



**U.S. Department of Energy
Hanford Site**

20-ESQ-0007

NOV 12 2019

Ms. Alexandra K. Smith
Program Manager
Nuclear Waste Program
Washington State Department of Ecology
3100 Port of Benton Boulevard
Richland, Washington 99354

Dear Ms. Smith:

RESPONSE TO WASHINGTON STATE DEPARTMENT OF ECOLOGY (ECOLOGY) REVIEW OF RESPONSES TO DANGEROUS WASTE COMPLIANCE INSPECTION ON AUGUST 8 AND 23, 2017 AT 400 AREA DANGEROUS WASTE MANGEMENT UNITS (DWMU), OPERATING UNIT GROUP 16, RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) SITE ID: WA7890008967 NUCLEAR WASTE PROGRAM (NWP) COMPLIANCE INDEX NUMBER 17.598 AND RESPONSE TO ECOLOGY REVIEW OF RESPONSE TO DANGEROUS WASTE COMPLIANCE INSPECTION ON SEPTEMBER 27, 2018, AT 400 AREA DWMUs, RCRA SITE ID: WA7890008967 NWP INDEX NUMBER 18.652

This is in response to the June 21, 2019, (19-NWP-096) letter regarding the compliance inspection of the 400 Area DWMUs performed on August 8 and 23, 2017, and to the September 12, 2019, (19-NWP-148) letter regarding the compliance inspection of the 400 Area DWMUs performed on September 27, 2018. The Washington State Department of Ecology (Ecology) letter 19-NWP-096 was officially received on June 26, 2019. Ecology letter 19-NWP-148, was officially received on September 24, 2019. The U.S. Department of Energy (DOE) and CH2M HILL Plateau Remediation Company have reviewed the items identified as non-compliances with Dangerous Waste Regulations cited by Ecology. DOE has addressed all action items, per the attached Attachment.

Ms. Alexandra K. Smith
20-ESQ-0007

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NOV 12 2019

If you have any questions, please contact me, or your staff may contact Brian J. Stickney, Assistant Manager for Safety and Environment, on (509) 376-9079.

Sincerely,


Brian T. Vance
Manager

ESQ:ACM

Attachment:
Responses to Alleged
Non-Compliances in 19-NWP-096
and 19-NWP-148

cc w/attach:
J. A. Boller, EPA
J. W. Cammann, MSA
M. Marrott, CHPRC
J. W. Mathey, Ecology
L. C. Petersen, CHPRC
Administrative Record, TSD: TS-2-4 (Hardcopy)
Ecology NWP Library (Hardcopy & CD ROM)
Environmental Portal, G3-35 (CD ROM)
HF Operating Record (J. K. Perry, MSA, A3-01)

cc w/o attach:
D. B. Bartus, EPA
J. Bell, NPT
J. E. Bramson, CHPRC
K. A. Conaway, Ecology
L. Contreras, YN
M. N. Jaraysi, CHPRC
M. Johnson, CTUIR
K. Schanilec, EPA
K. Shupe, CHPRC
D. G. Singleton, CHPRC

Attachment
Letter Number 20-ESQ-0007

U.S. DEPARTMENT OF ENERGY
AND
CH2M HILL PLATEAU REMEDIATION COMPANY
RESPONSES TO ALLEGED NON-COMPLIANCES
IN 19-NWP-096 AND IN 19-NWP-148

Consisting of 16 pages
including this coversheet

Attachment

U.S. Department of Energy (DOE), and CH2M HILL Plateau Remediation Company (CHPRC) Responses to Alleged Non-Compliances in 19-NWP-096 and 19-NWP-148

RESPONSE EXPLANATION: Communications between DOE and Washington State Department of Ecology (Ecology) preceded both NWP-096 and 19-NWP-148. See Table below:

Inspection Date	Facility Inspected	Initial Ecology Compliance Letter	To-Date Unresolved Compliance Issue(s) - with Issue # in ()'s	Initial DOE/CHPRC Response Letter	Second Ecology Compliance Letter
8/8/2017 & 8/23/2017	400 Area DWMUs	18-NWP-164	(1) FSF sodium waste designation and (6) containers stored in the ISA	19-ESQ-0029	19-NWP-096
9/27/2018		19-NWP-045	(2) IEM Cell pail waste designation	19-ESQ-0082	19-NWP-148

Because DOE/CHPRCs responses to 19-NWP-096 Issue 1 and 19-NWP-148 Issue 2 are identical, these responses are combined into one response to 19-NWP-096 and 19-NWP-148 on pages 5 and 6 below. To avoid confusion, this response enclosure does not cite the original 19-NWP-045 Non-Compliance 2, DOE's response in 19-ESQ-0082, or the additional language regarding the IEM cell pail in 19-NWP-148. Instead, it cites 18-NWP-164, 19-ESQ-0029, and 19-NWP-096 for Issues 1 and 6.

