

**Spring Valley Partnering Meeting (Focus Group: On Board Document Review)
July 9, 2013
Spring Valley Trailer Conference Room**

Name	Organization/Address	X
Thomas Bachovchin	ERT	X
Brenda Barber	CENAB	X
Jessica Bruland	ERT	X
Paul Chrostowski	CPF Associates, AU Consultant	X
Peter deFur	Environmental Stewardship Concepts/RAB TAPP Consultant	X
Steve Hirsh	US EPA Region 3	X
Dawn Ioven	US EPA Region 3 (Risk Assessor)	X
Carrie Johnston	RCAI - Community Outreach Team	X
Dan Noble	CENAB	X
Cliff Opdyke	CENAB (Risk Assessor)	X
Amy Rosenstein	Consultant for ERT (Risk Assessor)	X
Lattie Smart	ERT - Community Outreach Team	X
Jim Sweeney	DDOE	X
Rebecca Yahiel	ERT - Community Outreach Team	X

Summary of July 9 Spring Valley Partnering Meeting (Focus Group: On Board Document Review)

Consensus Decisions

- Partner concurrence was obtained for the comment responses that were discussed and agreed upon during the meeting.

July 9, 2013 Action Items

- ERT will incorporate a stronger case in the final document for compatibility between exposure unit (EU) size and the exposure scenario being evaluated, as requested. ERT will modify the text to clearly state that the compatibility criterion was reviewed and the pertinent information was found to be acceptable justification for combining areas into a single EU.
- ERT will review detected concentrations using both historic and more recent sampling events, and any locations that could indicate areas of higher concentrations, in order to ensure that the identified EUs do not dilute higher concentrations over a larger area.

- ERT will incorporate all sampling locations and results (both historic and more recent sampling events) to screen the EUs in the next document presenting the screening conclusions. This document will be an addendum to the Pre-2005 RA Review.
- ERT will eliminate the Step 3c target organ evaluation from the formal screening tables, as requested. The text will be revised to discuss the remaining COPCs relative to toxicity, adverse target organ effects, and potential for unacceptable risks, in order to eliminate COPCs with limited potential for human health risks.
- ERT will revise the text to further support the justification for excluding several COPCs during the screening process, as requested by D. Ioven. The report language with respect to weight of evidence arguments will eliminate existing comparisons between 95% UCLs and background, which are based on 95% UTLs. Instead, for specific COPCs, the report language will state, in conjunction with the toxicity and risk discussions mentioned above, that using the 95% UCL value in an HHRA with conservative residential assumptions would result in a HQ of less than 1.
- With regard to PPRTVs, the report language will explain that the reference doses for aluminum, cobalt, iron, thallium, and vanadium (if selected as provisional COPCs) are based on PPRTVs, and will highlight the uncertainties associated with the PPRTVs. These PPRTV uncertainties can be used as further support for excluding COPCs using weight-of-evidence arguments, as applicable.
- ERT will revise the text to emphasize the difference between the approach to risk assessment at Spring Valley FUDS and a typical NPL site (as described in the meeting), and will explain the deviations from typical NPL guidance, as requested by D. Ioven.
- ERT will combine the carcinogenic risks for child and adult residents exposed to 20 ppm arsenic in soil, with the goal of reflecting total risk, as agreed upon by the Partners.
- In the Final version of the document, ERT will reference the relative bioavailability factor of 60% for arsenic in soil provided by EPA, but this factor will not be applied in this HHRA review.
- ERT will prepare final comments/responses and revise the document text to incorporate all agreements reached today (including written and verbal comments). The revised document will then be finalized and submitted to the Partners.
- USACE will prepare a tentative RI report schedule to share at the August 2013 Partnering meeting. If possible, a copy of the schedule will be provided to the Partners prior to the meeting, as requested.

Tuesday, July 9, 2013

Check-in

The Partners conducted an abbreviated normal check-in procedure. Participants included agency toxicologists representing CENAB (Cliff Opdyke), US EPA Region 3 (Dawn Ioven), and ERT (Amy Rosenstein, Independent Consultant).

A. Comment Resolution for the Revised Draft Final Pre-2005 HHRA Review Document

USACE presented their responses to USEPA Region 3 comments on the Revised Draft Final Pre-2005 Human Health Risk Assessment (HHRA) Review document.

Document Overview: [This information was not presented during the follow-on meeting, and is summarized for reference purposes. Details of the structure, contents, and associated maps of the revised draft final pre-2005 HHRA review document were described at the May 2013 Partnering meeting and

previous Partnering meetings.] A total of 5 previously-completed HHRAs and subsequent AUES parameter sampling results were re-evaluated to determine whether the associated conclusions remain protective of human health, based on updated screening criteria. These HHRAs were completed by USACE and/or USEPA between 1993 and 2000, followed by AUES parameter sampling. The pre-2005 data and conclusions were re-evaluated using an elaborate step-by-step screening assessment process. The resulting numerous tables and explanatory text summarize all of the pertinent information from each of the pre-2005 HHRAs. The report also identifies areas new Exposure Units (EUs) that may require additional risk screening and possible risk assessment. Depending on the results of follow-on risk screening and evaluation, one or more EUs may require full separate HHRAs, which will be included in the site-wide Remedial Investigation (RI) report.

Document Status: Prior to the follow-on meeting, the Partners shared any major issues with the document to further expedite the document review and finalization process.

