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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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November 10, 2015

15-NWP-200

By certified mail

Ms. Stacy Charboneau, Manager
Richland Operations Office
United States Department of Energy
PO Box 550, MSIN: A7-50
Richland, Washington 99352

Mr. John A. Ciucci, President and CEO
CH2M HILL Plateau Remediation Company
PO Box 1600, MSIN: H7-30
Richland, Washington 99352

Re: Dangerous Waste Compliance Inspection on June 3, 2015 at the Hanford Site 400 Area
Waste Management Unit, Resource Conservation and Recovery Act (RCRA) Site ID:
WA7890008967, Nuclear Waste Program (NWP) Compliance Index No. 15.536

Dear Ms. Charboneau and Mr. Ciucci:

Thank you for your staff's time during the Department of Ecology's (Ecology) compliance inspection. The purpose of our visit was to determine compliance with the Hanford Facility RCRA Permit, Dangerous Waste Portion Revision 8C, and the Washington State Dangerous Waste Regulations (Chapter 173-303 Washington Administrative Code) at the 400 Area Waste Management Unit. The Permit and regulations establish a system for safe and responsible management of dangerous waste.

Ecology's compliance report for the 400 Area Waste Management Unit inspection is enclosed. This report cites three areas of non-compliance and seven areas of concern. These three areas of non-compliance and the actions required for a return to compliance are listed in the Compliance Problems section of the compliance report.

To return to compliance, complete the actions required and respond to Ecology within 60 days of receipt of the compliance report. Include all supporting documentation such as photographs, records, and statements explaining the actions taken and dates completed to return to compliance. Submit the above paperwork along with any requested documentation, to Edward Holbrook 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.

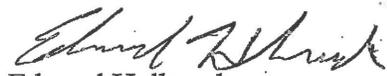


Ms. Charboneau and Mr. Ciucci
November 10, 2015
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15-NWP-200
400 Area Waste Management Unit
RCRA Site ID: WA7890008967
NWP Compliance Index No.: 15.536
Inspection Date: June 3, 2015

If you have questions or need further information, please contact me at (509) 372-7909 or edward.holbrook@ecy.wa.gov.

Sincerely,


Edward Holbrook
Dangerous Waste Compliance Inspector
Nuclear Waste Program

tkb

Enclosure

cc electronic w/enc:

Dave Bartus, EPA
Jack Boller, EPA
Dennis Faulk, EPA
Cliff Clark, USDOE
Michael Collins, USDOE
Tony McKarns, USDOE
Joel Williams, Jr., CHPRC
Jon Perry, MSA
Ken Niles, ODOE
Debra Alexander, Ecology
Kathy Conaway, Ecology
Suzanne Dahl, Ecology
Kelly Elsethagen, Ecology
Jane Hedges, Ecology
Jared Mathey, Ecology
John Price, Ecology
Stephanie Schleif, Ecology
Ron Skinnarland, Ecology
Environmental Portal
Hanford Facility Operating Record

cc w/enc:

Steve Hudson, HAB
Administrative Record
CHPRC Correspondence Control
NWP Compliance Index File: 15.536

cc w/o enc:

Rod Skeen, CTUIR
Gabriel Bohnee, NPT
Russell, Jim, YN
NWP Reader File

**Washington Department of Ecology
Nuclear Waste Program
Compliance Report**

Site: 400 Area Waste Management Unit (WMU)
RCRA Site ID: WA7890008967
Inspection Date: June 3, 2015
Site Contacts: Joel Williams Jr., CH2M Hill Plateau Remediation Company (CHPRC)
Tony McKarns, United States Department of Energy (USDOE)
Phone: (509) 376-4782 – Joel Williams Jr.
FAX: (509) 372-2828 – Joel Williams Jr.
Site Location: Hanford Site (400 Area)
Benton County, WA
At This Site Since: 1943 **NAICS#:** 56221, 924110, and 54171
Current Site Status: Treatment Storage and Disposal Facility / Operating Unit Group # 16
Compliance Index #: 15.536

Ecology

Lead Contact: Edward Holbrook **Phone:** (509) 372-7909 **FAX:** (509) 372-7971
Other Representatives: Jared Mathey and Stacy Nichols
Report Date: November 10, 2015
Report By: Edward Holbrook


(Signed)

11/10/15
(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 (RCRA) facility, even though the Hanford Site contains numerous processing areas spread over a large geographic area. The Hanford Site is approximately a 586 square mile tract of land located in Benton County, Washington. It is divided into a number of dangerous waste management units (DWMUs) that are administratively organized into "unit groups." A unit group may contain only one DWMU or many. Currently, there are 37 unit groups at the Hanford Site. DWMUs use only a few small portions of the Hanford Site. Additional descriptive information on the DWMUs is contained in unit group permit applications and in Parts III, V, and VI of the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, WA78900008967, Revision 8C* (hereafter referred to as the Permit).

Owner/Operator Information

The United States Department of Energy (USDOE) is the owner and operator of the 400 Area WMU and oversees waste management and cleanup activities ongoing at the Hanford Site. CHPRC is contracted by the USDOE to co-operate the 400 Area WMU.

Facility Background

According to the *Washington State Department of Ecology, 400 Area WMU, Revision 2B, Dangerous Waste Permit Application Part A Form*, dated September 22, 2008 (400 Area WMU Part A Application) and the *Surveillance and Maintenance Plan for the Fast Flux Test Facility Revision 0, DOE/RL-2009-26*, dated April 23, 2009 (FFTF S&M Plan), the 400 Area WMU is associated with the Fast Flux Test Facility (FFTF). The 400 Area WMU manages radioactive dangerous waste (MW) from

the FFTF deactivation process. The FFTF was formerly operated as a 400-megawatt thermal liquid-metal (sodium) cooled research and test reactor owned by USDOE, which tested advanced fuels and materials. It served as a prototype for future liquid metal fast breeder reactor facilities.

The 400 Area WMU consists of two container storage units; the 403 building, Fuel Storage Facility (FSF), which is a large high bay building and the Interim Storage Area (ISA), which is a fenced outdoor pad northeast of the FFTF reactor.

According to the 400 Area WMU Part A Application, the FSF and ISA stores the following MW:

- Elemental sodium.
- Sodium hydroxide.
- Sodium potassium (NaK).
- Debris contaminated with elemental sodium, sodium hydroxide, and NaK.

