

# Technical Procedure Development

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DC/RO Name	Z#	Signature	Date
Teri Tingey	200975	/s/ Teri Tingey	7/10/2017

**Approval**

Responsible Line Manager Name	Z#	Signature	Date
Randy Erickson	091271	/s/ Kiki Torres for Randy Erickson	7/10/2017

**REVISION HISTORY**

Document Number, Rev	Issue Date	Action	Description
EP-DIR-AP-10007, R.0	10/21/11	New document	<p>This procedure supersedes the following: SOP-4007, <i>Environmental Programs Directorate, Procedure Development</i>; EP-DIV-AP-0113; <i>WDP Procedure Administration, Use, and Compliance</i>; FOD9-AP-00001, <i>Procedure Preparation Revision Review, Approval, and Use</i>.</p> <p>This administrative procedure defines the Environmental Programs (EP) administrative system for the preparation, revision, review, approval, and use of EP procedures generated by the EP organizations.</p>
EP-DIR-AP-10007, R.1	2/13/12	Major Revision	<p>Added new document control SharePoint process for the Procedure Change Request System in Section 6.1; added new Training Form as Attachment 1; deleted Procedure Request Form; incorporated subcontractor and SME review criteria in Attachment 4; added definition of Periodic Review; added Lessons Learned in Section 6.1; and edited as necessary.</p>
EP-DIR-AP-10007, R.2	6/25/13	Minor Revision	<p>Various minor editing/grammar changes.</p> <p>Sec. 5.3: Added responsibilities for writer-editors.</p> <p>Sec. 6.2: Changed designation for major and minor revisions to include an incremental increase for minor revisions as opposed to a whole number increase.</p> <p>Replaced Attachment 1, "UTrain Required Reading/Training Roster Form," with new "Systematic Approach to Training (SAT) Determination Form."</p> <p>Changed Attachment 1, "Document Reviewer Matrix," to Appendix 1.</p> <p>Removed Procedure Writer's Self-Verification Checklist, Procedure Verification Checklist, Procedure Validation Checklist, IPC, and Periodic Review forms (available in P315).</p>
EP-DIR-AP-10007, R2.1	7/22/13	Minor Revision	<p>Changed word in Section 6.4[3] from "useless" to "unless" the procedure falls under a designated unclassified subject area (DUSA).</p> <p>Updated web link to DUSA Manual in Section 6.4[3].</p>
EP-AP-10007, R0	8/13/15	Major Revision	<p>Complete rewrite in response to DOE/IG-0922. Separated document development process with document management process (EP-AP-10001). Revised responsibilities, added requirements section, and incorporated steps within performance sections. Revision is a total rewrite.</p>
EP-AP-10007, R1	08/08/16	Major Revision	<p>Updated TWF Reviewer Matrix. Changed Checkmark for CCP review to asterisk and updated Chemistry and IPCT review to not required. Removed all WD Operations review requirements.</p>
EP-AP-10007, R2	11/21/16	Major Revision	<p>Revised procedure to clarify use of Reviewer Matrices (Appendices) and Checklists (Attachments).</p>
EP-AP-10007, R2.1		Minor Revision	<p>Revised procedure to codify the process of using the DHF to accurately track changes to Hazard Analyses, capturing the changes and those individuals involved in approving the change.</p>

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## 1. PURPOSE

This procedure defines the roles, responsibilities, and process for development of technical procedures used within the Environmental Management Directorate (ADEM) and Environment Waste Management Operations Division (EWMO), including Subcontractor procedures.

This procedure implements technical procedure development requirements in accordance with SD330, *Los Alamos National Laboratory Quality Assurance Program*; P1020-2, *LANL Document Control Program*; P300, *Integrated Work Management*; P315, *Conduct of Operation Manual*; and EP-DIR-QAP-0001, *Los Alamos National Laboratory Environmental Programs Directorate Quality Assurance Program Implementation Plan, Attachment B1.6, Requirement 5-Instructions, Procedures, and Drawings*.

## 2. OBJECTIVE

This procedure is designed to ensure the production of consistent, accurate, complete, and usable procedures that promote safe, compliant, and efficient operations in ADEM organizations, which include the Environmental Remediation Division (ER), LANL Waste Disposition Division (WD), the TRU Waste Facility (TWF), and EWMO.

Core conventions integrated within this procedure include:

- Inclusion of an Integrated Process Control Team (IPCT) to establish and document the technical and regulatory functions for waste remediation and treatment processing procedures,
- Assignment of document responsibility to a Responsible Line Manager (RLM) at an appropriate management level,
- Use of a mandatory Reviewer Matrix to ensure a documented, comprehensive review by appropriate subject matter experts (SMEs),
- Engagement of workers and working groups during the development process,
- Distribution of Supplemental Review Packages containing relevant documents, process flow diagrams, and white papers for use during procedure development and review,
- Hazard Analysis and Control development to ensure work can be performed safely,
- Direction for managing communication between personnel involved in the process, and
- Guidance for writing concise, usable procedures.

### 3. SCOPE

This procedure is applicable to all persons involved in developing, writing, revising, and reviewing technical procedures used within ADEM facilities and in support of operations.

This procedure is not applicable to non-technical procedures.

