IMFD–PWE 9 NOVEMBER 2016

MEMORANDUM FOR RECORD

SUBJECT: Fort Detrick Restoration Advisory Board (RAB) Meeting Summary,
9 NOVEMBER 2016

1. Summary Contents

Items addressed at the meeting are listed below, with corresponding section numbers indicated in the column on the right.

SUBJECT/ACTION TYPE	SECTION NUMBER
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Please note: PowerPoint presentations were utilized during the RAB meeting. A copy of the presentations is attached to these minutes and is incorporated into these minutes by this reference.

Text contained within brackets [] has been added for clarification purposes.

2. Attendees

Members Present:
Dr. Gary Pauly, Community RAB Member, Co-Chair
Mr. Robert Craig, Army Co-Chair
Mr. Joseph Gortva, Fort Detrick, Environmental Restoration Program Manager
Mr. Rolan Clark, Community RAB Member
Mr. Barry Glotfelty, Frederick County Health Department
Dr. Elisabeth Green, Maryland Department of the Environment
Ms. Jennifer Hahn, Community RAB Member
Mr. Cliff Harbaugh, Community RAB Member
Mr. Karen Harbaugh, Community RAB Member
Mr. George Rudy, Community RAB Member
Mr. Rob Thomson, US Environmental Protection Agency

Others Present:

Mr. John Buck, US Army Corps of Engineers
Ms. Sylvia Carignan, Frederick News Post
Mr. John Cherry, ARCADIS
Mr. Brandon Fleming, USGS
Ms. Mary Foley, USGS
Mr. Keith Hoddinott, US Army Public Health Center
Mr. Nick Minecci, Fort Detrick Public Affairs Office
Ms. Shelly Morris, On-Site Contractor to Fort Detrick Environmental Restoration Program
Mr. Rob Wasserman, ECC
Mr. Gary Zolyak, Fort Detrick Office of the Staff Judge Advocate
Ms. Katrina Harris, Bridge Consulting Corp.

Members Absent:
Mr. Eli DePaula, Community RAB Member
Dr. Henry Erbes, Community RAB Member
Mr. Barry Kissin, Community RAB Member

3. Meeting Opening / Remarks

Mr. Joe Gortva opened the meeting, welcomed everyone, and thanked everyone for attending. Mr. Bob Craig introduced himself, noting he was representing the Garrison Commander; he welcomed everyone and invited introductions. Mr. Gary Pauly said he would bypass the review of the ground rules as he believed everyone was familiar with them. Mr. Joe Gortva reviewed the meeting agenda.

4. Meeting Minutes presented by Mr. Joseph Gortva, Fort Detrick

Mr. Gortva apologized for not distributing the minutes from the last meeting yet; he said he would get them out in the next few days. Mr. Craig noted the environmental staff has gone from 19 people to 12 people so some things are not getting completed as quickly as desired.

5. Kemp Lane Potable Water Connection presented by Mr. Rob Wasserman, ECC

Mr. Rob Wasserman provided an update on the five Kemp Lane residences being connected to a potable public water supply and the abandonment of the current private wells the residents use for drinking water. Mr. Wasserman said the Army is continuing to provide these residents with potable water until all the plans and needed documentation is in place. He said the connection work is anticipated to be completed by the end of November, and once it is confirmed the connection is working properly and there are no issues, ECC will return at a later date to abandon the private wells. In response to a question from Ms. Elisabeth Green, Mr. Gortva advised the residents will be charged the County water rate.

6. Area B Landfill Cap Monitoring presented by Mr. Rob Wasserman, ECC

Mr. Wasserman stated the first groundwater sampling round under the ECC contract was completed in May, and the second round will be conducted in about a week. Mr. Wasserman advised the data from the May sampling event has been validated, and a draft report will be distributed soon. He displayed an aerial photograph of the 31 monitoring wells surrounding the five landfills at Area B. Mr. Gortva stated that up to 16 wells will be added around the landfill areas to complete a full monitoring network per discussions with the US Environmental Protection Agency (EPA) and the Maryland Department of the Environment (MDE) about a monitoring plan. In response to a question from Mr. Rolan Clark, Mr. Gortva said the additional monitoring wells are not related to the potential County road.

Mr. Wasserman advised there is also a landfill maintenance component to the ECC contract that includes mowing, inspections to see if there has been any animal burrowing or erosion, and herbicide application. He stated mowing had been completed in May and November, as well as an inspection in May; another inspection will be conducted in mid-November. Mr. Wasserman advised no deficiencies were noted. Ms. Jennifer Hahn asked what herbicide used, and Mr. Gortva said he will check and add the name of the herbicide to the minutes. [After the meeting, Mr. Gortva confirmed the herbicide used was Outrider® which is approved by MDE for the state required control of Johnson grass.]

Mr. George Rudy asked what action would be taken with respect to the capped areas if any "non-compliant" issues were found during the sampling or inspections. Mr. Wasserman said the groundwater monitoring component of the contract is to collect groundwater data and compare it to groundwater standards. Mr. Wasserman continued explaining that any problem with a cap observed during an inspection would be immediately communicated to Fort Detrick and the regulators, and corrective action would be taken if required. In response to a question from Mr. Rudy, Mr. Wasserman stated corrective action is part of ECC's contract. Mr. Gortva added that the groundwater is already known to exceed standards, and ECC's monitoring is to look at trend analysis and immediately notify the Army if something is out of the ordinary. Ms. Hahn asked if the Board would see the groundwater sampling results, and Mr. Wasserman said he could present the data at the next meeting. Mr. Craig asked Mr. Gortva to explain what other monitoring is being done in addition to the cap monitoring being done by ECC. Mr. Gortva stated Fort Detrick is installing lysimeters to measure the moisture content underneath the caps compared to the

moisture content outside of the caps, and in combination with other groundwater data and visual inspections, Fort Detrick will have an indication of any issue with any of the caps. Mr. Gortva noted Fort Detrick has also been doing quarterly monitoring at sentinel wells and that monitoring will continue until there is a remedy for the site, at which time there will be a newly designed monitoring program to monitor the remedy.

Mr. Rudy commented that the proposed County road presentation at the last meeting seemed to indicate the road project would be proceeding, however, there is no final determination from EPA or MDE on the overall final remedy of the site. Mr. Rudy asked if it is reasonable to expect a more frequent inspection of caps near the road. Mr. Gortva responded that Fort Detrick does not anticipate having to change the monitoring plan due to the potential road. Mr. Craig added that the County has hired Fox and Associates to design the road and complete an Environmental Assessment, and those documents are just getting started. Mr. Craig said he would expect concerns raised by the community will hopefully be addressed in the Environmental Assessment. Mr. Rudy asked that the Board's community members be advised of the public comment period on the Environmental Assessment, and Mr. Gortva stated it will be the City's responsibility to make the announcement and notifications. Mr. Gortva said it was emphasized at the last meeting that the City will need the Army's approval first and then the regulators' approval and public comment.

