

**Spring Valley Partnering Meeting  
February 25-26, 2008  
Spring Valley Trailer Conference Room**

Name	Organization/Address	Mon., Feb. 25	Tues., Feb. 26
Jorge Abud	American University		
Richard Albright	DDOE		
Allyn Allison	CEHNC	X	
Tom Bachovchin	Parsons	X	
Mark Baker	CENAB-PL		
Jim Baron	CENAB-EN		
Thad Bergling	CENAB-EN		
Deepak Bhinge	Parsons	X	
Frank Bochnowicz	CENAB-EN		
Bethany Bridgham	American University	X	
Jessica Bruland	ERT	X	X
Paul Chrostowski	CPF Associates, AU Consultant	X	X
Tom Colozza	CENAB-EN		X
Joyce Conant	CENAB-PA		
Maya Courtney	ERT	X	X
Kathy Davies	US EPA Region 3		X
Dr. Peter deFur	Environmental Stewardship Concepts/RAB TAPP Consultant	X – by telephone	X
Mary Dina	Weston Solutions, Inc.	X	X
Diane Douglas	DDOE		X
Bill Eaton	URS		X
Chris Evans	CENAB-EN	X	
Alma Gates	ANC3D Commissioner	X	X
John Gerhard	Weston Solutions, Inc.		

<b>Name</b>	<b>Organization/Address</b>	<b>Mon., Feb. 25</b>	<b>Tues., Feb. 26</b>
Steve Hirsh	US EPA Region 3	X	X
Demaree Hopkins	Weston Solutions, Inc.		
Ed Hughes	CENAB-EN	X	X
Carrie Johnston	RCAI	X	X
Sarah Meyers	Parsons	X	
Cherie Miller	USGS		
Dan Noble	CENAB-EN	X	
Randall Patrick	Parsons	X	
Lan Reeser	CENAB-EN	X	X
Mike Rehmert	Tech Escort		
Billy Sanders	CENAB-EN		
Jennie Saxe	US EPA Region 3		
Andy Schwartz	CEHNC	X – by telephone	
Allen M. Shapiro	USGS		X
Tom Smith	ANC3D Commissioner		X
Ann Spiesman	Washington Aqueduct		X
Jim Sweeney	DDOE	X	X
Amy Walker	CEHNC		
Nan Wells	ANC3D Commissioner	X	X
Bruce Whisenant	CEHNC	X	
John Williams	Weston Solutions, Inc.	X	
Doug Yeskis	USGS		X

### **Summary of February 25-26, 2008 Partnering Meeting**

#### **Consensus Decisions**

- The Partners signed the revised Glenbrook Road/Rockwood Pkwy corner property ARB Memorandum recommending that all 66 anomalies along Glenbrook Road be intrusively investigated.

#### **Action Items**

- USACE-Baltimore will ask its legal department about incorporating the phytoremediation study results into the Action Memorandum and/or EE/CA.
- The Partners agreed to test the use of a USACE-developed algorithm to categorize anomalies at Spring Valley.

### **Monday, February 25, 2008**

#### **Check-in**

The Partners conducted their normal check-in procedure which includes introducing new attendees, completing personal check-ins, and reviewing the Partnering meeting ground rules.

#### **A. 4825 Glenbrook Road Pit 3 High Probability Investigation Progress Update**

**The goal of this segment of the meeting was to present an update of the Pit 3 activities.**

Parsons presented the following information about site progress and provided a handout.

**A Summary of Intrusive Effort at 4825 Glenbrook Road** was presented.

As of February 22, 2008, 675 drums of soil (130 cubic yards (CY)) had been removed. All drum samples were cleared for on-site headspace and low level extraction for agent/agent breakdown product (ABP) and ricin, then taken to GPL for Toxicity Characteristic Leaching Procedure (TCLP) analysis. TCLP data were received on 429 drums and all were non-hazardous. Five Roll-off Containers (300 drums) were shipped off-site to date.

**Non-munitions scrap items** removed from the site from January 23 through February 22, 2008 included: pipes with one end cap, glass, a drum fragment, a glass bottle neck, a three inch pipe, and 55-gallon drum remnants. Two grab soil samples were collected around the drum remnants (79.8 mg/kg and 298 mg/kg arsenic). All scrap items were headspaced clear. No agent/ABP was found in the 3 soil samples taken from 9 drums. TCLP data were non hazardous. The soil in the area was removed. A photograph was shown of the items.

**Munitions debris items** found from January 23 through February 22, 2008 included: Three open cavity 75-mm rounds and a 4.7 inch open cavity round. The headspace results are pending on the 4.7 inch open cavity round. All 75-mm open cavity round were headspaced clear.

As of February 22, 2008, several **closed cavity items** had been assessed by Technical Escort (TE) as closed cavity, and determined to be safe for transport and storage. The items were transported by TE to the Federal Property Interim Holding Facility (IHF) bunker area for X-ray and Portable Isotopic Neutron Spectroscopy System (PINS) (as required). The items are in various stages of assessment.

