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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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October 25, 2018

18-NWP-167

By certified mail

Brian T. Vance, Manager
Office of River Protection
United States Department of Energy
PO Box 450, MSIN: H6-60
Richland, Washington 99352

Mark Lindholm, President and Project Manager
Washington River Protection Solutions, LLC
PO Box 850, MSIN: H3-21
Richland, Washington 99352

Re: Dangerous Waste Compliance Inspection on May 30, 2018, at Liquid Effluent Retention Basin and Effluent Treatment Facility (LERF/ETF) RCRA Site ID: WA7890008967, NWP Compliance Index No 18.633

Dear Brian T. Vance and Mark Lindholm:

Thank you for your staff's time during the LERF/ETF inspection on May 30, 2018. The Department of Ecology's compliance report of this inspection is enclosed. The report cites no area(s) of non-compliance and 1 concern.

Specific deficiencies or violations not listed in the enclosed compliance report do not relieve your facility from having to comply with all applicable regulations.

If you have questions or need further information, please contact me at (509) 372-7890 or kathy.conaway@ecy.wa.gov.

Sincerely,

Kathy Conaway

Kathy Conaway
Dangerous Waste Compliance Inspector
Nuclear Waste Program

am
Enclosure

cc: See page 2

cc electronic w/enc:

Dave Bartus, EPA
Jack Boller, EPA
Dave Einan, EPA
Mary Beth Burandt, USDOE-ORP
Lori Huffman, USDOE-ORP
Christopher Kemp, USDOE-ORP
Joe Sondag, USDOE-ORP
Bryan Trimberger, USDOE-ORP
Duane Carter, USDOE-RL
Cliff Clark, USDOE-RL
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Holly Bowers, WRPS
Jessica Joyner, WRPS
Eric Van Mason, WRPS
ERWM Staff, YN
Ken Niles, ODOE
Shawna Berven, WDOH
John Martell, WDOH
Kathy Conaway, Ecology
Suzanne Dahl, Ecology
Jack Davis, Ecology
Katie Hall, Ecology
John Price, Ecology
Stephanie Schleif, Ecology
Alex Smith, Ecology
Environmental Portal
Hanford Facility Operating Record
MSA Correspondence Control
USDOE-ORP Correspondence Control
USDOE-RL Correspondence Control
WRPS Correspondence Control

cc w/enc:

Susan Leckband, HAB
Administrative Record
NWP Central File
NWP Compliance Index File: 18.633

cc w/o enc:

Matt Johnson, CTUIR
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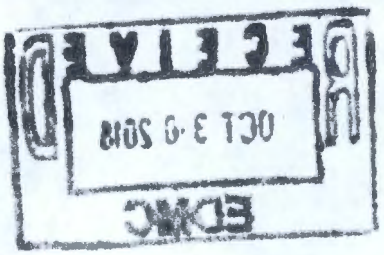
Alyssa Buck, Wanapum
Rose Longoria, YN



Washington Department of Ecology
Nuclear Waste Program
Compliance Report

SITE:	**Liquid Effluent Retention Facility(LERF) and Effluent Treatment Facility (ETF)**
RCRA Site ID:	**WA 789008967**
Inspection Date:	May 30, 2018
Site Contacts:	Holly Bowers, Washington River Protection Solutions (WRPS) Bryan Trimberger, United States Department of Energy (USDOE), Office of River Protection (ORP)
Site Location:	Hanford Site, 200 East, Benton County, WA NAICS code: 562211
At This Site Since:	1994
Current Site Status:	Treatment, Storage, and Disposal Facility/ Operating Unit Group 3

Ecology
Lead Contact: Kathy Conaway Phone: (509) 372-7890 FAX:
Other Representatives: Jackson Davis, Compliance Support
Report Date: October 25, 2018
Index #: 18.633
Report By: Kathy Conaway

Kathy Conaway (Signed) 10/24/2018 (Date)

Site Location

The Hanford Site was assigned a single United States Environmental Protection Agency (EPA) identification number, and is considered a single Resource Conservation and Recovery Act of 1976, as amended, (RCRA) facility even though the Hanford Site contains numerous processing areas spread over a large geographic area. The Hanford Site is a tract of land approximately 560 square miles and is located in Benton County, Washington. This site is divided into distinct Dangerous Waste Management Units (DWMUs) which are administratively organized into "unit groups." A unit group may contain only one DWMU or many; currently, there are 33 unit groups at the Hanford Site. Individual DWMUs make up a small portion of the Hanford Site. Additional descriptive information on the individual DWMUs is contained in unit group permit applications and in Parts III, V, and VI of the Hanford Facility RCRA Permit, Dangerous Waste Portion, WA7890008967, Revision 8C (hereafter referred to as the Permit).

Owner and Operator Information

The owner is the United States government. The primary operator is the USDOE, who uses multiple contractors to manage the facility and conduct various onsite activities. USDOE-ORP oversees the waste management and treatment activities at the LERF/ETF. WRPS is the primary contractor operating the LERF/ETF and overseeing its DWMUs. CH2M Hill Plateau Remediation Company (CHPRC) is the primary contractor overseeing the site-wide groundwater monitoring program.

Facility Background

The following background and description is paraphrased from the Permit, last modified January 23, 2018. The LERF and ETF comprise an aqueous waste treatment system, located in the 200

East Area. LERF and ETF can receive aqueous waste through several inlets. ETF can receive aqueous waste through three inlets:

1. ETF can receive aqueous waste directly from the LERF.
2. Aqueous waste can be transferred from the Load-in Station to ETF.
3. Aqueous waste can be transferred from containers (e.g., carboys, drums) to the ETF through either the Secondary Waste Receiving Tanks or the Concentrate Tanks.

