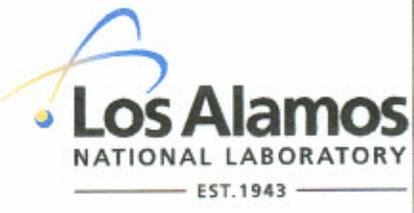


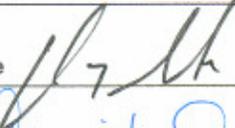
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**Environmental Stewardship —
Environmental Characterization and Remediation**

Standard Operating Procedure

for **Waste Characterization**

NES Approved

Responsible Division Leader: Doug Stavert	Signature & Date  12/14/05
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Waste Characterization

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List of Acronyms and Abbreviations

AEA	Atomic Energy Act
AK	acceptable knowledge
AOC	area of concern
CFR	Code of Federal Regulations
CWDR	Chemical Waste Disposal Request
DM	document manager
DOE	Department of Energy
ECR	Environmental Characterization and Remediation
ENV	Environmental Stewardship Division
EPA	Environmental Protection Agency
ERS	Environmental Remediation and Surveillance
FR	Federal Register
FTL	Field Team Leader
LANL	Los Alamos National Laboratory
LIR	Laboratory implementation requirement
LIG	Laboratory implementation guidance
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NMHW	New Mexico Hazardous Waste Act
NORM	naturally occurring radioactive material
NWIS-SWO	Nuclear Waste & Infrastructure Services – Solid Waste Operations

PCB	polychlorinated biphenyl
PL	project leader
PPE	personal protective equipment
ppm	parts per million
QII	Quality Integration and Improvement
QMP	quality management plan
QP	quality procedure
RCRA	Resource Conservation and Recovery Act
RPF	Records Processing Facility
SOP	standard operating procedure
SSHASP	site specific health and safety plan
SWMU	solid waste management unit
SWRC	Solid Waste Regulatory Compliance Group
TL	team leader
TSD	treatment, storage, and disposal
TSCA	Toxic Substances Control Act
UC	University of California
WAC	waste acceptance criteria
WCSF	waste characterization strategy form
WPF	waste profile form
WMC	Waste Management Coordinator

Waste Characterization

1.0 PURPOSE

This Environmental Characterization and Remediation (ECR) Group standard operating procedure (SOP) states the responsibilities for, and provides direction for, the completion of a waste characterization strategy form (WCSF) for wastes generated during field activities.

2.0 SCOPE

All **participants** shall implement this mandatory procedure when developing strategies for the characterization of wastes generated during field activities for the Los Alamos National Laboratory (LANL or Laboratory) Environmental Stewardship (ENV) Division Environmental Remediation & Surveillance (ERS) Program. The WCSF must be completed prior to initiation of field projects that are expected to result in waste generation.

3.0 TRAINING

- 3.1 **Participants** shall train to (e.g., by reading and/or classroom training) and use the current version of this procedure; participants should contact the author of this procedure with any questions.
- 3.2 **Participants** shall document training to this procedure in accordance with Quality Procedure (QP)-2.2, "Personnel Training Management Process".
- 3.3 The responsible **project leader** (PL) shall monitor the proper implementation of this procedure.
- 3.4 The responsible **team leader** (TL) shall ensure that the appropriate personnel complete all applicable training assignments.
- 3.5 **Participants** may request any needed assistance with implementation of this procedure from the ECR Quality Integration and Improvement (QII) team.

4.0 DEFINITIONS

- 4.1 *Acceptable knowledge (AK)* — Environmental Protection Agency (EPA) guidance broadly defines *acceptable knowledge* as process knowledge, whereby detailed information on a particular waste is obtained from existing published or documented waste analysis data or studies conducted on hazardous wastes generated by similar processes; waste

analysis data; and/or existing facility records of analysis (EPA, 1994). EPA further defines AK as “any information about the process used to generate the waste, material inputs to the process, and the time period during which the waste was generated.” [Code of Federal Regulations, Title 40 (40 CFR), Section 194.254(c)(3)]. EPA recognizes AK as an integral part of the system of controls for characterization of certain types of Department of Energy (DOE) facility waste (Federal Register Volume 67 [67 FR] 51930, 51942 [August 9, 2002]). Acceptable knowledge can be used to meet all or part of the waste analysis requirements (EPA, 1994).

