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PROJECT OFFICE QUALITY ASSURANCE AUDIT REPORT FOR

THE YUCCA MOUNTAIN PROJECT OFFICE AUDIT OF

LOS ALAMOS NATIONAL LABORATORY

AUDIT NO. 89-7

CONDUCTED NOVEMBER 13-17, 1989

AND

NOVEMBER 27-28, 1989

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Date: 12/13/89

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Dale Hedges, Manager  
Quality Assurance Verification Department

Date: 12-13-89

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Yucca Mountain Project Office

Date: 12/20/89

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ENCLOSURE

EXECUTIVE SUMMARY

PROJECT OFFICE AUDIT REPORT NO. 89-7

LOS ALAMOS NATIONAL LABORATORY

LOS ALAMOS, NEW MEXICO

NOVEMBER 13-17, 1989

AND

LAS VEGAS, NEVADA

NOVEMBER 27-28, 1989

In the opinion of the Yucca Mountain Project Office (Project Office) audit team, the Los Alamos National Laboratory (Los Alamos) Quality Assurance (QA) Program is inadequate or indeterminate as detailed below:

1. Some procedures are considered to be inadequate (i.e., they do not contain sufficient guidance to assure effective implementation of the Los Alamos QA program). In addition, based on the number of procedural deficiencies identified during the audit, the overall review process should be re-evaluated and a consistent approach developed to assure that the process is capable of identifying procedural weaknesses and inconsistencies.
2. Training and qualification procedures are not consistently followed. For example, documentation and forms for training and qualification are not consistent among the various Los Alamos organizational elements, and some personnel were not fully aware of their training responsibilities. Therefore, the effectiveness of the training and qualification process is considered to be indeterminate.
3. Technical review of procedures is considered to be inadequate. There is not a consistent approach as to how a technical review is defined or how the review should be documented.
4. In as much as numerous deficiencies were identified relative to the Los Alamos QA Program Plan (QAPP), Revision 4.4, Section 16, "Corrective Action", the Corrective Action program is considered to be inadequate.

5. Based on the number of deficiencies identified during the audit and the inadequate or indeterminate areas identified in items 1 through 4 above, the Los Alamos audit and surveillance implementation program is considered to be inadequate in effectively identifying and assessing program deficiencies or weaknesses.

Additional actions are required by Los Alamos to assure that sufficient controls are in place for the overall control of its quality-related activities.

It should be noted that the Los Alamos Software Quality Assurance Plan (SQAP) has not been approved by the Project Office. Therefore, the audit team was unable to verify that the Los Alamos QA software program met the provisions of the Project Office QA Plan (QAP), NNWSI/88-9, Revision 2.

Issued during the course this audit were 12 Standard Deficiency Reports (SDRs). In addition, a total of 18 Observations were also issued. It should be noted that during the course of the audit, Los Alamos was able to correct nine concerns identified by the auditors. The nine concerns and the actions taken to correct them are described in this report.

It was apparent to the audit team that Los Alamos had put forth a considerable effort to bring their program into compliance with the requirements of NNWSI/88-9, Revision 2. Los Alamos is to be commended for the effort that was put forth during the audit to accommodate the audit team. Of particular note is the amount of time and effort expended by the Los Alamos personnel to correct potential deficiencies identified during the audit.

## 1.0 INTRODUCTION

This report contains the results of a quality assurance audit of the Los Alamos Yucca Mountain Project activities. The audit was conducted at the Los Alamos facilities in Los Alamos, New Mexico, November 13-17, 1989 and at Las Vegas, Nevada, November 27-28, 1989. The audit was conducted in accordance with the requirements of Quality Management Procedure QMP-18-01, Revision 3, "Audit System for the Waste Management Project Office." The QA program requirements to be verified were taken from the Yucca Mountain Project Office (Project Office) QA Plan, NNWSI/88-9, Revision 2.