Specific procedure types included in the broad category of Technical Procedure are Technical Procedures (TP), Detailed Operating Procedures (DOP), Standard Operating Procedures (SOP), Emergency Response Procedures (ER), Alarm Response Procedures (ARP), Abnormal Operating Procedures (AOP), and Emergency Operating Procedures (EOP).

### 4. RESPONSIBILITIES

#### 4.1 Responsible Line Manager

**NOTE** *The RLM has the responsibility, authority, and accountability for approving procedures within their scope of work. The RLM will be designated as a Level 4 Manager or higher; assignment of a lower level manager requires written delegation by the Associate Director/Deputy for Environmental Programs.*

- Ensures work activities are planned, coordinated, approved, executed, and closed out in accordance with Integrated Work Management (IWM) and applicable policies; for example,
  - Ensures writers and reviewers receive the appropriate supporting technical information and data.
  - Ensures procedures have the necessary level of detail to ensure safe, consistent, and compliant performance of work, including process steps, materials, and material substitutions.
- Ensures that IWM is applied effectively to all activities for which he or she is responsible; for example,
  - Completes or updates a Hazard Analysis (HA) when procedures are developed or during revision that introduces new hazards.
- Ensures that activities are conducted within the safety envelope of the facility and do not place the public, co-located workers, or the environment at risk, with accountability to the Facility Operations Director (FOD) and Responsible Associate Director (RAD).
- Ensures programmatic work is performed in accordance with P300.
- Reviews and evaluates relevant Lessons Learned identified by the Writer or SME initiates a post-job review or hot wash to evaluate procedure effectiveness, as necessary.
- Assigns procedure reviews in accordance with the Reviewer Matrix (Appendices 1-6).

#### 4.2 Facility Operations Director

**NOTE** *Responsibilities and authorities assigned to the FOD may be assigned to a designee. Where designees are authorized to perform tasks on behalf of the FOD, the FOD will determine the method used to make that designation. In all cases, the FOD remains accountable for the designee's actions.*

- Establishes and maintains the facility safety and security envelopes.
- Assigns the RLM for facility-related work in accordance with P300.
- Reviews procedures for other work within the facility to ensure the activity/facility interface is appropriately addressed.
- Designates the RLM for facility-related procedures.
- Releases all work.

#### 4.3 Issues Management Coordinator

- Reviews lessons learned databases and provides information to the RLM for review.

#### 4.4 Document Control

- Manages the process for performing a document action, including initiation, revision, review, approval, control, and distribution in accordance with EP-AP-10001, *Document Control*.
- Assigns document numbers.
- Initiates and coordinates the procedure review cycle.
- Ensures writers and reviewers receive Supplemental Review Packages to assist in technical review.
- Provides a description of procedure changes and the technical basis for changes within the review cycle notification.
- Develops and maintains Document History Files.
- Maintains and updates the Approved Reviewer List.

#### 4.5 Writer

- Uses procedure templates from the Electronic Document Management System (EDMS).
- Collaborates with the RLM to generate the Document Action Request (DAR).
- Collaborates with the RLM to identify appropriate material for the Supplemental Review Package
- Assists the RLM and SMEs, in the development of technical procedures in accordance with P315.
- Reviews and/or utilizes Issues Management Coordinator to review Lessons Learned databases for relevant applications.

#### **4.5 Writer (continued)**

- Collaborates with SMEs to perform validations and gather technical content necessary to produce accurate, complete, and useable procedures.
- Collaborates with IPCT and reviewers to collect comments, implement dispositioned comments, clarify inconsistencies, perform round-tables, and ensure the production of accurate, complete, and useable procedures.
- Proofs procedures to ensure readability, usability, and the correctness of style, format, grammar, terminology, acronyms, and references.
- Maintains the working draft of a document during the drafting process, and submits a copy of the formal review draft and the final draft to Document Control for processing.
- Submits all relevant documentation used in the development of the procedure to Document Control for inclusion in the Document History File.
- Supports procedure verification in accordance with P315 – *Conduct of Operations Manual*

#### **4.6 Subject Matter Expert**

- Provides input to ensure work is compliant with applicable codes and standards, if appropriate to their area of expertise.
- Provides input on technical content to the Writer to ensure the procedure is accurate, complete, and ready for field use.
- Supports procedure validations in accordance with P315– *Conduct of Operations Manual*.

#### **4.7 Reviewers**

- Provides review and comment during the procedure development process to ensure accuracy, completeness, and usability, and may include comments outside of specific discipline.
- Reviews procedures with a systems approach/big picture view.
- Use reviewer guide for things to consider during the review.
- Ensures potential hazards have been identified and required controls are identified.
- Interacts with RLM and Writer to address review comments. Participates in round-table discussions, procedure validations, and comment-resolution meetings as requested.
- Completes review of procedure by the assigned due date.



#### **4.8 Integrated Process Control Team**

**NOTE** *Use of an IPCT is mandatory in the development of waste remediation and treatment processing procedures. An IPCT may also be established for other procedures as determined by the RLM.*

- Defines, establishes, and documents the technical and regulatory functions and requirements for those unique or specific processes that require change control.
- Develops baseline process flowchart and approves changes to baseline flowchart.
- Identifies procedures required to support activities identified in the process flowchart.
- Provides discipline-specific review and comment during the development of waste remediation and treatment processing procedures in accordance with the IPCT Charter.
- Interacts with RLM and Writer to address review comments.
- Participates in round-table discussions and comment-resolution meetings, as requested.
- Ensures that technical and safety aspects of procedures are accurate, complete, and useable in the field.
- Supports development and revision of the HA.
- Completes review of procedure by the assigned due date.
- Notifies RLM if assigned due date is insufficient for adequate review.