The Load-in Station is located just east of ETF and currently consists of three storage tanks and a pipeline that connects to either LERF or ETF through fiberglass pipelines with secondary containment.

The LERF can receive aqueous through four inlets:

1. Aqueous waste can be transferred to LERF through a dedicated pipeline from the 200 West Area.
2. Aqueous waste can be transferred through a pipeline that connects LERF with the 242-A Evaporator.
3. Aqueous waste also can be transferred to LERF from a pipeline that connects LERF to the Load-in Station at ETF.
4. Aqueous waste can be transferred into LERF through a series of sample ports located at each basin.

The LERF consists of three lined surface impoundments with a nominal capacity of 29.5 million liters each. Aqueous waste from LERF is pumped to ETF through a double walled fiberglass pipeline. pipeline is equipped with leak detection located in the annulus between the inner and outer pipes. Each basin is equipped with six available sample risers constructed of 6-inch-perforated pipe. A seventh sample riser in each basin is dedicated to influent waste receipt piping, and an eighth riser in each basin contains liquid level instrumentation. Each riser extends along the sides of each basin from the top to the bottom of the basin.

The ETF treats low-activity radioactive water containing small amounts of ammonia, inorganics, organics, and particulates. The wastewater to be treated consists of the process condensate (PC), generated from the 242-A Evaporator, the process distillate discharge (PDD) and wastewater in the LERF basin which originates from the 242-A Evaporator PC. ETF is designed to treat the contaminants in other aqueous wastes from the Hanford site. ETF consist of a primary and secondary treatment train. The primary treatment train removes or destroys dangerous and mixed waste components from the aqueous waste. In the secondary treatment train, the waste components are concentrated and dried into a powder. This waste is containerized and transferred to a waste treatment, storage, and disposal DWMU.

Each treatment train consists of a series of operations. The primary treatment train includes the following:

- Surge tank
- Filtration
- Ultraviolet light oxidation (UV/OX)

- pH adjustment
- Hydrogen peroxide decomposition
- Degasification
- Reverse osmosis (RO)
- Ion exchange
- Final pH adjustment and verification

The secondary train uses the following:

- Secondary waste receiving
- Evaporation (with mechanical vapor recompression)
- Concentrate staging
- Thin film drying
- Container handling
- Supporting systems

The secondary treatment train takes in aqueous waste and generates a dry powder waste stream, and a liquid effluent stream. The treated effluent is contained in verification tanks where the effluent is sampled to confirm that the effluent meets the delisting criteria. The secondary waste treatment system typically receives and processes byproducts generated from the primary treatment train. However, it is possible in an alternate operating event, to feed aqueous wastes to the secondary treatment train before the primary treatment train.

Under 40 CFR 261, Appendix IX, Table 2, and the corresponding state-approved delisting (August 8, 2005, all incorporated by reference), the treated effluent from ETF is considered a "delisted" waste. That is, the treated effluent is no longer a listed dangerous waste subject to the hazardous waste management requirements of RCRA, as long as the delisting criteria are satisfied and the treated effluent does not exhibit a dangerous characteristic. The treated effluent is discharged as a non-dangerous delisted waste under the Washington State Waste Discharge Permit (No. ST 4500). It is discharged to the State Authorized Land Disposal Site (SALDS) located in the 600 Area, north of the 200 West Area. A portion of the treated wastewater from the verification tanks is recycled as service water throughout the facility. For example, effluent as service water is used to dilute bulk acid and caustic to meet processing needs, which reduces the demand for raw water.

The ETF/LERF unit group has final status operating standards in the Permit including Addendum A information. The Permit identifies three surface impoundments that are permitted to treat and store dangerous waste wastewaters and one permitted container storage area in the ETF. In preparation for conducting the onsite portion of this inspection, I reviewed the Permit, Part A form, and Permit file.

Compliance Background

The Hanford facility has been a long-standing, significant non-complier (SNC) for RCRA. This is due to the fact that in the early 1990s, USDOE entered into a Consent Agreement with EPA and Ecology to set enforceable schedules for achieving milestones for site clean-up and

dangerous waste permitting. Since the mid- 1990s, USDOE has been out of compliance with the enforceable schedules, with little likelihood of ever returning to compliance. In addition, over the years several problems of significant noncompliance with the permit conditions, interim status standards, and generator regulations have been found by EPA and Ecology inspectors.

A complete summary of compliance history from 2013, to 2016, can be found in the Ecology compliance report, index number 16.580. The 2015, Ecology compliance report 15.537, cited eight areas of non-compliance and six concerns. The latest Ecology compliance report 17.616 documented no areas of non-compliance and listed three concerns for the September 28 and October 17, 2017, Ecology inspection.

Inspection Summary

This was a focused compliance evaluation inspection (FCI) of the LERF/ETF Unit Group 3. The facility was inspected to assure compliance with the Permit, Class 1 Modification, dated January 1, 2018; 40 CFR Part 262 and WAC 173-303-170 through 230 standards for hazardous waste generators.

This was an announced inspection. I notified the USDOE and WRPS on May 24, 2018, by email that Ecology would be performing the yearly dangerous waste compliance inspection for the LERF/ETF Wednesday May 30. I said that I would be leading the inspection and Jackson Davis would be support. Ecology Nuclear Waste Program (NWP) members met with USDOE and contractor representatives at nine am on May 30, 2018, at the LERF/ETF in the 200 East area, 2025-EA/124B.

