STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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September 6, 2018 18-NWP-149

By certified mail

Mr. Doug S. Shoop, Manager
Richland Operations Office
United States Department of Energy
PO Box 550, MSIN: H5-20
Richland, Washington 99352

Mr. Ty Blackford, President and CEO
CH2M HILL Plateau Remediation Company
PO Box 1600, MSIN: A7-01
Richland, Washington 99352

Re: Dangerous Waste Compliance Inspection on June 27, 2018, at the Low Level Burial Grounds – Green Islands and the Non-Radioactive Dangerous Waste Landfill, RCRA Site ID: WA7890008967, NWP Compliance Index No's. 18.644 and 18.645

Dear Mr. Shoop and Mr. Blackford:

Thank you for your staff's time during the Low Level Burial Grounds – Green Islands and the Non-Radioactive Dangerous Waste Landfill inspection on June 27, 2018. The Department of Ecology's (Ecology) compliance report of this inspection is enclosed. The report cites one area of non-compliance and no concerns.

Failure to correct the deficiencies may result in an administrative order, a penalty, or both, as provided by the Hazardous Waste Management Act (Revised Code of Washington 70.105.080 and .095). Persons who fail to comply with any provision of this chapter are subject to penalties of up to $10,000 per day per violation.

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) 372-7949 or jared.mathey@ecy.wa.gov.

Sincerely,

Jared Mathey
Dangerous Waste Compliance Inspector
Nuclear Waste Program

mrb
Enclosure

cc: See page 2

cc electronic w/enc:

Dave Bartus, EPA
Jack Boller, EPA
Dave Einan, EPA
Duane Carter, USDOE
Cliff Clark, USDOE
Michael Cline, USDOE
Al Farabee, USDOE
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Kelly Elsethagen, Ecology
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Jared Mathey, Ecology
John Price, Ecology
Ron Skinnarland, Ecology
Alex Smith, Ecology
Environmental Portal
Hanford Facility Operating Record
CHPRC Correspondence Control
MSA Correspondence Control
USDOE-RL Correspondence Control

cc w/enc:

Susan Leckband, HAB
Administrative Record
NWP Central File
NWP Compliance Index File: 18.644 and 18.645

cc w/o enc:

Matt Johnson, CTUIR
Jack Bell, NPT
Rose Longoria, YN

Washington Department of Ecology
Nuclear Waste Program
Compliance Report

SITE:	**Low Level Burial Grounds Green Islands and Non-Radioactive Dangerous Waste Landfill**
RCRA Site ID:	**WA7890008967**
Inspection Date:	June 27, 2018
Site Contacts:	Doug Hildebrand, United States Department of Energy – Richland Operations Office (USDOE-RL) Linda Petersen, CH2M Hill Plateau Remediation Company (CHPRC)
Site Location:	Hanford Site
At This Site Since:	1943 NAICS#: 56221, 924110, 54171
Current Site Status:	See below

Ecology
Lead Contact: Jared Mathey Phone: (509) 372-7928 FAX: (509) 372-7971

Other Representatives: Scott Miller

Report Date: September 6, 2018

Index #: 18.644 – Low Level Burial Grounds - Green Islands
18.645 – Non-Radioactive Dangerous Waste Landfill

Report By: Scott Miller – Narrative Portion and
Jared Mathey - Document Review Portion

(Signed) 9/6/18 (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

According to the respective *Dangerous Waste Permit Application Part A Form*, Low Level Burial Grounds (LLBG) - Green Islands and the Non-Radioactive Dangerous Waste Landfill (NRDWL) are owned/operated by USDOE. CHPRC is contracted by the USDOE to co-operate the above listed units.

Facility Background

LLBG - Green Islands

There are 24 radioactive solid waste burial grounds in the central part (200 Area) of the Hanford Site. *Hanford Federal Facility Agreement and Consent Order* (HFFACO), Action Plan: Appendix C, "Prioritized Listing of Operable Units" organizes the 24 burial grounds into the 200-SW-2 Operable Unit. The HFFACO Appendix C identifies the unit type as "burial ground." The burial grounds were constructed as individual trenches; there are an estimated 333 total trenches. Mixed waste was disposed at several locations within individual trenches. The name "Green Islands" is associated with these mixed waste locations because the areas of disposal are shown in the color green on Hanford maps.

