



# Washington PEER

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COMMENTS - Proposed Plan for 300-FF-2

DPE/RL-99-53

Sent via fax and U.S. mail

Mike Goldstein, Project Manager  
U.S. Environmental Protection Agency  
712 Swift Blvd., Suite 5  
Richland, WA 99352  
September 5, 2000

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HANFORD PROJECT OFFICE

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ENVIRONMENTAL PROTECTION  
AGENCY

Dear Mr. Goldstein:

EDMC

Thank you for the opportunity to comment on the Proposed Plan for the 300-FF-2 Operable Unit. The proposed plan is a good instrument to generate discussion regarding the cleanup of the 300 Area in conjunction with major new proposals for the 300 Area. Given major proposals for the future of the 300 Area, is it vital that agencies meet their obligation to consider cumulative impacts, and provide the public, Tribes, natural resource trustees, and adjacent local governments a comprehensive review opportunity to review the 300 Area remedial action decisions. The current piecemeal approach has deprived the public of this opportunity.

The proposed plan incorporates several flawed assumptions that compromise the cleanup of the area, the protection of public health and the environment, and compliance with the law. These are summarized below and discussed in the comments accompanying this letter.

The Reasonable Maximum Exposure Scenario must be changed to unrestricted public access for all operable units of the 300 Area. The management of the property owner and a major federal agency, the Department of Energy, have both formally proposed unrestricted access to the 300 area in the future. Unrestricted access is therefore a reasonably foreseeable future use. As a result, the standards of MOTCA, Method B, must apply to the FF-2, FF-1, FF-5, and all related 300 area decisions.

The proposed plan must not skirt around the laws by classifying lands for future industrial use. Hiding behind an industrial land use classification and associated clean-up standards should not be permitted. Instead, the lands and the water associated with them must be recognized for what they are – home to Native American cultural and religious resources, feeders to the Columbia River, and possible areas of groundwater continuity with Richland's water supplies.

Regulatory agencies are required to consider unrestricted public access as a reasonable foreseeable use and to consider groundwater as a beneficial use. This document has failed to acknowledge these uses or to do the required analysis to show why the use does not, and could not, exist. As a result, the proposed plan is based on a series of flawed assumptions that must be corrected.



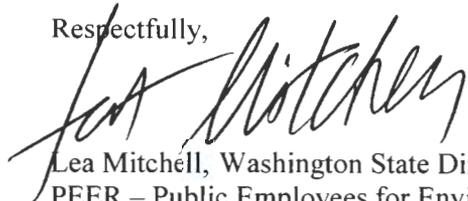
Regulators cannot take advantage of possible flexibilities in the law without also complying with the public involvement that is supposed to accompany explorations of such “flexibility.” (WAC 173-340-600 (4g)(9g) and proposed WSR 00-16-135.). The proposed plan adopts the use of an “alternative reasonable maximum exposure scenario” without providing for public notice and comment specific to the lands, waters, and associated resources that would be eliminated-or restricted-from public use by a reduced clean-up level.

Adopting this plan in its current form makes a mockery out of Hanford cleanup, the Model Toxics Control Act (MTCA), and the government’s responsibility to future generations of humans, fish, other wildlife, and the environment.

Deferring waste characterizations and other actions via the “observational approach” may cut short-term costs but will likely generate a morass of Tri-Party Agreement (TPA) meetings and negotiations that will delay cleanup, escalate costs and deprive the public of its notice and participation rights.

We urge you to fully consider our comments and your responsibilities to the citizens of Washington, Tribal governments, and the natural resources associated with the 300 area.

Respectfully,

A handwritten signature in black ink, appearing to read "Lea Mitchell", written over a horizontal line.

Lea Mitchell, Washington State Director  
PEER – Public Employees for Environmental Responsibility

Cc: Stan Arlt, City of Richland, Public Works Department  
Bob McLeod, Project Manager, U.S. Department of Energy  
Carol Palmer, Director, Yakima Nation Department of Natural Resources  
John Price, Project Manager, Washington State Department of Ecology  
Eric Wingerter, National Field Director, PEER

**The plan must be modified to ensure that public health is protected and MTCA is enforced**

**Model Toxics Control Act (MTCA) human-health based risk levels are an applicable regulation at the site and must be applied and incorporated into the cleanup plan.** Risk at least as stringent as the 10-5 level is applicable for final cleanup levels. These risk levels are applied throughout the state and at other state lead NPL sites. Making exceptions for Hanford is neither equitable nor adequate.