Ms. Hahn asked about types and requirements of Environmental Assessments and whether this Environmental Assessment would have more requirements for an in-depth review because of the proximity to the Area B landfills. Mr. Craig responded that the term "environmental assessment" could be interpreted in many ways. He said the way he and Mr. Gortva are using the term is an Environmental Assessment that complies with the National Environmental Policy Act (NEPA), and the action that is driving an Environmental Assessment is the potential easement that may be granted to the City by the Army. He continued explaining that because a Federal government agency is involved, NEPA is applicable; if the road was going around Army property, the road would be governed only by state or county regulations. Mr. Rob Thomson stated the decision document signed by the Army for the landfill caps specified the land use around the caps so there is a burden of proof on the City to demonstrate a change in the use of the land does not impact the remedy. Mr. Gortva reiterated before the road construction can begin, the project needs Army approval (higher that Fort Detrick's command), as well as EPA and MDE's approvals, so there will be multiple layers of checks and balances as part of the process.

Mr. Rudy asked if Board community members issue a memo to Fort Detrick and the City asking to be advised in a timely manner of pending releases of environmental studies would those requests be honored. Mr. Craig responded that it would not change what Fort Detrick's environmental program is doing since it releases documents for the Board's review and advises at Board meetings what documents will be released soon. Mr. Gortva said if he receives information about the release of the Environmental Assessment for review, he will let the Board know. Ms. Hahn suggested asking the City to let the Board's community members know about the pending release of documents and also asking where they are going to advertise the formal public comment period.

Mr. Clark asked for confirmation that the sampling data takes a couple months to analyze and then to have data validation performed. Mr. Wasserman agreed and noted EPA's preference is to see multiple rounds of data with trends analysis.

Mr. Barry Glotfelty asked if a well driller had been selected to do the private well abandonments. Mr. Wasserman said he believed a local company will be performing the work, but he did not have the company name with him and would have to look it up after the meeting. [After the meeting, Mr. Wasserman advised the name of the company is Connelly and Associates Drilling Services.] Mr. Glotfelty asked if ECC would be giving the vendor the procedure to be used, and Mr. Wasserman confirmed ECC would be providing the procedure as contained in the work plan approved by EPA and MDE.

Mr. Rudy asked if the homeowners are prevented from using the private wells once they are connected to a public source, and if there is a document from the State or EPA preventing their future use. Mr. Wasserman explained that when the wells are abandoned, the pumps within them are removed. Ms. Green stated there are very specific regulations regarding well abandonment, including fully grouting and sealing the well. Mr. Glotfelty added that the well abandonment report is kept as part of the County's well data base and retained in County Health Department files. Ms. Green said there would be no issuance of a well permit in the future since the homes are connected to a public water source.

7. Area A and Area B Site Inspection Update presented by Mr. John Cherry, Arcadis

Mr. Rudy asked about Watermark/ECC's interaction with Arcadis since both contractors are working at Area B. Mr. Cherry responded that Arcadis is under contract to complete the groundwater Remedial Investigation, including a Human Health Risk Assessment, so data from Watermark/ECC's sampling feeds into the Remedial Investigation Report.

Mr. Cherry stated he would be giving an update on the Site Inspections at Area A and Area B. He said the data he would be presenting had just been received so it should be viewed as preliminary data.

Mr. Cherry reminded the Board of the archive records review done by the Army Corps of Engineers which lead to two reports issued in 2012 and 2014. He stated the documents assessed whether there had been prior activities at Area A and Area B that might warrant further environmental investigation. He said the sites determined to need further investigation were divided into seven categories, and he would be discussing each of the categories further along in his presentation.

Mr. Cherry displayed a graphic of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) process. He noted the Site Inspection is one of the very early steps in the process.

Mr. Cherry stated the preliminary data he would be discussing will eventually be incorporated into Site Inspection Reports that will make recommendations to EPA and MDE for the next steps (if any) at each site.

Mr. Cherry summarized the field investigations noting most of the work was performed in January with some work completed in July at Area B. He advised several hundred samples were collected. He stated analytical results are still under review so information is preliminary. He explained eventually the sites will be put into one of two categories: no further action is recommended or further investigation is recommended.

Mr. Cherry reminded the Board a Site Inspection is just an initial screening level investigation and is not intended to be a complete evaluation of the nature and extent of contamination nor a risk assessment which occurs during the Remedial Investigation phase.

Mr. Cherry displayed an aerial photograph of Area A and noted the red shapes and dots are sites being evaluated.

Mr. Cherry discussed Group 1, former herbicide test sites. He stated the historical records identified 10 areas where there was likely to have been crops and herbicide testing in the 1940s and 1950s. He also displayed some photographs of what the areas look like now, noting some are parking lots, fields, and wooded areas. Mr. Cherry reminded the Board that the historical records review focused on fields where there was a potential to find 2,4,5-T or 2,4-D (associated with Agent Orange production) so the sample analysis included looking for herbicides, dioxins and metals.

Mr. Cherry said the initial observations from the sampling are there were no detections of herbicides above the laboratory reported detection limits including the two herbicides associated with Agent Orange production. He advised there were some dioxins and metals detected, and those detections are being evaluated since these metals are ubiquitous and dioxins are common byproducts of burning. He stated more evaluation is needed before recommendations can be made.

Mr. Cherry next discussed Group 3, former incinerator sites. He stated Fort Detrick had a number of incinerators in three areas, some dating back to World War II, used for disposal of burnable waste and decontaminating air at test facilities before it was discharged. Mr. Cherry showed photographs of some of the sites as they appear now and advised some buildings have been razed and the area repurposed. He noted the investigation also looked at whether underground storage tanks were associated with any of the incinerators so map reviews were conducted as well as some ground penetrating radar surveys. Mr. Cherry advised no tanks were found. He stated sample analysis included testing for polycyclic aromatic hydrocarbons (PAHs), total metals, total petroleum hydrocarbons (TPH), and dioxins in soil and TPH in groundwater. He stated there were some detections of PAHs in soil and metals in soil (very common and may or may not be associated with the incinerators) and in groundwater some low level detections of total petroleum hydrocarbons were found.

Ms. Hahn asked if all the sampling that would be done prior to making recommendations is complete, and Mr. Cherry stated all the field work is done.