#### **4.9 Person-In-Charge**

- Supervises the performance of work.
- Performs work in accordance with approved documents.
- Controls and performs activities and work based on organizational assignments.
- Accountable to an RLM.
- Determines, with the RLM, SME engagement and independent worker participation.
- Remains knowledgeable of facility safety basis documentation, such as the DSA, and ensures that the planned activities are within the bounds of these documents.
- Supports development and revision of the HA.
- Supports procedure validations in accordance with P315– *Conduct of Operations Manual*.

## **5. REQUIREMENTS**

### **5.1 Integrated Process Control Team**

The IPCT is an entity that brings together the various organizations, disciplines, and levels of management necessary to establish the technical and regulatory compliance functions required to determine the appropriate waste remediation and treatment processing methods for waste stream.

An IPCT will be established to develop and approve the process baseline for each waste stream. The IPCT will manage changes to the process baseline and associated documents, including process flow sheets, waste processing plans, and technical procedures. The process baseline will include the definition of the process, material specifications, and controls.

The RLM will determine IPCT membership by identifying key disciplines necessary for detailed review of the procedure and will develop a charter to detail specific requirements, expectations, and deliverables, which will include, at a minimum, a process baseline for the waste stream. The charter will be approved by the Associate Director/Deputy for EM.

An IPCT may be established for processes not associated with waste remediation and treatment processing as a good business practice; utilization of an IPCT as a good business practice may be implemented on a graded approach.

### **5.2 Working Groups**

Working groups are organized early in the development/revision process and include members from the review team, members from the IPCT, and SME field operators identified within the procedure. Size of the working group is determined by the RLM and dictated by the complexity of the revision.

Interaction between the RLM, Writer, and the working group is ongoing throughout the drafting process. Informal reviews of the draft procedure should be performed with members of the working group to ensure that significant concerns and comments are addressed prior to submitting a procedure for formal review. For procedure that direct field activities, a validation of the draft should be performed with the RLM, procedure user, and members of the working group prior to submitting the procedure for formal review.

**5.3 Reviewer Matrix and Approved Reviewers**

The Reviewer Matrix (Appendices 1-6) identifies the minimum required reviewers for development of new technical procedures and subsequent major revisions. Major revisions are characterized as substantive modifications to a procedure that change the actual performance of the activity. Examples include changes in the hazard analysis or controls, the content or order of steps, the assignment of functional responsibilities, or the values of process parameters. Minor revisions are non-substantive modifications to a procedure that change format, correct grammatical errors, or update references or organizational names, that enhance usability but do not change the actual performance of the activity and reviewers are assigned at the discretion of the RLM.

The RLM is responsible and accountable for ensuring a comprehensive review cycle by assigning reviewers and instituting an IPCT in accordance with the applicable Reviewer Matrix.

Those individuals qualified to perform reviews for a discipline will be designated by the functional organization in writing. The designating manager shall email a list of reviewers that are qualified based on their training, experience, and technical knowledge, including any caveats, to the ADEM Document Control team at [adep-dcrm@lanl.gov](mailto:adep-dcrm@lanl.gov). The designating manager is responsible for providing a list of people that constitute a pool of available/qualified reviewers, which is used in conjunction with the appropriate matrix (Appendices 1-6) to identify reviewers. The designating manager will be the default reviewer if no other reviewers are identified.

**APPROVED REVIEWER DESIGNATING AUTHORITY**

<b>Functional Area</b>	<b>Designating Authority</b>
IPCT	IPCT Coordinator
CCP & Difficult Waste Team	Difficult Waste Team Leader
Carlsbad Field Office	CBFO Manager
EWMO Operations	EWMO Operations Manager
WD Operations	WD Group Leader
Operator SME	EWMO Operations Manager/WD Group Leader
Engineering	Deployed EWMO Engineering Manager
Quality Assurance	ADEM Quality Assurance Manager
Safety Basis	Safety Basis Manager
IH&S	EWMO ESH Manager
Radiation Protection	EWMO ESH Manager
Criticality Safety	NCSD Division Leader
Environmental Protection/DEP	EPC-CP Group Leader
Fire Protection	FP-DO Division Leader
Maintenance	Deployed ADEM Maintenance Manager
Waste Management	EWMO ESH Manager
Chemistry	Chemistry Division Leader

#### **5.4 Supplemental Review Package**

During procedure development and procedure review, the Writer, SME reviewers, and IPCT members have access to any information that may be pertinent to the development or review process, such as white papers, waste processing plans, technical references, and process flow diagrams. Prior to procedure revision or development, the RLM, working with the Writer and appropriate SMEs, identifies those documents to be included as part of the Supplemental Review Package, as needed. Not all procedure modifications warrant a supplemental review package. However, one is required if the procedure modification is the result of changes to waste processing plans, technical references, flow diagrams or procurement/engineering specifications. SMEs can identify additional documents that need to be added to the Supplemental Review Package and provide them to Document Control. Document Control provides those documents to the Writers and other personnel involved in the procedure development process. Supplemental Review Package documents should be listed as references in the procedure and added to the Document History File.

