

**Spring Valley Partnering Meeting
May 1, 2018
Spring Valley Project Federal Property Conference Room**

Name	Organization/Address	
Allyn Allison	USACE – Huntsville	
Brenda Barber	USACE – Baltimore	X
Bethany Bridgham	American University	X
Sean Buckley	Parsons	X
Paul Chrostowski	CPF Associates, American University Consultant	X
Dr. Peter deFur	Environmental Stewardship Concepts/RAB TAPP Consultant	X
Chris Gardner	USACE – Corporate Communications Office	
Alma Gates	RAB Member – Horace Mann Representative	
John Gerhard	Weston Solutions	X
Whitney Gross	ERT – Community Outreach Team	X
Steven Hirsh	EPA –Region III	X
Holly Hostetler	ERT	X
Carrie Johnston	ERT – Community Outreach Team	X
Lowell (J.R.) Martin	USACE – Site Operations Officer	
Chris Moran	Weston Solutions	X
Dan Noble	USACE – Baltimore	X
Randall Patrick	Parsons	X
Jim Sweeney	DOEE	X
Rebecca Yahiel	ERT – Community Outreach Team	X
Alex Zahl	USACE – Baltimore	X

Summary of 1 May 2018 Spring Valley Partnering Meeting

Consensus Decisions

- None

1 May 2018 Action Items

- USACE Baltimore will send air monitoring protocols to P. Chrostowski, CPF Associates.
- USACE Baltimore will send the Blind Seed Plan to the Partners and set up a phone call for the review.
- Weston Solutions will provide to the Outreach Team a tentative schedule of operations for the Spaulding/Rankin homeowner by May 2.
- Weston Solutions will send photos of the utility location marks to AU.
- USACE Baltimore will send the revised Groundwater FS with Monitored Natural Attenuation added and highlight the new sections for the Partners.

Tuesday 1 May 2018

A. Board of Investigation Report

The goal of this segment of the meeting was to review the status of the Board of Investigation Report.

USACE Baltimore District provided a brief update on the Spring Valley Board of Investigation (BOI) Report.

The Board of Investigation (BOI) Report is complete and has been officially signed off by U.S. Army Corps of Engineers (USACE) Headquarters (HQ). USACE Baltimore District understands that the information already released is all the information that can be released. The USACE Baltimore Office of Counsel is preparing a statement for the Restoration Advisory Board (RAB). USACE Baltimore invited the Partners to direct any BOI Report Requests to USACE Baltimore.

Safety regulations prohibit the BOI Report from being released to the public. The BOI Report is designed to be a learning tool for the team on how to improve the operation, not a document to be released to the public. The BOI Report will not be released under any Freedom of Information Act (FOIA) request. Members of the BOI must keep their copies of the BOI Report secure, since the BOI Report contains Personally Identifiable Information (PII). This designates the BOI Report as For Official Use Only (FOUO).

In response to a question from USACE Baltimore and Environmental Protection Agency (EPA) Region III, ERT confirmed that all official copies of the BOI Report indicate FOUO on the front cover and all pages of the report.

B. 4825 Glenbrook Road Remedial Action

The goal of this segment of the meeting was to review the status of the Remedial Action at 4825 Glenbrook Road.

1. Recent Activities

Surface water was collected from the project area after several large rain events. Out of an abundance of caution, the water was shipped to a licensed treatment facility on March 26, even though the water tested negative for hazardous and toxic waste (HTW) and chemical agent hazards.

On March 28, Parsons completed the installation of cement lagging between the soldier piles, replacing the deteriorating wooden lagging. This installation of a stabilized retaining wall along the 4801 Glenbrook Road property line, is part of the planned final restoration efforts. The structure will be buried as intended, with the property owner (AU) in agreement.

After assembling the heavy new lagging, Parsons built a ramp of clean fill to transport the lagging to the installation point. Post installation a preliminary grid was laid, the ramp was deconstructed and relocated to the previous location of the chemical agent filtration systems (CAFS). Surveyors established grids for HTW removal, Parsons referenced the areas of HTW removal on slide 5 of the presentation. Arsenic is the main chemical in those areas, with detections of 20 mg per kg. Excavation in the HTW areas began on April 17 and confirmation samples were collected. The excavations hit rock rapidly, and Parsons expects that a lot of the grids will hit rock with not much loose saprolite. Once an excavation hits rock, excavation stops.

Sampling at the rock level is not indicated. The rock encountered requires a jackhammer attachment on the excavator to further excavate. Additionally, the area will be covered by 12 feet of clean soil.

Once excavations in the HTW areas reach 2 feet down, confirmation samples are collected:

- Samples will be collected from the center and newly created sidewalls.
- Samples will be analyzed for those compounds that exceeded project specific comparison values in the original confirmation samples.
- The samples will be transported in a roll-off to Federal Property pending HTW disposal characterization.