Mr. Cherry next reviewed Group 4, former TCE (trichloroethylene) sites. He stated activities occurred in three buildings dating back to the 1960s which used TCE as a refrigerant or for freeze-drying purposes in test chambers. He noted the Army was already aware of a fourth building where TCE had historically been used. [Referring to the Building 568 TCE spill site.] Mr. Cherry showed recent photographs of the areas and stated some buildings have been removed; however, groundwater samples were collected.

Mr. Cherry advised there were some detections of TCE in the groundwater. He said the highest detection was 16 parts per billion. He said the drinking water standard is 5 parts per billion; however, no one is drinking the water. He stated other detections were at or below 2.5 parts per billion. Ms. Hahn asked if there is a vapor intrusion risk with respect to the buildings. Mr. Cherry responded vapor risk would be considered, but concentrations are very low. He said checking for vapor intrusion might be a recommendation. Ms. Hahn asked if there are people working in the buildings, and Mr. Cherry advised there are workers in the buildings. Ms. Hahn asked if the vapor intrusion testing would be accelerated for purposes of worker safety. Mr. Gortva responded that the concentrations of 16 parts per billion would not be expected to be a vapor intrusion risk nor present an industrial exposure risk. Mr. Gortva said the detection probably warrants some additional sampling in that area, but 16 parts per billion is not a level that would indicate an immediate danger to life or health.

Mr. Rudy asked about active sites and whether they could be generating the same compounds being investigated at former sites, such as TCE. Mr. Gortva advised TCE and PCE are not used now on Fort Detrick and were phased out many years ago. Mr. Gortva said the contracts and work associated with the Environmental Restoration Program address impacts from historical operations; active sites would utilize Compliance funding for any needed investigations. Ms. Green added that from a regulatory standpoint, there are different departments and different staff overseeing compliance sites versus restoration sites.

Mr. Cherry summarized the Group 5, Former Petroleum, Oil and Lubricant (POL) sites, noting 15 locations had been identified with historical POL storage, use or dispensing. He advised the sampling plan focused on evaluating potential environmental impacts due to the historical use of gasoline, diesel and fuel oil in these areas; the analytical suite focused on assessing impacts from those types of constituents. Mr. Cherry said the initial observations show no detections of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), or diesel range organics/gasoline range organics (DRO/GRO) in soil and three low detections of TCE in groundwater below the drinking water standard, ranging from .3 to 1.6 parts per billion. Mr. Cherry said the detections of TCE may not be associated with the three new sites investigated but may be associated with known impacts from Building 568. He said further evaluated is needed before a determination is made.

Mr. Cherry next discussed the Group 6, Former Dispersion Test Areas--three different areas used as outdoor test grids. He stated agents were not being tested at these areas; simulants were tested to see how they dispersed. Mr. Cherry said there was a low expectation of finding impacts in these areas so the sampling plan was focused on evaluating potential impacts to soil. He displayed photographs of what the areas currently look like. He noted soil samples were collected, and in the parking lot areas, the asphalt was cored through to collect a soil sample.

Mr. Cherry said the preliminary observations show no explosives were detected in any of the samples, and there appears to be no impact from metals above regional screening levels.

Mr. Cherry reviewed the field work and initial observations at Group 7, Former Vehicle Maintenance Areas. He noted historical records identified two areas of clustered activities which were sampled for the typical suite of parameters that would be expected to potentially be found. He said the initial observations show no volatile organic compound impacts in soil or groundwater, some metals were detected but these may be related to naturally occurring concentrations, and TPH sampling indicated two detections at low estimated concentrations. Mr. Cherry stated ground penetrating radar was also performed to look for underground storage tanks, and none were found.

Ms. Green asked if there was a background study for metals. Mr. Gortva advised there was a background performed for Area B in 2004, but the soil types on Area A may be different so there may have to be a background study performed for Area A. [If previously collected soils data for previous Area A investigations has an insufficient background data set.]

Mr. Cherry next discussed Group 8, General Disposal, Storage or Other Use Areas, noting this group had a mix of sites. He explained the sampling plan was tailored based on the types of historical activities and uses in each individual area with a wide range of compounds included in the analysis. Mr. Cherry stated initial observations showed minimal impacts evident based on a review of the preliminary data, but there needs to be further evaluation on a site-by-site basis.

Mr. Cherry next discussed the Site Inspection of Area B sites. He displayed a map showing the location of the sites which he advised were divided into two categories: Former Herbicide Test Sites and Other Use Areas.

Mr. Cherry advised sampling at Group 1, the Former Herbicide Test Sites, focused on metals and dioxins in soil. He advised the dioxins did not exceed available screening criteria; other metals detections are being evaluated. Mr. Gortva asked about the detection of herbicides, and Mr. Cherry responded herbicide testing had been conducted in the past so this round of sampling focused on dioxins and metals.

Mr. Cherry discussed Group 8, Other Use Areas, and stated there was no detection of VOCs or explosives, no metals detected above regional screening levels, low estimated concentrations of SVOCs, and low detections of commonly-occurring dioxins but none exceeded available screening values. Mr. Gary Pauly asked why samples were analyzed for explosives, and Mr. Cherry responded there were storage sheds where explosives may have been stored.

Mr. Cherry advised the Site Inspection Reports will be developed with recommendations and submitted for regulatory review in the Fall 2016/Winter 2017.

8. Area B Groundwater Remedial Investigation Status presented by Mr. John Cherry, Arcadis

Mr. Cherry advised the Supplemental Remedial Investigation work plan is in the comment resolution phase after review by the regulators and should be approved in a few days. He noted

most of the planned work will be in off-post areas and will include installing 12 new groundwater monitoring wells and off-post surface water sampling in Carroll Creek. Mr. Cherry said the work is targeted to be completed in early 2017.

Mr. Craig asked if the additional work will address all outstanding issues before finalizing the Remedial Investigation, including the conceptual site model. Mr. Gortva said a Remedial Investigation document will be prepared by Arcadis which may or may not resolve all issues related to the conceptual site model. Mr. Gortva advised that the Army will be meeting the next week with the regulators to discuss possible pilot scale tests that would feed into a Feasibility Study which will evaluate different remedial alternatives.

9. RAB Member Open Discussion and General Community Comments

Mr. Gortva invited open discussion from the RAB members.

Ms. Hahn requested a map of Area B out to Fort Detrick's boundaries and the off-post roads and area that would show where the highest concentrations have been detected. Mr. Gortva said he would work on getting such a map out to the Board members.

Mr. Rudy asked about the status of the RAB Operating Procedures, and Mr. Gortva said he would email the last version out to the Board members again and then a vote is needed.