Presentation Objectives: The purpose of this follow-on meeting was to address and resolve all major Partner questions and concerns with respect to the revised draft final pre-2005 HHRA review document. This formal discussion was held in lieu of written back-and-forth comment responses, to accelerate the lengthy review process. The ultimate goal is to identify additional risk assessment work that must be completed and to determine the path forward for writing the draft site-wide RI report.

Review of EPA Comments: The Partners discussed EPA's comments on the revised draft final pre-2005 HHRA review document. These comments were dated June 20, 2013 and were distributed to the Partners prior to the follow-on meeting, for their reference. Associated clarification, resolution, and Partner concurrence for document revisions, finalization, and the path forward are described below during discussion of each comment. [See the associated discussion section that follows each of the comments.]

- **EPA Comment:** "The selection of larger exposure units (EUs) is first discussed on page ES-4 of the report. In addition to determining EUs based on similar 1) past practices, 2) receptor populations, 3) exposure pathways and 4) geography, consideration must be given to the size of the EU. EU size should be compatible with the exposure scenario being evaluated. This critical information (EU size) should be provided in the report (Section 7.1)."
 - **Resolution:** The final document will incorporate a stronger case for compatibility between EU size and the exposure scenario being evaluated, as requested by EPA. The text will be modified to clearly state that the compatibility criterion was reviewed and the pertinent information was found to be acceptable justification for combining areas into a single EU.
 - **Resolution:** ERT will review detected concentrations using both historic and more recent sampling events, and any locations that could indicate areas of higher concentrations, in order to ensure that the identified EUs do not dilute higher concentrations over a larger area
 - **Resolution:** ERT will incorporate all sampling locations and data (historic and more recent) used to screen the EUs in the next document presenting the screening conclusions. This document will be an addendum to the Pre-2005 RA Review.
- **EPA Comment:** "The report lists several screening steps for identifying Contaminants of Potential Concern (COPCs). Some of the proposed steps deviate from the traditional approach recommended by EPA for this task. For example, Step 3c would allow for further screening of selected COPCs by modifying risk-based Regional Screening Levels (RSLs). This modification would be dependent upon the number of non-carcinogens impacting the same target organ. As a consequence, instead of screening at an HQ of 0.1 (to provide a cushion for additive effects), the RSL would be adjusted to a higher concentration to reflect the number of target-organ-specific COPCs. (This is discussed in detail on page 13 of the report.) While including this additional step

will not likely change the overall conclusions of the risk assessment, it provides a less-than-complete picture of site conditions. EPA recommends this step be eliminated from the process.”

- **Resolution:** ERT will eliminate the Step 3c target organ evaluation from the formal screening tables, as requested. The text will be revised to discuss the remaining COPCs relative to toxicity, adverse target organ effects, and potential for unacceptable risks, in order to eliminate COPCs with limited potential for human health risks
- **EPA Comment:** “Pages 15 and 16 of the report present justification for excluding several COPCs during the screening process:”

“At POI 23, high remaining concentrations of arsenic in soil would be disregarded because, according to the report, complete exposure pathways are lacking (due to the historical removal of soil debris from the bunker, placement of clean backfill and pouring of a new concrete floor). EPA agrees that there is no current exposure pathway; however, this is a point that should be addressed after the BLRA is conducted, not before. The presence of arsenic should be qualitatively discussed in the revised BLRA to support institutional controls (existing conditions) to prevent disturbance of or contact with contaminated soil.”

“For POI 22, maximum concentrations of arsenic (59.1 mg/kg), lead (868 mg/kg) and manganese (2020 mg/kg) in soil exceed RSLs and bg levels at the site. However, because a concrete floor overlies contaminated soil, the report concludes that there is no complete exposure pathway; therefore, these metals should be eliminated as COPCs. Similar to comment provided above for POI 23, EPA agrees there is no current pathway (no unacceptable risk) but there may be potential future risk, if the concrete floor is removed or if there is a new land use allowing contact with the soil.”

“Manganese is proposed for elimination as a COPC at POI 39 because “the 95% UCL of the mean (1197 mg/kg) is only slightly greater than bg (968 mg/kg), and the maximum detected concentration (2580 mg/kg) is within the same order of magnitude as bg (when values are rounded).” There is no statistical justification for comparing the 95% UCL of the mean on-site concentration to bg (assumed to be represented by a 95% UTL value). The 95% UTL is an upper-bound estimate of bg and should be compared to the maximum on-site concentration. If the on-site concentration is greater than bg (not “within the same order of magnitude”), then the compound is a site-related contaminant.”

“An argument similar to that provided for POI 39 is presented for cobalt detected at 3819 48th street. It’s true that the maximum level of cobalt on the property (27.9 mg/kg) is within one order of magnitude of bg (17.8 mg/kg) and similar to the adjusted RSL (23 mg/kg at an HQ of 1); however, this is not sufficient justification for eliminating cobalt as a COPC during screening.”

- **Resolution:** 95% UCLs will not be compared to background. (The individual situations and the agreements reached are detailed in the discussions below).
- **EPA Comment:** “On page 22 of the report (line 36), the carcinogenic risks projected for child (3.4E-05) and adult (2.7E-05) residents exposed to 20 mg/kg of arsenic in soil should be combined (6.1E-05) to reflect total risk.”
 - **Resolution:** The carcinogenic risks for child and adult residents exposed to 20 ppm arsenic in soil will be combined in the Final document, with the goal of reflecting total risk.
- **EPA Comment:** “For your information and use, on 31 December 2012, an OSWER Directive was released recommending a relative bioavailability factor of 60% for arsenic in soil (in the absence of site-specific data); the previous default value was 100%. That directive is attached to this e-mail, and should be considered in future risk evaluations involving arsenic in soil.”

