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**FACT SHEET**  
**PART III, OPERATING UNIT GROUP 16, 400 AREA WASTE MANAGEMENT UNIT**

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1 **FACT SHEET**

2 **PART III, OPERATING UNIT GROUP 16, 400 AREA WASTE MANAGEMENT UNIT**

3 **UNIT DESCRIPTION**

4 The 400 Area Waste Management Unit (400 Area WMU) is in Hanford's 400 Area near the Fast Flux  
5 Test Facility (FFTF). The 400 Area WMU manages waste from the FFTF.

6 The FFTF is a formerly operating 400-megawatt (thermal) liquid-metal (sodium) cooled research and test  
7 reactor owned by the United States Department of Energy. Advanced fuels and material for the Liquid  
8 Metal Fast Breeder Reactor Program were developed and tested at FFTF. It served as a prototype for  
9 future liquid metal fast breeder reactor facilities.

10 The Permittees built FFTF in the late 1970s and operated it from 1982 to 1992. Shutdown (deactivation)  
11 of FFTF began in 1993 and was completed in 2009. The facility was placed in surveillance and  
12 maintenance until its final decommissioning end state is decided. Alternatives for the FFTF final  
13 decommissioning end state are being analyzed in the *Tank Closure and Waste Management*  
14 *Environmental Impact Statement for the Hanford Site, Richland, Washington (TC&WM EIS) (DOE/EIS-*  
15 *0391).*

16 The 400 Area WMU consists of the Fuel Storage Facility (FSF) and Interim Storage Area (ISA).

- 17 • The FSF is in a large, high-bay building (Building 403) next to FFTF. Building dimensions are  
18 34 by 27 by 12 meters high (112 by 90 by 40 feet).
- 19 • The ISA is an outdoor pad just north of FFTF. The ISA is a 75 by 156 meters (247 by 513 feet)  
20 totally fenced area.

21 **TYPE AND QUANTITY OF WASTE**

22 The 400 Area WMU may only store containerized mixed waste from the 400 Area. The mixed waste can  
23 only include:

- 24 • Elemental sodium.
- 25 • Sodium hydroxide.
- 26 • Sodium/potassium (NaK).
- 27 • Debris contaminated with elemental sodium, sodium hydroxide, and NaK.

28 The Permittees may only store waste that is ignitable, corrosive, or reactive (waste codes D001, D002,  
29 D003, WSC2). The storage capacity of the FSF is about 1,000 gallons and the storage capacity of the  
30 ISA is about 19,000 gallons.

31 **BASIS FOR PERMIT CONDITIONS**

32 This permit is intended to protect human health and the environment while ensuring proper management  
33 of waste at the 400 Area WMU. The permit addenda are incorporated into this permit and are enforceable  
34 by reference. Ecology bases the conditions and addenda for the 400 Area WMU on:

- 35 • The Hanford Facility Dangerous Waste Permit, Revision 8C.
- 36 • Permit modifications to Revision 8C of the permit.
- 37 • Comment resolution meetings with the Permittees.

38 The permit includes requirements for complying with environmental standards and maintaining  
39 and modifying the permit. The permit conditions address specifics such as personnel training,  
40 adequate staffing, process controls, and inspection requirements.

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1 **GENERAL WASTE MANAGEMENT**

2 The Permittees are allowed to store waste in the 400 Area WMU until treatment capabilities are available.  
3 The basis for these requirements is in the Tri-Party Agreement Milestone M-26-01. Since the waste is  
4 limited to waste generated from the 400 Area, the Permittees will not need to analyze the waste.

5 The 400 Area WMU now stores elemental sodium, sodium hydroxide, and NaK. It also stores debris  
6 (such as piping, equipment, and components) contaminated with elemental sodium, sodium hydroxide,  
7 and Na/K. All of this mixed waste is subject to land disposal restrictions (LDR) in [WAC 173-303-](#)  
8 [140\(2\)\(a\)](#). This regulation incorporates the LDR restrictions in the federal RCRA regulations, 40 C.F.R.  
9 Part 268. The Permittees must treat dangerous waste that is land disposal restricted to prescriptive  
10 standards before disposing it in landfills or other land-based units. *See* 40 C.F.R. § 268.30-.39.