It is not permissible to land dispose dangerous/mixed waste without first treating it to the Land Disposal Restriction standards. Additionally, dangerous waste must be placed in a landfill built specifically to contain dangerous waste. The LLBG were not built to the standards of a dangerous waste landfill. Waste that is both dangerous and radioactive (mixed waste) retroactively became subject to regulation on August 19, 1987. No exemption to the standards of landfills has been requested, or granted, for the LLBG – Green Islands. None of the unlined trenches qualified for interim status. Therefore, land disposal of mixed waste in any of the unlined trenches was without authorization, and illegal. If the Permittees sought authorization through the Permit, Ecology would have denied the request on the basis that no exemption was granted under WAC 173-303-610(2)(b) and the trenches fail to meet the technical standards of WAC 173-303-665 Landfills (2) Design and operating requirements.

NRDWL

The 600 Area Central Non-Radioactive Waste Landfill otherwise referred to as the NRDWL and the Solid Waste Landfill (SWL) was operated as one unit between 1973 and 1975. The units received waste from the Hanford site. In 1975, the 600 Area landfill was divided into two separate units because of the nature of the waste disposed at the NRDWL and SWL. The NRDWL hazardous waste is regulated under Chapter 173-303 WAC. The SWL received non-dangerous solid waste, which is regulated under Chapter 173-350 WAC.

The NRDWL is a 10-acre land disposal unit that consists of 19 unlined trenches approximately 400 feet long, 16 feet wide at the base, and 15 feet deep. Six trenches (trenches 19N, 26, 28, 31, 33, and 34) were used for disposal of dangerous waste. The NRDWL was used from January 1975 through May 1985 for the disposal of dangerous waste generated from various Hanford Site operations. Asbestos was disposed in nine trenches (trenches 2N, 20, 21, 22, 23, 25, 27, 29, and 30). Nonhazardous waste was disposed in trench 1N. The NRDWL is an inactive landfill and ceased receiving nonradioactive dangerous waste for disposal in May 1985. This waste consists of listed waste, waste from nonspecific sources, characteristic waste, and state only waste. The NRDWL provided disposal of dangerous wastes generated from process operations, research and development laboratories, maintenance activities and transportation functions located throughout the Hanford Facility.

Compliance Background

LLBG – Green Islands

For compliance background information from 2015 to 2016, see the Ecology Compliance Report (Index Number – 17.606). The 2017 Ecology Compliance Report (Index Number – 17.606) documented three violations, which are summarized as follows:

1. WAC 173-303-320(2)(d) General Inspection – USDOE-RL and CHRPC failed to retain Groundwater Well Pre-Trip Inspection Records. CHPRC updated their operating record to reflect deficiencies in their inspection records.
2. WAC 173-303-330(2) Written Training Plan – CHPRCs Dangerous Waste Training Plan did not include a job title, job description, job position, or a written description of the type and amount of both introductory and continuing training required for any sampler positions.
3. WAC 173-303-310(2)(a) Security – USDOE-RL and CHPRC failed to have security signs posted outside a large waste retrieval tent located in Waste Management Area #2.

NRDWL

For compliance background information from 2015 to 2016, see the Ecology Compliance Report (Index Number – 17.606). The 2017 Ecology Compliance Report (Index Number – 17.606) documented one violation, which is summarized as follows:

1. WAC 173-303-330(2) Written Training Plan – CHPRCs Dangerous Waste Training Plan did not include a job title, job description, job position, or a written description of the type and amount of both introductory and continuing training required for any sampler positions.

