



**COPY**

STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

3100 Port of Benton Blvd • Richland, WA 99354 • (509) 372-7950  
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

November 6, 2018

Letter 18-NWP-181

Jan Bovier, Tank Closure Program Manager  
Office of River Protection  
United States Department of Energy  
P.O. Box 450, MSIN: H6-60  
Richland, Washington 99352

Re: Ecology Comments on the United States Department of Energy *Draft Waste Incidental to Reprocessing Evaluation for Closure of Waste Management Area C at the Hanford Site*, DOE/ORP-2018-01, Draft D (Draft WIR Evaluation) submitted for the June 4 through November 7, 2018, Comment Period

Dear Mr. Bovier:

The Department of Ecology (Ecology) reviewed the Draft WIR Evaluation (DOE/ORP-2018-10, Draft D). This letter summarizes Ecology's position on the Draft WIR Evaluation and provides detailed comments on specific aspects of the Draft WIR Evaluation that concern Ecology.<sup>1</sup>

Ecology believes that the United States Department of Energy (USDOE) is unable to show compliance with the three criteria of the waste incidental to reprocessing evaluation process set forth in Chapter II of the Radioactive Waste Management Manual, DOE M 435.1-1.

Specifically, Ecology observes:

1. The Draft WIR Evaluation fails to demonstrate that the residual waste in the C Farm tanks has been or will be processed "to remove key radionuclides to the maximum extent that is technically and economically practical." The DOE Order 435.1 Performance Assessment for Waste Management Area C (PA for WMA C) did not evaluate a number of key radionuclides. Radionuclides excluded from evaluation include several long-lived and transuranic elements that decay into long-lived fission products.

Ecology has identified concerns with the methodology USDOE used to identify those key radionuclides. Our concerns include the use of unsubstantiated assumptions, the lack of a technical basis for the screening approach used, and the limitation of the evaluation timeframe to 1,000 years.

---

<sup>1</sup> Ecology provided comments to the United States Department of Energy on the supporting DOE Order 435.1 Performance Assessment for Waste Management Area C through a separate submittal on November 6, 2018.



Since the conclusions in the Draft WIR Evaluation are explicitly based on the key radionuclides identified in the PA for WMA C, this brings into question the validity of USDOE's conclusion that this WIR criterion has been satisfied.<sup>2</sup> The comments we submitted on the PA for WMA C provide more details regarding these concerns.

2. The Draft WIR Evaluation fails to demonstrate that the residual waste will be managed "to meet safety requirements comparable to the performance objectives set out in 10 CFR Part 61, Subpart C, *Performance Objectives*."

As USDOE states, the applicable performance objectives are those associated with land disposal facilities. "Land disposal facility" is defined as "the land, building, and structures, and equipment which are intended to be used for the disposal of radioactive wastes." 10 CFR § 61.2 (emphasis added).

Ecology also notes that the performance objectives set forth in 10 CFR Part 61 require protection of the general population from certain concentrations of radioactivity "which may be released to the general environment in groundwater, surface water, air, soil, plants, or animals." 10 CFR § 61.41 (emphasis added). By excluding analysis of the contaminated soils surrounding the tanks, the Draft WIR Evaluation fails to comply with land disposal facility performance objectives. Moreover, exclusion of soils makes it impossible to consider cumulative impacts in determining whether comparable performance objectives could be met.

In addition, the performance objective set forth in 10 CFR § 61.42 requires the inadvertent intrusion analysis to be performed for land disposal facilities. However, the PA for WMA C and Draft WIR Evaluation did not set forth an adequate analysis of inadvertent intruder scenarios or their implications.

In particular, USDOE has not demonstrated that comparable performance objectives will be met by placing grout on top of the residual waste in the tanks without performing any mixing of the waste and grout. USDOE assumed that the worst-case scenario would be "breaching a buried waste transfer pipeline, rather than a tank" despite the fact that "little or no residual waste is assumed to remain in the pipelines other than waste adhered onto surfaces."

In contrast, however, the PA for WMA C and the Draft WIR Evaluation state that the highest calculated "potential doses that might arise [are] from intrusion into a tank." Yet both documents fail to include any analysis of whether performance standards would be met under a scenario involving exposure to residual tank waste, such as could happen with an acute well driller. Because grout is proposed to be placed on top of the waste instead of being mixed in with it, this lack of analysis is of particular concern, as any breach of the bottom of a tank will result in untreated waste being released directly into the environment.

---

<sup>2</sup> In addition, in the middle of the public comment period on this Draft WIR Evaluation, USDOE published in the Federal Register a new "interpretation" of the Nuclear Waste Policy Act's definition of High Level Waste (HLW), which explicitly excludes the requirement to remove key radionuclides to the maximum extent practical. Ecology is concerned that USDOE could attempt to use this new "interpretation" to render the Draft WIR Evaluation obsolete and to move forward in reclassifying the residual waste in WMA C without first proving that it has sufficiently reduced the risk associated with disposing of the waste in-place (by removing those key radionuclides).

3. The Draft WIR Evaluation fails to demonstrate that the waste will be “incorporated in a solid physical form at a concentration that does not exceed the applicable concentration limits for Class C low-level waste as set out in 10 CFR 61.55, *Waste Classification*,” as required by DOE Order 435.1. Ecology does not agree that the “incorporated in a solid physical form” requirement of this criterion can be met by pouring grout on top of residual waste without performing any mixing of the waste and grout.

