its subcontractors to complete a Phase II investigation on a portion of the Sparrows Point Terminal, LLC property that has been designated as Parcel A8. The on-site activities shall include the following: collection of soil samples, installation and purging of temporary piezometers, and the collection of groundwater samples. ARM will comply with industry-standard health and safety protocol and Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120 to prevent human exposure to volatile organic compounds (VOC), semi-volatile organic compounds (SVOC), petroleum hydrocarbons, polychlorinated biphenyls (PCB) and metals present in site soil and groundwater.

2.0 GENERAL INFORMATION

2.1 Site Description

Parcel A8, which is comprised of 27 acres of the approximately 3,100-acre former plant property, is located off of Sparrows Point Boulevard in Sparrows Point, Maryland. Parcel A8 is one of nine parcels that make up a larger area, known as Area A, of the Sparrows Point facility. Area A and its parcels are shown on **Figure 1.**

From the late 1800s until 2012, the Sparrows Point Terminal, LLC 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, it 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.

2.2 Site Hazards

The following is a general description of the potential site hazards.

Chemical Hazards:

- VOCs, SVOCs, PCBs and petroleum hydrocarbons potentially present in soil and groundwater.

Building Material Hazards:

- Asbestos containing materials.

Explosive Hazards:

- VOC and petroleum hydrocarbon vapors in boreholes, piezometers and collection containers.

Physical Hazards:

- Slipping/tripping in work area
- Stress/fatigue from heat or cold temperatures
- Traffic
- Driving on steep slopes in off-road conditions
- Insect and animal bites
- Hand tools

Mechanical/Electrical Hazards:

- Underground utilities
- Heavy equipment (Geoprobe)
- Noise from heavy equipment operations
- Power tools

2.3 Utilities

Prior to initiating any subsurface investigations, all underground utilities will be cleared using the Miss Utility system. Additionally, EnviroAnalytics Group (EAG) will clear each proposed boring with utility personnel currently working on the property. The ARM staff will be responsible for avoiding any above ground utilities while operating vehicles on the site.

2.4 Waste Management

A small quantity of investigation derived waste material will be generated as a result of the planned site work. These wastes will include decontamination water and soil cuttings. All soil cuttings will be returned to their respective borehole. Decon water will be containerized in steel 55-gallon drums for on-site treatment, off-site disposal or discharge to ground surface, pending the receipt of analytical results. Waste will also include used personnel protective equipment (PPE) and disposable sampling equipment that may contain some chemical residue. These materials will be collected and disposed of in a municipal waste dumpster, unless visibly affected. Based on information of the site subsurface conditions, no grossly contaminated material is expected to be generated. Should such waste be generated, the materials will be stored in a steel 55-gallon drum for subsequent off-site disposal.

2.5 Site Controls and Security

It is the responsibility of ARM staff to keep unauthorized personnel away from the work areas during site work. All equipment used at the site must be secured or taken off-site. Subsurface intrusions should be covered to reduce any hazard that may be posed. Traffic cones, caution tape, physical barriers, or other such means as necessary shall be used to ensure that no unauthorized work area entry occurs.

3.0 OPERATING PROCEDURES

3.1 Air Monitoring

Due to the nature of the site activities and materials potentially present at the site, no vapor hazards are expected. If discernable odors are noted, then work will be temporarily suspended and air monitoring will be initiated using a PID or explosive gas indicator. If sustained vapor concentrations are measured at or above action levels in the breathing zone, work will immediately cease until such time as appropriate action is established. This action may require the upgrade of PPE or reevaluation of the need to proceed.

3.2 Personnel Protection

Personnel health and safety protection shall follow the guidelines provided by this HASP. Modifications to the HASP may be made by the field supervisor with the approval of the ARM Project Manager on a day-to-day basis as conditions change, based on existing conditions. Any necessary revisions must be fully documented by the field supervisor to include the specifics and rationalizations for the change.

It is anticipated that a modified Level D will be appropriate for the anticipated site activities. PPE associated with this designated level of protection (Level D), as established by the USEPA, is listed in a later section. Equipment listed for this level should be available to all personnel.