Inspection Summary

On June 25, 2018, I sent an email to USDOE-RL and CHPRC personnel announcing an Operation and Maintenance Ground Water Inspection for the following areas:

- 216-B-3 Main Pond
- 216-S-10 Pond & Ditch
- 216-A-29 Ditch
- 216-B-63 Trench
- 216-A-36B Crib
- 216-A-37-1 Crib
- Low-Level Burial Grounds Used Trenches (Green Islands)
- Nonradioactive Dangerous Waste Landfill (NRDWL)

At approximately 8:30 a.m. on June 27, 2018, Ecology team, Jared Mathey, Brian Johnson, and I arrived at building 2753E, conference room A104. The following USDOE-RL and CHPRC personnel were present:

- Noah Cruz, CHPRC – Inspection Coordinator
- Kathy Higgins, USDOE-RL
- Sean Sexton, CHPRC – Environmental Compliance Officer
- Carson Bechtel, CHPRC – Intern
- Bill Faught, CHRPC – Program Manager

After introductions, I reviewed the scope of the inspection and discussed which wells I would like to visit. I asked if any wells had been decommissioned in Low-Level Waste Management Area-3 (LLWMA-3) over the last two years. Mr. Faught and Mr. Sexton both agreed and said that wells had been decommissioned at B-Pond and C-Farm.

I asked if there were any wells added to LLWMA-3 in the last two years. Mr. Faught said there had not been any wells added in the last two years. Mr. Faught said there are three new wells proposed to be added to the LLWMA-3 network, and they are currently in discussions with Ecology to determine suitable locations of the new wells.

I asked to see the pre-trip inspection records for monitoring wells 299-W9-2, 299-W10-29, 299-W10-30, and 299-W10-31. Mr. Sexton provided me the Appendix K – Groundwater Well Pre-Trip Inspection worksheet. I observed worksheets dated March 1, 2018, and August 31, 2017. I observed there were no deficiencies noted by the inspector.

I asked why there were 10 wells added to the RCRA monitoring network in 2017. Mr. Faught said the dynamics of the groundwater flow have reversed, so they needed to add more wells to allow for an accurate network. I later learned these were not newly constructed wells, but pre-existing wells that were put into service as part of the RCRA network.

I asked if the wells used to monitor trenches 31/34 are the same wells being used to monitor the green islands north of LLBG Trenches 31 and 34. Mr. Faught said the RCRA monitoring wells at LLBG Trenches 31 and 34 would not be appropriate for the green islands because the LLBG Trenches 31 and 34 has a groundwater gradient that flows west to east.

I asked when the Access Control Boundary for the Plutonium Finishing Plant (PFP) is anticipated to be lifted. Mr. Sexton said Access Control Boundary would not be lifted until the PFP demolition is complete.

I asked if CHPRC is still able to do well sampling inside the Access Control Boundary of LLWMA-4. Mr. Sexton said, yes; the only requirement is that prior to sampling, they need to coordinate activities with personnel at the PFP.

Field Inspection

At 9:56 a.m. we arrived at Trenches 31/34 groundwater well 299-W9-2. I observed the following:

- The well had a Washington State well identification tag on the well casing that was visible above the land surface with unique well identification number APS596.
- The well had a cap that was locked on top of the casing.
- The well was protected from damage by four metal post. The posts were over three inches in diameter; over three feet above the land surface, and were over two feet away from the well casing.
- The well protection measures appeared to not be damaged.

Photo #DSC02225 – Well No. 299-W9-2

At 10:01 a.m., we arrived at Trenches 31/34 groundwater well 299-W10-30. I observed the following:

- The well had a Washington State well identification tag on the well casing that was visible above the land surface with unique well identification number AHE297.
- The well had a cap that was locked on top of the casing.
- The well was protected from damage by four metal post. The posts were over three inches in diameter; over three feet above the land surface, and were over two feet away from the well casing.
- The well protection measures appeared to not be damaged.

Photo #DSC02226 – Well No. 299-W10-30

At 10:05 a.m., we arrived at Trenches 31/34 groundwater well 299-W10-29. I observed the following:

- The well had a Washington State well identification tag on the well casing that was visible above the land surface with unique well identification number AFK623.
- The well had a cap that was locked on top of the casing.
- The well was protected from damage by four metal post. The posts were over three inches in diameter; over three feet above the land surface, and were over two feet away from the well casing.
- The well protection measures appeared to not be damaged.