Photographs were shown of the **4825 Glenbrook Road Excavation under the ECS**. The February 21 photograph shows the footer for the retaining wall. Approximately 1 to 2ft of additional downward excavation is anticipated in the current footprint.

Further investigation to the **East of the ECS** will be required. The plan is to build an extension to the current ECS and clear an area between the house and retaining wall. Soil will be excavated and taken off-site following the current procedures.

Further investigation to the **South of the ECS** will be required. The objective is to clear the cluster of single-point anomalies adjacent to the ECS. If no American University Experiment Station (AUES)-related items are found, the excavated soil will be backfilled. One exploratory trench is planned over the area showing the highest signature. Once the anomaly cluster near Pit 3

is cleared, a determination will be made regarding how to address the other remaining anomalies along Glenbrook Road.

Maps of the **4825 Glenbrook Road ECS Proposed Extensions** were shown.

The **4825 Glenbrook Road Excavation Rate** was presented: As of February 22, 2008, 8.2 weeks of intrusive work were completed. There have been 8.8 weeks of shutdown due to holidays, weather, MARB review and other delays. The current soil excavation rate is 16 CY/week. The estimated amount of soil remaining is 26 CY, based on an additional 1.5 feet (avg.) of excavation. The estimated duration at the current rate is 1.6 weeks. The estimated completion date is March 7, 2008.

#### **B. Low Probability Investigations – 4825/4835 Glenbrook Road Test Pits and Arsenic Removal**

**The goal of this segment of the meeting was to present an update of the 4825/4835 Test Pit and Arsenic Removal activities.**

Parsons presented an update on test pit excavation and arsenic soil removal. The Scope of Work included 77 test pits planned at 4835 Glenbrook Road and 37 test pits at 4825 Glenbrook Road. To date, 46 test pits have been excavated and backfilled at 4835 Glenbrook Road. Potential AUES material was identified in 12 test pits and on the access route north of Test Pit 17. All potential AUES material and associated soil samples have headspaced clear for mustard (HD) and Lewisite (L). There have been no confirmed air monitoring detects. At 4835 Glenbrook Road, 31 test pits remain to be completed. Another 5 test pits will be completed along with the 4825 Glenbrook Road test pits. At 4825 Glenbrook Road, 39 test pits will be completed after the ECS Extensions are completed, plus the 5 test pits from 4835 Glenbrook Road. During the Pit 3 excavation, 3 test pits located within the ECS were completed.

**4825/4835 Glenbrook Road Test Pits Arsenic Grid Update** was presented. The excavation of arsenic-contaminated soil is complete for 3 grids in the 4835 Glenbrook Road rear yard. Arsenic grid samples collected in the upper and middle terrace of the front yard were less than 20 mg/kg arsenic, so no excavation is required. Excavation in the front yard grid will include the driveway and yard area only. Arsenic grid sampling is planned for six previously unsampled grids in the upper driveway.

#### **C. Previous Sampling Reports at 4835 Glenbrook Road**

**The goal of this segment of the meeting was to review all former sampling reports at 4835 Glenbrook Road.**

USACE-Baltimore summarized the four previous 4835 Glenbrook Road sampling events and reports. The 1996 Apex Report addressed contamination found in the front yard when landscapers were planting a tree. In April 1999, EPA conducted surface sampling for metals, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides and polychlorinated biphenyls (PCBs). Subsurface sampling was conducted for metals. In October 2000, USACE conducted surface/subsurface sampling for Mustard ABP. Arsenic grid sampling was also conducted. The April 2002 Risk Assessment will be supplemented with data collected during the test pit operation as well as with data from any follow-on sampling agreed upon.

#### **Next Steps**

USACE will provide American University with additional copies of the reports as requested.

#### **D. Low Probability Phase II Investigation at Public Safety Building Area, American University Planning**

**The goal of this segment of the meeting was to present an overview of the proposed Public Safety Building Area investigation planning activities.**

Parsons presented the following proposed **Public Safety Building Area Phase II - Overall Scope**: All efforts will be conducted under standard low probability investigation protocols. Twelve single-point anomalies in three anomaly clusters will be investigated. The two anomalous areas will be investigated using three proposed exploratory trenches in each. The debris area behind the Public Safety Building will be explored and the utility trench area will be cleared for debris.

The proposed approach to clear the **Public Safety Building Area Phase II – 12 Single Point Anomalies** is as follows: relocate the anomalies and excavate with hand digging. The plan is to resolve the anomalies to 90% or identify the source of the signature. The area will be backfilled with the excavated material.

