QUALITY ASSURANCE PLAN FOR THE ENVIRONMENTAL PROGRAMS DIRECTORATE

EP-DIR-QAP-0001, R2.0

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Prepared by Environmental Programs Directorate

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Revision Record

Revision	Date	Summary
EP-DIR-QAP-0001, R0.0	06/11/07	Original issue. Supersedes AP-WFM-044, R.O, *FMU-6/SWO Quality Assurance Procedures*, RRES-RS-QMP, R3, *and Quality Management Plan for the Los Alamos National Laboratory Risk Reduction and Environmental Stewardship – Remediation Services Project*, and ENV-QMP, R2, Q*uality Management Plan for the Environmental Stewardship Division,* and PLAN-WFM-013, *Quality Assurance Program Plan* and PLAN-WFM-063, *FMU-6/SWO Quality Assurance Implementation Manual.*
1.0	07/20/07	Clarification to the requirement for training to the document, and added the training link.
2.0		Include in the Statement of Policy a declaration that signing documents indicates concurrence and updated procedure references.

STATEMENT OF POLICY

The *Quality Assurance Plan for Environmental Programs Directorate* defines the controls necessary to comply with contractual and Federal quality requirements. The Environmental Program (EP) Quality Assurance Plan (QAP) establishes implementing requirements, assigns responsibilities, and describes the management systems established to assure the quality of EP Directorate activities and products. The EP Directorate QAP is founded on the principle that the line organization has the primary responsibility for quality and safety. The EP Directorate management has overall responsibility for the quality of EP Directorate activities and products. It is also EP's policy that whenever EP personnel sign a document it is an indication of concurrence and agreement to the contents of the document

The EP Directorate Quality Assurance Team Leader (QATL) reports to the Institutional Quality Group (QA-IQ) in the Quality Assurance Division (QAD), but is deployed to EP Directorate. The QATL also reports to the Environment, Safety, Health and Quality (ESH&Q) Manager for EP on quality assurance matters, and is the custodian of the QAP. The EP QA staff has the responsibility of performing oversight and verification, identifying quality problems, maintaining this QAP, all EP QA activities, recommending solutions, and verifying implementation of effective corrective actions.

The expectations of EP Directorate management are applicable to all individuals (e.g., managers, staff, or subcontractors) during the performance of any activity associated with the objectives of the EP Directorate. All EP Directorate personnel are accountable for managing their projects and performing their work in accordance with the EP Directorate management policy and the quality requirements established by this QAP. Each individual is responsible for the quality of his or her own work. EP personnel deployed to other organizations will meet the quality assurance plan requirements of that organization.

Conflicts involving interpretation of EP Directorate quality assurance requirements are resolved by the QATL, or if necessary, by the ESH&Q Manager. Should resolution require involvement of the EP Directorate management the issue and resolution will be documented. In cases where subcontractors are implementing quality assurance requirements in support of the EP Directorate, the Directorate retains responsibility for the adequacy of subcontractors' implementation of the quality assurance requirements.

Implementation of this EP QAP will be done in accordance with the LANL QAD and Software Quality Management implementation schedule found on the QAD Web Site: http://int.lanl.gov/orgs/qa.

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CONTENTS

1.0 INTRODUCTION

It is the expectation of the management within the EP Directorate that appropriate quality assurance requirements be incorporated into the work of the organization. The EP QAP defines the quality assurance requirements to be implemented by all associated personnel.

The EP Directorate identifies and remediates environmental hazards associated with past laboratory operations, and manages and disposes of legacy transuranic waste at LANL. The EP Directorate works to reduce risks to the public associated with legacy wastes; to decontaminate, decommission, and demolish process-contaminated facilities in the path of cleanup for legacy waste sites; and to complete cleanup to meet milestones in accordance with the March 1, 2005 Compliance Order on Consent.

To carry out its mission the EP Directorate is comprised of two divisions, Waste and Environmental Services (WES), Environmental and Waste Management Facility Operations (EWMO), and several groups, projects, and programs.

All EP Directorate personnel are required to read this document and an optional overview briefing of the EP QAP is available upon request. [NOTE: See the link to receive credit following References, Section 6.0 of this document.] Particular attention is to be given to the Statement of Policy at the beginning of this document.