- 4.2 *Area of concern (AOC)* — An area at the Laboratory that might warrant investigation for releases of hazardous wastes or hazardous constituents based on past waste management activities. Additionally, the Consent Order (see definition below) defines *area of concern* as an area at the Laboratory that may have had a release of a hazardous waste or a hazardous constituent, which is not a solid waste management unit (SWMU).
- 4.3 *By-product material* — (1) Any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to a radiation incident in the process of producing or utilizing special nuclear material, and (2) the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content [Atomic Energy Act (AEA) of 1954, as amended, Sect. 11(e)].
- 4.4 *Characterization* — Determination of a waste’s physical, chemical, and radiological characteristics with sufficient accuracy to permit proper segregation, treatment, storage, and disposal according to the final treatment, storage, and disposal (TSD) facility’s waste acceptance criteria (WAC) (Laboratory Implementation Guidance [LIG] 404-00-02.0).
- 4.5 *Compliance Order on Consent (Consent Order)* - The enforcement document signed by the New Mexico Environment Department (NMED), DOE, and University of California (UC) on March 1, 2005 that prescribes the requirements for corrective action at the Laboratory. The purposes of the Consent Order are: (1) to define nature and extent of releases of contaminants at or from the facility; (2) to identify and evaluate, where needed, alternatives for corrective measures to clean up contaminants in the environment and prevent or mitigate the migration of contaminants at or from the facility; and (3) to implement such corrective measures. The Consent Order supersedes the corrective action requirements previously specified in Module VIII of the Laboratory’s Hazardous Waste Facility Permit.

4.6 *Environmental media* — Soil, rock, sediment, surface water, groundwater, and borehole cuttings and core that are displaced during a corrective action (ECR-SOP-01.06).

Note: The “mixture” and “derived-from” rules (as defined in 40 CFR 261.2 and incorporated by the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Section 200 [20.4.1.200 NMAC]) do not apply to environmental media. However, contaminated environmental media that “contains” a listed hazardous waste must be managed as a listed hazardous waste. Also, the mixture and derived-from rules do apply to other “as-generated” process wastes that ERS-ECR activities may generate (e.g., septic tank wastes, wastes exhumed from landfills, newly generated wastes from field characterization activities).

4.7 *Hazardous waste* — (1) Solid waste (as defined in 40 CFR 261.2 and incorporated by 20.4.1.200 NMAC) that is not excluded from regulation as a hazardous waste and is a listed hazardous waste (as provided in 40 CFR Part 261, Subpart D, incorporated by 20.4.1.200 NMAC) or a waste that exhibits any of the characteristics of hazardous waste (i.e., ignitability, corrosivity, reactivity, or toxicity, as provided in 40 CFR Part 261, Subpart C, incorporated by 20.4.1.200 NMAC); (2) the Consent Order defines hazardous waste as any solid waste or combination of solid wastes which because of its quantity, concentration, or physical, chemical, or infectious characteristics meets the description set forth in New Mexico Statutes Annotated 1978, § 74-4-3(K) (the New Mexico Hazardous Waste Act [NMHWA]), and is listed as a hazardous waste or exhibits a hazardous waste characteristic under 40 CFR Part 261 (incorporated by 20.4.1.200 NMAC). The statutory requirements for hazardous waste management are set forth in the Resource Conservation and Recovery Act (RCRA) Subtitle C, incorporated by the NMHWA.

4.8 *Industrial Waste* - Solid waste generated by manufacturing or industrial processes that is not hazardous waste regulated under Subtitle C of RCRA. Such waste may include, but is not limited to, waste resulting from the following processes: electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals, plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment, and water treatment. This term does not include mining waste or oil and gas waste (20.9.1 NMAC).

- 4.9 *Investigation-derived waste (IDW)* — Solid or hazardous waste that was generated as a result of corrective action investigation/remediation field activities. Investigation-derived waste may include drilling muds, cuttings, and purge water from test pit and well installation; purge water, soil, and other materials from collection of samples; residues from testing of treatment technologies and pump and treat systems; contaminated personal protective equipment (PPE); and solutions (aqueous or otherwise) used to decontaminate non-disposable protective clothing and equipment (EPA Office of Solid Waste and Emergency Response, Publication 9345.3-03FS, January 1992).
- 4.10 *Less-than-90-day (<90 day) accumulation area* — A designated area where a generator may accumulate hazardous or mixed waste in containers or tanks for less than 90 days without a permit (40 CFR 262.34, incorporated by 20.4.1.300 NMAC).
- 4.11 *Mixed waste* — Waste containing both *hazardous* and *source, special nuclear, or by-product* materials subject to the AEA of 1954 (Laboratory Implementation Requirement [LIR] 404-00-03.1).
- 4.12 *Polychlorinated biphenyl (PCB)* — Any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees, or any combination of substances which contains such substance (ECR-SOP-01.06).
- 4.13 *PCB remediation waste* — Waste containing PCBs as a result of a spill, release, or other unauthorized disposal, that include the following concentrations:
- Materials disposed of before April 18, 1978, that are currently at concentrations greater than or equal to 50 parts per million (ppm) PCB, regardless of the concentration of the original spill;
 - Materials that are currently at any volume or concentration where the original source was greater than or equal to 500 ppm PCB beginning on April 18, 1978, or greater than or equal to 50 ppm beginning on July 2, 1979;
 - Materials that are currently at any concentration if the PCBs are spilled or released from a source not authorized for use under 40 CFR, Chapter 1, Part 761 (ECR-SOP-01.06); or
 - Buildings and other human-made structures (such as concrete floors, wood floors, or walls contaminated with leaking PCBs, or PCB-contaminated transformers), porous surfaces, and nonporous surfaces.

