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STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

March 15, 1995 1315 W. 4th Avenue • Kennewick, Washington 99336-6018 • (509) 735-7581

Mr. Steve Wisness, Hanford Project Manager  
United States Department of Energy  
P.O. Box 550  
Richland, WA 99352

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Dear Mr. Wisness:

The Washington State Department of Ecology (Ecology) has completed its review of the 100-DR-2 Source Operable Unit, Limited Field Investigation, Decisional Draft (DOE/RL-94-73). Enclosed please find the comment package. 39912

Ecology is concerned with the lack of completeness surrounding the 100-DR-2 Limited Field Investigation. The 100-DR-2 investigation is consistent with 100-BC-1, 100-DR-1, and 100-HR-1, which are all based on risk to human and ecological receptors with respect to direct exposure (i.e., inhalation and ingestion) only. The decision to take this general approach was in part based on avoiding over-characterization of the 100 Area operable units, which in turn would allow for expediting cleanup of the units closest to the Columbia River. It is Ecology's opinion that important information which is crucial to making the appropriate cleanup decisions may have been sacrificed by performing such abbreviated risk assessments. The Hanford Site Risk Assessment Methodology (HSRAM DOE/RL-91-45, Rev. 3), which was developed by the Tri-Parties to provide the proper basis for risk assessment, prescribes a much more complete risk assessment approach in terms of exposure pathways.

Currently, there is an opportunity to improve upon the 100-DR-2 LFI by adding additional exposure pathways based on HSRAM, thereby creating a more solid foundation for making environmental restoration decisions. This opportunity will be identified through the disposition of the aforementioned 100-DR-2 comments.

If you have questions or concerns, please contact me at (509) 736-3012.

Sincerely,

Ted Wooley, Environmental Specialist  
Nuclear Waste Program

TW:mf  
Enclosure

cc: Nancy Werdel, USDOE  
Kevin Oates, EPA

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The Washington State Department of Ecology  
Comments on the 100-DR-2 OU Limited Field Investigation  
Decisional Draft (DOE/RL-94-73)

**General comments:**

The title does not appropriately reflect the contents of the report. It should be entitled *Limited Field Investigation\Qualitative Risk Assessment Report for the 100-DR-2 Operable Source Unit.*

The original intent of combining the Limited Field Investigation (LFI) information and the Qualitative Risk Assessment (QRA) information for the 100-DR-2 Operable Unit into a single report was to avoid repeating historical information, as well as other information that is common to both the LFI and QRA documents when produced as separate documents. The QRA portion of this document in comparison with other independently produced QRAs (i.e., 100-BC-1) is lacking in detail, which will be reflected in the specific comments below.

There is no mention of the results of the 100-HR-3 investigation and its relationship with the source. Ecology requests a review of the 100-HR-3 remedial investigation documents be made with 100-DR-2 in mind. If there is relevant groundwater information, then the 100-DR-2 LFI\QRA should be revised to reflect it.

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**Specific comments:**

**1) Executive Summary, Table ES-1, page EST-1.**

**Comment:** This table is missing a minimum of two sites. The 118-DR-2 and 132-DR-2 waste sites have been left out of the inventory. The recently discovered relevant D-Area waste sites will need to be added.

**Recommendation:** Add the above mentioned sites. A discussion between the Washington State Department of Ecology (Ecology), the United States Environmental Protection Agency (EPA), and the United States Department of Energy (USDOE) will need to occur to determine which new sites will need to be added to the general inventory, as well as what priority these sites will be given.

**2) Executive Summary, Table ES-2, page EST-2.**

**Comment:** This table indicates that sites 116-DR-3 and 116-DR-7, which were targeted for limited field investigations, did not exceed ARARS. This is somewhat confusing. If ARARS were not exceeded, why would it be necessary to take any type of action, investigative or remedial?





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**3) Section 1.2.2, third bullet, page 1-4.**

**Comment:** This agreement does not properly reflect current thinking. Low priority sites in the 100 Area may be deferred to a final Record of Decision (ROD), which may or may not require additional investigations (e.g., a final RI during the remedial assessment/remedial design phase of the ROD). Deferring the low priority sites should allow the option for going straight to a remedial action at a future date. More importantly, deferring the low priority site will potentially allow for immediate attention to be given to the sites which have received liquid effluent, thus qualifying as a high priority site.

**Recommendation:** Justify (agreeable to Ecology, EPA, and USDOE) the current language within the sentence or revise this language based on discussions raised during comment resolution.

**4) Section 1.2.2, fourth bullet, page 1-4.**

**Comment:** This statement is accurate, however, the aggregate area activities which were agreed to need to be identified.

**Recommendation:** Clarify which activities this bullet applies to.

**5) Section 1.3, page 1-5.**

**Comment:** The QRA Overview identifies frequent and occasional use scenarios for assessing risk imposed on human health. It further discusses this assessment will be made through direct exposure/direct contact only. Ecology does not consider this limited risk assessment adequate even in the context of being qualitative. If assessment of the other pathways (e.g., impacts to groundwater, etc.) are outside of the current scope of this document, there needs to be a reference within the LFI/QRA as to what mechanism will address the exposures outside of direct contact. If all the pathways for the 100-DR-2 OU are not addressed, then accumulative risk can not be accurately reflected. It will then not be possible to compare the accumulative risk associated to 100-DR-2 and overall risk number of  $1 \times 10^{-5}$  required by the Model Toxics Control Act.

There is also mention of a limited ecological risk assessment, which is unclear.

