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STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

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September 12, 2018

18-NWP-153

Mr. Michael W. Cline, Director, Soil and Groundwater Division  
Richland Operations Office  
United States Department of Energy  
PO Box 550, MSIN: H5-20  
Richland, Washington 99352

Re: Department of Ecology's (Ecology) Revised Response to the *200-EA-1 Operable Unit Waste Site RCRA Facility Investigation/Corrective Measures Study and Remedial Investigation/Feasibility Study Work Plan*, DOE/RL-2016-58, Draft A, for a Final Review Comment Record (RCR) Period

Reference: See page 2

Dear Mr. Cline:

Ecology responded with comments to the *200-EA-1 Operable Unit Waste Site RCRA Facility Investigation/Corrective Measure Study and Remedial Investigation/Feasibility Study Work Plan*, DOE/RL-2016-58, Draft A, on August 17, 2018.

Review and discussion with the United States Department of Energy – Richland Operations Office (USDOE-RL) has identified two additional comments that need to be addressed, and clarification of two other comments from the original submittal.

Enclosed is our revised final RCR comments to USDOE-RL.

We are submitting a copy of the enclosed revised RCR to the Administrative Record, in accordance with the Tri-Party Agreement, Section 9.4.

If you have any questions, please contact me at [nina.menard@ecy.cw.gov](mailto:nina.menard@ecy.cw.gov) or (509) 372-7941, or Kim Welsch, Environmental Specialist, at [kim.welsch@ecy.wa.gov](mailto:kim.welsch@ecy.wa.gov) or (509) 372-7882.

Sincerely,

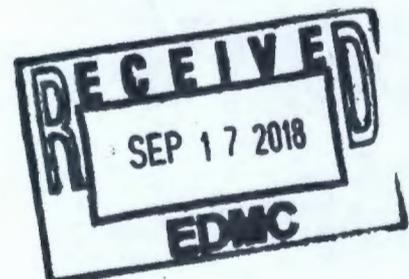
Nina M. Menard  
Environmental Restoration Project Manager  
Nuclear Waste Program

kw/aa  
Enclosure

cc: See page 2



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Mr. Michael W. Cline  
September 12, 2015  
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Reference: Letter 18-NWP-139, dated August 17, 2018, "Department of Ecology's (Ecology) Response the 200-EA-1 Operable Unit Waste Site RCRA Facility Investigation/Corrective Measures Study and Remedial Investigation/Feasibility Study Work Plan, DOE/RL-2016-58, Draft A, for a Final Review Comment Record (RCR) Period"

cc electronic w/enc:

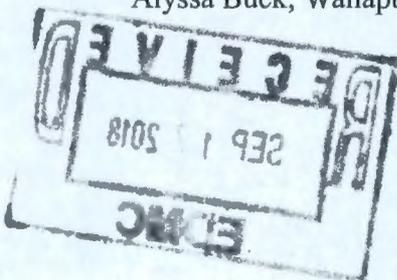
Dave Bartus, EPA  
Craig Cameron, EPA  
Dave Einan, EPA  
Jim Hansen, USDOE  
Jim Hanson, USDOE  
Roberta Day, CHPRC  
Marty Doornbos, CHPRC  
Curt Wittreich, CHPRC  
Stephanie Brasher, MSA  
Scott Davis, MSA  
Jon Perry, MSA  
Ken Niles, ODOE  
Nina Menard, Ecology  
Kim Welsch, Ecology  
Cheryl Whalen, Ecology  
CHPRC Correspondence Control  
Environmental Portal  
Hanford Facility Operating Record  
MSA Correspondence Control  
USDOE-RL Correspondence Control

cc w/enc:

Susan Leckband, HAB  
**Administrative Record**  
NWP Central File

cc w/o enc:

Matt Johnson, CTUIR  
Jack Bell, NPT  
Rose Longoria, YN  
Alyssa Buck, Wanapum



## 200-EA-1 Work Plan Comments

Tracking_ID	Chapter	Section	Page_Num	Line_Num	Table_Figure	Comment_Basis	Modification_Needed
1	3	3.4	3-36 - 3-37		Table 3-9	This Master COPC List is not inclusive of all of the nonradiochemical contaminants that were provided to Ecology at the January 23, 2017 200-EA-1 Workshop. If the omitted constituents do not fit the criteria for exclusion, as stated in Section 3.4, they will need to be added to the Master COPC List. In addition, make sure the nomenclature for the chemical compounds and chemical spellings are all correct. A technical edit is necessary for this table prior to issuing to Ecology for the official document review.	<b>Inorganics:</b> aluminum, ammonium, boron, lithium, molybdenum, strontium <b>Organics:</b> acetophenone, acrolein, aroclor, aroclor-1221, aroclor-1232, aroclor-1242, aroclor-1248, benzyl alcohol, biphenyl, bromomethane, chlordifluoromethane (Freon 22), chloroethane, cyclohexene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, dichlordifluoromethane, 1,3-dichloropropene, 1,4-dinitrobenzene, 2,4-dinitrophenol, heptachlor, hexachlorobenzene, hexachlorobutadiene, hexachloroethane, methanol, methyl isocyanate, 4-methylphenol (p-cresol), nitrobenzene, pentachlorophenol, 2-pentanone, pyridine, 2,4,5-trichlorophenol, 2-sec-butyl-4,6-dinitrophenol (dinoseb), butylated hydroxyl toluene, di-n-butylphthalate, carbazole, 2,4-dinitrotoluene, n,n-diphenylamine, ethyl ether, ethylene glycol, toxaphene, trichlorofluoromethane Please either include the missing analytes or provide the technical basis for their omission.
2	3	3.6.1	3-38	19-21		The text mentions a possible proposal of a conditional point of compliance for direct contact. Note that WAC 173-340-740(6)(f) is only for remedies involving 'containment of hazardous substances.'	No Modification of the workplan is needed. However, this regulation needs to be addressed in the RI.
3	3	3.8.1.1	3-45		Table 3-11	The table only gives parameters for radionuclides. This is for the construction worker scenario. Contamination from all depths of construction will contain nonradionuclides in addition to radionuclides.	Please include the parameters for nonradionuclides for the construction worker or justification for excluding this information.
4	3	3.8.1.3	3-46 - 3-47		Table 3-12	Note that the column, "Maximum Background Value," has no regulatory application. The 90 <sup>th</sup> percentile values are the acceptable comparison values.	Add a footnote that the Maximum Background Value is for information only.
5	3	3.8.1.4	3-48	20-25		The document indicates that when the 95% UCL exceeds the maximum observed concentration, the maximum concentration will be used instead of the 95% UCL. The preference for the maximum over the 95% UCL does not err on behalf of protecting human health and the environment.	Modify this based on the IAMIT Agreement once signed.
6	3	3.8.1.7	3-50	6-8		Discussion of uncertainty in HHRA (and ERA) should address sources of uncertainty in all steps of the risk assessment process (e.g., CEM, COPCs, exposure, toxicity, risk characterization). Sensitivity analysis or probabilistic tools could be used to provide more information.	Add this discussion.
7	3	3.8.2.5	3-51	27		Re BCGs, replace "background" with "biota."	
8	3	3.8.2.7	3-52	29-31		Note explicitly that RESRAD-BIOTA is the software tool for implementing the screening and analysis methods in DOE-STD-1153-2002.	Add to text. Note: DOE-ST1153-2002 is not in the reference section and cannot be found in the AR.