Classifying the site for future industrial use does not excuse it from applicable MTCA standards and requirements. There is the potential that portions of the 300 Area (including underlying and down gradient vadose zone and groundwater) will be used for other non-industrial uses.

**Under MTCA, impacts to ground water from soil or source sites requires a soil value protective of ground water to be identified.** For example, Washington State's protocol dictates that the Method C soil value for uranium in the plan of 10.5 mg/kg (or Method B soil value of 4.80 mg/kg) is the starting value (not 505 mg/kg).

A scientifically defensible demonstration is required to justify the protectiveness of using a higher cleanup value not visa versa. This protocol is consistent with other MTCA cleanup actions throughout Washington State. Failing to adopt and implement this protocol leads to uneven justice and ultimately, a violation of MTCA.

**The scope of the analysis is flawed, results in erroneous conclusions, and must be modified**

**All applicable pathways must be evaluated.** The current evaluation is limited and erroneous. Under MTCA, a site does not qualify for Method C soil standards just because it is zoned industrial or planned for future industrial uses. Method C soil cleanup standards may not be applied without evaluating all applicable pathways (WAC 173-340-740 (4)).

**The plan must address all pathways concurrently.** As drafted, the plan considers direct exposure to solid wastes and contaminated soils **the primary** exposure pathway for humans with ingestion and inhalation as secondary and "others" are considered "incomplete or inconsequential." This analysis is fatally flawed. As defined by MTCA, all pathways must be evaluated concurrently to truly assess threat to human health and the environment.

In the proposal, **direct exposure** to solid wastes and contaminated soils is considered **the primary** exposure pathway for humans with ingestion and inhalation as secondary and "other" are considered "incomplete or inconsequential" Ecological receptors primary exposure pathway is from **direct exposure** to contamination, soil, through physical/biological processes. (Pg. 13).

The major disconnect of evaluating human health and environment impacts/risk in the context of the direct exposure pathway only and excluding ground water is retained in sections of the document. All pathways must be evaluated concurrently to truly assess threat to human health and the environment as set forth in MTCA. To date, EPA has demonstrated an unwillingness to evaluate all pathways concurrently and this action undermines Washington state laws.

**Industrial land use does not determine risk to human health and the environment for all pathways.** In the conceptual site model, human health risk and development of cleanup

objectives was developed on an anticipated future Industrial land-use scenario for **all pathways**. RAOs for the 300-FF-2 OU were stated to have been developed based on the reasonably anticipated industrial future land use, worker safety, and applicable or relevant and appropriate requirements (ARARs). Soil cleanup levels based on only worker safety and protection of ground water **for industrial use** may not provide protection for ground water's highest beneficial use and reasonable maximum exposure for future use (a drinking water source) or protect the river and the associated salmon spawning habitats.

**The Preliminary remediation goals (PRGs) are inadequate because they do not identify most restrictive values for protection of all pathways.** Because the PRGs represent initial cleanup goals, or **screening levels**, it is critical that they be set appropriately.

The plan's stated intent (pg. 17, 1<sup>st</sup> paragraph) was that the most restrictive value be identified and selected as a PRG protective of **all pathways**. This intent has not been met.

The final preliminary remediation goal values identified for direct exposure or ground water protection are not protective of **all pathways** for many constituents in the preliminary remediation goals (Tables 3a, 3b, the Plan, pgs. 18-19).

The preliminary remediation goals for direct exposure are not consistent with the Remedial Action Objective-2 (Table 2, pg. 17, the plan) to prevent migration of contaminants through soil column to ground water.

For example, the most restrictive value for uranium is not identified and should be. The selected value in the table for uranium (soluble salts) is 505 mg/kg with the following restriction: before implementation of remedial actions, the 505 mg/kg will be verified as protective (will not migrate to the ground water in 1000 years) through leach studies (Table 3(a) footnote j).

Uranium has a half-life of 4.47 billion years and **has already** impacted ground water in the 300 Area and 300-FF-2 uranium source sites are **currently** impacting ground water. The 300 Area is close to the Columbia River and the city of Richland.

The contaminated groundwater emanating from the 300 Area source sites is hydrologically close to at least one of the city of Richland's municipal drinking water wells. The applicable MTCA Method C soil cleanup value (protective of groundwater) of 10.5 mg/kg must be satisfied.