## 2.0 AUDIT SCOPE

The following program elements were audited to assess compliance with NNWSI/88-9, Revision 2, and the Los Alamos Quality Assurance Program Plan (QAPP), Revision 4.4:

- 1.0 Organization
- 2.0 Quality Assurance Program
- 3.0 Scientific Investigation Control and Design Control
- 4.0 Procurement Document Control
- 5.0 Instructions, Procedures, Plans, and Drawings
- 6.0 Document Control
- 7.0 Control of Purchased Items and Services
- 8.0 Identification and Control of Items, Samples, and Data
- 12.0 Control of Measuring and Test Equipment
- 13.0 Handling, Shipping, and Storage
- 15.0 Control of Nonconforming Items
- 16.0 Corrective Action
- 17.0 Quality Assurance Records
- 18.0 Audits

The following program elements, described in the Los Alamos QAPP, were reviewed prior to the audit and found to be not applicable to the activities assigned to Los Alamos at this time:

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

The scope of this audit also included a review of the following technical activities:

- 1. Technical qualification of scientific investigators and design personnel.

2.0 AUDIT SCOPE (CONTINUED)

2. Understanding of procedural requirements as they pertain to scientific investigation and design control activities.
3. Adequacy of technical procedures.
4. Development of study plans and work supporting the Site Characterization Plan (SCP).

<u>SCP Section</u>	<u>Title</u>
8.3.1.3.2.2	History of Mineralogic and Geochemical Alteration of Yucca Mountain
8.3.1.3.2.1	Mineralogy, Petrology, and Chemistry of Transport Pathways
8.3.1.8.1.1	Probability of a Volcanic Eruption Penetrating the Repository
8.3.1.8.5.1	Characterization of Volcanic Features
8.3.1.3.3.2	Kinetics and Thermodynamics of Mineral Evolution
8.3.1.3.5.1	Dissolved Species Concentration Limits (Solubility Determination)
8.3.1.3.4.1	Sorption
8.3.1.2.3.1	Characterization of the Site Saturated-Zone Ground Water Flow Study (Activity 7, Testing of C Well Sites with Reactive Tracer)
8.3.1.3.4.2	Biological Sorption and Transport

3.0 AUDIT TEAM PERSONNEL

Stephen R. Dana	Audit Team Leader
James Blaylock	Audit Manager
Frank J. Kratzinger	Auditor
Amelia I. Arceo	Auditor
Sidney L. Crawford	Auditor

3.0 AUDIT TEAM PERSONNEL (CONTINUED)

Frederick J. Ruth	Auditor
Mario R. Diaz	Auditor
Kenneth T. McFall	Auditor-In-Training
Jane Hadden	Auditor-In-Training
Dean B. Eppler	Lead Technical Specialist
Carolyn Rutland	Technical Specialist
Paul L. Cloke	Technical Specialist
Martha J. Mitchell	Technical Specialist
John Marchand	Observer, DOE/HQ
Janet Docka	Observer, DOE/HQ
Kenneth Hooks	Observer, (Lead) NRC
Tilak Verma	Observer, NRC
Jeffrey Pohle	Observer, NRC
Michael Gonzalez	Observer, NRC
Susan Zimmerman	Observer, State of Nevada
Don Shettel	Observer, State of Nevada
Maurice Morganstein	Observer, State of Nevada
Larry Ortiz	Observer, DOE/Albuquerque Operations Office
Martha Pendelton	Observer, SAIC
Joe Caldwell	Observer, MACTEC

#### 4.0 SUMMARY OF AUDIT RESULTS

##### 4.1 STATEMENT OF PROGRAM EFFECTIVENESS

In the opinion of the Project Office audit team, the Los Alamos QA program is inadequate or indeterminate in the following areas:

1. Procedures (inadequate)
2. Training and Qualification (indeterminate)
3. Technical Review of Procedures (inadequate)
4. Corrective Action (inadequate)
5. Audit and Surveillance Implementation Program (inadequate)

Based on the above, additional actions are required by Los Alamos to assure that sufficient controls are in place for the overall control of its quality-related activities.

##### 4.2 SUMMARY OF TECHNICAL ACTIVITIES

The technical specialists interviewed principal investigators and members of the Los Alamos scientific staff, and examined samples of various documents to assess the technical adequacy of the implementing plans and procedures for meeting the requirements of the Project Office QA Plan NNWSI/88-9, Revision 2.