In order to assure compliance with regulations and Los Alamos National Laboratory (LANL or the Laboratory) requirements, personnel are to always use the latest version of the procedures, which are issued and available on the EP web site. Also, definitions specific to ADEP activities are found in the online EP Glossary: http://erinternal.lanl.gov/resources/docs/glossary.pdf. General LANL definitions and acronyms are described on the Policy Office web page: http://policy.lanl.gov/

2.0 PURPOSE AND SCOPE

The intent of this QAP is to promote formality in the execution of quality affecting activities performed by the EP Directorate. The management of EP Directorate is committed to the application and implementation of this QAP. This QAP is based on the requirements of NQA-1-2000, *Quality Assurance Requirements for Nuclear Facility Applications.*

The purpose of this QAP is to describe how the EP Directorate meets the applicable QA requirements including:

- IP 330-SD3, *LANL Quality Assurance Program,* which meets DOE O 414.1C, *Quality Assurance* and 10CFR830, Subpart A, *Quality Assurance Requirements* (applies to EP work activities);
- New Mexico Environment Department Order on Consent (applies to WES work activities);

This QAP outlines the quality management system for planning, performing, and evaluating the achievement of operations and programmatic activities performed within the EP Directorate and for improving these processes. The plan is implemented through institutional documents and EP Directorate procedures using a graded approach.

Each of the ten performance criteria contained in IP 330-SD3 is addressed individually in the *Quality Plan Implementing Matrices* (QPIM), EP-DIR-QAP-0002 and the 18 criteria of NQA-1-2000 are distributed within the IP 330 ten criteria. Within each criterion section, the appropriate EP QA requirements' sections are listed. The QPIM demonstrates implementation of all EP quality requirements through institutional procedures (i.e. Procedures (P), Implementing Support Documents (ISDs), Operational Support Tools (OSTs), Laboratory Implementation Requirements (LIRs), etc.) and local Standard Operation Procedures (SOPs).

3.0 GRADED APPROACH

QA requirements are applied in a graded approach by tailoring the formal controls for all work activities to reduce business and science risks. Application of a graded approach is consistent with the guidance contained within P 330.1, *Graded Approach Guidance*.

4.0 QAP INTEGRATION WITH LANL STANDARDS

This QAP integrates quality assurance requirements with the Integrated Safety Management System (ISMS), Integrated Work Management, and the applicable processes described in the Conduct of Maintenance, Conduct of Operations, and Conduct of Training manuals.

4.1 Integrated Safety Management System

The principles of the ISMS are integrated with QA into all work activities. ISMS is described in IP-300-SD1, *Integrated Safety Management Description Document with Embedded 10 CFR 851 Worker Safety and Health Program.* The integration is demonstrated in the planning, performance, and assessment phases of work to achieve a high level of quality that protects the health, security, and safety of personnel, the public, and the environment.

4.2 Integrated Work Management for Work Activities

The requirements contained within IMP 300, *Integrated Work Management* (IWM), apply to all work performed by LANL. IWM emphasizes work control at the activity level and complements facility and institutional controls that mitigate safety, security, and environmental risks.

4.3 Conduct of Maintenance, Operations, and Training Manuals

ISD 951-1, *LANL Conduct of Maintenance Manual*, establishes a formal process for ensuring the practice of facility maintenance at LANL meets customer requirements and is conducted safely, securely, and in an environmentally responsible manner complying with applicable codes, standards, Department of Energy Directives and efficient business practices.

ISD 315-1, *Conduct of Operations Manual*, establishes a formally documented methodology for ensuring operational activities are performed safely and securely in accordance with applicable codes, standards, DOE Directives, and sound business practices. Success of this methodology depends on implementing established requirements using approved procedures for conducting operations, and programmatic activities in a systematic and prescribed manner and ensuring workers are trained to those procedures. Applying the formality and discipline of Conduct of Operations will enable laboratory (LANL) employees to achieve enhanced safety, security, environmental compliance, quality, consistency, and excellence.

ISD 781-1, *Conduct of Training Manual*, establishes a formally documented methodology for ensuring training activities at LANL are conducted in accordance with regulatory drivers and contractual requirements and in a safe and secure manner.

5.0 QUALITY ASSURANCE PLAN DESCRIPTION

5.1 Criterion 1–Program

5.1.1 Organization

The organizational structure for the EP Directorate is shown on an Organization Chart on the EP Web Site, http://int.lanl.gov/orgs/adep/org.shtml. Management processes, including planning, scheduling, and providing resources for EP Directorate work, are described in the EP implementing procedures.