**The proposed plan must incorporate recent data and bring it to bear on assumptions drawn**

**DOE/EPA need to incorporate new scientific information and recent site findings to determine whether or not metals in the soils will be released to ground water within the 1000-year time frame.** PRGs protective of ground water for metals must be identified and included in the table. Failure to do so is a failure to protect public health, the Columbia River, and associated fisheries resources. The proposal and FFS do not evaluate ground water impacts from waste and soil for most metals (only direct exposure) because constituents are assumed not to reach ground water within 1000 years. This is a flawed and erroneous assumption.

**The site profile and associated assumptions must be modified to acknowledge that ground water is already contaminated with releases from the area.** The plan's site profile and

assumption that constituents will not reach ground water within 1,000 years is not consistent with recent site findings (uranium).

**The plan needs to acknowledge ground-surface water interactions.** Ground water containing contaminants released to surface water needs to meet the surface water standard. If the surface water standard is more restrictive than the ground water standard then the ground water standard must be adjusted downward to meet the more restrictive surface water standard. This possibility is not discussed or accounted for in the plan.

**There are false statements that must be eliminated from the proposed plan**

**For example:**

“None of the general content burial grounds appear to be currently impacting groundwater (pg. 8, the plan);” and “The 316-4 Crib is an outlying source site and the only 300-FF-2 OU source waste site that has been shown to impact ground water (Pg. 7, the plan).”

Identification of 300 Area sources for contaminants of concern in the ground water is documented in the proposal (see Tables A-1, A-2, and A-3). Deflecting or misleading what is truly happening in the area with the above statements is grossly misleading.

The proposal and FFS needs to acknowledge the **solvents and uranium sources from FF-2 OU and FF-1-OU have both already impacted ground water and will continue to be a threat.** It is unconscious able that concluding comments contradict technical facts in the same document and the other associated RODs:

- “Many leaks and unplanned releases associated with the sewer systems have been documented.”
- “They (burial grounds) received a broad spectrum of hazardous radiological and mixed wastes.”
- TCE is dismissed as a concern in the unconfined aquifer because of solubility relationships compared to detected concentrations in the ground water.
- “The 300-FF-5 OU consists of contaminated groundwater in the 300 Area beneath the 300-FF-1 and 300-FF-2 OUs. The primary groundwater contaminant is also uranium.”

An example of misleading information that gives the impression in the proposal that the 300-FF-1 OU liquid disposal sites are the primary if not the only sources of release to ground water is on pg. 9 of the plan. “Based on information **that was available at the time** when the ROD was developed, the following conclusions were made: 300-FF-1 OU liquid disposal sites were a primary source of groundwater contamination.”

These comments continually provide disconnect between source and ground water contamination and misinformation on the current status of the 300 area. Thus the FF-2-OU sources are inferred as not probable sources of the ground water impacts. To support this old information the documents refuses to attribute ground water impacts to the FF-2-OU sources.

**The plan needs to clarify whether the ROD it will support will be final or interim**

The plan states that “Final remedies for the 300-FF02 OU waste sites will be selected only after review and consideration of all information submitted during the public comment period (page 1, column 2, paragraph 2).”

Based on this, the public cannot ascertain whether the resulting Record of Decision (ROD) will be final or interim. The plan must define if the resulting ROD will be final, interim, or some combination of final and interim. In addition, the plan should provide justification for the issuance of a final, interim, and/or a combination of final and interim ROD.

Failing to include this in the proposed plan constrains and limits the public’s involvement.

**The plan must recognize and protect groundwater as a beneficial use**

The plan defers groundwater evaluation and remediation to the 300-FF-5 OU, and as such, does not satisfy applicable MTCA ARARs for justifying the stated “reasonably anticipated” future use scenario.

The groundwater in the 300 Area does not meet the criteria in MTCA that would eliminate it as a future drinking water source.

Washington’s groundwater standards are required to be based on the most beneficial use and the reasonable maximum exposure expected to occur now and in the future.

The most beneficial uses at many sites is drinking water. Some areas also supply fresh water sources for spawning salmon. Both of these beneficial uses exist, or could potentially exist in the 300 Area considering its proximity to the Columbia River and the City of Richland.

Washington state laws assume that this beneficial use exists unless it can be demonstrated otherwise (WAC 173-340-720).

The groundwater within the 300 Area does not meet any one of the three criteria in MTCA that would eliminate it as a future source of potable water; therefore, it fails the demonstration.

