# 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 22, 2015, 6:00 pm

RAB Member Attendees:
Mr. Joseph Rail (N) *
Mr. Curtis Detore (S)

Additional Attendees:
CAPT Mary Feinberg (N)
Mr. Travis Wray
Mr. Jeffrey Bossart (N)
Ms. Tara Meadows (N)
Mr. Daniel Bragunier (N)
Ms. Debra Krahling (C)
Ms. Tara Carlson (C)
Mr. Jim Long (C)
Mr. Emery Nauden (N)
Ms. Jeron Hayes (N)

RAB Members Not in Attendance:
Mr. Robert Thomson (F)
Mr. Mark Williams (L)
Mr. Fred Pinkney (F)
Mr. Elmer Biles (C)
Ms. Karen Wiggen (L)

* 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 of NAVFAC Washington and Mr. Travis Wray of Naval Support Facility Indian Head. Mr. Rail presented the FY16 Budget Update, SWMU 14 Pilot Study Update, and Site 17 Update. Mr. Wray presented the LTM and Trend Analysis 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 21, 2016. A copy of the draft agenda is included in Attachment C. Mr. Rail then concluded the meeting at 7:30 pm and thanked everyone in attendance.

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

October 22, 2015

| | |
|---|---|
| **6:00 - 6:05 pm** | **ARRIVAL/WELCOME**<br>Mr. Joseph Rail<br>Naval Facilities Engineering Command, Washington (NAVFACWASH)<br>Remedial Project Manager |
| **6:05 – 6:20 pm** | **FY16 BUDGET UPDATE**<br>Mr. Joseph Rail |
| **6:20 – 6:40 pm** | **LTM AND TREND ANALYSIS UPDATE**<br>Mr. Travis Wray |
| **6:40 – 7:00 pm** | **SWMU 14 PILOT STUDY UPDATE**<br>Mr. Joseph Rail |
| **7:00 – 7:30 pm** | **SITE 17 UPDATE**<br>Mr. Joseph Rail |
| **7:30 pm** | **ADJOURN** |

**Attachment A**

# INSTALLATION RESTORATION PROGRAM

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## RESTORATION ADVISORY BOARD (RAB) MEETING
## COMMENTS, QUESTIONS AND ANSWERS
October 22, 2015

**Arrival/Welcome**

No questions were asked nor comments made during this topic.

**FY16 Budget Update**

No questions were asked nor comments made during this topic.

**LTM and Trend Analysis Update**

Question: What is a trend and how is it shown?

Answer: A trend shows whether a contaminant concentration is increasing, decreasing, or staying the same over a period of time. It is shown by plotting concentrations vs. time on a graph.

Question: Do you have graphs showing trends (i.e. wouldn't it be easier to show trends by using graphs?)

Answer: Yes, graphs are used to show trends. For the sites presented tonight, not enough information has been collected to date to provide updated graphs.

Question: What is a dissolved metal and what is the concern with dissolved vs. total metals?

Answer: Total metals in water include the metals content both dissolved in the water and present in the particulates in the water. Dissolved metals only include metals content that is in solution. To sample for dissolved metals, a filter is used to remove particulates. The concern is that total metals concentrations should always be greater than dissolved; however, dissolved metals are more useful for risk assessment.

**Attachment B**

Question: Why don't you want trees or vegetation growing on the cover of Site 42-Olsen Road Landfill?

Answer: This landfill has an engineered cap that limits exposure to subsurface contaminants. Any breach of the cover such as roots from trees or vegetation could potentially increase risk of exposure to contaminants.

Question: Concerning concentrations of iron, arsenic, and manganese that always seem to be high at installation restoration sites, do you ever take background samples off-site that haven't been impacted by Navy activity as a comparison?

Answer: Yes, background samples are taken periodically. In some cases, concentrations of iron, arsenic, and manganese are still higher than background and, if found to be site-related contaminants, need to be addressed.

**SWMU 14 Pilot Study Update**

Question: What is the meaning of "mobilizing metals?"

Answer: Mobilizing metals are metals that can travel from one area to another and possibly reach a receptor.

Question: What form of cobalt is at this site that is considered a contaminant?

Answer: Elemental cobalt present in soil and groundwater that was potentially used during photographic processes in a nearby building is considered the contaminant.

Question: What was the organic carbon substrate that was used?

Answer: The substrate used was emulsified vegetable oil (EVO.)

Question: For the pilot study that was discussed, has it been tested previously at other sites or is this a new test?

Answer: Yes, injection of EVO has been used successfully at other sites.

Question: What is the primary purpose of doing a pilot study?

Answer: The purpose of doing a pilot study is to test the

effectiveness of a potential remedial alternative on a small scale before it's fully implemented.

Question: Do you complete a pilot study for every site?

Answer: No, pilot studies are usually implemented at sites with complex or difficult to treat groundwater issues.

**Site 17 Update**

Question: What is the purpose of the grout that's expected to set up in subsurface soil?

Answer: The purpose of the grout is to form a subsurface barrier or fence to control an area of groundwater contamination.

Question: What is a pre-barrier extraction test?

Answer: A pre-barrier extraction test measures flow rates and how much groundwater a well or injection point can yield.

Question: Does the silica gel that was injected isolate TCE in groundwater?

Answer: Yes, if the injection work is successful, the silica gel will set up as a grout to form a subsurface barrier.

Question: Do you have any information on trends in contaminant concentrations for Site 17?

Answer: Yes, contaminants have been monitored for the past three years and have shown significant decreases in the south plume source area. A future presentation will be given that includes detailed results over time.

Question: What is the sampling turnaround time?

Answer: Turnaround time is the length of time it takes from sample collection to when a laboratory completes analysis and reports results back to a client. Factors such as work load of the laboratory and sample urgency can determine the turnaround time.

**General Questions**

Question: When compiling an agenda for an upcoming RAB meeting, how do you determine what sites and/or projects to include?

Answer: Site are prioritized based on milestones and included in the RAB agenda accordingly. Higher priority is given to sites with current or completed fieldwork or sites where a Remedial Investigation or Feasibility Study may have been completed.

Question: Have you considered compiling an Executive Summary with photos and maps of all IR and MR sites which can be used as a quick reference?

Answer: Yes, all of this information exists in the Naval Support Facility Indian Head Site Management Plan (SMP) for the Environmental Restoration Program and is updated annually. The SMP can be viewed or downloaded at the following link on the NSFIH public website: http://go.usa.gov/DyQF.