#### **5.5 Scope of Review and Reviewer Performance**

Along with the supplemental review package, reviewers are provided a concise description of the revision's scope to guide them during the review process. Reviews should be completed within each reviewers' area of expertise with consideration for this scope. A reviewer guide is provided as Attachment 7 for assistance during the review. The guide offers pointed items for consideration during the review.

#### **5.6 Immediate Procedure Changes**

An Immediate Procedure Change (IPC) provides a method for expedited processing of document actions; the use of IPCs should be infrequent. Changes are limited to those required to continue work-in-progress, to support temporary modifications, or for critical activities as identified by the RLM, consistent with P315, *Conduct of Operations Manual*. Developing and processing IPCs shall be performed in accordance with EP-AP-10001, *Document Control*.

#### **5.7 Hazards Analysis**

New procedures or revisions that introduce new hazards must either develop a new HA or update an existing HA. When answering the hazard grading questions, both activity and work-area hazards must be considered. The RLM or designee have the responsibility for applying professional and expert judgment to determine if the information is sufficient to identify the hazard level and if not, seek additional assistance and expert resources.

The process of conducting a hazards analysis is an iterative process and often consists of a conversation between SMEs. An initial meeting may be held to discuss the HA and appropriate

controls and as the procedure is developed the HA will evolve and subsequent analysis and determinations must be documented. For the initial release, the appropriate SMEs, consistent with Appendices 1-5, must be involved and concur on the HA. Over time, and as a result of performance feedback, the HA may need to be updated, and those updates do not need full concurrence of all SMEs, only the relevant SMEs, workers, and line management. A record of the discussion and participants should be documented, including changes as the analysis evolves, and those participants that contributed to the HA modification must concur on the updated HA. Other SMEs should not be asked for their concurrence if they did not participate in the update process. To ensure continuity of the record of changes, documentation of discussion, participants, and changes must be included in the DHF.

#### 5.7.1 Identify the Hazards

The RLM or designee must utilize the Work Management System (WMS) to identify hazards. The WMS Tool offers an interface that helps workers identify all the hazards (including security) and has “mouse-over” links showing the requirement and in many cases, links to the actual language of the requirement to be met. Changes to policies will be highlighted within the tool so that each year, the preparer can identify policy changes that might impact how the work is conducted. Future versions will incorporate “Quality” questions, and other policy questions that require compliance for executing work (i.e., a one-stop shop).

The RLM or designee, SME, IPCT, and/or workers who will participate in the work (or who could potentially be assigned to do the work) will utilize the hazard output from the WMS Tool to discuss the severity of the hazards associated with the activity and ensure that all hazards associated with the activity are captured and requirements identified.

#### 5.7.2 Analyze the Hazards

Moderate or high hazard activities must be analyzed to determine how harm might be caused and how the hazards will be mitigated. The RLM or designee, SME, workers involved in the activity, and other appropriate SMEs (e.g. Industrial Hygiene and Safety, Radiological Control Technicians, etc.) must meet to discuss the hazards and critically review proposed hazard mitigation measures. They should ask the question, “What if the control fails?” to ensure the analysis is complete and effective.

The results of these analyses will be incorporated into the procedure.

### 5.7.3 Moderate Hazard Activities

For moderate hazard activities, a systematic HA must be conducted. The analysis may be graded based upon the complexity of the activity, ranging from a relatively quick “brainstorming” for simple activities to a formal “what if” or Hazard and Operability Analysis (HAZOP) for more complicated ones.

Controls identified in the HA must be incorporated into the procedure. Documentation from the JHA team activities, such as what-if analysis, HAZOPs notes, and HA must be included in the DHF.

### 5.7.4 High-Hazard Complex Activities

For High-Hazard/Complex activities, a documented “what if,” HAZOP, or other effective analysis technique must be used. This analysis must be performed by a documented Job Hazard Analysis (JHA) team with appropriate depth and breadth of expertise to identify and analyze the hazards thoroughly and to determine how effective hazard mitigation will be achieved. The RLM or designee or SME leads the team and must include a representative set of workers dependent upon activity scope. Appropriate SME involvement is required to ensure that the analysis is complete and effective. Controls identified in the HA must be incorporated into the procedure. Documentation from the JHA team activities, such as what-if analysis, HAZOPs notes, and HA must be included in the DHF.

### 5.7.5 Develop and Implement Controls

Based on the outcome of the HA, controls are developed to reduce the probability and/or consequence of adverse events. When establishing controls, the following hierarchy is used:

1. Hazard elimination by process modification or substitution of a less hazardous substance,
2. Application of engineering controls,
3. Application of administrative controls (e.g., training, lock-out/tag-out, and procedures),
4. Use of appropriate Personal Protective Equipment (PPE).

If worker training is required to mitigate the hazards presented by the activity, the required training must be developed and documented in accordance with P781-1, *Conduct of Training*. PPE controls must be specific to the hazard to enable the worker to maintain personal safety. “Gloves” is an inadequate PPE descriptor. More complete descriptors for this instance include, “leather gloves, nitrile gloves, welding gloves, etc.”; this finer detail will allow the worker to understand the PPE requirements specific to the task at hand.

## 5.8 Field Validation

Dependable and consistent validation of procedures that direct field activities is imperative for ensuring a procedure is accurate, complete, and ready for field use. Validations should be performed throughout the procedure drafting and review process, and should occur (at a minimum) before the procedure is sent for formal review and during the final stages of the review process. The final validation should be completed in accordance with P315 using the approved form.