Under the Unit Description section in the Permit, Part III, Operating Unit Group 16 Permit Conditions, dated December 31, 2013, the following is stated.

...The only mixed waste stored in these two container storage units is elemental sodium, and sodium potassium (D001, D003, and WSC2), sodium hydroxide (D002), and potassium hydroxide (D002) and debris (e.g., piping, equipment, and components) contaminated with elemental sodium, sodium potassium, sodium hydroxide, and potassium hydroxide. The 400 Area WMU will not store, treat, or dispose of bulk metallic sodium or bulk sodium hydroxide.

The storage capacity of the FSF is approximately 1,000 gallons and the storage capacity of the ISA is approximately 19,000 gallons.

According to the FFTF S&M Plan, the FFTF was built in the late 1970s and operated from 1982 to 1992. Deactivation activities were conducted at the FFTF, beginning in 1993 through 2009. Approximately 6,000 to 15,300 gallons of radioactively contaminated sodium residuals still exist within the FFTF reactor vessel, storage vessels, and liquid metal piping systems, according to the *Documented Safety Analysis for the Fast Flux Test Facility, FFTF-36419*. The FFTF is currently in a surveillance and maintenance phase, which is addressed in the *Hanford Federal Facility Agreement and Consent Order, 89-10 Revision 8 (HFFACO)*, Action Plan, Section 8, *Facility Disposition Process*. Alternatives for the FFTF final decommissioned end state are analyzed in the *Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington, DOE/EIS-15 0391*, dated October 2009.

Further information regarding the background and recent compliance history of the 400 Area WMU can be found in the Ecology compliance report (Compliance Index No. 11.344) for the September 19-20, 2011 inspection, where the findings included five areas of non-compliance and six areas of concerns. Also EPA led an inspection on May 19-21, 2014, which included a visit to the 400 Area WMU.

Inspection Summary

On June 2, 2015 at 2:45 p.m. I provided an email to the United States Department of Energy – Richland Operations Office (USDOE-RL) and CHPRC, announcing a dangerous waste inspection of the 400 Area WMU. I originally informed USDOE-RL and CHPRC that the inspection would be conducted on June 4, 2015. I requested personnel be available for access to the facility, the field inspection, and a period of time to review documentation. On June 2, 2015, at 3:18 p.m. I received an email from Tony Mckarns (USDOE-RL Environmental Representative) regarding the need to reschedule, due to another

Ecology (Central Regional Office) scheduled inspection. He said the Ecology Central Regional Office would be inspecting the Hanford Site underground storage tanks on June 4, 2015.

At 5:12 p.m. I replied to Mr. Mckarns, summarizing the Permit condition for "Inspection and Entry" (Permit Condition I.E.9) and informed USDOE-RL and CHPRC that I would conduct the inspection on June 3, 2015. At 5:58 p.m. I received a response from Cliff Clark (USDOE-RL Environmental Team Lead) regarding the correspondence and acknowledgement of the June 3, 2015 inspection.

On June 3, 2015, at 12:20 p.m., Jared Mathey (Support Inspector), Stacy Nichols (Technical Support), and I arrived at the 400 Area WMU, near the DWMU ISA gate. At 12:30 p.m., David Gray (CHPRC Field Work Supervisor) provided a safety briefing and an overview of the facility. Mr. Gray stated the location of the spill kit, fire extinguishers, and what is currently being stored in the two DWMU's, FSF, and ISA. After the safety briefing and introductions, I provided an in-briefing regarding the purpose and agenda for my inspection, which included a field inspection of the 400 Area WMU, document review, and personnel interviews.

The following personnel were present at the 400 Area WMU.

- Joel Williams Jr., CHPRC Regulatory Compliance Lead
- Brett Barnes, CHPRC Environmental Compliance Officer (ECO)
- Michael Collins, USDOE-RL Engineer
- Tony McKarns, USDOE-RL Environmental Representative
- Darin Corriell, CHPRC Surveillance and Maintenance Director
- Dan Richardson, CHPRC Radiological Control Technician (RCT)
- Ray Stevens, CHPRC Engineer
- David Gray, CHPRC Field Work Supervisor (FWS)
- Deborah Older, CHPRC Nuclear Chemical Operator (NCO)

After the in-briefing, we began the field inspection and walked through a gate on the south end of the ISA. As I walked through the gate I observed to my left, a storage module with the following signs seen in the photograph below. I observed the signs on the storage module as "Danger, No smoking, matches, or open flames," "Danger, Hazardous Waste Storage Area," and "Danger, Authorized Personnel Only."



Photo 1: ISA Storage Module Doors and Signs.



Photo 2: A portion of containers stored in the storage module in the ISA.

I observed 19 containers (See Photo 2) in the storage module and asked what was being stored in the module. Mr. Gray said there was approximately 23 gallons of sodium and .2 gallons of NaK. Since I did not go through the ISA access controlled entry process, I was not able to walk up to the containers. I asked if there has been any additional waste stored or removed from the ISA since the last dangerous waste (DW) inspection conducted by EPA. Ms. Older counted the containers, and Mr. Gray said that no waste has been added or removed.

I observed the containers had “radioactive material,” “hazardous waste,” and “dangerous when wet” labels. I observed that the containers appeared to be closed. After observing the containers in the ISA storage module, we walked over to a red box on the gate, labeled as “Fire Extinguisher.” Mr. Gray said that this was the only fire extinguisher in the ISA. I requested the box to be opened, so that I could see the fire extinguisher. Ms. Older opened the locked box and I observed hand written initials on an inspection tag for May 2015. I asked if this fire extinguisher is compatible with the waste stored in the ISA. Mr. Gray told me the fire extinguisher was Class D for combustible metals.

As we walked out of the ISA, Ms. Older closed and locked the gate, and we walked over to the north side of Building 4710. I observed a sign on the wall above a locked plastic container. I observed the sign states “Attention: Combined Spill/Emergency kit for 400 area waste management unit located in ISA and FSF.” I asked if the spill and emergency kit box could be opened, so I could view the contents. I observed personal protective equipment (PPE), flashlights, and baking soda. Ms. Older closed and secured the spill kit box after I observed the contents. On our way over to the DWMU FSF entrance I observed a large wooden box labeled “fire retardant.” I asked about the contents of the wooden box, after we passed the location, and Mr. Gray said he would have to see the box again before answering.