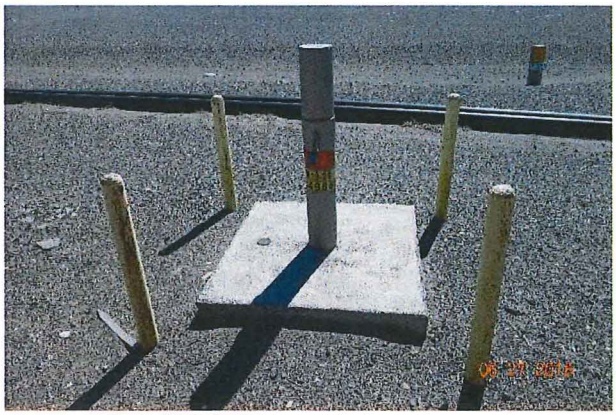

Photo #DSC02227 – Well No. 299-W10-29

At 10:10 a.m., we arrived at Trenches 31/34 groundwater well 299-W10-31. I observed the following:

- The well had a Washington State well identification tag on the well casing that was visible above the land surface with unique well identification number AAU175.
- The well had a cap that was locked on top of the casing.
- The well was protected from damage by four metal post. The posts were over three inches in diameter; over three feet above the land surface, and were over two feet away from the well casing.
- The well protection measures appeared to not be damaged.

Photo #DSC02228 – Will No. 299-W10-31

We returned to building 2753E, conference room A104. I said there were no concerns with the monitoring wells we visited, and I would be requesting additional documents in the near future. I thanked all present for their time and concluded the inspection.

Documents Review

Maintenance Records

I reviewed the following well maintenance records for wells at the LLBG – Green Islands WMA 3. I observed well maintenance reports on February 2, 2017, for Wells 299-W10-29 and 299-W10-31 indicated both were relabeled.

I reviewed the following well maintenance records for wells at the NRDWL. I observed a well maintenance report on April 10, 2017, for Well 699-25-34B indicated it was relabeled.
I observed a well maintenance report on August 23, 2017, for Well 699-26-34A had an electrical

pigtail plug replaced due to exposed wiring. I observed a well maintenance report on February 2, 2017, for Well 699-26-35A had a new hasp installed.

Groundwater Well Pre-Trip Inspection Records

Ecology requested copies of all 2017 groundwater well pre-trip inspection records and associated well concern reports including e-mails for LLBG – Green Islands and NRDWL. The dates below are for the groundwater well pre-trip inspections in 2017 for LLBG – Green Islands WMA 3 and NRDWL that I reviewed.

Unit Group	Well Number	Groundwater Well Pre-Trip Inspection Dates				
LLBG – WMA 3	299-W9-2	3/1/17	8/31/17			
	299-W10-29	3/1/17	8/31/17			
	299-W10-30	3/1/17	8/31/17			
	299-W10-31	3/1/17	8/31/17			
NRDWL	699-25-34B	3/28/17	6/30/17	8/22/17	10/3/17	
	699-25-34D	3/30/17	10/3/17			
	699-25-34F	1/4/17	3/28/17	6/30/17	8/22/17	10/2/17
	699-26-33A	1/4/17	3/28/17	6/30/17	8/22/17	10/2/17
	699-26-34A	3/28/17	6/30/17	8/22/17	8/24/17	10/3/17
	699-26-34B	3/28/17	6/30/17	8/22/17	10/3/17	
	699-26-35A	3/28/17	6/30/17	8/22/17	10/3/17	
	699-26-38	1/4/17	3/28/17	6/30/17	8/22/17	10/3/17

I observed each inspection record contained the date and time of the inspection, the printed name and handwritten signature of the inspector, and notations of observations made. I observed the following issues noted on the Pre-Trip Inspection records.

- On March 28, 2017, Well 699-25-34B was marked "no" for well number/ID legible with the number six missing from the Hanford Well ID Number A5096.
- On October 3, 2017, Well 699-25-34B was noted that the concrete pad was cracked.
- On October 3, 2017, Well 699-25-34D was noted that access was not a problem, but that the area around the well needed to be sprayed for weeds for future accessibility.
- On August 22, 2017, Well 699-26-34A was marked "no" for equipment appears serviceable, with a note of three prong cord damage (See above remedial action on August 23, 2017 under maintenance records).
- On October 3, 2017, Well 699-26-34A was marked "no" for well number/ID legible, with notes that well needs to be relabeled.