Note: PCB remediation waste includes soil, rags, and other debris generated as a result of any PCB spill cleanup, including, but not limited to, the following:

1. Environmental media containing PCBs, such as soil and gravel, dredged materials (e.g., sediments), settled sediment fines, or aqueous decantate from sediment.
 2. Sewage sludge containing less than 50 ppm PCB and not in use according to 40 CFR §761.20(a)(4); PCB sewage sludge; commercial or industrial sludge contaminated as the result of a spill of PCBs, including sludges located in or removed from any pollution control device; or aqueous decantate from an industrial sludge.
- 4.14 *Radioactive waste* – Waste that has been determined to contain added radioactive material (or concentrated naturally occurring radioactive material [NORM]) or activation products by either monitoring or analysis, acceptable knowledge, or both; or does not meet radiological release criteria (LIR 404-00-02.3).
- 4.15 *Recycled material*— Material that is used, reused, or reclaimed. Material is *reclaimed* if it is processed to recover usable products or if it is regenerated. A material is *used* or *reused* if it is either employed as an ingredient in an industrial process to make a product or employed in a particular function or application as an effective substitute for a commercial product (LIR 404-00-03.1).
- 4.16 *Remediation waste* — All solid and hazardous wastes, and all media (including groundwater, surface water, soils, and sediments), and all debris that are managed for implementing cleanup (40 CFR 260.10, incorporated by 20.4.1.100 NMAC).
- 4.17 *Satellite accumulation area* — An area where a generator may accumulate hazardous and mixed waste at or near the point of generation without a permit, up to a volume of 55 gal., and where the volume of acutely hazardous waste may not exceed 1 quart (40 CFR 262.34, incorporated by 20.4.1.300 NMAC).
- 4.18 *Site-specific health and safety plan (SSHASP)* — A health and safety plan that is specific to a site or ENV-ERS/ECR-related field activity that has been approved by an ENV-ECR health and safety representative. This document contains information specific to the project including scope of work, relevant history, descriptions of hazards by activity associated with the project site(s), and techniques for exposure mitigation (e.g., PPE) and hazard mitigation.

- 4.19 *Solid waste* — Any garbage; refuse; sludge from a waste treatment plant or air-pollution-control facility; and other discarded material including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations and from community activities, unless specifically excluded from the definition of *solid waste* (20.9.1 NMAC). Solid waste management requirements are set forth in the New Mexico Solid Waste Act.
- 4.20 *Solid waste management unit (SWMU)* — (1) Any discernible unit at which solid wastes have been placed at any time, whether the unit was intended for the management of solid or hazardous waste. Such units include any area at a facility at which solid wastes have been routinely and systematically released (55 FR 30808). (2) the Consent Order defines a solid waste management unit as any discernible unit at which solid waste has been placed at any time, and from which the NMED determines there may be a risk of a release of hazardous waste or hazardous waste constituents, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at the Laboratory at which solid wastes have been routinely and systematically released; they do not include one-time spills.
- 4.21 *Source material* — (1) Uranium or thorium, or any combination thereof, in any physical or chemical form, or (2) ores which contain by weight one-twentieth of 1% (0.05%) or more of (i) uranium, (ii) thorium, or (iii) any combination thereof. Source material does not include special nuclear material (AEA, as amended).
- 4.22 *Special nuclear material (SNM)* — (1) Plutonium, uranium enriched in the isotope of 233 or 235, and any other material which is determined, pursuant to Sect. 51 of the AEA, to be special nuclear material, but which does not include source material; or (2) any material artificially enriched by any of the foregoing, but which does not include source material (AEA, as amended).
- 4.23 *New Mexico Special Waste* — Types of solid waste that have unique handling, transportation, or disposal requirements to assure protection of the environment and the public's health, welfare, and safety. New Mexico Special Waste includes treated, formerly characteristic hazardous waste, asbestos waste, ash, infectious waste, sludge, industrial solid waste, spill of a chemical substance or commercial product, dry chemicals that become characteristically hazardous waste when wetted, and petroleum-contaminated soils (20.9.1 NMAC).
- 4.24 *Special waste storage area* — A designated area where a generator may accumulate New Mexico Special Waste (other than asbestos) of any volume up to 90 days (LIR 404-00-04.2).

4.25 *Waste generator* — Any person, by site, whose act or process produces hazardous waste or whose act first causes a hazardous waste to become subject to regulation (40 CFR 260.10, incorporated by 20.4.1.100 NMAC).

Note: At LANL, the waste generator includes the person described above as well as his or her line manager (LIR404-00-03.1). With regard to ERS-ECR activities, the waste generator is usually the project leader (PL). This person is also responsible for ensuring that the characterization of all waste generated during a field project is completed.

4.26 *Waste management coordinator (WMC)* - The person responsible for coordinating waste management activities on behalf of waste generators, line managers, facility managers, PLs, the Waste Management Groups, and other Laboratory organizations (LIR404-00-03.1).

4.27 *Waste profile form (WPF)* – The WPF is Form 1346 within LIG 404-00-03.1, which waste generators use to properly identify and document the characterization of any solid, hazardous, radioactive, or mixed waste.