The team noticed glassware on the surface near the lower set of stairs after a rain event. It appeared the glass was being washed out of the side of the hill that is upgradient from Area A. The team collected the glass wearing personal protective equipment (PPE). The small amount of glassware was double-bagged for future head-space testing. No odors were detected. Parsons bolstered the sediment erosion controls and is discussing moving the stairs after the first 2 grids are completed.

The glass was likely coming from the Test Pit 9 area, the only Test Pit to encounter glass. The intent of the test pitting was to search for carboys because geophysics would not be able to detect carboys. If no disposal pit was encountered, then the soil would be put back and no additional sampling conducted. Sporadic glass is encountered behind the retaining wall. Parsons did not plan to conduct additional sampling, based on the test pitting that was conducted previously and the current work plan.

In response to a question from EPA Region III, Parsons explained that there is more glass found in the area along property line.

USACE Huntsville noted that the criteria for excavating the test pits was to excavate down to saprolite or to the mechanical limits of the long-reach excavator. The test pits were excavated to below the 1918 soil line. In addition, Edgewood Chemical Biological Center (ECBC) conducted air monitoring.

In response to a question from P. Chrostowski, CPF Associates, Parsons explained that the arsenic grids have already been removed and that Parsons does not plan to do any further arsenic soil testing.

P. Chrostowski, CPF Associates commented that no further testing of that area leaves an uncertainty, because there is glassware in the test pit whether the soil is contaminated or not.

Parsons reiterated that these areas were tested.

AU commented that the glass did not come out of this area, but on the edge.

P. Chrostowski, CPF Associates inquired if it would not be prudent to test Grid 9 to determine if there is arsenic above the clean-up level.

USACE Baltimore explained that the -70 / -50 grid could be tested again, since the glassware was found in that grid.

P. Chrostowski, CPF Associates noted that the additional testing would give AU a lot of comfort because AU is right on the border of the arsenic contaminated area.

Parsons proposed to clean up and sample the area as if it were a grid.

P. Chrostowski, CPF Associates accepted this plan and thanked USACE Baltimore and Parsons.

2. Future Activities

- Continue excavating the areas of HTW contamination in portions of the former High Probability Areas.
- The first set of confirmation samples have been sent out, but based on progress-to-date, completion of the remediation is expected to take two to three months.

In response to a question from ERT Community Outreach, Parsons explained that traditionally, arsenic removal begins at the current ground surface. The surface of this area is reflective of the surface of the saprolite. The saprolite undulates, and some areas may be deeper than others. Parsons does not anticipate the grids to be as deep as the first one. The backfill contours dictate that there would be 12 feet of clean-fill cover in those areas.

C. 4835 Glenbrook Road Sampling Effort, Execution by ECBC

The goal of this segment of the meeting was to review the status of the Sampling Effort at 4835 Glenbrook Road.

1. Recent Activities

Basement sampling was conducted by ECBC at 4835 Glenbrook Road throughout March and April. ECBC cored 36 additional evenly-distributed locations in the basement and 3 locations in the crawlspace. All boreholes (BHs) were sampled with direct-push sleeves. A total 106 soil samples were collected in addition to the soil samples collected by Parsons. A set of 6 new BHs were prepared and prepped for vapor sampling, bringing the total to 10 locations that are now prepped for soil gas sampling, should the team deem soil vapor testing appropriate. All samples were sent to ECBC for low level agent testing and tested clear for low level agent (lewisite (L), mustard (HD), 1,4-Dithiane, and 1,4-Thioxane). All samples have been forwarded to a commercial lab, and results should be available beginning this week and trickle in over the next month, due to delays in commercial lab sampling. No glassware or discoloration of soil was encountered. The samples will be tested for metals but USACE Baltimore does not anticipate that there will be any detections.

In response to a question from Peter deFur, Environmental Stewardship Concepts/RAB TAPP Consultant, USACE Baltimore explained that in the front of the home there was considerably more depth to saprolite (6 to 9 feet), so each BH yielded an average of 3 samples. At the back of the home, in the kitchen and garage area, the yield per BH was 1 or 2 samples because there was no significant depth to saprolite. The team encountered difficulty obtaining a full sample sleeve in the back of the home.

2. Soil Gas Sampling Discussion

USACE Baltimore noted that the green triangles on slide 12 of the presentation represent BHs that were prepped for soil gas sampling. The soil gas sampling represents the last sampling effort that USACE can undertake in the basement area of 4835 Glenbrook Road, and the full range of options will have been explored.

In response to a question from P. Chrostowski, CPF Associates, USACE Baltimore explained that ECBC has a partner that can conduct the sub-slab soil gas sampling for agent. The partner has an established process that can monitor for agent and agent breakdown products (ABPs), if requested by USACE Baltimore. The process is defined and proven and has been implemented successfully at ECBC for other projects.

P. deFur and EPA Region III discussed whether the detection of volatile organic compounds (VOCs) might trigger the decision to conduct the soil gas sampling.

In response to a question from EPA Region III, USACE Baltimore confirmed that the decision to go ahead with the soil gas sampling has not yet been made. USACE Baltimore waits on discussion and direction from the Partners.

