



Department of Energy

Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

April 12, 2022

Mr. Rick Shean, Bureau Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 E. Rodeo Park Dr. Bldg. 1
Santa Fe, New Mexico 87505

Subject: Response to the Information Request Concerning Attachment A of the 2016 Settlement Agreement and Stipulated Final Order, Item One, Waste Isolation Pilot Plant, EPA I.D. Number NM4890139088

Reference: New Mexico Environment Department correspondence from Rick Shean, Chief, Hazardous Waste Bureau, to Reinhard Knerr, Manager, and Sean Dunagan, President and Project Manager; Subject: Request for Information Concerning Attachment A of the 2016 Settlement Agreement and Stipulated Final Order, Waste Isolation Pilot Plant, EPA I.D. Number NM4890139088, dated April 8, 2022

Dear Mr. Shean:

The purpose of this letter is to provide you with the information requested in the referenced letter, Item 1.

Enclosed are the five requested procedures:

- Carlsbad Field Office (CBFO) Office Procedure (OP) 10.13, Rev. 3, *Audits* (formerly CBFO-MP-10.3)
- DOE/WIPP-16-3564, Rev. 2, *Generator Site Technical Review Procedure* (formerly CBFO-MP-10.10)
- CCP-TP-005, Rev. 32, *Central Characterization Program (CCP) Acceptable Knowledge Documentation*
- Waste Isolation Pilot Plant (WIPP) Procedure (WP) 08-NT.03, Rev. 20, *Waste Stream Profile Form Review and Approval Program*
- WP 08-NT 1005, Rev. 2, *Resource Conservation and Recovery Act (RCRA) Review Criteria for Waste Stream Profile Forms*

We certify under penalty of law that this document and enclosure were prepared under our direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on our inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of our knowledge and belief, true, accurate and complete. We are aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Mr. Rick Shean

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April 12, 2022

If you have any question, please contact Mr. Ed Garza at (575) 234-7398.

Sincerely,

Signatures on File

Reinhard Knerr
Manager
Carlsbad Field Office

Sean Dunagan
President and Project Manager
Nuclear Waste Partnership LLC

Enclosure

cc: w/enclosure

R. Maestas, NMED *ED

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CBFO M&RC

*ED denotes electronic distribution

Enclosure

- CBFO OP 10.13, Rev. 3, Audits
- DOE/WIPP-16-3564, Rev. 2, Generator Site Technical Review Procedure
- CCP-TP-005, Rev. 32, CCP Acceptable Knowledge Documentation
- WP 08-NT.03, Rev. 20, Waste Stream Profile Form Review and Approval Program
- WP 08-NT1005, Rev. 2, RCRA Review Criteria for Waste Stream Profile Forms

REVISION	REASON FOR REVISION
3	<ul style="list-style-type: none"> • Removed the words “3-year”, and changed various references to the assessment schedule throughout the procedure to “CBFO Monthly Assessment Schedule” for consistency. • Revised section 5.1 to reflect the changes to the CBFO Monthly Assessment Schedule incorporating only WAP-related assessments required on the schedule, and list all other assessments activities as optional. • Revised sections 5.3.3, 5.5.2, and 5.5.3 to include the addition of the ATL signature. • Inserted new Attachment 1, Example CBFO Monthly Assessment Schedule, to reflect new format for schedule. • Removed the word “Title” in Attachment V, Personnel Contacted.

1.0 PURPOSE

The purpose of this procedure is to define the process, responsibilities, and controls for planning and conducting independent audits that are announced or unannounced by the Carlsbad Field Office (CBFO), as required by the *CBFO Quality Assurance Program Document (QAPD)*, Section 3.

2.0 SCOPE

This office procedure (OP) specifies the methods for the scheduling, selection of personnel, planning, performing, reporting, and closure of independent CBFO audits, both internal and external, performed by or for the CBFO. This procedure does not apply to surveillances, conducted in accordance with CBFO OP 10.4, or management assessments, conducted in accordance with CBFO management procedure (MP) 9.1. It is not applicable to administrative audits, such as financial or accounting audits. This procedure supersedes CBFO OP 10.13, Revision 2, *Audits*. This procedure is intended to be used in conjunction with CBFO MP 3.1, *Corrective Action Reports*.

3.0 REFERENCES AND DEFINITIONS

3.1 References

- 3.1.1 Federal Acquisition Regulation (FAR), Subpart 7.2, Planning for the Purchase of Supplies in Economic Quantities
- 3.1.2 DOE/CBFO-94-1012, *CBFO Quality Assurance Program Document*
- 3.1.3 CBFO team procedure (TP) 1.3, *CBFO Quality Assurance Compliance with WIPP Documented Safety Analysis, Chapter 18*
- 3.1.4 CBFO MP 3.1, *Corrective Action Reports*
- 3.1.5 CBFO MP 3.2, *Deficiency Trending and Reporting*
- 3.1.6 CBFO MP 4.5, *Generating, Receiving, Storing, and Controlling Active CBFO Program Records*
- 3.1.7 CBFO MP 4.9, *Quality Assurance Records*
- 3.1.8 CBFO MP 5.2, *TRU Waste Program Certification/Recertification*
- 3.1.9 CBFO OP 10.1, *Qualification of Audit Personnel and Certification of Lead Auditors*
- 3.1.10 CBFO OP 10.4, *Surveillances*

- 3.1.11 Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP)
- 3.1.12 American Society of Mechanical Engineers (ASME) NQA-1, 1989, *Quality Assurance Program Requirements for Nuclear Facilities*, Section I, Introduction, Section II, Basic Requirements, and Supplement 18S-1, Supplementary Requirements for Audits

3.2 Definitions

- 3.2.1 **Adequacy** – Addresses the flow-down or incorporation of requirements from upper-tier program documents (e.g., CBFO QAPD) into implementing procedures.
- 3.2.2 **Assessment** – The act of reviewing, inspecting, testing, checking, conducting surveillances, auditing, or otherwise determining and documenting whether items, processes, or services meet specified requirements. Assessments are performed by or for management.
- 3.2.3 **Audit** – A planned and documented independent assessment to determine by investigation, examination, or evaluation of objective evidence the adequacy of, and compliance with, established procedures, instructions, drawings, and other applicable documents, and the effectiveness of implementation. An audit should not be confused with surveillance or inspection activities performed for the sole purpose of process control or product acceptance.
- 3.2.4 **Auditor** – An individual who is qualified to perform assigned portions of an audit.
- 3.2.5 **Audit Report** – Documented evidence of an assessment performed to verify compliance with applicable aspects of the program evaluated to determine adequacy, implementation, and effectiveness.
- 3.2.6 **Audit Team** – An audit team consists of an audit team leader and may include one or more auditors or technical specialists who have been assigned to participate in an audit.
- 3.2.7 **Audit Team Leader (ATL)** – A lead auditor (typically a contractor) who is assigned to manage the efforts of the audit (or assessment) team under the guidance of the CBFO Quality Assurance Lead.
- 3.2.8 **CBFO Quality Assurance Lead (QAL) (formally known as QA Management Representative)** – Qualified Quality Assurance (QA) personnel who manage or oversee the assessment process. QALs act as the manager of the assessing organization over the assessment process. For generator site assessments, these leads are the main liaison between the assigned assessment team and host site U.S. Department of Energy (DOE) personnel and any regulators present. The QAL may also assume the role of ATL when assigned by the Quality Assurance Division Director. The QAL must be qualified in accordance with CBFO OP 10.1, *Qualification of Audit Personnel and Certification of Lead Auditors*.
- 3.2.9 **Concern** – An all-inclusive term describing issues ranging from a recommendation to a condition adverse to quality.
- 3.2.10 **Condition Adverse to Quality (CAQ)** – An all-inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, nonconformances, and technical inadequacies. A CAQ is considered a significant condition adverse to quality (SCAQ) when:
 - A. If uncorrected, the CAQ could have a serious effect on safety, operability, waste isolation, transuranic (TRU) waste site certification, regulatory compliance demonstration, or effective implementation of the QA program.

- B. The CAQ requires immediate notification of regulatory entities (e.g., 10 Code of Federal Regulations Part 21, WIPP HWFP Part 1.7.13).
 - C. The CAQ indicates a significant failure or breakdown in the implementation of QA program requirements.
 - D. Repeated attempts to resolve a CAQ have been unsuccessful.
 - E. The CAQ is identified in items or activities important to safety or waste isolation and compromises the ability to prevent or mitigate the consequences of an accident, thereby presenting a significant hazard to safety and health of workers and/or the public.
- 3.2.11 **Corrective Action Report (CAR)** – A document (electronic or otherwise) used to identify and rectify CAQs, and track the associated corrective actions. CARs address CAQs that are primarily programmatic in nature, as opposed to nonconformance reports, which address CAQs relating to a specific item such as a piece of hardware or data.
- 3.2.12 **Effectiveness** – A determination of whether the controls established in the implementing procedure produce the desired results or end product.
- 3.2.13 **External Audit** – An audit conducted of those portions of an organization's QA program not under the direct control of the CBFO or within the CBFO's organizational structure.
- 3.2.14 **Final Audit Report** – A report written as a result of audits conducted to evaluate waste generator site programs and applicable WIPP HWFP Waste Analysis Plan (WAP)-related characterization processes (e.g., Central Characterization Program [CCP] and Advanced Mixed Waste Treatment Project [AMWTP]). The final audit report is prepared, approved, and issued to the New Mexico Environment Department (NMED) and applicable sites. The report incorporates WIPP HWFP WAP-related CAR resolution results and audit results that include, at a minimum, sections describing the scope, purpose, summary of deficiencies, and observations in narrative format, completed audit checklists, audited procedures, and other applicable documents which provide evidence of WIPP HWFP WAP implementation.
- 3.2.15 **Implementation** – The extent of compliance with procedures.
- 3.2.16 **Independent Assessment** – An assessment of activities, conducted by a group or organization having authority and freedom from the line organization, to evaluate the scope, status, adequacy, programmatic implementation, or effectiveness of a program or process which they do not currently perform, supervise, or have direct responsibility for performing. Independence is determined based on an individual having no bias, rather than on organizational affiliation.
- 3.2.17 **Indeterminate** – A characteristic of a program, product, or activity that cannot meet the minimal applicable requirements for adequacy, implementation, and/or effectiveness because verification could not be performed during an audit.
- 3.2.18 **Interim Audit Report** – A report written as a result of audits conducted to evaluate waste generator site certified programs (e.g., CCP and AMWTP). The interim report is prepared, approved, and issued to the applicable regulatory agencies within 30 days of the completion of the audit by the DOE. The report includes all applicable WIPP HWFP WAP-related waste characterization methods evaluated during the audit and regulated by the NMED, as well as other characterization methods regulated by the U.S. Environmental Protection Agency (EPA).

- 3.2.19 **Internal Audit** – An audit of those portions of the CBFO’s QA program retained under CBFO’s direct control and within the CBFO’s organizational structure.
- 3.2.20 **Lead Auditor** – An individual trained, qualified, and certified to organize and direct an audit, report audit findings, and evaluate corrective actions.
- 3.2.21 **Marginal** – A characteristic of a program, product, or activity that is close to the lower limit of satisfactory adequacy, implementation, or effectiveness. Barely exceeding the minimum requirements.
- 3.2.22 **NMED Observer** – NMED personnel, or contracted personnel, who observe CBFO assessments (audits and surveillances) for the purpose of validating the implementation of WIPP HWFP requirements.
- 3.2.23 **NMED Observer Inquiry Form** – A form used to document a condition identified by an NMED Observer during an assessment that will require extensive investigation outside the assessment process, and which requires that the condition be resolved between the NMED Observer and the CBFO.
- 3.2.24 **Objective Evidence** – Any statement of fact, information, or record, either quantitative or qualitative, pertaining to the quality of an item, service, process, or end-product and based upon direct observation, measurement, test, or documentation that can be verified.
- 3.2.25 **Observation** – Documentation of marginally acceptable conditions that, if not controlled, might later escalate into a CAQ. Observations are not CAQs and do not require a response.
- 3.2.26 **Observer** – An individual who observes the audit process, but does not directly participate in the audit.
- 3.2.27 **Recommendation** – Suggestions that are directed toward identifying opportunities for improvement and enhancing methods of implementing process or quality program requirements. Recommendations are not deficiencies and do not require a response.
- 3.2.28 **Satisfactory** – Characteristic of a program, product, or activity that meets or exceeds the minimum applicable requirements for adequacy, implementation, or effectiveness.
- 3.2.29 **Strength** – When a practice or performance is identified that exceeds requirements, expectations, or industry standards in a beneficial, safe, efficient, and effective manner, it may be considered a Strength. Some organizations refer to this as a Good Practice. One way to determine if a process or practice warrants being identified as a Strength is to ask: Would one recommend that other organizations benchmark this practice to improve performance?
- 3.2.30 **Technical Specialist (TS)/Subject Matter Expert (SME)** – An individual assigned to an assessment team who has technical expertise or experience in the work being assessed when the scope, complexity, or special nature of the work to be examined warrants assessment of the technical adequacy of the work or the effectiveness of the technical process. These TS/SMEs may be either government or contract employees. TS/SMEs who participate in CBFO QA assessments must be qualified in accordance with CBFO OP 10.1, *Qualification of Audit Personnel and Certification of Lead Auditors*.
- 3.2.31 **Unsatisfactory** – Characteristic of a program, product, or activity that fails to meet the minimum applicable requirements for adequacy, implementation, or effectiveness.

- 3.2.32 **WAP-affecting** – A direct violation of a requirement contained in the WIPP HWFP. (Those items that affect the quality of the program and/or the data generated by that program, which are required by the WAP.)
- 3.2.33 **WAP-related** – An audit of a TRU waste generator site for purposes of compliance with the requirements contained in the WIPP HWFP.

4.0 **RESPONSIBILITIES**

- 4.1 CBFO Quality Assurance Division (QAD) Director
 - 4.1.1 Maintain the overall CBFO independent assessment program, including maintenance of this procedure.
 - 4.1.2 Prepare and maintain a CBFO Monthly Assessment Schedule in accordance with this procedure.
 - 4.1.3 Coordinate with the appropriate CBFO Assistant Manager (AM) or Division Director in scheduling audits for the CBFO.
 - 4.1.4 Review and approve CBFO audit plans.
 - 4.1.5 Review and approve CBFO audit reports.
 - 4.1.6 Issue approved interim and final audit reports.
 - 4.1.7 Process and maintain QA records created through this procedure in accordance with CBFO MP 4.9, *Quality Assurance Records*.
 - 4.1.8 Transmit NMED Observer Inquiries to the appropriate CBFO organization to respond to NMED within 30 days of inquiry submission.
 - 4.1.9 Respond to submitted NMED Observer Inquiries in applicable area of responsibility.
 - 4.1.10 Report the results of QA audits to the CBFO Manager/Deputy Manager as requested.
 - 4.1.11 For WAP-related audits, the CBFO QAD Director shall identify all assigned auditors and TS/SMEs in an audit plan submitted to the NMED prior to the audit, and shall provide the qualifications of all assigned auditors and TS/SMEs upon request.
- 4.2 CBFO Quality Assurance Lead (QAL)
 - 4.2.1 Review and determine the classification and required actions for concerns in conjunction with the ATL.
 - 4.2.2 Recommend work suspension when necessary.
 - 4.2.3 Review, validate, approve and/or reject CARs.
 - 4.2.4 Review, evaluate, and approve or reject requests to extend response due dates, as well as corrective action completion or closure dates for CARs.
 - 4.2.5 Advocate and defend CBFO oversight interests during audits.
 - 4.2.6 Serve as the primary liaison with the regulator and audited entity. Guidance for coordination with WIPP regulators participating in the audits of TRU waste generator sites is contained in Attachment XII.

- 4.2.7 Observe and monitor critical audit activities.
 - 4.2.8 Resolve or elevate audit disputes.
 - 4.2.9 Review and approve audit schedules.
 - 4.2.10 Review and concur with audit plans and reports.
 - 4.2.11 Finalize and approve audit scope.
 - 4.2.12 Grade audits and establish resource needs.
 - 4.2.13 Preside over internal team meetings, management briefing meetings, and pre- and post-audit meetings in conjunction with the ATL.
 - 4.2.14 Report results of day-to-day audit activities to the QAD Director and other CBFO entities, as applicable.
 - 4.2.15 Provide input to the CBFO Monthly Assessment Schedule.
 - 4.2.16 Delegate audit tasks to the ATL and audit team, as appropriate.
 - 4.2.17 Obtain and maintain lead auditor certification in accordance with CBFO OP 10.1, *Qualification of Audit Personnel and Certification of Lead Auditors*.
 - 4.2.18 Audit, as needed.
- 4.3 Contractor Audit Team Leader (ATL)
- 4.3.1 Prepare the audit plan and notification letter for review and approval.
 - 4.3.2 Recommend for management approval all auditors needed for the audit team, including TE/SMEs, and verify that assigned auditors are properly qualified and trained in accordance with CBFO OP 10.1, and are independent of the activity being audited.
 - 4.3.3 Coordinate with the QAL, NMED, and other audit observers.
 - 4.3.4 Review and concur on the audit checklist(s) as needed.
 - 4.3.5 Conduct the daily internal team meetings, management briefings, and pre- and post-audit meetings in conjunction with the QAL.
 - 4.3.6 Coordinate the day-to-day conduct of the audit with the QAL.
 - 4.3.7 Coordinate the resolution of emergent issues with the QAL and provide guidance to the audit team as necessary during the performance of the audit.
 - 4.3.8 Determine and report the adequacy, implementation, and effectiveness of the processes audited, in accordance with the audit scope.
 - 4.3.9 Coordinate with the QAL in response to submitted NMED Observer Inquiries.
 - 4.3.10 Review and determine the classification of concerns in conjunction with the QAL.
 - 4.3.11 Prepare the audit report and submit any CARs.
 - 4.3.12 Collect and package audit records.

- 4.3.13 Develop day-to-day audit schedule.
- 4.3.14 Manage day-to-day audit team activities.
- 4.3.15 Provide scope recommendations.
- 4.3.16 Provide input to the CBFO Monthly Assessment Schedule, as requested.
- 4.3.17 Obtain and maintain lead auditor certification.
- 4.3.18 Audit, as needed.
- 4.4 Auditor/TS/SME
 - 4.4.1 Prepare audit checklists, as applicable.
 - 4.4.2 Attend audit-related meetings.
 - 4.4.3 Conduct assigned portions of the audit.
 - 4.4.4 Complete audit checklist(s), as applicable.
 - 4.4.5 Assist in the preparation of the audit report and any CARs.
 - 4.4.6 Assemble objective evidence, as applicable.
- 4.5 Audit Team
 - Perform audit activities as outlined in approved audit plan.

5.0 PROCEDURE

5.1 Planning and Scheduling

NOTE: Audits of TRU waste sites may be either announced or unannounced.

- 5.1.1 Audits are scheduled to begin as early in the life of a project or activity as practicable, and continue at intervals consistent with the schedule for accomplishing the work and commensurate with the assigned control level. With input from QA staff, the CBFO QAD Director will prepare or update the CBFO Monthly Assessment Schedule as a monthly deliverable to the NMED/EPA (see example in Attachment I), which lists all WAP-related QAD assessment activities for the CBFO. The QAD may also maintain a CBFO QA Resource Loaded Schedule (used as a tool for internal CBFO planning purposes). The CBFO Monthly Assessment Schedule assessment activities shall include:
 - A. WAP-related audits. Annual certification audits shall address contact-handled (CH) and remote-handled (RH) waste characterization activities if the site has approval or is seeking approval for such wastes. At a minimum, the audit shall evaluate acceptable knowledge (AK) documentation for CH and RH waste separately by summary category group, as applicable.
 - B. WAP-related effectiveness reviews or surveillances for SCAQs identified by CBFO QA to validate the effectiveness of corrective action implementation and results in preventing recurrences, as needed, within a timely manner that allows for implementation of changes.

- C. Effectiveness reviews for SCAQs identified by CBFO QA to validate the effectiveness of corrective action implementation and results in preventing recurrences, as needed, in a timely manner that allows for implementation of changes.
- 5.1.2 The CBFO QA Resource Loaded Schedule assessment activities may also include:
- A. Non-WAP-related internal and external audits.
 - B. Non-WAP-related internal and external surveillances performed per CBFO OP 10.4, *Surveillances*.
 - C. Non-WAP-related effectiveness reviews for SCAQs identified by CBFO QA to validate the effectiveness of corrective action implementation and results in preventing recurrences, as needed, in a timely manner that allows for implementation of changes.
- 5.1.3 The QAD Director decides (with input from QA staff) whether a new assessment should be added or if an existing assessment may be removed from the schedule.
- A. If an assessment is retained on the schedule, the QAD Director and QA staff update the preliminary assessment scope based on known scope requirements, previous assessment results, data trending, metrics, and management input.
 - B. If a new assessment is added to the schedule, the QAD Director will assign a QAL to review the requirements, data trending, metrics, and management input to develop a preliminary scope.
 - C. If the assessment is no longer required, it is deleted from the schedule.
- 5.1.4 The QAD Director and QA staff grade new assessments using the grading criteria in Attachment XIII, Assessment Grading Criteria.
- 5.1.5 Based on preliminary scope and grading results, the QAD Director and QA staff update the CBFO Monthly Assessment Schedule. They also adjust the schedule and make preliminary resource assignments to the CBFO QA Resource Loaded Schedule.
- 5.1.6 The QAD Director approves the updated CBFO Monthly Assessment Schedule and the updated schedule is forwarded to the NMED and EPA.
- 5.1.7 The QAD Director and contract managers respectively assign a qualified QAL and ATL to each scheduled assessment. The QAL and ATL are selected from a list of government and contract lead auditors with concurrence from the CBFO QAD Director (or designee). Where grading indicates the risk is low or previous audit results have confirmed high confidence the scope is well in control, the ATL may also serve as the QAL and report to the QAD Director. Auditors and TS/SMEs shall be selected by the ATL with concurrence from the QAL and their assigned resource managers.
- 5.1.8 Approximately 3 months prior to the planned assessment execution for non-generator site audits, the assigned QAL and ATL formalize the preliminary assessment scope. The formalized scope should be coordinated with affected organizations, such as TRU Program Oversight, WIPP Oversight, and the audited QA Manager. This is documented in the audit plan.
- 5.1.9 For generator site audits, the audit scope is provided from the CBFO Office of the National TRU Program per CBFO MP 5.2, *TRU Waste Program Certification/Recertification*.

5.1.10 Based on the final scope, the QAL and ATL determine the actual resource needs and update the CBFO QA Resource Loaded Schedule.

5.2 Personnel Selection

5.2.1 Contract audit team members shall be selected by the ATL based on the scope, grading, and resource needs of the audit. The QAL (or QAD Director if QAL is also ATL) shall arrange for the use of auditors and TS/SMEs who come from within the CBFO. The selections are then approved by the QAL and line management.

5.2.2 The audit team shall be independent from the organization or activities being audited and shall have sufficient authority and organizational freedom to objectively identify problems.

5.2.3 The ATL shall:

- A. Review the training and qualifications of prospective auditors and concur that they have the collective experience and training commensurate with the scope, complexity, or special nature of the activities to be audited.

NOTE: For WAP-related audits, the auditors/TS/SMEs shall have expertise in the Resource Conservation and Recovery Act (RCRA) requirements and knowledge of the analysis and documentation methods required to verify the hazardous waste characterization performed by the sites. For WAP-related audits of AK, the auditors/TS/SMEs shall understand the required AK information, RCRA regulations, and EPA guidance regarding the use of AK for waste characterization, RCRA hazardous waste characterization, and the WAP. Auditors will be independent of all TRU mixed waste management operations at the site being audited. The auditors/TS/SMEs shall have expertise in the specific audit areas to which they are assigned.

- B. Use TS/SMEs, as applicable, when assessing the effectiveness of technical processes and the acceptability of technical end-products.

5.3 Planning

NOTE 1: Guidance for coordination with WIPP regulators participating in the audits of TRU waste generator sites is contained in Attachment XII.

NOTE 2: The ATL should review the associated corrective action management system (i.e., CBFO and WIPP management and operating contractor issues management systems) for previously identified issues prior to the beginning of the audit, and should coordinate site logistics with the audited organization, as applicable (i.e., building safety orientation, point of contact, etc.).

5.3.1 Based on the agreed upon scope, the ATL shall develop an audit plan, similar to the example in Attachment II, that identifies the following:

- A. Audit Number
- B. Organization to be Audited
- C. Organization to be Notified
- D. Date and Location of the Audit

- E. Audit Team
- F. Audit Scope
- G. Governing Documents/Requirements

NOTE: For certification/recertification audits, CBFO TP 1.3, *CBFO Quality Assurance Compliance with WIPP Documented Safety Analysis, Chapter 18*, is applicable.

- H. Activities to be Audited
- I. Schedule of Audit Activities
- J. Corrective action follow-up for previous audit(s), if applicable
- K. Processes or Equipment to be Evaluated Table (this applies only to audits of TRU waste generator sites)

- 5.3.2 The ATL shall prepare an audit notification letter addressed to the key individual of the organization to be audited. The letter shall transmit the audit plan (as an attachment), and list required documents for pre-audit review (if any) and any other items needed to facilitate the audit.
- 5.3.3 The audit plan shall be signed by the ATL, and the audit plan and notification letter shall be forwarded to the QAL and CBFO QAD Director for review, concurrence, and signature. The audit notification letter should arrive at the organization to be audited at least 10 work days prior to the scheduled audit. For WAP-related audits, the audit plan shall be provided to the NMED at least 30 days prior to the audit and identify within the audit plan all assigned auditors and TS/SMEs. Upon request, the NMED shall be provided the qualifications of all assigned auditors and TS/SMEs.
- 5.3.4 The ATL shall prepare the audit team for the audit using an orientation including the following items, as appropriate:
 - A. Audit objectives and the audit scope.
 - B. Procedures and other documents that apply to the activities being audited.
 - C. Previous assessment results and completed or in-process corrective actions.
 - D. New programs or activities being audited.
 - E. Changes in programs or operations.
 - F. Changes in key personnel.
 - G. Current status of the work.
 - H. Role of the auditors in conducting the audit.
 - I. Role of the observers.
- 5.3.5 The auditors/TS/SMEs should develop audit checklists using a format similar to the example in Attachment III. Checklists shall be based upon applicable QA and technical procedures and regulatory and contractual requirements as specified in the audit plan. The checklists should be reviewed by the ATL to assure complete coverage of assigned

scope, and may be forwarded to the audited organization before the pre-audit meeting. The audit checklists for WAP-related audits may be forwarded to the NMED before the pre-audit meeting. The audit checklists should be used by the audit team to:

- A. Guide the audit.
- B. Record objective evidence such as activities, procedures, instructions, records, and personnel interviewed. (The example forms in Attachment VI, Audit Summary Table Format, as needed, and Attachment VII, Personnel Contacted During the Audit Record, or similar forms, may be used.)
- C. Review and verify sustained corrective actions taken since the last audit.
- D. Document adequate and inadequate conditions and procedural implementation.

5.3.6 For WAP-related audits, the checklists shall include, at a minimum, the appropriate checklists found in WIPP HWFP Tables C6-1 through C6-4.

5.3.7 For WAP-related AK audits, the checklist shall include Table C6-2 of the WIPP HWFP, and will include, but not be limited to, the following elements for review during the audit:

- A. Documentation of the process used to compile, evaluate, and record AK is available and implemented.
- B. Personnel qualifications and training are documented.
- C. All of the required AK documentation specified in section C4-2 of the WIPP HWFP has been compiled in an auditable record.
- D. All of the required procedures specified in section C4-3 of the WIPP HWFP have been developed and implemented, including but not limited to:
 - A procedure for assigning hazardous waste codes to waste streams in accordance with section C4-3 of the WIPP HWFP.
 - A procedure for resolving discrepancies in AK documentation in accordance with section C4-3 of the WIPP HWFP.
 - A procedure for confirming AK information through: (a) radiography or visual examination, and (b) homogeneous waste sampling and analysis in accordance with section C4-3 of the WIPP HWFP.

5.4 Performance

5.4.1 The QAL and ATL shall conduct a pre-audit meeting with the appropriate personnel within the audited organization. Meeting attendance will be documented, using an attendance record similar to the example in Attachment IV, Attendance Record. The purpose of this meeting is to:

- A. Introduce the audit team, participants, and observers.
- B. Obtain additional information on the organization and status of work being done.
- C. Discuss the audit objectives, scope, and conduct.
- D. Identify the specific areas to be audited.

- E. Identify the processes or functions to be observed.
 - F. Provide information on the audit activities and schedule.
 - G. Arrange for points of contact and escorts.
 - H. Discuss logistics and meeting schedules.
 - I. Arrange for site participation required, including site interfaces.
- 5.4.2 Audits shall include personnel interviews, document and record reviews, observations of operations, and any other activities deemed necessary by the auditors TS/SMEs to meet the objectives of the audit. Observations or deficiencies identified during the audit will be investigated or evaluated, as necessary, to determine if they are isolated conditions or represent a general breakdown of the QA program.
- 5.4.3 Audited personnel will be given the opportunity to correct any CAQs that can be corrected during the audit period. CAQs, observations, and recommendations will be documented and included as part of the audit report. Those items that have been resolved during the audit (isolated deficiencies that do not require a causal analysis determination, actions to preclude recurrence, or non-editorial procedure revisions) will be verified prior to the end of the audit, and the resolution will be described in the audit report. Copies of WAP-affecting CARs will be included as a part of the final audit report. For WAP-related audits, RCRA-related CARs identified by the site during self-audits will be evaluated during the audit.
- 5.4.4 Objective evidence shall be examined to the detail necessary to determine whether QA and technical program requirements are adequately documented and are being implemented, and that the associated work processes are effective.
- 5.4.5 For WAP-related audits, the C6 checklist must indicate that the objective evidence observed verifies that the site has met the quality assurance objectives (QAOs) for the program elements, methods, and activities being audited.
- 5.4.6 RCRA-related site-generated CARs shall be evaluated annually during WAP-related audits. Copies of RCRA-related site-generated CARs, relevant corrective action documentation, and site-generated CAR closures shall be obtained during the audit, if applicable. Copies of these CARs shall be provided to the CBFO CAR Coordinator for tracking in accordance with CBFO MP 3.1.
- 5.4.7 In cases where discrepancies exist between the audit checklists and requirements documents, the requirements documents take precedence.
- 5.4.8 CAQs that, in the auditor's judgment, require prompt corrective action shall be reported immediately to the management of the audited organization and the ATL.
- 5.4.9 CAQs shall be documented as a CAR in accordance with CBFO MP 3.1, or as Corrected During the Audit (CDA), using a CDA form similar to the example in Attachment X. The auditor who identifies each CAQ must participate in the initiation of the CAR or CDA to the extent necessary to identify relevant issues.
- 5.4.10 The QAL and ATL may conduct daily internal team meetings to gather details of the audit results as they occur during the audit. Audit team meetings must be limited to the audit team and CBFO QA personnel during audits; however, they may include NMED representatives during WAP-related audits. This ensures the audit team will maintain independence in discussions regarding preliminary concerns. If NMED, DOE management, or other regulators are present on site, the QAL's physical presence is highly recommended. Furthermore, team members will summarize their audit

issues/results in preparation for daily meetings with the management of the audited organization, as needed. A Concern Form, similar to the example in Attachment IX, may be used to document items for the team meeting.

5.4.11 Both the QAL and ATL should communicate daily with the management of the audited organization during the course of the audit to provide feedback relative to audit concerns, results, and progress.

5.4.12 If NMED Observers identify issues that cannot be resolved through the audit process, these issues should be documented by the NMED Observer on an NMED Observer Inquiry Form, similar to the example in Attachment XI, which includes instructions for completing the form.

NOTE: So the audit team can fulfill their responsibilities, all observers must pose questions at a convenient time so as not to disrupt the audit process. If the question cannot be answered to the satisfaction of the observer, the observer may inform the QAL/ATL so other avenues can be pursued to answer the question. If facilities limit the number of personnel entering an operational area during the audit, members of the audit team will have precedence.

5.4.13 The QAL and ATL shall conduct a post-audit meeting with the management of the audited organization. Meeting attendance will be documented using an attendance sheet similar to the example in Attachment IV. The post-audit meeting discussion shall include the following, as applicable:

- A. Audit results, including deficiencies that will be documented as CARs, and those corrected during the audit.
- B. Observations.
- C. Recommendations.
- D. Strengths.
- E. Probable schedule for issuance of the audit report and any CARs.
- F. A statement of the overall adequacy, implementation, and effectiveness of the audited processes within the scope of the audit.