At the east entrance to the FSF, I observed the following signs on the door, which are seen in the photograph below.



Photo 3: FSF Door, Signs and Fire Extinguisher

On the right side of the door, I observed another red box labeled as “Fire Extinguisher.” I requested the box to be opened, so I could see the fire extinguisher. Ms. Older opened the locked box and I observed hand written initials on an inspection tag for May 2015. I observed the fire extinguisher was labeled “Combustible Metals” with a yellow star and a “D” in the middle of the star. I also observed on the extinguisher a barcode number “E04727”.

Before we entered the FSF, Mr. Gray ensured that we had the proper PPE and monitoring equipment, which included flashlights and portable oxygen level monitors. We walked inside the FSF where I observed two small stainless steel metal containers on the floor. Mr. Gray explained that these were

display pieces of the Core Component Pots (CCP) that have sodium MW contained within that are stored in the FSF containers. I asked if I could take a photo of the CCP. Mr. Gray said he would need to check. Mr. Williams said he would take photos and have the photos released through USDOE's clearance process. Mr. Williams took three photos of the CCP and explained that he would include these in the document request for the inspection.

Note: The photos were received by Ecology as a Portable Document Format file on July 23, 2015.

Inside of the FSF, I observed two large metal containers surrounded by concrete blocks, stacked three high. I asked if the green equipment located next to the concrete blocks was the argon gas monitoring equipment. Mr. Gray said that it was not the argon gas monitoring equipment. He said it was older equipment that is no longer in use. Mr. Gray said the entire plant is on an argon gas float. I asked if the argon gas system was checked weekly. Mr. Gray answered yes and said the argon gas pressure should be maintained at 10 inches in water with an acceptable deviation of ± 2 inches. Mr. Mathey asked what "the entire plant on an argon system" meant. Mr. Gray said that anywhere that sodium piping was used, they have an argon gas blanket. I asked if the areas of FFTF, under surveillance and maintenance were under an argon gas blanket. Mr. Gray said that the entire system was on an argon gas float.

Note: The argon gas system is described in the Document Review section of this compliance report.

In between the two FSF containers on the outside of the concrete blocks, I observed a small blue instrument. I asked if this was associated with the argon gas system. Mr. Gray said that this was an old Delta F oxygen meter that is no longer used. I observed that both containers were labeled with major risk labels (*Dangerous When Wet*), water reactive labels, and hazardous waste labels. I asked where the argon gas monitoring equipment is located. Mr. Gray said that the argon gas monitoring equipment was located at this facility. I asked if I could see where they monitor the argon gas system. Mr. Gray agreed to show me the location where they monitor the argon gas system.



Photo 4: Two MW containers and concrete blocks.

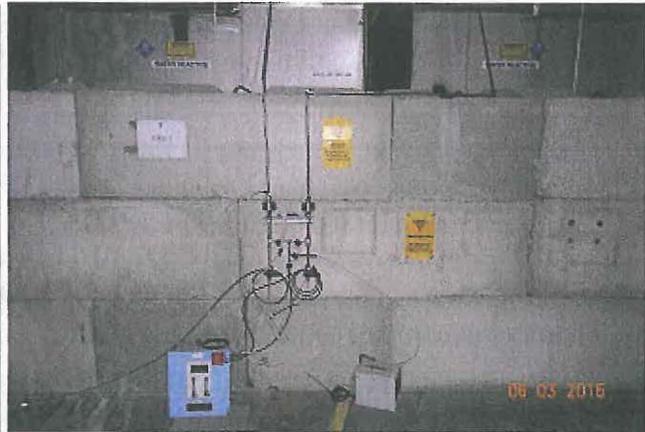


Photo 5: Oxygen meter next to the concrete blocks.

We left the FSF and proceeded to the west side of the FFTF, where I observed numerous tanks and gauges. I asked if this was the only place where the argon gas system monitoring equipment is located. Mr. Gray said yes and explained that they typically fill up the argon gas tanks twice a year. I observed seven tanks with varying degrees of rust. I observed the top gauge was reading at 10 "inches in H₂O." According to Mr. Gray, three of the tanks are currently being used to store the argon gas, which are identified in the photograph below.

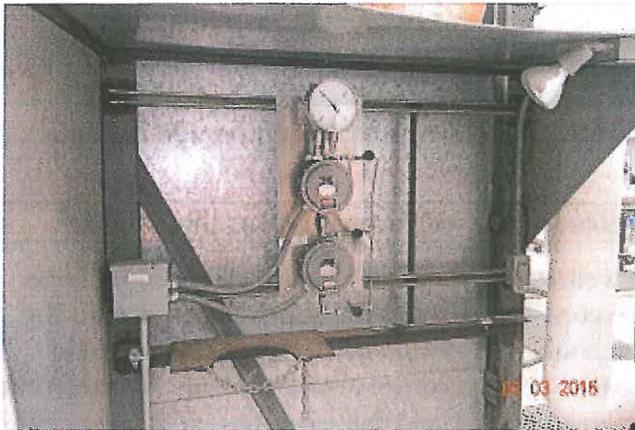


Photo 6: Argon gas system, monitoring gauge.



Photo 7: Argon gas system storage tanks.

We left the argon gas tanks and monitoring equipment, and walked to the location between the ISA and FSF, where I asked about the wooden boxes labeled “fire retardant.” Mr. Gray explained that fire protection engineering required that all wood located in the 400 Area needed to contain fire retardant, hence the label to identify the wood container was fire retardant.

After leaving the 400 Area WMU, we arrived at Building MO-294 for personnel interviews and to review documents at 2:03 p.m. The drive from the 400 Area WMU is approximately 14 miles to the MO-294 building. We were introduced to Kim Tarter (CHPRC Record Representative), who was available to show us records. I asked if I could see the 400 Area WMU dangerous waste training plan (DWTP). Ms. Tarter showed me the *Central Plateau Project Surveillance and Maintenance Dangerous Waste Training Plan*, PRC-STD-TQ-40236 Revision 1 Change 2, dated May 7, 2015. I requested a list of personnel that work at the 400 Area WMU, and Ms. Tarter showed me a list of personnel.

Note: The Permit, Part III, Operating Unit Group 16, Addendum G, Personnel Training, is a matrix of job titles, positions, and training categories. The DWTP referred to in Addendum G is not the same title as the DWTP, PRC-STD-TQ-40236.