Proposed Approach for **Public Safety Building Area Phase II – Anomalous Areas PS-P1 and PS-P2**: Each of the three trenches in the anomalous areas will be dug about 2 feet wide and 8 to 10 feet long. The depth will depend on the trench location, but will be about 6 feet deep. The intent is to resolve the high readings and determine if any AUES-related debris is present. If no AUES-related debris is identified, the excavated material will be placed back in the trench and compacted to 85%. If AUES-related debris is identified in the trenches, additional debris removal effort will be needed in the entire anomalous area. Excavated material will be disposed off-site and the excavated area will be backfilled and compacted.

Proposed Approach **Public Safety Building Area Phase II – Debris Area – Back Patio**: No excavation will be conducted under the building (that is, within the footprint of the building). Soil under the footer will not be displaced. Building monitoring may be conducted during the investigation. The proposed depth of the excavation is 8 feet below ground surface (bgs). If debris is present at 8 feet, the excavation will be extended to 10 feet deep. The excavation will be conducted in narrow trenches that will be widened as distance from the building increases. Aluminum shoring will be used in the excavation area and excavated soil will be taken off-site for disposal. Each trench will be backfilled and compacted prior to excavating the next trench, and floor and side wall samples will be collected. Additional grab samples will be collected if debris is present at 10 feet deep or on the side wall toward the building. Water will be pumped continuously during the excavation from existing sumps and an interceptor trench/French drain.

Proposed Approach for the **Public Safety Building Area Phase II – Utility Trench Area**: Clear the utility trench area for any additional debris. Additional excavation is proposed on the northern side because lead concentrations (418 mg/kg) exceeded the EPA screening level of 400 mg/kg and arsenic concentrations (31.1 mg/kg) exceeded the Spring Valley Formerly Used Defense Site (SVFUDS) remediation endpoint of 20 mg/kg. Pre-excavation samples will be collected at 5-foot lateral intervals to delineate the extent of excavation.

The **Public Safety Building Area Phase II – Schedule** was presented.

American University expressed concern about the level of noise made from truck traffic. Workers in the Public Safety Building answer emergency response requests from the campus and have to be able to hear telephone conversations.

Parsons and USACE-Huntsville responded and said that the plan proposes 4 to 5 roll-offs of soil per day, but they could discuss noise abatement measures or batching of soil roll-offs for removal. It was noted that the excavation itself will cause noise. The back door of the Public Safety Building will not be accessible, as was also the case during the previous investigation.

Parsons also said the effort now is showing as an 18-week effort for 2008. The timeframe is being reevaluated and it appears that the effort may require more time.

#### **Next Steps**

American University will consider the Partner request to begin the single point anomaly portion of the investigation prior to May 19.

#### **E. Anomaly Review Board**

The scheduled ARB was postponed until the March meeting. USACE is continuing discussions regarding prioritization of single point anomalies and plan to have the refined selection process in place for the March meeting.

#### **F. ARB Memorandum To Be Signed**

**The goal of this segment of the meeting is to present the revised ARB Memorandum for signature.**

USACE-Baltimore stated that the ARB recommendation for the corner property on Glenbrook Road was modified from a selection of 9 anomalies to be intrusively investigated to a recommendation that all 66 anomalies along Glenbrook Road be intrusively investigated. The finalized Memorandum was circulated for Partner signature.

#### **G. Single Point Anomaly Selection Process**

**The goal of this segment of the meeting is to solicit input from the Partners regarding the process to be used to select single point anomalies for investigation.**

Andy Schwartz, USACE-Huntsville, was available via telephone for this portion of the meeting.

USACE-Baltimore stated the focus at Spring Valley has historically been on pits and trenches. More recently, single point anomalies have been added as targets. When looking at single item anomalies, the goal is to try to find individual pieces of ordnance that may remain from ballistic use on the ranges in Spring Valley. 75-mm projectiles, 3-inch Stokes mortars, 4-inch Stokes mortars, 4.7 inch projectiles, and Livens projectiles are the target types of ordnance. The goal is to have confidence that the items dug are at least as large as a 75-mm projectile. USACE-Baltimore wants to move forward with a logical, scientific, agreed-upon process to determine how many anomalies to dig and would like the Partners' input.

Three tools are used in assessing which anomalies to dig:

- Geophysical signatures from the EM 61 (electromagnetic data).
- Geophysical signatures from the magnetometer - Geometrics 858.
- Historical uses of the property.

With electromagnetics, the anomaly size and the depth of the anomaly may be determined based on the signal strength and size. The signal to noise ratio can also be determined electromagnetically.

USACE-Huntsville noted there is a direct correlation between the power of the signal and size of metal pieces.

USACE-Baltimore explained that the electromagnetic signature can be used to sort anomalies into three categories:

- **A:** An anomaly has all the features of an object 75 mm or larger.
- **B:** An anomaly has some, but not all of the features of 75 mm and the size is uncertain.

- C: An anomaly has none of the features of an object 75 mm or larger.

