



SPRING VALLEY FORMERLY USED DEFENSE SITE PROJECT

Monthly RAB Meeting

**June 12, 2012
7:00 – 8:30 p.m.**

**BASEMENT MEETING ROOM
ST. DAVID'S EPISCOPAL CHURCH
5150 MACOMB ST NW, WASHINGTON, DC**

Agenda

- 7:00 p.m. I. Administrative Items**
Co-Chair Updates
▪ Announcements, Introductions
Task Group Updates
- 7:10 p.m. II. USACE Program Updates**
Arsenic Soil Removal
Groundwater Study
4825 Glenbrook Road – Status Report
▪ Decision Document
▪ Draft Remedial Design & Remedial Action Work Plan
- 7:30 p.m. III. Community Items**
Evaluation of Remaining Site-Wide Sampling Requirements
Presented by Tom Bachovchin, Earth Resources Technology
- 8:05 p.m. IV. Open Discussion & Future RAB Agenda Development**
Possible Upcoming Meeting Topics*:
▪ Spring Valley Follow-On Health Study Update
(Johns Hopkins University)
▪ 4825 Glenbrook Road Health Consultation Update
- 8:15 p.m. V. Public Comments**
- 8:30 p.m. VI. Adjourn**

** RAB meetings are not held in August or December*

Spring Valley

Formerly Used Defense Site

Restoration Advisory Board Meeting

June 12, 2012

“The USACE Mission in Spring Valley is to identify, investigate and remove or remediate threats to human health, safety or to the environment resulting from past Department of Defense activities in the area.”



US Army Corps of Engineers
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Agenda Review

- ❖ **Co-Chair Updates**

- Introductions, Announcements

- ❖ **USACE Updates**

- Arsenic Soil Removal
 - Groundwater Study
 - 4825 Glenbrook Road NW

- ❖ **Community Items**

- Document preview: *Evaluation of Remaining Site-Wide Sampling Requirements*

- ❖ **Open Discussion & Agenda Development**

- ❖ **Public Comments**



Co-Chair Updates

Introductions



Co-Chair Updates

❖ Announcements

- AU's representative Penny Pagano retired
- Website Updates:
 - ✓ April 2012 RAB meeting materials (agenda, presentation, minutes)
 - ✓ April 2012 Partners meeting minutes
 - ✓ May 2012 Monthly Project Summary



Task Group Updates

❖ Membership Committee

- One RAB community member position still open



Arsenic Soil Removal

Two properties remain with soil boring locations greater than 20 ppm arsenic

- 5100 block of Tilden Street, 22.8 ppm (5 ft. depth)
 - American University (Lot 44), 20.6 ppm, (3 ft. depth)
-

Not previously addressed because surface soil sampling results were <12.6 ppm arsenic



Arsenic Soil Removal

Follow-On Efforts

- **American University (Lot 44)**
 - **No Further Action (Partner and property owner concurrence)**
 - **Boring located in dense vegetation in front of the Mary Graydon Center**
- **5100 block of Tilden Street**
 - **Removal effort planned for Summer/Fall 2012**



Groundwater Study

Sampling Results:

MW-44 on the AU campus

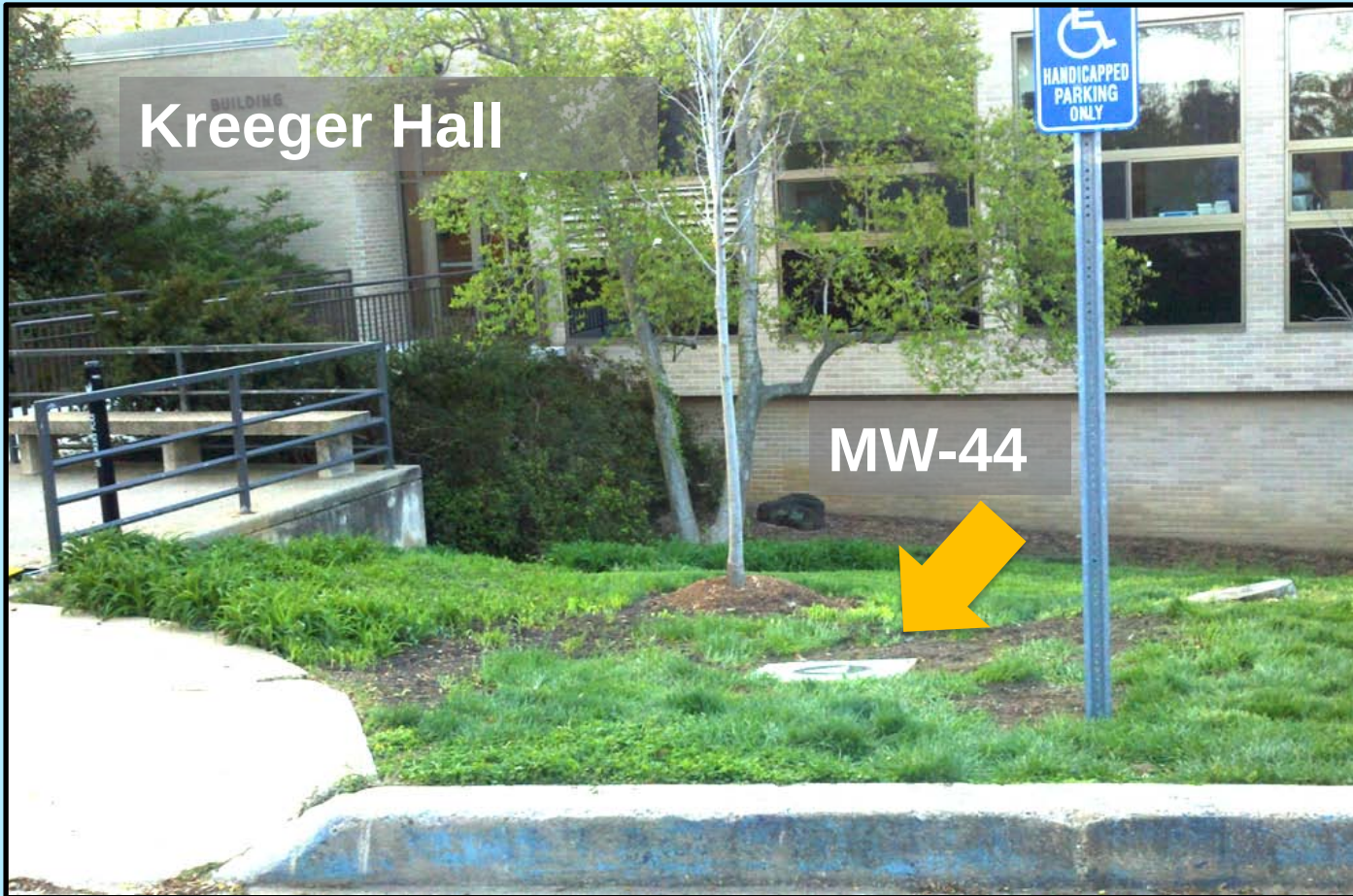
Deep Well on the 4900 block of
Rockwood Parkway (MP-4)

Deep Well on the 4800 block of
Glenbrook Road (MP-2)

Upcoming Efforts

Groundwater Study

MW-44 on AU



Groundwater Study

MW-44 Sampling Results

MW-44 on the American University Campus (Sampling completed March 2012)

Sample	Perchlorate (ppb)	Arsenic (ppb)
MW-44	34	Non-detect
MW-44 duplicate	33	Non-detect
10 ppb: Maximum Contaminant Level for Arsenic 15 ppb: Drinking Water Health Advisory Level for Perchlorate		



Groundwater Study

MP-4 on Rockwood Parkway



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Groundwater Study

MP-4 Sampling Results

<u>MP-4 on the 4900 block of Rockwood Parkway</u> (Sampling completed March 2012)			
Sample Port	Perchlorate (ppb)	Arsenic (ppb)	Sampling Depth (feet below ground surface)
MP 4 - 1	Non-Detect	Non-Detect	42 - 49
MP 4 - 2	Non-Detect	Non-Detect	52 - 57
MP 4 - 3	Non-Detect	Non-Detect	62 - 69
MP 4 - 4	Non-Detect	Non-Detect	75 - 85
MP 4 - 5	Non-Detect	Non-Detect	90 - 100
MP 4 - 6	Non-Detect	Non-Detect	104 - 114
MP 4 - 7	Non-Detect	Non-Detect	148 - 158
MP 4 - 8	Non-Detect	Non-Detect	170 - 176
MP 4 - 9	Non-Detect	Non-Detect	180 - 190
10 ppb: Maximum Contaminant Level for Arsenic 15 ppb: Drinking Water Health Advisory Level for Perchlorate			

Groundwater Study

MP- 2 on Glenbrook Road



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Groundwater Study

MP-2 Sampling Results

MP-2 on the 4800 block of Glenbrook Road (Sampling completed March/April 2012)

Sample Port	Perchlorate (ppb)	Arsenic (ppb)	Sampling Depth (feet below ground surface)
MP 2 - 1	5.8 / 4.5	7.5 / 7.4	35 - 44
MP 2 - 1 Dup	7 / - -	7.6 / - -	49 - 54
MP 2 - 2	12 / 12	15 / 15	49 - 54
MP 2 - 3	17 / 17	15 / 18	56 - 71
MP 2 - 4	21 / 25	12 / 15	73 - 77
MP 2 - 5	24 / 26	13 / 15	96 - 102
MP 2 - 6	27 / 25	15 / 17	105 - 114
MP 2 - 6 Dup	- - / 26	- - / 17	105 - 114
MP 2 - 7	20 / 25	14 / 17	123 - 129
MP 2 - 8	24 / 24	14 / 16	145 - 160
10 ppb: Maximum Contaminant Level for Arsenic 15 ppb: Drinking Water Health Advisory Level for Perchlorate - - / - -: 1 st sampling result / 2 nd sampling result			

Groundwater Study

Upcoming Efforts

Re-sample deep well on the 4800 block of Glenbrook Road (MP-2)

- Confirm arsenic and perchlorate detections
- Effort planned for *Summer 2012*

Additional sampling locations and frequencies still being considered by the Partners



Groundwater Study

Upcoming Efforts

Review results from isotopic analysis of perchlorate

- Determine if the perchlorate detected at Sibley is from the same source as the perchlorate detected on AU
- Results expected by *August 2012*

Install deep well (to approximately 200 feet) near Kreeger Hall on the AU campus

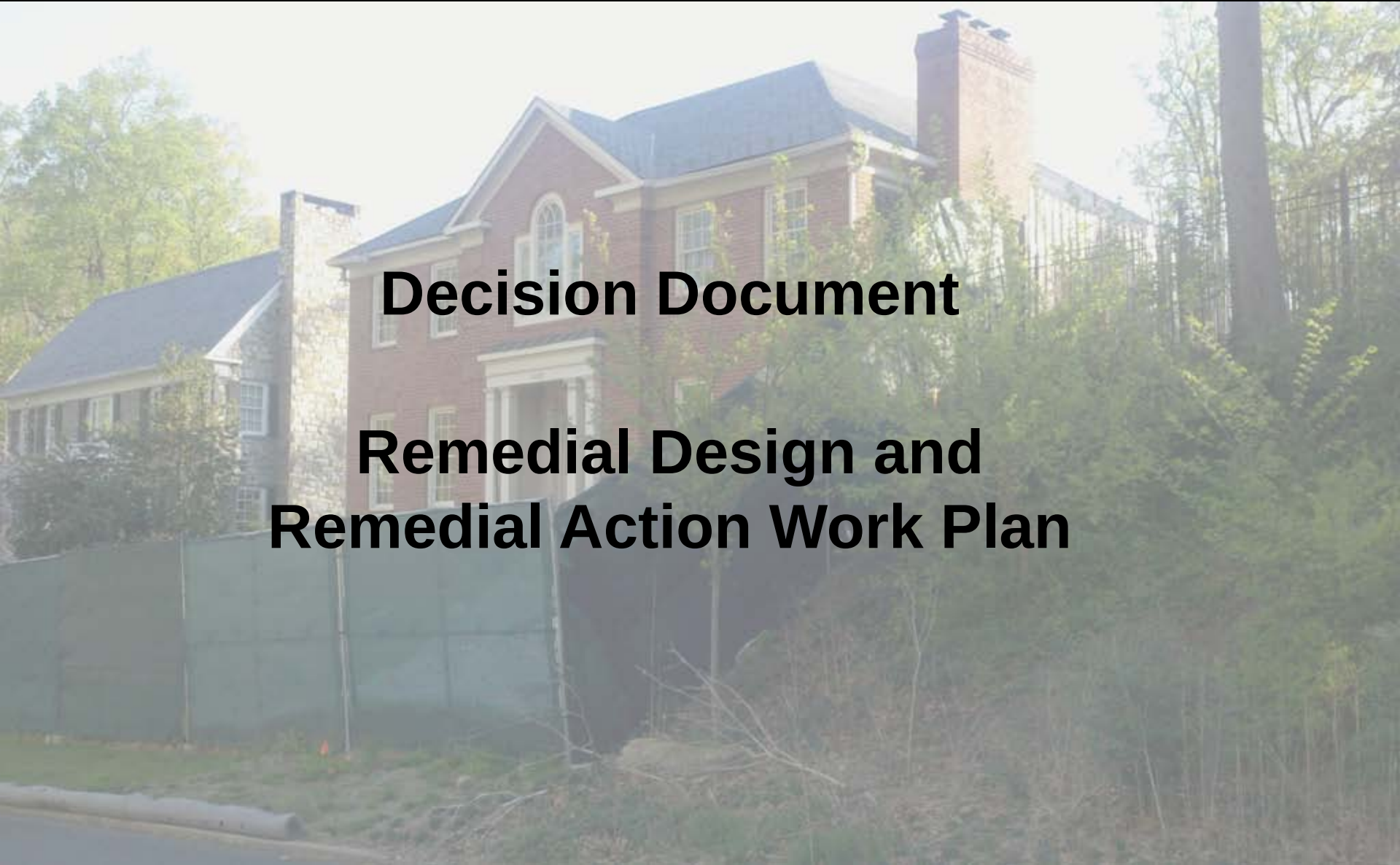
- Characterize the extent of vertical contamination in the area
- Effort planned for *late Summer 2012*, before students return to campus for the fall semester