**Attachment B**

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

April 21, 2016

| | |
|---|---|
| **6:00 - 6:05 pm** | **ARRIVAL/WELCOME**<br>Mr. Joseph Rail<br>Naval Facilities Engineering Command, Washington (NAVFACWASH)<br>Remedial Project Manager |
| **6:05 – 6:30 pm** | **UXO 4-BASIC IED AREA, UXO 5-ADVANCED IED AREA, UXO 12-TORPEDO BURIAL SITE, & UXO 21-TEST AREA 1 STUMP NECK MRP REMEDIAL INVESTIGATION UPDATES**<br>Mr. Joseph Rail |
| **6:30 – 6:45 pm** | **SITE 1-THORIUM SPILL REMOVAL ACTION UPDATE**<br>Mr. Travis Wray |
| **6:45 – 7:15 pm** | **SITE 38-RUM POINT LANDFILL REMEDIAL ACTION UPDATE**<br>Mr. Joseph Rail |
| **7:15 – 7:30 pm** | **SITE 43-TOLUENE DISPOSAL AREA PRE-DESIGN INVESTIGATION UPDATE**<br>Mr. Travis Wray |
| **7:30 – 7:45 pm** | **SITE 66-TURKEY RUN DISPOSAL AREA BASELINE ECOLOGICAL RISK ASSESSMENT**<br>Mr. Travis Wray |
| **7:45 – 8:00 pm** | **SITE 70-GROUNDWATER CONTAMINATION ALONG WATER WORKS WAY RI UPDATE**<br>Mr. Joseph Rail |
| **8:00 pm** | **ADJOURN** |

**Tentative FY16 RAB Dates:**

**April 21, 2016**
**October 20, 2016**

**Attachment C**

# Attachment D- RAB Presentations

# *NAVAL SUPPORT FACILITY INDIAN HEAD*

# ***FY16 Budget & Schedule Update***

*Joseph Rail*
*NAVFAC Washington*

*October 22, 2015*

# *FY16 Budget & Schedule Update*

- ***Approximate budget for FY 2016-***

  *$1.6 mil for IRP*

  *$900K for MRP*

  ***Planned work includes:***

  – *Remedial Investigation (RI)/Feasibility Study (FS)*
  – *Remedial Action-Operation (RA-O)*
  – *Long-Term Monitoring (LTM)*
  – *Five Year Review*

# *FY16 Budget & Schedule Update*

- ***RI/FS for:***
  - *Site 70- Groundwater Contamination Along Water Works Way*
  - *UXO 30- Gate 3 Burning Ground*
- ***RA-O for:***
  - *Site 17- Disposed Metal Parts Along Shoreline*
  - *Site 47- Mercuric Nitrate Disposal Area*
- ***LTM for:***
  - *Site 12- Town Gut Landfill*
  - *Site 38- Rum Point Landfill*
  - *Site 42- Olsen Road Landfill*

# *FY16 Budget & Schedule Update*

- ***Five Year Review for:***
  - *Site 11- Caffee Road Landfill*
  - *Site 12- Town Gut Landfill*
  - *Site 14- Lab Area*
  - *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- Building 292 TCE Contamination*
  - *UXO 32- Scrap Yard*