I asked who the Building Emergency Director (BED) was for the 400 Area WMU. Mr. Corriell said the BED for this week was William Doremus. I asked if the personnel list Ms. Tarter showed me had any RCTs or deactivation and decommissioning (D&D) workers. Mr. Corriell said that the list did not contain RCTs or D&D workers, since there are currently none working at the 400 Area WMU. I asked for the complete list of all workers at the 400 Area WMU and explained that I would request training records in my documents request form.

I asked to see the facility’s last completed DW inspection records for the ignitable and reactive waste stored in the 400 Area WMU and the weekly DW inspection records for the last 6 months. Ms. Tarter retrieved the records electronically for me. I said that I would add this to my document request form. I asked if the containers in the DWMU FSF have been opened recently, or if the FSF has received any DW or MW within the last year. Mr. Corriell said they have not received any waste within the last year and Mr. Williams said the containers have not been opened.

I asked if there were any spills or releases of DW or MW in the 400 Area WMU within the last year. Mr. Turlington and Mr. Corriell said no spills have occurred within the last year. I asked if the EPA Hazardous Waste Code D003, identified in the Permit was applied, due to the MW being water reactive. Mr. Williams said yes. I asked if the EPA Hazardous Waste Code D001 was applied, due to gasses that

could be generated by the MW's reaction to water. Mr. Williams said this code was due to the explosive gasses.

I asked if the two DWMUs are expected to receive any DW or MW. Mr. Collins said that was still yet to be determined, but there are no expectations to receive any wastes. I asked if USDOE-RL has an approved extension to closure for this facility. Mr. Williams said that long term storage was described in the Fact Sheet associated with the Permit for the 400 Area WMU.

Note: September 19-20, 2011 Ecology compliance report (Compliance Index No. 11.344) identified a concern regarding long term storage, revision of the permit closure plan, and the closure process of the 400 Area WMU. This is referenced in the Concern section of this compliance report, since the Closure Plan has not been revised since 2009.

I stated I observed that the Permit, Part III, Operating Unit Group 16, Addendum J, Contingency Plan has two phone numbers to call in case of an emergency. I explained that I recognized the 373-3800 phone number, but that I did not recognize the phone number in the FFTF BEDs table under Section J.7, *Building Emergency Organization Building Emergency Director*. Mr. Williams said that the second number was for the shift office in MO-294. I said that the 400 Area WMU appears to have minimal staffing and asked where essential personnel would come from in cases of emergency events. Mr. Corriell said that the normal Facility Emergency Response Organization would come from MO-294. I asked if they remained at MO-294 during an emergency. Mr. Corriell said that it depends and that the Facility Operations Specialist (FOS) would be at the scene, but that the Incident Command Post (ICP) would be set up at MO-294. I asked where the public address system was located for the 400 Area WMU. Mr. Corriell said that the site level public address system was located at the Maintenance and Storage Facility, which is west of the ISA.

I asked for the personnel titles not routinely working at the 400 Area WMU. Mr. Corriell said that D&D workers, waste work supervisors, and samplers currently do not work in the 400 Area WMU. I asked who directs the training program for the 400 Area WMU. Mr. Corriell and Mr. Barnes said Fallon Holloway directed the training program.

I asked if the Hanford Fire Department was equipped to respond to fires involving sodium at the 400 Area WMU. Mr. McKarns said that the Hanford Fire Department maintains equipment to respond to sodium fires. Mr. McKarns explained that the 400 Area was not the only location where sodium was stored onsite. He explained that there is still some sodium in 200 East Area and 300 Area.

I provided an out-briefing on the observations I made and the process for finalizing my compliance report. Upon leaving, Mr. Corriell showed us the Incident Command Post located in the room adjacent to where we were located for the documents review and personnel interviews. We departed Building MO-294 at 2:36 p.m.

Documents Review

Permit, Part III, Operating Unit Group 16, Addendum J, Contingency Plan and FFTF Building Emergency Plan (BEP): The 400 Area WMU has a Contingency Plan, which is found in the Permit, Part III, Operating Unit Group 16, Addendum J. The 400 Area WMU is also included in the FFTF BEP titled *Building Emergency Plan for the FFTF Property Protection Area, HNF-IP-0263 Revision 24*, dated June 27, 2014. The following are my observations of both plans.

The Contingency Plan and FFTF BEP, HNF-IP-0263 do not provide the specific location of the spill control materials or the emergency response kit. Under the *Location* column for *Emergency Response Kit*, both plans state the following.

An emergency response kit is maintained at the facility. All personnel entering the noted areas, regardless of the type of work being performed, must be made aware of the emergency kit location prior to entering the areas.

Under the *Location* column for *Spill Kits and Spill Control Equipment*, both plans state the following.

One spill kit will be located at the 400 Area WMU and will be clearly identified. All personnel entering either the ISA or FSF will be made aware of the location of the spill kit.

Neither plan states that the combined spill kit and emergency response kit is located, where I observed it, on the north side of Building 4710.

The Contingency Plan and FFTF BEP, HNF-IP-0263 do not specifically describe a response to fires or explosions associated with sodium or NaK. Also, I did not observe under the *Response to Facility Operations Emergencies* section of either plan an event associated with the loss of pressure in the argon gas system and the actions to be taken.

Dangerous Waste Training Records: I reviewed records of eight personnel assigned to duties associated with job positions at the 400 Area WMU. I compared the training records to the training requirements in the DWTP PRC-STD-TQ-40236. Below are my observations:

Jack Ham (NCO) – Appears to have completed the training required for an NCO, as identified in the DWTP, PRC-STD-TQ-40236.

Jose Ramos (NCO/D&D Worker) – Appears to have completed the training required for a D&D Worker and NCO, as identified in the DWTP, PRC-STD-TQ-40236.

Daniel Wiczorkowski (Operation Manager/BED) – Appears to have completed the training required for an Operations Manager and BED, as identified in the DWTP, PRC-STD-TQ-40236.

William Doremus (FWS/BED) – Appears to have completed the training required for an FWS and BED, as identified in the DWTP, PRC-STD-TQ-40236.

Daniel Turlington (ECO) – Appears to have completed the training required for an ECO, as identified in the DWTP, PRC-STD-TQ-40236.

