



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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September 18, 2020

20-NWP-157

Brian T. Vance, Manager
Richland Operations Office
United States Department of Energy
PO Box 550, MSIN: H5-30
Richland, Washington 99352

Re: Response to the United States Department of Energy – Richland Operation Office
(USDOE-RL) Decision to Classify the Integrated Disposal Facility's (IDF) Leachate
Collection Tanks Dangerous Waste Management Units (DWMUs) in the *Hanford Facility
Resource Conservation and Recovery Act (RCRA) Permit for the Treatment, Storage, and
Disposal of Dangerous Waste* (Hanford Site-wide Permit) as Tank Systems

Reference: See page 3

Dear Brian T. Vance:

The Department of Ecology (Ecology) received USDOE-RL letter 20-PFD-0043 (Reference) and attached white paper, "Basis for Permitting the IDF Leachate Collection Tanks as Tank Systems." We acknowledge that you agree these units should be included in the Hanford Site-wide Permit as DWMUs.

We performed a review of all available information and considered your white paper points in support of your stance that these units should be incorporated into the Hanford Facility Site-wide Permit as "tanks." As we evaluated the proper permitting path forward for the leachate collection system, we also consulted with Ecology's Hazardous Waste & Toxics Reduction Program and the United States Environmental Protection Agency Region 10 office to determine if they had experience with similar situations. The technical information that we gathered to support our review of the IDF leachate collection system, along with the supporting regulatory basis of our permitting determination, can be found in the Regulatory Determination on IDF Modular Tanks (Enclosure 1).

Based on our review of the design and construction of the IDF leachate collection system, the system bottom is a geomembrane liner system. As such the modular tanks do not have a solid bottom and do not meet the regulatory definition of a tank per Washington Administrative Code (WAC) 173-303-040 [40 CFR 260.10]. Additionally, the liner system does not provide structural integrity independently; therefore, the system cannot pass a structural integrity test as discussed in the Regulatory Determination on IDF Modular Tanks (Enclosure 1).

Since the Leachate Collection System does not meet necessary design requirements to be permitted as a tank system, it is Ecology's position that the system should be permitted as Miscellaneous Units under the requirements of WAC 173-303-680. As listed in WAC 173-303-680(2), permit terms and provisions from both WAC 173-303-640, Tank Systems, and WAC 173-303-650, Surface Impoundments, can be applied to these miscellaneous units, as applicable. We have included a listing of the applicable regulations in Regulations Applicable to IDF Miscellaneous Units DWMUs (Enclosure 2).

The proper classification to add a Miscellaneous Unit DWMU to a permit is not explicitly listed in WAC 173-303-830 Appendix I, therefore Ecology follows the requirements in WAC 173-303-830(4)(d) Other modifications to determine the appropriate class for a modification.

As detailed in WAC 173-303-830(4)(d)(i) there are two options provided to proceed with the modification.

1. The Permittee may submit the modification to Ecology as a Class 3 modification.
2. The Permittee may request a determination by the Director that the modification should be reviewed and approved as a Class 1 or Class 2 modification. If the Permittee requests that the modification be classified as a Class 1 or 2 modification, they must provide the department with the necessary information to support the requested classification.

Based on the statements quoted below from your letter 20-PFD-0043 (Reference), we believe that you have made a request to consider this a Class 2 modification:

"To help alleviate this concern, the permittees for IDF will immediately begin developing a permit modification request according to WAC 173-303-830, "Permit Changes" to support Ecology's desire to add the LCTs as DWMUs. Two basic assumptions made by RL regarding the permit modification request are as follows:

- LCTs will be incorporated into the Hanford Facility RCRA Permit as "tanks" under WAC 173-303-640 "Tank Systems."
- Ecology concurs that the appropriate modification class for this permit change is a Class 2 modification as derived from WAC 173-303-830 "Permit Changes," Appendix I, G.1.b.

RL appreciates Ecology's support on completing this permit change and requests immediate clarification if the bounding assumptions listed above are not agreeable to Ecology."

We have reviewed the detailed information provided and based on our review of WAC 173-303-830(4), Ecology believes that the addition of this DWMU as a miscellaneous unit does not meet the criteria of a Class 2 modification. Ecology has determined that this permit modification most resembles WAC 173-303-830, Appendix I, H. Surface Impoundments, Item 1. Modification or addition of surface impoundment units that result in increasing surface impoundment storage or treatment capacity," which is identified as requiring a Class 3 modification.