USACE Baltimore explained that a detection in soil gas does not necessarily mean there is a source under the house. The source may be the boundary, where agent was detected in the soil. Alternatively, the soil gas testing might act as an assurance that agent is not present.

In response to a question from EPA Region III, USACE Baltimore continued that the boundary has not been entirely excavated. A section remains in the back end, past the second window well. The green triangles closest to underneath the landing and BH-14 would likely be the closest vapor sampling that may potentially pull in residual chemical agent contaminated media (CACM) that may be left along the property line. If the other 8 sampling locations further away detect nothing, and the 2 closest locations to the boundary have a hit, then the plan would be to go back and remove the source and re-sample. The detection would be expected to dissipate, but if not, then there would be a lingering issue causing the residual detection in the sub-slab vapor.

P. Chrostowski, CPF Associates commented that given the degree of attention paid to the property it is a good idea to do the soil gas sampling. Since USACE Baltimore has the capability, the sampling would make sense. He noted and agreed with the USACE Baltimore's strategy.

USACE Baltimore asked the Partners whether the soil gas sampling should be something to start right away or wait until USACE Baltimore believes the source of potential soil gas close to the house is removed and the soil is verified to be clean.

In response to questions from USACE Baltimore, USACE Huntsville, and EPA Region III, Parsons explained that the method that ECBC uses for soil gas sampling is passive. An absorbent material that can be analyzed by ECBC is dropped down the vapor well for a set amount of time.

USACE Huntsville and P. deFur agreed that a similar process of passive testing was used at 4825 Glenbrook Road several years ago.

In response to a question from P. deFur, USACE Baltimore explained that the schedule will be impacted by the results of the sampling, the results of discussions concerning the lease of the property, and the decision about soil gas sampling.

P. Chrostowski, CPF Associates, EPA Region III, DOEE, and P. deFur agreed that USACE Baltimore should go ahead and get the soil gas testing done, because passive samplers will be used, producing data immediately. If anything does show up along the border after the soil removal, then the soil gas can be retested.

USACE Baltimore agreed that soil gas testing now would establish a baseline to determine if there has been a reduction after the soil removal.

USACE Baltimore will coordinate with ECBC to get the soil gas testing in place and started as quickly as possible, depending on the schedule for the Public Safety Building (PSB).

D. 4825 Glenbrook Road Return-to-Work and Revised Modeling Results

The goal of this segment of the meeting was to review the status of the return-to-work plan at 4825 Glenbrook Road and the revised modeling results.

Prior to the RAB meeting in March, ECBC discovered errors in the WebPuff modeling data. The data presented at this Partner meeting has been updated to be consistent with the data presented at the March 13 RAB meeting.

1. Options to Resume Work at 4825 Glenbrook Road

Option 1: resume work with workers in Level B respiratory protection with no additional engineering controls (open air excavation).

Option 2: resume work with workers in Level B respiratory protection and engineering controls, to include a tent and chemical agent filtration system (CAFS) unit.

2. Modeling Discussion

In response to a question from EPA Region III, USACE Baltimore confirmed that the purpose of the modeling is show that anyone standing at the perimeter fence would not be exposed to anything above an acute exposure guideline level for airborne chemicals (AEGL)-2. Exposure levels would stay below AEGL-2.

EPA Region III stated that anything at a level that causes permanent damage is unacceptable and suggested keeping the potential exposure to below the general population level. He inquired if USACE Baltimore was stating that agent will leave the site, cannot leave the site, or might leave the site up to a level that would cause permanent damage.

USACE Baltimore explained that under the suggested option, a contaminant might leave the site but not at a level that would cause permanent damage. The AEGL-2 level was used consistently at the site in the past.

EPA Region III pointed out that the AEGL-2s were used during operations with an air filter and shelter present.

P. Chrostowski, CPF Associates commented that he and AU agree with EPA Region III, and are concerned about people on the athletic fields being exposed to above the equivalent of the AEGL, such as the temporary emergency exposure limits (TEELs).

In response to questions from EPA Region III, USACE Baltimore explained that the distances are set, and if AEGL-1s were used instead of AEGL-2s, the concentrations are much lower. She confirmed that there is a concentration at which nothing would leave the site.

EPA Region III inquired what the soil concentration would be if an AEGL-1 value were used at the receptor point instead of an AEGL-2.

P. Chrostowski, CPF Associates commented that he had conducted a modeling exercise in the past using the ALOHA model because the Army model was not available. He did not remember the exact number but recalled that going from an AEGL-2 to an AEGL-1 cuts the distance at least in half, where there would be a safe exposure to an equivalent of an AEGL-1 at the fence line.

USACE Baltimore noted that the AEGL-1 for HD results in a concentration of 651,000 micrograms per kg as opposed to 852,000 micrograms per kg.

In response to a question from EPA Region III, USACE Baltimore explained that an HD concentration of 651 parts per million has never been found at the site. When the AEGL-1 or other reduced guideline is used for other potential compounds, such as Chloropicrin (PS) or Cyanogen Chloride (CK), then the concentrations would be lower than what has been found in the soil at the site.

