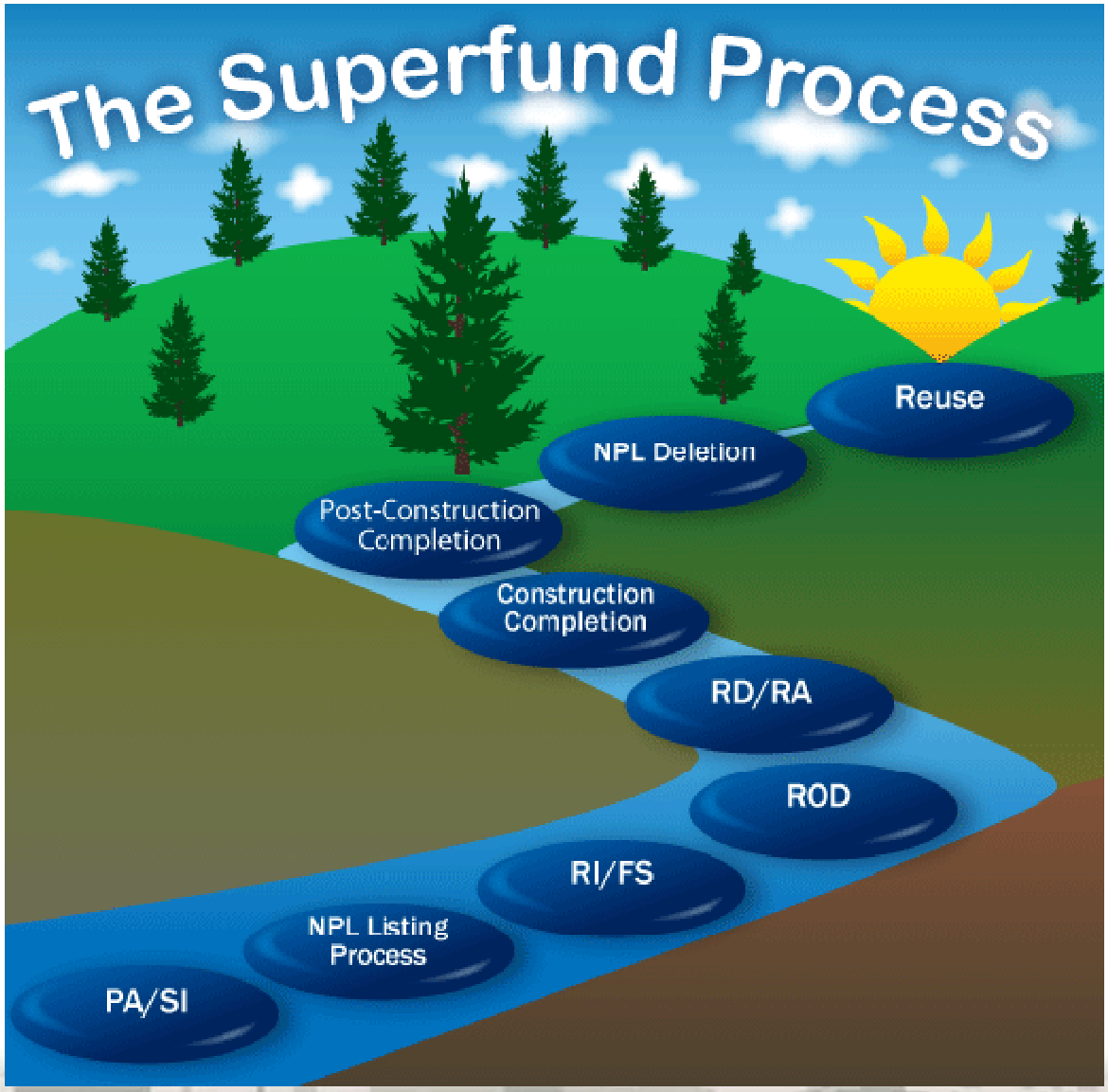
# Fort George G. Meade

## Restoration Advisory Board Meeting
## July 17, 2014

## Preliminary Assessment/
## Site Inspection (PA/SI) Update
## Southeast Areas of Interest (AOIs)

# Ft Meade PA/SI

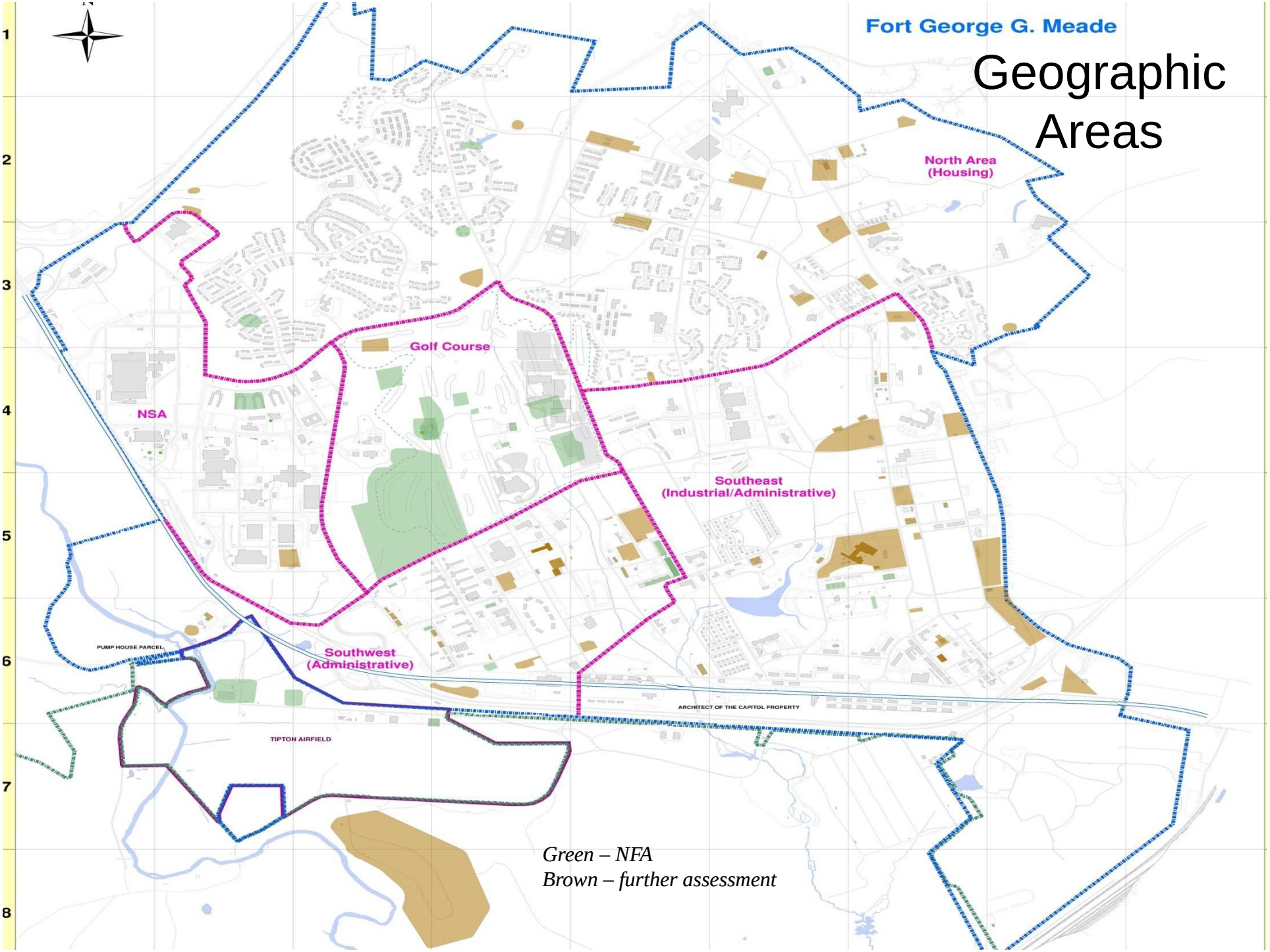
- Last RAB update of the PA/SI was November 2012.
- A Preliminary Assessment/Site Inspection (PA/SI) is an installation wide environmental study.
- The PA was conducted to assess the status of sites for closure, or, where appropriate, recommend the collection of additional data (the SI) to determine if the site can be closed or if it needs to be carried further in the CERCLA process.