Non-Compliance 1: (as quoted from 18-NWP-164)

Ecology Reference:

Washington Administrative Code (WAC) 173-303-016, Identifying solid waste.

(5) Materials are solid wastes if they are recycled—or accumulated, stored, or treated before recycling—as specified in (a) through (d) of this subsection...

(c) Reclaimed. Materials noted with a "*" in column 3 of Table 1 are solid wastes when reclaimed.

TABLE 1

	Use constituting disposal WAC 173-303- 016 (5)(a)	Energy recovery/ fuel WAC 173-303- 016 (5)(b)	Reclamation WAC 173-303- 016 (5)(c)	Speculative accumulation WAC 173-303- 016 (5)(d)
Spent materials	(*)	(*)	(*)	(*)
Commercial chemical products	(*)	(*)	—	—

WAC 173-303-040, Definitions.

“Commercial chemical product or manufacturing chemical intermediate” refers to a chemical substance which is manufactured or formulated for commercial or manufacturing use which consists of the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient.

“Reclaim” means to process a material in order to recover useable products, or to regenerate the material. Reclamation is the process of reclaiming.

“Spent material” means any material that has been used and as a result of contamination can no longer serve the purpose for which it was produced without processing.

Observations:

When I requested the Permittees explain if they take into account the 812 gallons of frozen sodium in the basement of the Fuel Storage Facility (FSF) when performing Annual Ignitable/Reactive inspections, I received a response indicating:

In the ICR-CY-2007-05 Attachment the sodium that is contained in the original plant systems has not been declared waste [i.e., it is product intended for use at WTP] that is not regulated under WAC-173-303. In addition, the fire protection directive, CRD O 420.1C (Supplemented Revision 0), in Section B. 1.b, specifies that for DOE operations, the International Fire Code (IFC) shall only be applied when the generation, treatment, storage and disposal of ignitable and reactive wastes, defined in DANGEROUS WASTE REGULATIONS, WAC-173-303, is required by the Tri-Party Agreement (TPA).

On the basis of the above discussion, the answer to the question posed in “d” is that compliance with the IFC is not required for the sodium that is outside of the two waste storage boxes.

The Hanford Fire Department is not responsible for identification of solid waste, However the Permittees appear to be incorrect when they state the residual sodium is chemical product. The FSF sodium cannot be considered a commercial chemical product because, according to *Fast Flux Test Facility Sodium Volume Reconciliation*, FFTF-32943 the vessel and purification loop were initially filled with radiologically contaminated sodium salvaged from the Hallam Reactor.

Even if Hallam sodium had not been contaminated beyond any commercially available sodium (and was not further contaminated during the Fast Flux Test Facility [FFTF] operation), the FSF sodium would have ceased to be a chemically pure formulation when it was adulterated with the 380 gallons of potassium alloy that were transferred from the FSF NaK storage tank and cooling loop to the FSF vessel.

Finally, through reports such as *Hanford Site Sodium Disposition Evaluation Report*, HNF- 33211, dated May 2007, and memos such as *RE: Potential Use of Waste Sodium in Tank Farms*, dated February 6, 2014, Ecology knows DOE and U.S. Department of Energy, Office of River Protection do not intend to use the sodium for its original purpose, and instead must process it to form sodium hydroxide. Processing material to recover a usable product is reclamation, and spent materials pending reclamation are unambiguously solid wastes in need of designation.

Action Required:

Within 60 days of receipt of this report, provide designation records for the residual sodium waste stored in the FSF vessel, loop, and cold trap.

Alternatively, CHPRC and DOE can provide documentation to Ecology demonstrating that the hazardous material contained in the FSF plant systems is not solid waste, according to the standards of WAC 173-303-016(7). If that documentation references recycling under 173-303-017, it must also meet the standards in 173-303-017(4) (i.e., owners and operators claiming they are recycling materials must show that they have the necessary equipment to do so.)

DOE and CHPRC Response to 18-NWP-164 Alleged Non-Compliance 1 in 19-ESQ-0029:

Residual sodium remains at FFTF in the reactor vessel, storage vessels, and liquid metal piping systems in accordance with the FFTF Deactivation End Point Criteria document developed under M-81-11 by agreement between DOE, Environmental Protection Agency, and Ecology.

FFTF has been transitioned to the Surveillance and Maintenance (S&M) phase pursuant to the TPA Action Plan, Section 8.0 and Milestone M-081-00A with S&M activities implemented through DOE/RL-2009-26, *Surveillance and Maintenance Plan for the Fast Flux Test Facility (FFTF)*. The residual sodium remaining at the FFTF is identified in DOE/RL-2009-26, Appendix A, *Hazardous Material Remaining at FFTF (Within 400 Area Property Protected Area)*.

