Public Informational Meeting on the Former Sparrows Point Steel Mill Environmental Cleanup

October 3, 2019

Demolition Former Pennwood Power House

Last Major Structure to be Demolished

Tin Mill Canal

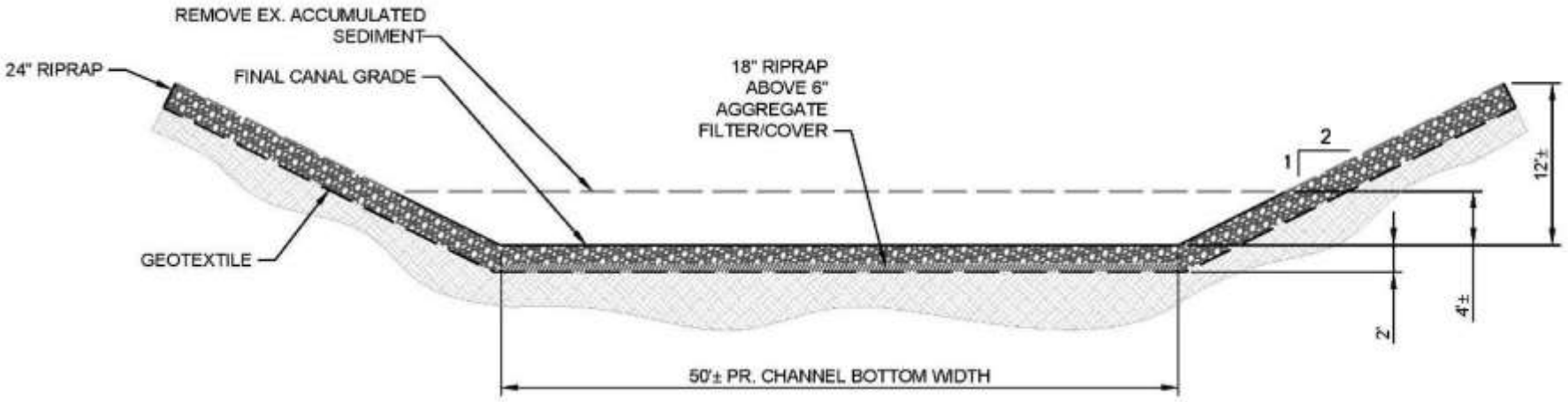
Site Map - Location of Tin Mill Canal

- **Approximately 7,500 feet in length, 30 to 50 feet wide and 15 feet below grade.**
- **The canal was constructed from slag and includes numerous point discharges (outfalls) from the site storm sewer system.**
- **The eastern portion of the TMC began operating in the early 1950s. The western (remaining) portions of the canal and HCWWTP were completed and began operating in approximately 1969.**

Tin Mill Canal-Maintenance Cleanup Plan

December 18, 2017 Maintenance Cleanup Plan:

Excavation and removal of sediment from the TMC to address sediments with PCB concentrations greater than 50 mg/kg, and accumulated sediments that contain elevated levels of oil & grease that restrict the flow capacity of the canal



TYPICAL CANAL CROSS-SECTION AND 2-FOOT THICK CAP

Tin Mill Canal Site Conditions
Prior to Work Plan Implementation

Former Mill Complex

Former Oil Skimmer

Tin Mill Canal

Tin Mill Canal

Sediment Removal

Tin Mill Canal

Completed Section

Tin Mill Canal

Between January 2018 and September 2019:

117,776 Tons of Sediment Removed From the TMC

343 Tons of PCB Sediment Removed and Disposed of Off-Site

54,579 Tons of Class 1 RIP RAP Placed in TMC

89,309 Square Yards of Geotextile Fabric placed in TMC below Rip RAP

Site Investigation Status from April 24, 2018 to September 25, 2019

Phase II Work Plans Submitted Since April 2018

The Agencies have received the Phase II Work Plans with proposed soil, groundwater and soil gas sampling points based on the location of potential releases from historical processes conducted at that parcel and sufficient additional sampling locations to provide coverage of the entire parcel. The Agencies have approved or are currently reviewing these work plans.

