



**Department of Energy**  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

16-AMRP-0196

**JUN 13 2016**

Ms. Alexandra K. Smith, Program Manager  
Nuclear Waste Program  
Washington State Department of Ecology  
3100 Port of Benton Boulevard  
Richland, Washington 99354

Dear Ms. Smith:

REMEDIAL INVESTIGATION/FEASIBILITY STUDY AND RCRA FACILITY  
INVESTIGATION/CORRECTIVE MEASURES STUDY WORK PLAN FOR THE 200-DV-1  
OPERABLE UNIT, DOE/RL-2011-102, DRAFT A, TRANSMITTAL OF COMMENT  
RESPONSES

- References: (1) RL ltr. to T. Tebb, Ecology, from R. J. Corey, "Remedial Investigation/  
Feasibility Study and RCRA Facility Investigation/Corrective Measures Study  
Work Plan for the 200-DV-1 Operable Unit, DOE/RL-2011-102, Draft A,  
Request for Additional 60 Day Extension for Comment Response and  
Document Updates," 16-AMRP-0151, dtd. April 14, 2016.
- (2) Ecology ltr. to M. Cline, RL from D. Goswami, "Re: Department of  
Ecology's Comments for the Remedial Investigation/Feasibility Study and  
RCRA Facility Investigation/Corrective Measures Study Work Plan for the  
200-DV-1 Operable Unit, DOE/RL-2011-102, Draft A," 15-NWP-113, dtd.  
June 24, 2015.

This letter transmits the signed responses to the Washington State Department of Ecology (Ecology) comments made on the Remedial Investigation/Feasibility Study and RCRA Facility Investigation/Corrective Measures Study Work Plan for the 200-DV-1 Operable Unit, DOE/RL-2011-102, Draft A.

Additional modifications to the document have been proposed to Ecology regarding Applicable or Relevant and Appropriate Requirements (ARAR) which are currently under Ecology review. The goal is to obtain approval of the Work Plan, DOE/RL-2011-102, Revision 0, by the U.S. Department of Energy Richland Operations Office (RL) and Ecology by the end of August 2016.

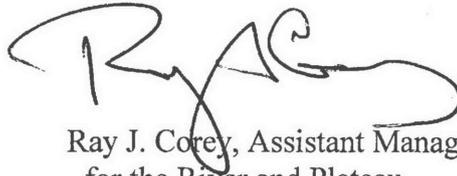
This transmittal completes the commitments made in Reference (1) to provide comment responses and the updated work plan by June 13, 2016. The attached technical comments and documented responses were discussed and agreed upon with Dib Goswami and the proposed ARAR modifications are currently being coordinated through Robin Varljen of your staff.

Please advise RL if there are any concerns regarding this document update path forward.

JUN 13 2016

If you have any questions, please contact me, or your staff may contact, Mike Cline, of my staff, on (509) 376-6070.

Sincerely,



Ray J. Corey, Assistant Manager  
for the River and Plateau

AMRP:JPH

Attachment

cc w/attach:

G. Bohnee, NPT  
J. V. Borghese, CHPRC  
R. Buck, Wanapum  
P. A. Burke, CHPRC  
R. E. Day, CHPRC  
M. H. Doornbos, CHPRC  
W. R. Faught, CHPRC  
D. A. Faulk, EPA  
D. Goswami, Ecology  
S. Hudson, HAB  
J. M. Jackson, Ecology  
R. Jim, YN  
N. M. Menard, Ecology  
K. Niles, ODOE  
C. P. Noonan, MSA  
R. E. Piippo, MSA  
B. Rochette, Ecology  
D. Rowland, YN  
D. G. Singleton, Ecology  
R. Skeen, CTUIR  
M. J. Turner, MSA  
R. E. Varljen, Ecology  
C. L. Whalen, Ecology  
J. W. Yokel, Ecology  
Administrative Record (200-DV-1)  
Environmental Portal

REVIEW COMMENT RECORD (RCR)