5.1.2 Roles and Responsibilities

The EP Directorate has overall responsibility for the effective implementation of the Quality Assurance Plan in EP Directorate activities. Functional responsibilities and levels of authority for line management are described below.

Environmental Programs Associate Director

a) Approve the EP QAP and QA documents and any associated implementation plan within the directorate;

b) Ensure the flow down and effective implementation and enforcement of the EP QAP requirements within the EP Directorate;

c) Ensure resources (e.g., personnel, budget, materials) are provided to accomplish QA work activities;

d) Ensure QAP is submitted to the QA Division Leader for review and written concurrence;

e) Ensure LANL customer and programmatic requirements are integrated into the scopes of work activities (e.g., ISMS, Integrated Safeguards and Security Management [ISSM], Conduct of Operations);

f) Foster an environment that promotes identification and comprehensive correction of quality issues (e.g., S/CI) that support continuous quality improvement;

g) Support the identification and recommendation for policy, process, or procedure changes that improve quality and efficiency within the directorate and/or throughout LANL;

h) Provide oversight of LANL and subcontractor/supplier work to include subcontractor and supplier activity assessments, reviews, surveillances, and inspection and test monitoring activities; and

i) Foster an attitude within the directorate that any EP Employee can stop or pause work when quality, work risks, or hazards are not effectively controlled.

Responsible Line Manager

Functional responsibilities for those responsible for performing quality-affecting activities (e.g., records management, document control, training coordination, etc.) are described within the applicable implementing procedures.

a) Implement the EP QAP to ensure all programs/projects/processes produce the type and quality of results required;

b) Identify the customers (both internal and external) for work to be performed and suppliers of items and services;

c) Provide adequate resources and sufficient authority and independence to staff to enable them to effectively plan, implement, assess, and improve the organization's QAP;

d) Foster an attitude within the directorate that any EP Employee can stop or pause unsafe work and work of inadequate quality such that cost and schedule do not override quality, environmental, safety, or health considerations;

e) Maintain overall responsibility for successfully accomplishing activities subject to the QAP;

f) Ensure adequate technical and QA training is provided for personnel performing activities subject to the QAP;

g) Ensure compliance with all applicable regulations, DOE Orders and requirements, and applicable Federal, State, and local laws;

h) Identify, report, and correct quality problems; and

i) Empower employees by delegating authority and decision-making to the lowest appropriate level in the organization.

ESH&Q Manager

a) Manage the following programs: Radiological Protection, Industrial Safety, Industrial Hygiene, Environmental Compliance, and Quality Assurance/Quality Control (QA/QC);

b) Support and enable work execution to promote safety and compliance in accordance with applicable ESH&Q requirements;

c) Manage deployed resources to support facility operations and ESH&Q program implementation;

d) Negotiate selection and assignment of deployed ESH&Q personnel;

e) Provide input to the institutional support organization on deployed team members' performance;

f) Work with the Facility Operations Directors and customer organizations to establish needs, funding level, and budget work packages;

g) Within budget and available resources:

- Fulfill job responsibilities in accordance with the customer services agreement,
- Provide quality support to coordinate implementation of LANL ESH&Q program,
- Provide service that meets institutional requirements, and
- Support and enable work execution in accordance with the ESH&Q program;

h) Coordinate customer and facility-specific requirements for deployed ESH&Q personnel;

i) Work with line management to ensure deployed workers' safety;

j) Report incidents involving deployed personnel to institutional support organizations and assist with investigations;

k) Coordinate with line management regarding training and professional development of EP staff;

l) Review facility- and programmatic-specific ESH&Q data for trends, and involve subject matter experts (SMEs) to make recommendations for improvement; and

m) Work with institutional support organizations to coordinate customer involvement in regulatory inspections and audits.