The Superfund Process
Reuse
NPL Deletion
Post-Construction Completion
Construction Completion
RD/RA
ROD
RI/FS
NPL Listing Process
PA/SI

# PA/SI
# Areas of Interest (AOIs)

- AOIs were geographically grouped
  - Golf Course
  - North
  - **Southeast**
  - Southwest
  - South of Route 32

# Geographic Areas



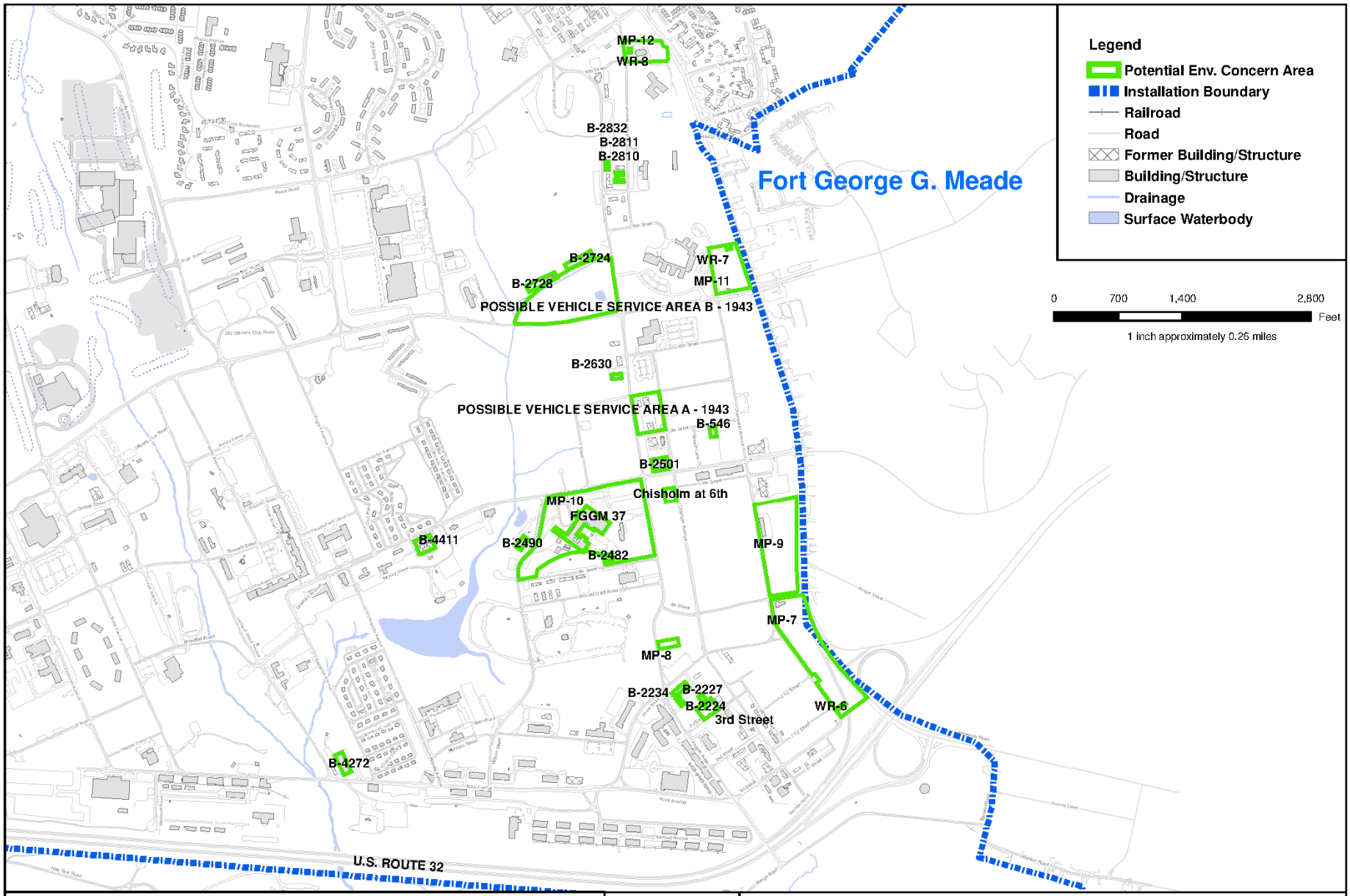

*Green – NFA*
*Brown – further assessment*

# Southeast AOIs

- 31 Southeast AOIs.
- No further action (NFA) approval for 8 Southeast AOIs during PA stage.
- Field work for the remaining 23 Southeast AOIs completed.
- Lab data received and validated and Risk-Based Screening performed on the results.
- Draft Report for Southeast AOIs submitted to EPA and MDE.

