



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

May 19, 2021

Presentation Agenda

- Site Investigation and Remediation Status – MDE
- Sparrows Point Groundwater – TPA
- Groundwater Remedy Selection- EPA

Important Meeting Notes

- Mute your lines during presentations, no exceptions
- One speaker at a time
- Write your questions in the ‘Chat’ box
- If you prefer to speak, indicate in the ‘Chat’ box
- For telephone participants, use * 6 to unmute during Q&A
- Questions will be taken in the following order:
 - a. Questions in ‘Chat’ box
 - b. Identified speakers in ‘Chat’ box
 - c. Telephone participants

Site Investigation and Remediation Status

MDE Update

Site Investigation Status March 2021



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. Work Plans may also be submitted to further investigate portions of a larger parcel after the initial Phase II report is provided. The Agencies have approved or are currently reviewing these work plans.

Phase II Work Plans Submitted:

Area A Parcels:

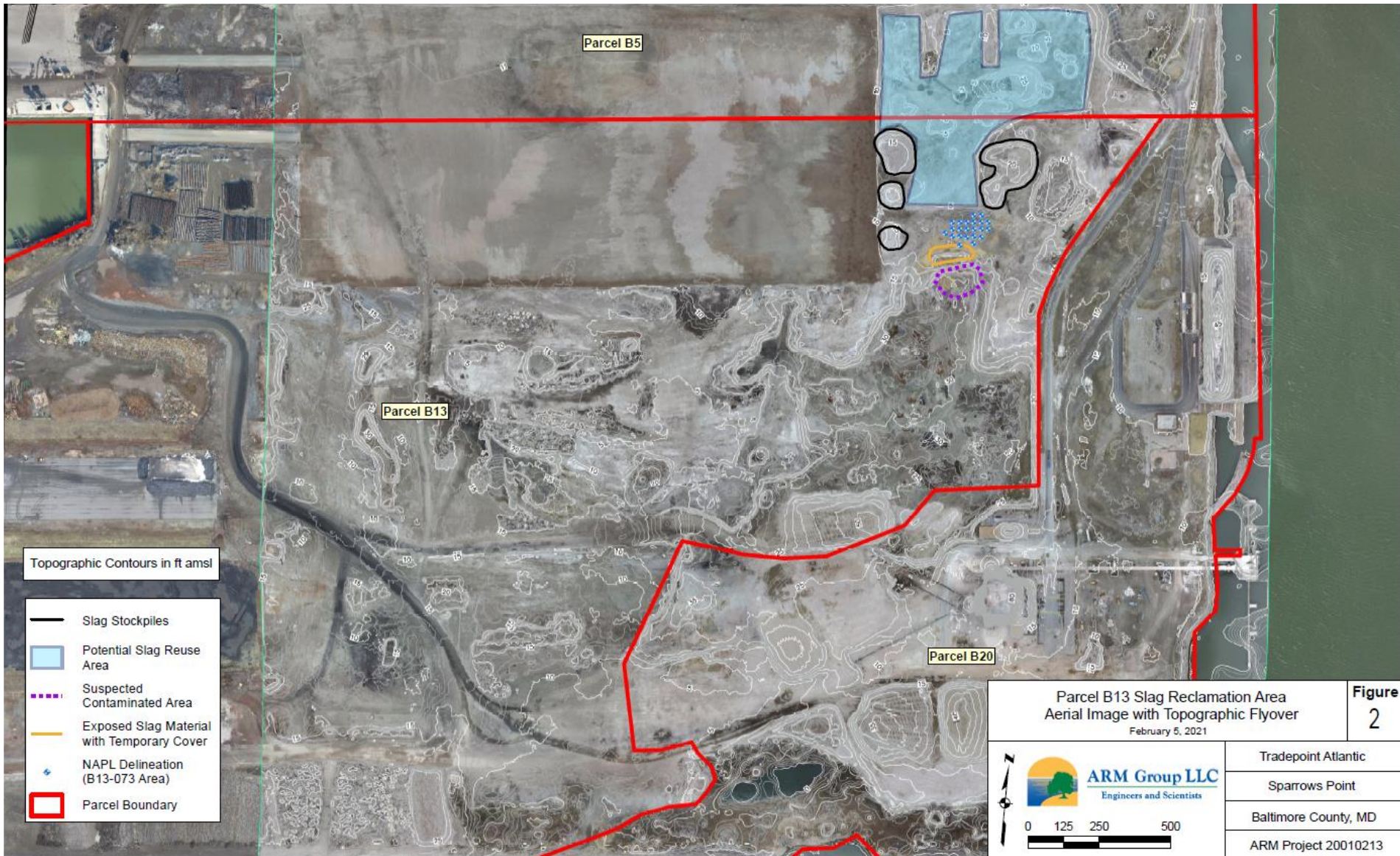
A-1 Remnant Area

Area B Parcels:

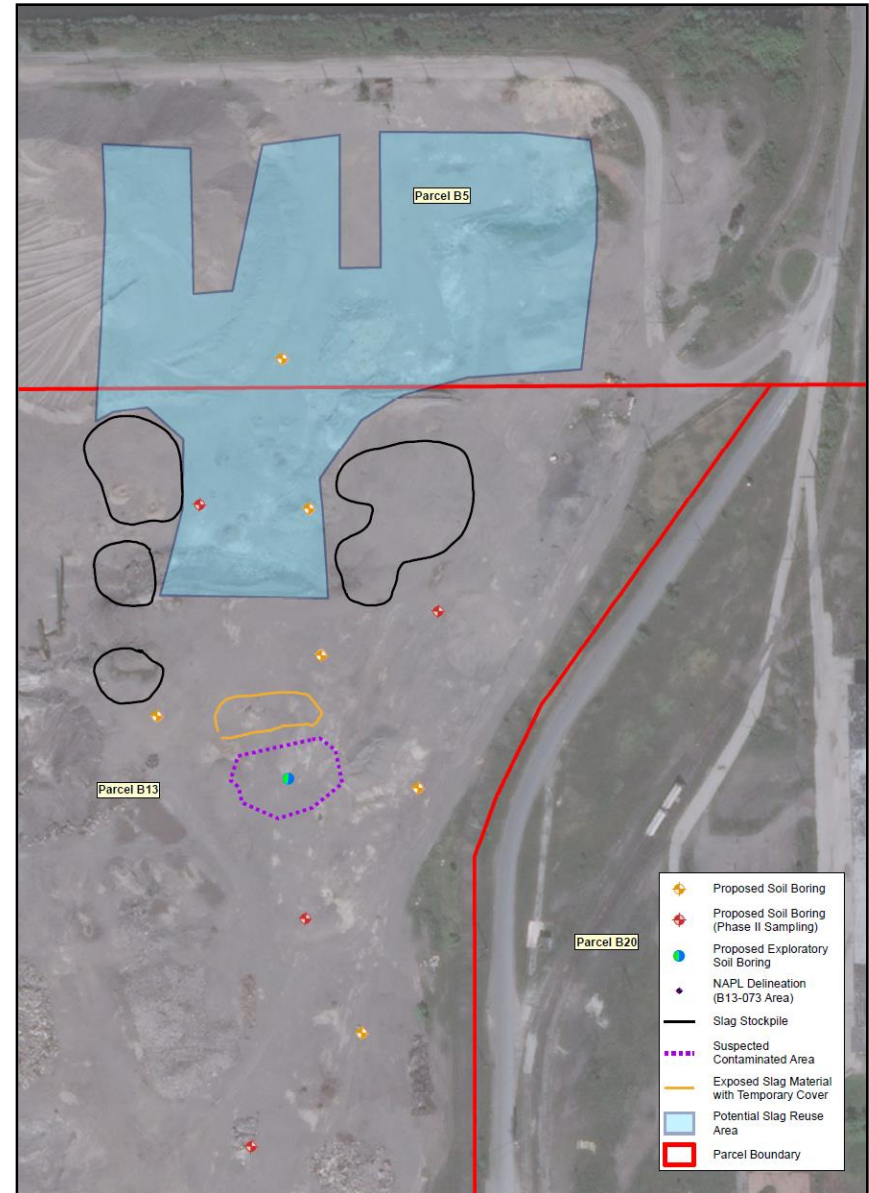
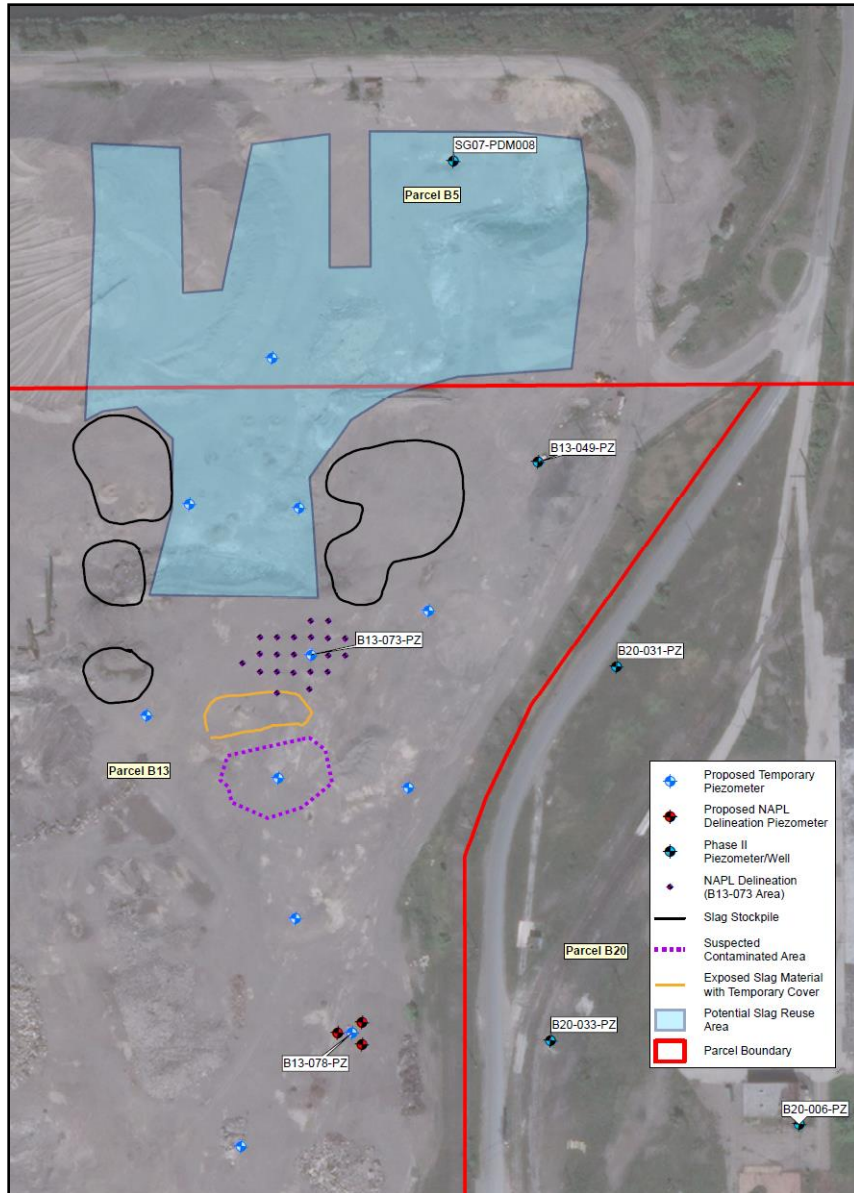
B-13 Supplemental Investigation Area