Julie Burton (Waste Management Representative) – The DWTP, PRC-STD-TQ-40236 does not identify Waste Management Representative as a job title/position. According to the DWTP, Table 3-1 *Job Titles/Positions at the CP S&M*, there is a Waste Service Provider. The DWTP has the Waste Service Provider marked for “work unescorted.” The term Waste Management Representative is only mentioned one time under Table 6-1 *Training Courses* for a course title.

Kevin Patterson (Sampler/NCO) – I did not identify the DWTP, PRC-STD-TQ-40236 training courses 290002, 290003, or 290004 completed as required for a NCO position. Mr. Patterson did appear to have completed the training required for a sampler, as identified in the DWTP. When I requested a training record for a sampler, the record was presented to me as an electronic file titled “Itm 4h1 – Sampler – Patterson (NCO).” The training record is not clear on whether Mr. Patterson is functioning as a sampler, an NCO, or both.

Phillip McFee (Sampler/Well Maintenance) – I did not identify the DWTP, PRC-STD-TQ-40236 training courses 301810, 301802, or 301813 completed as required by the DWTP for Samplers. On Mr. McFee’s training record dated July 16, 2015, his job title is listed as “CHPRC Well Maintenance.” The requested training record was presented to me as an electronic file titled “Itm 4h2 – Sampler – McFee (GW).” The training record is not clear on whether Mr. McFee is functioning as a sampler, well maintenance personnel, or both.

DW Inspection Records: I reviewed the following 400 Area WMU inspection records.

I reviewed *Data Sheet 1 – Weekly Inspection Log for 400 Area Waste Management Units*, between March 2, 2015 and June 29, 2015. My observations on inspection logs are noted below.

- I observed the written time of the inspection for the May 26, 2015 inspection log for the FSF building and ISA were both 0900.
- I observed there was a missing printed name of the inspector on the June 1st inspection log.
- I observed the initials “DS Older” were written and not the required printed name of an inspector on the inspection logs dated March 9th, March 30th, April 6th, April 13th, April 27th, May 11th, June 1st, June 8th, June 15th, and June 29th.
- I observed there was a missing signature of the inspector on the June 1st inspection log.
- I observed on the April 6, 2015 inspection log for inspecting the ISA, the question “No accumulated liquids present?” was marked “No.” The inspection log noted the problem, “Leak on south end of containment (vent).” I did not observe on the inspection log the date and nature of any repairs or remedial actions taken.
- I observed on the March 30, 2015 inspection log for the DWMU FSF that seven of the inspection log questions were not answered (by circling the Yes or No). The only question answered was for “Is inert gas pressure in feed line to CCP boxes (>2 inH₂O <27 inH₂O) at the Dewar Pad,” which was marked “Yes.”

I reviewed *Data Sheet #: SM-20482, CP S&M Monthly/Annual Emergency Equipment Inspections*, between January 2015 and June 2015, which include the following Appendixes. My observations on inspection logs are noted below.

Appendix A – Emergency Equipment Inspection Log

- I did not observe the time of the inspections on the monthly inspection logs dated January 7th, February 5th, March 17th, April 20th, May 28th, and June 17th. I did not observe a space for the inspector to document the time of the inspection on the inspection log.
- I observed the serial number of an automated external defibrillator (AED) Unit marked out and the number “4239915” written in its place. There were many comments on numerous inspection logs, that the AED Unit has been replaced. The Appendix A checklist has not been updated to address the inspector’s observations and comments.

Appendix C – Portable Fire Extinguisher Inspection Log

- I did not observe the time of the inspections on the monthly inspection logs dated January 7th, February 11th, March 17th, April 20th, May 28th, and June 17th. I did not observe a space for the inspector to document the time of the inspection on the inspection log.

- During my field inspection, I observed that the fire extinguisher next to the entrance of the DWMU FSF was a Class D fire extinguisher with a barcode number of “E04727.” I did not observe the Class D fire extinguisher and the barcode number “E04727” on the Appendix C inspection logs dated January 7th, February 5th, March 17th, April 20th, May 28th, and June 17th.
- I observed little to no space on the inspection log is provided for writing down an inspector’s observations and the date and nature of any repairs or remedial actions taken. I observed many notations and observations being written in the margin spaces of the paper. Some of these written notations stated that repairs and remedial actions were taken. However, none of the recorded repairs or remedial actions had dates of completion. I could not clearly link some of the observations documented with the associated criteria deficiency on the inspection log.

Appendix F – WMU Spill Kit Inspection Log

- I did not observe the time of the inspections on the monthly inspection logs dated January 5th, February 5th, March 4th, April 13th, May 12th, and June 1st. I did not observe a space for the inspector to document the time of the inspection on the inspection log.
- I observed the initials “DS Older” was written and not the required printed name of an inspector on the inspection logs dated January 5th, May 12th, and June 1st.

I reviewed the USDOE letter 14-AMRP-0309, dated October 23, 2014 and the attachment *Apparent Cause Evaluation Report, Calendar Year 2013 Ignitable/Reactive Waste Inspection Did Not Include the D-10 Tank Outside Storage Area, CR-2014-0018*, which was provided to Ecology. I observed under Section 3.4 *Extent of Condition*, the following:

Assessment WFMP-2012-WSA-11735 identified that the 400 Area WMU inspection was missed in 2011. The issues related to missing Ignitable/Reactive waste inspection drove an apparent cause analysis to ensure that corrective actions had sufficient breadth and depth.

I reviewed the attachments to CR-2014-0018 and the *Ignitable/Reactive Waste Fire Inspection* log dated December 8, 2014 for the 400 Area WMU. I observed the initials “LE Anderlini” were written and not the required printed name of the inspector on the inspection log.

I reviewed the *4W-G016-6, Stationary Operating Engineers Logs, 400 Area S.O.E. Round Sheet* and observed level readings from April 6, 2015 to June 29, 2015 for the argon gas system. I observed the loss of argon gas that Mr. Gray spoke of during the field inspection. I also observed a reading was taken from the “PI-52744 Argon Distribution PRESS. (2” to 27” psi)” on Mondays. Below are the level readings from the gauges associated with the argon gas system.