# AOIs in Southeast

- Building 546
- Building 2227 and Building 2224
- Building 2234
- Building 2480
- Building 2482
- Building 2490
- Building 2501
- Building 2630
- Building 2724
- Building 2728
- Buildings 2810, 2811, 2832
- Building 4272
- Building 4411
- Motor Pool-7/ Wash Rack-6
- Motor Pool-8
- Motor Pool-9
- Motor Pool-10
- Motor Pool-11/ Wash Rack-7
- Motor Pool-12/ Wash Rack-8
- Possible Vehicle Service Area A – 1943
- Possible Vehicle Service Area B – 1943
- Chisholm Ave and 6th Street
- Stained Soils Along 3rd Street




| | | | |
|---|---|---|---|
| CLIENT | USACE, Baltimore District | | |
| NOTES | Outlines of sites are arbitrary. | | |
| REVISION NO | 0 | GIS BY AER | 9/19/2013 |
| SCALE | 1:16,800 | CHK BY JK | 9/19/2013 |
| G:\Projects\Fort Meade\PA SI New\Projects\Plates_OverallLocationFigures\SoutheastSites 8x11 20130919.mxd | | PM JK | 9/19/2013 |

N

TITLE

Southeast Sites
Areas of Interest

URS

12420 Milestone Center Drive
Germantown, MD 20876

Figure 1-2

# Risk-Based Screening Process

- Last RAB update of the Risk-Based Screening Process was January 2010
- EPA Region III table of Regional Screening Levels (RSLs) for soil, groundwater, and air.
- Over 700 chemical compounds included.
- Values that address cancer risk and/or non-cancer health effects.
- Separate values for residential, industrial, and tap water.

# Risk-Based Screening Process

- EPA RSLs based on a target cancer risk of $1\times10^{-6}$ and non-cancer hazard quotient of 0.1 for individual compounds.
- Ft Meade and EPA agreed* to conservative site-specific thresholds of $5\times10^{-5}$ for **total** cancer risk and of 0.5 for **total** non-cancer hazard using **maximum** detections of compounds.

*URS Group, Inc., 2011. *Revised Final Preliminary Assessment/Site Inspection Work Plan. Fort George G. Meade, MD.*. March 24, 2011.

# Risk-Based Screening Process

- When conducting a Risk Assessment for an RI:
  - an acceptable cancer risk range is used ($1\times10^{-4}$ to$1\times10^{-6}$)
  - a non-cancer hazard index of 1.0 is used
  - the exposure point concentration is used (e.g., 95% UCL of the mean).

# Metals and Risk

- After Risk-Based Screening Process, a few chemicals (mostly metals) in groundwater cause the risk to exceed the site-specific thresholds at most AOIs.
- At a few AOIs, these same metals occur in soil at levels that cause the risk to exceed the site-specific thresholds.

# Metals and Risk

- Chromium
- Thallium
- Cadmium
- Arsenic
- Cobalt
- Some polycyclic aromatic hydrocarbons (PAHs)
  [i.e., benzo(a)pyrene, dibenzo(a,h)anthracene, naphthalene]

(in groundwater and soil)

# Metals and Risk

- Calculate the concentration at which the chemical (metal) will exceed the site-specific thresholds of $5\times10^{-5}$ for total cancer risk or 0.5 for total non-cancer hazard.
- As a point of reference, compare that to EPA Maximum Contaminant Levels (MCLs).