In summary, each of the investigators interviewed had a detailed knowledge of their particular program and were aware of the need for maintaining quality throughout their investigations. In all technical discussions, the investigators had an excellent knowledge of the rationale behind their investigations, the uses and limitations of the data their investigations will produce, and of the quality requirements necessary to ensure traceability and reproducibility of their data. It is our opinion that this program is maintaining the high standards seen in previous audits.

##### 4.3 SUMMARY OF FINDINGS

A total of 12 Standard Deficiency Reports (SDRs) were generated as a result of this audit. Information copies of the SDRs are included in Enclosure 3. Eighteen Observations were also issued to Los Alamos which are included in Enclosure 2. A synopsis of SDRs and Observations is discussed in Section 6 of this report. Additionally, this synopsis includes nine concerns that were corrected during the course of the audit.

## 5.0 AUDIT MEETINGS

### 5.1 PRE-AUDIT CONFERENCE

A pre-audit conference was held with the Los Alamos Technical Project Officer (TPO) and his staff at 10:30 a.m. on November 13, 1989. The purpose, scope, and proposed agenda for the audit were presented and the audit team was introduced. A list of those attending is provided in Enclosure 1.

### 5.2 PERSONS CONTACTED DURING THE AUDIT

See Enclosure 1.

### 5.3 POST-AUDIT CONFERENCE

The post-audit conference was held at 2:00 p.m. on November 17, 1989, at the Los Alamos offices in Los Alamos, New Mexico. A synopsis of the preliminary SDRs and observations identified during the course of the audit was presented to the TPO and his staff. The audit of SCP Section 8.3.1.8.1.1, "Probability of a Volcanic Eruption Penetrating the Repository," and the Integrated Data System (audited under Criteria 3) were not completed prior to the post-audit conference. These audit elements were completed in Las Vegas, Nevada; therefore, a separate post-audit conference was held at 2:00 p.m. on November 28, 1989 in Las Vegas to discuss results of these two elements. A list of those attending both post-audit conferences is provided in Enclosure 1.

### 5.4 AUDIT STATUS MEETINGS

Audit status meetings were held with the Los Alamos TPO and his key staff at 8:30 a.m. each day of the audit. A status of how the audit was progressing and identification of discrepancies were discussed.

## 6.0 SYNOPSIS OF STANDARD DEFICIENCY REPORTS, OBSERVATIONS, AND CONCERNS CORRECTED DURING THE AUDIT

### 6.1 STANDARD DEFICIENCY REPORTS

SDR No. 460      The responsibility and authority of each subcontractor for interface control are not defined and documented in a procedure. Additionally, procedure TWS-QAS-QP-01.1, Revision 0, does not provide sufficient details describing the methods of conducting and documenting interorganizational interfaces.

**6.1 STANDARD DEFICIENCY REPORTS (CONTINUED)**

- SDR No. 461      An individual was certified on 5/26/89 to four Quality Procedures (QPs) that do not exist.
- SDR No. 462      The qualification files of two individuals did not satisfy the minimum education requirements identified in the applicable position descriptions nor had supervisors documented the basis for accepting "equivalent experience" in lieu of the normal education requirements.
- SDR No. 463      The Functional Requirements Document (FRD), as reviewed, and subsequently as issued, contained numerous errors and inconsistent structure in the logic elements of the Integrated Data System (IDS) that was not identified by the design review process. Additionally, the FRD referenced the design input source as the Exploratory Shaft Facility (ESF) Subsystem Design Requirement Document (SDRD), Benchmark #5 draft. However, the changes of Benchmark #6 impacted the list of U.S. Department of Energy (DOE) orders in the FRD.
- SDR No. 464      Several study plans, submitted to the Project Office subsequent to the effective date of Administrative Procedure AF-1.10Q, had been technically reviewed in a different form and content than the version actually submitted to the Project Office. No check or review was documented to assure that changes occurring between the technical review and submission to the Project Office either did not impact technical content of the study plan or that an additional review of the changes for technical adequacy was performed.
- SDR No. 465      Several Detailed Procedures (DPs) do not address acceptance and rejection criteria or limits or the applicability of this subject to the work covered by the DP.
- SDR No. 466      During a review of controlled manuals, procedures were found which should have been removed or marked obsolete.
- SDR No. 467      There was no documentation to show that a trend report has been issued on Nonconformance Reports (NCRs) since the effective date of the procedure (6/20/89).