P. Chrostowski, CPF Associates pointed out that it is possible to conduct a semi-post response model with many of the Tentatively Identified Compound (TICs) that were found at the site. Some of the TICs are in the same range of toxicity as HD and are highly volatile. Some of the TICs are more volatile than HD; more volatile than dithiane. When considering the volatility, one must think about the TICs being released at the same time, because they co-occur. Expressing that the Partners need to be extremely conservative and not just look at individual chemicals but look at what could happen if many were released. Many of the TICs have unknown quantitative toxicity, but there is a good deal of assurance that the TICs could be as toxic or close to as toxic as parent compounds, especially HD. Lewisite (L) is not as much of a conundrum as HD, but there are hundreds of ABPs.

In response to a question from EPA Region III, P. Chrostowski, CPF Associates explained that biodegradation of L is not nearly as complex as HD; L biodegrades readily. The byproducts of L are not likely to be as volatile. HD was never found in pure form and was never made in pure form, so there are many byproducts. The degradation pathways of HD are considerably more complex than L. All the TICs found at the site could be traced back to HD or HD-similar material that was likely being tested at the site. The focus really needs to be on HD, ABPs, and what compounds might be released together during

excavation. He reiterated the question of what the protections would be at the fence line, athletic fields, and the people across the street. He believed that the uncertainties warrant that the Partners be as conservative as possible.

EPA Region III added that he agreed with P. Chrostowski's comments, but noted that there were other considerations, such as the modeling at 95 degrees. The modeling could be conducted at 75 degrees.

USACE Baltimore explained that the additional temperature modeling was not run.

EPA Region III suggested a model of a 30-minute continuous release instead of a 16-minute continuous release.

P. Chrostowski, CPF Associates commented that a puff of material could be released over a short period of time that would be more concentrated when it reaches the fence line. The effect of temperature is on the vapor pressure of the material. As temperature decreases, the vapor pressure will decrease, and the material will be less volatile. Many scenarios are possible in which more could be released from the model, but those scenarios are not likely to happen due to the workability in high temperatures. The modeling itself is conservative enough; but all the other assumptions, such as toxicity, vapor pressure, the effect of mixtures, and the duration of a release are factors that need to be considered.

USACE Huntsville noted that a criterion could be set in the work plan that operations would not continue when the temperature reaches above 50 degrees, alleviating the concern about HD.

P. Chrostowski, CPF Associates agreed that the work plan could incorporate various meteorological variables, such as temperature or wind speed, which would affect dispersion of chemical vapor.

P. deFur agreed that onsite risk management decisions could mitigate a certain number of the meteorological variables. The model works for what it is intended to do; it is what cannot be modeled that is the challenge.

USACE Baltimore agreed and explained that the modeling was meant to demonstrate unknowns; not necessarily to provide assurances about HD and L, because the team can directly monitor for HD and L. Since the BOI Report uses the term 'unknown,' the challenge was to explain to people that if there is an unknown present with similar toxicity, the public is still protected even if the unknown cannot be monitored. Of all the compounds modeled, only Adamsite (Y) does not have standard monitoring available; all the other compounds may be directly monitored. Monitors can be installed to detect the compounds of greatest concern, such as HD and L.

EPA Region III agreed that the monitoring is part of the answer. For example, the work plan might state that when there are 3 cycles of positive detection on the miniature chemical agent monitoring system (MINICAMS), work stops, and the area is mitigated.

USACE Baltimore pointed out that the onsite team does not wait for a third positive on the MINICAMS; if the MINICAMS registers 1 positive detection, the team exits and mitigates the site.

P. deFur commented that he believed in this situation there is not an unknown with soil. The team has the soil in a prescribed area and the volume of the soil can be calculated. An estimate of the worst case of what the source might be can be made. The source is far better known and understood than it has been in other situations.

P. Chrostowski, CPF Associates commented that what is not known is a quantitative analysis of all the other materials present and could potentially be released. He believed the measurements of L and HD are good, and the data on the extent of contamination of HD, L, and ABPs is fine. There was no quantitative analysis on the unknown materials. He performed some back-of-the-envelope extrapolations because dithiane shows up both as a TIC and as an analyte in the Centers for Disease Control (CDC) analysis, as some of the unknowns have high concentrations in the TICs.

In response to a question from EPA Region III, USACE Baltimore confirmed that a sample of Y cannot be obtained, the sample would have to be made.

P. Chrostowski, CPF Associates noted that approximately one quarter of the compounds that have been tentatively identified do have commercial sources, but the rest are like Y and would have to be synthesized.

EPA Region III, P. Chrostowski, CPF Associates, and USACE Baltimore agreed that it is not possible to directly near real-time monitor for Y, the soil would have to be sampled after the fact.

USACE Baltimore suggested that the work plan incorporate constraints on the work environment such as a temperature limit of 75 degrees, or even 50 degrees, which would significantly limit the operations window.

EPA Region III suggested that the team put together an explanation of what is protecting the public rather than saying the modeling has been conducted to the fence line and the public is safe. Instead, show what happens if something is detected or if a bottle is found.