# Metals and Risk

- Chromium IV – 0.0175 ug/L (ppb), MCL is 100 for total chromium
- Arsenic – 2.25 ug/L (ppb), MCL is 10
- Thallium – 0.08 ug/L (ppb), MCL is 2
- Cobalt – 3 ug/L (ppb), no MCL
- Cadmium – 4.6 ug/L (ppb), MCL is 5

# Groundwater Background

- Metals are naturally occurring in rocks and soil.
- If concentration < background, that metal drops out of Risk-Based Screening Process.
- Background numbers available (and used) for several metals in soil.
- Ft Meade currently conducting a groundwater background study for certain metals.

# Building 546

# Building 546 Groundwater COPCs

| Sample ID | B546 GW2 | | B546GW5 | | B546GW6 | | B546GW8 | | B546GW9 | | B546GW11 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | 5/10/2000 | | 5/10/2000 | | 5/10/2000 | | 5/10/2000 | | 5/10/2000 | | 5/10/2000 | |
| Source Data | Versar 2000 | | Versar 2000 | | Versar 2000 | | Versar 2000 | | Versar 2000 | | Versar 2000 | |
| Matrix | Groundwater | | Groundwater | | Groundwater | | Groundwater | | Groundwater | | Groundwater | |
| Analyte | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag |
| Arsenic | 110 | | 86 | | 170 | | 65 | | 39 | | 130 | |
| Chromium | 410 | | 490 | | 740 | | 180 | | 310 | | 2800 | |
| Thallium | | | | | 5.2 | | | | | | 5.3 | |

| Sample ID | B546-1GW | | B546-2GW | | B546-3GW | |
|---|---|---|---|---|---|---|
| Sample Date | 5/2/2013 | | 5/2/2013 | | 5/1/2013 | |
| Source Data | URS PA/SI 2013 | | URS PA/SI 2013 | | URS PA/SI 2013 | |
| Matrix | Groundwater | | Groundwater | | Groundwater | |
| Analyte | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag |
| Arsenic | 0.27 | J | 0.32 | J | | |
| Chromium | 1 | | 1.3 | | 2.4 | |
| Thallium | 0.082 | J | 0.065 | J | 0.039 | J |

# Building 2227

# Building 2227 Groundwater COPCs

| Sample ID | B2227-1GW | | B2227-2GW | | B2227-4GW | |
|---|---|---|---|---|---|---|
| Sample Date | 5/1/2013 | | 5/2/2013 | | 5/8/2013 | |
| Source Document | URS PA/SI 2013 | | URS PA/SI 2013 | | URS PA/SI 2013 | |
| Matrix | Groundwater | | Groundwater | | Groundwater | |
| Analyte | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag |
| Arsenic | | | 0.29 | J | 1.2 | |
| Chromium | 1.5 | | 0.95 | J | 3 | |
| Cobalt | 30 | | 47 | | 66 | |
| Thallium | 0.25 | J | 0.27 | J | 0.25 | J |

# Motor Pool 7

4th Street
MP7-6
294
I2DP5
I2DP6
MP7-1
I2DP7
MP7-3
IVX1
I2DP4
MP7-2
MP7-5
MP7-4
Huber Road

# Motor Pool 7 Groundwater COPCs

| Sample ID | MP7-1GW | | MP7-2GW | | MP7-3GW | | MP7-4GW | | MP7-5GW | | MP7-6GW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | 4/30/13 | | 4/29/13 | | 4/30/2013 & 5/2/2013 | | 4/29/13 | | 4/29/13 | | 4/30/13 | |
| Source Document | URS PA/SI 2013 | | URS PA/SI 2013 | | URS PA/SI 2013 | | URS PA/SI 2013 | | URS PA/SI 2013 | | URS PA/SI 2013 | |
| Matrix | Groundwater | | Groundwater | | Groundwater | | Groundwater | | Groundwater | | Groundwater | |
| Analyte | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag |
| Arsenic | | | | | 15 | | | | | | | |
| Chromium | 3.2 | | 1.4 | | 1.8 | | 1.1 | | 0.95 | J | 1.1 | |
| Cobalt | 26 | | 92 | | 7.5 | | 64 | | 170 | | 2.5 | |
| Thallium | 0.87 | J | 0.36 | J | 0.15 | J | 0.39 | J | 0.83 | J | 0.063 | J |