6.1 STANDARD DEFICIENCY REPORTS (CONTINUED)

- SDR No. 468 Numerous deficiencies were identified in the corrective action program.
- SDR No. 469 Audit Report LANL-YMP-89-02 contains the following deficiencies:
1. Audit report response was overdue.
  2. Status of the audit findings was not reported to the QA Project Leader (QAPL).
  3. A Corrective Action Report (CAR) was never issued.
- SDR No. 470 Audit plans do not identify organizations to be notified and the applicable documents to be used during the audit. Additionally, audit checklists do not contain the documented evidence reviewed during the audit, or whether objective evidence examined during the audit was acceptable.
- SDR No. 471 TWS-QAS-QP-02.1, Revision 1, does not require position descriptions to identify needed indoctrination or training. Additionally, position descriptions do not generally identify training and indoctrination requirements.

6.2 OBSERVATIONS

1. A Readiness Review to determine Los Alamos and EG&G readiness to start IDS Title II design was performed in accordance with TWS-QAS-QP-02.3. A completed checklist, adding evaluation results, was issued as a "Checklist Summary Ledger" by Los Alamos Memo TWS-EES-1-LV-10-89-33, Attachment II. However, the actual objective evidence, review comments, and reviewer's signature were recorded on "Readiness Review Objective Evidence Documentation" forms, instead of the "Readiness Review Checklist."
2. The Readiness Review Objective Evidence Documentation forms identified several review items as satisfactory although the reviewer's comments indicated that documents were not in place or activities had not been completed. The review items were not included on the list of open items.

6.2 OBSERVATIONS (CONTINUED)

3. Position Descriptions (PDs) are prepared in accordance with Los Alamos procedure TWS-QAS-QP-02.01 to document the minimum education and experience for each Los Alamos person performing activities that affect quality on the Yucca Mountain Project. PDs are not required to be, and have not been, authenticated by signature and date (or revision) to identify the status of the PDs.
4. Los Alamos procedure TWS-QAS-QP-02.1 provides for qualification files of Los Alamos personnel to be maintained by QA Support (QAS) staff. No qualification file was maintained by QAS for an outside Technical Reviewer who is not a Los Alamos employee, but had been certified to perform Yucca Mountain Project activities.
5. Personnel qualification files, maintained in accordance with Los Alamos procedure TWS-QAS-DP-02.1, did not contain direct evidence of personnel education. The only auditable evidence that employees' education has been verified is supervisory sign off on the Los Alamos Project Resume form, indicating supervisors have "contacted" the personnel department. There are no procedural measures in Los Alamos QPs describing personnel department actions to verify employee education, experience, and level of responsibility.
6. Los Alamos procedure TWS-QAS-QP-02.1 provides for annual certification of Los Alamos personal performing Yucca Mountain Project activities, to include identification of applicable quality and technical procedures and acknowledgment of receipt and understanding of training and/or indoctrination. Documentation of required QPs and DPs was not consistent in the personnel qualification files.
7. Several certification forms (per TWS-QAS-QP-02.1), which are also documentation of annual performance evaluation, were signed by the certifier prior to being signed by the individual. The individual signoff (per QP-02.1, Step 17) is to acknowledge receipt and understanding of indoctrination and training. The supervisor (certifier) signoff (per QP-02.1, Step 19) is to accept the individual's records of indoctrination and training and to document annual proficiency evaluation (QP-02.1, Step 21).

6.2 OBSERVATIONS (CONTINUED)

8. TWS-QAS-QP-18.3, Revision 1, paragraph 6.4, allows point award for lead auditor qualification that are more than allowed by NQA-1 Appendix 2A-3 (Nonmandatory Guidance on the Education and Experience of Lead Auditors). Appendix 2A-3 is identified as a reference by QP-18.3.  
  
