



STATE OF WASHINGTON  
**DEPARTMENT OF ECOLOGY**

Richland Field Office

3100 Port of Benton Blvd., Richland, WA 99354 • 509-372-7950

June 23, 2025

25-NWP-097

Anders J. Wiborg, Director  
Tank Farms Program Division  
Hanford Field Office  
United States Department of Energy  
PO Box 550  
Richland, WA 99352

Re: Transmittal of the Department of Ecology's Review Comment Record for *Phase 2 RCRA Facility Investigation/Corrective Measures Study Work Plan for Waste Management Area S-SX*, RPP-PLAN-65977, Rev. 0

References: See page 2

Dear Anders J. Wiborg:

The Department of Ecology (Ecology) has completed our review of *Phase 2 RCRA Facility Investigation/Corrective Measures Study Work Plan for Waste Management Area S-SX* received with the United States Department of Energy (USDOE) Letter 25-TWO-0022 (Reference 1).

Ecology acknowledges we required additional time to complete our review and transmitted letters on April 24, 2025 and May 21, 2025, to extend our review of RPP-PLAN-65977, Rev. 0 (References 2 and 3).

Enclosed is the Review Comment Record (RCR) with Ecology's comments.

If you have any questions, please contact Luissa Johnston, Tank System Operations and Closure Coordinator, at [luissa.johnston@ecy.wa.gov](mailto:luissa.johnston@ecy.wa.gov) or (509) 975-1285 or Jackson Davis, Single-Shell Tank Chemist, at [jackson.davis@ecy.wa.gov](mailto:jackson.davis@ecy.wa.gov) or (509) 303-5558.

Sincerely,

Digitally signed by Rochette,  
Beth (ECY)  
Date: 2025.06.23 15:43:45  
-07'00'

Elizabeth A. Rochette  
Cleanup Section Manager  
Nuclear Waste Program

jd/bp  
Enclosure

cc: See page 2

References:

1. Letter 25-TWO-0022, dated February 26, 2025, "The U.S. Department of Energy, Hanford Field Office Submittal of RPP-PLAN-65977, Phase 2 Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Work Plan for Waste Management Area S-SX, Revision 0, to Meet Hanford Federal Facility Agreement and Consent Order Interim Milestone M-045-116"
2. Letter 25-NWP-061, dated April 24, 2025, "Extension of the Department of Ecology's Comment Review Period for the *Phase 2 Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Work Plan for Waste Management Area S-SX, RPP-PLAN-65977, Rev. 0*"
3. Letter 25-NWP-080, dated May 21, 2025, "Additional Extension of the Department of Ecology's Comment Review Period for the *Phase 2 Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study Work Plan for Waste Management Area S-SX, RPP-PLAN-65977, Rev. 0*"

cc electronic w/enc:

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Environmental Portal  
Hanford Administrative Record  
Hanford Facility Operating Record  
H2C Correspondence Control  
HAB Correspondence Control  
HMIS Correspondence Control  
USDOE Correspondence Control

# Review Comment Record

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**-Document Title(s)/Number(s):**

Ecology Comments on RPP-RPT-65997, Rev. 0, Phase 2 RFI/CMS Work Plan for WMA S-SX – Primary Document

Document Manager	Telephone Number	Project Manager	Telephone Number	Facility Site ID	Cleanup Site ID
Luissa Johnston					