To the extent possible, validations should be performed as a walkdown in the environment where the task is to be performed. The validation team should be comprised of procedure users and accompanied by the RLM, Writer, and members of the working group and/or IPCT. The focus of the validation should be on gathering input from the procedure users. Auxiliary members of the validation team should participate as observers and provide direction only if requested. Each validation should have a designated leader (preferably a procedure user) who directs the process and ensures feedback from the validation team is correctly documented.

## 5.9 Procedure Content

Technical procedures must be as concise and simple to use as possible. In addition to the requirements established in P300, P315, and FSD-315-16-001, *Technical Procedure Writer's Manual*, the following bullets offer guidance for writing, organizing, and consolidating content during the procedure development process.

1. Developing or revising a procedure is a significant activity that should only be done for appropriate cause, such as when a procedure cannot be executed as written. Minor changes that do not affect performance should be tabled until a revision is performed, at which time they can be incorporated.
2. Ensure appropriate detail to adequately describe the work, but avoid extraneous content that is not necessary to direct action by the procedure user.
3. Performance sections within a procedure are divided into subsections to describe an activity in manageable segments. Each subsection should not exceed four or five pages in length.
4. Waste remediation and treatment processing procedures should explicitly identify critical steps/elements of the process and documentation requirements.
5. Action steps should be written using simple language that includes all relevant information. Action steps should not exceed two lines across the page.
6. Action steps that take the user beyond the activities described within the procedure should be minimized. In most cases, the following will suffice: “**NOTIFY** supervision of the issue, and **DOCUMENT** guidance on Attachment.”

## 5.9 Procedure Content (continued)

7. **IF/THEN** steps are necessary, but should be used sparingly.
8. Sub-steps within an action (e.g., [A] through [Z]) should be limited to the extent possible.
9. Sub-sub-steps within an action (e.g., [a] through [z]) should be avoided.
10. Symbols denoting requirements (e.g., \$, Circle CS, &) should only be used for action steps, and should not appear in the Purpose, Scope, Precautions & Limitations, or Warnings/Cautions/Notes.
11. Approved symbols denoting requirements are:
  - \$ - Technical Safety Requirement or Safety Basis requirement
  - **CS** - Criticality Safety requirement
  - & - Environmental regulatory requirements (i.e., RCRA, LANL Hazardous Waste Facility Permit requirement, Consent Order, Individual Permit, etc.)
  - **PR** - Processing requirement that is defined in the approved process baseline.
12. Warnings, Cautions, and Notes should not contain language that directs one to perform an action. Directives should only be provided in action steps.
13. Prerequisite Actions and Post-Performance Activities should be specific to performance of the procedure.
14. Personnel identified within a procedure should use titles consistent with training qualifications and operations-specific Roles, Responsibilities, Authorities, and Accountability.
15. Consumables, equipment, and materials identified within the procedure should be specific.
16. Attachments and space for recording information within a procedure should be formatted to allow adequate room for record taking, quality reviews, and signatures.
17. Revision History should be limited to one page.

## 5.10 Usage Classification

Procedures are identified as one of three usage classifications: Use Every Time (UET), Reference, or Mixed.

A Reference designation is appropriate for activities that can rely on training and expertise for successful performance. The procedure must be readily available and performed as written, but does not need to be in the user's hand.

UET procedures must be in the user's possession and performance must be verbatim. The UET designation must be considered for a document that:

- has potential for high consequence of error
- is complex



**5.10 Usage Classification (continued)**

- is infrequently performed
- involves data collection
- requires sign-offs
- has stringent quality or regulatory documentation requirement

A procedure may have a Mixed classification if the procedure body is Reference while attachments are UET. If procedures are Mixed usage, the UET portion of the procedure must be attachments; they cannot be embedded in the body of the procedure.

**6. PERFORMANCE—PROCEDURE DEVELOPMENT**

The fundamental elements for developing, maintaining, and revising procedures are described in LANL policy documents P315 and FSD-315-16-001, which include detailed explanation of required content. P300 establishes the expectations for defining work, grading hazards, and developing controls within an IWD-equivalent procedure. These documents are used in conjunction with this procedure to produce accurate, complete, and useable procedures that promote safe and efficient operations and formal work authorization by the RLM.

Procedure development occurs with direct input from the workers that will execute the procedure. Workers are an essential source of information when developing procedures and must be involved throughout the process.

**RLM**

- [1] **INITIATE** a document action in accordance with EP-AP-10001.
- [2] **IF** the procedure is a waste remediation or treatment processing procedure,  
**THEN INVOKE** the IPCT and chartering process.
- [3] **IF** performing a major revision to an existing procedure,  
**THEN:**
  - [A] **REVIEW** the procedure's usage determination, hazard grading, and IWD-equivalency status.
  - [B] **INITIATE** changes to these determinations as necessary (e.g., modify UET/reference usage, enter new information in WMS).
  - [C] **RECORD** usage determination, hazard grading, and IWD-equivalency information on the DAR.

6. **PERFORMANCE—PROCEDURE DEVELOPMENT (continued)**

[D] GO TO Step 5.[8].

