



Fort George G. Meade

General Site Status Update

Restoration Advisory Board Meeting May 16 2013



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Current Status of PBC Sites



Six study sites included within the Performance Based Contract (PBC)

- | | |
|-------------------------------|---|
| – Former Pesticide Shop | Signed ROD: Remedy this FY |
| – Former Mortar Range | Signed ROD: Remedy this FY |
| – OU-4/Lower Patapsco Aquifer | Final ROD Planned for 2014:
Interim Action planned this FY |
| – Manor View Dump Site | Final ROD planned for 2013:
Interim Action Complete (2012) |
| – Architect of the Capital | Final ROD planned for 2013 |
| – Closed Sanitary Landfill | Final ROD planned for 2013 |



Upcoming Proposed Plans



- Manor View
Recommended Final Action
Land Use Controls
- Architect of the Capital
Recommended Final Action
Removal of Lead Contaminated
Soils
- Closed Sanitary Landfill
Recommended Final Action
Institutional Controls



Status of CERCLA* Process



- ✓ Remedial Investigation (RI) - characterization of site
- ✓ Feasibility Study (FS) - assessment of possible remedies
- ✓ Proposed Plan (PP) - solicit public input on preferred remedy
- ❑ Record of Decision (ROD) - legal documentation of remedy selection
- ❑ Remedial Design (RD) - remedy implementation plan
- ❑ Remedial Action (RA) - remedy implementation

*Comprehensive Environmental Response, Compensation, and Liability Act





Fort George G. Meade

Closed Sanitary Landfill (CSL) FGGM - 17

Restoration Advisory Board Meeting May 16 2013



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Presentation Agenda



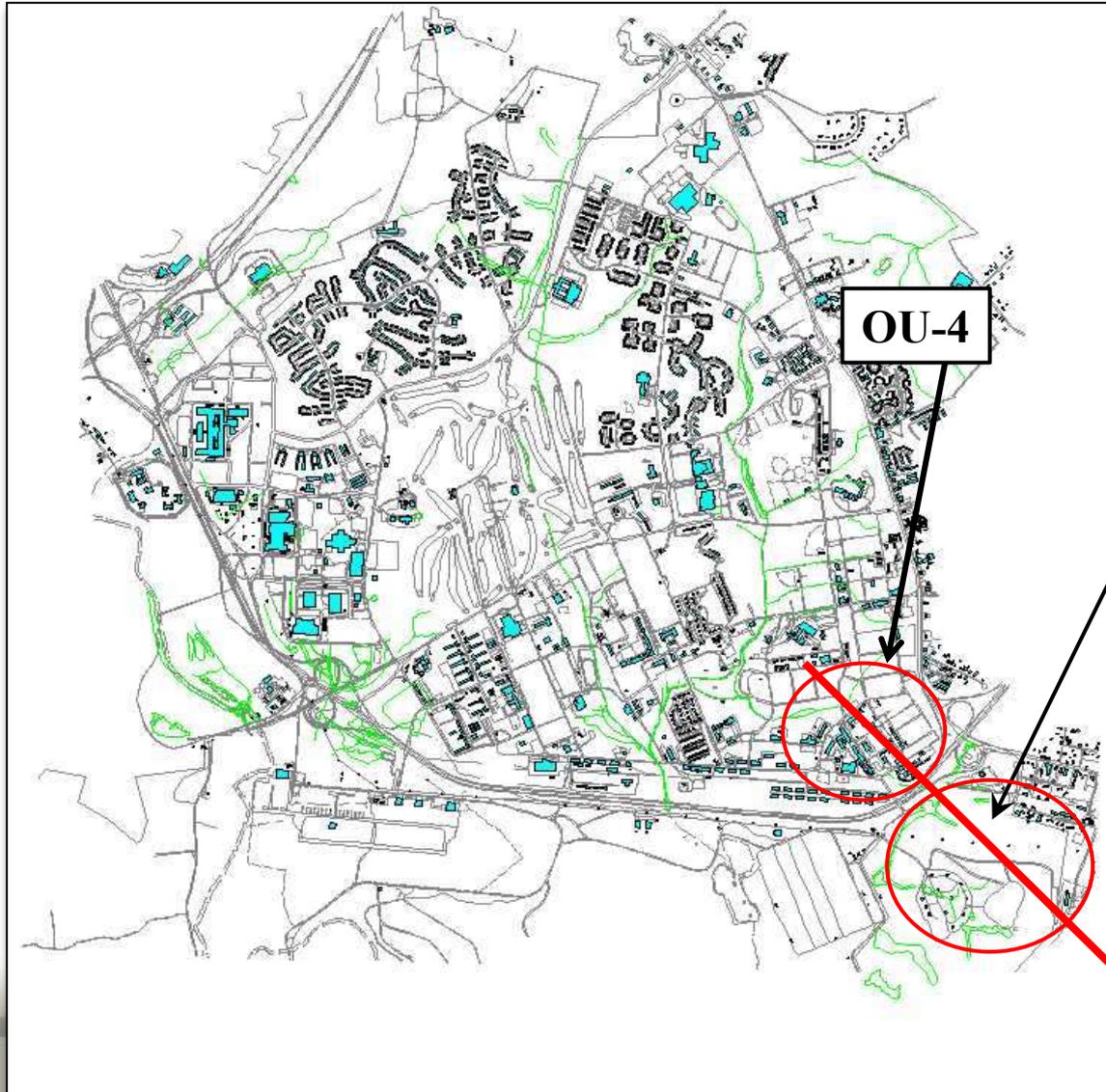
- Site Information
 - Location
 - History
- Field Investigations
 - Summary of Findings
- Risk Assessment Results
- Feasibility Study Summary
- Schedule



