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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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August 16, 2018

18-NWP-135 - Reissue

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 5, 2018, at the 1301-N Liquid Waste Disposal Facility, 1325-N Liquid Waste Disposal Facility, 183-H Solar Evaporator Basins, and 300 Area Process Trenches, RCRA Site ID: WA7890008967, NWP Compliance Index No's. 18.634 through 18.637

Dear Mr. Shoop and Mr. Blackford:

This letter is being reissued to correct the year in the date line at the top of this page. It originally showed August 16, 2017, and the correct date is August 16, 2018.

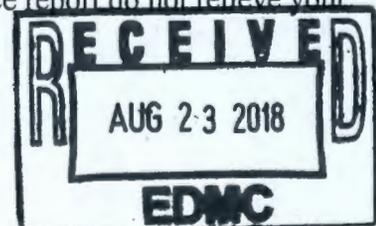
Thank you for your staff's time during the inspection of the following Unit Groups on June 5, 2018. The Department of Ecology's (Ecology) compliance report of this inspection is enclosed. The report cites one area of non-compliance and no concerns.

- D-1-2 • 1301-N Liquid Waste Disposal Facility - Compliance Index 18.634
- D-1-2 • 1325-N Liquid Waste Disposal Facility - Compliance Index 18.635
- T-1-4 • 183-H Solar Evaporator Basins - Compliance Index 18.636
- D-3-1 • 300 Area Process Trenches - Compliance Index 18.637

To return to compliance, complete the action required in the compliance problems section of the report and respond to Ecology within the timeframe specified. Include all supporting documentation in your response, (such as photographs, records, and statements explaining the actions taken and dates completed). Submit this information to Jared Mathey at 3100 Port of Benton Boulevard, Richland, Washington 99354.

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.



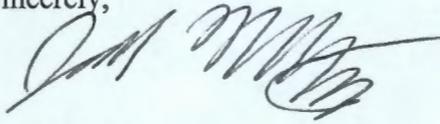
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Mr. Shoop and Mr. Blackford
August 16, 2018
Page 2

18-NWP-135 - **Reissue**
U.S. Department of Energy Hanford Site
RCRA Site ID: WA7890008967
NWP Compliance Index No.: 18.634 through 18.637
Inspection Date: June 5, 2018

If you have questions or need further information, please contact me at jared.mathey@ecy.wa.gov or (509) 372-7849.

Sincerely,



Jared Mathey
Dangerous Waste Compliance Inspector
Nuclear Waste Program

mrh
Enclosure

cc w/enc electronic:

Dave Bartus, EPA
Jack Boller, EPA
Dave Einan, EPA
Duane Carter, USDOE
Cliff Clark, USDOE
Michael Cline, USDOE
Doug Hildebrand, USDOE
Tony McKarns, USDOE
Allison Wright, USDOE
Randall Fox, CHPRC
Linda Petersen, CHPRC
Jon Perry, MSA
ERWM Staff, YN
Ken Niles, ODOE
Shawna Berven, DOH
John Martell, DOH
Debra Alexander, Ecology
Jeff Ayres, Ecology

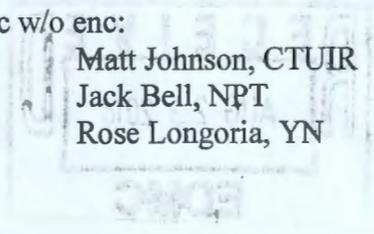
Kathy Conaway, Ecology
Suzanne Dahl, Ecology
Dib Goswami, Ecology
Brian Johnson, Ecology
Stuart Luttrell, Ecology
Jared Mathey, Ecology
Nina Menard, Ecology
John Price, Ecology
Stephanie Schleif, Ecology
Ron Skinnarland, Ecology
Alex Smith, Ecology
Cheryl Whalen, Ecology
Environmental Portal
Hanford 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 Files: 18.634 to 18.637

cc w/o enc:

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



Owner and Operator Information

According to the *Dangerous Waste Permit Application Part A Form, 1325-N Liquid Waste Disposal Facility and 1301-N Liquid Waste Disposal Facility*, dated October 25, 2016, (1325-N and 1301-N Part A Forms) USDOE is the owner/operator of the 1325-N and 1301-N Liquid Waste Disposal Facility TSD Units. CHPRC is contracted by the USDOE to co-operate the 1325-N and 1301-N Liquid Waste Disposal Facility TSD Units.

According to the *Dangerous Waste Permit Application Part A Form, 300 Area Process Trenches (APT) TSD Unit and 183-H Solar Evaporation Basins TSD Unit*, dated September 22, 2008, (300 APT and 183-H Part A Forms) USDOE is the owner/operator of the 300 APT and 183-H TSD Post-Closure Units.