# Building 2482

# Building 2482 Soil COPCs

| Sample ID | B2482-1SB-6-8 | | B2482 SB10 | | B2482 SB5 | | B2482 SB8 | | B2482 SB9 | | B2482-SB18 | | B2482-SB19 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | 1/28/2013 | | 2/8/2001 | | 2/8/2001 | | 2/8/2001 | | 2/8/2001 | | 6/1/2002 | | 6/1/2002 | |
| Depth (ft bgs) | 6-8 | | 1 | | 7 | | 10 | | 6 | | 5-5.5 | | 5-5.5 | |
| Source Data | URS PA/SI 2013 | | Versar 2001 | | Versar 2001 | | Versar 2001 | | Versar 2001 | | Versar 2003 | | Versar 2003 | |
| Matrix | Subsurface Soil | | Subsurface Soil | | Subsurface Soil | | Subsurface Soil | | Subsurface Soil | | Subsurface Soil | | Subsurface Soil | |
| Analyte | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag |
| Benzo(a)pyrene | 0.0027 | J | | | | | | | | | 0.0989 | J | 1.05 | |
| Benzo(b)fluoranthene | 0.014 | J | | | | | | | | | 0.0931 | J | 1.17 | |
| Arsenic | | | 8.7 | | 1.5 | | 2.4 | | 3.6 | | | | | |
| Thallium | | | | | 0.43 | B | 0.36 | B | 0.54 | B | | | | |

# Building 2482 Groundwater COPCs

| Sample ID | B2482-2GW | | B2482 GW3 DUP1 | | B2482 GW3 | | B2482 SB10 | | B2482 SB5 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | 6/4/2013 | | 2/22/2000 | | 2/22/2000 | | 2/8/2001 | | 2/8/2001 | |
| Source Data | URS PA/SI 2013 | | Versar 2001 | | Versar 2001 | | Versar 2001 | | Versar 2001 | |
| Matrix | Groundwater | | Groundwater | | Groundwater | | Groundwater | | Groundwater | |
| Analyte | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag |
| Benzo(a)pyrene | 0.24 | J | | | | | | | | |
| Benzo(b)fluoranthene | 0.19 | J | | | | | | | | |
| Arsenic | 0.79 | J | | | | | | | 10.7 | |
| Chromium | 2 | | | | | | | | 42.4 | |
| Cobalt | 22 | | | | | | | | 10.6 | B |
| Thallium | 0.1 | J | | | | | | | | |

| Sample ID | B2482 SB7 | | B2482 SB8 | | B2482-SB16 DUP | | B2482-SB16 | | B2482-SB17 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | 2/8/2001 | | 2/8/2001 | | 6/1/2002 | | 6/1/2002 | | 6/1/2002 | |
| Source Data | Versar 2001 | | Versar 2001 | | Versar 2003 | | Versar 2003 | | Versar 2003 | |
| Matrix | Groundwater | | Groundwater | | Groundwater | | Groundwater | | Groundwater | |
| Analyte | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag |
| Benzo(a)pyrene | | | | | 0.2 | | 0.22 | J | 0.42 | |
| Benzo(b)fluoranthene | | | | | | | | | | |
| Arsenic | | | | | | | | | | |
| Chromium | | | | | | | | | | |
| Cobalt | | | | | | | | | | |
| Thallium | | | | | | | | | | |

# 6th St & Chisholm Ave

# 6th St & Chisholm Ave Soil COPCs

| SAMPLE NUMBER | 6TH-TB-1 | | 6TH-TB-2 | | 6TH-TB-3 | | 6TH-TB-4 | | 6TH-TB-5 | | 6TH-TB-6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE | 11/16/2009 | | 11/16/2009 | | 11/16/2009 | | 11/16/2009 | | 11/16/2009 | | 11/16/2009 | |
| DEPTH (FEET BGS) | 4.5-5.5' | | 4-6' | | unknown | | 5-7' | | 5-7' | | unknown | |
| ANALYTE | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag |
| 1,2,4-Trimethylbenzene | | | | | | | | | | | | |
| Arsenic | 7.3 | | 1.7 | | | | ND<1.0 | | 1.9 | | | |
| TPH-GRO | | | | | | | | | | | | |
| TPH-DRO | | | | | | | | | | | | |

