

INSTALLATION RESTORATION PROGRAM



NAVAL SUPPORT FACILITY
INDIAN HEAD
3838 STRAUSS AVENUE
INDIAN HEAD, MARYLAND
20640-5133



RESTORATION ADVISORY BOARD (RAB) MEETING MINUTES

Date of Meeting: October 20, 2016, 6:00 pm

RAB Member Attendees:

Mr. Joseph Rail (N) *
Mr. Curtis Detore (S)

Additional Attendees:

CAPT Mary Feinberg (N)	Ms. Tara Carlson (C)
Mr. Andrew Louder (N)	Mr. Jim Long (C)
Mr. Alex Scott (N)	Ms. Bonnie Bick (C)
Ms. Tara Meadows (N)	Ms. Jeron Hayes (N)
Mr. Jeffrey Bossart (N)	Mr. Dan Bragunier (N)

RAB Members Not in Attendance:

Mr. Robert Thomson (F)	Ms. Karen Wigger (L)
Mr. Mark Williams (L)	
Mr. Fred Pinkney (F)	

* Co-chair

C= Community
F= Federal Official
K= Contractor
L= Local Official
N= Navy Official
R= Newspaper Reporter
S= State Official

Topics Discussed:

1. Arrival/Welcome

Mr. Joseph Rail of the Naval Facilities Engineering Command, Washington (NAVFAC Washington) began the meeting by conducting introductions and welcoming everyone to the Indian Head Senior Center. Copies of RAB presentations and the agenda were offered to anyone in attendance. Mr. Rail then presented the meeting agenda, which is included in Attachment A.

2. RAB Presentations

Presentations and updates were given by Mr. Rail and Mr. Scott of NAVFAC Washington and Mr. Louder of Naval Support Facility Indian Head. Mr. Rail presented the FY17 Budget Update and Site 38 Remedial Action Update. Mr. Scott presented the SWMU 14 Pilot Study Results and FY17 Five-Year Review. Mr. Louder presented the Site 12 & 42 Long-Term Monitoring Update and UXO 20 Fieldwork Update. Copies of all presentations are included in Attachment D.

3. Comments, Questions and Answers

Numerous comments were made and questions asked during the meeting. These comments, questions and answers are provided in Attachment B. Additional correspondence concerning the Installation Restoration Program (IRP) or the Munitions Response Program (MRP) at the facility can be directed to:

Public Affairs Officer
Naval Support Facility South Potomac
Attn: Public Affairs Officer, Code 00P
6509 Sampson Rd.
Dahlgren, VA 22448-5108
PHONE: (540) 284-0129
FAX: (540) 653-4269
Email: jeron.hayes@navy.mil

4. Meeting Adjourn

Mr. Rail presented the tentative agenda for the next RAB meeting, which is scheduled for April 20, 2017. A copy of the draft agenda is included in Attachment C. Mr. Rail then concluded the meeting at 8:00 pm and thanked everyone in attendance.

**NAVAL SUPPORT FACILITY INDIAN HEAD
INSTALLATION RESTORATION (IR) PROGRAM
RESTORATION ADVISORY BOARD (RAB) MEETING AGENDA**

October 20, 2016

- 6:00 - 6:05 pm** **ARRIVAL/WELCOME**
Mr. Joseph Rail
Naval Facilities Engineering Command, Washington (NAVFACWASH)
Remedial Project Manager
- 6:05 – 6:15 pm** **FY17 BUDDGET UPDATE**
Mr. Joseph Rail
- 6:15 – 6:30 pm** **SITE 38-RUM POINT LANDFILL REMEDIAL ACTION UPDATE**
Mr. Joseph Rail
- 6:30 – 6:45 pm** **SITE 12 & 42 LONG-TERM MONITORING UPDATE**
Mr. Andrew Louder
- 6:45 – 7:00 pm** **UXO 20 FIELDWORK UPDATE**
Mr. Andrew Louder
- 7:00 – 7:15 pm** **SWMU 14 PILOT STUDY RESULTS**
Mr. Alex Scott
- 7:15 – 7:30 pm** **FY 17 FIVE-YEAR REVIEW**
Mr. Alex Scott
- 7:30 pm** **ADJOURN**

Attachment A

INSTALLATION RESTORATION PROGRAM



NAVAL SUPPORT FACILITY
INDIAN HEAD
3838 STRAUSS AVENUE
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20640-5133



RESTORATION ADVISORY BOARD (RAB) MEETING COMMENTS, QUESTIONS AND ANSWERS October 20, 2016

Arrival/Welcome

No questions were asked nor comments made during this topic.

FY17 BUDGET UPDATE

Question: Where can the previous RAB presentation be found that provides an overview of the CERCLA process?

Answer: This presentation can be found in the April 2015 RAB minutes on the Naval Support Facility Indian Head public website (<http://go.usa.gov/DyOF>.)

SITE 38-RUM POINT LANDFILL REMEDIAL ACTION UPDATE

Question: What is the definition of "native soil?"

Answer: Native soil is the natural and original grade of the site prior to any man-made activities such as backfilling or excavation

Question: How did the changes to the Explosive Safety Submission (ESS) impact costs?

Answer: The changes to the ESS, such as the use of a long-reach excavator, increased costs due to slowed daily production rates. With a longer reach machine, less soil could be screened on a daily basis.

Question: What was the most common munitions item found during excavation and screening of soils?

Answer: The most common item was pieces of 5 inch projectiles.

Attachment B

Question: What became of the 3,500 pounds of Material Potentially Presenting an Explosive Hazard (MPPEH?)

Answer: The MPPEH was placed in a detonation trench and altered by an explosive event. It will then be taken to a recycler and a certificate of destruction will be issued.

Question: Was the landfill active right through 1989?

Answer: Limited information exists on landfill activity and the actual date of closure. Based on all record reviews, it is estimated that 1989 was the last year that some type of operation took place at the landfill.

Question: Do other Navy sites lose funding because of the overrun on Site 38 costs?

Answer: It is possible that other sites would lose funding in the current fiscal year, but not necessarily at Indian Head. NAVFAC Washington addresses the highest priority sites first and funds lower priority sites in the future. Since work at Site 38 is underway, it is a higher priority. Other Navy sites may not be ready for additional work right now and their funding would be delayed, but not lost.

SITE 12 & 42 LONG-TERM MONITORING UPDATE

Question: For Site 42, does the yellow boundary on the site figure indicate the size of the landfill cap?

Answer: Yes. That is the outline of the landfill.

Question: Why are you seeing increasing trends in some contaminants at certain wells?

Answer: Seasonal fluctuations, alternating dry and wet periods.

Question: How long do you have to monitor the landfills?

Answer: Twice a year, every year.

Question: For current day base operations, where does generated waste go?

Attachment B

Answer: Generated waste goes offsite into landfills in Charles County.

Question: What year did the Maryland Department of Environment (MDE) start to regulate and require permits for landfills to operate?

Answer: Since 1914, Maryland has had laws requiring solid waste to be handled in a manner that minimizes risk posed to public health and the environment.

UXO 20 FIELDWORK UPDATE

Question: Is the Digital Geophysical Mapping (DGM) survey the typical way you would document and investigate underground anomalies?

Answer: Yes, it defines the nature and extent of subsurface metal prior to excavation.

Question: How large is the peninsula that UXO 20 is located at and how was it built?

Answer: UXO 20 is approximately 1.0 acres and was constructed between 1940 and 1942 by filling in the shoreline area.

Question: How far is the UXO 20 site from the active burn point?

Answer: 0.5 miles.

Question: What type of work is scheduled next for UXO 20?

Answer: Assessing the groundwater results which were taken Oct. 20th, 2016

Question: When will groundwater be assessed and a potential remedy be identified, if needed?

Answer: The final RI report during the spring of 2017.

Question: If a harmful substance or item was identified, what would the Navy do?

Answer: The Navy's contractor had an approved ESS to dispose of any potential live item on site if it was deemed unsafe to move. If a harmful substance was discovered, work would be stopped and the appropriate actions would take place to ensure the safety of the contractors on site.

Attachment B

SWMU 14 PILOT STUDY RESULTS

Question: Is SWMU 14 located on the shoreline of Mattawoman Creek?

Answer: Yes.

Question: Has the in-situ precipitation technology been used before?

Answer: This is the first time it is being used at Indian Head but it has been used at other sites with similar conditions.

Question: Is the pilot study only treating part of the site or the whole site?

Answer: The pilot study is only applied to part of the site to evaluate its effectiveness. The substrate was injected into three points where cobalt was observed to be at the highest concentrations, in the northeast area of the site.

Question: How does the pilot study technology remediate cobalt?

Answer: The technology uses biochemical reduction to remove dissolved cobalt in groundwater. The ground is injected with substrate consisting of vegetable oil and sulfate, which feeds the aquifer microbes whose metabolism reduces sulfate to sulfide, and uses the dissolve cobalt in the metabolic process forming the stable cobalt sulfide compound. This compound is insoluble in water, and precipitates out as a particle.

Question: What's to prevent cobalt concentrations from rebounding or reverse precipitation to occur?

Answer: Although rebound is not anticipated, the site's groundwater will continue to be monitored periodically to ensure that the conditions have not changed to where cobalt can redissolve. Typically, the stable cobalt sulfide compound will not redissolve unless exposed to an oxidizing environment to "reverse" the precipitation, which is not anticipated to occur at the site.

Attachment B

FY 17 FIVE-YEAR REVIEW

Question: Was the living shoreline of Site 11 part of the remedial action?

Answer: Yes.

Question: Is a soil "cap" the same thing as a soil "cover?"

Answer: No. A "cap" is used to refer to an engineered and impermeable landfill covering, usually consisting of several layers of thick plastic sheeting and/or compacted clay. A soil "cover" should refer to a protective 2-foot thick layer of soil to cover buried wastes, usually stabilized with vegetation to prevent contamination from migrating off-site.

Question: Can the Navy revisit the remedies for landfills if it ever decides to reuse those areas of land?

Answer: Yes, the Navy is obligated to do so to ensure that the site's remedy continues to be effective and protective after any significant land-use change.

Question: Is the decision to alter the remedy at Site 57 made during the Five-Year Review?

Answer: Under CERCLA, each site is managed on an ongoing basis to ensure that it meets requirements of its selected remedy. Decisions to alter the remedy are typically coordinated between the Navy and regulators. The Five Year Review (5YR) process provides a mandated, periodic evaluation of that remedy. During the 5YR process, if issues are discovered, those reported findings will be used to support a decision to change that remedy, to ensure a protective and effective remedy at that site. Therefore, decisions to alter a remedy are not limited to the 5YR process. The obligation under CERCLA to protect human health and the environment is ongoing until conditions for Unrestricted Use/Unlimited Exposure (UU/UE) are achieved.

Question: What site was similar to UXO 32 where you discovered unexpected trichloroethene (TCE) upgradient?

Answer: High concentrations of TCE were unexpectedly found in the north plume of Site 17.

Attachment B

Question: How does the Five-Year Review cycle work and what sites get included?

Answer: A 5YR is required for each site that has contamination left in place or conditions that do not allow for unlimited use/unrestricted exposure (UU/UE.) The 5YR process (or cycle) begins once a remedy has been implemented, following the signing of the site's record of decision (ROD) selecting a remedy. The implemented remedy must be evaluated every five years, at a minimum and may be evaluated more often if needed and appropriate. To simplify and synchronize the 5YR process at Indian Head, the 5YR for all applicable sites within Indian Head are regularly scheduled to occur on years ending on 2 and 7. Sites that have progressed to a ROD and implemented remedy are then evaluated at the next 5YR, so that no more than 5 years passes between evaluations.