Facility Background

300 Area Process Trenches

The 300 Area Process Trenches (300 APT) started operations in 1975. The 300 APT received dangerous waste liquid discharges from research and development laboratories in the 300 Area and from the fuels fabrication process. The effluent had no discharge outlet from the process trenches and either infiltrated the soil column or evaporated. The estimated annual quantity of both regulated and non-regulated wastewater that was discharged to the unit was estimated at 120 million gallons per year. This estimate was made because facility records were unavailable for dangerous waste volumes discharged to the trenches. The process trenches were designed to percolate up to 3,000,000 gallons of wastewater per day.

In 1985, the 300 APT received RCRA permit interim status. Administrative controls were implemented to eliminate discharges of dangerous wastes to the unit group. The waste consisted of state-only toxic, dangerous waste (WT02), discarded chemical product (U210), corrosive waste (D002), chromium (D007), spent halogenated solvents (F001, F002, and F003), and spent non-halogenated solvent (F005).

All wastewater discharges to the 300 APT were discontinued in December 1994. Closure actions were implemented and completed. On July 9, 1998, the USDOE submitted to Ecology a certification of closure for the 300 APT. Ecology accepted the certification of closure of the 300 APT on August 10, 1998. The 300 APT then moved into post-closure status. Groundwater monitoring is used to meet the corrective action requirements at the 300 APT.

1301-N Liquid Waste Disposal Facility

The 1301-N Liquid Waste Disposal Facility (1301-N) received waste from 1963 to 1985. The 1301-N Liquid Waste Disposal Facility was operated as a liquid waste disposal facility for mixed waste process and cooling wastewater from N Reactor. The 1301-N Liquid Waste Disposal Facility also received dangerous waste from laboratories and may have received waste from spills within the N Reactor Building. The 1301-N Liquid Waste Disposal Facility, also known by the Waste Information Data System (WIDS) number 116-N-1, is an inactive Treatment, Storage, and Disposal (TSD) unit that has undergone dangerous waste closure activities.

1325-N Liquid Waste Disposal Facility

The 1325-N Liquid Waste Disposal Facility (1325-N) was operated as a liquid waste disposal facility for mixed waste process and cooling waste water from N Reactor. The 1325-N Liquid Waste Disposal Facility also received dangerous waste from laboratories and may have received waste from spills within the N Reactor Building. The 1325-N Liquid Waste Disposal Facility, (also known by WIDS number 116-N-3), is an inactive Treatment, Storage, and Disposal unit that has undergone dangerous waste closure activities. In April 2005, USDOE submitted to Ecology a certification of closure. The 1325-N Liquid Waste Disposal Facility is currently in the Permit as a Closure Unit Group.

183-H Solar Evaporator Basins

The 183-H Solar Evaporation Basins (183-H) were four concrete basins used for waste treatment and disposal from 1973 to 1985. The waste discharged to the basins originated in the 300 Area Fuel Fabrication Facility and included solutions of neutralized chromic, hydrofluoric, nitric, and sulfuric acids. In addition, nonradioactive dangerous waste was discharged to the basins on a non-routine basis. The 183-H Solar Evaporation Basins received mixed waste that consisted primarily of liquid neutralized acid process waste that was designated Extremely Hazardous Waste (EHW) because of toxicity (WT01). The basins also received various nonradioactive waste (listed discarded chemical products), resulting in designation for cyanides (P030), vanadium oxide (P120), and formic acid (U123). Approximately 3.6 million pounds of waste a year was treated. These deactivated water treatment basins received a maximum of approximately 400,000 gallons of wastewater a year. The basins had a tank treatment design capacity of 700 gallons of wastewater a day treated by evaporation, and a tank storage design capacity of 2,167,000 gallons across all four basins. The basins have not received waste since November 1985.

Dangerous waste closure activities were completed and a certification of closure was submitted July 26, 1996. Post-closure groundwater monitoring is being conducted as a part of the interim remediation action for the 100-HR-3 Groundwater Operable Unit under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA).

Compliance Background

The 2015 Ecology Groundwater Monitoring Operation and Maintenance (OAM) compliance report (Compliance Index Numbers: 15.521 through 15.333) identified one area of non-compliance from the May 19, 2015 and May 21, 2015 compliance inspections of 1301-N, 1325-N, 183-H, and 300 APT.

- Ecology observed incomplete inspection records at 1301-N, 1325-N, 183-H, and 300 APT.

The 2016 Ecology Groundwater Monitoring Operation and Maintenance (OAM) compliance report (Compliance Index Numbers: 16.562 through 16.574) identified several areas of non-compliance from the June 7, 2016, compliance inspection of 1301-N, 1325-N, 183-H, and 300 APT.

- Ecology observed that Mercury was not sampled at least annually in 2015 at 1301-N and 1325-N.