Inspection requirements are implemented as identified in DOE/RL-2009-26, Section 7.0, "Environmental Compliance/Protection," Table 7.1, "FFTF Regulatory Compliance During S&M," and as required in the Hanford Facility RCRA Permit, Operating Unit Group 16.

Activities conducted during the S&M phase ensure adequate containment of contaminants left in place, provide physical safety and security controls, and maintain the facility in a manner that will minimize risk to human health or the environment until final disposition is completed. The Hanford Mixed Waste Land Disposal Restrictions Report includes Appendix C, *Potential Mixed Waste*, which serves to identify materials that reasonably could be expected to be generated as mixed waste at some future time. The materials included are those that currently are not being used and do not have a clear path for reuse or recycling.

The residual sodium will be added to the Hanford Site Mixed Waste Land Disposal Restrictions Report, Appendix C because it will be dispositioned under the TPA Action Plan, Section 8.0 at the time FFTF is decommissioned. At that time the residual sodium will be generated for treatment and disposal or recycling.

Ecology Response Regarding 19-ESQ-0029 Alleged Non-Compliance 1:

From reviewing your response, DOE has neither provided designation records for the residual sodium in the FSF vessel, loop, and cold trap, nor demonstrated that this residual sodium is not solid waste. This residual waste was generated post 1987, the waste has not been disposed to any standard, and there are no past practice units identified in the FFTF. Accordingly, inclusion of the residual sodium in Appendix C of the *Annual Report on Hanford Site Land Disposal Restrictions* (LDR) is not appropriate and would not satisfy applicable LDR requirements.

Unless DOE can demonstrate that the residual sodium is not solid waste, Ecology expects the residual sodium to be included in the next LDR report as current waste. Once designated, this waste must be included in annual ignitable and reactive waste inspections and managed pursuant to regulatory requirements, including WAC 173-303-640(9), until it is dispositioned in accordance with Section 8.0 of the TPA. Ecology requires DOE submit WAC compliance designation, or waste determination records, but adjusts the time to complete the corrective action from the date listed in the October 5, 2018, 400 Area Dangerous Waste Management Unit (DWMU) Inspection Report to 60 days from receipt of this letter.

DOE and CHPRC Response to 19-NWP-096 Alleged Non-Compliance 1 and 19-NWP-148 Non-Compliance 2:

As referenced in DOE Letter 19-AMRP-0003 and consistent with the Hanford Federal Facility Agreement and Consent Order (TPA) Action Plan, Section 8, *Facility Disposition Process*, identifies the FFTF is a Tier 1 facility, previously known as a 'key facility.' As a Tier 1 facility, the agreed path forward for FFTF is to disposition the facility under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as either a remedial and/or removal action. FFTF has been deactivated and placed in a radiologically and industrially-safe permanent shutdown and deactivated condition as described in Chapter 8.0. The residual sodium remaining in the FFTF was left in place consistent with the End Point Criteria Document and the FFTF S&M Plan, both of which were reviewed and approved by Ecology pursuant to the TPA Action Plan under the M-081 milestone series. Establishing a CERCLA path forward is consistent with other Tier 1 facility approaches like Plutonium-Uranium Extraction Facility.

It is anticipated that disposition of FFTF will be completed under CERCLA as a remedial action by implementing Remedial Investigation/Feasibility Study process. Both the interim action using the removal action process, and any subsequent remedial action will be implemented consistent with the TPA Action Plan, Sections 7 and 8 are agreed to by the Tri-Parties. All wastes generated and/or removed from FFTF during the implementation of the Assistant Manager and any subsequent Record of Decision will be managed and disposed of in accordance with the substantive waste management requirements.

Non-Compliance 6 (as quoted from 18-NWP-164):

Ecology Reference:

Condition III.16.B.1 The Permittees are authorized to accept, according to the waste acceptance procedure documented in Addendum B, Section B.2, mixed debris generated from demolition and decommissioning of the FFTF reactor system containing or contaminated with residual elemental sodium and sodium hydroxide. The Permittee will store these wastes in the Interim Storage Area (ISA).

AND

WAC 173-303-040, Definitions

“Debris” means solid material exceeding a 60 mm particle size that is intended for disposal and that is: A manufactured object; or plant or animal matter; or natural geologic material. However, the following materials are not debris: Any material for which a specific treatment standard is provided in 40 C.F.R. Part 268 Subpart D (incorporated by reference in WAC 173-303-140(2)(a)); process residuals from the treatment of waste, wastewater, sludges, or air emission residues; and intact containers of hazardous waste that are not ruptured and that retain at least 75 percent of their original volume. A mixture of debris that has not been treated to the standards provided by 40 C.F.R. 268.45 and other material is subject to regulations as debris if the mixture is comprised primarily of debris, by volume, based on visual inspection.

