

REQUIRED READING SYNOPSIS

Complete this form and submit with procedure revisions when Required Reading is selected as the level of training on the WCH-DC-002 form.

Procedure No.: WMT-1-1.3	Rev No.: 8	Author: I. L. Siddoway	Date: 11/22/2011
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Procedure Title: Waste Characterization and Designation (Certification)

I. Summary of Changes:

This revision incorporates the outside organization's review of the Waste Designation and Profile process. This revision formalizes a standardized process for performing waste designations and profiling to answer IF-2010-0315.

II. Primary Steps Affected:

1. Changed Prepared By to Ingrid L. Siddoway
2. Section 2.0, second paragraph, revised to read; "Waste generated by WCH and approved to be shipped to a Treatment, Storage and Disposal (TSD) facility shall be designated and profiled using this procedure and the most current version of the TSD's waste acceptance criteria."
3. Section 4.0, Waste Generator's Project Manager, first responsibility is rewritten to read; "Characterizes waste to ensure proper documentation of types and quantities of radionuclides, dangerous/hazardous constituents, and physical and chemical characteristics."
4. Section 4.0, Waste Generator's Project Manager, fifth responsibility is rewritten to read; "Ensures that the waste has been authorized and documented as Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) waste and this documentation is provided to the WCH Waste Designation Specialist (WDS).
5. Section 4.0, Waste Generator's Project Manager, seventh responsibility is rewritten to read; "Signs and dates all waste designations/profiles for ERDF and non-ERDF TSD's. Signature certifies that relevant information regarding known or suspected hazards in the possession of the project has been disclosed. Certifies to the best of their knowledge that the information contained within the profile and attached documentation accurately describes or bounds the waste stream and that all shipments of waste transported under the profile will meet the ERDF Waste Acceptance Criteria (WAC) or the WAC of the receiving TSD facility."
6. Section 4.0, Waste Subject Matter Expert (WSME), Waste Services Lead (WSL) or their designee, 4th responsibility is rewritten to read; "Reviews and approves (by signature) all waste designations and profiles."
7. Section 4.0, Waste Subject Matter Expert (WSME), Waste Services Lead (WSL) or their designee, added a 6th responsibility to read; "Ensures the ERDF waste profiles are entered in the Waste Management Information System (WMIS) accurately and verifies the profile."
8. Section 4.0, Waste Designation Specialist, added an additional responsibility that reads; "May identify which waste sites, buildings, etc., should be bundled together from a waste designation perspective."
9. Section 5.1, first bullet, added another sentence that reads; "This includes but is not limited to unexpected elevated dose rates, new chemical or radiological constituents, or the age of the most current revision of the designation/profile."
10. Section 5.1, added three additional bulleted items at the bottom of 5.1.
11. Section 5.6, added a section entitled "Chemical and Physical Characterization".
12. Section 6.0, Revised the section title to "Procedure" and added some suggestions and requirements for calculations, and a discussion of the various tabs when performing Waste Designations.
13. Section 6.3, Revised the "Attachment" section with additional information when developing Waste Designations and Profiles.
14. Section 6.5, Waste Profiles, Revised to put Waste Profiles under section 6.0.
15. Section 6.6, 6.7, 6.8 and 6.9; Revised numbering of these sections to be under section 6.0 and added sections under 6.9, Designation Tools.
16. Section 7.0, Revised the section to include the required documents for long term storage.

III. Rationale for Changes:

This procedure revision addresses IF-2010-0315 by formalizing a standardized process for performing waste designations and profiling.

WMT-1, Waste Management and Transportation

Waste Characterization and Designation (Certification)

Prepared By: Ingrid L. Siddoway

1.0 PURPOSE

The purpose of this procedure is to provide the requirements for properly characterizing, designating, and profiling waste for Washington Hanford Closure (WCH).

2.0 SCOPE

This procedure applies to the characterization and designation of WCH and WCH sub-contractor waste.

Waste generated by WCH and approved to be shipped to a Treatment, Storage and Disposal (TSD) facility shall be designated and profiled using this procedure and the most current version of the TSD's waste acceptance criteria.

Waste generated by Other Hanford Contractors (OHCs) approved to ship to the Environmental Restoration Disposal Facility (ERDF) shall be designated and profiled using this procedure.

Waste generated by ERDF operations (e.g., spills, personal protective equipment) and are to be disposed of at ERDF are subject to the requirements of this procedure.

Waste generated by subcontractors is managed as specified in subcontract general provisions. Waste associated with sample analysis at non-River Corridor Closure (RCC) laboratories is managed as required in the RCC contract. This procedure does not apply to office waste, as defined in WMT-1-1.2, "Waste Identification."

3.0 DEFINITIONS

See WMT-1, *Waste Management and Transportation*, WMT-1-APA, "Glossary of Terms."

4.0 RESPONSIBILITIES

Waste Generator's Project Manager, Engineer or designee

- Characterizes waste to ensure proper documentation of types and quantities of radionuclides, dangerous/hazardous constituents, and physical and chemical characteristics.

- Requests that waste be designated and provide process knowledge and/or analytical data to the Waste Designation Specialist (WDS) using the example provided in Attachment 2 as described in the ERDF Waste Disposal Requirements (EWDR) as form WCH-EE-305, "Profile Request Form".
- Identifies which waste sites, buildings, etc., should be bundled together from a waste designation perspective.
- Develops a methodology to accurately document the percent by volume of each item type in the waste.
- Ensures that the waste has been authorized and documented as Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) waste and this documentation is provided to the WCH WDS.
- Implements a verification program to ensure that waste intended for disposal at ERDF is within the established waste profile limits.
- Signs and dates all waste designations/profiles for ERDF and non-ERDF TSDs. Signature certifies that relevant information regarding known or suspected hazards in the possession of the project has been disclosed. Certifies to the best of their knowledge that the information contained within the profile and attached documentation accurately describes or bounds the waste stream and that all shipments of waste transported under the profile will meet the ERDF Waste Acceptance Criteria (WAC) or the WAC of the receiving TSD facility.

**Waste Operations ERDF
Project Engineer**

- Signs the ERDF waste profile agreeing that the waste has been approved through the currently approved process and is acceptable at ERDF.

ERDF Operations Engineer

- Signs the ERDF waste profile concurring that, as described in the ERDF waste profile, the waste meets all conditions and limitations for acceptance at ERDF in accordance with the ERDF WAC.

**Waste Subject Matter Expert
(WSME), Waste Services
Lead (WSL) or their
designee**

- Has profiles prepared for ERDF and non-WCH facilities as appropriate.
- Sets priorities for the WDS.

<p>Waste Management & Transportation Manager (WMTM)</p>	<ul style="list-style-type: none"> • Concurs with non-WCH profiles, as appropriate. • Reviews and approves (by signature) all waste designations and profiles. • Reviews profiles for accuracy, in accordance with this procedure and/or non-WCH receiving facilities criteria. • Ensures the ERDF waste profiles are entered in the Waste Management Information System (WMIS) accurately and verifies the profile. • Ensures that sufficient qualified personnel are available to perform waste designation.
<p>Waste Designation Specialist (WDS)</p>	<ul style="list-style-type: none"> • Ensures sufficient data are provided by the project engineer or OHC to properly characterize, designate, and meet the disposal facility's waste acceptance criteria based on the process knowledge and/or analytical data provided. • Prepares the waste designations. • Prepares the ERDF waste profiles. • May identify which waste sites, buildings, etc., should be bundled together from a waste designation perspective. • Prepares/concurs with non-WCH designations, as appropriate. • Ensures the ERDF waste profiles are entered in WMIS.
<p>Information and Administrative Services (I&AS)/Records Management</p>	<ul style="list-style-type: none"> • Assists in transfer of records to the Records Holding Area (RHA) for the Waste Management and Transportation program.