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	Permittee Response	Ecology Response	Open/Close	
1.	p. 1-11, Section 1.4.2, lines 36-40	General: Note that WMA S-SX does not currently have a landfill determination. Therefore, where DOE/RL-2019-46, <i>Central Plateau Inner Area Cleanup Principles and Parameters</i> , is inconsistent with WAC 173-303 Ecology will use WAC 173-303. Ecology will use WAC 173-303-610(2) and cited regulations for closure performance standards for WMA S-SX.	Please revise text to: ‘Per HFFACO Change Control Form F-20-01, <i>Addition of Principles and Parameters Document into TPA Action Plan Appendix F</i> , DOE/RL-2019-46, Rev. 0 is included as a fully enforceable part of this Phase 2 work plan <u>where it is consistent with the requirements of WAC 173-303, including section -610 and cited regulations therein</u> . Chapter 1 of DOE/RL-2019-46 describes the cleanup principles.’	WMA- S-SX does not currently have a landfill determination. Therefore, we will follow WAC 173-303-610(2)(a and b).				
2.	Page 3-12 Section 3.3.2 Lines 38-39	Text reads “Figure 3-7 and Figure 3-8 show water table elevations and groundwater flow direction for the Hanford Site and the 200 West Area, respectively.” However, data provided in figures is from March 2022 and is outdated information when more current 2023 and 2024 groundwater table maps were available.	Revise text and associated figures to include updated groundwater table maps for both West Area and East Area figures.	Data provided is out of date and requires revisions.				
3.	Page 3-16 Section 3.3.2 Figure 3-7 Page 3-17 Section 3.3.2 Figure 3-8	Report was prepared in 2024 and published in January 2025 and yet uses March 2022 groundwater table maps when more current 2023 and 2024 groundwater table maps were available.	Revise figures to include updated groundwater table maps for both West Area and East Area figures.	Data provided is out of date and requires revisions.				
4.	Page 4-49 Section 4.2.2.2 Figure 4-5	Report was prepared in 2024 and published in January 2025 and yet uses March 2022 groundwater table map when more current 2023 and 2024 groundwater table maps were available.	Revise figure to include updated groundwater table maps for 200-UP Groundwater Extraction System groundwater table figure.	Data provided is out of date and requires revisions.				
5.	Page 4-50 Section 4.2.2.2 Figure 4-6	Report was prepared in 2024 and published in January 2025 and yet uses 2022 groundwater contaminant plume map when more current plume map for 2023 and 2024 were available.	Revise figure to include updated groundwater plume maps.	Data provided is out of date and requires revisions.				

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6.	Page 4-59 Section 4.6  Page 4-69 Section 4.13	S-Farm does not currently have an interim surface barrier (ISB) placed over the tank farm at this time and there is no projected date for construction of an ISB for S-Farm.  S-SX Farm is not approved for a landfill cover at this time. As such any fate and transport model for S-Farm will need to utilize full precipitation infiltration rates (no ISB or landfill cover) and SX-Farm can only address implementation of an ISB from time of construction and can not utilize a landfill cap.	Do not include a final landfill cap for any fate and transport analysis for either S-SX farm releases.  Do not include and ISB for any fate and transport analysis for S- farm releases.	Fate and transport analysis for S-Farm must include full precipitation and infiltration data without any imposed interim or final barrier.  Fate and transport analysis for SX-Farm must not include precipitation and infiltration data associated with any imposed final barrier.			
7.	Pg. 2-30, Figure 2-9	The figure caption states “groundwater pathlines are based on Figure 3-10 in DOE/RL-2023-53, Hanford Site RCRA Groundwater Monitoring Report for 2023.”	Revise the figure to include more up-to-date information when available.	There is more up-to-date information available for groundwater pathlines in the area of WMA S-SX, since 2023.			
8.	Pg. 3-16, Figure 3-7  and Pg. 3-17, Figure 3-8  and Pg. 4-49, Figure 4-5	The source for the figures shown are from DOE/RL-2022-40, Hanford Site Groundwater Monitoring Report for 2022.	Revise the figures to include more up-to-date information on water table elevation contours and groundwater flow direction lines.	There is more up-to-date information available since 2022.			
9.	Pg. 4-56, Section 4.4.2, bold text <b>Step 1</b> : last sentence	The text states “Additional constituents not currently present in groundwater above drinking water standards for which impacts from vadose zone to groundwater may be evaluated to assess contributions.”  The meaning of this sentence is confusing.	Please clarify the meaning of the sentence.				
10.	Table 4-11, <i>Leave-in-Place Corrective</i>	The text states it is a “prototype technology; limited field-scale application history.”	Ecology request for the literature reviewed on the technology to be shared.				