- Ecology observed a failure to conduct sampling for constituents in the Appendix Ground-Water Monitoring List" incorporated at WAC 173-303-110 (3)(c)
- Ecology observed incomplete inspection records at 1301-N, 1325-N, 183-H, and 300 APT.

The Ecology 300 APT, 1301-N, 1325-N, and 183-H compliance report (Compliance Index Numbers: 17.600 through 17.604) identified one area of non-compliance for the September 25, 2017, compliance inspection for all unit groups.

- During the inspection, Ecology asked to see the 2014 Waste Minimization Plan Certification for 1301-N, 1325-N, 1324-N and NA, 183-H, and the 300 Area Process Trenches. A CHPRC employee told Ecology there was no waste minimization plan certification in the operating record for any of these units in 2014.

Inspection Summary

At 8:24 a.m. on June 5, 2018, Mr. Edward Holbrook, Mr. Scott Miller, Mr. Brian Johnson, and I met at Building 2753-E in Conference Room A104 for an inspection in-brief. The following representatives from the USDOE-RL and CHPRC were present for the introductions and inspection in-brief.

- Bill Faught, CHPRC – Groundwater Program Manager
- Randall Fox, CHPRC - Groundwater Environmental Manager
- Brian Mitcheltree, CHPRC – Environmental Quality Assurance
- Linda Petersen, CHPRC - Regulatory Inspection Lead
- Ken Stiles, CHPRC – Groundwater Sampling Field Work Supervisor
- Sean Sexton, CHPRC – Environmental Compliance Officer/Groundwater
- Doug Hildebrand, USDOE-RL – Soil and Groundwater Division
- Allison Wright, USDOE-RL – Environmental Safety and Quality

I explained the inspections would focus on conducting Operation and Maintenance (OAM) Groundwater Inspections of 1301-N, 1325-N, 183-H, and 300 APT. I explained my plan was to first ask some questions about the units and then go out into the field to observe all groundwater wells at 183-H. I said that I would conduct a document review of all four unit groups which would include review of the 2017 groundwater monitoring records, inspection records, and well maintenance records for 2017.

I asked what the most current version of GRP-FS-04-G-004, Operational Monitoring Groundwater Sampling was. Mr. Stiles said SGRP-PRO-SMP-50043, Revision 6, Change 1. He explained that change 2 would be issued by the end of the week. I asked if this was the same document as GRP-FS-04-G-004. Mr. Stiles answered yes. I asked if there have there been any new wells installed in the last two years at 1325-N, 1301-N, or 300 APT. Mr. Faught said in 2016, new wells were installed at 1325-N and 1301-N and around the entire 100 N area. I asked if any of these new wells were associated with the Resource Conservation and Recovery Act (RCRA) groundwater monitoring network. Mr. Faught and Mr. Stiles said all the new wells were

part of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and were not a part of the RCRA well network. I asked if there have been any wells decommissioned at 1301-N, 1325-N, 183-H, or 300 APT in the last two years. Mr. Faught and Mr. Stiles answered no. I asked if 1301-N and 1325-N were still on schedule for closure and removal from the permit by the end of 2018. Mr. Faught said these units are planned to be out of the permit by the end of the year. He explained there was a need to respond to public comments, but that both units were on track for removal from the permit.

I asked when Wells 199-H4-88 and 199-H4-89 at 183-H were first sampled. Mr. Faught said he would need to look into it and would get back to me. I asked what remedial actions are being performed regarding the exceedances of *cis*-1-2-DCE and TCE at the 300 APT. Mr. Faught said monitoring and natural attenuation. I asked when is the evaluation of *cis*-1-2-DCE and TCE under the CERCLA remedial action 5-year review going to occur. Mr. Faught said they just finished this year. I asked if there were any additional remedial actions for these two constituents. Mr. Faught said no, but they needed the review to get more money for the remediation of the Uranium in the groundwater. I said that was all the questions I had at this time. Mr. Faught said he would go look up the information on my question regarding the dates that samples were taken at the new 183-H groundwater wells. Mr. Faught returned and said Wells 199-H4-88 and 199-H4-89 at 183-H received their well procurement report on March 23, 2016 and were accepted for incorporation into the monitoring network in April of 2016. He explained that these wells were first sampled in June of 2016 and have been sampled more frequently than required (monthly). We reviewed safety information for our field visit, coordinated our departure, and left for 183-H around 9:05 a.m.

Field Inspection

At 9:30 a.m. we arrived at Well 199-H4-8 for the 183-H Solar Evaporation Basins. I observed the following on Well 199-H4-8:

- 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 BIV 671.
- The well had a cap that was locked on top of the casing.
- The well was protected from damage by four metal posts. 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.
- I observed a data logger for water level measurements.

Note: For the purposes of these groundwater well inspections, protective measures are identified in WAC 173-160-420(11), (12), and (13).