5.0 REQUIREMENTS

5.1 General Requirements

In order to optimize the process, it is incumbent upon all personnel using this procedure to identify similar waste sites, buildings, etc., to determine if previous waste designations may be utilized to bound the designation being developed. If it is determined that similar sites(s) have been previously designated, the previous waste designation may be used in the development of the new or revised designations to include subsequent similar waste sites.

- Each designation/profile shall be reviewed and updated or a new designation/profile shall be prepared as necessary based on changing conditions not covered by the existing designation or profile. This includes but is not limited to unexpected elevated dose rates, new chemical or radiological constituents, or the age of the most current revision of the designation/profile.
- The Waste Subject Matter Expert (WSME), Waste Services Lead (WSL), or designee shall evaluate any newly generated data for waste streams covered by an existing designation/profile. The intent of the evaluation is to determine if the new data drives a designation/profile revision and the immediacy of that revision, if required.
- Characterization shall be based on historical analytical data, process knowledge, sample collection and analysis, or a combination thereof.
- Chemical and radiological characterization must be performed using approved methodologies.
- The data quality objective (DQO) process in ENV-1, *Environmental Monitoring and Management*, ENV-1-2.2, "Data Quality Objectives Process," (or equivalent) should be used for identifying characterization parameters and the amount of acceptable uncertainty in characterization data.
- If waste characterization is accomplished through sampling and analysis, a Sampling and Analysis Plan (SAP) or equivalent shall be prepared in accordance with ENV-1, *Environmental Monitoring and Management*, ENV-1-2.9, "Sampling Plans." Each SAP should identify the logic behind the characterization scheme, characterization methodology, protocols, and requirements for recordkeeping and documentation.
- If process knowledge is used rather than (or in addition to) sampling and analysis, documentation must be provided to demonstrate that the information is sufficient to accurately and completely identify the waste, as required by Section 5.5 of this procedure.
- Characterization shall be adequate to permit proper segregation, storage, treatment, and disposal.
- All designations/profiles may utilize the applicable sections of the WCH spreadsheet, *Waste Designation Profile and Routing* (UCM #45836). All waste going to ERDF must use the WCH spreadsheet.
- All designations/profiles, regardless of the destination of the waste, will include appropriate supporting documentation and be sent to the RHA for scanning and archiving.

BASIS: DOE O 435.1, WAC 173-303, 40 CFR 261, and 40 CFR 761

5.2 ERDF Verification

All ERDF users shall implement a verification program to ensure that waste intended for disposal at ERDF is within the established waste profile. Verification activities may include application of process knowledge, observation, process monitoring, sample collection and analysis, or a combination thereof. Verification activities involving process monitoring or sample collection and analysis shall be planned and documented as specified in the ERDF WAC, and may include periodic ERDF oversight and assessment processes. For small waste streams (e.g., a single container, total volume from a spill), characterization and verification activities may consist of a single event.

If a determination is made through verification activities that the physical nature, constituents, or constituent concentrations of waste shipped to ERDF are not covered or exceed those documented in the approved waste profile, ERDF management and operations team shall be notified. A new or revised profile will constitute this notification. After a project reevaluation of the assumptions used for waste profiling and characterization, the profile shall be revised to reflect the new values and submitted in accordance with the process described within this procedure (if required).

BASIS: ERDF WAC

5.3 Radiological Characterization

The DQO process shall be used in accordance with ENV-1-2.2, "Data Quality Objectives Process," or equivalent to determine the appropriate type, quantity, and quality of radiological characterization data to be obtained. Radioactive waste constituents shall be adequately characterized to permit proper segregation, treatment, storage, and/or disposal. The major radionuclides in the waste and the concentrations of each radionuclide must be established with sufficient sensitivity and accuracy to properly classify and manage the waste in accordance with the disposal facility's radiological limits.

NOTE: For the definition of major radionuclide, see WCH-191, *Environmental Restoration Disposal Facility Waste Acceptance Criteria* (current version), or the waste acceptance criteria of the receiving facility.

All waste designations shall address radiological characterization in regard to spent nuclear fuel, special nuclear material, transuranic (TRU), and 11e (2) byproduct material and U.S. Nuclear Regulatory Commission (NRC) classification (i.e., Class A, B, C, or >C).

Radiological characterization shall consider the potential exposure of materials to radioactive contamination or neutron activation.

Both direct and indirect methods can be used for characterization. When indirect methods are used, these methods should be corroborated periodically with direct measurements. The frequency of corroborative analysis shall be based on the variability of the waste-generating process and the extent and consistency of previous analytical data. A graded approach shall be applied when determining the appropriate type and frequency of corroborative analysis. Using the graded approach, more frequent and detailed analysis is performed when a waste approaches one or more of the limits associated with determining the appropriate waste

category (e.g., TRU determination, Category 1 and 3 limits, NRC Class C). Conversely, waste that is far below the applicable limits of these criteria would not require as extensive or frequent analysis.

Provide radiological characterization to determine the quantity of each radionuclide in the waste. Using analytical results to identify radionuclides is preferred (as opposed to results obtained through scaling, process knowledge or other indirect means).

- Scaling of radionuclides: When necessary to distinguish specific radionuclide activity from the activity of other radionuclides, perform scaling using technically defensible methodologies. In all cases where scaling is used, provide a detailed explanation of the method used.
- Daughter (progeny) activities: Identify daughters of reported parent radionuclides (as determined by laboratory analysis) that are present in the waste; however, do not report daughter activities unless required by the receiving facility's waste acceptance criteria.
- Naturally occurring radionuclides: Identify naturally occurring radionuclides reported by laboratory analysis. Do not report the activities to a receiving facility unless required by the receiving facility's waste acceptance criteria.

Three radionuclides require special consideration with regard to ERDF reporting: technetium-99, carbon-14, and total uranium. A "trigger level" is established in Table 3 of the ERDF WAC that identifies a concentration whereby further evaluation is required. Once this level is reported, the waste originator is required to further quantify the total curies of each of these isotopes, based on a quantifiable measurement, before the waste will be accepted for disposal. The waste form must also be identified in instances where the trigger level is exceeded.

BASIS: DOE O 435.1 and DOE/RL-2000-25

5.3.1 Radiological Waste Classification

Radioactive wastes being treated or disposed of at ERDF or any NRC regulated facility shall be classified in accordance with 10 CFR 61.55 (Waste Classification). To classify waste for disposal, two basic determinations are made:

- (1) Whether the waste is acceptable for near-surface disposal, and
- (2) If acceptable for near-surface disposal, whether the waste is Class A, B, or C.

Waste is determined to be generally unacceptable for near-surface disposal if it exceeds the concentrations of the radionuclides listed in Table 1, or in column 3 in Table 2 in 10 CFR 61.55. The "sum-of-fraction rule" applies for each table. A determination must also be made whether the waste complies with any additional waste form, package, or content requirement that may be in place at the particular disposal facility the waste is to be shipped.