- **Resolution:** In the Final version of the document, ERT will reference the relative bioavailability factor of 60% for arsenic in soil provided by EPA, but this factor will not be applied in this HHRA review.

Additional Stakeholder Concerns: Additional time was set aside to address any major or significant concerns the stakeholders may have.

Discussion – Exposure Unit Size (EPA Comment)

T. Bachovchin asked if they correctly interpreted this comment as a request to include further explanation and description of each EU in Section 7.1 of the document (rather than questioning the specific EUs that were identified for further screening and potential risk assessment). D. Ioven explained that numerous factors contribute to identification of EUs. Calculations of exposure point concentrations (and associated health risks) can change depending on the degree of compatibility between EU size and the exposure scenario being evaluated. This compatibility is not mentioned in the revised draft final document as one of the criteria for establishing EUs at the Spring Valley FUDS.

D. Ioven emphasized that compatibility is less important when similar contaminants are present at similar levels across the entire EU, because the exposure point concentrations will not change much. Compatibility becomes an issue when the EU combines geographic areas with different contaminants, or different levels of the same contaminants, because this can significantly alter the exposure point concentration calculations and thus the presence of remaining risks within the EU.

A. Rosenstein mentioned the role of Points of Interest (POIs) in defining the original pre-2005 risk assessment exposure units.

T. Bachovchin replied that they looked at the conceptual site model (CSM) for some of these areas. Regardless of an EU's size, in some cases, it may represent only a single property. T. Bachovchin did not think there were any inconsistencies with regard to compatibility. T. Bachovchin agreed that a stronger case for compatibility can be incorporated into the Final document.

S. Hirsh asked whether any individual residential properties containing significantly elevated contamination levels were lumped together with adjacent clean properties. T. Bachovchin replied that they were not aware of this being the case for the identified EUs; however, they will look closely at the data during the next screen to monitor for this situation.

C. Opydyke asked EPA to clarify what level of elevated contamination, such as an order of magnitude higher than the surrounding properties, would trigger a red flag. C. Opydyke asked if this would apply in a scenario where one property contains screening level exceedances of 18 ppm, and the surrounding properties are below the screening level at around 10 ppm, while the screening level of 15 ppm falls within the noise of the analytical results. D. Ioven replied that this scenario would not be important if the screening resulted in an HQ greater than 1. In contrast, this scenario would present an issue if consistently high manganese levels were observed at a single property where the HQ of manganese is 1 or greater. USACE commented that they will be looking for such a scenario during the screen and added that they cannot say for certain whether such a borderline scenario exists for the identified EUs.

S. Hirsh noted that the properties containing significant levels of contamination have been or are currently being addressed as standalone risk assessments. These include the three Glenbrook Road properties. Other significant detections were also addressed separately, such as a limited area of mercury contamination at a Quebec Street property, and such detections were not normalized across a larger set of properties. S. Hirsh suggested that AU think about whether their campus property contains any scenarios where elevated contamination levels would be diluted during screening of the overall EU.

S. Hirsh suggested that ERT ensure the identified EUs do not include outstanding issues or individual properties with diluted contamination levels. S. Hirsh requested that if this is the case, the text should be modified to clearly state both that the compatibility criterion (relative to the size of the EU and the exposure scenarios) and that the contamination levels were reviewed. For example, for a given EU, it

could be stated that all chemicals were present at approximately the same concentrations, none of which exceeded the amount of acceptable risk, and therefore we find this to be an acceptable justification for combining these areas into a single EU. T. Bachovchin agreed that this analysis and language would be added to the Final document.

T. Bachovchin mentioned that perhaps AOI 9 is the only sizeable EU that might fit this situation as it contains multiple residential properties and is relatively large. This EU was primarily derived based on POI 7 to the northeast, where potential COPCs were evaluated in pre-2005 HHRAs. However, the entire AOI 9 footprint was included to ensure that additional miscellaneous samples, collected after the pre-2005 HHRAs, are evaluated for this area. Examples include grab samples associated with anomaly removal locations. These miscellaneous sampling results need to be reviewed to determine whether they present a dilution scenario by encompassing them within the large AOI 9 EU. S. Hirsh added that any residential properties that present a dilution scenario would need to be screened separately from the larger EU.

A. Rosenstein inquired about specific concentrations that would constitute a dilution scenario. S. Hirsh replied that this depends on the risks associated with the particular individual property and the larger EU. This topic is somewhat subjective and requires use of professional judgment when fully addressing EPA's comment.

Discussion – Exposure Unit Size (AU Follow-on Comments)

AU noted that the southern AU exposure unit is very large and very heterogeneous, and currently encompasses two areas where standalone HHRAs were previously completed (Lot 18 and the Public Safety Building). AU suggested two options for addressing this area. Either the EU boundary should be redrawn to eliminate these areas, or the existing data from these areas should be integrated into the EU screening assessment. T. Bachovchin agreed and clarified that they do not intend to double up on coverage of risk assessment areas. For the purposes of the pre-2005 HHRA review document, the three EU footprints overlapping with AU property represent the entire areas addressed by pre-2005 HHRAs, without regard for recently-completed efforts. These areas (Lot 18 and the Public Safety Building) will be excluded from the final EU footprint during the follow-on risk screening and evaluation.