Photo #DSC02213 - Well No. 199-H4-8 for 183-H



Photo #DSC02214 - Well No. 199-H4-8 for 183-H



Photo #DSC02215 - Revegetation at 183-H

I observed the following on Well 199-H4-85 for 183-H:

- 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 BCF 566.
- The well had a cap that was locked on top of the casing.
- The well was protected from damage by four metal posts. 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 #DSC02216 - Well No. 199-H4-85 for 183-H

I observed the following on Well 199-H4-89 for 183-H:

- 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 BJB 585.
- The well had a cap that was locked on top of the casing.
- The well was protected from damage by four metal posts. 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 #DSC02217 - Well No. 199-H4-89 for 183-H



Photo #DSC02218 - Well No. 199-H4-89 & revegetation at 183-H



Photo #DSC02219 - Revegetation at 183-H

I observed the following on Well 199-H4-88 for 183-H:

- 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 BJB 583.
- The well had a cap that was locked on top of the casing.
- The well was protected from damage by four metal posts. 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 #DSC02220 - Well 199-H4-88 for 183-H

I observed the following on Well 199-H4-84 for 183-H:

- 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 BCA 457.
- The well had a cover that was bolted down with one bolt on top of the casing.
- The well was protected from damage with a bolted down cover and concrete support.
- I observed a data logger for water level measurements.



Photo #DSC02221 - Well No. 199-H4-84 for 183-H



Photo #DSC02222 - Well No. 199-H4-84 and datalogger for 183-H



Photo #DSC02223 - Revegetation at 183-H

We finished our field inspection and I conducted an inspection out-brief. I explained I still needed to review the 2017 groundwater monitoring, inspection, and maintenance records. I thanked everyone for their time. We departed 183-H at 10:00 a.m.

Records Review

Maintenance Records

I requested all 2017 maintenance records and records of repair or service for groundwater wells at 183-H, 1325-N, 1301-N, and 300 APT. I received a single record for Well 199-N-105A at 1301-N. I observed the Well Maintenance Report indicated a previously installed transducer was removed from the well on September 6, 2017.

Groundwater Well Pre-Trip Inspection Records

I requested copies of all 2017 groundwater well pre-trip inspection records and associated well concern reports or e-mails for 183-H, 1325-N, 1301-N, and 300 APT. I observed Appendix K/L – Groundwater Well Pre-Trip Inspections were conducted for the below listed wells and Unit Groups on the following dates. In September, 2017, Appendix K Groundwater Well Pre-Trip Inspections were changed to Appendix L.

Unit Group	Well Number	Groundwater Well Pre-Trip Inspection Dates						
1301-N	199-N-2	2/26/17	8/31/17					
	199-N-3	2/26/17	8/31/17	11/6/17				
	199-N-34	2/26/17	8/31/17					
	199-N-57	2/26/17	8/31/17					
	199-N-105A	2/26/17	8/31/17					
1325-N	199-N-28	2/26/17	8/31/17	10/12/17				
	199-N-32	2/26/17	8/31/17	10/12/17				
	199-N-41	2/26/17	8/31/17	10/12/17				
	199-N-74	2/26/17	8/31/17	10/12/17				
	199-N-81	2/26/17	8/31/17	10/12/17				
183-H	199-H4-8	4/26/17	11/1/17					
	199-H4-84	2/2/17	2/28/17	3/28/17	4/26/17	6/2/17	6/30/17	7/31/17
		8/29/17	9/21/17	10/12/17	11/1/17			
	199-H4-85	2/2/17	5/3/17					
	199-H4-88	1/5/17	2/2/17	2/28/17	3/28/17	4/26/17	6/2/17	6/30/17
		7/31/17	8/29/17	9/21/17	10/12/17	11/6/17		
	199-H4-89	2/2/17	5/3/17	6/14/17	7/31/17	8/29/17	11/6/17	
300 APT	399-1-10A	1/5/17	1/27/17	2/26/17	5/30/17	6/30/17	10/19/17	10/24/17
		11/27/17						
	399-1-10B	1/5/17	1/27/17	2/26/17	5/30/17	6/30/17	10/19/17	11/27/17
	399-1-16A	1/5/17	1/27/17	2/26/17	3/28/17	5/1/17	5/30/17	6/30/17
		7/31/17	8/31/17	10/1/17	10/19/17	10/26/17	11/27/17	12/27/17
	399-1-16B	1/5/17	1/27/17	2/26/17	5/30/17	6/30/17	10/19/17	
	399-1-17A	1/5/17	1/27/17	2/26/17	3/28/17	5/1/17	5/30/17	6/30/17
		7/31/17	8/31/17	10/1/17	10/19/17	10/26/17	11/27/17	12/27/17
	399-1-17B	1/5/17	1/27/17	2/26/17	5/30/17	6/30/17	10/19/17	11/27/17
	399-1-18A	1/5/17	1/27/17	2/26/17	5/30/17	6/30/17	10/19/17	11/27/17
399-1-18B		1/5/17	1/27/17	2/26/17	5/30/17	6/30/17	10/19/17	11/27/17