5.5 Reporting

NOTE: When the ATL is a contractor, preliminary draft documents will be provided to the CBFO QA organization for finalization and issuance.

5.5.1 A draft audit report (see example in Attachment V) shall be prepared by the ATL, then sent to the QAL and CBFO QAD Director for review.

5.5.2 Once concurrence has been reached, the signature-ready audit report shall be signed by the ATL and QAL and approved and issued by the CBFO QAD Director. Interim audit reports shall be issued within 30 days of the completion of the audit. The report distribution should include the CBFO Manager, the appropriate management of the audited organization, and the responsible CBFO AM or Division Director(s). WAP-related audit reports will be transmitted to the NMED.

5.5.3 For WAP-related audits, a final audit report shall be prepared by the ATL after all WAP-affecting CARs are closed. The final audit report shall be reviewed and signed by the ATL and QAL, and approved and issued by the CBFO QAD Director. One formal final audit report shall be submitted to the NMED in hard copy, but any additional copies may

be submitted in electronic format. One copy shall be submitted to the WIPP management and operating contractor for retention in the operating record. The WIPP Webmaster shall be notified that the final audit report must be posted to the Internet, and an email notification must be distributed to the personnel on the distribution list. The report shall contain information related to WAP implementation. This shall include:

- A. The WAP-related portions of the audit report.
- B. Completed C6 checklists.
- C. WAP-related audited procedures.
- D. Documentation from all associated WAP-affecting CARs, including the CAR, description of all corrective actions taken, and actions taken to close the CAR.
- E. Documentation supporting all corrective actions taken on WAP-affecting CARs.
- F. Other applicable documents that provide evidence of WAP implementation.

5.5.4 The QAL shall forward NMED Observer Inquiry Forms generated during the audit to the responsible CBFO AM or Division Director(s) for resolution.

5.5.5 The CBFO AM or Division Director is responsible for submitting a written response to NMED Observer Inquiries. These inquiries require a response within 30 days of inquiry submission. The NMED will examine the response and consider this information as part of the audit review and approval process.

5.6 Audit Response, Follow-up, and Close-Out

5.6.1 The audit is considered to be closed upon issuance of the audit report.

5.6.2 Response, follow-up, verification, and closure of CARs issued during the audit shall be performed in accordance with the requirements of CBFO MP 3.1.

5.7 Dispute Resolution to the NMED

5.7.1 If there is a disagreement with an action on a final audit report by the NMED, a dispute resolution may be invoked (pursuant to WIPP HWFP, section 1.16, Dispute Resolution) where the DOE shall notify the NMED, in writing, within 7 calendar days of receipt of the action in dispute on the final audit report.

5.7.2 If a dispute resolution is invoked, the Co-Permittees will be notified and manage the process per WIPP HWFP, section 1.16, Dispute Resolution.

6.0 RECORDS

6.1 Records shall be handled in accordance with CBFO MP 4.5, *Generating, Receiving, Storing, and Controlling Active CBFO Program Records*. The following documentation generated as a result of implementing this procedure shall be processed when the audit report is issued and shall be maintained as QA records in accordance with CBFO MP 4.9, *Quality Assurance Records*.

6.1.1 Audit Plan

6.1.2 Audit Reports

6.1.3 Completed C6 checklists, as applicable

6.1.4 CBFO Monthly Assessment Schedule

6.2 Copies of the following documentation generated as a result of implementing this procedure shall be transmitted to the WIPP management and operating contractor for retention in the facility operating record:

6.2.1 WAP-related audit plans

6.2.2 WAP-related audit notification letters

6.2.3 WAP-related audit reports (section 5.5.2)

6.2.4 WAP-related final audit reports and supporting documentation (section 5.5.3)

7.0 ATTACHMENTS

Attachment I. Example CBFO Monthly Assessment Schedule Format

Attachment II: Example Audit Plan Format

Attachment III: Example Audit Checklist Format

Attachment IV: Example Attendance Record

Attachment V: Example Audit Report Format

Attachment VI: Example Audit Summary Table Format

Attachment VII: Example Personnel Contacted During the Audit Record

Attachment VIII: Example Objective Evidence Reviewed Record

Attachment IX: Example Concern Form

Attachment X: Example Corrected During the Audit (CDA) Form

Attachment XI: Example NMED Observer Inquiry Form

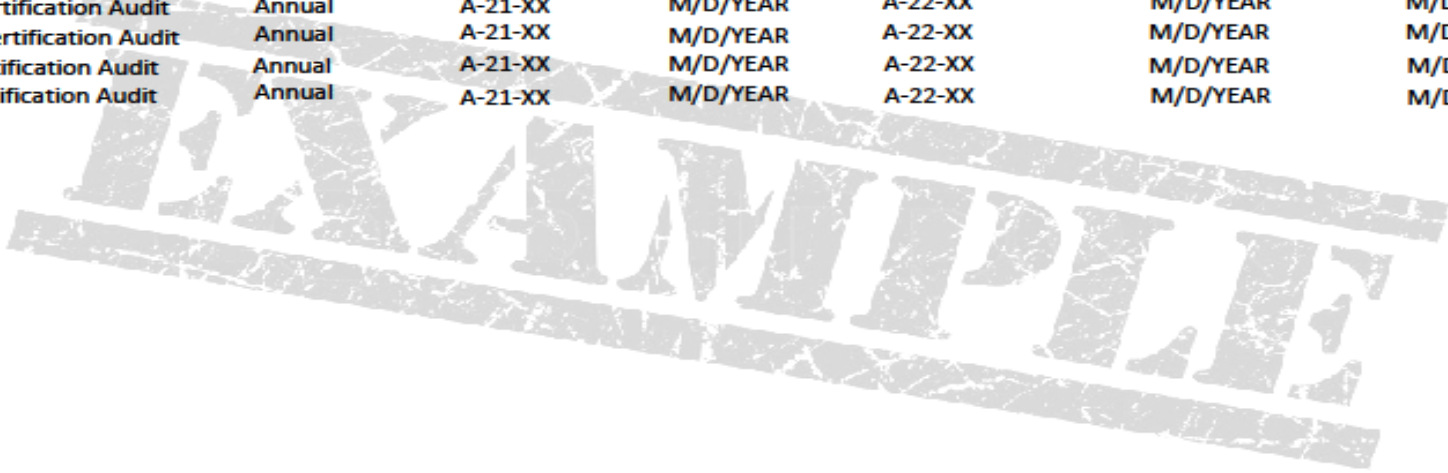
Attachment XII: Guidance for Coordination of TRU Waste Site Audits

Attachment XIII: Assessment Grading Criteria

EXAMPLE
CBFO MONTHLY ASSESSMENT SCHEDULE FORMAT
CARLSBAD FIELD OFFICE
ASSESSMENT SCHEDULE

CBFO Monthly Assessment Schedule for NMED

Audit Description	Audit Interval	Previous Assessment	Previous Date	Current Assessment	Current Year Start	Current Year End
AMWTP Recertification Audit	Annual	A-20-XX	M/D/YEAR	A-22-XX	M/D/YEAR	M/D/YEAR
ANL/CCP Recertification Audit	Annual	A-21-XX	M/D/YEAR	A-22-XX	M/D/YEAR	M/D/YEAR
INL/CCP Recertification Audit	Annual	A-21-XX	M/D/YEAR	A-22-XX	M/D/YEAR	M/D/YEAR
LANL/CCP Recertification Audit	Annual	A-21-XX	M/D/YEAR	A-22-XX	M/D/YEAR	M/D/YEAR
LLNL/CCP Recertification Audit	Annual	A-21-XX	M/D/YEAR	A-22-XX	M/D/YEAR	M/D/YEAR
ORNL/CCP Recertification Audit	Annual	A-21-XX	M/D/YEAR	A-22-XX	M/D/YEAR	M/D/YEAR
SNL/CCP Recertification Audit	Annual	A-21-XX	M/D/YEAR	A-22-XX	M/D/YEAR	M/D/YEAR
SRS/CCP Recertification Audit	Annual	A-21-XX	M/D/YEAR	A-22-XX	M/D/YEAR	M/D/YEAR



Approval: _____

Darren M. Jolley, Director
CBFO Quality Assurance Division

Processes and Equipment to be Reviewed During Audit A-XX-XX of XX Site

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams	Currently Approved by NMED	Currently Approved by EPA
PROCESSES OR EQUIPMENT TO BE EVALUATED FOR RECERTIFICATION				
16IQ1	Nondestructive Assay IQ3 Procedures – CCP-TP-046, CCP-TP-047, and CCP-TP-048	Soils (S4000) Debris (S5000)	N/A	YES
16MILCC2	Mobile ISOCs Large Container Counter (MILCC2) Procedures – CCP-TP-076, CCP-TP-077, and CCP-TP-048	Soils (S4000) Debris (S5000)	N/A	YES
16DTC1	Dose-to-Curie (Radiological Characterization) Procedure – CCP-TP-504	Soils (S4000) – RH Debris (S5000) – RH	N/A	YES
16RR1	Real-Time Radiography Mobile Characterization System RTR #6 Procedures – CCP-TP-053 and CCP-TP-165	Soils (S4000) Debris (S5000)	YES	YES
		Soils (S4000) – RH	YES	YES
16RHVE1	Visual Examination Procedure – CCP-TP-500	Debris (S5000) – RH	YES	YES
16VE1	Visual Examination Procedure – CCP-TP-113	Soils (S4000) Debris (S5000)	YES	YES
N/A	Acceptable Knowledge Procedure – CCP-TP-005	Soils (S4000) Debris (S5000) Soils (S4000) – RH Debris (S5000) – RH	YES	YES
N/A	Data Verification and Validation	Soils (S4000) Debris (S5000) Soils (S4000) – RH Debris (S5000) – RH	YES	YES
N/A	Quality Assurance Program	Soils (S4000) Debris (S5000) Soils (S4000) – RH Debris (S5000) – RH	YES	YES
N/A	WIPP Waste Information System (WWIS)/Waste Data System (WDS) Procedures – CCP-TP-030 and CCP-TP-530	Soils (S4000) Debris (S5000) Soils (S4000) – RH Debris (S5000) – RH	YES	YES

NOTE: This table format may be modified by the QAL/ATL as required.

This information is provided by the CBFO Office of the National TRU Program, as defined within the scope letter.

**EXAMPLE
CBFO AUDIT CHECKLIST FORMAT**

Organization Evaluated: _____ Audit Number: _____

Activities Evaluated: _____ Date of Evaluation: _____

Controlling Document(s): _____

Item No.	Requirement(s) and/or Characteristic(s)	Objective Evidence	*Results
EXAMPLE			

Prepared by: _____ Approved by: _____ Page ___ of ___

*Indicate Results: Satisfactory (SAT), Unsatisfactory (UNSAT), Not Applicable (NA), Indeterminate (I)

CBFO AUDIT CHECKLIST FORMAT
(Continuation Sheet)

Organization Evaluated: _____ Audit Number: _____

Activities Evaluated: _____

Item No.	Characteristic(s)	Objective Evidence	*Results
EXAMPLE			

**EXAMPLE
AUDIT REPORT FORMAT**

**U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE**

AUDIT REPORT

OF THE

(AUDITED ORGANIZATION)

FOR

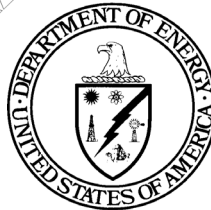
(PRIMARY ACTIVITY EVALUATED)

AT

(ORGANIZATION LOCATION)

AUDIT NUMBER A-YY-XX

(DATE OF THE AUDIT)



Prepared By: _____
Audit Team Leader

Date

Concurrence: _____
CBFO QA Lead

Date

Approved: _____
CBFO QAD Director

Date

1.0 EXECUTIVE SUMMARY

Audit A-YY-XX was conducted to evaluate the *(adequacy, implementation, and/or effectiveness)* of *(describe the primary activity evaluated)*. The audit was conducted at *(location)* from *(dates)*. The audit team concluded that *(provide statements on adequacy, implementation and/or effectiveness)*. The audit team identified *(number)* conditions adverse to quality resulting in the issuance of *(number of)* Corrective Action Report(s) (CAR's) that require corrective action in the areas of *(identify deficient audited areas)*. *(Number of)* isolated deficiencies requiring only remedial actions were corrected during the audit (CDA's). *(Number of)* observations and *(number of)* recommendations are being offered for management consideration. CAR's, CDA's, Observations, and Recommendations are described in Section 6.0.

2.0 SCOPE AND PURPOSE

The scope of this *(internal/external)* Audit A-YY-XX, conducted at *(the location of the audit)*, was to evaluate the adequacy, implementation, and/or effectiveness of *(describe the subject/activities evaluated)*. The following elements were evaluated in accordance with the CBFO QAPD *(list the appropriate elements)*. The following CBFO technical characterization elements were evaluated in accordance with the WAP *(list the appropriate elements)*. The following transportation technical elements were evaluated in accordance with the CBFO TRAMPAC *(list the appropriate elements)*. Evaluation of the *(describe the primary activity evaluated)* was based on current revisions of the following documents *(generally state the basis of the audit)*.

3.0 AUDIT TEAM, MANAGEMENT REPRESENTATIVES, AND OBSERVERS

The audit team consisted of the following personnel: *(List name, title and organization.)*
The following inspectors were present during the audit: *(List name, title, and organization.)*
The following observers were present during the audit: *(List name, title and organization.)*

4.0 AUDIT PARTICIPANTS

The following individuals were involved in the audit: *(List name, title and organization. If a substantial number of personnel are contacted, a table may be developed as an attachment to the audit report)*.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy, Implementation, and Effectiveness

The audit team concluded that *(provide statements on the adequacy, implementation, and effectiveness of the QA program)*.

5.2 General Activities

Describe the results of the audit for general activities in concise terms. Sufficient detail must be provided for general activities to demonstrate that the processes evaluated to support the effectiveness determination.

5.3 QA Activities

Describe the results of the QA portion of the audit in concise terms. Sufficient detail must be provided for QA activities to support the effectiveness determination. The quality assurance program procedures evaluated during this audit are provided in Attachment (number).

5.4 Technical Activities

Describe the results of the audit in concise terms. Sufficient detail must be provided for technical activities to demonstrate that the technical processes used and the objective evidence reviewed, supports the effectiveness determination. If information is extensive, consider the use of attachments for audit details and identification of the objective evidence reviewed.

6.0 CARS, CDAs, OBSERVATIONS, AND RECOMMENDATIONS

6.1 CARs

The following (*number*) CARs, initiated as a result of Audit (*number*), have been transmitted to (*organization audited*) under separate cover. A brief description of each CAR is provided below. (*Provide summary details of any CARs.*)

6.2 Deficiencies Corrected During the Audit (CDA)

During the audit, (*organization audited*) was able to correct (*number*) isolated conditions adverse to quality identified in the (*areas audited*). A description of these items and their resolution is given below: *Briefly describe the CDAs and their resolutions.*

6.3 Observations

The following (*number*) Observations were identified during the audit. *Briefly describe the Observations.*

6.4 Recommendations

The following (*number*) Recommendations are presented for (*audited site*) management consideration. *Briefly describe the Recommendations.*

6.5 Strengths

The following (*number*) Strengths were identified during the audit. *Briefly describe the Strengths.*

7.0 ATTACHMENTS

List the Attachments. Normal attachments are: 1) Personnel Contacted During the Audit and 2) Table of Procedures Audited. For audits of TRU waste generator sites, attach a table showing the processes and equipment reviewed during the audit. (See Attachment II, page 2 of 2 for an example.)

PROCEDURES AUDITED

NUMBER	PROCEDURE NUMBER AND REVISION	TITLE
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		
21.		
22.		
23.		
24.		
25.		
26.		
27.		
28.		
29.		

COMPLETION INSTRUCTIONS FOR THE AUDIT SUMMARY TABLE

The audit summary table is used to identify the details and overall status of the audit results. Completion of the audit summary table provides a summary of the quality and technical activities reviewed by audit checklists and the level of program procedure compliance and effectiveness. The following instructions provide guidance on what information is required for completing each column of the audit summary table:

First Column (Optional)

"Program Element," the program area or criteria (e.g., organization, design control, procurement document) being evaluated should be identified in this column. Generally, these are arranged in NQA-1 or QAPD element sequence. Complete this column for each area or criteria being examined.

Second Column

"Audited Activity," description of activity being audited.

Third Column

"CAR," the identification number of any CAR(s) related in this "audited activity," if any, are identified in this column.

Fourth Column

"CDA," any deficiency or deficiencies identified during the audit of a specific area in which the deficiency or deficiencies were corrected and verified during the audit, should be identified in this column. The entry should correlate with the CDA number in Section 6 of the audit report.

Fifth Column

"Observation," any observation(s) noted during the audit of a specific area, should be identified in this column. The entry should correlate with the observation number in Section 6 of the audit report.

Sixth Column

"Recommendation," any recommendation(s) offered during the audit which address a specific activity or area, should be identified in this column. The entry should correlate with the recommendation number in Section 6 of the audit report.

Seventh Column

"Strength," any strength(s) noted during the audit of a specific area should be identified in this column. The entry should correlate with the strength number in Section 6 of the audit report.

Eighth Column

"Adequate," the adequacy of the procedure being evaluated for a specific activity or area, should be identified in this column. A procedure is either "satisfactory" (contains all the applicable requirements) "marginally satisfactory" or is "unsatisfactory."

Ninth Column

"Implementation," the status of implementation of the program document for the specific activity or area being evaluated, should be identified in this column. Implementation is either "satisfactory," "marginally satisfactory," or "unsatisfactory."

COMPLETION INSTRUCTIONS FOR THE AUDIT SUMMARY TABLE (continued)

Tenth Column

"Effectiveness," the effectiveness of the process described in the procedure being evaluated relative to the achievement of desired results or end product, should be identified in this column. Effectiveness is either "satisfactory," "marginally satisfactory," or "unsatisfactory."

The last row of the Table

Summarize columns 3 through 10. Note the total number of CARs, CDAs, Obs, Rec, are entered into the appropriate column in the "total" row. Under the Strg, Adq, Imp, and Eff columns, enter the overall results of the audit.

Auditor _____

Page ____ of ____

**EXAMPLE
AUDIT A-XX-XX
PERSONNEL CONTACTED DURING THE AUDIT RECORD**

Name	Organization and Department	Title	Evaluation Area
EXAMPLE			

EXAMPLE CONCERN FORM

ASSESSMENT NUMBER: Click or tap here to enter text.

DATE: Click or tap to enter a date.

ASSESSMENT CONCERN FORM

TEAM MEMBER: Click or tap here to enter text.

CHECKLIST ACTIVITY (ITEM NO): Click or tap here to enter text.

CONCERN NO. Click or tap here to enter text.

I WHAT IS THE CONCERN?

Click or tap here to enter text.

CONCERN DISCUSSED WITH WHOM?: Click or tap here to enter text.

Sample size: Click or tap here to enter text. Population Size (if known): Click or tap here to enter text.

II DOCUMENT REQUIREMENTS (Name, Revision, Paragraph):

Click or tap here to enter text.

III CONCERN DIPOSITION:

CDA/CDS CAR OBS REC STRENGTH NONE

IV VERIFICATION OF ACTIONS TAKEN DURING THE AUDIT:

Click or tap here to enter text.

V If the concern is a deficiency (CAR or CDA/CDS), the ATL/STL must answer the following questions:

1. Does this deficiency affect waste already shipped to WIPP? Yes No

Why? Click or tap here to enter text.

2. Does this deficiency affect waste that the site is currently certified to ship? Yes No

Why? Click or tap here to enter text.

If the answer to question 1 or 2 is yes, the Office of the National TRU Program (NTP) must be notified immediately.

Name of NTP person notified: Click or tap here to enter text.

Click or tap here to enter text.

Click or tap to enter a date.

Time

Date

The information contained on this form is preliminary.

EXAMPLE
CORRECTED DURING THE AUDIT (CDA) FORM

CORRECTED DURING THE AUDIT			
1.0 CDA #	2.0 Audit Number	3.0 Responsible Organization	4.0 Identified By/Date
5.0 Description of Condition Adverse to Quality:			
6.0 Requirements not met (include document number, revision number, and paragraph):			
7.0 Actions Taken By Auditee:			
Verified By: _____		Trend Cause Code	

* Note: 1) All blocks are to be filled out by the audit team member who identified the deficiency.
2) Trend Cause Codes are provided in Attachment I of CBFO MP 3.2.

EXAMPLE
NMED Observer Inquiry Form

NMED Observer: _____ Date: _____ Audit Number: _____

Description of Inquiry: _____

QAL Response: _____

NMED Observer: Accept Response _____ Response Rejected _____
(Provide Reason)

Inquiry Closed: _____
QAL Date

NMED Observer Inquiry Form Instructions

During audits, NMED Observers may identify issues that cannot be resolved through the audit process. Examples of these types of issues include, but are not limited to:

- Concerns regarding the validity of requirements
- Concerns regarding the interpretation of requirements by the audit team or CBFO
- Process concerns regarding efficiency, priority of work being done, and approach to work accomplishment
- Concerns regarding CBFO policy or objectives
- Concerns that are outside the scope of the audit

If the NMED Observer does not believe that a concern can be resolved with the assigned auditor or technical specialist, the next communication should be with the CBFO Quality Assurance Lead (QAL). It is the responsibility of the QAL to serve as a catalyst for resolution of problems and concerns. In the event that the QAL believes that the NMED Observer has a request or a concern that will require extensive investigation or that the concern is a matter better resolved between the NMED Observer and the CBFO, the QAL should request that the NMED Observer document the issue or concern on an NMED Observer Inquiry Form in the "Description of Inquiry" section.

The QAL should then complete the "QAL Response" section of the NMED Observer Inquiry Form. Because of the nature of observer inquiries, the normal response will be that the inquiry will be forwarded to the appropriate CBFO Assistant Manager or Division Director for resolution.

The QAL should request that the NMED Observer accept the response, or if the response is not acceptable, the NMED Observer should document the reason why the response is not acceptable.

The QAL should then sign the "Inquiry Closed" line on the NMED Observer Inquiry Form. This indicates that for purposes of the audit, the inquiry has been completed. The QAL will transmit the NMED Observer Inquiry Form to the responsible CBFO Assistant Manager or Division Director for further action, if applicable, to the CBFO QAD Director for information

**GUIDANCE FOR COORDINATION OF
TRU WASTE SITE AUDITS**

Activities (Responsible Party)	Schedule	Comments
Update and Transmit CBFO Monthly Assessment Schedule to NMED. A copy of the CBFO Monthly Assessment Schedule may also be forwarded to EPA. (CBFO QAD Director)	Monthly	
Prepare Audit Plan Quality Assurance Lead (QAL)/Audit Team Leader (ATL)	45 days prior to audit	The audit plan is signed by the ATL, QAL, and the CBFO QAD Director. The audit plan will include a matrix identifying summary category groups, processes, and equipment to be evaluated during the audit.
Prepare/issue site notification letter including audit plan. (QAL)/(ATL)	30 days prior to audit	EPA notification is via cc on the TRU waste site notification letter. At a minimum, EPA WIPP QA Lead and the EPA WIPP Waste Characterization Lead will receive the notification letter. The cognizant QA specialist may sign the TRU waste site notification letter.
Prepare/issue NMED notification letter including audit plan. (QAL)/(ATL)	30 days prior to audit	NMED is notified via a separate letter from the CBFO Manager to NMED Hazardous Waste Bureau Project Manager (WIPP Project).

Activities (Responsible Party)	Schedule	Comments
Send procedures to be audited to NMED. (ATL)	14 days prior to audit	Coordinate with NMED and transmit procedures to NMED consultants if requested.
Transmit interim audit report to EPA and NMED. (CBFO QAD Director)	within 30 days after the audit	
Issue Final Audit Report (CBFO QAD Director)	Upon CAR Closure	The Final Audit Report is transmitted to the NMED Hazardous Waste Bureau Project Manager (WIPP Project), the Operating Record, and the M&RC.
Obtain NMED approval of the Final Audit Report (NMED)	When Completed	NMED responsibility.

Note: This table provides guidance only. Activities and schedules may be changed with mutual agreement between CBFO, NMED, and/or EPA.

ASSESSMENT GRADING CRITERIA

To grade an assessment, the CBFO team identifies the assessment and asks the questions listed in the criteria below. For each “yes” or “no” answer, add the value listed in the respective cell. The risk is determined based on the sum of the questions asked.

Assessment Grading Criteria

Grading Criteria	Yes	No
Does a regulation require the audit to be performed?	Mandatory - Place on schedule	Evaluate other risks and resource constraints. If grade = medium or high-risk, place on schedule.
Is the audit a TRU Waste Certification or waste isolation audit?	"=1"	"=0"
Previously performed audits/surveillances Identify a Condition Adverse to Quality (CAQ) or a state of nonconformance including those of identical or similar products or services furnished by the same organization or supplier?	SCAR = 2, CAR = 1	"=0"
Do CAS, QA metrics, or declining trends Identify a risk to the program or organization?	"=1"	"=0"
Did program/process undergo a significant change or reorganization?	"=1"	"=0"
Is this the first audit to be performed after a change of contract?	"=1"	"=0"
Was a portion of the previous year's audit found indeterminate or is there a need to verify implementation of extensive, large-scale corrective action activities?	"=1"	"=0"
Does the audit require significant manpower to conduct the defined scope?	< 10 = +2; 9 to 4 = +1;	3 or less = 0
Has there been significant change in upper-level requirements since the last audit?	"=1"	"=0"
Does the audit cover an area of Safety Significant work?	"=1"	"=0"
Do previously Identified issues or observations remain unresolved?	"=1"	"=0"
Did a previous external regulator audit identify a CAQ?	"=1"	"=0"

Assessment Grading Criteria (cont.)

Grading Criteria	Yes	No
Did a review of the previous audit schedule show execution outside the 3-year window?	"=1"	"=0"
Are there unresolved self-identified issues that impact the audited organization or its mission?	"=1"	"=0"

High Risk	Sum of 7 or above
Medium Risk	Sum of 4 to 6
Low Risk	Sum of 3 or less

High-risk assessments have priority in the schedule and are to be spaced and staffed appropriately. Low-risk audits, unless mandated by requirement and the CBFO Monthly Assessment Schedule, are to have scope reduced or, if needed, be sacrificed/postponed to resource higher risk requirements.

Generator Site Technical Review Procedure

Revision 2

Effective Date: April 26, 2021



This document supersedes DOE/WIPP-16-3564, Revision 1

U. S. Department of Energy
Carlsbad Field Office

THIS DOCUMENT IMPLEMENTS THE WIPP DSA REQUIREMENTS

THIS DOCUMENT IMPLEMENTS TSR PAC 5.6.1, KEY ELEMENT 18-4.

Generator Site Technical Review Procedure

Revision 2

Effective Date: April 26, 2021



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02/18/2021
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U. S. Department of Energy
Carlsbad Field Office

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CHANGE HISTORY SUMMARY

REVISION NUMBER	DATE ISSUED	DESCRIPTION OF CHANGES
0	05/23/16	New document to implement actions to address Judgments of Need (JONs) 2 and 4 of the Phase 2 Radiological Release Event at WIPP Accident Investigation Report.
1	09/05/19	<p>Complete rewrite of procedure, therefore no change bars are present.</p> <p>This revision addresses lessons learned derived from implementation of FY17 and FY18 reviews and Generator Site Technical Review (GSTR) Team Member input throughout the years.</p> <p>Deleted the term “finding(s)” and defined “issues.”</p> <p>Provided editorial corrections and revisions throughout and incorporated DOE/CBFO-16-3563, <i>WIPP Generator Site Technical Review Plan</i>, into this procedure for clarification purposes. DOE/CBFO-16-3563 will be deactivated and rendered obsolete. Also incorporated editorial changes to comply with document formatting requirements of CBFO MP 4.4, <i>Document Preparation and Control</i>.</p> <p>Deleted “Deferred Maintenance” from the assigned documents/program review areas. “Deferred Maintenance” was previously noted in this procedure as it was initially intended to protect against a situation similar to the deferred maintenance on the mining equipment at the WIPP, which ultimately contributed to the February 2014 fire. After four reviews, review team consensus is that this element is not necessary for future GSTRs.</p> <p>Determined that Figure 1. “National TRU Program Integrated Oversight Program,” from DOE/CBFO-16-3563 is not required to be incorporated as the text in this procedure adequately addresses the requirements of the WIPP Documented Safety Analysis.</p> <p>Identified the requirements for a Scoping Visit.</p> <p>Clarified the requirements for qualified GSTR team member.</p>

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REVISION NUMBER	DATE ISSUED	DESCRIPTION OF CHANGES
2	04/26/2021	<p>This revision addresses the DOE Office of Enterprise Assessments, July 2020 Final report, relative to the CBFO management of non-compliances, including findings and/or conditions adverse to quality. The revision and clarifications include:</p> <ul style="list-style-type: none"> • Expand definition of the term “Issue” • Define Findings • Add requirements for addressing findings/Conditions Adverse to Quality <p>This revision also deletes previous requirements relative to entry of GSTR “Issues” into the ICE system. The established requirement and practice of the <i>Issues Tracking System</i> will suffice as the mechanism for documenting and tracking GSTR Issues through closure.</p> <p>This revision also deletes the “GSTR Record File Completion Checklist”, Attachment III. After seven reviews, it was determined that this tool is no longer necessary, as the required records are sufficiently described in section 9.0 of this procedure.</p>

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ACRONYMS

CBFO	Carlsbad Field Office
CAR	Corrective Action Report
DOE	U. S. Department of Energy
DSA	Documented Safety Analysis
GSTR	Generator Site Technical Review
L-O-I	Line of Inquiry
MP	Management Procedure
M&O	management and operating
NTP	National TRU Program
NWP	Nuclear Waste Partnership LLC
O	Order
QA	quality assurance
RCRA	Resource Conservation and Recovery Act
TRU	transuranic
WAC	Waste Acceptance Criteria
WDS	Waste Data System
WIPP	Waste Isolation Pilot Plant

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1.0 **INTRODUCTION**

The U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) and the Waste Isolation Pilot Plant (WIPP) management and operating (M&O) contractor, Nuclear Waste Partnership LLC (NWP), as co-permittees to the WIPP Hazardous Waste Facility Permit, perform reviews of generator site activities applicable to treatment, packaging, and management of transuranic (TRU) waste by DOE Site Waste Management Programs and TRU waste characterization/certification by Certified Programs. These Generator Site Technical Reviews (GSTRs) are accomplished through site visits and review of site program implementing documents.

The WIPP Documented Safety Analysis (DSA), DOE/WIPP-07-3372, Key Element 18-4, requires that GSTRs be performed at generator sites before shipping TRU waste, and on a periodic basis.

The review will focus primarily on the DOE self-regulated requirements which include, but are not limited to, the following: DOE Order (O) 435.1, *Radioactive Waste Management*; DOE O 422.1, *Conduct of Operations*; and DOE O 226.1B, *Implementation of Department of Energy Oversight Policy*.

The GSTR program is part of an integrated and comprehensive approach to TRU waste management oversight, and satisfies the requirements of Key Element 18-4 of the WIPP DSA. This program is not intended to duplicate or replace the WIPP TRU waste certification program audits or evaluations performed by other organizations, but focuses on the programs and processes that manage, treat, package, prepare, and perform other TRU waste activities upstream (i.e., prior to presenting the waste to the Certified Programs).

The GSTR program ensures that necessary and sufficient processes and procedures are in place and implemented to assure waste containers are compliant with DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WIPP WAC)*. Cognizant personnel from the WIPP M&O contractor and the CBFO National TRU Program (NTP) also complete programmatic reviews/assessments of the sufficiency and implementation of the DOE sites' treatment, packaging, and TRU waste management processes with regard to their required performance to assure WIPP WAC implementation.

2.0 **RESPONSIBILITIES**

2.1 **CBFO Manager**

2.1.1 Establish and maintain the GSTR program.

2.1.2 Resolve disputes.

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2.1.3 Submit GSTR reports.