Question: Who is involved with or approves a Five-Year Review?

Answer: The Navy is responsible for conducting a 5YR. The report is reviewed by the regulators (US EPA and MDE) to verify the Navy's conclusions regarding a remedy's protectiveness and effectiveness, or discovered issues that may compromise protectiveness and effectiveness of these remedies. If the regulators agree, they will provide their concurrence that the 5YR's conclusions are appropriate and accurate.

**NAVAL SUPPORT FACILITY INDIAN HEAD
INSTALLATION RESTORATION (IR) PROGRAM
RESTORATION ADVISORY BOARD (RAB) **DRAFT** MEETING AGENDA**

April 20, 2017

- 6:00 - 6:05 pm** **ARRIVAL/WELCOME**
Mr. Joseph Rail
Naval Facilities Engineering Command, Washington (NAVFACWASH)
Remedial Project Manager
- 6:05 – 6:30 pm** **STUMP NECK MRP SITES REMEDIAL INVESTIGATION
UPDATE**
Mr. Joseph Rail
- 6:30 – 6:45 pm** **SWMU 14 PHOTOGRAPHIC LAB SEPTIC TANK SYSTEM
FEASIBILITY STUDY**
Mr. Alex Scott
- 6:45 – 7:15 pm** **SITE 38-RUM POINT LANDFILL REMEDIAL ACTION UPDATE**
Mr. Joseph Rail
- 7:15 – 7:30 pm** **SITE 43-TOLUENE DISPOSAL AREA PRE-DESIGN
INVESTIGATION UPDATE**
Mr. Andrew Louder
- 7:30 – 7:45 pm** **SITE 66-TURKEY RUN DISPOSAL AREA BASELINE
ECOLOGICAL RISK ASSESSMENT**
Mr. Andrew Louder
- 7:45 – 8:00 pm** **SITE 67-HOG-OUT FACILITY REMEDIAL INVESTIGATION
UPDATE**
Mr. Alex Scott
- 8:00 pm** **ADJOURN**

Tentative FY17 RAB Dates:

April 20, 2017
October 19, 2017

Attachment C

Attachment D- RAB Presentations



*NAVAL SUPPORT FACILITY
INDIAN HEAD*



FY17 Budget & Schedule Update

*Joseph Rail
NAVFAC Washington*

October 20, 2016



FY17 Budget & Schedule Update



- *Approximate budget for FY 2017-*

\$2.2 mil for Installation Restoration Program (IRP)

\$3.3 mil for Munitions Response Program (MRP)

Planned work includes:

- *Site Inspection (SI) Sampling*
- *Feasibility Study (FS)/Remedial Design (RD)*
- *Proposed Plan (PP)/Record of Decision (ROD)*
- *Remedial Action (RA)*
- *Interim Removal Action (IRA)*
- *Remedial Action-Operation (RA-O)*
- *Long-Term Monitoring (LTM)*



FY17 Budget & Schedule Update



- ***SI Sampling for:***
 - *Site 68- Former Building 259 Contamination*
- ***FS/RD for:***
 - *Site 67- Hog-out Facility*
 - *Site 69- Building 1018*
 - *Site 70- Groundwater Contamination Along Water Works Way*
- ***PP/ROD for:***
 - *SWMU 14- Photographic Lab Septic Tank System*
- ***RA for:***
 - *Site 38- Rum Point Landfill*



FY17 Budget & Schedule Update



- ***IRA for:***
 - *UXO 14- Marine Rifle Range*
 - *UXO 15- Old Skeet & Trap Range*
 - *UXO 16- Rum Point Skeet Range*
 - *UXO 25- Roach Road Rifle Range*
- ***RA-O for:***
 - *Site 17- Disposed Metal Parts Along Shoreline*
 - *Site 47- Mercuric Nitrate Disposal Area*
 - *Site 57- Building 292 TCE Contamination*
- ***LTM for:***
 - *Site 11- Caffee Road Landfill*
 - *Site 21- Bronson Road Landfill*
 - *Site 36- Closed Landfill*



FY17 Budget & Schedule Update



Questions?



SITE 38- RUM POINT LANDFILL REMEDIAL ACTION UPDATE

**Presented By
Joseph Rail
Naval Facilities Engineering Command (NAVFAC)
Washington**

10/20/16

Site 38-Rum Point Landfill Location



Legend Approximate Site Boundary			
DRAWN BY T. WILGATON	DATE 12/28/15	SITE LOCATION MAP SITE 38 - RUM POINT LANDFILL NAVAL SUPPORT FACILITY INDIAN HEAD INDIAN HEAD, MARYLAND	
CHECKED BY S. NIGHT	DATE 12/28/15		
REVISED BY 	DATE 		
SCALE: AS NOTED	CONTRACT NUMBER: 	DRAWN NUMBER: C70-JEB	DATE:
		APPROVED BY: 	DATE:
		FIGURE NO: FIGURE 1-2	ISS: 5

Site 38 Background



- Located on Stump Neck Annex, 2 acres in size, inactive since 1989
- Record of Decision (ROD) signed in 2014
- Final remedy of landfill removal, monitoring, and land use controls
- Wastes include scrap metal, tires, wood, concrete, and potential munitions items

October 2015 Site Conditions



U.S. Navy



U.S. Navy

Remedial Action Process



Sequence of Fieldwork:

- Excavate landfill until native soil is reached and waste is no longer encountered
- Mechanically screen excavated materials for Munitions and Explosives of Concern/Material Potentially Presenting an Explosive Hazard (MEC/MPPEH)
- Segregate excavated materials into three waste streams (soil, construction debris, scrap metal)
- Characterize and transport waste materials offsite for recycling or disposal
- Place clean soils in borrow source area
- Complete site restoration (topsoil, seeding, and planting)

Winter 2016 Site Conditions



U.S. Navy



U.S. Navy



U.S. Navy

Original Screener Setup



U.S. Navy

Screening With Long-Reach Excavator



U.S. Navy



U.S. Navy

Landfill Thickness/Depth of Waste



U.S. Navy



U.S. Navy



U.S. Navy

Soil Stockpiles at Rum Point Skeet Range



U.S. Navy



U.S. Navy

Soil Stockpiles Near Support Zone



U.S. Navy



U.S. Navy

Backfilling Borrow Source Area



U.S. Navy



U.S. Navy

September 2016 Site Conditions



U.S. Navy



U.S. Navy



U.S. Navy

Hand Sorting Oversize Debris



U.S. Navy



U.S. Navy



U.S. Navy

Excavation to Original Grade



U.S. Navy



U.S. Navy

Original Grade Established



U.S. Navy



U.S. Navy

September 2016 Rain Events



U.S. Navy



U.S. Navy



U.S. Navy

Saturated Soil Conditions



U.S. Navy



U.S. Navy



U.S. Navy

Completed Excavation



U.S. Navy



U.S. Navy

Site 38 Remedial Action Summary



Project Cost/Length:

- Approximately \$4.5 mil total to date
- 12 months to complete RA

Project Successes:

- Potential for site to be unlimited use/unrestricted exposure (UU/UE)
- Considerable savings for future long-term monitoring (LTM) (cost reduction potential of \$750K or more)
- 65,871 lbs. MDAS recovered from site (to date)
- 3,593 lbs. MPPEH recovered (to date)
- 46,100 lbs. of general trash and construction debris collected (to date)
- 41,380 lbs. metal recycled
- 271 C.Y. concrete recovered

Contacts and Questions



Points of Contact:

- **NAVFAC Washington:** Joseph Rail
- **NAVFAC Washington (Base RPM):** Andrew Louder

Questions ?



IR Site 42 Olsen Rd. Landfill and IR Site 12 Town Gut Landfill Status Update

Presented By
Andrew Louder-IR/MRP Manager
Naval Facilities Engineering Command (NAVFAC)
Washington

10/20/16

IR Site 42 – Olsen Road Landfill Location



IR Site 42 Background

- Site 42 – Olsen Road Landfill is located in the southwestern portion of the NSFIH
- Site 42 encompasses approximately two acres of undeveloped land.
- From approximately 1982 to 1987, prior to the construction of Building 1866 in 1992, the Site 42 area was used for the unauthorized disposal of various solid wastes including construction materials/debris, wood, metal, and steel drums. There are no records of hazardous waste disposal at the site.



