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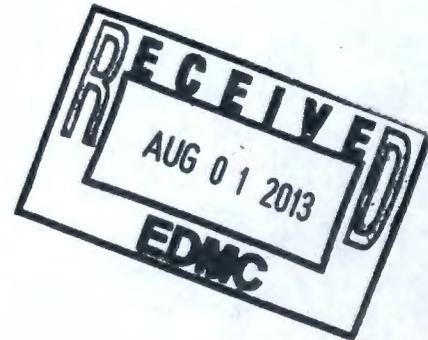
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Low-Level Burial Grounds Trench 94 Waste Analysis Plan

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Contractor for the U.S. Department of Energy
under Contract DE-AC06-08RL14788

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Program/Project: DWF&RS

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CH2M HILL Plateau Remediation Company

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**LOW-LEVEL BURIAL GROUNDS TRENCH 94
WASTE ANALYSIS PLAN**

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**LOW-LEVEL BURIAL GROUNDS TRENCH 94
WASTE ANALYSIS PLAN**

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ACRONYMS

CAP	corrective action plan
CFR	Code of Federal Regulations
DOE-RL	U.S. Department of Energy, Richland Operations Office
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
LDR	land disposal restriction
LLBG TRENCH 94	Low-Level Burial Grounds
MSDS	material safety data sheet
NIOSH	National Institute for Occupational Safety and Health
PES	performance evaluation system
PSNS	Puget Sound Naval Shipyard
QA	quality assurance
QC	quality control
RCs	Reactor Compartments
RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
RCW	Revised Code of Washington
TSD	treatment, storage, and/or disposal
WAC	Washington Administrative Code
WAP	waste analysis plan

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WASTE ANALYSIS PLAN

1. UNIT DESCRIPTION

The purpose of this waste analysis plan (WAP) is to document the overall waste acceptance processes that are undertaken for waste accepted for final disposal at the Low-Level Burial Ground (LLBG Trench 94). The LLBG Trench 94 Operating Unit 18 is a land-based unit located in the 200 East Area of the Hanford Facility in the northeast corner of 218-E-12B Burial Ground. Trench 94 covers a total area of approximately 49 hectares and is designed for the receipt and final disposal of decommissioned, defueled reactor compartments (RCs) from submarines and surface ships. The first defueled RC was placed in LLBG Trench 94 in April 1986. The RCs are prepared for disposal by the Puget Sound Naval Shipyard (PSNS) in Bremerton, Washington, and transported by barge to the Port of Benton to the Hanford Site. For a detailed description of LLBG Trench 94 refer to Addendum A, "Part A Form" and Addendum C, "Process Information". Activities may be performed by the LLBG Trench 94 operating organization or its delegated representatives.

1.1 Description of Unit Processes and Activities

The 218-E-12B Burial Ground is located in the 200 East Area of the Hanford Site. Trench 94 is a land-based unit within the 218-E-12B Burial Grounds and covers approximately 49 hectares. This Trench receives reactor compartments (RCs) from the U.S. Navy for final disposal. The RCs are prepared for disposal by the Puget Sound Naval Shipyard (PSNS) in Bremerton, Washington, and transported by barge to the Port of Benton to the Hanford Site. LLBG Trench 94 should continue to receive reactor compartments for the foreseeable future.

The RCs destined for disposal in LLBG Trench 94 are considered mixed waste upon shipment from PSNS and meet land disposal restriction (LDR) requirements [WAC 173-303-140, and RCW-70.105].

1.1.1 Waste Acceptance, Movement, Processing, and Management

The LLBG Trench 94 uses waste tracking processes to ensure that the waste received at the LLBG Trench 94 matches the manifest papers, to ensure that the waste is tracked through the LLBG Trench 94 to final disposition, and to maintain the information required in WAC 173-303-380. The waste tracking process provides a mechanism to track waste through a uniquely identified container. The unique identifier is a barcode (or equivalent) that will be recorded in an electronic data tracking system. This mechanism encompasses waste acceptance, movement, processing, and management of waste. The container identification number allows the LLBG Trench 94 to link to hard copy or electronic copy of records that are maintained as part of the operating record to retain information on the location, quantity, and physical and chemical characteristics of the waste.

