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ADDENDUM B
WASTE ANALYSIS PLAN

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1 **B. WASTE ANALYSIS PLAN**

2 The purpose of this Waste Analysis Plan (WAP) is to document waste analysis activities associated with
3 the 400 Area Waste Management Unit (WMU) to comply with [WAC 173-303-300\(1\), \(2\), \(4\), and \(5\)](#).
4 [WAC 173-303-300\(3\)](#) and (6) are not applicable, as the 400 Area WMU will not receive waste from any
5 offsite facilities. Mixed waste managed in the 400 Area WMU is limited to waste generated in the 400
6 Area. Descriptions required by [WAC 173-303-300\(5\)](#) are contained in the following sections.

7 **B.1 Unit Description**

8 The 400 Area WMU is a non-land based unit located in the 400 Area of the Hanford Facility and contains
9 two container storage dangerous waste management units. The 400 Area WMU is operated in accordance
10 with requirements in the Hanford Dangerous Waste permit established pursuant to the provision of
11 [WAC 173-303-630](#). The mission of the 400 Area WMU is to store mixed waste until it is treated.
12 Treatment is not currently provided for mixed waste stored at the 400 Area WMU.

13 **B.1.1 Description of Unit Processes and Activities**

14 The 400 Area WMU includes the Fuel Storage Facility (FSF) (Building 403) and the Interim Storage
15 Area (ISA). The locations and boundaries of these two container storage units is documented in Figures
16 C.1 and C.2 of Addendum C, and the topographic map in Addendum A.

17 Section C.1.2 in Addendum C identifies waste quantities and the process design capacity for the 400 Area
18 WMU. Sodium (Na) and sodium-potassium (NaK) contamination is associated with the Na and NaK
19 used as coolant in the Fast Flux Test Facility (FFTF) reactor. The 400 Area WMU will continue to
20 receive Na- and NaK-contaminated waste and debris as it is generated during decommissioning of the
21 FFTF. In addition, Na-contaminated waste, and NaK containing components generated in association
22 with former FFTF operations and currently in storage at other Hanford Facility locations, could be
23 transferred to the 400 Area WMU for consolidation with other 400 Area-generated waste. Transfers of
24 mixed waste to the 400 Area WMU will be conducted under Permit Condition IL.N.

25 **B.2 Identification and Classification of Waste**

26 Waste types not specifically identified in this WAP are prohibited from storage in the 400 Area WMU
27 dangerous waste management units. The waste can only exhibit the characteristics of ignitability,
28 reactivity, and/or corrosivity.

29 Waste is designated using manufacturers' product information, Material Safety Data Sheets (MSDSs),
30 laboratory analysis provided by the generator, and/or reference material such as Registry of Toxic Effects
31 of Chemical Substances (published by the National Institutes for Occupational Safety and Health).
32 Addendum A, Part A Form identifies dangerous waste numbers for waste types stored at the 400 Area
33 WMU. These dangerous waste numbers and corresponding references are as follows:

Dangerous Waste Number (Characteristic)	Reference
D001 (ignitable)	WAC 173-303-090(5)
D002 (corrosive liquid)	WAC 173-303-090(6)
D003 (reactive)	WAC 173-303-090(7)
WSC2 (corrosive solid)	WAC 173-303-090(6)/104

34 **B.3 Waste Confirmation**

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

1 **B.3.1 Pre-Transfer Review**

2 Pre-transfer review takes place before waste can be placed in the 400 Area WMU. The review focuses on
3 whether the analysis information (e.g., waste profile documentation) is sufficient to determine that the
4 waste can be safely stored and that the waste was generated at the 400 Area. The pre-transfer review will
5 be documented on a waste profile and maintained in the Hanford Facility Operating Record, 400 Area
6 WMU File. The analysis must include data obtained by testing the waste and/or 'knowledge' of the waste
7 (i.e., sufficient information about a waste to substitute reliably for direct testing of the waste).
8 'Knowledge' consists of existing published or documented analysis data on the waste or data from waste
9 generated in similar processes, including but not limited to the following:

- 10 • MSDSs on chemical products
- 11 • Analytical data on the waste or a waste from a similar process
- 12 • Interview information
- 13 • Logbooks
- 14 • Procurement records
- 15 • Qualified analytical data
- 16 • Procedures and/or methods
- 17 • Process flow charts
- 18 • Inventory sheets
- 19 • Vendor information

20 For wastes to be accepted for storage in the ISA, the pre-transfer review will document the measured or
21 calculated quantity of Na or NaK in each container to be received.