IR Site 42 History

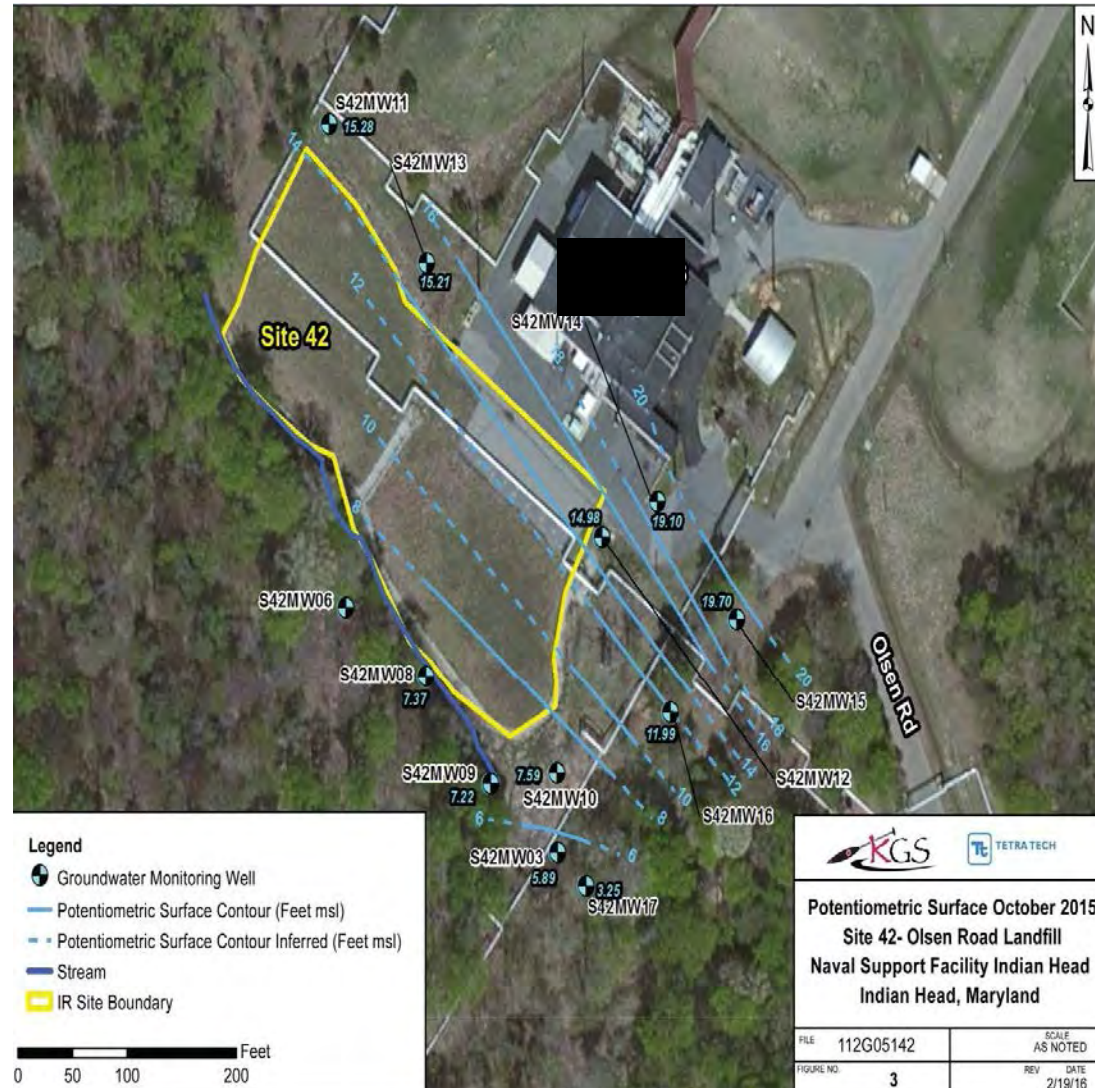


- 1991-1992 – Site Inspection (SI)
 - Installation of soil borings and shallow monitoring wells and collection of environmental samples.
- 1997-1999 – Remedial Investigation (RI)
 - RI results identified impacts to soil and groundwater that could pose an ecological risks to the adjacent stream.
 - In addition, proper closure of the landfill in accordance with MDE regulations.
- 2005 – ROD was finalized and signed.
- 2005-2006 – Landfill Closure
 - 5,000 cubic yards of waste/soil/debris was re-graded.
 - 5,500 tons of excavated waste transported off-site.
 - Engineering cap constructed
- 2005-Present – Long term monitoring program for groundwater and surface water and landfill inspections began.
 - Surface water discontinued in 2007 due to no unacceptable risk.

IR Site 42 MW Network



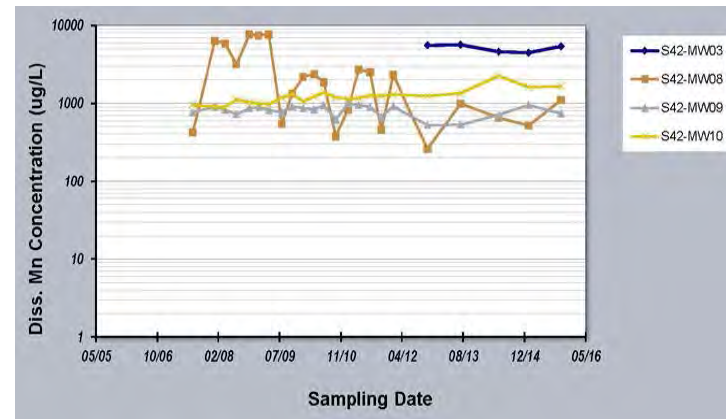
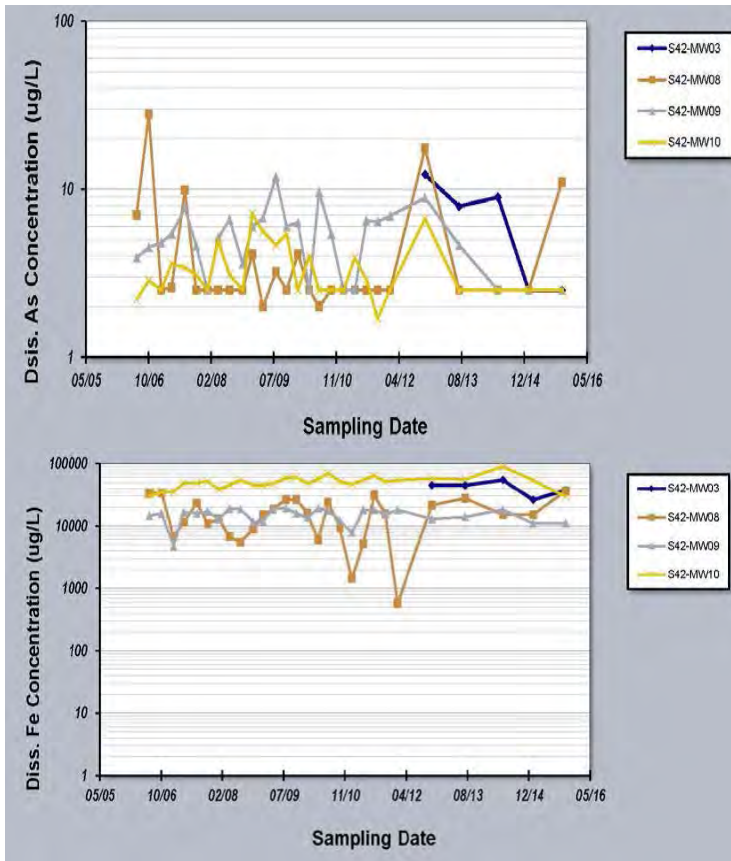
- Well Network (11 monitoring wells)
- Upgradient
 - MW-11, MW-12, MW-13, MW-14, MW-15
- Downgradient
 - MW-03, MW-08, MW-09, MW-10, MW-17
- Cross-gradient
 - MW-16
- MW-15, MW-16, MW-17 installed in March 2014
- Parameters
 - VOC: TCE, cis-1,2-DCE and VC
 - Metals (total/diss.): arsenic (As), iron (Fe) and manganese (Mn)



IR Site 42 Metals Results

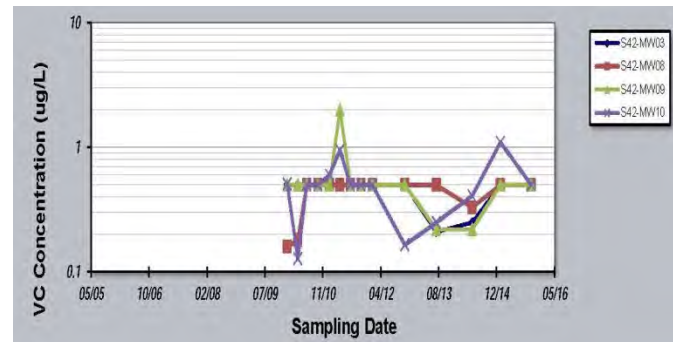
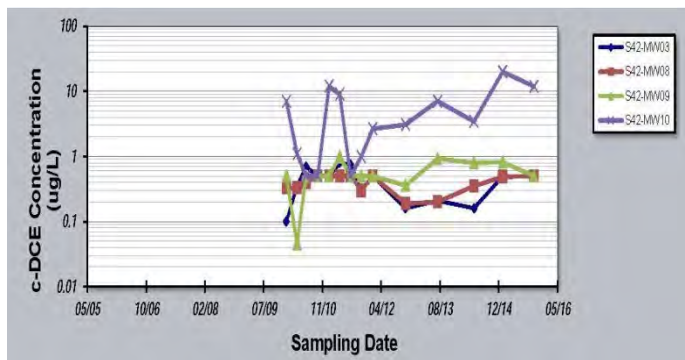
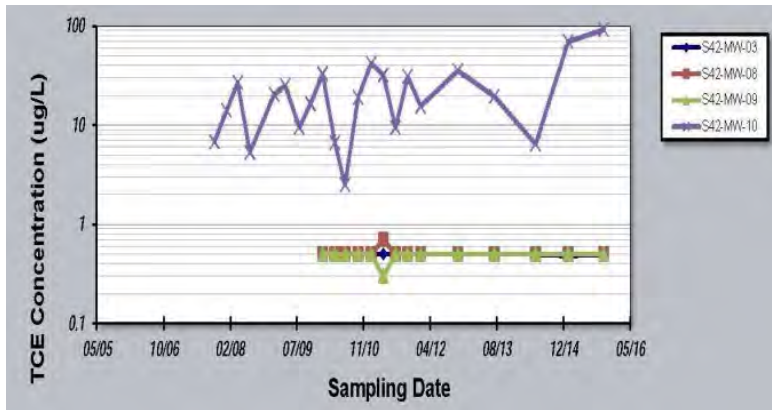


- As – 10 mg/L MCL
- Fe – 300 mg/L SMCL
- Mn – 50 mg/L SMCL



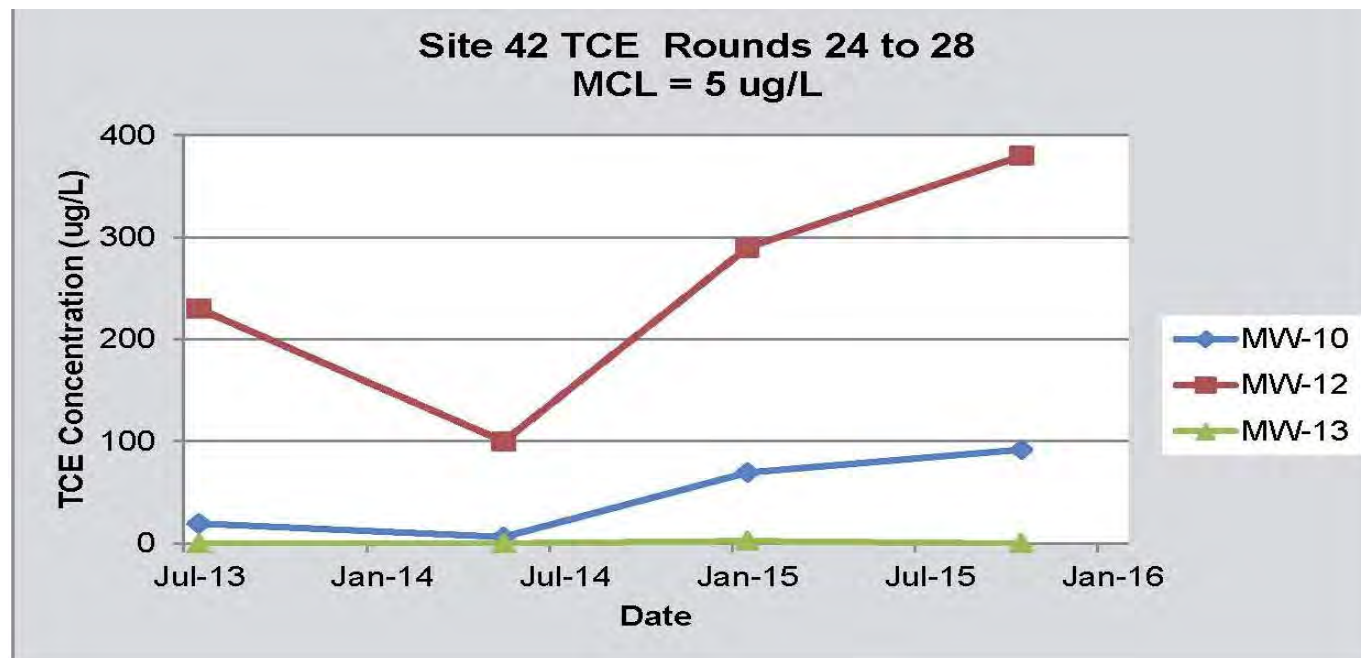
IR Site 42 VOC Results

- TCE – 5 mg/L MCL
- cis-1,2-DCE – 5 mg/L MCL
- VC – 2 mg/L MCL



IR Site 42 VOC Results

- TCE – Two wells exceed MCL (5 mg/L)
- cis-1,2-DCE – No wells exceed MCL (70 mg/L)
- Most are 1 OOM lower except MW-10 which is 30% of MCL (max was 20 mg/L)
- VC – Generally ND or < 1J; MW-10 reached 1.1 mg/L then back to ND (MCL = 2 mg/L)