Other factors to be considered include whether or not the anomaly is within the Range Fan or other Areas of Interest and how much cut or fill is covering it. Those factors could modify the A or B items, so that some of these other factors involved that would make it an even higher priority, Category A1, compared to Category A2.

This draft assessment process could be applied to sort and prioritize anomalies on the 4801 property. Then in March at the ARB, the prioritization can be presented and recommendations can be made to dig all A1 and A2 anomalies, maybe only a percentage of the B1 and B2 anomalies, and perhaps none of the C anomalies. The process on how to sort the items is still under consideration.

DDOE, USACE-Baltimore, and USACE Huntsville discussed how much work it would take to use the sorting process. DDOE noted that in the past a certain percentage of anomalies, for example, in the Range Fan, would be dug. USACE-Baltimore stated that the sorting process does take a lot of work, but if a percentage were randomly picked, it may be less productive. Even if a higher percentage was randomly selected to be dug, a lot of nails and pieces of wire and not necessarily more AUES-related items could be removed. USACE-Huntsville noted that once the technical details of the process are worked out, the sorting process will be automated. It is important that the Partners understand and buy in to the process because it will be automated. If there is confidence in the protocol, a lot less time would be spent on C anomalies. Judgment would still be required on the part of the ARB, but it would be helpful to segregate out C-type items.

USACE-Huntsville asked USACE-Baltimore whether the protocol had been tested using data from completed work to compare items with their ranking in the protocol. USACE-Baltimore said they are still in the process of trying to create the thresholds for the algorithm and USACE-Huntsville, noted that they did a run on two properties from last year. All of the Category C anomalies that were generated were small items in the dig results.

EPA, USACE-Huntsville, and USACE-Baltimore discussed whether the refined process could be applied to the 66 Glenbrook Road anomalies. USACE-Baltimore said it was possible. USACE-Huntsville noted, and John Williams concurred, that the signals along Glenbrook Road were noisy due to high levels of cultural interference along the road. The approach is better suited for residential yards.

USACE-Huntsville said that less than 25% of resources were spent digging up items that are described as nails, staples, or small pieces of wire. This refined process should help in reducing that number significantly.

USACE-Baltimore stated that a limited amount of effort spent digging up Category C items may have some value in further reassuring the public that there is not a lot of ordnance buried in the Spring Valley FUDS.

Nan Wells, USACE- Huntsville, and USACE-Baltimore discussed what the role of Category C anomalies should be. N. Wells suggested digging all Category A and B anomalies and a percentage of C anomalies to verify the process. USACE-Baltimore said the question to the Partners is how much should be dug in each category. USACE-Huntsville agreed with N. Wells that digging a percentage of Category C anomalies could be used as a proofing mechanism and hopefully after accurately identifying Category C anomalies on a few properties, digging Category C anomalies could be discontinued.

USACE-Baltimore noted that there seemed to be general agreement with use of the algorithm. USACE-Baltimore will work with WESTON and USACE-Huntsville to try to finalize this

process over the next 2 weeks, working through the available data. There are about six properties in the queue, so at least half the next ARB.

USACE-Huntsville offered to answer any questions on the process.

### **Next Steps**

The Partners agreed to test the use of the USACE-developed algorithm for categorizing anomalies by size at Spring Valley.

The Partners will not review the geophysical report documents sent last week. The documents will be re-issued.

### **H. Phytoremediation**

**The goal of this segment of the meeting is to discuss plans for the 2008 Phytoremediation program.**

USACE-Baltimore stated that the phytoremediation study started in the summer of 2004 with the help of Dr. Michael Blaylock of Edenspace. In the first year of the study there was an overall reduction in the amount of arsenic, although some plots showed a slight increase in arsenic concentration that could not be explained except for uncertainty in the sampling approach. Changes were made to the sampling procedures to try to increase the precision of the results. Several thousand ferns were planted last summer at about 6 test locations. There was better fern growth than in all the previous years, but a number of the plots again showed a slight increase in arsenic levels. The locations involved each year, such as Lot 15 along the fenceline and Van Ness Street, and the Rockwood Parkway property, had seen some successes, but not significant amounts. The soil sampling engineer with USACE in New England who examined the data noted that heterogeneity in the soil may cause difficulties in measuring arsenic removal rates and fern performance.

The Partners discussed bioavailability of the arsenic, the relationship of bioavailability of arsenic to soil chemistry, and assumptions about other factors, such as weather and temperature, which might affect the results.

EPA and USACE- Baltimore discussed the possibility of there being a point where plants can no longer extract arsenic. USACE-Baltimore said that Edenspace said, that the low total arsenic concentrations measured in most of the soils favor a limited uptake into an even lower amount of the total amount of arsenic that is available for uptake by the ferns, and stated that decreasing that plant spacing may be a way to remove more arsenic.