4825 Glenbrook Road

Decision Document

Remedial Design and Remedial Action Work Plan



4825 Glenbrook Road

Decision Document

Final expected in July 2012

Awaiting final approval and signature

- **From the Deputy Assistant Secretary of the Army for Environment, Safety, and Occupational Health**



4825 Glenbrook Road Work Plan



Schedule

- July 2012 – *Final Remedial Design and Remedial Action Work Plan*
- Summer 2012 – Open House/Informational Community Meeting
 - Prior to demolition
- August 2012 – *Demolition*
- August-September 2012 – *Initial Low Probability Work*
 - Test pits in backyard and re-locating sewer line
- October 2012 – *Site Set-Up for High Probability Work*
- through June 2013 – *High Probability Removal Actions*
- July-Sept. 2013 – *Final Low Probability Removal Actions*
 - Areas A and B
- October-November 2013 – *Restoration*



Spring Valley FUDS Restoration Advisory Board

Community Items

Evaluation of Remaining Site-Wide Sampling Requirements

Presented by: Tom Bachovchin, ERT

SPRING VALLEY FORMERLY USED DEFENSE SITE (SVFUDS)



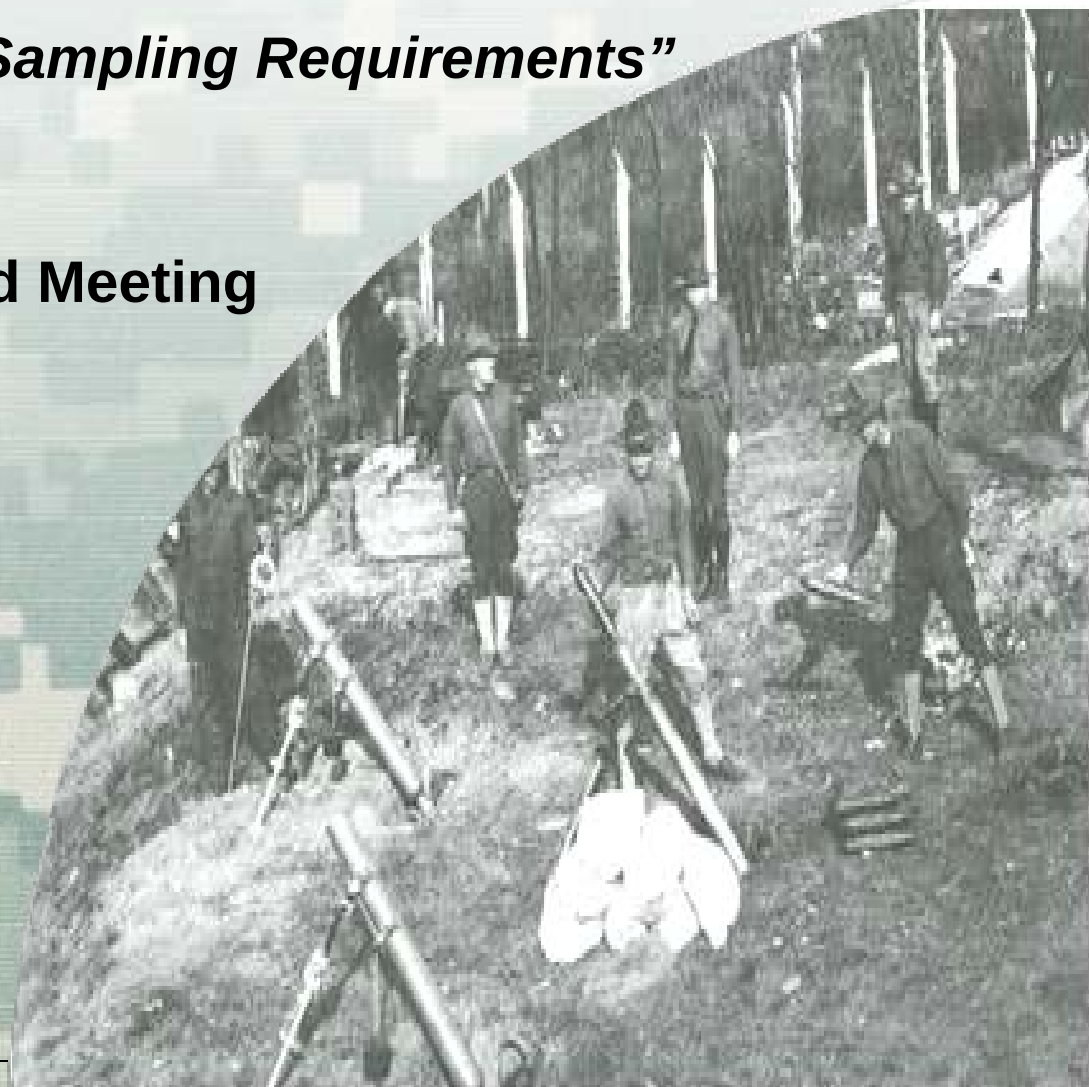
Overview of *"Evaluation of Remaining Sampling Requirements"*

Spring Valley Restoration Advisory Board Meeting

12 June 2012



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Background

Extensive sampling and investigation have been completed throughout the Spring Valley Formerly Used Defense Site project since the start in 1993 (approx).

- Data were collected to characterize the site and prepare human health and ecological risk assessments

Characterization efforts include:

- Human Health Risk Assessments (HHRAs) of individual areas,
- A Site-Wide Ecological Risk Assessment, and
- A Site-Wide Groundwater Risk Assessment

These were completed (or are in process) by multiple contractors.



Background (con't.)

February 2010:

Spring Valley Partners met to discuss the need to develop a strategy to:

- Organize and assess the existing information
- Evaluate the need for additional data, and
- Integrate this information into a cohesive plan.

The path forward for resolving these issues was finalized on March 2010. The stated objective was to:

- Develop an Evaluation Document that identifies data gaps and proposes additional data needs to fill them, while integrating the existing risk assessments into a comprehensive site-wide risk assessment.



THE 'EVALUATION' DOCUMENT

The *Evaluation of Remaining Sampling Requirements* document is organized into three focus areas:

- 1) **HHRA Document Review** of the previous (pre-2008) HHRAs completed to assess whether they remain protective.
- 2) **Supplemental Sampling** of areas determined to require additional data.
- 3) **Verify Sufficiency** of the existing and supplemental sampling to characterize the SVFUDS.



HHRA Document Review

Objective:

Review and evaluation of older (pre-2008) HHRA's to determine whether their conclusions would still be protective of human health when considering updated USEPA guidance with respect to:

- **Exposure assumptions**
- **Toxicological values**
- **Comparison standards**



HHRA Document Review (cont.)

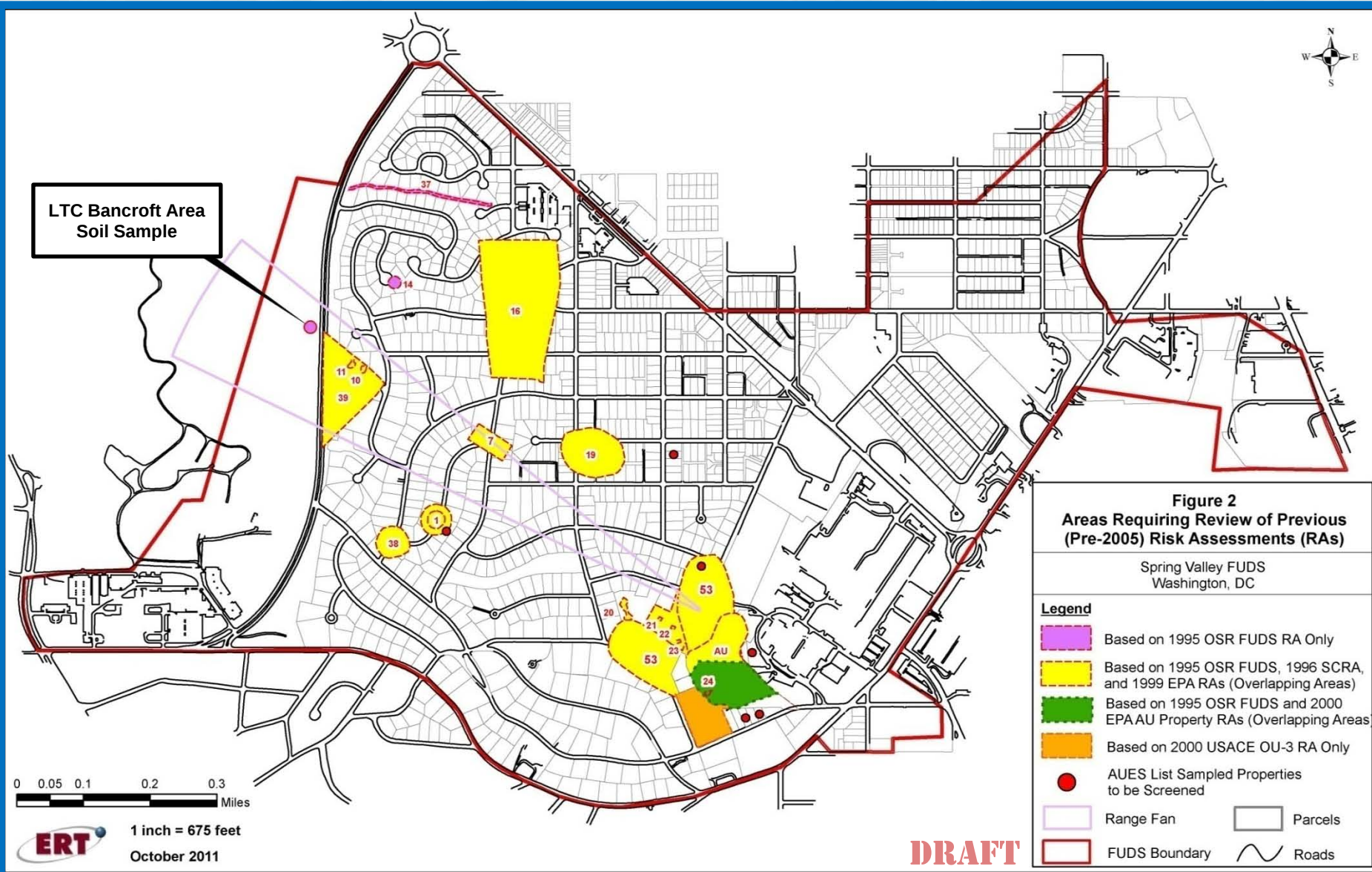
Five human health risk assessments are the subject of this review:

- *USACE's OSR FUDS HHRA (1995 RI)*
- *USACE's HHRA for Spaulding and Captain Rankin Areas (RI Report, 1996)*
- *USEPA Region III's HHRA (1999)*
- *USEPA Region III's American University HHRA (2000)*
- *USACE's HHRA for the 4801 Glenbrook Road property (2000)*

The results of the AUES List soil sampling, performed as a part of the 2003 EE/CA, will also be reviewed (50 samples spread over 9 properties)



AREAS REQUIRING REVIEW OF PRE-2008 RISK ASSESSMENTS



HHRA Document Review (cont.)

Exposure assumptions

- The exposure assumptions for each exposure pathway evaluated in the previous HHRAs will be reviewed in the context of USEPA risk assessment guidance published since 2000 to determine if any changes are applicable to the SVFUDS HHRAs.
- Rates or values for the following factors will be reviewed for changes and assessed for impacts:
 - Incidental soil ingestion
 - Dermal contact
 - Ingestion of homegrown vegetables
 - Particulate inhalation



HHRA Document Review (cont.)

Toxicological values

- All toxicity values used to quantify the potential risks associated with the selected *chemicals of potential concern* in the previous HHRA will be reviewed and updated as necessary.
- The HHRA review will conform to the hierarchy of toxicity values USEPA uses in the development of their **Regional Screening Levels**.



HHRA Document Review (cont.)

Comparison standards

- The most recent USEPA Regional Screening Levels will be reviewed to determine if there have been any changes to the screening levels, which were used to determine chemicals of potential concern in the previous HHRAs.

USEPA Regional Screening Levels address:

- **Multiple exposure pathways**
 - **Carcinogenic and non-carcinogenic effects**
- USEPA's "acceptable" levels of risk have not changed since the publication of the previous HHRAs.
 - **For non-carcinogens, the target 'hazard index' is one**
 - **For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen.**
 - **USEPA's acceptable risk range of 1×10^{-4} to 1×10^{-6} equates to a 1 in 10,000 to 1 in 1,000,000 risk**



HHRA Document Review (cont.)

- **Review of the previous HHRAs could result in some changes to the prior HHRA conclusions.**
 - The HHRA review will evaluate whether more recent changes in exposure assumptions, toxicity values, and/or comparison standards would result in higher or lower risk estimates than originally determined in the previous HHRAs.
 - **Possible impacts will be discussed in the HHRA review.**



Supplemental Sampling

- **Address the need for supplemental sampling of the SVFUDS based on the Area of Interest Task Force (AOITF) report recommendations.**
 - The AOITF looked at potential areas of interest derived from historical AUES impacts not addressed in ongoing investigations, or possible data gaps, and made recommendations to the partners whether any additional investigation was necessary.
- The Partners reviewed, discussed, and in some cases revised the AOITF recommendations and formalized the path forward for further investigation in AOI Consensus Memoranda.
- **Five discrete areas were identified for additional soil sampling.**
 - The objective of the supplemental sampling is to fill these data gaps and ensure that areas are fully characterized with regard to making conclusions about risk posed to human or ecological receptors.
 - Sampling effort at one area has been completed.