2.2 WIPP M&O Contractor President/Project Manager

2.2.1 Designate the GSTR Team Leader.

2.2.2 Resolve disputes.

2.2.3 Submit GSTR reports.

2.3 CBFO Assistant Manager, Office of the National TRU Program

2.3.1 Designate the GSTR Coordinator.

2.3.2 Resolve disputes.

2.4 GSTR Coordinator

2.4.1 Serve as the Federal representative on the GSTR team.

2.4.2 Coordinate with the site/organization to be reviewed.

2.4.3 Ensure the WIPP M&O contractor is provided access to the DOE Site Waste Management Program.

2.4.4 Work with the GSTR Team Leader to maintain the GSTR procedure.

2.4.5 Work with the GSTR Team Leader to establish/approve the scope for each review.

2.4.6 Work with the GSTR Team Leader to develop a review plan for each review activity.

2.4.7 Designate Federal team members to address CBFO priorities for the review.

2.4.8 Identify observers from WIPP regulatory agencies requesting participation.

2.4.9 Work with the GSTR Team Leader to prepare/approve GSTR reports.

2.5 GSTR Team Leader

2.5.1 Work with the GSTR Coordinator to maintain the GSTR procedure.

2.5.2 Maintain the GSTR review schedule.

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- 2.5.3 Maintain the GSTR *Issues Tracking System*.
- 2.5.4 Work with the GSTR Coordinator to establish/approve the scope for each review.
- 2.5.5 Work with the GSTR Coordinator to develop a review plan for each review.
- 2.5.6 Designate team members to address WIPP M&O contractor priorities for the review.
- 2.5.7 Execute GSTR review.
- 2.5.8 Work with the GSTR Coordinator to prepare/approve GSTR reports.
- 2.5.9 Train GSTR team members, including retraining and refresher training.
- 2.5.10 Approve GSTR team member Lines of Inquiry (L-O-I) checklists.
- 2.5.11 Maintain GSTR team records.

2.6 GSTR Team Members

- 2.6.1 Participate in GSTR team meetings.
- 2.6.2 Perform document review and develop GSTR L-O-I checklists.
- 2.6.3 Perform GSTR activities in the areas assigned, recording identified issues on the GSTR L-O-I checklist.
- 2.6.4 Prepare a written report describing GSTR activities and identified issues in assigned areas.
- 2.6.5 Complete GSTR training assigned by the GSTR Team Leader.

3.0 IDENTIFICATION OF ORGANIZATIONS TO REVIEW

The GSTR Team Leader and the GSTR Coordinator will identify DOE site facilities and site waste management organizations that generate, treat, manage, and/or handle TRU waste, or that conduct processes that have the ability to affect TRU waste physical properties or final form, based on the TRU waste shipping schedule, TRU Waste Corporate Board recommendations, current waste processing activities, and planning meetings between the DOE site and the NTP Compliance Division. Identified DOE generator site facilities/organizations will be included in plans for future evaluations.

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3.1 GSTR Coordinator

- 3.1.1 Identify generator site facilities and organizations to be reviewed.
- 3.1.2 Coordinate with the GSTR Team Leader to develop a GSTR schedule, in compliance with DSA requirements.
- 3.1.3 Initiate contact with the selected sites to establish a point of contact and to begin development of GSTR scope.
- 3.1.4 Provide notification of the GSTR to the site point of contact and schedule a site visit.
- 3.1.5 Assess site requests to reschedule a GSTR due to schedule conflicts or program unreadiness.

3.2 GSTR Team Leader

Identify the GSTR as Level 1 or Level 2 (see Attachment I to this procedure) and number it as follows:

GSTR – ww-x-yy-zz

ww – site designator of two or three letters (i.e., SR, LA, OR, MFC, etc.)

x – “1” or “2” designating the level of the GSTR

yy – fiscal year

zz – sequential number of the GSTR at that site for the fiscal year

4.0 GSTR PLANNING ACTIVITIES

DOE Site Waste Management Programs that generate TRU waste destined for disposal at the WIPP will require periodic evaluation from the WIPP GSTR team to ensure the organization has adequately implemented upper-tier programs to control the generation, treatment, packaging, and characterization of the waste.

Initial reviews will be performed prior to a site shipping waste to the WIPP. Follow-up reviews will be scheduled based on site activities since the last review.

Replacement of the contracting organization performing the TRU waste management, new waste processing activities (e.g., additional remediation capabilities or treatment methods), site organizational changes, changes in waste types or forms, or unexpected issues or events are all examples of site activities that may require a follow-up review.

The scope of the review will determine the size and composition of the GSTR team. Sufficient team members will be selected such that the scope of the

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review can be completed during the scheduled visit (typically within one week). GSTR team members will be selected in consideration of the functional areas to be assessed. The GSTR Team Leader will request relevant documents from the selected organization that define the activities and programs identified in the review scope.

4.1 GSTR Coordinator and GSTR Team Leader

- 4.1.1 Identify organizations that generate, treat, manage, and/or handle TRU waste, or that conduct processes that have the ability to affect TRU waste physical properties or final form. The GSTR Team Leader will generate a schedule for site reviews.
- 4.1.2 Modify the GSTR schedule, as necessary, to reflect changing priorities, availability of team members, and/or the ability of sites to host the review.
- 4.1.3 Identify a review scope and assign responsibilities for conducting reviews of the following specific areas:
 - Quality assurance (QA) program, including training for waste generators
 - Performance assurance program and issues management system
 - Conduct of operations, including verification that changes to existing procedures and processes related to TRU waste management are incorporated into acceptable knowledge
 - Federal oversight at the DOE site (CBFO only)
 - TRU waste management programs at the DOE site that result in the following:
 - Waste generation, treatment, and packaging processes
 - Resource Conservation and Recovery Act (RCRA) permitting and implementation
 - Hazardous waste determinations

5.0 GSTR PRELIMINARY ACTIVITIES

5.1 GSTR Coordinator and GSTR Team Leader

- 5.1.1 Identify relevant programs and processes governed by the site that will be reviewed.
- 5.1.2 Make initial contact with the facility or organization identified for the review to establish a viable date for the review. The date should

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take into consideration the ability of the organization to support the review, availability of GSTR team members, and the time required to prepare checklists.

- 5.1.3 Determine whether a Scoping Visit is necessary. If so, perform the Scoping Visit with the objective to identify potential areas of concern that may be identified as issues during the GSTR.
- 5.1.4 Based on the outcome of the Scoping Visit, determine the scope of the GSTR.
- 5.1.5 The GSTR Coordinator will transmit a letter to the organization formalizing the date and expected scope of the review.
- 5.1.6 Determine the scope of the GSTR and develop a GSTR plan.
- 5.1.7 Request relevant documents from the site point of contact, including recent external assessment and self-assessment reports.
- 5.1.8 Assign qualified GSTR team members to each area to be reviewed.

NOTE: Training consists of completing required reading of assigned documents. A GSTR team candidate is considered qualified once the required reading is completed and documented.

5.2 GSTR Training

- 5.2.1 GSTR team members will be trained to perform reviews. GSTR team member training may be tailored, as appropriate, to the area the GSTR team member is assigned to review. GSTR team members will be approved by the GSTR Team Leader and GSTR Coordinator, and GSTR team members are considered qualified once the required reading identified below is completed and documented:
 - DOE O 435.1, *Radioactive Waste Management*
 - DOE O 422.1, *Conduct of Operations*
 - DOE O 226.1B, *Implementation of Department of Energy Oversight Policy*
 - Hazardous Waste Facility Permit NM4890139088-TSDF, WIPP Waste Analysis Plan (WAP)
 - DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*
 - DOE/WIPP-02-3214, *Remote-Handled Waste Characterization Program Implementation Plan (WCPIP)*

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- DOE/CBFO-94-1012, *Quality Assurance Program Document (QAPD)*
- DOE/WIPP-07-3372, *Waste Isolation Pilot Plant Documented Safety Analysis*, with Chapter 18, ¶ 18.7, and Key Element, KE-18-4 emphasis
- DOE/WIPP-07-3373, *Waste Isolation Pilot Plant Technical Safety Requirements*, with LCO 3.7.1 emphasis
- GSTR procedure

5.2.2 The GSTR Team Leader will:

- Assign required reading to each individual selected to be a GSTR team member, appropriate to the discipline the team member will be assigned to review.
- Collect documented evidence of each GSTR team member's completion of the required reading. Documentation can be provided by memorandum or email.
- Maintain team member training and qualification records.
- Provide relevant documentation to the appropriate team member for review.

5.3 GSTR Team Member

5.3.1 Review assigned documents to verify they are satisfactory in implementing upper-tier DOE and regulatory requirements, including, but not limited to:

- QA program, including training
- Generator site assessment program and issues management system
- Conduct of Operations
- Federal oversight at the DOE site
- Waste management
 - Waste generation, treatment, and packaging processes
 - RCRA permitting and implementation
 - Hazardous waste determinations

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5.3.2 Develop a GSTR L-O-I checklist, similar to the example in Attachment II, based on document review, including any issues identified. L-O-I checklist questions should be designed to examine and document objective evidence that the programs are in place and operational. The L-O-I checklists will include standard core elements derived from the DOE self-regulated requirements, i.e., DOE O 435.1, DOE O 422.1, DOE O 226.1B, et al.

5.3.3 When complete, submit the proposed L-O-I checklist to the GSTR Team Leader for review and approval.

5.4 GSTR Coordinator and GSTR Team Leader

5.4.1 Review L-O-I checklists to ensure the questions and any issues identified are appropriate for GSTR scope.

5.4.2 If corrections and/or additions are required, return the L-O-I checklist to the responsible GSTR team member for revision.

5.5 GSTR Team Member

5.5.1 Revise the L-O-I checklist as directed.

5.5.2 Return the L-O-I checklist to the GSTR Team Leader.

5.6 GSTR Team Leader:

5.6.1 Ensure the L-O-I checklist was revised as directed.

5.6.2 Approve the L-O-I checklist.

5.6.3 Transmit the final L-O-I checklist to the organization to be reviewed, when deemed appropriate.

6.0 GSTR PROCEDURE

6.1 GSTR Team Leader

6.1.1 Conduct a briefing with the GSTR team members prior to the start of the review.

6.1.2 If the GSTR is conducted at the site:

1. Conduct the GSTR in-briefing and determine a schedule for site debriefing(s).

2. Identify the site waste stream(s) and/or container type.

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3. Communicate with the site point of contact to ensure the GSTR team has access to the necessary resources to conduct the review (documents, interview rooms, meeting rooms, etc.).
4. Conduct a daily debriefing with the team members.
5. Discuss potential issues with cognizant site personnel throughout the GSTR.

6.1.3 If the GSTR is conducted remotely, then instruct the GSTR team to begin the review. Steps 2 through 5 above should be followed as well.

6.2 GSTR Team Member

NOTE: L-O-I checklists may be expanded depending on items identified during the review. Interviews or objective evidence may lead to additional questions. However, any changes or additions must remain within the scope of the GSTR.

6.2.1 Complete L-O-I checklists and document issues.

6.2.2 Examine and document objective evidence.

6.2.3 Discuss issues with site personnel as they arise.

6.2.4 When issues arise that are considered **findings**/conditions adverse to quality, deficiencies and/or nonconformances, discuss with the CBFO GSTR Coordinator, team lead, and site personnel as they appear.

NOTE 1: Issues that are corrected during the review, if applicable, should still be identified as issues, with a notation that they were corrected during the GSTR.

NOTE 2: For remote GSTRs, daily debriefings with the GSTR Team Leader may be conducted by conference call or email.

6.2.5 Brief the GSTR Team Leader on GSTR progress and any identified issues daily.

6.3 GSTR Team Leader

6.3.1 Conduct daily debriefings with the GSTR team members.

6.3.2 Ensure all GSTR activities have been completed, or determine if there are activities that will be deferred.

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6.3.3 If requested by the organization during on-site GSTRs, conduct an exit briefing.

6.4 GSTR Team Member

Provide completed L-O-I checklists, issues, and objective evidence to the GSTR Team Leader.

6.5 GSTR Team Leader

Enter issues in the *Issues Tracking System* as described in section 8.0.

7.0 GSTR REPORTS

7.1 GSTR Team Leader

7.1.1 Use the completed L-O-I checklists to prepare the GSTR report. Request GSTR team members to prepare text for inclusion in the report, as necessary.

7.1.2 Ensure that organizations, names, titles, and other contact information of individuals are duly recorded. The following format may be used for the report:

- Executive summary
- Review details including purpose and scope
- Areas observed and TRU waste overview including site history/background Criteria/requirements documents
- Identification of team members
- Identification of personnel contacted
- Programs reviewed
- Documents reviewed
- Objective evidence reviewed
- Work performance observed or personnel interviewed
- Results of the review

7.1.3 If an issue cannot be resolved by the GSTR Team Leader and the GSTR Coordinator, then the issue will be raised to the CBFO NTP Assistant Manager. If the issue cannot be resolved by the CBFO NTP Assistant Manager, then it will be raised to the WIPP M&O Contractor President/Project Manager and the CBFO Manager.

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7.1.4 Provide the report to the GSTR team members for a factual accuracy check.

7.2 GSTR Team Member

Review the GSTR report for factual accuracy. Provide comments, if any, to the GSTR Team Leader.

7.3 GSTR Team Leader

7.3.1 Incorporate comments, if any, and finalize the report.

7.3.2 Provide the report to the GSTR Coordinator for concurrence.

7.4 GSTR Coordinator

Review the report and provide comments to the GSTR Team Leader or, if the report is satisfactory, sign to indicate concurrence.

7.5 GSTR Team Leader

7.5.1 Disposition comments with the GSTR Coordinator, as necessary.

7.5.2 Finalize the GSTR report.

NOTE: If concurrence cannot be reached on the GSTR report, the issue will be raised to the WIPP M&O Contractor President/Project Manager and CBFO Manager for resolution.

7.5.3 Obtain GSTR Coordinator concurrence (usually via telephone).

7.5.4 Transmit the report to the generator site and request a factual accuracy check, as necessary only; i.e., if complexity and volume of processes and facilities within a given site merits this step.

7.5.5 Disposition site comments from the factual accuracy check, as/if necessary, with the GSTR Coordinator.

7.5.6 If revisions were necessary based on supplemental management reviews, return the revised report to the GSTR Coordinator for concurrence.

7.6 GSTR Coordinator:

7.6.1 Provide concurrence by signature.

7.6.2 In conjunction with the GSTR Team Leader, provide a briefing of the outcome of the review to the CBFO and NWP Management.

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7.6.3 Distribute the final signed report to the CBFO and NWP Management, CBFO Site Documents, and WIPP Records.

NOTE: A clearly defined deadline will be established for resolving issues during follow-up Level 1 or Level 2 reviews commensurate with the assessed risk of the issue. If issues are not adequately addressed prior to the deadline, the site's qualification and approval to ship waste may be suspended until the issues are resolved.

7.6.4 Prepare a letter (for the CBFO Manager and WIPP M&O Contractor President/Project Manager) for transmittal to the generator site point of contact providing the results of the GSTR and the expectations regarding identified issues. All identified issues in initial Level 1 reviews must be resolved prior to site qualification and approval to ship TRU waste to the WIPP.

7.6.5 Copies of letters transmitted to a DOE site or approved program to suspend or restore approval to ship waste must be sent to the Waste Data System (WDS) data administrator in order to execute the action in WDS.

8.0 ISSUES TRACKING

NOTE: Issues that may be identified as Findings/Conditions Adverse to Quality – are documented as CBFO Corrective Action Reports (CARs) by the CBFO GSTR Coordinator, in accordance with CBFO MP 3.1 and tracked per this Management Procedure (MP). These types of issues are also tracked in the Issues Tracking System.

All issues, including those of a lesser impact, i.e., non-Findings/Conditions Adverse to Quality, will be tracked to ensure they are adequately addressed, resolved and/or closed, in the Issues Tracking System.

Issuance, tracking, resolution, verification, and closure of CBFO CARs will be in accordance with CBFO MP 3.1 and duly noted in the Issues Tracking System.

8.1 GSTR Team Leader:

8.1.1 Assemble the issues identified during the GSTR.

8.1.2 Provide a unique tracking number for each issue.

8.1.3 Enter the issue in the tracking system.

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- 8.1.4 Periodically, or as directed by the GSTR Coordinator, request the status of issue resolution from the site point of contact.
- 8.1.5 Ensure correspondence regarding the issue is included in the tracking system.
- 8.1.6 When an issue is closed to the satisfaction of the GSTR Coordinator, close the issue in the tracking system.

8.2 GSTR Coordinator

- 8.2.1 Review results and issues with the team. Ensure that the *Issues Tracking System* reflects the issues as identified by the team, and documented on the report.
- 8.2.2 Ensure that the Team Lead is updating the *Issues Tracking System* with updates of site responses, team evaluations, and resolution(s).

9.0 RECORDS

9.1 GSTR Team Leader

- 9.1.1 Submits QA records, including: notification letters, review plans, team member training documentation, reports, response correspondence, and closure letters to the CBFO GSTR Coordinator. The Coordinator will process and maintain QA records created through this procedure in accordance with CBFO MP 4.9, *Quality Assurance Records*.
- 9.1.2 Retain training records for all GSTR team members in accordance with the current approved Records Inventory and Disposition Schedule.

Attachment I – Definitions

Acceptable Knowledge – Defined as any information about the process used to generate waste, material inputs to the process, and the time period during which the waste was generated, as well as data resulting from the analysis of waste.

Adequacy – Addresses the flow down of requirements of the program documents into implementing procedures.

Condition Adverse to Quality – An all-inclusive term used in reference to any of the following: **findings**, failures, malfunctions, deficiencies, defective items, nonconformances, and technical inadequacies. A condition adverse to quality is considered significant when:

- If uncorrected, the condition adverse to quality could have a serious effect on safety, operability, waste isolation, TRU waste site certification, regulatory compliance demonstration, or effective implementation of the QA program.
- The condition adverse to quality requires immediate notification of regulatory entities (e.g., 10 CFR Part 21, HWFP Parts 1.7.10 through 1.7.13).
- The condition adverse to quality indicates a significant failure or breakdown in the implementation of QA Program requirements.
- Evidence indicating that previous corrective actions for the same/similar condition adverse to quality have been ineffective in precluding recurrence.
- The condition adverse to quality is identified in items or activities important to safety or waste isolation and compromises the ability to prevent or mitigate the consequences of an accident, thereby presenting a significant hazard to safety and health of workers and/or the public.

DOE Site Waste Management Programs – Denotes the waste management programs that receive, manage, package, treat and/or remediate waste at the various DOE sites, for example: Argonne National Laboratory, Hanford, Idaho National Laboratory, Los Alamos National Laboratory, Lawrence Livermore National Laboratory, Oak Ridge National Laboratory, Sandia National Laboratories, and Savannah River Site.

Finding – An all-inclusive term used by the GSTR team to describe any of the previously defined “Conditions Adverse to Quality.”

Issue – An all-inclusive term used by the GSTR team to document subjects or problems identified and discussed. An issue is also a final conclusion or decision about something identified upon the team’s consideration. Issues are not necessarily **findings** in the negative sense, nor are they automatically conditions adverse to quality. However, if an issue is identified as a **finding**/condition adverse to quality, it will be elevated and documented through CBFO Corrective Action Reports Management Procedure (MP) 3.1. Appropriate protocols would then be followed by identifying the specific requirement(s) violated; how they were violated; their significance; expected corrective actions; impact statement request; action to prevent and/or mitigate recurrence; and etc.

Attachment I – Definitions (continued)

Level 1 Review – An initial review and reviews that are broad in scope (addressing restart of processing operations or after corrective actions for significant deficiencies).

Level 2 Review – Limited scope reviews tailored to, for example, new processes or waste streams or other items that are of specific interest to CBFO and NWP.

Observer – An individual who observes the review process, but does not directly participate in the review.

Site Documents – The group that administers the document review process for the CBFO.

Technical Review – A documented critical review of programs and processes that have the ability to affect the final waste form of TRU waste. The review is an in-depth analysis and evaluation of documents, activities, material, data, or items that require technical verification or validation for applicability, correctness, adequacy, completeness, and assurance that established requirements are satisfied.

WIPP Certified Program – A TRU waste management program is referred to as a “WIPP Certified Program” when the CBFO Manager grants waste certification or transportation authority to the program.

WIPP Co-Permittees – The CBFO, as the owner of the WIPP, and the WIPP M&O contractor, as the operator of the WIPP, are co-permittees to the Hazardous Waste Facility Permit issued to the WIPP by the New Mexico Environment Department.

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**Attachment II – Example Generator Site Technical Review Lines of Inquiry
Checklist**

Organization Evaluated/
Reviewed: _____

Activities Evaluated: _____ Date of Evaluation: _____

Controlling Documents: _____

<u>Number</u>	<u>Question/L-O-I</u>	<u>Documents Reviewed/Results of Interviews/Operations Observed</u>	<u>*Results</u>
1			
2			
3			
4			
5			

Prepared by: _____ Approved by: _____

*Indicate Results: Satisfactory (SAT), Unsatisfactory (UNSAT), Indeterminate (IND), Not Applicable (N)

CCP-TP-005

Revision 32

CCP Acceptable Knowledge Documentation

EFFECTIVE DATE: 06/09/2020

Richard Kantrowitz

PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
4	01/17/2002	Revised to delete the requirement for signing the AK Summary and other minor changes. Added cis & trans-1,2-Dichloroethylene, Attachment 5.
5	01/24/2002	Minor change to Attachment 14 due to the following: Signature lines were struck and approved by all levels of review in previous revision. When preparing document to be issued signature lines were inadvertently left in and must now be removed. Printed name and "approved for use" are being inserted to reflect the CCP Procedure format.
6	07/23/2002	Revised document to: <ul style="list-style-type: none"> • Comments based on CH-WAC revision • Accommodate comments from an assessment at SRS Document Review Record for Technical and Quality Assurance • Comments from a Program Evaluation at ANL-E
7	09/06/2002	Revised document to: <ul style="list-style-type: none"> • Minor editorial changes to 2.1, 4.2, 4.3, and 4.4 Changes to 4.4.17 to comply with WAP requirements and Program Evaluation Changes to 4.4.26 to comply with Program Evaluations for NTS.
8	09/19/2002	Revised document based on comments from the ANLE Certification Audit and a CBFO Adequacy Review; revised Sections 3.1, 4.2, 4.3, 4.4, 4.5 and Attachments 7, 10, and 11.
9	09/26/2002	Revised document based on comments from the NTS Certification Audit; revised Sections 4.3, 4.4, 4.5, and 4.6.
10	10/24/2002	Revised step 3.2.13; added Section 3.6 and steps 4.7.18 and 4.7.19; and revised Attachment 10 based on comments from the SRS Recertification Audit.
11	02/05/2003	Revised document to address CAR #02-087 and CAR # 02-088 from the ANL-E Certification Audit. Revised steps 4.4.1 and added NOTE. Revised steps 4.4.17, 4.4.20, 4.4.24, 4.4.26, and 4.5.1 [D.2]

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
12	03/26/2003	Revised step 4.4.8 and preceding NOTE.
13	11/18/2003	<p>Revised document to:</p> <ul style="list-style-type: none"> - Perform minor editorial changes throughout document. Clarify that Attachments are example forms. Remove Attachments 11 and 12 to create electronically fillable forms of these attachments. Add Section 3.7 to include responsibility of Nondestructive Assay (NDA) Subject Matter Expert (SME) to perform assessment with the Acceptable Knowledge Expert. Update steps 4.4.17 and 4.4.18 to require that the uses and limitations of the radionuclide Acceptable Knowledge information is reviewed by the NDA SME. Add Section 4.9 to address CAR-SRS-006-03 for the process used to document the addition of containers to existing waste streams. Added a new Section 4.3.3 identifying the use of Memorandum to CCP Central Records. Added a new Section 4.6.3 to incorporate preparation of a letter/memorandum to Site Project Manager summarizing AK information; revision of Sections 4.6.4 and 5.1.1[J] to incorporate the addition of 4.6.3. Deleted Section 4.1.3 Process Equipment Description from the AK Summary Report Content Guide. - Modified Attachment 5.
14	11/19/2004	<p>Revised document to:</p> <ul style="list-style-type: none"> - Perform minor editorial changes and technical clarifications throughout document. - Revised procedure to address WIPP WAC Revision 1 and 2 changes relating to beryllium, payload container management, high plutonium content waste/material, and PCB requirements (Sections 1.0 and 4.4.24). - Revised Section 4.8.1 to allow for resolution of discrepancies within the AK Summary Report. - Deleted redundant records management requirement to attach copies of the AK Source Document Discrepancy reports to all affected sources. - Deleted step 4.4.8[B].

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
15	03/31/2005	Revised document to incorporate WIPP WAP AK requirements for LANL sealed sources. Addressed CBFO comments.
16	02/27/2006	Revised document to: Incorporate minor editorial changes and technical clarifications throughout the document. Add Sections 4.10 and 4.11 to address creation and maintenance of the Container Tracking Spreadsheet on the FTP (CAR-INL-0003-05). Replace revised Attachments 5 and 10 based on recent audit discussions.
17	06/05/2006	Revised to allow the use of attachments to this procedure during the management of Remote-Handled (RH) Acceptable Knowledge (AK) in accordance with DOE/WIPP-02-3214, <i>Remote-Handled TRU Waste Characterization Program Implementation Plan (WCPIP)</i> . Revised Attachment 6, Waste Form, Waste Material Parameters, Prohibited Items, and Packaging – Example Form per Los Alamos National Laboratory (LANL) Certification Audit A-06-11.
18	11/16/2006	Revised to implement the Waste Isolation Pilot Plant Hazardous Waste Facility Permit requirements resulting from the Section 311/Remote-Handled (RH) Permit Modification Request (PMR). Addressed Carlsbad Field Office (CBFO) Document Review Record (DRR) comments.
19	07/06/2010	Revised document to address the Waste Isolation Pilot Plant (WIPP) Form WF09-171 from an internal Central Characterization Project (CCP) audit and to incorporate minor editorial changes and technical clarifications noted as a result of various Acceptable Knowledge audits.
20	11/01/2010	Revised to allow new and updated attachments and source documents to be submitted anytime after the initial submittal.
21	12/29/2010	Revised to implement the revision of the <i>Waste Isolation Pilot Plant Hazardous Waste Facility Permit</i> .
22	04/21/2011	Revised to address changes in Revision 2 of the <i>Remote-Handled TRU Waste Characterization Program Implementation Plan (WCPIP)</i> . Incorporated editorial changes and technical clarifications throughout procedure.
23	06/30/2011	Revised to clarify what constitutes a record as part of the resolution to resolve CBFO CAR11-043.

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
24	11/28/2011	Revised to address comments from inspectors during U.S. Environmental Protection Agency (EPA) Baseline Inspection EPA-SNL-CCP-RH-06.11-8 (June 6/8, 2011). Also revised to incorporated lessons learned from Carlsbad Field Office (CBFO) records surveillance.
25	06/19/2013	Revised to incorporate Nuclear Waste Partnership (NWP) transition changes and to implement the Permit Modification Request Class 2 approved by New Mexico Environment Department (NMED) dated March 13, 2013.
26	08/12/2013	To clarify the evaluation of nondestructive assay (NDA) results by the site project manager (SPM) and acceptable knowledge expert (AKE). Also, to incorporate changes as a result of CAR-LANL-0003-13.

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
27	08/26/2015	<p>Revised procedure to address New Mexico Environment Department (NMED) Compliance Order (CO) HWB-14-21 (December 6, 2014). Changes included:</p> <ul style="list-style-type: none"> • Preparation and maintenance of Interface Waste Management Documents List (Attachment 9) in steps 4.2.9 through 4.2.17. • Verification of new and revised procedures during acceptable knowledge (AK) document review and summary in Steps 4.3.9 through 4.3.13 and during the addition of containers to the waste stream in steps 4.10.3 through 4.10.6. • Added Section 4.13 describing the steps to perform an AK Assessment to ensure that the existing Central Characterization Program (CCP) AK documentation relating to the management of potentially energetic transuranic (TRU) waste forms (reactive, ignitable, and incompatible materials) is adequate, current, and accurately described in existing AK Summary Reports. • Added Section 4.14 to formally describe AK Briefings currently being performed for CCP personnel to include cognizant generator site Points-of-Contact (POCs) involved directly with the generation of the waste streams. • Added Section 4.4.21 for the preparation of Chemical Compatibility Evaluation Memorandum. • Updated the responsibilities in Section 3.0 to address these changes. • Revised Section 4.6 to provide clarification for the preparation of the Accuracy Reports required for both NMED and U.S. Environmental Protection Agency (EPA) and to clarify that accuracy will be tracked using all CCP certified testing data. • Addressed miscellaneous freeze file changes.

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
28	02/29/2016	<p>Revised to provide additional detail and clarify the procedural steps for the new activities included in Revision 27. Changes include:</p> <ul style="list-style-type: none"> • Revised and clarified the responsibilities for the Acceptable Knowledge Expert (AKE) (Section 3.3) and Site Project Manager (SPM) (Section 3.1) and removed the Transportation Engineer (Section 3.7). • Moved procedural steps and notes from Section 4.3 relating the Interface Waste Management Documents List to Section 4.2. • Deleted the chemical compatibility evaluation steps in Section 4.4 and expanded the procedural steps and guidance in new Section 4.15. • Added a specific step to review the Nondestructive Assay (NDA) Memorandum (Section 4.4.26), the Waste Material Parameter Memorandum (Section 4.4.31), and Chemical Compatibility Evaluation Memorandum (Section 4.4.22) during revision of the Acceptable Knowledge (AK) Summary Report. • Updated note to clarify the intended purpose of the Acceptable Knowledge Assessment (AKA) (Section 4.13), including the clarification that AKAs are not required for new AK Summary Reports. • Added bullet list for the recommended content of the AKA Memorandum (Section 4.13.6). • Clarified that the SMR review is conducted for procedures under their purview when reviewing the AKA Memorandum (Section 4.13.9 and 4.13.10). • Added SPM review of the AKA Memorandum (Section 4.13.8). • Added Attachment 16 - Example Form and Content Guide for the Chemical Compatibility Evaluation Memorandum. • Incorporated numerous editorial changes to address freeze file comments and format consistency.
29	11/17/2016	<p>This revision is to incorporate the lessons learned after the implementation of the enhanced Acceptable Knowledge (AK) requirements and also to incorporate Standing Order CCP-SO-119 Revision 0. In addition, this revision implements a container review for the requirements of the basis of knowledge document.</p>

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
30	12/21/2018	This revision is in response to Carlsbad Field Office (CBFO) Corrective Action Report (CAR) 18-029 which requires an enhancement to the process for adding containers to a waste stream. In addition, this revision incorporates programmatic changes and lessons learned to the acceptable knowledge (AK) documentation process. Other changes are included to clean up language and provide clarification in a number of areas.
31	08/05/2019	Corrected incorrect references to Section 4.2.10 to resolve CAR 19-042. Clarified Step 3.1.10. Revised Section 4.10 and 4.11 to clarify the addition of containers to the Acceptable Knowledge Tracking Spreadsheet (AKTSS). Other minor corrections as needed.
32	06/09/2020	This revision is to address WIPP Form 19-889 and to incorporate program clarifications and other minor process changes.

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1.0 PURPOSE

The *Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Waste Analysis Plan (WIPP-WAP)*, authorizes the use of Acceptable Knowledge (AK) in appropriate circumstances to delineate waste streams and to characterize hazardous waste. WIPP-WAP AK requirements are addressed in CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*, and implemented through this procedure. DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WIPP-WAC)*, AK requirements are addressed in CCP-PO-002, *CCP Transuranic Waste Certification Plan*.

Additionally, implementation of this procedure will generate information required by:

- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*;
- CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*;
- CCP-PO-050, *CCP TRUPACT-III Waste Authorized Methods for Payload Control (CCP TRUPACT-III TRAMPAC)*; and
- CCP-PO-401, *CCP Transuranic Authorized Methods for Payload Control for Intersite Shipments*.

This procedure applies to Central Characterization Program (CCP) personnel who perform AK activities for retrievably stored and newly generated transuranic (TRU) waste streams that may be eligible for disposal at the Waste Isolation Pilot Plant (WIPP).

1.1 Scope

This procedure describes the processes the CCP uses to compile, review, evaluate, update, and report AK documentation. The procedure also describes how the CCP determines AK Sufficiency, AK accuracy, re-evaluates AK documentation when necessary, resolves AK documentation discrepancies, and uses AK to delineate waste streams and determine whether the waste is hazardous. A waste stream is defined as waste materials that have common physical form, that contain similar hazardous constituents (similar radiological properties for DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan [WCPIP]* compliance), and that are generated from a single process or activity.

Only CCP personnel trained in accordance with CCP-QP-002, *CCP Training and Qualification Plan*, will compile, evaluate, and document AK information in accordance with this procedure. Unless otherwise noted steps in this procedure must be performed or approved by a qualified Acceptable Knowledge Expert (AKE). Sites hosting the CCP may assist CCP personnel in the collection of AK information; however, this procedure will be used by the CCP to generate the required AK in accordance with CCP-PO-001, CCP-PO-002, CCP-PO-003, CCP-PO-050, CCP-PO-401, and CCP-PO-505.