B-13 Supplemental Investigation Area



B-13 Supplemental Investigation Area



B-13 Supplemental Investigation Area



Phase II Reports Submitted Since October 2020

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-14

A-17

A-18

Area B Parcels:

B-7

B7/B25

B-9

B-11

B-24



B7 Proposed Park Area

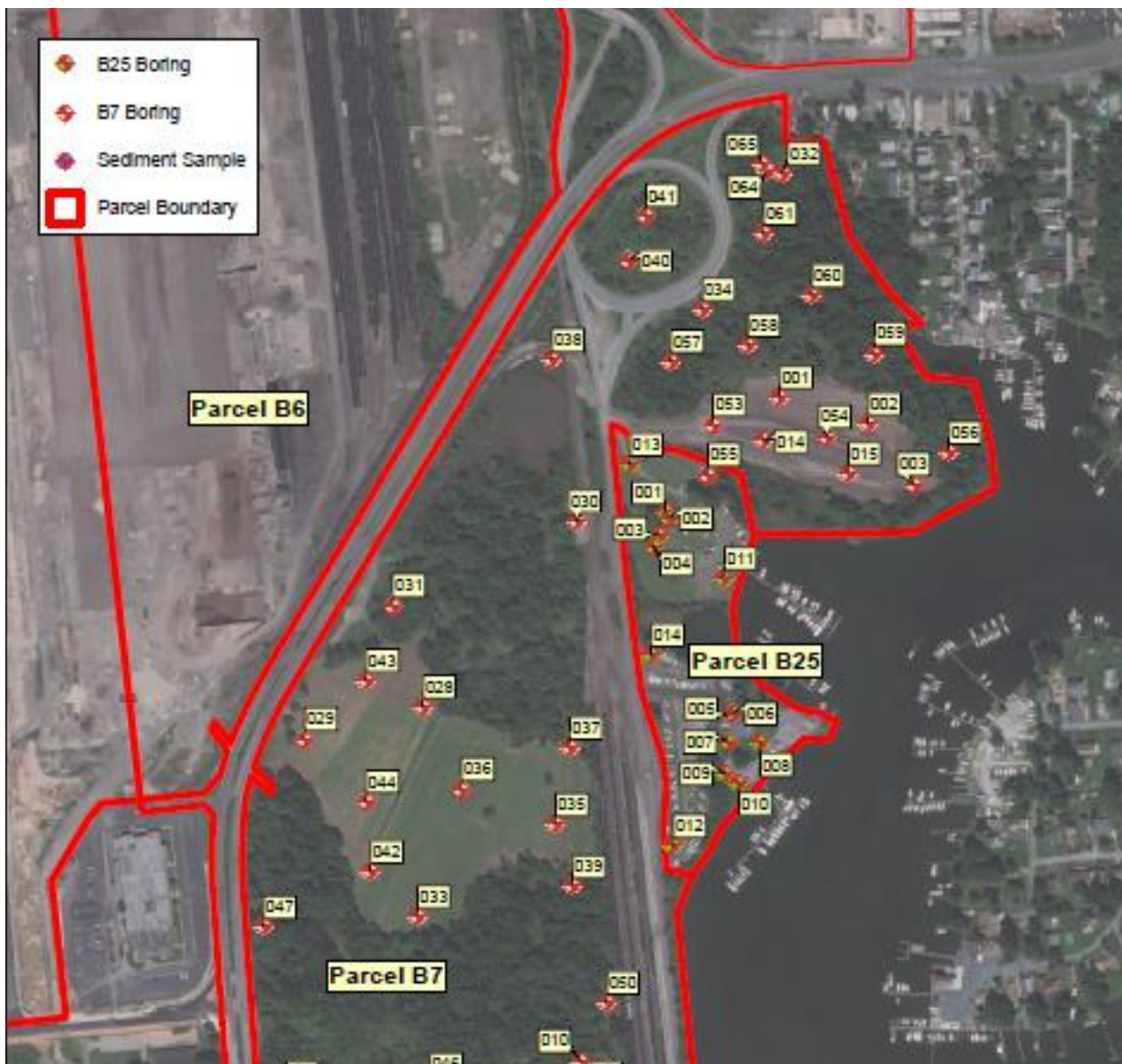
<https://www.baltimorecountymd.gov/departments/recreation/countyparks/sparrows-point-park-project>