22 **B.3.2 Verification of Waste**

23 Verification is an assessment performed at waste receipt to substantiate that the waste stream received at
24 the 400 Area WMU is the same as represented by the analysis information and/or supporting
25 documentation. Verification includes a container receipt inspection. Documentation to be reviewed as
26 part of verification activities may include the container inventory documentation, a container listing
27 report, and the waste profile documentation. Before acceptance into ISA, each container or group of
28 containers is inspected by waste operations personnel for damage, proper closure, marking, and proper
29 accompanying documentation.

30 **B.3.3 Waste Acceptance**

31 Acceptance of waste into the 400 Area WMU occurs only after the confirmation process (pre-transfer
32 review and verification) is complete. Conformance issues identified during the confirmation process are
33 documented and managed in accordance with Section B.2.4. Conformance issues that must be corrected
34 before waste acceptance include:

- 35 • Waste that does not match approved waste profile documentation
- 36 • Designation discrepancy
- 37 • Packaging discrepancy

38 **B.3.4 Conformance Issue Resolution**

39 A conformance issue is any discrepancy identified during the confirmation process with waste profile
40 documentation, a waste package, or a waste shipment. Discrepancies can be identified during pre-transfer
41 review of a waste stream or during the verification process. If a possible conformance issue is identified,
42 the following actions are taken by the 400 Area WMU staff to resolve the issue:

- 43 • Compile all information concerning the possible conformance issue(s).
- 44 • Gather additional knowledge that may assist in the resolution of the concern(s).

- 1 • Determine and implement the appropriate course of action to resolve the issue.

2 **B.4 Selecting Waste Analysis Parameters**

3 Na and NaK is the material of interest to support safe storage of the waste (including contaminated
4 piping, appurtenances, and debris) at the 400 Area WMU. Na and NaK consists of un-reacted elements
5 (either Na or a mixture of Na and K, respectively) (i.e., no other chemical contamination) as it was
6 contained in closed-loop cooling systems throughout FFTF reactor operation. In addition, the ignitable
7 and reactive properties of sodium and potassium metal are well known and documented (MSDSs and
8 FFTF operating history), and the Na and NaK waste to be stored in the 400 Area WMU storage units is
9 consistent with these properties. Analytical data exist for the Na and NaK contained in the FFTF cooling
10 system, therefore, no further sampling and analyses of the sodium waste are planned.

11 Based on known chemical properties of sodium and potassium metal, small amounts of concentrated
12 sodium hydroxide or potassium hydroxide and trace amounts of hydrogen may be generated if the Na or
13 NaK comes in contact with water vapor in the air during storage. Due to the potential formation of
14 sodium or potassium hydroxide having a pH greater than 12.5, debris contaminated with Na or NaK metal
15 is designated as a corrosive (D002 and WSC2, corrosive liquid and solid, respectively). In the event that
16 liquid is identified in Na or NaK waste secondary containment, the liquid will be managed under the
17 generator provisions of [WAC 173-303-200](#) and is beyond the scope of this WAP.

18 **B.5 Selecting Sampling Processes**

19 Additional analytical data are not required to store safely the Na- and NaK-contaminated waste at the 400
20 Area WMU. Therefore, no additional waste sampling is planned.

21 **B.6 Selecting A Laboratory, Laboratory Testing, And Analytical Methods**

22 Additional analytical data are not required to store safely the Na and NaK-contaminated waste at the 400
23 Area WMU. Therefore, there is no need to select a laboratory, laboratory testing methods, or analytical
24 methods.

25 **B.7 Selecting Waste Re-Evaluation Frequencies**

26 Additional analytical data are not required to safely store the Na- and NaK-contaminated waste at the 400
27 Area WMU. Therefore, there is no need to select a waste re-evaluation frequency.

28 **B.8 Special Procedural Requirements**

29 Provisions of [WAC 173-303-300\(5\)\(f\)](#) are not applicable. Additional analytical data are not required to
30 safely store the sodium-contaminated waste at the 400 Area WMU. Therefore, no special procedural
31 requirements for sampling and analysis apply.

32 The 400 Area WMU will not conduct any land disposal restrictions (LDR) treatment of waste in storage.
33 Therefore, the LDR requirements applicable to the 400 Area WMU are limited to the record keeping
34 requirements in [WAC 173-303-380\(1\)\(o\)](#), LDR reporting requirements under the Hanford Federal
35 Facility Agreement and Consent Order, and storage requirements addressed in permit condition
36 III.16.B.7. Mixed waste stored in the 400 Area WMU will be treated in accordance with Permit
37 Condition II.O.

38 **B.9 Recordkeeping**

39 Confirmation process records will be maintained in accordance with Permit Condition II.I.1. These
40 records will be maintained in the Hanford Facility Operating Record, 400 Area WMU File from the time
41 the waste is received until a period of ten years following certification of closure.

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