PPE will be stored in a clean, dry environment prior to it usage. Disposable equipment shall remain, in as much as possible, its original manufacturer's packaging to ensure its integrity. PPE that is assigned to a specific end user is subject to inspection by the supervisor at any time.

3.2.1 Determination of Level of Protection Requirements

The appropriate level of personnel protection must be established on the basis of ambient air monitoring responses. Air monitoring action levels should be consistent with the primary compounds of concern as listed in Table 3-1 (below). Appropriate action should be taken if total organic vapor air concentrations are sustained at a concentration equal to or greater than the PEL listed on Table 3-1.

Substance	CAS #	OSHA PEL (ppm)	IDLH (ppm)
Benzene	71-43-2	10	500
Toluene	108-88-3	200	500
Ethyl benzene	100-41-4	100	800
Xylenes	1330-20-7	100	900
Naphthalene	91-20-3	10	250
Tetrachloroethylene	127-18-4	100	150
Trichloroethylene	79-01-6	100	1,000

Notes: ppm = parts per million, PEL = Permissible Exposure Limit,
STEL = Short Term Exposure Limit, IDLH = Immediately Dangerous to Life or Health

This criterion will be applicable to all activities unless specific protection requirement for a certain task are addressed separately. As previously stated, it is anticipated that a modified Level D will be appropriate for the anticipated site activities; which requires a regular worker uniform, steel-toed safety shoes, hardhat, safety glasses and long paints. Level D will be considered the minimum protection level for all work on-site.

Respiratory protection against dust and asbestos containing materials must also be considered during site work. The usage of dust respirators (high efficiency particulate air [HEPA] filters) or NIOSH P100 filter paired with a half-mask respirator will be determined by site conditions and judgment of the field supervisor. Sprinklers may be used to control dust during work activities.

3.2.2 Dermal Protection

In general, dermal protection levels will correspond with the respiratory protection level in use during an activity as described in other sections. For most activities on the site, Level D dermal protection will be adequate. When work tasks are such that a higher level of personal protection is required, dermal protection may be upgraded to coated Tyvek (Saranex) or chemical-resistant rain suit or Tyvek. This determination will be made by the ARM Field Supervisor as required.

Chemical and abrasion-resistant outer gloves and inner chemical-resistant disposable gloves would be required in the work zone to provide adequate protection of hands and assist in preventing transfer of contaminants. As much of the investigation may require handling of possibly contaminated equipment, groundwater, or soil, chemical-resistant gloves should be required for all on-site work with these materials. Various operations, which require dexterity and do not necessitate the abrasion-resistant feature of outer gloves, could be performed with the inner gloves only, at the direction of the ARM Field Supervisor.

3.2.3 Eye Protection

Since many volatile contaminants are capable of penetrating skin tissues, the eyes provide a potential route of entry into the body. Typically, volatile organic vapors will be detected in the air-monitoring program. Dust and air-borne particulates will be monitored visually and nuisance dust standards will be applied. If exceeded, dust masks will be donned. Eye protection requirements must correspond to the respiratory protection level.

3.3 Task-Related Personnel Protection

At a minimum, all workers are required to wear long pants, steel toed shoes and a sleeved shirt at all times. Additional PPE will be required on a task-specific basis.

3.3.1 Installation of Geoprobe Soil Borings and Piezometers, Soil Logging and Soil Sampling Activities

All personnel should wear the following:

- Long pants and sleeved shirt/vest (high visibility)
- Steel toe safety boots
- Safety glasses with side shields
- Hearing protection
- Chemical resistant gloves

3.3.2 Groundwater Sampling

All personnel should wear the following:

- Long pants and sleeved shirt/vest (high visibility)
- Steel toe safety boots
- Safety glasses with side shields
- Chemical resistant gloves

3.4 Explosion Prevention

Due to the potential presence of flammable materials at the site, the following safety guidelines must be followed to prevent the possibility of explosion:

a. All monitoring equipment will be intrinsically safe or explosion-proof, if used in areas of possible explosive atmospheres.

b. A fire extinguisher, first-aid kit, and an eye wash station will be located at the site within a short distance of site work.

c. Any compressed gas cylinders or bottles will be stored safely as required by the OSHA regulations. In addition, metal barriers must be provided and installed between oxygen and acetylene bottles, extending above the height of the regulators. At the end of each work shift, regulators shall be removed and replaced with protective caps.

d. No explosives, whatsoever, shall be used or stored on the premises.

e. All cleaning fluids or solvents must be stored and transported in OSHA-approved safety containers.

f. Propane, butane, or other heavier-than-air gases shall not be transported onto or used on-site unless prior approval is obtained in writing from the Project Manager and the Facility Operator.