CSL Site Location



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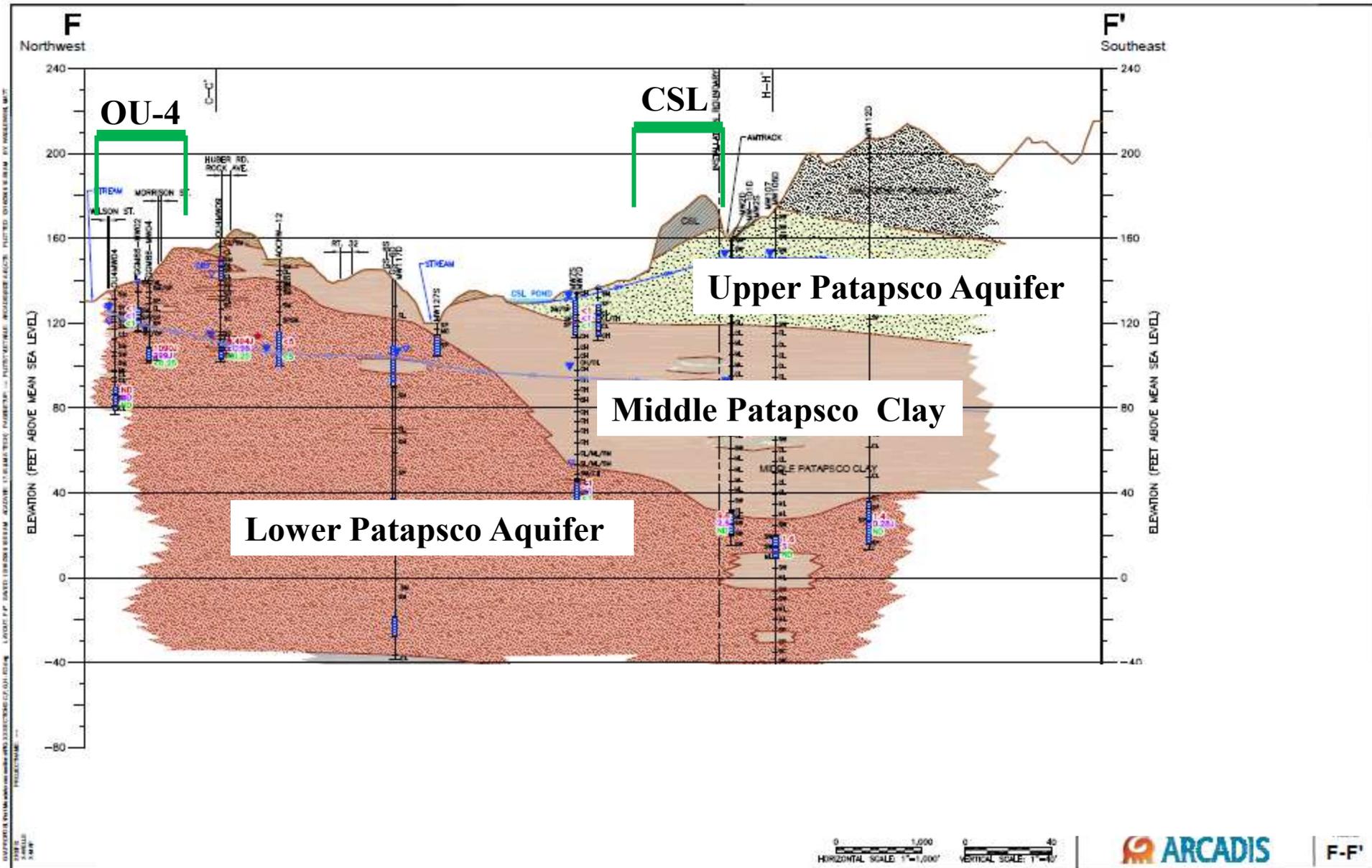


**Closed
Sanitary
Landfill**



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CSL Hydrogeologic Setting





Site Use and History



- Used as the Installation landfill from 1958 to 1996 and received “mixed residential, commercial, and non-hazardous industrial waste”
- All cells closed under the MDE solid waste requirements (RCRA program)
 - Cell 1 capped and closed between 1995 to 1997
 - Cell 2 capped and closed between 1997 to 1998
 - Cell 3 received less waste and no cap was required