The following sections describe the process for waste acceptance and different types of information and knowledge reviewed/required during the acceptance process. The process for management of waste is described in Addendum C.

1.1.1.1 Narrative Process Descriptions

Reactor compartments that meet applicable LDR requirements, as specified by WAC 173-303-140, are disposed at the LLBG Trench 94. The LLBG Trench 94 operating record contains information necessary to meet LDR requirements (Section 5.2).

1.1.1.2 Waste Acceptance Process

The waste acceptance process for LLBG Trench 94 is described in Section 2 confirmation, and consists of waste stream approval, waste shipment/transfer approval, and verification.

1.1.1.2.1 Types of Knowledge

When collecting documentation on a waste stream or container, the LLBG Trench 94 must determine if the information provided by the generator meets the definition of knowledge in WAC 173-303-040.

Knowledge requirements are met by sampling and analysis, and/or process knowledge. Process knowledge consists of detailed information from existing published or documented waste analysis data, including but not limited to the following:

- Mass balance from a controlled process that has a specified input for a specified output.
- Material safety data sheets (MSDSs) on unused chemical products.
- Test data from a surrogate sample.
- Analytical data on the waste.
- Interview information.
- Logbooks.
- Procurement records.
- Qualified analytical data.
- Processes and/or methods.
- Process flow charts.
- Inventory sheets.

This information will be sufficient to quantify constituents and characteristics to safely manage in compliance with LLBG Trench 94 acceptance criteria and WAC 173-303. The LLBG Trench 94 acceptance criteria are defined as the requirements found in this WAP and the associated LLBG Trench 94 dangerous waste permit application Part A.

1.1.1.3 Description of Performance Evaluation System (PES)

The Performance Evaluation System (PES) provides a periodic status of the generator's performance for waste received. The PES provides a mechanism for determining corrective actions, resolving waste acceptance issues, and physical screening frequency adjustments when a conformance issue has been discovered for newly generated waste.

1.1.1.3.1 Initial Physical Screening Frequency Determination

This waste stream is exempt from verification due to its classified nature, and therefore it is not subject to a physical screening frequency.

1.1.1.3.2 Performance Evaluation

A performance evaluation will be used to trend the generator's waste acceptance performance. This evaluation, identified as an integral part of the QA program, is objective and considers the conformance issues documented during the Pre-shipment Review and Verification functions. The performance evaluation will be used to review the generator's overall waste performance, even though the waste is exempt from verification.

1.1.1.3.3 Conformance Issue Resolution

Conformance issues may result in a waste container that does not meet the LLBG Trench 94 waste acceptance requirements. A conformance issue is any discrepancy identified during the confirmation process with waste package documentation, a waste package, or a shipment. Discrepancies can be identified during pre-shipment reviews of waste streams during the verification process. When a possible conformance issue is identified, the following actions will be taken to resolve the issue:

- The PES compiles all information concerning the possible conformance issue(s).

- The generator will be notified and requested to supply additional knowledge that may assist in the resolution of the concern(s). If the generator supplies information that resolves the concern(s) identified, no further action is required.
- On determination that a conformance issue has been identified, the LLBG Trench 94 personnel and the generator discuss the conformance issue and identify the appropriate course of action to resolve the RC container in question.
- The LLBG Trench 94 operations management requests the generator to provide a corrective action plan (CAP) that clearly states the reason for the conformance issue and describes the actions to be completed to prevent recurrence.

1.1.1.3.4 Process for Reducing the Physical Screening Frequency

Physical screening is not applied to the reactor compartments. The reactor compartments meet the physical screening exemption for shielded, classified, and remote handled mixed waste and are not subject to the physical screening requirements (Ecology 1997).

1.1.2 Operating Conditions

The LLBG Trench 94 shall ensure that all waste management operations are conducted in accordance with design and engineering requirements of waste management structures and equipment, and with all equipment manufacture specifications and operating processes. Before disposal of waste, the LLBG Trench 94 shall have processes in place to ensure safe management of the waste. These processes shall consider actual or potential risks posed by the waste disposal equipment. The LLBG Trench 94 shall conduct all waste disposals according to these processes.