IR Site 42 Trend Analysis



- Performed on downgradient wells; analyzed dissolved fraction only
- Adjusted Non-Detects to same level to avoid attributing trends to detection limits

Mann-Kendall Test Summary - Sampling Rounds 25 to 28

Analyte	MW-03	MW-08	MW-09	MW-10
Dissolved As	Stable	No Trend	Stable	Stable
Dissolved Fe	Stable	Stable	Stable	Stable
Dissolved Mn	Stable	Stable	No Trend	No Trend
TCE	Stable	Stable	Stable	No Trend
cis-1,2-DCE	No Trend	Increasing	Stable	No Trend
VC	No Trend	No Trend	No Trend	No Trend

IR Site 42 Summary



- Metals Total and dissolved
 - Fe and Mn > SMCL at all wells
 - Upgradient wells generally < downgradient wells
- Total As > MCL (MW-08, MW-09, MW-03)
- Dissolved As > MCL (MW-08)
- VOCs
 - TCE > MCL (MW-10, MW-12)
 - cis-1,2-DCE < MCL at all wells
 - VC < MCL at all wells

Action Levels

- TCE – 5 ug/L MCL
- cis-1,2-DCE – 5 ug/L MCL
- VC – 2 ug/L MCL
- As – 10 ug/L MCL
- Fe – 300 ug/L SMCL
- Mn – 50 ug/L SMCL

Recommendation Continue reduced program

IR Site 12 – Town Gut Landfill Location



IR Site 12 Background



- Landfill approximately 4 acres in size, located on either side of the Atkins Road extension, near Building 471. It is believed to have been filled between 1968 and 1980 and contain landscaping waste, fill material, rubble, and construction debris.



IR Site 12 History



- 1985 Confirmation Study
 - Recommended 5 years of sampling
 - Results did not show that migration was taking place
- 1999 Remedial Investigation
 - Recommended a Feasibility study to address potential ecological risks and landfill closure requirements
- 2001 Feasibility Study
 - Proposed plan covering landfill with 2 feet of soil
 - Removal of exposed waste and debris along the pond
- 2003 Action Memorandum
 - Removal of exposed waste and debris
 - Installation of 2 foot soil cover
- 2004 Record of Decision
 - Implementation of Long-Term Monitoring and Institutional Controls and currently ongoing

IR Site 12 MW Network

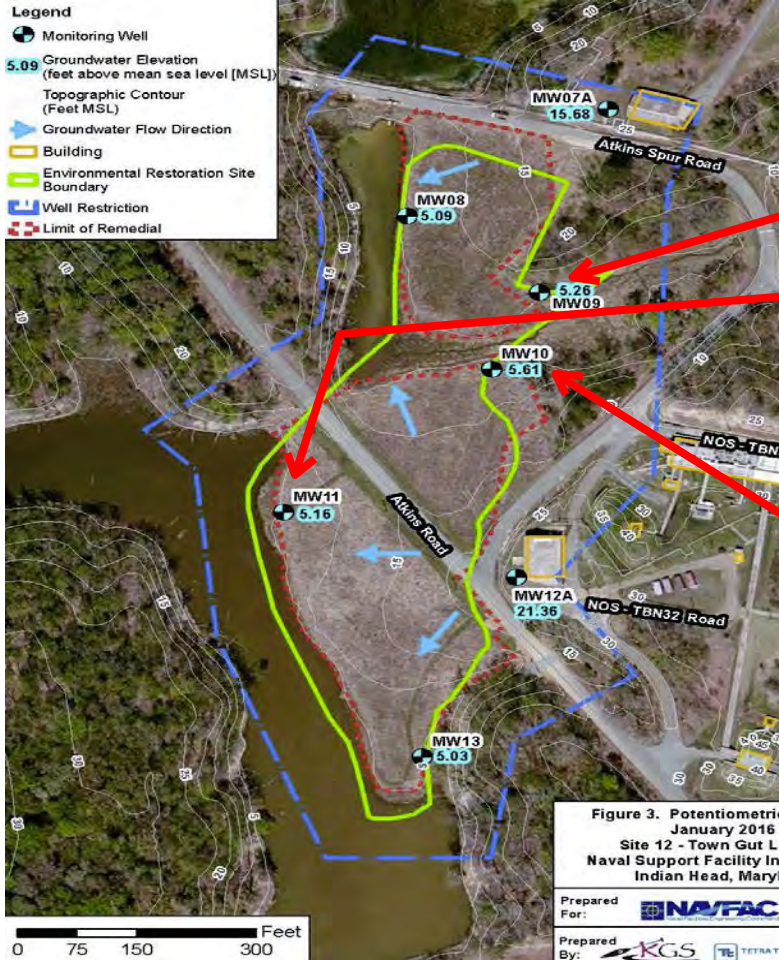


- Well Network (7 monitoring wells)
 - Upgradient: MW-07A, MW-12A
 - Downgradient: MW-08, MW-09, MW-10, MW-11, MW-13
- Parameters
 - VOC: naphthalene (MW-10 only)
 - Metals (total/dissolved): arsenic (As), cobalt (Co), iron (Fe) and manganese (Mn)

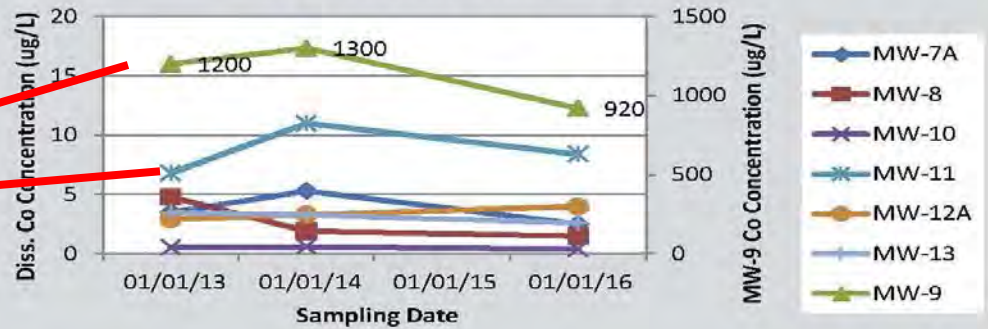
IR Site 12 MW Network



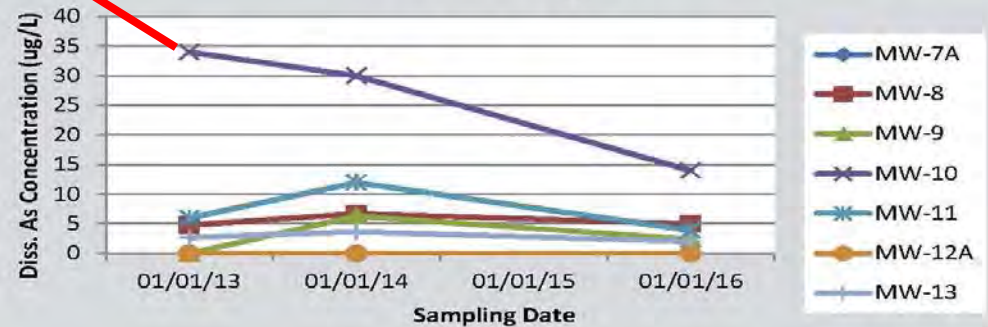
IR Site 12 Results



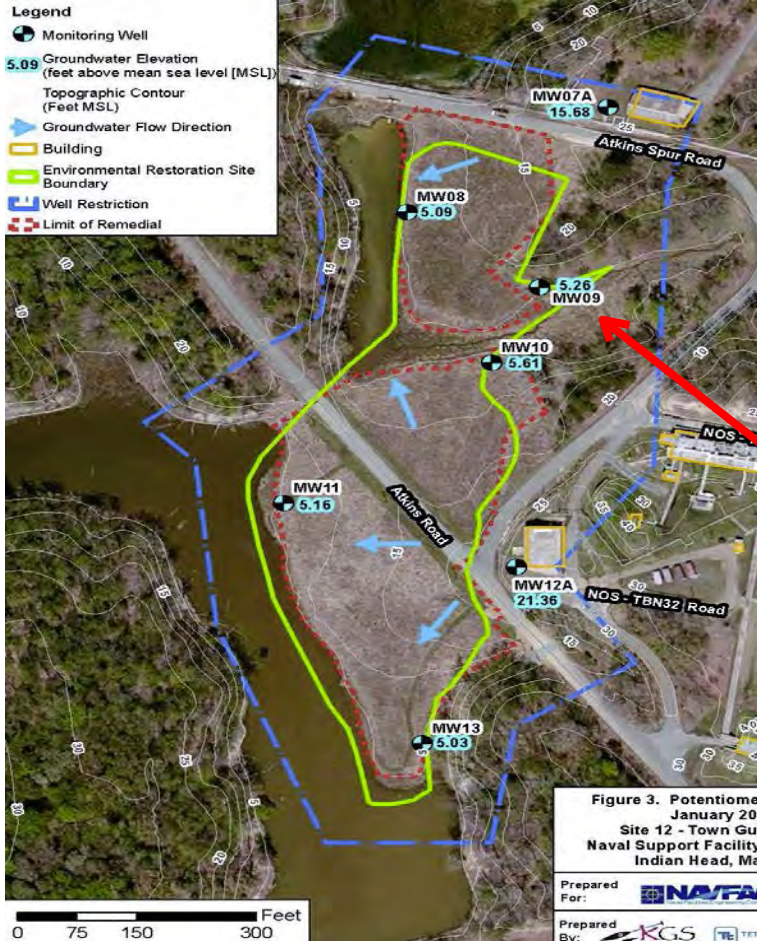
Site 12 Dissolved Co Rounds 29 to 31 Tap Water RSL = 6 ug/L



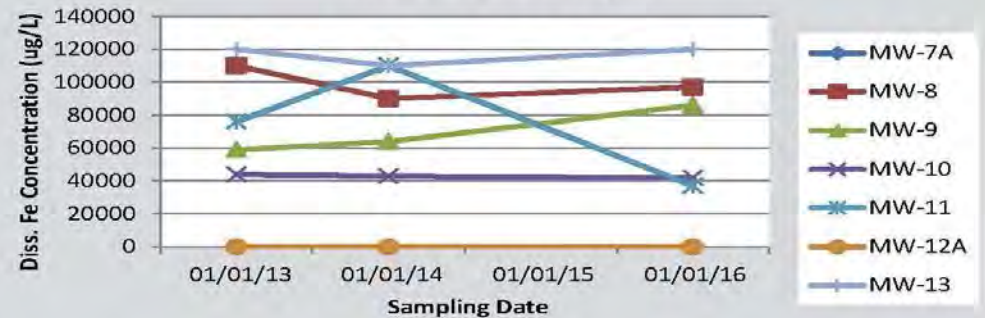
Site 12 Dissolved As Rounds 29 to 31 MCL = 5 ug/L



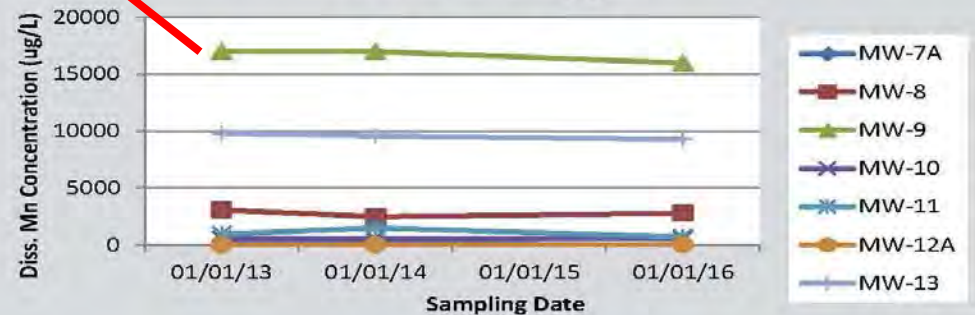
IR Site 12 Results



Site 12 Dissolved Fe Rounds 29 to 31
 SMCL = 300 ug/L



Site 12 Dissolved Mn Rounds 29 to 31
 SMCL = 50 ug/L



Contacts and Questions



Points of Contact:

- **NAVFAC Washington:** Joseph Rail
- **NAVFAC Washington (Base RPM):** Andrew Louder

Questions ?