The U.S. Department of Energy, Richland Operations Office classifies waste for disposal at its Project Hanford Management Contractor (PHMC) facilities as Category I or III. Guidance for

Category I and III determinations are found in HNF-EP-0063, *Hanford Site Solid Waste Acceptance Criteria*, current revision, Fluor Hanford, Inc., Richland, Washington.

5.3.2 Determining Radionuclide Concentrations

Guidance for determining concentrations of radioactive waste is found in the NRC Issuance of Final Branch Technical Position on Concentration Averaging and Encapsulation, Revision in Part to Waste Classification Technical Position (NRC 1995). The technical position was issued for purposes of documenting the NRC position regarding the application of averaging for purposes of determining the waste category in accordance with its promulgated regulation 10 CFR 61.55.

5.4 Release of Waste Not Controlled As Radioactive

The process for determining and documenting that waste is suitable to be released and managed without regard to its radioactive content shall be in accordance with the criteria and requirements of DOE Order 5400.5, *Radiation Protection of the Public and the Environment*.

With the exception of clean, non regulated office waste, waste must be certified as no radiation added prior to release for an offsite non-NRC-licensed facility.

Waste determined to have no contamination or activation added by a DOE process shall be certified before being released for offsite recycling or disposal. Criteria for certification are described in WMT-1-1.8, "Release of Waste Not Controlled as Radioactive."

BASIS: DOE O 435.1, DOE Order 5400.5, DOE 1993, and WHC 1993

5.5 Process Knowledge

When a waste designation is based solely on process knowledge, the waste generator must ensure that the chemical, physical, and radiological properties of the waste are adequately determined. The designation must be accomplished with sufficient accuracy to ensure that subsequent treatment, storage, and disposal (TSD) of the waste provides protection of human health and the environment. The logic used to make the designation must be documented. The technical basis, including historical information, procedures, practices, and information gained from interviews, shall be documented.

Document the logic associated with the use of process knowledge used to include (or exclude) a radiological or chemical contaminant in a waste designation. Include the basis for the use of process knowledge and specific citations of process knowledge documentation. Use one or more of the following sources of process knowledge that meet the requirements for acceptable knowledge to designate waste:

- Material safety data sheets for chemicals
- Analytical data on the waste or a waste from a similar process
- Test data from a surrogate sample
- Mass balance from a controlled process that has a specified output for a specified input

- Other resources (e.g., chemical databases, chemical handbooks, and published manuals).
- Interview information
- Logbooks
- Procurement records
- Qualified analytical data
- Radiation survey records
- Procedures and/or methods
- Process flowcharts
- Inventory sheets
- Vendor information
- Mass balance from an uncontrolled process (e.g., spill cleanup) or a process with variable inputs and outputs (e.g., washing/cleaning methods).

NOTE: Unbroken knowledge of the history of the processing operation is required to designate a process waste solely by using process knowledge. Any knowledge gaps in the process operational timeline (e.g., loss of process records for some time period) may render process knowledge insufficient to designate the waste. Sampling may be required to cover the gaps in operational history.

Additionally, when using inventory control as a basis for process knowledge, an evaluation should be included, either by reference or as an appendix to the SAP (or equivalent document), that addresses the following considerations: identification of chemicals and radionuclides reasonably expected to be present in the waste based on a review of feed materials used at the facility, a description of the amount of product or waste stream produced, and records of pertinent spills or leaks.

For waste designated solely by the use of process knowledge, the process knowledge used must quantify constituents and characteristics sufficiently to satisfy the regulatory and TSD unit-specific waste acceptance criteria.

Process knowledge must be sufficient to demonstrate the following:

- The waste is not prohibited from management at a specified TSD unit.
- The waste is compatible with its container.
- The waste containers are appropriately segregated for compatibility.
- The waste can be managed safely.
- The waste can be properly segregated for TSD Unit.

Listed waste must be designated based on process knowledge. Other waste stream designations may be based on process knowledge and/or analytical data. The waste

generator's project will conduct a reasonable review to determine whether a listed waste source is present. The listed waste review will generally rely on reasonably available documentation gathered as a part of the standard *Comprehensive Environmental, Response, Compensation, and Liability Act of 1980* (CERCLA) site evaluation.

The scope of the review will be augmented, when necessary, to target specific operating procedures in the event that listed waste sources are suspected (but not yet confirmed). For CERCLA units where listed waste sources are reasonably expected, standard operator interviews should be augmented as necessary to ask questions specifically aimed at identification of potential sources. Operator interviews indicating the potential presence of a listed waste source may result in the need for more detailed review of contemporary documentation to confirm the presence of the source.

Operator interviews will generally not be used as the basis for an affirmative listed waste determination in the absence of confirmatory documentation or physical evidence.

BASIS: WAC 173-303, 40 CFR 261, 40 CFR 761, best management practice, and Ecology (2000)

5.6 Chemical and Physical Characterization

The SAP (or equivalent document) should describe the physical characteristics of the waste, including the physical state, material composition, and specific item description. The SAP (or equivalent document) describes the methods to be used to ensure that information is accurately recorded for transportation, storage, and disposal. Applicable analytical methods used to determine physical and chemical characteristics shall be addressed in the SAP (or equivalent document).

A methodology shall be developed by the waste generator's project engineer to determine the physical and chemical characteristics of the waste with sufficient accuracy and detail to properly designate and manage the waste in accordance with the disposal facility's waste acceptance criteria and applicable regulations and to accurately document the percent by volume of each item type in the waste.

Analytical data and/or process knowledge regarding the waste (see Section 5.5 of this procedure) must be sufficient to determine whether the waste is regulated under 40 CFR 261, 40 CFR 761, and/or WAC 173-303 and to assign waste codes and underlying hazardous constituents.

Where available information does not qualify as acceptable process knowledge or is not sufficient to characterize waste for management and disposal, the sampling and testing methods outlined in WAC 173-303-110 must be used. For other characteristic and state criteria designations, an appropriate method must be used when testing is needed. Appropriate test methods may include SW-846 test methods (EPA 1998) or any other methods with proper quality assurance and quality control standards.

NOTE: Characterization for determining if a waste is a listed waste is achieved by evaluating contaminant sources rather than by actual laboratory analysis.

Chemical and physical characterization shall be sufficient to ensure that the WDS can determine the following:

- If the waste is regulated as a listed dangerous waste pursuant to WAC 173-303-080, WAC 173-303-081 (P or U listed codes), and WAC 173-303-082 (F or K listed codes)
- The applicability of characteristic waste codes (e.g., ignitability, corrosivity, reactivity, and toxicity), as defined by WAC 173-303-090 (characteristic codes D001-D043).
- Determine if a waste meets the WAC 173-303 definition of dangerous waste or extremely hazardous waste. Determine the applicability of the WAC 173-303-100 definition of a toxic dangerous waste (i.e., waste with equivalent concentrations of toxic components of 0.001% or more, using the criteria in WAC 173-303-100 [5]). Review WCH letter Contract No. DE-AC06-05RL14655, *Washington Closure Hanford Implementation of Dangerous Waste Regulation Revisions*, August 13, 2009, UCM # 876186 for toxicity determination implementation requirements
- The applicability of the WAC 173-303-100 definition of a persistent waste (i.e., waste that contains a total concentration of halogenated hydrocarbons of 0.01% or more, or a total concentration of polycyclic aromatic hydrocarbons of 1.0% or more)
- If the waste is regulated due to its polychlorinated biphenyl (PCB) content under the *Toxic Substances Control Act of 1976* (TSCA) or WAC 173-303-9904
- A determination if the waste contains regulated asbestos as defined in 40 CFR 61, Subpart M
- A determination of constituents regulated for land disposal under WAC 173-303-140 and 40 CFR 268 if the waste is designated as dangerous
- For waste that is determined to be dangerous or regulated for PCB content, it shall be further evaluated to determine if the waste satisfies applicable treatment standards
- For waste that is hazardous by characteristic (WAC 173-303-090), the underlying hazardous constituents specified in 40 CFR 268.48, "Universal Treatment Standards," that can reasonably be expected to be present at the point of generation of the hazardous waste shall also be evaluated
- Whether a hazardous waste is debris. This determination of whether a waste is hazardous debris shall be made at the source in accordance with 40 CFR 268.45, and other applicable waste designation requirements. After waste has been identified as hazardous debris, it shall be so stated as part of the waste designation or profile.