Phase II Work Plans Submitted:

Area A Parcels:

A-6 (Approved)
A-14 (Approved)
A-17 (Approved)
A-18 (Under Review)

Area B Parcels:

B7/B25 (Yacht Clubs and Fire Training Facility) (Approved)
B-20 (Lafarge) (Under Review)
B-21 (Former Tin Mill Building) (Approved)
B-23 (Approved)
B-24 (Humphries Creek Wastewater Treatment Plant) (Under Review)

Parcel B7/B25

First Phase II Work Plan Submitted August 23, 2017 for approximately 124 acres-Revised Plan submitted May 22, 2018

Former Rail Yard-Potential Fill Material Identified as a REC (recognized environmental concern)

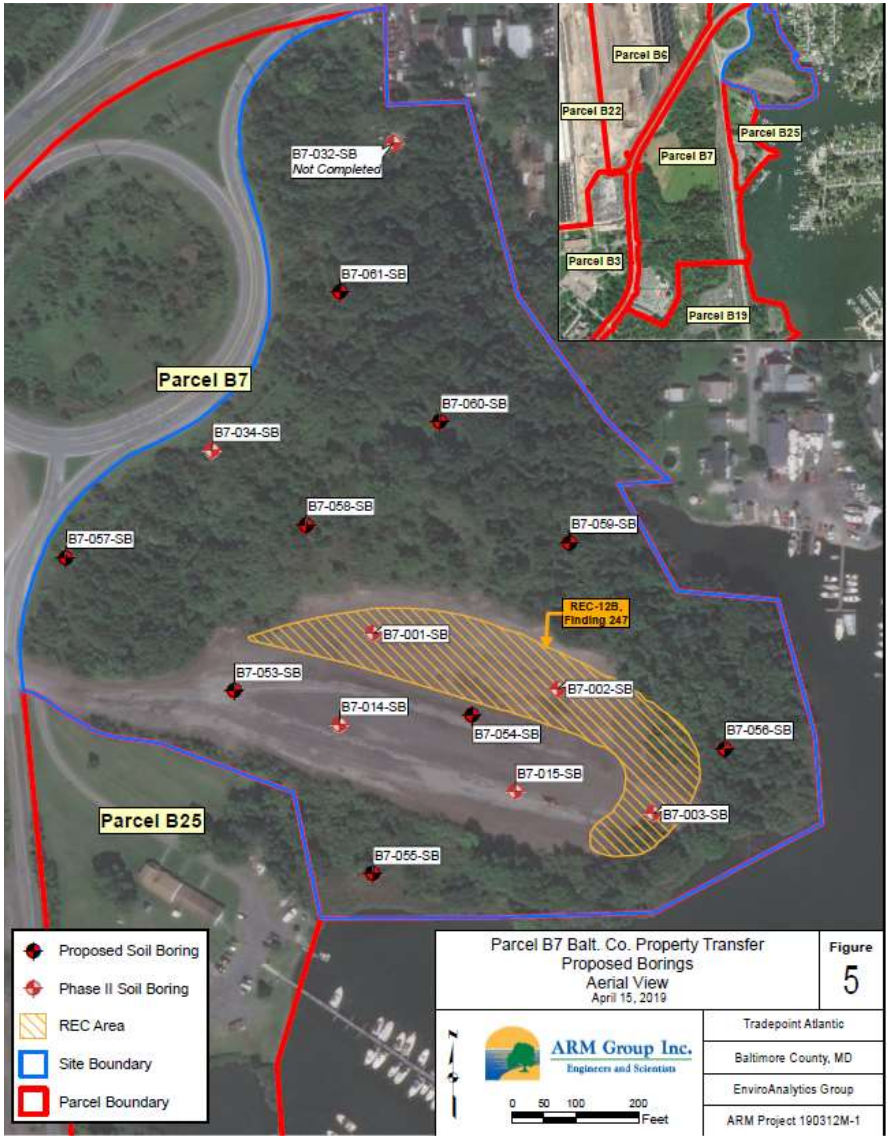
Historic Uses:
Housing for Mill Workers,
Golf Course, Ballfields, Rail Yard

Current Uses:
Two Yacht Clubs, Rail Lines, Baltimore County Vehicle Maintenance Shop and a Baltimore County Office of the Fire Department (Baltimore Fire Academy).

Parcel B7

Work Plan for Additional Sampling for Potential Recreational Use as a Baltimore County Park dated April 15, 2019

