



LB# 3903

AIR 14-306  
NOC 915

STATE OF WASHINGTON  
DEPARTMENT OF HEALTH  
OFFICE OF RADIATION PROTECTION  
309 Bradley Blvd., Suite 201 • Richland, Washington 99352  
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March 18, 2014

Ms. Stacy Charboneau, Assistant Manager  
for Safety and Environment  
United States Department of Energy  
Richland Operations Office  
P.O. Box 550, MSIN: A5-14  
Richland, Washington 99352

Dear Ms. Charboneau:

Pursuant to Chapter 246-247 of the Washington Administrative Code (WAC), your application was approved on March 12, 2014, as negotiated, according to the enclosed license for:

**Diffuse and Fugitive Operations at LERF and ETF  
(Replaced NOC 822) (NOC 915; EU 486)**

The conditions, controls, monitoring requirements, and limitations of this license must be observed in order for you to be in compliance with WAC 246-247. Failure to meet any provision of this license may result in the revocation of approval, the issuance of Notices of Violation, or other enforcement actions under WAC 246-247-100.

If you have any questions regarding this approval, please contact John Schmidt at (509) 946-3874.

Sincerely,

John Martell, Manager  
Radioactive Air Emissions Section

Enclosure: Applicable Portion of License (NOC 915; EU 486)

cc: (see next page)

Ms. Stacy Charboneau  
March 18, 2014  
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cc: Ruth Allen, WRPS  
Robert Anderson, MSA  
Matthew Barnett, PNNL  
Lee Bostic, BNI  
Cliff Clark, USDOE-RL  
Jack Donnelly, WRPS  
Rick Engelmann, CHPRC  
Dennis Faulk, EPA  
Phil Gent, Ecology  
Robert Haggard, BNI  
Dale Jackson, USDOE-RL  
Paul Karschnia, CHPRC  
Ed MacAlister, USDOE-RL  
Crystal Mathey, WDOH  
Ernest McCormick, WDOH  
Valarie Peery, Ecology  
Crystal Rau, Ecology  
John Schmidt, WDOH  
Maria Skorska, Ecology  
Jeff Voogd, WRPS  
Joan Woolard, WRPS  
Davis Zhen, EPA  
Environmental Portal  
RAES Tracking Line# 812; NOC 915; EU 486

**Project Title**

Diffuse and Fugitive operations at LERF and ETF (Replaced NOC ID 822)

**Approval #**

AIR 14-306

**Date Approved**

3/12/2014

**NOC\_ID**

915

**Conditions (state only enforceable: WAC 246-247-040(5), 060(5) if not specified)**

- 1) The total abated emission limit for this Notice of Construction is limited to 5.96E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).
- 2) This approval applies only to those activities described below. No additional activities or variations on the approved activities that constitute a "modification" to the emission unit, as defined in WAC 246-247-030(16), may be conducted.

The operation of the Liquid Effluent Retention Facility/200 Area Effluent Treatment Facility (LERF/ETF), which includes the load-in station and load-in station filter skid.

To initiate acceptance of a new wastewater into LERF/ETF, the generator is required to complete and certify a Waste Profile Sheet (WPS) with the supporting analytical data and documentation attached. Based on the WPS, a waste acceptability review is conducted to assess the waste characterization data against the facility waste acceptance criteria as derived from environmental, safety, and operational requirements. The NOC approval conditions are specifically considered in this review process.

Once the WPS has been certified by the generator and approved by the LERF/ETF representative, the wastewater transfer can be scheduled. Incoming wastewater can be added directly to the ETF process or received at LERF or the load in station. LERF can receive wastewaters via underground pipelines from generator facilities, via pipeline from the load in station, or directly through a series of access ports located at each basin. The load in station accommodates wastewater receipt via container (e.g., drums, carboys, and tankers).

#### LERF Operations

LERF provides temporary storage, as well as flow and pH equalization, for wastewaters prior to treatment at ETF. LERF consists of three high density polyethylene double lined basins, each with an operating capacity of 29.5 million L. Each basin has a leachate collection system located between the primary and secondary composite liner systems and is also equipped with a floating low density polyethylene cover firmly attached to the sidewalls to prevent unwanted material from entering the basins and avoid evaporation of wastewater. To prevent the buildup of gas, each basin is passively vented through vent pipes. Gases exiting through a vent pipe are channeled through a carbon adsorption filter.

#### Load-in Station Operations

The load in station consists of two unloading bays for liquid waste transfers. The first bay has two load in tanks, a sump, transfer pumps, a skid mounted filtration system, level instrumentation for tanker trucks, underground transfer lines that allow transfers to either LERF or ETF, and leak detection capabilities for the containment basin and transfer lines. The second bay consists of two pumps that will unload a tanker, a filter skid to remove excess solids, and a 24,500 L holding tank. The holding tank is emptied using the pumping system associated with the other unloading bay. Containerized wastewaters received at the load in station are typically routed through the filter skid. When solids buildup causes differential pressure across a filter housing to become excessive, the filter elements are replaced. The filtration system is shut down, the system is vented to atmosphere by opening a quick release vent cap on top of each filter housing, and solution in the housing is drained to the load in station sump. The housing is then opened, and the spent filter elements are placed in a disposal container. After filter change out, the sump is emptied to the load in station, LERF, or ETF. The capability to filter sump discharges is also provided at the load in station. Small shipments that cannot be pumped directly into the filter skid are first drained into the sump, then pumped through the filter skid using the sump pump.