5.0 RESPONSIBLE PERSONNEL

The following personnel are responsible for actions in this procedure:

Document manager (DM) — The person coordinating ERS-ECR's document production process.

ERS-ECR WMC— The person responsible for reviewing all ERS Program WCSFs to ensure that they are complete, address all potential waste streams for the project, and address the regulatory and WAC requirements. This person is a designated reviewer and signatory on WCSFs. This person will also receive WPFs from the field WMCs, prior to submission to the Nuclear Waste & Infrastructure Services Solid Waste Operations Group (NWIS-SWO), to review and ensure consistency between approved WCSFs and WPFs.

Field Team leader (FTL) — The person responsible for the field project that will generate waste and for ensuring that the WCSF has been prepared; this is generally the subcontractor responsible for executing the field work.

Field WMC —For ERS-ECR, the field WMC is responsible for coordinating waste management activities for a given field project; prepares, or is involved in the preparation of, WCSFs and WPFs; and is responsible for the preparation of chemical waste disposal requests (CWDRs). The field WMC assigned to a project ensures that the WCSF is complete, addresses all potential waste streams for the project, and addresses the regulatory and WAC requirements.

NWIS-SWO representative — The person designated by the Laboratory's NWIS-SWO Group to review WCSFs to ensure compliance with all applicable WAC requirements. This person is a designated reviewer and signatory on WCSFs.

Participant — An inclusive term for any UC/staff augmentation employee, deployed worker, or subcontractor, inclusive of project leaders, team leaders, and project personnel, who participates in activities conducted by or on behalf of the ERS Program/ECR Group. For the purposes of this SOP, this shall include any or all of the personnel listed in this section.

Project leader — A UC employee or deployed worker directly responsible for the management of one or more projects. For the purposes of this SOP, this is the ERS manager who is responsible for a given field project, is the waste generator, and is a designated reviewer and signatory on the WCSF and WPFs for that field project

Solid Waste Regulatory Compliance (SWRC) Group representative — The person designated by the ERS Program and SWRC to review and approve WCSFs to ensure compliance with waste management regulations and policies, and conformance with permit and Consent Order requirements. This person is a designated reviewer and signatory on WCSFs.

Subcontractor — A person employed by an external company tasked to perform work under a contract or task order.

Team leader — Any UC employee who manages one or more ECR functions and who directly supervises project leaders.

Waste Characterization Strategy Form (WCSF) preparer — The author of the WCSF, typically the field WMC, the FTL, or a member of their project team.

6.0 BACKGROUND AND PRECAUTIONS

- 6.1 Make any deviations from this SOP in accordance with QP-5.7, “Notebook Documentation for Environmental Restoration Technical Activities”.
- 6.2 Use this procedure in conjunction with an approved SSHASP.
- 6.3 An Integrated Work Document shall be prepared, approved and implemented in accordance with LANL Integrated Management Plan 300-00-00, “Integrated Work Management for Work Activities.”
- 6.4 This SOP shall be used in conjunction with all Laboratory-wide waste management LIRs and LIG documents for all wastes generated by the ENV-ERS/ECR Project, with the following exceptions:
 - Municipal refuse and routine office trash,
 - Wastes managed by another Laboratory group under a Facility Tenant Agreement, or
 - Wastes managed by the Laboratory’s site support services contractor.

- 6.5 Documentation and characterization requirements beyond those described in this procedure may exist for the Laboratory's TSD facilities or off-site TSD facilities. Refer to the appropriate on-site or off-site WAC document for specific requirements. Implementation of this SOP may be used to satisfy the requirements for IDW characterization contained in Section IX.B.5 of the Consent Order.
- 6.6 Conflicting requirements between this document and other regulations or criteria shall be resolved by implementing the requirements that are driven by regulation.

7.0 EQUIPMENT

No equipment is required for the implementation of this SOP.

8.0 PROCEDURE

The steps described in this section shall be followed for implementation of this SOP. These steps are summarized in the flow chart provided as Attachment A.

8.1 Identify Waste Streams

At the initiation of any ERS-ECR project that has a field component, the **WCSF preparer** (i.e., the FTL, the field WMC, and/or a member of their project team) shall identify waste streams that are anticipated to be generated and formulate a waste characterization strategy. This will be achieved by

- identifying the potential wastes to be generated by the proposed activity, and
- reviewing available ERS Program reports regarding the project sites that provide characterization data and identify wastes generated by previous activities, if any.

8.2 Develop Characterization Strategy

8.2.1 Review existing data

The **WCSF preparer** shall formulate a waste characterization strategy by first reviewing existing data and/or documentation for the waste stream and determining whether it fulfills the requirements for AK as specified in LIG 404-00-02.0.

8.2.2 Develop sampling strategy

If the existing data and/or documentation do not fulfill the requirements, the **WCSF preparer** shall determine whether the existing data and/or documentation provide any useful information

for characterizing any portion of the waste stream. If so, the **WCSF preparer** shall develop a sampling strategy that will complete the characterization for the waste stream. If not, the **WCSF preparer** shall develop a strategy for sampling and analysis that will identify and quantify all potential constituents of concern in the waste stream.