AU expressed their appreciation for providing the pre-2005 sampling data for reference, and noted that the large number of sample point IDs and associated documents makes it difficult to understand what each sample point ID specifically refers to.

AU requested that the final figures include the pre-2005 HHRA sampling locations. Otherwise, it is difficult for people to visualize the geographical context of the locations sampled during pre-2005 HHRAs. T. Bachovchin agreed that these could be added to the addendum to the Final Pre-2005 document that presents the results of the next screen. T. Bachovchin added that the addendum to the pre-2005 HHRA review report would be produced to show how the next level of screening, including the specific samples, would be conducted on the newly derived EUs. The addendum would include a figure for each EU showing the associated sampling locations, in addition to the actual screening process and results for that EU. This suggestion was made at the May 2013 Partnering meeting but has not yet been further discussed to obtain Partner consensus.

Discussion – Elimination of Step 3c in Screening Process (EPA Comment)

[As described at the May 2013 Partnering meeting, Step 3c analysis accounts for the effects of remaining COPCs on specific target organs. The risk ratio calculated in Step 1 conservatively estimates cumulative effects on overall human health by using an adjusted RSL (reduced by a factor of 10) for each COPC. If the target organs for each COPC are known, then the adjusted cumulative effects are no longer necessary, and in many cases the COPC drops out of the evaluation by using the larger unadjusted true RSL.

T. Bachovchin explained that Step 3c focuses on target organ evaluation, which concludes the portion of the screening process that determines if a sampled parameter (such as aluminum or cobalt) is still

identified as a COPC. Step 3c is designed to help focus this complex and unwieldy effort. This non-traditional “working out of the box” approach allows management of all of the pre-2005 HHRA data and supplemental data using a methodical structure to focus the real areas of concern and not get lost on individual exceedances that would go away once the target organ analysis is applied.

T. Bachovchin summarized EPA’s comment that target organ evaluation, which drops several COPCs out of the evaluation, should be conducted in the site-wide HHRA instead of at this early screening stage. Within this comment, EPA conceded that this additional step (3c) will not likely change the overall conclusions of the risk assessment.

T. Bachovchin shared their opinion that this additional step (3c) accomplishes the same risk screening goal that would be accomplished in the site-wide HHRA. Simultaneously, Step 3c eliminates some of the complexity of the site-wide HHRA and promotes a more focused and organized structure.

USACE believes applying Step 3c in the pre-2005 HHRA review process is helpful and a reasonable means to focus the effort. C. Opdyke emphasized that inclusion of Step 3c significantly reduces the risk assessment effort that will be required during site-wide RI preparation. USACE feels strongly that many of the identified COPCs would drop out of the evaluation in the RI, resulting in the elimination of geographical areas that are considered very low-risk. Eliminating these COPCs earlier in the risk assessment process would reduce the amount of effort during future stages when a significant amount of other risk assessment work will be required. C. Opdyke expressed his opinion that the areas worth evaluating are still included as EUs for further screening assessment and potential additional risk assessment efforts.

T. Bachovchin noted that although the tables have not been revised to exclude Step 3c, ERT was able to identify which COPCs and EUs would be dropped from further screening if Step 3c was eliminated. 8 new areas would be identified, with most of them having only aluminum as a COPC that is added back.

C. Opdyke requested that ERT show the draft final figure containing the EUs that are eliminated during Step 3c along with the remaining EUs. T. Bachovchin showed and briefly described this figure, which complements a color-coded handout table and focuses on the EUs identified for further screening and possible risk assessment. When Step 3c is eliminated, a total of 8 additional EUs are added back to the evaluation. USACE indicated that these EUs will eventually be eliminated because many only contain aluminum and the target organ analysis will drop them out. Further, USACE believes EPA’s comment concurs that this would be the case.

On the table handed out, T. Bachovchin explained that of the COPCs that would require a separate quantitative assessment in the HHRA if not eliminated during Step 3c, those representing new areas (relative to areas already covered as shown in Figure 5) are shaded in yellow on the table for ease of identification. Other COPCs that would require a quantitative assessment in the HHRA with the elimination of Step 3c are shown in red font, as they are part on an existing EU that will be addressed in any case.

EPA (D. Ioven and S. Hirsh) shared their discomfort with this additional step (3c), which essentially serves as a shortcut. Although they agree that the end result will be the same, this is not how EPA screens COPCs for inclusion or elimination during the risk assessment process. According to the Risk Assessment Guidance for Superfund (RAGS), screening level exceedances should undergo risk assessment, and this is required at National Priorities List (NPL) sites. D. Ioven requested that ERT pursue a different method of reaching the same COPC elimination decisions. EPA understands that the Spring Valley FUDS is a unique site with a tremendously large dataset, and they understand why target organ evaluation was conducted as part of the screening process. However, they will not approve the use of this additional step at other project sites. If possible, EPA would feel more comfortable with the current screening process if USACE finds another way to address these COPCs.

C. Opdyke's suggested that the text be revised to justify the elimination of COPCs, analogous to a weight-of-evidence argument. S. Hirsh replied that they are fine with this approach; for example, the text can discuss and justify the elimination of aluminum as a COPC.