Wastewater tanker inspection, pressure testing, and repair are also conducted at the load in station as needed to meet annual U.S. Department of Transportation certification requirements. Tankers, which may contain a wastewater heel, are pressurized with compressed air, leak checked at 80 percent of service pressure, and integrity tested at 150 percent of service pressure. After the test is complete, the compressed air is gradually vented from the tanker to the atmosphere. Minor repairs (e.g., seal replacement) are performed, as needed, for successful completion of the certification test.

LERF Cover Cleanup Operations

These operations include removal of contaminated liquids, vegetation, debris, and windblown dirt/mud that have collected on the surface of the LERF basin covers and in nearby external locations in or near LERF. Precipitation and windblown dirt/mud, which normally collect on the floating low-density polyethylene covers, are removed by pumping the precipitation into the basin under the cover, into containers located at LERF, or directly to the ground if contamination is below the groundwater quality criteria for radionuclides listed in WAC 173-200-040, "Water Quality Standards for Groundwaters of the State of Washington," "Criteria." The dirt/mud on the covers is collected on filters or sluiced, slurried, or mechanically loaded into containers for disposal.

Vegetation and debris (such as old hoses and failed pumps) are removed using mechanical methods and tools including, but not limited to, cranes, heavy equipment, chain balls, nets, long reach tools, or similar methods. Workers will employ these methods from the sides of the basins. This material will be placed in containers and disposed.

- 3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 5.96E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	5.01E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Alpha release rate is assumed to be Pu-239/240. The release rate assumes two full basins and the addition of waste water equivalent to ETF's annual operating capacity. In addition to the isotopes specifically listed as approved under this NOC, other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta-gamma constituents.			
Am - 241		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
B/G - 0	3.33E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Beta/Gamma release rate is assumed to be Sr-90/Cs-137. The release rate assumes two full basins and the addition of waste water equivalent to ETF's annual operating capacity. In addition to the isotopes specifically listed as approved under this NOC, other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta-gamma constituents.			
C - 14		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ce - 144		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cm - 244		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Co - 60		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cs - 134		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cs - 137		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents greater than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Eu - 154		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Eu - 155		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
H - 3		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
I - 129		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			



Zr - 95

Liquid/Particulate Solid

WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

The radioactive isotopes identified for this emission unit are (no quantities specified):

Am - 241	C - 14	Ce - 144	Cm - 244	Co - 60
Cs - 134	Cs - 137	Eu - 154	Eu - 155	H - 3
I - 129	K - 40	Mn - 54	Na - 22	Nb - 94
Np - 237	Pu - 238	Pu - 239/240	Pu - 241	Ra - 226
Ru - 106	Sb - 125	Se - 79	Sr - 90	Tc - 99
U - 233	U - 234	U - 235	U - 236	U - 238
Zn - 65	Zr - 95			

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

- 4) The 200 Area Diffuse/Fugitive Emission Unit at LERF/ETF is limited to the following:

LERF wastewater receipt via pipeline and LERF access ports

Minor leaks during transfers when using vented pipelines

LERF operations and maintenance

LERF leachate collection system sampling and sump pumping

Load-in station wastewater receipts via container

Load-in station filter skid operation and maintenance

Load-in station tank operation, maintenance, and repair

Minor leaks and spills to secondary containment systems

Storage and transfer of treated effluent containing tritium

Effluent sampling

Purge water open-top settling tank operation

Removal of contaminated liquids, plants, debris, and dirt/mud that have collected on the surface of the LERF

covers and in nearby external locations in or near LERF

(WAC 246-247-040(5))

- 5) MONITORING- Near Field

The activity based monitoring at the northeast corner station shall transition to the near facility monitoring QA program as identified in FF-01 Section 5.1. The 200 Area near-facility ambient air monitoring network shall be used for continuous monitoring. The stations (N498, N499, N972, N999) will also provide indication of potential elevated airborne radioactivity. In addition, continuous monitoring will be performed at the northeast corner of Bassin 44 (station N581) using the same frequency and protocol of the Hanford Site Near-Facility Environmental Monitoring Program.

(WAC 246-247-040(5))

- 6) LERF Cover Cleanup-dispersible contaminated material

If physical removal from the covers other than by pumping is necessary, the following controls shall be implemented:

Continuous radiological control technician coverage shall be provided as specified in applicable Radiological Work Permits.

Beta-gamma contamination surveys shall be performed during cleanup activities.

Cleanup activities involving movement of dispersible contaminated material shall stop if average wind speeds exceed 20 miles per hour, as measured at the work site.

Suppressants such as water, fixatives, and covers shall be used, as necessary, to control contamination spread.

- 7) WDOH NOTIFIED-HCA Area Initiated  
WDOH will be notified if contamination levels above 100,000 disintegrations per minute per 100 square centimeters beta-gamma are encountered outside the LERF contamination boundary.  
(WAC 246-247-040(5)), (WAC 246-247-040(6))
- 8) WDOH NOTIFIED-Greater than 1 rad per hour area.  
WDOH shall be notified when direct contamination readings are detected greater than 1 rad per hour per 100 square centimeters beta-gamma during cleanup activities.  
Removable and transferable contamination shall be maintained less than 4 rad per hour per 100 square centimeters beta-gamma. Exceeding these contamination levels requires notification to WDOH and implementation of the following additional controls:  
Soil shall be wetted prior to removal if not already damp.  
General work place air monitoring shall be performed during removal activities.  
Dislodged vegetation not already in containers shall have fixative applied at the end of each shift, or the material will be covered, as necessary, to prevent airborne contamination  
(WAC 246-247-040(5)), (WAC 246-247-040(6))
- 9) MONITORING-Periodic Confirmatory Monitoring  
PCMs of the LERF and ETF diffuse and fugitive emissions are made using the Hanford Site near facility environmental monitoring program.  
(WAC 246-247-040(5))