AK includes any documentation that describes or verifies site history, mission, and operations, in addition to waste stream-specific information used to define the generating process, waste matrix, waste quantities, and contaminants (radiological and chemical).

The information acquired in the performance of this procedure is used to prepare an AK Summary Report (AKSR) or an AK Sufficiency Determination.

This information is provided in the following attachments:

- Attachment 1 – Acceptable Knowledge Documentation Checklist – Example Form
- Attachment 2 – Record of Communication – Example Form
- Attachment 3 – Acceptable Knowledge Source Document Summary – Example Form
- Attachment 4 – Acceptable Knowledge Information List – Example Form
- Attachment 5 – Hazardous Constituents – Example Form
- Attachment 6 – Waste Form, Waste Material Parameters, Prohibited Items, and Packaging – Example Form
 - Waste Material Parameter Evaluation Memorandum
- Attachment 7 – Radionuclides – Example Form (CH only)
 - NDA Memorandum
- Attachment 8 – Waste Containers List – Example Form
- Attachment 9 – Interface Waste Management Documents List – Example Form

- SMR Quarterly Review Notification
- Attachment 10 – Acceptable Knowledge Re-evaluation Checklist – Example Form
- Attachment 11 – Acceptable Knowledge Source Document Discrepancy Resolution – Example Form
- Attachment 12 – Example Form and Content Guide for AK Summary Reports
- Attachment 13 – CCP Waste Stream Characterization Checklist – Example Form
- Attachment 14 – CCP Acceptable Knowledge Accuracy Report – Example Form
 - Correlation of Container Numbers to Batch Data Report Numbers
- Attachment 15 – CCP TRU Waste Correlation and Surrogate Summary Form – Example Form
- Attachment 16 – Example Form and Content Guide for the Chemical Compatibility Evaluation Memorandum

The attached forms are provided as examples for the required AK information to be prepared for CCP Records. The forms identify the minimum information that will be prepared to document the AK collection and review process described in this procedure. Attachment 4, Acceptable Knowledge Information List – Example Form, lists all of the information that was collected and considered during the preparation of the AK documents generated in accordance with this procedure, including AKSRs, Chemical Compatibility Evaluation Memorandums (CCEMs), Acceptable Knowledge Assessments (AKAs), and Basis of Knowledge (BoK) memorandums. Only those sources of information that are referenced in AK documents are considered source documents and are required to be submitted to CCP Records.

Remote-handled (RH) TRU AK management will be performed in accordance with WCPIP to address U.S. Environmental Protection Agency (EPA) requirements and CCP-PO-001 to address WIPP-WAP requirements. The attachments for AK management in this procedure were reviewed and determined to meet or exceed the information requirements described for AK management in the WCPIP, and will be used, as appropriate, during the compilation, review, evaluation, and reporting associated with RH AK information.

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- DOE/WIPP 89-004, *TRUPACT-II Content Codes (TRUCON)*

Referenced Documents

- DOE/LLW-217, *DOE Waste Treatability Group Guidance*, Idaho Falls, Idaho, INEL-Lockheed Idaho Technologies
- DOE/TRU-19-3425, *Annual Transuranic Waste Inventory Report – 2019*, (or current revision), Carlsbad, New Mexico, U.S. DOE Carlsbad Field Office
- DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria For the Waste Isolation Pilot Plant*
- DOE/WIPP-01-3194, *CH-TRU Waste Content Codes (CH-TRUCON)*
- DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
- DOE/WIPP-17-3585, *Basis of Knowledge for Evaluating Oxidizing Chemicals in TRU Waste Stored in the Waste Handling Building Container Storage Unit Since February 14, 2014 and the Los Alamos Laboratory Type 1 TRU Waste Stored at Waste Control Specialists for the Waste Isolation Pilot Plant Acceptance*
- DOE/WIPP-17-3589, *Basis of Knowledge for Evaluating Oxidizing Chemicals in TRU Waste*
- DOE/WIPP-90-045, *RH-TRU Waste Content Codes (RH-TRUCON)*
- 20.4.1 NMAC, *Hazardous Waste Management*
- 40 CFR Part 261, *Identification and Listing of Hazardous Waste*
- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*

- CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
- CCP-PO-050, *CCP TRUPACT-III TRU Waste Authorized Methods for Payload Control (CCP TRUPACT-III TRAMPAC)*
- CCP-PO-401, *CCP Transuranic Authorized Methods for Payload Control for Intersite Shipments*
- CCP-QP-002, *CCP Training and Qualification Plan*
- CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
- CCP-QP-008, *CCP Records Management*
- CCP-QP-010, *CCP Document Preparation, Approval, and Control*
- CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*
- CCP-TP-069, *CCP Sealed Source Visual Examination and Packaging*
- CCP-TP-101, *CCP Off-Site Source Recovery Project Sealed Source Radiological Characterization*
- CCP-TP-200, *Enhanced Acceptable Knowledge Review*
- 42 U.S.C. 10101, *Nuclear Waste Policy Act of 1982, U.S. Congress*
- 40 CFR Part 761, *Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions, U.S. EPA*
- EPA-600/2-80-076, *A Method for Determining the Compatibility of Hazardous Wastes, U.S. EPA*

2.2 Training Requirements

- 2.2.1 All CCP personnel performing this procedure will be trained and qualified in accordance with CCP-QP-002.

3.0 RESPONSIBILITIES

3.1 Site Project Manager (SPM)

- 3.1.1 Ensures that trained AK Experts (AKE) are available to implement this procedure in coordination with the Host site.
- 3.1.2 Identifies and requests AK Re-evaluations; approves AK Re-evaluation checklists as necessary.
- 3.1.3 Prepares AK Accuracy Reports in conjunction with the AKE.
- 3.1.4 Requests and approves the assignment of TRUCON codes developed by the Payload Engineer Team and reviews the characterization data for each waste stream.
- 3.1.5 Transmits Site Management Representative (SMR) quarterly notifications to the AKE that the Interface Waste Management Documents List (IWMDL) are current.
- 3.1.6 Reviews and approves AK Sufficiency Determination Requests.
- 3.1.7 Reviews and approves AK Source Document Discrepancy Resolutions.
- 3.1.8 Prepares, revises, and approves Waste Stream Profile Forms (WSPFs).
- 3.1.9 Reviews and approves (in accordance with CCP-TP-200) Chemical Compatibility Evaluation Memorandum (CCEM).
- 3.1.10 Reviews and approves (in accordance with CCP-TP-200) the Acceptable Knowledge Assessment (AKA) and resolves any comments from the SMR with the AKE, **AND** ensures transmittal of the SMR written notice of concurrence to the AKE.
- 3.1.11 Reviews and approves Basis of Knowledge (BoK) memorandums.
- 3.1.12 Supports AKE in performance of IWMDL procedure verification on behalf of the AKE as necessary.
- 3.1.13 Serves as liaison with Host site for AK activities, as directed in the Site Interface Document.

- 3.2 CCP Inventory and AK Support Manager
 - 3.2.1 Manages and directs AKEs to ensure qualified individuals are performing tasks specified.
 - 3.2.2 Coordinates tasks between AKE and SPM as needed.
 - 3.2.3 Provides site-by-site tracking of AK development to allocate AK resources as needed.
- 3.3 AK Expert (AKE)
 - 3.3.1 Identifies, locates, compiles, maintains documents, summarizes, reviews, verifies, and evaluates required AK information. Submits source documents as necessary.
 - 3.3.2 Delineates or verifies delineation of waste streams and assigns Summary Category Groups, and Waste Matrix Codes and Code Groups.
 - 3.3.3 Compiles source documents that identify TRU waste management information in the Acceptable Knowledge Documentation Checklist; prepares and submits this checklist.
 - 3.3.4 Performs a hazardous waste evaluation, assigns hazardous waste numbers (HWNs) (if applicable), and notifies the SPM. Prepares and submits the Hazardous Constituents Form.
 - 3.3.5 Prepares, completes, submits, and revises (as necessary) AKSRs.
 - 3.3.6 Documents and resolves discrepancies with AK information and discrepancies identified during characterization.
 - 3.3.7 Prepares, completes maintains and submits Records of Communications, AK Source Document Summary forms and Acceptable Knowledge Information Lists.
 - 3.3.8 Reviews and assesses AK radiological data; works with the nondestructive assay (NDA) Expert Analyst (EA) to prepare, complete, and submit the Radionuclides form and NDA Memorandum.
 - 3.3.9 Prepares, completes, and submits the CCP TRU Waste Correlation and Surrogate Summary Form.
 - 3.3.10 Prepares, completes and submits the Waste Stream Characterization Checklist.

- 3.3.11 Develops waste stream descriptions.
 - 3.3.12 Estimates waste material parameter (WMP) weights and prepares, completes and submits the Waste Form, Waste Material Parameter, Prohibited Items, and Packaging form and Waste Material Parameter Evaluation Memorandum.
 - 3.3.13 Prepares auditable file of AK information.
 - 3.3.14 Performs AK-Re-evaluation and prepares AK Re-evaluation checklist. Submits to CCP records after SPM approval; and updates AK as needed.
 - 3.3.15 Reviews and concurs on the WSPF.
 - 3.3.16 Supports the development of the AK qualification method(s) and compliance with the applicable Data Quality Objectives (DQOs) for RH waste streams in accordance with the WCPIP.
 - 3.3.17 Prepares and submits IWMDL in accordance with Section 4.2.
 - 3.3.18 Prepares and submits CCE in accordance with Section 4.15.
 - 3.3.19 Prepares and submit BoK evaluation in accordance with Section 4.16.
 - 3.3.20 Prepares and submits AKA when required.
 - 3.3.21 Prepares and presents (in conjunction with the SPM) AK Briefings for CCP characterization personnel in accordance with CCP-QP-002 and generator POCs/SMEs, or cognizant designees.
 - 3.3.22 Supports the SPM in the preparation of AK Accuracy Reports and approves AK Accuracy Reports Memorandum.
 - 3.3.23 Submits all documents as required to CCP records.
- 3.4 Off-Site Source Recovery (OSR) Program
- 3.4.1 Compiles OSR-specific AK Documentation Checklists.

- 3.5 Nondestructive Assay (NDA) Expert Analyst (EA)
 - 3.5.1 Performs the assessment for the NDA Memorandum discussed in step 4.4.27 with the AKE.
- 3.6 Site Management Representative (SMR)

NOTE

The general SMR responsibilities to support the development of AK are listed below. The specific responsibilities are identified in and will be performed in accordance with the site Interface Document.

- 3.6.1 Supports the AKE with the preparation of the IWMDL including the identification of the applicable generator POCs/SMEs involved directly with the generation of each waste stream. Approves the IWMDL.
- 3.6.2 Provides revisions to procedures on IWMDL, and provides new procedures affecting waste stream management and packaging to CCP.
- 3.6.3 Performs quarterly reviews of the IWMDL and notifies the SPM that the list is complete and includes the most current revision of the relevant procedures.
- 3.6.4 Identifies the appropriate generator POCs/SMEs for the review of the AKSRs and to attend AK Briefings.

4.0 PROCEDURE

NOTE

The data collection, documentation, and AK preparation steps can be performed in any sequence as long as the AK data collection requirements found in CCP-PO-001 are met.

NOTE

The attached forms referenced in this section are provided as examples for the required AK information to be prepared for CCP Records. The forms identify the minimum information that will be prepared to document the AK collection and review process described in this procedure. All forms submitted must contain a header with the procedure number, revision number, procedure title, effective date, and have numbered pages as displayed in the Example Attachments. Forms must also contain the Attachment number and title immediately following the header, as shown on the Example Attachments. The waste stream description on the attachments may be abbreviated, as needed.

4.1 AK Documentation Management

4.1.1 As they are collected, maintain the compiled AK documents with reasonable care (protection from damage or loss).

4.1.2 Assign a unique tracking number to each document collected as AK information using the Acceptable Knowledge Information List (see Attachment 4 for an example), for each waste stream. Describe the specific convention used to assign the unique identifiers to the source documents in the AKSR. Examples of source document categories are as follows:

(EXAMPLE)

AKA – Acceptable Knowledge Assessment
BoK – Basis of Knowledge Evaluation
C – Correspondence
CCE – Chemical Compatibility Evaluation
D – Documents
DR – Discrepancy Resolution
M – Miscellaneous
P – Procedures and Published Documents
TEC – Technical Guidance Document
U – Unpublished Documents

4.2 Compiling AK Documentation

NOTE

Source documents may include (but not limited to) published or unpublished documents, correspondence, databases, quality assurance (QA) protocols, operating procedures, work instructions, waste storage/disposal records, waste certification summaries, process flow diagrams, analytical and testing data packages from previous waste characterization activities, and other sources of information descriptive of elements on the Checklist. Resolution of source document discrepancies will be done in accordance with Section 4.9.

- 4.2.1 Locate and obtain source documents as applicable.
- 4.2.2 Apply a unique waste stream number based on the information in the current revision of the *Annual Transuranic Waste Inventory Report (ATWIR)*, and/or information from the Host site for each waste stream (Refer to CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*, for appropriate numbering format).
- 4.2.3 Compile (i.e., gather) source documents that identify TRU waste management program information in the Acceptable Knowledge Documentation Checklist, AK #s PR1-PR8 (see Attachment 1, Acceptable Knowledge Documentation Checklist – Example Form) for facilities that generated the waste stream.
- 4.2.4 Compile source documents that identify TRU waste stream-specific information specified in the Acceptable Knowledge Documentation Checklist, AK #s WS1-WS12 for each waste stream.
- 4.2.5 Compile source documents that identify additional AK documentation specified in the Acceptable Knowledge Documentation Checklist, AK #s S1-S16.
 - [A] Obtain additional AK information as appropriate to augment required information and provide any other information obtained to further characterize the waste stream.
 - [B] All additional specific, relevant AK documentation assembled and used in the AK process, whether it supports or contradicts any required AK documentation, shall be identified and an explanation provided for its use (e.g., identification of a toxicity characteristic).

- 4.2.6 **IF** discrepancies are found in the AK documentation,
THEN resolve in accordance with Section 4.9.
- 4.2.7 For LANL OSR only, compile source documents that identify OSR-specific documentation specified in the Acceptable Knowledge Documentation Checklist, AK #s O1-O16.
- [A] If source markings are needed to support radiological characterization, the SPM must verify that they have been documented in accordance with CCP-TP-069, *CCP Sealed Source Visual Examination and Packaging*.
- [B] SPM confirm sufficient radionuclide data is available in accordance with CCP-TP-101, *CCP Off-Site Source Recovery Project Sealed Source Radiological Characterization*.
-

NOTE

For RH waste streams, the documentation collected and compiled in Sections 4.1 and 4.2 may not be sufficient to meet the DQOs established for the selected parameters in accordance with the WCPIP. If there is insufficient AK information to address each of the DQOs, then either additional AK will be collected and/or the characterization methods described in the WCPIP will be initiated. A combination of AK and other characterization methods may be used to meet the WCPIP DQO requirements.

- 4.2.8 For RH waste, review the documentation compiled and determine which of the WCPIP DQOs can be met using the AK information collected.
- 4.2.9 Collect additional AK documentation and/or identify the characterization method(s) recommended to meet the DQO in accordance with the WCPIP (see step 4.4.38[O]).

NOTE

The IWMDL (see Attachment 9) will be compiled and maintained as described in the site Interface Document for each waste stream (step 4.2.10). The purpose of this form is to identify and maintain a current list of generator site plans, procedures, and reports associated with current TRU waste management and packaging (e.g., waste management, waste generation, waste treatment, waste packaging, waste repackaging, waste remediation, waste stream delineation, and waste characterization procedures) to be reviewed before shippable payload containers are added to the Waste Containers List and/or AKTSS (see step 4.4.33[C] or See Section 4.11). In addition, the form identifies the generator POCs/SMEs from the groups directly involved with the generation, characterization, and management of containers in the waste stream.

NOTE

Step 4.2.10 substeps [A] through [L] apply only to containers in waste streams that are currently being generated or repackaged using active procedures. Containers generated and/or repackaged using procedures that are not referenced on the IWMDL will require an AKA prior to shipment (Section 4.13). If containers added to the AKTSS cannot be shipped under the IWMDL then prepare an AKA.

4.2.10 Collect information identified in the following steps for development of the Attachment 9, Interface Waste Management Documents List

[A] Identify active and planned site operations with input from the SMR that directly affect the waste stream management and packaging of the waste stream; including, as applicable:

- Waste packaging and repackaging processes (including the remediation of prohibited items),
- Waste treatment/processing (e.g., waste neutralization, deactivation, and solidification/immobilization),
- Waste inspection, testing, and characterization activities.

[B] Record the relevant generator site documents associated with activities identified in step 4.2.10, substep [A] for active waste streams on the IWMDL; including, as applicable:

- Facility Safety and Analysis Reports,
- Site waste management policies/plans (e.g., facility waste acceptance criteria),
- Standard operating procedures,

- Work and test plans,
 - Work/field instructions (e.g., field changes, intermediate field changes, and timely orders/standing orders),
 - Sampling and analysis plans, and
 - Physical and chemical studies/evaluations.
- [C] Verify with the SMR that the list is complete **AND** that the list identifies the most current revision for each document.
- [D] **IF** any identified document has not already been collected for the waste stream or the current revision of the document has not been provided, **THEN** obtain the document to be included in the AK record for the waste stream.
- [E] Contact the SMR to identify the generator POCs/SMEs for each document/procedure and include the contact information in the IWMDL.
-

NOTE

Procedure verification will include the review of TRU waste management and packaging activities performed under the procedures listed on the Interface Waste Management Documents List. A “walk down” for the initial list of documents included in the list, and new procedures added to the list, will involve observing the performance of procedural steps implemented by the generator relating to the management of prohibited items, including potentially reactive, corrosive, ignitable, and incompatible TRU waste materials. The AKE has the option to request the SPM (or SPM designee) or PM conduct the walk down on behalf of the AKE.

Subsequent revisions to documents on the list will be reviewed by the AKE. Changes affecting TRU waste management or packaging will be verified by observation or by discussion with the cognizant POCs/SMEs on the IWMDL. The requirement to verify the performance of procedural steps applies only to those procedures and documents that direct physical management that could potentially change the physical or chemical composition of the waste.

- [F] For the procedures listed on the IWMDL, review (walk down) these activities with the cognizant generator POCs/SMEs to confirm procedures accurately reflect the site TRU waste management and packaging activities identified in step 4.2.10, substeps [A] and [B].

- [G] Summarize the verification (including the identification of the POCs/SMEs and verification date) on the Attachment 3, Acceptable Knowledge Source Document Summary form (see Section 4.3).

NOTE

Containers packaged to a new procedure or revision that could result in a change to waste stream management and packaging relating to the management of prohibited items including potentially reactive, corrosive, ignitable, or incompatible materials cannot be added to the Waste Container List or AKTSS until the changes have been evaluated by the AKE.

After review of the changes if a revision to the AKSR is required per Section 4.8 the AKSR must be revised and approved before any containers packaged using these procedures are added to the AKTSS for characterization.

- [H] Review new and revised procedures or documents potentially affecting the waste stream management and packaging associated with the activities listed in step 4.2.10, substeps [A] and [B] and ensure the IWMDL is updated, as needed.
- [I] **IF** it is determined that a new procedure or revision affects waste stream management or packaging, **THEN** update the IWMDL to include the procedure **AND** include the following additional verification information in the Acceptable Knowledge Source Document Summary form (see Section 4.3), as applicable:
- [A] Description of activities affecting waste stream management or packaging, and
- [B] IWMDL POCs/SMEs contacted by the AKE to verify the procedure.
- [C] The date the verification with the POCs/SMEs was conducted.
- [J] **IF** it is determined that the changes in a revision to a procedure currently listed on the Interface Waste Management Documents List do **NOT** affect waste stream management or packaging, **THEN** update the IWMDL to include the procedure revision **AND** note in the Acceptable Knowledge Source Document Summary form that the review did not identify any relevant changes to TRU waste management from the previous revision(s).

-
- [K] Obtain SMR approval, print name, sign, and date the IWMDL.

NOTE

As specified in the site Interface Document, it is the responsibility of the SMR to only submit Quarterly SMR Notifications for waste streams expected to generate additional containers of TRU waste or if containers in the waste stream will be repackaged or remediated. Revision to the IWMDL can serve to meet the Quarterly SMR Notification requirement.

- [L] Submit approved IWMDL and associated Quarterly SMR Notifications to the SPM and CCP Records.

4.3 Recording AK Documentation

NOTE

There are two categories of source documents used to document AK for a waste stream; documentation generated by CCP and documents and/or other media supplied by the generator site. Generator site provided documents and/or other media are external records created by the waste generator sites and are identified in this procedure as “historical source documents.”

NOTE

Classified material **CAN NOT** be copied. If source documents are classified, an unclassified summary will need to be provided by the Host site or the document will be developed and summarized on an Acceptable Knowledge Source Document Summary form (Attachment 3 – Acceptable Knowledge Source Document Summary – Example Form), by the AKE **AND** reviewed by the Site’s Authorized Derivative Classifier for release.

- 4.3.1 Copy the document or the pertinent information from the document that defines source document contents, including cover sheets, executive summaries, introductions, and table of contents, if available **AND** maintain this information in the working files.
-

NOTE

To avoid redundancy, a Record of Communication form may **NOT** be required if the information is already provided on a related source document, such as an e-mail.

- 4.3.2 Record meetings, telecommunications, interviews, and other communication on a Record of Communication form (see Attachment 2), including a detailed summary of the content of the communication and data limitations.

- 4.3.3 Complete an Acceptable Knowledge Source Document Summary for each Record of Communication form, attach it to the completed Record of Communication form, **AND** submit to CCP Records on or before the date of issuance of the AK documents, as applicable.
- 4.3.4 As necessary, prepare a memorandum for CCP Records documenting the method used by the AKE to review AK source documents for the purpose of evaluating required AK parameters such as radionuclides, Waste Matrix Codes, assignment of HWNs, estimating waste material parameter weights, AKAs, CCEs, BoKs etc. The memorandum must identify the sources of AK used during the evaluation and clearly document the AKE assumptions and conclusions.

NOTE

Collection and review of AK source documents is an ongoing activity. It is conducted initially during the development of the AK documents and continues as additional information becomes available during subsequent waste stream characterization and management activities. Completion of the Acceptable Knowledge Source Document Summary form for the source documents is an iterative process performed during these activities.

If the source document is a collection of information (i.e., container data sheets, material safety data sheets [MSDS] and Safety Data Sheets [SDS], etc.) provide a description in the Title field of the Acceptable Knowledge Source Document Summary form and ensure that it matches the Title field in the AK Source Document section of the AK document.

Information documents collected but not referenced in documents generated as a part of the acceptable knowledge process are not required to be summarized on an Acceptable Knowledge Source Document Summary form.

- 4.3.5 Initiate an Acceptable Knowledge Source Document Summary form for each source document that includes detail sufficient to justify the use of the information. Information should include (as applicable) but is not limited to;
- Applicable AK element (steps 4.2.3, 4.2.4, 4.2.5 and 4.2.7)
 - Chemical information
 - Procedure verification
 - Document Summary
- 4.3.6 Identify the specific waste stream or streams that correspond to the source document in the Waste Stream Number field on the Acceptable Knowledge Source Document Summary form. If a comprehensive library is used for all streams at the site, note this in this field.

[A] Submit source documents on or before the date of issuance of the AK document in which they are referenced.

- 4.3.7 **IF** the summary consists of multiple pages, **THEN** provide the unique source document tracking number on each page **AND** paginate the number of pages (e.g., 2 of 6 pages).
- 4.3.8 For source documents that **CAN NOT** be reproduced or removed from the source (e.g., classified documents or databases), indicate on the Acceptable Knowledge Source Document Summary that a copy of the source document is **NOT** available, and state the reason in the limitations section.
- 4.3.9 Include a note on the limitations of the information (e.g., if a document covers a specific period of time, pages missing, illegible, etc.) on the Acceptable Knowledge Source Document Summary.
- 4.3.10 Print name, sign, and date the Acceptable Knowledge Source Document Summary (Attachment 3) and submit to CCP Records.

NOTE

Acceptable Knowledge Information List (see example Attachment 4) is a listing of documents collected during the investigative process. Documents collected must be categorized in accordance with step 4.1.2.

- 4.3.11 Create and maintain an Acceptable Knowledge Information List that includes the following:
- Site, waste stream number, and waste stream description
 - Source document tracking number
 - Source document title or description
 - Name of author
 - Original document number, or publisher's document number (if available)
 - Revision number and document date (if applicable)
- 4.3.12 Print name, sign, and date the Acceptable Knowledge Information List before submitting to CCP Records.
- 4.3.13 Submit the Acceptable Knowledge Information List (Attachment 4) to CCP Records on or before the date of issuance of the approved AKSR document.

4.4 Review and Submittal of AK Documentation

- 4.4.1 Evaluate the waste stream to verify that the waste materials do not meet the definition of spent nuclear fuel or high-level waste as defined in the in Section 10101(3) of the *Nuclear Waste Policy Act of 1982*.

NOTE

According to CCP-PO-002, a TRU waste is eligible for disposal at WIPP if it has been generated in whole or in part by one or more of the following functions:

- Naval reactors development
- Weapons activities including defense inertial confinement fusion
- Verification and control technology
- Defense nuclear materials production
- Defense nuclear waste and materials by-products management
- Defense nuclear materials security and safeguards and security investigations
- Defense research and development

-
- 4.4.2 Evaluate the waste stream to verify that the waste materials meet the definition of defense waste defined in CCP-PO-002.

- 4.4.3 **IF** there is no information linking the waste stream to defense related activities or commingled with defense materials, **OR** if the waste stream contains spent nuclear fuel or high-level waste, **THEN** notify the SPM that the waste is **NOT** eligible for disposal at WIPP.

- 4.4.4 Document the defense determination, high-level waste and spent nuclear fuel assessments in the AKSR.

- 4.4.5 Verify that 100 percent of the information specified in Acceptable Knowledge Documentation Checklist (Attachment 1) from AK #s PR1 through PR8 and WS1 through WS12 has been compiled.

- 4.4.6 **IF** 100 percent of this information is **NOT** available for a waste stream, **THEN** notify the SPM that waste is **NOT** eligible for disposal at WIPP without the collection of additional information to augment the existing AK.

- 4.4.7 For LANL sealed sources waste containers, verify that the information on Acceptable Knowledge Documentation Checklist, AK #s O1-O16 has been compiled.
 - 4.4.8 Review all AK information compiled in Section 4.2 of this procedure.
 - 4.4.9 Document and resolve discrepancies regarding AK information among AK source documents as described in Section 4.9 of this procedure.
-

NOTE

The final Acceptable Knowledge Documentation Checklist (Attachment 1) submitted to CCP Records includes only those source documents cited in the AK documents generated in accordance with this procedure (e.g., AKSR, AKA CCEM, BoK). These source documents must be submitted to CCP Records on or before the issuance of the AK document.

- 4.4.10 Print name, sign, and date the Acceptable Knowledge Documentation Checklist once the collection and review of the required AK information has been completed.
 - 4.4.11 Submit the Acceptable Knowledge Documentation Checklist to CCP Records on or before issuance of the approved AKSR.
-

NOTE

A waste stream is defined as waste materials that have common physical form, that contain similar hazardous constituents (similar radiological properties for WCPIP compliance), and that are generated from a single process or activity.

- 4.4.12 Using the definition of a waste stream from above, the waste stream-specific documentation from the Acceptable Knowledge Documentation Checklist, and, if applicable, the description from the ATWIR, define the waste stream represented by the compiled AK information, **AND** provide this description in the AKSR (see Attachment 12, Example Form and Content Guide for AK Summary Reports). Provide a discussion to justify combining previously identified (i.e., ATWIR or site designations), TRU mixed waste and TRU non-mixed waste streams.

NOTE

A single Summary Category Group will be assigned to a waste stream.

4.4.13 Assign the waste stream to the appropriate Summary Category Group as defined below:

- S3000 Homogeneous Solids – Homogeneous solids are defined as solid material, excluding soil, that does not meet the New Mexico Environment Department (NMED) criteria for classification as debris (20.4.1.800 New Mexico Administrative Code [NMAC] [incorporating 40 CFR §268.2(g) and (h)]). Included in the series of homogeneous solids are inorganic process residues, inorganic sludges, salt waste, and pyrochemical salt waste. Other waste streams are included in this Summary Category Group based on the specific waste stream types and final waste form. This category includes wastes that are at least 50 percent by volume homogeneous solids.
- S4000 Soil/Gravel – This Summary Category Group includes S4000 waste streams that are at least 50 percent by volume soil/gravel.
- S5000 Debris Wastes – This Summary Category Group includes heterogeneous waste that is at least 50 percent by volume material that meets the criteria specified in 20.4.1.800 NMAC (incorporating 40 CFR §268.2[g]). Debris means solid material exceeding a 2.36 inch (60 millimeter) particle size that is intended for disposal and that is a manufactured object, plant or animal matter, or natural geologic material. Particles smaller than 2.36 inches in size may be considered debris if the debris is a manufactured object and if it is **NOT** a particle of S3000 or S4000 material.

4.4.14 **IF** a waste stream **DOES NOT** include at least 50 percent of any given Summary Category Group by volume, **THEN** assign the Summary Category Group constituting the greatest volume of waste for that waste stream.

NOTE

A Waste Matrix Code will be assigned to a waste stream based on the physical form of the waste. DOE/LLW-217, *DOE Waste Treatability Group Guidance*, describes the convention for assignment of Waste Matrix Codes for low-level waste treatability groups, and can be used as the basis for the assignment of Waste Matrix Codes that bound the waste stream.

4.4.15 Assign and describe the Waste Matrix Code assigned to each waste stream identified.

NOTE

The Waste Matrix Code Groups identified in CCP-PO-001 are:

- Solidified inorganics
 - Solidified organics
 - Salt waste
 - Soils
 - Lead/cadmium metal
 - Inorganic nonmetal waste
 - Combustible waste
 - Graphite
 - Filters
 - Heterogeneous debris waste
 - Uncategorized metals
-

4.4.16 Assign the waste stream to the appropriate Waste Matrix Code Group.

4.4.17 Review the AK information to determine if the waste is listed under 20.4.1.200 NMAC (incorporating 40 CFR 261.30), Subpart D. If so, assign the appropriate HWNs.

4.4.18 Review the AK information to determine if a toxicity characteristic 20.4.1.200 NMAC (incorporating 40 CFR 261.20), Subpart C contaminant is identified and has **NOT** been assigned the more specific F-listed HWN from step 4.4.17. Evaluate the available data and assign the toxicity characteristic HWN consistent with RCRA requirements.

4.4.19 Compare the HWNs assigned from steps 4.4.17 and 4.4.18 to the HWNs listed in CCP-PO-001, Table C-5.

4.4.20 **IF** any HWNs are **NOT** included in CCP-PO-001, Table C-5, **THEN** notify the SPM.

- 4.4.21 Include the justification and basis for steps 4.4.17 and 4.4.18 in the TRU waste stream-specific description of AKSR, **AND** complete the Attachment 5 Hazardous Constituents form.
- 4.4.22 Print name, sign, and date Hazardous Constituents form.
- 4.4.23 Submit the Hazardous Constituents form (Attachment 5) to CCP Records on or before the date of issuance of the approved AKSR.
- 4.4.24 During revisions to the AKSR, evaluate the adequacy of the current Hazardous Constituents form and CCEM **AND** revise, if necessary.
- 4.4.25 Assess available AK radionuclide data.
- 4.4.26 For contact-handled (CH) waste streams and RH waste streams characterized using NDA techniques, review all source documents to determine the two most prevalent radionuclides for the waste stream (by mass and activity), and estimated isotopic ratios for the following 10 WIPP-required radionuclides: Sr-90; Cs-137; U-233; U-234; U-238; Pu-238; Pu-239; Pu-240; Pu-242; and Am-241.

AKE/NDA EA/OSR

NOTE

Any NDA issues for both measured and calculated radionuclides should be discussed and resolved in the NDA Memorandum.

- 4.4.27 Prepare an NDA Memorandum to CCP Records (CH waste only), evaluating the radionuclide characterization of the waste stream. The NDA Memorandum must include a section for an assessment written with the NDA EA determining how the AK will be applied during assay.
- 4.4.28 During revisions to the AKSR evaluate the adequacy of the current NDA Memorandum **AND** revise, if necessary. This review is documented by submitting a new Attachment 7.
- 4.4.29 For LANL sealed sources waste, the NDA Memorandum must be written with input from the OSR group. This assessment should include a discussion of the limitations of the radiological characterization in the AK document and a description of the required assay methods, if any.
- 4.4.30 **IF** AK is intended as the sole basis for meeting the radiological characterization requirements in CCP-PO-002, **THEN** state so in the AKSR.