“Container” means any portable device in which material is stored, transported, treated, disposed of, or otherwise handled.

“Mixed waste” means as dangerous, extremely hazardous, or acutely hazardous waste that contains both a nonradioactive hazardous component and, as defined by 10 C.F.R. 20.1003, source, special nuclear, or by-product material subject to the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.).

Observation:

I observed the following containers hold waste from a variety of streams that cannot be described as “mixed debris generated from demolition and decommissioning of the FFTF reactor.” Waste in these containers did not conform to waste described in the unit description from the permit at the time they were accepted into the ISA. These containers were accepted into storage without

pre-transfer review, adequate documentation, or the proper administrative controls to prevent the mixture of streams. These containers have been identified because they contain:

- waste which does not match the definition of “debris;”
- waste which does not match the definition of “mixed waste;”
- waste which was generated outside the 400 area; or
- waste which generated prior to the request for Temporary Authorization.

Container 0049499 stores a 300 area oxygen monitor, with thorium oxide and yttrium oxide, and a NaK filled Barton differential pressure sensor. The oxygen sensor was generated outside the 400 Area, prior to September 30, 2004. The Barton differential pressure sensor meets the definition of a container and cannot be managed as debris. When I inquired about the point of generation for the O2 monitor, CHPRC stated, “the monitor was originally from the 300 Area and shipped for storage in the 400 Area until declared waste in August 2008.” Declaration is not part of the solid waste identification process in WAC 173-303-016 or the designation process in WAC 173-303-070.

Container 0016549 stores 13 NaK pressure transducers that were never used in the 400 Area. The pressure transducers were not radioactively contaminated at the time of storage and may not meet the definition of mixed waste. Each transmitter meets the definition of a container. Two of the pressure transducers were generated outside the 400 Area and are contaminated with nonradioactive sodium.

Container 0043409 stores three BLTC drip cups. Work Package 4F-06-06239/W loaded a 55-gallon drum CIN# 0043409 with an unnumbered 30-gallon drum containing three BLTC drip cups inside Drip Cup Transfer Container on February 20, 2008. Intact BLTC drip cups containing raw sodium or sodium hydroxide meet the definition of a container and cannot be managed as debris.

Container 0055593 is an overpack container that stores at least eight items. The exact contents of container 0055593 may be unknown. Items 96-15, 04-02, 08-01, 08-02, 95-17 and 95-20 meet the description of waste containers and cannot be considered debris. Items 96-5, 04-02, 04-05, 04-07, 95-17 and 95-20 were generated prior to the decommissioning of the FFTF and stored in the radioactive storage hut on the dates listed below:

Item Number	Storage Date
Item 96-15	10/25/96
Item 04-02	04/01/04
Item 04-05	04/22/04
Item 04-07	10/28/04
Item 95-17	10/05/95
Item 95-20	10/05/95

Container CP-12-11-F contains a BLTC drip cup Item 95-21 which was stored in the Radiological Hut on October 5, 1995. A drip cup containing sodium waste meets the definition of a dangerous waste container and cannot be considered debris. According to storage room logs

and the definition of solid waste in WAC 173-303-016, the earliest possible date of generation for Item 95-21 was October 5, 1995. Container 0063472 contains Na-X fire extinguishing agent and sodium from the CLEM grapple change pit. PIN file states, "At the FFTF during operations, it was a common practice to scrape sodium chunks off the CLEM grapple into a can partially filled with Na-X in an argon inerted glove box at that time." The PIN file indicates the sodium in this container was originally stored in the Rad Hut as Item 02-01. *The Radioactive Storage Room Log* (see ATTACHMENT B) indicates Item 02-01 was "sodium from CLEM Grapple (SAA) plus gangbox and shielding" that was stored on April 15, 2002. Neither chunks of sodium metal or Na-X fire extinguishing agent match the definition of debris.

Container CP-12-14-F stores a sodium filter from the BLTC that was identified as Item 96-1. This container is a special case in that the PIN file contains letters and documentation referring to it as mixed waste more than a decade before the Temporary Authorization. The *Radioactive Storage Room Log* describes Item 96-1 as a "30 gallon drum with contaminated BLTC filter (waste) (added to SAA 4/16/03" and states it was stored in the Rad Hut on January 11, 1996, (see ATTACHMENT B). An entry in the MASF log book (included in the PIN file) dated January 11, 1996 states, "30 GALLON CAN WITH BLTC FILTER REMOVED FROM DECON II TO RSB." The date it was generated, or stored in Decon II, are not recorded in the PIN file. A letter titled *Examination of Filter Debris* dated July 23, 1990, indicates this filter was one of two in storage in 1990. Westinghouse Hanford memo #91-752, dated November 12, 1991, identifies the filter as mixed waste and describes treatment options. Although DOE insists that no waste was ever treated in the Sodium Removal System, a special procedure, "ESP-92-4," was developed for treating the BLTC filters. There does not appear to still be a second filter in storage. The ISA inventory in WMP-52507 (see ATTACHMENT A) indicates this container was previously numbered "89-13." Following the description of the numbering system in the footnote to *Radioactive Storage Room Log*, "89-13" would indicate this container was in storage in MASF in 1989. The waste in this container was generated prior even to deactivation of the FFTF.