Groundwater Well Pump Check Inspection Records and Depth to Water Measurements

Ecology requested copies of all 2017 Groundwater Sample Reports (GSR) for pump check inspections and associated well concern reports including e-mails for LLBG – Green Islands and NRDWL. I observed pump check inspection records and depth to water level measurements on

Groundwater Sample Reports were conducted for the below listed wells and Unit Groups on the following dates.

Unit Group	Well Number	Groundwater Well Pump Check Inspection and Depth to Water Measurement Dates				
LLBG – WMA 3	299-W9-2	3/20/17	9/13/17			
	299-W10-29	3/20/17	9/13/17			
	299-W10-30	3/20/17	9/13/17			
	299-W10-31	3/20/17	9/13/17			
NRDWL	699-25-34B	4/12/17	7/17/17	8/23/17	10/19/17	
	699-25-34D	4/12/17	10/19/17			
	699-25-34F	1/27/17	4/11/17	7/18/17	8/23/17	10/16/17
	699-26-33A	1/27/17	4/11/17	7/18/17	8/24/17	10/16/17
	699-26-34A	4/12/17	7/17/17	8/24/17	10/18/17	
	699-26-34B	4/12/17	7/18/17	8/23/17	10/18/17	
	699-26-35A	4/11/17	7/18/17	8/23/17	10/16/17	
	699-26-38	1/2717	4/11/17	7/19/17	8/24/17	10/18/17

I observed each inspection record contained the date and time of the inspection, the printed name and handwritten signature of the inspector, and notations of observations made.

Groundwater Monitoring Records

LLBG – Green Islands WMA 3

Ecology requested all 2017 groundwater well monitoring records for LLBG – Green Islands – WMA 3. I compared the groundwater monitoring records to requirements in 40 CFR 265 Subpart F. I observed Wells 299-W9-2, 299-W10-29, 299-W10-30, and 299-W10-31 were all sampled at least semi-annually for pH, specific conductance, total organic carbon, and total organic halogen. I observed total organic halides exceeded the 2017 critical mean value of 9.32 µg/L in March (10.04 µg/L and 12.08 µg/L) and September 2017 (10.38 µg/L) in downgradient Well 299-W10-30. I observed additional groundwater samples for total organic halides from downgradient Well 299-W10-30 were not obtained to determine whether the significant difference was a result of laboratory error in accordance with 40 CFR Part 265, Subpart F. I observed Specific Conductance exceeded the 2017 critical mean value of 462 µS/cm in March (499 µS/cm) and September 2017 (505 µS/cm) in downgradient Well 299-W10-31. I observed additional groundwater samples for specific conductance from downgradient Well 299-W10-30 were not obtained to determine whether the significant difference was a result of laboratory error.

Further observations from DOE/RL-2017-65 Rev. 0, *Hanford Site RCRA Groundwater Monitoring Report for 2017*, dated February 22, 2018, revealed the following:

> *As shown in Table 2-51, the average specific conductance in downgradient well 299-W10-31 exceeded the critical mean value in March and September. The elevated specific*

conductance is presumed to be from increasing nitrate concentration associated with the migration of a regional nitrate plume. In 2017, the nitrate concentration in well 299-W10-31 was 44.7 mg/L. The highest nitrate concentration in a LLWMA-3 well in 2017 was 52.7 mg/L in 299-W10-30, which exceeds the 45 mg/L DWS equivalent and is an increase from 30.5 mg/L in 2016.

The TOX concentrations in well 299-W10-30 exceeded the critical mean value in March and September (Table 2-51). The TOX concentrations are consistent with observed levels of carbon tetrachloride in the area (SGW-59713-VA, LLWMA-3 Groundwater Monitoring: 299-W10-31 Specific Conductance and TOX; and SGW-61120, Meeting Notes – Briefing to Ecology on LLWMA-3 RCRA Groundwater Monitoring). The carbon tetrachloride concentration in well 299-W10-30 was 15.1 µg/L in 2017.

I observed Wells 299-W9-2, 299-W10-29, 299-W10-30, and 299-W10-31 were sampled at least annually for Chloride, Iron, Manganese, Phenols, Sodium, and Sulfate.