We began the inspection with an opening conference. Twenty-two people attended. For a complete list of attendees, see the sign-in sheet in Attachment A. Bryan Trimberger and Richard Valle represented USDOE-ORP, and Doug Hildebrand, represented USDOE Richland Operations Office (RL). Holly Bowers, the primary point of contact for WRPS, the contractor that manages LERF/ETF, also accompanied us throughout the inspection.

In the opening conference, I explained that this was an Ecology lead inspection and that we would be evaluating compliance with the Permit, and WAC 173-303 as applicable. I confirmed the current 8C Permit version with Holly Bowers. I explained that in addition to looking at standard waste management practices, we would also be looking at documentation that delisting standards are being met for the treated effluent, that LDR treatment is being conducted in the LERF basins, and the groundwater monitoring plan data. I said that I would have questions about the current facility process, contingency, and dangerous waste inspections.

Mr. Scott Demiter, WRPS Shift Office Manager, provided the safety and field information for the LERF basins and the outside-inside ETF areas, which included personal protection equipment, acing in the process area at ETF, and photo taking.

I began with my questions on groundwater wells so that CHPRC and DOE-RL groundwater representatives could be released from the rest of the inspection. I asked if there had been any exceedances of well parameters in the past year. Mr. Doug Hildebrand replied that there were no exceedances or lab issues. Mr. Hildebrand said that I could request the data to confirm this. I said that I would put this in my document request. I then asked if the three current groundwater wells are performing as required, and Mr. Hildebrand said yes. I asked about flow direction and he said that the flow direction of the down-gradient well was to the south. I said that I had no

other questions and thanked the groundwater people and CHPRC point of contact Linda Peterson for their time

I then asked what the SALDS well monitoring was based upon. Mr. Bowman said it was the groundwater requirements under the State 4500 Permit. I asked if all of the three wells were performing correctly. Mr. Bowman explained that well 699-48-77A, the down gradient, had gone dry around 5 years ago. Then up gradient well 699-48-77C began to show signs of going dry but that the pump and treat activity in the 200 east area helped recharge the well. They continue quarterly well sampling. The water plume extends five miles to SALDS and disperses. Mr. Allen added that WRPS prepare an annual report for the discharge permit in November. He said that the groundwater system will be modelled through 2065. He said by 2128, the tritium plume should be dispersed. Mr. Hildebrand then said that there might have been one exceedance reported, and believed that another sample was taken and the numbers appeared good. Again, I said that I would request the data. Then the CHPRC representatives and Mr. Hildebrand left the inspection.

I moved to training plans and said that Ecology is expecting all the Hanford facility training plans to be updated and that DOE-RL and CHPRC had formally submitted updated training plans to Ecology. I asked WRPS what was their plan for updating training plans. Mr. Charles Mulkey, WRPS, said that the training plans are being reviewed along with requests and agreements but no final schedule set. He said there are plans to update the training plans. Mr. Trimberger said that the training plans cannot be completed until all agreements are in place. Mr. Mulkey left the inspection at this time.

I explained that Ecology was aware that Basin 42's cover was being replaced and I asked if that was still ongoing. Mark Bowman, WRPS, said yes and that most of the liquid from Basin 42 was transferred to Basin 43. Basin 43's cover was replaced last year and in service. Basin 43 receives waste primarily from the 242-A Evaporator and trench leachate. He said that the facility is not taking any waste liquid from the Hanford west area. Basin 42 still has a heel in it and that will be pumped. I asked what was the height of the heel and Mr. Dimeter, WRPS, said it was 3.1 feet. Mr. Clyde Allen, WRPS, added that it will be taken out of service soon and pumped dry, probably in the next 2 days. I asked why do you drain the heel? Cameron Joslyn, WRPS engineer, said it was for worker safety and for liner inspections. I asked if the 3-foot heel is pumped down, how will you stabilize the liner. Mr. Joslyn explained that sandbags are used around the perimeter and will be in place before the liner tensions are removed. I asked how is the liner inspection is performed and by whom. Mr. Joslyn explained that the vendor, Leifield Corporation LLC, performs a visual inspection for liner integrity after a cleaning of the liner. I asked if an inspection report is provided and Mr. Joslyn said no report but they do provide some documentation. I asked how is the inspection documented and Jeff Voogd, WRPS, added that all of the project and contractor documents go into the facility operating record which would include IDMS and archives. I then asked who puts the sandbags down and Mr. Joslyn said the vendor does.

I asked if we can see the basin inlets and he said that he could show us where the pipes are located and the pipes for leachate. Ecology project team previously verified that the material used in the replacement cover was equivalent or superior product to what was there originally.

Ecology project team also verified that the new cover was compatible with the contents of the basin liquid.

I asked about the replacement of Basin 44's cover. Mr. Bowman said replacement cover is planned for next year. I asked what waste streams are in Basin 44. Mr. Bowman said mixed waste, ERDF leachate, trench 31/34 leachate, and K-Basin water. He said that the basin was essentially full and higher radiation and no additional liquid would be accepted. Mr. Joslyn said that there is a campaign plan this year for treating the Basin 44 wastewater.

I said that we were ready to begin the field inspection segment and would start with LERF. Mr. Kevin Jamison escorted us to the ETF Process building to complete our entry requirements for the LERF/ETF.