## 200-EA-1 Work Plan Comments

9	3	3.8.3	3-53	24-26		The assumption that long-term net infiltration rates will be as low as 4 mm/y in 30 years after backfilling waste sites, and stay that way for hundreds of years, does not err on behalf of protecting human health and the environment.	Ecology proposes to add a work task to Chapter 5 to perform sensitivity analyses based on various recharge scenarios for waste sites agreed as by DOE and Ecology.
10	3	3.8.3	3-53	24-26		Despite statements in DOE/RL-2011-50, acknowledge that the time frame for restoration of natural shrub-steppe systems is uncertain and may take much longer than 30 years. In fact, the habitat may never be effectively restored to pre-disturbance conditions (e.g., in terms of plant diversity/abundance/structure, wildlife habitat, soil stability).	Add the following to this bullet. "It is acknowledged that the habitat may never be restored to pre-disturbance conditions which may impact the infiltration rates.
11	3	3.8.3.2	3-56	30		A conditional POC in groundwater, WAC 173-340-720[8][c] should be cited, and those requirements would need to be met.	Add to text.
12	5		5-4		Table 5.1	Add field devices for detection of volatile organic compounds. This table has been moved or deleted	Add the table or give new location and verify that field devices for detection of volatile organic compounds have been added.
13	5	5.6	5-5	7-15		The document discusses a cumulative impacts evaluation (CIE) but doesn't give a timeframe for this. Compliance with WAC 173-340-747(8) (Alternative fate and transport models) should not be postponed until the CIE is prepared.	Add Text that states that the CIE will be completed and used as the basis for the BRA for 200-EA-1. IF the CIE is not completed in time, then a separate fate and transport model will be developed for 200-EA-1.
14	5		5-7		Table 5-1	The closure performance standards should be corrected to WAC 173-303-610(2), and should be consistent with the text on p. 5-6, line 11.	Change to match text on page 5-6.
15	5		5-9		Figure 5.1	This diagram needs to be updated to match with the latest pathforward for integration of RCRA TSD Units and CERCLA	Please coordinate with Ecology on changes to this figure.
16	App A	A3.4.9	A-131 to A-132			Provide what "Supplemental Sampling and Testing for Attenuation and Transport Processes Evaluation" represents with specific ASTM standards.	Comment not addressed. No language has been added to answer the posed question
17	App A	A2.2.1	A-19 to A-20		Table A-5	Table A-5, it is unclear why groundwater protection values are missing for rads. In my previous comment on this table (3/30/2018), where groundwater protection values were supplied, I had noted two issues: 1) MDC values for rads were generally inadequate to evaluate groundwater protection (i.e., groundwater protection level < MDC) and should be identified as an analytical uncertainty, and 2) values listed for groundwater protection were not values currently returned with the EPA rad PRG calculator ( <a href="https://epa-prgs.ornl.gov/radionuclides/">https://epa-prgs.ornl.gov/radionuclides/</a> ) nor the ORNL rad PRG calculator ( <a href="https://rais.ornl.gov/cgi-bin/prg/PRG_search?select=rad">https://rais.ornl.gov/cgi-bin/prg/PRG_search?select=rad</a> ), with ORNL values higher (typically 10-1000 fold) than EPA values (presumably due to differences in modeling and/or default input values).	Add rad groundwater protection values and add text to address comments 1 and 2.
18	App A	A2.2.1	A-21 to A-27		Table A-6	<b>Table A-6</b> includes Direct Contact values for WAC 173-340 Method C. However, there is an important related requirement that needs to be included as a footnote with Table A-6. The footnote should state: 'WAC 173-340 Method C requires that adjustments to total site risk and hazard values be made when total site risk will exceed a risk value of 1E-05 and/or total site hazard index of 1, in accordance with WAC 173-340-745(6).'	Add Footnote

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19	App A	A2.2.1	A-21 to A-27	Table A-6	Due to the potential of using EPA Method 1668a for aroclor-1254 and aroclor-1260, the method should be included within Table A-6 with the applicable analytical performance requirements	Comment not addressed
20	App A	A2.2.1	A-21 to A-27	Table A-6	Please provide a footnote for SIM. Typically, when polycyclic aromatic hydrocarbons (PAHs) are analyzed Ecology requires the use of EPA Method 8310. However, using EPA Method 8270 with SIM is also acceptable for laboratories that do not perform the standard PAH method (8310).	A definition for SIM has been added, however a footnote that explains that the EPA Method 8270 SIM is being used for PAH's instead of the customary EPA Method 8310 has not been included as requested.
21	App A	A2.2.1	A-26	Table A-6	Eco protection values in Table A-6, footnote "d" states that the lowest value from generic, Tier 1, Tier 2 sources was selected. This may be overly conservative for identifying the lowest analytical detection limit required. When identifying an appropriate eco PRG, a tiered iterative approach (favoring Hanford site specificity) should guide selection in the order: Tier 2, Tier 1, generic.	Modify footnote "d" as described.
22	App A	A2.2.1	A-27	Table A-6	The PCBs reference footnote "m", which states "If aroclors are not detected, additional analyses will be conducted using EPA Method 1668a to confirm that PCB congeners are not present at low levels." Due to the potential of using EPA Method 1668a, the method should be included within Table A-6 with the applicable analytical performance requirements.	The majority of the information included in footnote "m" for the informal review has been omitted from the final review document. This information was necessary and must be reinserted as shown: m. PCBs will be evaluated in samples from 0 to 4.6 m (15 ft) below ground surface using a phased approach. Total PCBs are obtained by summing individual aroclor results. Aroclors will be evaluated initially using EPA Method 8082. If aroclors are not detected, additional analyses will be conducted using EPA Method 1668a to confirm that PCB congeners are not present or are present at low levels. The PCB congeners will be evaluated in accordance with WAC 173-340-708(8)(f), "Human Health Risk Assessment Procedures."
23	App A	A1.3.1	A-3		Provide where these data needs are addressed in the main text in Chapter 4.	Comment not addressed. No language has been added to answer the posed question.
24	App A	A1.3.2	A-3 to A-4		Provide what kind of data based on which PSQ the data that will be collected to "reduce uncertainty associated with lateral and vertical extent of .....contamination."	Comment not addressed. No language has been added to answer the posed question
25	App A	A2.2.2.9	A-37		Provide what purpose sediment particle surface area supports in relation to contaminant migration and the ASTM standard	Comment not addressed. No language has been added to answer the posed question.
26	App A	A1.3.2	A-4 - A-5		Provide a definition for "sufficient" as it relates to "sufficient data". For the ultimate decision, sufficient data will never be achieved. Provide in context what is meant by "sufficient data".	A definition of "sufficient data" has not been provided