11 In 1992, Congress enacted the Federal Facility Compliance Act (FFCA, codified in RCRA) to drive  
12 United States Department of Energy (USDOE) facilities such as Hanford to address their backlogs of  
13 untreated mixed waste. Under the FFCA, Congress required USDOE to develop plans and schedules for  
14 developing “treatment capacities and technologies” to address mixed waste backlogs. *See* 42 U.S.C.  
15 § 6939c(b)(1)(A)(i). Once the state approves the plan and incorporates it into a state order, the site  
16 treatment plan becomes an enforceable compliance schedule. 42 U.S.C. § 6939c(b)(2)(C). So long as  
17 USDOE complies with a plan, it will not receive fines or penalties for storage prohibition violations.

18 At Hanford, the Tri-Party Agreement satisfies the site treatment plan requirement. *See* 42 U.S.C.  
19 § 6939c(b)(1)(A)(ii). In particular, the LDR report developed and maintained under Milestone M-26  
20 serves the function of a site treatment plan.

21 In the case of the waste stored at the 400 Area WMU, the Tri-Party Agreement agencies have committed  
22 to negotiate that the waste will be addressed in a future remedial action under the Tri-Party Agreement  
23 Interim Milestone M-92-09, consistent with the final decommissioning end state decision for FFTF to be  
24 made in the final TC & WM EIS and its Record of Decision, and an out-year FFTF Closure Project  
25 baseline. Re-issuing the 400 Area WMU permit authorizes the Permittees to continue storage of the  
26 mixed waste at the 400 Area WMU.

27 Conditions III.16.B, III.16.C, and III.16.F include requirements in [WAC 173-303-395\(1\)](#) for management  
28 of ignitable, reactive, or incompatible waste. The requirements for inspections related to management of  
29 ignitable and reactive wastes are included in the 400 Area WMU inspection requirements.

30 **WASTE ANALYSIS REQUIREMENTS**

31 Condition III.16.C requires the Permittees to comply with the requirements described in Addendum B for  
32 waste analysis of all dangerous and/or mixed waste managed at 400 Area WMU. The basis for this  
33 condition is [WAC 173-303-300\(5\)](#).

34 **RECORDKEEPING AND REPORTING**

35 The basis of Condition III.16.D is the requirements of Condition II.I.2, [WAC 173-303-380](#) and  
36 [WAC 173-303-810\(16\)](#). They ensure that proper recordkeeping and reporting requirements are followed.

37 **SECURITY**

38 The 400 Area WMU is within the secured area of Hanford, and physical barriers control access. General  
39 security provisions in Condition II.L and Permit Attachment 3 define access to the 400 Area WMU.  
40 Condition III.16.E and Addendum E establishes security provisions, access controls, and signs for the  
41 unit. These requirements satisfy the security requirements of [WAC 173-303-310](#).

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1 **PREPAREDNESS AND PREVENTION**

2 The basis for Condition III.16.F, and Addendum F, cover preparedness and prevention requirements is  
3 [WAC 173-303-340](#). Specific requirements in the Permit control ignition sources and manage ignitable  
4 and reactive wastes. The Permittees will ensure that ignitable and reactive wastes are not exposed to  
5 excessive heat and sources of ignition. The Permittees must store incompatible wastes in approved  
6 separate secondary containment to prevent mixing.

7 **CONTINGENCY PLAN AND EMERGENCY RESPONSE**

8 Conditions II.A, III.16.G, and Addendum J address contingency plan requirements.

9 **INSPECTIONS**

10 Conditions II.X, III.16.H, and Addendum I define inspection requirements. Condition II.X requires  
11 Hanford's dangerous waste management units to establish a written inspection schedule and conduct  
12 periodic inspections following the schedule. [[WAC 173-303-320\(2\)\(a\)-\(c\)](#)]. Addendum I includes a  
13 schedule for inspecting monitoring equipment, safety and emergency equipment, and security systems.  
14 The inspections will detect and prevent malfunctions, deterioration, operator error, or discharges from the  
15 unit that could harm human health or the environment.

16 Condition II.X also has requirements for the Permittees to take action to correct problems revealed during  
17 these inspections [required in [WAC 173-303-320\(3\)](#)], and for inspection recordkeeping requirements  
18 (required in [WAC 173-303-320\(2\)\(d\)](#)) .

19 The Permittees must verify the argon cover gas supply to the storage boxes. Addendum I requires a  
20 weekly inspection of the integrity of the Core Component Pots (CCPs) in the FSF and of the containers  
21 stored in the ISA. [[WAC-173-303-630\(6\)](#)].

22 The Permittees maintain all sodium-wetted piping and components (including the CCPs stored in FSF)  
23 under a static low-pressure argon cover gas. Cover gas pressure is continuously monitored. Pressure  
24 alarms warn of potential failure or problems.