NOTE

The WIPP-WAP allows the generator to utilize visual examination (VE) and real-time radiography (RTR) to augment initial estimates for the waste material parameter weight percentages.

- 4.4.31 Prepare a Waste Material Parameter Evaluation Memorandum to CCP Records that estimates the waste material parameter weights for the waste stream. The expected weight percent for each waste material parameter will be calculated using historical waste generator information for the materials in the waste stream or industry documentation for similar waste inventories. This evaluation should include the technical assumptions, justification, and limitations for the estimated weight percentages.
- 4.4.32 During revisions to the AKSR evaluate the adequacy of the current Waste Material Parameter Evaluation Memorandum **AND** revise, if necessary. This review is documented by submitting a new Attachment 6 to CCP Records.
- 4.4.33 Complete the following forms as appropriate:
- [A] Attachment 6, Waste Form, Waste Material Parameters, Prohibited Items, and Packaging form. Include the Waste Material Parameter Evaluation Memorandum described in step 4.4.31 as an addendum to the Waste Form, Waste Material Parameters, Prohibited Items, and Packaging form.
- Submit the completed Attachment 6, Waste Form, Waste Material Parameters, Prohibited Items, and Packaging form, and the associated Waste Material Evaluation Memorandum to CCP Records on or before the date of issuance of the approved AKSR.
- [B] Attachment 7, Radionuclides form (CH only). Include the NDA Memorandum (signed by the AKE and NDA EA) described in step 4.4.27 as an addendum to Radionuclides form.
- Submit the completed Attachment 7, Radionuclides form, and the associated approved NDA Memorandum to CCP Records before certified NDA data are evaluated by the NDA EA.
- [C] Attachment 8, Waste Containers List (or an equivalent form, e.g., spreadsheet) for the containers determined to be bounded by the Hazardous Constituents, Waste Form, Waste Material Parameters, Prohibited Items, and Packaging, and Radionuclide forms. Prepare or update the

AKTSS as described in Section 4.11 for the containers identified in Waste Containers List and corresponding Waste Stream Container Evaluation Memorandum prepared in Section 4.10.

- Submit the completed Attachment 8, Waste Containers List to CCP Records on or before the date of issuance of the approved AKSR.

4.4.34 Review the waste management program AK documentation specified on the Acceptable Knowledge Documentation Checklist, **AND** write a TRU waste management program description that addresses AK #s PR1-PR8 in Acceptable Knowledge Documentation Checklist. Include the following:

- Correlation to the waste stream identification and description found in the ATWIR or indication that the waste stream was not included in the ATWIR.
- Determination of whether the TRU waste materials were generated as a result of, or mixed with materials from, defense-related activities as specified in CCP-PO-002.

4.4.35 **IF** prohibited items or incompatible materials are listed on the Waste Form, Waste Material Parameters, Prohibited Items, and Packaging, **THEN** perform the following:

[A] Notify the SPM.

SPM

[B] SPM notify the Host site as directed in the site Interface Document between CCP and that site.

4.4.36 Correlate TRU waste management program information (AK #s PR1 - PR8) and TRU waste stream-specific information (AK #s WS1 - WS12) with regard to the time of generation, waste generation processes, rate and quantity of newly generated waste (when appropriate), and areas and building or facility where the waste stream was generated (Acceptable Knowledge Documentation Checklist).

4.4.37 Identify AK source document tracking numbers, as applicable, in the TRU waste management program description and TRU waste stream-specific description.

NOTE

As appropriate, the justification and basis for the determination of waste material parameter weights may be included in the Waste Material Parameter Evaluation Memorandum, and the justification and basis for the radionuclide information may be included in the NDA Memorandum.

4.4.38 Review the waste stream-specific AK documentation specified on the Acceptable Knowledge Documentation Checklist and information developed in steps 4.4.12 through 4.4.37, **AND** describe the waste stream in the AKSR, including the following:

- [A] Waste stream description and waste stream number. The waste stream number is limited to 20 alpha-numeric characters.
- [B] Explain the selection of the Waste Matrix Code in the TRU waste stream-specific description of the AKSR.
- [C] Ensure the description of the waste stream is sufficient to allow the RTR and VE Operators to determine whether the waste in individual containers is included in the waste stream and the physical form of the waste matches the waste stream description.
- [D] Include the justification and basis for determination of waste material parameters weights expected in the waste stream.
- [E] Include the justification and basis for the method by which the radionuclide AK has been compiled.
- [F] For waste streams characterized using NDA, state the method for determination of the two most prevalent radionuclides (see CCP-PO-002).
- [G] Include the following assessment information:
 - Waste identification and categorization schemes relevant to the isotopic composition of the waste
 - Description of the isotopic composition of waste streams
 - Identification of physical or chemical composition that could affect isotopic distributions
 - Numerical adjustments (e.g., scaling factors, decay/ingrowth corrections and secular equilibrium consideration) applied to derive isotopic compositions

- Specification of the isotopic ratios for the 10 WIPP - tracked radionuclides
 - Radionuclides other than the ten WIPP-tracked radionuclides that contribute to 95 percent of the radioactive hazard for a payload container
- [H] IF AK is intended as the sole basis for meeting the radiological characterization requirements in CCP-PO-002, provide justification for the assumption that the waste stream is TRU waste (i.e., it contains more than 100 nanocuries per gram [nCi/g] of alpha-emitting radionuclides with half-lives greater than 20 years).
- [I] For waste streams with containers selected for payload management, include an assessment estimating the percentage of the TRU waste stream volume above and below 100 nanocuries per gram (nCi/g) in accordance with CCP-PO-002. The AKSR must demonstrate that the waste stream has been historically managed as TRU waste, as applicable for payload management.
- [J] Provide justification for determining the estimated concentration (less than or equal to 1 percent or greater than 1 percent by weight) of beryllium (metal and oxides) for each payload container within the waste stream as required in CCP-PO-002.
- [K] Provide justification for determining that prohibited items are not present in the waste stream or describe the potential prohibited items. Identify process controls associated with the management of prohibited items, physical form, and hazardous waste content.
- [L] Provide justification for determining if any waste in the waste stream contains polychlorinated biphenyls (PCBs) in concentrations equal to or greater than 50 parts per million (ppm). Identify the type of waste containing PCB contamination (e.g., PCB remediation waste, PCB articles, PCB bulk product waste), **AND** provide justification for determining that the waste stream will **NOT** contain residual PCB liquids as defined in CCP-PO-002.
- [M] For waste streams assigned the EPA HWN U134 for hydrofluoric acid, provide information demonstrating neutralization of this acid, if available, as required by CCP-PO-001.

- [N] **IF** correlating or surrogate information from similar materials or waste streams generated at the same site or other sites is used to support the characterization of an RH waste stream, **THEN** complete the CCP TRU Waste Correlation and Surrogate Summary Form (see Attachment 15) **AND** describe the use of the information in the AKSR.
- Submit the completed CCP TRU Waste Correlation and Surrogate Summary Form to CCP Records on or before the date of issuance of the approved AKSR.
- [O] For RH waste streams, identify the AK and/or characterization methods to be used to meet the DQOs. Identify how each DQO will be met and describe the qualification method(s) selected for AK used solely to meet a specific DQO in the AKSR.

NOTE

Use the Example Form and Content Guide for AK Summary Reports (see Attachment 12) to prepare the AKSR. This guide provides the recommended format for preparation of the reports. However, the format of the report and content of the sections may vary, as long as the required AK elements are presented.

NOTE

Pending the approval of the CCEM, cite the preliminary CCEM in the AKSR. Initially the referenced CCEM may only be a list of chemicals identified for evaluation as they may potentially be in the waste (see steps 4.15.1 and 4.15.2).

- 4.4.39 Summarize the waste stream-specific description in Section 2.0 of the AKSR. Provide a physical, chemical, and radiological description of the waste stream in Section 5.0 (or subsequent sections for multiple waste stream reports) of the AKSR.
- 4.4.40 **IF** the CCEM has been approved provide a reference to the CCEM and a description of the results in the Chemical Evaluation Section of the AKSR. **IF NOT**, cite the preliminary CCEM in the Chemical Evaluation Section of the AKSR.
- 4.4.41 Prepare the AKSR by combining the TRU waste management program description and each of the completed TRU waste stream-specific descriptions, as well as the information from the forms in Attachments 1 through 8, Acceptable Knowledge Source Document Discrepancy Resolution forms (see Attachment 11), CCEMs, and AKAs, if applicable.

4.4.42 Submit the AKSR to CCP Document Services to initiate the review and approval process in accordance with CCP-QP-010, *CCP Document Preparation, Approval, and Control*.

NOTE

Electronic media for historical source documents shall be managed in accordance with CCP-QP-008, *CCP Records Management*.

4.4.43 Submit records identified in Section 5.0 to CCP Records in accordance with CCP-QP-008.

NOTE

As the AKSR is revised, resubmit report to CCP Document Services.

4.5 Waste Stream Characterization

SPM

4.5.1 **IF** any AK Sufficiency Determination Request has been approved by Carlsbad Field Office (CBFO) for any characterization parameter (see Section 4.7),
THEN note the approval for that parameter on the CCP Waste Stream Characterization Checklist (see Attachment 13).

NOTE

The following comparison may be performed for a waste stream or a waste stream lot.

4.5.2 Compare the testing results from VE and RTR, and NDA characterization (4.5.2 [B] for CH and 4.5.2 [C] for RH) activities to the waste stream AK by completing a CCP Waste Stream Characterization Checklist, to certify a waste stream (or lot) for disposal at WIPP.

[A] RTR and VE Data

[A.1] Compare RTR and VE results (obtained from CCP Records) in VE Data Forms, and RTR Data Sheets to AK information in Waste Form, Waste Material Parameters, Prohibited Items, and Packaging of this procedure to verify the physical form of the waste stream and absence of prohibited items.

- [A.2] **IF** AK information **CAN NOT** be resolved upon completion of these comparisons, **THEN** note any inconsistencies on CCP Waste Stream Characterization Checklist, **AND** proceed with Section 4.8 of this procedure.

- [B] NDA Data – CH Waste
 - [B.1] Compare radionuclides reported on the Radionuclides form by Weight percent, Activity, or other parameters justified in the AKSR and/or NDA Memorandum with NDA Radioassay results.
 - [B.2] Compare the two most prevalent radionuclides in AK with those identified in the NDA results for the waste stream and waste stream lot.
 - [B.3] Compare the radionuclides identified by the AK as expected to be present with those reported in the NDA results.
 - [B.4] Report the differences between NDA results and those expected from AK in the Comments section of the CCP Waste Stream Characterization Checklist.
 - [B.5] Provide rationale in the Comment section of CCP Waste Stream Characterization Checklist, if any of these conditions were anticipated based on AK **OR** if the population size of containers characterized is inadequate to determine if AK is inconsistent.
 - [B.6] Attach applicable data and description to CCP Waste Stream Characterization Checklist.
 - [B.7] **IF** AK information **CAN NOT** be resolved upon completion of these comparisons, **THEN** note any inconsistencies on CCP Waste Stream Characterization Checklist, **AND** proceed with Section 4.8 of this procedure.

- [C] Radiological Characterization – RH Waste
 - [C.1] Identify the characterization method (e.g., Dose-to-Curie) on the CCP Waste Characterization Checklist.

- [C.2] Identify the drums in which the radiological characterization differ from that expected; provide rationale in the Comments section of the CCP Waste Stream Characterization Checklist, if this condition was anticipated, otherwise notify the AKE to perform a re-evaluation as described in Section 4.8 of this procedure.
- [C.3] Attach data and applicable description to CCP Waste Stream Characterization Checklist.

4.5.3 **IF** AK information can be resolved upon completion of the comparisons with the testing results, **THEN** print name, sign, and date CCP Waste Stream Characterization Checklist, **AND** forward it to the AKE for signature **AND** submit to CCP Records.

4.6 Determining AK Documentation Accuracy

NOTE

The quality assurance objectives (QAOs) and their applicability to AK are discussed in CCP-PO-001. The WIPP-WAP AK accuracy evaluation is required for both RH and CH waste streams and the WCPIP AK accuracy evaluation is required for RH waste streams only. The measurement of AK accuracy begins once the waste stream is delineated in an approved AKSR.

SPM

4.6.1 Obtain a copy of the completed CCP Waste Stream Characterization Checklist, **AND** any Acceptable Knowledge Re-evaluation Checklists (see Attachment 10), applicable to the waste stream or waste stream lot, and any related supporting documentation from CCP Records (e.g., Discrepancy Resolutions and Non-conformance reports [NCRs]).

NOTE

The AK Accuracy Memorandum is used to document the percentage of containers reassigned to a new Waste Matrix Code, designated with a HWN assignment different from AK, or inconsistent with anticipated radionuclide composition (e.g., two most prevalent radionuclides and radionuclides expected to be present) determined from AK when compared to analytical results.

NOTE

The WCPIP does not require the evaluation of AK accuracy relating to HWN assignment; however, the reassignment of a container to another RH waste stream or new RH waste stream based on analytical results will count against the AK accuracy for TRU waste streams.

NOTE

For AK Accuracy Memoranda that are prepared for waste stream lots within a waste stream, updates to AK accuracy shall be issued periodically. At a minimum AK Accuracy Memoranda will be prepared following the characterization of all containers in a waste stream or annually for waste streams generated or characterized on an on-going basis.

- 4.6.2 Complete the CCP Acceptable Knowledge Accuracy Report (see Attachment 14), after characterization has been completed for a subset of containers in the subject CH or RH waste stream or waste stream lot, all containers within a waste stream or annually for waste streams generated or characterized on an ongoing basis.
- 4.6.3 Prepare an NMED (RH and CH) and EPA (RH only) AK Accuracy Memorandum summarizing the following AK accuracy information:
 - [A] Purpose
 - [B] Methodology
 - [C] Results of accuracy determination
 - [D] Other considerations, if applicable
 - [E] Summary
- 4.6.4 For RH waste, **IF** the AK accuracy falls below 90 percent for assigning containers to a Summary Category Group, **THEN** CBFO shall be notified.

NOTE

For RH waste, significant discrepancies between the radionuclide information in the AK record and measured values will be assessed during preparation of the CCP Acceptable Knowledge Accuracy Report. What constitutes a significant discrepancy will depend on site-specific and waste stream-specific considerations for each waste stream.

- 4.6.5 For RH waste, describe any significant discrepancies between the radionuclide information in the AK record and measured values in the Acceptable Knowledge Accuracy Memorandum.
- 4.6.6 At the option of the SPM, CCP Acceptable Knowledge Accuracy Report may list only the containers with accuracy issues, as long as the complete list of containers represented by the accuracy report is included by attachment to, or referenced in, the cover memorandum or letter.
- 4.6.7 Attach the following to the AK Accuracy Memorandum:
 - [A] CCP Acceptable Knowledge Accuracy Report prepared for the NMED AK Accuracy Memorandum only.
 - [B] CCP Correlation of Container Identification Numbers to BDR numbers prepared in accordance with CCP-TP-002.
- 4.6.8 Transmit AK Accuracy Memorandum and attachments to the AKE.

AKE/SPM

- 4.6.9 For NMED AK Accuracy Memoranda (CH and RH), review the AK Accuracy Memorandum and attachment, resolve any comments with the SPM, **AND** approve by printing name, signing, and dating the CCP Acceptable Knowledge Accuracy Report form (Attachment 14) **AND** return to the SPM to sign, date, and submit to CCP Records.
- 4.6.10 For EPA AK Accuracy Memoranda (RH only), review the AK Accuracy Memorandum and attachments, resolve any comments with the SPM, **AND** approve by printing name, signing, and dating the CCP AK Accuracy Memorandum form **AND** return to the SPM to sign, date, and submit to CCP Records.

4.7 AK Sufficiency Determination

SPM/AKE

- 4.7.1 Evaluate the AK information available for a waste stream to determine if an AK Sufficiency Determination is possible or desirable.
- 4.7.2 Prepare an AK Sufficiency Determination Request that includes the following information:
- [A] An introduction that briefly describes the waste stream, the type of AK Information available, whether AK alone can be used to meet the characterization requirements.
 - [B] Identification of any mandatory requirements supported only by upper tier documents (i.e., there is insufficient supporting data).
 - [C] Description demonstrating that the AK process described in CCP-PO-001 was followed (for example, AK personnel were appropriately trained; discrepancies were documented).
 - [D] Information demonstrating that CCP has assessed the AK process (e.g., internal audits).
- 4.7.3 Obtain copies of the following information from CCP Records and attach to the AK Sufficiency Determination Request:
- [A] AKSR for the waste stream;
 - [B] Acceptable Knowledge Documentation Checklist providing an AK roadmap and cross reference between mandatory programmatic and waste stream information with references supporting these requirements.
 - [C] Acceptable Knowledge Information List, providing a complete reference list including all mandatory and additional AK documentation.
 - [D] Current revision of this procedure to demonstrate that CCP has developed a written procedure for compiling AK information and assigning HWNs.
 - [E] Relevant additional information for the required programmatic and waste stream data addressed in the AKSR, as applicable or if requested by CBFO.

4.7.4 Submit the AK Sufficiency Determination Request and attachments to the SPM for approval and submittal to CBFO.

4.7.5 **IF** comments are received from CBFO,
THEN address the comments and resubmit the AK Sufficiency Determination Request.

[A] Submit approved AK Sufficiency Determination Request to CCP Records.

4.8 Re-evaluating AK Documentation

NOTE

Differences in Waste Matrix Codes, state hazardous waste codes/numbers (if applicable) and EPA HWNs, and NDA results may exist between those previously assigned in the AK documentation and those indicated as a result of waste characterization activities performed to certify waste for disposal at the WIPP or during the confirmation performed by the Permittee. Under these circumstances, the AK information is re-evaluated and the required AK information associated with the new designation is documented. Characterization data associated with the waste are re-evaluated and changes in AK resulting from the re-evaluation are documented.

SPM

4.8.1 **IF** re-evaluation is warranted as a result of 1) inconsistencies noted during the process of comparing AK information to characterization results **OR** 2) the initiation of an NCRs that identifies potential changes to the AK of a waste stream (including NCRs generated as a result of discrepancies identified during confirmation performed by the Permittee),
THEN notify the AKE.

AKE

4.8.2 Retrieve copies of applicable characterization data and AK information from CCP Records.

- 4.8.3 **IF** a waste must be assigned to a different Waste Matrix Code (i.e., different waste stream or waste stream lot) based on RTR or VE,
THEN perform the following:
- [A] Review existing information based on the waste container identification number and document all differences in HWN assignments. Consider all generator specific waste streams and HWN assignments; original site-specific permit requirements; and other state-enforced agreements in this analysis.
 - [B] **IF** differences exist in the HWNs that were assigned, **THEN** reassess **AND** document required applicable AK information associated with the new designation.
 - [C] Reassess **AND** document applicable testing data associated with the waste.
 - [D] Verify **AND** document that waste with a reassigned Waste Matrix Code was generated within the specified time period, area buildings and waste generating process; **AND** that the process material inputs are consistent with the waste material parameters identified during RTR or VE.
 - [E] Record all changes to the AK records on the appropriate forms **AND** resubmit to CCP Records.
 - [F] **IF** unresolved discrepancies exist in the AK information for the reassigned Waste Matrix Code, HWNs, or radionuclides, **THEN** document the segregation of this container, **AND** define the actions necessary to fully characterize the waste.
- 4.8.4 **IF** testing results indicate that additional or different HWNs may apply to the waste,
THEN review the existing AK and characterization information, **AND** perform the following:
- [A] **IF** a hazardous waste, not originally identified by AK, has been identified during testing (lead items, circuit boards, etc.),
THEN assign the applicable state hazardous waste codes/numbers and HWNs unless an alternative assignment can be justified or representative quantitative data are available to preclude the assignment.

- 4.8.5 **IF** NDA results indicate the presence of additional radionuclides or are different from the two most prevalent radionuclides in the waste,
THEN review existing AK and characterization information to identify potential changes.
- 4.8.6 **IF** changes are required,
THEN document the need for changes in the appropriate comment section of the Acceptable Knowledge Re-evaluation Checklist.
- 4.8.7 Resolve all AK discrepancies, if applicable, as described in Section 4.9 of this procedure.
- 4.8.8 Forward the completed Acceptable Knowledge Re-evaluation Checklist (Attachment 10) to the SPM for review and approval.

SPM

- 4.8.9 Review the Acceptable Knowledge Re-evaluation Checklist.
- 4.8.10 **IF** the Acceptable Knowledge Re-evaluation Checklist requires correction,
THEN return it to AKE.
- 4.8.11 **IF** no correction is required,
THEN approve the Acceptable Knowledge Re-evaluation Checklist.
- 4.8.12 Once the Acceptable Knowledge Re-evaluation Checklist is approved, complete the CCP Waste Stream Characterization Checklist, as described in Section 4.5.

AKE

- 4.8.13 Submit the Acceptable Knowledge Re-evaluation Checklist to CCP Records.
- 4.8.14 Modify the AKSR as appropriate.
- 4.8.15 Submit changes to the AKSR to CCP Document Services to initiate the review and approval process in accordance with CCP-QP-010.

SPM

- 4.8.16 Review the WSPF to see if the change to the AKSR affects the WSPF.
- 4.8.17 **IF** the WSPF requires change,
THEN revise the WSPF in accordance with CCP-TP-002.

4.9 Resolving AK Discrepancies

NOTE

AK discrepancies may be identified during AK source document compilation; review; characterization; confirmation; preparation of AKAs, CCEMs, and BoKs; re-evaluation activities.

- 4.9.1 Document the nature of the discrepancy **AND** identify the documents involved for the particular waste stream or waste container on the Acceptable Knowledge Source Document Discrepancy Resolution or in the appropriate section of the AKSR.
- 4.9.2 Use information from interviews, telephone contacts, or other correspondence or other supporting information to resolve the discrepancy.
- 4.9.3 Record interviews, telephone conversations, and correspondence needed to resolve discrepancy issues on a Record of Communication.
- 4.9.4 Verify that process inputs (hazardous constituents and waste material parameters) are consistent with waste material parameters identified during RTR and VE as applicable.
- 4.9.5 Assign **OR** revise the AK identified waste material parameters, as necessary, **AND** document the change and the assumptions made on the Acceptable Knowledge Source Document Discrepancy Resolution.
- 4.9.6 Assign **OR** reassign Waste Matrix Codes, as necessary, using guidance specified in the DOE/LLW-217, **AND** document the assignment and assumptions made on the Acceptable Knowledge Source Document Discrepancy Resolution.
- 4.9.7 Evaluate the sources of discrepancies among sources of isotopic distribution data to determine whether the sources are credible, as applicable. Identify limitations of data **AND**, if the data are **NOT** used, provide a justification on the Acceptable Knowledge Source Document Discrepancy Resolution. Otherwise, describe data limitations in the AKSR, as applicable.
- 4.9.8 Assign or revise the identified radionuclides present, as necessary, **AND** document the change and the assumptions made on the Acceptable Knowledge Source Document Discrepancy Resolution.

- 4.9.9 Assign or revise state hazardous waste codes/numbers (if applicable) and HWNs, as necessary. Assign the HWNs consistent with RCRA requirements. Document the assignment and the assumptions and justifications made on the Acceptable Knowledge Source Document Discrepancy Resolution.
- 4.9.10 Obtain the affected AK source documentation, as necessary.
- 4.9.11 Make necessary changes to Acceptable Knowledge Source Document Summary, as appropriate.
- 4.9.12 **IF** the discrepancy cannot be resolved by the AKE, **THEN** prepare an Acceptable Knowledge Source Document Discrepancy Resolution checking "No" for the Discrepancy Resolved question of the form, forward to the SPM **AND** proceed to step 4.9.20.
- 4.9.13 Complete, print name, sign, and date the Acceptable Knowledge Source Document Discrepancy Resolution form documenting final disposition of resolved discrepancies.
- 4.9.14 Forward the Acceptable Knowledge Source Document Discrepancy Resolution and supporting documentation (if requested) to the SPM for review and concurrence.

SPM

- 4.9.15 Review the Acceptable Knowledge Source Document Discrepancy Resolution and supporting documentation, as applicable, approve if the discrepancy has been resolved, **AND** forward the completed form to the AKE.

AKE

- 4.9.16 Confirm that the Acceptable Knowledge Source Document Discrepancy Resolution is signed and dated by the SPM.
- 4.9.17 Complete an Acceptable Knowledge Source Document Summary for each Acceptable Knowledge Source Document Discrepancy Resolution.
- 4.9.18 Submit the Acceptable Knowledge Source Document Summary and the approved Acceptable Knowledge Source Document Discrepancy Resolution and supporting documentation, as applicable, to CCP Records on or before the date of issuance of the documents in which it is referenced.

- 4.9.19 Revise the AKSR, and submit changes to the AKSR to CCP Document Services to initiate the review and approval process in accordance with CCP-QP-010, as needed.

NOTE

Discrepancies which **CAN NOT** be resolved by CCP will result in the container being returned to the Host site. If the discrepancy is **NOT** container-specific, containers from the subject waste stream will **NOT** be shipped to WIPP until such time as the discrepancy has been resolved. If the discrepancy is related to radiological characterization, notify the SPM that direct measurements of the impacted waste population may be required.

SPM

- 4.9.20 **IF** the discrepancy **CAN NOT** be resolved, **THEN** issue an NCR (if not already identified in an NCR) and manage corrective actions in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*.
- 4.9.21 Record the NCR number on the Acceptable Knowledge Source Document Discrepancy Resolution.
- 4.9.22 Coordinate with the Host site to place a hold tag on, **AND** segregate waste containers associated with the NCR, if applicable, in accordance with applicable procedures.
- 4.9.23 Assess the potential timeframe of the noncompliance, the potentially affected waste populations, and the reassessment and recertification of the waste, if applicable.
- 4.9.24 Coordinate resolution of the nonconforming condition with the AKE.
- 4.9.25 Document information identified during the corrective action process as described in CCP-QP-005.
- 4.9.26 Once the discrepancy is resolved, applicable NCR(s) closed, and corrective action is completed, approve the Acceptable Knowledge Source Document Discrepancy Resolution **AND** forward the form to the AKE.

AKE

- 4.9.27 **WHEN** discrepancies are resolved, applicable NCRs are closed, **AND** corrective actions completed, **THEN RETURN and COMPLETE** steps 4.9.13 through 4.9.19.

4.10 Addition of Containers to Existing Waste Streams

NOTE

The following process is followed when additional containers are to be included in a waste stream defined in an existing AKSR. The Waste Containers List identifies the AK source document number(s) designated for the Waste Stream Container Evaluation Memorandum, adding containers, if applicable.

NOTE

Containers to be repackaged into final payload containers (e.g., casks, interim storage packages/containers, parent drums to be repackaged into the final payload containers) or other containers may be added to the Waste Container List and/or AKTSS to support subsequent remediation, repackaging, characterization, and/or site container management activities without preparing a Waste Stream Container Evaluation Memorandum. However, prior to shipment all containers must be evaluated in accordance with this section.

4.10.1 Collect container-specific documentation and evaluate the following information for each container to ensure the container(s) is bounded by the AKSR:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and Waste Matrix Code
- Chemical content (e.g., HWN's and PCB's)
- Prohibited items
- Radionuclides

4.10.2 **IF** the container(s) is **NOT** bounded by the AKSR, but should be included in the waste stream, **THEN** revise the AKSR prior to submitting the waste stream container evaluation memorandum.

4.10.3 **IF** the container(s) is bounded by the applicable AKSR, **THEN** initiate a waste stream container evaluation memorandum.

NOTE

Containers packaged to a new procedure or revision that could result in a change to waste stream management and packaging relating to the management of prohibited items including potentially reactive, corrosive, ignitable or incompatible materials cannot be added to the Waste Container List and/or AKTSS until the changes have been evaluated by the AKE.

After review of the changes if a revision to the AKSR is required per Section 4.8 the AKSR must be revised and approved before any containers packaged using these procedures are added to the AKTSS for characterization.

- 4.10.4 **IF** an IWMDL exists for the waste stream,
THEN review the applicable IWMDL to ensure that the containers were generated by verified procedures.
- 4.10.5 **IF** the container(s) are bounded by an IWMDL,
THEN document the IWMDL approval date on the waste stream container evaluation memorandum **AND** go to step 4.10.7.
- 4.10.6 **IF** the container(s) is **NOT** bounded by an IWMDL **OR** if an IWMDL does not exist for the waste stream,
THEN document the information on the waste stream container evaluation memorandum **AND** include a statement that an AKA will be prepared in accordance with Section 4.13 and submitted to CCP Records prior to shipment of the container(s).
- 4.10.7 **IF** an approved CCEM exists for the waste stream,
THEN determine if the chemical and material contents of the container(s) is bounded by the approved CCEM.
- 4.10.8 **IF** the container(s) is bounded by the applicable CCEM for the waste stream,
THEN document the applicable CCEM number and revision on the waste stream container evaluation memorandum **AND** go to step 4.10.10.
- 4.10.9 **IF** the container(s) is not bounded by the applicable CCEM **OR** if a CCEM does not exist for the waste stream,
THEN document the information in the waste stream container evaluation memorandum **AND** include a statement that a CCEM will be prepared or revised, as applicable, and submitted to CCP Records prior to shipment of the container(s).
- 4.10.10 Provide the draft waste stream container evaluation memorandum to the SPM for review and comment.

4.10.11 Upon resolution of SPM comments, sign and date the waste stream container evaluation memorandum, **AND** submit to the SPM for approval signature.

SPM

4.10.12 Sign the waste stream container evaluation memorandum indicating approval, **AND** return to the AKE.

AKE

4.10.13 Submit the waste stream container evaluation memorandum and, if applicable, associated Attachment 3 to CCP Records. If the AKSR must be revised per Section 4.8, then submit the waste stream container evaluation memorandum on or before the date of issuance of the revised AKSR.

4.11 Acceptable Knowledge Tracking Spreadsheet Development

4.11.1 Develop a spreadsheet which identifies the following minimum criteria for each container listed on Waste Containers List:

- Container I.D.
- Waste Stream I.D.
- Generation Date
- Closure Date (if applicable)
- Vent Date (if applicable)
- CCEM Number and Revision (when approved)
- IWMDL Date (when approved)
- AKA Date (when approved)
- BoK Approval (when approved)
- Associated Defense Determination (required for OSRP containers only)
- Special Information, when necessary (e.g., inner or parent container identification)
- New Closure Date (if applicable)

- New Vent Date (if applicable)
- Container Type

4.11.2 Post the copy of the AKTSS to the secure file transfer protocol (sftp) site.

4.12 Acceptable Knowledge Tracking Spreadsheet (AKTSS) Maintenance

4.12.1 **WHEN** notified of a change to the status of a container(s) identified by the SPM, the AKE, CCP personnel, Host site personnel, or during the addition of containers to the waste stream inventory, **THEN** evaluate the change based on the data provided.

[A] **IF** the change is routine and **DOES NOT** adversely affect data,
THEN GO TO step 4.12.2.

[B] **IF** the change is non-routine or adversely affects data,
THEN notify the SPM to determine the appropriate actions (e.g., initiate NCR) prior to proceeding to step 4.12.2.

4.12.2 Update the AKTSS and post the change to the sftp site.

4.13 Acceptable Knowledge Assessments

NOTE

To ensure that the AK documentation relating to the management of potentially reactive, corrosive, ignitable, and incompatible TRU waste materials is adequate, current, and accurately described in existing AKSRs, an AK Assessment will be performed for existing AKSRs waste streams (or waste stream subpopulations) with containers to be emplaced at WIPP after the February 2014 radiological release event. The level of detail in the AKA Memorandum is dependent upon the complexity of the waste stream.

NOTE

The requirements of the AK Assessment may be documented within a new AKSR or by revision to an existing AKSR. AKSRs and the supporting documentation must address all the applicable evaluation parameters described in this section. The AK Assessment Memorandum will note that the applicable elements are addressed within the AKSR.

NOTE

The following section applies to containers for which step 4.2.10 (IWMDL requirements) is not applicable or when it is determined that an AKA can (or must) be used to address the necessary components prior to shipment. Unshipped containers described in an AKSR for which the IWMDL process is not applicable, or not implemented, may be added to the AKTSS, but are required to have an approved AKA prior to shipment.