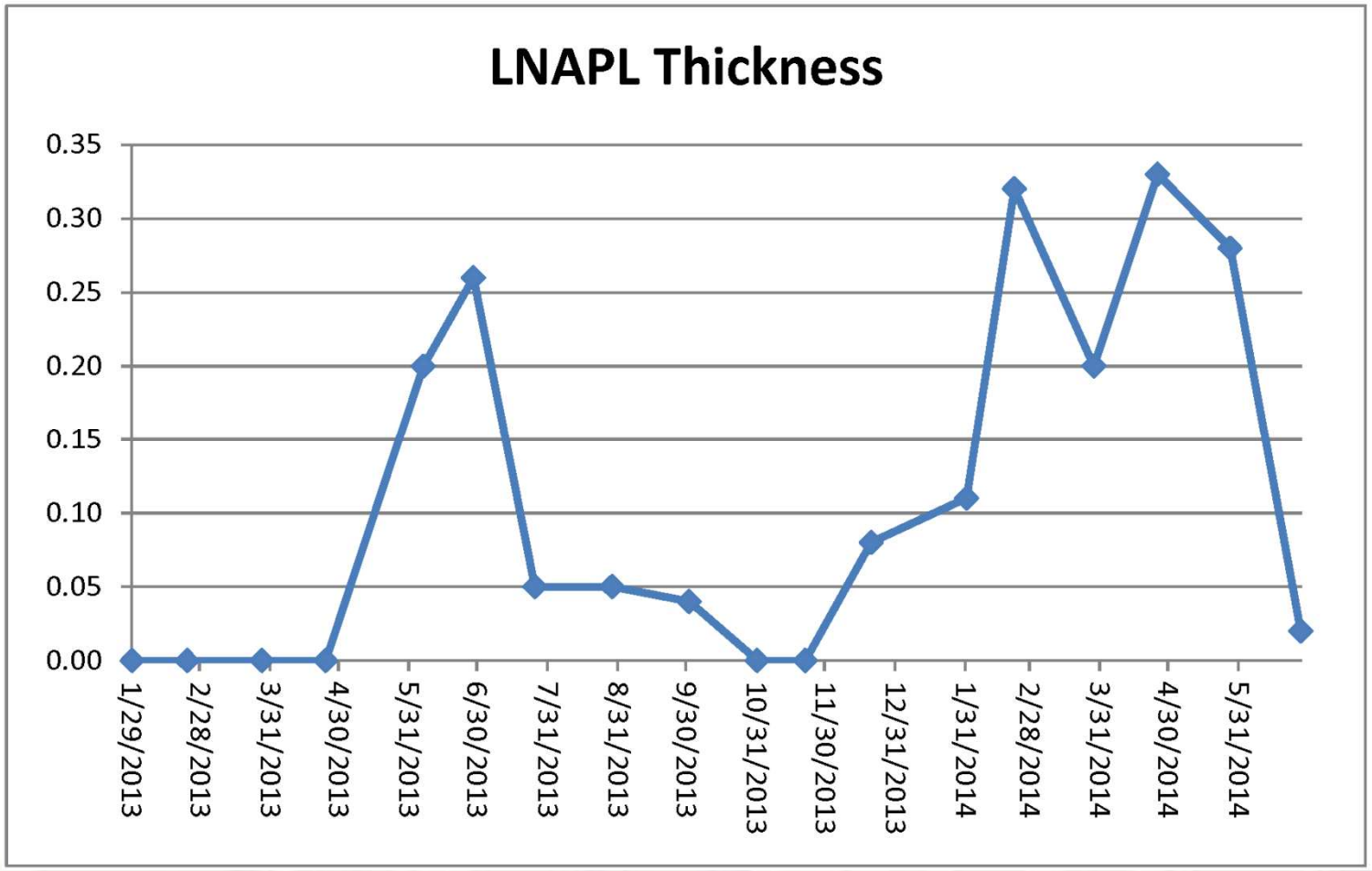
| SAMPLE NUMBER | 6TH-TB-7 | | 6TH-TB-8 | | 6TH-TB-9 | | 6TH-TB-10 | | 6TH-TB-11 | | 6TH-TB-11 DUP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE | 11/16/2009 | | 11/16/2009 | | 11/16/2009 | | 11/16/2009 | | 11/16/2009 | | 11/16/2009 | |
| DEPTH (FEET BGS) | 5-7' | | 4-6' | | 4.5-5.5' | | 5-7' | | 5-7' | | 5-7' | |
| ANALYTE | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag | Result (mg/kg) | Flag |
| 1,2,4-Trimethylbenzene | | | 82 | | | | | | 0.067 | | 0.15 | |
| Arsenic | 3.3 | | 1.5 | | 5.2 | | 6.7 | | 1.6 | | 1.9 | |
| TPH-GRO | 4400 | | 12000 | | | | | | 2100 | | 2800 | |
| TPH-DRO | 1800 | | 2000 | | | | | | 520 | | 740 | |