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	<i>Measures</i> , row heading “Treatment (in situ) – biological	Can more information be provided on the state of technology development for in-situ biological treatment of these contaminants?					
11.	Pg. 5-3, Figure 5-1 and Pg. D-2, Figure D1-1	In Figures 5-1 and D1-1, the 200-W-96 waste site boundary is not clearly shown on the map.	Please revise the figures to show the complete 200-W-96 waste site boundary.	Figure 1-2 and Figure B-1 in this report show a different boundary for waste site 200-W-96, which includes all UPR locations and consolidates all individual waste sites.			
12.	Pg. B-2, sentence beginning on Line 15	The text states “all [reports] agree that groundwater contamination beneath the WMA S-SX study area can be attributed to tank leaks or spills that occurred within the WMA S-SX study area.”  This text conflicts with the above text in Line 6 which states “The potential for full-thickness vadose zone contamination within the WMA S-SX study area has been previously investigated, and it is generally agreed that the groundwater beneath the WMA S-SX study area has been contaminated, although there is uncertainty on whether the contamination can be attributed directly to SST System WMA S-SX.”	Please clarify the conflicting text and the intention/meaning of the text.				
	General	Throughout the RFI/CMS work plan, there are multiple references to DOE/RL-2019-46 (“Central Plateau Inner Area Cleanup Principles and Parameters”). Ecology is planning to develop an internal memo, addressing implementation of DOE/RL-2019-46 in various Hanford regulatory documents. Ecology anticipates further communication	None	Addressed in memo			

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		with USDOE.					
	General	Ecology would like signature pages in SAP documents. SAP documents are part of the planning for the RFI/CMS. Ecology considers our approval of SAP documents, including vadose zone SAP documents, to be a requirement of regulations: WAC 173-340-820 Sampling and analysis plans.	Please provide signature pages in the SAP documents.	WAC 173-340-820 "Sampling and analysis plans. (1) Purpose. A sampling and analysis plan is a document that describes the sample collection, handling, and analysis procedures to be used at a site. (2) General requirements. A sampling and analysis plan shall be prepared for all sampling activities that are part of an investigation or a remedial action unless otherwise directed by the department and except for emergencies. The level of detail required in the sampling and analysis plan may vary with the scope and purpose of the sampling activity. Sampling and analysis plans prepared under an order or decree shall be submitted to the department for review and approval. (3) Contents... (c) Requirements for sampling activities including: (i) Project schedule; (ii) Identification and justification of location and frequency of sampling; (iii) Identification and justification of parameters to be sampled and analyzed..."			
	Page 3-19 Section 3.4 ENVIORNMENTAL RESOURCES  General	Text states that the "Hanford biological resources management plan, which provides strategies and management action as necessary to sustain Hanford Site biological resources, including the protection of species and habitats of State and Federal concern (DOE/RL-96-32, Hanford Site Biological Resources Management Plan)"	While the coverage of organisms in section 3.4 is broad, it could use a few citations and narrative focused on the Hanford assemblage of invertebrates, especially insects. Invertebrate scrub steppe biomass is usually an order of magnitude larger than vertebrate biomass, and invertebrates perform key ecosystem services and functions, including food chain regulation, pollination, soil excavation, and biomass recycling.	More complete coverage of the natural Hanford ecosystem.			

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13.	Page 4-59 (147/480), Section 4.6 Conceptual Exposure Models for Fate and Transport Evaluation	<p>“A qualitative understanding of conceptual exposure models used to evaluate risks to human health and the environment for Central Plateau waste sites, UPRs, and similar contaminants within the surface soil and the vadose zone located at OUs and SST System WMAs is provided in Section 2.1 of DOE/RL-2019-46.”</p> <p>Section 2.1 of DOE/RL-2019-46 does not offer a complete qualitative understanding of conceptual exposure models used to evaluate risks to human health and the environment. A more complete, but not exhaustive, understanding is found by reading Sections 2.1 <i>and</i> 2.2.</p> <p>Although beyond the scope of this current review, there are errors in DOE/RL-2019-46. In particular, in Section 2.1.1, "Health Exposure Scenarios" are NOT described in Section 2.2.2.1. They are described in 2.2.1.1.</p>	Please expand quoted text to include reference to sections 2.1. and 2.2, and references linked therein.	Clarity of referenced documents.			
14.	Page 4-61 (149/480), 4.8 CONCEPTUAL SITE MODEL DIAGRAM, Figure 4.8	Figure 4.8 is incomplete and missing pathways for soil biota, invertebrates, and plants (missing X or x) in some cases. For example, aquatic insects in pools (standing water, ephemeral or vernal pools) ingest water along with food. Also soil dwelling insects (collembola and their foods), and herbivorous insects eating emergent plants from standing water pools.	<p>Incomplete and missing pathways in referenced document: CHPRC-01311, <i>Tier 2 Risk-Based Soil Concentrations Protective of Ecological Receptors at the Hanford Site</i>, Rev. 2.</p> <p>Add a note saying that CHPRC-01311 may need revision to reflect the complete WMA S-SX ecosystem.</p>	Complete transparency with all possible biotic and abiotic interactions within the WMA S-SX ecosystem.			
15.	Page 4-64 (152/480), 4.7, Exposure Scenarios, Lines 21-25	<p>“Exposure scenarios” is an incorrect header for this bullet point. What is being discussed here are ‘Exposure Assessments’ not ‘Exposure Scenarios’. This can be verified by reading Sections 2.2.1.4 and 2.2.2.4 of the Central Plateau Inner Area Cleanup Principles and Parameters DOE/RL-2019-46 Rev. 0.</p>	Please revise bullet appropriately.	<p>"2.2.1.4 Exposure Assessment. The exposure assessment will address methods for...as described below."</p> <p>"2.2.2.4 Exposure Assessment. The exposure assessment will use exposure parameters, representative species, and transfer factors found in the most recent versions... as presented for the HHRA."</p>			