UXO 20-Safety Thermal Treatment Plant REMEDIAL ACTION UPDATE

Presented By
Andrew Louder-IR/MRP Manager
Naval Facilities Engineering Command (NAVFAC)
Washington

10/20/16

Presentation Objectives



Objective:

- Discuss past and current investigation efforts at UXO 20-Safety Thermal Treatment Plant at Naval Support Facility, Indian Head, MD
 - Background of UXO 20
 - Past Assessment/Removal Activities
 - Recent investigation efforts and results
 - Future?

UXO 20-Safety Thermal Treatment Plant Location



UXO 20 Background



- Man-made peninsula between 1940 and 1942
- Constructed of sand, fill material, rocket motor casings, empty cartridges, and coal fly ash
- Was used as an open burning area beginning in the late 1940s or early 1950s. It is located south of Building 1248, on a small peninsula that extends out to the Potomac River. The open burning area was used to burn explosive and flammable waste.

UXO 20 History



- (1993) Preliminary Assessment
 - Soil & groundwater results indicated elevated concentrations of explosives and metals requiring further investigation.
- 1988 Removal Action
 - 96 drums of ash/residue and solvent contaminated surface soil were removed
 - Estimated 40-foot diameter area to a depth of 1 ft bgs
- Site Inspection (2010)
 - Recommended for RI for MEC and MC in soil and groundwater
- Remedial Investigation (2014) – Phase 1
 - Vegetation clearance, surface removal of metal debris, removal of large items (former burn tank, deflection shield, and concrete block), utility clearance, DGM, and collection of environmental samples

UXO 20 - 2014 Remedial Investigation (Phase 1)



U.S. Navy



U.S. Navy



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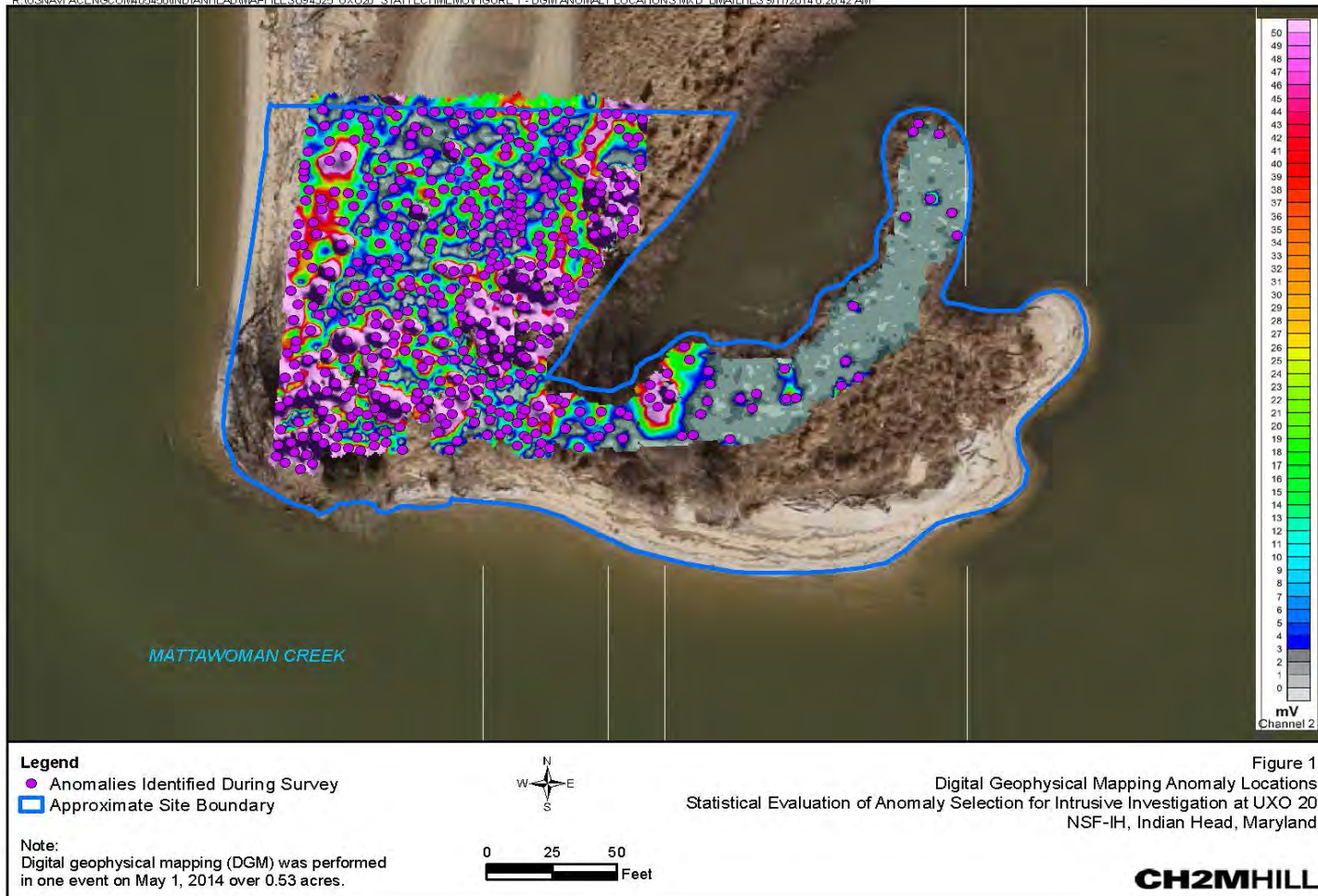


U.S. Navy

UXO 20- Phase 1 Results



R:\USNAVFACENGCOM\05450\INDIANHEAD\MAPFILES\394325 UXO20_STATTECHMEMO\FIGURE 1 - DGM ANOMALY LOCATIONS.MXD_BMAILHES 9/11/2014 9:28:42 AM



UXO 20-Remedial Action (Phase 2)



Summer 2016

- Investigated 215 anomalies identified in the 2014 Phase 1 investigation
- Installation of 4 groundwater monitoring wells based off of intrusive investigation results.

Results

- Double base propellant grains found at 2 of the 215 locations. Properly disposed of on base.
- The remaining locations consisted of scrap and metal debris.





SWMU 14 – PHOTOGRAPHIC LAB & X-RAY FACILITY, PILOT STUDY UPDATE

Presented By
Alex Scott
Naval Facilities Engineering Command (NAVFAC)
Washington

10/20/2016

Presentation Objectives



Objective:

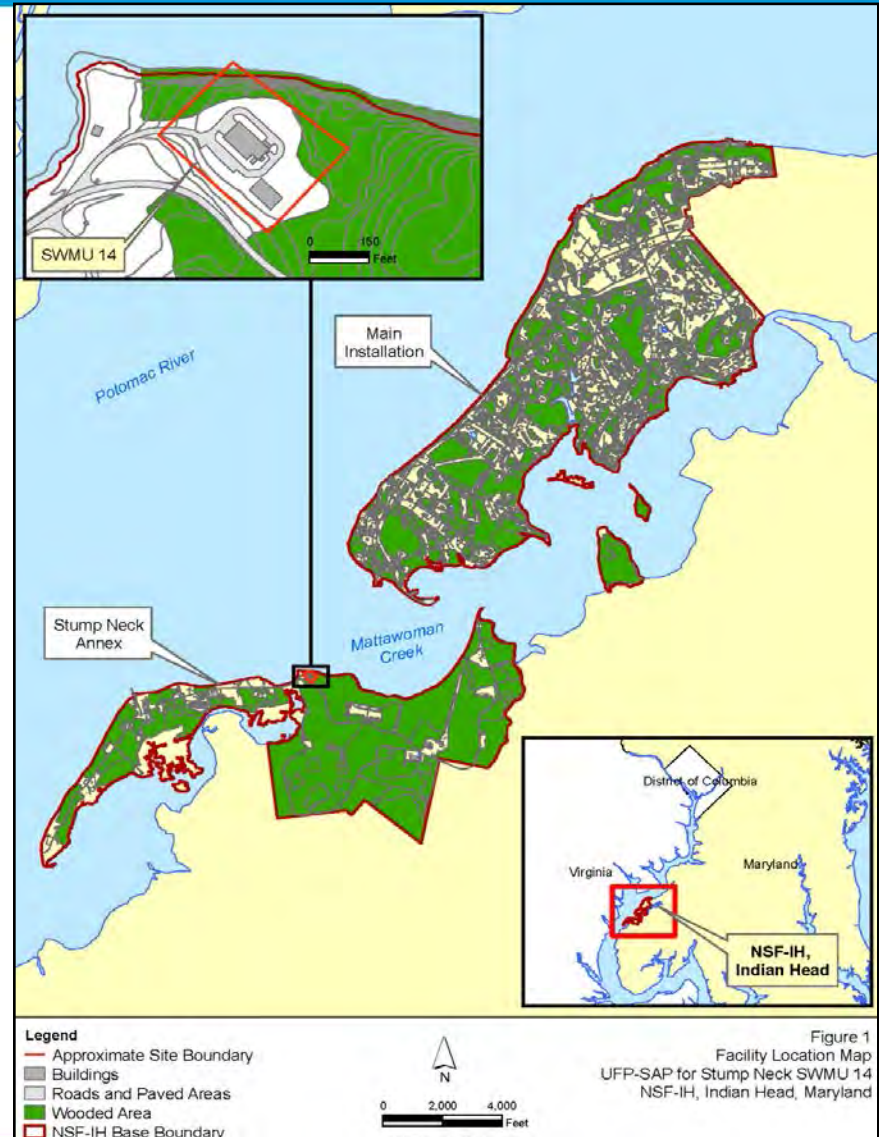
- Present overview of the ongoing pilot-study activities at SWMU 14 on the Stump Neck Annex at Naval Support Facility, Indian Head, MD

SWMU 14 Location



Site Location

- Stump Neck Annex off Archer Road.