Mr. Gortva advised the web site is being revised so minutes and presentations might not be immediately available on the web site.

Mr. Gortva invited comments for the community members in the audience; none were offered.

10. Future Meeting Dates

Mr. Gortva said proposed future meeting dates are March 8, 2017, July 12, 2017, and November 8, 2017. Mr. Gortva said all the dates are tentative until the room is booked. He asked Board members to let him know of any conflicts with the proposed dates and said he would confirm the next meeting when the date gets closer.

The meeting adjourned at approximately 8:24 p.m.

Reviewed by:

Approved/Disapproved

Enclosures:
Kemp Lane Connections Update/Area B Landfill Cap Monitoring
Area A and Area B Site Inspections Update/Area B Groundwater RI Status
Meeting Sign-In Sheet

DISTRIBUTION:
Each RAB Member (w/o enclosure)
Each Meeting Attendee (w/o enclosure)

FORT DETRICK RESTORATION ADVISORY BOARD
LIST OF TOPICS FOR FUTURE MEETINGS

Proposed at April 2016 RAB Meeting

- City road proposed to go through Area B (presentation at August 2016 meeting)
- Presentation on current incinerators (not a RAB meeting topic)

Proposed at November 2014 RAB Meeting

- City road proposed to go through Area B (presentation at August 2016 meeting)
- Surface water detections
- Archive search report presentation (completed at February 2015 meeting)

ENVIRONMENTAL RESTORATION SERVICES FORT DETRICK, FREDERICK MD

Progress Report for the RAB

November 09, 2016

John Cherry
Arcadis

Overview of Topics

- Site Inspections (SI) Status – Area A / Area B
- Area B Groundwater Remedial Investigation (RI) Status

PIKA

ARCADIS

a joint venture

SITE INSPECTION (SI) STATUS – AREA A / AREA B

Background on Archive Records Review

2010: US Army Corps of Engineers (USACE) completed a review of archive records for Fort Detrick (including Areas A, B, and C)

Objective:

Identification of any past activities that had the potential to impact the environment

2012 – 2014: Findings detailed in two separate Archive Search Reports (ASRs)

Outcome:

Army identified a list of sites for follow-up environmental testing under EPA/MDE oversight to assess actual impacts and current conditions

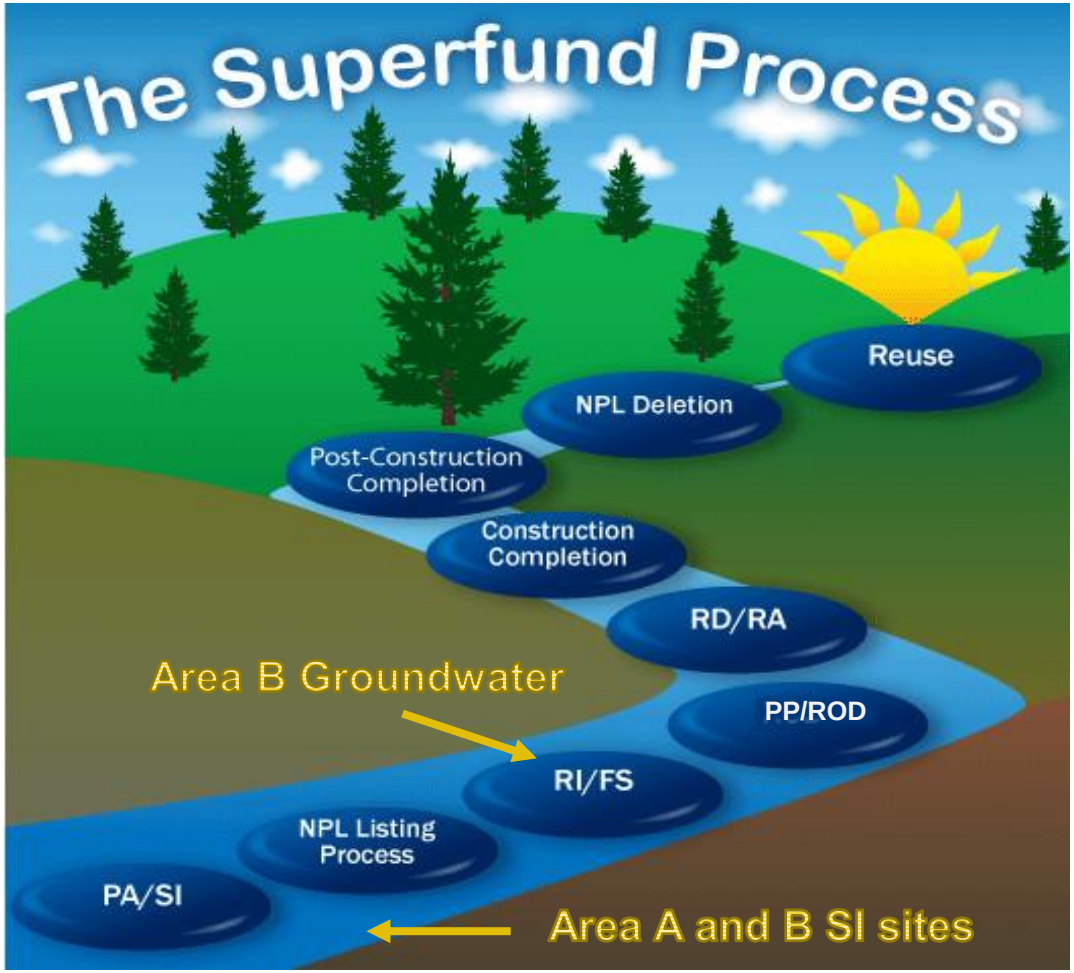
See US Army Corps of Engineers (USACE) February 2015 RAB update for more information on ASR

Identifying Historical Activities of Potential Concern

- Former herbicide test plots
- Former incinerators
- Former TCE sites (facilities where TCE was used for refrigeration purposes)
- Former petroleum, oil, and lubricant facilities
- Former dispersion test areas (for testing dispersion of simulants)
- Former vehicle maintenance areas
- Areas used formerly for disposal, storage, or other purposes

SI Scope includes sampling for soil and/or groundwater with analyses tailored to historical activities and uses in these areas

What is a CERCLA SI?