Quality Assurance Team Leader

a) Reports to the ESH&Q manager;

b) Ensure the approved quality system is implemented and maintained;

c) Develop the EP QAP;

d) Maintain the authority and overall responsibility to assess the organization's effective implementation of the QAP to verify the achievement of quality;

e) Schedule and conduct QA audits, assessments, and surveillances;

f) Maintain liaison with subcontractor QA organizations and other affected organizations;

g) Approve procedures (e.g., SOPs) that implement the requirements of the QAP;

h) Track or perform trend analysis of quality problems, and report quality problem areas;

i) Maintain direct access to responsible management at a level where appropriate action can be effected;

j) Maintain no assigned responsibilities unrelated to the QAP that would prevent appropriate attention to QA matters;

k) Develop, establish, and interpret QA policy and ensure effective implementation;

l) Interface with the clients, subcontractors, and other project participants on QA matters;

m) Assist subordinate organizations with quality planning, documentation, quality measurement, and problem identification and resolution;

n) Maintain sufficient authority, access to work areas, and organizational freedom to do the following:

- identify quality problems,
- recommend solutions,
- verify implementation of solutions, and
- ensure unsatisfactory conditions are controlled until proper disposition has occurred;

o) Report to EP management on the effectiveness of the quality system, including needs for improvement; and

p) Ensure the Quality team is organizationally independent of operations directly implementing work activities.

Members of the Workforce (at all levels)

a) Implement their organization's procedures to meet this QAP's requirements;

b) Comply with administrative and technical work control procedures;

c) Identify and report issues to the responsible manager for resolution and continuous improvement for the work being performed;

d) Seek, identify, and recommend work methods or procedural changes that would improve quality and efficiency; and

e) Stop or pause work when quality, work risks, or hazards are not effectively controlled.

5.1.3 Interface Controls

The Internal and external interfaces for managing, performing, and assessing work for the EP Directorate are described within this document.

EP Directorate management is responsible for defining clearly the responsibilities, interfaces, and authority of each organization when more than one organization is involved in execution of the activities. In addition, EP Directorate management is responsible for documenting external interfaces between organizational units, and any changes to those interfaces, in order to:

a) Provide a formal methodology for program execution and contract administration;

b) Establish communication lines;

c) Specify documentation requirements; and

d) Enable required accountabilities.

5.1.4 Resolution of Disputes

EP Directorate personnel are required to notify the QATL and the responsible line management whenever differences of opinion involving the definition and implementation of QAP requirements occur. Differences of opinion are elevated to the ESH&Q manager and a higher level of line management if not resolved at the immediate level.

5.1.5 QAP Application to Subcontractors

DOE requires contractors (e.g., LANL) performing mission work under a quality assurance program flow down all quality requirements to its subcontractors. LANL flows down applicable quality requirements to subcontractors based on the type of work performed by the subcontractor in the Exhibit H form, *Quality Assurance Requirements - Procurement*.

EP subcontractors are required to develop a Quality Assurance Program that meets the requirements in the EP QAP as applicable for the work being performed. The subcontractor's QA Program must address applicable EP QAP requirements and the QA Program and the implementation of the program must be approved by the Procurement Quality Group, QA-PQ for Management Levels (MLs) 1 and 2 work activities. MLs are defined in PD 341-1, *Engineering Processes Manual*.

5.1.6 Suspect/Counterfeit Item Prevention Process

To address suspect/counterfeit item the EP Directorate implements:

- ISD 330-9, *Suspect/Counterfeit Items*.

5.1.7 Stop Work Authority

EP Directorate personnel have the authority and are required to stop or pause unsafe work and work of inadequate quality by following the process described in:

- P101-18, *Procedure for Pause/Stop Work*.

5.1.8 Detailed Flow-Down of Criterion 1 Requirements

The requirement-by-requirement flow-down of Criterion 1 requirements into implementing documents is provided in Section 1 of the QPIM, EP-DIR-QAP-0002. The EP Directorate QPIMs will be reviewed when subsequent revisions to the implementing procedures are made to ensure requirements have not been deleted, changed or added.

5.2 Criterion 2–Personnel Indoctrination and Training

5.2.1 Implementing Procedures

To implement the requirements for personnel training the EP Directorate uses:

- ISD 781-1, *Conduct of Training Manual*;
- EP-DIR-SOP-2011, *Personnel Training and Indoctrination.*

The EP Directorate follows the following procedures to qualify and certify lead auditors and inspection and test personnel:

- PD 017, *Auditor/Lead Auditor Training and Qualification;* and
- PD 036, *Qualification of Inspection and Test Personnel.*

Nondestructive Examination (NDE) personnel are qualified using the American Society of Nondestructive Testing Recommended Practice No. SNT-TC-1A, December 1988 Edition, and its applicable supplements, to perform the following activities: radiographic testing (RT); magnetic particle (MP); ultrasonic testing (UT); liquid penetrant (PT); electromagnetic testing (ET); neutron radiographic (NR); leak testing (LT); acoustic emission (AE); and visual testing (VT). This requirement is captured in:

- P 330-8, *Inspection and Test for Acceptance.*

5.2.2 Detailed Flow-Down of Criterion 2 Requirements

The requirement-by-requirement flow-down of Criterion 2 requirements into implementing documents is provided in Section 2 of the QPIM. The EP Directorate QPIMs will be reviewed when subsequent revisions to the implementing procedures are made to ensure requirements have not been deleted, changed or added.