KEY

- 1 COMMUNITY CENTER
- 2 LIGHTED SYNTHETIC TURF FIELD
- 3 WARM-UP AREA
- 4 PLAYGROUND
- 5 STORMWATER MANAGEMENT AREAS
- 6 FISHING PIER/KAYAK LAUNCH
- 7 WALKING PATHS
- 8 CONCESSION PICNIC AREA
- 9 ELECTRIC VEHICLE CHARGING STATIONS
- 10 SOLAR PANEL ARRAY

B7 Proposed Park Area



Soil and groundwater samples were initially collected during the Phase II assessment of the entire B7 Parcel

Additional sampling was performed based on proposed Recreational Use as a Baltimore County Park

A risk assessment will be performed on all data based on Recreational Use

Appropriate remedies to be chosen based on the results of the risk assessment and the proposed construction



Corrective Measures Studies (CMS)



Studies that are completed after the initial Phase II report and Human Health Risk Assessment for Parcels or portions of Parcels or for media such as the Site Wide Groundwater for the identification and evaluation of remedial alternatives. The CMS will include establishment of media cleanup objectives, identification of corrective measures alternatives and an evaluation of these alternatives based on the following:

- Long Term Effectiveness
- Reduction in Toxicity, Mobility or Volume of Wastes
- Short Term Effectiveness
- Implementability
- Community Acceptance
- State Acceptance
- Cost

Corrective Measures Studies (CMS)