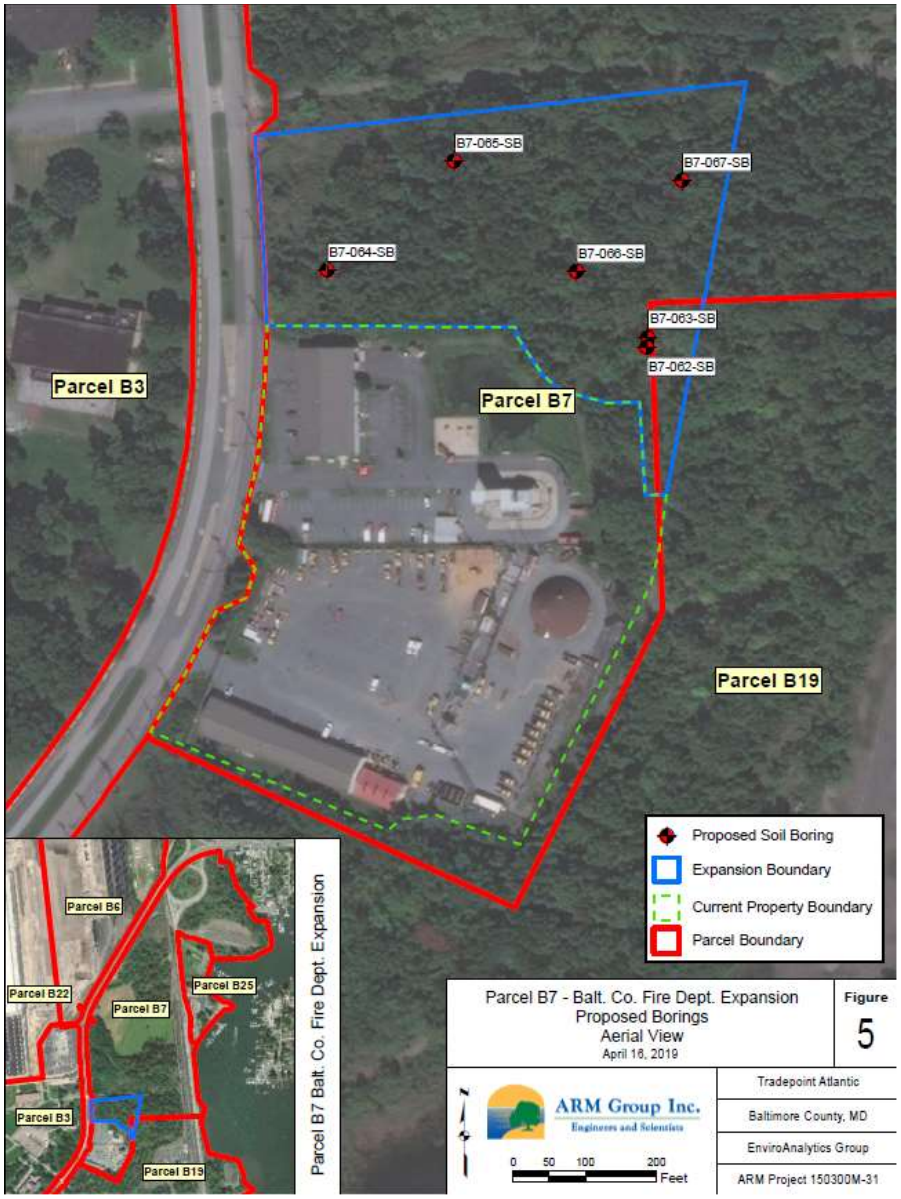
22.6 Acres in Northern Portion of B7



Parcel B7

Work Plan for Additional Sampling for Potential Expansion of Baltimore County Fire Academy dated May 29, 2019

5.1 Acres in Southern Portion of B7



Phase II Reports Submitted Since April 2018

The Agencies have reviewed the Phase II Work Plans, conducted site visits and requested revisions, if necessary. Upon approval of the Phase II Work Plan, field work can begin at the Parcel. Once the field work is completed and the data is validated the Phase II Report summarizing the sample results and initial risk screening is submitted to the Agencies for review.

Area A Parcels:
A-7 (Revision)
A-10 (Revision)

Area B Parcels:
B-1 (Revision)
B-2 (Revision)
B-3 (Revision)
B-4 (Revision)
B-5 (Revision)
B-22 (Revision)

Human Health Screening Level Risk Assessment (SLRA)

Populations based on Land Usage:
Industrial-Composite Worker and Construction Worker
Commercial-Composite Worker, Construction Worker, Youth Visitor and Child Visitor

Identify Exposure Units
Buildings/Parking Lots/Open Space etc.