1.2 Identification and Classification of Waste

Only reactor compartments from the U.S. Navy will be accepted for disposal (mixed waste) in LLBG Trench 94.

The Part A Form for this TSD unit (Addendum A) identifies dangerous waste numbers, quantities, and design capacity.

1.2.1 Dangerous Waste Numbers, Quantities, and Design Capacity

The LLBG Trench 94 Part A (Addendum A) identifies dangerous waste numbers, quantities, and design capacity.

Waste will be designated pursuant to WAC 173-303 using process knowledge, manufacturer’s product information, MSDS, laboratory analysis, and reference material such as *Registry of Toxic Effects of Chemical Substances* (NIOSH) and consistent with EPA’s review and correspondence on “Regulation of Submarine Reactor Compartment Disposal Packages” (EPA 1991).

Designation for Waste Types at LLBG Trench 94:

Number	References
D008 (state-only)	WAC 173-303-090(8)

2. CONFIRMATION PROCESS

The confirmation process used to meet WAC 173-303-300 requirements includes completing appropriate pre-shipment reviews and verification steps and/or parameters as described in this section.

2.1 Pre-Shipment Review

Pre-shipment review takes place before waste can be scheduled for transfer or shipment to LLBG Trench 94. The review focuses on whether the waste stream is defined accurately, meets the LLBG Trench 94 waste acceptance requirements, and the LDR status is determined correctly (for mixed waste subject to LDR treatment standards refer to Section 5.2). Only waste determined to be acceptable for disposal will be scheduled. This determination will be based on the information provided by the generator. The pre-shipment review consists of the waste stream approval and waste shipment approval process. The following sections discuss the pre-shipment review process. The information obtained from the generator during the pre-shipment review, at a minimum, includes all information necessary to safely dispose the waste. The pre-shipment review ensures the waste has been characterized for purposes of evaluation against the LLBG Trench 94 waste acceptance requirements, and that the data provided qualify as 'knowledge' (Section 2.1.3).

2.1.1 Waste Stream Approval Process

The waste stream approval process consists of reviewing waste stream information supplied on a waste stream profile or other approved processes and attached analysis. At a minimum, the waste stream profile or other approved processes requests the following information:

- Generator information (e.g., name, address, point-of-contact, telephone number).
- Reactor compartment identification.
- Waste generating process description.
- Chemical characterization information (e.g., characterization method(s), chemicals present, concentration ranges).
- Designation information.
- Waste type information (e.g., physical state, absorbents used, inert materials, stabilizing agents used).
- Packaging information (e.g., container type, maximum weight, size).
- Attachments could consist of container drawings, process flow information, analytical data, etc.

This information will be reviewed against the LLBG Trench 94 waste acceptance requirements to ensure the waste is acceptable for receipt. If conformance issues are found during this review, additional information will be requested.

On determination that the waste is acceptable for receipt and disposal at LLBG Trench 94, the LLBG Trench 94 operations management assigns the waste on the profile or other approved processes to a waste management path based on the PES requirements found in Sections 1.1.1.3.

2.1.2 Waste Shipment Approval Process

For each waste transfer or shipment that is a candidate for disposal in LLBG Trench 94, the generator provides the following information:

- RC container identification number.
- Profile number or other approved processes (except for waste transfers of previously accepted waste).
- Waste description.
- Generator information (e.g., name, address, point-of-contact, telephone number).

- RC Container information (e.g., type, size, weight).
- Waste numbers.
- Designation as dangerous waste.
- Waste composition.
- Packaging materials and quantities.

The pertinent information will be entered into a solid waste information tracking system.

Where potential conformance issues exist in the information provided, (e.g., waste characteristics do not match the waste profile information, LLBG Trench 94 waste acceptance requirements, or additional constituents are expected to be present that do not appear on the documentation), the U.S. Navy will be contacted (if available) by the DOE for resolution. Refer to Section 6.0 for discussion on repeat and review frequency.