Example Evaluation from B14 Humphrey Impoundment Draft CMS Report-April 27, 2021

Table 4 - Summary of Remedial Alternatives Evaluation
Parcel B14 CMS

CRITERIA	POTENTIAL REMEDIAL ALTERNATIVES			
	Alternative 1 No Action	Alternative 2 Filling and Capping	Alternative 3 In-Situ Remediation	Alternative 4 Removal and Disposal
Description	- No remedial actions taken.	<ul style="list-style-type: none"> - In-place containment of materials below an impermeable asphaltic cap. - Cap design will incorporate a vapor collection layer and appropriate vents to allow for venting of generated methane. - Property use restrictions and long-term monitoring and maintenance to ensure that controls remain effective. 	<ul style="list-style-type: none"> - Injection of chemical reagent using direct push technology or injection wells - Two step process consisting of permeability reduction followed by chemical weathering and NAPL encapsulation. 	<ul style="list-style-type: none"> - Excavate contaminated materials and transport to approved off-site disposal facility. - RCRA-hazardous materials would require treatment and/or disposal at an approved hazardous waste facility.
Long-Term Effectiveness	- Does not address all of the media cleanup objectives.	<ul style="list-style-type: none"> - Capping will provide for long-term control of direct contact exposures. - Sub-slab vapor barrier and venting system and utility backfill controls will prevent unacceptable inhalation risks. - Long-term monitoring will be conducted to ensure long-term effectiveness. 	<ul style="list-style-type: none"> - Long-term effectiveness is unknown and would have to be estimated from treatability studies. - May increase contaminant mobility. 	- Has the potential to be effective in the long-term.
Reduction of Toxicity, Mobility and Volume (TMV) by Treatment	- No reduction in TMV.	- No reduction in toxicity or volume, but may reduce mobility by reducing infiltration.	<ul style="list-style-type: none"> - Treatability studies required to confirm potential reduction in TMV. - In-situ chemical treatment has the potential to increase contaminant mobility. 	- May involve some reduction of TMV through treatment, but primarily just relocates a relatively large volume of waste.
Short-Term Effectiveness	- No change to short term risks.	- Can be quickly implemented with minimal short-term exposure risks.	- May increase short-term exposure risks because of material exposure, handling, and treatment.	- Expected to significantly increase short-term exposure risks because of the exposure, handling, and transportation of a relatively large volume of waste.
Implementability	- Does not present any technical implementation concerns, but not expected to be administratively implementable because it does not address remedial objectives.	- Can be readily implemented with available and proven technologies.	<ul style="list-style-type: none"> - Requires specialized equipment and materials. - Treatability studies required to confirm technical implementability. 	- Potential short-term exposure risks, air emission controls, excavation of materials from below the groundwater table, materials handling and transportation, and other factors present significant implementation concerns.
Community Acceptance	- Not anticipated to be favorable because it does not address remedial objectives.	- Expected to be acceptable because it meets remedial objectives without increasing exposure risks to the community.	- Potentially acceptable depending on results of treatability studies and supplemental studies.	<ul style="list-style-type: none"> - Transportation of large volumes of waste through any community is generally not favorable. - Fugitive chemical emissions and odors are a potential concern.
State Acceptance	- Not anticipated to be favorable because it does not address remedial objectives.	- Expected to be acceptable because it meets remedial objectives and evaluation criteria.	- Potentially acceptable depending on results of treatability studies and supplemental studies.	- Potentially acceptable, but the relocation of large volumes of waste is generally not favorable.
Estimated Cost	\$0	\$6.7 million	\$20 million	\$100 million
Conclusion	Does not meet cleanup objectives. NOT RECOMMENDED.	Cost-effectively meets cleanup objectives and evaluation criteria. RECOMMENDED.	Questionable effectiveness, implementation concerns, increased short-term exposure risks, and high cost. NOT RECOMMENDED.	Implementation concerns, increased short-term exposure risks, and extremely high cost. NOT RECOMMENDED.

Notes:

- Estimated costs are preliminary order-of-magnitude costs developed for comparison purposes and may not account for all required items and components.

Response and Development Work Plans



Received for Parcels:

A-1, A-3, A8-1, A8-2, A10-1, A11-1, A11-2, B1-1, B1-2, B2-1, B2-2, B4-1, B4-2, B5-1, B6-1, B6-2, B6-4 B-15, B19-1, B22-1 and B22-2

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 Plan Implementation





Response and Development Work Plan Implementation



Sparrows Point Groundwater

TPA Update

Tradepoint Atlantic Site

Groundwater Evaluation Progress

Groundwater Investigations

Site-wide Groundwater Sampling

- Extensive sampling has been conducted, including groundwater sampling, soil sampling, sediment sampling, surface water sampling, pore water sampling, and soil gas sampling.
- The graphic to the right will illustrate monitoring wells and piezometers installed by year.



Corrective Measures Study (CMS) Areas

Rod and Wire Mill Area



Other Site-Wide



Coke Point Area



CMS Work Plan

- Establish Corrective Action Objectives
- Identification of Constituents and Areas of Concern
 - Development of site-specific Target Media Cleanup Levels
- Screening of Potential Technologies
 - Institutional and Engineering Controls
 - Removal Technologies
 - Containment Technologies
 - Treatment Technologies
 - Disposal Technologies
- Development of Alternatives
- Evaluation of Alternatives
- Preferred Remedy Selection

Corrective Action Objectives

- Control releases of constituents of potential concern (COPCs) to the groundwater to the extent practicable,
- Control human exposure to the COPCs remaining in the groundwater,
- Ensure that groundwater containing elevated concentrations of COPCs will not adversely impact ecological receptors, and
- Achieve cleanup levels for groundwater restoration based on its maximum beneficial use, to the extent practicable.

Interim Measures

- Several Interim Measures (IMs) have been implemented to stabilize the site during the investigation and Corrective Measures Study (CMS) process.
- The purpose of Interim Measures are to:
 - Identify and correct releases from sources or areas to the groundwater.
 - Control the migration of contaminated groundwater, and
 - Control current exposures to contaminated groundwater.
- The purpose of a CMS is to establish site specific media clean up objectives, to develop and evaluate the corrective action alternative(s), and to recommend the **Final** Corrective Measure(s) to be taken at the facility.



