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MEETING NOTES
Waste Management Area C RCRA Facility Investigation Report

MEETING DATE: March 17, 2016
LOCATION: Washington State Department of Ecology Office, Richland, WA
ATTENDEES:

Alaa Aly (CHPRC)	Damon Delistraty (Ecology)	Julie Robertson (Freestone)
Mike Barnes (Ecology)	Jeff Lyon (Ecology)	Beth Rochette (Ecology)
Ryan Beach (DOE-ORP)	Alexander Pappas (WRPS)	Kristin Singleton (WRPS)
Marcel Bergeron (WRPS)	Dan Parker (WRPS)	Cindy Tabor (WRPS)
Ryan Childress (WRPS)	Mahmudur Rahman (INTERA)	

BACKGROUND INFORMATION: The meeting was called to promote continued Ecology, EPA, DOE, and WRPS discussion about comments associated with and revision of RPP-RPT-58339, Rev. A Draft *Phase 2 RCRA Facility Investigation Report for Waste Management Area C* (WMA C RFI Report). The report was submitted to Ecology and EPA in December 2014 to meet *Hanford Federal Facility Agreement and Consent Order* (HFFACO) Milestone M-045-61. Ecology's February 23, 2015 response to the RFI report submittal (Letter 15-NWP-37) noted that holding "a recurring meeting to discuss statements, regulatory interpretations, and the process steps for obtaining an agreeable RFI/CMS process for WMA C Closure" would be beneficial. Ecology comments on the WMA C RFI Report and supporting documents were transmitted on July 7, 2015, "Department of Ecology's (Ecology) Completed Review of Phase 2 RCRA Facility Investigation Report for Waste Management Area C, RPP-RPT-58339, Revision A Draft" (15-NWP-120).

Lists of expectations, agreements, and actions (including the status of any actions) are documented in the meeting notes.

PURPOSE OF MEETING: This meeting was called to discuss select comments on the WMA C RFI Report and RPP-RPT-58329, Rev. 0, Baseline Risk Assessment for Waste Management Area C (BRA).

STATUS OF PRIOR MEETING NOTES: Ms. Robertson reported that notes from the January 21, 2016, meeting had been entered into the HFFACO Administrative Record, and internal review comments were being incorporated into the notes from the February 23, 2016, meeting.

DISCUSSION OF SELECT ECOLOGY COMMENTS ON WMA C RFI REPORT AND BRA:

<u>Updated Responses:</u>
Ms. Tabor provided handouts (Attachments 1 and 2) containing proposed updated responses to the following comments:

- WMA C RFI Report: Damon 6, 11, 19, 20, 45
- BRA: Damon 5, 14, 16, 38(1), 38(2), 38(3), 45.

The attendees tentatively agreed to the proposed updated responses to the following comments pending their incorporation into the revised WMA C RFI Report and BRA:

- WMA C RFI Report: Damon 6.
- BRA: Damon 5, 38(2), 38(3), 45.

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Pending incorporation into the revised BRA, the attendees tentatively agreed to a modified updated response to BRA Damon 38(1) as follows: The proposed updated response is acceptable but will be modified to add that the title of Table 3-2 will be updated to state that it includes only shallow locations.

The attendees agreed to hold the following comments open pending further discussion:

- WMA C RFI Report: Damon 11, 19, 20, 45
- BRA Damon 14, 16.

New Responses:

Ms. Tabor handed out a table (Attachment 3) containing proposed responses to the following comments that had not been addressed in prior WMA C RFI Report meetings:

- WMA C RFI Report: Damon 22, 25, 28
- BRA: Damon 18, 48, 52, 56, 61.

The attendees tentatively agreed to the proposed responses to the following comments pending their incorporation into the revised WMA C RFI Report and BRA:

- WMA C RFI Report: Damon 22, 25.
- BRA: Damon 18, 48, 52, 56, 61.

Pending incorporation into the revised WMA C RFI Report, the attendees tentatively agreed to a modified response to WMA C RFI Report Damon 28 as follows: The proposed response is acceptable but will be modified to add that the revised RFI report will cite CHPRC-00784.

EXPECTATIONS, AGREEMENTS, AND ACTIONS: Expectations, agreements, and actions are provided in the tables that follow. A new expectation was recorded during this meeting.

NEXT MEETING: The next meeting will be held March 29, 2016 at 1:00 pm. The discussion topic is tentatively identified as Ecology comments on contaminant fate and transport.