To eliminate groundwater as a future drinking water source, the 300 Area groundwater must meet one of the three following criteria: 1) the groundwater beneath the site is present in insufficient quantity to yield greater than 0.5 gallon per minute (WAC 303-340-720(1)(a)(ii)(A)), 2) the groundwater contains natural background concentrations of organic or inorganic constituents that makes the groundwater not practicable for drinking and contains TDS at concentrations greater than 10,000 mg/l (WAC 303-340-720(1)(a)(ii)(B)), and 3) the groundwater is situated at a great depth or location which makes recovery of water for drinking water purposes technically impossible (WAC 303-340-720(1)(a)(ii)(C)).

Although it may not be a current source of drinking water, it has not been documented or asserted that it will never be a future source, or connected to a future source-of drinking water or waters associated with critical salmon spawning habitat.

**No investigation has been performed to allow conclusions to be made as to whether the groundwater beneath the 300-FF-2 OU connects with water pumped from north Richland for drinking water purposes.**

To date, USDOE has failed to demonstrate that the 300 Area groundwater's future highest beneficial use and maximum exposure is not drinking water and that soil and groundwater standards need not be based on this potential future use.

The term "reasonably anticipated" as applied to the foreseen future industrial use (page 1, column 2, paragraph 2) has no legal bearing. Use of this term further illustrates the fact that applicable MTCA ARARs have not been satisfied by this draft plan and that the future use of the site (and its resources) is uncertain.

Groundwater contamination emanating from the 300-FF-2 OU could very likely connect with water pumped from north Richland's drinking water wells. As another example, groundwater contamination currently impacting the Columbia River from the 300 Area could reasonably be anticipated to negatively impact salmon spawning habitat as well as salmonids.

Despite these factors, **to-date, no investigation (vadose zone, groundwater, or ecological) has been performed to support that draft plan's assumptions regarding the groundwater in the 300-FF-2 OU area and the cleanup level that is proposed.**

The plan proposes to defer groundwater cleanup requirements to another decision document (i.e., the 300-FF-5 OU ROD). The proposed plan provides little justification for its recommendation that groundwater remediation decisions be separated from source site remediation decisions for the 300-FF-2 OU.

### **The Groundwater Analysis is Flawed and Must Be Revised**

In Figure 2 and in the text of the plan, it is explained that the groundwater beneath the two TRU Burial Grounds (618-10 and 618-11 Burial Grounds) and the seven Outlying Source Sites will be addressed in the 300-FF-5 OU. It is understood that the 300-FF-5 OU previously included groundwater beneath 300-FF-1 OU and portions of groundwater beneath 300-FF-2 OU (near and beneath the 300 Area Complex).

The inclusion of groundwater directly beneath the two TRU Burial Grounds and beneath the seven Outlying Source Sites is not supported by the groundwater contamination investigation/characterization performed for the 300-FF-5 OU.

The 300-FF-5 OU investigations primarily focused on uranium groundwater contamination near the 300-FF-1 OU and the 300 Area Complex.

The 300-FF-5 OU investigation is an inadequate investigation and/or characterization on which to base groundwater remedial decisions associated with the two TRU Burial Grounds and the seven Outlying Source Sites.

At the time of the 300-FF-5 OU investigation, the tritium contamination associated with the 618-11 Burial Ground was not acknowledged/known and has thus, not been evaluated by the investigation supporting the 300-FF-5 Record of Decision (ROD).

Public records indicate that uranium groundwater contamination is likely occurring from sources other than 300-FF-1 OU. Specifically, it has been concluded that the source sites are located outside of the uranium groundwater plume, as defined in the 300-FF-5 OU documentation.

The plan explains that the 300-FF-5 OU Operation and Maintenance (O&M) plan (DOE/RL-95-73) will be updated “to ensure that adequate groundwater monitoring requirements and institutional controls are in place.” (pages 9 and 10).

The inclusion of groundwater directly beneath the two TRU Burial Grounds and beneath the seven Outlying Source Sites is not supported by the groundwater contamination investigation performed for the 300-FF-5 OU. The updating of the 300-FF-5 OU O&M will not achieve the aquifer contamination investigation/characterization that was performed by the 300-FF-5 Focused Feasibility Study.

Updating the 300-FF-5 OU O&M will only establish monitoring criteria to be performed at certain groundwater monitoring wells. The majority of 300-FF-2 OU source sites do not have dedicated groundwater monitoring networks and as such, unit-specific groundwater monitoring will not occur.