Table 1 – Weekly Readings from the 400 Area S.O.E Round Sheet

METERS	4/6	4/13	4/20	4/27	5/4	5/11	5/18	5/25	6/1	6/8	6/15	6/22	6/29
T-52A DEWAR Level LI-52003-1	60	54	50	158	155	154	148	142	135	128	122	115	110
T-52B DEWAR Level LI-52004-1	40	33	28	160	160	156	148	139	132	124	114	110	102
T-52C DEWAR Level LI-52005-1	52	45	40	155	154	152	146	138	131	124	114	110	102

Total DEWAR Pressure (Notify S&M if <50" to reorder)	152	132	118	473	469	462	442	419	398	376	354	335	314
Argon DEWAR Pressure (180 ± 10 psi)	195	185	185	185	185	185	185	185	185	185	185	182	185
PI-52744 Argon Distribution Press (2" to 27" psi)	12.5	10	14	11	11	14	11	10	10	14	11	10	11.5

Argon Gas System Documentation and Information: On June 24, 2015 I sent USDOE-RL and CHPRC an Inspection Document and Information Request Form. On the form, I asked a series questions about the argon gas system. Below are the questions and answers I received on July 23, 2015.

Ecology's Question: Is the Argon Gas Cover System one integrated unit between the two boxes in FSF, equipment needing an Argon Gas Cover in FFTF, and the three tanks storing Argon Gas (Near 4621 W building)?

DOE/CHPRC Response: The argon gas is supplied to the U-950 panel where it is split into three sections. Two of these sections provide argon gas to the 400 Area WMU (FSF boxes) and the other is a spare. The FSF boxes argon gas is supplied in parallel and not in series. The argon gas Dewar's provide all of the argon gas for the FFTF and FSF and is the only source of argon gas.

Ecology's Question: What does the Argon Gas Cover System support in FFTF?

DOE/CHPRC Response: The low-pressure inert gas blanket (argon gas) is maintained over the primary and secondary Main Heat Transport System and most auxiliary sodium and cover gas systems.

Ecology's Question: How often is the Argon Gas Cover System in FFTF (Other than the Dewar Pad and Bldg. 403) inspected for problems (e.g. leaks, deterioration, etc.)?

DOE/CHPRC Response: The argon gas cover system is inspected annually as part of the Surveillance and Maintenance Plan (S&M) for the Fast Flux Test Facility. The 400 Area WMU (FSF boxes) is inspected weekly.

Ecology's Question: Who receives an alarm notification if pressure drops in the Argon Gas Cover System? What would set off the alarm for the Argon Gas Cover System?

DOE/CHPRC Response: The 400 Area Stationary Operating Engineer located in Building 481 (Water Pump House) receives the alarm notification. The alarm would activate if the pressures were abnormally high or low (2 to 27 psi).

Ecology's Question: How is the Argon Gas Cover System managed between the Surveillance and Maintenance Plan for FFTF and 400 Area WMU permit?

DOE/CHPRC Response: The S&M plan requires the argon gas system to be operable. Within the 400 Area WMU (Building 408), the FSF contains two large sealed boxes that have an argon gas blanket in each box is considered as part of this system that is required to be maintained and monitored.

I reviewed the FFTF S&M Plan and observed the following. The annual inspection as noted by USDOE-RL and CHPRC above is not described in detail in the FFTF S&M Plan. The criteria for reviewing and maintaining the argon gas system in the FFTF other than what is checked weekly at the Dewar Pad and in Building 403 (FSF), is not clearly defined in the FFTF S&M Plan.

I observed in the CHPRC *Technical Procedure, 2CP-SOP-F-05026, CPSM-PRO-OP-50663, Response to Argon Cover Gas System Pressure Abnormal, Revision 0, Change 3*, dated December 27, 2011 the steps to be taken in cases the pressure is high or low.

Mixed Waste Inventory at the 400 Area WMU: The inventory appears to have not changed within the last year. I compared the inventory records provided to EPA during their May 2014 inspection of the 400 Area WMU and the inventory records provided to me for the June 3, 2015 Ecology inspection.

The *Calendar Year 2013 Hanford Site Mixed Waste Land Disposal Restrictions Summary Report, DOE/RL-2014-17 Revision 0* (2013 LDR Report) states the current inventory of MW at the 400 Area WMU is 1.9 cubic meters with no projected generation of MW from 2014 – 2018. The report goes on to identify characterization of the MW as completed and the treatment process to be utilized is deactivation and conversion to sodium hydroxide. The report further identifies the Tri-Party Agreement (TPA) Milestone M-92-09 as related to the waste in the 400 Area WMU and states “Treatment is planned to begin after 2018.” The TPA Milestone M-92-09 states the following:

Establish milestones and/or target dates if needed for acquisition of new facilities, modifications of existing facilities, and / or modification of planned facilities necessary for storage, treatment / processing, and disposal of Hanford site sodium. Due Date: September 30, 2018

Compliance Problems

The Dangerous Waste inspection on June 3, 2015, 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: Edward Holbrook
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 Edward Holbrook 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:
Edward Holbrook at (509) 372-7909**

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

- 1) **Permit No. WA7890008967 Revision 8C – Part III Operating Units – 400 Area Waste Management Unit, Operating Unit Group 16 (OUG-16) Permit Condition III.16.G.1: The Permittees will comply with Addendum J, Contingency Plan in addition to the 5 requirements of Permit Condition II.A when applicable. [WAC 173-303-350]**

Permit Condition II.A.1. Enforceable portions of Permit Attachment 4, Hanford Emergency Management Plan (DOE/RL-94-02) are identified in Permit Attachment 4, Appendix A.

Attachment 4, Hanford Emergency Management Plan, Appendix A

Requirement Source - WAC 173-303-350(3)(e) (permit requirement)

Requirement Description - The contingency plan must contain the following: (e) A list of all emergency equipment at the facility (such as fire extinguishing systems, spill control equipment, communications and alarm systems, and decontamination equipment), where this equipment is required. This list must be kept up to date. In addition, the plan must

include the location and a physical description of each item on the list, and a brief outline of its capabilities.

How is Requirement Met? - Site-level: DOE/RL-94-02, Section 11 2.8. Unit-level: Contingency plans for Parts III, V, and VI of the Hanford Facility Dangerous Waste Permit (WA7890008967).