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Based on our review of the information provided to date, it is apparent that the addition of this DWMU to the IDF Permit will require modification of every addendum in the permit. It is Ecology's position that the addition of this DWMU (the modular tanks and ancillary equipment of the leachate collection system) into the IDF permit should be submitted as a Class 3 permit modification.

Ecology understands the concerns that USDOE-RL has about meeting schedules, which affect the startup of the Direct Feed Low Activity Waste program. We support this goal and continue our work on the IDF permit with this schedule in mind. We look forward to working collaboratively with you as we add this DWMU to the IDF permit to support the start of operations.

If there are any questions please contact Nancy Ware, Permit Lead, at nancy.ware@ecy.wa.gov or 509-372-7912, or Mandy Jones, Permit Coordinator, at mandy.jones@ecy.wa.gov or 509-372-7916.

Sincerely,

 Digitally signed
by Schleif,
Stephanie (ECY)
Stephanie Schleif
Deputy Program Manager
Nuclear Waste Program

sd/ag

Enclosure (2)

Reference: Letter, 20-PFD-0043, July 30, 2020, "U.S. Department of Energy Decision to Classify the Integrated Disposal Facility's Leachate Collection Tanks Dangerous Waste Management Units in the Resource Conservation and Recovery Act Permitting as Tank Systems"

cc: See page 4

cc electronic:

Dave Bartus, EPA
David Einan, EPA
Tim Hamlin, EPA
Duane Carter, USDOE-RL
Mostafa Kamal, USDOE-RL
Gary Piles, USDOE-RL
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Nancy Ware, Ecology
NWP RIM Coordinators, Ecology
Environmental Portal
Hanford Administrative Record
Hanford Facility Operating Record
CHPRC Correspondence Control
MSA Correspondence Control
USDOE-RL Correspondence Control

Ecology Determination on Leachate Collection Modular Tanks

The Department of Ecology (Ecology) Nuclear Waste Program has determined that the leachate collection system storage in use at the Integrated Disposal Facility does not have a solid bottom and does not meet the regulatory definition of a tank per WAC 173-303-640. The side walls of the system are sitting on a concrete ringwall foundation. However, the geomembrane liner system floors are not supported by the concrete ringwall foundations. The concrete ringwalls encompass sloped and compacted drainage gravel that supports the geomembrane liner system. The floor of the leachate collection system is the geomembrane liner system, which is composed of primary and secondary geomembrane liners, separated by drainagenet, with a geotextile cushion between the bottom liner and the drainage gravel, and are attached by bolts to the top of the corrugated steel side walls. The geomembrane liner system does not provide structural integrity independently of the underlying drainage gravel; therefore, the bottom of the system does not pass a structural integrity test to be considered tank systems under Ecology DW and EPA RCRA regulations.

Ecology considered the following information during the decision-making process of reclassifying the IDF leachate collection system from Tank DWMUs to Miscellaneous Unit DWMUs. In remaining consistent with past permitting actions of the Ecology HWTR and with the determinations made by EPA Region 10 and EPA OSW, these units must be permitted as Miscellaneous Units. WAC 173-303-640, Tank systems, and WAC 173-303-650, Surface impoundment, requirements will be applied to these units during the permitting process.

Letter 20-PFD-0043

Information supported in, “Basis for Permitting the IDF Leachate Collection Tanks as Tank Systems, July 15, 2020,” attachment to Letter 20-PFD-0043, the following are descriptions of the IDF leachate collection system. Section 3.0, Description of LCT System:

1. “Each IDF LCT is constructed of a primary geomembrane liner placed within a secondary geomembrane containment liner. These two liners will act as the floor of the tank and will be bolted to the top of a cylindrical steel tank side wall.”
2. “an additional layer of geotextile material creates a cushion between the outer liner and the inside face of the tank shell, as well as between the liner floor of the LCT and the underlying drainage gravel.”
3. “The tank is designed to include a dual containment liner system that will act as the floor of the tank and will be bolted to the top of the tank side wall.”

IDF RCRA Permit, OUG-11, Appendix 4A, Section 6.4.4.4, states:

4. “The HDPE [high-density polyethylene] drainage net between the primary and secondary liner will allow leachate that leaks through the primary liner to drain to the center of the tank. At the center of the tank under the secondary liner will be a depression in the underlying granular backfill that will form a shallow sump. The leak detection pipe

will connect to the secondary liner at this sump location and convey leaking leachate to the leak detection chamber of the combined sump.”