USACE-Baltimore summarized **2007 property results**: One grid tested below 20 ppm at the Upton Street property, and one grid tested below 43 ppm at Rockwood Property. The owner is likely willing to accept that number, so that grid is complete. The one grid on Overlook Lane could be continued because it is at 22.3 ppm, down from 28.7 ppm. At Quebec Street, one grid is under a treated lumber deck. It does not show much progress. The partners may want to discontinue phytoremediation and consider approaching the owners to excavate. Phytoremediation around a boxwood was also tried on Fordham Road, but the soil concentrations were not reduced to below 20 ppm. Severson excavated close to the roots of the boxwood and a result of below 20 ppm came from around the soil near the roots, so the property is completed.

EPA noted that a lot of the results from Lot 15, along Van Ness Street were close to 43 ppm.

EPA suggested that Edenspace needs to make a recommendation about where the phytoremediation seems to be more useful versus where it isn't. It may be useful for Edenspace to do more data and trend analysis at the end of the year. At the end of the season Edenspace can start looking at the yearly decreases.

USACE-Baltimore said phytoremediation was used at six properties last year and the plan is to consider continuing phytoremediation at those properties. The suggestion is that four properties of last year's six be continued. The Fordham Road property is complete and the Upton Street property is under 20 ppm, so it should be considered as remediated.

EPA agreed with USACE-Baltimore that phytoremediation can be done anywhere USACE wants to plant.

USACE-Baltimore noted that the goal is to complete the residential properties that need arsenic remediation by the end of calendar year 2008. Phytoremediation may still be an alternative beyond 2008 if it is the only option. Edenspace is already growing the ferns for this year, so if any other property owners are interested, it may still be an option. There is another year of phytoremediation at the four properties, based on known work right now.

The Partners agreed that if the goal is to be finished in 2 years, it may not make sense unless it is determined that by planting the ferns a relatively low arsenic level would be reduced on the property to avoid digging.

USACE-Baltimore, EPA, and Parsons discussed the comparison between XRF data and phytoremediation data, which seemed to be consistently 24% low. EPA said his conclusion is that he would trust the laboratory more than the XRF, but USACE-Baltimore noted that since it was consistent, it could be of some value. EPA said it would still work for screening if someone were to take 150 locations in a week. Parsons noted that the usefulness of the XRF data depends on what it is used for and there is a narrow timeframe in which it is applied.

C. Johnston, USACE-Baltimore, and EPA discussed whether a property owner whose highest level was 26.5 ppm would be a candidate for phytoremediation, since the owner does not want digging due to noise factors. USACE-Baltimore said that if getting the owner to agree was too difficult, the regulators could be brought in to see if the 43-ppm level letter could be applicable. EPA noted that the original intent of the phytoremediation was to plant the ferns to try to save trees and plantings, however, the option could be offered. USACE-Baltimore noted that due to the timeframe, participants are not actively being recruited.

USACE-Baltimore asked for a Partnership opinion about whether an Engineering Evaluation/Cost Analysis (EE/CA) supplement, which would include phytoremediation as a recommended alternative to excavation, should be drafted.

EPA suggested that USACE check with its legal department. The EE/CA may not need to be supplemented, but the Action Memorandum may need to be amended.

USACE-Baltimore stated that phytoremediation was an alternative studied in the EE/CA and Parsons described the rank of alternatives in the EE/CA. Phytoremediation received a mid-range score of fair. The scoring portion of the supplement would say it was favorable with certain qualifications. It will not be applicable to every site, like excavation would be, but it is another potential option.

### **Next Steps**

USACE-Baltimore will ask its legal department about incorporating the phytoremediation study results into the Action Memorandum and/or EE/CA.

### **I. Arsenic Removal**

**The goal of this segment of the meeting is to provide an update on arsenic removal.**

USACE-Baltimore said Severson is making continued progress with non-time critical removal action properties. They are starting work on Number 75, at Upton Street. The house completed prior to that was on 49<sup>th</sup> Street. The work started in late January and was completed in February.

A 2005 list property on Quebec Street requested to be put back on the removal list. Some preliminary work has been completed on American University in anticipation of clearing grids near Hughes Hall in late May, after graduation. Severson has augmented its work crew and overtime has been authorized for them to work 50-hour weeks. The arsenic removal rate has increased and hopefully that trend will continue.

USACE-Baltimore, EPA and DDOE discussed the order of priority for the 2008 dig list. EPA noted that a property on Indian Lane has 13 grids. USACE-Baltimore said the property was at the top of the 2008 list. DDOE stated that a couple of properties on Yuma Street are next door to each other and might be performed at the same time. USACE-Baltimore agreed that grouping is always an option. The government properties would be completed in 2009.

#### **J. Document Tracking Matrix for Military Munitions Response Program (MMRP)**

**The goal of this segment of the meeting was to review the comment due dates on MMRP reports and the status of the documents.**

##### **Next Steps**

Comments will be provided as requested.