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16.	Page 4-64 (152/480), 4.7, Exposure Scenarios, Line 24	Section 2.2.1.4 of DOE/RL-2019-46 does not define the human health risk.	Section 2.2.1 and its subsections within DOE/RL-2019-46 define human health risk. Please revise to correct.	Correction in reference to DOE/RL-2019-46.			
17.	Page 4-64 (152/480), 4.7, Exposure Scenarios, Line 31-32	“...whereas the groundwater protection evaluation is described in the principles and parameters document (DOE/RL-2019-46).” The DOE/RL-2019-46 Principles and Parameters document was created using the assumption of landfill determination for the Inner Central Plateau.	Revise any reference to groundwater protection to stipulate that it will follow WAC 173-303-610(2)(a and b) Closure and Post Closure. Specifically, 610(2)(b)(i): “For soils, <u>groundwater</u> , surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745...”	WMA- S-SX does not currently have a landfill determination. Therefore, ECY-NWP will follow WAC 173-303-610(2)(a and b) Closure and Post Closure performance standards.			
18.	Page 4-65 (153/480), 4.8 RISK ASSESSMENT APPROACH, Lines 3-4	In lines 3-4 “DOE is required to assess human and ecological risk under CERCLA, RCRA/HWMA, NEPA, and DOE orders.”, there is no mention of state environmental regulations such as WAC 173-303 Dangerous Waste Regulations or WAC 173-340 Model Toxics Control Act.	Revise to “...assess human and ecological risk for closure and post-closure under CERCLA, RCRA/HWMA, NEPA, WAC 173 as applicable, and DOE orders.”	WAC 173-340-357 Quantitative risk assessment of cleanup action alternatives. (2) Human Health Risk Assessment. WAC 173-340-705 Use of Method B. (7) Remediation Levels WAC 173-340-708 Human health risk assessment procedures.			
19.	RPP-RPT-64722 DQO Pg. 1-41 (50/395), Sec. 1.2.8.3 Human Health Exposure Model, first paragraph	Citing DOE/RL-2019-46 for the definition of human health risk is allowable up until the exposure parameters for the outdoor worker scenario assume no direct contact (Footnote 2, DOE/RL-2019-46, Section 2.2.1.1, page 7). WMA S-SX does not have a current landfill determination. Therefore, ECY-NWP is working towards clean closure until a landfill decision has been made for this WMA.	Revise to: “Human health risks are defined for WMA S-SX study area consistent with DOE/RL-2019-46, <i>Central Plateau Inner Area Cleanup Principles and Parameters</i> (Section 2.2.1.1). However, exposure parameters for the outdoor worker scenario must <u>assume direct contact</u> since WMA S-SX does not currently have a landfill determination (per WAC 173-303-665).	WMA- S-SX does not currently have a landfill determination. Therefore, ECY-NWP will follow WAC 173-303-610(2)(a and b) Closure and Post Closure.			
	RPP-RPT-64722 DQO Pg. 6-2	“However, consistent with Section 2.2.1.2 of DOE/RL-2019-46, the risk	Revise paragraph to reflect relevant statute.	WA ECY NWP is working towards clean closure			