In response to a question from P. deFur, USACE Baltimore confirmed that the total volume of soil remaining to be excavated is ~300 cubic yards. The work plan assumes that everything remaining could be impacted by CACM.

In response to questions from EPA Region III, P. Chrostowski, CPF Associates explained that it is not likely that any material that has been identified as a TIC would be more toxic than HD or L. Some of the TICs may be more mobile, some have vapor pressures that are higher than HD vapor pressure. HD is not very volatile.

EPA Region III and P. Chrostowski, CPF Associates agreed that the volatile materials are likely to have broken down and gone away.

USACE Baltimore explained that is part of the idea of open air excavation is that there cannot be intact containers present. If the team encounters an intact container work stops immediately.

USACE Huntsville pointed out that the same areas had been disturbed during test pitting under cold conditions and there were no detections of release at that time.

In response to a question from P. deFur, USACE Baltimore, USACE Huntsville, and Parsons explained that the samples used to create the modeling were from onsite excavations, grab samples that included pieces of CACM, and core samples of the soil to be excavated. One core sample detected HD.

In response to a question from P. deFur, USACE Baltimore explained that of all the core samples taken from the ~300 cubic yards of soil to be excavated, only one failed low-level testing for agent. The rest of the samples that did not fail were sent to the commercial lab.

In response to a question from EPA Region II, USACE Baltimore explained that the core samples only yielded one data point, and therefore is not enough information for modeling.

P. Chrostowski, CPF Associates pointed out that the ECBC analysis is more sophisticated than the commercial lab analysis. The commercial lab samples will likely show clean, while the ECBC analysis will show all the TICs related to HD.

In response to a question from P. deFur, P. Chrostowski, CPF Associates explained that he was not sure if the samples were the full data set or the data set for the remaining ~300 cubic yards.

USACE Baltimore explained that when the remaining soil was tested, if the tests did not detect HD then the ECBC analysis was not run for TICs.

P. Chrostowski, CPF Associates added that most of the compounds analyzed by the commercial lab look like household cleaning products or normal urban contamination.

In response to a question from P. deFur, Parsons explained that when ECBC runs the TICs, that is because they have detected HD or ABPs, so it makes sense that ECBC is going to pick up TICs that are agent-related. If the sample is cleared for agent, then it would make sense that no agent-related TICs would be identified in the sample sent to a commercial lab.

In response to a question from EPA Region III, USACE Baltimore confirmed that dithiane was detected in the single core sample (BH-28). She is confident that TICs were detected as well but would have to review the results to confirm.

P. deFur suggested making the decision based on data from the ~300 cubic yards of soil yet to be removed. Since there is only one data from that soil, perhaps when between now and October more samples could be collected.

USACE Baltimore confirmed that the team considered collecting more samples from the ~300 cubic yards of soil. The reason the data from the full set was used for modeling was because the BOI said the contaminant was an unknown. The challenge of this modeling was the need for toxicological endpoints to create the model. The team had to select a subset of compounds with available information to represent stand-ins for the unknown because the unknown cannot be modeled. The team used all the data collected to date as part of the effort to describe possible contaminants.

P. deFur commented that the unknown can be vastly reduced because the boundaries of the soil are known and there are samples available.

USACE Baltimore noted that the data from the samples already pulled from the ~300 cubic yards could be reviewed again.

P. DeFur requested that the results of the second data review be sent to the Partners when available.

In response to questions from P. deFur, Parsons confirmed that the soil that is to be excavated has already had surface dirt above it removed. There are 4 samples in the undisturbed area and 6 samples in the area that has been partially disturbed. Those samples came back with non-detect from ECBC except for BH-28, which detected low level agent. The intent of the sampling was to identify locations that had the highest likelihood of encountering contamination.

P. deFur commented that he believed the volume of source material, in terms of not only the material, but the concentrations for which data exists, is small, that he felt better about it now.

EPA Region III agreed with P. DeFur's observation and noted that USACE Baltimore is portraying the issue by comparing it with the worst thing ever found at the site. Instead of the worst-case, he suggested looking at the maximum credible event that might occur.

In response to a comment from P. Chrostowski, CPF Associates, EPA Region III explained that the problem which caused the maximum credible event of workers sent to the hospital during the August 9 incident will be unequivocally solved by putting the workers in Level B PPE. The next issue will be protection of the AU athletic fields and residences close to the site perimeter.

3. Discussion of Options for Return-to-Work

P. Chrostowski, CPF Associates agreed that he does not feel comfortable with Option 1 and how it may impact the field hockey/lacrosse team on the athletic fields and other people walking along the fence line. He would be more comfortable with the use of Option 2 or a modified Option 1, with air monitoring.

USACE Baltimore explained that the work plan will continue the same air monitoring and operations as currently performed, but the workers will be in Level B PPE. The perimeter air monitoring, MINICAMS, and hand-held monitoring stays the same. USACE Baltimore also discussed adding interim perimeter air monitoring with ECBC, in addition to the perimeter air monitoring at the property boundary. There is an A-Point air monitor at excavation site. ECBC was open to this addition but cannot monitor for an unknown.