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27	App A	A1.4	A-4 - A-5		Table A-2	Comment: This Master Target Analyte list is not inclusive of all of the list of nonradiochemical contaminants that were provided to Ecology at the January 23, 2017 200-EA-1 Workshop. This finding was also documented in Ecology's Informal Comments for Chapter 3 of the 200-EA-1 OU Work Plan.	The following nonradiochemicals that were provided at the January 23, 2017 200-EA-1 Workshop are still missing from Table A-2: Inorganics: aluminum, ammonium, boron, lithium, molybdenum, strontium Organics: acetophenone, acrolein, aroclor, aroclor-1221, aroclor-1232, aroclor-1242, aroclor-1248, benzyl alcohol, biphenyl, bromomethane, chlordifluoromethane (Freon 22), chloroethane, cyclohexene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, dichlorodifluoromethane, 1,3-dichloropropene, 1,4-dinitrobenzene, 2,4-dinitrophenol, heptachlor, hexachlorobenzene, hexachlorobutadiene, hexachloroethane, methanol, methyl isocyanate, 4-methylphenol (p-cresol), nitrobenzene, pentachlorophenol, 2-pentanone, pyridine, 2,4,5-trichlorophenol, 2-sec-butyl-4,6-dinitrophenol (dinoseb), butylated hydroxyl toluene, di-n-butylphthalate, carbazole, 2,4-dinitrotoluene, n,n-diphenylamine, ethyl ether, ethylene glycol, toxaphene, trichlorofluoromethane. Please either include the missing analytes or provide the technical basis for their omission
28	General	3 and App. A	3-36 to 3-37 A-4 to A-5		Table 3-9 Table A-2	The document is inconsistent in its use of the terms "Target Analytes" and "Contaminants of Potential Concern". Table 3-9 identifies the list as the Master COPC List. Whereas, Appendix A (SAP) identifies the list as the Master Target Analyte List. Both tables include the same list of radionuclides, inorganics, and organics.	Label the tables the same.
29	5	5.10	5-6	16-19		The CIE purpose is to provide a basis for evaluating cumulative impacts and it is not yet agreed that it will meet the requirements of WAC 173-340-747(8)	Delete the full sentence that is represented by lines 16 – 19 that state in part, "The CIE will fulfill the requirements of WAC 173-340-747(8)...." Replace this sentence with something like, "A 200-EA-1 OU crosswalk will be provided in the RI (Task #??) to address the requirements of WAC 173-340-747(8), "Deriving Soil Concentrations for GW Protection."
30	6	6	6-1	7-8	Figure 6-1	The workplan must have a schedule with actual dates. A milestone package must be submitted with this document that contains actual dates for submittal of the RI/FS	Delete the sentence "It is the intent of DOE/RL to negotiate milestones once it obtains funding to execute the 200-EA-1 OU work plan. Provide specific years in Fig. 6-1 that are consistent with TPA Milestone M-015-92B. Further sub-milestones may be requested to address DOE commitments for applicable data collection to support preparation of the RI/FS.