TWS-QAS-DP-18.3, Revision 1, paragraph 6.2, does not identify minimum passing lead auditor examination grades.
9. The term "Technical Review" is used in several different contexts, resulting in confusion in review methods, documentation, and resolution of comments.
10. A technical review of a Study Plan was performed, 10/14/88. Comments consisted of one misspelling error and approximately eight line spacing and page break comments, and did not address open (incomplete) items in the study plan.
11. In examining laboratory notebooks, several weaknesses were noted. It was difficult to confirm or locate in the notebooks where procedures that were used are described; the meaning of table entries is not stated; and not all specifications could be read on the photocopy of a spectrum that was affixed into the notebook.
12. LANL-YMP-QAPP, Revision 4.4, identifies several Los Alamos QPs that have not been prepared yet.
13. LANL-YMP-QAPP, Revision 4.4, pages ii through xi, are not identified by revision level. Additionally, page xi and page 42 reference National Bureau of Standards (NBS) instead of National Institute of Standards and Technology (NIST).
14. During a review of DPs, it was noted that technical areas are reviewing DPs differently. Additionally, there was no objective evidence, other than the reviewer's signature on the title page, that a review had been performed.
15. Several Los Alamos DPs do not contain safety information or warnings when hazardous materials or equipment are to be handled as part of the experiment. Procedures should include such information or references to such information in other documents. Technical review of procedures should include the identification of safety issues and such information or references should be added to procedures.

6.2 OBSERVATIONS (CONTINUED)

16. DPs are not required to reference other procedures or documents. This results in a system weakness, in the form of logical disconnects that may eventually lead to implementation errors. This is a possibility particularly when the DP implements higher level QP or programmatic elements. This situation is a problem in the areas of sample management and calibration. Lower level implementing procedures should reference higher level procedures and documents or the lower level procedures must include all information required for implementation of the activity.
17. The extensive number of "to be determined" (TBD) and "open items" in the IDS Functional Requirements Document and the Readiness Review Document indicate weakness in the application of system analysis and system engineering to the activity.
18. In some technical areas, Biological Sorption as an example, the work being done and recorded via the notebook procedure is sufficiently developed and repeated that it could be proceduralized using the DP mechanism. This should be done since it simplifies the information that needs to be recorded in the laboratory notebook and decreases the need for complex referencing in the notebook.

6.3 CONCERNS CORRECTED DURING THE AUDIT

1. The following Los Alamos QPs (for criteria 1, 2, and 3) did not have the Difficulty Importance Frequency (DIF) guidance value of training requirement on the title page:

QP-01.1, Revision 1  
QP-02.1, Revision 1  
QP-02.2, Revision 2  
QP-02.4, Revision 0  
QP-03.1, Revision 0  
QP-03.3, Revision 0

Los Alamos corrected this deficiency by revising the following procedure:

- o TWS-QAS-QP-05.1, "Preparation of Quality Administrative Procedures," Revision 3, Change Request No. 104.

6.3 CONCERNS CORRECTED DURING THE AUDIT (CONTINUED)

2. Los Alamos procedure TWS-QAS-QP-02.4, Revision 0, did not include the requirement for trending management assessment results and TWS-QAS-QP-16.2, Revision 0, did not reference management assessments as input for trend reports. In addition, TWS-QAS-QP-02.4, paragraph 7.1, did not identify the documentation of recommendation resolution and verification (required by paragraph 6.4) to be part of the management assessment records package. Los Alamos corrected the deficiency by revising the following procedure:
  - o TWS-QAS-QP-02.4, "Procedure for Management Assessment," Revision 0, Change Request No. 101.
3. Los Alamos Purchase Requisition No. 8482Y, dated 8/30/89, did not contain a statement delineating that the Project Office shall have the right of access to subtier contractor facilities. It should be noted that this was the only QA Level I noncommercial purchase requisition available for review. Los Alamos corrected this deficiency by issuing NCR No. LA-0029.
4. Los Alamos was using a system to revise already issued NCRs. However, the method to perform this task is not described in TWS-QAS-QP-15.1, Revision 1. It should be noted the procedure did not address:
  1. What allowed a revision to an NCR disposition.
  2. Who should approve the issuance of a revised NCR.
  3. What kind of additional documentation should be part of the revised NCR.

