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Environment & Remediation Support Services

Standard Operating Procedure

for **GENERAL INSTRUCTIONS FOR FIELD INVESTIGATIONS**

APPROVAL SIGNATURES:

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1.0 PURPOSE AND SCOPE

The purpose of this procedure is to describe the activities conducted before, during, and after the Los Alamos National Laboratory (LANL or Laboratory) Environment & Remediation Support Services (ERSS) field investigations.

2.0 BACKGROUND AND PRECAUTIONS

2.1 Background

This procedure addresses the applicable requirements reflected in New Mexico Environment Department (NMED)/LANL Order on Consent, Section IX, Investigation and Sampling Methods and Procedures.

Environmental programs involving the collection, evaluation, and use of environmental data require additional quality system elements to plan, implement, and assess the application of QC and QA activities to such operations. These additional elements shall be used in conjunction with programmatic requirements in order to provide a suitable and effective quality system to support environmental data collection and use.

[NOTE: Environmental data include chemical, biological, toxicological, ecological, radiological, radioactive, and physical data. These data may be obtained directly from the environment; from systems representing environmental conditions, such as laboratories or test chambers; from computer models and from environmental monitoring.]

2.2 Precautions

None.

3.0 EQUIPMENT AND TOOLS

None.

4.0 STEP-BY-STEP PROCESS DESCRIPTION

4.1 Planning Activities

Group Leader	1.	***Prepare the site-specific Work Plan in accordance with the format described in Section XI of the NMED Order on Consent, and include the methods to be used to conduct all activities at each site or unit.***
	2.	***Provide the names of the contract analytical laboratories and copies of the laboratory quality assurance manuals to NMED within forty-five (45) days of awarding the contract for analytical services to any contract laboratory.***
	3.	***Submit site-specific Work Plans for each site to the NMED for review and approval prior to commencement of field activities where environmental investigation, corrective action, sampling, or monitoring is being conducted or proposed.***
	4.	***Provide notification to the NMED of corrective action field activities a minimum of 15 days prior to commencing the activity.***

Group Leader (Continued)	5.	***Ensure the methods used to conduct investigation, remediation, and monitoring activities are sufficient to fulfill the requirements of the NMED Order on Consent, and provide accurate data for the evaluation of site conditions, the nature and extent of contamination and contaminant migration, and for remedy selection and implementation, where necessary.***
	6.	***Ensure the methods used to conduct investigation, remediation, and monitoring activities are determined based on conditions and contaminants that exist at each site or unit.***
	7.	***Plan and document all work involving the generation, acquisition, and use of environmental data.***
	8.	***Identify and document the type, quantity, and quality of environmental data needed for their intended use using a systematic planning process.*** ***[NOTE: Systematic planning may be accomplished through various demonstrated techniques including the data quality objectives process and the observational method.]***
	9.	***Involve the key users and clients as well as the technical staff responsible for obtaining, analyzing, and evaluating the data in project-specific planning.***
	10.	***Review the results of planning activities for conformity to technical and quality expectations.*** ***[NOTE: Assessments of project-specific planning may include reviews by independent technical experts, in addition to reviews by project management and regulators, to ensure compliance with objectives.]***

Group Leader (Continued)	11.	***Coordinate project planning among participating organizations, and include the following, as applicable:*** • ***definition of project/task scope and objectives and the desired action or result from the work;*** • ***identification of organizations (e.g., sampling groups and analytical laboratories) that need to participate in the project and their role in planning, implementation, and assessment activities;*** • ***identification of the environmental data required to achieve the desired action or result;*** • ***identification of QA and QC requirements to establish the quality of the data collected or produced;*** • ***identification of the documentation needed to adequately describe the quality of the results;*** • ***identification of necessary personnel, their needed skills, and required types of equipment;*** • ***identification of special applicable regulatory requirements and other constraints (e.g., time and budget);*** • ***identification of conditions under which suspension of work is necessary;*** • ***determination of assessment tools needed (e.g., program technical reviews, peer reviews, surveillances, readiness reviews, and technical audits);*** • ***identification of methods/procedures for storing, retrieving, analyzing, and reporting the data produced (based on the intended use of the data); and*** • ***identification of possible methods/procedures (including waste minimization objectives) for characterization and disposal of contaminated sample material that may be accumulated during the project.***

4.2 Design of Data Collection Activities

Team Leader	1.	***Document the results of the design process in a QA project Plan (QAPP) or other planning document(s) according to the requirements of the quality system or as found necessary or appropriate by agreements.***
	2.	***Designate personnel who are technically capable of evaluating all aspects of the project to review and approve the QAPP and/or other planning documents, including a member of project line management.***
	3.	***Contact a QA Representative to review and approve the project-specific QAPP, and explain the process by which this review is conducted.***
	4.	***Ensure changes to data collection designs or procedures, including field changes, are subject to the same review and approval protocols as the original documents.***
	5.	***Control design of data collection operations to the extent required, verified, and documented.***