Identify Constituents of Potential Concern (COPCs)
(above USEPA RSLs set at target cancer risk of 1E-6 or non-cancer Hazard Quotient of 0.1)

Exposure Point Concentrations
Statistical Analysis of Surface (0-1 foot), Subsurface (greater than 1 foot depth) and Pooled

Evaluation of Risk Ratio's as Compared to Cancer Risk of 1E-5 and Non-Cancer HQ of 1

Assess Lead and Petroleum Contaminants

Response and Development Work Plans

Received for Parcels:

A-1, A-3, A8-1, A11-1, B1-1, B1-2, B2-1, B2-2, B4-1, B5-1, B6-1, B6-2, B-15, B19-1 and B22-1

The evaluation of risks and development of remedial measures as part of the redevelopment process relies on the information collected from site-wide studies conducted over 20 years and current soil and groundwater samples collected under the ACO procedure for Parcels or Portions of Parcels.

This process ensures that redevelopment occurs in a way that protects human health and the environment.

Any changes to an approved RDWP must be submitted in a RDWP Addendum to be reviewed and approved by the Department.

Response and Development Work Plans

Based upon the results of the Development Area Specific Risk Assessment and Depending on the Parcel Conditions and Proposed Development Configuration Each Development Work Plan May Include Procedures for:

- Delineation and Removal of Contaminated Soil
- Installation of Sediment and Erosion Controls
- Monitoring well abandonment
- Grading and site preparation
- Light Standard Pier Installation
- Installation of underground utilities
- Landscaping
- Asphalt Paving
- Security and Lighting
- Storm Water Management
- Dust control
- Soil Management
- Dewatering
- Health and Safety
- Long Term Maintenance

Limited Scope Project Plans (LSPPs)

36” Water Main Project – replacement project
BGE Towers – to supplement B2-1, BGE Substation
A-Yard Paving and Utilities –
Retail Area Gas Line – within B6-2 Retail Area
Pasha Gas Line – within B4-1 Pasha Area
Riverside Drive Utilities – to connect and extend existing utilities
Wind Power Laydown Area Plan – interim use plan for a portion of Parcel B5
Northern Sewer Line Plan – supplement development parcels in the northern portion of the site (ex: A11-1, A8-1, B6-2)
Southern Sewer Line Plan – supplement development along Sparrows Point Boulevard
B2-2 External Utilities Plan – to connect Parcel B2-2, F & D development to site-wide utilities

Example: Riverside Drive Utilities LSPP Boring Location Figure

Materials Management and Soil Tracking

MDE has worked with the on-site environmental contractor and TPA to create a system for managing and tracking the significant amounts of materials and soils moved around the site (ex: slag, excess soil, recycled concrete), as well as materials brought in to the Sparrows Point Site from off-site sources (ex: topsoil, gravel, clean fill)

All material must be certified by the quarry as clean or sampled in accordance with an MDE approved work plan and the sample results reviewed and approved by MDE prior to use on site.