Document Lead:		Project Manager: Dib Goswami / 50-372-7902 / dgos461@ecy.wa.gov			Initials: <i>DG</i> . 6/9/16	
Tracking ID	Comment	Modification	Chapter	Disposition	Response to Comment	Regulator Concurrence
200-DV-01	modify the text to: Exposure pathways for chemicals include soil ingestion, inhalation of dust and volatiles, dermal contact with soil, and ingestion of groundwater at down-gradient locations (outside of the Inner Area).	Provide full history of the sites activities	ES	Accept	A summary of previous history was added to the Executive Summary. The full history of other OU assignments for these waste sites and the work completed before 2011 are described in detail within the work plan (for example, sections 1.4.3, 3.2.3, 3.3.3, 3.4.3).	Closed - 9/1/15
200-DV-02	Provide references to the content of the table.	Include the reference(s)	1	No Change Needed	The text introducing Table 1-1 states: "The framework document (DOE/RL-2009-10) defines the overarching goals for cleanup, as shown in Table 1-1"	Closed - 9/1/15
200-DV-03	This section lists the inner area principles. Regulators (both EPA and Ecology) have a number of unresolved issues which would require changes to this chapter based on the final outcome/agreements by the three parties.	Update the changes.	1	Accept	No changes made; the TPA managers need to meet and resolve these issues.	Closed - 9/1/15
200-DV-04	Although this is identified as agreed principles, the common understanding is the reduction of the "foot print" at any time when opportunity is there.	Reflect the concept in the text	1	No Change Needed	This reduction of the "foot print" is not applicable to the 200-DV-1 OU waste sites, which are typically adjacent to tank farms and are interior to the Inner Area.	Closed - 9/1/15
200-DV-05	Tribal nation scenario should be considered.	Include the scenario in your analysis	1	Accept	DOE has agreed to evaluate tribal scenarios	Closed - 9/1/15
200-DV-06	The text says that "Cumulative impacts from waste sites, tank farms, and other sources within the Central Plateau will be assessed and documented in a single primary Tri-Party Agreement (Ecology et al., 1989a) document. This document will be prepared following the approval of the first work plan and prior to completion of the first RI/FS (and RFI/CMS, as applicable) for the source OUs within the Hanford Site Central Plateau."  I think it's very important for Ecology to formalize what will that document be before Ecology approves the 200-DV-1 work plan. 200-DV-1 is one of the most important studies to evaluate those cumulative impacts	Address the comment	3	Accept	DOE will produce the cumulative impacts evaluation as an Appendix to the 200-DV-1 RI/FS, 200-WA-1 RI/FS, or any other source OU RI/FS that is first in line. Future RI/FS documents will include updates of this analysis as necessary.  The workplan needs to include the modeling approach and parameters to evaluate cumulative impacts. DOE agrees that the Tri-Party agencies need to resolve and formalize the methods and parameters to include in the work plans so that for DV-1, Ecology can formally approve the methods and parameters in the DV-1 work plan and the cumulative impacts analysis can proceed with a solid foundation.	Closed - 9/1/15

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200-DV-07	<p>The text states "Human health and ecological BRAs will not evaluate direct contact risk below the standard point of compliance (0 to 4.6 m..). However, a conditional point of compliance may be proposed for soil depth to evaluate direct contact for human and ecological receptors."</p> <p>The human health direct contact point of compliance is fixed at 15 ft below ground surface (WAC 173-340-740(6)(d)). The second sentence quoted above needs to be changed to: However, a conditional point of compliance may be proposed for soil depth to evaluate <del>direct contact for human and ecological receptors.</del></p>		3	Not Accepted	<p>The identified text only states that a conditional point of compliance <u>may be</u> proposed and the justification for that proposal will be made at that time. At this stage, it is not clear whether WAC 173-340-740(6)(d) would be the only justification or even whether it is part of the justification.</p>	<p>Closed - 3/31/16*</p> <p>NOTE: Comment closure indicates agreement to proceed with the Work Plan Rev. 0 delivery and does not indicate the response is accepted.</p>
200-DV-08	<p>The text stated "These methods and parameters also are consistent with baseline risk assessments previously conducted at the Hanford Site that have been reviewed and approved by EPA and Ecology." Ecology has not approved any baseline risk assessments at Hanford. The River Corridor Baseline Risk Assessment was not approved by Ecology. Please delete the quoted text.</p>		3	Not Accepted	<p>This paragraph has been moved to introduce the human health and ecological risk assessments (introductory text in Section 3.10).</p> <p>Ecology accepted the human health and ecological risk assessment for the 100-DH area (DOE-RL-2010-95, Rev 0; Record Accession #: 0083383H), which included source waste sites and groundwater. Ecology has also approved the BRA for 200-PO-1, a groundwater unit (DOE-RL-2009-85, Rev 01; Record Accession #: 0091415). Another risk assessment approved by Ecology is the Columbia River Component of the River Corridor Baseline Risk Assessment (DOE-RL-2010-117, Vols I and II, Rev 0; Record Accession #: 0090730 and 0090731).</p> <p>For the 200-DV-1, the most applicable Ecology-approved BRA is for the 100-DH area.</p>	<p>Closed - 3/31/16</p>
200-DV-09	<p>Modify the text to: Exposure pathways for chemicals include soil ingestion, inhalation of dust and volatiles, dermal contact with soil, <u>and ingestion of groundwater at down-gradient locations (outside of the Inner Area).</u></p>		3	Accept with Modification	<p>Direct exposure evaluation doesn't include these additional pathways both for the MTCA Methods (B and C) and EPA guidance for a residential or worker scenarios.</p> <p>The following text is added to the bullet in question: "(groundwater protection is also evaluated as detailed in section 3.10.3 of this WP)"</p> <p>NOTE: Ecology comment cited Section 3.10.11. The text being commented on is in Section 3.10.1.1.</p>	<p>Closed - 3/31/16</p>