For each container, a technical review will be performed. The technical review is as follows:

Technical review

The individual RC container data will be compared to the waste profile or other approved process data to ensure the waste to be shipped to the LLBG Trench 94 is as described by the waste profile. Every shipment will be reviewed to ensure the waste meets the LLBG Trench 94 waste acceptance requirements.

Based on waste identification information provided, the waste designation will be reviewed to ensure compliance with waste designations per WAC 173-303-070 through -100, as well as evaluating whether the waste meets the LLBG Trench 94 waste acceptance requirements.

2.1.3 Knowledge Requirements

The LLBG Trench 94 operations management ensures that all information used to make waste management decisions will be based on the requirements found in the following sections. Information determined to be 'knowledge' must meet the definition of *Knowledge* cited in WAC 173-303-040.

2.1.3.1 General Knowledge Requirements

Adequate knowledge requires (1) general waste knowledge requirements and (2) LDR waste knowledge requirements.

- (1) **General Waste Knowledge Requirements for Designation and Waste Management.** At a minimum, the generator supplies enough information for the waste to be disposed in LLBG Trench 94. The minimum level of knowledge consists of designation data where the constituents or knowledge of the waste's generating source (in the case of wastes potentially from listed sources) causing a dangerous waste number to be assigned are quantified, and that data addresses any LLBG Trench 94 operational parameters necessary for proper management of the waste.
- (2) **Waste Knowledge Requirements for LDR Compliance.** The LLBG Trench 94 portion of the operating record contains all information required to document that the reactor compartment designate as state-only D008 waste and that LDR requirements do not apply.

2.1.3.2 Methodology to Ensure Compliance with Land Disposal Restrictions for Mixed and Dangerous Waste

The U.S. Navy, a generator of mixed and dangerous waste, and is potentially subject to LDR requirements. However no LDR requirements apply to the reactor compartments.

2.2 Verification

Verification is an assessment performed by the LLBG Trench 94 to substantiate that the waste stream received at the LLBG Trench 94 is the same as represented by the analysis supplied by the generator for the pre-shipment review. Verification will be performed on waste received by the LLBG Trench 94.

Verification includes container receipt inspection. Waste will not be accepted by the LLBG Trench 94 for disposal until the required elements of verification have been completed, including evaluation of any data obtained from verification activities. Documentation reviewed as part of verification activities may include manifest, container inventory documentation, a container listing report, and the waste profile. Reactor compartments are not subject to physical or chemical screening requirements (Ecology 1997).

2.2.1 RC Container Receipt Inspection

RC receipt inspection is a mandatory element of the verification process. Therefore, RCs will be visually inspected and evaluated at the LLBG Trench 94 for possible damage or leaks and container markings. This is to ensure that the following conditions apply to the shipment:

1. The shipment is received at the LLBG Trench 94 in good condition.
2. The shipment is the waste indicated on the transfer or shipping papers.
3. The shipment is complete.

When a conformance issue exists, a case-by-case determination is performed and the appropriate action will be taken based on the severity of the issue. One of the following actions may be taken as appropriate, in response to a conformance issue:

- Implementation of the contingency plan Addendum J.
- Conformance issues where additional information is needed to safely manage the waste will be resolved before verification continues.
- Continuation of verification for waste with conformance issues not meeting the above criteria.

2.3 Waste Acceptance

Initial acceptance of waste occurs only after the confirmation process described in Section 2.0 is complete. Conformance issues identified during the confirmation process are documented and managed in accordance with Section 1.1.1.3.3. Conformance issues that must be corrected before waste acceptance include:

- Waste does not match approved profile documentation,
- Designation discrepancy,
- Incorrect LDR paperwork,
- Packaging discrepancy,
- Manifest discrepancies as described in WAC 173-303-370(4)(a).

Waste that does not meet the LLBG Trench 94 waste acceptance requirements can be accepted when that waste is scheduled for discrepancy resolution. The discrepancy resolution activities will be tracked to completion (refer to Section 2.4).