5.3 Criterion 3–Quality Improvement

5.3.1 Implementing Procedures

The EP Directorate follows the following ISDs to implement the requirements of Criterion 3, Quality Improvement:

- ISD 322-1, *Management Assessment*;

- ISD 322-4, *Issues and Corrective Action Management Process*;
- ISD 322-6, *LANL Causal Analysis and Trending;*
- ISD 328-1, *Independent Assessment*;
- ISD 330-9, *Suspect/Counterfeit Items*; and
- P 330-6, *Nonconformance Reporting.*

5.3.2 Detailed Flow-Down of Criterion 3 Requirements

The requirement-by-requirement flow-down of Criterion 3 requirements into implementing documents is provided in Section 3 of the QPIM. The EP Directorate QPIMs will be reviewed when subsequent revisions to the implementing procedures are made to ensure requirements have not been deleted, changed or added.

5.4 Criterion 4–Documents and Records

5.4.1 Implementing Procedures

The EP Directorate's processes for document control, including preparation, review, approval, issuance, use, and revision of documents; and records management, including specification, preparation, review, approval, and maintenance of records, are described in the following procedures:

- EP-DIR-SOP-4001, *Document Control*;
- EP-DIR-SOP-4003, *Records Management;*
- EP-DIR-SOP-4004, *Records Transmittal and Retrieval Process;*
- ISD 315-1, *LANL Conduct of Operations Manual*; and
- ISD 781-1, *Conduct of Training Manual.*

Responsibilities for each of the document control and records management activities are described within the documents.

5.4.2 Detailed Flow-Down for Criterion 4 Requirements

The requirement-by-requirement flow-down of Criterion 4 requirements into implementing documents is provided in Section 4 of the QPIM. The EP Directorate QPIMs will be reviewed when subsequent revisions to the implementing procedures are made to ensure requirements have not been deleted, changed or added.

5.5 Criterion 5–Work Processes

5.5.1 Implementing Procedures

The EP Directorate follows the following institutional-level, directorate-level, and local procedures to ensure compliance with work processes requirements:

- ISD 315-1, *Conduct of Operations Manual;*
- EP-DIR-SOP-5006, *Control of Measuring and Test Equipment;*
- EP-DIR-SOP-8001, *Inspection, Test, and Acceptance*;
- EP-ERSS-SOP-5058, *Sample Control and Field Documentation*;
- EP-ERSS-SOP-5085, *Chain-of-Custody for Analytical Data Packages;*
- ISD 322-1, *Management Assessment;*
- ISD 330-5, *Special Processes;*
- ISD 330-8, *Inspection and Test for Acceptance;*
- ISD 330-9, *Suspect/Counterfeit Items;*
- ISD 330-11, *Control of Items;*
- P 330-6, *Nonconformance Reporting;*
- P 840-1, *Procurement Quality* and;
- PD 341-1, *Engineering Processes Manual.*

5.5.2 Instructions, Procedures, and Drawings

The EP Directorate performs work in accordance with technical standards, administrative controls, and hazard controls which meet regulatory or contract requirements. The EP Directorate implements the ISD 315-1, *LANL Conduct of Operations Manual*, when preparing, reviewing, approving, and revising procedures.

5.5.3 Control of Special Processes

The EP Directorate does not perform special processes as defined in ASME NQA-1-2000 (e.g., heat treating, etc.); however, these activities are subcontracted. The EP Directorate specifies ASME NQA-1-2000 requirements to the subcontractors through the Exhibit H. The EP Directorate requires individuals who perform special processes to be qualified in accordance with ASME NQA-1-2000 requirements. ISD 330-5, *Special Processes,* is the LANL procedure for special processes. The EP Directorate uses ISD 341-2, *Engineering Standards Manual,* Chapter 13, Welding and Joining, when having welding activities performed.