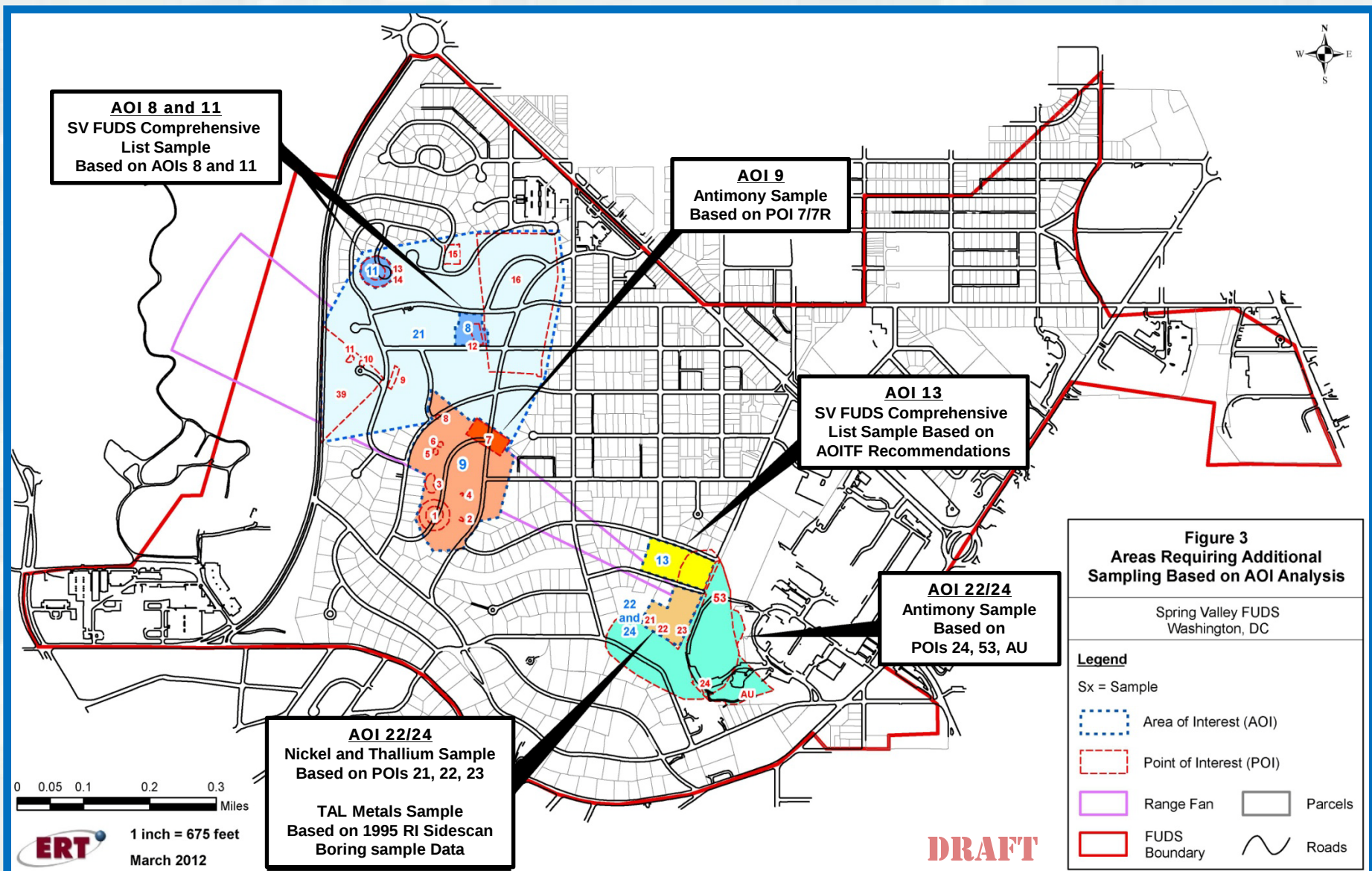
Supplemental Sampling (cont.)

- AOI 8 (POI 12) and AOI 11 (POIs 13 and 14) were sampled for the Spring Valley Comprehensive List (not including arsenic).
- AOI 9 will be sampled for antimony at the POI 7/7R location.
- AOI 13 will be sampled for the Spring Valley Comprehensive List (not including arsenic).
- AOI 22 and 24, which are non-contiguous areas, will be sampled for nickel and thallium at POIs 21, 22, and 23, and for SVFUDS metals (not including arsenic) near the 1995 RI sidescan boring locations on a 4700 block of Woodway Lane property.
- AOI 22 and 24 (at POIs AU, 24, and 53) will be sampled for antimony.

This additional sampling effort includes 18 individual properties and 49 soil samples (not counting those already collected or QA/QC requirement samples).



AREAS REQUIRING ADDITIONAL SAMPLING



Supplemental Sampling (con't.)

AOI 8 & 11

Sampling effort completed for the full SVFUDS Comprehensive List of parameters.

- **AOI 8**

- 4 discrete surface soil samples collected at the 1918 soil horizon (which is at the surface in this area).

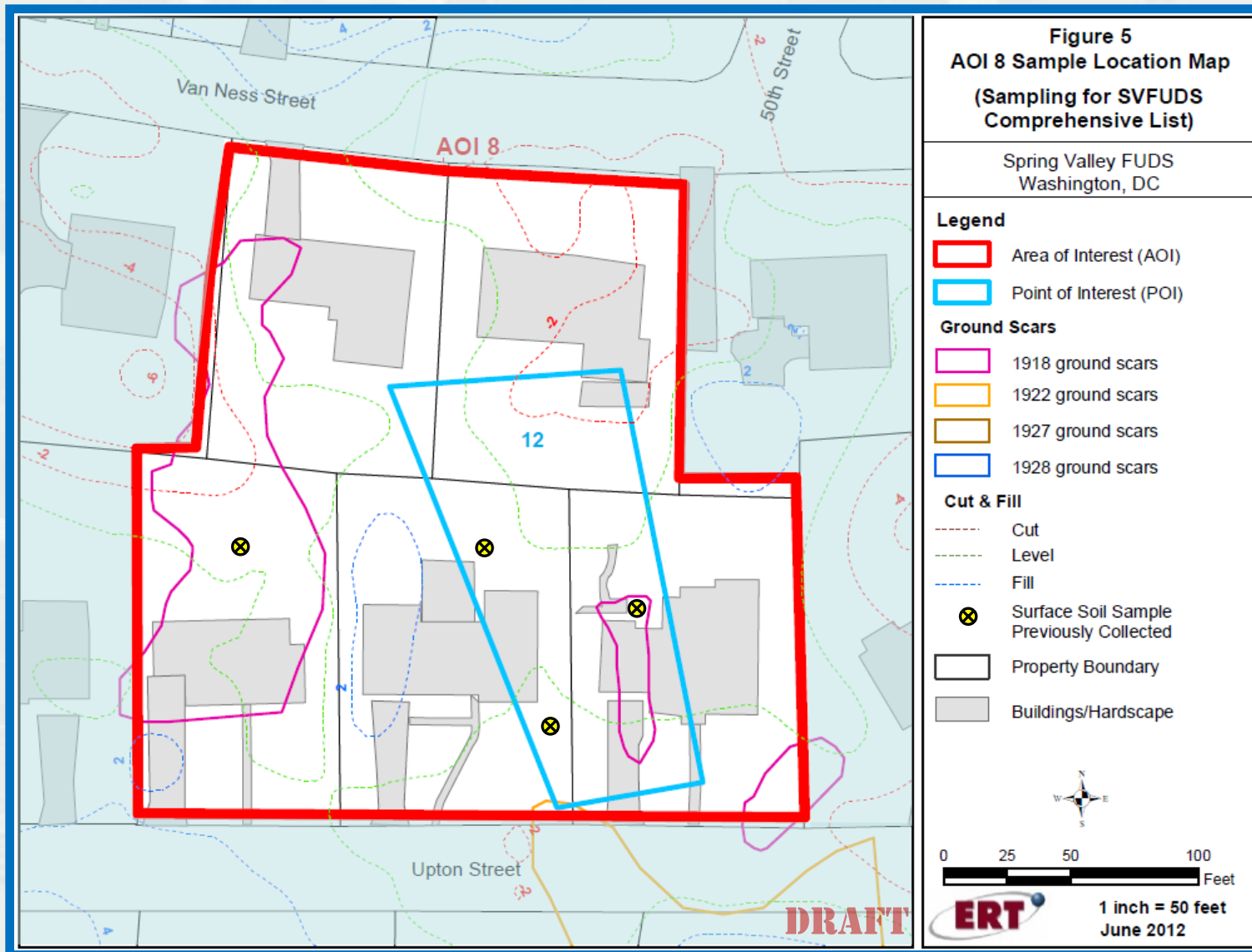
- **AOI 11**

- 3 subsurface soil samples were collected at the former burial pit location (POI 14) and 3 surface samples collected at ground scar locations.

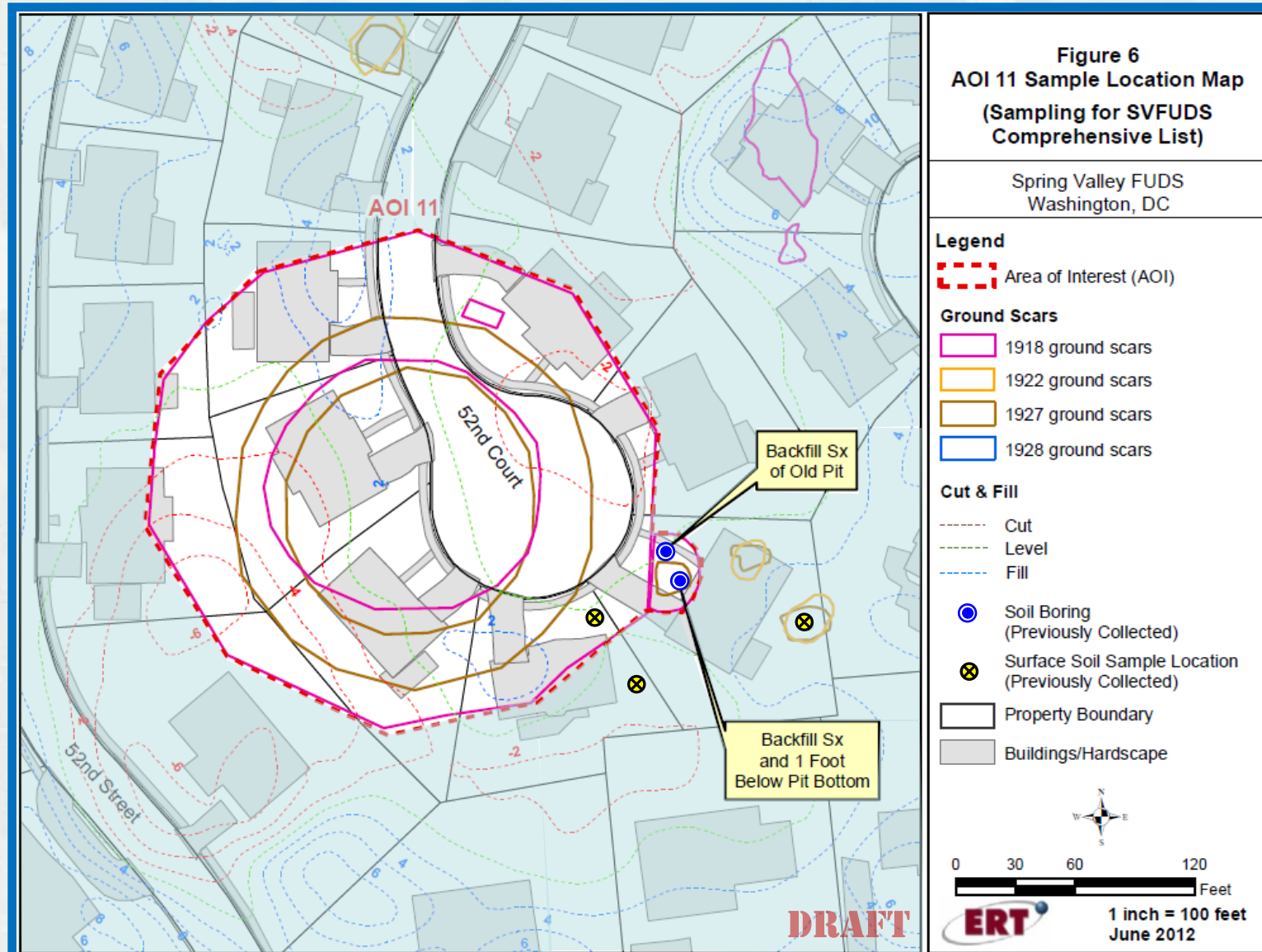
Evaluation of sampling results and risk screening pending .