2.4 Discrepant RC Container Management

When a discrepant container is identified that would affect the management of the container, the following processes will be initiated:

- The generator will be requested to provide additional information to resolve the discrepancy. For project waste an evaluation will be performed on available historical data. Based upon the evaluation of information (hazards identified) the RC container will be managed in a safe configuration.
- The RC container will be scheduled for discrepancy resolution.

2.5 Generated Waste

No dangerous waste is generated in Trench 94.

3. SELECTING WASTE ANALYSIS PARAMETERS

No waste analysis parameters apply to the acceptance and disposal of reactor compartments.

4. SELECTING WASTE RE-EVALUATION FREQUENCIES

The waste profile and supporting data and documentation shall be re-evaluated at least annually, or more often, if the U.S. Navy or its contractor has informed LLBG Trench 94 of a change in the waste generation process, or if waste received at the LLBG Trench 94 or the description on the shipping documentation does not match the waste profile. If the U.S. Navy or its contractor has informed LLBG Trench 94 of a change in the waste generation process, the waste re-enters the waste stream approval process described in Section 2.1.1. LLBG Trench 94 will evaluate available documentation against the waste profile to identify any waste streams for which a change in waste generation process is suspect. If a waste stream is suspect, that waste stream will re-enter the approval process described in Section 2.1.1.

When a waste profile is re-evaluated, LLBG Trench 94 could request the U.S. Navy or its contractor to do one or more of the following:

- Verify accuracy of current waste profile;
- Supply a new waste profile;

5. SPECIAL WASTE ANALYSIS PROCEDURAL REQUIREMENTS

This section discusses any special process requirements for receiving mixed waste at the LLBG Trench 94.

5.1 Processes for Receiving Offsite Waste

The processes for receiving waste are described in Section 2.0. Mixed waste received from U.S. Navy will be managed in accordance with Section 2.2.1.

5.2 Provisions for Complying With Federal and State Land Disposal Restriction Requirements

State-only and federal LDR requirements restrict the land disposal of certain types of waste subject to *Resource Conservation and Recovery Act (RCRA) of 1976* and the *Hazardous Waste Management Act of 1976*. Waste managed on the Hanford Facility falls within the purview of these LDRs per 40 CFR 268 and WAC 173-303-140. Waste constituents that are subject to LDRs are identified in 40 CFR 268.40 and referenced by WAC 173-303-140. Waste must meet certain treatment standards, as specified in 40 CFR 268 and/or WAC 173-303-140, if the waste is to be land disposed.

Generators determine if LDRs apply to the mixed or dangerous waste based on knowledge or testing [40 CFR 268.7(a)]. Reactor compartments are state-only dangerous waste. No treatment standards apply to this waste.

5.2.1 Waste Treatment

No treatment occurs for the acceptance and disposal of reactor compartments.

5.2.2 Land Disposal Restriction Certification of Treatment

LDR certifications do not apply to the reactor compartments since they are state-only dangerous waste.

6. RECORDKEEPING

Recordkeeping requirements applicable to this WAP are described in Attachment 6 and this WAP.

The LLBG Trench 94 operating unit maintains the waste stream documentation or other approved processes, and supporting documentation described in this WAP in accordance with the requirements in Permit Condition II.I.

7. REFERENCES

Ecology 1997, Close out of May 21, 1996 Dangerous Waste Compliance Inspection of Mis-Designated Waste Received at Hanford, Washington State Department of Ecology, Richland WA, April 11, 1997 (Enclosure dated April 2, 1997).

EPA 1991, "Requisition of Submarine Compartment Disposal Packages," (letter to K.W. Bracken, Acting Director, Waste Management Division, DOE, from M. Gearheard, Chief, Waste Management Branch, EPA) February 1. Appendix 4D, ATT 2-1 available on the internet at:
http://www5.hanford.gov/pdw/fsd/AR/FSD0001/FSD0010/D9090693/D9090693_31263_291.pdf

NIOSH, as amended, *Registry of Toxic Effects of Chemical Substances*, U.S. Department of Health and Human Services, Public Health Service Centers for Disease Control and Prevention national Institute for Occupational Safety and Health. Available on the Internet at <http://www.cdc.gov/niosh/97-119.html>.

WAC 173-303, "Dangerous Waste Regulations," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

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