8.2.3 Verify WAC requirements

The **WCSF preparer** shall verify the most recent documentation requirements and facility WAC as part of developing the waste characterization strategy.

8.3 Identify Preliminary Waste Classifications

8.3.1 Assign preliminary waste classifications

Based on the existing information for the site and the strategy developed for each waste stream, the **WCSF preparer** shall make a preliminary waste classification determination. Classifications include, but are not limited to, the following categories:

- Radioactive
- Solid
- Hazardous
- Mixed (hazardous and radioactive)
- Toxic Substances Control Act (TSCA)
- New Mexico Special Waste
- Industrial

Note: Some waste streams may be classified as a combination of the above. Requirements and guidelines for the appropriate characterization and management of wastes are provided in LIRs, LIG documents, ECR SOP 01.06, and the Laboratory's WAC document, as provided in section 11.0.

Note: Wastes with no disposal path shall not be generated without prior approval. Guidance for this process is contained in LIG 404-00-05.0, Preparing the Waste with No Disposal Path Approval Package.

8.3.2 Identify additional waste classification considerations

The **WCSF preparer** shall consult with the SWRC representative and/or the ERS-ECR WMC at the start of WCSF preparation to identify any pertinent regulatory decisions, memos, guidance,

and/or previous WCSFs for similar waste streams that may be useful for WCSF development.

Note: Guidance on additional waste characterization considerations that apply specifically to IDW remediation waste is provided in ECR SOP 01.06, “Management of Environmental Restoration Project Waste.” For example, media contaminated with a characteristic or listed hazardous waste can be considered to no longer contain hazardous waste when it can be demonstrated that either the media no longer exhibit the characteristic or that the levels of the listed hazardous constituents are below site-specific health-based levels. This “contained in” determination requires the approval of the NMED. Guidance for this determination is provided in ECR SOP-01.06. The WCSF preparer shall consult with the SWRC representative for requesting these determinations from NMED.

8.4 Prepare the WCSF

Once the WCSF preparer has identified the waste streams and made a preliminary classification, the draft WCSF can be completed. The steps for completing the WCSF are outlined below.

The **WCSF preparer** shall complete the following:

Fill in the following information at the top of page 1 of the WCSF (Attachment B of this SOP).

- Project title: Should be concise for ease of reference, and be consistent with the title of any associated work plan. The project title and the WCSF completion date shall also be included in either a header or footer on each page of the WCSF.
- SWMU or AOC #: Enter the SWMU or AOC number(s) for the project site.
- Activity type: Describe the activity that is going to occur during this project (e.g., borehole drilling and sampling, soil sampling and removal, etc.).
- Field Team leader: Insert the name of the FTL in charge of the project.
- Field Waste Management Coordinator: Insert the name of the field WMC assigned to this specific project.
- Completed by: Insert the name of the WCSF preparer.
- Date: Insert the date on which this WCSF was completed.
- Description of activity: Describe, in detail, the activity (ies) that will occur.

- Site history and description: Give a brief history of the site and of any previous investigations or remediation activities that occurred there. For the site history portion, the preparer should include the appropriate information from the ECR Potential Release Site database, located at the ECR internal home page, which provides a concise historical summary and includes a summary of analytical detections above background and screening levels.
- In the Characterization Strategy section, identify each anticipated waste stream and describe the strategy for its characterization in one to two paragraphs. List each waste stream in numeric order and provide the following information in the text:
 - The physical form of the waste.
 - The anticipated regulatory classification(s). If data are insufficient to make a definitive regulatory classification at the time of WCSF completion, more than one box on the characterization table may be checked, along with an explanation in the text section. The final regulatory classification will be reflected on the WPF.
 - The characterization approach (i.e., either by AK, direct sampling of the waste, existing data, etc.), or a combination of characterization approaches. For AK waste streams, identify the document(s) to be used in support of the AK, i.e., material data safety sheet, previous sampling results, etc., and attach those documents (or appropriate portions thereof) to the WCSF.
 - If a determination has been made that a waste stream no longer contains a hazardous constituent, attach the documentation supporting this determination.
 - Identify the anticipated storage, treatment, and disposal option(s).

Fill in the characterization table within the WCSF. For each waste stream identified in the characterization strategy section of page 1, enter a waste stream number and short description (e.g., Waste #1, Soils) in a column heading. Using the rest of the table, provide the following information:

- anticipated volume,
- proposed packaging of the waste,
- regulatory classification (check the box[es] that apply),
- method of characterization (check the box[es] that apply),
- analytical testing to be performed (check the boxes that apply), and

- existing WPF number (if applicable to the waste).

8.5 Distribute WCSF for Review and Approval

- The **WCSF preparer** shall coordinate with the DM to initiate the tracking, review, and approval process for the WCSF.
Note: The WCSF preparer is ultimately responsible for ensuring the completion of the review and approval process.
- The **DM** or designee shall distribute the draft WCSF electronically to all reviewers (i.e., the PL, the SWRC representative, the ERS-ECR WMC, and the NWIS-SWO representative) and assign a due date for comments.

