U.S. DEPARTMENT OF ENERGY

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

OFFICE OF QUALITY ASSURANCE

AUDIT REPORT

OF

SANDIA NATIONAL LABORATORIES

AUDIT NUMBER YMP-92-03

CONDUCTED NOVEMBER 5 THROUGH 7, 1991

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ENCLOSURE

EXECUTIVE SUMMARY

As a result of Quality Assurance Audit YMP-92-03, it was determined that Sandia National Laboratories (SNL) is satisfactorily implementing an effective Quality Assurance Program in accordance with the SNL Quality Assurance Program Description and implementing procedures for criteria 4.0, 7.0, 8.0, and 13.0. Criterion 12.0 was considered indeterminate due lack of activity.

The Audit Team identified one deficiency during the course of the audit. SNL documented the deficiency on a Deviation Report (DR) in accordance with their Quality Assurance Implementing Procedure QAIP 16-02, Revision 0. The DR was closed by SNL prior to the audit exit.

1.0 INTRODUCTION

This report contains the results of the Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance (QA) Audit No. YMP-92-03 performed at Sandia National Laboratories (SNL) by a team of auditors from the Yucca Mountain Quality Assurance Division (YMQAD) of the Office of Quality Assurance (OQA). The audit was conducted November 5 through 7, 1991, at the SNL offices in Albuquerque, New Mexico.

2.0 AUDIT SCOPE

This audit evaluated selected portions of the SNL QA Program to determine whether it met the requirements and commitments imposed by the OCRWM as reflected in the SNL Quality Assurance Program Description (QAPD), Revision 0 and implementing procedures. This was done by verifying implementation and effectiveness of the system in place, as well as verifying adequate compliance with requirements.

Corrective Action Request (CAR) YM-91-081 identified during the previous YMQAD Audit YMP-91-07 was evaluated for closure during the audit. Based on objective evidence reviewed, the audit team recommends closing Corrective Action Request (CAR) No. YM-91-081.

The programmatic elements evaluated during the audit are identified below:

4.0 Procurement Document Control
7.0 Control of Purchased Items and Services
8.0 Identification and Control of Materials, Parts, Components & Samples
12.0 Control of Measuring and Test Equipment
13.0 Handling, Storage, and Shipping

The following programmatic elements were considered during development of the audit scope and determined to be not applicable since SNL has no activities for which these elements apply:

9.0 Control of Processes
10.0 Inspection
14.0 Inspection, Test and Operating Status

3.0 AUDIT TEAM AND OBSERVERS

Stephen R. Dana, Audit Team Leader, Programmatic Elements 8.0 and 13.0
Donald J. Harris, Auditor, Programmatic Elements 4.0 and 7.0
Terry W. Noland, Auditor, Programmatic Elements 12.0

Note: There were no Observers participating in this audit.

4.0 PERSONNEL CONTACTED

For personnel contacted during the audit, see Enclosure 1.

5.0 AUDIT RESULTS

5.1 Program Effectiveness

Overall, SNL is satisfactorily implementing an effective QA Program in accordance with the SNL QAPD and implementing procedures. No program elements or procedures were found to be ineffective; however, criterion 12.0 was considered indeterminate due to lack of activity. An effectivity statement for each element audited is provided below:

1. Criteria 4 and 7

   Based on: (1) the results of audit YMP-91-07 of SNL, conducted in August 1991; (2) the limited time between this audit and audit YMP-91-07; (3) the subsequent processing of Purchase Requisition (PR) 87-5104; (4) the completed review of the contracts required by Deficieny Report (DR) 91-009; and (5) the development of the Procurement Tracking System, these elements of the SNL QA Program are being effectively implemented.

2. Criterion 8

   This element of the SNL QA Program is being effectively implemented. However, the only samples that have been determined by SNL to be potentially "Quality Affecting" are the Busted Butte tuff samples.

3. Criterion 12

   This element of the SNL QA Program is indeterminate due to the lack of quality-affecting activities involving Measuring and Test Equipment (M&TE) since audit YMP-91-07.

4. Criterion 13

   This element of the SNL QA Program is being effectively implemented for geotechnical sample storage. This element is indeterminate for items since there is no quality-affecting hardware presently being stored at SNL.

5.2 Corrective Action Requests (CARs)

No Corrective Action Requests (CARs) were issued as a result of this audit. However, verification of corrective action for CAR YM-91-081, issued as a result of audit YMP-91-07, was performed and the audit team recommends that this CAR be closed.

5.3 Corrective Action Taken During the Audit

A deficiency was identified during the audit concerning SNL procedure QAIP 08-01, Revision 0, Paragraph 5.2.2.1. SNL documented the deficiency on Deviation Report (DR) No. 92-05. The DR was closed by SNL prior to the audit exit.

5.4 Audit Details

For details of items and activities examined during the audit, see Enclosure 2 and 3.