# *FY16 Budget & Schedule Update*

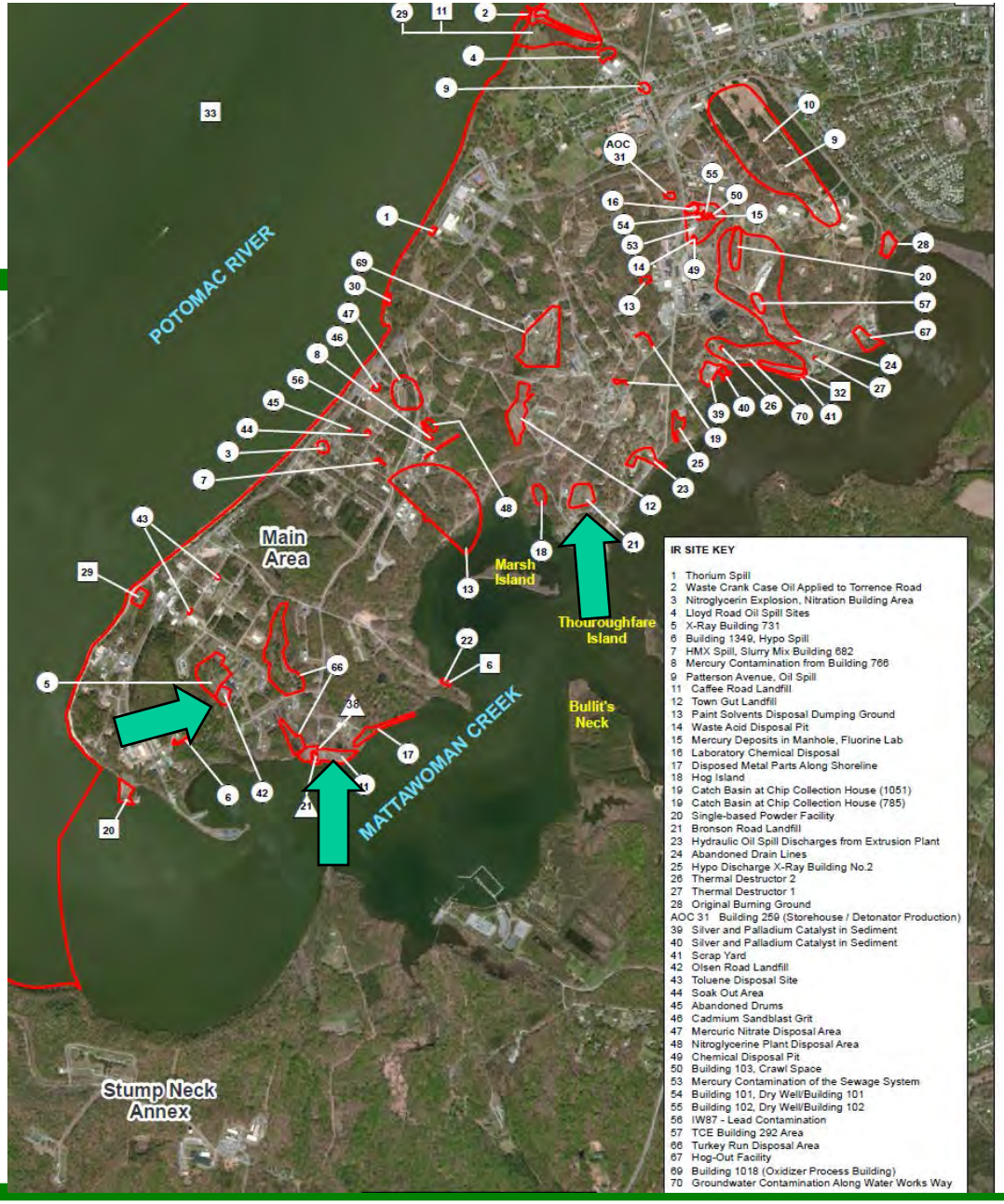
***Questions?***

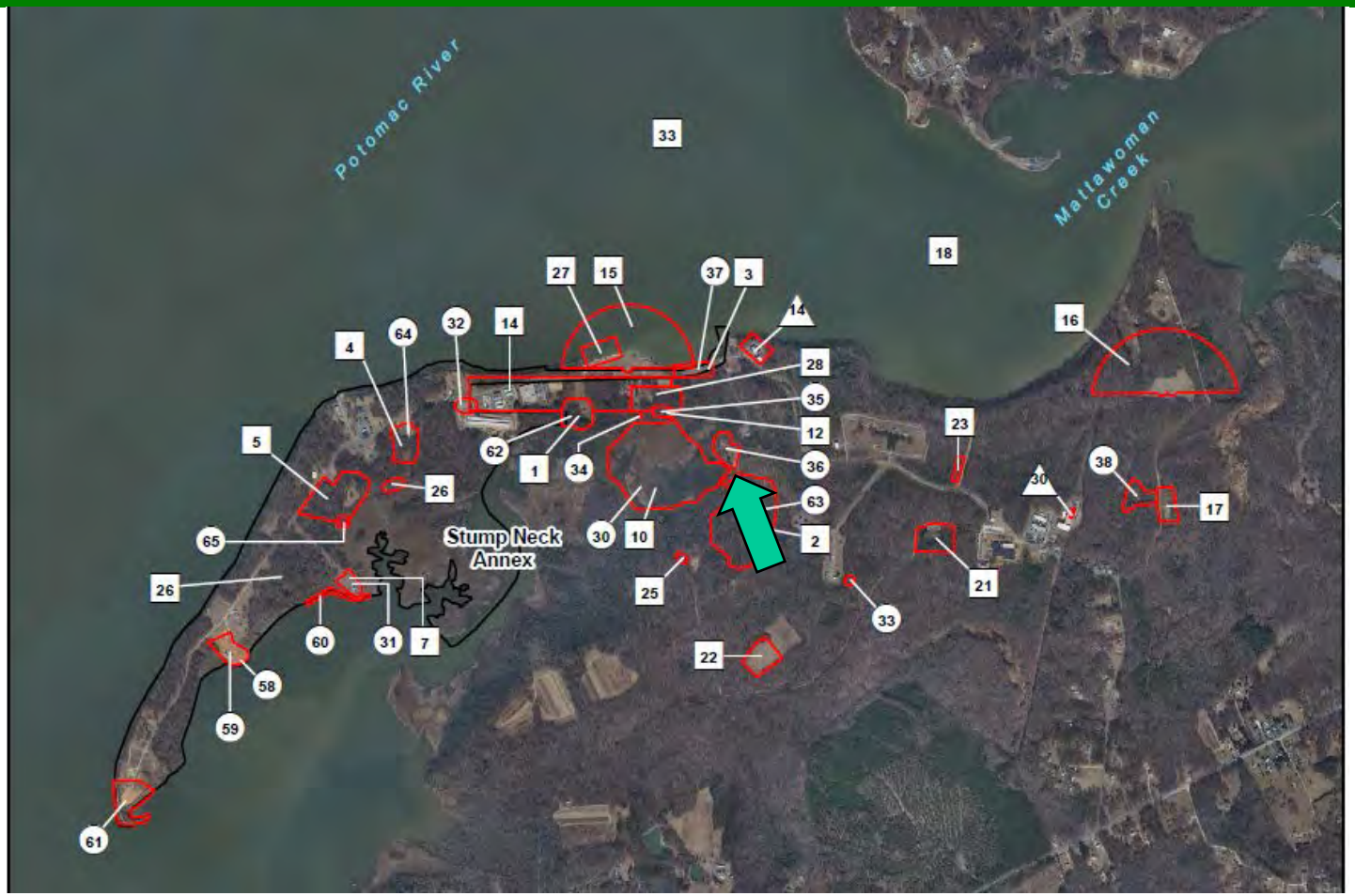
# LTM and Trend Analysis Update

*Travis Wray*
*NAVFAC Washington*
*October 22, 2015*

# *LTM and Trend Analysis Update Presentation Overview*

- *Site 11- Caffee Road Landfill*
  - *Background*
  - *Long-term Monitoring (LTM)*
  - *Path Forward*
- *Site 21- Bronson Road Landfill*
  - *Background*
  - *LTM*
  - *Path Forward*
- *Site 36 – Closed Landfill*
  - *Background*
  - *LTM*
  - *Path Forward*
- *Site 42 – Olsen Road Landfill*
  - *Background*
  - *LTM*
  - *Path Forward*


POTOMAC RIVER
Main Area
Marsh Island
Thouroughfare Island
Bullit's Neck
MATTAWOMAN CREEK
Stump Neck Annex
AOC 31
IR SITE KEY
1 Thorium Spill
2 Waste Crank Case Oil Applied to Torrence Road
3 Nitroglycerin Explosion, Nitration Building Area
4 Lloyd Road Oil Spill Sites
5 X-Ray Building 731
6 Building 1349, Hypo Spill
7 HMX Spill, Slurry Mix Building 682
8 Mercury Contamination from Building 766
9 Patterson Avenue, Oil Spill
11 Caffee Road Landfill
12 Town Gut Landfill
13 Paint Solvents Disposal Dumping Ground
14 Waste Acid Disposal Pit
15 Mercury Deposits in Manhole, Fluorine Lab
16 Laboratory Chemical Disposal
17 Disposed Metal Parts Along Shoreline
18 Hog Island
19 Catch Basin at Chip Collection House (1051)
19 Catch Basin at Chip Collection House (785)
20 Single-based Powder Facility
21 Bronson Road Landfill
23 Hydraulic Oil Spill Discharges from Extrusion Plant
24 Abandoned Drain Lines
25 Hypo Discharge X-Ray Building No.2
26 Thermal Destructor 2
27 Thermal Destructor 1
28 Original Burning Ground
AOC 31 Building 259 (Storehouse / Detonator Production)
39 Silver and Palladium Catalyst in Sediment
40 Silver and Palladium Catalyst in Sediment
41 Scrap Yard
42 Olsen Road Landfill
43 Toluene Disposal Site
44 Soak Out Area
45 Abandoned Drums
46 Cadmium Sandblast Grit
47 Mercuric Nitrate Disposal Area
48 Nitroglycerine Plant Disposal Area
49 Chemical Disposal Pit
50 Building 103, Crawl Space
53 Mercury Contamination of the Sewage System
54 Building 101, Dry Well/Building 101
55 Building 102, Dry Well/Building 102
56 IW87 - Lead Contamination
57 TCE Building 292 Area
66 Turkey Run Disposal Area
67 Hog-Out Facility
69 Building 1018 (Oxidizer Process Building)
70 Groundwater Contamination Along Water Works Way


Potomac River
Mattawoman Creek
Stump Neck Annex
33
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# *LTM and Trend Analysis Update*
# *Site 11 – Caffee Road Landfill*

*<u>Background</u>*

- *Area A was used as a landfill for bulk metal items, trash and building debris, rocket motor casings, munitions debris and open burning residue until the early 1960s*
- *Area B contained 4 open-burning pits for incineration of classified documents or waste-burning activities and 2 former incinerators*
- *Site currently used to burn metal debris to remove residual explosives prior to transportation of a metal recycling center*

# *LTM and Trend Analysis Update*
# *Site 11 – Caffee Road Landfill*

*Background (continued)*

- *Selected Remedy (ROD signed in 2009)*
  - *Soil, solid waste, and nearshore sediment in Area A*
  - *Nearshore sediment adjacent to Area B*
  - *Land Use Controls (LUCs) for land, groundwater and waterway use*
  - *Long-term monitoring for groundwater*
  - *Conduct Five-Year Reviews*
- *Remedial Action completed 2012*
  - *Soil cover and seed mixture for land/shoreline stabilization for Area A*
  - *Gravel blanket on nearshore sediment and wetland stabilization along shoreline near Area B*

# *LTM and Trend Analysis Update*
# *Site 11 – Caffee Road Landfill*

# *LTM and Trend Analysis Update*
# *Site 11 – Caffee Road Landfill*

*LTM*

- *Four rounds of semi-annual LTM sampling to date (January 2014, July 2014, January 2015, July 2015)*
  - *Analyzed for VOCs, total and dissolved metals, and general water quality parameters*
- *Volatile Organic Compounds (VOCs)*
  - *10 VOCs were detected at low concentrations in Rounds 3 and 4; similar results in Rounds 1 and 2*
  - *All detections below the site remediation goals (SRGs)*