- ◆ Shallow Location
- ◆ Intermediate Location
- ▭ Parcel Boundary

Rod and Wire Mill Area Groundwater

Shallow & Intermediate Zone

Source: Esri, Maxar, GeoEye, Earthstar, GeoEye, IGN, AerGRID, ISI, and the GIS User Community



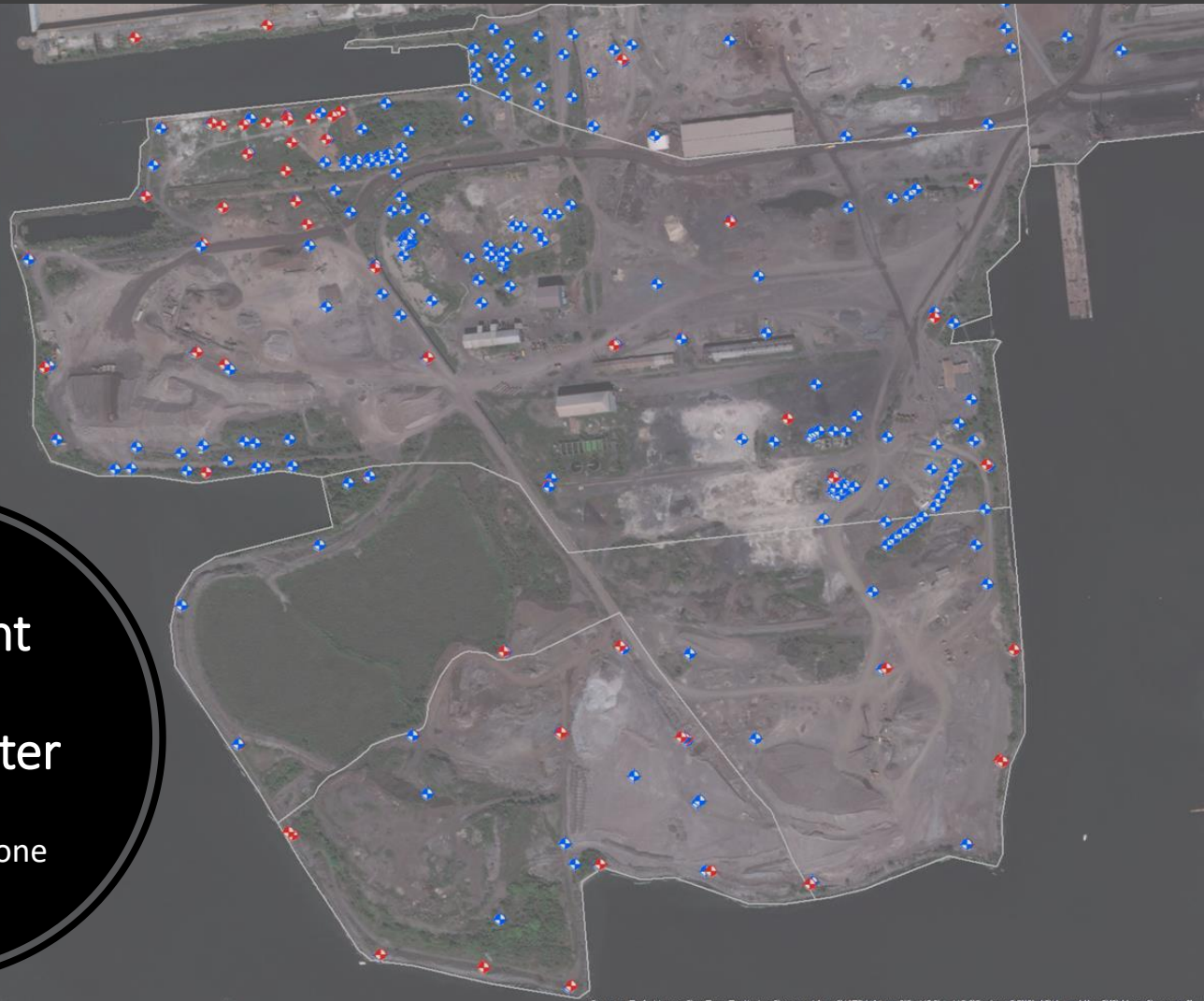
Rod and
Wire Mill
Reactive
Barrier

- Reactive Barrier Trenches
- Parcel Boundary

Rod and
Wire Mill
Reactive
Barrier



- ◆ Shallow Location
- ◆ Intermediate Location
- ▭ Parcel Boundary



**Coke Point
Area
Groundwater
Shallow &
Intermediate Zone**

Source: Esri, Intellicart, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Coke Point Area Interim Measures