Team Leader (Continued)	6.	***Identify relevant activities pertaining to environmental data operations, establish performance specifications, and identify appropriate controls.***
	7.	***Consider and develop detailed specifications for the following, as a minimum:*** • ***assessments needed during the project (e.g., surveillances, audits, performance evaluations);*** • ***data reporting requirements;*** • ***data validation and verification methods;*** • ***integrating cost or schedule constraints into design;*** • ***protection of health and safety of workers and of the public;*** • ***readiness reviews prior to data collection;*** • ***requirements for calibration and performance evaluation samples for analytical methods used;*** • ***requirements for data (and data base) retrieval, security, QA and QC, storage, and retention;*** • ***requirements for field and laboratory QA/QC activities;*** • ***requirements and qualifications for sampling and analysis personnel;*** • ***sample handling, packaging, shipping, and custody requirements;*** • ***sample types, numbers, and quantities, and sampling location requirements;*** • ***selection of analytical methods and their quality performance expectations;*** • ***selection of analytical facility (or laboratory);*** • ***selection of field sampling or testing methodology, including specific sampling or field analytical instrumentation requirements and other analytical testing requirements;*** • ***techniques for assessing limitations on data use; and*** • ***disposal or minimization procedures for wastes produced during sampling and analysis operations.***
	8.	***Identify and control, as appropriate, key variables that determine or directly affect the quality of results according to the specifications determined during design.***
	9.	***Ensure that data are traceable to the procedures (including revisions) used to produce the data and to the personnel generating or collecting the data.***
	10.	***Determine and document data transfer, reduction, verification, and validation requirements.***
	11.	***Determine and specify within the design data interpretation and analysis needs (i.e., the use of specific statistical methods).***
	12.	***Identify and document any reports to management regarding the status of the work, interim results of the work, and results of assessment activities.***

Team Leader (Continued)	13.	***Identify any restrictions on the use of any interim results, and state it with the data in a manner that clearly defines the nature of the restriction and the specific data to which it applies.***
	14.	***Encode any restrictions with the data if the data are stored in magnetic media, as well as reporting it in any accompanying documentation, to the extent possible.***
4.3 Pre-mobilization Activities		
Team Leader	1.	Conduct, document, and complete a readiness review in accordance with procedure EP-ERSS-SOP-5018, Integrated Fieldwork Planning and Authorization, prior to conducting field activities.
	2.	Ensure all project personnel document all work activities in accordance with procedure EP-ERSS-SOP-5009, Notebook Documentation for Environmental Restoration Technical Activities.
	3.	Ensure deviations from procedures are documented in accordance with procedure EP-ERSS-SOP-3001, Issues Management.
	4.	Maintain one copy of each document identified on the readiness planning and review checklist on-site and available to all project personnel.
	5.	Conduct and document daily tailgate briefings during which the SSHASP and IWD are reviewed and the activities for that day are discussed with all applicable project personnel.
	6.	Ensure all project personnel attend daily tailgate briefings.
	7.	Ensure all measuring and test equipment (M&TE) are calibrated, maintained, and tracked in accordance with the following documents: • Procedure EP-ERSS-SOP-5006, Control of Measuring and Test Equipment; • the site-specific installation work plan; or • the M&TE Instruction Manual.
	8.	Manage waste generated during the field investigation activities in accordance with procedure EP-ERSS-SOP-5022, Management of ER Project Waste.
Project Personnel	9.	Document all field activities, including M&TE usage and calibrations, in the project notebooks, in accordance with procedure EP-ERSS-SOP-5009, Notebook Documentation for ER Technical Activities.

4.4	**Implementation of Planned Operations**	
Team Leader	1.	Ensure that qualified personnel implement the environmental data operations in accordance with the planning documents.
	2.	Ensure data collected during implementation is traceable to the planning documents and to the personnel collecting the data.
	3.	Ensure only qualified and accepted items and services are used in the environmental data operations, and that the acceptance has been identified on the items themselves and/or in documents traceable to the items.
	4.	Ensure that deviations from approved processes and procedures are documented in accordance with procedure EP-ERSS-SOP-3001, Issues Management, and reported to management.
	5.	Determine the impact and significance of any deviations on planned operations, and make appropriate adjustments to the operations as needed.
	6.	Ensure that changes to planning documents and operating guides and manuals are reviewed by appropriate levels of technical and management personnel.
	7.	Distribute documentation of changes to appropriate project personnel to replace previous versions of the documents.
4.5	**Operational and Analytical Needs**	
Team Leader	1.	Obtain assistance from Radiation Protection Representatives (RP-1, RP-2, and RP-5), prior to mobilizing equipment and project personnel to the work site, to identify and designate work zones.
	2.	Ensure work zone areas include, but are not limited to: • contamination reduction zone, and screening area; • exclusion zone; and • support zone.
	3.	Request assistance from the appropriate RP Representative, if necessary, to re-evaluate the work site when site conditions change.
4.6	**Operational Management Areas**	
Team Leader	1.	Ensure an area within the support zone is used to store all sampling equipment (e.g., spare sample containers, identification labels, coolers, field screening equipment, etc.), and samples until they are sent to the SMO.