SWMU 14 Background



- 2.4 acres located on the north side of the Stump Neck Annex on Mattawoman Creek
- Topographically flat area atop a small hill encompassing a photographic laboratory (Building 22SN) and X-ray facility (Building 2009)
- Consists of two abandoned septic tanks that serviced the buildings, and associated discharge lines and drain fields
- Waste photo developer and fixer were discharged to the septic systems for an unknown amount of time between approximately 1968 and 2002
- Sewer backups were documented as late as 1999
- Building effluent now piped to NSF-Indian Head's treatment plant; septic systems are no longer in use

SWMU 14 Site Layout



- Legend**
- Existing Monitoring Well Location
 - Proposed Monitoring Well Location
 - Surface Soil Location
 - Approximate Site Boundary
 - Elevation Contour (5 foot interval)
 - Streams
 - Buildings
 - Roads and Paved Areas

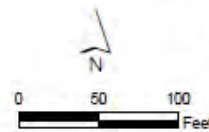


Figure 5
Proposed Sampling Locations for Surface Soil and Groundwater
UFP-SAP for Stump Neck SWMU 14
NSF-IH, Indian Head, Maryland

Previous Investigations

- 2005 to 2008 – Site Screening Process (SSP) sampling to initially investigate and assess potential site contamination.
- 2010 – Site proceeded to an Remedial Investigation to sufficiently characterize contamination to determine the best remedial approach to clean up the site.
- 2014 – RI Finalized
 - Levels of cobalt in groundwater above human health screening levels; data was incorporated into the RI; subsurface soil not impacted
 - RI concluded that potentially unacceptable risk from cobalt exists in groundwater used as a potable water supply
- 2013 – Draft Feasibility Study (FS) initiated to evaluate remedial technologies to clean up the site.
 - FS alternatives included:
 - Monitored Natural Attenuation (MNA)
 - In-situ chemical precipitation of the cobalt in groundwater (as cobalt sulfide)
 - FS remains a draft until uncertainties are resolved.

SWMU 14 FS & Pilot Study



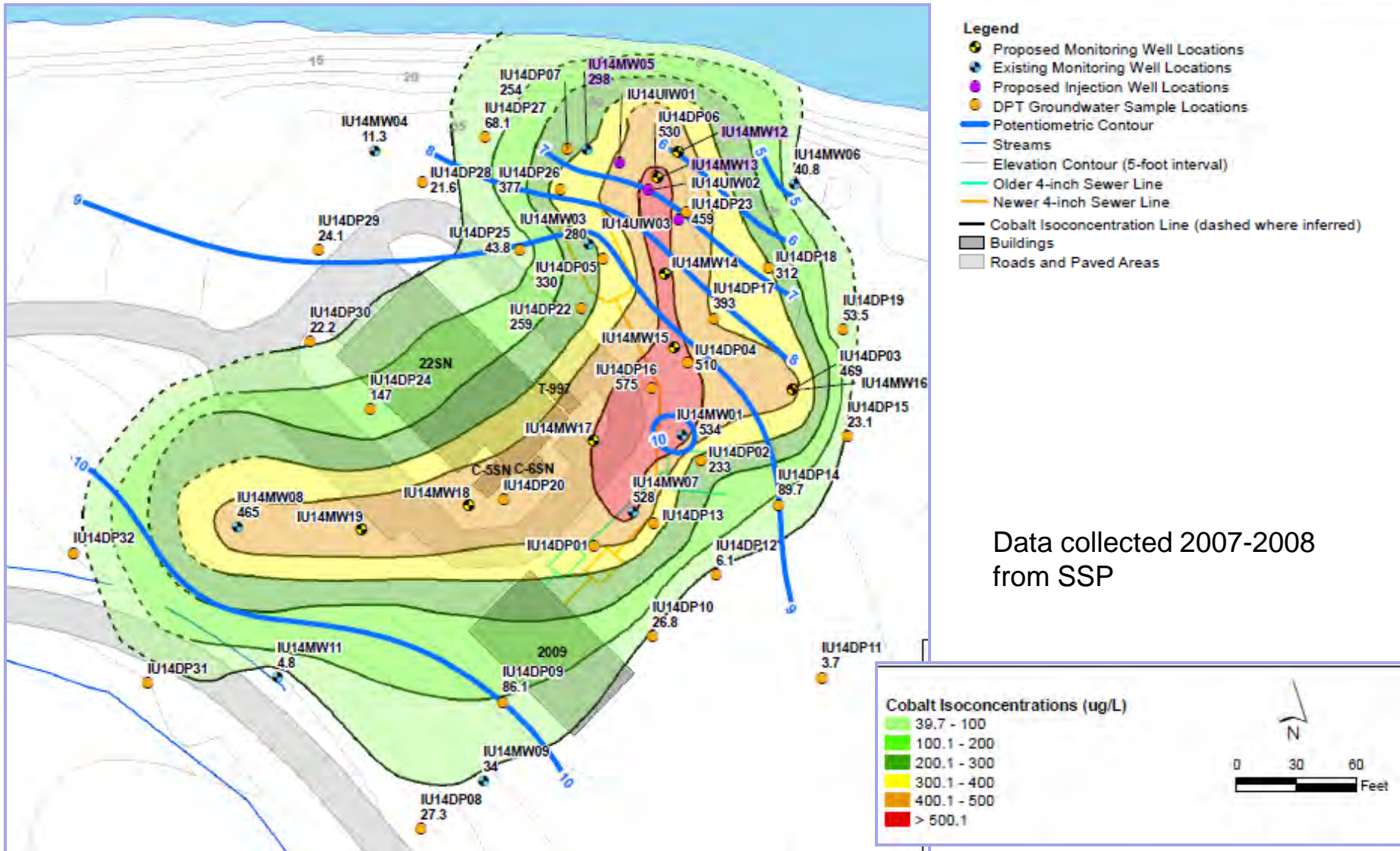
Draft FS Uncertainties

- Current distribution of cobalt in groundwater
- Amount of chemical reagents needed for effective treatment
- Timeframe for remedy to decrease cobalt concentration to the target cleanup goal of 39.6 µg/L (as determined by human health risk).

Pilot Study Objectives

- Assess geochemical conditions and cobalt distribution in groundwater
- Evaluate effects of organic carbon substrate and sulfate
- Evaluate potential for natural attenuation
- Determine whether substrate and sulfate injection will be effective as a full-scale remedy
- Demonstrate whether metals are mobilized as a result of injection

SWMU 14 Cobalt in Groundwater 2008



SWMU 14 Pilot Study Technology



- Technology approach is to evaluate in-situ chemical precipitation of cobalt in areas where concentrations exceed $400 \mu\text{g/L}$
- Precipitation process transforms cobalt to cobalt sulfide which has low solubility
 - 1) Sulfide is generated by injecting organic substrate and sulfate
 - 2) Microbial activity converts sulfate to sulfide
 - 3) Sulfide reacts with dissolved cobalt to form cobalt sulfide resulting in lower cobalt concentrations
- Approximate pilot study cost estimate: \$200K



All Photos are Property of the U.S. Navy

SWMU 14 Pilot Study Progress



2016 Update

- ✓ Install 8 new permanent monitoring wells and 3 injection wells
- ✓ Establish baseline conditions before injections; collect and analyze groundwater from 20 wells (17 monitoring wells and 3 injection wells)
- ✓ Injection of organic carbon substrate and sulfate into 3 injection wells
- Short-term performance monitoring on a monthly basis November 2015 through July 2016

Preliminary Observations

- Generally declining cobalt concentrations observed in site monitoring wells
 - This coincides with increases in alkalinity from dissolved iron and manganese, and decline in organic carbon and sulfate

Path Forward

- Performance monitoring ended July 2016. Resulting Data analysis is expected to be complete by January 2017. This is anticipated to support the FS remedy alternative's analysis and resolve uncertainties.

Contacts and Questions



Points of Contact:

- **NAVFAC Washington PM:** Alex Scott
- **Indian Head PM:** Andrew Louder

Questions ?



NSF INDIAN HEAD – FIVE YEAR REVIEW

Presented By
Alex Scott
Naval Facilities Engineering Command (NAVFAC)
Washington

10/20/2016

Presentation Objectives



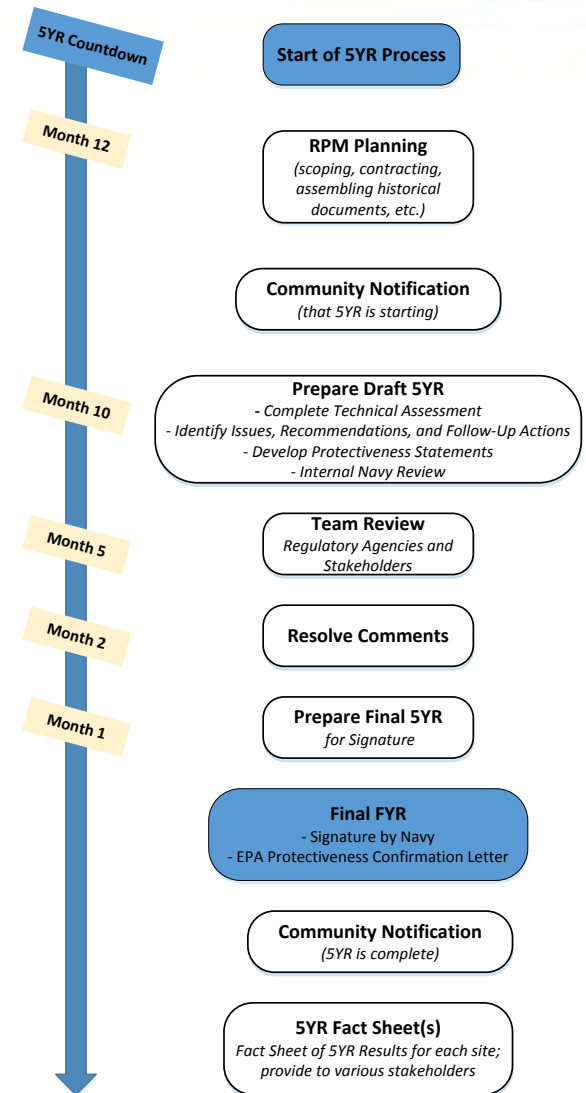
Objective:

- Brief Overview of the Five-Year Review (5YR) process for Navy Environmental Restoration sites / facilities
- Brief Overview of sites undergoing 5YR

5YR Process



- A 5YR occurs at sites that have a record of decision (ROD) that implement a selected remedy at a site to address contamination per the 1980 Comprehensive Environmental Response Compensation and Liability Act (CERCLA).
- 5YR is required for sites with remedial action that does not (or does not yet) allow for unlimited use and unrestricted exposure (UU/UE), per CERCLA §121, as amended.
- Ultimate 5YR outcome is protectiveness determination for human health and the environment for each site/remedy, per EPA (2001) 5YR Comprehensive Guidance:
 - ✓ Protective
 - ✓ Will Be Protective
 - ✓ Protective in the Short-Term
 - ✓ Not Protective
 - ✓ Protectiveness Deferred
- Indian Head's next 5YR process is underway and expected to be completed by the end of September 2017



5YR Technical Assessment Questions (EPA, 2001):

- **Question A:**
Is the Selected Remedy functioning as intended By ROD?
- **Question B:**
Are the exposure assumptions, toxicity data, and remedial action objectives (RAOs) used at the time of the remedy selection and ROD still valid?
- **Question C:**
Has any other information come to light that calls into question the protectiveness of the selected remedy?