S. Hirsh emphasized again that they are uncomfortable with the use of Step 3c presented in this fashion as part of the formal screen, despite their agreement and understanding that the final risk assessment results will be the same regardless of the risk assessment stage at which COPCs are eliminated.

AU agreed that aluminum could be eliminated from the list of COPCs at this stage. AU added that they are less comfortable with early elimination of metals such as vanadium and cadmium.

In response to EPA's inquiry, T. Bachovchin provided an example of a situation where a relatively small discrete area gets complicated when COPCs are introduced back into the evaluation. For the LTC Bancroft area, a single soil sample was collected at the location where a smoke round was recovered early during the Spring Valley project. While thallium was eliminated based on a weight of evidence argument, upon removal of Step 3c, aluminum and cadmium both return as COPCs for evaluation for this minor area.

In response to D. Ioven's inquiry, USACE clarified that the LTC Bancroft area being discussed is the Dalecarlia Woods. D. Ioven noted that Step 3c elimination of cadmium in this example depends on how elevated the cadmium exceedance was. T. Bachovchin noted that the cadmium concentration was pretty low, and S. Hirsh noted that it was low enough to be dropped as a potential COPC during target organ evaluation (Step 3c). A. Rosenstein added that for the sample, 29 mg/kg cadmium exceeded the adjusted RSL of 7 mg/kg, but would not exceed the unadjusted RSL of 70 mg/kg and would not warrant significant further analysis.

T. Bachovchin mentioned that a couple of similar scenarios were encountered, such as one residential property containing only four samples. [Further discussion of this topic is associated with the next EPA comment.]

D. Ioven re-stated their request that COPC elimination decisions be made in the text instead of via target organ analysis, because EPA is uncomfortable with the change in approach for identifying COPCs for further screening. A common sense narrative approach can be used to explain that a single sample exceeding the screening level would still not result in unacceptable risk at the associated EU.

S. Hirsh suggested that the text should identify and describe each COPC, followed by explanation of why the COPC will not be brought forward into the baseline site-wide HHRA.

T. Bachovchin agreed that COPCs not brought forward for full HHRA analysis would have text identifying and describing each COPC and an explanation of why it is not a COPC.

Similar arguments were made for EUs addressed in the next EPA comment. For example, a total of 4 samples at a single residential property contained only aluminum and vanadium exceedances if Step 3c is deleted. [Further discussion of this topic is associated with the next EPA comment.]

D. Ioven added that these weight-of-evidence arguments, in lieu of explaining the additional screening Step 3c, are a different way of saying the same thing. C. Opdyke confirmed that the deletion of COPCs at this stage can be further and more completely explained in the text.

Discussion – Excluding Several COPCs during the Screening Process (EPA Comment)

The Partners discussed the justification and weight-of-evidence arguments for eliminating several COPCs during the screening process. T. Bachovchin noted that there are only five scenarios in which a weight-of-evidence argument was made for eliminating a chemical as a potential COPC. These arguments were designed to address technical challenges with particular exceedances for small discrete standalone areas. The weight-of-evidence scenarios include POIs 22, 23, 39, and at the 3800 block of 48th Street property.

T. Bachovchin mentioned that POIs 22 and 23 do not present current exposure pathways or unacceptable risks. The weight-of-evidence arguments for both POIs seems to be strong, with EPA acknowledgement of the conclusion that these exceedances are unlikely to pose any threat, but the samples must be explained and addressed within the larger screening document and site-wide HHRA. T. Bachovchin further mentioned that both POIs are within the larger property on the 4700 block of Woodway Lane property EU and would be addressed within that discussion.

T. Bachovchin added that POI 39 and the 3800 block of 48th Street property present essentially the same issue, but represent a more challenging scenario in that they contain only a single metal in discrete areas not within planned EU. For POI 39, the metal is manganese, for the 3800 block of 48th Street property, a small individual residence, the metal is cobalt.

T. Bachovchin asked whether the Provisional Peer Reviewed Toxicity Value (PPRTV) for cobalt can be used to support the weight-of-evidence argument for eliminating this cobalt at the 3800 block of 48th Street property. EPA replied that a more complete argument needs to be used for eliminating cobalt as a COPC, emphasizing that the comparison between exceedances of the background concentration be eliminated from the report language, due to the 35 percent difference between background values at this site. She noted that it would need to be determined whether the use of the 95% UCL value in a HHRA could result in a HQ of less than 1, and she requested that the text further explain that the reference dose for cobalt is based on a PPRTV. This type of value is typically used during risk assessment, but depending on the chemical it can present greater or less uncertainty. She requested that the uncertainties associated with the cobalt PPRTV be highlighted in the text and used as justification for dropping the property out of consideration for further risk assessment. ERT agreed to make this argument in the text.

D. Ioven made a similar recommendation with respect to manganese exceedances. She requested evidence beyond the comparison between maximum and background, as in this case, this alone does not support a good weight-of-evidence argument. Although manganese exceeded the adjusted RSL, it would need to be determined whether or not the 95% UCL value produces an HQ of less than 1. Additional evidence to show that manganese is unlikely to pose a risk in this area would be required in the document.

D. Ioven recommended that the text should emphasize the difference between the Spring Valley FUDS and a typical NPL site. This type of data evaluation is unlikely to be conducted at an NPL site, where all of the existing data would be integrated directly into the HHRA. Additional considerations for the Spring Valley FUDS include the large number of data points available for some of the EUs, and the approach of eliminating COPCs that do not pose unacceptable risk earlier in the risk assessment process. The text should emphasize that these differences are deviations from guidance. T. Bachovchin agreed that this language would be added to the text.