- 4.13.1 Review the existing AK documentation associated with the historic and current TRU waste management activities relating specifically to TRU waste generation, packaging, treatment, remediation, and characterization, focusing on the use of absorbents, immobilization products, and neutralization reagents for the waste stream.
- 4.13.2 Review existing AK for the special testing and management activities associated with other suspect materials (e.g., unidentified materials, unlabeled chemicals, metmount testing, nitrate salts, swarf conditioning, and sodium treatment) included in each waste stream.
- 4.13.3 Collect and assess revisions of TRU waste management and packaging procedures bounded by the inventory to identify any relevant changes associated with these activities described in the AKSR.
- 4.13.4 Review and update AK Record associated with commercial products used during these activities (e.g., MSDSs, SDSs, and other manufacture's information), as applicable.

4.13.5 Document the assessment (or revision to the assessment) in an AKA Memorandum that includes the following, as applicable:

- Waste stream summary (brief description of the waste stream and generating activities),
- Historic TRU waste management practices,
- Current TRU waste management practices,
- Waste remediation and repackaging practices,
- Absorbent, immobilization, and neutralization reagents,
- Container specific documentation collected and reviewed,
- New and revised AK source documents,
- AKA conclusions, assumptions, and limitations, and
- List of containers bounded by the evaluation.

4.13.6 Submit the AK Assessment to Document Services to initiate the review and approval process in accordance with CCP-QP-010.

4.13.7 **WHEN** approval is received in accordance with CCP-QP-010, **THEN** submit approved AKA Memorandum and, if applicable, the associated Attachment 3 to CCP Records.

4.13.8 Addendum(s) (or revisions if necessary) may be written and added to the approved AKA to address additional containers (Using steps 4.13.1 through 4.13.7 as necessary).

4.13.9 Update the AKTSS using the approved AKA (or AKA Addendum or revision) and associated container list.

4.13.10 Update the AKSR and related attachments, as necessary.

4.14 AK Briefings

NOTE

AK Briefings are prepared and presented to CCP characterization personnel in accordance with CCP-QP-002. In addition, the generator POCs/SMEs, or cognizant designees, will be required to attend the AK Briefings. The participation of these site representatives from the groups directly involved with the generation, characterization, and management of containers in the waste stream will further ensure that the description of the waste streams in the AKSRs are complete and accurate.

AKE/SPM

4.14.1 Prepare AK Briefing presentations that include the following topics for each new waste stream:

- Mission and Generating Facility Information, including process(es) generating the waste
- Waste Stream Description and Information, including description of physical waste composition, WMPs, Waste Matrix Code
- Radiological Characteristics
- Chemical Characteristics
- Suspected Prohibited Items
- Waste Packaging

4.14.2 Include a discussion of the TRU waste management and packaging activities verified during preparation of the current IWMDL prepared for the waste stream. The AKE/SPM must emphasize the importance of maintaining current procedures in the AK record.

4.14.3 Prepare AK Briefing updates when the AKSR is revised due to changes in the waste stream characteristics (physical, chemical, or radiological composition) or packaging configuration.

4.15 Chemical Compatibility Evaluation

NOTE

As part of the process for characterizing and certifying TRU waste for disposal at WIPP, it is necessary to consider the range of possible chemical combinations that could occur in each waste stream. Potential adverse chemical reactions (e.g., generation of fire, explosion, heat, or fumes) that stem from combining chemicals need to be considered to support safe and compliant waste management. To expand upon this evaluation, chemical compatibility has been enhanced to require formal documentation and generation of a CCEM for the waste stream, or sub-population of the waste stream for containers to be emplaced at WIPP after the February 2014 radiological release event. This evaluation will be based on the method described in the 1980 EPA method EPA-600/2-80-076, "*A Method for Determining the Compatibility of Hazardous Wastes*" (EPA Method). Attachment 16, Example Form and Content Guide for the Chemical Compatibility Evaluation Memorandum, provides a template for the preparation of a CCEM to document this assessment.

The CCEM may bound the current or future population of the waste stream or a sub-population. Additional containers will be evaluated to ensure they are bounded through the use of Waste Stream Container Evaluation Memorandums, AKAs, or other documents (e.g., discrepancy resolutions).

- 4.15.1 Review the existing AK documentation to identify chemicals and materials that have the potential to be in the waste stream.
-

NOTE

The preliminary list of chemicals and materials is the starting point for the formal development of the CCEM described below. This list can also be submitted to CCP Records as a separate AK Source document to be cited in new AKSRs or during revision of existing AKSRs, pending the completion and approval of the CCEM for the waste stream.

- 4.15.2 Prepare a list of the chemicals and materials for the waste stream based on the AK documentation review.

NOTE

The following methodology is applied to determine the chemical compatibility of the constituents in the waste stream. The chemicals and materials considered during the CCE are compiled from the AK source documentation reviewed during the AK process and additional documents collected for development of the chemical compatibility evaluation. AK source documents that addressed chemical and material composition of the waste stream are reviewed to estimate the quantity of the chemical or material that could be expected in any individual waste stream container. Based on this review, the identified chemicals and materials are assigned the most conservative quantity anticipated in an individual container (see step 4.15.3). A qualitative evaluation, based on the use of the given chemical or material as described in the AK source documents, is made in the absence of quantitative information (e.g., analytical data, mass balance information, procedural recipes). When the available AK data are inconclusive, the more conservative quantity is assigned.

For purposes of the evaluation, “incompatible” refers to chemicals and material that, when mixed, can lead to the adverse reaction consequences described in 40 Code of Federal Regulations (CFR) 264.17(b), (General Requirements for Ignitable, Reactive, or Incompatible Wastes).

4.15.3 Estimate the most conservative concentration and assign to one of the following categories for each chemical and material:

- Trace – less than 1 weight percent
 - Minor – 1 to 10 weight percent
 - Dominant – greater than 10 weight percent
-

NOTE

The determination of which Trace chemicals and materials are present in insignificant quantities (assigned to Attachment 3 of the CCEM) is based on a variety of factors including the chemical or material properties, use in processes, and waste management practices.

4.15.4 Based on the specific chemical/material use and management described in the AK record, assess the “Trace” chemical materials to determine those that are insignificant and do not require additional evaluation AND document the justification and assumptions for this determination in the CCEM in Attachment 3 of the CCEM. The justification(s) for this determination for each chemical and material may include, but are not limited to the following examples:

- Chemicals or materials present in incidental quantities due to process or waste management activities that would contribute a negligible effect on reactivity (e.g., low ppm concentration).
- Chemicals or materials used or detected in small quantities during generator processes (e.g., indicator drops, analyte in low ppm concentration analytical standards or waste samples).
- Chemical consumed (e.g., reacted, degraded, or evaporated with heating) during initial waste generation or waste management process operations.
- Volatile chemical that would evaporate under ambient conditions (as defined in TEC01) and would only be present in incidental quantities.
- Gas used in processes that generate waste but would not persist in waste stream.
- Chemical that would spontaneously degrade over time since generation but prior to shipment to WIPP.
- Chemical or material used in processes that generated the waste stream but were or will be specifically segregated or excluded from the shippable waste stream inventory.
- Chemical or material that would only be present in previously employed containers.
- AK indicates chemical or material may have been used, but additional AK documentation from the waste generator demonstrates it was never used.
- Chemicals, materials, and products only identified on inventory or approved products lists with no documented use.

NOTE

Assignment of reactivity group numbers (RGNs) to chemicals and materials of concern will be coordinated with the Payload Engineer Team responsible for RGN assignment during TRUCON code development. The Payload Engineer Team is responsible for maintaining and updating the List of RGNs for Chemicals/Materials in the WIPP Master Chemicals/Materials List (RGN Master List).

The primary focus of this evaluation is to assess potential reactions between dominant and minor constituents. However, some trace components could produce significant exothermic reactions even in small quantities without the proper actions being taken to mitigate the hazards associated with these compounds. For this reason, all trace chemicals that could not be determined to be insignificant in step 4.15.4 must be evaluated for compatibility regardless of concentration.

4.15.5 For chemicals not relegated to Attachment 3 of the CCEM assign the appropriate EPA Method RGN(s) to the remaining chemicals and materials of concern unless an exception can be justified.

[A] **IF** an exception to the EPA Method RGN assignment is justified,
THEN document the exception and the justification in TEC02.

4.15.6 **IF** the compound cannot be found in the EPA Method,
THEN coordinate with the Payload Engineer Team to assign the most appropriate RGN(s) based on its chemical class (functional group) or reactive properties based on review of chemical literature, MSDS, SDS, or industry documentation and reports.

4.15.7 Using the Hazardous Wastes Compatibility Chart in the EPA Method, evaluate the potential for reaction between the RGNs assigned to the chemicals and materials of concern in the waste stream by assigning Reaction Codes, as applicable, to each RGN combination.

NOTE

For purposes of this evaluation, “incompatible” refers to chemicals and materials that, when mixed, can lead to the adverse reaction consequences described in 40 CFR 264.17(b) (General Requirements for Ignitable, Reactive, or Incompatible Wastes). Thus, compatible chemicals and materials (including those referred to as non-reactive in this evaluation) may react slowly over time, and even generate heat, but will not lead to the following adverse reaction consequences: (1) generate extreme heat or pressure, fire or explosions, or violent reactions; (2) produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment; (3) produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions; (4) damage the structural integrity of the device or facility; (5) through other like means threaten human health or the environment. In this procedure, an adverse reaction is defined as a reaction that can result in any of the adverse reaction consequences described above.

- 4.15.8 For each Reaction Code identified in step 4.15.7, assess the potential for adverse reaction consequences specifically for the combination of chemicals and/or materials of concern assigned to each RGN.
- 4.15.9 Document the technical assumptions, conclusions, and limitations associated with each combination assessed in step 4.15.8 to justify that the waste stream is incapable of initiating an unexpected or adverse reaction consequences.
- 4.15.10 **IF** the conclusions in the CCEM would result in changing the waste stream characterization (i.e., addition of HWNs or waste material parameters), **THEN** initiate an AK Documentation Re-evaluation (see Section 4.8) and/or an Acceptable Knowledge Source Document Discrepancy Resolution (see Section 4.9), as applicable.
- 4.15.11 Document the CCEM in a draft memorandum to the SPM, **AND** transmit the draft CCEM to Document Services to initiate the review and approval process in accordance to CCP-QP-010.
- 4.15.12 **WHEN** approval is received in accordance with CCP-QP-010, **THEN** complete, **AND** submit the approved CCEM and if applicable the associated Attachment 3 to CCP Records as an AK Source Document.
- 4.15.13 Update the AKTSS identifying which containers within the waste stream are covered by the approved CCEM.

4.15.14 Once the CCEM is approved, a revision to the existing AKSR may be initiated as necessary, including but not limited to:

- [A] A summary of the approved CCEM and
- [B] Removal of historic chemical and material inputs tables.

NOTE

Steps 4.15.15 through 4.15.17 describe the requirements for revising a CCEM if a new material input is found subsequent to the approval of the CCEM. If the addition of the material to the CCEM does not result in the addition of an RGN, a revision to the technical evaluations or it is determined that the material would be listed in the Attachment 3 of the CCEM then it is considered a minor revision and does not require CBFO review and approval.

If the material results in the addition of an RGN, requires a revision to a technical evaluation to provide justification that the material is managed in manner to prevent an incompatibility or could result in an incompatibility within a container then the revision is considered significant and must be submitted to CBFO for review and approval.

4.15.15 **IF** new chemical or material contents are identified after the approval of the CCEM that do not affect the compatibility of the waste stream,
THEN complete a revision to the CCEM justifying that the new contents are bounded by the approved CCEM (e.g., no new RGNs, technical evaluations remain bounding, chemical would be in insignificant trace quantities).

- [A] Document the revision in a memo to the SPM noting that it is a MINOR revision **AND** transmit the draft revision or addendum to Document Services to initiate the review and approval process in accordance with CCP-QP-010.

4.15.16 **IF** new chemicals or material contents are identified after the approval of the CCEM that are not bounded by the CCEM,
THEN prepare a revision to the CCEM with sufficient detail to identify potential compatibility issues.

- [A] Document the revision in a memo to the SPM noting that it is a SIGNIFICANT revision **AND** transmit the draft revision to Document Services to initiate the review and approval process in accordance to CCP-QP-010.

4.15.17 Update the AKTSS identifying which containers within the waste stream are covered by the CCEM revision.

NOTE

Containers in waste streams that could potentially contain oxidizing chemicals must be evaluated against the requirements established in the Basis of Knowledge (BoK) documents (DOE/WIPP-17-3585 and DOE/WIPP-17-3589) before being released for shipment.

4.16 Basis of Knowledge (BoK) Evaluation

- 4.16.1 **IF** the approved CCEM does not identify the presence of oxidizing chemicals in the waste stream,
THEN prepare a memorandum stating that the waste stream is exempt from the requirements of the BoK.
-

NOTE

Oxidizing chemicals are those identified with an RGN 2 (oxidizing acids) or an RGN 104 (oxidizers) in Attachment 1 of the CCEM.

- 4.16.2 **IF** the approved CCEM does identify the presence of oxidizing chemicals in the waste stream,
THEN review the AK documentation, approved CCEM, IWMDL, and approved AKA, as applicable, to identify the manner in which oxidizing chemicals were managed.
- 4.16.3 Review container paperwork, AKA, RTR, and other sources (as necessary) for individual containers within the waste stream to identify those containers which could potentially contain oxidizing chemicals.
- 4.16.4 **IF** any specific containers in the waste stream do not have the potential to contain oxidizing chemicals,
THEN prepare a memorandum stating that those containers are exempt from the requirements of the BoK, including a list of the exempt containers.
- 4.16.5 **IF** any specific containers in the waste stream do have the potential to contain oxidizing chemicals,
THEN compare the oxidizing chemicals included in Attachment 1 of the CCEM to the list of oxidizing chemicals that are bounded by the criteria set forth in the BoK documents.
- 4.16.6 **IF** any of the oxidizing chemicals included in Attachment 1 of the CCEM are not bounded by the BoK criteria,
THEN provide an explanation of either the acceptance (typically a statement of equivalency) or rejection of these containers.

- 4.16.7 Evaluate the matrix (within the individual containers) which potentially contains the oxidizing chemicals against the criteria established in the BoK documents.
- 4.16.8 Document the results of the evaluation in a memorandum to the SPM, **AND** transmit the draft BoK evaluation to Document Services to initiate the review process in accordance with CCP-QP-010.
- 4.16.9 **WHEN** concurrence is received in accordance with CCP-QP-010, **THEN** sign, **AND** submit the approved BoK (and if applicable the associated Attachment 3) to CCP Records.
- 4.16.10 Update the AKTSS identifying which containers within the waste stream are covered by the approved BoK.
- [A] Those containers that meet the BoK criteria will be marked "Y". Those containers found to fail one or more BoK criteria will be marked "N".
- 4.16.11 **IF** a container(s) was not included in the initial BoK evaluation memorandum, **THEN** document the evaluation of the container(s) in an Addendum to the BoK evaluation or exemption memorandum by following the applicable steps of Section 4.16.

SPM

- 4.16.12 Place the containers that fail the BoK criteria and are listed on an Attachment 2 of the BoK on an NCR.
- 4.16.13 Notify the Host site of the results of the BoK evaluation.

5.0 RECORDS

5.1 Records generated during the performance of this procedure in step 5.1.1 are maintained as QA records. The following records will be maintained in accordance with CCP-QP-008. The records are the following:

5.1.1 QA/Lifetime Records

- [A] Acceptable Knowledge Documentation Checklist (Attachment 1)
- [B] Records of Communication (Attachment 2), submitted to records as a CCP AK source document attached to an Acceptable Knowledge Source Document Summary form
- [C] Acceptable Knowledge Source Document Summary forms, (Attachment 3) and when applicable attached CCP generated source documents
- [D] Acceptable Knowledge Information List (Attachment 4)
- [E] Hazardous Constituents forms (Attachment 5)
- [F] Waste Form, Waste Material Parameters, Prohibited Items, and Packaging forms (Attachment 6)
 - Waste Material Parameter Evaluation Memorandum
- [G] Radionuclides forms (Attachment 7)
 - NDA Memorandum
- [H] Waste Containers List (Attachment 8)
- [I] Interface Waste Management Documents List (Attachment 9)
 - SMR Quarterly Review Notification
- [J] Acceptable Knowledge Re-evaluation Checklist (Attachment 10)
- [K] Acceptable Knowledge Source Document Discrepancy Resolution (Attachment 11), submitted to records as a CCP AK source document attached to an Acceptable Knowledge Source Document Summary form

- [L] CCP Waste Stream Characterization Checklist (Attachment 13)
- [M] CCP Acceptable Knowledge Accuracy Memorandum
 - CCP Acceptable Knowledge Accuracy Report (Attachment 14)
 - Correlation of Container Numbers to Batch Data Report Numbers
- [N] CCP TRU Waste Correlation and Surrogate Summary Form (Attachment 15)
- [O] AKSRs (see Attachment 12)
- [P] AK Sufficiency Determination Request
- [Q] SPM Notifications (emails, letters, memorandums, etc.), submitted to records as a CCP AK source document attached to an Acceptable Knowledge Source Document Summary form
- [R] Waste Stream Container Evaluation Memorandum, submitted to records as a CCP AK source document attached to an Acceptable Knowledge Source Document Summary form
- [S] Acceptable Knowledge Assessment Memorandum and Addendums, submitted to records as a CCP AK source document attached to an Acceptable Knowledge Source Document Summary form
- [T] AKTSS (submitted to CCP Records after notification by the site SPM that waste shipments to WIPP have been completed)
- [U] Acceptable Knowledge Briefings generated in CCP-QP-002
- [V] Chemical Compatibility Evaluation Memorandum and, if applicable, Addendums, submitted to records as a CCP AK source document attached to an Acceptable Knowledge Source Document Summary form
- [W] Basis of Knowledge Evaluation Memorandum and Addendums

5.1.2 Non-QA

[A] Historical Source Documents

Attachment 1 – Acceptable Knowledge Documentation Checklist - Example Form

Site(s): _____

Waste Stream Description: _____

Waste Stream Number(s): _____			
Acceptable Knowledge Information	AK#	Compiled? (Y/N)	Source Document Tracking Number
Mandatory generator site TRU waste program (PR) information:			
Map of the generator site that identifies TRU waste generation, treatment, and storage areas.	PR1		
Generator site mission descriptions related to TRU waste generation and management identifying defense and non-defense operations.	PR2		
Overview of the generator site and generator site TRU waste management operations in the context of the facility's mission.	PR3		
Descriptions of historical and current TRU waste generating operations, including how waste is tracked and managed and/or how operations relative to isotopic composition were tracked.	PR4		
Waste identification and/or categorization schemes and terminology used at the generator site and codes correlating to specific isotopic distributions.	PR5		
Types and quantities of TRU waste generated, including historical generation through future projections.	PR6		
Correlation of waste streams from the same building and process, as appropriate, and correlation between waste streams with regard to time of generation, waste generating processes, and site-specific facilities.	PR7		
Certification procedures for waste to be sent to the WIPP facility (i.e., procedures to ensure that prohibited items are documented and managed in accordance with site-specific certification plans).	PR8		
Mandatory generator site TRU waste stream (WS)-specific information:			
Waste stream description	WS1		
Area(s) and building(s) from which the waste stream was or is generated.	WS2		
Waste stream volume and time period of generation.	WS3		
Waste generating process described for each building including processes associated with U134 waste generation, if applicable.	WS4		

Attachment 1 – Acceptable Knowledge Documentation Checklist - Example Form
(Continued)

Waste Stream Number(s): _____			
Acceptable Knowledge Information	AK#	Compiled? (Y/N)	Source Document Tracking Number
Process flow diagrams. For research/development, analytical laboratory waste, or other similar processes where process flow diagrams cannot be created, a description of the waste generating processes, rather than a formal process flow diagram, may be included, if justified.	WS5		
Summary of basis and rationale for delineating each waste stream including justification for combining waste historically managed separately as TRU mixed and TRU non-mixed waste streams into a single waste stream that is traceable to referenced documents.	WS6		
Generator site mission descriptions related to TRU waste generation and management identifying defense and non-defense operations.	WS7		
Material inputs or other information that identified the chemical contents of the waste and the stream. Includes events or processes that may have modified the chemical properties of the waste stream after generation.	WS8		
Physical waste form (e.g., glovebox materials and chemicals handled during glovebox operations, if applicable). Assigned Summary Category Group, Waste Matrix Code and materials inputs, including waste material parameters present in the waste stream. Includes events or processes that may have modified the physical properties of the waste stream after generation.	WS9		
Waste identifiers assigned by the generator site (e.g., item description code, packaging identification numbers).	WS10		
Specification of the isotopic ratios for the ten WIPP-tracked radionuclides and all radionuclides other than the ten WIPP-tracked radionuclides that contribute to 95 percent of the radioactive hazard for a payload container. Chemical and physical information that could affect the waste isotopic distribution, as well as calculations used to derive the isotopic distribution.	WS11		

Attachment 1 – Acceptable Knowledge Documentation Checklist - Example Form
(Continued)

Waste Stream Number(s): _____			
Acceptable Knowledge Information	AK#	Compiled? (Y/N)	Source Document Tracking Number
State and EPA hazardous waste constituents in the waste stream and state codes/numbers and EPA Hazardous Waste Numbers assigned, including documentation regarding how the site has historically managed the waste, including the historical regulatory status of the waste (i.e., TRU mixed versus TRU non-mixed waste).	WS12		
Additional acceptable knowledge documentation (briefly describe):			
Process design documents (e.g., Title II Design).	S1		
Standard operating procedures that may include a list of raw materials or reagents, a description of the process or experiment generating the waste, and a description of the waste generated and how the wastes are managed at the point of generation.	S2		
Preliminary and Final Safety Analysis Reports and technical safety requirements.	S3		
Waste Packaging records.	S4		
Test plans or research project reports that describe the reagents, radionuclides, and other raw materials used in experiments.	S5		
Site databases (e.g., chemical inventory database for SARA Title III requirements, SNM or nuclear material databases).	S6		
Information from site personnel (e.g., documented interviews).	S7		
Standard industry documents (e.g., industry specification sheets, handbooks, reference materials, or other vendor information).	S8		
Analytical data relevant to the waste stream, including results from fingerprint analyses, spot checks, routine verification sampling or other processes that collected information pertinent to the waste stream. This may include new information (or previously collected data) which augments required information (e.g., visual examination not performed in compliance with CCP-PO-001, radiography screening for prohibited items).	S9		
Material Safety Data Sheets, product labels, or other product information.	S10		
Laboratory notebooks that detail the research processes and raw materials used in an experiment.	S11		
Comparable or surrogate sampling and analysis data.	S12		
Other (describe).	S13		

Attachment 1 – Acceptable Knowledge Documentation Checklist - Example Form
(Continued)

Waste Stream Number(s): _____			
Acceptable Knowledge Information	AK#	Compiled? (Y/N)	Source Document Tracking Number
Safeguards and security, Materials Control and Accountability, and other nuclear material control system data Reports of nuclear safety or criticality accidents involving special nuclear materials (SNM).	S14		
NMMA logs or inventory records or waste disposal logs providing SNM or nuclear material information.	S15		
Packaging	S16		
OSR-Specific Information (Applies only to sealed sources)			
Evidence that the waste meets the definition of a sealed source reference 10CFR30.4 and 10CFR835.2.	O1		
Documentation that sources are Special Form, such as certificates DOT Special Form Class 7 per 49CFR173.403.	O2		
Contamination survey results for each source reference requirements of 10CFR34.27.	O3		
Source manufacturer's sales catalogues.	O4		
Source purchase records.	O5		
Manufacturer fabrication documents.	O6		
Manufacturer drawings.	O7		
Fuel capsule assembly reports.	O8		
Manufacturer's operational procedures for meeting cleanliness requirements.	O9		
Manufacturer's shipping documents or records.	O10		
Manufacturer welding records.	O11		
TRU batch material records.	O12		
National database radiological information (e.g., NMMSS, NRC Device Registry).	O13		
NRC or agreement state regulatory licensing information.	O14		
Documentation of physical markings on the outer source casing or labels attached to devices housing sources.	O15		
Unique physical description attributed to specific source models.	O16		

Attachment 2 – Record of Communication – Example Form

Corresponding Source Document Tracking No:		
Interviewer:	Date:	Time:
Interviewee:	Group/Organization: Job Title:	Phone: E-mail:
Subject:		
Summary:		
Data Limitations:		

Acceptable Knowledge Expert: _____ / _____ Date: _____
Print Sign

Attachment 3 – Acceptable Knowledge Source Document Summary – Example Form

Site(s):		Source Document Tracking Number:	
Waste Stream Number: (Applicable only when site library is not in use)			
Acceptable Knowledge Documentation Type: <input type="checkbox"/> TRU Waste Management Program Information <input type="checkbox"/> Waste Stream-Specific Information <input type="checkbox"/> Additional Information		Category: <input type="checkbox"/> AKA – Acceptable Knowledge Assessment <input type="checkbox"/> C – Correspondence <input type="checkbox"/> CCE – Chemical Compatibility Evaluation <input type="checkbox"/> D - Documents <input type="checkbox"/> M - Miscellaneous <input type="checkbox"/> P - Procedure <input type="checkbox"/> DR - Discrepancy Resolution <input type="checkbox"/> U - Unpublished Documents	
Title or Description of Source Document ^a :			
Source Document Reference Information (author(s), document and revision number, date, publisher):			
AK # ^b	Source Doc. Page # ^b	AK Information Summary	
Source Document Data Limitations (if any):			
Acceptable Knowledge Expert:			
Print		/	Date: _____
		Sign	
^a Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc) ^b For microfilm or microfiche, identify box, tape, reel number, and location.			

Attachment 4 – Acceptable Knowledge Information List – Example Form

Site(s): _____

Waste Stream Number(s): _____

Waste Stream Description: _____

Source Document Tracking Number	Title or Description	Author	Document #	Document Revision # and Date

Acceptable Knowledge Expert: _____ / _____ Date: _____
Print Sign

Attachment 5 – Hazardous Constituents – Example Form

Site(s): _____

Waste Stream Number: _____

Waste Stream Description: _____

Compound	Suspected Present? (Y/N)	Used as a solvent? ^a (Y/N/NA)	TC constituent concentration less than regulatory level? ^a (Y/N/NA)	TC Hazardous Waste Number ^a	F-Listed Hazardous Waste Number ^a	U- or P- Listed Hazardous Waste Number ^a	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number/ Code ^b
Toxicity Characteristic Metal Compounds (40 CFR Part 261)								
Arsenic		N/A		D004	N/A	N/A		
Barium		N/A		D005	N/A	N/A		
Cadmium		N/A		D006	N/A	N/A		
Chromium		N/A		D007	N/A	N/A		
Lead		N/A		D008	N/A	N/A		
Mercury		N/A		D009	N/A	U151		
Selenium		N/A		D010	N/A	N/A		
Silver		N/A		D011	N/A	N/A		
Volatile Organic Compounds (40 CFR Part 261)								
1,1,1-Trichloroethane			N/A	N/A	F001/F002	U226		
1,1,2,2-Tetrachloroethane		N/A	N/A	N/A	N/A	U209		
1,1,2-Trichloro-1,2,2-trifluoroethane			N/A	N/A	F001/F002	N/A		
1,1,2-Trichloroethane			N/A	N/A	F002	U227 ^c		
1,1-Dichloroethylene		N/A		D029	N/A	U078		
1,2-Dichlorobenzene			N/A	N/A	F002	U070		
1,2-Dichloroethane		N/A		D028	N/A	U077 ^c		
1,4-Dichlorobenzene		N/A		D027	N/A	U072		
1, 4-Dioxane		N/A	N/A	N/A	N/A	U108		
2-Ethoxyethanol			N/A	N/A	F005	U359 ^c		
2-Nitropropane			N/A	N/A	F005	U171 ^c		
Acetone			N/A	N/A	F003	U002		

Attachment 5 – Hazardous Constituents – Example Form (Continued)

Compound	Suspected Present? (Y/N)	Used as a solvent? ^a (Y/N/NA)	TC constituent concentration less than regulatory level? ^a (Y/N/NA)	TC Hazardous Waste Number ^a	F-Listed Hazardous Waste Number ^a	U- or P- Listed Hazardous Waste Number ^a	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number/ Code ^b
Volatile Organic Compounds (continued)								
Acetonitrile		N/A	N/A	N/A	N/A	U003		
Benzene				D018	F005	U019		
Butanol (n-Butyl alcohol)			N/A	N/A	F003	U031 ^c		
Carbon disulfide			N/A	N/A	F005	P022 ^c		
Carbon tetrachloride				D019	F001	U211 ^c		
Chlorobenzene				D021	F002	U037		
Chloroform		N/A		D022	N/A	U044		
Cyclohexanone			N/A	N/A	F003	U057 ^c		
Ethyl acetate			N/A	N/A	F003	U112 ^c		
Ethyl benzene			N/A	N/A	F003	N/A		
Ethyl ether			N/A	N/A	F003	U117 ^c		
Formaldehyde		N/A	N/A	N/A	N/A	U122		
Hydrazine		N/A	N/A	N/A	N/A	U133		
Isobutanol			N/A	N/A	F005	U140 ^c		
Methanol			N/A	N/A	F003	U154		
Methyl ethyl ketone				D035	F005	U159		
Methyl isobutyl ketone			N/A	N/A	F003	U161 ^c		
Methylene chloride			N/A	N/A	F001/F002	U080 ^c		
Pyridine				D038	F005	U196		
Tetrachloroethylene				D039	F001/F002	U210		
Toluene			N/A	N/A	F005	U220		
trans-1,2-Dichloroethylene		N/A	N/A	N/A	N/A	U079		
Trichloroethylene				D040	F001/F002	U228		
Trichlorofluoromethane			N/A	N/A	F001/F002	U121 ^c		
Vinyl Chloride		N/A		D043	N/A	U043		
Xylenes			N/A	N/A	F003	U239		

Attachment 5 – Hazardous Constituents – Example Form (Continued)

Compound	Suspected Present? (Y/N)	Used as a solvent? ^a (Y/N/NA)	TC constituent concentration less than regulatory level? ^a (Y/N/NA)	TC Hazardous Waste Number ^a	F-Listed Hazardous Waste Number ^a	U- or P- Listed Hazardous Waste Number ^a	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number/ Code ^b
Semivolatile Organic Compound (40 CFR Part 261)								
2,4-Dinitrotoluene		N/A		D030	N/A	U105		
Cresols				D026	F004	U052		
Dimethyl sulfate		N/A	N/A	N/A	N/A	U103		
Hexachlorobenzene		N/A		D032	N/A	U127 ^c		
Hexachlorobutadiene		N/A		D033	N/A	U128 ^c		
Hexachloroethane		N/A		D034	N/A	U131 ^c		
Nitrobenzene				D036	F004	U169 ^c		
Pentachlorophenol		N/A		D037	F027 ^c	N/A		

Attachment 5 – Hazardous Constituents – Example Form (Continued)

Compound	Suspected Present? (Y/N)	Used as a solvent? ^a (Y/N/NA)	TC constituent concentration less than regulatory level? ^a (Y/N/NA)	TC Hazardous Waste Number ^a	F-Listed Hazardous Waste Number ^a	U- or P- Listed Hazardous Waste Number ^a	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number/ Code ^b
Other Constituents								
Wastewater treatment sludges from electroplating operations		N/A	N/A	N/A	F006	N/A		
Spent cyanide plating bath solutions from electroplating operations		N/A	N/A	N/A	F007	N/A		
Spent cyanides stripping and cleaning bath solutions from electroplating operations		N/A	N/A	N/A	F009	N/A		
Beryllium powder		N/A	N/A	N/A	N/A	P015		
Cyanide (soluble cyanide salts)		N/A	N/A	N/A	N/A	P030		
Potassium cyanide		N/A	N/A	N/A	N/A	P098		
Potassium silver cyanide		N/A	N/A	N/A	N/A	P099		
Sodium cyanide		N/A	N/A	N/A	N/A	P106		
Vanadium pentoxide		N/A	N/A	N/A	N/A	P120		
Hydrofluoric acid		N/A	N/A	N/A	N/A	U134		
Total PCB Concentration ^d		N/A	N/A	N/A	N/A	N/A	N/A	
Additional EPA Hazardous Constituents (List)								
Additional State Hazardous Constituents ^b (List) ^e								
Potentially Flammable VOCs (List) ^{e,f}		N/A						

Attachment 6 – Waste Form, Waste Material Parameters, Prohibited Items, and Packaging – Example Form