#### **K. Document Tracking Document Tracking Matrix for Hazardous Toxic Waste (HTW)**

**The goal of this segment of the meeting was to review the comment due dates on the HTW reports and the status of the documents.**

##### **Next Steps**

Comments will be provided as requested.

#### **L. Budget**

**The goal of this segment of the meeting was to review the budget status.**

USACE-Baltimore presented the Lifecycle Schedule breakout for the Military Munitions Response Program (MMRP) and the Hazardous and Toxic Wastes (HTW) Program projected funding needed and activities proposed for FY08, FY09, FY10, and FY11.

- The estimated budget for FY08 is **\$19.3M**. Of the estimated budget, 8.3 M was promised / received in plus-ups from OSE, Congressman James McGovern, and the Deputy Assistant Secretary of the Army for Environment, Safety and Occupational Health, Mr. Addison Davis.
  - MMRP activities planned include Glenbrook Road – Test Pits, Pit 3; American University Public Safety Building Area (PSBA) Investigation; 4801 Glenbrook Road High Probability Anomalies; Munitions Disposal and Residential Geophysics Surveys/ Intrusive Investigation.
  - HTW activities planned include arsenic soil removals; groundwater investigation; property reimbursements; phytoremediation; Area of Interest (AOI) Sampling, background sampling; Ecological Risk Assessment (ERA); Lot 18 Risk Assessment and Remedial Investigation/Feasibility Study (RI/FS).
- The estimated budget for FY 09 is **\$11M**. MMRP activities planned include 4801 Glenbrook anomalies, 4825 Glenbrook test pits, American University PSBA Investigation, AU main campus investigations, Dalecarlia Woods geophysical investigation, residential & AOI Geophysics/Intrusive investigation, and munitions disposal. HTW activities planned include arsenic soil removals, groundwater investigation, property reimbursements, phytoremediation, AOI Sampling and RI/FS.

- The estimated budget for FY 10 is **\$11M**. MMRP activities planned include Dalecarlia Woods Impact Area intrusive investigation, residential & AOI geophysics/intrusive investigation, and munitions disposal. HTW activities planned include groundwater investigation, property reimbursements, phytoremediation, AOI sampling and RI/FS Report.
- The estimated budget for FY 11 is **\$2.5M**, which will be used for the MMRP and HTW RI/FS Reports, proposed plans and decision documents.

#### **M. Open Issues and New Data**

**The goal of this segment of the meeting was to share issues not on the agenda for possible placement on a future agenda and share any new data that have become available since the last Partnering meeting.**

No new issues or data were presented.

#### **N. Taskers Tracking**

**The goal of this segment of the meeting is to review and update the taskers.**

Taskers were reviewed and updated.

#### **O. Agenda Building**

**The goal of this segment of the meeting was to develop an agenda for the next Partnering meeting.**

Future Partnering meetings will be held Tuesday, March 25; Tuesday, April 29; Thursday, May 29; and Tuesday, June 24.

The meeting was adjourned at 4:45 p.m.

### **Tuesday, February 26, 2008**

#### **Check-in**

The Partners conducted their normal check-in procedure which includes introducing new attendees, completing personal check-ins, and reviewing the Partnering meeting ground rules.

#### **A. Groundwater Data Quality Objective Development**

**The goal of this segment of the meeting was to discuss Data Quality Objectives (DQOs) for the groundwater study.**

#### **Groundwater Investigation at Spring Valley- Background**

USACE-Baltimore stated that the groundwater investigation began at the Spring Valley FUDS in 2005. A long list of analytes was sampled for in certain areas and two areas with elevated levels of perchlorate were identified:

- American University's campus near Kreeger Hall.
- Sibley Hospital sump.

#### **Purpose**

The purpose is to:

- Review the most recent work and plan for the FY08 groundwater investigation, considering that a budget of approximately \$500K is designated to support groundwater activities this fiscal year.
- Discuss what the groundwater activities will be. URS provided baseline plan data quality objectives (DQO's) that included recommended locations for some additional wells to try to better understand the nature and extent of the perchlorate in the eastern part of the project area.

E. Hughes introduced Bill Eaton who presented the following information:

#### **Response to Questions from January 17 Meeting**

B. Eaton responded to items discussed in the January 17<sup>th</sup> meeting.

- An elevated tetrachloroethylene screening result for MW 25 was an error incurred as a result of a report value for purposes of testing spreadsheet format. The value was mistakenly not removed.
- The B flags for tetrachloroethylene resulted from a condition with some of the laboratory instrumentation. The instrumentation was immediately replaced.
- The data validators told URS that the most stringent type of validation process is being used for the Spring Valley data and that the number of B flags was comparable in unrelated data sets. The B flag shows that, at the reported concentration, there is very low confidence that the analyte is actually present in the site sample.