Container CP-12-12-F is a 5-gallon steel drum that contains a BLTC drip cup. As a container, an intact drip cup cannot be considered debris. Page 1 of the PIN file indicates this drum was called Item #95-19 when it resided in the Rad Waste hut. The PIN file states, "Item #95-19 was stored in the Radiological Hut on 10-5-95."

Container CP-12-13-F is an 8-gallon steel drum contains "ITEM #95-18 8 GALLON DRUM BLTC DRIP CUP #2." The *Radioactive Storage Room Log* from Work Package 4F-08-02132 (see ATTACHMENT B) states Item 95-18 entered storage in the Rad Hut on October 5, 1995. An un-ruptured drip cup does not meet the definition of debris. Item 95-18 was waste when it was stored in lieu of treatment and disposal on October 5, 1995.

Container CP-12-16-F is a 5-gallon metal drum holding another BLTC drip cup. CP-12-16-F does not appear to be on the *Radioactive Storage Room Log* in ATTACHMENT B. Page 1 of the PIN file states, "Project Hanford Radiological Survey Report X269075, dated January 13, 2009, and Work Package 4F-08-02132/W do not address this item and it is likely to have been in an iron cage called 'PUKA #5' at MASF at this time." Also stated, "this 5-gallon metal can with number '096' in black letters on yellow background is typical of a number that would have been

assigned and labeled if the item were placed into a PUKA in MASF in that time era.” The PIN file contains a couple pages of an inventory sheet labeled *Puka #5 Inventory Sheet*, from a file called “Loadout Facility.xls,” dated February 22, 2009, (see ATTACHMENT C). This inventory lists container 096 as “Damaged BLTC Drip Cup.” The date stored is listed as September 23, 1994. A ruptured BLTC drip cup could be considered debris, but only if it that has lost more than 25 percent of its original volume. Container CP-12-17-F stores a BLTC filter assembly. Hanford Radiological Survey Report Y000667, dated October 26, 1990, indicates the BLTC filter assembly resided in the MASF high bay until after the filter was removed. Work request A0-162/W was issued to “disposition/remove BLTC Filter core/elements from MASF loadout Facility” on October 26, 1990. This work request was canceled May 8, 1992, stating special procedure “ESP-92-4 is issued to wash filter elements” and “IN-89-1 will be used to wash core.” The waste in this container was generated prior even to the initial deactivation of the FFTF in 1993.

Container 0046665 contains an overflow pot of some kind. An email on page 39 states container 00446665 is an overpack that contains a 55-gallon drum labeled “IEM Cell Ident-15/17 Na Overflow Pot, Drum 2 of 2” and the “overflow pot” for a Core component Storage Container “Ident 17-1.” A note from Mr. Gray handwritten on that email explains he believes the “drip catch pot” to actually be the overflow pot for Ident 17-2 sodium trap, not Ident 17-1 core component storage container overflow container. An intact overflow pot meets the definition of a container and cannot be considered debris.

Container CP-12-19-F stores three sodium sample trains from the FFTF operation. A tag on the container states “contains three secondary Trains (clean) 11/24/92. These sample trains were generated and containerized a decade before the November 8, 2006, request for Temporary Authorization.

Container 0044912 is an 85-gallon drum storing a 55-gallon drum, “CIN # 0049501, containing three (3) CLEM drip cups and spacers.” Drip cups are containers and intact containers cannot be managed as debris.

Container 0044929 is an overpack that holds a 55-gallon drum (CIN# unknown) containing three CLEM drip cups. Intact drip cups are containers and cannot be managed as debris.

Container 0046930 stores an Ident15/17 sodium overflow pot with approximately 1.25 gallons of sodium, a spacer and a small stainless steel “catch can” with trace sodium. Cups and cans are containers and cannot be managed as debris.

Action Required:

Within 60 days of receipt of this report the permittees must identify waste streams in these containers and provide Ecology with WAC 173-303-140 compliant LDR notifications.