# *LTM and Trend Analysis Update*
# *Site 11 – Caffee Road Landfill*

*LTM (continued)*

- *Total Metals*
  - *15 metals were detected in Rounds 3 and 4; similar results in Rounds 1 and 2*
  - *Iron and manganese exceeded screening criteria in all monitoring wells*
- *Dissolved Metals*
  - *13 metals were detected in Rounds 3 and 4; similar results in Rounds 1 and 2*
  - *Iron exceeded the screening criteria in all downgradient wells, and manganese exceeded screening criteria in all wells*

# *LTM and Trend Analysis Update*
# *Site 11 – Caffee Road Landfill*

*Path Forward*

- *Continue semi-annual LTM sampling every 6 months*
  - *VOCs, total and dissolved metals, and general water quality parameters*
- *Continue performing 5-Year Reviews*
  - *Trend analysis will be performed at this time*
- *Continue Post Closure Landfill Inspections*
- *Continue to enforce land use controls (LUCs)*

# *LTM and Trend Analysis Update*
# *Site 21 – Bronson Road Landfill*

*Background*

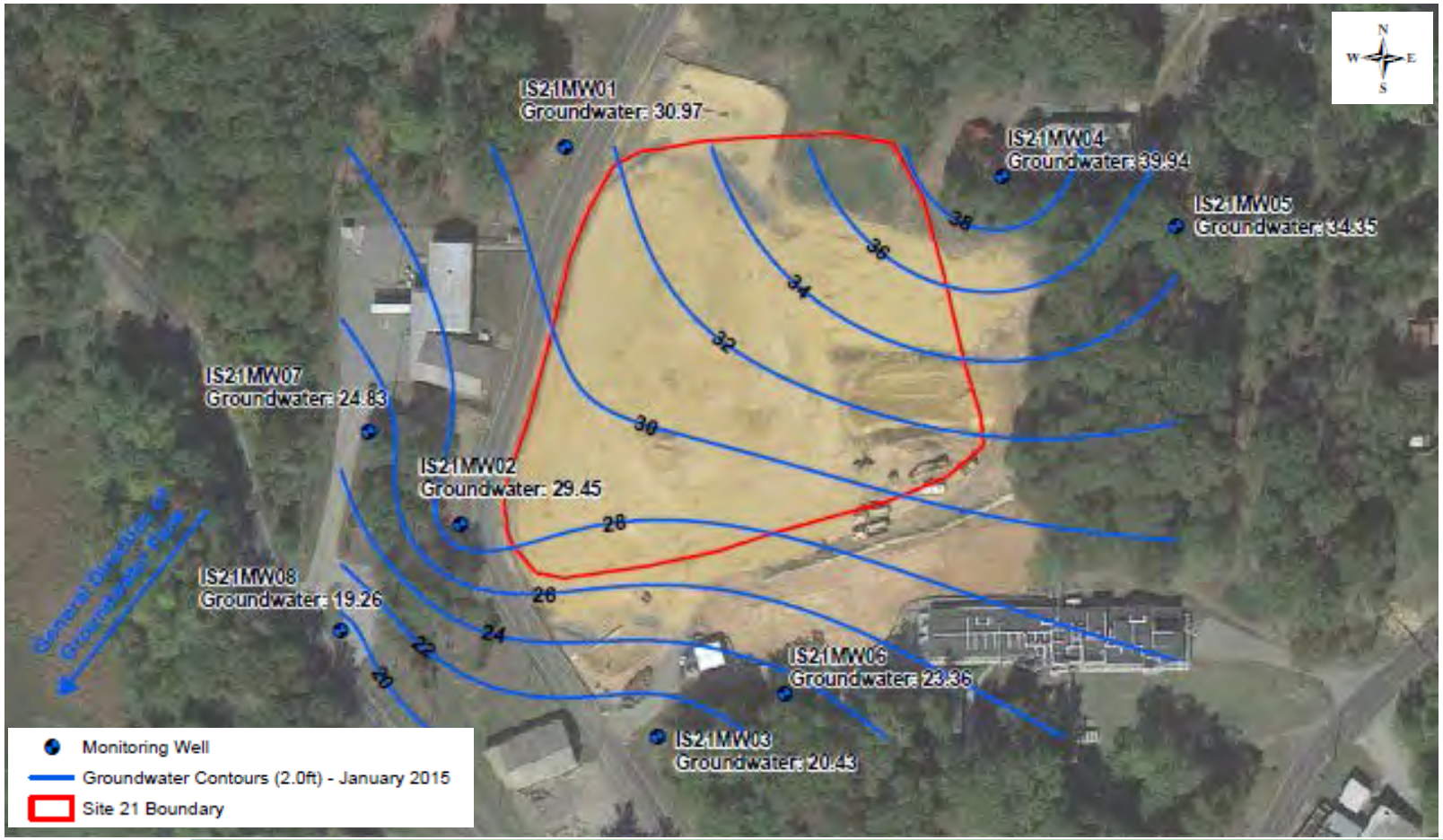
- *Site was location of 2-acre gravel-mining pit*
- *Starting round 1975, the site was filled with trash- solid waste, paint sludge, asbestos and barium sulfate*
- *Until June 1982, site accepted sludge from paint spray booths and bagged asbestos*
- *In 1981, a dumpster was placed on site for the trash*
- *Dumpster was removed in 1996 and the area was re-graded*

# *LTM and Trend Analysis Update*
# *Site 21 – Bronson Road Landfill*

*<u>Background (continued)</u>*

- *Selected Remedy (ROD signed in 2011)*
  - *Protective soil cover*
  - *LUCs*
  - *Long-term monitoring for groundwater*
  - *Conduct Five-Year Reviews*
- *Remedial Action completed 2013*
  - *Protective soil and vegetative cover*
  - *Grade for surface water control and storm water management*

# *LTM and Trend Analysis Update*
# *Site 21 – Bronson Road Landfill*



# *LTM and Trend Analysis Update*
# *Site 21 – Bronson Road Landfill*

*LTM*

- *Four rounds of semi-annual LTM sampling to date (January 2014, July 2014, January 2015, July 2015)*
  - *Analyzed for VOCs, total and dissolved metals, and general water quality parameters*
- *VOCs*
  - *10 VOCs were detected at low concentrations in Rounds 3 and 4; similar results in Rounds 1 and 2*
  - *Vinyl chloride detected above SRG in Rounds 3 and 4*
  - *All other detections below the SRGs*

# *LTM and Trend Analysis Update*
# *Site 21 – Bronson Road Landfill*

*LTM (continued)*

- *Total Metals*
  - *16 metals were detected in Rounds 3 and 4; similar results in Rounds 1 and 2*
  - *Manganese exceeded SRG in 4 downgradient monitoring wells in at least 1 round of sampling*
- *Dissolved Metals*
  - *14 metals were detected in Rounds 3 and 4; similar results in Rounds 1 and 2*
  - *Manganese exceeded SRG in 3 downgradient monitoring wells in at least 1 round of sampling*