5.5.4 Identification and Control of Items

EP Directorate activities include sampling and analysis; hence, the requirements for identification and control of items pertain mainly to samples. Several technical procedures address identification and control of samples, including the following:

- EP-ERSS-SOP-5058, *Sample Control and Field Documentation;*
- SOP-06.10, *Hand Auger and Thin-Wall Tube Sampler*;
- SOP-06.09, *Spade and Scoop Method for the Collection of Soil Samples*; and
- EP-ERSS-SOP-5085, *Chain-of-Custody for Analytical Data Packages*.

For controlling any items other than samples the following is used:

- ISD 330-11, *Control of Items.*

5.5.5 Control of Measuring and Test Equipment

Equipment calibration activities are performed by the Manufacturing Quality Division, Standards and Calibration Laboratory, MQ-3 or are performed by subcontractors. Calibrated equipment is used for process monitoring, data collection, and/or inspections and tests. The EP Directorate specifies ASME NQA-1-2000 requirements to the subcontractors through Exhibit H where appropriate. The requirements to control processes for calibration and maintenance of equipment used for process monitoring, data collection, or inspections and tests are described within the EP Directorate procedure EP-DIR-SOP-5006, *Control of Measuring and Test Equipment*.

The EP Directorate ensures tools, gages, instruments, and other M&TE used for activities affecting quality are controlled, calibrated at specified periods, and adjusted and maintained to require accuracy limits as appropriate based on the applicable ML. Manufacturer's recommendations regarding maintenance and service schedules are followed. Selection of M&TE is based on the type, range, accuracy, and tolerance needed to accomplish the required measurements for determining conformance to specified requirements.

Calibration of M&TE is to be performed at prescribed time periods or usage or whenever the accuracy of the equipment is suspect. Calibration of M&TE is required to be against certified equipment having known valid relationships to nationally recognized standards (e.g., the National Institute of Standards and Traceability). If nationally recognized standards do not exist, the basis for calibration is required to be documented.

5.5.6 Handling, Storage, and Shipping

WES is responsible for handling and shipping samples from the field to the Sample Management Office (SMO), and from the SMO to the appropriate laboratory. The processes for handling, packaging, and shipping of samples to prevent damage, loss, or deterioration are described in procedure:

- EP-ERSS-SOP-5057, *Handling, Packaging, and Transporting Field Samples*.

EWMO is responsible for handling and shipping waste in accordance with the requirements contained in:

- IPP 525, *Hazardous Material (Hazmat) Packaging and Transportation.*

This institutional document complies with the requirements of the Department of Transportation (DOT) regulations in 49 CFR Parts 106 through 180.

5.5.7 Inspection, Test and Operating Status

For inspection and test activities the EP Directorate uses:

- EP-DIR-SOP-8001, *Inspection, Test, and Acceptance*;
- ISD 330-8, *Inspection and Test for Acceptance*

For indicating operating status of systems and components in nuclear facilities EP Directorate follows:

- ISD 101-19, *Safety Signs, Labels, and Tags* and
- ISD 315 -1, *Conduct of Operations Manual*.

To prevent inadvertent operation of systems and components the following is used:

- ISD 101-3, *Lockout/Tagout for Hazardous Energy Control*.

5.5.8 Control of Nonconforming Items

For documentation and control (i.e., segregation, identification) of nonconforming items the EP Directorate follows:

- P 330-6, *Nonconformance Reporting*.

5.5.9 Detailed Flow-Down of Criterion 5 Requirements

The requirement-by-requirement flow-down of Criterion 5 requirements into implementing documents is provided in Section 5 of the QPIM. The EP Directorate QPIMs will be reviewed when subsequent revisions to the implementing procedures are made to ensure requirements have not been deleted, changed or added.

5.6 Criterion 6–Design

5.6.1 Implementing Procedures

The EP Directorate does not conduct design activities; however, these activities are subcontracted to local contractors or other LANL organizations (e.g., the Engineering Directorate). The EP Directorate specifies to the subcontractor through an Exhibit H the requirements from:

- PD 341-1, *Engineering Process Manual.*

5.6.2 Software Quality Management

Software quality management is conducted in accordance with:

- LIR 308-00-05, *Software Quality Management*.