Note: Standard review and approval turnaround time is two weeks: one week for PL, ERS-ECR WMC, and SWRC review; the following week for NWIS-SWO review, comment resolution, and signatures. The NWIS-SWO representative typically does not submit comments on the draft WCSF until the PL, SWRC representative, and ERS-ECR WMC have completed their reviews and resolved and documented their comments.

8.6 WCSF Review Process

The WCSF review shall proceed as follows:

- The **PL**, the **SWRC representative**, and the **ERS-ECR WMC** shall make comments to the WCSF, preferably in electronic track changes format.
- The **PL**, the **SWRC representative**, and the **ERS-ECR WMC** shall resolve any conflicting comments.
- The **PL**, the **SWRC representative**, and the **ERS-ECR WMC** shall provide comments to the WCSF preparer and the NWIS-SWO representative.
- The **SWRC representative** shall brief the NWIS-SWO representative on any key issues, and provide confirmation that the PL, ERS-ECR WMC, and SWRC comments are in agreement.
- The **NWIS-SWO representative** shall review and provide comments to the WCSF preparer and other reviewers.
- The **WCSF preparer** shall incorporate all comments and ensure that all reviewers concur with the comment resolutions.
- The **WCSF preparer** or the **DM** shall obtain signatures from all reviewers on both the WCSF and the ERS-ECR document signature form.

Note: Either the WCSF preparer or the DM may obtain the reviewers' signatures. The original signed WCSF will remain with the FTL or field WMC until work is completed and final project records are submitted to the ERS-ECR Records Processing Facility (RPF) (see Section 10.0).

- Within a week of obtaining all signatures, the **WCSF preparer** or the **DM** or designee shall provide paper and electronic copies of the final, signed WCSF to each of the signatories.
- The **ERS-ECR WMC** shall add the final WCSF to the ERS-ECR WCSF database.

8.7 Prepare related waste management documentation

8.7.1 WPFs

- If applicable, the **ERS-ECR WMC** will advise the WCSF preparer on the use of approved project-wide WPFs for certain commonly generated waste streams.
- The **field WMC** may prepare new WPFs for waste streams as soon as an approved WCSF (i.e., with all signatures obtained) is in place. Attach copies of all AK and analytical documentation to the WPF (LIG 404-00-03.1).
- The **field WMC** shall submit WPFs to the **ERS-ECR WMC**, who will review and ensure consistency between approved WCSFs and WPFs, prior to submission to NWIS-SWO.
- The **PL** and **SWRC representative** will review the WPF following the ERS-ECR WMC's review.
- The **field WMC** shall obtain a document signature form from the DM or designee and obtain signatures from the PL, the ERS-ECR WMC, and the SWRC representative.
- The **PL** shall sign the WPF as the waste generator, and the **field WMC** shall sign the WPF as the WMC.

8.7.2 CWDRs

Once the wastes have been generated and prepared for shipment, the **field WMC** may submit the CWDR to NWIS-SWO (LIG 404-00-04.1).

8.8 Amending the WCSF

The **PL**, **FTL**, or **field WMC** may amend approved WCSFs when an unanticipated waste is generated, when an approved strategy for management of a waste stream significantly changes, or a correction to the approved form is necessary. This can be

accomplished by completing Attachment C of this SOP and following the review and approval steps described in Sections 8.5 and 8.6. The instructions for completion of Attachment C are as follows:

Heading: Include the original WCSF title in the amendment heading for ease of reference.

Introduction: Include a complete reference to the original WCSF, its completion date, the SWMUs and/or AOCs at the site, and the reason for the amendment (e.g., new waste stream not included in the original WCSF).

Background information: Provide a concise summary of the information in the original WCSF, and provide details on the change(s) necessitating the amendment.

Waste description: Provide a detailed description of the waste that is the subject of the amendment and the activity generating the waste.

Characterization, management, and disposal: Provide a detailed description of how the waste will be characterized and managed, and the anticipated method(s) of storage, treatment, or disposal. Analytical results or AK documentation should be cited and attached to this amendment. This information should be consistent with the applicable instructions in Sections 8.2–8.4 of this SOP.

Note: When generation of a new waste is the reason for the amendment, the original approved WCSF must have the approved amendment in place (i.e., all signatures obtained) prior to submitting WPFs to NWIS-SWO.

9.0 LESSONS LEARNED

- 9.1 Before performing work described in this QP, participants should go to the Department of Energy Lessons Learned Information Services home page, located at <http://www.tis.eh.doe.gov/II/II.html>, and/or to the LANL Lessons Learned Resources web page, located at http://www.lanl.gov/projects/lessons_learned/, and search for applicable lessons.
- 9.2 During work performance and/or after the completion of work activities, participants, as appropriate, shall identify, document, and submit lessons learned in accordance with the LANL, Lessons Learned System located at http://www.lanl.gov/projects/lessons_learned/.