The MINICAMS can handle monitoring up to 1,300 compounds, but those compounds need to be identified.

In response to a question from P. Chrostowski, CPF Associates, USACE Baltimore explained that the work plan will not include an alarm system or shelter-in-place. Even under Option 2 with a tent, the operation would be considered still Low Probability, so the Shelter-in-Place program would not be implemented.

P. Chrostowski, CPF Associates commented that the presence of the tent is more comforting than the absence of a tent. He noted that the probability of a release is less with the presence of a tent. He inquired about the sequence of events if something were detected at the perimeter with the absence of a tent, and how the team would deal with people that might be near the perimeter.

EPA Region III suggested considering the mitigation plan. At the first confirmed detection the team stops work and mitigates the area.

Parsons added that the team will be able to continue mitigation until it is complete, there will be no need to exit the site since the workers will already be in Level B PPE.

In response to a comment from EPA Region III, P. Chrostowski, CPF Associates agreed that the unknown is still an issue, but in the past the unknown was managed by installing a tent and CAFS. He noted that he was not sure how he would explain this with that same degree of confidence.

EPA Region III commented that he did not know the path forward but thought there is a way that he could be comfortable without a tent. Adding that if the Partners take into consideration the comments on the approach, the data sets, and the operational controls; he could get to the point of being comfortable with option one because he knows what is left and what the BOI was thinking.

EPA Region III and USACE Baltimore agreed that if P. Chrostowski, CPF Associates could not feel comfortable with the plan, the Partners need to know.

In response to a question from USACE Baltimore, P. Chrostowski, CPF Associates explained that from his perspective the Return-to-Work plan needs to incorporate some type of tent or Shelter-in-Place to give him confidence in the protection of the people on the athletic fields.

USACE Baltimore reiterated that a Shelter-in-Place program cannot be implemented during Low Probability.

4. Discussion of Operations Conducted in Winter

In response to a question from Parsons, P. Chrostowski, CPF Associates explained that if the team proposes to only excavate in winter, he would take that into consideration and might change his opinion.

EPA Region III agreed that only excavating in winter would change the receptor in addition to the volatility of compounds and that in winter no one would be using the athletic fields.

In response to a question from AU, USACE Baltimore and Parsons explained that the operation will take 6 to 8 months for Option 1. This is the maximum estimate, including factors such as no tent, weather, and hand-excavation. If the team could use mechanized means instead of hand-excavation, the operation could be expedited. So far, only glass fragments have been found, no intact bottles. In winter there would be no concern of breaking a bottle. The soil could be directly placed into drums from the excavation with the intent to send the drums to the incinerator. The team would still monitor the operation for any intact items.

EPA Region III added that the current method of hand-excavating is to handle the soil three times. One person scrapes the soil down, another person rakes the soil, and a third person loads the drum.

In response to questions from EPA Region III, USACE Baltimore confirmed that the operation may start in winter no matter which option is chosen. USACE Baltimore would have no issue moving to mechanical

excavation, if the Partners understand that something may slip through inspection on the way to the drum. Since the drums will be incinerated, that point is moot.

USACE Huntsville and EPA Region III discussed the effects of operations in winter conditions. If the ambient temperature lowers by 20 degrees, the volatility of compounds drops drastically. Additionally, in cold weather there will not be as many people wandering around campus or spending long periods of time sitting with picnic lunches and using the athletic fields.

P. Chrostowski, CPF Associates suggested that the team re-run the models with the lower temperatures. A sensitivity analysis could be performed with HD to show what the concentrations would be at 43 feet at 95, 70, and 50 degrees. If there is a dramatic drop-off that would be a good point in achieving a margin of safety levels that may be part of the work plan. A temperature reading could be collected during each day's morning safety briefing to make a decision about operations on that day.

Parsons confirmed keeping track of meteorological data is part of the safety protocols.

In response to a question from USACE Baltimore, P. Chrostowski, CPF Associates confirmed that the winter scenario would make him more comfortable approving open-air operations without a tent.

USACE Baltimore and EPA Region III noted that in 2008 during intrusive operations in the same area, excavations were conducted in 40-degree temperatures. The workers breathing open air and never noticed an odor, and the monitors had no detections. Even on the day of the August 9 incident workers that were a distance away from the excavation site had no symptoms. Personnel in the tent, the workers up the hill, and the heavy equipment operator experienced were not affected.

In response to a question from P. deFur, USACE Baltimore explained that mechanical excavation would utilize less personnel.

USACE Huntsville suggested that part of the mitigation plan could include plastic pre-staged with sand bags in case of a ring-off to prevent any release from further occurring.

5. Future Activities

In response to a question from P. Chrostowski, CPF Associates, USACE Baltimore confirmed that she would send P. Chrostowski, CPF Associates the air monitoring protocols.