BASIS: WAC 173-303-110, 40 CFR 261, 40 CFR 268, 40 CFR 761, and letter Contract No. DE-AC06-05RL14655, *Washington Closure Hanford Implementation of Dangerous Waste Regulation Revisions*, August 13, 2009, UCM # 876186)

5.7 Analytical Methods

Identify analytical methods for waste characterization in the sampling document. Analytical methods for waste characterization shall be the industry standard methods for identifying radionuclides and chemical constituents of concern, or methods that can be validated as accurate by comparison to industry standard results. Chemical constituents and radionuclides must be quantified by analytical methods and/or process knowledge.

5.7.1 Valid Analytical Data

Unless qualified with the "U" or "R" flag, develop waste designations using all laboratory data for constituent concentrations greater than the specified analyte detection limit. For radionuclides, do not add or subtract the counting error from the results prior to using the data.

NOTE: A "U" flag indicates that the analyte was analyzed for but was not detected. The value reported is the sample method detection limit corrected for dilutions and moisture content. Data flagged with "U" may be used to indicate that the constituent is not present at concentrations above one-half the method detection limit; if this causes a conflict with the regulatory limit, contact the WSME, WSL or WMTM for guidance. The "R" flag indicates the analyte was analyzed for and the data are deemed unusable due to a significant quality control deficiency.

5.8 Land Disposal Restrictions

Land disposal restriction (LDR) status of the waste shall be determined for dangerous or mixed waste based on the properties of the waste at the point of generation. These LDR requirements must be met before disposal as specified in 40 CFR 268 and WAC 173-303-140 or a treatability variance must be obtained. For CERCLA activities, a variance may be described in the record of decision or other applicable documents. This determination shall be documented in the waste profile and/or waste designation.

Compliance with LDR standards based upon numerical standards are generally based on grab samples. As a consequence, no portion of the treated waste may exceed the treatment standard and statistical "averaging" is not allowed.

5.8.1 Hazardous Debris

Unless exempted by the U.S. Environmental Protection Agency (EPA), hazardous debris shall comply with the debris treatment standards (40 CFR 268.45) or the otherwise applicable LDR treatment standard. Although sampling of treated hazardous debris to demonstrate compliance may not be required, documentation of conformance with the technology performance and operating or design standards shall be provided. Under the EPA rule, treated hazardous debris is excluded from the definition of hazardous waste, provided that the hazardous debris is treated by an extraction or destruction technology and the treated hazardous debris does not exhibit a characteristic of dangerous/hazardous waste. Listed hazardous debris treated by an immobilization technology such as macro-encapsulation or grouting must continue to be managed as a dangerous/hazardous waste. An additional option for management of debris is a determination made by the lead regulatory agency pursuant to 40 CFR 261.3(f) (2).

Excluded hazardous waste debris may be disposed of in an industrial landfill (Subtitle D) and shall be accepted for disposal at ERDF only on a case-by-case basis.

Waste containing more than one type of debris or one hazardous constituent shall be treated to meet the standards for each hazardous constituent and each type of debris, as applicable.

5.8.2 Hazardous Soil

Unless exempted by the EPA, hazardous soil shall comply with LDR standards according to the Universal Treatment Standards specified in 40 CFR 268.48 or the alternate treatment standards specified in 40 CFR 268.49.

BASIS: 40 CFR 268 and WAC 173-303-140

6.0 PROCEDURE

6.1 Waste Designation

6.1.1 General

Designation records must demonstrate traceability of the process used for designating the waste.

All documentation supporting a designation/profile shall be traceable back to its source and must be accessible for review. Within the summary text of the designation/profile each relevant document will be cited and discussed. Utilize any identifying numbers or labels, title (*italicized*), revision number or publication date, and WCH document control tracking number (if available), (e.g. DOE/RL-2009-035, *Document Title*, Rev. XX, UCM # 0000000).

Each document may be cited and referenced by its associated WCH document control tracking number (UCM #), or attach the document(s) to the waste designation. Documents useful for a designation, but not already in UCM may be sent to document control and given a UCM # for future reference.

Attaching only sections of a large document is permissible, but there must be sufficient content in the designation/profile that a future reviewer can both identify the document (including the revision appropriate to the designation/profile) and understand the logic used. Cite the document in the text of the designation/profile and attach, at a minimum, title pages, signature pages, index and/or content pages including a list of all figures and tables, abstract and/or executive summary pages, and the content pages relevant to the profile.

Laboratory and radiological data must be attached to the designation. Any data that is subject to frequent change (National Institute for Occupational Safety and Health, Registry of Toxic Effects Chemical Substances (RTECS), the United States National Library of Medicine Toxicology Data Network Hazardous Substance Data Bank (HSDB), the United States Environmental Protection Agency Ecotoxicology Database (RTECS), etc.) should also be included as supporting documentation in the designation/profile.

All applicable MSDS's and their form of use will be cited in the designation/profile summary. Cite the MSDS with the Hanford Material Safety Data Sheet System number if available. If the MSDS is in the Hanford system, it is not necessary to attach it to the designation/profile. If the MSDS generates a waste code or if there is any doubt about the version of the MSDS, the MSDS must be attached to the designation/profile. See also, Designation Tools Section 6.9.

Web site for Hanford MSDS's is: <http://www7.rl.gov/msds/>

The WDS is to use either worst-case data for designations or data considered to be representative of the entire waste stream rather than for individual points. When using data other than the worst-case data, use the methods identified in Chapter 9 of SW-846 (EPA 1998) to determine if the data are representative. When using multiple data points to represent a single analyte, use a 90% upper confidence limit (UCL) (or an 80% confidence interval). Document all computations used to determine the UCL or confidence interval of waste constituents and include the computations in the waste designation.

Dangerous waste designations shall be performed based on the properties of the waste at the point of generation. All WDS are encouraged to do a walk down of the waste sites. Any review of the waste should be coordinated with the WSME, WSL or their designee. Include any data collected in the walk down (notes, pictures, checklists etc.) as supporting documentation in the designation.

All calculations performed for the designation/profile will be completed and checked/reviewed by staff with the appropriate qualifications. If necessary, the WDS, WSME, WSL, or designee may request additional staff with the appropriate expertise to assist in or review the calculations. All requests should be made through the WSME, WSL, or designee. Where appropriate ENG-1, *Engineering Services*, ENG-1-4.5, Project Calculations will be followed. Existing approved calculations may also be used. The WDS will provide an explanation of the logic and purpose of the calculations in the summary of the designation/profile. The WSME, WSL, or designee will review the calculations including the logic and purpose other than those using the ENG-1 procedure prior to approving the designation/profile.