CALIBER ANALYTICAL SERVICES

Certificate of Analysis

Materials Management and Soil Tracking

A Significant Need for Fill Material to Backfill Pits and Raise Site Grades

Example RDWP/Construction Oversight by an Environmental Professional

Notify MDE

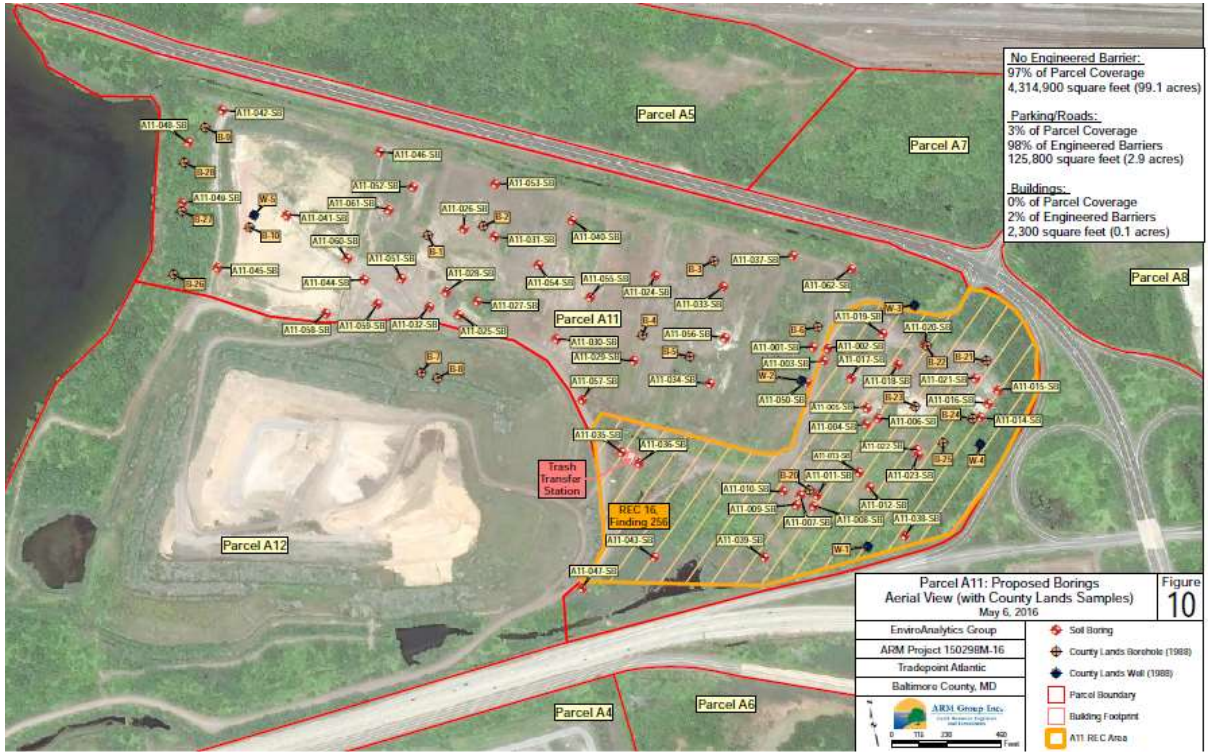
Observe Soil Condition

Manage, Sample and Dispose of Properly with MDE Approval than Document for Final RDWP Completion Report