AOI 8 SAMPLING LOCATIONS



AOI 11 SAMPLING LOCATIONS



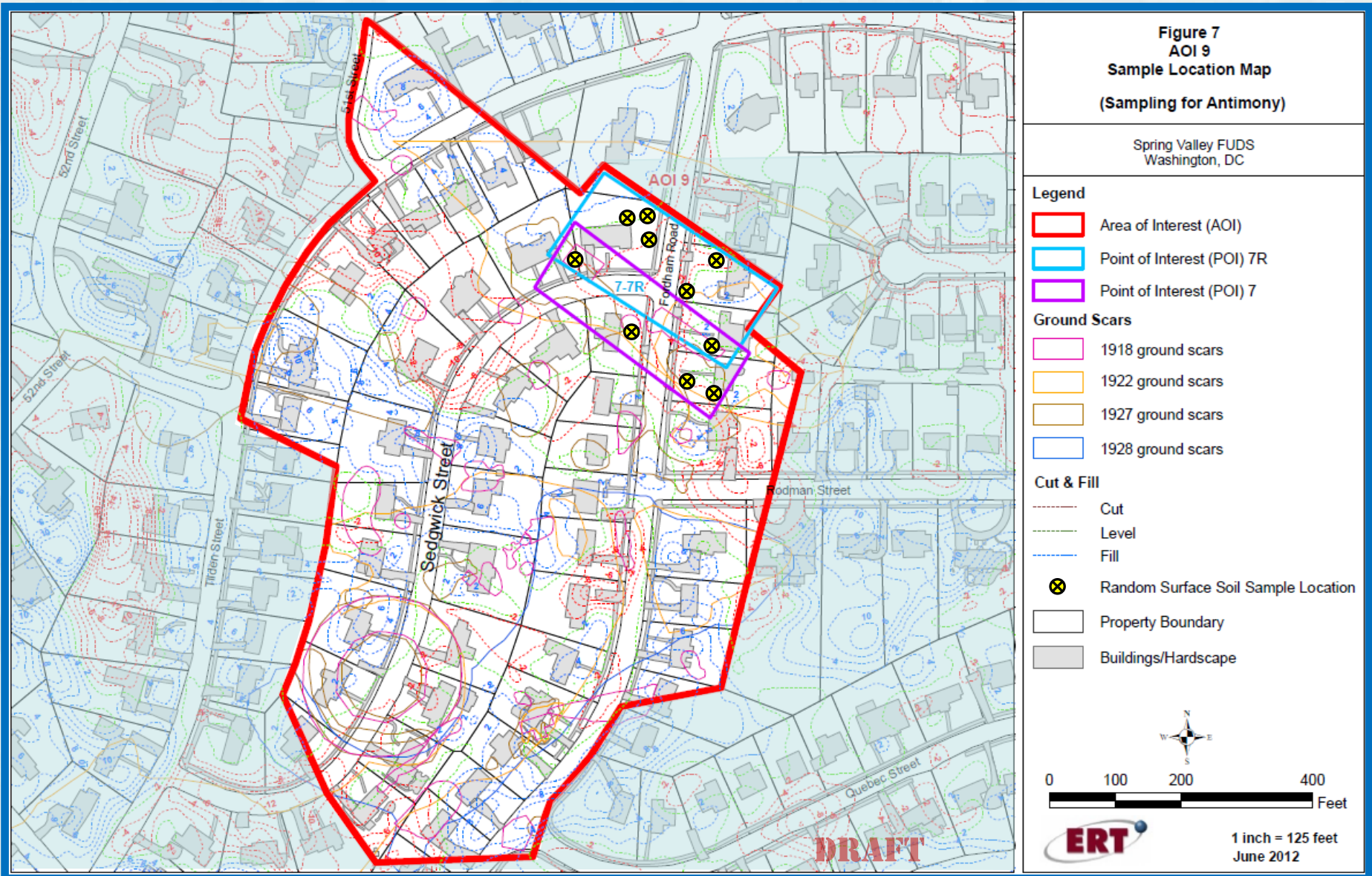
Supplemental Sampling (con't.)

AOI 9 - POI 7/7R

- **Recommendation:** The AOI 9 Memorandum recommended that additional antimony data be collected based on:
 - 1999 EPA HHRA conclusion of an Reasonable Maximum Exposure Hazard Index of 4.7 for child residents, due primarily to antimony.
- **Proposed:** 10 surface soil samples (0-6 inches below ground surface) from 6 properties within POI 7/7R, to be analyzed for antimony.
- **Depth Rationale:** EPA's risk results were based on samples that were splits of the 1995 OSR FUDS USACE samples, which were collected at the 1918 soil horizon.
 - 10 proposed samples reflect the 1918 horizon, which is at the surface in these areas.
 - Where possible, they are additionally located within ground scars.



AOI 9 SAMPLING LOCATIONS



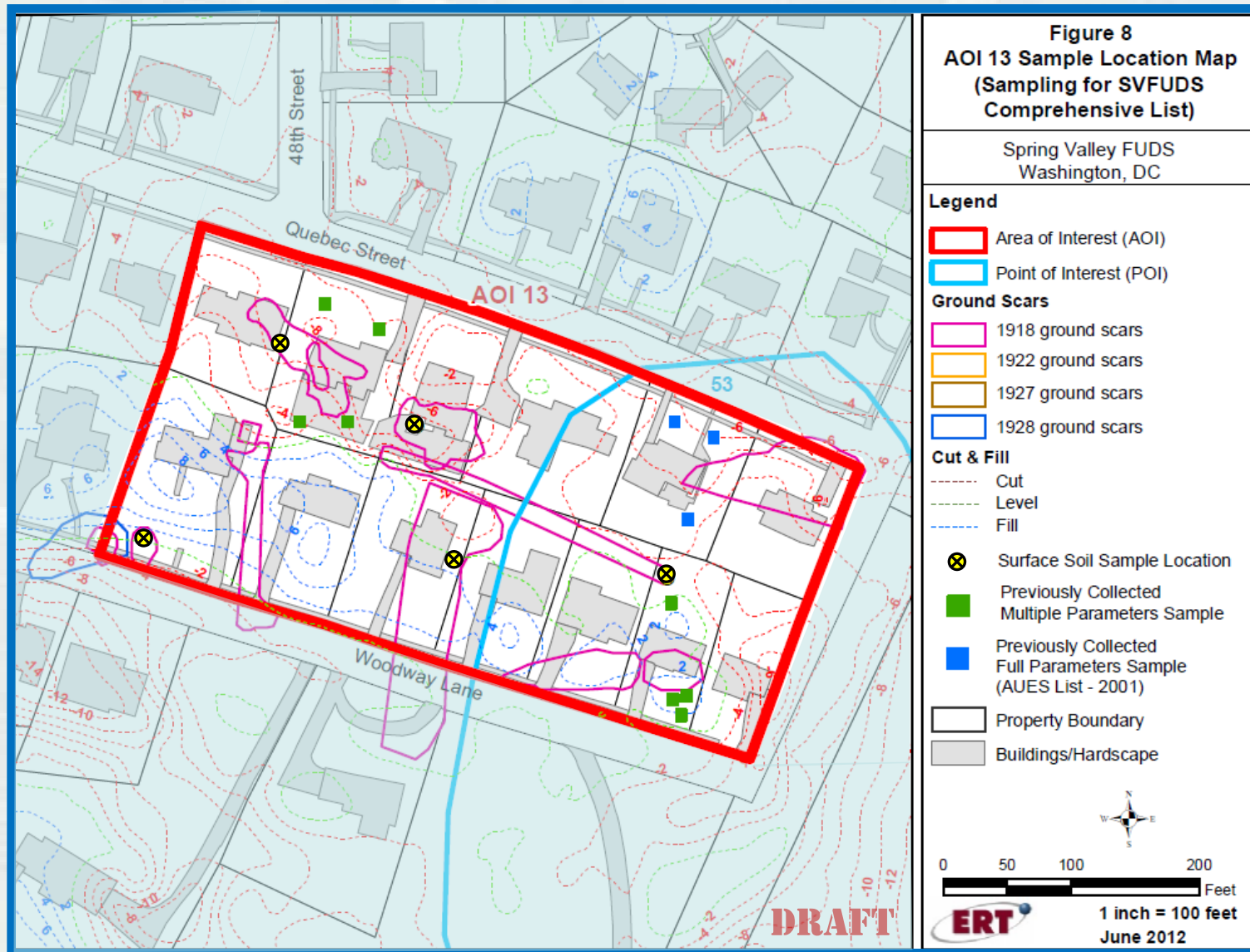
Supplemental Sampling (con't.)

AOI 13

- **Recommendation:** The AOI 13 Memorandum recommended additional SVFUDS Comprehensive List sampling (to be coordinated with the recommended antimony sampling for AOI 24) based on:
 - Munitions and Explosives of Concern (MEC) and/or Munitions Debris (MD) recovered in this area during previous investigations.
 - Historical evidence (photos and documents) of AUES buildings in this area.
 - Presence of multiple 1918 ground scars.
- **Proposed:** 5 surface soil samples (0-6 inches below ground surface) for full SVFUDS Comprehensive List analysis, not including arsenic.
- **Depth Rationale:** The 5 proposed samples reflect the 1918 horizon (which is at the surface in this area) and are within 1918 ground scars.



AOI 13 SAMPLING LOCATIONS



AOI 22/24 Sampling (con't.)

4700 block of Woodway Lane

- **Recommendation:** The AOI 22/24 Memorandum recommended additional nickel, thallium, and metals data be collected based on:
 - 1999 EPA HHRA found an Reasonable Maximum Exposure Hazard Quotient (RME HQ) >1 for nickel and thallium for a child resident. Additional sampling will better establish nickel and thallium levels associated with POIs 21, 22, and 23 in the backyard of the property.
 - The 1995 sidescan boring samples taken in the front yard of the property show a thallium RME HQ >1 for construction workers (USACE and EPA HHRAs). The incorrect mercury analytical method used in 1995 further suggested the need for more metals data.
- **Proposed:** 5 surface soil samples (0-6 inches below ground surface) for nickel and thallium analysis in the backyard. 7 samples biased to the 1995 sidescan boring locations in the front yard with co-located surface and subsurface (5-7 feet below ground surface) samples for the full SV FUDS metals list, not including arsenic.



AOI 22/24 Sampling (con't.)

4700 block of Woodway Lane

- **Depth Rationale:**

Five surface samples in the backyard for nickel and thallium associated with POIs 21, 22, and 23:

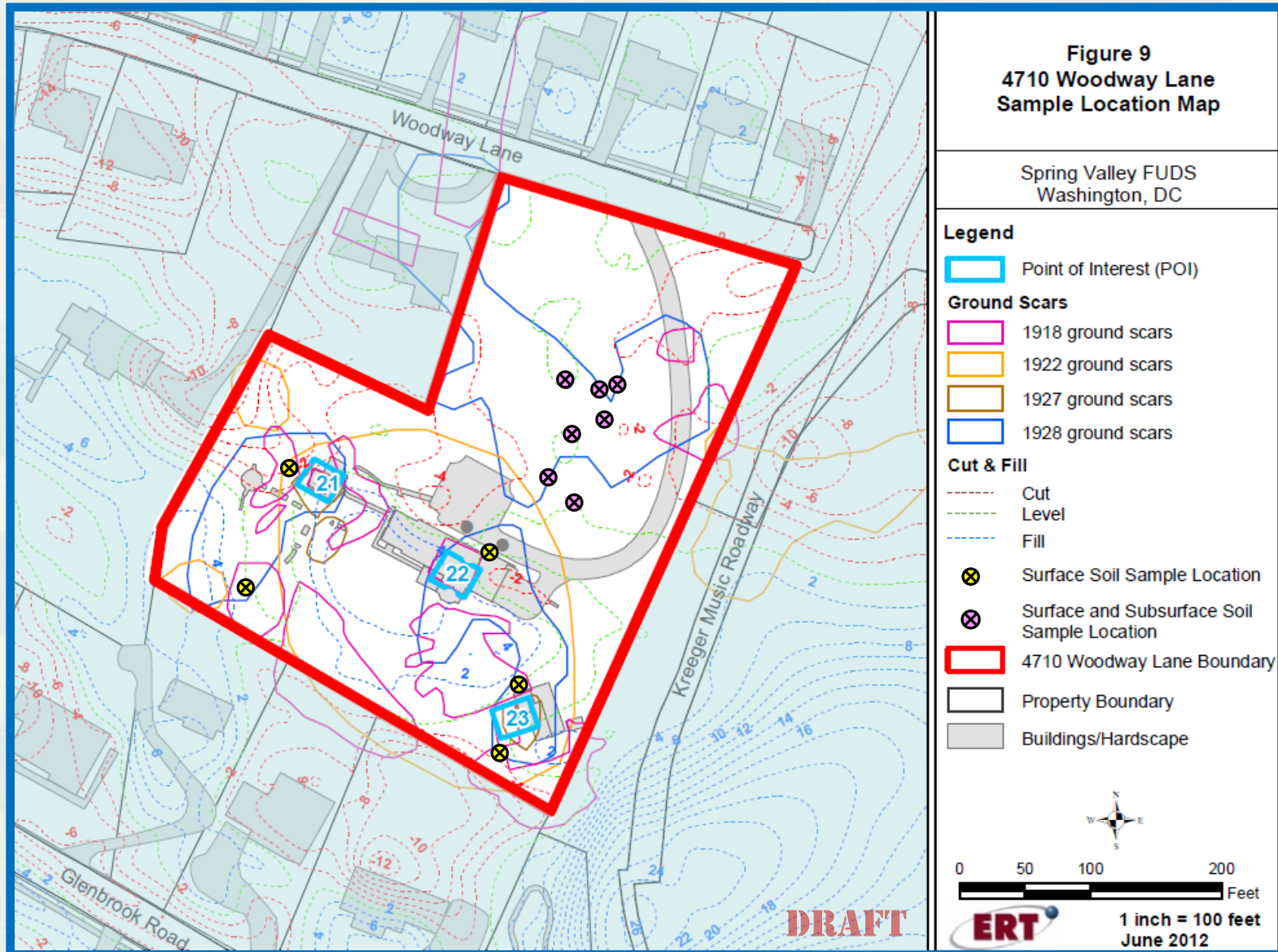
- EPA's risk results were based on split samples of the original 1995 USACE sample data, which were collected at the 1918 soil horizon, and therefore, the five proposed samples reflect the 1918 horizon (which is at the surface in this area) in addition to being located within overlapping ground scars.

Seven co-located surface and subsurface (5-7 feet) samples biased to the 1995 sidescan boring locations in the front yard for the full SVFUDS metals list:

- 5-7 feet depth reflects the average depth of the sidescan boring samples. Conservatively, surface soil sampling is proposed to reflect the current exposure zone.