5.6.3 Detailed Flow-Down of Criterion 6 Requirements

The requirement-by-requirement flow-down of Criterion 6 requirements into implementing documents is provided in Section 6 of the QPIM. The EP Directorate QPIMs will be reviewed when subsequent revisions to the implementing procedures are made to ensure requirements have not been deleted, changed or added.

5.7 Criterion 7–Procurement

5.7.1 Implementing Procedures

The process the EP Directorate uses to conduct procurement activities is described in:

- P 840-1*, Procurement Quality*:
- ISD 840-2*, Requester Guide for Meeting Requirements for Procurement of Items and Services*:
- AP-341-703, *Item Dedication*.

QA-PQ conducts audits of suppliers and potential suppliers for EP in accordance with procedure

- ISD 330-4, *Supplier Evaluations*.

WES is required to meet the requirements of the March 1, 2005 NMED Compliance Order on Consent. The QA/QC requirements for subcontracted analytical services are passed down through the procurement process (i.e., Exhibit H).

5.7.2 Material Request System

To meet Institutional requirements identified in ISD 840-1, *Procurement Quality*, as well as the provisions of NQA-1 Requirement 4, Procurement Document Control, the Material Request (MR) System was developed. The MR system is a web-based application with a graphical user interface for requesting items and/or services prior to their being purchased. The system's electronic review and approval path allows the MR to be reviewed (as applicable) for engineering requirements, quality assurance requirements, and management concurrence. The approval path also includes a review and approval by budget personnel for accounting, budget allocation determinations, and assignment of program codes.

This system is utilized to achieve the following objectives:

a) Establish an auditable system to monitor, track, and report on procurement activities;

b) Establish concentrated efforts and consistency on procurement practices;

c) Establish primary point of contact for vendors, procurement personnel, budget personnel, and quality assurance personnel;

d) Establish a central location for procurement documentation;

e) Reduce processing time for purchases; and

f) Reduce costs associated with incorrect purchases.

5.7.3 Detailed Flow-Down of Criterion 7 Requirements

The requirement-by-requirement flow-down of Criterion 7 requirements into implementing documents is provided in Section 7 of the QPIM. The EP Directorate QPIMs will be reviewed when subsequent revisions to the implementing procedures are made to ensure requirements have not been deleted, changed or added.

5.8 Criterion 8–Inspection and Acceptance Testing

5.8.1 Implementing Procedures

Inspections and/or acceptance testing are conducted in accordance with:

- P 330-8, *Inspection and Test for Acceptance.*

Items found to be deficient during inspections will be documented and controlled in accordance with:

- P 330-6, *Nonconformance Reporting.*

Qualification of LANL inspection and test personnel is conducted by the Procurement Quality Group, QA-PQ, in accordance with:

- PD 036, *Qualification of Inspection and Test Personnel.*

5.8.2 Detailed Flow-Down of Criterion 8 Requirements

The requirement-by-requirement flow-down of Criterion 8 requirements into implementing documents is provided in Section 8 of the QPIM. The EP Directorate QPIMs will be reviewed when subsequent revisions to the implementing procedures are made to ensure requirements have not been deleted, changed or added.

5.9 Criterion 9–Management Assessment

5.9.1 Implementing Procedures

The EP Directorate management conducts management assessments in accordance with the following documents:

- ISD 322-1, *Management Assessment;*

- ISD 322-4, *Issues and Corrective Action Management*; and
- ISD 322-7, *Management Observation and Verification*.

5.9.2 Detailed Flow-Down of Criterion 9 Requirements

The requirement-by-requirement flow-down of Criterion 9 requirements into implementing documents is provided in Section 9 of the QPIM. The EP Directorate QPIMs will be reviewed when subsequent revisions to the implementing procedures are made to ensure requirements have not been deleted, changed or added.