Recent RDWP Projects at B1-2 and B2-2

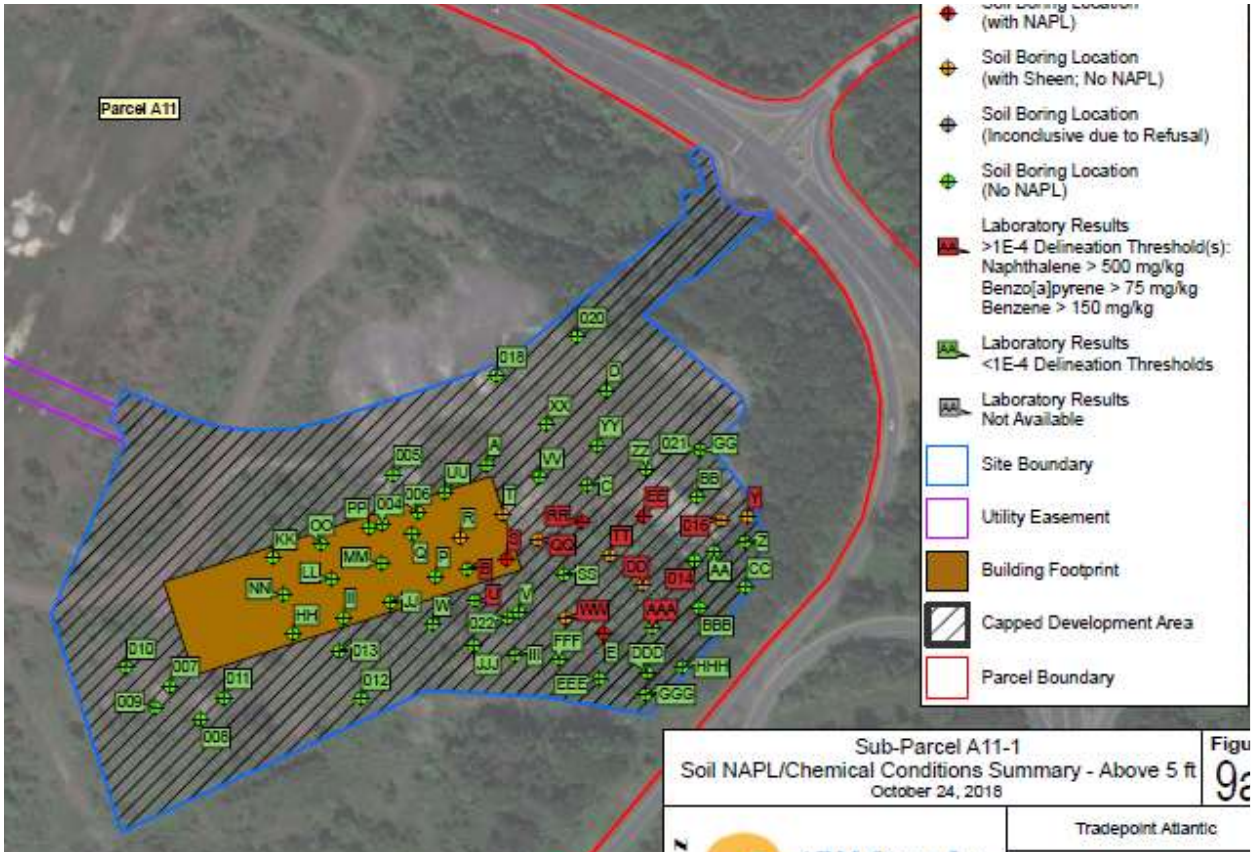
Parcel A11-1

A11-1 consists of 12.7 acres of the 102 acre A11



Potential concerns were historically located within the Contractor Area (all of which have been removed), including an earthen oil pit, underground storage tanks (USTs), gas pumps and a pump island, unlabeled drums and containers with evidence of leaking and staining, and a small Coal Tar Area.

Parcel A11-1



Contaminants of Concern in soil included: arsenic, manganese, thallium, and vanadium, one VOC (benzene), SVOCs, TPH-DRO/GRO, and Oil & Grease

Contaminants of Concern in groundwater included: benzene and naphthalene

Parcel A11-1 RDWP

- RDWP includes remedies to address potential risks to construction workers and site workers. Ground water will be addressed separately.
- Intrusive construction work or activities which require the handling of potentially impacted materials will be performed by Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) trained workers with a Health and Safety Plan.
- The entire site will be capped by the building slab, asphalt parking areas or landscaped areas with a minimum of two feet of approved clean fill over a geotextile fabric.
- The warehouse building will be constructed with a sub-slab vapor barrier and a passive/active piping system. Sub-slab and indoor air testing will be required to verify the installation prior to occupancy.
- Water generated during dewatering will be containerized and treated, if necessary.
- Lined storm water ponds to prevent infiltration of surface water.
- Low permeability backfill and trench plugs where necessary in utility installations.
- Restriction on the use of groundwater and other land use controls with requirements for inspection and maintenance of capped areas, notification of Agencies prior to disturbing the capped area, and soil disposal requirements to be recorded on the property deed in an Environmental Covenant.

Parcel A11-1

Vapor Barrier

Parcel A11-1

Under Construction

Naphthalene Contaminated Slag Incident

May 17, 2019-MDE's Air and Radiation Administration (ARA) receives complaints regarding a mothball/tar odor in the Edgemere Area. ARA inspector on-site with Pete Haid TPA. The source of the odor is traced to slag processing operation located at the end of Wharf road on the Jones Creek side near the Lafarge cement plant. A stop work order was issued on the slag reclamation until samples of the impacted slag were obtained. Other TPA employees stated that they also smelled the mothball odor on the other side of the plant.

May 17-May 21, 2019 ARA receives 24 complaints regarding odor.

May 21, 2019 MDE's Land Restoration Program (LRP) visited site and required the face of the slag excavation and small slag stockpile to be capped with plastic and clean fill material.

May 23, 2019 Sample results indicate the slag has elevated levels of naphthalene.

May 28, 2019 After LRP site visit-additional areas of slag excavation capped with clean soil.

June 13, 2019 LRP receives proposal to coat slag piles with Posi-Shell-The plan was approved and the coating process began June 20, 2019.

Naphthalene Contaminated Slag Incident

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Naphthalene Contaminated Slag Incident

Capping slag excavation face and contaminated slag pile with plastic and clean fill