- [4] **DETERMINE** whether procedure is Reference, UET, or Mixed usage, and **RECORD** determination on the DAR.
- [5] **DETERMINE** the activities needed to complete the task, and **ENTER** this information into the [Work Management System Tool](#) (WMS).
- [6] **RECORD** on the DAR the hazard classification as established by WMS and P300 grading criteria.
- [7] **IF** hazard classification is Moderate or High/Complex, **THEN INITIATE** the formal hazard analysis process in accordance with P300.
- [8] **DOCUMENT** the hazard analysis conducted using a what-if analysis, HAZOPs notes, or HA and **SUBMIT** for inclusion in the DHF.
- [8] **RECORD** reviewer/IPCT names on the DAR using the applicable Reviewer Matrix (Appendices 1-6).

**NOTE** *Validation is required for all new technical procedures and recommended for major revisions to technical procedures. If the RLM elects to waive validation, then justification must be documented on the DAR.*

- [9] **DETERMINE** validation requirements and **RECORD** determination on the DAR.
- [10] **IDENTIFY** documents to be included in the Supplemental Review Package for use in developing/revising the procedure.

**IPCT Coordinator**

- [11] **IF** the procedure is identified as requiring an IPCT, **THEN COORDINATE** IPCT resources to develop or revise baseline process flow diagrams, review new or revised procedures, and collaborate with the RLM and Writer in accordance with the IPCT Charter.

**Writer**

- [12] **OBTAIN** the approved procedure template for a new procedure or a controlled copy of the most recent revision of an existing procedure from Document Control or EDMS.

6. **PERFORMANCE—PROCEDURE DEVELOPMENT (continued)**

- [13] **DEVELOP** the procedure or make updates in accordance with P315, FSD-315-16-001 and the criteria provided in Section 5 of this procedure.
- [14] **COORDINATE** informal reviews as needed of the draft procedure with the RLM, IPCT, or workers who perform roles within the procedure to address discipline-specific concerns throughout the development process.
- [15] **PERFORM** a pre-validation of the draft procedure with a worker and/or SME.
- [16] **PREPARE** a review-ready procedure and send the draft to the RLM.

**RLM**

- [17] **REVIEW** the draft for technical accuracy, usability, and compliance with requirements.
- [18] **WHEN** document is ready to be sent for formal review,  
**COORDINATE** with the Writer to submit the review draft to Document Control electronically with a concise description of the changes to be included in the review notification.

**Document Control**

- [19] **PROCESS** the procedure for formal review, comment resolution, and approval in accordance with EP-AP-10001.

**Reviewers**

- [20] **REVIEW** the procedure within area of expertise using reviewer guide for accuracy, clarity, and compliance with established requirements.
- [21] **PROVIDE** comments/concurrence with the reviewed draft in accordance with review notification.

**RLM**

- [22] **DISPOSITION** comments in conjunction with the Writer, and **DOCUMENT** the comment resolution in accordance with direction provided by Document Control.
- [23] **COORDINATE** the procedure validation and verification and **UPDATE** procedure as indicated by the validation, if required.
- [24] **IF** revisions resulting from comment resolution or validation substantially change the technical content,  
**THEN COORDINATE** with Document Control to perform another review cycle.

**7. RECORDS**

Records generated in the course of performing this procedure must be maintained and managed in accordance with EP-AP-10003, *Records Management*.

<b>Record</b>	<b>QA Record</b>	<b>Non-QA Record</b>
Document Action Request	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Immediate Procedure Change form	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Periodic Review Form	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Approved, revised procedure – signed	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Revised procedure – redlined	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Supplemental Review Package	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reviewer comment spreadsheets, forms, or other documentation with reviewers name, credentials/signature, date, and comment category	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Document review markups <b>without</b> reviewers name, credentials/signature, date, and comment category	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Verification Checklist	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Validation Checklist	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hazards Analysis documentation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Process Flow Diagram	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Systematic Approach to Training (SAT) form	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Applicable email	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**REFERENCES**

EP-AP-

**8. REFERENCES**

EM-AP-10001, *Document Control*

EP-AP-10003, *Records Management*

EP-DIR-QAP-0001, *Los Alamos National Laboratory Environmental Programs Directorate Quality Assurance Program Implementation Plan*.