It is recommended that all designations are peer reviewed for accuracy.

The WDS author must sign the completed designation.

The WSME, WSL or designee must review and approve, by a signature, all designations.

For waste requiring treatment at ERDF, the dangerous waste designation shall also address the post-treatment designation if sufficient information is available (e.g., an approved waste treatment plan, macro-encapsulated waste, or listed waste). If sufficient information is not available (e.g., no approved waste treatment plan), then the waste shall be redesignated when the information becomes available.

If waste will be stored onsite (i.e., mixed waste), designation records shall be copied, provided to the TSD unit, and maintained in the TSD unit-specific operating record for future management of the waste.

All of the sections described below must be evaluated and addressed in the designation. The evaluation may be completed in any order. Any discrepancies or questions answered about the designation must be explained and documented. Include the documentation or the UCM reference number of the documentation as part of the completed designation or profile.

Utilize the *Waste Designation, Profile & Routing* Excel spreadsheet (UCM # 45836) for all designations and profiles going to ERDF. The WDS may utilize the appropriate sections of the spreadsheet for non-ERDF waste if useful. Attachment 1, "Waste Designation Example," shows a recommended format for Waste Designations. The content of each section is discussed below. Sections may be added depending on the waste being designated.

6.2 Summary Tab

6.2.1 Header

The waste designation shall also include in the header for all pages of the designation (except attachments) a space for the preparer's signature and approver's signature (see Attachment 1).

The first page of the designation summary also includes an expanded title section that includes:

- Waste Stream Name
- Generating Facility
- Profile Number
- Prepared By.
- Approved By

NOTE: Non-ERDF designations will not have a unique profile number. However, I&AS will assign a unique WD number when the designation is received at the RHA..

6.2.2 Methodology

This section discusses the methodology and basis for the waste designation. The waste designations shall include a comprehensive list of all documentation reviewed to establish the waste designation. This list will include documented process knowledge and/or SAPs, waste control plans, site investigations, waste profiles, laboratory data, and any other documents reviewed that may potentially impact the waste designation.

NOTE: Language contained in the waste designation shall specifically address the profiled waste stream (i.e., not generic or boiler-plate language).

6.2.3 Summary

The WDS is to provide a summary of the waste designation to include the following:

- Assigned waste codes: Include RCRA and Washington State codes.
- Land disposal restrictions: Summarize applicable LDR and treatments.
- Radioactive Status: Include radioactive designation (e.g., low-level waste [LLW], TRU) and NRC waste Classification (Class A, B, C, or greater than class C) or the HNF-EP-0063 Category.
- List any other pertinent data (e.g., TSCA).

6.2.4 Applicability and Description

This section provides the "what" and "where" of the designation.

The WDS is to provide a physical description of the waste being designated as to the content of the waste stream and any limitations. Identify the waste site as to where the waste is coming from and any limitations.

This section also requires a statement and reference that provides the waste site's disposal authorization. Authorization documents include but are not limited to, Records of Decision (ROD), Action Memorandums (AM), plug-in approach, Engineering Evaluation / Cost Analysis (EE/CA) or other disposal authorization documents.

List all documents used according to section 6.1.1.

6.2.5 Characteristics

The WDS is to provide a discussion on each of the following dangerous waste characteristics as to why the characteristic is, or is not applicable: List any applicable codes under their correct section.

- Ignitability (D001)
- Corrosivity (D002)
- Reactivity (D003)
- Toxicity (D004-D043)
- Toxic Dangerous Wastes
 - Dangerous Waste (WT02)
 - Extremely Hazardous Waste (WT01)
- Persistent Dangerous Waste – Halogenated Organic Compounds
 - Dangerous Waste (WP02)
 - Extremely Hazardous Waste (WP01)
- Persistent Dangerous Waste – Polycyclic Aromatic Hydrocarbons
 - Extremely Hazardous Waste (WP03)
- Washington State Corrosive

6.2.6 Listings

The WDS is to provide a discussion on each of the following as to why it is, or is not applicable. (dangerous waste, listed wastes, PCB, and/or asbestos).

- F Listing
- K Listing
- P/U Listing
- PCBs – Include discussion of WPCB and TSCA applicability.

6.2.7 Radiological

- Waste designations shall address radiological characterization in regard to spent nuclear fuel, transuranic radionuclides, and 11e (2) byproduct material in accordance with the *Atomic Energy Act of 1954* and DOE O 435.1.
- The radiological waste designations shall classify wastes as Class A, Class B, Class C, or greater than Class C in accordance with 10 CFR 61, except for waste being sent to the Mission Support Alliance contractor, which shall be classified Category I, III or greater than III per HNF-EP-0063, *Hanford Site Solid Waste Acceptance Criteria*.

6.2.8 Land Disposal Restrictions

The WDS is to provide a comprehensive listing of all applicable LDRs to include applicable:

- Waste codes
- Waste descriptions and treatment/regulatory subcategory
- Regulated hazardous constituent
- Underlying hazardous constituents (UHC)
- Treatment standard (40 CFR 268.40)
- Highest reported value (or other values as appropriate)
- Sample numbers.

6.3 Attachments

Attach all supporting data as appropriate.

6.3.1 The *Waste Designation, Profile & Routing* Excel spreadsheet (UCM # 45836) contains the following tabs providing technical and regulatory limits to complete the designation

- Toxic Tab

This tab contains programmed cells that assist the WDS in doing the Washington State Toxic Dangerous Waste calculations for dangerous waste WT02 (DW) and extremely hazardous waste WT01 (EHW) as defined in WAC 173-303-100 (5) (b) Book Designation Procedure.

Review WCH letter Contract No. DE-AC06-05RL14655, *Washington Closure Hanford Implementation of Dangerous Waste Regulation Revisions*, August 13, 2009, UCM # 876186 for toxicity determination implementation requirements.

The WDS will enter the name of the constituent with the Chemical Abstract Number (CAS #) when available.

When available, the LD₅₀ value is entered in the units appropriate for the animal and exposure type.

Fish data is entered as mg/L

Oral Rat is entered as mg/kg

Inhalation Rat is entered as mg/L

Dermal Rabbit is entered as mg/kg

The concentration of the constituent is entered as parts per million (ppm).

The species and exposure method is entered as a letter code

Fish data is entered as a letter "a"

Oral Rat is entered as a letter "b"

Inhalation Rat is entered as a letter "c"

Dermal Rabbit is entered as a letter "d"

As this data is entered, the spread sheet will calculate the Washington State Toxic Dangerous Waste Calculation and display any applicable codes.

If waste carries a federal code use this section to list all constituents and concentrations. It is not necessary to do state Toxic Dangerous waste calculations.

- Persistence Tab

This tab contains programmed cells that assist the WDS in doing the Washington State Persistent Dangerous Waste calculations for dangerous waste WP02 (DW) and extremely hazardous waste WP01 or WP03 (EHW) as defined in WAC 173-303-100 (6) (b), (c), (d).

Halogenated Organic Compounds - Enter the name of the constituent and CAS #. Enter the constituent concentration as ppm. As the data is entered the spread sheet will calculate the Washington State Persistence Toxic Calculation.

PAH (Polycyclic Aromatic Hydrocarbons) For the 20 listed compounds enter the concentration as ppm. As data is entered the spread sheet will calculate the Washington State Persistence Toxic Calculation.