- Cell 1: AS/SVE system;
- Cell 2: AS/SVE system (shallow GW) and GW P&T system (intermediate GW);
- Cell 3: AS/SVE system;
- Cell 5: DNAPL Recovery system and DPE system for the shallow zone; and
- Cell 6: MPE of LNAPL

- Parcel Boundaries
- Coke Point Area Boundary
- Interim Measures Cells





Coke Oven
Area Cell 1



Coke Oven
Area Cell 2





Coke Oven
Area Cell 3



Coke Oven
Area Cell 5



Coke Oven
Area Cell 6

Continuing Monitoring

- Rod and Wire (RWM) Interim Measure (IM) Area:
 - Periodic groundwater sampling events from shallow and intermediate zone monitoring wells,
 - Assess performance of reactive treatment trenches installed in 2017
 - Results presented in the annual RWM IM Progress Report.

Continuing Monitoring

- Coke Oven Area (COA) IM Area:
 - Periodic groundwater sampling events,
 - Assess performance of and perform Operation and Maintenance (O&M) on remediation systems in various cells,
 - NAPL removal where practical,
 - All results included in the annual COA IM Progress Report.

Continuing Monitoring

- Landfills
 - Periodic groundwater sampling at the Coke Point and Greys Landfills since 2014,
 - All results included in the Semi-Annual Groundwater Monitoring Report.

Coke Point Landfill



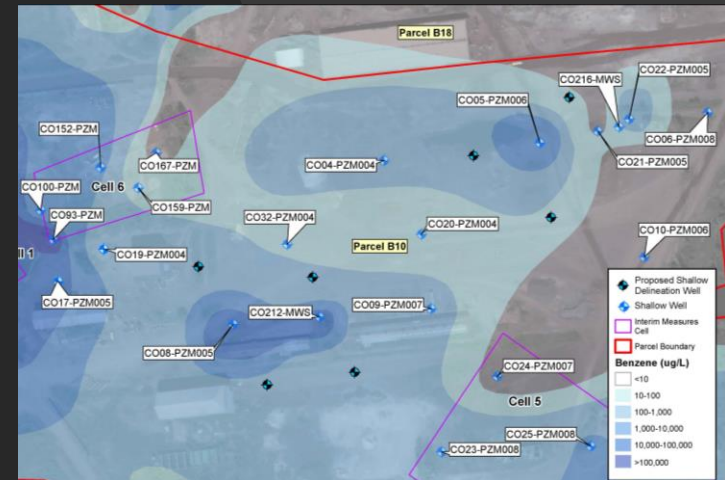
Greys Landfill



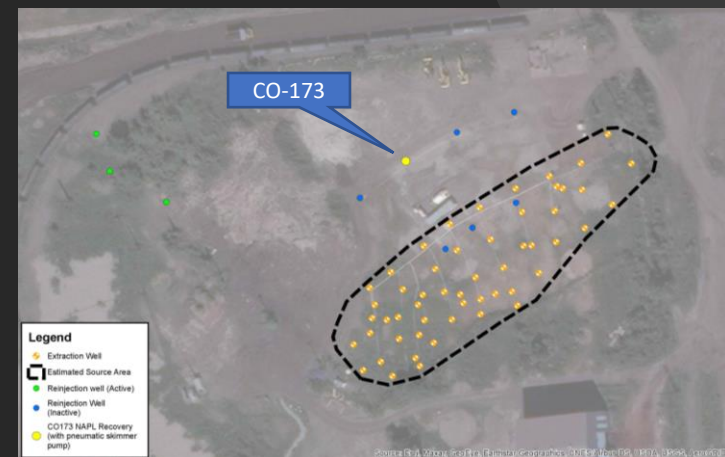
Ongoing / Planned Investigations

- Northeast COA Investigation
 - Nine monitoring wells installed.
 - Currently being developed / sampled.
- Cell 6 (CO-173) Delineation
 - Delineation scope will be finalized after groundwater sampling results are received from the northeast investigation.
- B13 Groundwater Delineation (as discussed by MDE)

Northeast COA Area



Cell 6 and CO-173 Area



CMS Schedules

- Each CMS Report will include several rounds of submittals, to ensure regulatory approval.
 - **1st Submission:**
 - Identification of groundwater COPCs
 - Development of site-specific Groundwater Cleanup Levels
 - Identification of Areas of Concern for groundwater
 - **2nd Submission:**
 - Development of site-specific Soil Cleanup Levels (to protect groundwater)
 - Identification of Areas of Concern for soil (to protect groundwater)
 - **3rd Submission:**
 - Screening of Potential Technologies
 - Proposed Alternatives for Evaluation
 - **4th Submission (Final Report Submittal):**
 - Detailed Evaluation of Alternatives
 - Comparative Analysis and Preferred Alternatives