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 on July 31, 2017, an inspection could not be conducted for Wells 199-H4-84, 199-H4-88, and 199-H4-89, because the road was blocked by a drill pad with a remedial action to coordinate

access with drillers prior to accessing. I observed on August 31, 2017, an inspection noted issues with an eyebolt that did not fit and that the pump needs service on Well 199-N-57. The record shows it was changed back to "acceptable" with a notation that the pin was in the eye on the same date of the inspection. I observed on August 31, 2017, it was reported the road needs work on access to Well 199-N-41, but is unable to be conducted due to cultural resource issues. I observed on October 19, 2017, well access was marked as an issue, because wasps were inside of well casing inside of Well 399-1-10A. Well 399-1-10A was re-inspected with no issues on October 24, 2017.

Groundwater Well Pump Check Inspection Records

I requested copies of all 2017 Groundwater Sample Reports (GSR) for pump check inspections and associated well concern reports or e-mails for 183-H, 1325-N, 1301-N, and 300 APT. I observed pump check inspection records on Groundwater Sample Reports were conducted for the below listed wells and Unit Groups on the following dates.

Unit Group	Well Number	Groundwater Sample Report Pump Check Inspection Dates						
1301-N	199-N-2	3/3/17	9/5/17					
	199-N-3	3/3/17	7/11/17	9/6/17	11/8/17			
	199-N-34	3/3/17	9/5/17					
	199-N-57	3/6/17	9/5/17					
	199-N-105A	3/3/17	9/6/17					
1325-N	199-N-28	3/3/17	9/5/17					
	199-N-32	3/3/17	9/5/17	10/15/17				
	199-N-41	3/3/17	9/11/17	10/15/17	11/20/17			
	199-N-74	3/3/17	9/5/17	10/15/17				
	199-N-81	3/3/17	9/5/17	10/15/17				
183-H	199-H4-8	5/3/17	11/10/17					
	199-H4-84	2/8/17	3/10/17	4/4/17	5/3/17	6/7/17	7/5/17	8/29/17
		9/29/17	10/20/17	11/10/17	12/14/17			
	199-H4-85	2/14/17	5/25/17	11/10/17				
	199-H4-88	1/29/17	2/21/17	3/10/17	4/4/17	5/3/17	6/7/17	6/14/17
		7/5/17	8/29/17	9/29/17	10/20/17	11/10/17	12/14/17	
	199-H4-89	2/14/17	5/25/17	6/14/17	8/29/17	11/10/17		
300 APT	399-1-10A	1/12/17	2/6/17	3/6/17	6/2/17	10/24/17		
	399-1-10B	1/12/17	2/6/17	3/6/17	6/2/17	10/22/17	11/30/17	
	399-1-16A	1/12/17	2/6/17	3/3/17	4/3/17	5/4/17	6/2/17	7/5/17
		8/1/17	9/12/17	10/3/17	10/24/17	11/1/17	12/1/17	

	399-1-16B	1/12/17	2/6/17	3/3/17	6/2/17	10/24/17	12/1/17	
	399-1-17A	1/12/17	2/6/17	3/3/17	4/3/17	5/4/17	6/2/17	7/5/17
		8/1/17	9/12/17	10/3/17	10/24/17	11/1/17	12/1/17	
	399-1-17B	1/12/17	2/6/17	3/3/17	6/2/17	10/24/17	12/1/17	
	399-1-18A	1/12/17	2/6/17	3/3/17	6/2/17	10/22/17	12/1/17	
	399-1-18B	1/12/17	2/6/17	3/3/17	6/2/17	10/22/17	12/1/17	

I observed each inspection record contained the date and time of the inspection, the printed name and handwritten signature of the inspector, notations of observations made, and remedial actions taken. I observed a water level measurement each time a well was sampled.

Groundwater Monitoring Records

1301-N

I requested and reviewed all 2017 groundwater well monitoring records for 1301-N. I compared the groundwater monitoring records to requirements in 1301-N Chapter 3.0 Groundwater Monitoring in the Hanford Facility RCRA Permit, Revision 8C. I observed Wells 199-N-2, 199-N-3, 199-N-34, 199-N-57, and 199-N-105A were sampled at least semi-annually for pH, specific conductance, total organic carbon, total organic halogen, turbidity, and contamination indicator parameters of nitrate and chromium. I observed Wells 199-N-2, 199-N-3, 199-N-34, 199-N-57, and 199-N-105A were sampled at least annually for alkalinity, anions (Fluoride, Chloride, Nitrate, and Sulfate), and ICP metals (Arsenic, Barium, Cadmium, Chromium, Iron, Manganese, Selenium, Sodium, and Silver). I observed Mercury was not included in the groundwater monitoring records provided.