We left for the LERF site around 10:47. We walked along a berm and Mr. Joslyn said that the pipeline for the 200 East area was located there. Jack Davis asked about the PC 5000 line and Ms. Bowers replied that it was a quality control tube from the 242-A Evaporator. We stopped at Basin 42 and took a photograph. I was shown the basin inlets and leachate piping. Mr. Joslyn pointed out the six risers within the basin and Ms. Allen, WRPS, said there were six sample risers. Mr. Coughlin added that the 242-A Evaporator process condensate is sampled at the 242-A Evaporator. There was a pipeline for the 242-A Evaporator, 200 West Area, and a pipeline that connects LERF to the 2025-ED Load-In Station. We moved on to Basin 43. I also observed sample ports at this basin. A photograph was taken of the 242-A Evaporator PC-5000 site glass located on a catch basin. This was a request by Scott Miller, Ecology, who had recently performed a 242-A Evaporator inspection. I asked about the sample riser for ERDF and Mr. Joslyn showed me sample riser with a tag that displayed 43-5. This was on the south side of Basin 43.

I verified the emergency telephone in building 242AL71 was functioning, as is required in the Permit's preparedness and prevention. I observed that the telephone number was clearly marked and accessible for making a call. I observed the safety shower test recorded date of 5-29-2018 by Rob Movick, and the eye wash test with the same date and employee signature.

We left the LERF unit and went to the Load-In Building, 2025 ED, near the ETF. Inside 2025 ED, we observed two receiving bays. Mr. Demiter explained the room configuration. Each bay contains a holding tank and pump sump. Each bay is designed with berms, sealed floors, and a sloped entry ramp to provide containment. The sumps can receive any liquid releases coming from a waste transfer. There is a leak detector and monitoring of the sumps is continuous when pumping and then daily for the sumps in normal operation. I asked if there were any tanker truck or containers with waste stored here today and he told me none.

I asked where the wastewater come from. Mr. Demiter said that it can be mixed waste trench leachate, purge water, PNNL totes, and miscellaneous wastewater. I observed the fire extinguisher and its inspection tag showing May 2018. We observed the safety shower and eyewash station. These are inspected weekly and last inspection showed 5/29/18 by Rob Movick and 5/30/18, RM.

At this time, we broke for lunch from noon to 1PM.

After lunch, we resumed the inspection at the ETF conference room. I asked what treatment campaigns have occurred, and Mr. Bowman said that waste streams treated were from LERF, the

Load-In inventory and the 242-A Evaporator. I asked if there was ETF processing today and he said, no, but there was partial staff in the control room. There was no treatment occurring, but the film thin dryers were going to run tonight.

I asked about any 90-day or generator activity. Mr. Allen said that outside in the back of the ETF building, there were containers with waste. There was a Satellite accumulation area (SAA) on the ETF process floor.

At the ETF building, we began in the control room, which is on the second floor, and two staff members were present. They were the operators, George Gilmore and Wayne Robertson. There is a large window area providing a good overview of the treatment system below. The fire extinguisher had been inspected in May 2018. I asked Mr. Gilmore to show me where the alarm that monitors the leak detector for the 2025 ED sump was. He said that it is monitored 24/7 by operators at the control room station. If it alarms, it would appear on the station, in the alarm summary, which he pointed to. He explained that the pump can come on automatically, and if the sump continued to fill and a high-high alarm would activate. He also explained that if the alarm sounded and it was raining, a staff person would go to the load-in station to verify if it was only rainwater. I observed some red alarms and asked him about these. He said one alarm was for Tank 117, which is out-of-service, UV is locked out, and the other was for 242-A steam pH.

We left the control room and moved to the first floor. On the way, I observed security signs and emergency lights throughout the ETF building. In the treatment area, I asked if there were any ignitable/reactive waste stored today and Mr. Allen said no. In room 115, we observed three universal waste containers; lithium batteries, alkaline batteries, and other used batteries. All had the date of 5-22-18. In the 2026-E truck bay, there were three empty drums and seven waste drums from Basin 42 and 43. Inside these drums was dry residue powder from the treatment process, which sometimes produced a high chromium content. Mr. Allen explained that because of the high chromium, these drums could not go to ERDF, and would instead be shipped to PermaFix Northwest for further treatment. The drums were closed, dated, marked with hazardous/mixed waste, toxic, and F listed. Next in room 2025-E, we observed 8 containers called "mavericks" that are 4x4 soft-sided boxes and were told they held debris waste to go to ERDF. Two of the containers were labeled low level waste and the other six were mixed. All were marked toxic and F-listed. We observed one long wood box and Mr. Allen said it contained UV light waste with mercury. The wood box was closed, labeled toxic and F-listed. The mercury would be macro encapsulated at ERDF.

We observed that the fire extinguisher in this area was inspected in April and May 2018. We returned to the 2025-E main process area and observed the laboratory area and SAA. This was room 125 and the SAA waste was generated from the process area. We checked the eyewash station and safety shower, decon area shower and observed an inspection by RM on 5/29/18 for all three areas. There was one lab container with a label of Toxic and F-001 – F005 and U210 waste codes on the container. We observed a blue 55-gallon drum with a date 5-21-18 and labeled non-regulated and was told that it was used oil from vapor compressor filters. Jackson asked if the non-regulated waste was designated non-flammable or if it was managed as used waste. Mr. Andy Hobbs answered that the waste will not be released for recycling but is not a designated waste.

Next, we followed up on the two yellow buckets near the south side of the evaporator used to catch compressor oil. This was described and provided in the previous compliance inspection report, 17.615. The containers were empty at the time of inspection. Mr. Allen explained that their intent for using the containers was for good housekeeping, ALARA concerns, and prevent unnecessary leaks since there is a potential for small leaks with any running equipment like what is used in the process area. The containers are scanned by the HPT daily and would collect any mixed waste.