Site(s): _____

Waste Stream Description: _____

Container ID Numbers: _____

Waste Stream Number:	
Physical Waste Form (e.g., debris, solidified waste)	
Summary Category Group ^a	
Waste Matrix Code Group ^a	
Waste Matrix Code ^b	
Waste Material Parameter Weights ^c	Estimated Waste Stream Weight Percent Average (attach evaluation justifying percentages)
Iron-based metals/alloys	
Aluminum-based metals/alloys	
Other metals	
Other inorganic materials	
Cellulosics	
Rubber	
Plastics (waste materials)	
Organic matrix	
Inorganic matrix	
Soils/Gravels	
Packaging materials	Present (Y/N)?
Steel	
Plastics	
Prohibited Wastes ^{d, e, f, g}	Present (Y/N)?
Observable liquid shall be no more than 1 percent by volume of the outermost container at the time of RTR or VE. Observable liquid shall be no more than 60 milliliters or 3 percent by volume, whichever is greater, in an internal container. Observable liquid shall not be present in a container with EPA HWN U134 assigned.	
Non-radionuclide pyrophoric materials, such as elemental potassium	

Attachment 6 – Waste Form, Waste Material Parameters, Prohibited Items, and Packaging – Example Form (Continued)

Radioactive pyrophoric materials ≥1 percent by weight, and not generally dispersed in the waste in accordance with best management practices.	
Sealed containers > 4 liters except for metal containers packaging solid inorganic waste ^g .	
Hazardous waste not occurring as co-contaminants with TRU mixed waste (non-mixed hazardous waste)	

Waste Stream Number: _____

Explosives	
Compressed gases	
Residual hydrofluoric acid (if U134 assigned to stream)	
PCBs not authorized under the WIPP PCB waste disposal authorization such as residual PCB liquids ^j	
Ignitables (EPA Hazardous Waste Number D001)	
Corrosives (EPA Hazardous Waste Number D002)	
Reactives (EPA Hazardous Waste Number D003)	
Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, or other wastes ^h	
Spent Nuclear fuel or high-level waste ⁱ	
Any unvented plastic bags > 4 liters that have been heat-sealed unless surface area of unvented heat-sealed bags is greater than 390 square inches ^g .	
Additional Information (if available)	
Packaging	
Waste container type?	
Liner type?	
Is liner punctured?	
Is filter vent installed?	
Maximum number of confinement layers	

- a. Source: *CCP Transuranic Waste Characterization Quality Assurance Project Plan (CCP-PO-001)* Introduction.
- b. Source: *Transuranic Waste Baseline Inventory Report (DOE/CAO-95-1121)* or *DOE Waste Treatability Group Guidance (DOE/LLW-217)*. Note: the Waste Matrix Code should not be assigned at the Summary Category Group level.
- c. Source: CCP-PO-001 - Table C3-1. Attach the Waste Material Parameter Evaluation Memorandum used to estimate values included in this Table.
- d. Source: CCP-PO-001 - Section C-1c.
- e. Source: *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WAC)(DOE/WIPP-02-3122)*, Section 3
- f. Source: *TRUPACT-II Content Codes (TRUCON) (DOE/WIPP-89-004)*
- g. Source: *TRUPACT-II Authorized Methods for Payload Control (TRAMPAC)*, Nuclear Waste Partnership, LLC
- h. This waste has been approved for disposal at the WIPP by the Permittee as documented by Appendix C1 of the WIPP RCRA Part B Permit Application and the Permittee's approval and assignment of the applicable TRUCON Codes for this waste stream.
- i. Source: *Nuclear Waste Policy Act of 1982 (42 U.S.C. 10101)*
- j. Source: *Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution and Commerce, and Use Prohibitions (40 CFR Part 761)*

Acceptable Knowledge Expert: _____ / _____
Print Sign

Date: _____

Attachment 7 – Radionuclides – Example Form

*Attach current Radiological Characterization or NDA Memorandum

Site(s): _____

Waste Stream Number(s): _____

Waste Stream Description: _____

Radionuclide	Wt % ^b	Ci ^b	Suspected Present (Yes/No)
From CCP-PO-002			
Sr-90			
Cs-137			
U-233			
U-234			
U-238			
Pu-238			
Pu-239			
Pu-240			
Pu-242			
Am-241			
Other Radionuclides (List)			
^a Source: <i>Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WAC)</i> (DOE/WIPP-02-3122), Section 3 ^b If available			

Acceptable Knowledge Expert: _____ / _____ Date: _____
Print Sign

Attachment 10 – Acceptable Knowledge Re-evaluation Checklist – Example Form

Site(s): _____
 Waste Stream Number(s): _____
 Waste Stream Description: _____
 NCR numbers(s) if applicable: _____
 Inconsistency between waste characterization and acceptable knowledge information (describe): _____

Requirements	Completed? Yes/No	Additional Documentation ^a
Review existing information based on the container identification number and document all differences in EPA Hazardous Waste Number assignments. ^c		
If differences exist in the EPA Hazardous Waste Numbers that were assigned, reassess and document all required AK information associated with the new designation. ^{b,c}		
Reassess and document all testing data associated with the waste. ^c		
Verify and document that the reassigned Waste Matrix Code was generated within the specified time period, area and buildings, waste generating process, and that the process material inputs are consistent with the waste material parameters identified during RTR or VE.		
If NDA results indicate the presence of additional or different radionuclides in the waste, reassess and document AK and characterization information associated with the new information. ^c		
Record all changes to the AK records on the appropriate Attachments and resubmit to the CCP Facility Records Custodian.		
If unresolved discrepancies exist in the AK information for the reassigned Waste Matrix Code, EPA Hazardous Waste Numbers, or radionuclides, document the segregation of this container, and define the actions necessary to fully characterize the waste.		

- a. Cite the source document, nonconformance report number, attachment, or other documentation used to support a change or no change.
- b. If a toxicity characteristic contaminant is identified, it is not included as a listed waste, and analytical data regarding the concentration are not available, the corresponding EPA Hazardous Waste Number is applied.
- c. Not applicable for LANL sealed source waste stream.

Acceptable Knowledge Expert:

 Print Sign

Date: _____

Site Project Manager:

 Print Sign

Date: _____

Attachment 12 – Example Form and Content Guide for AK Summary Reports

CCP-AK-SITE-XXX

**Central Characterization Program
Acceptable Knowledge Summary Report
For**

**NAME OF THE SITE
NAME OF THE PROCESS**

**REVISION NUMBER
DATE**

Printed Name

APPROVED FOR USE

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

TABLE OF CONTENTS
LIST OF TABLES
LIST OF FIGURES
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LIST OF ACRONYMS AND ABBREVIATIONS

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

1.0 EXECUTIVE SUMMARY

This Acceptable Knowledge (AK) Summary Report has been prepared for the Central Characterization Program (CCP) for Contact-Handled (CH) (Remote-Handled [RH]) Transuranic (TRU) waste generated and managed by *(NAME THE SITE[s])*. The waste described in this report was generated by *(Building/Facility)*, (and the waste will be repackaged in *[Building/Facility]*). This report was prepared in accordance with CCP-TP-005, *CCP Acceptable Knowledge Documentation* (Reference 1), to implement the AK requirements of **(RH only -DOE/WIPP-02-3214, Remote-Handled TRU Waste Characterization Program Implementation Plan [WCPIP] [Reference __]); Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Waste Analysis Plan (WIPP-WAP) (Reference __); and DOE/WIPP-02-3122, Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WIPP-WAC) (References __)**.

The WIPP WAP AK requirements are addressed in CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan* (Reference __). The WIPP-WAC AK requirements are addressed in CCP-PO-002, *CCP Transuranic Waste Certification Plan* (Reference __). Additionally, this report provides the AK information required by **(CH only - CCP-PO-003, CCP Transuranic Authorized Methods for Payload Control [CCP CH-TRAMPAC] [Reference __]) OR (RH only - CCP-PO-505, CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control [CCP RH-TRAMPAC] [Reference __])**.

The CCP is tasked with certification of TRU waste for transportation to and disposal at the Waste Isolation Pilot Plant (WIPP). This report was developed in accordance with CCP-TP-005 (Reference 1) and describes how AK is collected, reviewed, and managed by the CCP. The CCP is responsible for collection, review, and management of AK documentation in accordance CCP-TP-005 and reviews and approves this AK Summary Report. CCP maintains responsibility for this AK Summary Report and all CCP-TP-005 generated forms and records as quality assurance (QA) records. In addition, CCP maintains a copy of the “historical source documents” as non-QA records.

(Brief description of the waste stream, facility[ies], and generating process/activity).

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

This AK Summary Report, along with referenced supporting documents, provides a defensible and auditable record of AK for designated waste streams from the *NAME THE (FACILITY/PROCESS/ACTIVITY)*. The references and AK source documents used to prepare this report are listed in Sections 7.0 (8.0 for RH) and 8.0 (9.0 for RH). The source documents cited throughout this report are identified by alphanumeric designations corresponding to a unique Source Document Tracking Number (i.e., C001, D001, DR001, M001, P001, and U001 (as applicable to match Section 3).

This AK report includes information relating to the facility's history, mission, process operations, waste identification, characterization, and waste management practices. Information contained in this report was obtained from numerous sources, including facility safety basis documentation, historical document archives, generator and storage facility waste records and documents, and interviews with cognizant personnel.

This report and supporting source documentation provide the mandatory waste program and waste stream-specific information required by the WIPP-WAP (Reference __). **(RH only** - This report also compiles data relevant to the applicable U.S. Environmental Protection Agency [EPA] requirements and presents the documentation necessary to satisfy each WCPIP data quality objective [DQO] and quality assurance objective [QAO] for RH TRU waste streams [Reference __]).

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

2.0 WASTE STREAM IDENTIFICATION SUMMARY

Site Where TRU Waste Was Generated and Stored: *SITE ADDRESS and EPA ID*

Facility Where TRU Waste Was Generated: *NAME OF FACILITY*

Facility Mission: *DESCRIBE THE MISSION AND HOW THE WASTE WAS GENERATED*

2.1 Waste Stream #1 (Identifier and Name)

2.2 Waste Stream #2 (Identifier and Name) (repeat following for each waste stream)

Summary Category Group: (Assign per Section 4.4.13)

Waste Matrix Code Group: (Assign per Section 4.4.16)

Waste Matrix Code: (Assign per section 4.4.15)

TRUPACT-II Content Code (TRUCON): (Obtain TRUCON Code[s] from SPM)

TRUPACT-III Content Code (TRUCON): (Obtain TRUCON Code[s] from SPM)

Waste Stream Description:

As described in Section 5.4.1, waste stream (number) is comprised primarily of (describe type of waste).

(Describe any other specific waste items in the waste stream, equipment, items not included above, secondary waste/chemicals introduced during packaging/repackaging.)

This waste stream was determined to contain Resource Conservation and Recovery Act (RCRA)-regulated constituents and is assigned the following EPA hazardous waste numbers (HWNs): (list HWNs) (Refer to Section 5.4.3).

(Identify the two predominant radionuclides by mass and activity for waste characterized using NDA techniques) (Refer to Section 5.4.2)

(Identify potential prohibited items and characterization method[s] selected to ensure the absence of these items in the final packaging) (Refer to Section 5.4.5).

(Describe waste packaging/repackaging and final waste container configuration) (Refer to Section 5.5).

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

For CH - Waste Stream (number) meets the WIPP-WAP waste stream definition. The waste stream consists of waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity.

For RH - Waste Stream (number) meets the WIPP-WAP and the WCPIP waste stream definitions. The waste is similar in material, physical form, hazardous constituents, and radiological properties and generated from a single process or activity.

3.0 ACCEPTABLE KNOWLEDGE DATA and INFORMATION

TRU waste destined for disposal at the WIPP must be characterized prior to shipment. Development of knowledge of the waste materials and processes that generate and control the waste is required to provide a clear and convincing argument about the characteristics of each waste stream. The AK characterization documented herein complies with the requirements of the WIPP-WAP (Reference __) (**RH only** - and the WCPIP [Reference __]) and was developed in accordance with of CCP-PO-001, (Reference __), and CCP-TP-005 (Reference 1).

RH only - The WCPIP identifies waste characterization requirements and methods to satisfy requirements in:

- 40 Code of Federal Regulations (CFR) Part 191, *Environmental Radiation Protection Standards for the Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes* (Reference __).
- 40 CFR Part 194, *Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR 191 Disposal Regulations* (Reference __).
- *Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations: Certification Decision* (Reference __).

Public Law 102-579, *The WIPP Land Withdrawal Act (LWA)* (Reference __).

[Include a summary of the types and sources of AK information used].

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

The references and AK sources used to prepare this report are listed in Sections 7.0 (8.0 for RH) and 8.0 (9.0 for RH), respectively. The AK sources referenced within this report by alphanumeric designations (e.g., C001, D001, DR001, M001, P001, and U001) correspond to the Source Document Tracking Number using the following convention: (include as applicable)

- AKA – Acceptable Knowledge Assessments
- BoK – Basis of Knowledge
- C – Correspondence
- CCE – Chemical Compatibility Evaluation
- D – Documents
- DR – Discrepancy resolution
- M – Miscellaneous
- P – Procedures and Published documents
- TEC – Technical Guidance Document
- U – Unpublished documents

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

4.0 REQUIRED PROGRAM INFORMATION

This section presents the mandatory TRU waste program information required by the WIPP-WAP and the WCPIP for waste stream (number)(References __ and __). This section provides a description of the facility and operations associated with the generation of (facility/building/operation) TRU waste. Included is a description of the (facility/building/operation), summary of the mission, defense determination, and descriptions of (other operations including D&D, maintenance, repackaging, etc.) operations associated with the generation of waste stream (number) are provided.

- 4.1 Facility Location
- 4.2 Facility Description
- 4.3 Facility Mission
- 4.4 Defense Waste Assessment
- 4.5 High-Level Waste and Spent Nuclear Fuel Assessment
- 4.6 TRU Waste Management
 - 4.6.1 Types and Quantity of TRU Waste Generated
 - 4.6.2 Correlation of Waste Streams Generated from the Same Building and Process
 - 4.6.3 Waste Stream Identification, Categorization, and Delineation
- 4.7 Description of Waste Generating Process
- 4.8 Waste Certification Procedures

5.0 REQUIRED WASTE STREAM INFORMATION

(Repeat the following information in additional waste stream sections, as needed)

This section presents the mandatory TRU waste stream specific information required by the WIPP-WAP (**RH only** - and the WCPIP) for waste stream (number) (References __ and __). The area of generation, waste stream volume, period of generation, prohibited items, waste packaging, and the physical, chemical, and radiological composition of the waste stream are described.

- 5.1 Area and Building of Generation
- 5.2 Waste Stream Volume and Period of Generation
- 5.3 Waste Generating Activities

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

- 5.4 Type of Waste Generated
 - 5.4.1 Materials Related to Physical Form
 - 5.4.1.1 Waste Matrix Code
 - 5.4.1.2 Waste Material Parameters
 - 5.4.2 Radiological Characterization
 - 5.4.3 Chemical Content Identification - Hazardous Constituents
 - 5.4.3.1 F-Listed Constituents
 - 5.4.3.2 Toxicity Characteristic Constituents
 - 5.4.3.3 U- and P-Listed Constituents
 - 5.4.3.4 K-Listed Constituents
 - 5.4.3.5 Ignitables, Reactives, and Corrosives
 - 5.4.3.6 State Hazardous Waste Code or Number Assignment (if applicable)
 - 5.4.4 Polychlorinated Biphenyls
 - 5.4.5 Prohibited Items
- 5.5 Waste Packaging

6.0 QUALIFICATION OF AK – (RH Only)

As stated in CCP-PO-002, *CCP Waste Certification Plan*, (Reference ___), this AK Summary Report provides a description of the characterization of this RH waste stream. CCP-AK-ORNL-XXX, *CCP RH TRU Waste Certification Plan for 40 CFR 194 Compliance and Confirmation Test Plan for Waste Stream (number)* (Reference ___), describes how each DQO and QAO is met along with the rationale for selection of the AK qualification methods used. As required by the WCPIP (Reference ___), the description of waste stream (number) is provided in Sections 4.0 and 5.0. The description of the confirmatory testing process, the percentage of containers that are subjected to the process, a discussion of why the process is considered representative of the waste stream, and quantitative acceptance criteria is presented in CCP-AK-ORNL-XXX (Reference ___).

The CCP intends to use a combination of methods to qualify the AK information associated with the [site/facility/building] waste stream because this will make the best use of the information available (such as existing sampling and analytical data). Table XX, Waste Stream (number) Determination Summary, lists the DQOs to be addressed using AK associated with waste stream [number] relating to the defense waste, radiological, and physical waste stream determinations. The location (page number, section, etc.) of the relevant information is identified in the AK source identified in Table XX.

Table XX. Waste Stream (number) DQO Determination Summary
(Provide a summary of the AK and identify the AK sources and the characterization method for each WCPIP DQO).

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

6.0 CONTAINER-SPECIFIC INFORMATION (**Section 7.0 for RH**)

(Provide a list of the container-specific documentation generated by the procedures reviewed during the AKA performed in Section 4.13 that will be reviewed and maintained in the AK Record as containers are added to the waste stream).

In accordance with procedure CCP-TP-005 (Reference 1), a CCP Waste Containers List (Attachment 8 of the procedure) is completed and maintained as a quality record for waste tracking purposes. Information tracked includes container identification number, waste stream number, and the closure date for each container.

Attachment 12 – Example Form and Content Guide for AK Summary Reports
(Continued)

7.0 REFERENCE INFORMATION [Section 8.0 for RH]

1. CCP-TP-005, *CCP Acceptable Knowledge Documentation*, Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.
2. DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*, Carlsbad, New Mexico, U.S. DOE Carlsbad Field Office
3. *Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Waste Analysis Plan*, New Mexico Environment Department, Santa Fe, New Mexico
4. DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria For the Waste Isolation Pilot Plant*, Carlsbad, New Mexico, U.S. DOE Carlsbad Field Office
5. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*, Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.
6. CCP-PO-002, *CCP Transuranic Waste Certification Plan*, Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.
7. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*, Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.
8. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*, Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.
10. DOE/LLW-217, *DOE Waste Treatability Group Guidance*, Idaho Falls, Idaho, INEL-Lockheed Idaho Technologies
11. 40 CFR Part 191, *Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes*, Washington, D.C., U.S. EPA
12. 40 CFR Part 194, *Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations*, Washington, D.C., U.S. EPA

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

13. *Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations: Certification Decision*, Washington, D.C., U.S. EPA
14. Public Law 102-579, *The Waste Isolation Pilot Plant Land Withdrawal Act*, October 30, 1992 as amended by Public Law 104-201
15. 42 U.S.C 10101, *Nuclear Waste Policy Act of 1982*, U.S. Congress

Attachment 12 – Example Form and Content Guide for AK Summary Reports
(Continued)

8.0 AK SOURCE DOCUMENTS [Section 9.0 for RH]

Document Number	Title

[INSERT ALL REFERENCED FIGURES]

Attachment 13 – CCP Waste Stream Characterization Checklist – Example Form

CCP Waste Stream Characterization Checklist

Site(s):

Waste Stream Number: _____ Lot # (if applicable) _____

Waste Stream Description: _____

Acceptable Knowledge Information or other data points ^a	Characterization Method(s)	Acceptable Knowledge Re-evaluation Required? Yes/No ^{b?}	Comments ^c
Physical waste form/description			
Waste material parameters weights			
Waste percent volume consistent with nondestructive examination or visual examination data and audio/video tapes or equivalent media			
Summary Category Group assignment			
Waste Matrix Code assignment			
Absence of prohibited items			
EPA Hazardous Waste Number assignment ^d			
Toxicity characteristic code assignment			
VOCs from packaging materials or radiolysis present			
State Hazardous Waste Number assignment			
Radionuclides present			
Other radiological parameters: (specify)			

Attachment 13 – CCP Waste Stream Characterization Checklist – Example Form (Continued)

Page 2 of 2

CCP Waste Stream Characterization Checklist

Additional Comments: _____

- a. Identified in the AK Summary Report or included in the in-process record documentation (e.g., BDR's)
- b. If "yes," AKE completes an *Acceptable Knowledge Re-evaluation Checklist*.
- c. Identify the source of the waste testing information (e.g., VE or RTR batch data reports). Note if an AK Sufficiency Determination has been approved to meet any characterization parameter.
- d. Ensure that, if a toxicity characteristic contaminant is identified, it is not included as a listed waste, and if analytical data regarding the concentration are not available, the corresponding EPA Hazardous Waste Number is applied.

Site Project Manager:

_____ Date: _____
Print Sign

Acceptable Knowledge Expert:

_____ Date: _____
Print Sign

Attachment 14 – CCP Acceptable Knowledge Accuracy Report – Example Form

CCP Acceptable Knowledge Accuracy Report

Site(s): _____

Waste Stream Number(s): _____

Waste Stream Description: _____

Waste Containers:	Waste Matrix Code Reassigned? (Y/N)	EPA Hazardous Waste Number Reassigned? (Y/N)	Radiological Data Consistent with AK? (Y/N)

* The WCIIP does not require the evaluation of AK accuracy relating to EPA Hazardous Waste Number assignment; however, the reassignment of a container to another RH waste stream or new RH waste stream based on CCP testing or Permittee confirmation testing results will count against the AK accuracy for TRU (RH and CH) waste streams.

Total containers in this report: _____

Total containers consistent with AK: _____

Percent containers consistent with AK: _____

Site Project Manager:

_____/_____
Print Sign Date:

Acceptable Knowledge Expert:

_____/_____
Print Sign Date:

Attachment 16 – Example Form and Content Guide for the Chemical Compatibility Evaluation Memorandum

WASTE STREAM CHEMICAL COMPATIBILITY EVALUATION MEMORANDUM

TO: (SPM NAME) – CCP RH Site Project Manager
FROM: (AKE NAME) – CCP Acceptable Knowledge Expert
DATE: (DATE, REVISION X)
RE: Chemical Compatibility Evaluation for Waste Stream (INSERT WASTE STREAM NUMBER)

This memorandum documents the chemical compatibility evaluation (CCE) required by CCP-TP-005, *CCP Acceptable Knowledge Documentation*. Waste stream (INSERT WASTE STREAM NUMBER) is described in (INSERT ACCEPTABLE KNOWLEDGE SUMMARY REPORT (AKSR) NUMBER AND FULL TITLE).

NOTE THAT THERE COULD BE MORE THAN ONE AKSR AND MORE THAN ONE WASTE STREAM EVALUATED IN A CCE.

Waste Stream Description

(INSERT BRIEF WASTE STREAM DESCRIPTION FROM THE AKSR)

Conclusion

The bounding conditions defined in this CCE demonstrate that the contents of (INSERT WASTE STREAM NUMBER) waste containers will not lead to an adverse reaction consequence as defined in the Methodology/Approach section below. The waste form and characteristics render components unavailable for adverse reaction. The final determination for acceptability of containers in the waste stream is contingent upon several factors, including the Acceptable Knowledge Assessment (AKA) and Interface Waste Management Document List (IWMDL) processes verifying that the waste stream contents are bounded by the waste components presented in the CCE.

Introduction

The purpose of this CCE is to determine if the chemicals and materials in the waste stream, including packaging materials, are compatible at ambient temperature and pressure. The maximum ambient temperature is defined as 140°F based on Source Document TEC01. This CCE does not determine if containers exhibit the Resource Conservation and Recovery Act (RCRA) characteristics for Hazardous Waste Numbers (HWNs) D001, D002, or D003.

Attachment 16 – Example Form and Content Guide for the Chemical Compatibility Evaluation Memorandum (Continued)

The Central Characterization Program (CCP) will evaluate available documentation for the waste stream containers to verify waste contents as part of the AKA and IWMDL processes, which are performed to evaluate historic process activities and verify acceptability of the evaluated container population with respect to the Acceptable Knowledge Summary Report (AKSR) and, in specific, to verify absence of D001, D002, and D003 waste. The CCE, AKA, and IWMDL are components of an iterative process where the conclusions of each influence the other. The AKSR, and the source documents cited herein, provide the chemical and material input information to perform the CCE.

The composition of the waste varies between containers, but is bounded by the expected waste stream composition described in the AKSR. This CCE identifies and evaluates any potential adverse chemical reactions, as defined in the Methodology/Approach section, that stem from combining chemicals within and between the waste stream containers, to ensure compatibility of waste contents. Specifically, this CCE focuses on the compatibility of waste components, including but not limited to the following:

(LIST TECHNICAL EVALUATIONS; EXAMPLES ARE PRESENTED BELOW)

- *Liquids (see Technical Evaluation #1)*
- *Inorganic Sorbents (RGN NA) (refer to Technical Evaluation #2)*
- *Organic Sorbents (RGN 101) (Refer to Technical Evaluation #3)*
- *Caustics (refer to Technical Evaluation #4)*
- *No Applicable RGN Assigned (RGN NA) (refer to Technical Evaluation #5)*

This CCE considers all chemicals and materials identified in the waste stream AKSR and applicable acceptable knowledge (AK) source documentation. While this evaluation is limited to verifying the compatibility of the chemicals and materials within the waste stream (including the packaging materials), the evaluation also provides information to verify compatibility with other waste streams during TRUCON Code development.

Methodology/Approach

The following methodology was applied to determine the chemical compatibility of the constituents in the waste stream. The chemicals and materials considered during this CCE were compiled from Section(s) (*INSERT APPLICABLE AKSR SECTIONS*) of the AKSR and associated AK source documents that were reviewed during this evaluation.

Attachment 16 – Example Form and Content Guide for the Chemical Compatibility Evaluation Memorandum (Continued)

AK source documents that addressed chemical and material composition of the waste stream were reviewed to estimate the quantity of the chemical or material that could be expected in any individual waste stream container. Based on this review, the identified chemicals and materials were assigned the most conservative quantity anticipated in an individual container as follows:

- Trace – less than 1 weight percent
- Minor – 1 to 10 weight percent
- Dominant – greater than 10 weight percent

The primary focus of this CCE is to assess potential reactions associated with dominant and minor constituents. However, some trace components could produce adverse reactions without the proper actions being taken to mitigate the hazards associated with these chemicals and materials; therefore, these components must also be considered.

The quantity estimations are based on a review of the AK source documents collected in accordance with CCP-TP-005 and are conservative approximations. A qualitative evaluation, based on the use of the given chemical or material as described in the AK source documents, is made in the absence of quantitative information (e.g., analytical data, mass balance information, procedural recipes). When the available AK data are inconclusive, the more conservative quantity is assigned.

For purposes of this evaluation, “incompatible” refers to chemicals and materials that, when mixed, can lead to the adverse reaction consequences described in 40 Code of Federal Regulations (CFR) 264.17(b), (General Requirements for Ignitable, Reactive, or Incompatible Wastes):

- 1) Generate extreme heat or pressure, fire or explosions, or violent reactions;
- 2) Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;
- 3) Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;
- 4) Damage the structural integrity of the device or facility; or
- 5) Through other like means, threaten human health or the environment.

In this CCE, an adverse reaction is defined as a reaction that can result in any of the adverse reaction consequences described above.

Attachment 16 – Example Form and Content Guide for the Chemical Compatibility Evaluation Memorandum (Continued)

Guidance provided in the 1980 Environmental Protection Agency (EPA) method EPA-600/2-80-076, “A Method for Determining the Compatibility of Hazardous Wastes” (EPA Method, Reference X) is the basis of this CCE for predicting the potential for adverse reactions to occur between groups of chemicals (Reactivity Groups) based on molecular functional groups, physical characteristics, and/or reactive properties of the chemicals and materials contained in the waste stream.

The EPA Method describes binary combinations of waste that may result in one of the adverse reaction consequences described above. The binary comparison is presented on a two-dimensional matrix that identifies potential reaction consequences. The potential reaction consequences predicted by the chart are based on pure chemical reactions at ambient temperature and pressure. Synergistic and antagonistic effects were assumed not to influence the reactions. It should be noted that there are wide variations in the reaction rates of individual pure chemicals within these broad groupings. Some individual materials in one group will react violently with some of the materials in another group and cause great hazard; others will react slowly, or not at all. For this reason, specific chemical and material combinations and other variables must be evaluated. Additional variables considered include chemical use, chemical form (e.g., inhibited chemicals, degradation, consumed during use), waste management practices (e.g., neutralization, passivation, immobilization), waste matrix effects, and documented generator engineering judgment and operational experience.

To be considered eligible for WIPP disposal, the CCE must demonstrate at least one of the following conclusions for each chemical and material combination of concern:

- 1) The chemical or material is not present in a quantity or form sufficient to produce adverse reactions;
- 2) The chemical or material, including reaction products, was rendered non-reactive or unavailable for adverse reactions with other chemicals and materials of concern in the waste stream;
- 3) Other chemicals and materials of concern were rendered non-reactive, unavailable for adverse reaction, or are not present in the waste stream;
- 4) Anticipated incompatible reactions have already occurred during waste generating processes or subsequent waste management activities (e.g., reaction of sodium metal, neutralization of acidic solutions, reaction of hydrofluoric acid on silica-based sorbents, oxidation of cellulose by nitric acid) and will therefore not occur in the future; or
- 5) The reaction between chemicals or materials will result only in inconsequential reactions (e.g., slow generation of gases and heat, corrosion of metals, solubilization of toxic metals) and cannot lead to an adverse reaction consequence.

Attachment 16 – Example Form and Content Guide for the Chemical Compatibility Evaluation Memorandum (Continued)

Chemicals and materials of concern in the waste stream are presented in Attachment 1, *Waste Stream (INSERT WASTE STREAM NUMBER) Chemicals and Materials of Concern*, with their associated use and management descriptions, quantity estimations, Reactivity Group Number (RGN) assignments, and a summary of their compatibility evaluation. Chemicals and materials of concern are defined as being present in a quantity that have a potential to contribute to an adverse reaction consequence in the final waste form, unless their reactivity is otherwise mitigated or eliminated. Chemicals and materials in the waste stream may have multiple uses or waste management activities that define their quantity in the waste stream. If at least one use or waste management practice potentially results in a chemical or material being in a significant quantity in the final waste form, the chemical or material is presented in Attachment 1. For example, a chemical may have potentially been segregated, reacted during use, or may be present in incidental trace quantities. If these were the only potential pathways describing the fate of this chemical, this chemical would be presented in Attachment 3, *Waste Stream (INSERT WASTE STREAM NUMBER) Insignificant Trace Chemicals and Materials*. However, if this chemical exhibits an additional pathway that would indicate it being a significant chemical, such as, sorption in a compatible sorbent, it will be presented in Attachment 1.

All of the chemicals and materials listed in Attachment 1 were evaluated to identify their potential to form adverse reaction consequences corresponding to the assigned RGN, based on the EPA Hazardous Waste Compatibility Chart in EPA-600/2-80-076. Attachment 2, *EPA Hazardous Waste Compatibility Chart for Waste Stream (INSERT WASTE STREAM NUMBER)*, presents the compatibility chart for the waste based on the general chart presented in the EPA Method.

Attachment 3, *Waste Stream (INSERT WASTE STREAM NUMBER) Insignificant Trace Chemicals and Materials*, lists the chemicals and materials that were determined to be potentially present, but at an insignificant concentration to contribute to an adverse reaction, or to not be present in the waste stream containers. Insignificant chemicals and materials are those not present in a quantity or form that could lead to an adverse reaction consequence. The justification and assumptions for these determinations are provided in the notes after the table in Attachment 3.

The RGNs assigned to each chemical or material are consistent with the guidance provided in the EPA Method, unless an exception has been identified (LANL Source Document C390).

It should be noted that chemicals and materials that could be included in multiple RGNs based on the chemical class or functional group are only assigned the RGN(s) determined to be applicable by the EPA Method. For example, trichloroethylene is an unsaturated aliphatic chlorinated solvent that could be assigned both RGN 17 (Halogenated Organics) and RGN 28 (Hydrocarbons, Aliphatic, Unsaturated); however, RGN 17 would be assigned as the appropriate chemical class to assess the compatibility of this chemical with other RGNs. Chemicals and materials not listed in the EPA method are assigned the most appropriate RGN(s) based on chemical class (functional group) and reactive properties based on review of

Attachment 16 – Example Form and Content Guide for the Chemical Compatibility Evaluation Memorandum (Continued)

chemical literature, material safety data sheets (MSDSs), safety data sheets (SDSs), or industry documentation and reports. The RGN assignments were made in coordination with the Payload Engineer Team, who are responsible for maintaining the chemicals and materials in the WIPP Master Chemicals/Materials List (RGN Master List).