USACE Baltimore agreed to re-run models at 75 degrees and 50 degrees and put together a summary of operational controls to include the mitigation and a refined excavation plan with the use of mechanical means. USACE Baltimore will also pull the data out for just the soils remaining, reminding the Partners that there was only a single data point that was an issue of concern. USACE Baltimore will develop the public messaging to reflect all those factors.

EPA Region III suggested that USACE Baltimore express to the RAB that USACE Baltimore heard and shares the RAB's concerns, is looking for ways that would minimize any release from the site, and is developing a plan with the Partners.

In response to a question from ERT Community Outreach Team, USACE Baltimore confirmed that the ~300 yards of soil to be removed is made up of just the soils and not cement.

E. Site-Wide Remedial Action (RA)

The goal of this segment of the meeting was to review the status of the Site-Wide Remedial Action.

Weston Solutions provided a brief update on the Site-Wide Remedial Action (RA).

1. Remediation components of the planning document phase

- Prepare and implement Land Use Control Implementation Plan (LUCIP) – Draft Final LUCIP was submitted for Partner review on December 22, 2017. Weston Solutions is awaiting comments from the Partners.
- Achieve munitions and explosives of concern (MEC) remediation at 91 residential properties and 13 federal/city lots – Draft Final Advanced Geophysical Classification for Munitions Response Quality Assurance Project Plan (AGC-QAPP) was approved by EPA and DOEE in April 2018. Preparing final version.
- Achieve soil remediation at Spaulding-Rankin and southern AU exposure units plus Public Safety Building (PSB) – Combined Draft Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP) responses to February 16, 2018 comments and revisions are under review by USACE Baltimore. USACE Baltimore expects to submit review comments by May 4, 2018.
- Accident Prevention Plan – Plan has been conditionally approved. Conditions include a traffic control plan and the excavation/trenching plan.
- Blind Seed Plan for inserting blind seeds for geophysical survey has been approved.

In response to a question from EPA Region III, USACE Baltimore confirmed that the Blind Seed Plan is available for the Partners to review. Additionally, USACE Baltimore will also have blind seeds planted. Each property will have blind seeds inserted in addition to verification seeds consisting of Schedule-40 and Schedule-80 steel pipe. Weston Solutions' geophysics staff is firewalled off from seeing the blind seed locations.

In response to a request from EPA Region III, USACE Baltimore confirmed that he would send the Blind Seed Plan to the Partners and set up a phone call for the review.

2. Residential Properties and Federal/City Lots

- The planning documents have been approved.
- A property at 3940 Fordham Road dropped from the remediation list. Only a very tiny section of the back of the property was included in the remediation zone, so USACE Baltimore and the property owners agreed to remove the property from the remediation list.
- Right of Entry (ROE) letters for the first 9 properties were sent out.
- Civil (CP Johnson) and landscape (Pitchford) arborist contractors are ready to create property videos, survey maps identifying property boundaries and marking plant/trees locations on the properties, and inventories and cost estimates of plants/trees.
- The first Man-Portable Vector (MPV) unit is ready and data checked out by Black Tusk Geophysics (BTG). Two more units are scheduled for delivery by May 14.
- Geophysics training with BTG and set up of the instrument verification strip (IVS) for daily equipment checks are scheduled for the week of May 29.

The first 9 properties are spread throughout the Remedial Action area. There are concerns about environmental interference with the data collection systems. The different landscape variables presented by the first 9 properties will provide information to manage the interference.

USACE Baltimore pointed out that 7 of the first 9 properties had not been investigated previously.

ERT Outreach Team noted that 2 homeowners emailed signed ROEs during today's Partner meeting.

3. Residential Schedule for First Property

Depending on the status of the ROE, the first day site visit will occur on either May 14 or 21. The first day will consist of a site visit with a civil surveyor, arborist, and a geophysicist to determine which areas of the property would need to be cleared for the equipment survey. Locations will be selected for survey control. Once the survey plan is determined, the arborist and community outreach team will discuss the landscape appraisal and plan with the residents for approval. From the start of field work to restoration, the project is

expected to be 4 ½ months in duration. The next properties will be staggered, each property will be surveyed before the previous property is completed.

4. Quality Assurance/Quality Control Steps

- Department of Defense (DOD) Advanced Geophysical Classification Accreditation Program (DAGCAP) accredited.
- IVS checks for MPV, G-858 Magnetometer, and positioning systems.
- Blind QC seeds placed at each property (blind to the production team).
- USACE validation/QA seeds (steel piping, International Organization for Standardization (ISO) Schedule-40 or Schedule-80; blind to contractor team).
- USACE and regulatory review of cued survey list and target of interest (TOI) list.
- Target selection verification, library match threshold verification, non-TOI validation.
- Data usability assessments.

In response to a question from P. deFur, USACE Baltimore explained that every property in the entire remediation plan will have blind seeds planted by Weston Solutions and USACE Baltimore.

A separate Weston Solutions QC team will plant the blind seeds, independent from the regular field team of geophysicists.

5. Anomaly Review

In response to a question from USACE Baltimore, EPA Region III suggested conducting anomaly reviews with the Partners. Adding that when the target list is developed, several anomalies would be reviewed on an AGC map. The geophysicists would then describe the anomalies and why the anomalies are selected for excavation.