Next, we left the building and went to the outside container storage area located behind the 2025-E ETF building. We observed the eyewash station and caustic safety shower had been inspected 5/29/18. We observed five roll-on/roll-off boxes with hazardous waste and toxic labels. I asked that module HS-0011 be opened so we could inspect a 90-day. Inside the module, to the right, we observed a SAA with a 10-gallon container marked hazardous waste, D-008, and poison. On the left side, we observed three containers that Mr. Allen said were expired chemicals and old absorbent. Containers were closed and labeled with toxic, WP01, WS02, and D001, D035, flammable solid. I said that I may request container information at a later date. We completed our field inspection and returned to the conference room for document review and questions.

I began by asking if there have been any changes made in the last 12 months to the contingency plan. Mr. Allen replied that he was not sure. Then Ms. Bowers said that there have been four different permit modifications requested and approved in the last 12 months but none of these were for the contingency plan. I then asked if there were any reported spills of mixed waste since Ecology's last inspection. Mr. Allen provided me his spill log for review. I observed around 12 listed spills and all were incidental spills from less than 20 ounces to 15 gallons. At this time, Mr. Bowman shared with me a copy of the 9/13/2016, ETF/LERF Building Emergency Plan. Next, I asked what waste streams were treated at ETF in the past year. Ms. Bowers provided records that showed the following treated waste streams:

- 242-A process condensate
- AZTF condensate
- Modutank water
- Mixed waste trench leachate
- Solid Waste Landfill lysimeter leachate
- 325 Building RPS tank
- 3420 Building sump
- Basin 42, 43, 44 cover water

I asked if treated effluent water is used for service water and Mr. Bowman said yes and that all of the ETF clean service water came from their treated effluent. He said that service water is used as make-up water for ETF treatment.

I explained, in my review of the Permit section on LDR and sorbents, it said that sorbents used to treat free liquids for land disposal must be non-biodegradable (i.e., inorganic minerals, elemental carbon, and other inorganic materials). I asked how do you ensure that sorbents used in treatment of containers for free liquids are compatible with wastes and containers, and how do

you ensure compliance with LDR for non-biodegradable sorbents. Melanie Myers, WRPS, said that ERDF has an approved list of absorbents and because ETF ships waste to ERDF for land disposal, they comply with that. She also said that they use water works and diatomaceous earth. She added that the waste planning checklist explains how absorbents are to be used and which ones are appropriate.

I moved on to waste analysis questions. I asked with the waste processed the past year, what waste codes have been treated at ETF. Mr. Bowman said F001 to F005 and F039 and U210 (tetrachloroethene) from well water. It was explained that there is a processing strategy for each LERF basin in the control plan and there is calculation of the blend. Every stream is evaluated for ETF treatment. Jackson said he would like to begin with characterization and asked for characterization of the mixed waste burial ground leachate. Mr. Bowman left to retrieve the characterization information.

While waiting on that information, I asked about the Equivalent Material permit condition II.R.2 and II.R.3, specifically with the basin cover material. Mr. Allen said that substitution of material occurred with the basin 43 cover and the special protective coating in the catch basin and throughout the facility in 2017. I asked if this was documented in the operating record. Ms. Bowers brought up on the computer and verified in IDMS WRPS-17-04924," Evaluation of LERF Basin 43 cover materials 10/12/17, which stated that the evaluation determined the new cover is equivalent or superior to the original cover." We also verified the catch basin coating in the operating record.

When Mr. Bowman returned, he had the characterization information. Jackson began a review in regards to the ETF Delisting Petition, observing the sample site, mixed waste trench 31 and 34. He asked what was the treatability envelope. Mr. Bowman said it was the thresholds. Jackson asked if any treatability envelopes had changed since the initial delisting petition. Mr. Bowman said no. I asked where a copy of the Delisting Petition dated November 29, 2001, was and Mr. Bowman presented a copy. He said this document is kept in the facility records. In my review of the Petition, it said that every waste stream needed a processing strategy. I asked how ETF complies with this. Mr. Bowman referred to the C1 and C2 Tables in the document. I asked if there has been a modification to these tables since November 2001. Mr. Bowman said that there has been no change since implementation of the Petition. I asked about the health base data and Mr. Bowman provided it and said they were currently reviewing the C1 and C2 tables with the health base limits. It appeared to me that ETF was following the requirements of the Delisting petition rules for health base limits. Next, I asked if the removal efficiencies stated in the Petition, were being met. Mr. Bowman thought it was a good idea to ask Mr. Halgren, WRPS engineering, to help with answers. Mr. Halgren explained the Process Control Plans. He explained that the past year, two verification tanks with wastewater were produced. Jackson asked if any verification samples had ever failed to meet delisting levels. Mr. Bowman said no. Jackson asked if using the verification water as process water was outside of delisting petition. Mr. Bowman said in 2006, a letter was sent to EPA requesting uses of the verification water within the facility process. Jackson asked Mr. Halgren if conductivity was tested on every batch, and Mr. Halgren said that each batch is tested for conductivity. Mr. Bowman added that each verification tank must be tested to comply with the state discharge permit. Jackson asked when was verification done. Mr. Bowman said that September 20, samples were collected, however, because the 222-S laboratory did not properly ice the samples, they resampled the following

month, November. Ms. Bowers added that this type of sample information usually goes on the Discharge Monitoring Report for the state discharge permit. Jackson took time to review the Process Control Plan while I continued asking questions.

I took out a copy of the 2017, Hanford Facility Non-Compliance Report required under Permit Condition I.E.19. The report listed five descriptions of non-compliance from the LERF/ETF. I asked to see that the five non-compliances were in IDMS/operating record along with the corrections. Ms. Bowers performed the search using IDMS.