Chemicals or materials assigned an RGN may, or may not, exhibit the property of that RGN in the final waste form. For example, a material may be assigned an RGN of 102, explosive, which would describe the properties of the material in an unmitigated form. However, it may be determined that the explosive property is mitigated by the final waste form (e.g., dispersed in trace quantities throughout a compatible matrix or cemented). Therefore, the waste form as a whole, will not exhibit the property of an explosive.

Consolidated Material Input Entries.

(INSERT DESCRIPTIONS OF CONSOLIDATED MATERIALS AND CHEMICALS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING EXAMPES)

- Polymer debris materials (e.g., cellulosic, plastic, and rubber);
- Other non-metal inorganic materials (e.g., glass and ceramics)
- Aluminum-based metals/alloys
- Ferrous metals
- Nonferrous metals
- Conjugate metal salts from neutralization (e.g., chlorides, fluorides, nitrates, and sulfates)

Technical Evaluations

(INSERT TECHNICAL ASSUMPTIONS)

Acceptable Knowledge Impacts

Additional chemicals, materials, and quantity discrepancies identified during this evaluation were determined not to affect the characterization of the *(INSERT WASTE STREAM NUMBER)* waste stream described in the AKSR *(INSERT AK SUMMARY REPORT NUMBER)* with respect to hazardous waste number identification, waste volumetric estimates, etc. No changes to these AKSRs with respect to hazardous waste number assignments are required as a result of this evaluation *(SUMMARIZE CHANGES, IF CHANGES WERE REQUIRED)*. An AKSR revision will be initiated to include any new information documented in this CCE.

Attachment 16 – Example Form and Content Guide for the Chemical Compatibility Evaluation Memorandum (Continued)

Attachment 1. Waste Stream [*Waste Stream Number*] Chemicals and Materials of Concern

Chemical/Material	Use/Description/Location (AK Source)	Quantity	RGN	Chemical/Material Evaluation

Attachment 16 – Example Form and Content Guide for the Chemical Compatibility Evaluation Memorandum (Continued)

Attachment 2. EPA Hazardous Waste Compatibility Chart for Waste Stream [*Waste Stream Number*]

Group No.	Reactivity Group Name												
3	Acids, Organic	3											
7	Amines, Aliphatic and Aromatic	H	7										
10	Caustics	H		10									
13	Esters			H	13								
15	Fluorides, Inorganic	GT				15							
22	Metals, Other Elemental and Alloys as Powders, Vapors, or Sponges	GF		GF, H			22						
23	Metals, Other Elemental and Alloys as Sheets, Rods, Drops, Moldings, etc.			GF, H*				23					
24	Metals and Metal Compounds, Toxic	S	S	S					24				
33	Sulfides, Inorganic	GT								33			
101	Combustible and Flammable Materials, Miscellaneous										101		
104	Oxidizing Agents, Strong	H, GT	H, F, GT		H, F		H, F, E	H, F		H, F, GT	H, F, G	104	
105	Reducing Agents, Strong	H, GF	H, GF		GF, H, F						GF, H	H, F, E	105
		3	7	10	13	15	22	23	24	33	101	104	105

* Assigned per evaluation in LANL Library Source Document C390.

[WASTE STREAM NUMBER] Waste Stream Reaction Codes: [include only the definitions of codes included in the table]

- | | | | |
|----|--|---|------------------------------------|
| H | Heat Generation | E | Explosion |
| F | Fire | P | Violent Polymerization |
| G | Innocuous and Non-Flammable Gas Generation | S | Solubilization of Toxic Substances |
| GT | Toxic Gas Generation | U | May be Hazardous but Unknown |
| GF | Flammable Gas Generation | | |

Source: Hatayama, H.K., J.J. Chen, E.R. deVera, R.D. Stephens, and D.L. Storm, 1980, "A Method for Determining the Compatibility of Hazardous Wastes," EPA-600/2-80-076, U.S. Environmental Protection Agency, Cincinnati, Ohio.

Attachment 16 – Example Form and Content Guide for the Chemical Compatibility Evaluation Memorandum (Continued)

Attachment 3. Waste Stream [*Waste Stream Number*] Insignificant Trace Chemicals and Materials

Chemical/Material	Use/Description	SD	Note

Attachment 3 Notes – Assign the appropriate note(s) for each chemical/material entry. Not all notes below may be assigned, but numbering will be maintained for consistency between CCEs.

1. *Incidental contaminants which contribute a negligible effect on reactivity (e.g., low ppm concentration).*
2. *Chemicals or materials used or detected in small quantities during generator processes (e.g., indicator drops, analyte in low ppm concentration analytical standards or waste samples).*
3. *Chemical consumed (e.g., reacted or degraded) during initial waste generation or waste management process operations.*
4. *Volatile chemical that would evaporate prior to final packaging.*
5. *Gas used in processes that generate waste but would not persist in waste stream.*
6. *Chemical that would spontaneously degrade over time since generation but prior to shipment to WIPP.*
7. *Chemical or material used in processes that generated the waste stream but were specifically segregated from the waste stream inventory.*
8. *Chemical or material that would only be present in previously emplaced containers.*
9. *AK indicates chemical or material may have been used, but additional documentation from the waste generator demonstrates it was never used.*
10. *Chemicals, materials, and products only identified on inventory or approved products lists with no documented use.*
11. *Additional waste stream specific note(s).*

WP 08-NT.03
Revision 20

Waste Stream Profile Form Review and Approval Program

Cognizant Section: Regulatory Environmental Services

Approved By: John Haschets

THIS DOCUMENT IMPLEMENTS TSR PAC 5.6.1, KE 18-2.



**Waste Stream Profile Form Review and Approval Program
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CHANGE HISTORY SUMMARY

REVISION NUMBER	DATE ISSUED	DESCRIPTION OF CHANGES
18	09/22/16	<ul style="list-style-type: none">• Editorial Change to the title page.• Added training requirements to the Introduction.
19	05/07/18	<ul style="list-style-type: none">• Step 6.0, delete "Implementation and Technical Support"• Step 9.0, delete "Site Environmental Compliance"
20	08/25/20	<ul style="list-style-type: none">• Updated CBFO form in Section 2.3.• Updated records generated in Section 9.0.• Updated references in Section 10.0.• Added Attachment 1, Example Recommendation of Approval Letter to DOE.• Editorial changes.

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ABBREVIATIONS/ACRONYMS

AK	Acceptable Knowledge
CBFO	Carlsbad Field Office
CFR	Code of Federal Regulations
CIS	Characterization Information Summary
DA	Data Administrator
DOE	U.S. Department of Energy
DRR	Document Review Record
EPA	U.S. Environmental Protection Agency
HWN	Hazardous Waste Number
NMED	New Mexico Environment Department
NWP	Nuclear Waste Partnership LLC
PERMIT	Hazardous Waste Facility Permit
RCRA	Resource Conservation and Recovery Act
RES	Regulatory Environmental Services
TRU	Transuranic
TRUCON	Transuranic Content (Codes)
VE	Visual Examination
WAC	Waste Acceptance Criteria
WAP	Waste Analysis Plan
WDS	Waste Data System
WIPP	Waste Isolation Pilot Plant
WSPF	Waste Stream Profile Form

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1.0 INTRODUCTION

This document summarizes the requirements and criteria for Waste Isolation Pilot Plant (WIPP) review and approval of Waste Stream Profile Forms (WSPFs) that are prepared by the U.S. Department of Energy (DOE) Transuranic (TRU) Waste Generator/Storage Sites (DOE Sites) and submitted to the Permittees for approval. Each WSPF and accompanying Characterization Information Summary (CIS), herein referred jointly as the WSPF, submitted for approval must meet the requirements described in the Hazardous Waste Facility Permit (PERMIT) Waste Analysis Plan (WAP) and the WIPP Waste Acceptance Criteria (WAC) (DOE/WIPP 02-3122, Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant).

Characterization requirements for individual containers of TRU mixed waste are specified on a waste stream basis. A waste stream is defined as waste materials that have common physical form, contain similar hazardous constituents, and are generated from a single process or activity.

This document describes the processes for internal distribution of each WSPF to the reviewers, refers to procedures used by reviewers to assess each WSPF, and summarizes the processes used for transmittal of comments and comment resolution.

Each WSPF is reviewed to verify the information provided is complete and accurate, and that the waste stream complies with the WAC and the WAP prior to approval. In the event more detailed information is required by a WSPF reviewer during conduct of the review, the DOE Site will be requested to provide a Waste Stream Characterization Package that supports waste characterization determinations. Additionally, chemical sampling and analysis data consisting of a sampling and analysis plan, U.S. Environmental Protection Agency (EPA) SW-846 (or equivalent) test methods, and identification of the laboratory to be used for the analysis may be requested. The option for the Permittees to request additional information ensures the waste being offered for disposal is adequately characterized and accurately described on the WSPF.

Personnel performing as WSPF Reviewer and/or WSPF Review Coordinator duties must be qualified to the Waste Stream Profile Form Review and Approval Program Qualification Card, WSPF-01 prior to performance of this procedure.

2.0 REQUIREMENTS

After a complete Acceptable Knowledge (AK) record has been compiled and either a Sufficiency Determination Request has been approved by DOE or the generator/storage site has completed the applicable testing requirements, the DOE site will complete a WSPF and submit it to the Permittees for review.

The data necessary to check the accuracy of the WSPF will be transmitted to the Permittees for verification. Prior to the first shipment of containers from the approved waste stream, the approved WSPF will be provided to the New Mexico Environment Department (NMED).

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If discrepancies regarding Hazardous Waste Number (HWN) assignment or waste matrix code designation arise as a result of the WIPP WSPF review, the DOE Site will be contacted and required to provide the necessary additional information to resolve the discrepancy before that waste stream is approved for disposal at the WIPP facility. The Permittees will notify NMED of any discrepancies identified during WSPF Review and the resulting discrepancy resolution prior to waste shipment. Containers from the waste stream will not be managed, stored, or disposed of until this discrepancy is resolved in accordance with the WAP (WAP Section C-5a).

2.1 Transmittal From DOE Site to the Permittees

The WSPF for the waste stream shall be transmitted to the Permittees from the DOE Site.

To implement this requirement, sites will transmit each WSPF electronically to site.documents@wipp.ws.

2.2 Distribution From the Carlsbad Field Office to Regulatory Environmental Services

Carlsbad Field Office (CBFO) and designated WIPP contractor personnel who are responsible for distributing documents that are electronically submitted to the CBFO by the DOE Sites will forward the WSPF submittal to Regulatory Environmental Services (RES). RES management will designate an individual to coordinate the review. Hereafter, this individual is referred to as the WSPF Review Coordinator.

2.3 Distribution From RES to Reviewers

The WSPF Review Coordinator electronically distributes the WSPF via email to Nuclear Waste Partnership LLC (NWP) Central Characterization Program Waste Information Tracking Systems, and designated technical reviewers for review. The coordinator should verify that each team member received the WSPF to be reviewed.

The reviews of WSPFs will be conducted using a Document Review Record (DRR) form (e.g., CBFO Form 4.10.1). WSPFs are reviewed by RES, NWP, and others on behalf of the Permittees.

3.0 REVIEW OF THE WASTE STREAM PROFILE FORM

Reviewers will compare the radiographic and Visual Examination (VE) data obtained subsequent to submittal and approval of the WSPF with characterization information presented in the WSPF. If the reviewers determine (through the data comparison) that the characterization information is adequate, the WSPF will be recommended for approval. If the data comparison indicates that analyzed containers have hazardous wastes not present on the WSPF or a different waste matrix code applies, the WSPF is in error and shall be resubmitted.

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For waste streams that do not have an AK Sufficiency Determination approved by the Permittees, the verification of waste stream will be performed by reviewing the Waste Data System (WDS) data for consistency with the WSPF. Information contained in the AK Summary must indicate if the waste has been checked for the characteristics of ignitability, corrosivity, and reactivity. The final verification of waste compatibility will be performed using WDS.

Each reviewer performs an evaluation of the AK Summary to identify the following:

- Inconsistent presentation of information.
- Information that is deemed irrelevant to characterization of the waste stream.
- If the information presented will require additional reviews due to potential impacts to WIPP, such as safety basis or Compliance Certification Application.

If the information presented in the AK Summary is unclear or leaves any doubt about the waste stream meeting the applicable WIPP requirements, the reviewer will request the DOE Site to clarify the discussion and provide additional objective evidence to justify why the entire waste stream (generated and projected) meets the WIPP requirements.

Development of a checklist to ensure compliance with the review criteria identified in the sections below will be at the discretion of the department managers and/or the individuals assigned to perform the WSPF review. Reviewers should use the criteria in Sections 4.0, 5.0, and 6.0 of this document, and the implementing procedures where noted, to perform their reviews and provide results of their evaluations and comments to the WSPF Review Coordinator.

4.0 REVIEW CRITERIA FOR THE DATA ADMINISTRATOR

The WDS includes all of the elements that were implemented in the WIPP Waste Information System to meet regulatory requirements for the operation of WIPP. The Criteria used for reviews conducted by the Data Administrators (DAs) are detailed in WP 08-NT1001, Waste Data System Waste Stream Profile Form Review.

5.0 CRITERIA FOR RCRA REVIEW OF WSPFs

The Resource Conservation and Recovery Act (RCRA) reviewer performs a review of the WSPF in accordance with WP 08-NT1005, RCRA Review Criteria for Waste Stream Profile Forms. RCRA reviewers may use the waste container data from the database, when needed, to perform the review of the WSPF. In accordance with RES instructions and procedures, the RCRA reviewer will verify that information submitted in the WSPF meets the requirements of the WAP and applicable portions of Title 40 Code of Federal Regulations (CFR) Part 261, Identification and Listing of Hazardous Waste.

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6.0 CRITERIA FOR TRANSPORTATION REVIEW OF WSPFs

The NWP Packaging group will review the transportation aspects of WSPF including chemical compatibility, gas generation, isotopic inventory, and nuclear safety in accordance with WP 08-PT3400, Criteria for Packaging Review of Waste Stream Profile Forms.

7.0 COLLECTION, EVALUATION, CONSOLIDATION, AND TRANSMITTAL OF WSPF REVIEW COMMENTS

7.1 Collection, Evaluation, and Consolidation of WSPF Review Comments

On or after the established due date for transmittal of comments to the DOE Site, the WSPF Review Coordinator collects comments from all reviewers.

The WSPF Review Coordinator evaluates comments for validity and clarity.

The WSPF Review Coordinator may recommend removal of any comment found to be not applicable (e.g., the comment is addressed elsewhere, is in error, or the information is not required).

The WSPF Review Coordinator may reword or reformat comments that will not provide an appropriate level of clarity to be properly addressed by the DOE Site.

The WSPF Review Coordinator may combine similar comments into one.

When a comment is reworded, reformatted, or removed, the WSPF Review Coordinator will notify the reviewer. Alternatively, if comments are identified that require removal or rework, the WSPF Review Coordinator may schedule and conduct a meeting with the review team members to discuss the comments.

If there are no comments from any of the reviewers, a DRR stating there were no comments will be developed and transmitted to the authorized approving manager along with the WSPF.

7.2 Transmittal of Comments

The WSPF Review Coordinator will transmit the comments to the DOE Site electronically via site.documents@wipp.ws.

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7.3 Comment Resolution

A teleconference may be scheduled to discuss the comments with the DOE Site. The review team, NWP management, RES management, and CBFO personnel may be invited to participate in review meetings or teleconferences. If the review team is made aware of any programmatic schedule issues that may arise from the need to develop extensive changes to the WSPF, NWP, and RES management will be notified.

Upon receipt of comment resolutions and a revised WSPF that incorporates resolutions to the comments, the WSPF Review Coordinator will obtain concurrence from each reviewer that each comment has been adequately resolved.

In cases where a comment that is also defined as a discrepancy is not resolved to the satisfaction of the review team, a recommendation(s) may be provided to RES management to impose restrictions that are applicable to the unresolved discrepancy in the approval letter for the waste stream. Such restrictions may allow only a portion of the containers from a waste stream to be certified and shipped until such time that the discrepancy is resolved.

7.4 Acceptance of Approved WSPF

Prior to the first shipment of containers from the approved waste stream, the Permittees will provide copies of the approved WSPF to the NMED. Upon written notification of approval of the WSPF by the Permittees, the DOE Site is authorized to ship waste to WIPP. Upon receipt of the Permittees' approval letter for the waste stream, the DA enters the approval date into the WSPF Administrative Table, which causes the database to recognize the approved waste stream profile number. This allows the shipper generator WDS user to submit certification data to the WDS for waste containers from the approved waste stream and subsequently allows DA approval of certified container data prior to shipment of containers from the approved waste stream.

8.0 REVIEW OF CHANGE NOTICES AND REVISIONS TO WSPFs

When a DOE Site needs to make administrative changes to an approved WSPF, they shall submit a "Change Notice" or a revised WSPF to site.documents@wipp.ws. Changes that could affect data quality must be submitted as a new revision to the approved WSPF and shall undergo the same review as the original package.

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8.1 Examples of Administrative Changes

Examples of administrative changes include, but are not limited to, the following:

- Changes to add or change material parameter weight estimates per unit of waste and the method for determining waste material parameter weights per unit of waste.
- Changes to a waste matrix code that encompasses the code in the approved WSPF (e.g., change S5410 to S5400).
- Revisions to estimated numbers of waste containers.
- Transuranic Content (TRUCON) Codes (i.e., addition of new packaging configurations to existing TRUCON Codes that have been approved and have no impact to chemical compatibility as applicable to characterization, shipment or disposal of the waste).
- Changes to the AK Summary that have no impact related to RCRA characterization of the waste, generation processes, and radionuclide information as presented in the approved WSPF.

8.2 Distribution and Review of Change Notices or Revisions to WSPFs

Upon receipt of a Change Notice or WSPF revision, the WSPF Review Coordinator or designee will provide both the approved WSPF and the change notice or revision to the designated reviewers. Change notices will be reviewed using the following steps:

- Reviewers will perform a comparison of the described changes with the approved WSPF.
- Reviewers will verify that each administrative change, as described in the change notice, does not qualify as a data quality-affecting change that requires a revision to the WSPF.
- Reviewers will verify that the DOE Site has provided a reason for each administrative change with justification as to why a new WSPF or a revision to the approved package should not be required.
- Reviewers will assess the impacts if any, that the change(s) will have to the approved characterization information and conclude that the requested change(s) do not create a discrepancy that is directly related to information contained in the approved WSPF.
- Reviewers will verify that the DOE Site has provided the certification statement.

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WSPF revisions will be reviewed in accordance with the requirements for WSPF review in this document.

8.3 Approval of Change Notices

If the information contained in the Change Notice is complete and meets the criteria for an administrative change, Permittees will provide written notification to the DOE site, and the documentation will be provided to Site Environmental Compliance for inclusion in operating record file.

If the Change Notice is determined to be data quality affecting, refer to Section 8.4, Data Quality Affecting Changes and Revisions to WSPFs.

8.4 Data Quality Affecting Changes and Revisions to WSPFs

If it is determined that the requested change(s) to a WSPF is data quality affecting in nature, the WSPF Review Coordinator will notify the DOE Site to prepare a revision to the WSPF and resubmit the entire package to the Permittees for distribution to the WSPF reviewers.

Examples of data quality-affecting changes include, but are not limited to, the following:

- Waste Matrix Code Group designation
- Significant Changes to the CIS
- Changes to the AK Summary that have impact related to RCRA characterization of the waste, changes in generation processes, and radionuclide information as presented in the approved WSPF
- Addition of EPA HWNs

9.0 RECORDS MANAGEMENT

Implementation of this process will generate the following records that are compiled in a file by the WSPF Review Coordinator:

- WSPF
- CIS (including a complete AK Summary)
- WDS Waste Container Data Reports, if applicable
- A consolidated list of review comments and comment resolutions

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- Waste Stream Characterization Package (when requested) and any additional documentation requested for completion of the WSPF review
- Letter from RES to DOE recommending approval of the WSPF (See Attachment 1, Example Recommendation of Approval Letter to DOE)
- Transmittal letter to the NMED
- Letter to the DOE Site indicating approval of the WSPF

When the file is complete an electronic version will be provided to WIPP Records Archive to be maintained in the WIPP facility operating record, and be available for inspection by the NMED. These records from submittals of WSPFs and from performance of WSPF reviews will be retained in accordance with the RES Records Inventory and Disposition Schedule.

10.0 REFERENCES

DOCUMENT NUMBER AND TITLE
Title 40 Code of Federal Regulations Part 261, Identification and Listing of Hazardous Waste, applicable sections
Hazardous Waste Facility Permit, EPA Identification No. NM4890139088, Attachment C, Waste Analysis Plan, applicable sections
DOE/WIPP-02-3122, Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant
CBFO MP 4.10, The Processing of WIPP Certified Program Documents
WP 08-NT1001, Waste Data System Waste Stream Profile Form Review
WP 08-NT1005, RCRA Review Criteria for Waste Stream Profile Forms
WP 08-PT3400, Criteria for Packaging Review of Waste Stream Profile Forms
WP 13-1, Nuclear Waste Partnership LLC Quality Assurance Program Description
WP 15-PS3002, Controlled Document Processing

ISSUED

**Waste Stream Profile Form Review and Approval Program
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Attachment 1 – Example Recommendation of Approval Letter to DOE

Mr. or Ms. XXX, Assistant Manager
National TRU Program
Carlsbad Field Office
U.S. Department of Energy
P.O. Box 3090
Carlsbad, NM 88221-3090

Subject: CONTRACT DE-EM0001971, REVIEW AND APPROVAL OF WASTE
STREAM PROFILE FORM, XXXX, HETEROGENEOUS DEBRIS,
HAZARDOUS WASTE FACILITY PERMIT NUMBER NM4890139088-TSDF

Dear Mr or Ms. XXX:

Regulatory Environmental Services (RES) has completed the review of the Waste Stream Profile Form (WSPF) for waste stream XXXX, Heterogeneous Debris, in accordance with the provisions of WP 08-NT.03, Waste Stream Profile Form Review and Approval Program. As the representative of Co-Permittee, Nuclear Waste Partnership, Regulatory Environmental Services recommends approval of the subject WSPF.

For your convenience, enclosed is the complete XXXX WSPF, comments and resolutions from the review team.

If you have any questions, please contact me at Extension 3225.

Sincerely,

XXX, Manager
Regulatory Environmental Services

XXX:slh

Enclosures (2)

cc: (with enclosures)

WP 08-NT1005

Revision 2

RCRA Review Criteria for Waste Stream Profile Forms

Management Control Procedure

EFFECTIVE DATE: 11/30/20

John Haschets
APPROVED FOR USE

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CHANGE HISTORY SUMMARY

REVISION NUMBER	DATE ISSUED	DESCRIPTION OF CHANGES
0	09/28/15	<ul style="list-style-type: none">• This is a new procedure.
1	05/09/18	<ul style="list-style-type: none">• Updated References section.• Updated Prerequisite Actions section.• Deleted Attachment 1, WSPF RCRA Review Checklist.
2	11/30/20	<ul style="list-style-type: none">• Updated Purpose.• Updated References section.• Updated Abbreviations and Acronyms.• Updated Performance section.• Editorial changes throughout.

1.0 INTRODUCTION

1.1 PURPOSE

This procedure provides instructions and review criteria for reviews of Waste Stream Profile Forms (WSPF) from WIPP Certified Programs (WCP) by RES RCRA reviewers. Each WSPF is reviewed to verify the information provided is complete, accurate, and meets the requirements of the Waste Analysis Plan (WAP) located in the Hazardous Waste Facility (Permit), the WIPP WAC (DOE/WIPP-02-3122, Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant), and other applicable requirements prior to approval.

1.2 SCOPE

This procedure applies to RES RCRA reviewers reviewing applicable information pertaining to chemical compatibility and remediation or treatment (e.g., waste neutralization, deactivation, and solidification/immobilization).

1.3 RECORDS

Performance of this procedure generates the following record(s). Any records generated are handled in accordance with departmental RIDs.

- EA08NT1005-1-0, WSPF RCRA Review Checklist

2.0 REFERENCES

DOCUMENT NUMBER AND TITLE	BASELINE DOCUMENT	REFERENCED DOCUMENT	KEY STEP
40 CFR 261, Identification and Listing of Hazardous Waste	✓		
Hazardous Waste Facility Permit, EPA Identification Number NM4890139088-TSDF, Attachment C, Waste Analysis Plan	✓		
DOE-HDBK-1081, Primer on Spontaneous Heating and Pyrophoricity		✓	
DOE/WIPP-02-3122, Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant		✓	
DOE/WIPP-07-3372, Waste Isolation Pilot Plant Documented Safety Analysis	✓		
EPA-600/2-80-076, A Method for Determining the Compatibility of Hazardous Wastes		✓	

DOCUMENT NUMBER AND TITLE	BASELINE DOCUMENT	REFERENCED DOCUMENT	KEY STEP
CBFO MP4.10, The Processing of WIPP Certified Program Documents	✓		
WP 08-NT.03, Waste Stream Profile Form Review and Approval Program		✓	
WP 08-NT1001, Waste Data System Waste Stream Profile Form Review	✓		
WP 08-PT3400, Criteria for Transportation Packaging Review of Waste Stream Profile Forms	✓		
WP 13-1, Nuclear Waste Partnership LLC Quality Assurance Program Description	✓		
EA08NT1005-1-0, WSPF RCRA Review Checklist		✓	

2.1 ABBREVIATIONS AND ACRONYMS

AK	Acceptable Knowledge
CBFO	Carlsbad Field Office
CIS	Characterization Information Summary
DRR	Document Review Record
EPA	U.S. Environmental Protection Agency
HWN	Hazardous Waste Number
NTP	National TRU Program
PCB	Polychlorinated Biphenyl
PERMIT	Hazardous Waste Facility Permit
RCRA	Resource Conservation and Recovery Act
RES	Regulatory Environmental Services
RIDS	Records Inventory and Disposition Schedules
SPM	Site Project Manager
TRU	Transuranic (waste)
TSDF	Treatment, Storage & Disposal Facility
WAC	Waste Acceptance Criteria
WAP	Waste Analysis Plan
WCP	WIPP Certified Program
WSPF	Waste Stream Profile Form

3.0 PRECAUTIONS AND LIMITATIONS

- NONE

4.0 PREREQUISITE ACTIONS

- Personnel performing as AK Reviewer and/or WSPF Reviewer/Coordinator duties must be qualified to WSPF-01, Waste Stream Profile Form Review and Approval Program, prior to the performance of this procedure.

5.0 PERFORMANCE

5.1 REVIEW OF THE WSPF REQUEST

5.1.1 Upon receipt of the request from the WSPF Review Coordinator, the RCRA reviewer shall, at a minimum, perform the evaluations listed. The reviewer will use the EA08NT1005-1-0, WSPF RCRA Review Checklist to guide the review:

- [A] Verify the applicable requirements of the Treatment, Storage and Disposal Facility Waste Acceptance Criteria (TSDF-WAC) have been met, the ten WIPP-tracked radionuclides are discussed or listed, and the two most prevalent TRU radionuclides (Contact-Handled waste only) are identified.
- [B] If the waste stream includes PCBs, then verify the generator site is authorized to ship PCB-containing wastes to the WIPP
- [C] Verify the WSPF, CIS, and the AK attachment are complete and accurate based on WAP and WAC requirements (Information required by the Permit is specified in Attachment C3, Sections C3-6b[1] and C3-6b[2], and Section C3-6b[3]) and other required/requested information has been provided by DOE Site.
- [D] Examine the assignment of waste stream description, Waste Matrix Code Group, Summary Category Group, results of waste analyses, acceptable knowledge summary documentation, and methods used for characterization, CBFO certification, and appropriate designation of EPA HWNs.
- [E] Review the WSPF to verify that the waste has been classified correctly with respect to assignment of HWNs.

- [F] Verify the AK Summary is complete and Summary Category Group and Waste Matrix Code Group on the WSPF are supported by the waste stream name and the AK Summary description.
- [G] Verify the EPA HWNs listed on the WSPF are consistent with the HWNs discussed in the AK Summary.
- [H] Verify the chemical compatibility of the waste stream has been evaluated and documented. (See the following reference documents: Hatayama et al., EPA-600/2-80-076, A Method for Determining the Compatibility of Hazardous Wastes, and DOE-HDBK-1081-94, Primer on Spontaneous Heating and Pyrophoricity). Also ensure other applicable required treatment or remediation methods have been assessed for the waste stream.

NOTE

In addition to an Acceptable Knowledge Summary Report (AKSR), the WSPF is supported by a Chemical Compatibility Evaluation Memorandum (CCEM). Review of the CCEM is helpful in verifying that all chemical compatibility issues have been addressed.

- [I] Verify the AK Summary provides adequate justification for assignment of EPA HWNs and that the justifications are supported with technically correct AK information.

NOTE

Use of the term "assumed" or "assumption" is discouraged in the AK Summary when discussing hazardous waste determinations or the assignment of HWNs.

- [J] Verify the EPA HWNs listed on the WSPF are as identified/permitted in the Permit Attachment C, Table C-5.
- [K] If the waste stream is assigned the HWN U134 (hydrofluoric acid), then verify the CIS states that no liquid is present in the waste.
- [L] Verify, when applicable, the VE/Real-Time Radiography Summary (Exclusion of Prohibited Items) documents the absence of prohibited items.

- [M] Verify, when applicable, the initial site certification letter for the summary category group has been issued by the CBFO and that recertification dates are valid.
- [N] Review the most current CBFO certification letter to verify processes listed under Certification Program Status cover the waste stream and the procedures are either described or listed in the WSPF.
- [O] Verify the cover sheet of the Waste Container Data report printout is signed and dated.
- [P] Verify the AK Summary adequately indicates the waste has been checked for the characteristics of ignitability, corrosivity, and reactivity, and justifications for not applying D001, D002, and D003 EPA HWNs are included. Verify the justifications are defensible and technically correct.

NOTE

These wastes codes D001, D002, D003 are prohibited from disposal at the WIPP pursuant to the Permit Part 2, Section 2.3.3., Treatment, Storage, and Disposal Facility Waste Acceptance Criteria (TSDF-WAC); and require remediation or treatment (e.g., waste neutralization, deactivation, and solidification/immobilization) resulting in removal of the code(s) in order to meet the TSDF-WAC. Examples of the waste includes, but are not limited to the following: nitrate salt bearing waste, sodium bearing waste, or roaster oxides. WSPFs and accompanying CIS identified with this type of waste require additional reviews.

- [1] If the WSPF or CIS indicates the presence of potentially ignitable, reactive or corrosive waste, then verify the following:
 - Has the waste stream been identified previously as a potentially ignitable, reactive or corrosive waste (check with CBFO/NTP and/or SPM/AK Expert)?
 - Have the remediation or treatment procedures/processes been assessed? If not clearly documented on the WSPF or CIS then contact the SPM and/or AK Expert to obtain relevant documentation.

- Was the absorbent or material/chemical used in remediation or treatment assessed for compatibility with the waste and determined to be appropriate for use with the waste?
- Was the material/chemical used to neutralize liquids assessed for compatibility with the waste and determined to be appropriate for use with the waste?

5.1.2 If able to verify with bullets above, then the RCRA reviewer completes, signs, and dates EA08NT1005-1-0, WSPF RCRA Review Checklist.

5.1.3 If the answer is no to any item identified in Section 5.1.1[P], then the WSPF cannot be recommended for approval. The RCRA reviewer shall annotate the profile and/or CIS is incomplete on EA08NT1005-1-0 and provide this information to the WSPF Review Coordinator.

5.2 WSPF REVIEW COORDINATOR

5.2.1 Provide WSPF, related information and corresponding DRR to RCRA reviewers.

5.2.2 Facilitate clarification and/or revised requests between requestor and RCRA reviewers.

5.2.3 Obtain DRRs and EA08NT1005-1-0, WSPF RCRA Review Checklist, from RCRA reviewers.

5.2.4 Review DRRs and EA08NT1005-1-0 for completeness and compile information as required by WP 08-NT.03, Waste Stream Profile Form Review and Approval Program.

5.3 RCRA REVIEWER

- 5.3.1 Review request for completeness and evaluate request for compliance with applicable hazardous waste requirements described in the Permit WAP and the WIPP WAC (DOE/WIPP-02-3122, Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant).
- 5.3.2 Complete EA08NT1005-1-0, WSPF RCRA Review Checklist.
- 5.3.3 Provide EA08NT1005-1-0 and comments to WSPF Review Coordinator.
- 5.3.4 Interface with WSPF Review Coordinator for comment resolution, additional clarification, and/or revised WSPF, as necessary.