Remedial Action (RA)-Implement selected remedy

Remedial Design (RD)- Work plan and design of selected remedy

Record of Decision (ROD)- Final legal document selecting remedy

Proposed Plan (PP)- public document to solicit input on preferred remedy

Feasibility Study (FS)- Assessment of possible remedies

Remedial Investigation (RI)- Thorough investigation; develop conceptual site model, complete risk assessment

Site Inspection (SI)- Initial sampling to test for a release of hazardous substances to the environment

Preliminary Assessment (PA)- Initial review to identify sites that may pose a threat to the environment

The SI reports will make recommendations to EPA/MDE for the next steps (if any) at each site

SI Field Investigations - COMPLETE

Area A

- Two field mobilizations
  - January 2016
    - Approximately 285 samples were collected from 196 locations
  - July 2016
    - 23 samples from 16 locations

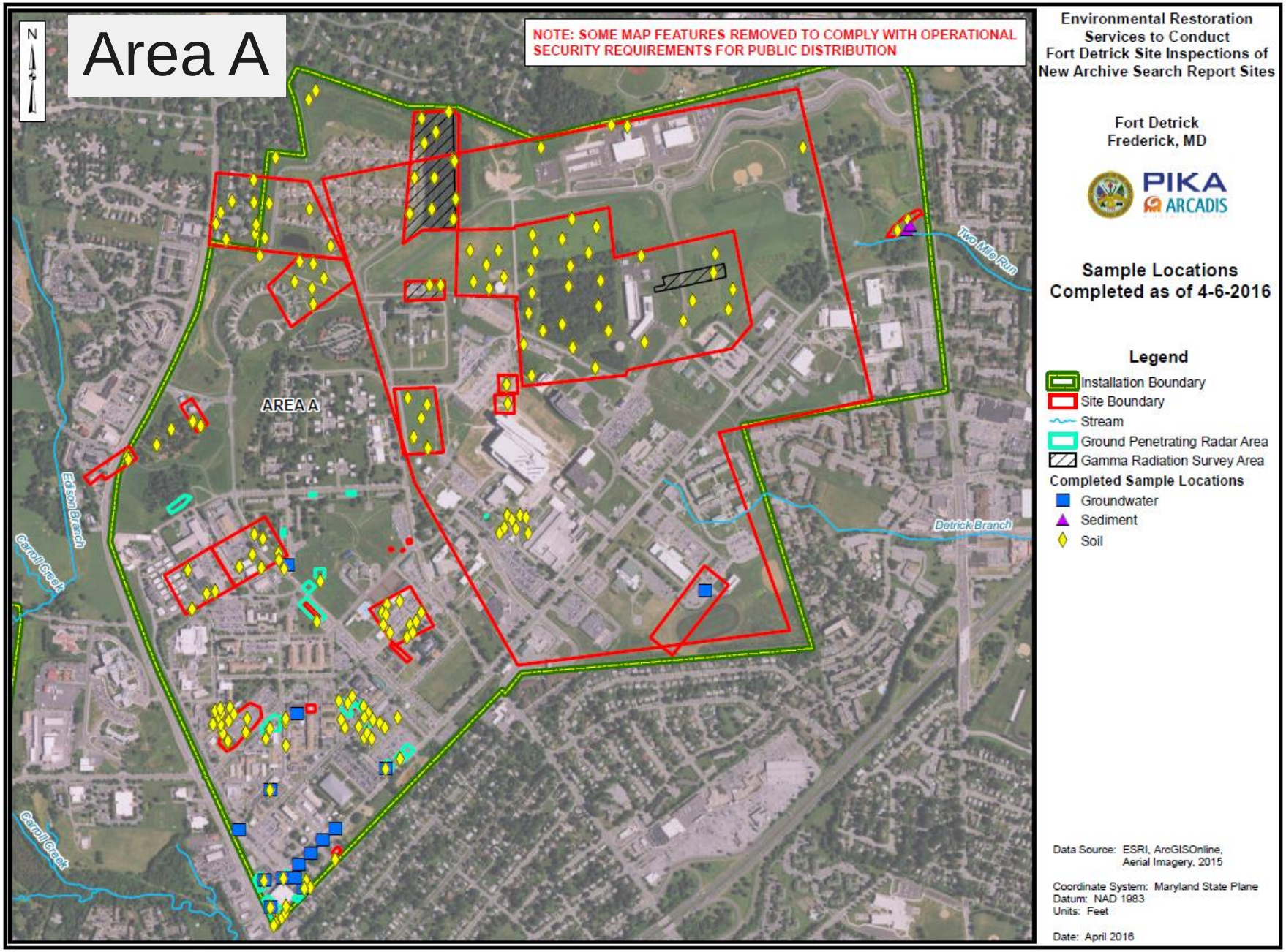
Area B

- One field mobilization
  - July 2016
    - 33 samples from 18 locations

General SI Status Update

- Analytical results are under review
- Once data evaluation is complete, recommendations for no further action or further investigation are suggested

An SI is not intended to be a complete evaluation of the nature and extent of contamination, nor a risk assessment

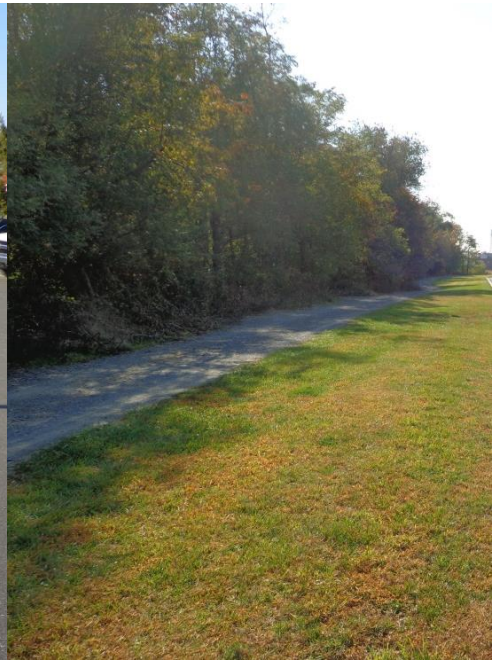


Distribution of SI Sites Across Area A

Group 1: Former Herbicide Test Sites

- Ten historical anti-crop herbicide sites were identified for sampling, though records indicated a low likelihood for detecting residual herbicides.
- These are areas where historical aerial imagery or other records indicate controlled field experiments may have been conducted on small test plots during the 1940s and 1950s.
- Today these areas are covered by a mix of parking lots, buildings, trees, and grassy areas.
- Analytical suite included herbicides, dioxins, and total metals in soil.