USACE asked whether the 95% UCL can be calculated for the property where only 4 samples were collected. EPA agreed that the maximum value could be used for the screen in this case.

T. Bachovchin clarified that a total of 13 samples were collected within POI 39, while only 4 samples were collected at the 3800 block of 48th Street property.

Discussion – Appropriate Use of PPRTVs (Follow-on Comments)

The Partners briefly discussed the problems with the use of PPRTVs in the screening process and in the HHRA. T. Bachovchin mentioned that at least four of the toxicity values for key COPC metals identified in the EUs (thallium, vanadium, aluminum, and cobalt) are PPRTVs with associated uncertainties.

C. Opdyke noted that at other sites, he struggles with the Army's Center for Excellence (CX) reviewer's restrictions on appropriate use of PPRTVs. These restrictions were stated in no uncertain terms during CX reviews of RI reports that serve as a conclusion to a risk assessment effort. According to the CX, a PPRTV that is considered to be a screening level must be described as such, because these are only considered provisional values by the DoD, but not all PPRTVs are screening level. C. Opdyke added that some PPRTVs are not considered to be of sufficient quality for quantifying risk, and USACE is not

permitted to use these values for risk assessment purposes. This is the reason why the agencies are experiencing pushback with respect to the use of PPRTVs.

D. Ioven noted that an argument can be presented for using a particular PPRTV, depending on whether the calculations contradict or challenge how stringent the value is.

C. Opdyke added that the different tiers of PPRTVs should be called out in the document as part of the overall arguments, but the specifics for each of the PPRTVs used in the screening must be clarified in the HHRA review. He emphasized that a screening-level PPRTV is to be used for screening purposes only.

A. Rosenstein stated that during the next step, when the project team outlines the approach for moving forward with follow-on risk assessment efforts, the usable and unusable PPRTVs should be identified and shared with C. Opdyke for concurrence.

AU asked why the agencies are resistant to carrying each COPC through to the HHRA, followed by discussion, and expressed the opinion that bad toxicological assessment is better than none. C. Opdyke explained that this is a policy issue. The U.S. Army Public Health Command (formerly CHPPM) has spoken extensively on this subject and strongly prefers that a sub-par value not be used at all, instead of using the value for toxicological assessment and then discussing the associated uncertainties. D. Ioven added that EPA is receiving pushback from the DoD regarding the use of provisional values, while EPA stands their ground and presents their arguments based on their hierarchy and available guidance.

P. deFur noted that there will be empty boxes regardless of which choice is made, and the ultimate decision is driven by the preferred location of those empty boxes. If sub-par provisional values are excluded from the RI, this results in the inability to make informed statements, followed by an uncertainty analysis that points out uncalculated exposures and risks. If sub-par provisional values are incorporated into the RI, then the uncertainty section will describe the criteria as imperfect.

T. Bachovchin questioned the value of completing this step if both possible end results simply end at the uncertainty discussion stage, that is, why expend the effort in the first place if you know where it will end up. For example, at a different site within EPA Region 2, ERT completed a standard risk assessment for thallium using the PPRTV. The CX rejected this assessment because of the thallium PPRTV, and assessment of thallium was deleted from the entire document prior to the next administrative review. In that example, it had not yet been determined whether EPA (Region 2) would ask to see thallium reinstated in the risk assessment.

C. Opdyke emphasized the challenges of explaining toxicological issues in the uncertainty section. It will be difficult for a typical member of the public to understand why there appears to be risk present at an EU and then the conclusions state that it does not really qualify as risk.

AU replied that, in their opinion, it will be more difficult to explain why a potential COPC was not evaluated due to a policy. This scenario presents the risk of completing an RI report without using the questionable toxicological criteria, with a separate report subsequently produced by AU that contains these provisional criteria such as values for vanadium. The public will see two separate views of assessing risk at the same property. AU's goal is to ensure this RI report is as comprehensive as possible to support making the best decisions for the university.

A. Rosenstein noted that these associated issues are discussed, just not quantified because of the PPRTV nature of the toxicity data. Some screening values provide better support for good data and conclusions, while other screening values (such as those for thallium and vanadium) are associated with significant uncertainty in toxicological evaluations. These latter screening values are not necessarily ignored; they are discussed qualitatively.

Discussion – Bioavailability of Arsenic in Soil (EPA Comment / FYI)

EPA explained that they recently received direct guidance on the use of the non-site-specific relative bioavailability factor for arsenic in soil. This comment was primarily for informational purposes.

AU pointed out that the relative bioavailability factor of 60% for arsenic in soil is primarily based on studies of inorganic arsenic, such as arsenic resulting from pressure-treated wood, mining, and milling. They would be reluctant to apply this bioavailability factor at the Spring Valley FUDS, unless arsenic speciation analyses are conducted to ensure that this factor is only applied to inorganic arsenic. Organic arsenic is less toxic but has greater bioavailability.

USACE asked if the 60% relative bioavailability factor can be used for risk assessment purposes. EPA confirmed that although the guidance stresses a preference for using site-specific bioavailability studies, the full 60% factor can be used in the absence of a site-specific factor.