Within 120 days of receipt of this report, DOE and CHPRC must develop a schedule to treat and dispose containers listed above. Provide a draft schedule to Ecology for review and approval prior to the 120-day deadline.-

DOE and CHPRC Response to 18-NWP-164 Alleged Non-Compliance 1 in 19-ESQ-0029:

The waste streams in the containers cited by Ecology have been designated in accordance with WAC 173-303-070(3). The waste is also documented as mixed waste and managed as such. Waste codes and corresponding LDR information are provided in the 2014 LDR Report and Part A Form. In summary, the following is stated for the 400 Area Waste Management Unit (WMU) as of the end of calendar year 2014:

- There are 19 containers present at the ISA;
- The wastes carry one or more of the codes D001, D002, D003 and WSC2;
- The wastes are identified as non-wastewaters subject to LDR treatment standard of DEACT and meet 40 CFR Part 268.48 standards;
- The wastes are identified as non-debris;
- Plans are currently to use the sodium as an ingredient to produce sodium hydroxide for use as a product in the Hanford tank waste vitrification process and therefore disposal of the material is not anticipated.

Regarding wastes stored at the 400 Area, the Part A Form states “Mixed waste stored in the 400 Area Waste Management unit can include elemental sodium (Na), sodium potassium (NaK) (D001, D003, WSC2) and sodium hydroxide and potassium hydroxide (D002); as well as debris (for example piping, equipment, and components) contaminated with Na or NaK, sodium hydroxide, or potassium hydroxide”

The waste stored at the ISA is not limited to “mixed debris” waste. As described in the Part A, the waste can be mixed waste or debris that is contaminated with Na or NaK. Condition III.16.B.1 is written to authorize the receipt of “mixed debris generated from demolition and decommissioning of the FFTF reactor system containing or contaminated with residual elemental sodium and sodium hydroxide.” This permit condition does not prevent the permittee from continuing to store mixed wastes already in the ISA, including waste placed in the ISA prior to the Temporary Authorization. Given the language of the 400 WMU Part A Form, the 400 WMU waste analysis plan, and Condition III.16.B.3, Condition III.16.B.1 does not exclude non-debris wastes from storage at the ISA.

In summary, the waste that is stored at the 400 Area WMU is stored in compliance with the Resource Conservation and Recovery Act permit pursuant to:

- The unit description language for the 400 Area WMU Permit conditions indicates that both debris and non-debris mixed wastes are stored within;
- Condition III.16.B.1 only covers acceptance of mixed debris, not continued storage.

The LDR Report indicates that the wastes are planned for recycle in support of the Waste Treatment Plant and does not address schedules for waste disposal.

Note: The oxygen monitor stored in container 0049499 was moved from the 300 Area to the 400 Area as useable equipment. The oxygen monitor was containerized and

designated at a later date when it was determined that the oxygen monitor would not be needed. Therefore, the point of generation for the waste was at the 400 Area

Ecology Response Regarding 19-ESQ-0029 Alleged Non-Compliance 6:

From reviewing your response, DOE has not provided a schedule to treat and dispose of waste streams in containers referenced in area of non-compliance 6. DOE indicated the LDR notification information was located in the 2014 LDR Report. Ecology will consider this violation partially resolved, as long as DOE and CHPRC understand that by choosing not to identify Underlying Hazardous Constituents (UHC) the Permittees are committing to treat to LDR standards for *all* UHCs.

Ecology clarifies the containers referenced in area of non-compliance 6 are unauthorized for storage in the ISA because the Permittees transferred the undocumented containers from unpermitted, greater than ninety-day storage without adhering to the permitted process for waste acceptance and storage. The permitted process for waste acceptance in the 400 Area DWMU has always included a pre-transfer review for all waste prior to acceptance and storage. The containers cited in non-compliance 6 were physically placed in the ISA module between March 12, 2008 and June 24, 2009. When the pre-transfer review process was completed in 2012 (see below), the waste was not authorized because it did not meet the acceptance criteria (as cited in the report).

Pre-Transfer Review Dates	
Package	Date
0016549	June 4, 2012
0043409	June 4, 2012
0044912	June 4, 2012
0044929	August 13, 2012
0044930	June 4, 2012
0046665	June 4, 2012
0049499	June 4, 2012
0055593	August 13, 2012
CP-12-11-F	June 4, 2012
CP-12-12-F	August 13, 2012
CP-12-13-F	June 4, 2012
CP-12-14-F	June 4, 2012
CP-12-16-F	June 4, 2012
CP-12-19-F	June 4, 2012

Ecology amends the citation for area of non-compliance six to also include these conditions from *Modification of the Hanford Facility Resource Conservation and Recovery Act Permit for Storage (WA7 89000 8967), Revision 8C, to Incorporate Final*

Permit Conditions for the 400 Area Waste Management Unit Located at the FFTF, effective November 21, 2007:

Permit Condition III.16.A, “Compliance with Permit Conditions”

The Permittees are authorized to accept and store mixed waste in the 400 Area WMU container storage units, the FSF and the ISA. These DWMUs and corresponding waste management activities will be subject to conditions in this Chapter, its addendums, and the applicable requirements in Parts I and II.