25 When FFTF went to long-term surveillance and maintenance, the Permittees placed a hazardous material  
26 storage building that has secondary containment (HS0091) in the ISA. The Permittees moved mixed  
27 wastes that are sealed in various size containers (85-gallon overpacks, 55-gallon drums, 1-gallon cans,  
28 etc.) into the building. The containers have small amounts of mixed waste sodium or sodium potassium  
29 alloy (NaK).

30 There will be no other mixed waste generated and placed in the ISA until the FFTF Plant undergoes final  
31 decontamination and decommissioning. The configuration of the stored mixed waste will not change, and  
32 all the containers are properly sealed. Performing weekly inspection will meet the regulatory inspection  
33 requirements, minimize unnecessary personnel exposure, and protect human health and the environment.

34 **TRAINING**

35 Dangerous waste management workers must have the skills and knowledge to do their work safely. The  
36 Permittees must develop and maintain a program to ensure employees get the training for those skills and  
37 knowledge. The Permit requires that the training requirements in Addendum G be maintained in a  
38 Dangerous Waste Training Plan prepared according to Condition II.C.1. The training program and  
39 written training plan must meet the requirements of [WAC 173-303-330](#).

40 **CLOSURE**

41 The dangerous waste regulations and Addendum H specify that the Permittees must notify Ecology at  
42 least 45 days before closure begins, and must complete the clean closure in 180 days or fewer.  
43 Addendum H calls for the 400 Area WMU to be closed to clean closure standards by removal or  
44 decontamination. The plan meets the requirements of [WAC 173-303-610\(2\)\(6\)](#) and [WAC 173-303-  
45 630\(10\)](#).

1 **CONTAINER MANAGEMENT STANDARDS**

2 Addendum C, Section C.1.1 defines the areas in the 400 Area WMU for management of dangerous and  
3 mixed waste. Section C.1.2 also defines their waste management requirements. Addendum B,  
4 Section B.2 has other requirements for waste confirmation. Condition III.16.O establishes the  
5 requirement to manage the containers.

6 The Permit allows only the use of containers that are compatible with the storage of metallic sodium,  
7 metallic potassium, sodium hydroxide, and potassium hydroxide. The basis for requirements for  
8 container compatibility is in [WAC 173-303-630\(4\)](#).

9 The CPPs are cylindrical containers that held assemblies and other components. The Permittees store  
10 them in two large metal boxes in Building 403. The box serves as the primary container for the residual  
11 sodium inside the CCPs. Each box lid is sealed. The sodium is stored at room temperature under an inert  
12 gas blanket to protect sodium from reaction with air. Shielding is provided for worker protection and to  
13 meet as low as reasonably achievable (ALARA) requirements. Each box is on a drip pan, which provides  
14 secondary containment.

15 The standard metal containers stored in the ISA are in container storage modules that are designed for  
16 reactive, ignitable, and corrosive waste. The modules were placed directly on the gravel pad and  
17 anchored by conventional methods (e.g., screw anchor or conventional dead man).

18 The Permittees may also store waste in large metal boxes in the ISA if the waste is too large for storage in  
19 standard metal containers, but does not require development of a unique package. The Permittees must  
20 place the large metal boxes within secondary containment in the ISA.

21 The ISA can also store unique components. The Permittees expect to remove unique components from  
22 the FFTF as intact units, except for severed inlet and outlet piping. Each component, once closed, serves  
23 as the primary container for the sodium or NaK waste residue on the interior surfaces of the component.  
24 The Permittees must place the components within secondary containment. All components in the ISA  
25 will be placed in a manner equivalent to the International Fire Code.

26 Hanford's Fire Department administers and enforces the Fire Prevention Program for Hanford. The Fire  
27 Marshal, a member of the Hanford Fire Department, administers the program. The Fire Marshal is  
28 authorized to establish and issue permits, certificates, approvals, or Orders for fire control and fire  
29 hazards. The Permit program uses nationally recognized Fire Codes & Standards, USDOE Directives,  
30 and best commercial and industrial practices as the basis for the issuance of these Fire Marshal Permits.

31 **REQUESTED VARIANCES OR ALTERNATIVES**

32 In accordance with the site treatment plan, USDOE is allowed to store mixed waste at the 400 Area  
33 WMU until such time as the final disposition of the 400 Area WMU is decided. [See 42 U.S.C.  
34 § 6939c(b)(2)(C)]

35 **STATE ENVIRONMENTAL POLICY ACT (SEPA)**

36 The SEPA determination for the 400 Area WMU is in the Hanford-Wide Permit Fact Sheet.

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