12 Sites for the 2017 5YR



- **Site 11** – Caffee Road Landfill
- **Site 12** – Town Gut Landfill
- **Site 17** – Disposed Metal Parts Along Shoreline
- **Site 21** – Bronson Road Landfill
- **Site 28** – Original Burning Ground
- **Site 36** – Closed Landfill
- **Site 38** – Rum Point Landfill
- **Site 42** – Olsen Road Landfill
- **Site 47** – Mercuric Nitrate Disposal Area
- **Site 57** – TCE Building 292 Area
- **Lab Area** (Sites 14, 15, 16, 49, 50, 53, 54, and 55)
- **UXO 32** – Scrap Yard (formerly IRP Site 41)

Site Locations



NSFIIH
Main Area



NSFIIH
Stump Neck Annex

Site 11 – Caffee Road Landfill



Site 11 – Caffee Road Landfill



ROD date: September 2009

Contamination/Risk:

Post-Closure Landfill groundwater monitoring.

Selected Remedy:

Protective soil cover. Shoreline stabilization. Land-Use controls (LUCs).
Groundwater Monitoring.

Remedy / Site Operations Status:

Construction completed in January 2012. Groundwater monitoring and LUCs inspections semiannual since 2014.

Previous 5YR (2012):

Remedy was under construction. Deemed to be protective and operating as intended.

Site 12 – Town Gut Landfill



Site 12 – Town Gut Landfill



ROD date: September 2004

Contamination/Risk:

Post-Closure Landfill groundwater monitoring.

Selected Remedy:

2002 Interim-Removal Action (IRA) removed waste, regraded, and provided a protective soil cover over remaining wastes. Land-Use controls (LUCs).

Groundwater and Surface Water Monitoring.

Remedy / Site Operations Status:

Construction completed in 2003 via the IRA. Groundwater monitoring and LUCs inspections semiannual since 2004. Surface water monitoring discontinued in 2007.

Previous 5YR (2012):

Deemed to be protective and operating as intended.

Site 17 – Disposed Metal Parts Along Shoreline



Site 17 – Disposed Metal Parts Along Shoreline



ROD date: January 2010

Contamination/Risk:

Buried drums removed in 2003. Metals in surface soil removed in 2005. Site's groundwater contaminated with Volatile Organic Compounds (VOCs), metals and explosives constituents (e.g. TNT and RDX).

Selected Remedy:

Clearing and removal of munitions. Treatment of the aquifer with zero-valent iron (ZVI) to chemically-reduce aquifer contamination in-situ (in place). Groundwater monitoring and LUCs.

Remedy / Site Operations Status:

Removal Actions completed in 2012. ZVI pilot study injections and reporting completed by 2014. Quarterly groundwater sampling has occurred since the pilot study. However, additional groundwater contamination (north plume) remains under investigation to determine a final groundwater remedy.

Previous 5YR (2012):

Remedy was under construction. Deemed to be protective and operating as intended.

Site 21 – Bronson Road Landfill



Site 21 – Bronson Road Landfill



ROD date: September 2011

Contamination/Risk:

Post-Closure Landfill groundwater monitoring.

Selected Remedy:

Protective soil cover, LUCs, and groundwater monitoring.

Remedy / Site Operations Status:

Landfill cover completed January 2013. Semiannual groundwater monitoring and LUC inspections since 2014.

Previous 5YR (2012):

Remedy was under construction. Deemed to be protective and operating as intended.

Site 36 – Closed Landfill



Site 36 – Closed Landfill



ROD date: September 2011

Contamination/Risk:

Post-Closure Landfill groundwater monitoring.

Selected Remedy:

Removal of large metal debris along shoreline. Maintenance of existing protective soil cover, LUCs, and groundwater monitoring.

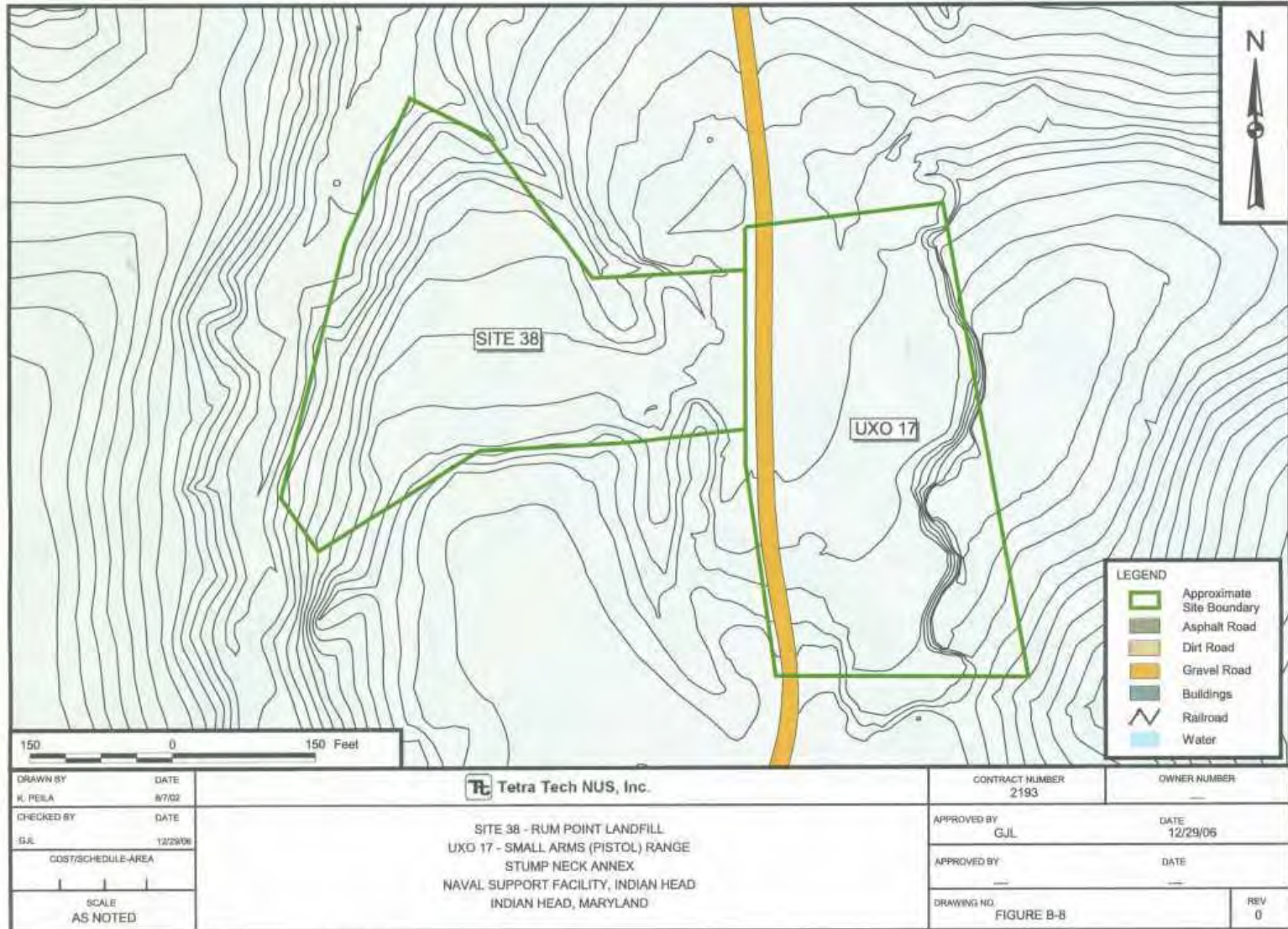
Remedy / Site Operations Status:

Debris removal completed in April 2014. Semiannual groundwater monitoring and LUC inspections since 2014.

Previous 5YR (2012):

Remedy was under construction. Deemed to be protective and operating as intended.

Site 38 – Rum Point Landfill



Site 38 – Rum Point Landfill



ROD date: May 2014

Contamination/Risk:

Contaminated soils as a result of buried wastes, and munitions from NSF-IH operations. Groundwater has elevated levels of manganese.

Selected Remedy:

Landfill waste removal. Post removal groundwater monitoring, interim LUCs until removal completed. Anticipated that all soil contamination will be removed.

Remedy / Site Operations Status:

Removal began October 2014, anticipated completion at end of 2016. Baseline groundwater monitoring to follow.

Previous 5YR (2012):

Not applicable. ROD was completed after the 2012 5YR.

Site 42 – Olsen Road Landfill



Site 42 – Olsen Road Landfill



ROD date: September 2005

Contamination/Risk:

Post-Closure Landfill groundwater monitoring.

Selected Remedy:

Wetlands construction and engineered cap. Excess wastes removed.
Groundwater and surface water monitoring.

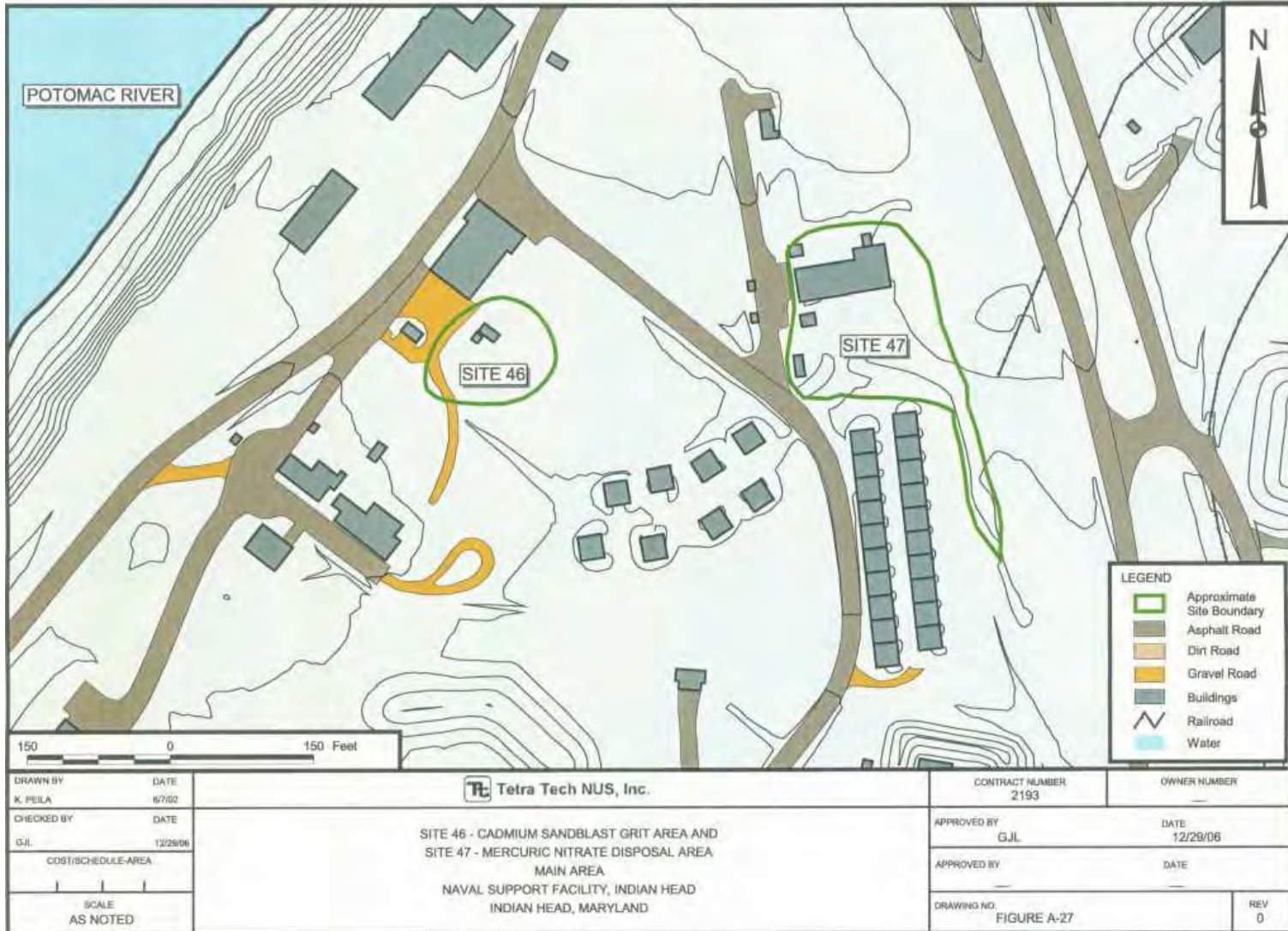
Remedy / Site Operations Status:

Construction completed 2006. Surface water monitoring discontinued since 2007. Groundwater monitoring occurs every 9 months.