# *LTM and Trend Analysis Update*
# *Site 21 – Bronson Road Landfill*

*Path Forward*

- *Continue semi-annual LTM sampling every 6 months*
  - *VOCs, total and dissolved metals, and general water quality parameters*
- *Continue performing 5-Year Reviews*
  - *Trend analysis will be performed at this time*
- *Continue Post Closure Landfill Inspections*
- *Continue to enforce LUCs*

# *LTM and Trend Analysis Update*
# *Site 36 – Closed Landfill*

*Background*

- *Landfill was used from 1972 – 1974*
- *Landfill created from a filled area that was part of the creek and/or a wetland/marsh*
- *Was believed to contain inert metal casings from mines, bombs, and torpedoes and wood fragments*
- *Surface debris, including tires, empty 55-gallon drums, tanks, airplane parts and a large item that appeared to be farm machinery were present along Chicamuxen Creek shoreline*

# *LTM and Trend Analysis Update*
# *Site 36 – Closed Landfill*

*Background (continued)*

- *Selected Remedy (ROD signed in 2011)*
  - *Removal of metal debris along shoreline and landfill surface*
  - *LUCs*
  - *Long-term monitoring*
  - *Conduct Five-Year Reviews*
- *Remedial Action completed 2014*
  - *Surface debris removal*
  - *Re-establish vegetation approved seed mix*

# *LTM and Trend Analysis Update*
# *Site 36 – Closed Landfill*

# *LTM and Trend Analysis Update*
# *Site 36 – Closed Landfill*

*LTM*

- *Four rounds of semi-annual LTM sampling to date (April/May 2014, November 2014, March 2015, October 2015)*
  - *Analyzed for VOCs, total/dissolved metals, general water quality*
  - *October 2015 data not yet available*
- *Groundwater – upgradient well, used for comparison only*
  - *VOCs*
    - *No detections in any event*
  - *Total metals*
    - *6 metals detected in Round 3; similar to Rounds 1 and 2*
    - *In March 2015, only manganese slightly exceeded its maximum contaminant level (MCL)*
  - *Dissolved metals*
    - *7 metals detected in Round 3; similar to Rounds 1 and 2*
    - *In March 2015, only manganese slightly exceeded its MCL*

# *LTM and Trend Analysis Update*
# *Site 36 – Closed Landfill*

*LTM (continued)*

- *Sediment Pore Water*
  - *VOCs*
    - *No detections in Round 3*
    - *Acetone and toluene were detected in earlier rounds*
  - *Total metals*
    - *15 metals detected in Round 3; less than Rounds 1 and 2*
    - *In Round 3, iron, manganese and zinc exceed screening criteria*
  - *Dissolved metals*
    - *10 metals detected in Round 3; similar to Rounds 1 and 2*
    - *In Round 3, iron, manganese and zinc exceed screening criteria*

# *LTM and Trend Analysis Update*
# *Site 36 – Closed Landfill*

*Path Forward*

- *Continue semi-annual LTM sampling every 6 months*
  - *VOCs, total and dissolved metals, and general water quality parameters*
- *Continue performing 5-Year Reviews*
  - *Trend analysis will be performed at this time*
- *Continue Post Closure Landfill Inspections*
- *Continue to enforce LUCs*

# *LTM and Trend Analysis Update*
# *Site 42 – Olsen Road Landfill*

*Background*

- *Unauthorized disposal site between 1982 and 1987, and in 1992*
- *Construction and demolition debris, wood, metal debris, and demolished steel drums*
- *Selected Remedy (ROD signed in 2005)*
  - *Construction of an engineered cap system*
  - *Removal of soil and sediment hot spots*
  - *Implement Land Use Controls*
  - *LTM for groundwater and surface water*
  - *Conduct Five Year Reviews*
- *Remedial Action completed 2006*

# *LTM and Trend Analysis Update*
# *Site 42 – Olsen Road Landfill*

# *LTM and Trend Analysis Update*
# *Site 42 – Olsen Road Landfill*

*LTM*

- *Quarterly groundwater and surface water sampling began in 2006*
- *Surface water discontinued October 2007*
- *Groundwater sampling was reduced to once per 9 months in February 2012*
  - *Most recent event January 2015 (Round 27)*
  - *Analyzed for select VOCs (TCE, DCE, VC) and select total and dissolved metals (arsenic, iron, and manganese)*
- *4 new monitoring wells were installed in April/May 2014 to delineate TCE*

# *LTM and Trend Analysis Update*
# *Site 42 – Olsen Road Landfill*

*<u>LTM (continued)</u>*

- *Select VOCs*
  - *All 3 VOCs detected in at least 1 well during Round 27 event*
  - *TCE was detected in 7 of 11 monitoring wells*
    - *Exceeded the MCL in 2 wells, one upgradient and one downgradient*
    - *Concentrations increased from the Round 26 sampling event*
  - *DCE and VC detections below their respective MCLs*

# LTM and Trend Analysis Update
# Site 42 – Olsen Road Landfill

*LTM (continued)*

- *Select Total Metals*
  - *In both rounds, arsenic exceeded MCL in 2 downgradient wells (MW08 and MW09); not detected in any other samples*
  - *Iron exceeded criteria at all locations during both rounds with the exception of newly installed MW15 during Round 26*
  - *Manganese exceeded criteria in all locations during both rounds*
- *Select Dissolved Metals*
  - *Arsenic was detected below screening criteria at 1 location during Round 26. Arsenic was not detected during Round 27*
  - *Iron exceeded criteria in all monitoring wells during Round 26, and in 9 of 11 wells during Round 27*
  - *Manganese exceeded criteria in all locations during both rounds*

# *LTM and Trend Analysis Update*
# *Site 42 – Olsen Road Landfill*

*Path Forward*

- *Continue seasonal sampling every 9 months*
  - *Select VOCs (TCE, DCE, VC)*
  - *Select total and dissolved metals (arsenic, iron, manganese)*
- *Continue performing 5-Year Reviews*
  - *Trend analysis performed every 4 sampling events, last one completed in August 2014*
- *Continue Post Closure Landfill Inspections*
- *Continue to enforce LUCs*
- *Discuss need for potential monitoring well addition(s) and/or increased sampling*