Los Alamos corrected this deficiency by revising the following procedure:

- o TWS-QAS-QP-15.1, "Procedure for Nonconformances," Revision 1, Change Request No. 096.
5. Los Alamos procedure TWS-LS2-DP-401, Revision 0, did not contain a requirement for "Handling, Shipping, and Storage Requirements," per paragraph 8.3 of the procedure. Los Alamos corrected this deficiency by revising the following procedure:
    - o TWS-LS2-DP-401, "Maintenance of Culture Collection," Revision 0, Change Request No. 100.

### 6.3 CONCERNS CORRECTED DURING THE AUDIT (CONTINUED)

6. Los Alamos procedure TWS-INC-DP-62, Revision 2, did not require that the sample identifier be attached, as appropriate, to the sample. Los Alamos corrected this deficiency by revising the following procedure:
  - o TWS-INC-DP-62, "Bulk NTS Well Water Samples," Revision 2, Change Request No. 098.
7. Los Alamos procedure TWS-INC-DP-62, Revision 2, did not define long-term storage of samples, as required by procedure TWS-QAS-QP-08.1, Revision 1, and the Los Alamos QAPP, Revision 4.4. Los Alamos corrected this deficiency by revising the following procedure:
  - o TWS-INC-DP-62, "Bulk NTS Well Water Samples," Revision 2, Change Request No. 098.
8. During a review of Los Alamos DPs, the auditor found that some final DP record packages had not been transmitted to the Records Processing Center (RPC). Los Alamos corrected this deficiency by transmitting the DP record packages to the RPC.
9. Los Alamos procedure TWS-QAS-QP-18.2, Revision 0, did not have a method to ensure that deficiencies and/or programmatic weaknesses identified during surveillances are corrected in a timely manner. Los Alamos corrected this deficiency by revising the following procedure:
  - o TWS-QAS-QP-18.2, "Procedure for Surveys," Revision 0, Change Request No. 103.

### 7.0 RECOMMENDED ACTION

A written response is required for each SDR delineated in Section 6.0. Responses to each SDR are due within 20 working days from the date of the SDR transmittal letter. Upon response, acceptance, and satisfactory verification of all remedial and corrective actions, the SDRs will be closed and Los Alamos notified by letter of closure.

A written response is required for the observations contained in Enclosure 2 of this report. Responses are due within 20 working days from the date of the transmittal letter of this report.

ENCLOSURE 1

LOS ALAMOS NATIONAL LABORATORY  
89-7 AUDIT ROSTER

<u>NAME</u>	<u>ORGANIZATION</u>	<u>TITLE</u>	<u>PRE- AUDIT</u>	<u>CONTACTED</u>	
				<u>DURING AUDIT</u>	<u>POST AUDIT</u>
Aldrich, Jim	LANL	Staff Member	X		X
Arceo, Amelia	SAIC	Auditor	X		X
Bacstow, Jack	LANL	HSE-3 DGL	X		
Barber, Janice	LANL	Staff Assistant	X		X
Barr, Donald W.	LANL	Division Leader			X
Bish, David	LANL	Staff	X	X	
Blaylock, James	DOE	Audit Manager	X		X
Bolivar, Stephen	LANL	Staff Member	X	X	X
Bradbury, John	NRC	Observer	X		
Broxton, David	LANL	Staff	X	X	X
Campbell, Katherine	LANL	Staff Member	X		X
Canepa, Julie A.	LANL	PL	X	X	X
Carlos, Barbara	LANL	Principal Investigator	X	X	X
Caughran, Alison	LANL	Editor			X
Chipern, Steve	LANL	Technician	X	X	
Cisneros, Michael	LANL	Chemical Technician			X
Cloke, Paul	SAIC	Technical Specialist	X		
Cole, Eric M.	LATA	QAS	X	X	X
Crawford, Sid	SAIC	Auditor	X		X (1)
Crowe, B.	LANL	Principal Investigator		X	
Curtis, David	LANL	Group Leader	X		
Dana, Stephen	SAIC	Lead Auditor	X		X (1)
Daniels, William R.	LANL	Group leader			X
Day, John L.	LATA	QAS	X	X	X
Diaz, Mario	DOE	Auditor	X		X
Docka, Janet	Weston	Observer	X		
Duffy, Clarence	LANL	Staff Member	X	X	X
Ebinger, Michael H.	LANL	Staff Member			X
Eggert, Kenneth	LANL	Principal Investigator	X		X
Eppler, Dean	SAIC	Lead Tech. Specialist	X		
Essington, Edward H.	LANL	Staff Member		X	X
Foster, Karen L.	LATA	Records Manager	X	X	X
Gainer, Gabriela M.	LATA	QA Support	X	X	X
Gallegos, Don	DOE/LAAO	Health & Safety Mgr.			X
Gancarz, Alex	LANL	Deputy Division Leader	X		
Gabriel, Giday	LANL	Post Doctoral	X		
Gonzalez, Michael	NRC	Observer	X		
Goulding, Patricia F.	LATA	QA Support	X	X	X
Guthals, Paul	LANL	QAO		X	X
Hadden, Jane	KOH Systems	Auditor-in-Training	X		X
Harrington, Charles D.	LANL	Principal Investigator	X	X	X