If waste carries a Federal code it is not necessary to complete this tab.

- TCLP Tab

The programmed cells on this tab will assist WDS in evaluating concentration levels of the characteristic constituents D004 –D043. The Tab program will evaluate both Totals concentration and TCLP results.

- Rad Tab

Input the radiological constituents of the designation as pCi/g into the Max Conc Column (pCi/g) section. The spread sheet will calculate the Max Conc. (Ci/m³), the NRC Class A, B, C, >C, the U-235 enrichment as a percent of total Uranium, the ERDF FVR fraction, and will allow comparison against the ERDF WAC limits for radioisotopes.

Each isotopic section as pCi/gm and/or Ci/m³ may also be hand entered. This will allow for unique circumstances in the waste.

The spreadsheet is set with a default density of 1600 kg/m³. When appropriate this value should be changed to reflect the actual density of the waste material (as kg/m³).

Use the "Other isotopes present" section for isotopes that are present in the waste but are not specifically listed under the Isotope column.

The "Radiological considerations:" section contains three areas that are used to list isotopes that may be in the waste but are excluded from the calculations. List each isotope in the appropriate section.

Naturally occurring isotopes

Decay products of reported radionuclides,

Radionuclides excluded at concentrations < 1 pCi/g, have a half-life of < 2 years, are in secular equilibrium with a parent radionuclide, or are naturally occurring at an activity level consistent with levels determined in Hanford Site Background: Part 2, Soil Background for Radionuclides (DOE-RL 1996)

This section may also be used to discuss other radiological issues.

6.4 Anomalies

The SAP (or equivalent document) defines criteria for characterization. However, SAPs do not address all possible waste streams. Wastes not conforming to an identified waste form in the SAP are considered anomalous, for which the SAP may provide a path forward for characterization by involving the proper decision-makers. When a SAP allows anomalous waste to be characterized based on decision-maker input, information about the anomaly and the decisions of the team addressing the anomaly are documented on the Anomaly Characterization Checklist (form WCH-EE-300). When using the checklist, special attention shall be given to documentation of the following issues:

- The determination of a sample location for multiple containers
- The determination of the appropriate sampling methodology (e.g., directed vs. statistical)
- The determination that multiple items or areas represent a single waste stream.

NOTE: Once a waste stream has been determined to be a new conceptual waste form model with concurrence from project personnel and Waste Management & Transportation representative, it is no longer within the scope of anomalies of this section.

6.5 Waste Profiles

6.5.1 Non ERDF Profiles

Profiles for disposal of waste to non-WCH facilities shall be completed in accordance with the current version of the receiving facility's waste acceptance criteria, procedures, and instructions. All profiles will be reviewed and approved by the WSME, WSL or designee. After completion and approval by the WSME, WSL or designee, all profiles will be sent to the RHA for numbering and retention.

Any portion of the *Waste Designation, Profile & Routing* Excel spreadsheet (UCM # 45836) may be used to assist in designating/profiling the waste.

6.5.2 Waste Going to ERDF

Each waste source (or sufficiently similar group of waste sources) shall have a waste profile and designation developed and approved prior to disposing the waste at ERDF. The language used in the waste profile will specifically address the profiled waste stream. The waste profile will contain specific information (i.e., not generic, boiler-plate language).

OHC generators will send a profile request form directly to ^WCH Profiles. The WSL (or designee) will review the request and assign it to the appropriate WDS. OHC profile radiological and constituent information may be provided by the generator in several forms such as a summary included on Form WCH-EE-305, as raw data needing review and interpretation, or a mix of the two. All calculations shall be checked by the WSL and verified by the WSL or designee. See section 6.1.1 for further discussion of calculations.

NOTE: The Profile Request Form (WCH-EE-305) **should** be used for data coming from WCH waste streams and **shall** be used for OHC waste streams.

ERDF waste profiles will be completed utilizing the *Waste Designation, Profile & Routing* Excel spreadsheet (UCM # 45836) for all designations and profiles. This includes the attached Routing sheet and form WCH-EE-256 (see instruction included with the form).

NOTE: Laboratory data and/or process knowledge used to develop a specific waste profile may or may not support quality needs for other project waste streams.

NOTE: Caution should be used when using waste profile data for other purposes that require certified data. Consult the waste generator's project

engineer prior to using any data that support a waste profile for purposes other than the purpose intended in this procedure.

6.5.3 ERDF Waste Profile Datasheet

Waste Management and Transportation Designation personnel will develop waste designations in accordance with this procedure. The completed waste profile datasheet (form WCH-EE-256) and the completed designation are the two components comprising a waste profile for waste to be disposed at ERDF.

The WSME, WSL or their designee is responsible for routing the waste profile for approval signatures (i.e., project engineer, and the ERDF project engineer). After approval, the final signatory submits the waste profile and designation to I&AS RHA for distribution and records retention.

Waste profiles shall be provided to and approved by ERDF management and operations team prior to any associated waste shipments to ensure compliance with the acceptance criteria and to facilitate planning of waste transportation and disposal actions.

Utilize the Waste Profile Routing Sheet on all ERDF profiles.

6.5.4 Waste Profile Identification Number

All completed designations or profiles, for all disposal sites will be given a unique number, obtained from I&AS RHA (see section 7.0).

ERDF profiles shall contain a waste profile datasheet (form WCH-EE-256). The ERDF waste profile number identifies each waste profile and its current revision. The ERDF waste profile number describes the project waste site (e.g., 116-C-1) and a three-digit sequential number, beginning with "001" which identifies the number of profiles written for that waste site. The revision number is a sequential identifier beginning with "0."

EXAMPLE: Waste Profile # 116C1002, Rev. 2, where "116C1" indicates the project waste site number, "002" indicates the sequential number, and "Rev. 2" indicates the revision number.

6.6 Waste Project Engineer

- Review the waste forecast and detailed work plan, and determine the type and quantity of waste that will be generated.
- Determine if the DQO process (or equivalent) is required in accordance with ENV-1-2.2, "Data Quality Objective Process."
- Initiate the DQO process, if required, to determine the requirements for waste sampling and analysis.
- If sampling and analysis is required, ensure that a sampling document for waste characterization is prepared in accordance with ENV-1-2.9, "Sampling Plans."

- Arrange for collection and analysis of samples as required by the sampling document and in accordance with applicable procedures in ENV-1 Environmental Monitoring and Management procedures in the WCH electronic library.
- If an anomaly is identified per the sampling documents prepared in step 4, ensure documentation is prepared, and the anomaly is properly characterized.
- Transmit sampling data, process knowledge documentation, material safety data sheets, Anomaly Characterization Checklist (form WCH-EE-300) as applicable, the CERCLA authorization documentation, and other historical waste information to the WDS to perform designation of the waste.

6.7 Waste Designation Specialist

1. Ensure that the data used to determine the chemical and physical characteristics of the waste are adequate and that process knowledge is used and documented in an appropriate manner.
2. Confirm that the radiological characterization of the waste is performed in accordance with the requirements of this procedure.
3. Confirm that the appropriate radionuclides are reported.
4. Perform waste designation in accordance with the requirements of WAC 173-303 (including WCH policy IOM (UCM # 876186)), 40 CFR 261, and 40 CFR 761.
5. Complete waste designation paperwork and sign and date the designation.
6. Input ERDF designations into WMIS. See WCH-138, most current revision. *Waste Management Information System (WMIS) User Guide*.
7. Each draft WMIS input should have a review/comment by another WDS or WSL to reduce inadvertent errors.
8. Complete the waste profile in accordance with receiving facility requirements. For ERDF, complete the Waste Profile Datasheet (form WCH-EE-256) in accordance with this procedure and instructions included with the form.