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200-DV-10	Add a column for WAC 173-340 values. For direct contact, if the values derived using the parameters specified for EPA calculations are less stringent than those derived using WAC 173-340 equations 745-1 and 745-2, use WAC 173-340 equations 745-4 and 745-5 to account for dermal absorption (see WAC 173-340-745(c)(iii)).		3	Not Accepted	<p>The title of the table was changed to list "Outdoor Worker Scenario" instead of "Industrial Scenario".</p> <p>The following text is added at the end of Section 3.10.1.1: "(The MTCA Method C is described in Section 3.10.1.8 of this WP)".</p> <p>Consistent with the Inner Area Principles as discussed with the Tri-Party managers, basis for action will be based on the EPA Outdoor Worker Scenario. The MTCA method C will be used to determine cleanup levels for chemicals.</p> <p>To explain the differences between the EPA RSL values and MTCA Method C cleanup levels, the following text has been added: "Using the EPA regional screening levels to establish the basis for action for chemicals will typically result in a more conservative cumulative cancer risk and noncancer hazard index than the MTCA Method C (WAC 173-340-708(5)) because the RSL concentrations are lower than the MTCA Method C direct contact cleanup levels for most chemicals. The only exception to this is the MTCA Method C inhalation cleanup levels for volatile organic compounds are generally lower than their corresponding RSL concentrations. However, VOCs are no longer present in the shallow vadose zone of the Central Plateau; disposal occurred several decades ago and complete volatilization has occurred."</p>	Closed - 5/11/16
200-DV-11	The text states "Depths in soil will be identified for grouping samples based on the characterization strategy (up to a depth of 4.6 m [15 ft]).... Soil samples obtained from soil borings will include only those sample intervals up to a depth of 4.6 m (15 ft)." It is not clear from this statement what 'up to a depth of 4.6 m' means. Does this refer to depths above 4.6 m, or does it refer to those below 4.6 m? Human health protection pertains to all depths, because soils can leach contaminants can reach to groundwater, which humans can ingest. Please clarify which pathways and depths are being protected.		3	Accept	<p>The text has been modified to remove depth intervals and to explain the role of the DQO process: "During the Data Quality Objectives (DQO) process, spatial exposure areas will be defined, and sampling and analytical data will be grouped for calculating EPCs, taking into consideration factors such as the nature and extent of contamination and process knowledge. Depths in soil will be identified for grouping samples based on the characterization strategy."</p>	Closed - 3/31/16

**REVIEW COMMENT RECORD (RCR)**

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Tracking ID	Comment	Modification	Chapter	Disposition	Response to Comment	Regulator Concurrence
200-DV-12	The text states "if all recommended methods to calculate the UCL provide a value that exceeds the maximum concentration, then the maximum concentration in the exposure area will be used as the EPC." Ecology has always opposed this and cannot defend the use of a maximum in lieu of a valid ProUCL 95% UCL. ProUCL (EPA, 2013) states "It is recommended not to use the maximum observed value to estimate the EPC term representing the average exposure contracted by an individual over an EA. For the sake of interested users, ProUCL displays a warning message when the recommended 95% UCL (e.g., Hall's bootstrap UCL) of the mean exceeds the observed maximum concentration. For such scenarios (when a 95% UCL does exceed the maximum observed value), an alternative 95% UCL computation method based upon Chebyshev inequality is recommended by the ProUCL software." ProUCL (EPA, 2013) also states "In order to be able to compute defensible estimates, it is always desirable to collect more samples." This issue requires resolution.		3	Not Accepted	This issue has been discussed between the Tri Parties and DOE has shown that we are following EPA guidance.	Open - 3/31/16*  NOTE: During 3/31/16 meeting, Ecology indicated that RL may submit the Work Plan without closure of this comment. Ecology may initiate dispute on this comment.
200-DV-13	The document refers to CHPRC-00651 regarding biointrusion. Ecology had a number of unresolved comments about this document following our past (2010) review of it. The biointrusion document should be revised if it is to be used for DV-1 or other OUs.		3	Accept	The document will be revised and submitted for Ecology review.	Closed - 9/1/15
200-DV-14	The document cites DOE/RL-2011-50 for the graded approach for ecological receptors. This is not the correct reference. Instead use DOE-STD-1153-2002 for ecological receptors.		3	Accept	Change made.	Closed - 9/1/15