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	(97/395), Sec. 6.1 Information Required to Resolve the Decision Problem, Paragraph 4	assessment for WMA S-SX vadose zone soil chemical contamination in soil will use only the outdoor worker exposure scenario to determine if a cleanup action is warranted. If a cleanup action is warranted, WAC 173-340-745 and WAC 173-340-750 Method C values will be used. Therefore, the levels calculated for industrial land use and unrestricted land use direct contact pathways are provided for information only.” WMA S-SX does not currently have a landfill determination. Use of the outdoor worker exposure scenario, as cited in DOE/RL-2019-46, <i>Central Plateau Inner Area Cleanup Principles and Parameters</i> , assumes no direct contact (Footnote 2, DOE/RL-2019-46, Section 2.2.1.1, page 7) and is incorrect. Ecology will use WAC 173-303-610(2) and cited regulations therein for WMA S-SX vadose zone soil contamination closure performance standards.		unless/until a landfill decision is made for WMA S-SX and will follow WAC 173-303-610(2) and regulations cited therein for Closure and Post Closure.			
20.	RPP-RPT-64722 DQO Pg. 8-1 (110/395), Sec. 8.1 Step 7 Plan for Obtaining Data and all remaining citations of DOE/RL-2029-46	General: any reference to DOE/RL-2019-46 implies landfill determination and is incorrect. Ecology will use WAC 173-303-610(2) Closure and Post-Closure and cited regulations therein for WMA S-SX vadose zone soil contamination closure performance standards.	Revise as necessary. Suggestions below for specific instances.	See comment.			
21.	RPP-RPT-64722 DQO Pg. 6-2 (97/395), Sec. 6.1 Information Required to Resolve the Decision Problem, Paragraph 4	“However, consistent with Section 2.2.1.2 of DOE/RL-2019-46, the risk assessment for WMA S-SX vadose zone soil chemical contamination in soil will use only the outdoor worker exposure scenario to determine if a cleanup action is warranted. If a cleanup action is warranted, WAC 173-340-745 and WAC 173-340-750 Method C values will be used. Therefore, the levels calculated for industrial land use and unrestricted	Revise paragraph to reflect relevant statue.	WA ECY NWP is working towards clean closure unless/until a landfill decision is made for WMA S-SX and will follow WAC 173-303-610(2) and regulations cited therein for Closure and Post Closure.			

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		land use direct contact pathways are provided for information only.” WMA S-SX does not currently have a landfill determination. Use of the outdoor worker exposure scenario, as cited in DOE/RL-2019-46, <i>Central Plateau Inner Area Cleanup Principles and Parameters</i> , assumes no direct contact (Footnote 2, DOE/RL-2019-46, Section 2.2.1.1, page 7) and is incorrect. Ecology will use WAC 173-303-610(2) and cited regulations therein for WMA S-SX vadose zone soil contamination closure performance standards.					
22.	RPP-RPT-64722 DQO Pg. 6-6, Table 6-1 Non-radiological Constituents, Footnotes “a” and “c”	WMA S-SX does not currently have a landfill determination. Use of the outdoor worker exposure scenario, as cited in DOE/RL-2019-46, <i>Central Plateau Inner Area Cleanup Principles and Parameters</i> , assumes no direct contact (Footnote 2, DOE/RL-2019-46, Section 2.2.1.1, page 7) and is incorrect. Ecology will use WAC 173-303-610(2) and cited regulations therein for WMA S-SX vadose zone soil contamination closure performance standards.	Revise footnotes a and c to reflect correct statutes.	WA ECY NWP is working towards clean closure unless/until a landfill decision is made for WMA S-SX and will follow WAC 173-303-610(2) and regulations cited therein for Closure and Post Closure.			
23.	RPP-RPT-64722 DQO Pg. 8-1 (110/395), Sec. 8.1 Step 7 Plan for Obtaining Data and all remaining citations of DOE/RL-2029-46	General: any reference to DOE/RL-2019-46 that implies landfill determination is incorrect. Ecology will use WAC 173-303-610(2) Closure and Post-Closure and cited regulations therein for WMA S-SX vadose zone soil contamination closure performance standards.	Revise as necessary. Suggestions below for specific instances.	See comment.			
24.	Table 4-11 P. 4-41	Map is blurry.	Replace with larger, higher resolution map if possible.				
25.	Table 5-2 Page 5-6 DR 1a & 1b And Table D5-1 and Table B-1	It is impossible to do the work described in the decision rule without first calculating mutually agreed threshold levels. Those threshold levels do not appear in this document or attachments and it would be unacceptable to collect the data and	Tabulate threshold levels for target and off target analytes and include them in this plan with an explanation of how the calculations were performed and what data sources (e.g. for background) and assumptions were used.	WAC 173-303-610 WAC 173-340-720 WAC 173-340-740			