The proposed plan does not indicate that unit-specific groundwater monitoring for the land-based source sites (i.e., burial grounds, cribs, dump sites, surface impoundments, landfills, waste piles, etc.) will be performed. For example, the 618-10 Burial Ground does not have a dedicated groundwater monitoring network. In addition, very little unit-specific source site characterization has been performed for the land-based units.

Although the “Proposed Plan for the 300-FF-2 Operable Unit” (DOE/RL-99-53, Rev. 0) identifies that groundwater monitoring will be conducted, it does not commit to conducting unit-specific groundwater monitoring for all land-based source sites. Similarly, it does not commit to conducting unit-specific source-site characterization for the land-based units prior to removal activities.

As a result, it appears that remediation decisions for the land-based units are being made with little supporting unit-specific characterization information. It appears that some of the characterization will be completed using the proposed “observational approach” (page 21) whereby the waste will be characterized as the cleanup proceeds.

This approach effectively excludes the public from any participation in, or scrutiny over, the quality of the waste characterizations and associated clean-up actions. In addition, because groundwater remediation and source site remediation activities have been separated, this approach does not satisfy applicable MTCA requirements or relevant and appropriate RCRA requirements.

**The remedial action objectives (RAO) numeric risk levels must be modified.**

As drafted, the proposed RAO’s do not agree with risk numbers used to assess waste units. Any human health risk from waste sites/soil must be evaluated against the more stringent risk value of  $1 \times 10^{-5}$ . The assessment is not consistent with the proposal and FFS document’s upper bound risks. MTCA human-health based risk levels are an Applicable regulation at the site.

Risk at least as stringent as the  $10^{-5}$  level is applicable for final cleanup levels. These risk levels are applied throughout the state and at other state lead NPL sites. A ROD with cancer risk levels for workers that do not meet state acceptable risk has no business being created by parties responsible for the clean-up of the 300 area.

In Table 2, pg. 17 of the proposed plan, RAO 1 establishes risk base criteria or ARARs for direct exposure to waste or soil and limits for cleanup in the field for chemicals. RAO selected for direct exposure to waste or soil for chemicals are MTCA industrial soil cleanup standards (340-745) with a cumulative risk of  $10^{-5}$ .

On Page 13 of the proposed plan, potential risk assessment for waste sites is **in direct disagreement to above** RAO numerical risk for industrial exposure (with restricted ground water use) for chemicals in wastes or soil. "The reasonable maximum exposure scenario evaluated for the 300-FF-2 waste sites is the industrial scenario, which assumes that direct exposure to contaminants could occur with industrial use of the site and that groundwater use is restricted through the use of institutional controls." A four-step process is presented to estimate the likelihood of health problems occurring if no cleanup actions are taken at a given site from chemicals and radionuclides : "Risks associated with the reasonable maximum exposure at the 300-FF-2 OU waste sites are summarized in Table 1. Under **the industrial scenario** each of the general content burial grounds and source waste sites are projected to present a risk greater than  $10^{-4}$ ."

Direct quote from page 13 of plan :

"4. Evaluate Site Risk"

- "Chemicals that pose a risk in excess of  $10^{-4}$  or a hazard index greater than 1"

\*RAO-1 radiological soil/waste carcinogenic risk is given as CERCLA risk range of  $10^{-4}$  to  $10^{-6}$ .

The assessment uses cancer risks expressed as probability of **a 1 in 10,000 or  $1 \times 10^{-4}$  "chance."** (page 13) This means that one extra cancer case may occur as result of exposure for a population of 10,000 people.

Under MTCA Method C, the upper bound for contamination in soil for direct contact cannot exceed 1 in 100,000 or  $1 \times 10^{-5}$  for individual contaminants. Accumulative risk levels for carcinogens may not exceed additive risk of  $1 \times 10^{-5}$ . Cleanup levels for individual hazardous substances shall be adjusted downward to meet  $1 \times 10^{-5}$  accumulative risk.

Any human health risk from waste sites/soil must be evaluated against the more stringent risk value of  $1 \times 10^{-5}$ . The assessment is not consistent with the proposal and FFS document's upper bound risks.

These mistakes detract from other elements of the plan that have assessed adequate risk levels (Table 2. Pg. 17, the RAO 2 includes MTCA ground water cleanup standards to "prevent migration of contaminants through the soil column to groundwater and the Columbia River such that concentrations reaching groundwater and the river do not exceed --and the MTCA ground water cleanup standards (WAC 173-340).

End of comments on Proposed Plan for the 300-FF-2 Operable Unit (DOE/RL -99-53 Rev.0).