NRDWL

Ecology requested all 2017 groundwater well monitoring records for NRDWL. I observed the following from DOE/RL-2017-65 Rev. 0, *Hanford Site RCRA Groundwater Monitoring Report for 2017*, dated February 22, 2018.

NRDWL entered a groundwater quality assessment monitoring program in 2017. The site was previously monitored under a contamination indicator parameter program under DOE/RL-2015-32, Groundwater Monitoring Plan for the Nonradioactive Dangerous Waste Landfill. In October 2016, TOC exceeded its critical mean in wells 699-25-34B and 299-26-38, and specific conductance exceeded the critical mean in well 699-25-34B. Because iron-reducing bacterial growth can affect TOC and specific conductance, the wells were cleaned prior to confirmation sampling to reduce the potential for false-positive results. The wells were resampled, and TOC was at background concentrations in both wells. Results for specific conductance were above the critical mean and consistent with historic values. DOE notified Ecology of the exceedance on January 31, 2017 (17-AMRP-0089, "Notification of Exceedance of Critical Mean Values for Specific Conductance"). DOE/RL-2017-19, Groundwater Quality Assessment Plan for the Nonradioactive Dangerous Waste Landfill, Hanford Site, was issued in February 2017, and quarterly assessment sampling began in April 2017.

Table 3-25 lists the current monitoring well network. During the July 2017 sampling event, well 699-25-34D was not accessible due to extreme fire danger and was not sampled. Other wells were sampled as planned.

I compared the groundwater monitoring records to requirements in DOE/RL-2017-19 Rev. 0, *Groundwater Quality Assessment Plan for the Nonradioactive Dangerous Waste Landfill, Hanford Site*, dated February 13, 2017.

I observed Wells 699-25-34B, 699-25-34F, 699-26-33A, 699-26-34A, 699-26-34B, 699-26-35A, and 699-26-38 were sampled quarterly for alkalinity, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, cyanide, lead, mercury, nickel, selenium, silver, sulfide,

thallium, tin vanadium, zinc. I observed Well 699-25-34D missed the third quarter 2017 sampling because it was not accessible due to extreme fire danger. Well 699-25-34D was sampled in the other quarters for alkalinity, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, cyanide, lead, mercury, nickel, selenium, silver, sulfide, thallium, tin vanadium, zinc.

There were over 14,000 different sample constituents taken in 2017. I randomly selected a subset of inorganic, semi-volatile organic compounds, volatile organic compounds, herbicides, and dioxin constituents from Table 3-1 to verify quarterly sampling. I observed Wells 699-25-34B, 699-25-34D, 699-25-34F, 699-26-33A, 699-26-34A, 699-26-34B, 699-26-35A, and 699-26-38 were sampled quarterly for 1,2-dibromo-3-chloropropane, methacrylonitrile, vinyl chloride, fluoranthene, heptachlor, Silvex, 2,3,7,8-TCDD; and 2,3,7,8-tetrachlorodibenzo-p-dioxin. I observed Well 699-25-34D missed its third quarter 2017 sampling due to extreme fire danger as noted above. Well 699-25-34D was sampled in the other quarters for 1,2-dibromo-3-chloropropane, methacrylonitrile, vinyl chloride, fluoranthene, heptachlor, Silvex, and 2,3,7,8-TCDD; 2,3,7,8-tetrachlorodibenzo-p-dioxin.

I observed Wells 699-25-34B, 699-25-34D, 699-25-34F, 699-26-33A, 699-26-34A, 699-26-34B, 699-26-35A, and 699-26-38 were all sampled at least semi-annually for pH, specific conductance, total organic carbon, and total organic halogen. I observed Wells 699-25-34B, 699-25-34D, 699-25-34F, 699-26-33A, 699-26-34A, 699-26-34B, 699-26-35A, and 699-26-38 were sampled at least annually for Chloride, Iron, Manganese, Phenols, Sodium, and Sulfate.

Compliance Problems

The Dangerous Waste inspection on June 27, 2018, found the following compliance problems.