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		then build threshold limits around the observations. There is not enough information in this plat to tell how we intend to calculate those thresholds and performing these calculations will require agreeing on assumptions that are not specified in this table or anywhere (I can find) in this plan.					
26.	Table 5-2 Page 5-6 Footnote a	Footnote states: “Acceptable risk/hazard level for human: Cumulative cancer risk level of 1 in 10,000 for radionuclides. Cumulative cancer risk level of 1 in 100,000 for carcinogenic effects of chemicals. A hazard index of 1 for noncarcinogenic effects of chemicals.”	Footnote specifies a risk factor that would only be used in MTCA Method C threshold calculations, which is counter to SST Closure plans and DOE/RL-2019-46, REV. 0 which specifies “clean closure performance standards for contaminated soils use the MTCA method B cleanup levels.” for WMA’s with no landfill closure determination.	WAC 173-303-610 WAC 173-340-720 WAC 173-340-740			
27.	Page D-46 Table D5-1	How were the Required Detection Limits determined when the plan lacks calculated thresholds? What is the intended use of these minimum detection limits. For example, if we are identifying minimum detection limit so that we can make considerations for dilution factors run some aliquots at different dilutions to achieve accurate results for high concentration constituents and minimum detections limits for lower concentration constituents we should include this in the plan. If we only want to use it to not record or process certain non-detects, that is not useful.	Calculate and include decision rule thresholds, then identify what the detection limits are at available laboratories and report those values. Discuss what is intended for these minimum detection limits and why we should include them in the plan. For example, if we are identifying minimum detection limit so that we can make considerations for dilution factors run some aliquots at different dilutions to achieve accurate results for high concentration constituents and minimum detections limits for lower concentration constituents we should include this in the plan... if we only want to We should discuss any constituents where the available detection limit is more than half of the decision threshold.	WAC 173-303-610 WAC 173-340-720 WAC 173-340-740 WAC 173-303-110 Chapter 9 SW-846			
28.	Page E-1 Section E1.2 and Table E1-1	Non-detects should be used appropriately not discarded from the data set. Neither SAP nor Attachment E explain what is intended for non-detects. Non-detects have many useful purposes. If a parametric statistical calculation were needed, it could be better estimated with a Kaplan-Meier estimator using the labeled non-detect data than with ignoring	Don’t exclude any non-detects from table E1-1 from datasets. Don’t throw out any outliers (yet). Do explain what you want to do with non-detects. Do explain how to identify outliers and what we want to do with outliers.  This comment isn’t intended it apply for non-detects in Table E1-2, the logic there seems sound. Data with exceeded holding time could benefit from a larger discussion	U.S. Environmental Protection Agency (EPA). 2002c. RCRA Waste Sampling, Draft Technical Guidance– Planning, Implementation and Assessment. EPA 530-D-02-002, 2002  Singh, A., Maichle, R., and Lee, S. 2006. On the			

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		<p>that that data exists. For example, with chromium at sample site C7192 an upper 95% mean calculated using student-t with a KM estimator (and 1% Shapiro-Wilk GOF test) is much more defensible, and lower reportable at 24,907 mg/kg vs throwing out the non-detect in table E1-1 and assuming 1/2 detection limit for the other chromium non-detect, and assuming normal distribution still applies, which would actually result a higher, but less defensible student-t 95% UCL at 25,223 mg/kg.</p> <p>Note: Not arguing we actually need to be using UCLs under our decision criteria, just that any parametric statistic we may later need can be better calculated with knowledge of non-detect data than without.</p>	<p>about use, but I do not see any benefit for planning to work with the non-detects in Table E1-2, and the data would still exist in HEIS if there were ever need for it.</p>	<p>Computation of a 95% Upper Confidence Limit of the Unknown Population Mean Based Upon Data Sets with Below Detection Limit Observations. EPA/600/R-06/022, March 2006</p>			
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