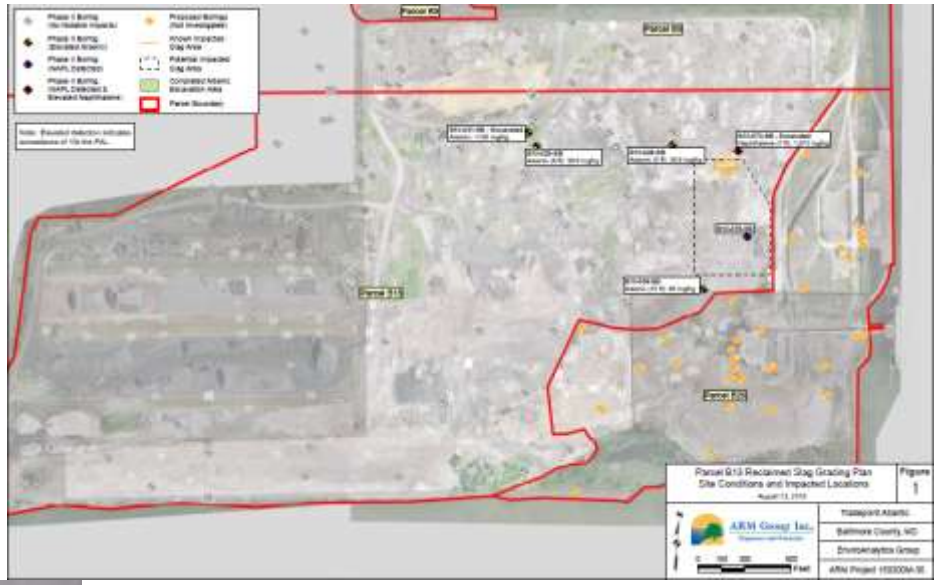
Naphthalene Contaminated Slag Incident

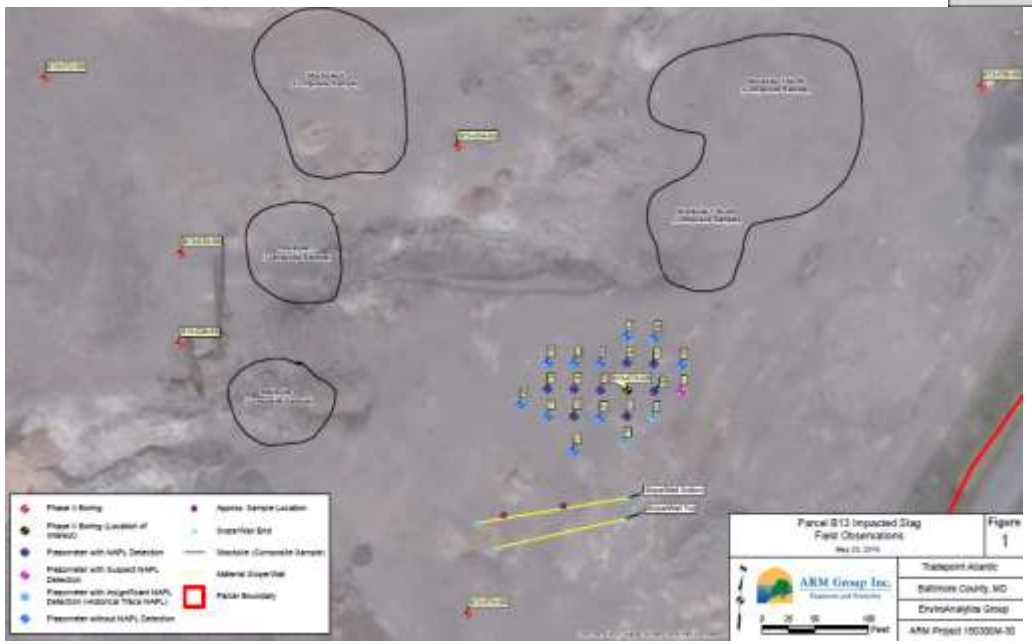
Application of Posi-Shell

Naphthalene Contaminated Slag Incident

Moving Forward:

New Contractor has a specific health and safety plan with odor reporting procedure and increased oversight from an environmental professional





The posi-shell coating on the contaminated slag piles will be reapplied, if necessary. The slag piles will not be disturbed until a plan is approved and shared with the community prior to implementation.

EPA Status Update

Rod & Wire Mill Interim Measure

Coke Oven Area Interim Measure

Remedy Selection for Five Parcels

Interim Measures Parcel A3 Rod and Wire Mill (RWM)