AOI 22/24 (POI 21, 22, 23) SAMPLING LOCATIONS



Supplemental Sampling (con't.)

AOI 22/24 - POI AU/24/53

- **Recommendation:** The AOI 22/24 Memorandum (POI AU/24/53) recommended additional antimony sampling based on:
 - The 1999 EPA HHRA RME HQ was >1 for a child receptor, primarily due to antimony.
- **Proposed:** 14 surface and 1 subsurface soil sample for antimony. Given the significant excavation of these areas (based on arsenic removals), these sample locations are biased to areas not previously excavated.
- **Depth Rationale:** EPA's risk results were based on splits of the 1995 USACE samples, which were collected at the 1918 soil horizon.
 - 15 proposed samples reflect the 1918 horizon, which is at the surface in all but one of these sample locations
 - Where possible, they are additionally located within historic ground scars



AOI 22/24 (POI 24, 53, and AU) SAMPLING LOCATIONS

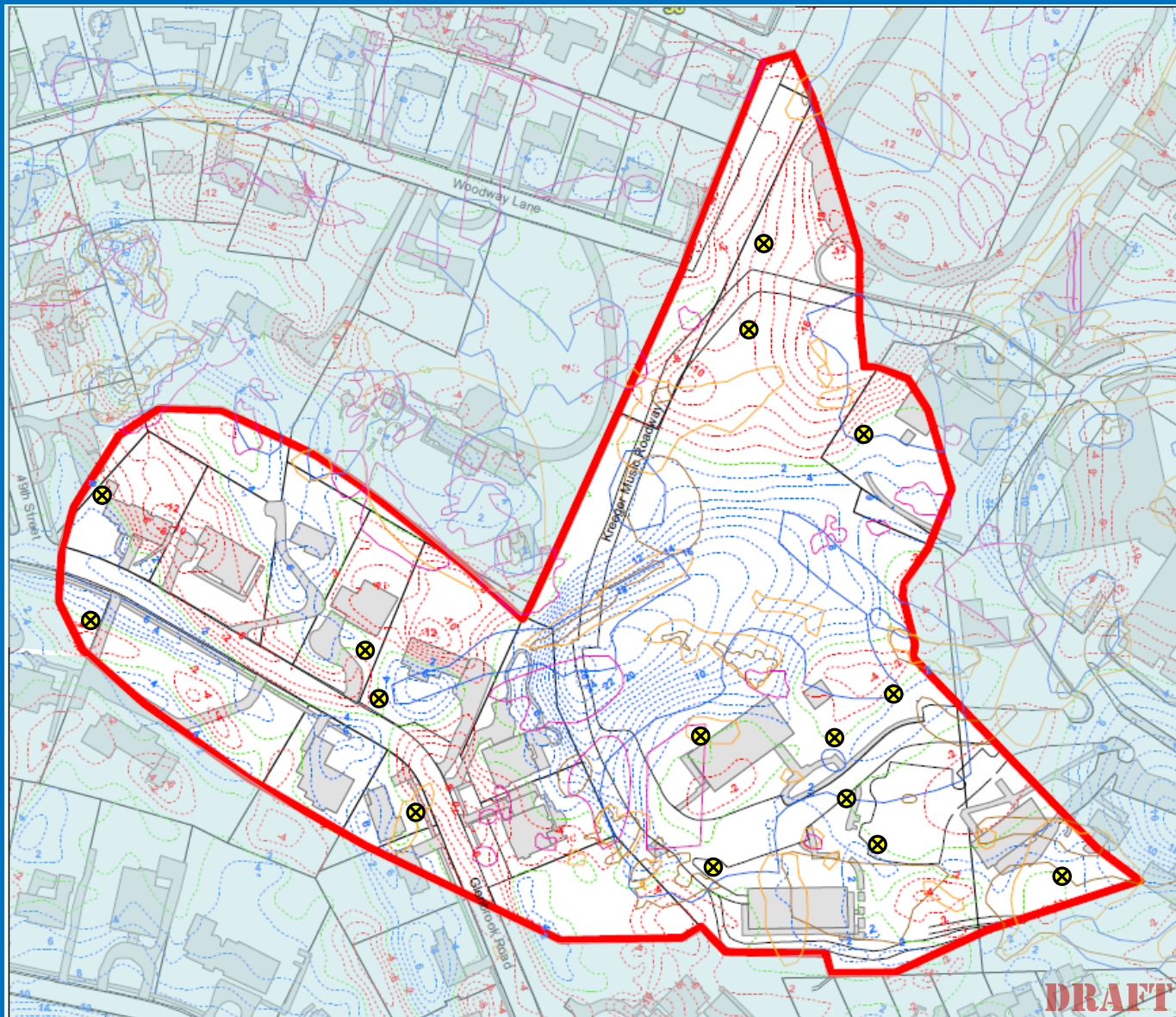


Figure 10
POIs 24, 53 and AU
Sample Location Map
(Sampling for Antimony)

Spring Valley FUDS
Washington, DC

Legend

Area of Interest (AOI)

Ground Scars

1918 ground scars

1922 ground scars

1927 ground scars

1928 ground scars

Cut & Fill

Cut

Level

Fill

Surface Soil Sample Location

Property Boundary

Buildings/Hardscape



0 100 200 400
Feet



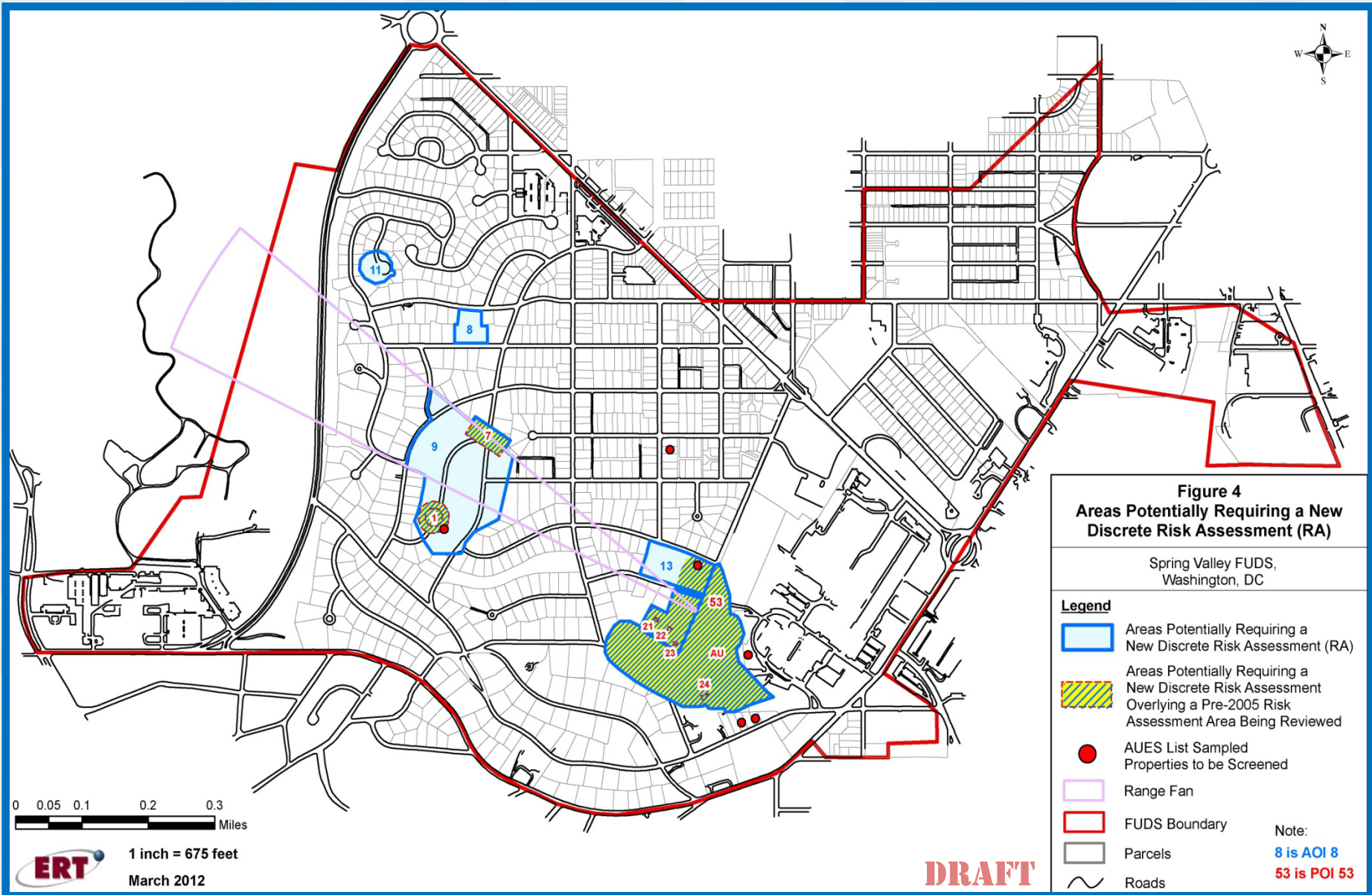
1 inch = 120 feet
June 2012

Supplemental Sampling (cont.)

- Remaining sampling efforts planned for Summer 2012.
- Following the sampling, risk screening will be completed using the sample results for each discrete AOI. If the screening indicates potential risk, a discrete HHRA will be completed for that area.



AREAS POTENTIALLY REQUIRING A NEW RISK ASSESSMENT



Verify Sufficiency

Pending the results of the pre-2008 HHRA reviews and the supplemental sampling to be completed, all SVFUDS areas have been adequately characterized for risk.

- The objective is to demonstrate the sufficiency of the existing data for assessing risk on a site-wide level, and provides justification for why limited sampling is sufficient for areas where there is no historical evidence of AUES activities.

Ultimately a Site-Wide HHRA that includes a summary of findings and conclusions based on the existing data sets, discrete HHRAs, and site history, will be presented in the Site-Wide Remedial Investigation report.



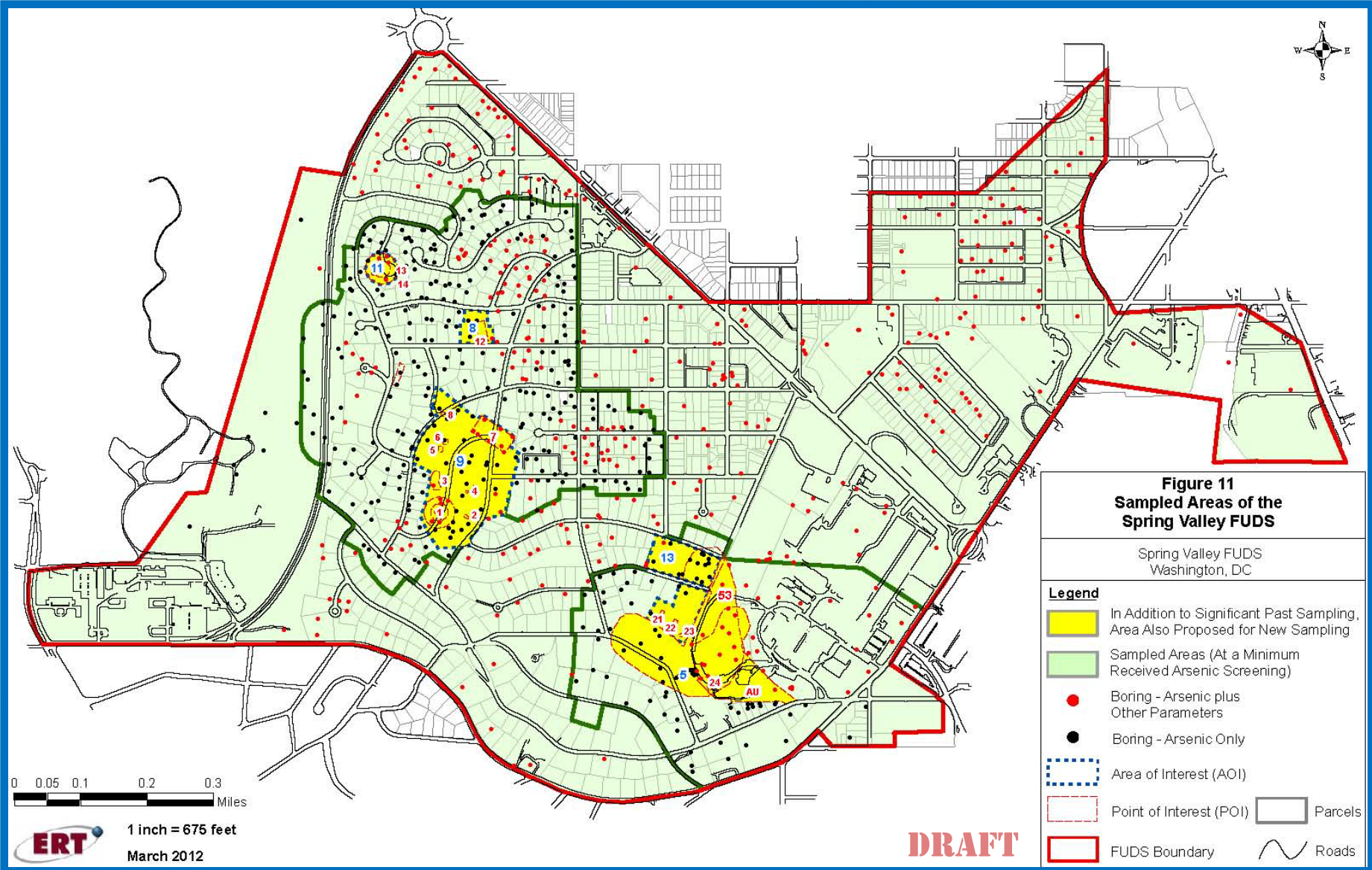
Verify Sufficiency (cont.)