6.8 Waste Services Lead/Waste Subject Matter Expert

Review the designation to ensure that the waste has been correctly designated. This includes checking all calculations.

Approve the designation (if appropriate) by signing the waste designation/profile, or request that additional information is provided.

Forward the ERDF profile to the Project Engineer for an approval signature.

6.9 Designation Tools

The following tools have been developed to assist the WDS in performing a designation /profile in a more rapid, precise and accurate manner.

6.9.1 Washington State Toxic Category Converter (SWTD-0039)

SWTD-0039 is located in the Waste Management share drive. The Excel file is a converter of common units associated with animal LD₅₀ and LC₅₀ data. It will also calculate the Washington State Equivalent Concentration (WAC 173-303-100).

6.9.2 MSDS Content List

The MSDS Content List is located in the Waste Management share drive. This is a list of MSDS's with their constituents, CAS # and percent of MSDS listed as ppm. Data can be copied and pasted into a designation. The information is to be reviewed and validated by the WDS.

6.9.3 Laboratory Data Processing Tool (SWTD-0082)

SWTD-0082 is located in the Waste Management share drive under the Laboratory Data tools file and is used to simplify the analysis of laboratory data for toxicity characteristics.

6.9.4 Laboratory Data Importing Tool (SWTD-0083)

SWTD-0083 is located in the Waste Management share drive under the Laboratory Data tools file.

Use SWTD-0083 to import data from the Laboratory Data Processing Tool into the waste designation spreadsheet.

7.0 RECORDS

ERDF profile data sheets (form WCH-EE-256), (included in OHC profiles to ERDF), with supporting designation and documentation, and all profiles and designations generated as a result of WCH activities shall be provided to I&AS RHA for processing into the Electronic Document Management System (EDMS) in accordance with BSC-1, *Business Services and Communications*, BSC-1-7.8, "Records Management." This includes global designations and profiles for waste that is sent to ERDF or to other TSD sites.

The signed Anomaly Characterization Checklist (form WCH-EE-300) must be sent to the RHA either as a stand alone document or included in the supporting documentation for ERDF or other TSD waste profile.

8.0 JUSTIFICATION SUMMARY

Revision	Reason for Revision
8	Incorporated WCH response to changes to WAC 173-303, "Dangerous Waste Regulations effective June 30, 2009. Added changes as response to an independent inspection done by National Security Technologies LLC. performed August 20, 2010, included requirement that all designations and profiles are submitted to the RHA for numbering and scanning; WSME or WSL or designee review all calculations, recommended walkdowns of waste sites; listed and briefly described the designation tools. This revision addresses IF-2010-0315 action.
7	Revision to formalize the anomaly characterization, documentation process, and added a new form, "Profile Request Form."

9.0 REFERENCES

10 CFR 61, "Licensing Requirements for Land Disposal of Radioactive Waste," *Code of Federal Regulations*, as amended.

40 CFR 61, "National Emission Standards for Hazardous Air Pollutants," Title 40, *Code of Federal Regulations*, Part 61, as amended.

40 CFR 261, "Identification and Listing of Hazardous Waste," *Code of Federal Regulations*, as amended.

40 CFR 268, "Land Disposal Restrictions," *Code of Federal Regulations*, as amended.

40 CFR 761, "Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions," *Code of Federal Regulations*, as amended.

Atomic Energy Act of 1954, 42 U.S.C. 2011 et seq.

BSC-1, *Business Services and Communications*, Procedure BSC-1-7.8, "Records Management," Washington Closure Hanford, Richland, Washington.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. 9601, et seq.

DOE 1993, *Authorization to resume shipment of RCRA/TSCA wastes*, Letter 93-SWT-517 dated October 12, 1993 to President, Westinghouse Hanford Company from June M. Hennig, Director Waste Management Division, U.S. Department of Energy, Richland, Washington.

DOE/RL-2000-25, *Richland Operations Office Implementation Plan for DOE Order 435.1*, current revision, U.S. Department of Energy, Richland, Washington.

DOE Order 435.1, *Radioactive Waste Management*, as amended, U.S. Department of Energy, Washington, D.C.

DOE Order 5400.5, *Radiation Protection of the Public and the Environment*, as amended, U.S. Department of Energy, Washington, D.C.

DOE-RL, 2006, *Hanford Sitewide Transportation Safety Document*, DOE/RL-2001-36, current version, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE-RL, 1996, UCM # 150966, *Hanford Site Background: Part 2, Soil Background for Radionuclides*, DOE/RL-96-12, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Ecology, 2000, *Clarification of the Washington State Department of Ecology February 23, 2000 Inspection Close Out Letter*, CCN 080694, letter from B. Wilson to K. A. Kline, U.S. Department of Energy, Richland Operations Office, and M. C. Hughes, Bechtel Hanford, Inc., dated July 19, 2000, Washington State Department of Ecology, Kennewick, Washington.

ENG-1, *Engineering Services*, ENG-1-4.5, Project Calculations, Washington Closure Hanford, Richland, Washington.

ENV-1, *Environmental Monitoring and Management*, Washington Closure Hanford, Richland, Washington.

ENV-1-2.2, "Data Quality Objectives Process"
ENV-1-2.9, "Sampling Plans"

EPA, 1998, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, SW-846, 3rd edition, U.S. Environmental Protection Agency, Washington, D.C.

HNF-EP-0063, *Hanford Site Solid Waste Acceptance Criteria*, current revision, Fluor Hanford, Inc., Richland, Washington.

National Security Technologies LLC, August 20, 2010, *Assessment Performed for: Washington Closure Hanford LLC, Waste Services*

NRC, 1995, *Issuance of Final Branch Technical Position on Concentration Averaging and Encapsulation, Revision in Part to Waste Classification Technical Position*, U.S. Nuclear Regulatory Commission, Washington, D.C.

Toxic Substances Control Act of 1976, 15 U.S.C. 2601, et seq.

WAC 173-303, "Dangerous Waste Regulations," *Washington Administrative Code*, as amended.

Waste Designation, Profile & Routing Excel spreadsheet (UCM # 45836)

WCH-138 *Waste Management Information System (WMIS) User Guide*. Most current revision, Washington Closure Hanford, Richland Washington.

WCH-191, *Environmental Restoration Disposal Facility Waste Acceptance Criteria*, current revision, Washington Closure Hanford, Richland, Washington.

WCH 2009 Contract No. DE-AC06-05RL14655, *Washington Closure Hanford Implementation of Dangerous Waste Regulation Revisions*, August 13, 2009, UCM # 876186

WHC, 1993, *Westinghouse Hanford Company Hazardous Waste Radiation Release Protocol*, Letter 9355777 dated July 9, 1993 to J. M. Hennig, Director Waste Management Division, U.S. Department of Energy, Richland Field Office, from R. J. Roberts, Manager Restoration and Upgrade Programs Solid Waste Disposal.

WMT-1, *Waste Management and Transportation*, Washington Closure Hanford, Richland, Washington.