6.0 RECOMMENDATIONS

During the audit, several areas were identified within the SNL QA Program where there are opportunities for improvement. The following recommendations are offered for SNL management consideration:

1. The audit team performed a review of SNL procedure QAIP 08-01, Revision 0, to Yucca Mountain Site Characterization Project Administrative Procedures--Quality AP-6.3Q, Revision 0 and AP-6.4Q, Revision 0. Sample collection, processing, and identification requirements addressed in the APs did not appear to be adequately addressed in QAIP 08-01. The audit team recommends that SNL review their procedure QAIP 08-01 against the requirements stated in the APs. It should be noted that there is no impact at this time because SNL has not processed or obtained any quality affecting samples through the Sample Management Facility (SMF).

2. During review of SNL procedure QAIP 12-01, Revision 00 it was found that several good practice requirements for calibration certification records within DOP 12-01, Revision D became optional requirements in QAIP 12-01, Revision 00. These calibration certification record requirements that are now optional include the following:

   a. Identification of the calibration procedure including revision used.

b. Identification of the calibration equipment and measurement standard used.

c. The date the next calibration check is due.

It is recommended that SNL revisit the decision to make these optional requirements as they are normal good practice requirements for calibration certification records.

7.0 ENCLOSURES

Enclosure 1: Personnel Contacted During The Audit
Enclosure 2: Audit Details
Enclosure 3: Objective Evidence Reviewed During The Audit

ENCLOSURE 1

PERSONNEL CONTACTED DURING THE AUDIT

NAME	ORGANIZATION	PRE-AUDIT MEETING	DURING AUDIT	POST-AUDIT MEETING
T. Arth	SNL		X	
T. Blejwes	SNL			X
L. Costin	SNL	X		
A. Davis	MACTEC		X	
J. Friend	MACTEC	X	X	X
D. Hawkinson	MACTEC	X		X
L. Heflebower	LATA	X		
A. Hotchkiss	SNL	X		X
J. Letz	SNL	X	X	X
B. Lewis	Technadyne	X		X
F. Nimick	SNL	X	X	X
T. Orth	SNL	X	X	X
M. Ostrande	SNL			X
R. Price	SNL	X	X	X
R. Richards	SNL	X	X	X
F. Schelling	SNL			X
S. Sharpton	SNL	X		X
L. Shepard	SNL	X		
G. Smit	SNL	X	X	X
J. Voigt	MACTEC	X		X

ENCLOSURE 2

AUDIT DETAILS

The following is a summary of programmatic activities evaluated during the audit. A list of objective evidence reviewed for these activities is identified in Enclosure 3.

4.0 Procurement Document Control

Since the Yucca Mountain Site Characterization Project Office (YMPO) audit (YMP-91-07) of Sandia National Laboratories (SNL), performed in August 1991, only one procurement has been initiated.

Verified Purchase Requisition (PR) 87-5104. This PR is currently being processed in accordance with QAIP 04-01, which requires the services of Gram Incorporated to work under the direct supervision of the SNL requester.

The QA control specification record Work Breakdown Structure (WBS) 1.2.3.6.2.1.6, based on the QA grading report for this WBS, identified the Regional Climate Modeling Program as quality-affecting. Consequently, the PR was identified as quality-affecting and is being processed with all the requirements specified for quality-affecting activities. Actually, this PR is for the services of a second person working under the direct supervision of the SNL requester, monitoring the contract with the National Center for Atmospheric Research (NCA) under SNL's QA Program. Thus, in the opinion of the auditor, the PR should have been marked as QA-Not Applicable, since the activity of procuring a staff member is not quality-affecting.

During the previous Audit YMP-91-07, SNL DR 91-009 was noted against SNL's procurement documents. This DR was initiated on January 4, 1991, and subsequently dispositioned, requiring revision of QAIP 04-01, Revision 00, and a review of all quality-affecting procurement documents for incorporation of the appropriate requirements identified in QAIP 04-01. DR 91-009 is still open due to draft QAIP 04-01, Revision 01, comments which has been escalated for resolution between the QA Division Supervisor and the Technical Project Officer. It was noted that extensions to the DR have been processed and approved.

Also, DR 91-009 was reviewed for Items 2 and 3 which were successfully completed on September 30, 1991. This was based on SNL verifying that, of the 64 current contracts, 36 were identified as important to safety and waste isolation (quality-affecting). This classification was reverified by review against the QA Grading Reports to ensure correct classification of the 36 contracts. The SNL review indicated that 34 of the contracts either had the proper requirements or the requirements were incorporated via Change Orders prior to the review. Only two contracts

required revision based on the review, they were J.P. Agapita, P.O. No. 42-0096 and LATA P.O. No. 23-9587. These two contracts were subsequently rewritten with the proper requirements.

The SNL financial assistant has developed a Procurement Document Tracking System. Based on the needs of a particular individual or organization, a report can be provided in any format with the requested information. The auditor considers this a Program Plus.

7.0 Control of Purchased Items and Services

No new contracts have been awarded and no new contractor programs have been evaluated or requalified since audit YMP-91-07 of SNL in August of 1991.

8.0 Identification of Materials, Parts, Components and Samples

The SNL QAPD states that the control of materials, parts, and components, associated with engineered items, are not within the SNL scope of work. Therefore, only controls applied by SNL for identification and control of samples was verified.