USACE Baltimore agreed and suggested conducting the anomaly review either in-person or on the phone.

The AGC software will provide an overview of the geophysics data for each target, summarizing the dynamic and cued data and the location on the property. Once the target list is exhausted, there will be another set of anomalies excavated to confirm that the anomalies are not munitions or one of the blind seeds.

In response to a question from P. deFur, USACE Baltimore explained that when the raw data suggesting the cued list is available, the data will be sent to the regulators for review.

EPA Region III and P. deFur agreed that they would want to wait until after the dynamic and cued stages are complete before the Partner Anomaly Review.

USACE Baltimore confirmed the Partner Anomaly Review could wait for the final excavation list.

In response to a question from P. deFur, USACE Baltimore and Weston Solutions confirmed that the Partners will be contacted for anomaly review a few weeks after the start date of the dynamic survey at the first property. It will likely take ~3 weeks to a month to conduct the dynamic geophysical surveys. If work begins in mid-May, the dynamic surveys will likely start in mid-June and the Partners will likely be contacted for anomaly review in July.

In response to questions from EPA Region III, Weston Solutions explained that the 13 federal/city property lots of the RA area, adjacent to the Dalecarlia Parkway were previously investigated. The grid system used for the area for the earlier work will be utilized for the current project. There are no houses on those properties and are not considered part of the 91 properties. All the grid areas will be remediated as a whole strip together.

USACE Baltimore noted that the Dalecarlia Woods park manager has been notified that the remediation will take place.

6. Spaulding-Rankin Exposure Unit

An evaluation of the Cobalt (Co) data set was performed at the property, and the decision was made to excavate, which would result in a Hazard Index (HI) of 2.0. After discussions with the homeowner, 2 of the original locations would be dropped off the list. The 2 dropped locations have higher concentrations than the new locations. Weston Solutions proposes to substitute the 2 new locations for the 2 locations that were dropped off, and the HI will remain at 2.0. Weston Solutions will revise the table and send to USACE Baltimore for distribution.

In response to a question from ERT Community Outreach Team, Weston Solutions agreed to provide to the Outreach Team a tentative schedule of operations for the homeowner by May 2.

7. Public Safety Building

- Draft Plan prepared for conducting Pre-characterization sampling through the foundation slab of the PSB.
- ECBC provided Soil Sampling and Air Monitoring Plans for work at the PSB; MINICAMS at the building locations and depot area air monitoring system (DAAMS) at the perimeter.
- Utility mark-out and GPS mapping of the gas lines was conducted at the PSB on April 27. Washington Gas controls the active gas lines.
- The gas lines run very close to the former PSB walls and foundations, with some sections exposed at the surface within 1 foot of the former PSB wall.
- The current plan is to start Geoprobe Soil Sampling under the PSB slab at the end of May.

In response to a suggestion by USACE Baltimore, recommended that a hot water heater is the viable option for AU, if the gas lines that need to be turned off are only providing hot water to the financial aid building. USACE Baltimore will contact AU by email concerning the gas lines.

Weston Solutions will send photos of the utility location mark-outs to AU and the utility lines will be marked on planning maps. By request of the Partners, Weston Solutions will add a geotech boring to the sampling plan, and a draft Final Sampling Plan will be available to the Partners for review this week.

The proposed PSB sub-slab sampling locations and the added Geotech soil boring shown on slide 10. Additionally, Parsons previously conducted geotech analysis from along the edge of the PSB foundation.

In response to a question from P. Chrostowski, CPF Associates, Weston Solutions confirmed that air monitoring will be placed along the red perimeter lines indicated on slide 10 of the presentation.

USACE Baltimore, added that the MINICMS shed will need to be kept in a secured area; Weston Solutions agreed that the plan will be adjusted to accommodate this.

The sampling effort is set to begin at the end of May. Teams will begin removing the concrete slab in late June/early July, with the excavation of soil expected to begin in August.

In response to a question from P. deFur, USACE Baltimore confirmed that the Partners will be able to review the results of the soil sampling.

F. Groundwater Feasibility Study (FS)

The goal of this segment of the meeting was to review the status of the Groundwater Feasibility Study.

USACE Baltimore will send the revised Groundwater FS with Monitored Natural Attenuation added and highlight the new sections for the Partners.

Todd Beckwith, USACE Baltimore is actively discussing the Groundwater Proposed Plan (PP) with USACE HQ and Deputy Assistant Secretary of the Army for Environment, Safety and Occupational Health (DASA-ESOH). The Groundwater PP will be available in a few weeks.

G. Open Issues and New Data

No new data presented.

H. Future Agenda Items

1. BOI report
2. Groundwater FS
3. 4825 Glenbrook Road/4835 Glenbrook Road
4. Site-Wide PP
5. Site-Wide RA

I. Agenda Building

The next meeting was scheduled for Thursday, June 28, 2018.

J. Adjourn

The meeting was adjourned at 12:34.