10.0 RECORDS

The PL is responsible for submitting the following records (processed in accordance with QP-4.4, Record Transmittal to the Records Processing Facility):

- WCSFs
- Amendments to WCSFs
- Related waste management documentation

Note: For both WCSFs and amendments to WCSFs, the submittals to the RPF must be in final form (i.e., all signatures by the appropriate reviewers obtained) and must include all attachments (e.g., AK documentation, data summaries, figures).

11.0 REFERENCES

To properly implement this procedure, participants should become familiar with the contents of the following documents, available at http://erinternal.lanl.gov/home_links/Library_proc.shtml:

- “Quality Management Plan”
- QP-2.1, “Documenting Personnel Qualification and Selection Process”
- QP-2.2, “Personnel Training Management Process”
- QP-4.2, “Standard Operating Procedure Development”
- QP-4.4, “Record Transmittal to the Records Processing Facility”
- QP-5.7, Notebook Documentation for Environmental Restoration Technical Activities
- ECR SOP-01.06, “Management of Remediation Services Project Waste”
- LIG 404-00-02.0, Acceptable Knowledge
- LIG 404-00-03.1, Waste Profile Form Guidance
- LIG 404-00-04.1, Chemical Waste Disposal Request Guidance
- LIG 404-00-05.0, Preparing the Waste with No Disposal Path Approval Package
- LIR 404-00-02.3, General Waste Management Requirements
- LIR 404-00-03.1, Hazardous and Mixed Waste Requirements
- LIR 404-00-04.2, Managing Solid Waste
- LIR 404-00-05.3, Managing Radioactive Waste
- LIR 404-00-06.1, Managing Polychlorinated Biphenyls

- LANL Waste Acceptance Criteria document at http://swo.lanl.gov/FMU-64_Controlled_Documents
- 20.4.1 NMAC , New Mexico Hazardous Waste Management Regulations
- 20.9.1 NMAC, New Mexico Solid Waste Management Regulations
- DOE Order 435.1, Radioactive Waste Management
- “Management of Remediation Waste Under RCRA,”, EPA Office of Solid Waste and Emergency Response, EPA530-F-98-026, October 1998
- “Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Waste – A Guidance Manual”, EPA Office of Solid Waste and Emergency Response, OS-520, April 1994
- Title 40 of the Code of Federal Regulations, Parts 260 through 299 and 761
- Compliance Order on Consent (Consent Order) NMED, March 2005

12.0 ATTACHMENTS

Participants may locate all example forms associated with this procedure at <http://erinternal.lanl.gov/Quality/user/forms.asp>.

Attachment A: WCSF Process Flow Chart (1 page)

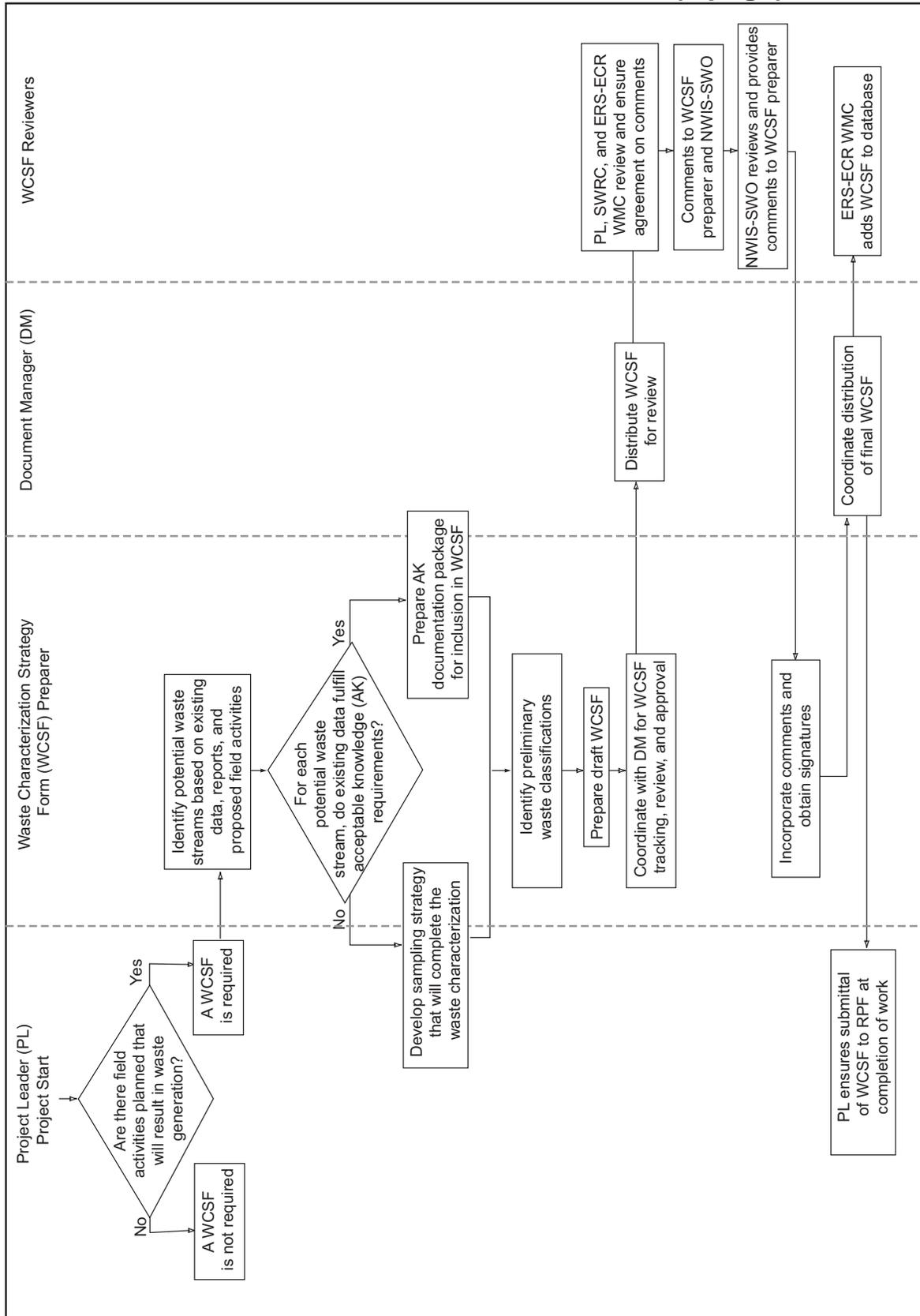
Attachment B: WCSF (3 pages)