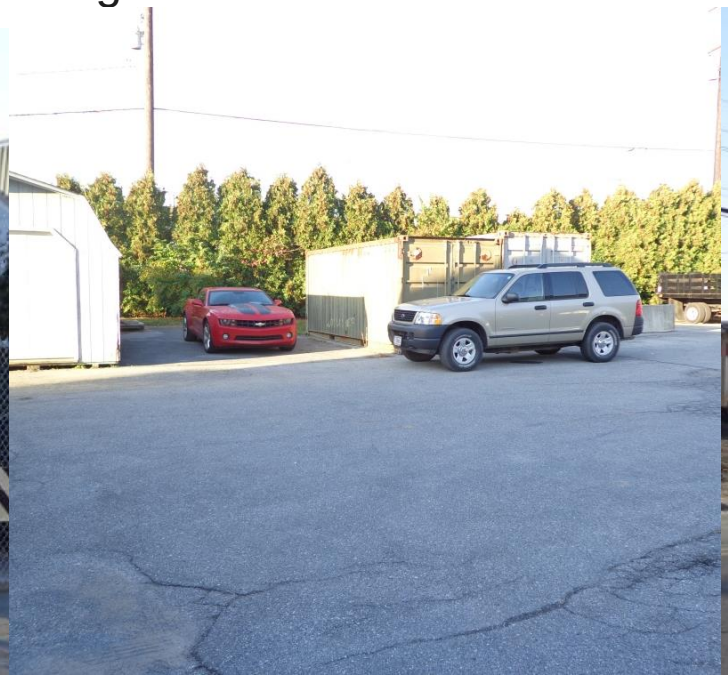
Area A Group 1: Former Herbicide Test Sites
Initial Observations

- No detections of herbicides above laboratory reported detection limits (including no detections of 2,4,5-T and 2,4-D in any samples)
- Dioxins and Metals detections under evaluation:
  - Dioxins were commonly detected, but none exceeded available screening values.
  - Arsenic and other metals were detected in soils with some detections higher than typical background concentrations.

On-going SI evaluation will assess whether further investigation is recommended on a site-by-site basis.

Group 3: Former Incinerator Sites

- Three former incinerator areas dating back to World War II previously used for disposal of burnable wastes and decontamination of air from test facilities.
- Sampling plan evaluated (1) potential environmental impacts from air deposition in the vicinity of these locations; and (2) potential impacts from the historical use and storage of fuel oil for firing the incinerators.
- Most locations have been reutilized for other purposes for many decades.
- Analytical suite included polyaromatic hydrocarbons (PAHs), total metals, total polycyclic hydrocarbons (TPH) (diesel and gasoline range organics, DRO/GRO), and dioxins in soil; DRO/GRO in groundwater.



Area A Group 3: Former Incinerator Sites
Initial Observations

- Detected constituents exceeding comparison criteria in some locations include:

SOIL

- PAHs
- Metals

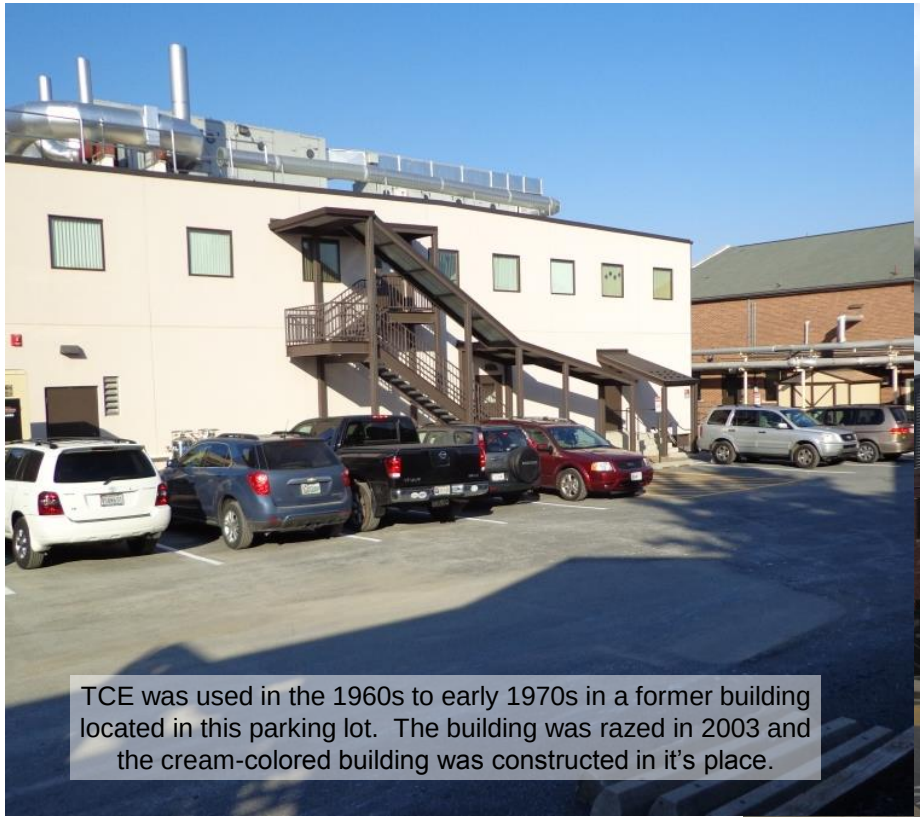
GROUNDWATER

- Total petroleum hydrocarbons

On-going SI evaluation will assess whether further investigation is recommended on a site-by-site basis.

Group 4: Former TCE Sites

- Records identified the documented use of TCE in three Area A buildings for refrigeration and/or freeze-drying purposes. These activities were associated with test chambers and other activities dating back to the 1960s. One of the buildings had been inactive since 1971 and was razed in 2003.
- Sampling plan focused on evaluating potential groundwater impacts near these buildings.
- Analytical suite included volatile organic compounds (VOCs) in groundwater.



TCE was used in the 1960s to early 1970s in a former building located in this parking lot. The building was razed in 2003 and the cream-colored building was constructed in it's place.

Area A Group 4: Former TCE Sites
Initial Observations

- Groundwater sampling identified TCE in shallow groundwater near each of the three buildings.
- Maximum concentration was 16 ug/L.
- Only 1 sample exceeded the 5 ug/L MCL drinking water standard.
- The TCE concentrations in the six other samples were at or below 2.5 ug/L.

On-going SI evaluation will assess whether further investigation is recommended on a site-by-site basis.

Group 5: Former Petroleum, Oil, and Lubricant (POL) Sites

- Records identified 15 locations with historic POL storage, use, or dispensing. These locations include former underground fuel lines, pumping/dispensing areas, and possible underground storage tanks.
- Sampling plan focused on evaluating potential environmental impacts due to the historical use of gasoline, diesel, and fuel oil in these areas.
- Analytical suite included VOCs, SVOCs, and DRO/GRO in soil; VOCs and DRO/GRO in groundwater.