# *LTM and Trend Analysis Update*

***QUESTIONS?***

# *NAVAL SUPPORT FACILITY INDIAN HEAD*

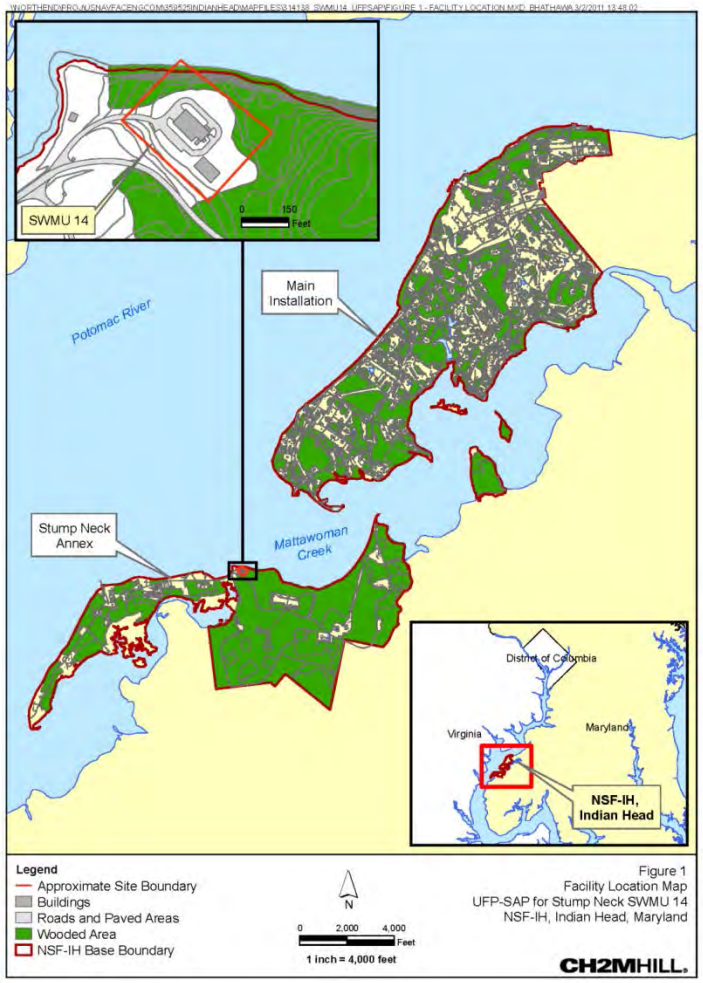
## *SWMU 14 Pilot Study Update*

*Joseph Rail*
*NAVFAC Washington*

*October 22, 2015*

# SWMU 14 Pilot Study Update

- *Site Location*
  - *Stump Neck Annex*
  - *Off of Archer Road*



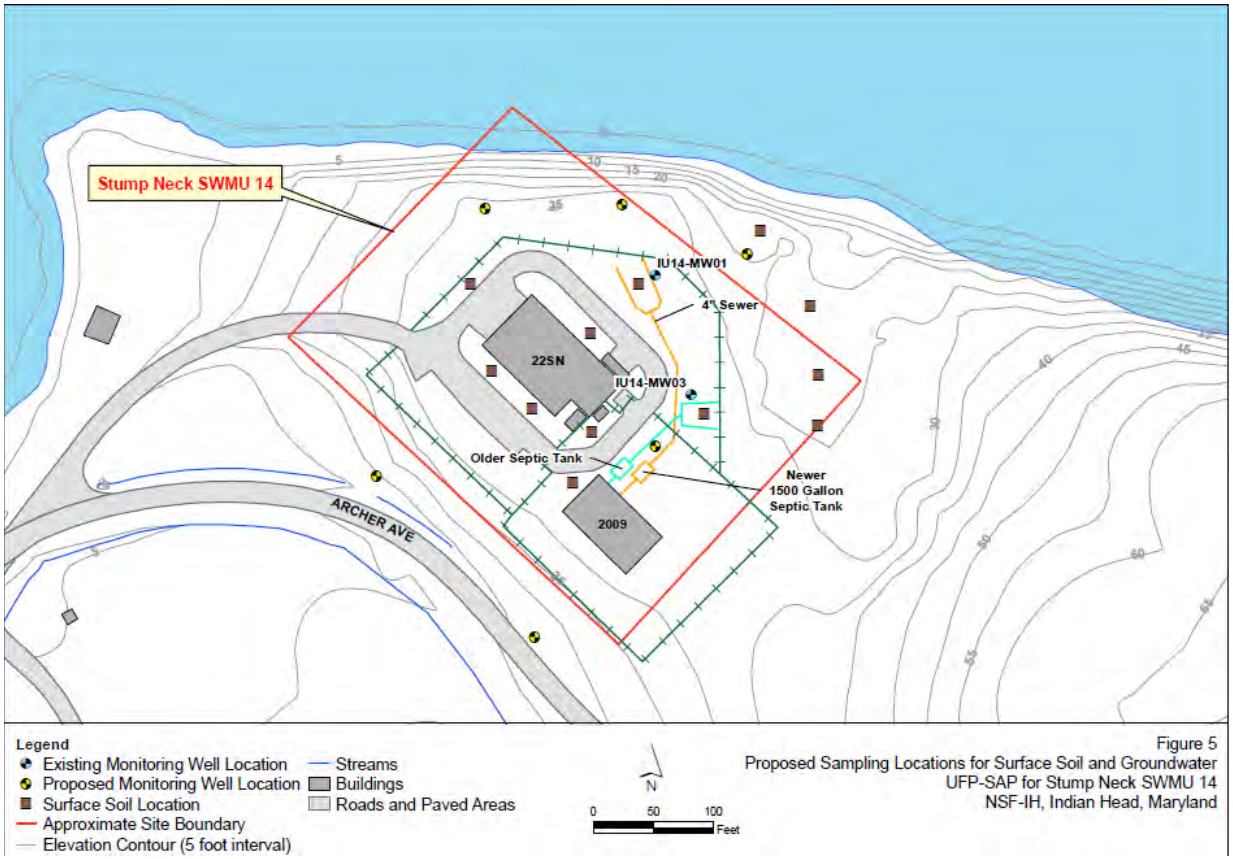
# *SWMU 14 Pilot Study Update*

- *Site 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 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 base treatment plant; septic systems are no longer in use*

# *SWMU 14 Pilot Study Update*

- *Previous Investigations*
  - *Remedial Investigation (RI) finalized in 2014*
  - *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*
  - *Draft Feasibility Study (FS) initiated in 2013 which evaluated remedial alternatives*
  - *FS alternatives included:*
    - *Monitored natural attenuation (MNA)*
    - *In situ chemical precipitation (as cobalt sulfide)*

# SWMU 14 Pilot Study Update




*Site layout*

# SWMU 14 Pilot Study Update

- *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 ug/L*
- *Pilot study objectives:*
  - *Assess geochemical conditions and cobalt distribution to refine boundary of 400 ug/L cobalt isoconcentration boundary*
  - *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*