Chad Kempf for Ryan E. Barnes	CTL for Ryan E. Barnes	4-21-2016
DOE Project Manager (print)	DOE Project Manager (signature)	Date
Jeffery J Lyon		4-21-2016
Ecology Project Manager (print)	Ecology Project Manager (signature)	Date

DATE	EXPECTATIONS
01/23/2016	1. Mr. Barnes expressed his expectation that if the revised WMA C RFI Report refers to 200-BP-5 documentation to address groundwater conditions, the 200-BP-5 remedial investigation report should first be finalized.
03/17/2016	2. By the end of May 2016, an agenda item will be added to allow for discussion of the results of Action Number 2015-10-28-2 regarding groundwater integration.

DATE	AGREEMENTS
04/15/2015	1. Regarding references in RPP-RPT-58339, Rev. A Draft *Phase 2 RCRA facility investigation Report for Waste Management Area C* to RPP-PLAN-37243 *Phase 2 RCRA Facility Investigation/Corrective Measures Study Master Work Plan for Single-Shell Tank Waste Management* Areas: • References in the draft RFI report are adequate as is and do not require modification. • The HFFACO milestone (M-045-58) associated with the Master Work Plan is complete. • It would be beneficial to continue discussion on the topics covered in the Master Work Plan.

ACTIONS (2 pages)			
Action Number	**Actionee**	**Description**	**Status**
2015-08-26-1	Cindy Tabor	Evaluate whether internet links to reference documents can be added to the RFI report.	In progress. Will remain open until document revisions are farther along.
2015-10-28-1	Mike Barnes	Ms. Tabor, Ms. Radloff, and Messrs. Barnes, Caggiano, and Bergeron will work together to clarify what groundwater technical information Ecology needs to see in the RFI report. The parties will also identify whether that information is in 200-BP-5 documents, and if so, where.	In progress. See action 2015-10-28-2.
2015-10-28-2	Ryan Beach	Develop a path forward for the groundwater integration approach.	In progress. RL and ORP meetings are ongoing.
2015-10-28-3	Cindy Tabor	Regarding WMA C tank and soil inventory/leak information, WRPS/DOE will prepare a table with values to be used as the basis for corrective action decision making and will provide the basis information (e.g., reference documents) as footnotes/supporting information. Information in the table will be reviewed in a future meeting, the table incorporated into the meeting notes, and the notes entered into the HFFACO Administrative Record.	In progress. The soil inventory report (RPP-RPT-42294, Rev. 2) is in the document release process.
2016-01-21-1	Cindy Tabor/Julie Robertson	Identify and report back regarding where WMA C RFI Report provides information on the currently agreed-to RFI/CMS process.	Open. Ms. Robertson will email response to Mr. Caggiano.

ACTIONS (2 pages)			
Action Number	**Actionee**	**Description**	**Status**
2016-01-21-2	Cindy Tabor	Contact Jeff Lyon by email (copying DOE and Mike Barnes) to resolve ECY comments.	Completed 2/25/16; closed 3/17/16.
2016-01-21-4	Ryan Beach	Provide Ecology comments WMA C RFI Report Beth 2, Damon 46, and Damon 47 (related to the WMA C Groundwater Screening Report RPP-RPT-58297, Rev. 0) to DOE-RL representatives for the 200-BP-5 Operable Unit.	Completed 3/1/16; closed 3/17/16.
2016-01-21-5	Ryan Beach	Track DOE-RL responses to Ecology comments related to groundwater (200-BP-5) and report back at future WMA C RFI Report meetings.	In progress.

Attachment 1
Updated Responses to Select Ecology Comments on the WMA C RFI Report and Baseline Risk Assessment