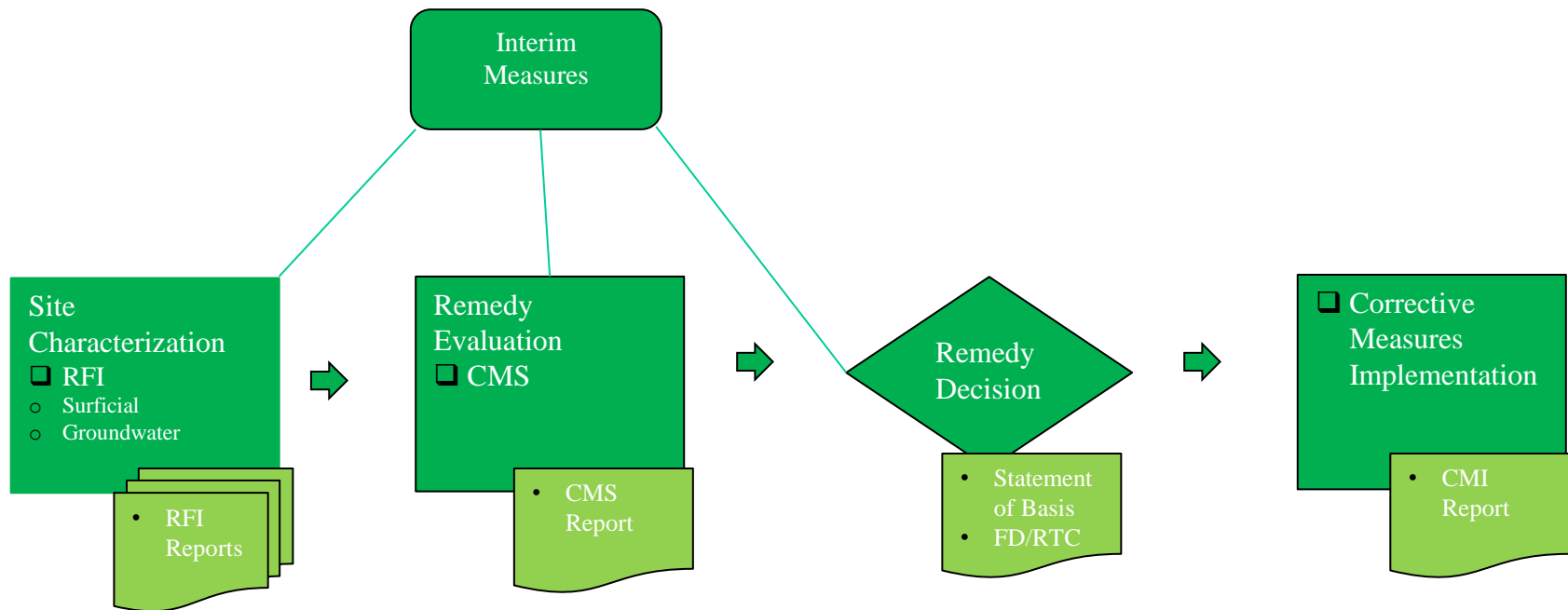
CMS Schedules

- Site Wide Groundwater CMS Report: 1st Submission to EPA on March 29, 2021.
- RWM CMS Report: 1st Submission to EPA on April 22, 2021.
- CPA CMS Report: following completion of the Northeast COA Investigation and the Cell 6 Delineation

Groundwater Remedy Selection

EPA Update

RCRA Corrective Action Process



Remedy Decision

- Site Wide Groundwater
 - EPA Statement of Basis expected Sept. 2021
 - Public Comment Period
 - EPA issues Final Decision and Response to Comments
- Rod & Wire Mill Groundwater
 - Statement of Basis projected for 2022
- Coke Point Area Groundwater
 - Statement of Basis projected for 2022

Offshore Update



Offshore Update

- Three (3) Areas
 - Bear Creek Sediment
 - Offshore Coke Point
 - Eastern Shore
- EPA Actions- Phased Approach
 - Prioritizing Bear Creek
 - Next- Offshore Coke Point
 - Last - Eastern Shore

Bear Creek Superfund Evaluation

- Approximately 60 acres in size
- Six miles from downtown Baltimore, near the confluence of Bear Creek and Patapsco River
- High concentration of PCB-containing oil & grease, and other contaminants
- Sent Request Letter to the Governor requesting the state's position on potentially listing the site to the NPL
- EPA is waiting for the State's response

Q & A

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