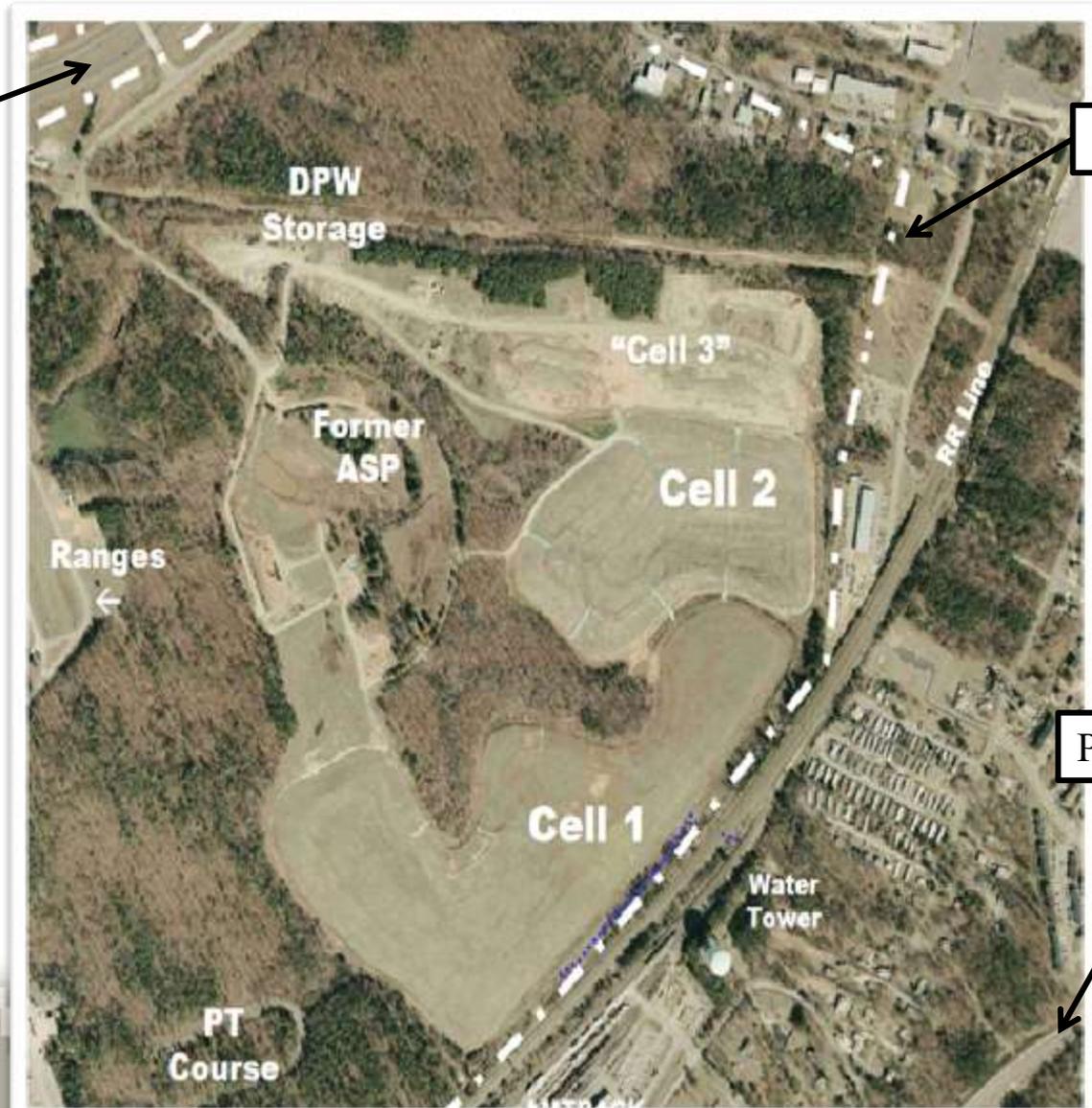
Closed Sanitary Landfill



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Rte 32

Installation Boundary



Piney Orchard Pkwy



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RCRA Status



- Under the MDE solid waste permit requirements semi-annual GW and SW sampling has been conducted in the UPA since 1994 and in the LPA since 2000
- This sampling continues as part of MDE Solid Waste Post Closure Care requirements (since 1996) as well as methane venting and monitoring
- Methane concentrations are minimal (insufficient to maintain a flare at the recovery system)



CERCLA RI Activities



- RI fieldwork between 2001 and 2005
 - Groundwater samples collected on and off site to evaluate the impact of the waste materials and other historical site activities
 - Surface water and sediment samples collected to assess the impacts of runoff from the landfill areas
 - Trenching and soil samples to characterize the depth of wastes within Cell 3 area
 - Surface soil samples collected to assess potential direct contact exposures



Soil Data



- Trenching in the Cell 3 area confirmed the presence of sanitary wastes and construction debris
- Surface and subsurface soil samples collected from the trenches, the ASP area, and across the site indicated:
 - PCB was detected above screening criteria at 1 location
 - Arsenic was the only other analyte detected above the industrial screening criteria up to a concentration of 8.6 mg/kg. While this is slightly above background arsenic is a common naturally occurring element in this area



Surface Water and Sediment Data



- Surface Water and Sediment data collected across the site did not have concentrations above screening criteria.