EPA mentioned that the site-specific bioavailability factor for arsenic in soil at the Spring Valley FUDS was calculated as 37% (estimated number) during the 2003 EE/CA study. AU re-stated and emphasized their strong opposition to the use of this bioavailability factor unless the arsenic in soil is shown to be inorganic arsenic. EPA agreed that the 60% bioavailability factor was primarily based on studies conducted in Midwestern states. T. Bachovchin asked for clarification on EPA's viewpoint on whether they support use of the 60% factor for arsenic in general or only as determined to be inorganic or organic forms. EPA replied that based on their agency's guidance, the 60% bioavailability factor can be used for arsenic in soil without having to determine whether the arsenic is organic or inorganic.

Discussion – Additional Stakeholder Concerns

P. deFur inquired about the next step, with emphasis on incorporating the combined child and adult cancer risk in the final document. T. Bachovchin confirmed that final comment responses will be prepared, and the document text will be revised to incorporate all agreements reached today (including those not associated with EPA comments). The revised document will then be finalized and submitted to the Partners.

No additional Partner concerns or questions were voiced with respect to the document contents.

Discussion – Site-Wide RI Report Structure

P. deFur shared a question recently asked by a couple of RAB and/or community members. This inquiry focused on how the site-wide HHRA will consider both the toxicity of chemicals and the toxic effects of MEC. EPA replied that these two assessments are conducted separately within the RI report.

P. deFur replied that the interested parties are aware of the separate nature of the two assessments, one being a risk assessment and the other being a hazard assessment. Specifically, they asked how the two completed assessments are combined together. EPA explained that the two assessments are not combined or integrated at all. AU added that their constituency is fine with this approach, and they personally do not see a problem with conducting two parallel risk investigations (HHRA and MEC HA).

P. deFur asked whether this approach will be mentioned in the RI. EPA replied that the RI can include a description of the MEC HA as an evaluation to look at explosive components of risk. T. Bachovchin added that the MEC HA was previously briefed to the Partners and the RAB, and the RI report will include discussion of hazard (MEC HA) versus risk (HHRA).

AU expressed interest in the next steps of the screening and risk assessment process (specifically, the 'when' and 'how'). T. Bachovchin replied that upon finalization of the pre-2005 HHRA review report, the project team would proceed with the next steps as outlined in the document. Recent supplemental soil samples will be incorporated into the screening process for each EU.

Discussion – Site-Wide RI Report Schedule

USACE mentioned that at this point in the overall site-wide RI schedule, the document status is supposed to be early rather than delayed.

AU asked whether the site-wide HHRA will be finalized prior to the RI report, or finalized simultaneously as a component of the RI report. USACE replied that the formal HHRA will be presented as a portion of the overall RI report.

AU inquired about the structure of the site-wide HHRA. USACE confirmed that the HHRA will comprise a section of the RI report along with discussion of the nature and extent of contamination. C. Opdyke added that the HHRA will consist of a small report section that presents and summarizes the full HHRAs (if any are necessary based on the next screen) that will be included as large appendices.

Discussion – Site-Wide RI Report Contents

AU inquired about the status of recent supplemental soil sampling data. ERT confirmed that these data have not been incorporated into a standalone report, but the data tables have been shared with the Partners. ERT also confirmed that these data will be integrated into the screening process and discussed in the RI report. The plan is to ensure all samples have a home with respect to risk so that no orphan sampling results remain. These include not only the 2012 supplemental soil sampling data, but also numerous samples that have been collected but not captured in any risk assessments, for example, grab samples collected at anomaly locations. AU replied that this sounds good. This would not include sampling at standalone completed smaller efforts where remediation has been completed.

EPA asked whether sediment and surface water sampling will be incorporated into the site-wide RI (specifically, data collected since the Screening-Level Ecological Risk Assessment [SLERA] was completed). ERT clarified that the pertinent data were already included in the SLERA, which was finalized a couple of years ago, while more recent surface water samples collected by URS as part of the groundwater assessment have not been addressed as part of the HHRA.

P. deFur added that surface water parameters are limited to perchlorate and arsenic, which only affects Ecological Risk Assessment criteria, and asked if that document would be updated. T. Bachovchin and A. Rosenstein replied that they are not aware of any changes to the ecological standards since the Eco RA was finalized, and they still rely on Ecological screening values from the mid-1990s.

P. deFur asked whether any Spring Valley properties, aside from 4825 Glenbrook Road, have recently produced soil sampling data. He asked whether these activities, such as confirmation arsenic sampling, will be incorporated into the RI. USACE confirmed that samples have been collected as investigations proceeded in association with anomalies, MD finds, and other efforts, but these would not include individual arsenic removals where clean confirmation samples were obtained and that area was remediated.

USACE asked for confirmation that the RI report must include a summation of groundwater risks (as completed in the separate groundwater HHRA being conducted by URS) to add to the total risk. T. Bachovchin confirmed that these risks will be summarized and included upfront, with the full groundwater risk assessment appended to the RI report.

P. deFur asked why surface water results would not be incorporated into the HHRA. AU added that this could be done under a residential scenario because children commonly play in and around streams. D. Ioven noted that it takes a lot to encounter unacceptable risk from surface water and sediment in a recreational scenario. P. deFur added that without consideration for that type of exposure, he is aware of perchlorate in surface water in at least one location.

C. Opdyke mentioned that he would not want to sample for perchlorate after last week's holiday. P. deFur added that every major water body in the U.S. experiences a perchlorate spike after the July 4th fireworks displays.