FSD-315-16-001, *Technical Procedure Writer's Manual*

P300, *Integrated Work Management*

**Technical Procedure Development**  
Reference

Document No.: EP-AP-10007  
Revision: 2.1  
Page: 21 of 27

P315, *Conduct of Operations Manual*

P781-1, *Conduct of Training Manual*

P1020-2, *LANL Document Control Program*

SD330, *Los Alamos National Laboratory Quality Assurance Program*

**Appendix 1  
WCRRF Reviewer Matrix**

WCRRF Procedure Classification		IPCT	CCP & Difficult Waste Team	Carlsbad Field Office	EWMO Operations	WD Operations	Operator SME	Engineering	Quality Assurance	Safety Basis	IH&S	Radiation Protection	Criticality Safety	Environmental Protection/DEP	Fire Protection	Maintenance	Waste Management	Chemistry
<b>Waste Processing &amp; Handling (WO)</b>																		
1A	DOP/AP for sampling or processing waste	√	√	1	√	√	√	√	√	√	√	√	√	√	√	-	√	√
1B	DOP/AP for sampling waste containers	-	√	-	√	√	√	√	√	√	√	√	√	√	-	-	√	-
1C	DOP/AP for transporting or receiving waste containers	-	-	-	√	√	√	√	√	√	√	√	√	√	-	-	√	-
1D	DOP/AP for waste container operations, including OVERPACK or drum prep	-	-	-	√	√	√	√	√	√	√	√	√	√	-	-	√	-
<b>Facility Operations (FO)</b>																		
1E	DOP/AP that implements facility TSRs, including SRs, ISIs, and SACs	-	-	-	√	2	√	√	√	√	√	√	√	√	√	-	-	-
1F	DOP/AP for completing non-TSR rounds, inspections, and work release	-	-	-	√	2	√	√	√	√	√	√	√	√	√	-	-	-
1G	DOP/AP for using and maintaining facility systems	-	-	-	√	2	√	√	√	√	√	√	-	√	√	√	-	-
1H	DOP/AP for using and maintaining site equipment (e.g., vehicles, cranes, doors, etc.)	-	-	-	√	2	√	√	√	√	√	√	-	√	√	√	-	-

<sup>1</sup> – as determined by CCP Site Project Manager  
<sup>2</sup> – as determined by responsibility for activity scope

**Appendix 2  
TA-54 Area G Reviewer Matrix**

TA-54 Area G Procedure Classification		IPCT	CCP & Difficult Waste Team	Carlsbad Field Office	EWMO Operations	WD Operations	Operator SME	Engineering	Quality Assurance	Safety Basis	IH&S	Radiation Protection	Criticality Safety	Environmental Protection/DEP	Fire Protection	Maintenance	Waste Management	Chemistry
<b>Waste Processing &amp; Handling (WO)</b>																		
2A	DOP/AP for sampling or processing waste	√	√	<sup>1</sup>	√	√	√	√	√	√	√	√	√	√	√	-	√	√
2B	DOP/AP for sampling waste containers	-	√	-	√	√	√	√	√	√	√	√	√	√	-	-	√	-
2C	DOP/AP for transporting or receiving waste containers	-	-	-	√	√	√	√	√	√	√	√	√	√	-	-	√	-
2D	DOP/AP for waste container operations, including OVERPACK or drum prep	-	-	-	√	√	√	√	√	√	√	√	√	√	-	-	√	-
<b>Facility Operations (FO)</b>																		
2E	DOP/AP that implements facility TSRs, including SRs, ISIs, and SACs	-	-	-	√	<sup>2</sup>	√	√	√	√	√	√	√	√	√	-	-	-
2F	DOP/AP for completing non-TSR rounds, inspections, and work release	-	-	-	√	<sup>2</sup>	√	√	√	√	√	√	√	√	√	-	-	-
2G	DOP/AP for using and maintaining facility systems	-	-	-	√	<sup>2</sup>	√	√	√	√	√	√	-	√	√	√	-	-
2H	DOP/AP for using and maintaining site equipment (e.g., vehicles, cranes, doors, etc.)	-	-	-	√	<sup>2</sup>	√	√	√	√	√	√	-	√	√	√	-	-

<sup>1</sup> – as determined by CCP Site Project Manager

<sup>2</sup> – as determined by responsibility for activity scope

**Appendix 3  
RANT Reviewer Matrix**

RANT Procedure Classification		IPCT	CCP & Difficult Waste Team	Carlsbad Field Office	EWMO Operations	WD Operations	Operator SME	Engineering	Quality Assurance	Safety Basis	IH&S	Radiation Protection	Criticality Safety	Environmental Protection/DEP	Fire Protection	Maintenance	Waste Management	Chemistry
<b>Waste Handling (WO)</b>																		
3A	DOP/AP for sampling waste containers	-	√	-	√	√	√	√	√	√	√	√	√	√	-	-	√	-
3B	DOP/AP for preparing payload for shipment	-	√	<sup>1</sup>	√	√	√	√	√	√	√	√	√	√	-	-	√	-
3C	DOP/AP for transporting or receiving waste containers	-	-	-	√	√	√	√	√	√	√	√	√	√	-	-	√	-
3D	DOP/AP for waste container operations, including OVERPACK or drum prep	-	-	-	√	√	√	√	√	√	√	√	√	√	-	-	√	-
<b>Facility Operations (FO)</b>																		
3E	DOP/AP that implements facility TSRs, including SRs, ISIs, and SACs	-	-	-	√	<sup>2</sup>	√	√	√	√	√	√	√	√	√	-	-	-
3F	DOP/AP for completing non-TSR rounds, inspections, and work release	-	-	-	√	<sup>2</sup>	√	√	√	√	√	√	√	√	√	-	-	-
3G	DOP/AP for using and maintaining facility systems	-	-	-	√	<sup>2</sup>	√	√	√	√	√	√	-	√	√	√	-	-
3H	DOP/AP for using and maintaining site equipment (e.g., vehicles, cranes, doors, etc.)	-	-	-	√	<sup>2</sup>	√	√	√	√	√	√	-	√	√	√	-	-