4.0 DECONTAMINATION PROCEDURES

Decontamination procedures will be used on some field tasks, but not all, completed at the site. All decontamination operations will be performed at the sampling location unless the level of PPE is upgraded. If the level of PPE is upgraded, all decontamination operations will be performed in a central decontamination area and supervised by the ARM Field Supervisor. If necessary, a decontamination corridor will be set up adjacent to the area and equipped with brushes, plastic bags, and drum storage. Disposable outerwear and contaminated disposable equipment will be collected and bagged for future disposal. The ARM Field Supervisor would be required to inspect PPE and clothing to determine if decontamination procedures were sufficient to allow passage into the staging area.

The following decontamination facilities, as a minimum, will be provided in the staging area:

a. Hand washing facilities

b. First-aid kit

c. Eye wash station

d. Fire extinguisher

Proper on-site decontamination procedures, the use of disposable outer clothing, and field wash of hands and face as soon as possible after leaving the decontamination corridor could effectively minimize the opportunity for skin contact with contaminants.

4.1 Personnel Decontamination Procedures

Decontamination procedures should be as follows:

Level D decontamination will consist of:

1. Potable water wash and potable water rinse of boots and outer gloves (if worn).

2. Bag or drum all visibly impacted disposable clothing.

3. Field wash of hands and face.

4.2 Equipment Decontamination

All equipment such as drilling and excavation equipment, tools, and pumps should be cleaned with potable water and a non-phosphate detergent (Liquinox), to prevent cross-contamination during the field effort and prior to equipment being taken from the site. Specific procedures for decontamination of field equipment would be established by the ARM Project Manager in order to prevent cross contamination by the drilling or sampling equipment.

Level D personnel protection is required during equipment decontamination.

5.0 EMERGENCY CONTINGENCY INFORMATION

Pertinent emergency telephone numbers are listed in Table 5-1. This information must be reviewed by and provided to all personnel prior to site entry.

Table 5-1
Emergency Telephone Numbers

Facility/Title	Telephone Number
Fire and Police	911
Ambulance	911
James Calenda, EnviroAnalytics Group	(314) 620-3056
Eric Magdar, ARM Manager	Office: (410) 290-7775 Cell: (301) 529-7140
Hospital – Johns Hopkins Bayview	(410) 550-0350