AND

Addendum B.2, “Confirmation Process”

The confirmation process is the process by which the 400 Area WMU staff will confirm their knowledge about a waste before it is placed into storage to ensure the waste is managed properly. The confirmation process includes completing appropriate pre-transfer reviews and verification steps as described in this section.

AND

Addendum B.2.1, “Pre-Transfer Review”

Pre-transfer review takes place before waste can be placed in the 400 Area WMU. The review focuses on whether the analysis information (e.g., waste profile documentation) is sufficient to determine that the waste can be safely stored and that the waste was generated at the 400 Area. The pre-transfer review will be documented and maintained in the unit-specific operating record. The analysis must include data obtained by testing the waste and/or ‘knowledge’ of the waste (i.e., sufficient information about a waste to substitute reliably for direct testing of the waste). ‘Knowledge’ consists of existing published or documented analysis data on the waste or data from waste generated in similar processes, including but not limited to the following:

- MSDSs on chemical products
- Analytical data on the waste or a waste from a similar process
- Interview information
- Logbooks
- Procurement records
- Qualified analytical data
- Procedures and/or methods
- Process flow charts
- Inventory sheets
- Vendor information

AND

Addendum B.2.2, “Verification of Waste”

Verification is an assessment performed at waste receipt to substantiate that the waste stream received at the 400 Area WMU is the same as represented by the analysis information and/or supporting documentation. Verification includes a container receipt inspection. Documentation to be reviewed as part of verification activities may include the container inventory documentation, a container listing report, and the waste profile documentation. For all temporary, storage, and disposal (TSD) locations within the 400 Area WMU, each container or group of containers is inspected before acceptance by waste operations personnel for damage, proper closure, marking, and proper accompanying documentation.

AND

Addendum B.2.3, "Waste Acceptance"

Acceptance of waste into the 400 Area WMU occurs only after the confirmation process (pre-transfer review and verification) is complete.

Conformance issues identified during the confirmation process are documented and managed in accordance with Section H.2.4.

Conformance issues that must be corrected before waste acceptance include:

- Waste that does not match approved waste profile documentation,
- designation discrepancy, and
- packaging discrepancy.

Emphasis added

AND

WAC 173-303-800(2)

The owner/operator of a dangerous waste facility that transfers, TSD or recycles dangerous waste must, when required by this chapter, obtain a permit in accordance with WAC 173-303-800 through WAC 173-303-840 covering the active life, closure period, groundwater protection compliance period, and for any regulated unit (as defined in WAC 173-303-040) or for any facility which at closure does not meet the removal or decontamination limits of WAC 173-303-610 (2)(b), post-closure care period, unless they demonstrate closure by removal or decontamination as provided under WAC 173-303-800 (9) and (10), or obtain an enforceable document in lieu of a post-closure permit, as provided under subsection (12) of this section. If a post-closure permit is required, the permit must address applicable groundwater monitoring, unsaturated zone monitoring, corrective action, and post-closure care requirements of this chapter. The denial of a permit for the active life of a dangerous waste management facility or unit does not affect the requirement to obtain a post-closure permit under this section.

Ecology amends the corrective action for area of non-compliance 6, from the date listed on the October 5, 2018, 400 Area DWMU Inspection Report to the

following:

Within 60 days of receipt of this letter, DOE and CHPRC must transfer the containers listed in area of non-compliance 6 to an authorized TSD.

DOE and CHPRC Response to 19-NWP-096 Alleged Non-Compliance 6:

The pre-transfer review process was completed for the waste containers at issue in 2012 as identified in 19-NWP-096. The waste in the containers at issue passed the pre-transfer review and met the waste acceptance criteria for the ISA in compliance with Permit Condition B.2.3.

The 400 Area permit contains two conditions that specify the type of waste that can be accepted into the 400 Area storage units. Both conditions should be read in conjunction with each other to understand the meaning and intent of the acceptance criteria for the 400 Area WMU. The first condition, III.B.16.1, has been interpreted by the Ecology inspector to limit waste acceptance to "mixed debris." Furthermore, the inspector has speculated that some of the waste items stored in the 400 Area WMU should be considered as waste "in containers" and therefore should be disallowed based on his reading of Condition III.B.16.1.

This interpretation does not align with the first statement in Condition III.B.16.1, which says the Permittees "are authorized to accept, according to the waste acceptance procedure documented in Addendum B, Section B.2..." (emphasis added). Addendum B is the Waste Analysis Plan for accepting waste at the 400 Area WMU and includes language pertinent to the confirmation process, including language in Condition B.1.1, which states, "the 400 Area WMU will continue to receive Na and NaK-contaminated waste and debris from decommissioning of the FFTF" (emphasis added). The second condition clarifies the intent of the first. It authorizes the permittee to accept "waste and debris" which recognizes the wastes stored at the 400 Area WMU and the meaning of the term "mixed debris" used in the first condition. Furthermore, the phrase "mixed debris" only appears in condition III.B.16.1 and nowhere else in the 400 Area permit.