Area A Group 5: Former POL Sites
Initial Observations

- No detections of VOCs, PAHs, or DRO/GRO in soil.
- Three low detections of TCE in GW, ranging from 0.3-1.6 µg/L (less than the 5 ug/L MCL).
  - *Initial assessment is that the location of these detections is consistent with previously known TCE contamination at Area A, rather than a new TCE impact area).*

On-going SI evaluation will assess whether further investigation is recommended on a site-by-site basis.

Group 6: Former Dispersion Test Areas

- Records identified 3 areas in Area A that were previously used as outdoor test grids for simulants for crop agents. The tests were intended to evaluate how the simulants, such as a yeast slurry, were dispersed from 20mm rounds and small-arms fire (e.g., shotgun shells).
- The likelihood for environmental impacts was considered low based on historical information. The sampling plan was focused on evaluating potential impacts to soil in these areas.
- Analytical suite included total metals and explosives in soil.

Area A Group 6: Former Dispersion Test Areas
Initial Observations

- No explosives were detected in any samples.
- Initial review of metals data indicates no impacts above regional screening levels for soil.

On-going SI evaluation will assess whether further investigation is recommended on a site-by-site basis.

Group 7: Former Vehicle Maintenance Areas

- Historical records review identified two former vehicle maintenance areas, including motor repair shops, wash racks, and a gasoline station.
- Sampling plan focused on assessing whether these historical activities could have impacted soil or groundwater and to determine if USTs may still be present.
- Analytical suite included VOCs, DRO/GRO, and total metals in soil; VOCs, DRO/GRO, and total and dissolved metals in groundwater.

Gas station and motor repair shop located in this area until the 1950s.

Motor repair shop and wash rack located in this area until 1975.

Area A Group 7: Former Vehicle Maintenance Areas
Initial Observations

- No VOC impacts identified in soil or groundwater sampling.
- Some metals were detected, but these may be related to naturally-occurring concentrations.
- TPH sampling indicated two detections at low estimated concentrations.

On-going SI evaluation will assess whether further investigation is recommended for either vehicle maintenance area.

Group 8: General disposal, storage, or other use areas

- This group includes a mix of sites, including small storage/test sheds, a locomotive shed, a photo lab, paint shops, and former storage or disposal areas.
- Site inspection sampling included tailored sampling plans based on the types of historical activities and uses in each individual area.
- Analytical suite varied by site but included VOCs, DRO/GRO, and metals in soil; VOCs, DRO/GRO, herbicides, dioxins, and metals in groundwater.

Area A Group 8: General Disposal, Storage, or Other Use Areas

Initial Observations

- Minimal impacts evident based on preliminary data review for VOC, metals, and/or DRO/GRO sampling will be evaluated at each individual site.

On-going SI evaluation will assess whether further investigation is recommended on a site-by-site basis.

Environmental Restoration Services to Conduct Fort Detrick Site Inspections of New Archive Search Report Sites

Fort Detrick
Frederick, MD

PIKA ARCADIS

Sample Locations Completed as of Aug. 2016

Legend

- Installation Boundary
- Site Boundary
- Site Location (Point)
- Stream
- Completed Soil Sample Location

Data Source: ESRI, ArcGIS Online, Aerial Imagery, 2013

Coordinate System: Maryland State Plane
Datum: NAD 1983
Units: Feet

Date: August 2016

Distribution of SI Sites Across Area B

Area B Group 1: Former Herbicide Test Sites
Initial Observations

- Analytical suite included metals and dioxins for soil.
- Dioxins and Metals detections under evaluation:
  - Dioxins were commonly detected, but none exceeded available screening values.
  - Arsenic and other metals were detected in soils with some detections higher than typical background concentrations.

On-going SI evaluation will assess whether further investigation is recommended on a site-by-site basis.

Area B Group 8: Other Use Areas
Initial Observations

- Three former storage/disposal sites were evaluated for VOCs, SVOCs, metals, and/or dioxins in soil.
- No detections of VOCs or explosives.
- No metals detected above regional screening levels.
- Low estimated concentrations of SVOCs.
- Low detections of commonly-occurring dioxins, but none exceeded available screening values.

On-going SI evaluation will assess whether further investigation is recommended on a site-by-site basis.

Next Steps: Fall 2016/Winter 2017

- SI reports for both Area A and Area B will be submitted for regulatory review
- Based on all available information, recommendations for each site will be evaluated regarding future investigations (if any)

All SI site recommendations will be subject to review and concurrence by EPA and MDE

AREA B GROUNDWATER REMEDIAL INVESTIGATION STATUS

Area B Groundwater RI Status

- RI Supplemental Work Plan for additional off-post investigation activities:
  - Plan under comment resolution; EPA and MDE approval is anticipated later this fall.
  - Scope includes additional off-post surface water and groundwater quality testing.
  - Schedule hinges on work plan approval, but aiming to complete the work in early 2017.
  - Results will be incorporated into the Remedial Investigation (RI) report for EPA/MDE review.
    - The RI report will include the Human Health Risk Assessment.

Joint Venture (JV) between:

Watermark Environmental, and

Environmental Chemical Corporation (ECC)

Contract No. W912DR-12-D-0005, Task Orders 003 and 006

US Army Corp of Engineers (USACE) – Baltimore District

Presenter:

Robert Wasserman, P.G.

Deputy Program Manager

Contractor Re-Introduction: Watermark ECC LLC

- Awarded 2 performance-based acquisitions (PBA's) since 2012 to provide environmental investigation, remediation, and long-term monitoring/maintenance services.
  - Awarded PBA in September 2012 to perform:
    - Vapor Intrusion Assessments at Areas A and B
    - Bedrock Drilling and Well Installation at Area B
    - Institutional Control Evaluation/Soil Sampling Investigation at Area C
    - Potable Water Connections and Private Well Abandonment at 5 properties on Kemp Lane.
  - Awarded PBA in September 2015 to perform:
    - Long-Term Groundwater Monitoring at Area A
    - Long-Term Groundwater Monitoring at Area B (Sentinel and Landfill Monitoring Wells)
    - Long-Term Maintenance at Area B (Landfill Covers)

- Note: Focus of this RAB

Watermark ECC LLC
175 Cabot Street • Lowell, MA 01854
Office 978.452.9696 Fax 978.453.9988