B. Eaton provided updated sampling results tables from the January 17<sup>th</sup> meeting. He explained that data review has focused on screening detected concentrations against screening values, but not on results that did not exceed the screening values. The slight elevations above natural conditions could be predictive of contamination in the soil, so the results were reviewed.

B. Eaton requested that meeting participants inform him of any future results that seem noteworthy because of perceived exceedances of background.

#### **Proposed Data Quality Objectives for the Next Sampling Round**

The DQOs for the proposed round of sampling, focusing on the following unknowns:

- Uncertainties regarding the shape and distribution of the perchlorate plume, how it might be migrating, and its connection to the Sibley sump area.
  - If the two areas are not connected, there might be a separate source at the Sibley area.
  - If the two areas are connected, the perchlorate plume may go underground and be working its way into bedrock and moving toward the Potomac River.
- Elevated perchlorate at the Glenbrook Road/Rockwood Parkway area.
  - The highest perchlorate concentrations are in Piezometer 4 (PZ-4) on the American University campus, hydraulically upgradient from the Glenbrook Road/Rockwood Parkway disposal pit area, which may indicate multiple perchlorate sources in the Glenbrook Road/Rockwood Parkway area.

B. Eaton reviewed the perchlorate concentrations at MW 24 and MW 25 which ranged from 9 parts per billion (ppb) to 124 ppb. The wells are located just to the west of the investigation areas along Glenbrook Road.

The participants discussed that previous perchlorate sampling had been conducted at Lot 18 on the other side of Kreeger Hall, but not at Pits 1, 2, or 3.

D. Douglas' offered the use of existing District-owned wells in other areas of the District for perchlorate sampling. Currently USGS collects samples for the District from the wells, but has not sampled for perchlorate. It was noted that two other existing DC wells within the Spring Valley project area could be sampled.

PZ-4 was discussed by the Partners. PZ-4 was not initially installed for the purpose of collecting water samples. It was installed to measure water levels. The distance between the bottom of one sampling interval and the top of the other is about 3 feet. All results have come from the upper 15 feet of the water table. When perchlorate was detected in the area, PZ-4 was then sampled for perchlorate.

E. Hughes, D. Douglas and B. Eaton discussed the construction of the well and the possibility of cross contamination. PZ-4 was constructed based on the conditions that were discovered during the drilling in the fractured bedrock. When the drillers saw the two separate zones, they constructed the well so each one could be sampled. There is grout between the two screened intervals. D. Douglas suggested that cross-contamination could occur from the perchlorate in the upper unit to the lower unit. B. Eaton stated that there are issues with cross contamination whenever monitoring deeper is desired.

The participants discussed different options available to decrease the likelihood of cross-contamination, including using liners. This option could also potentially provide useful transmissivity data on fractures. K. Davies noted that EPA conducts a fracture investigation using standard drilling techniques, packer tests, and down-hole geophysics.

#### **Proposed Additional Wells at American University**

B. Eaton said that supplementing PZ-4 with three additional wells (MW45, MW46, MW47) was proposed in the DQO's to further create a better understanding of head variability and perchlorate concentrations in the vertical direction and to begin to determine how deep the perchlorate concentrations go. He noted that multi-port wells are extremely expensive to install and to monitor.

S. Hirsh and D. Yeskis suggested that some areas be added as DQO's. Steve Hirsh noted that USACE and EPA would like to add obtaining groundwater data near 52<sup>nd</sup> Court, and Doug Yeskis suggested undertaking developing a better understanding of the flow system and fractures.

D. Douglas noted that obtaining information from the deep flow system was important and that the investigation should not be considered complete from a few shallow wells. She suggested drilling more less expensive wells for greater coverage.

E. Hughes asked the participants to consider whether deep or shallow wells should be dug at this stage in the investigation.

Steve Hirsh asked how deep the wells should be drilled to assess the depth of the contamination.

K. Davies and D. Yeskis discussed the possibility of sampling while each well is being drilled. D. Yeskis suggested that the flute system might provide a good temporary sealing method while other investigations are completed on that borehole. K. Davies noted that samples could be obtained as the well is drilled. If the contamination is only in the top portion, then the well may not need additional monitoring if it is not contaminated at depth. It seems like a reasonable thing to step a short distance out from the area of known high perchlorate to see where the distribution is in that vicinity.

Paul Chrostowski said the University is most interested in determining the source of the contamination and removing it. He suggested using chemical isotopic signature analysis to determine if the perchlorate at the American University campus is from the same source as the perchlorate at Sibley.

The participants discussed other possible cultural or historical sources of perchlorate.

D. Douglas noted that the quality of the drinking water is of great concern to the District and District regulations say the groundwater is to be protected for current and future drinking water use. She expressed concern about groundwater discharge to the streams and other surface water bodies in the area, including the Potomac River.

C. Johnston suggested asking residents for assistance in locating old wells through the community newsletter, with District concurrence.