Debris is mentioned multiple times, but most often in the phrases "waste and debris" and "debris or components." "Debris" is only used on its own to describe the characteristics of debris waste generated from 400 Area decommissioning. Clearly, the term "mixed debris" used by Ecology in writing the permit was intended to identify materials "generated from demolition and decommissioning of the FFTF reactor system containing or contaminated with residual elemental sodium and sodium hydroxide." Therefore, the waste in the ISA meets the waste acceptance criteria for the 400 Area WMUs.

The permit conditions for waste acceptance and the references to non-debris waste found throughout the permit demonstrates that the permit's waste acceptance conditions were not meant to exclude mixed waste contaminated with Na or NaK, the kind currently stored in the ISA. Specifically, Permit Condition C.1.1.2.3 "Storage of Unique Components in the ISA" supports a broader interpretation of the permit:

Unique components can be stored in the ISA. Unique components are anticipated to be removed as intact 23 units, except for severed inlet and outlet piping. The inlets and outlets are closed as part of the removal 24 process to prevent any residual Na or NaK inside the component from reacting with water vapor in the air 25 to form sodium hydroxide and potassium hydroxide, respectively. Each component, once closed, serves 26 as the primary container for the sodium waste residue on the interior surfaces of the component.

As this permit condition identifies, the unique components are considered containers for the purpose of storage. As Ecology pointed out in its inspection report, containers are not debris. Therefore, the permit should not be read to limit storage only to "mixed debris" when other permit conditions explicitly allow storage of other types of waste.

Nine conditions in the 400 Area permit describe the type of waste authorized to be stored in the 400 Area WMUs. The ISA waste fits within the first six of the storage conditions listed below. If the Ecology inspector's claim that some of the waste must be considered prohibited containerized sodium, then the three conditions from Addendum F would contradict the other storage conditions and each other. The conditions are as follows:

Unit Specific Conditions

Unit Description: 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.

Part A Form

Section XI: Mixed waste stored in the 400 Area WMU can include elemental sodium (Na), sodium potassium (NaK) (D001, D003, WSC2) and sodium hydroxide and potassium hydroxide (D002); as well as debris (for example piping, equipment, and components) contaminated with Na or NaK, sodium hydroxide, or potassium hydroxide.

Addendum B

B.1.2: Waste types not specifically identified in this Waste Analysis Plan are prohibited from storage in the 400 Area WMU dangerous waste management units. The waste can only exhibit the characteristics of ignitability, reactivity, and/or corrosivity.

B.3: Na and NaK is the material of interest to support safe storage of the waste (including contaminated piping, appurtenances, and debris)

Addendum C

C: This Addendum discusses the processes used to store Na and NaK-contaminated waste

C.2.3: Only waste as documented in Addendum B Waste Analysis Plan will be stored in the 400 Area WMU

Addendum F

F.1.1.4: The only mixed waste stored in the 400 Area consists of containerized reactive sodium metal as a residual contaminant on piping and components.

F3.2: Metallic sodium, in a solid form due to its high melting point (98C), is the only mixed waste stored at the 400 Area WMU. This waste is adhered to or contained in the interior of debris that has been generated from FFTF.

F3.2: the sodium waste is the only waste stored in the 400 Area WMU.

Ecology's allegation is that the permit prohibits storage of non-debris waste. Ecology's reading of the permit focuses on the form of the waste, debris vs. non-debris, and not the dangerous waste characteristics. The first six permit conditions listed identify that both mixed waste and debris can be stored at the 400 Area WMUs. Additionally, Addendum B specifies that the focus of waste storage is on the characteristics of the waste and safely storing Na and NaK. Therefore, continued storage of the waste in the ISA is authorized by the permit and the waste does not need to be transferred to an authorized TSD. The ISA is an authorized TSD for the waste it contains.

Ecology previously inspected these same containers in 2011 as recounted in 13-NWP-064. The Permittees were cited for a non-compliance with Permit Condition III.16.B.1 in that inspection report (Non-Compliance 2), the same permit condition at issue here. The issue in the previous inspection stemmed from the NaK stored in the ISA. Ecology required permittees to submit "to Ecology a request for a permit modification for addition of NaK..." (13-NWP-064, page 10.) Ecology did not have an issue with the other contents of the containers in the ISA and whether the contents were "mixed debris" or "containers." As demonstrated above, the Permittees believe the waste stored in the ISA is in compliance with the permit.