Comment From (ECY)	Item	Comment (s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/ problem indicated.)	Doc	Response	Updated Response
Damon	Damon RFI 6, Damon BRA 5, Damon BRA 45	The point of this comment is that COPCs without toxicity data should be treated as a source of uncertainty in the risk assessment. The updated Table 8-1 (RPP-RPT-57218) lists 20 detected VOCs (not 2), 38 detected SVOCs (not 11), and 1 detected pesticide (not 4) with no toxicity data.	RFI BRA	The updated table 8-1 includes soil sample results for both shallow (up to a depth of 15' bgs) and deep locations (>15' bgs). However, the deep results were not utilized in the human health direct contact and ecological risk evaluations. Therefore, only shallow results (2 VOCs, 11 SVOCs, and 4 pesticides) were described in the summary. A footnote will be added to Table 8-1 to clarify the discrepancy. Finally, the uncertainty evaluation will include this discussion.	The updated table 8-1 includes soil sample results for both shallow (up to a depth of 15' bgs) and deep locations (>15' bgs). However. the deep results were not utilized in the human health direct contact and ecological risk evaluations. Therefore, only shallow results (2 VOCs, 11 SVOCs, and 4 pesticides) were described in the summary. A footnote will be added to Table 8-1 to clarify the discrepancy. The uncertainty evaluation will include this discussion. In addition, the following paragraph will be added in Section 3.5.11 (Groundwater Protection Pathway). For a number of metals, VOCs, SVOCs and pesticides/herbicides, due to the absence of toxicity information or promulgated cleanup levels, three-phase model concentrations could not be determined. This introduced an uncertainty in the groundwater protection evaluation for these contaminants (listed in Table 8-1).
Damon	Damon BRA 38	The point of the comment is that EPC should be compared against both CUL and background. A COPC should be retained if EPC exceeds both CUL and background. Please clarify why sample size (n) for a given analyte/EA combination differs in Table 3-2 vs Table 3-14 ([shallow] vs [shallow+deep] samples?). Also, re arsenic for EA C, text (p. 3-72, line 13) states, "EPC is less than both concentrations." However, Table 3-14 notes that EPC (11682 ug/kg)>3 phase model CUL (34 ug/kg) for arsenic at EA C. What is the basis of this EPC (11682 ug/kg)? Also, it is not clear how the 3 phase model result (34 ug/kg) is calculated for arsenic. MTCA/CLARC lists 2.92 mg/kg (2920 ug/kg) as the soil concentration to protect groundwater for arsenic. Text (p. 3-70, line 31) refers to ECF-HANFORD-10-0442, as the basis and calculations for soil concentrations protective of groundwater. However, the pdf file for this report somehow has the correct title page (ECF-HANFORD-10-0442), but the report body is actually ECF-HANFORD-10-0439 (soil concentration to protect surface water)….	BRA	1. Table 3-14 includes the sample results for shallow and deep locations whereas Table 3-2 includes the sample results for shallow locations. 2. Text will be updated as follows: "The EPC for arsenic is higher than its corresponding 3-phase model CUL. However, it is less than its soil background concentration." It should be noted that soil background concentration for arsenic was determined based on Department of Ecology 's Memo related Arsenic Cleanup Level at Hanford (06-11-2013). 3. The EPC for arsenic was selected based on 95% Approximate Gamma UCL. 4. For inorganics, soil concentrations for groundwater protection are calculated using Equation 747-1 from the 2007 WAC 173-340-747. Based on CLARC database, MTCA Method B Groundwater cleanup criteria and Kd values for arsenic are 0.058 µg/L and 29 mL/g, respectively. Those values are used during the determination of arsenic soil concentration for groundwater protection. Instead of MTCA Method B groundwater CLU, CLARC database determined arsenic soil concentration for groundwater protection based on its corresponding background groundwater concentration of 5 µg/L. 5. The ECF reference will be corrected.	1. Table 3-14 includes the sample results for shallow and deep locations whereas Table 3-2 includes the sample results for shallow locations only. 2. Text will be updated as follows: "The EPC for arsenic is higher than its corresponding 3-phase model CUL. However, it is less than the arsenic concentration value provided in the Department of Ecology's Memo related Arsenic Cleanup Level at Hanford (06-11-2013). 3. The EPC for arsenic was selected based on 95% Approximate Gamma UCL. Table 3-14 will be updated to include the basis of for each EPC. 4. For inorganics, soil concentrations for groundwater protection are calculated using Equation 747-1 from the 2007 WAC 173-340-747. Based on CLARC database, MTCA Method B Groundwater cleanup criteria and Kd values for arsenic are 0.058 µg/L and 29 mL/g, respectively. Those values are used during the determination of arsenic soil concentration for groundwater protection. Instead of MTCA Method B groundwater CLU, CLARC database determined arsenic soil concentration for groundwater protection based on its corresponding background groundwater concentration of 5 µg/L. 5. The ECF reference will be corrected.