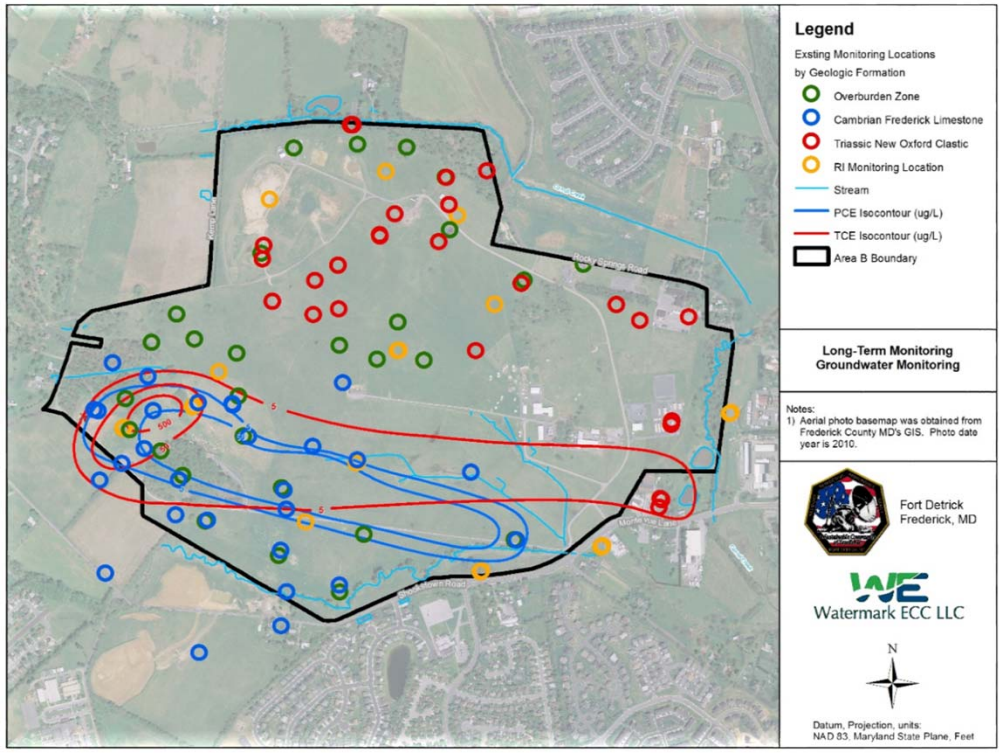
Potable Water Connections and Private Well Abandonment - Kemp Lane (Schedule Update)

- Briefed originally in August 2016
- Time-Critical Removal Action at 5 Properties:
  - 7310 Kemp Lane
  - 7320 Kemp Lane
  - 7334 Kemp Lane
  - 7338 Kemp Lane
  - 7352 Kemp Lane
- Includes connections from the water main underlying Kemp Lane to individual properties, and abandonment of the private production wells at each property.
- Fort Detrick continues to provide potable water to residents pending completion of the removal action.
- Current Status:
  - USACE is re-issuing new Rights of Entry (ROE's) agreements primarily due to recent property sale/transfers
  - Project scope is undergoing modification to account for recent changes to City requirements
  - Activity is now scheduled for late November 2016 (to last approximately 1 to 2 weeks, including site restoration and road repair)

Watermark ECC LLC
175 Cabot Street • Lowell, MA 01854
Office 978.452.9696 Fax 978.453.9988

Long-Term Groundwater Monitoring and Maintenance – Area B Landfills

- 2016 Groundwater Monitoring
  - Occurs semi-annually
  - Water Level Gauging – Completed on 3 May 2016
  - Groundwater Sampling – Completed between 3 and 10 May 2016
  - Additional Groundwater Sampling (at locations PZ-22 and PZ-23) – Completed on 31 August 2016
  - Data validation completed; draft report pending
  - Next Monitoring and Sampling Event – Scheduled for week of 14 November 2016



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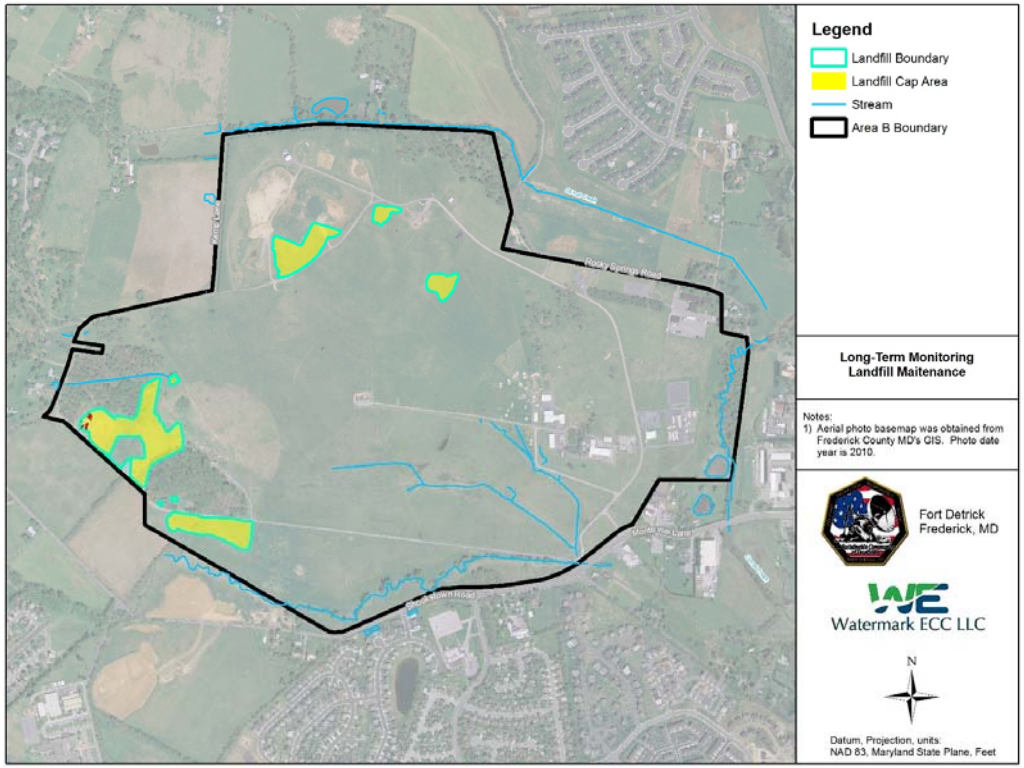
Long-Term Groundwater Monitoring and Maintenance – Area B Landfills

- 2016 Landfill Maintenance
  - Mowing – Completed between 19 and 20 May 2016
  - Inspections – Completed on 25 May 2016 (No deficiencies noted or repairs required)
  - Herbicide Application – Completed on 12 August 2016 (application was successful in keeping Johnson Grass growth to a minimum)
  - Additional Mowing – Completed on 31 October and 1 November 2016
  - Groundhog Relocation - Scheduled for week of 14 November 2016
  - Next Inspection – Scheduled for week of 14 November 2016



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