Note: On August 6, 2018, I e-mailed Mr. Fox from WRPS explaining I observed the ICP metal mercury was not sampled in the 2017 groundwater records provided in response to my inspection. I said in looking in Hanford Environmental Information System (HEIS), I observed mercury was sampled in March and sometimes September of 2017 for both 1301-N and 1325-N. Mr. Fox replied the following:
"We had purposely omitted mercury because the laboratory that we use analyzes it by method 7470 (cold vapor technique) not method 6010 or 6020 (inductively coupled plasma). We interpreted Table 3.2 of the Groundwater Monitoring Plan in both the 1301-N and 1325-N RCRA permit as only requiring those metals analyzed by an ICP method. Mercury was typically analyzed semi-annually for the well networks of 1301-N and 1325-N in 2017. The data that you see in HEIS is the data that we pull, and since you have already pulled it we have not included it in this email."

I observed Mercury was sampled in March and/or September 2017 for Wells 199-N-2, 199-N-3, 199-N-34, 199-N-57, and 199-N-105A at 1301-N as identified the HEIS. I observed no exceedances of critical means in ECF-Hanford-17-0009 Revision 1, *Calculating of Critical Means for Calendar Year 2017 RCRA Groundwater Monitoring*, dated December 6, 2017 for specific conductance, total organic carbon, total organic halides, and pH in Wells 199-N-2, 199-N-3, 199-N-34, 199-N-57, and 199-N-105A. I observed that results of chloride, iron, manganese, and sulfate (with no lab qualifiers) did not exceed secondary drinking water standards.

1325-N

I requested and reviewed all 2017 groundwater monitoring records for wells at 1301-N. I compared the groundwater monitoring records to requirements in 1325-N Chapter 3.0 Groundwater Monitoring in the Hanford Facility RCRA Permit, Revision 8C. I observed in Chapter 3.0 that Well 199-N-28 is reported as used by the RCRA program to monitor potential effects of injected water and is not being used in statistical evaluations. I observed Wells 199-N-32, 199-N-41, 199-N-74, and 199-N-81 were sampled at least semi-annually for pH, specific conductance, total organic carbon, total organic halogen, turbidity, and contamination indicator parameters of nitrate, chromium, phosphate, lead, and cadmium. I observed Wells 199-N-32, 199-N-41, 199-N-74, and 199-N-81 were sampled at least annually for alkalinity, anions (Fluoride, Chloride, Nitrate, and Sulfate), and ICP metals (Arsenic, Barium, Cadmium, Chromium, Iron, Manganese, Selenium, Sodium, and Silver). I observed Mercury was not included in the groundwater monitoring records provided, however, I observed that Mercury was sampled in March and September 2017 for Wells 199-N-32, 199-N-41, 199-N-74, and 199-N-81 at 1325-N as identified the HEIS.

I observed no exceedances of critical means in ECF-Hanford-17-0009 Revision 1, *Calculating of Critical Means for Calendar Year 2017 RCRA Groundwater Monitoring*, dated December 6, 2017, for total organic carbon and pH in Wells 199-N-32, 199-N-41, 199-N-74, and 199-N-81. I observed exceedances of the critical mean of total organic halides (11.59 µg/L) in Wells 199-N-41, 199-N-74, and 199-N-81 as noted below.

Well	Date	Total Organic Halides
199-N-41	September 11, 2017	17.8 µg/L
199-N-41	September 11, 2017	18.3 µg/L
199-N-41	September 11, 2017	16.4 µg/L
199-N-41	September 11, 2017	16.8 µg/L
199-N-41	October 15, 2017	20.3 µg/L
199-N-41	October 15, 2017	12.4 µg/L
199-N-41	October 15, 2017	16.3 µg/L
199-N-41	November 20, 2017	20.1 µg/L
199-N-41	November 20, 2017	21.2 µg/L
199-N-41	November 20, 2017	18.2 µg/L
199-N-41	November 20, 2017	21 µg/L
199-N-74	October 15, 2017	12.7 µg/L (11.43 µg/L Average 4 Samples)
199-N-74	October 15, 2017	12.5 µg/L (11.43 µg/L Average 4 Samples)
199-N-81	October 15, 2017	13.8 µg/L (7.05 µg/L Average 4 Samples)

I observed the following in DOE/RL-2017-65, REV. 0, *Hanford Site RCRA Groundwater Monitoring Report for 2017*, dated February 2018.