D. Douglas agreed and offered to be the direct contact.

E. Hughes, USGS, and B. Eaton theorized about the movement of the groundwater to the reservoir, and the mounding of water around the reservoir. Ed Hughes reviewed the 2006 flux model study of the reservoir. The conclusion of the flux model was that the levels are not high enough in the water that flows into the reservoir to pose a risk to it, even if the worst case assumptions are made for maximum groundwater infiltration into the reservoir. USGS said that although water near the reservoir and from the reservoir to the groundwater, the bulk flow seems to be of groundwater to the reservoir. B. Eaton added that there is so much water entering the reservoir from the Potomac River, on average roughly 90-95 million gallons a day, that it would take massive amounts of perchlorate in the groundwater adjacent to the reservoir before that groundwater, slowly seeping in, could have an impact on the reservoir. Deeper groundwater flow could be entering the reservoir, not necessarily regional flow, but an intermediate flow system.

Permeability estimates on near East Creek have been difficult to ascertain because the stream is lined with riprap, which is impossible to place a seepage meter into.

S. Hirsh said that whether or not there is a risk to the reservoir, this is a big issue that needs to be understood.

D. Douglas stated that the District is concerned about the reservoir. The shallow groundwater does not seem to be as much of an issue, but the deeper flow system is something that should be looked at. DC will try to do anything they can to help the work that USGS is doing to better understand the reservoir.

D. Yeskis and K. Davies summarized the goals the participants seemed to be identifying. Participants want a better understanding of the lateral and vertical distribution of the high perchlorate in the Glenbrook Road area through 3-dimensional modeling to see what the plume configuration may be. Other questions are in regard to the flux and flow regime of the water going into streams and the reservoir to know whether or not monitoring is occurring in the right areas, and whether any perchlorate is going into the reservoir as a very diffuse plume or a very discrete flow system. Another question is whether the Sibley Hospital area is part of a contiguous plume or is an additional source area.

P. Chrostowski reiterated the need for a clear path to the cleanup approach for the groundwater.

P. deFur suggested that the participants prioritize the questions raised. He stated that the deep water relationship with the reservoir is an important question, but noted that it may be better to work at identifying the sources first.

P. deFur, S. Hirsh, K. Davies, and D. Douglass discussed the possibility of Pit 3 being a source for contamination in the Glenbrook Road area and the source has been removed. S. Hirsh and P. deFur suggested that a follow-up be done, and recommended soil samples be taken from the cleared pit. K. Davies cautioned that even if perchlorate is not found in the soil, it may not mean that an area is not the source. It is very difficult to try to see where the contamination is and say that is where it will be found in groundwater.

D. Douglas agreed with P. deFur that finding the source is important, but if the plume started moving in a certain direction 90 years ago, the question is how much remains, and where is it discharging.

Ed Hughes noted that the highest levels of contamination are upgradient of the Pit 3 investigation.

S. Hirsh said the Partners seem to be in agreement that what is going on around PZ-3 and PZ-4, which are upgradient of Pit 3, needs to be better defined.

B. Eaton added that it will include shallow and deep flow.

S. Hirsh said that P. Chrostowski's suggestion was good: That the isotopic makeup of the perchlorate at the Glenbrook Road/Rockwood Parkway area be compared with the perchlorate at Sibley. That might provide a quick easy answer that these are two different kinds of perchlorate.

P. Chrostowski suggested that soil sampling and perchlorate and arsenic sampling be conducted when the new wells are installed.

D. Douglas asked if additional information could be obtained on the cultural influx of perchlorate to the area, and if an isotopic analysis on that area could be done to see if that is a separate signature as well.

EPA stated that it is undertaking a year-long study of the perchlorate levels in the Potomac River. Perchlorate is monitored more than twice a week in the reservoir.

E. Hughes suggested notes be taken to focus the discussion and prioritize which areas to study in FY08.

1. Glenbrook Road/Rockwood Parkway Area
  - a. Consider installing shallow wells to better understand the current distribution of perchlorate near PZ-4.
    - i. Alternative locations for the DQO monitoring wells MW 41 and MW43 were discussed.
    - ii. At least one 150 ft deep well down gradient of PZ-4 was discussed, as were the possibilities of installing additional deep wells at MW 37 and 38.
2. 52<sup>nd</sup> Court
  - a. Continue to look for ways to access original proposed well (MW-23) location at 52<sup>nd</sup> Court. The owner has not granted a right-of-entry. Possible enforcement action is being considered.
    - i. Two alternative locations were discussed: One east of SW-7, potentially on private property and one near DC Well/SW-8 was considered.
3. Reservoir Area
  - a. Consider the proposed sampling wells. If contamination is found installing a deep borehole near the reservoir area.

E. Hughes said that the discussion points will be considered in drafting a scope of groundwater activities and a work plan will be drafted for comment by the participants.

The meeting was adjourned at 3:45 p.m.