If USDOE cannot demonstrate the waste will be incorporated into a solid form, then the only way to satisfy the plain language of this DOE Order 435.1 criterion is for USDOE to rely on the “alternative requirements” portion.

Although Ecology recognizes that USDOE states in several footnotes throughout the Draft WIR Evaluation that it is not relying on the “alternative requirements” language, we also note that the “alternative requirements” language was found by a federal district court to directly conflict with the Nuclear Waste Policy Act’s definition of High Level Waste. Ecology is, therefore, concerned that it appears the only way USDOE can meet the plain language of this criterion is by relying on language a court found to be invalid.

In addition to the Draft WIR Evaluation’s failure to meet any of the three criteria of the WIR evaluation process under DOE Order 435.1, Ecology is concerned that USDOE submitted the Draft WIR Evaluation to the Nuclear Regulatory Commission without any evaluation of the contaminated soil surrounding the tanks, in violation of the Hanford Federal Facility Agreement and Consent Order (HFFACO).

Appendix H of the HFFACO sets forth a process for establishing the “criteria for determining the allowable residual waste following retrieval operations on the Hanford single shell tanks.” Importantly, Step 2(b) of Appendix H requires USDOE to “Establish an interface with the Nuclear Regulatory Commission (NRC), and reach formal agreement on the retrieval and closure actions for single shell tanks with respect to allowable waste residuals in the tank and soil column.” HFFACO at H-2 (emphasis added).

Ecology also notes that the public has not had a meaningful opportunity to review and comment on the PA for WMA C, upon which the analysis in the Draft WIR Evaluation is based. Ecology notes that USDOE’s Office of River Protection made a commitment during a series of stakeholder meetings held in 2009-2010 to publish the PA for public review and comment.

Although the PA was made available for public review concurrently with the Draft WIR Evaluation, there was no opportunity for the public to provide feedback as to any perceived deficiencies prior to the PA being used to develop key assumptions for the Draft WIR Evaluation. Ecology is concerned about the precedent this evaluation sets for future tank farms at Hanford.

Ecology is also concerned that USDOE appears to have made a number of misstatements to the public regarding the scope of the Draft WIR Evaluation and Ecology's role in closure of WMA C.

First, USDOE represented that the contaminated soils throughout WMA C will be addressed solely under CERCLA. Ecology disagrees with this representation, and believes it is contrary to the process set forth in the HFFACO. Final closure of the tank system must be permitted under RCRA and therefore must meet the closure performance standards set forth in WAC 173-303-610 and the corrective action requirements set forth in WAC 173-303-646.

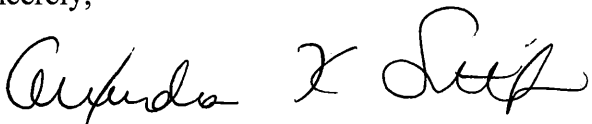
Second, Ecology encourages USDOE to clarify its interpretation of the WIR Determination that was made in 2008 by citation for "tank farm soil" at Hanford. Given USDOE's recent representations that the 2008 WIR Determination does not apply to the contaminated soils in the C Tank Farm, we think it would be helpful to the public to clarify what the 2008 WIR Determination does and does not cover.

Ecology notes that the Citation Waste List set forth in Attachment 10.1 to the 2008 WIR Determination (ESQ-EM-IP-M435.1-1-01, R0 [2008]) states that "soil or debris indirectly or directly contaminated by tank waste due to spills, leakage, and/or subsequent radionuclide migration" is categorically "non-HLW." The only tank farm soil expressly excluded from this 2008 WIR Determination is soil that exceeds Class C concentrations and has been "excavated ... on a bulk basis." Contrary to this plain language, USDOE represented to Ecology, the Hanford Advisory Board, and the public that the 2008 WIR Determination only applies to soils contaminated by spills that occurred during retrievals.

Ecology also notes that DOE Order 435.1 limits use of the citation method to fuel, machinery, equipment, and other solid wastes used in fuel reprocessing, and does not include soils contaminated by liquid high-level waste. For these and other reasons, Ecology encourages USDOE to remove tank farm soils from the 2008 Citation Waste List and to include the WMA C soils in a revised version of the current WIR Evaluation.

Ecology staff are available to discuss these concerns further and answer any questions you might have regarding our comments.

Sincerely,



Alexandra K. Smith  
Program Manager  
Nuclear Waste Program

cc: See page 5

Jan Bovier  
November 6, 2018  
Page 5 of 5

18-NWP-181

cc electronic:

Dave Einen, EPA  
Rob Hastings, USDOE  
Chris Kemp, USDOE  
Glyn Trenchard, USDOE  
Brian Vance, USDOE  
Jon Perry, MSA  
Marcel Bergeron, WRPS  
John Eschenberg, WRPS  
Jessica Joyner, WRPS  
Paul Rutland, WRPS  
ERWM Staff, YN  
Dan Serres, Columbia Riverkeeper  
Ken Niles, ODOE  
Scott Van Verst, WDOH  
Caroline Cress, AGO  
Andy Fitz, AGO  
Koa Kaulukukui-Barbee, AGO  
Randy Bradbury, Ecology  
Theresa Howell, Ecology  
Jeff Lyon, Ecology  
John Price, Ecology  
Cheryl Whalen, Ecology  
Environmental Portal  
Hanford Facility Operating Record  
MSA Correspondence Control  
USDOE-ORP Correspondence Control  
WRPS Correspondence Control

cc: Matt Johnson, CTUIR  
Jack Bell, NPT  
Rose Longoria, YN  
Susan Leckband, HAB  
Administrative Record  
NWP Central File