Attachment C: WCSF Amendment Form (1 page)

[Using a token card, click \(+control key\) here to record "self-study" training to this procedure.](#)

If you do not possess a token card or encounter problems, contact the ENV-ECR training specialist.

Attachment A: WCSF Process Flow Chart (1 page)



Attachment B
Waste Characterization Strategy Form

Page__ of __

For instructions regarding this form, see section 8 of SOP-01.10.

Project Title	
Solid Waste Management Unit or Area of Concern #	
Activity Type	
Field Team Leader	
Field Waste Management Coordinator	
Completed by	
Date	

Description of Activity:

Site History and Description:

Characterization Strategy:

Waste #1:

Waste #2:

Waste #3:

Waste #4:

Attachment B
Waste Characterization Strategy Form (continued) Page__ of __

CHARACTERIZATION TABLE

Waste Description	Waste # ___	Waste # ___	Waste # ___	Waste # ___
Volume				
Packaging				
Regulatory classification:				
Radioactive				
Solid				
Hazardous				
Mixed (hazardous and radioactive)				
Toxic Substances Control Act (TSCA)				
New Mexico Special Waste				
Industrial				
Characterization Method				
Acceptable knowledge (AK): Existing Data/Documentation				
AK: Site Characterization				
Direct Sampling of Containerized Waste				
Analytical Testing				
Volatile Organic Compounds (EPA 8260-B)				
Semivolatile Organic Compounds (EPA 8270-C)				
Organic Pesticides (EPA 8081-A)				
Organic Herbicides (EPA 8151-A)				
PCBs (EPA 8082)				
Total Metals (EPA 6010-B/7471-A)				
Total Cyanide (EPA 9012-A)				
High Explosives Constituents (EPA 8330/8321-A)				
Asbestos				
Total petroleum hydrocarbon (TPH)-GRO (EPA 8015-M)				
TPH-DRO (EPA 8015-M)				
Toxicity characteristic leaching procedure (TCLP) Metals (EPA 1311/6010-B)				
TCLP Organics (EPA 1311/8260-B & 1311/8270-C)				
TCLP Pest. & Herb. (EPA 1311/8081-A/1311/8151-A)				
Gross Alpha (alpha counting) (EPA 900)				
Gross Beta (beta counting) (EPA 900)				
Tritium (liquid scintillation) (EPA 906.0)				
Gamma spectroscopy (EPA 901.1)				
Isotopic plutonium (chem. separation/alpha spec.) (HASL-300)				
Isotopic uranium (chem. separation/alpha spec.) (HASL-300)				
Total uranium (6020 inductively coupled plasma mass spectroscopy [ICPMS])				
Strontium-90 (EPA 905)				
Americium-241 (chem. separation/alpha spec.) (HASL-300)				
Waste Profile Form #				

Attachment B
Waste Characterization Strategy Form (continued) Page _ of _

SIGNATURES	DATE
Project Leader (Print name and then sign below.)	
ERS-ECR Waste Management Coordinator (Print name and then sign below.)	
SWRC Representative (Print name and then sign below.)	
NWIS-SWO Representative (Print name and then sign below.)	
ER-SOP-01.10, R2	Los Alamos National Laboratory ENV-ECR

Attachment C

**Amendment to the
Waste Characterization Strategy Form (WCSF) for**

Date:

Page of

INTRODUCTION	
BACKGROUND	
WASTE DESCRIPTION	
CHARACTERIZATION, MANAGEMENT, AND DISPOSAL	
SIGNATURES (Print name and then sign.)	DATE
Project Leader:	
ERS-ECR Waste Management Coordinator:	
SWRC Representative:	
NWIS-SWO Representative:	