5.10 Criterion 10–Independent Assessment

5.10.1 Implementing Procedures

CAO-AM and QA-IQ are the primary organizations responsible for leading and performing independent assessments, and they are performed in accordance with the following documents:

- ISD 322-4, *Issues and Corrective Action Management Process;*
- ISD 328-1, *Independent Assessment;*
- P330-3, *Quality Audits;*
- PD 017, *Auditor/Lead Auditor Training and Qualification;*
- QA-IA-AP-002, *Surveillance Procedure.*

When the EP Directorate's QA Team conducts an independent assessment, they follow the above requirements documents. Surveillances conducted by the EP Directorate's QA Team are performed in accordance with the QAD procedure:

- QA-IA-AP-002, *Surveillance Procedure.*

EP Directorate personnel who conduct independent assessments are qualified and certified by the QAD in accordance with the requirements of ASME NQA-1-2000, which are described in:

- PD 017, *Auditor/Lead Auditor Training and Qualification.*

5.10.2 Detailed Flow-Down of Criterion 10 Requirements

The requirement-by-requirement flow-down of Criterion 10 requirements into implementing documents is provided in Section 10 of the QPIM. The EP Directorate QPIMs will be reviewed when subsequent revisions to the implementing procedures are made to ensure requirements have not been deleted, changed or added.

6.0 REFERENCES

The following are documents referenced within this Quality Assurance Plan:

- 10 CFR 830.122, *Quality Assurance Criteria;*
- AP-341-703, *Item Dedication;*
- ASME NQA-1-2000, Quality Assurance Requirements for Nuclear Facility Applications, Part 1, *Requirements for Quality Assurance Programs for Nuclear Facility Applications;*
- DOE Order 414.1C, *Quality Assurance;*
- EP-DIR-QAP-0002, *Quality Plan Implementing Matrices;*
- EP-DIR-SOP-2011, *Personnel Training and Qualification*;
- EP-DIR-SOP-4001, *Document Control;*
- EP-DIR-SOP-4003, *Records Management;*
- EP-DIR-SOP-4004, *Records Transmittal and Retrieval Process;*
- EP-DIR-SOP-5006, *Control of Measuring and Test Equipment*;
- EP-DIR-SOP-8001, *Inspection, Test, and Acceptance*;
- EP-ERSS-SOP-5057, *Handling, Packaging, and Transporting Field Samples*;
- EP-ERSS-SOP-5058, *Sample Control and Field Documentation*;
- EP-ERSS-SOP-5085, *Chain-of-Custody for Analytical Data Packages*;
- IMP 300, *Integrated Work Management ;*
- IP 300, *Integrated Management;*
- IP 330, *Los Alamos National Laboratory Quality Assurance Program;*
- IP 300-SD1, *Integrated Safety Management System Description Document with Embedded 10 CFR 851 Worker Safety and Health Program*;
- IPP 525, *Hazardous Materials (HAZMAT) Packaging and Transportation*;
- ISD 101-3, *Lockout/Tagout for Hazardous Energy Control;*
- ISD 101-19, *Safety Signs, Labels, and Tags*;
- ISD 315-1, *LANL Conduct of Operations Manual*;
- ISD 322-1, *Management Assessment;*
- ISD 322-4, *Issues and Corrective Action Management Process*;
- ISD 322-6, *LANL Causal Analysis and Trending;*

- ISD 322-7, *Management Observation and Verification*;
- ISD 328-1, *Independent Assessment;*
- ISD 330-4, *Supplier Evaluations;*
- ISD 330-5, *Special Processes;*
- ISD 330-8, *Inspection and Test for Acceptance*;
- ISD 330-9, *Suspect/Counterfeit Items;*
- ISD 330-11, *Control of Items;*
- ISD 341-2, *Engineering Standards Manual*;
- ISD 781-1, *Conduct of Training Manual;*
- ISD 840-2, *Requester Guide for Meeting Requirements for Procurement of Items and Services;*
- ISD 951-1, *LANL Conduct of Maintenance Manual;*
- LIR 308-00-05, *Software Quality Management;*
- NMED Compliance Order on Consent, March 1, 2005;
- P 101-18, *Procedure for Pause/Stop Work*;
- P 330.1, *Graded Approach Guidance*;
- P 330-6, *Nonconformance Reporting;*
- P 840-1, *Procurement Quality;*
- PD 017, *Auditor/Lead Auditor Training and Qualification;*
- P 330-3, *Quality Audits;*
- PD 036, *Qualification of Inspection and Test Personnel;*
- PD 341-1, *Engineering Processes Manual;*
- QA-IA-AP-002, *Surveillance Procedure*;
- SOP-06.09, *Spade and Scoop Method for the Collection of Soil Samples;*
- SOP-06.10, *Hand Auger and Thin-Wall Tube Sampler*.

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

If you do not possess a CRYPTOCard or encounter problems, contact the ERSS training specialist.