- Daily ETF RCRA rounds were missed on 8/30/2017, and recorded "missed" on 8/31/2017, in the logbook. Correction was revising procedures to align the RCRA rounds performance with the daily rounds. Revised procedures currently in review and approval process.
- Daily inspections (June 16, 17, 19, 20, 21 2017) in the Secondary Treatment Train Container Handling Area were missed. Correction was discussion with operators and shift supervisors the requirement importance and discussing the Plan of the Day release sheet each shift crew briefing.
- On October 9, 2017, three transfers of waste occurred during a period when basin 44 was under Lock Out/Tag Out, which resulted in the leak detection system being out of service. Correction was issuing lessons learned to improve awareness of the leak detection systems and perform an extent of condition. Correction was ongoing.
- Weekly inspection of leachate levels at LERF Basins were missed (10/02 and 10/29 2017). Basin 44 systems locked out for pump replacement. Correction was leachate levels to be determined manually during periods of shutdown. Interoffice memos for shift managers.
- Determination of the leak rate per wetted surface area was not calculated on a weekly basis for Basin 44 (10/02 and 10/29 2017). Basin 44 system locked out for pump replacement. Correction was shift managers notified and calculations performed.

Closure was the last permit item I asked about. I asked if there had been any permit modification(s) to the closure plan since the last inspection. Mr. Allen said that they had modified the closure addendum to address the out-of-service tanks located by the 2025 ED Load-In Building.

I said that my inspection was completed for the day. Ms. Bowers had complied the documents requested for the day and released them to us. The documents provided included, in part, 2018 summary of waste streams at LERF/ETF, catch container inspections, mixed waste leachate sample results, process control plan, and supporting calculations, and verification tank delisting results for 2017. We thanked her and all the men and women that provided us assistance for the day. We left the facility around 3:30PM.

Document Review

Monthly Summary of Waste Streams Received at LERF/ETF

I asked for and received a copy of their 2018, waste streams through April. The waste streams came from the #31 and #34 mixed waste burial trench leachate, modu-tank tanker, AZ-301 condensate, solid waste landfill lysimeter leachate, 325 Bldg. RPS tanks, 3420 sump, 242-A

process condensate, and C Tank Farm pressure skid water. There was a total count of 22 shipments from these locations and a total sum of 190,260 gallons.

Volumes Received and Treated at LERF in 2017

I asked for and received a copy the 2017, waste streams received at the LERF. The document included all three LERF basins' volumes treated. The waste streams were the same as summarized in the previous document. It did include the three basins' cover water. The treated waste streams consisted of the appropriate waste codes; F-listed and U210 and the waste streams were received by pipeline, tanker, or totes which was what we observed during the inspection and heard during our discussion.

Catch Container Inspection Procedure Description (HNF-5158, Article 551

I reviewed the weekly and daily contamination survey inspection description for the Catch Containers and Catch Pans located throughout the 2025-E Process Area. During the inspection, we observed several empty containers in the process area placed under equipment and used for good housekeeping prevention for potential leaks with running equipment. The date of the weekly inspection description was signed 2/25/16, and the daily inspection description was signed 3/20/17. According to the description, catch containers are visually inspected daily for signage, leaks, draining, and properly positioned. If liquid is found in a catch container, an email is sent to the RadCon supervisor with catch container ID and location AND notify the Shift Operations Manager to have the catch container emptied, monitored or replaced. The weekly inspection description was similar and primarily for radiation surveys. Both descriptions require a Catch container Log for referencing all containers in the 2025-E Process Area.

Evaluation of Mixed Waste Trench (MWT) Leachate Sample Results from 2017

This data package was dated April 23, 2018, and Regfile 1406.18. This was the evaluation of mixed waste trench leachate sample results from 2017. These were sample results from the Mixed Waste Trench Leachate streams entering LERF. It also included a comparison to key waste acceptance limits. The document explained sample results based on three data packages. The volume received in 2017, was by far the largest to date due to the record precipitation in early 2017. The Total Dissolved Solids (TDS) levels were unchanged, having dropped from high levels in 2014 (a low volume year). Aluminum, copper, iron, manganese, and zinc were down in 2016, but now even higher than seen in 2015. This could be the results of corrosion of material in the trenches. Other results only changed slightly.

Waste designation in the MWT leachate is a mixed waste with F039 waste code for multi-source leachate. The document stated that nothing in the sample results show any change in characterization.

Comparison to Treatability Envelope/Waste Processing Strategy reported "New feed Comparison to Delisting Treatability Envelope." It said that all constituents in MWT leachate were within the treatability envelope.

Comparison of MWT Leachate 2017, to Key Waste Acceptance Criteria stated the following:

> *In 2017, the MWT Leachate was diverted to LERF Basin 42 where it was mixed with 242-A Evaporator process condensate. The high concentration of constituents in MWT Leachate significantly altered the treatability envelope in Basin 42. As a*

> *result, a new treatability envelope was created in **Effluent Treatment Facility Basin 42 Campaign 2017 Process control Plan, RPP-Plan 61579.** The first verification tank of the new envelope was sampled on September 20, 2017. The results met the limits in the delisting levels in 40 CFR 261, Appendix IX, Table II.Subsequently, the entire contents of LERF Basin 42 is being moved to basin 43, which had been completely emptied for cover replacement. The same treatability envelope now applies to basin 42 and basin 43.*

The comparison of MWT Leachate further said that none of the constituents in the waste exceeded LDR treatment standards and the MWT Leachate concentrations were all within the ST4500 existing influent levels. Compatibility with the LERF liner materials was reviewed using maximum concentrations in the leachate compared to the LERF liner levels. Everything was below the limit of 1.0 in the waste analysis plan.