The TOX results from 1325-N downgradient monitoring well 199-N-41 exceeded the TOX critical mean in the September and October samples (Table 2-7). Verifications samples were collected on November 20, 2017, with split samples going to GEL Laboratory (GEL) and TestAmerica – St. Louis (TASL). The quadruplicate sample results from GEL were all above the TOX critical mean, while the TASL results were all below the critical mean; therefore, the verification splits did not confirm a TOX exceedance. Sample results from GEL had laboratory qualifiers of "C," indicating that the analyte was detected in both the associated QC blank and in the sample, and the sample concentration was less than or equal to five times the blank concentration. GEL reported 4.82 µg/L for the TOX method blank. This could be a result of inadequate column purge, and sample results may be biased high.

The TOX sample results from TASL had laboratory qualifiers of "N," indicating that the spike sample recovery was outside control limits. The matrix spike sample had 82% recovery, below the lower acceptable recovery range of 85% to 117%, indicating that the results may be biased low. The laboratory control sample recovery was 101% and within the acceptable recovery range of 90% to 116%; therefore, low matrix spike recovery in the sample is suspected to be from interferences in the sample matrix. Volatile organic analysis was also performed on the well 199-N-41 verification samples because of historical chloroform detection in the area. Acetone and chloroform were the only two volatile organic analytes (VOAs) detected by both GEL and TASL. Acetone results were all either undetected or flagged as "J" (detected below the practical quantitation limit [PQL] and the reported value is an estimate). Concentrations were well below the action level (7,200 µg/L) and acetone is a common laboratory contaminant; therefore, acetone was determined not to be associated with contamination release from 1325-N. Chloroform was reported above detection limits by both GEL and TASL. The TASL results averaged 1.15 µg/L, and the GEL results averaged 1.36 µg/L (flagged as "J"). No organics were documented as having been discharged to 1325-N, and previous assessments for the 100-N Area RCRA sites identified the likely chloroform source as chlorinated water from a paint spray booth in an upgradient paint shop. Figure 2-3 shows that chloroform has historically been higher in the upgradient well for 1325-N (well 199-N-74) compared to well 199-N-41, as well as the other 1325-N downgradient monitoring wells.

The verification sample results for TOX from the splits were inconclusive in verifying an exceedance to the TOX indicator parameter. The VOA analyses indicated that the TOX is associated with chloroform. Organics were not documented as having been discharged to 1325-N, and the upgradient to downgradient well comparison indicates that the TOX exceedance at well 199-N-41 is not a release from 1325-N but rather from migration of chloroform from an upgradient source. Therefore, 1325-N remains in detection monitoring.

I observed results of chloride, manganese, and sulfate (with no lab qualifiers) did not exceed secondary drinking water standards. I observed Well 199-N-32 exceeded the secondary drinking water standard (300 µg/L) for iron on samples taken on March 3, 2017 (881 µg/L and 604 µg/L). I observed samples taken on September 5, 2017, reported values of iron below secondary drinking water standards.

183-H

I requested and reviewed all 2017 groundwater well monitoring records for 183-H. I compared the groundwater monitoring records to requirements in 183-H Chapter 3.0 Groundwater Monitoring in the Hanford Facility RCRA Permit, Revision 8C. I observed Wells 199-H4-8, 199-H4-84, and 199-H4-85, were sampled at least semi-annually for total chromium, nitrate, pH, specific conductance, temperature, dissolved oxygen, and turbidity.

I observed Well 199-H4-88 was sampled at least quarterly for total chromium, nitrate, pH, specific conductance, temperature, dissolved oxygen, and turbidity. I observed Well 199-H4-89 was sampled at least quarterly for pH, specific conductance, temperature, and turbidity.

I observed Well 199-H4-89 was sampled for total chromium and nitrate in the second, third, and fourth quarters of 2017, but not sampled in the first quarter of 2017 for total chromium and nitrate. I observed Well 199-H4-89 was sampled in the first, second, and fourth quarters, but not sampled in the third quarter 2017 for dissolved oxygen.

I observed results of total chromium (with no lab qualifiers) were all below the concentration limit of 48 µg/L. I observed a large number of data qualifiers and highly variable monitoring results for samples taken for nitrate at 183-H. I observed the following in DOE/RL-2017-65, REV. 0, Hanford Site RCRA Groundwater Monitoring Report for 2017, dated February 2018.

Nitrate exceeded the Hanford RCRA Permit concentration limit of 45 mg/L in wells 199-H4-88 and 199-H4-89 during both RCRA sample events (Table 4-3). The nondetect value for nitrate in well 199-H4-85 on November 10, 2017, appears to be a suspect result and is currently under additional review.

300 APT

I requested and reviewed all 2017 groundwater well monitoring records for 300 APT. I compared the groundwater monitoring records to requirements in 300 APT Chapter 3.0 Groundwater Monitoring in the Hanford Facility RCRA Permit, Revision 8C. I observed Wells 399-1-10A, 399-1-10B, 399-1-16A, 399-1-16B, 399-1-17A, 399-1-17B, 399-1-18A, and 399-1-18B were sampled semi-annually for *cis*-1,2-DCE, Trichloro-ethene, pH, specific conductance, temperature, and turbidity.