Precedent by Ecology (Hazardous Waste & Toxics Reduction Program)

The Hazardous Waste & Toxics Reduction Program (HWTR), Ecology, established a precedent for Ecology in 2001 with Noveon Kalama, Inc., based upon the determination that modular tank units (EconoTanks) do not meet the RCRA definition of a tank. HWTR received a regulatory determination on the Noveon modular tank system from the Environmental Protection Agency (EPA) Region 10. EPA Region 10 stated the following as a basis for their determination.

“In making our regulatory determination, EPA Region 10 considered all information provided by Ecology, and we’ve concluded that the EconoTanks used by Noveon Kalama do not meet the regulatory definition of a tank. This determination is based on the fact that these units do not have solid bottoms, and, as such, do not meet the regulatory definition of a tank per 40 C.F.R. 260.10. in a 1983 memorandum from Bruce R. Weeke to Thomas W. Devine, EPA Headquarters provided guidance to regional offices on how to determine what constitutes a “tank,” as opposed to a “surface impoundment.” In that memorandum, EPA said that the primary assessment of a unit in question should be what provides the unit’s structural support. EPA continues to say that “In making this assessment, the unit should be evaluated as if it were free standing, and filled to its design capacity with the material it is intended to hold. Accordingly, if the unit is not capable of retaining its structural integrity without supporting earthen materials, it must be considered a surface impoundment.” The plastic liners used in the EconoTanks do not provide such structural integrity and therefore the units must be considered surface impoundments.”

In the aforementioned determination, EPA Region 10 made reference to another EPA regulatory determination, stating,

“In addition, in a October 25, 1988 letter from Sylvia Lowrance (EPA-OSW) to Robert Duprey (EPA Region 8), EPA made a regulatory determination regarding the subject units and classified them as miscellaneous units, such as “above-grade non-land disposal surface impoundment,” covered by Subpart X. In that letter EPA advised, that if such an “unconventional vessel” is intended for long-term hazardous waste management, then the complete set of surface impoundment requirements, including groundwater monitoring under Subpart F should be considered.”

References:

Letter, 20-PFD-0043, July 30, 2020, Brian T. Vance, Manager, Richland Operations Office, Department of Energy, to Alexandra K. Smith, Program Manager, Nuclear Waste Program, Washington State Department of Ecology, “U.S. Department of Energy Decision to Classify the Integrated Disposal Facility’s Leachate Collection Tanks Dangerous Waste Management Units in the Resource Conservation and Recovery Act Permitting as Tank Systems”

Letter, 3640-011101, November 1, 2001, Leslie Morris, Hazardous Waste Inspector, Hazardous Waste and Toxics Reduction Program, Southwest Regional Office, Department of Ecology, to Greg Conn, Environmental Manager, Noveon Kalama, Inc., “EconoTanks a.k.a. ModuTanks at the Noveon Kalama, Inc. Facility”

Letter, October 23, 2001, Jamie Sikorski, Manager, RCRA Compliance Unit, United States Environmental Protection Agency Region 10, to K. Seiler, Section Supervisor, Southwest Regional Office, Hazardous Waste & Toxics Reduction Section, Washington Department of Ecology, “BF Goodrich – Kalama – Regulatory Determination, EPA ID#: WAC 09289 9574”

Memorandum, October 25, 1988, Sylvia Lowrance, Director, Office of Solid Waste, EPA-Office of Solid Waste, and Bruce Diamond, Director, Office of Waste Programs Enforcement, EPA, to Robert Duprey, Director, Hazardous Waste Management Division, EPA Region 8, “Use of Unconventional Vessels”

WAC 173-303-680

- (2) Environmental Performance Standards
- (3) Monitoring, analysis, inspection, response, reporting, and corrective action
- (4) Post-closure care

WAC 173-303-650

Surface impoundment regulations will be pulled in for the liner

- (2) Design and Operating Requirements
- (4) Monitoring and inspection
- (5) Emergency repairs; contingency plans
- (6) Closure and post-closure care
- (10) Action leakage rate
- (11) Response actions
- (12) Air emission standards

WAC 173-303-640

Tank regulations will be pulled in for the walls and ancillary equipment of the structure

- (2) Assessment of existing tank system's integrity
- (3) Design and installation of new tank systems or components
- (5) General operating requirements
- (6) Inspections
- (7) Response to leaks or spills and disposition of leaking or unfit-for use tank systems
- (8) Closure and post-closure care
- (11) Air emission standards