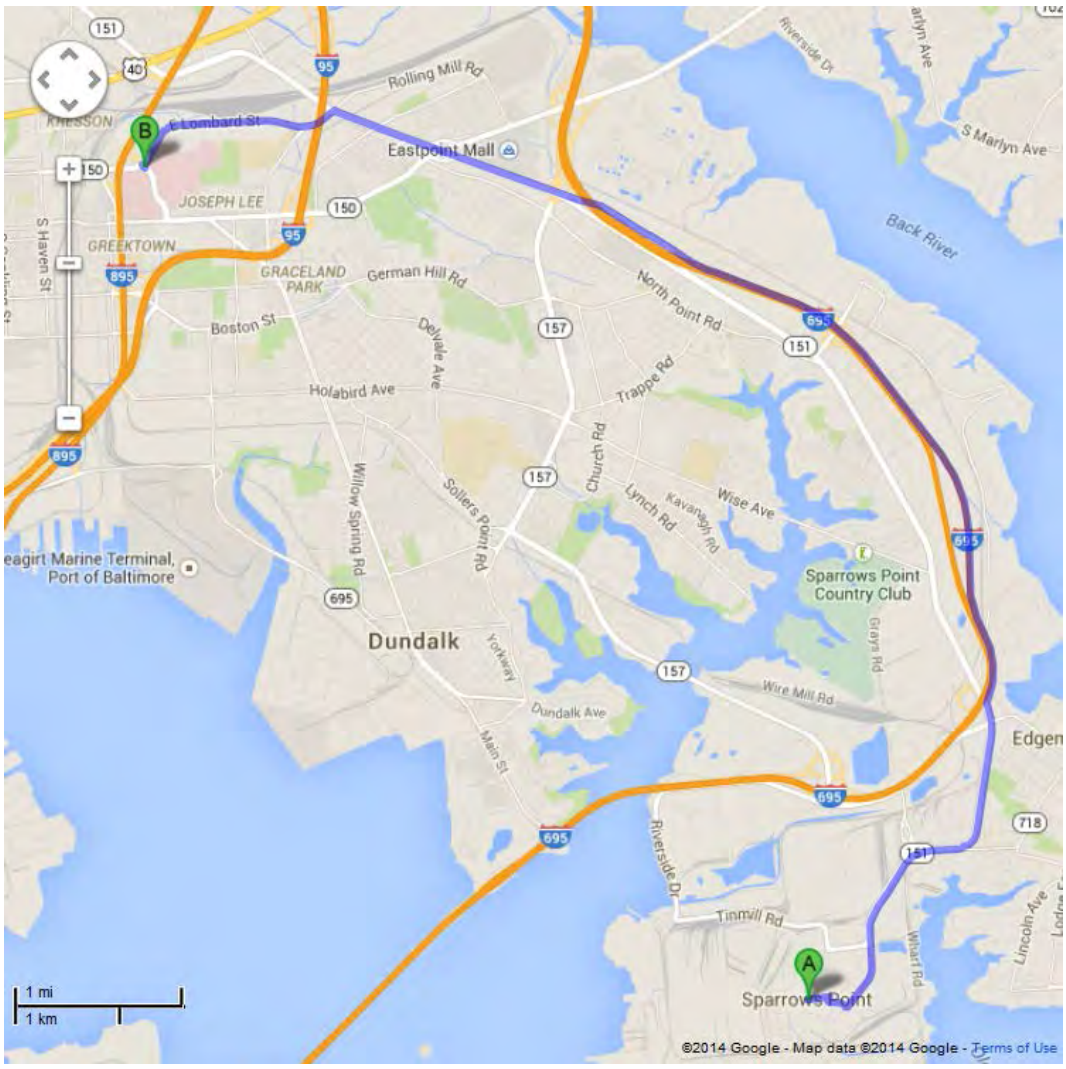
In the event of a fire or explosion, the site will be evacuated immediately and the appropriate emergency response groups notified. In the event of an environmental incident caused by spill or spread of contamination, personnel will attempt to contain the spread of contamination, if possible.

In the event of a personnel injury, emergency first aid would be applied on site by ARM as deemed necessary. The victim should be transported to the local medical facility if needed. The map to the hospital is provided below.

Hospital Route From Sparrows Point Terminal

Johns Hopkins Bayview
4940 Eastern Avenue
Baltimore, MD
(410) 550-0350

1. Start out going East on 7th Street.
2. Turn LEFT onto Sparrow Point Road.
3. Travel 1.4 miles and continue onto North Point Boulevard.
4. Travel 0.9 miles and turn slight right to merge onto I-695 North/Baltimore Beltway toward Essex.
5. Travel 3.4 miles and take EXIT 40 for MD-151/N. Pt. Blvd. N toward MD-150/East. Blvd W/Baltimore.
6. Travel 0.5 miles and merge onto MD-151 N/North Point Blvd.
7. Travel 2.0 miles and turn LEFT onto Kane Street.
8. Travel 0.2 miles and turn slight right onto E. Lombard Street.
9. Travel 1.2 miles and turn left onto Bayview Blvd.
10. Make a left at the emergency room of the hospital



6.0 ACKNOWLEDGEMENT OF PLAN

All site personnel are required to read and comply with the HASP. The following safety compliance affidavit should be signed and dated by each person directed to work on-site.

I have read this HASP and agree to conduct all on-site work in conformity with the requirements of the HASP. I acknowledge that failure to comply with the designated procedures in the HASP may lead to my removal from the site, and appropriate disciplinary actions by my employer.

Title and Company	Name	Signature	Date