Comment From (ECY)	Item	Comment (s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/ problem indicated.)	Doc	Response
Damon	Damon BRA 14, Damon BRA 16, Damon RFI 11	There is extensive precedent with Hanford risk assessments for evaluating both rad and nonrad COPCs via foodchain exposure (e.g., ingestion of plants, meat, milk, fish) for resident, farmer, fisher, and tribal receptors. USDOE's Hanford Site Risk Assessment Methodology [HSRAM] (DOE/RL-91-45, Rev 3) recommends evaluating these pathways. The following Hanford reports serve as examples, where foodchain exposure for both rad and nonrad COPCs is estimated: 1) Screening Assessment and Requirements for a Comprehensive Assessment/Columbia River Comprehensive Impact Assessment [CRCIA] (DOE/RL-96-16, Rev 1) 2) Waste Treatment Plant [WTP]/Risk Assessment Work Plan [RAWP] (24590-WTP-RPT-ENS-03-006, Rev 3) 3) Exposure Scenarios and Unit Factors for Hanford Tank Waste Performance Assessments (HNF-SD-WM-TI-707, Rev 5) 4) River Corridor Baseline Risk Assessment [RCBRA] (DOE/RL-2007-21, Rev 0). Examples of sources of transfer factors for nonrads are USDOE's RESRAD (metals) and EPA's Human Health Risk Assessment Protocol [HHRAP] for Hazardous Waste Combustion Facilities (organics). Perhaps other useful references on transfer factors (found in RCBRA Appendix D1) are Baes et al (1984), Wang et al (1993), and Kennedy and Strenge (1992). Uncertainty due to omitting this pathway is arguably greater than uncertainty in modeling this pathway.		Concur. Foodchain pathways were considered during chemical risk assessment for subsistence farmer, various recreational and tribal receptor scenarios at Hanford Sites. However, each of those BRA reports identified the calculations associated with the exposure concentrations in foods, particularly garden produce as a major source of uncertainty for the risk assessment. A linear plant uptake model was applied to soil concentrations during the calculation of concentration in foods. Uncertainty in produce concentrations is attributable to intrinsic variability related to soil conditions, plant species and tissue type, harvest time, and other environmental variables. None of those factors were considered during the calculation of concentration of chemicals in food. In addition, almost all of the nonradiological COPCs at WMA C are metals. Few VOC COPCs are present. Baes et al (1984), Wang et al (1993), Kennedy and Strenge (1992) and RESRAD model presented transer factors for radionuclides. RESRAD model includes transfor factors for produce, milk and beef for few metals. However, those transfer factors for produce are based on 20% assumption of wet to dry ratio. Due to these uncertainties associated with the transfer factors, food chain pathways were not considered during the chemical risk assessment. By obmitting the foodchain pathways, the chemical risk assessment assessment underestimated the total risk . Text will be added in the in the uncertainty assessment to address this issue.
Damon	Damon RFI 19	For the CERCLA Residential Child, Table 7-8 shows nonrad ELCR>1E-5 (EA C and J), although below background ELCR (<5E-5). With the exception of EA F+G (HI=0.6), noncancer HI>1 for the CERCLA Residential Child for all other EAs (Table 7-8), although below background HI (<3). Note, however, comparison of EA vs background (for ELCR and HI) is apparently being eliminated (see Damon RFI 15).		Based on the Ecology's suggested response for Comment No 18, the following changes were made for risk characterization process. 1. Based on 40 CFR Part 300, the ELCRs below 1E-6 are considered acceptable risks whereas ELCRs above 1E-4 are considered unacceptable risks for CERCLA receptors. Risks between 1E-4 to 1E-6 are generally referred to as the "acceptable risk range." 