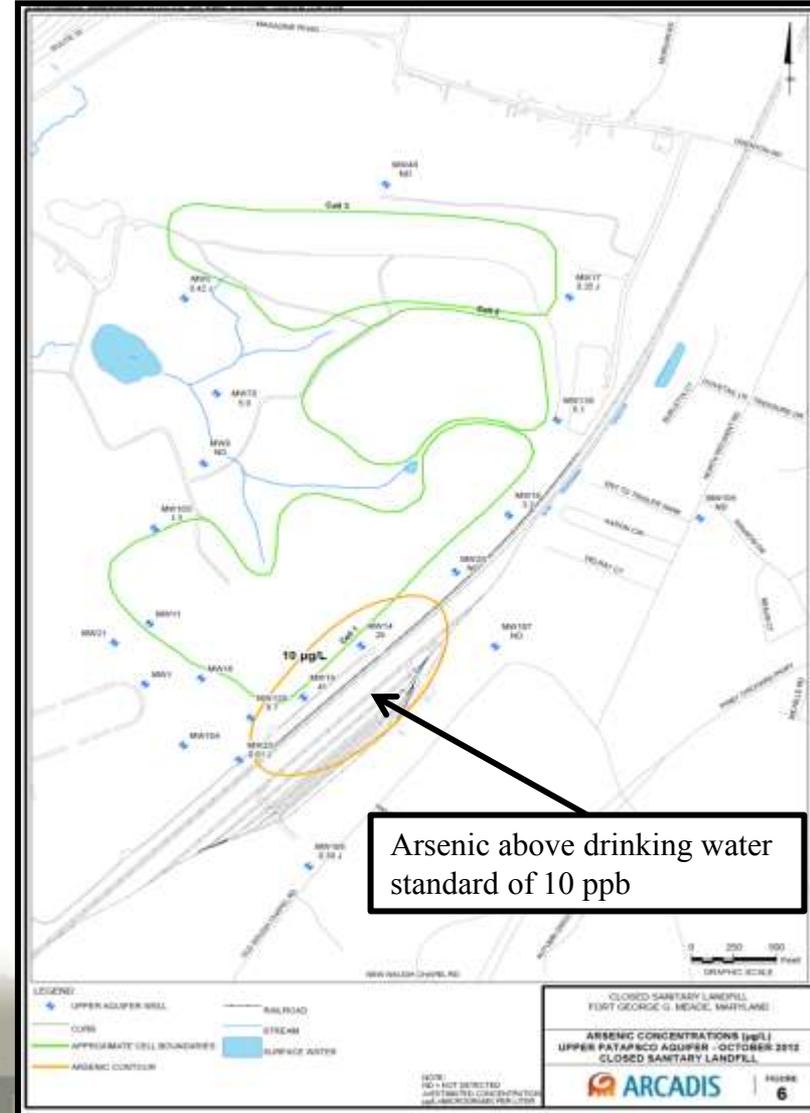
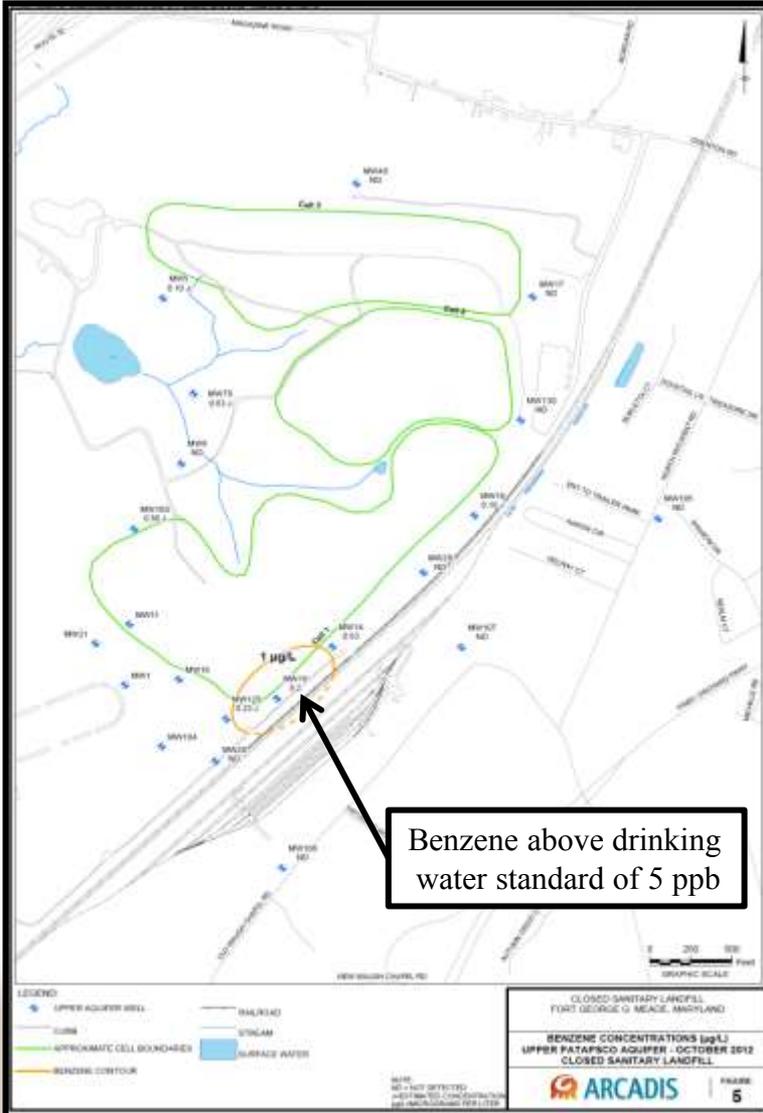
Groundwater Data



- Remedial Investigation fieldwork included well installation and sampling
- Long term monitoring of groundwater has been occurring semi-annually since 1994.
- This extensive data set indicates that currently only arsenic, benzene, and nitrate are above associated drinking water standards
- Sporadic detections of other metals and organics below drinking water standards have occurred and are assessed as part of the risk assessment process