- **More than 99% of all properties in the Spring Valley neighborhood have been sampled with more than 15,000 soil samples collected since the OSR FUDS RI (beginning in approx. 1993).**
 - Primarily analyzed for arsenic, but many samples were analyzed for a wider suite of parameters reflecting the AUES activity performed in that area.
- **The primary potential sources of contamination are the burial pits (Glenbrook Road, 52nd Court, & the Lot 18 disposal area).**

In addition to removing buried AUES-related items, the procedure was to thoroughly characterize the surrounding area with soil sampling and additional geophysics, as warranted; each of these areas has been (or is in the process of being) excavated to unimpacted soil and backfilled with clean soil.



SAMPLED AREAS OF THE SVFUDS



Verify Sufficiency (cont.)

USEPA guidance makes clear that sampling all areas of a site is neither possible nor recommended, and using site history to focus samples is standard, acceptable practice.

- **To assess the nature and extent of contamination, distinctions between historically impacted and unimpacted areas are made, as has been done with the establishment of POIs and AOIs.**
- **Where there is reasonable information, evidence, or data showing past AUES operations that have impacted an area, the Army's approach has been to investigate further.**
 - An exception has been potential arsenic contamination under city streets (based on the impracticality of tearing up city streets, and the lack of receptors to soils covered by a street).
- **Recurring reviews will address potential future new information or changed conditions.**



Spring Valley FUDS Restoration Advisory Board

- **Open Discussion**
- **Upcoming Agenda Items**
 - **4825 Glenbrook Road ATSDR Health Consultation Update**
 - **Spring Valley JHU Follow-On Health Study Update**
 - **??**



Spring Valley FUDS

Restoration Advisory Board

- **Public Comments**
- **Wrap-Up**



**U.S. Army Corps of Engineers
Spring Valley Restoration Advisory Board Meeting
St. David's Episcopal Church
Minutes of the June 12, 2012 RAB Meeting**

RESTORATION ADVISORY BOARD MEMBERS PRESENT AT THIS MEETING	
Dan Noble	Military Co-Chair/USACE, Spring Valley MMRP Manager
Greg Beumel	Community Co-Chair
Kathleen Connell	Community Member
Dr. Peter deFur (represented by Laura Williams)	Environmental Stewardship Concepts/RAB TAPP Consultant
Alma Gates	At Large Representative – Horace Mann Elementary School
William Krebs	Community Member
Lawrence Miller	Community Member
Lee Monsein	Community Member
Malcolm Pritzker	Community Member
James Sweeney	Agency Representative – District Department of the Environment
George Vassiliou	Community Member
John Wheeler	Community Member
RESTORATION ADVISORY BOARD MEMBERS NOT PRESENT AT THIS MEETING	
Mario Aguilar	Community Member
Mary Bresnahan	Community Member
Paul Dueffert	Community Member
Mary Douglas	Community Member
Steve Hirsh	Agency Representative- US Environmental Protection Agency Region III
ATTENDING PROJECT PERSONNEL	
Todd Beckwith	USACE, Spring Valley Project Manager
Lan Reeser	USACE, Technical Manager
Clem Gaines	USACE, Public Affairs
Andrea Takash	USACE, Public Affairs
Bill Hudson	US Environmental Protection Agency Region III, Public Affairs
Tom Bachovchin	ERT, Project Manager

Carrie Johnston	Spring Valley Community Outreach Program Manager
Betsey Hutton	Spring Valley Community Outreach Program
Jessica Bruland	ERT
HANDOUTS FROM THE MEETING	
I. Final Agenda for the June 12, 2012 RAB Meeting	
II. Army Corps of Engineers Presentation	

AGENDA

Starting Time: The June 12, 2012 RAB meeting began at 7:10 PM.

I. Administrative Items

A. Co-Chair Updates

Greg Beumel, Community Co-Chair, opened the meeting.

Dan Noble, Spring Valley Project Manager and Military Co-Chair, welcomed the group and reviewed the evening's agenda.

B. Introduce Guests

Officer McElwee of the District of Columbia Metropolitan Police Department 2nd District briefly attended the meeting. No questions were asked regarding the 2nd District's role in Spring Valley operations.

Laura Williams of Environmental Stewardship Concepts represented Dr. Peter deFur, RAB TAPP Consultant, at the meeting.

Bill Hudson of the US Environmental Protection Agency, Region III Public Affairs Office represented Steve Hirsh at the meeting.

C. General Announcements

D. Noble mentioned that Penny Pagano, At Large Representative for AU, recently retired from her position at American University. Interim fill-in individuals will represent AU at upcoming RAB meetings until a permanent replacement is selected.

D. Noble announced that recent website updates include the April 2012 RAB minutes and associated materials, along with the May 2012 monthly project summary. Updated AOI status maps are currently under review for accuracy and clarity and will be posted on the website soon. Preparation of these maps is in response to a community member request at the May 2012 RAB meeting.

D. Task Group Updates

One open RAB membership position is still available for interested members of the Spring Valley community.

II. USACE Updates

L. Reeser, USACE Technical Manager, provided an update on follow-on arsenic soil removal.

T. Beckwith, Spring Valley Project Manager, provided an update on the groundwater investigation.

D. Noble, Spring Valley Project Manager and Military Co-Chair, provided a brief status update on the Decision Document for 4825 Glenbrook Road and the associated Remedial Design and Remedial Action Work Plan.

A. Arsenic Removal

Arsenic Exceedances Associated with Soil Borings

All arsenic sampling results from the Spring Valley arsenic sampling and removal project were recently reviewed to determine whether any arsenic exceedances at depth (associated with soil borings) were inadvertently not addressed. (Details were provided at the February 2012 RAB meeting.)

A total of 2 soil borings containing slight arsenic exceedances at depth were identified as not previously addressed. These arsenic results were shared with the property owners to determine the path forward.

One elevated soil sample (22.8 ppm arsenic at a depth of 5 feet) was identified at a residential property on the 5100 block of Tilden Street. The property owner requested removal of the soil containing the slightly elevated arsenic. The Spring Valley Community Outreach Team will coordinate with the property owner to schedule the delineation soil sampling to determine the excavation extent as well as the soil removal effort.

The other slightly elevated soil sample (20.6 ppm arsenic at a depth of 3 feet) was located within Lot 44 on AU's campus, which is located near the front (northeast) of the Mary Graydon Center. AU chose to leave this arsenic exceedance in place. The interagency regulatory partners previously established that arsenic exceedances between 20 ppm and 43 ppm may be left in place without posing a human health hazard to preserve landscape or hardscape features.

B. Groundwater Investigation

[Previous groundwater study efforts were described at the November 2010 RAB meeting as well as various earlier RAB meetings. Additional planned groundwater study efforts were described at the May 2011 RAB meeting and various subsequent RAB meetings. Completed and upcoming groundwater study efforts were summarized at the January/February/March 2012 RAB meetings.]

Existing deep monitoring wells: In March 2012 sampling was completed at both recently installed deep wells: one on the 4900 block of Rockwood Parkway (MP-4) and one on the 4800 block of Glenbrook Road (MP-2), across the street from the 4825 Glenbrook Road site. Each FLUTE sampling liner is custom-made and constructed with sampling ports at specific well depth intervals that were selected by the interagency regulatory partners based on characterization of groundwater flow within the well.

Perchlorate and arsenic results from each sampling interval were compared to two groundwater screening criteria: EPA's perchlorate drinking water health advisory level of 15 ppb and EPA's arsenic maximum contaminant level (MCL) of 10 ppb. Non-detect results indicate that the measured concentration was below the measurement instrument's detection limit.

- At MP-4, all 9 sampling intervals were non-detect for perchlorate and arsenic. The shallowest sampling interval in this well extends from 42 to 49 feet deep. The deepest sampling interval extends from 180 to 190 feet deep.
- At MP-2, perchlorate detections ranged from 5.8 ppb to 27 ppb. Arsenic concentrations were fairly uniform and ranged from 7.5 ppb to 15 ppb. The presence of arsenic was not surprising based on historical arsenic detections in nearby wells, including MW-24/25, but the slightly elevated arsenic concentrations in deeper intervals were unusual because arsenic in Spring Valley groundwater is typically below the 10 ppb MCL. The shallowest sampling interval in this well extends from 35 to 44 feet deep. The deepest sampling interval extends from 145 to 160 feet deep.

Both wells extend to an approximate depth of 200 feet. The purpose of the deep groundwater study is to further characterize deep groundwater aquifer chemistry and flow patterns in this area.

MW-44: Installation and sampling of one additional well near Kreeger Hall on AU's campus was completed in March 2012. This well was originally intended to be a deep well drilled to a depth of 200 feet, but loose weathered bedrock was encountered during the drilling process and the borehole was at risk of collapsing inward onto the drill rods if the field teams drilled to the intended depth. The final well depth reached was 100 feet, and a traditional well screen was installed to allow sampling of groundwater between 80 and 85 feet deep.

- MW-44 was non-detect for arsenic, with a perchlorate detection of 34 ppb. (The field duplicate sample was also non-detect for arsenic, with an almost identical perchlorate detection of 33 ppb.) This perchlorate concentration is comparable to elevated perchlorate levels observed nearby at PZ-4D, which is screened for sampling at approximately 60 feet deep. This indicates that perchlorate-contaminated groundwater mixing appears to occur between 60 and 95 feet deep.

Isotopic Perchlorate Analysis: Two perchlorate samples were collected at AU's campus and near Sibley Hospital, where some of the highest perchlorate concentrations in the Spring Valley project area have been detected to date. The purpose of this effort is to determine whether these two perchlorate plumes originated from the same source. Perchlorate is comprised of chlorine and oxygen, and specific isotope ratios of these elements can reveal information about the perchlorate source. Receipt of analytical results is anticipated in August 2012, and these results will be presented to the RAB as early as September 2012.

Follow-on Efforts: Follow-on efforts are planned to provide additional groundwater investigation data.

All MP-2 intervals will be purged and re-sampled to confirm that arsenic and perchlorate detections are truly representative of groundwater chemistry in the aquifer, and to ensure that these detections were not influenced by well construction.

One additional deep monitoring well will be installed close to MW-44, with a planned well depth of 200 feet. The purpose of this well is to delineate the vertical extent of elevated perchlorate at depth in this area.

Question from Allen Hengst, Audience Member – Is it possible to drill additional monitoring wells on Glenbrook Road that extend deeper than 160 feet? This would be useful because elevated perchlorate was consistently detected in the deeper sampling intervals at MP-2.

T. Beckwith replied that this is certainly possible. The groundwater chemistry results at MP-2 were reviewed by the Partners, and the need for additional groundwater characterization efforts in this area will be discussed once MP-2 has been re-purged and re-sampled.

Question from K. Slowinski, Audience Member – Are you planning to purge and re-sample the new well in front of Kreeger Hall on the AU campus?

T. Beckwith replied that purging and re-sampling is planned only for the deep well on Glenbrook Road (MP-2) to ensure that the perchlorate and arsenic detections are representative of the groundwater chemistry. Purging and re-sampling of MW-44 does not appear to be warranted. The sampling results at MW-44 are consistent with nearby perchlorate detections at PZ-4D, and perchlorate concentrations at depth are not surprising due to the loose weathered bedrock that allows groundwater mixing.

C. Military Munitions Response Program

4825 Glenbrook Road (Decision Document; Remedial Design and Remedial Action Work Plan)

Tentative Document Schedule

Final 4825 Glenbrook Road CERCLA-related documents are posted on the Spring Valley Project website and are also available at the Spring Valley Information Repository at the Tenley-Friendship Branch Library. (Details of finalized documents were provided at the October 2011 and previous RAB meetings).

Decision Document (DD) authorization is approaching completion. (Details of the approval and concurrence process were provided at the April 2012 RAB meeting). The DD is currently under review by the Deputy Assistant Secretary of the Army (DASA) for Environment, Safety, and Occupational Health, whose final approval and signature are anticipated in early July 2012. The DASA's office recently requested language modifications in the document to provide further clarification, and USACE Headquarters and the Spring Valley Project Team are working to ensure timely completion of these modifications.

[The following information was previously presented at the May 2012 RAB meeting.]

Upon final signature, the DD will be made available electronically on the Spring Valley project website and hard copies will be available at the Tenley-Friendship Branch Library. The DD formally selects Alternative 5 (removal of the house and cleanup to residential standards providing for unrestricted future use of the property) as the cleanup alternative for the 4825 Glenbrook Road site and includes the transcript of the November 2011 Proposed Plan public meeting and the Responsiveness Summary containing USACE's responses to all comments received during the public comment period. A fact sheet will also be provided on the Spring Valley website and at the local library, to explain the key elements (purpose, organization, and contents) of the DD as well as the next steps prior to cleaning up the property. Similar fact sheets were prepared previously for other finalized 4825 Glenbrook Road CERCLA-related documents.

The Demolition and Disposal Plan (for removing and disposing of the 4825 Glenbrook Road house) was finalized in February 2012. The details of this plan were presented at the March 2012 RAB meeting. This document will be made available on the Spring Valley project website and at the Tenley-Friendship Branch Library.

Preparation of the final Remedial Design and Remedial Action Work Plan (which details how the selected cleanup alternative will be implemented) is underway. The work plan will be supported by Site Safety and Public Protection Plans. The work plan was reviewed by the regulatory partners, with discussions underway, and work plan finalization is anticipated in August 2012. An informational community meeting is tentatively planned in July 2012, prior to beginning cleanup activities at the site.

Remedial Design and Remedial Action Work Plan

Details of the 4825 Glenbrook Road remedial design and remedial action work plan (describing intrusive activities designed to achieve remedial objectives) were presented at the May 2012 RAB meeting.