2. For noncancer hazard, the EPA acceptable target HI is 1. An HI above 1 is considered unacceptable risk. The HI may exceed 1 even if all of the individual HQs are less than 1. In this case, the chemicals may be segregated by similar mechanisms of toxicity and toxicological effects. Separate HIs may then be derived based on mechanism and effect. In addition, no background risk evaluation was performed during the risk characterization process. Due to those changes, following changes were observed. Text will be updated to incorporate such changes into the appropriate section. For the CERCLA Residential Child, Table 7-8 shows that the total ELCR for each EA is within CERCLA acceptable risk range of 1E-6 to 1E-4 and is less than CERCLA unacceptable risk level of 1E-4. Therefore, no risk contributor was identified. Table 7-8 also shows that with the exception of EA F+G, the HIs for all EAs are greater than the acceptable target HI of 1. Aluminum, antimony, arsenic, cadmium, chromium, cobalt, iron, lithium, manganese, and vanadium were identified as hazard contributors. Therefore, an evaluation was performed for each EA to segregate the HIs associated with those hazard contributors by similar mechanisms of action (critical effect) and toxicological effects. When the HI based on similar mechanism of action is greater than 1, those hazard contributors will be retained. The results of the risk evaluations are presented in the following attachment- "Report_Comment_19). However, the results of risk evaluation showed that the HI based on similar mechanism of action is less than one. Therefore, no COPCs were retained as hazard contributors.
Damon	Damon RFI 20	For the MTCA Method B resident, Table 7-9 shows ELCR>1E-5 (EA C), although equal to background ELCR (3E-5). Also, HI<1 (EA F+G) for the MTCA resident (Table 7-9). However, HI>1 at all other EAs (Table 7-9) but below background HI (2.3), with the exception of HI at EA C (HI=2.4). Note, however, comparison of EA vs background (for ELCR and HI) is apparently being eliminated (see Damon RFI 15).		As mentioned in response to comment no 19, background evaluation was eliminated from the risk characterization. Therefore, text will be updated to include the following changes. For carcinogenic COPCs, the cumulative ELCR at EA C is greater than the 2007 MTCA ("Human Health Risk Assessment Procedures" [WAC 173 340 708(5)]) cumulative risk threshold of 1E-5. EA C reports a cumulative ELCR of 3E-5; the primary contributor to risk is arsenic (3E-5; 100 percent contribution). For noncarcinogenic COPCs, all EAs report an HI greater than the 2007 MTCA ("Human Health Risk Assessment Procedures" [WAC 173 340 708(5)]) target HI of 1. Aluminum, antimony, arsenic, cadmium, chromium, cobalt, iron, lithium, manganese, and vanadium were identified as hazard contributors. Therefore, an evaluation was performed for each EA to segregate the HIs associated with those hazard contributors by similar mechanisms of action (critical effect). When the HI based on similar mechanism of action is greater than 1, those hazard contributors will be retained. The results of the risk evaluations are presented in the following attachment- "Report_Comment_20). Based on the results, no COPCs were retained as hazard contributors.
Damon	Damon RFI 45	Except for EA C for the MTCA Method B resident (Table 7-9) and EA C and J for the CERCLA residential child (Table 7-8), nonrad ELCR<1E-5 for other EAs for MTCA and CERCLA residential exposure scenarios. Except for EA F+G for the MTCA Method B resident (Table 7-9), EA F+G for the CERCLA residential child (Table 7-8), and all EAs for the CERCLA residential adult (Table 7-8), noncancer HI>1 for other EAs for MTCA and CERCLA residential exposure scenarios. However, only HI at EA C for the MTCA Method B resident was above background (Table 7-9). Note, however, comparison of EA vs background (for ELCR and HI) is apparently being eliminated (see Damon RFI 15).		Please see responses to Damon RFI Comment 19 and Damon RFI Comment 20.