Each problem is covered in three parts:
(1) **Citation from the regulations**
(2) **Specific observations** from the inspection that highlight the problem
(3) **Required actions** needed to fix the problem and achieve compliance

The problems listed below must be corrected to comply with Washington Dangerous Waste Regulations (Chapter 173-303 WAC), or other environmental laws or regulations. Complete the required actions listed below and respond to Ecology at the following address within the timeframes specified below. Include all supporting documentation such as photographs, records, and statements explaining the actions taken and dates completed to return to compliance.

Attention: Jared Mathey
Washington Department of Ecology
Nuclear Waste Program
3100 Port of Benton Blvd
Richland, WA 99354

You may request an extension of the deadlines to achieve compliance. Make the request in writing, including the reasons an extension is necessary and proposed date(s) for completion, and send it to Jared Mathey before the date specified above. Ecology will provide a written approval or denial of your request.

If you have any questions about information in this Compliance Report, please call:
Jared Mathey at (509) 372-7949

This does not relieve you of your continuing responsibility to comply with the regulations at all times.

LLBG – Green Islands – Index Number 18.644

1) **WAC 173-303-400(3), as referenced by the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion Revision 8C - Condition I.A Effect of Permit.**

   40 CFR 265.90 Applicability (b) Except as paragraphs (c) and (d) of this section provide otherwise, the owner or operator must install, operate, and maintain a ground-water monitoring system which meets the requirements of §265.91, and must comply with §§265.92 through 265.94. This ground-water monitoring program must be carried out during the active life of the facility, and for disposal facilities, during the post-closure care period as well.

   40 CFR 265.92 Sampling and analysis. (b)(3) Parameters used as indicators of ground-water contamination:

(i) pH
(ii) Specific Conductance
(iii) Total Organic Carbon
(iv) Total Organic Halogen

40 CFR 265.93 Preparation, evaluation, and response. (b) For each indicator parameter specified in §265.92(b)(3), the owner or operator must calculate the arithmetic mean and variance, based on at least four replicate measurements on each sample, for each well monitored in accordance with §265.92(d)(2), and compare these results with its initial background arithmetic mean. The comparison must consider individually each of the wells in the monitoring system, and must use the Student's t-test at the 0.01 level of significance (see appendix IV) to determine statistically significant increases (and decreases, in the case of pH) over initial background.

40 CFR 265.93 Preparation, evaluation, and response. (c)(2) If the comparisons for downgradient wells made under paragraph (b) of this section show a significant increase (or pH decrease), the owner or operator must then immediately obtain additional ground-water samples from those downgradient wells where a significant difference was detected, split the samples in two, and obtain analyses of all additional samples to determine whether the significant difference was a result of laboratory error.

Observations: Ecology requested all 2017 groundwater well monitoring records for LLBG – Green Islands – WMA 3. I compared the groundwater monitoring records to requirements in 40 CFR 265 Subpart F. I observed total organic halides exceeded the 2017 critical mean value of 9.32 µg/L in March (10.04 µg/L and 12.08 µg/L) and September 2017 (10.38 µg/L) in downgradient Well 299-W10-30. I observed additional groundwater samples for total organic halides from downgradient Well 299-W10-30 were not obtained to determine whether the significant difference was a result of laboratory error. I observed specific conductance exceeded the 2017 critical mean value of 462 µS/cm in March (499 µS/cm) and September 2017 (505 µS/cm) in downgradient Well 299-W10-31. I observed additional groundwater samples for specific conductance from downgradient Well 299-W10-30 were not obtained to determine whether the significant difference was a result of laboratory error.

Action Required: The next time sampling results show there is an exceedance of the critical means value, immediately obtain additional ground-water samples from those downgradient wells where a significant difference was detected, split the samples in two, and analyze these samples to determine whether the significant difference was a result of laboratory error. Once the sampling results are known, follow the next required steps in 40 CFR 265 Subpart F **or** submit for approval by Ecology, an alternant groundwater monitoring system plan meeting the requirements under 40 CFR 265.90(d) and follow that approved plans requirements.

To request ADA accommodation including materials in a format for the visually impaired, call Ecology at 509-372-7950 or visit https://ecology.wa.gov/accessibility. People with impaired hearing may call Washington Relay Service at 711. People with speech disability may call TTY at 877-833-6341.