The comparison in the document addressed other areas of materials and process not discussed here.

Effluent Treatment Facility Basin 42 2017 Campaign Process Control Plan, RPP-Plan-61579 Rev00

The Process Control Plan (PCP) presents the process feed analysis, the control basis, and waste processing strategy for processing waste stored in the LERF Basin 42 along with any additional wastewater from these waste streams added to the inventory during the campaign. The PCP will be used as basis information to prepare the process memos necessary to support facility operations.

Effluent Treatment Facility Basin 42 2017 Campaign Process Control Plan Calculations, RPP-CALC-61578 Rev00

The objective of this calculation is to support RPP-PLAN-61579 listed above. The primary calculation is a simplified secondary treatment train flowsheet to estimate the target ETF evaporator brine specific gravity and the by-product powder characterization. It also provides comparison of the treated wastewater to the applicable regulatory criteria.

Groundwater

During my inspection, I asked if there had been any groundwater exceedances from the LERF groundwater wells in the last 12 months.

Ms. Bowers provided me an email on June 5 with a follow-up to my question. The information came from CHPRC which manages groundwater wells. The email said that on October 12, 2017, CHPRC did notify Ecology of exceedances of both pH and conductance for LERF wells 299-E26-15 and 299-E26-79. Ecology followed up on the exceedance notice October 17, 2017, as part of a 2017 dangerous waste compliance inspection for LERF/ETF and documented the exceedances in the report. On October 31, 2017, CHPRC, RL, and Ecology met to review and discuss the notice. At that time, Ecology determined the events were not exceedances and the permit conditions/requirements were not a non-compliance.

No other exceedances in the past 12 months have occurred.

Weekly Dangerous Waste Inspection

On August 6, 2018, Ms. Bowers, WRPS, fulfilled a formal document request from me as part of the LERF/ETF dangerous waste inspection. I requested weekly inspection records for the 2025-E 90-day accumulation area at ETF. I reviewed records for the interior and exterior 2025E TSD Pad, LLW, LERF Basins, interior and exterior of the 2025ED, and TEDF Pump Stations. All of these areas were listed on the Weekly Waste Area Inspection Sheet. The date of the first set of inspection records was for the week of 7/03/2018. All areas were completed along with correct date, signatures, and time. Next week reviewed was 7/10/2018. All areas were completed along with correct date, signatures, and time. Next week reviewed was 7/17/2018. All areas were completed along with correct date, signatures, and time. Next week reviewed was 7/24/2018. All areas were completed along with correct date, signatures, and time. Next week reviewed was 7/31/2018. All areas were completed along with correct date, signatures, and time.

This compliance report determined no violations.

Concern

The Chapter 173-303-515(6) WAC states the following:

Standards for used oil generators. This subsection applies to all used oil generators and persons managing materials under this section. The standards for used oil generators of 40 C.F.R. Parts 279.20 through 279.24 are incorporated by reference except 40 C.F.R. Part 279.21. Used oil generators and persons managing materials under this subsection are subject to the federal regulations listed above and the following:

(a) Storage requirements for containers and tanks.

(i) Containers must be closed at all times, except when adding or removing materials managed under this section.

(ii) Containers and tanks must not be opened, handled, managed or stored in a manner that may cause the container or tank to leak or rupture.

40 CFR §279.22(c) states the following regarding used oil storage:

Labels: (1) Containers and aboveground tanks used to store used oil at generator facilities must be labeled or marked clearly with the words "Used Oil."

The two yellow buckets near the south side of the evaporator can be used to catch compressor oil. The containers were empty at the time of inspection. Mr. Allen explained that their intent for using the containers was good housekeeping and preventive leaks since the potential for small leaks with equipment running. They are scanned by the HPT daily and would collect any mixed waste.

The question is if the two yellow buckets should have lids and be labeled in accordance with Chapter 173-303-515(6) WAC or their waste management be resolved through a permit action.

ATTACHMENT A
LERF/ETF Meeting Attendance Roster 18.633

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Washington Department of Ecology
Nuclear Waste Program
Compliance Report

Attachment A
18.633

ATTENDANCE ROSTER

TITLE	RAID INSPECTION NUMBER
Ecology Inspection of the Liquid Effluent Retention Facility/Effluent Treatment Facility, Dangerous Waste Management Unit Group	2018-049
	COMPLIANCE INDEX/AUDIT NUMBER 18.633

AGENCY	LOCATION	DATE/TIME	FOLLOW-UP TO RAID
Ecology	2025-EA/124B/200 East	05/30/2018 0900 HOURS	N/A

ATTENDEES

NAME	COMPANY/ORGANIZATION	POSITION/TITLE	EMAIL ADDRESS	PHONE
Holly Bowers	WRPS Env. Reg. Interface	Env. Scientist	Holly-M-Bowers@rl.gov	373-0333
Doug Swenson	WRPS Waste Srvcs	MANAGER	Douglas-Swenson@RL.gov	373-9279
Melanie Myers	WRPS WASTE S	Waste Operations	melanie_l_myers@rl.gov	373-6865
Cameron Joslyn	WRPS ETF Engineering	Engineer	Cameron_C_Joslyn@rl.gov	373-4742
Andy Hobbs	WRPS Waste Services	Haz Mat Specialist	Andrew_C_Andy_Hobbs.gov	372-3933
Kevin Jamison	WRPS / RCT	RCT	~~Mark W~~	372-0019
Mark Bowman	WRPS/ETF Engr	Engineer	Mark_W_Bowman@rl.gov	373-7379
Scott Demiter	WRPS/ETF OPS	SOM SOM	shift office manager	727-2483
Robert Valdez	WRPS/ETF OPS	NCO		
Clyde Allen	WRPS/Envi.	EFR	Clyde_P_Allen@rl.gov	438-1486
RD Hildebrand	DOE/RL	Groundwater	doug_hildebrand@rl.doegov	373-9626