Tentative Remedial Action Schedule: Remedial action will tentatively begin in Summer 2012 and continue through late 2013. The length of the cleanup process depends on the remediation methodologies outlined in the work plan. Site access logistics and right-of-entry negotiations are in progress.

House demolition is anticipated to begin in August 2012, followed by initial low probability efforts in Summer 2012 (including the 7 backyard test pits and utility rerouting, which requires digging an L-shaped trench). High probability site preparations and soil removal will tentatively begin in October 2012, with completion anticipated in Summer 2013, barring additional delays. The remaining low probability soil removal actions for Areas A/B (in the backyard of the property and along the 4835/4825 Glenbrook Road property boundary) will be conducted in late 2013, followed by site restoration. The remediated property will be returned to AU as early as December 2013.

Question from Kathleen Connell, RAB Member – What Decision Document amendments are required?

D. Noble clarified that these modifications consist of language clarifications requested by a U.S. Army legal reviewer, rather than amendments. Multiple U.S. Army offices are collaborating to clarify the language in the document.

Question from K. Connell, RAB Member – What is the worst-case scenario for obtaining the final signature?

D. Noble replied that specific predictions are difficult to make. He expressed confidence that the final signature will be obtained soon.

Suggestion from K. Connell, RAB Member – I would like to suggest that if the final signature is not obtained by a certain time frame, this issue should be raised to a higher authority level. It seems ridiculous that this has become a bureaucratic decision that has been delayed for an extended time frame. Obtaining the final signature does not appear to be a major task unless there is an associated legal impediment that has not been shared with the RAB.

D. Noble explained that he would not necessarily agree that this is a standard type of signature to procure. Most of the U.S. Army departments reached an agreement in principle on the Decision Document contents a while ago, and it requires significant time to review the document and obtain the final signature.

Question from Malcolm Pritzker, RAB Member – Who is conducting the review of the document language and making the required changes?

D. Noble replied that the language clarifications are being requested and reviewed by the Office of General Counsel for the U.S. Army at the Pentagon.

M. Pritzker asked whether a single individual is conducting this review, or whether a lower-level attorney is making the changes followed by higher-level attorney review.

D. Noble explained that there appears to be a single attorney who speaks for that office on this topic.

Question from M. Pritzker, RAB Member – Do you know what the specific language clarifications are?

D. Noble explained that two issues were raised by the U.S. Army chain of command.

First, the Decision Document language needs to clearly define how FUDS funding will be spent with respect to compensation for the 4825 Glenbrook Road house. They requested that the term ‘reimbursement’ be changed to ‘compensation for damage.’

Second, the Decision Document language needs to clearly state that FUDS funding will be spent on addressing hazardous substances at the property. The document should not create the impression that some of this funding will be dedicated to cleaning up non-hazardous substances. Specifically, the language must clarify that cleanup of all non-hazardous materials such as soil and demolition debris is necessary in order to fully address hazardous materials at the site.

Comment from M. Pritzker, RAB Member – These language clarifications sound stylistic and descriptive rather than affecting the substance of the document. The descriptions of site actions will be modified rather than modifying the planned site actions themselves.

D. Noble agreed with this statement. The same U.S. Army offices reviewed and approved the document’s overall contents during the Proposed Plan stage, with few concerns regarding specific planned actions. The Decision Document for 4825 Glenbrook Road is an important project decision document containing language that should be as accurate as possible.

Question from K. Connell, RAB Member – How long has the DASA’s office had the document available for review?

D. Noble replied that the USACE forwarded the Decision Document to the DASA’s office in March 2012.

Question from K. Slowinski, Audience Member – Have USACE and AU arrived at an agreement on the amount of compensation for demolishing the 4825 Glenbrook Road house?

D. Noble clarified that a lease or real estate agreement has not been agreed upon at this time. This agreement is anticipated by August 2012, after the Decision Document's final signature and approval and prior to house demolition.

Question from Nan Wells, ANC3D Commissioner – Will the Decision Document's final signature impact the planned public meeting? The tentative meeting time frame continues to slip further into the future but needs to be held prior to house demolition. I have expressed these concerns previously, and I feel that it is critical that the public meeting be held prior to August 2012.

D. Noble replied that USACE will be able to better address the public meeting schedule once the Decision Document's final signature is received. USACE mentioned the goal is to have the public meeting in mid-July, but it is also important to accommodate the property owner's request for demolishing the house within a certain time frame.

N. Wells asked whether the public meeting date can be scheduled now.

D. Noble clarified that USACE feels it is not appropriate to schedule the public meeting and present the house demolition and remedial action plans prior to final approval and signature of the Decision Document.

Question from K. Connell, RAB Member – How much notice is USACE required to provide to the community when scheduling this type of public meeting?

D. Noble clarified that there are no notice requirements for this particular public meeting, but ideally a time frame of two weeks would be deemed sufficient for advertising the meeting date and location to the public.

K. Connell noted that this two week estimate means that the Decision Document must be finalized and the public meeting announced in mid-July (approximately July 10) if the public meeting is to be held prior to the beginning of August. This becomes the finite date by which the U.S. Army superiors should be encouraged to respond with the final Decision Document approval and signature.

Question from William Krebs, RAB Member – Is the public meeting schedule affected by negotiations with AU, or is it simply related to the Decision Document finalization process?

D. Noble explained that the negotiations with AU reflect a separate timeline that does not directly impact the public meeting schedule. All remaining AU concerns are being evaluated and addressed internally prior to fully engaging in the negotiation process. USACE is prepared to discuss this topic with AU as soon as they are ready.

III. Community Items

A. Evaluation of Remaining Site-Wide Sampling Requirements

Tom Bachovchin, Earth Resources Technology (ERT), presented an overview of the Evaluation of Remaining Site-Wide Sampling Requirements document. T. Bachovchin has been involved with the Spring Valley project since 1993.

This presentation serves as a follow-up to the Areas of Interest (AOIs) presentation given by Lan Reeser, USACE Technical Manager, at the May 2012 RAB meeting. As described at the May 2012 RAB meeting, the site-wide remedial investigation (RI) report for the Spring Valley FUDS is currently in the early stages of preparation. Additional soil sampling is proposed at several Areas of Interest (AOIs) to provide additional data for analysis within the RI report.

This presentation describes where and how the additional proposed sampling will be conducted at the selected AOIs.

Introduction: Many investigation and sampling efforts have been performed at the Spring Valley FUDS during almost two decades of ongoing project activity, beginning in 1993. Based on the data generated from these investigative efforts, numerous risk assessment documents have been completed or are under currently being prepared by multiple contractors. These documents include several discrete Human Health Risk Assessments (HHRAs) for individual areas within the project site, a site-wide ecological risk assessment, and a site-wide groundwater risk assessment.

Objective: In February 2010, the Spring Valley Partners met to discuss and provide comments on the proposed strategy for organizing and assessing existing site information, evaluating the need for additional data, and integrating this information into a cohesive plan. The path forward for resolving these issues was outlined in a Position Paper, which was finalized in March 2010 with the stated objective to address the integration of Spring Valley FUDS risk assessment issues on a site-wide basis.

Evaluation Document: The final site-wide evaluation document, called the Evaluation of Remaining Sampling Requirements, focuses on three key issues. These issues are detailed in Sections 2.0, 3.0, and 4.0 of the document and are summarized below.

Section 2.0 – Review of previous (pre-2005) HHRAs

Previous (pre-2008) HHRAs will be evaluated to assess whether their conclusions and resulting remedial actions remain protective of human health. Specifically, these HHRA conclusions will be evaluated with respect to updated USEPA guidance on exposure assumptions, toxicological values, and comparison standards. These values may have changed since the previous HHRAs were completed, and risk conclusions based on outdated values can impact human health.

Updates to the previous HHRAs could result in some changes to the prior HHRA conclusions. All possible impacts will be discussed in the HHRA review, which will qualitatively evaluate whether more recent changes in exposure assumptions, toxicity values, and/or comparison standards would result in higher or lower risk estimates. If a screening level has been lowered, then additional chemicals may be selected as COPCs, while a higher screening level could result in fewer chemicals selected as COPCs. If the toxicity value for a particular chemical has been increased or decreased, and if that chemical was a significant contributor to risk in the previous HHRAs, then this may influence the updated risk results. Additional sampling may be proposed as needed.

A total of 5 HHRAs will be reviewed. These include:

- **USACE's OSR FUDS HHRA (1995 RI)** – The purpose of this HHRA was to evaluate the potential risks to human health and the environment from residual chemical contamination resulting from historical AUES activities in the OSR FUDS.
- **USACE's HHRA for Spaulding and Captain Rankin Areas (RI Report, 1996)** – This HHRA was part of the Engineering Evaluation/Cost Analysis (EE/CA) that was performed for the Spaulding and Captain Rankin Areas (Operable Unit 2) to determine how to address the soil and material contained within the former shell pits and surrounding areas. The HHRA concluded that the only compounds identified that posed an unacceptable risk to human health were lead and arsenic in the soil.
- **USEPA Region III's HHRA (1999)** – The purpose of this HHRA was to evaluate the toxicity posed by chemical substances in soil and to describe the exposure routes by which humans may come into contact with these substances at the SVFUDS. USEPA split the 1995 OSR FUDS RI soil samples with USACE instead of conducting a separate sampling effort. A total of 16 locations were sampled throughout Spring Valley and American University property.

- **USEPA Region III's American University HHRA (2000)** – The purpose of this HHRA was to evaluate the potential risk to human health from exposures to metals in soil at the southern portion of the AU property.
- **USACE's HHRA for the 4801 Glenbrook Road property (2000)** – This HHRA was part of the EE/CA for Operable Unit 3 for 4801 Glenbrook Road, and also addressed the 4825 and 4835 Glenbrook Road properties (The assessment of risk at 4825 Glenbrook Road is superseded by the more recent risk assessment completed as part of the site-specific Remedial Investigation report in 2011. Similarly, the April 2002 HHRA for the 4835 Glenbrook Road property is superseded by the more recent 2009 risk assessment version.)

This HHRA review also includes the results of the AUES parameter list soil sampling, which was performed as part of the 2003 EE/CA, and which consists of 50 soil samples across a total of 9 properties.

USEPA guidance on exposure assumptions, toxicological values, and comparison standards will be consulted.

- **Exposure assumptions** for each exposure pathway evaluated in the previous HHRAs will be thoroughly reviewed in the context of USEPA risk assessment guidance published since 2000. For all exposure pathways, both the Exposure Factors Handbook 2011 Edition (Final) (USEPA, 2011) and the Child-Specific Exposure Factors Handbook (Final Report) (USEPA, 2008) will be reviewed to determine if any changes are applicable to the Spring Valley FUDS HHRAs. Values or rates for several factors (incidental soil ingestion, dermal contact, ingestion of homegrown vegetables, and particulate inhalation) will be reviewed for changes and assessed for impacts on human health risks. For example, the previous incidental soil ingestion rate was 480 mg/day, while the updated value is 330 mg/day.
- **Toxicity values** that were used to quantify the potential risks associated with selected chemicals of potential concern (COPCs) in the previous HHRAs will be reviewed and updated as necessary. The HHRA review will conform to the hierarchy of toxicity values that USEPA uses during the development of their Regional Screening Levels (RSLs).
- **Comparison standards** such as USEPA RSLs are developed for multiple exposure pathways and for chemicals with both carcinogenic and non-carcinogenic effects. Screening levels were used in previous HHRAs to select COPCs, and the most recent USEPA RSLs table (released in May 2012) will be reviewed to determine if there have been any changes to the screening levels used in the previous HHRAs. Screening will also rely on USACE's 2008 Soil Background Sampling study, where appropriate. After risks are calculated in an HHRA, the estimated risks are compared to USEPA's acceptable levels of risk. These acceptable levels have not changed since the publication of the previous HHRAs. For non-carcinogens, the target hazard index (HI) is less than or equal to 1. In cases where the HI exceeds 1, the Hazard Indices are segregated by target organ and associated critical effect and then compared to an HI of 1. For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen, and are compared to USEPA's acceptable risk range of 1×10^{-4} to 1×10^{-6} .

Section 3.0 – Supplemental soil sampling within AOIs

Supplemental soil sampling within AOIs will be conducted in areas known to require additional data. The objective of the supplemental sampling is to fill the identified data gaps and ensure that areas are fully characterized with regard to making conclusions about risk posed to human or ecological receptors.

Further sampling in these areas was recommended by the Area of Interest Task Force (AOITF), which was a subcommittee of the partnering process between USACE, USEPA and DDOE with participation from the RAB's technical advisor. The AOITF reviewed potential AOIs that were derived from historical

AUES impacts not addressed in ongoing investigations, or possible data gaps, and made recommendations for additional investigation as needed. Using these AOITF reports, USACE presented final recommendations to the Partners for further action for each AOI. Followed by review, discussion, and revision of these recommendations, the Partners formalized the path forward for further investigation in AOI Consensus Memoranda. These memoranda, which describe the detailed background and rationale for supplemental sampling at each AOI, will be included in the final evaluation document.