Benzene and Arsenic Detections in GW





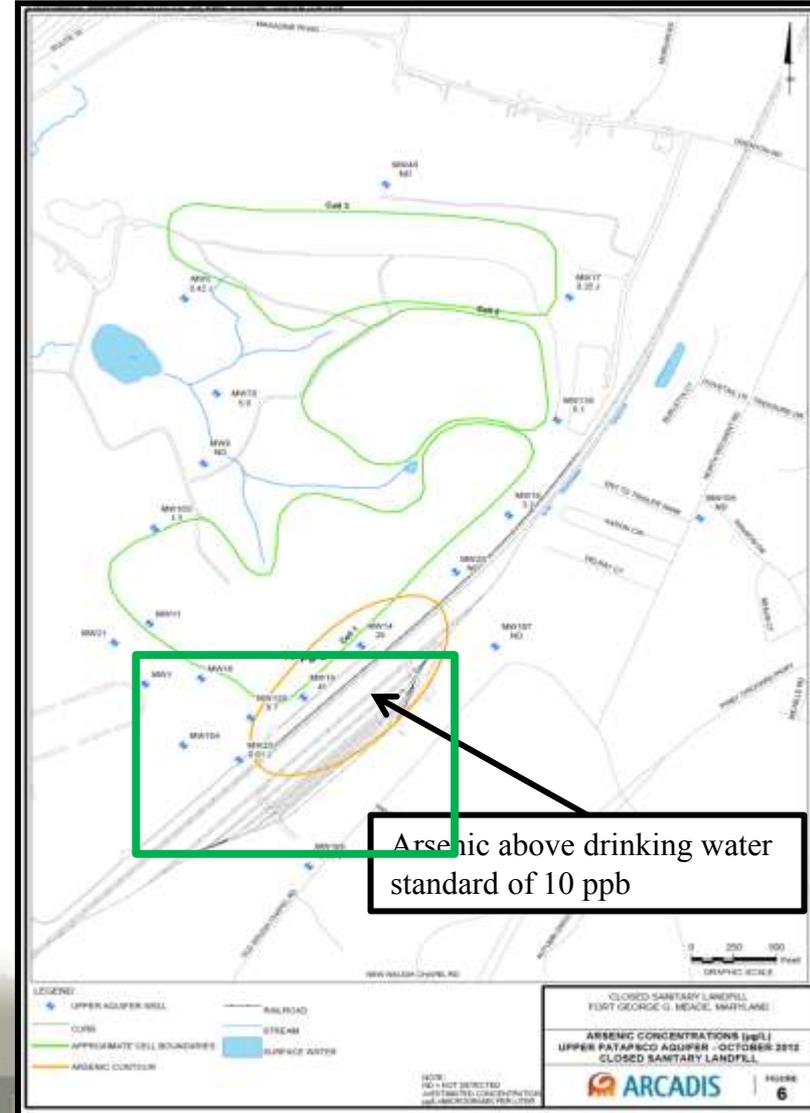
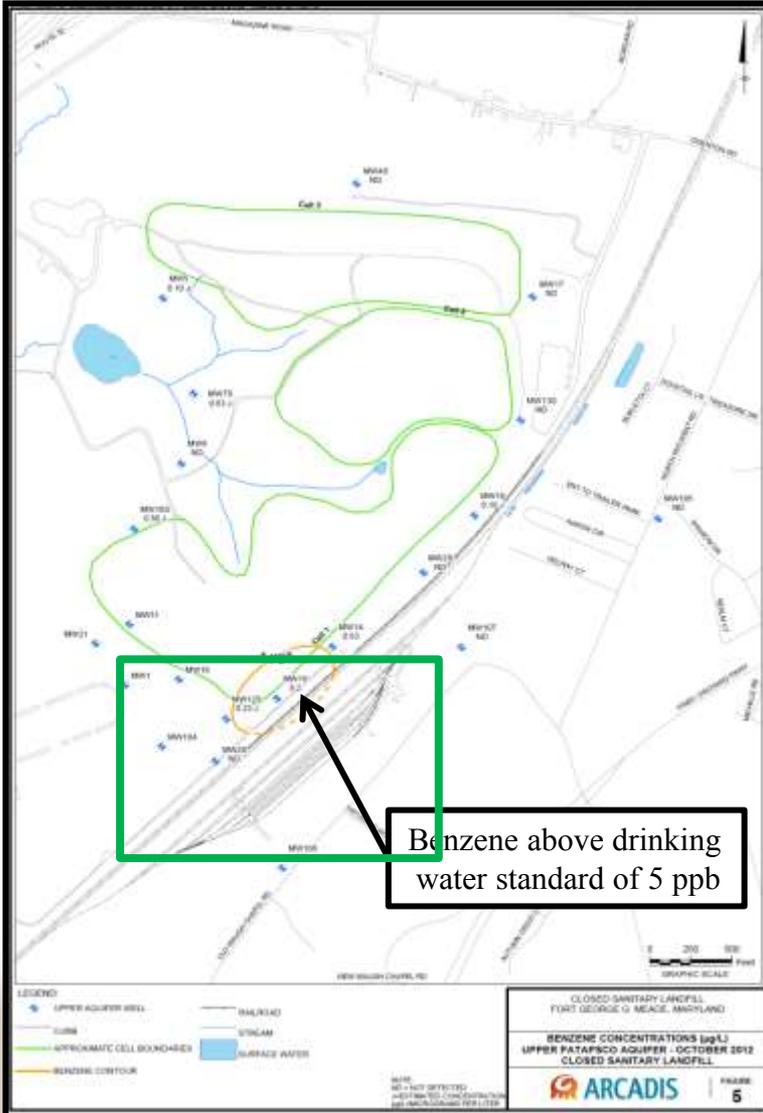
Off-Site Investigations