# 6th St & Chisholm Ave Groundwater COPCs

| Sample Number | TWP-4GW | | TWP-5GW | | TWP-6GW | | TWP-7GW | |
|---|---|---|---|---|---|---|---|---|
| Sample Date | 5/6/2013 | | 5/3/2013 | | 5/3/2013 | | 5/3/2013 | |
| Source Document | URS PA/SI 2013 | | URS PA/SI 2013 | | URS PA/SI 2013 | | URS PA/SI 2013 | |
| Matrix | Groundwater | | Groundwater | | Groundwater | | Groundwater | |
| Analyte | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag |
| Naphthalene | | | | | 1.7 | J | 34 | |
| Vinyl Chloride | | | | | | | 1.3 | |
| Arsenic | 0.74 | J | 0.99 | J | 1.2 | | 2.5 | |
| Chromium | 2.8 | | 3.7 | | 2.8 | | 0.41 | J |
| Cobalt | 190 | | 94 | | 120 | | 6 | |
| Thallium | 0.14 | J | 0.12 | J | 0.11 | J | 0.027 | J |
| TPH-DRO | 63 | J | 110 | J | 99 | J | 2900 | |
| TPH-GRO | 41 | J | 33 | J | | | 680 | |

# MDE-OCP
# 6th St & Chisholm Ave

# 6th St & Chisholm Ave



# 6th St & Chisholm Ave

| Sample ID | TWP-4GW | | TWP-4GW | | TWP-4GW | | TWP-4GW | | TWP-5GW | | TWP-5GW | | TWP-5GW | | TWP-5GW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | 5/6/2013 | | 9/5/2013 | | 2/19/2014 | | 5/28/2014 | | 5/3/2013 | | 9/5/2013 | | 2/20/2014 | | 5/28/2014 | |
| Analyte | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag |
| TPH-DRO | 63 | J | 71 | J | 220 | B | | | 110 | J | 55 | J | 84 | BJ | | |
| TPH-GRO | 41 | J | | | | | 26 | J | 33 | J | | | | | | |

| Sample ID | TWP-6GW | | TWP-6GW | | TWP-6GW | | TWP-6GW | | TWP-7GW | | TWP-7GW | | TWP-7GW | | TWP-7GW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | 5/3/2013 | | 9/6/2013 | | 2/20/2014 | | 5/29/2014 | | 5/3/2013 | | 9/6/2013 | | 2/20/2014 | | 5/29/2014 | |
| Analyte | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag | Result (ug/L) | Flag |
| TPH-DRO | 99 | J | | | 76 | BJ | 56 | J | 2900 | | 2100 | | 3400 | | 2500 | |
| TPH-GRO | | | | | | | 28 | J | 680 | | 620 | | 1700 | | 1500 | |

# Next Steps in the Process

- Receive and address comments on the Draft Report.
  - For each AOI, one of the following actions will be taken:
    - No Further Action (NFA) Determination
    - Remedial Investigation/Feasibility Study (RI/FS)

# Overall PA/SI Status

- North – comments received on Draft report, Army addressing comments.
- Southwest – Draft report submitted, waiting for comments.
- South of Route 32– comments received on Draft report, Army addressing comments.
- Golf Course – complete.

# Questions?

**U.S. Army Garrison Fort George G. Meade**
**Directorate of Public Works-Environmental Division**
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**Fort Meade, Maryland 20755-7068**

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