Additional soil sampling and evaluation are planned at a total of 5 discrete areas. These include:

- **AOI 8 (Possible Graded Area)** (POI 12) and **AOI 11 (52nd Court Pit and Trenches)** (POIs 13 and 14) were sampled for the Spring Valley Comprehensive List (not including arsenic) under an approved work plan.
 - A total of 4 surface soil samples were collected at AOI 8 (associated with the 1918 soil horizon and historical ground scars). A total of 6 surface and subsurface soil samples were collected at AOI 11 (associated with the former burial pit at 52nd Court, historical ground scars, and anecdotal information about stressed vegetation in the area). Validated analytical results for the full AUES parameter list were received. A formal risk evaluation for both AOIs is pending.
- **AOI 9 (Sedgwick Ground Scars)** will be sampled for antimony at the POI 7/7R location.
 - A total of 10 surface soil samples are proposed at the 1918 soil horizon.
- **AOI 13 (Quebec/Woodway 13)** will be sampled for the Spring Valley Comprehensive List (not including arsenic).
 - A total of 5 surface soil samples are proposed at the 1918 soil horizon. The formal risk evaluation will also include preliminary screening results from soil samples that were recently collected during anomaly investigations at these properties.
- **AOI 22 (Mercury Detection Areas)** and **AOI 24 (Antimony Detection Areas)**, which include POIs 21, 22, and 23, will be sampled for nickel and thallium and for SVFUDS metals (not including arsenic) near the 1995 RI boring locations at a property on the 4700 block of Woodway Lane. These AOIs are defined by their mercury and antimony exceedances, and not geographically.
 - A total of 5 surface soil samples are proposed in the backyard at the 1918 soil horizon. A total of 7 co-located surface/subsurface samples are proposed in the front yard to reflect the 1995 RI sidescan boring locations and the zone of current surface soil exposure.
- **AOI 22 and 24** (at POIs AU, 24, and 53, on the southern portion of AU property) will be sampled for antimony.
 - A total of 15 samples (14 surface and 1 subsurface) are proposed in areas where significant soil removal has not occurred to ensure that sampling results do not represent clean backfill. These samples reflect the 1918 soil horizon, which primarily lies at the ground surface.

A total of 49 soil samples are proposed at 18 individual properties (not including samples that were previously collected or duplicate samples that meet QA/QC requirements). The Community Outreach Team is currently pursuing rights-of-entry for the selected properties. Following the sampling, risk screening will be completed on the sample results for each Area of Interest. Should the screening indicate potential risk, a discrete HHRA will be completed for that area.

Section 4.0 – Justification of sufficient sampling

Justification of sufficient sampling (including existing and proposed supplemental sampling) is necessary to ensure adequate characterization of the Spring Valley FUDS.

The Army's current position regarding sampling sufficiency is that, pending the results of the pre-2008 HHRA reviews and the supplemental sampling to be completed, all SVFUDS areas have been adequately characterized for risk. A Site-Wide HHRA that includes a summary of findings and conclusions (based on the existing data sets, discrete HHRAs, and site history) will be presented in the Site-Wide Remedial Investigation report. Recurring 5-year reviews of updated cleanup guidance will address potential future new information or changed conditions.

To date, more than 99 percent of all properties in the Spring Valley neighborhood have received some level of soil sampling. Arsenic was the primary focus, but many samples were analyzed for a wider suite of parameters reflecting the specific AUES activities that took place in that area. A conservative estimate of the number of soil samples collected within the SVFUDS since the OSR FUDS RI (beginning in approximately 1993) is more than 15,000. Additional sampling is planned as described earlier.

The primary potential sources of contamination in the Spring Valley project area are the burial pits (4825 Glenbrook Road, 52nd Court, and the Lot 18 disposal area). In addition to removing buried AUES-related items, the procedure was to thoroughly characterize the surrounding area with soil sampling and additional geophysics as needed. Each of these areas has been (or is in the process of being) excavated and backfilled with clean soil.

CERCLA does not require that a responsible party sample all areas of a site, and USEPA guidance clearly indicates that sampling everywhere is neither possible nor recommended. Instead, the nature and extent of contamination is typically assessed by examining site history and distinguishing between historically impacted areas and unimpacted areas, which was accomplished with the designation of POIs and AOIs. The Army's approach has been to investigate further in areas with reasonable evidence of past AUES activities, and no sampling is proposed in areas that lack evidence of past AUES activities impacting the area. The exception to this rule is potential arsenic contamination under city streets (based on the impracticality of tearing up streets, and the lack of human exposure to soils underneath the street).

Tentative Schedule: Evaluation document finalization will be followed by supplemental soil sampling efforts planned for Summer 2012.

Question from K. Connell, RAB Member – What is the matrix that is used to determine whether potential health risks are high enough to require additional screening?

T. Bachovchin replied that there is a very formal risk screening process that uses a hierarchy of comparison standards, including USEPA's newest regional screening levels (RSLs) and Spring valley background soil values that were obtained in 2008. For example, if antimony concentrations are below the lowest available comparison standard then it can be screened out, but significant elevated antimony concentrations would require further evaluation and risk assessment.

Question from K. Connell, RAB Member – How long does the risk assessment process take? Have you ever conducted risk assessments for this site?

T. Bachovchin confirmed that he has experience conducting risk assessments. He explained that the estimated time frame required for sampling, laboratory analysis, and data review is dependent upon the size of the area and the number of samples involved. If samples are collected for a single parameter (e.g. antimony), the analytical results are received within a few weeks followed by an additional few weeks for data validation, and then risk evaluations are completed within a few months. If samples are analyzed for the comprehensive Spring Valley parameter list, which includes a couple of hundred chemicals, then a time frame of many months is required to validate and assess the data.

Question from Lee Monsein, RAB Member – This is a philosophical question for which there may not be a good answer. The USEPA recently suggested that significantly lower arsenic concentrations are dangerous to human health. In the past, their calculations showed that 20 ppm arsenic in soil or 10 ppb arsenic in groundwater would achieve the acceptable cancer risk of 1 in 10,000 individuals. New calculations, which are based on bladder cancer data, suggest that the acceptable concentrations are far smaller (such as 0.1 ppb arsenic in groundwater). Philosophically, this would mean that the Spring Valley soil cleanup level of 20 ppm arsenic would be irrelevant, and future acceptable concentrations may continue to drop to even more stringent and unattainable levels.

T. Bachovchin replied that he is aware of the potential significant change to acceptable arsenic levels in soil, and added that he is a geologist rather than a risk assessor or toxicologist. Based on his knowledge of the pending change, the new arsenic concentration may be roughly 15 to 17 times more stringent than the current value, but the value remains in USEPA's proposal stage and is a long way from being finalized.

L. Monsein noted that USEPA's calculations appear to be complete and available to review in preliminary documents. He asked what would be the best course of action in this situation, regardless of the specific value of the new arsenic limit. If the arsenic value drops significantly, then 20 ppm arsenic in soil will present a much higher cancer risk than the acceptable 1 in 10,000 individuals as defined by USEPA. In general, the U.S. Army and the Spring Valley project managers must be aware that the current 20 ppm arsenic cleanup level will change soon, and they must be prepared to address this interesting problem for the community.

T. Bachovchin agreed that this presents an interesting issue, but he is not in a position to respond to this philosophical question. USEPA RSLs are typically released twice yearly, potentially resulting in new cleanup values every 6 months, and this provides a constantly moving target for those writing site reports. The Spring Valley project will likely have the standard 5-year recurring review process, during which arsenic cleanup levels will have to be re-examined.

L. Monsein inquired about the potential impacts if there are significant changes to USEPA RSLs.

Laura Williams noted that this change is a major issue for Superfund sites where Dr. Peter deFur has been involved. They are not equipped to adopt these new values because it can temporarily suspend cleanup efforts and cause delays at Superfund sites across the country.

Comment from N. Wells, ANC3D Commissioner – This is not simply a philosophical discussion, as revised cleanup standards for protection of human health is an important topic for the community. An EPA presentation on the new arsenic cleanup standard would be valuable, because the existing arsenic levels in soil will remain in the community, and it is important for residents to know if lower arsenic levels are now considered hazardous.

Bill Hudson from EPA mentioned that, according to S. Hirsh, a USEPA toxicologist can be invited to speak on this topic.

Question from K. Connell, RAB Member – When a residential property was sampled for arsenic-contaminated soil, did the arsenic results letter simply state that the results were below 20 ppm or below?

J. Wheeler replied that the arsenic results letter contained the actual detected arsenic concentrations.

D. Noble added that although actual screening values were provided in the arsenic letter, the initial sampling results represented a composite of the front yard, the back yard, or a specific quadrant of the property (depending on the property size). The associated EE/CA provides the details of how the composite arsenic results were compared to the representative background arsenic value.

Question from G. Vassiliou, RAB Member – Does the U.S. Army have a potential set of outcomes that will result from EPA's revised arsenic cleanup standards? Will you re-sample additional areas for arsenic, find exceedances, clean up those areas and then assess the associated risks?

L. Miller noted that this is more of a hypothetical question until the new arsenic value is available. Hypothetical and real life concerns regarding arsenic can collide, as natural background levels of arsenic may be characterized as ‘dangerous’ even though they are unrelated to historical FUDS activities.

Question from M. Pritzker, RAB Member – How can you use the word ‘final’ to describe risk assessment decisions if you are constantly dealing with a moving cleanup target that takes several years to develop?

D. Noble acknowledged the complexity of this issue and explained that this is the rationale for conducting 5-year reviews at FUDS sites. Once risk assessment decisions and planned remedial actions are finalized, any changes to cleanup guidance documentation will be reviewed every 5 years to determine whether they have a significant impact on human health at the site.

M. Pritzker pointed out that the word ‘current’ would better describe these decisions compared to the word ‘final.’ The current risk assessment conclusions for the first 5-year period may be superseded by conclusions during the next 5-year period, and it is uncertain how many 5-year review periods will occur for Spring Valley before the revised arsenic cleanup level is approved.

D. Noble explained that a minimum number of automatic 5-year reviews are automatically planned for each site. For example, 6 reviews are planned for the Spring Valley project providing a 30-year total time frame. Additional reviews may be required beyond this general planning number, and USACE has repeatedly said that they will never completely leave a FUDS project site

Question from N. Wells, ANC3D Commissioner – Are the previous (pre-2008) HHRAs available on the project website?

D. Noble replied that he believes most of these HHRAs are publicly available on the project website.

Question from N. Wells, ANC3D Commissioner – Will the site-wide risk assessment address combined risks of multiple metals, or do you evaluate metals individually? From what I understand, the combination of multiple chemical exposures presents a greater health threat or hazard.

T. Bachovchin explained that the supplemental sampling effort is designed to target specific data gaps. In some areas, a single metal such as antimony is driving the need to collect additional samples. In other areas where samples are analyzed for the comprehensive Spring Valley parameter list, the cumulative effect of multiple chemicals is a standard part of the risk assessment process.

Comment from L. Monsein, RAB Member – I don’t think that any of the previous HHRAs took chemical interactions and compound effects into account. I am unaware of any HHRAs that evaluate risks of exposure to specific combined sets of metals or other chemicals.

G. Beumel clarified that additive risks are calculated if the contaminants affect the same organ. For example, if two metals both affect kidney function, then the two separate exposure risks are added together to calculate the total exposure effect. In contrast, there are currently no techniques to assess combined effects of metals on different organs (e.g., the effect of a single metal on kidneys and lungs).

Question from K. Slowinski, Audience Member –When you collect samples at the 1918 soil horizon, do you take discrete samples from the entire 1-foot boring or do you only sample a percentage of the boring?

T. Bachovchin explained that the 1918 soil horizon is usually located at ground surface, so most samples will be collected at the surface using a discrete interval of 0 to 6 inches.

G. Beumel, Community Co-chair clarified the question: If you collect a 1-foot soil boring, do you mix and analyze the entire amount of collected soil, or do you simply mix 1 inch of soil from the top and 1 inch of soil from the bottom together for analysis? Which method is appropriate in your professional opinion?

T. Bachovchin replied that the specific sampling approach, including the number of jars that need to be filled with soil, depends on the sampling objectives and the analytes of interest. Discrete surface samples

(consisting of the top 0 to 6 inches of soil) will be collected for the supplemental sampling effort. In the few locations where subsurface samples are proposed, the specific methodology remains to be determined, and will potentially use a hand auger or a direct push with sleeve.

Question from K. Slowinski, Audience Member – In areas such as the 52nd Court trench, the 1918 soil horizon would be located approximately 6 feet deep. Do you plan to collect samples at this location?

T. Bachovchin clarified that subsurface samples associated with the former disposal pit have already been collected and analyzed as part of the AOI 11 sampling effort.

L. Reeser and T. Bachovchin added that samples collected at the 52nd Court circular trenches were analyzed for the full AUES parameter suite, including discrete subsurface samples at the 1918 soil horizon.

Question from K. Slowinski, Audience Member – Were lewisite breakdown products detected in the 52nd Court trench?

L. Reeser clarified that this contaminant was not detected in the 52nd Court trench.

Question from K. Slowinski, Audience Member – Has there been any discussion about bringing back the Mayor's science advisory panel?

G. Beumel clarified that the RAB does not have an impact on whether the Mayor chooses to reinstate the science advisory panel.

Question from K. Slowinski, Audience Member – The Mayor's science advisory panel, which was involved in the Spring Valley project during the 2001-2002 time frame, included experts who were familiar with arsenic issues. Have you discussed the possibility of bringing this panel back to review the HHRA documents? There is also an opportunity to bring someone from Dartmouth who has experience with multiple exposures at Superfund sites.

D. Noble clarified that Spring Valley is not a research site; the USACE is conducting an investigation and clean-up through use of published guidance. University research and other "cutting-edge" techniques will not assist the USACE in its obligation to conduct a clean-up according to published CERCLA and FUDS guidance. The project team adheres to USEPA and DDOE guidance and refers to published guidance documents when decisions need to be made at CERCLA sites. Methods and techniques used for the Spring Valley project have been approved by USEPA for use in determining human health and ecological risks at sites nationwide.

IV. Open Discussion and Agenda Development

A. Next Meeting: Tuesday, July 17, 2012

Upcoming meetings will be held in July and September 2012.

RAB meetings are not held in August or December.

B. Future agenda topics

- Spring Valley Follow-On Health Study Update (Johns Hopkins University)
- Update on the ATSDR Health Consultation for 4825 Glenbrook Road
- Upcoming Revisions to the Arsenic Cleanup Standard (USEPA Toxicologist)

C. Open Discussion

No additional topics were discussed.

VI. Adjourn

The meeting was adjourned at 8:45 PM.