Team Leader (Continued)	2.	Maintain chain-of-custody integrity of all samples in the SMO by implementing procedure EP-ERSS-SOP-5058, Sample Control and Field Documentation.
	3.	Ensure the screening area is within a contamination reduction zone and is sheltered from the weather, and is used for the purpose of: • screening sample material for radiological and/or chemical contamination; • holding equipment and materials until they are screened and screening results are available; and • holding excess medial (e.g., soil, cores, sediment, biota, etc.) until screening results are available and the media can be transferred to the support zone or managed and disposed of as waste.
4.7 Sample Media Evaluation		
Team Leader	1.	Ensure a representative portion of the media collected is used for Department of Transportation (DOT) and/or hazard categorization screening and is collected in accordance with procedure EP-ERSS-SOP-5056, Sample Containers and Preservation.
	2.	Perform on-site radiological screening and chemical screening, if applicable, prior to transporting representative sample portions to the radiological screening laboratory, if necessary, and the samples to the SMO.
	3.	Handle, package, and transport all samples in accordance with procedure EP-ERSS-SOP-5057, Handling, Packaging, and Shipping of Samples.
	4.	Manage excess sampling material in accordance with procedure EP-ERSS-SOP-5022, Management of ER Project Waste, until analytical results are obtained to afford appropriate disposal.
	5.	Do not ship samples from the SMO until DOT screening results are received.
4.8 Sampling and Analysis Assessment and Response		
QA Rep.	1.	Assess activities performed during environmental data operations that affect the quality of the data regularly and report any findings to management to ensure that the requirements stated in approved and current planning documents are being implemented as prescribed.
	2.	Document assessment activities in accordance with procedure EP-ERSS-SOP-0003, Surveillance Activities.
	3.	Notify the Project Leader to take appropriate corrective actions when an issue is identified in accordance with procedure EP-ERSS-SOP-3001, Issues Management.

Project Leader	4.	Make corrective actions in a timely manner.
QA Rep.	5.	Confirm, verify, and document the adequacy and effectiveness of the corrective actions.
4.9 Sample Location Surveying		
Project Leader	1.	Ensure all sampling locations are surveyed in accordance with procedure EP-ERSS-SOP-5028, Coordinating and Evaluating Geodetic Surveys.
	2.	Submit all survey results within thirty (30) days of final survey.
4.10 Sampling and Analysis Assessment and Verification of Data Usability		
Project Leader	1.	Ensure that results obtained from environmental data operations are assessed.
	2.	Ensure that any limitations on the use of the data are expressed quantitatively to the extent practicable.
	3.	Ensure that any data from sources that did not use a quality system, that includes the requirements specified herein, is assessed according to procedure EP-ERSS-SOP-5013, Analytical Data Verification/Validation Process.
	4.	Ensure that project reports containing data or reporting the results of environmental data operations, is reviewed independently (i.e., by others than those who produced the data or the reports) to confirm that the data or results are presented correctly.
	5.	Ensure that project reports are approved by management prior to release, publication, or distribution.
	6.	***Submit a full review and discussion of analytical data QA/QC and all data qualifiers as appendices or attachments to investigation and monitoring reports.***
4.11 Work Activity Closure		
Project Leader	1.	Ensure field site closeout is implemented and documented in accordance with procedure EP-ERSS-SOP-5024, Field Site Closeout Checklist.
	2.	Ensure all design requirements (e.g., configuration management), if applicable, are completed in accordance with EP-ERSS-WPD-0002, Appendix 1, Configuration Management Program.

4.12 Records

Project Leader	1.	Submit the following records generated from this procedure to the Records Processing Facility: • Quality Assurance Project Plan; • Issues Management Reports (if applicable); and • Other records generated in accordance with referenced procedures.

5.0 PROCESS FLOW CHART

Flow chart is to be included later.

6.0 ATTACHMENTS

None.

7.0 REVISION HISTORY

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Revision No. *[Enter current revision number, beginning with Rev.0]*	Effective Date *[DCC inserts effective date for revision]*	Description of Changes *[List specific changes made since the previous revision]*	Type of Change *[Technical (T) or Editorial (E)]*
0.0	02/09/07	Incorporated NMED Order on Consent requirements, new document number. Supersedes SOP-01.01	T

Using a CRYPTOCard, click here to record "self-study" training to this procedure.

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