Community Outreach added that another surface water perchlorate source could be flooding off the Dalecarlia Woods and associated protective road flares to redirect drivers.

It was decided that the more recent surface water sampling results could be compared to the previous results to determine whether or not results have changed over time.

Discussion – Site-Wide RI Report Preparation

T. Bachovchin distributed copies of the flow chart, requested by AU at the May 2013 Partnering meeting, which illustrates the screening process outlined in the pre-2005 HHRA review report. This flow chart does not reflect removal of the Step 3c analysis, but it may be helpful for reviewing the data tables. AU responded that this flow chart looks good and was very helpful.

In response to DDOE's inquiry, T. Bachovchin confirmed that this flow chart is the same version that was recently sent electronically to the Partners.

AU noted that upcoming risk assessment and document schedule dates still have not been shared. USACE replied that this information will be checked and provided when possible. Based on USACE's recollection, submission of the next level of screening (i.e., the addendum to the finalized Pre-2005 Risk Review document) is approximately one month behind based on that last updated schedule. T. Bachovchin will review that last updated version and see when the draft RI was due. However, it will include the potential new RAs and is therefore still some time out. USACE mentioned that they will prepare a tentative RI report schedule by the August 2013 Partnering meeting. USACE agreed to provide a schedule copy to the Partners prior to the meeting if possible, as requested by P. deFur.

Next Steps

The final Pre-2005 HHRA Review document will incorporate a stronger case for compatibility between EU size and the exposure scenario being evaluated, as requested. ERT will modify the text to clearly state that the compatibility criterion was reviewed and the pertinent information was found to be acceptable justification for combining areas into a single EU.

The Step 3c analysis (target organ evaluation) will be eliminated from the screening process, as requested. The text will be revised to discuss the remaining COPCs relative to toxicity, adverse target organ effects, and potential for unacceptable risks, in order to eliminate COPCs.

The text will be revised to further support the justification for excluding several COPCs during the screening process, in favor of another strategy to achieve the same result, as requested by EPA. The report language will eliminate existing comparisons between the 95% UCL and the background (95% UTL). Instead, for specific COPCs, the report language will state, in conjunction with the toxicity and risk discussions mentioned above, that using the 95% UCL value in a HHRA with conservative residential assumptions would result in an HQ of less than 1.

The report language will explain that the reference doses for aluminum, cobalt, iron, thallium, and vanadium (if selected as provisional COPCs) are based on PPRTVs, and will highlight the uncertainties associated with the PPRTVs, with the presentation of these uncertainties as further support for the weight-of-evidence argument.

The text will be revised to emphasize the difference between the Spring Valley FUDS and a typical NPL site (as described in the discussion), and to explain that these differences are due to deviations from guidance, as requested by D. Ioven.

During further outlining of the approach for moving forward with follow-on risk assessment efforts, the PPRTVs that can be used in risk assessments will be identified and shared with C. Opdyke for concurrence, as suggested by A. Rosenstein.

The carcinogenic risks for child and adult residents exposed to 20 ppm arsenic in soil will be combined, with the goal of reflecting total risk, as agreed upon by the Partners.

In the Final version of the document, ERT will reference the relative bioavailability factor of 60% for arsenic in soil provided by EPA, but this factor will not be applied in this HHRA review.

ERT will prepare final comments/responses and revise the document text to incorporate all agreements reached today (including those not associated with the written EPA comments). The revised document will then be finalized and submitted to the Partners.

USACE will prepare a tentative RI report schedule to share at the August 2013 Partnering meeting. If possible, a copy of the schedule will be provided to the Partners prior to the meeting, as requested.

B. Agenda Building

The next Partnering meeting is scheduled for Tuesday, August 20, 2013.

Discussion – Upcoming Meetings

The Partners briefly discussed the upcoming Partnering meeting schedule. USACE confirmed that recent groundwater sampling data is currently being validated by agency toxicologists and should be available for review at the August 2013 Partnering meeting. Validated groundwater data from the recently completed semi-annual sampling effort will be shared with the Partners, if available, in which case the meeting will begin at 9:15 AM.

A short site tour for the key Partners is tentatively scheduled for August 20, 2013 in the afternoon, just after the short Partnering meeting focused on groundwater (based on the current schedule). This tour is not associated with the Partnering meeting. As previously discussed at the May 2013 Partnering meeting, the on-site tour will include the interior of the ECS. All equipment will be fully operational during the tour, including monitoring equipment and weather stations, and ECBC and CARA support personnel will be present.

Community Outreach mentioned that a short site tour for the RAB will be proposed for the evening of September 10, 2013, in lieu of a formal RAB meeting. This date and time will be confirmed or revised based on feedback at tonight's RAB meeting. DDOE noted that they may have to send someone from their agency to attend the Partners tour in his place; alternatively, he could tour with the RAB. USACE added that pre-operational survey activities would be completed by the time the RAB members arrive for an evening tour.

USACE mentioned that based on the current remedial action schedule, high-probability excavation will begin on September 23, just after the sequester furlough ends. EPA noted the risk of encountering a second furlough at the start of the next fiscal year, and USACE replied that possible schedule impacts will be dealt with if this scenario occurs.

In response to USACE's inquiry, AU confirmed that he [P. Chrostowski] will attend the 4825 Glenbrook Road site tour held for AU President Kerwin.

C. Adjourn

The on board review meeting was adjourned at 3:32 PM.

Following the meeting, several Partners attended the July 2013 RAB meeting.