Previous 5YR (2012):

Additional wells were recommended to better monitor the site's groundwater contamination. Four additional wells were installed in 2014 and added to the monitoring program. Otherwise the remedy is operating as intended.

Site 47 – Mercuric Nitrate Disposal Area



Site 47 – Mercuric Nitrate Disposal Area



ROD date: February 2013

Contamination/Risk:

VOCs and metals contamination of groundwater from NSF-IH operations.

Selected Remedy:

In-situ chemical oxidation using alkaline-activated sodium persulfate (AAP) and catalyzed hydrogen peroxide. Groundwater monitoring and LUCs.

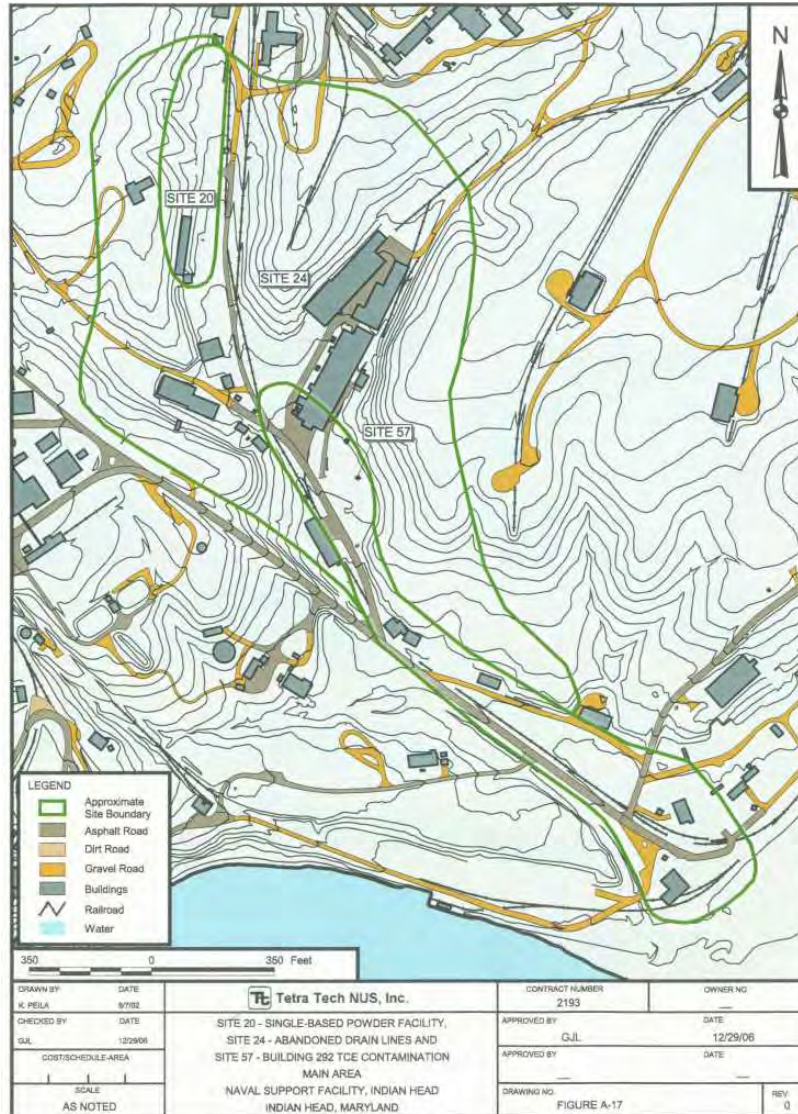
Remedy / Site Operations Status:

Construction and initial injections completed January 2014. Groundwater monitoring and LUC inspections since 2014. Additional injections and remedial actions are currently under consideration.

Previous 5YR (2012):

Not applicable. ROD was completed after the 2012 5YR.

Site 57 – Building 292 TCE Contamination



Site 57 – Building 292 TCE Contamination



ROD date: September 2007

Contamination/Risk:

Soil contaminated by released chlorinated VOCs.

Groundwater contaminated with Tetrachloroethene (PCE), trichloroethene (TCE), and breakdown products from released chlorinated VOCs.

Selected Remedy:

In-situ bioremediation in the upper (source area) and middle plumes by anaerobic reductive-dechlorination (electron donor) enhanced with substrate injections of Hydrogen Release Compound (HRC).

In-situ bioremediation in the downgradient plume with substrate injections of the Oxygen Release Compound (ORC) electron acceptor to achieve aerobic treatment of the breakdown products dichloroethene (DCE) and vinyl chloride (VC).

Groundwater monitoring and LUCs.

Site 57 – Building 292 TCE Contamination



Remedy / Site Operations Status:

Bioremediation substrate injection remedies were implemented in 2011.

For increased effectiveness of source area treatment, Proton Reduction Technology (PRT) was demonstrated in July 2013. Full scale PRT began in May 2015. PRT evaluation is currently underway.

A change to the ROD may be required to alter the site's selected remedy.

Previous 5YR (2012):

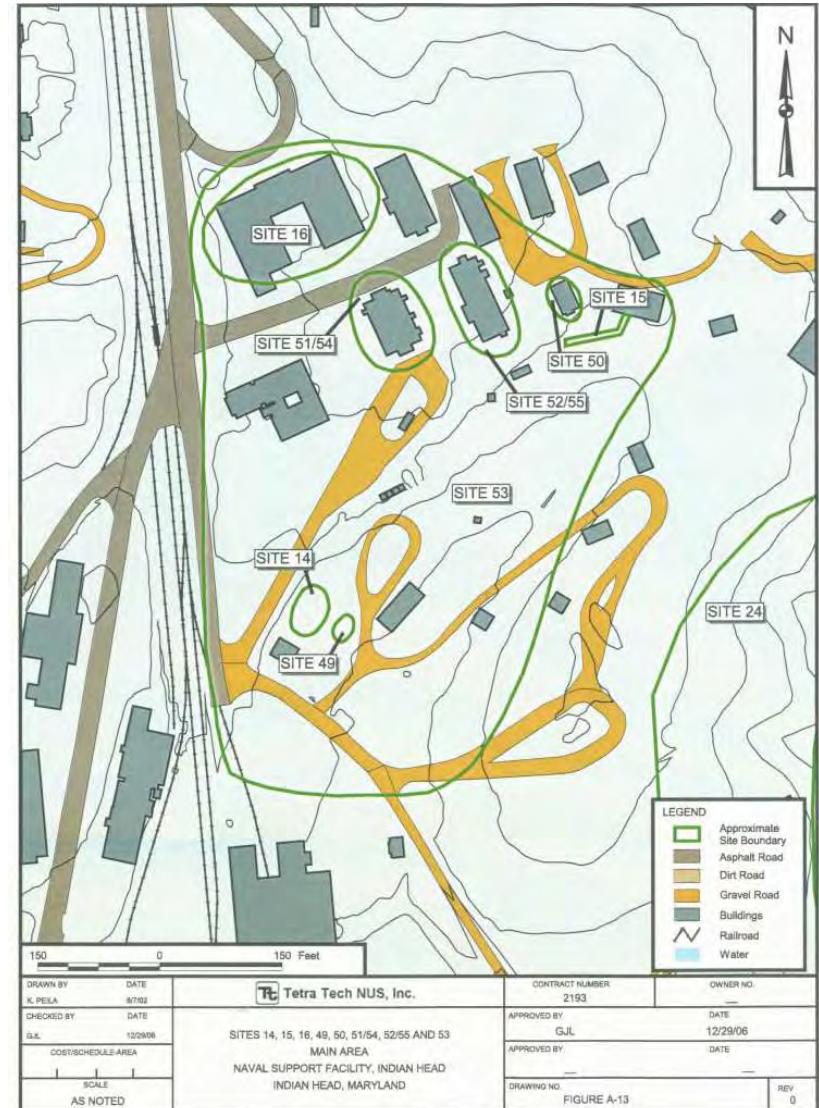
The site was not evaluated during the previous 5YR.

Lab Area



The Lab Area lumps the following sites together under one selected remedy:

- **Site 14** - Waste Acid Disposal Pit
- **Site 15** - Mercury Deposits in Manhole, Fluorine Lab
- **Site 16** - Laboratory Chemical Disposal
- **Site 49** - Chemical Disposal Pit
- **Site 50** - Building 103, Crawl Space
- **Site 53** - Mercury Contamination of the Sewage System
- **Site 54** - Building 101
- **Site 55** - Building 102



ROD date: September 2011

Contamination/Risk:

Soil contaminated by metals (arsenic, lead, and mercury) released from site operations. Site sediments (wetlands) were contaminated with elevated levels of mercury.

Selected Remedy:

Removal of contaminated soils and sediments with elevated metals levels. Wetland restoration and clean fill soil. LUCs

Remedy / Site Operations Status:

Removals completed by February 2012 and wetland restoration completed in May 2012. LUC inspections ongoing since 2014.

Previous 5YR (2012):

Remedy was under construction. Deemed to be protective and operating as intended.

UXO 32 – Scrap Yard



DRAWN BY K. PEELA		DATE 8/7/02		Tetra Tech NUS, Inc.		CONTRACT NUMBER 2193		OWNER NUMBER 	
CHECKED BY G.J.L.		DATE 12/29/06				APPROVED BY G.J.L.		DATE 12/29/06	
COST/SCHEDULE-AREA		SITE 27 - THERMAL DESTROYER 1 AND UXO 32 - SCRAP YARD MAIN AREA NAVAL SUPPORT FACILITY, INDIAN HEAD INDIAN HEAD, MARYLAND				APPROVED BY 		DATE 	
SCALE AS NOTED						DRAWING NO. FIGURE A-22		REV 0	

UXO 32 – Scrap Yard



ROD date: June 2014

Contamination/Risk:

Soil contaminated by lead, arsenic, polychlorinated biphenyls (PCBs), and poly-aromatic hydrocarbons (PAHs), likely related to munitions contamination and operations waste disposal.

Groundwater contaminated with Arsenic and VOCs. This is being addressed under Site 70, not part of this 5YR, and the remedial investigation is ongoing.

Selected Remedy:

Debris, soil, and munitions removal via IRAs (2002, 2006 & 2007). LUCs.

Remedy / Site Operations Status:

LUC inspections since January 2015. Groundwater is being addressed as Site 70.

Previous 5YR (2012):

The site was not evaluated during the previous 5YR.

Contacts and Questions



Points of Contact:

- **NAVFAC Washington PM:** Alex Scott
- **Indian Head PM:** Andrew Louder

Questions ?