I observed results of Trichloro-ethene were all below the concentration limit of 4 µg/L. I observed results of *cis*-1,2-DCE exceeded the concentration limit of 16 µg/L in Well 399-1-16B on January 12, 2017 (191 µg/L and 184 µg/L), February 6, 2017 (143 µg/L), March 3, 2017 (136 µg/L), June 2, 2017 (136 µg/L), and October 24, 2017 (160 µg/L). I observed the following in DOE/RL-2017-65, REV. 0, Hanford Site RCRA Groundwater Monitoring Report for 2017, dated February 2018.

In all of the well 399-1-16B samples, cis-1,2-DCE continued to exceed the permit limit, with concentrations ranging from 136 to 191 µg/L. Lower levels of cis-1,2-DCE were detected in well 399-1-17B, with a maximum of 1.9 µg/L....

The statistical evaluation is conducted semiannually (SGW-61150 [in publication]; SGW-61754 [in publication]). The only 95% UCL that exceeded the permit concentration limit in a downgradient well was for cis-1,2-DCE in well 399-1-16B (Table 4-8).

Compliance Problems

The Dangerous Waste inspection on June 5, 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 60-days of receipt of this compliance report. 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.

183-H – Solar Evaporation Basins, Compliance Index 18.636

- 1) **Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion Revision 8C.**

183-H Solar Evaporation Basins Chapter 3.0 Groundwater Monitoring

Section 3.2.1 Table 3-5 presents the wells in the groundwater monitoring network, constituents analyzed as required for corrective action monitoring, and sampling frequency for monitoring of the 183-H Solar Evaporation Basins...New wells (199-H4-88 and 199-H4-89) will be sampled quarterly for the first 2 years to collect sufficient samples to support statistical evaluation (Section 3.3.2).

Table 3-5 Monitoring Well Network for the 183-H Solar Evaporation Basins										
Well Name	Purpose	WAC Compliant	Dangerous Waste Constituents and Other Parameters ^a							
			Water Level	Dangerous Waste Constituent		Field Parameters				
				Total Chromium (Filtered)	Nitrate	pH	Specific Conductance	Temperature	Dissolved Oxygen	Turbidity
199-H4-8	Corrective Action Monitoring	Y	S	S	S	S	S	S	S	S
199-H4-84	Corrective Action Monitoring	Y	S	S	S	S	S	S	S	S
199-H4-85	Corrective Action Monitoring	Y	S	S	S	S	S	S	S	S
199-H4-88 ^b	Corrective Action Monitoring	Y	Q	Q	Q	Q	Q	Q	Q	Q
199-H4-88 ^c	Corrective Action Monitoring	Y	S	S	S	S	S	S	S	S
199-H4-89 ^b	Corrective Action Monitoring	Y	Q	Q	Q	Q	Q	Q	Q	Q
199-H4-89 ^c	Corrective Action Monitoring	Y	S	S	S	S	S	S	S	S

^a Monitoring as required under WAC 173-303-645(11), "Dangerous Waste Regulations," "Releases from Regulated Units," "Corrective Action Program."
^b Sampling frequency for the first 2 years of monitoring.
^c Sampling frequency following the first 2 years of monitoring.
 Q - to be sampled quarterly
 S - to be sampled semiannually
 WAC - Washington Administrative Code
 Y - well is, or will be, constructed as a resource protection well (WAC 173-160, "Minimum Standard for Construction and Maintenance of Wells")

Observations: I asked how long Wells 199-H4-88 and 199-H4-89 at 183-H have been sampled for. A CHPRC representative told Ecology Wells 199-H4-88 and 199-H4-89 at 183-H received their well procurement report on March 23, 2016, were accepted for incorporation into the monitoring network in April of 2016, and were first sampled in June of 2016.

I observed Well 199-H4-89 was not sampled for total chromium and nitrate in the first quarter of 2017. I observed Well 199-H4-89 was not sampled in the third quarter 2017 for dissolved oxygen.

Action Required: Within 60-days of receipt of this compliance report, submit an update to the operating record for 183-H that states that Well 199-H4-89 was not sampled for total chromium and nitrate in the first quarter of 2017 and not sampled in the third quarter 2017 for dissolved oxygen. Continue to comply with groundwater monitoring requirements in the 183-H Solar Evaporation Basins Chapter 3.0 Groundwater Monitoring in the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion Revision 8C.

Compliance Index #'s: 18.634 through 18.637
August 16, 2018
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1301-N, 1325-N, 183-H, 300 APT
RCRA Site ID: WA 7890008967
Inspection Date: June 5, 2018

Areas of Concern

None observed during this inspection.

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.