Observation: The location of spill and emergency equipment is not specifically identified in the Permit, Part III, Operating Unit Group 16, Addendum J, Contingency Plan or the FFTF Building Emergency Plan, HNF-IP-0263. Under the *Location* column for *Emergency Response Kit*, both plans state the following

An emergency response kit is maintained at the facility. All personnel entering the noted areas, regardless of the type of work being performed, must be made aware of the emergency kit location prior to entering the areas.

Under the *Location* column for *Spill Kits and Spill Control Equipment*, both plans state the following.

One spill kit will be located at the 400 Area WMU and will be clearly identified. All personnel entering either the ISA or FSF will be made aware of the location of the spill kit.

Action Required: Within 60 days upon receipt of this compliance report, USDOE-RL and CHPRC must request a permit modification, in accordance with WAC 173-303-830 to revise the Permit Part III, Operating Unit Group 16, Addendum J, Contingency Plan, which must include the specific location of the emergency response kit, spill kit, and spill control equipment. In addition the FFTF Building Emergency Plan, HNF-IP-0263 should include the specific location of the emergency response kit, spill kit, and spill control equipment.

- 2) **Permit No. WA7890008967 Revision 8C, Permit Condition II.O, General Inspection Requirements and Part III Operating Units, 400 Area Waste Management Unit, Operating Unit Group 16 (OUG-16), Addendum I, Inspection Requirements, Section I.1 General Inspection Requirements:** The content and frequency of inspections are described in this section. Inspections, implemented through operating requirements, are documented on inspection checklists and log sheets. Inspection records are maintained in accordance with Permit Condition II.I.1, and contain the following information:

- **Date and time of inspection.**
- **Printed name and the handwritten signature of the inspector.**
- **Notation of the observations made.**
- **Date and nature of any repairs or remedial actions taken.**

The inspection checklists consist of a listing of items that are to be assessed during each inspection. For each item listed, a yes/no response is made. A 'yes' response means that the item complies with the conditions stated on the checklist. Any problems identified during the inspection, as indicated by a 'no' response on the checklist, are reported to the S & M Operations Manager.

Observations: I reviewed the following inspection records associated with the 400 Area WMU.

I observed numerous inspection logs with the printed initials of the inspector instead of the printed name of the inspector.

I reviewed *Data Sheet 1 – Weekly Inspection Log for 400 Area Waste Management Units*, between March 2, 2015 and June 29, 2015. My observations on inspection logs are noted below.

- I observed the missing printed name of the inspector on one inspection log.
- I observed the missing signature of the inspector on one inspection log.
- I observed on the April 6, 2015, inspection log for the ISA, the question “No accumulated liquids present?” was marked “No.” However, the problem noted as a comment was “Leak on south end of containment (vent).” I did not observe on the inspection log the date and nature of any repairs or remedial actions taken.
- I observed on the March 30, 2015, inspection log for the DWMU FSF that seven of the inspection log questions were not answered (by circling the Yes or No). The only question answered was for “Is inert gas pressure in feed line to CCP boxes (>2 inH₂O <27 inH₂O) at the Dewar Pad,” which was marked “Yes.”

I reviewed *Data Sheet #: SM-20482, CP S&M Monthly/Annual Emergency Equipment Inspections*, between January 2015 and June 2015, which include the following Appendixes. My observations on inspection logs are noted below.

Appendix A – Emergency Equipment Inspection Checklist

- I did not observe the time of the inspections on six monthly inspection records. I did not observe a space for the inspector to document the time of the inspection on the inspection log.

Appendix C – Portable Fire Extinguisher Inspection

- I did not observe the time of the inspections on the six monthly inspection records. I did not observe a space for the inspector to document the time of the inspection on the inspection log.
- During my field inspection, I observed that the fire extinguisher next to the entrance of the DWMU FSF was a Class D fire extinguisher with a barcode number of “E04727.” The Class D fire extinguisher and the barcode number “E04727” were not on the Appendix C inspection records dated January 7th, February 5th, March 17th, April 20th, May 28th, and June 17th.

Appendix F – WMU Spill Kit Inspection Checklist

- I did not observe the time of the inspections on six monthly inspection records. I did not observe a space for the inspector to document the time of the inspection on the inspection log.

Action Required: Within 30 days upon receipt of this compliance report, USDOE-RL and CHPRC must submit a record to the 400 Area WMU operating record identifying the following deficiencies observed on inspection logs:

- Missing times of inspections.
- Missing printed names and handwritten signatures of the inspector.
- Notations of the observations documented and missing dates and nature of any repairs or remedial actions taken.

Within 60 days upon receipt of this compliance report, USDOE-RL and CHPRC must submit to Ecology a copy of the record (noted above), which was submitted to the operating record and revised inspection logs (e.g. space to record times of inspection and space for comments) in accordance with the Permit, Part III, Operating Unit Group 16, Addendum I and Permit Condition II.O.

3) Permit No. WA7890008967 Revision 8C, Part III Operating Units, 400 Area Waste Management Unit, Operating Unit Group 16 (OUG-16), Addendum I, Inspection Requirements, Section I.1.2 Frequency of Inspections: The following inspection frequencies exist (refer to Table I.1):

- **Weekly container inspections**
- **Monthly, fire extinguishers, emergency response kit, and spill kit**
- **Daily inspections of those portions of the 400 Area WMU that are in the process of receiving waste or transferring waste out to document any deficiencies noted and to immediately bring deficiencies to the attention of the S & M Operations Manager.**
- **Annual ignitable/reactive waste storage area inspections**

Observations: I reviewed the USDOE letter 14-AMRP-0309, dated October 23, 2014 and the attachment *Apparent Cause Evaluation Report, Calendar Year 2013 Ignitable/Reactive Waste Inspection Did Not Include the D-10 Tank Outside Storage Area, CR-2014-0018*, which was provided to Ecology. I observed under Section 3.4 *Extent of Condition*, the following:

Assessment WFMP-2012-WSA-11735 identified that the 400 Area WMU inspection was missed in 2011. The issues related to missing Ignitable/Reactive waste inspection drove an apparent cause analysis to ensure that corrective actions had sufficient breadth and depth.

Action Required: USDOE-RL self-disclosed the missed ignitable/reactive waste inspection and provided self-implemented corrective actions. USDOE-RL and CHPRC have also completed the latest Annual Ignitable/Reactive DW waste inspection for 2014 as noted in this compliance report.

No Further Action Required.