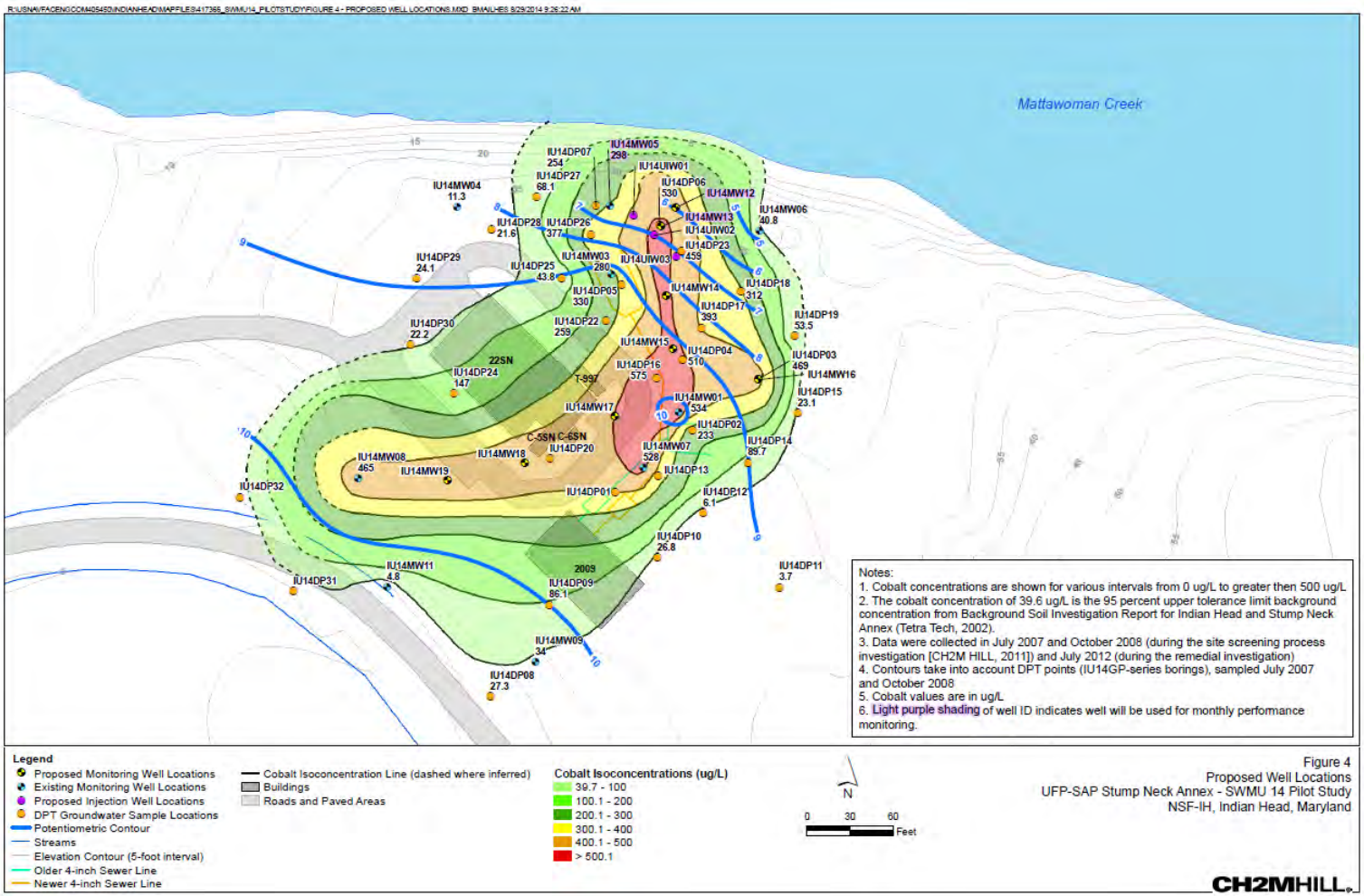
# *SWMU 14 Pilot Study Update*

- *Pilot study overview*
  - *FS remedy likely to be selected is in situ chemical precipitation of cobalt in areas where concentrations exceed 400 ug/L*
  - *Precipitation process transforms cobalt to cobalt sulfide which has low solubility*
  - *Sulfide is generated by injecting organic substrate and sulfate*
  - *Microbial activity converts sulfate to sulfide*
  - *Sulfide reacts with dissolved cobalt to form cobalt sulfide resulting in lower cobalt concentrations*
  - *Approximate pilot study cost- $200K*

# *SWMU 14 Pilot Study Update*

- *Fieldwork activities (October 2015)*
  - *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 for 9 months after injection*

# SWMU 14 Pilot Study Update



# SWMU 14 Pilot Study Update

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# *SWMU 14 Pilot Study Update*

*Questions?*

# Site 17- Disposed Metal Parts Along Shoreline Update

*Joseph Rail*
*NAVFAC Washington*

*October 22, 2015*

# *Site 17 Location*

# *Site 17 History*

- ***Record of Decision signed in 2010 with a remedy of ISCR (in situ chemical reduction) in source area, MNA (monitored natural attenuation), and ICs (institutional controls) for south plume, and MNA and ICs for north plume***
- ***SRGs (site remediation goals) for VOCs (volatile organic compounds) in shallow groundwater were:***
  - ***TCE- 5 ug/L***
  - ***DCE- 150 ug/L***
  - ***VC- 2 ug/L***
- ***Remedial Action completed in December 2012***
- ***Post soil-mixing samples collected and analyzed during 10 rounds between 2012 and 2015***
- ***TCE concentrations >100,000 ug/L identified in north plume around MW04***

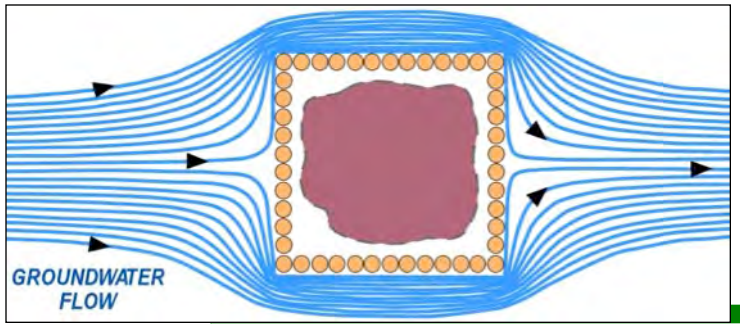
# *Site 17- Layout*

# *Site 17- Current Work*

- ***Field investigation in north plume to delineate extent of VOCs (TCE, DCE, and VC) in groundwater completed in June 2015***
- ***Installed up to five new wells in north plume***
- ***Collect groundwater samples from approximately 14 wells (6 in north plume and 8 in south plume) and analyze for TCE, DCE, and VC***
- ***Evaluate if MNA is an appropriate remedy for north plume***
- ***Continue long-term monitoring of shallow groundwater until site remediation goals are met***
- ***Evaluate effectiveness of recent ESTCP (Environmental Security Technology Certification Program) efforts***

# Site 17- ESTCP Work

- *ESTCP is the Department of Defense's environmental research program*
- *Site 17 chosen as a demonstration site by GSI Environmental, Inc.*
- *Fieldwork using contaminant flux reduction barrier completed in September 2015*
  - *Purpose of barrier is to construct a ring around the site (treatment zone)*
  - *Use of permeation grouting*
  - *Two choices: silica gels or veg oil-silica gel formulation*

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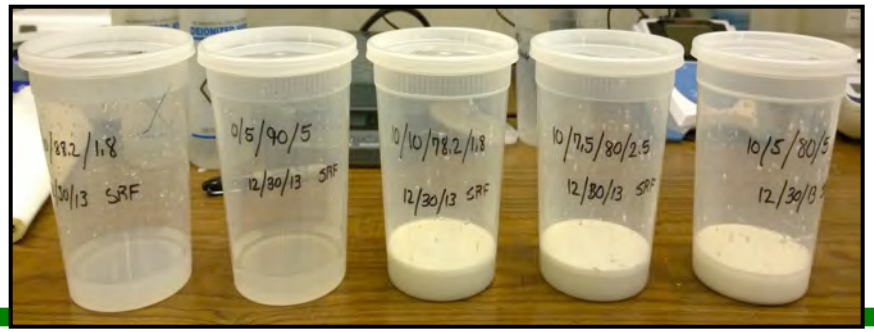


# Site 17- ESTCP Work

- ***Reduction barrier goal is to increase source attenuation rate***
- ***Test four different barrier cells with two different grout types (Sodium Silicate and EVO-Sodium Silicate)***
- ***Perform before and after extraction tests to determine volume reduction***

