



ARM Group Inc.

Engineers and Scientists

February 6, 2019

Ms. Barbara Brown
Project Coordinator
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230

Re: Delineation/Characterization of Lead
Impacted Soil at A9-001-TP
Area A: Parcel A9
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown:

ARM Group Inc. (ARM), on behalf of EnviroAnalytics Group (EAG), initiated a Phase II Investigation of Parcel A9 (the Site) in October 2017 as a part of a combined Phase II Investigation of Parcels A5, A9, and A13 (the Greys Rail Yard). Parcel A9 is located within Area A of the Tradepoint Atlantic property in Sparrows Point, Maryland. The findings of the investigation have not yet been formally presented to the Maryland Department of the Environment (MDE) and the United States Environmental Protection Agency (USEPA). An initial review of the analytical results from the soil investigation identified an elevated lead concentration (24,100 mg/kg) in test pit sample A9-001-TP. This lead concentration exceeded 10,000 mg/kg (the mandatory delineation criterion) and is relatively high when compared to the majority of data collected at the Site and at the Tradepoint Atlantic property as a whole.

The location of this test pit sample and surrounding Phase II Investigation soil borings, including the analytical lead results obtained at each location, are presented on **Figure 1**. A9-001-TP targeted a berm at the end of an historical shooting range, which is located near the edge of the Tradepoint Atlantic property in the far eastern portion of Parcel A9. This berm is approximately 20 to 25 feet tall. The lead results obtained from nearby soil boring locations A9-026-SB, A9-021-SB, A9-027-SB, and A9-024-SB (targeting the same shooting range) did not exceed the Project Action Limit (PAL) of 800 mg/kg for lead.

The concentrations of lead at the nearby soil borings suggest that the elevated lead result in A9-001-TP may not be indicative of more widespread impacts. The elevated concentration of 24,100 mg/kg likely resulted from isolated activities at the shooting range, specifically the presence of lead bullets that were fired into the berm. However, due to the elevated nature of the lead result in this sample, a supplemental investigation will be performed to determine the extent

of material containing elevated concentrations of lead (above the mandatory delineation criterion of 10,000 mg/kg). This document proposes the protocols to be followed during the lead delineation activities. All delineation protocols will be conducted in accordance with the Standard Operating Procedures (SOPs) and requirements given in the property-wide Quality Assurance Project Plan (QAPP). The investigation will be conducted under the property-wide Health and Safety Plan (HASP).

Delineation activities are proposed to determine if additional material containing concentrations of lead above 10,000 mg/kg may be present in the vicinity of A9-001-TP, and to define the horizontal and vertical extents of any such material. Metals delineation investigations are typically completed with soil borings on a 20-foot grid spacing; however, due to the unique shape of the berm, the delineation grid was modified. The original location of interest will be resampled via the collection of a surficial soil sample and two additional surficial soil samples will be collected to the east and to the west along the front face of the berm (via hand tools); three borings will be completed on top of the berm and two borings will be completed behind the berm (via hand auger); and two borings are proposed in front of the berm (via Geoprobe®). The proposed delineation soil sample locations are presented on **Figure 2**, which includes an elevation hillshade background indicating the berm.

The initial location of interest (A9-001-TP) will be resampled in accordance with this delineation plan. At each proposed delineation boring location in front of the berm, soil samples will be collected for analysis from intervals of 0 to 1, 4 to 5, and 9 to 10 feet bgs using a Geoprobe® direct push rig. Samples will not be collected from below the groundwater table. If groundwater is encountered above 10 feet bgs, the deepest sample interval will be shifted to the 1-foot interval just above the groundwater table. Any sample collected from the 10-foot (or adjusted) interval will be held at the laboratory and will only be analyzed if the lead result from the overlying sample exceeds 10,000 mg/kg. At the proposed delineation borings on the top of and behind the berm, borings will be completed to a depth of 5 feet bgs (collecting soil samples from the intervals of 0 to 1 and 4 to 5 feet bgs) using a hand auger because the Geoprobe® cannot access these locations. At the proposed delineation locations on the face of the berm, surficial samples will be collected from the top 6 inches using hand tools.

Delineation soil samples will be submitted to Pace Analytical Services, Inc. (PACE) and analyzed for lead via USEPA Method 6010. Any soil waste generated during the delineation activities will be placed in designated drums and characterized via TCLP testing to determine the appropriate disposal requirements. Any (minimal) aqueous waste generated from decontamination fluids, etc. will be managed in bulk with waste from other investigations, and will be appropriately characterized prior to disposal.

The initial delineation phase has 12 proposed soil sample locations, including resampling the original location of interest. Based on the analytical results from this initial investigation, the



sampling grid may be modified (with additional locations added) to improve the resolution of the delineation, or to expand the grid if any lead concentrations above 10,000 mg/kg are found at the edges of the initial grid. Additional delineation soil borings may be completed to characterize potential lead contamination within Parcel A9; however, the Tradepoint Atlantic property boundary is located approximately 100 feet to the east and the delineation will not extend beyond the property boundary. The findings of this investigation, including any expansion of the delineation scope proposed herein, will be provided to the agencies in an interim submittal. If a recommendation for no further action is appropriate following agency review of the interim submittal, a Supplemental Investigation Report will be prepared to formally present a summary of the findings. In the event that a remedial response action such as excavation is required, a Work Plan will be provided separately for agency review and approval.

If you have questions regarding any information covered in this document, please feel free to contact ARM Group Inc. at (410) 290-7775.

Respectfully submitted,
ARM Group Inc.



Taylor R. Smith
Project Engineer



Eric S. Magdar, P.G.
Vice President



FIGURES