Attachment 3 (2 pages)
Responses to Select Ecology Comments on the WMA C RFI Report and Baseline Risk Assessment

Commentor	Item	Page #/ section # Line #	Comment & Basis/Justification	*Doc*	Notes	Response
Damon	48	P 4-1, S 4 0, L 12-13, 37-39	Clarify why this document implements CHPRC-00784 (Tier 1 soil PRGs) but not CHPRC-01311 (Tier 2 soil PRGs) in the tiered assessment of the SLERA. Because Tier 2 values contain more Hanford site-specific information, Tier 2 values are arguably more relevant than Tier 1 values.	BRA	Eco Tier Issue	To be consistent with the EPA's eight-step EPA process presented in ERAGS (EPA 540-R 97-006), generic screening was performed initially for all analytes. For analytes that were retained following generic screen, Tier 1 screenings were performed during the following steps No evaluation against Tier 2 values was performed as no nonradiological COPECs were retained after Tier 1 screen. Therefore, plant and invertebrates PRGs developed during Tier 2 were not utilized *during this BRA*. However, a comparison will be performed between the source term and the Tier 2 soil PRGs. If Tier 2 soil PRGs are not available, Tier 1 soil PRG will be utilized for this comparison. In addition, instead of maximum detected concentrations, the EPC values will be used as the source term during the comparison. The results of the comparison will be presented in an additional section and in the summary section of the report.
Damon	52	P 4-11, S 4 4 1, L 16	Although Tier 1 SSLs for plants and soil invertebrates were not developed in CHPRC-00784, Tier 2 plant and soil invertebrate PRGs have been developed for nonrads for the Hanford Site (ECF-HANFORD-11-0158), and these should be used in this BRA (and RFI) for additional screening of soil samples at WMA-C.	BRA	Eco Tier Issue	Please see response to the BRA comment no 48.
Damon	56	P 4-21, S 4 5, L 1-5	Although WMA-C area may comprise <1% of the killdeer home range, other nearby foraging areas at Hanford for the killdeer may be contaminated, as well.	BRA	Eco Tier Issue	The SLERA will be revised to consider Tier 2 PRGs and the EPCs per agreement with others comments. If Tier 2 soil PRGs are not available, Tier I soil PRG will be utilized. The issues related to home ranges and presence of other waste management units and foraging areas will be discussed as needed.
Damon	61	P 4-25, S 4.7, L 29-30	Although WMA-C area may comprise <1% of the killdeer home range, other nearby foraging areas at Hanford may be contaminated, as well.	BRA	Eco Tier Issue	Please see the response to the BRA comment no 56.
Damon	25	P 7-33, S 7.5.2, L 1-2	Although Tier 1 SSLs for plants and soil invertebrates were not developed in CHPRC-00784, Tier 2 plant and soil invertebrate PRGs have been developed for nonrads for the Hanford Site (ECF-HANFORD-11-0158). These plant and soil invertebrate PRGs should also be used in this RFI (and BRA) for screening soil samples at WMA-C (in addition to wildlife PRGs).	RFI	Eco Tier Issue	Please see response to the BRA comment no 48.
Damon	28	P 7-34, Figure 7-4	Cite CHPRC-00784, Rev 1 (Tier 1 soil PRGs) for this figure. Clarify why CHPRC-01311, Rev 2 (Tier 2 soil PRGs) is not cited and used in this RFI. Because Tier 2 values contain more Hanford site-specific information, Tier 2 values are arguably more relevant than Tier 1 values Clarify that footnote "a" applies only to herbivores, insectivores, omnivores, and carnivores That is, "dermal contact" is a complete and significant pathway for soil biota, invertebrates, and plants (as noted by the upper case "X").	RFI	Eco Tier Issue	Please see response to the BRA comment no 48. Footnote a will be modified as follows: Applies only to herbivores, insectivores, omnivores, and carnivores.
Damon	22	P 7-27, S 7.2.7, L 3-7	It could be argued that any type of statistical analysis (including 95UCL calculation for EPC) is inappropriate due to biased (nonrandom) sampling. Also, biased sampling may be conservative or nonconservative, because bias may lead to overestimating or underestimating EPC, respectively.	RFI	EPC Issue	Comment Noted. The following text will added for further clarification: Uncertainty is introduced to the BRA when sample locations are selected and when samples are collected and analyzed. Based on the information obtained from historical site operations and releases, soil samples were collected from areas of potential sources and releases. Current baseline conditions are represented by soil data collected from 13 biased sampling locations within the WMA C. Those sampling locations were selected to represent the most likely locations to observe soil contamination. Under such circumstances, the source terms and the risks are conservative as compared to typical baseline condition. However, biased sampling locations could lead to underestimae of EPC, hence, underestimation of risk.

Attachment 3 (2 pages)
Responses to Select Ecology Comments on the WMA C RFI Report and Baseline Risk Assessment

Damon	18	P 3-16, S 3.2.2. L 37	ProUCL 4.00.05 has been updated. Please use ProUCL 5.0 (Sept 2013) (http://www.epa.gov/OSP/hstl/tsc/software.htm#about).	BRA		Concur with the statement related to high variability. When variability is high, 95% UCL could be higher than its maximum detected concentration. For left-censored data sets with multiple detection limits, the Kaplan-Meier (KM) method generally yields the best estimates of the population mean and standard deviation. For smaller detected samples (<=4), ProUCL 4 does not calculate a 95% UCL based on KM method, therefore, the maximum detected concentration was selected as the EPC. However, proUCL 5.0 implements a method which can use incremental sampling method replicates, which enables the calculation of UCLs for samples of sizes as small as 3. The 95%UCL results based on 95%KM method are typically less than the corresponding maximum detected concentration. It should be noted that for highly skewed data sets, the 95% UCL results could still exceed the maximum detected concentration. To address this issue, a comparison of the EPC values calculated using both versions of proUCL (4 and 5) will be added and summarized in the BRA. The uncertainty discussion will also include a summary of this evaluation.