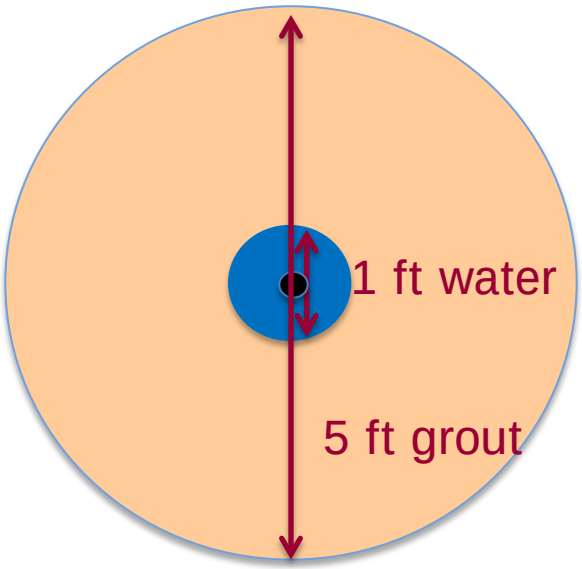

Equipment Staging Area

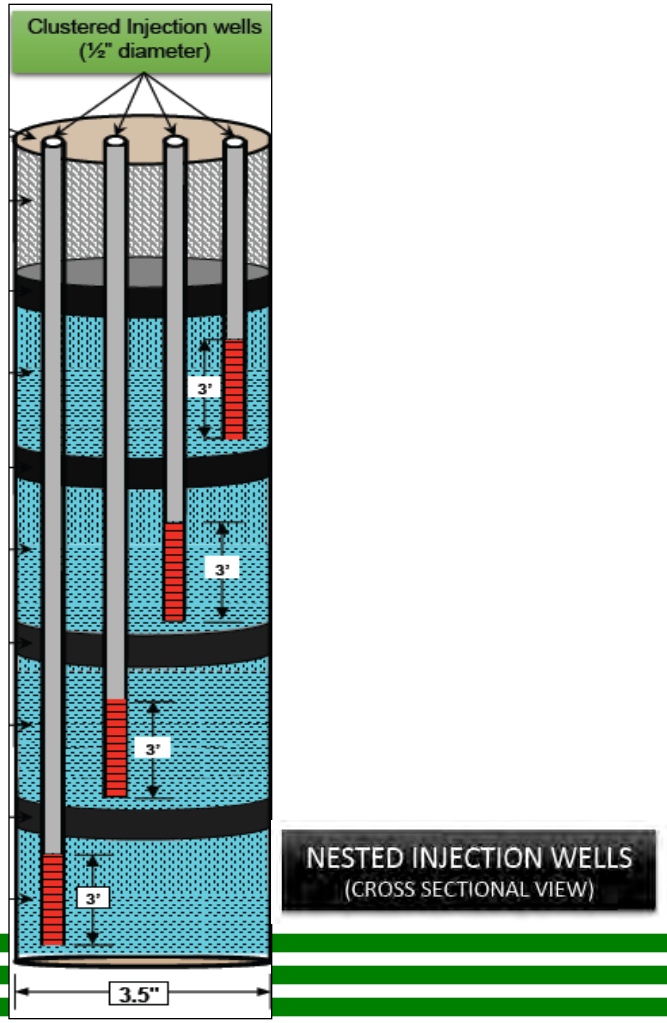
Silica Gel Barriers

Silica Gel-Veg Oil Barriers

# *Site 17- ESTCP Work*

- ***Well grouting and cross section***



# *Site 17- ESTCP Injection Wells*

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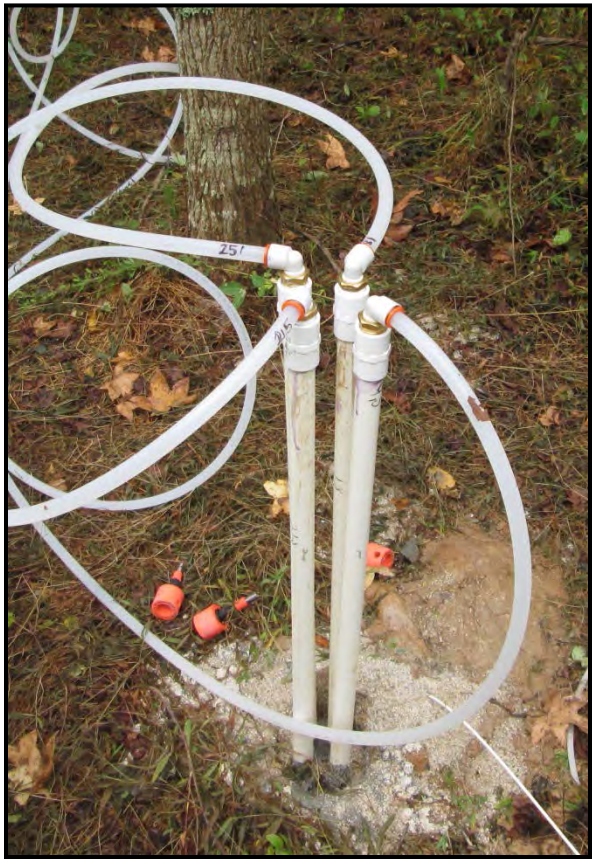

U.S. Navy

# *Site 17- ESTCP Injection Skid*

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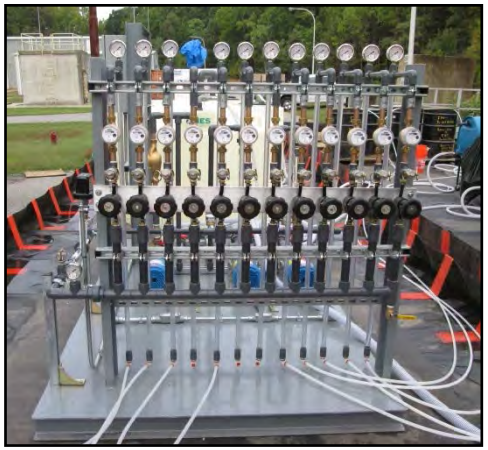

U.S. Navy

U.S. Navy

# *Site 17- ESTCP Preliminary Results*

U.S. Navy

- ***Grout Type:*** *Selected sodium silicate grout based on extensive use and low cost*
- ***Chemistry:*** *Lab and on-site soil gel tests were positive, and indicated that grout would gel using actual soils*
- ***Injectability:*** *Literature indicated that this material, while at the low end of applicable soil permeability, was applicable to site conditions*

# *Site 17- ESTCP Preliminary Results*

- ***Pre-Barrier Extraction test indicated very low yield (extraction rate average of ~0.02 gpm per well) indicating much lower permeability than anticipated (South Plume yield of ~0.25 gpm)***
- ***For silica gel, no indication we were pumping out grout that had failed to gel***
- ***Some EVO pumped out***

***<u>No apparent impact of barrier due to one or more of the following:</u>***

- ***Low pre-barrier extraction test volumes***
- ***Well construction***
- ***Low permeability portion of site***

***GSI Environmental plans further testing at the site***

# *Site 17- ESTCP Work*

***Questions?***