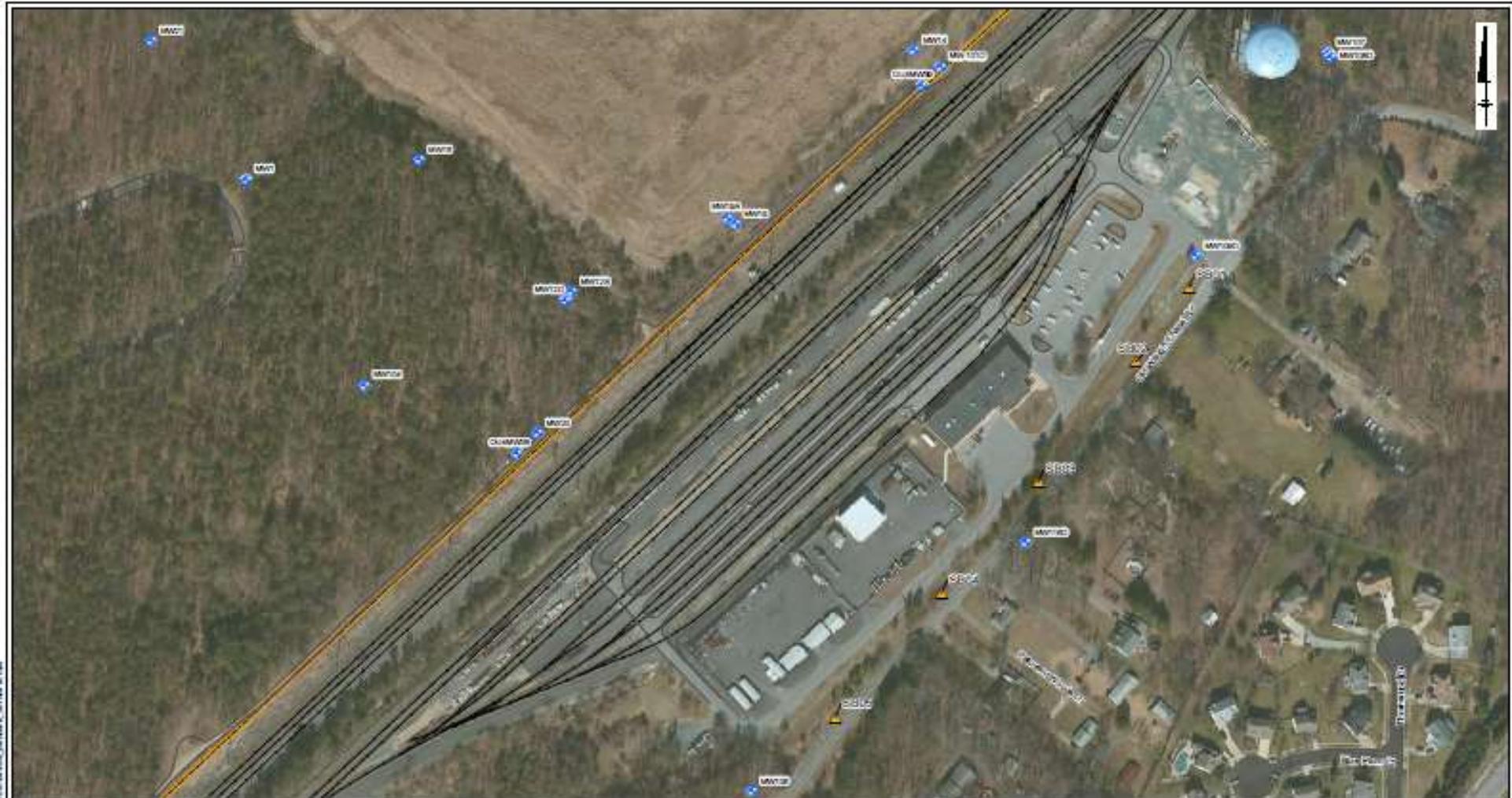


- In response to requests from the MDE additional work was conducted in 2013 to assess if benzene and arsenic extended off-site
- One additional well was installed on-site
- 5 geoprobe borings were advanced off-site on county property
- Groundwater samples were collected for benzene and arsenic

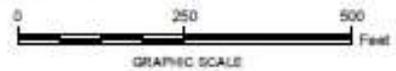


Benzene and Arsenic Detections in GW





- LEGEND:**
- SOIL BORING
 - MONITORING WELL
 - CURB
 - RAILROAD
 - INSTALLATION BOUNDARY



NOTES:
 IMAGERY ACCESSED THROUGH BING MAPS AERIAL VIA ARCGIS ONLINE LAYER PACKAGES BY ESRI (12/1/2010) (C)
 2010 MICROSOFT CORPORATION AND ITS DATA SUPPLIERS ACCESSED ON 4/19/2013 THROUGH ARCGIS 10

CLOSED SANITARY LANDFILL FORT GEORGE G. MEADE, MARYLAND	
CSL BENZENE DELINEATION SOIL BORING LOCATIONS	
	FIGURE 2



Results of Additional GW Investigation



- Benzene was not detected off-site above its drinking water standard (detected in 1 sample at 1.8 ppb)
- Arsenic was detected in three samples above the drinking water standard ranging from 12 to 47 ppb
- Water levels in the new well indicated local flow was toward the northwest (away from the Army property line) which is also consistent with regional flow and with the lack of recharge under the impermeable cap (creating a depression in the groundwater surface)