<sup>1</sup> – as determined by CCP Site Project Manager

<sup>2</sup> – as determined by responsibility for activity scope



**Appendix 4  
TWF Reviewer Matrix**

TWF Procedure Classification		IPCT	CCP & Difficult Waste Team	Carlsbad Field Office	EWMO Operations	WD Operations	Operator SME	Engineering	Quality Assurance	Safety Basis	IH&S	Radiation Protection	Criticality Safety	Environmental Protection/DEP	Fire Protection	Maintenance	Waste Management	Chemistry
<b>Waste Handling (WO)</b>																		
4A	DOP/AP for sampling waste containers	-	√	-	√	-	√	√	√	√	√	√	√	√	-	-	√	-
4B	DOP/AP for preparing payload for shipment	-	√	1	√	-	√	√	√	√	√	√	√	√	-	-	√	-
4C	DOP/AP for transporting or receiving waste containers	-	-	-	√	-	√	√	√	√	√	√	√	√	-	-	√	-
4D	DOP/AP for waste container operations, including OVERPACK or drum prep	-	-	-	√	-	√	√	√	√	√	√	√	√	-	-	√	-
<b>Facility Operations (FO)</b>																		
4E	DOP/AP that implements facility TSRs, including SRs, ISIs, and SACs	-	-	-	√	-	√	√	√	√	√	√	√	√	√	-	-	-
4F	DOP/AP for completing non-TSR rounds, inspections, and work release	-	-	-	√	-	√	√	√	√	√	√	√	√	√	-	-	-
4G	DOP/AP for using and maintaining facility systems	-	-	-	√	-	√	√	√	√	√	√	-	√	√	√	-	-
4H	DOP/AP for using and maintaining site equipment (e.g., vehicles, cranes, doors, etc.)	-	-	-	√	-	√	√	√	√	√	√	-	√	√	√	-	-

<sup>1</sup> – as determined by CCP Site Project Manager

**Appendix 5  
ER Reviewer Matrix**

ER Procedure Classification		Technical Leads	Engineering	Quality Assurance	Safety Basis	Environmental Protection	Subcontract Technical Representative	Waste Management	Radiation Protection/DEP	Safety IH	Security	EWMO FOD	Electrical Safety Officer	Pressure Safety Officer	Criticality Safety	
<b>General Use</b>																
5A	Procedures that direct work categorized as a Moderate or High/Complex Hazard	√	AR	√	AR	√	AR	√	AR	AR	AR	AR	AR	AR	AR	AR
5B	Procedures that direct work categorized as a Low Hazard	√	AR	√	AR	√	AR	√	AR	AR	AR	AR	AR	AR	AR	AR
5C	Administrative procedures (APs, Plans, Guides, QAPP, etc.)	√	AR	√	AR	√	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR
<b>Groundwater</b>																
5D	Procedures that direct work categorized as a Moderate or High/Complex Hazard	√	AR	√	AR	√	AR*	√	AR	AR	AR	AR	AR	AR	AR	AR
5E	Procedures that direct work categorized as a Low Hazard	√	AR	√	AR	√	AR*	√	AR	AR	AR	AR	AR	AR	AR	AR
<b>Storm Water</b>																
5F	Procedures that direct work categorized as a Moderate or High/Complex Hazard.	√	AR	√	AR	√	AR*	√	AR	AR	AR	AR	AR	AR	AR	AR
5G	Procedures that direct work categorized as a Low Hazard.	√	AR	√	AR	√	AR*	√	AR	AR	AR	AR	AR	AR	AR	AR
<b>Drilling</b>																
5H	Procedures that direct work categorized as a Moderate or High/Complex Hazard.	√	AR	√	AR	√	AR*	√	AR	AR	AR	AR	AR	AR	AR	AR
5I	Procedures that direct work categorized as a Low Hazard	√	AR	√	AR	√	AR*	√	AR	AR	AR	AR	AR	AR	AR	AR

AR – As Required  
\* - for procedures used by Subcontractors

## Appendix 6 Review Criteria

*The following questions provide guidance that reviewers must consider when completing technical procedure reviews.*

### **SAFETY CONCERNS:**

1. Are hazards associated with the activity properly identified and appropriate controls incorporated within the procedure?
2. Do the procedure and Hazard Analysis speak to one another?
3. Have abnormal conditions/situations been correctly identified within the procedure? Is the detail of guidance provided appropriate?
4. Do Warnings, Cautions, and Notes provide sufficient detail to complete the task safely?
5. Does the procedure's hazard grading correctly address the requirements of P121 and P300?

### **TECHNICAL CONCERNS:**

1. Are the activities described within the procedure performable as written?
2. Has the necessary interaction with the Document Owner, field operations, and other procedure development personnel occurred to ensure technical accuracy?
3. Have the appropriate white papers and supporting SME documents been incorporated?
4. Are process materials specifically identified?
5. Are equipment, components, and tools clearly identified? Do they reflect field terminology?

### **COMPLIANCE REQUIREMENTS:**

1. Does the procedure meet the requirements of LANL's Policy documents?
2. Are TSR, Criticality Safety, and Environmental steps clearly identified and operationally achievable?
3. Are other compliance requirements, such as NMED inspections, RP controls, and WAC limits, incorporated within the procedure where needed?
4. Are performer actions within the bounds of current training and access requirements?
5. Are performance of compliance activities adequately documented within the procedure (e.g., on Attachments, within WCATS, etc.)?

### **GENERAL CONCERNS:**

1. Can instruction steps be performed as written and in sequence?
2. Does the procedure clearly identify lines of authority and responsibility?
2. Is the procedure's level of detail suitable when considering complexity of the task, frequency of the activity, and qualification/training of the user?
4. Are forms well designed and adequate for collection of quality assurance data?
5. Does the procedure correctly speak to other existing procedures and documents?