Concerns

1. Phillip McFee (Sampler/Well Maintenance) – I did not identify the DWTP, PRC-STD-TQ-40236 training courses 301810, 301802, or 301813 completed as required by the DWTP for Samplers. On Mr. McFee's training record dated July 16, 2015, his job title is listed as "CHPRC Well Maintenance." The requested training record was presented to me as an electronic file titled "*Itm 4h2 – Sampler – McFee (GW).*" The training record is not clear on whether Mr. McFee is functioning as a sampler, well maintenance personnel, or both. I was also told during my inspection that samplers are currently not at the 400 Area WMU. Before Mr. McFee can conduct sampling job duties, he must complete the required training as identified in the DWTP.
2. Julie Burton (Waste Management Representative) – The DWTP, PRC-STD-TQ-40236 does not identify Waste Management Representative as a job title/position. According to the DWTP, Table 3-1 *Job Titles/Positions at the CP S&M*, there is a Waste Service Provider. The DWTP has the Waste Service Provider marked for "work unescorted." The term Waste Management Representative is only mentioned one time under Table 6-1 *Training Courses* for a course title. The requirements associated with a Waste Management Representative are not clearly identified in the DWTP. Clarification on job duties and titles should be addressed within the DWTP and Addendum G in the Permit for the 400 Area WMU, to ensure personnel are properly trained.
3. The Permit Part III, Operating Unit Group 16, Addendum J, Contingency Plan and FFTF BEP HNF-IP-0263 are missing information. Both plans did not provide a description of emergency circumstances associated with waste sodium and NaK (e.g. fires and explosions) or a response to facility operation emergencies associated with the pressure in the argon gas system.

I observed in the CHPRC *Technical Procedure, 2CP-SOP-F-05026, CPSM-PRO-OP-50663, Response to Argon Cover Gas System Pressure Abnormal, Revision 0, Change 3*, dated December 27, 2011 the steps to be taken in cases the pressure is high or low. These steps appear to not be specifically described or referenced in the Hanford Emergency Management Plan, Addendum J Contingency Plan, or Emergency Plan Implementing Procedures.

The missing information or lack of references associated with emergency circumstances related waste sodium and NaK should be specifically described or referenced in the Contingency Plan and FFTF BEP HNF-IP-0263.
4. The annual inspection of the argon gas system as noted in this compliance report is not specifically described in the FFTF S&M Plan. The criteria for reviewing and maintaining the argon gas system in the FFTF, other than what is checked weekly at the Dewar Pad and in Building 403 (FSF), is not clearly defined in the FFTF S&M Plan. Weekly inspections take place at the Dewar pad gauge and FSF containers, while annual inspections are conducted for the rest of the argon gas system associated with FFTF does not meet the intent of WAC 173-303-320, General Inspections.

The constant need to replace the argon gas supply and the inventory of 6,000 to 15,300 gallons of radioactively contaminated sodium residual in FFTF leads to concerns regarding the inspection frequency and maintenance procedures for the argon gas system.
5. Details and concerns regarding the 400 Area WMU, Addendum H, Closure Plan are described in the Ecology compliance report No. 11.344. The 400 Area WMU closure plan was last revised in June 30, 2009. The Permit, Part III, Addendum H, Closure Plan, dated June 30, 2009 also does not mention or specifically describe elemental sodium or NaK. The concern listed in the compliance report No. 11.344 is stated as follows.

Permit Condition III.16.K.1 states that the Permittees will close the 400 Area WMU Container Storage Units in accordance with Addendum H, Closure Plan. On review of the current permit closure plan, it does not appear to meet the complete requirements of a permit closure plan under WAC 173-303-610(3). As stated, "The approved closure plan will become a condition of any permit. The department's decision must assure that the approved closure plan is consistent with subsections (2), (3), (4), and (6) of this section" and other applicable requirements. The closure plan is not consistent and/or does not include requirements for WAC 173-303-610 (4), (5), (6). FTF has permitted storage units that have not undergone closure but which received their final quantity of waste several years ago prior to the Ecology inspection. The following inactive units were observed during the 'inspection: FSF - last used around 2006; ISA - last used around 2009. At the time of the Ecology inspection, USDOE and CHPRC did not have any plans to make future use of these units. The FSF seemed inoperable in its present state. The "Schedule for Closure", Section H.4 of Addendum H, Closure Plan, does not meet the requirements for a longer period for closure, in either WAC 173-303-610(3)(c)(ii), WAC 173-303-610(4)(a) nor WAC 173-303-610(4)(b).

6. The 2013 LDR Report states the current inventory of MW at the 400 Area WMU is 1.9 cubic meters with no projected generation of MW from 2014 – 2018. The 2013 LDR report further identifies characterization of the MW as completed and the treatment process to be utilized is deactivation and conversion to sodium hydroxide. The report also identifies the Tri-Party Agreement (TPA) Milestone M-92-09 as related to the waste in the 400 Area WMU and states "Treatment is planned to begin after 2018." The TPA Milestone M-92-09 states the following:

Establish milestones and/or target dates if needed for acquisition of new facilities, modifications of existing facilities, and / or modification of planned facilities necessary for storage, treatment / processing, and disposal of Hanford site sodium. Due Date: September 30, 2018

USDOE-RL and CHPRC have not addressed the differences between bulk sodium stored on the Hanford Site and the residual elemental sodium and NaK (debris sodium) that remains in core component pots (CCP), tubing, etc., being stored in the 400 Area WMU. The extraction of the elemental sodium and NaK from the CCPs, tubing, etc., were not completed before being placed in storage in the 400 Area WMU. How USDOE-RL and CHPRC plan to extract the MW debris sodium and convert it to sodium hydroxide appears to have not been fully addressed. Furthermore, the treatment or transfer of the MW in the 400 Area WMU is directly related to the closure of the unit group. The DWMU FSF last receipt of MW was approximately 2006, while the DWMU ISA last receipt of MW was approximately 2009.

7. The Permit, Part III, Operating Unit Group 16, Addendum G, Personnel Training, is a matrix of job titles, positions, and training categories that do not clearly indicate compliance with WAC 173-303-330 or Permit Condition II.C for personnel training. The DWTP referred to in Addendum G is not the same title as the DWTP, PRC-STD-TQ-40236. USDOE-RL and CHPRC should revise Addendum G and refer specifically to the DWTP, PRC-STD-TQ-40236.

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