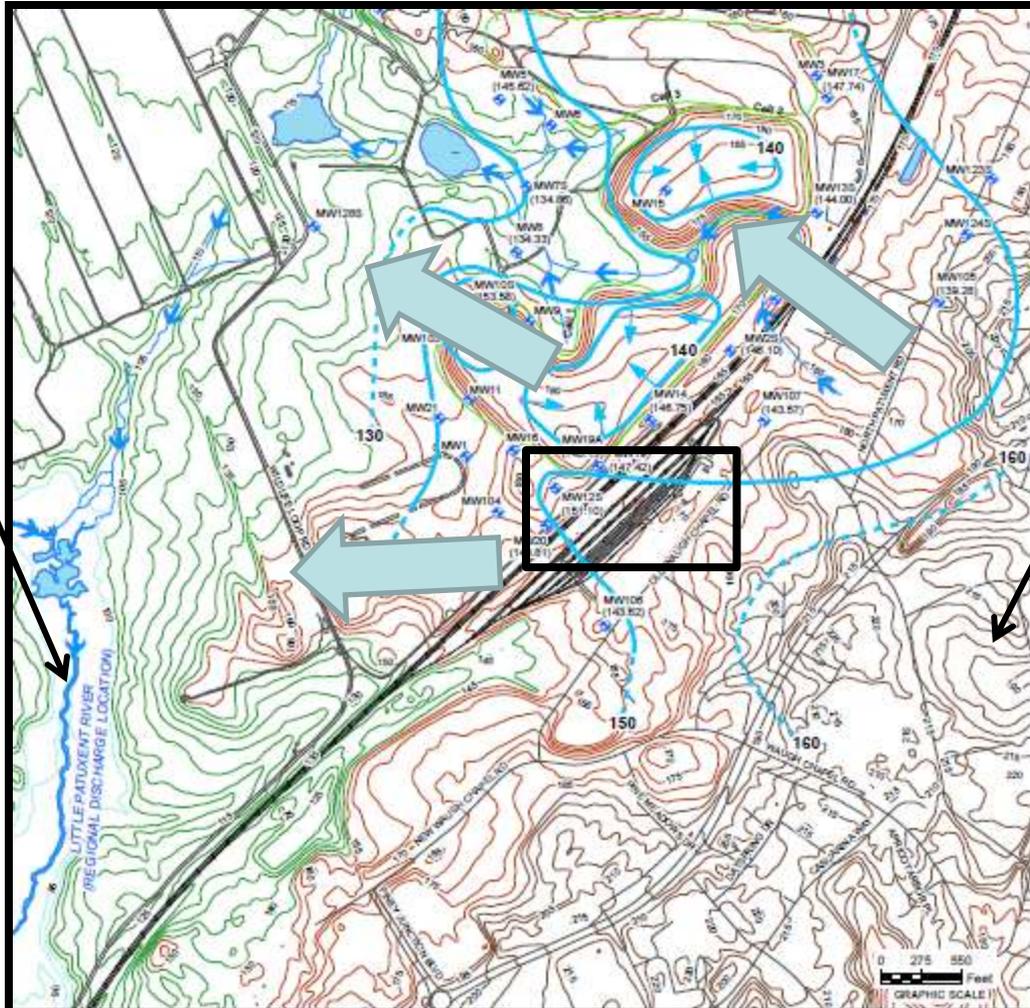


Groundwater Flow



Regional Discharge Area

Surface Water Divide



LEGEND:		ELEVATION CONTOURS FEET	
UPPER AQUIFER WELL	RAILROAD	45 - 100	185 - 225
CURB	STREAM	101 - 145	226 - 325
APPROXIMATE CELL BOUNDARIES	SURFACE WATER	146 - 185	
ELEVATION CONTOUR (DASHED WHERE INFERRED)			
GROUNDWATER FLOW DIRECTION			

NOTE: GROUNDWATER ELEVATION DATA AT MW-19 & MW-19A COLLECTED ON APRIL 29, 2013
ELEVATIONS PROVIDED IN FT AML (FEET ABOVE MEAN SEA LEVEL)

CLOSED SANITARY LANDFILL
FORT GEORGE G. MEADE, MARYLAND

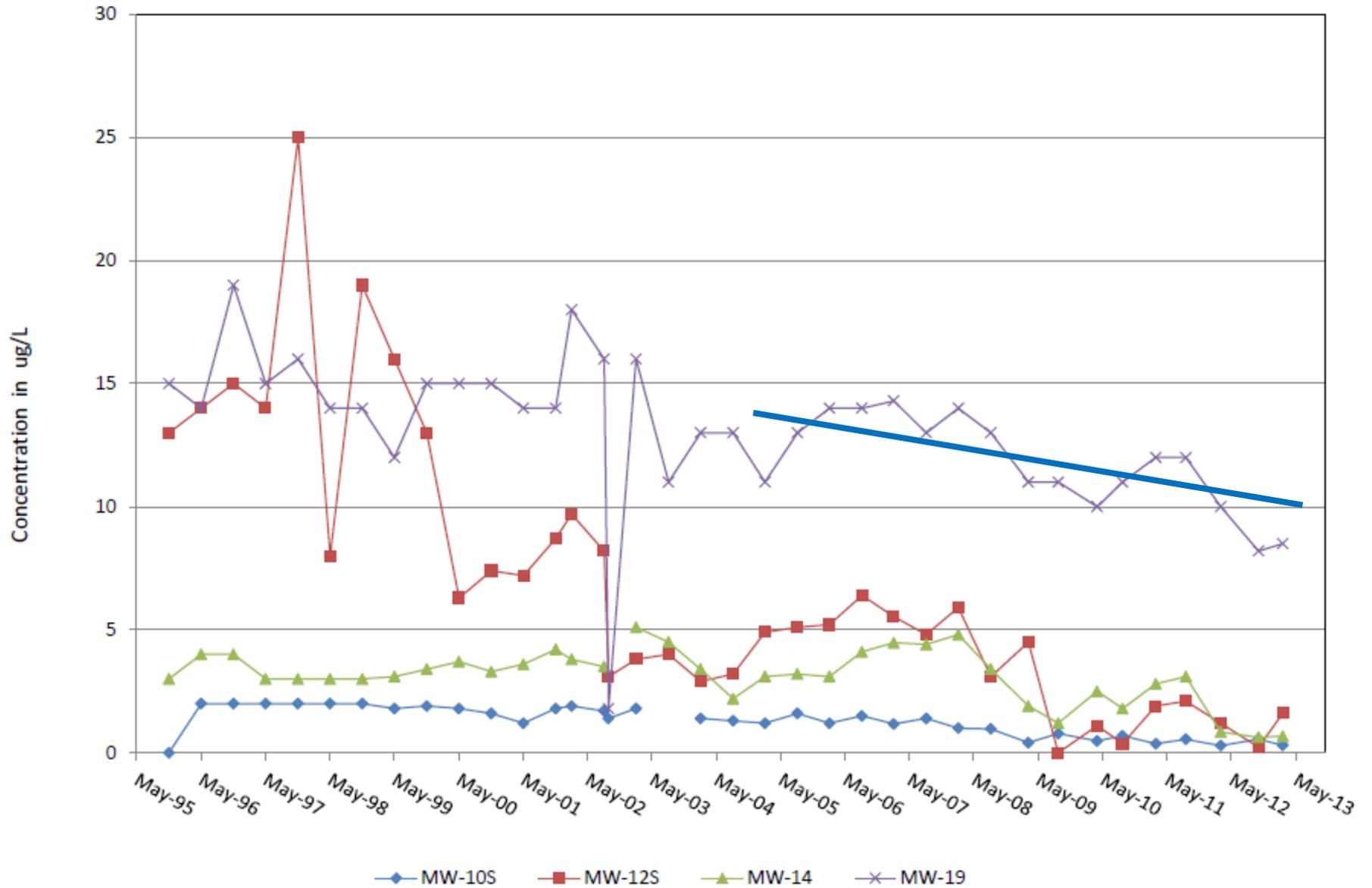
GROUNDWATER ELEVATIONS
UPPER PATAPSCO AQUIFER - MARCH 2013
CLOSED SANITARY LANDFILL