Demiter Shift office manager

ATTENDANCE ROSTER			
TITLE: Ecology Inspection of the Liquid Effluent Retention Facility/Effluent Treatment Facility, Dangerous Waste Management Unit Group			RAID INSPECTION NUMBER: 2018-049 COMPLIANCE INDEX/AUDIT NUMBER: 18.633
AGENCY: Ecology	LOCATION: 2025-EA/124B/200 East	DATE/TIME: 05/30/2018 0900 HOURS	FOLLOW-UP TO RAID: N/A

ATTENDEES

NAME	COMPANY/ORGANIZATION	POSITION/TITLE	EMAIL ADDRESS	PHONE
Sean Sexton	CHPRC / SGRP	ECO	sean-m-sexton@rl.gov	373-2285
Richard Value	ORP / TPD	PM	Richard-V-Value@orp.doe.gov	376-7256
Bryan Trinberger	ORP	Environmental	bryan.trinberger@rl.gov	376-2674
Linda Petersen	CHPRC / EPSP	CHPRC Inspection Coordinator	linda-e-petersen@rl.gov	373-4200
Jeff Voogd	WRPS / ENV	MNGR - ENV. COMP	JEFFRY-A-VOOGD@RL.GOV	373-4101
Dan Coughlin	WRPS	ENV. REP.	daniel-e-coughlin@rl.gov	373-6859
Charles Mulkey	WRPS / ENV	Environmental	charles-k-mulkey@rl.gov	373-4077
Jackson Davis	ECY / Inspector	Shift Inspector	jackson.davis@ecy.wa.gov	372-7930
Kathy Conway	Ecology comp	Lead Inspector	Kcon461@ecy.wa.gov	372-7890
Eric Van Mason	WRPS / ENV	Manager - Regulatory Interface	eric_j_van_mason@rl.gov	373-7438
Wayne A. Roberts	WRPS	SOM	wayne_a_roberts@rl.gov	

ATTENDANCE ROSTER			
TITLE Ecology Inspection of the Liquid Effluent Retention Facility/Effluent Treatment Facility, Dangerous Waste Management Unit Group			RAID INSPECTION NUMBER 2018-049 COMPLIANCE INDEX/AUDIT NUMBER 18.633
AGENCY Ecology	LOCATION 2025-EA/124B/200 East	DATE/TIME 05/30/2018 0900 HOURS	FOLLOW-UP TO RAID N/A

ATTENDEES

NAME	COMPANY/ORGANIZATION	POSITION/TITLE	EMAIL ADDRESS	PHONE
George F. Gilmour	WRPS	NCO-C		
Dale Halgren	WRPS	Eng	Dale_L_Halgren@rl.gov	376-9988

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ATTACHMENT B
LERF/ETF INSPECTION PHOTO LOG 18.633

LERF/ETF Compliance Inspection Photo Log 18.633			
Inspection Date: May 30, 2018			
Photographer: Jackson Davis			Witness: Kathy Conaway
No.	**Location**	**Activity Description or Comment**	**Photo**
1	LERF Basins	Photo ID: DSC02204 Time: 10:57 Description: Picture of Basin 42	
2	LERF	Photo ID: DSC02205 Time: 11:06 Description: 242AL71 Building	

LERF/ETF Compliance Inspection Photo Log 18.633			
Inspection Date: May 30, 2018			
Photographer: Jackson Davis			Witness: Kathy Conaway
No.	**Location**	**Activity Description or Comment**	**Photo**
3	LERF	Photo ID: DSC02206 Time: 11:09 AM Description: Catch Tank 60M-43T	

LERF/ETF Compliance Inspection Photo Log 18.633			
Inspection Date: May 30, 2018			
Photographer: Jackson Davis			Witness: Kathy Conaway
No.	**Location**	**Activity Description or Comment**	**Photo**
4	LERF	Photo ID: DSC02207 Time: Sight Glass for PC-5000 Catch Tank Description:	

LERF/ETF Compliance Inspection Photo Log 18.633			
Inspection Date: May 30, 2018			
Photographer: Jackson Davis			Witness: Kathy Conaway
No.	**Location**	**Activity Description or Comment**	**Photo**
5	LERF	Photo ID: DSC02208 Time: 11:10 AM Description: Tag on sight glass	
6	LERF	Photo ID: DSC02209 Time: 11:10 AM Description: Leak Detection Element	

LERF/ETF Compliance Inspection Photo Log 18.633			
Inspection Date: May 30, 2018			
Photographer: Jackson Davis			Witness: Kathy Conaway
No.	**Location**	**Activity Description or Comment**	**Photo**
7	LERF	Photo ID: DSC02210 Time: 11:21 Description: Sample Riser	
8	LERF	Photo ID: DSC02211 Time: 11:23 AM Description: Sample Riser Tag SR-43-5	

LERF/ETF Compliance Inspection Photo Log 18.633			
Inspection Date: May 30, 2018			
Photographer: Jackson Davis			Witness: Kathy Conaway
No.	**Location**	**Activity Description or Comment**	**Photo**
9	ETF	Photo ID: DSC02212 Time: 11:44 AM Description: 2025 ED Sump	

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