REVIEW COMMENT RECORD (RCR)

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Tracking ID	Comment	Modification	Chapter	Disposition	Response to Comment	Regulator Concurrence
200-DV-15	The document states that the native land cover scenario assumes that revegetation with native plants will result in mature vegetation in 30 years. It is not clear what types of surfaces are to be revegetated (barriers, remediated waste sites?). The soil type will influence the succession of plants, including succession after fire. Also, succession after fires and failed revegetation efforts often result in stands of cheat grass that can halt the maturation of shrubs (Norton, JB, TA Monaco, JM Norton, DA Johnson, TA Jones. 2004. Soil morphology and organic matter dynamics under cheatgrass and sagebrush-steppe plant communities. J. of Arid Environments 57:445-466). The native land cover scenario should be replaced with a scenario that considers cheat grass as an endpoint.		3	Not Accepted	<p>An extensive body of information has been developed for revegetation on the Hanford Site as part of the River Corridor cleanup. Available information clearly demonstrates that a robust vegetative land cover can develop over a time period that is significantly shorter than 10 years (five years would be a reasonably conservative assumption).</p> <p>Revegetation of waste sites following remediation is assumed in this scenario, consistent with revegetation that has been well established in the 100 Areas in accordance with the Hanford Biological Resources Management Plan (DOE/RL-96-32 Rev. 1). Revegetation has been successfully conducted in the 100 Area following other remediation activities (for example, refer to annual issues of the River Corridor Closure Contractor Revegetation and Mitigation Monitoring Report, including WCH-299 (2008), WCH-362 (2009), WCH-428 (2010), WCH- 512 (2011), and WCH-554 (2012).</p> <p>DOE is proposing 30 years because this is the value presented and explained in the Graded Approach Document (DOE/RL-2011-50), which has been approved by Ecology.</p> <p>The long-term infiltration rate has been agreed to by Ecology for the Tank Closure and Waste Management EIS (DOE, 0391). One of the guiding principles stated in the Graded Approach Document (DOE/RL-2011-50) is that the parameters agreed to by DOE and Ecology through the Technical Guidance Document (TGD) for the TC&amp;WM EIS should be used. The native land cover scenario is the only scenario listed in the TGD and evaluated in the EIS (in addition to reduced infiltration rates used for evaluation of evapotranspiration barriers).</p>	Closed - 3/31/16
200-DV-16	Please revise the bullet to: MTCA Method B cleanup level for groundwater based on carcinogenic effects calculated at target risk level of $1 \times 10^{-6}$ , as applicable, and total site risk of less than $1 \times 10^{-5}$ .		3	Accept	Text changed to: "• MTCA Method B cleanup level for groundwater based on carcinogenic effects calculated at target risk level of $1 \times 10^{-6}$ , as applicable, with downward adjustment to maintain cumulative risk below $1 \times 10^{-5}$ for multiple contaminants in accordance with WAC 173-340-708(5) and (6)"	Closed - 3/31/16
200-DV-17	Please revise the bullet to: MTCA Method B cleanup level for groundwater based on noncarcinogenic effects calculated at a hazard quotient of 1, as applicable, and a site hazard index of 1.		3	Accept	Text changed to: "• MTCA Method B cleanup level for groundwater based on noncarcinogenic effects calculated at a hazard quotient value of 1, as applicable, with downward adjustment to maintain a total hazard index of 1 for multiple contaminants in accordance with WAC 173-340-708(5) and (6)"	Closed - 3/31/16
200-DV-18	Ecology is requesting in advance the final data (e.g. soil, borehole, perched water, groundwater) that will be used in the RI and FS assessments, once the data are available.		5	Accept	Data will be provided	Closed - 9/1/15