**Recommendation:** Explain how an adequate risk assessment will be done for the OU. Also define what is meant by a limited ecological risk assessment and the terms frequent and occasional.

6) Section 1.3.1, pages 1-5, and 1-6.

This section discusses not using data collected beyond the depth of 15 ft. Ecology does not agree use of this depth as a cut-off for assessing data is appropriate. USDOE and its contractors have repeatedly used this depth for assessing risk, but should do so only if direct exposure is the only consideration. Again, Ecology does not agree that assessing only direct exposure will provide a proper risk assessment.

**Recommendation: Provide further justification as to why the data collected below the depth of 15 ft. was not used. Ecology also requests copies of the data reports which include results of the samples collected below the depth of 15 ft.**

7) Section 1.3.2, first bullet, page 1-6.

**Comment:** This paragraph is consistent with the above mentioned sections of the document which consider only direct exposure. Again, Ecology does not concur with this methodology.

**Recommendation: Justify how assessing direct contact only will allow for an adequate risk assessment.**

8) Table 1-1, page 1 T-1.

**Comment:** This table requires updating to include 118-DR-2 and 132-DR-2. Newly found sites also need to be added as appropriate.

**Recommendation: Add the two sites mentioned above and all relevant sites which were recently discovered in the D-Area.**

9) Section 2.6.1.3, first paragraph, page 2-1.

**Comment:** The same concerns conveyed in above comments numbers 6, 7, and 8 also apply to this part of the LFIQRA. There is a difference in that a limited evaluation of the fate and transport of the COPCs to groundwater is provided within the report. Why is an evaluation of this nature performed regarding COPCs and not for the known contaminants?

**Recommendation: Clarify this approach and justify why risk posed to groundwater from the source OU is assessed in only this context.**

10) Section 2.6.2.1.3, Exposure Pathways, page 2-13.

**Comment:** The exposure pathways presented within this section do not consider possible impacts to groundwater. Ecology requires potential pathways to groundwater be considered so proper assessment can be made of the accumulative risk associated with the 100-DR-2 OU.



**Recommendation:** Clarify how potential groundwater pathways are being addressed for this source OU. If USDOE is relying on the 100-HR-3 groundwater OU to provide this information, then the proper references need to be made within the LFIQRA report and the list of exposure pathways needs to be revised to reflect this.

11) Section 2.6.2.1.5, second paragraph, page 2-13.

**Comment:** WAC-173-340 requires the assumption that *if no other exposure pathways* (i.e., groundwater) are a consideration and that direct contact is the only risk, a depth of 15 ft. could be an appropriate depth of excavation. Any information gathered below a depth of 15 ft. must be given the same consideration as the data collected at 15 ft and above.

**Recommendation:** See Requirement for comment #7.

12) Section 2.6.2.2, fourth bullet, page 2-14.

**Comment:** This paragraph requires further clarification regarding ultimately how the radioactive isotope data collected for 100-DR-2 is processed for assessing accumulative risk for the OU.

**Recommendation:** Provide this information.

13) Tables 2-4 through 2-9, pages 2T-4a through 2T-9.

**Comment:** These tables consistently have two problems: 1) No data reported below 15 ft., and 2) No background data.

**Recommendation:** These tables will be included in future comment resolution discussions regarding Ecology's additional data requirements. The data available below 15 ft. will need to be added to the tables as deemed necessary.

14) Section 3.1.3.3, third paragraph, page 3-7.

**Comment:** The discussion on field screening does not provide a conclusion as to the best usage of the data generated from screening for Hexavalent Chromium. The assumption is this data will be archived, and retrieved for generating the focused feasibility\proposed plan, and to guide actual remediation efforts with the 100-DR-2 OU.

**Recommendation:** Clarify the status of this data and how it is being stored for future access.

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**15) Section 3.1.3.8, first paragraph, page 3-9.**

**Comment:** The fact that there are presently no groundwater wells within the 100-DR-2 OU which would allow adequate characterization of the potential impacts (due to source contamination) to groundwater does not preclude reviewing and potentially using the available 100-HR-3 characterization reports.

**Recommendation:** The 100-HR-3 characterization documents (e.g., the Work Plan and LFTQRA documents) should be reviewed prior to finalizing the 100-DR-2 source LFTQRA. If no correlation can be made between the source contamination and what currently exists in the 100-HR-3 groundwater unit, a statement should be made to acknowledge this in the source LFTQRA. Any additional useful information gleaned from the 100-HR-3 documents could be introduced at the focused feasibility proposed plan stage of the 100-DR-2 OU.

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**16) Section 4.0, first paragraph, fourth sentence, page 4-1.**

**Comment:** Ecology acknowledges occasional and frequent use risk scenarios were used to develop the focused feasibility studies and proposed plans for the 100-DR-1, 100-BC-1, and 100-HR-1 OUs. These OUs will be the first to be under RODs in the 100 Area. The success of this approach is yet to be realized. The following exposure pathways are indicated in the Hanford Site Risk Assessment Methodology (HSRAM) as being recommended for both Recreational and Residential scenarios: Direct soil, Air, Groundwater, Surface Water, Sediment, and Biota. There is a notable difference between what HSRAM recommends and what is currently being proposed for 100 Area OUs. It is the responsibility of the TPA unit managers to attempt to be consistent, however, there is a greater responsibility to continue to re-evaluate for the purpose of improvement, the approach that is being taken in remediation of wastes sites.

**Recommendation:** Justify use of the occasional and frequent risk scenarios for 100-DR-2, aside from being for the sake of consistency.