Compliance with QAIP 08-01 "Sampling Identification and Handling Requirements" and DOP 08-02 "Operation of the SNL NWRT Samples Library" was verified by checking chain-of-custody forms, physical sample identification, log-in and log-out notebooks at the samples library, storage conditions at the samples library, and extensive interviews with the SNL Principal Investigator (PI) and Activity Division Director. In addition, verified that the personnel involved in sample control have been trained to the procedures listed above and the SNL QAPD, Revision 0.

All samples currently under the control and responsibility of SNL are considered unqualified (i.e., samples collected prior to implementation of an approved QA plan). In addition, the only samples that SNL may qualify are Busted Butte tuff samples, currently at New England Research (NER). Some of the work at NER is considered quality-affecting; therefore, the Busted Butte tuff samples were used as the primary focus for sample control verification by the audit team. Other samples under the control of SNL are Apache Leap core, G-Tunnel core, and Calico Hills core.

12.0 Control of Measuring and Test Equipment

QAIP 12-01, Revision 00, (which replaced DOP 12-01, Revision D), became effective since the conduct of Audit YMP-91-07 of SNL in August, 1991. This new procedure was reviewed and found to satisfactorily flow-down from the SNL QAPD Criteria 12 requirements.

There has been no quality-affecting measuring and test equipment in use at SNL since audit YMP-91-07. There is quality-affecting measuring and test equipment in use at SNL's supplier, NER. One calibration record had been submitted to SNL by NER since audit YMP-91-07 and this record was reviewed against the requirements of QAIP 12-01, Revision 00. No deficiencies were found.

Three SNL supplier calibration procedures that were issued as SNL Technical Procedures were verified to meet the calibration procedure requirements of QAIP 12-01, Revision 00.

13.0 Handling, Storage and Shipping

At the time of the audit, there were no quality-affecting items at SNL. Compliance with geotechnical sample handling and shipping was verified in parallel with Criterion 8.0.

ENCLOSURE 3

OBJECTIVE EVIDENCE REVIEWED DURING THE AUDIT

PLANS

SNL QAPD, Revision 00

PROCEDURES

DOP 08-02, Revision C & ICN 01	Operation of the SNL NWRT Department Samples Library
DOP 13-01, Revision D	Identification, Handling, Shipping, and Storage of Items
QAIP 04-01, Revision 00 & ICN 01	Procurement
QAIP 07-03, Revision 00	Evaluation of Contractor QA Program Documents
QAIP 08-01, Revision 00	Sample Identification and Handling Requirements
QAIP 11-01, Revision 01	Experiment Procedure Requirements
QAIP 12-01, Revision 00	Measuring and Test Equipment Calibration
TP-095, Revision 0 & ICN 01	Furnace and Thermocouple Calibration at New England Research, Inc.
TP-096, Revision 00 & ICN 01	Pressure Transducer Calibration at New England Research, Inc.
TP-201, Revision 00	Calibration of Mechanical and Electrical Measuring Equipment used for Thermal Properties Testing
AP-6.3Q, Revision 00 & ICN 1	Interaction of Participants and Outside Interests with Yucca Mountain Project Sample Management
AP-6.4Q, Revision 0 & ICNs 1 & 2	Procedure for Submittal, Review, and Approval of Requests for Yucca Mountain Project Geologic Samples

PURCHASE REQUISITIONS (PR)

PR 87-5104

CALIBRATION CERTIFICATION RECORDS

Pressure Transducer C37528 conducted 8/13/91

GEOLOGIC SAMPLES FOR PHYSICAL IDENTIFICATION

G2-1411.9-SNL-A1
BB-10AE-76-SNL-W
BB-10AE-59-SNL-W

GEOLOGIC SAMPLES FOR CHAIN-OF-CUSTODY FORMS

BB-10AE-16W-SNL
BB-10AE-18Y-SNL
BB-10AE-19X-SNL
BB-10AE-212-SNL
BB-10AE-26X-SNL
BB-10AE-36X-SNL
BB-10AE-79B-SNL
BB-10AE-42Y-SNL
BB-10AE-46Y-SNL
BB-10AE-54-SNL
BB-10AE-55-SNL

GEOLOGIC SAMPLES SUBDIVIDED

BB-10AE-38W-SNL; Subsamples A1, A2, A3, A4 (all subsamples retired)
BB-10AE-40Z-SNL; Samples A1, A2, A3, A4 (all subsamples retired)
BB-10AE-59-SNL; Subsamples A1, W (retired)
BB-10AE-84-SNL; Subsamples A1, W (both retired)

SMALL GEOLOGIC SUBSAMPLES

C-10M-AA-XRF-031
C-10M-AA-XRF-029
C-10M-XRD-026
C-10M-XRD-025

MISCELLANEOUS

Samples Library Log-in and Log-out Notebooks

QA Control Specification Record for WBS 1.2.3.6.2.1.6

QA Grading Report for WBS 1.2.3.6.2

Deviation Report (DR) 91-009

Training Records of 2 SNL personnel