| FIGURE 1



Figure 8

Historical Benzene Concentrations in the Upper Patapsco Aquifer





Summary of Groundwater Conditions



- Benzene and arsenic are present above drinking water standards at persistent but declining concentrations in the southwest corner of the site.
- These may be attributable to off-site sources
- Sporadic and scattered detections of metals and organic compounds below the drinking water standards beneath the site have been documented by the long term semi-annual monitoring



Risk Assessment



- Results of the risk assessment have indicated:
 - No unacceptable risks for human health and the environment for the current users (maintenance workers and trespassers)
 - No unacceptable risks for human health and the environment for the reasonably anticipated future use (recreational)
 - Unacceptable risks are indicated from groundwater ingestion by the hypothetical future resident (metals and organics)
- Groundwater is the only media driving unacceptable risks and only for hypothetical use.



Feasibility Study



- Site advanced to an FS to evaluate remedies associated with the potential risk to hypothetical future residents from groundwater ingestion
 - There is no cohesive plume—only sporadic detections of risk drivers
 - Benzene and arsenic in a localized area are above drinking water standards but is declining and may be associated with off-site sources
- Landfill has been closed under State regulations and is in on-going post closure care under the State RCRA program administered by MDE Division of Solid Waste



Feasibility Study



- FS evaluated 2 options
 - No Action as required by CERCLA
 - Institutional controls to control access to groundwater in the future
- Institutional controls would be the favored option presented in the Proposed Plan
- The landfill closure would remain in effect and continue to be administered under the MDE solid waste division under RCRA authority



Schedule



- The FS to be submitted for review this month for review the Army followed by EPA and MDE review
- The Proposed Plan is anticipated to be available to the public later in the summer and the public meeting scheduled at the same time
- The Record of Decision for the final remedy is scheduled for 30 September 2013



Questions/Comments?





Glossary



Administrative Record: This is a collection of documents (including plans, correspondence and reports) generated during site investigation and remedial activities. Information in the Administrative Record is used to select the preferred remedial alternative and is available for public review.

Applicable or Relevant and Appropriate Requirements (ARARs): The requirements found in federal and State environmental statutes and regulations that a selected remedy must attain. These requirements may vary among sites according to the remedial actions selected.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): This federal law was passed in 1980 and is commonly referred to as the Superfund Program. It provides for liability, compensation, cleanup, and emergency response in connection with the cleanup of inactive hazardous waste disposal sites that endanger public health and safety or the environment.

Feasibility Study (FS): This CERCLA document reviews the risks to humans and the environment at a site, and evaluates multiple remedial technologies for use at the site. Finally, it identifies the most feasible Response Actions.



Glossary (Cont'd)



Long Term Monitoring (LTM) – LTM is conducted to monitor the performance of the remedy over time. LTM includes groundwater sampling and reporting.

Land Use Controls (LUCs) – LUC are physical, legal, or administrative mechanisms that restrict use of or limit access to, real property, to manage risks to human health and the environment. Physical mechanisms encompass a variety of engineered remedies to contain or reduce contamination and/or physical barriers to limit access to real property, such as fences or signs.

Operation and Maintenance (O&M): Annual post-construction cost necessary to ensure the continued effectiveness of a Response Action.

Preferred Remedy– The MEC remediation approach that appears to best meet acceptance criteria; the remedial option proposed for implementation in the ROD.

Record of Decision (ROD): This legal document is signed by the Army and the USEPA and will be reviewed by the MDE for concurrence. It provides the cleanup action or remedy selected for a site, the basis for selecting that remedy, public comments, responses to comments, and the estimated cost of the remedy.



Glossary (Cont'd)



Remedial Investigation (RI): An investigation under CERCLA that involves sampling environmental media such as air, soil, and water to determine the nature and extent of contamination and human health and environmental risks that result from the contamination.