WMT-1-1.2, "Waste Identification"

WMT-1-1.8, "Release of Waste Not Controlled as Radioactive"

10.0 BIBLIOGRAPHY

WCH-138, *Waste Management Information System User Guide*, current revision, Washington Closure Hanford, Richland, Washington.

11.0 FORMS

WCH-EE-256, Environmental Restoration Disposal Facility Waste Profile Datasheet
WCH-EE-300, Anomaly Characterization Checklist
WCH-EE-305, Profile Request Form

12.0 ATTACHMENT

1. Waste Designation Example
2. Profile Request Form Example

Attachment 1: Waste Designation Example

Waste Designation

Prepared By: _____

Approved By: _____

Waste Stream Name: Contaminated soil from 123 OU
Generating Facility: 123-274, 123-275
Profile Number: 123FFBG001, REV 00
Prepare By: Joe Example

This waste designation has been performed in accordance with WAC 173-303 and 40CFR261 and 268 and is believed to be completed and accurate in accordance with all applicable rules and regulations in effect at the time it was prepared.

Methodology:

This designation is based on information provided by the waste generator, data from the HEIS database, RTECS and process knowledge from the "Listed Waste History at Hanford Facility TSD Units" (UCM, Content ID #188017) and "Application of Listed Waste Codes to Secondary Solid Waste Related to Well Construction, Maintenance, and Sampling" (UCM, ID # 270634).

Summary:

Assigned Waste Codes:	WT02
Land Disposal Restrictions	None
Radioactive Status:	Low-Level, NRC Class A

Applicability & Description:

Waste disposed under this designation is limited to wastes from the source facility and consists of soils, metals and PPE.

This waste is CERCLA waste as documented in UCM #XXXXX.

Characteristics:

Ignitability:

As this material is a matrix of soil, metal, paper, plastic, rubber, and cloth with no significant organic contamination and it doesn't meet the definition of a DOT oxidizer or is believed to support combustion, the D001 code will not be applied.

Corrosive:

As a solid the waste cannot be a D002 waste, and there is no other data or process knowledge to support a corrosive solid classification, neither the D002 nor the WSC2 codes will be applied.

Profile number: 123FFBG001, REV 00

Date 08/20/07

1 of 3

Waste Designation

Prepared By: _____

Approved By: _____

Reactivity:

As this material is a matrix of paper, plastic, rubber, soil and cloth with very little cyanide or sulfide contamination, the D003 code will not be applied. The waste is in a stable matrix, and exhibits no signs of any dangerous reactions (i.e., spontaneous changes).

Toxicity:

Selected metals and semi-VOAs were analyzed for, but not detected above the regulatory limit. Therefore, no D004-D043 codes are applicable.

Toxic Dangerous Waste:

The toxic dangerous waste calculations were performed, and the waste meets the definition of a toxic dangerous waste, WT02.

Persistent Dangerous Waste:

Both the HOCs and the PAHs are well below the regulatory limit, the waste does not meet the definition of a persistent dangerous waste.

Listing:

F Listing:

There is no analytical data, or process knowledge to support an F Listing

K Listing:

The waste was not generated from a K listed process.

P/U listing:

There is not analytical data or process knowledge to support a P or U listing.

PCBs:

The waste contains less than 2 ppm PCBs and there is not process knowledge that would indicate it was generated as the results of a spill or leak from a material having an original concentration greater than 2 ppm, therefore the waste is not regulated by TSCA or the State of Washington for PCBs.

Profile number: 123FFBG001, REV 00
Waste Designation

Date 08/20/07

2 of 3

Prepared By: _____

Approved By: _____

Radiological:

The waste does not meet the definition of a TRU, High Level, 11e.(2) waste, spent nuclear fuel, or special nuclear material, and is therefore classified as a low level waste. NRC Class A. See Radiological values attached.

Land Disposal Restrictions:

None

This waste is not prohibited from land disposal. The waste is nonwastewater waste that is subject to the land disposal restrictions (LDR) and meets the LDR treatment standards for the F001-F005 waste codes as shown below:

Waste codes	Waste description and treatment/regulatory subcategory	Regulate Hazardous Constituent	Treatment Standard mg/kg	Highest reported value or detection limit for ND mg/kg	Sample number
F001	F001,F002,F003,F004,F005 solvents waste contain any combination of one or more of the following spent solvents: acetone,...carbon tetrachloride,.....methylene chloride, methyl ethyl ketone.....	carbon tetrachloride	6	2.8	H0009JH9
		1.1.1 trichloroethane	6	ND (0.01)	B0CXN5
methylene chloride		30	0.054	B0CXN9	
acetone		160	0.26	B06ZR3	
methyl isobutyl ketone		33	ND (0.0013)	B0WNT1	
F004		cresol-mixed isomers	11.2	ND (0.0017)	B0H9R9
F005		methyl ethyl ketone	36	0.006	W0WNB9

Attachment 2: Profile Request Form (Example)

Acrobat 9.0

PROFILE REQUEST FORM

SECTION 1				
Company:		Facility:		
Contact:		Project Engineer:		
Shipper:		Date Needed by:		
Waste Description:				
References: DQO/SAP:				
ROD Documentation:				
CERCLA Record of Decision:				
Plug In Approach Documentation:				
DQO/SAP Exception Authorization:				
Waste Control Plan:				
Sample Results Documentation:				
Chemical:		Radiological:		
Other Applicable Documentation:				
<input type="checkbox"/> New Profile		<input type="checkbox"/> Profile Revision		Original Profile #: _____
SECTION 2				
Process Knowledge: Hazardous: <input type="checkbox"/> Dangerous: <input type="checkbox"/> Radiological: <input type="checkbox"/>				
Basis for Process Knowledge Determination:				
SECTION 3				
Debris? Yes <input type="checkbox"/> No <input type="checkbox"/> TSCA? Yes <input type="checkbox"/> No <input type="checkbox"/>				
Treatment Required? Yes <input type="checkbox"/> No <input type="checkbox"/>				
If Yes, Explain:				
Waste Density: _____ kg/cubic meter				
Known Waste Codes:				
Waste Forms:	% Soil	% Debris	% Concrete	% Steel
% Other (explain)				
Packaging:	% Bulk	% Bags	% Boxes/Drums (must equal 100%)	
Total volume to be disposed under this profile: _____ m ³ <input type="checkbox"/> yd ³ <input type="checkbox"/> Both <input type="checkbox"/>				

PROFILE REQUEST FORM

Instructions

Section 1

Fill out requestor information.

Describe waste: i.e. soil, debris, chemical constituents.

Name the Data Quality Objectives (DQO) and Sampling and Analysis Plan (SAP) that covers this area or waste.

ROD (record of decision) Documentation: regulators authorization for disposal.

CERCLA Record of Decision: Refers to a CERCLA past practice decision document, i.e. ERDF ROD, ESD or ROD, that allows disposal of waste at ERDF.

Plug In Approach Documentation: Request letter and authorization letter from regulator to allow disposal.

DQO/SAP Exception Authorization: Is there an exception to the SAP requirement, if so provide documentation numbers.

Waste Control Plan: These are the documents that describe the minimum level of treatment acceptable under this **plan**, and shall define reasonable treatment and **waste control**

Sample Results Documentation: Provide lab data or documentation.

Mark New Profile or Profile Revision box and if a revision, document the original Profile number.

Section 2

Describe Process knowledge documentation and approval to use process knowledge.

Section 3

Describe physical, chemical and radiological characteristics of the waste.

Print, sign, date and provide your position title on the information certification statement.