Former Interim Measure- Groundwater Extraction

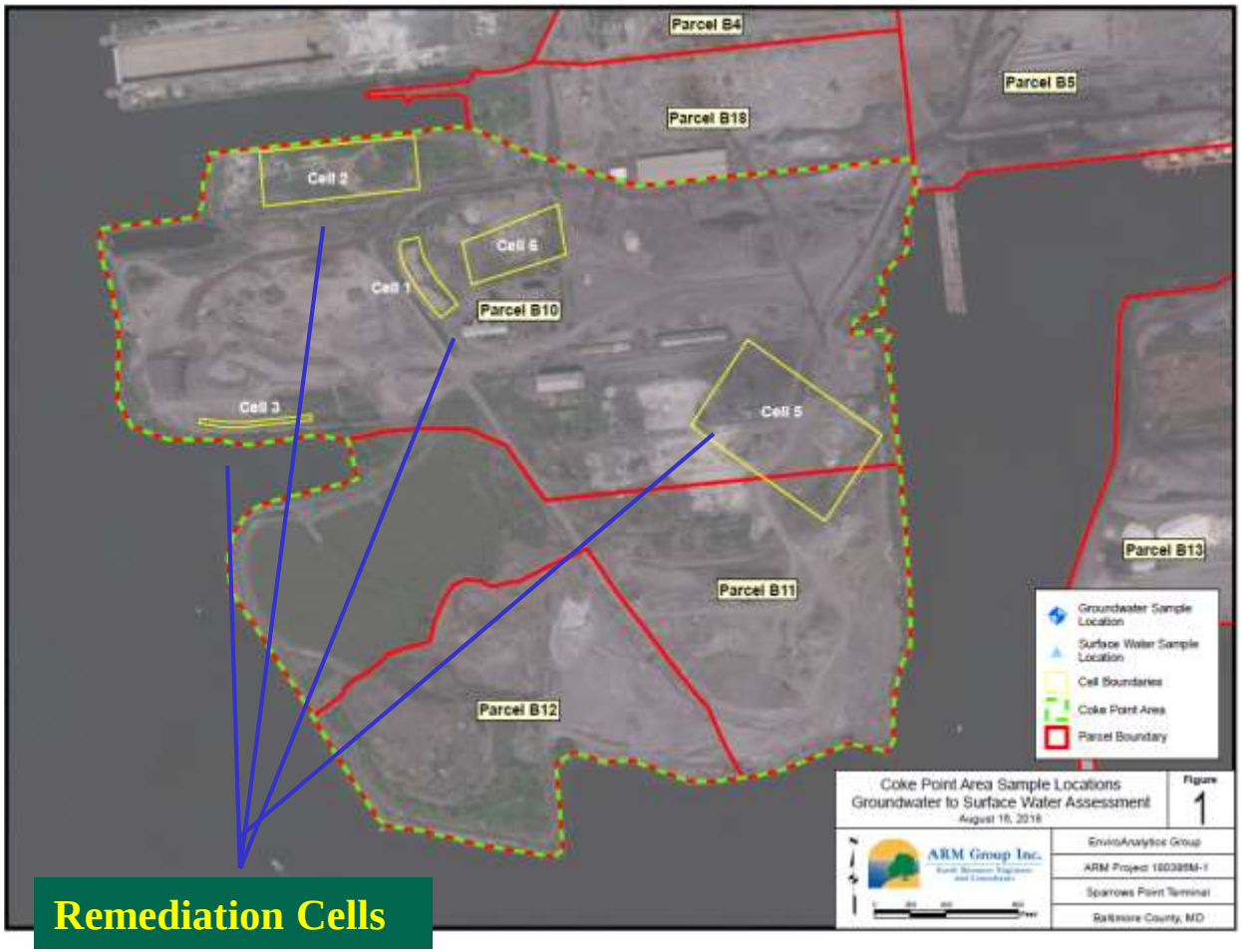
- Active Remedy since 1986
- Pump & Treat of groundwater
- Consisted of two groundwater extraction wells
- Capture & Control of dissolved Zn & Cd in shallow & intermediate groundwater
- Shut down in late 2016

Current Interim Measure- Interception Trenches

- Four treatment trenches
- Reduce dissolved metal concentrations in the source area
- Network of monitoring wells
- Supplemental Investigation Report (SIR) – August, 2019
- Data will be used to enhance IM

Current Interim Measure- Remediation Cells

- Five operating remediation cells
- Consists of Groundwater Extraction, Free Product Recovery, Dual-phase Extraction
- Approx. 20,000lbs of hydrocarbons removed to date
- SIR submitted August 2019
- SIR - contaminants in surface water exceeded water quality criteria; however, concentrations are below MDE's recreational human health based concentrations for direct contact exposures.



Final Remedy Selection – 5 Parcels

- Response and Development Workplans approved for Parcels –A2, A3, B3, B4 and B15
- EPA is preparing a Statement of Basis
- Proposed Remedy is for Soils Only
- Public comment expected 4th quarter of 2019.

For Additional Information

Barbara Brown-Project Coordinator
Maryland Department of the Environment
Land Management Administration
Land Restoration Program
1800 Washington Boulevard
Baltimore, Maryland 21230
(410) 537-3493
Barbara.brown1@maryland.gov

Visit the MDE Website!

https://mde.Maryland.gov

Two linked web pages:

Maryland Hazardous Waste Site Information For Sparrows Point Steel Mill
Sparrows Point Environmental Reports

For Additional Information:

Moshood Oduwole-Remedial Project Manager
U.S. Environmental Protection Agency Region 3
Remediation Branch #1
Land, Chemicals & Redevelopment Division

Mail Stop: LD10
1650 Arch Street
Philadelphia, PA 19103-2029
(215) 814-3362
Oduwole.Moshood@epa.gov

Questions ?