LOS ALAMOS NATIONAL LABORATORY  
89-7 AUDIT ROSTER

<u>NAME</u>	<u>ORGANIZATION</u>	<u>TITLE</u>	<u>PRE- AUDIT</u>	<u>CONTACTED</u>	
				<u>DURING AUDIT</u>	<u>POST AUDIT</u>
Hedges, Dale	SAIC	QAVDM			X
Herbst, Richard J.	LANL	TPO	X	X	X
Hersman, Larry	LANL	Staff	X	X	X
Hobart, David E.	LANL	Principal Investigator	X	X	X
Hooks, Kenneth R.	NRC	Observer	X		X
Jones, Marcia	LANL	Word Processor	X		X
Kratzinger, Frank	SAIC	Auditor	X		X
Levy, Schon	LANL	Principal Investigator	X	X	X
Maassen, Larry	LANL	Staff	X	X	X
Mahoney, Patty	LANL	Safety Engineer	X		
Marchand, John	Weston	Observer	X		X
Martinez, Eva L.	LANL	Secretary	X	X	X
McConville, Jim	HARZA	Observer			(1)
McFall, Kenneth	SAIC	Auditor-in-Training	X		X
Mitchell, Alan	LANL	Chemical Technician	X		
Mitchell, Martha	SAIC	Technical Specialist	X		X (1)
Mogar, Deborah	SAIC	Observer	X		X
Morgan, Terry	LANL	QA Liaison	X	X	X
Morgenstein, Maurice	St. of Nev.	Observer	X		X
Morley, Richard	LANL	QAL	X	X	X (1)
Morris, Wayne	LANL	Staff Member	X		X
Meyer, Arend	LANL	Principal Investigator		X	X
Myers, C. W.	LANL	EES Division Leader		X	X
Newman, Brent D.	LANL	Chemical Technician		X	X
Nunes, Henry P.	LANL	QAPL	X	X	X
Oakley, Donald T.	ET-ERA	Staff Member			X
Oblad, Ross	LANL	Staff Member			(1)
Oliver, Ronald	LANL	Staff Member			(1)
Ortiz, E. Larry	DOE/AL	Observer	X		X
Ortiz, Gabriel	LANL	Record Analyst	X	X	
Otero-Bell, Diane	LATA	Support	X		
Ott, Martin A.	LANL	Mechanical Technician	X		X
Palmer, Phillip	LANL	Chemical Technician	X	X	
Polzer, M. L.	LANL	Staff Member			X
Raymond, Robert	LANL	Staff Member	X		
Robertson, Charles	LANL	Division Leader	X		
Ruth, Frederick	SAIC	Auditor	X		X
Salazar, Loyola	LANL	Group Leader	X		
Schempp, Lloyd	LANL	QA Audit Manager	X		X
Shettel, Don	St. of Nev.	Observer	X		
Simondson, Dan	LATA	QA Support	X		X

LOS ALAMOS NATIONAL LABORATORY  
89-7 AUDIT ROSTER

<u>NAME</u>	<u>ORGANIZATION</u>	<u>TITLE</u>	<u>PRE- AUDIT</u>	<u>CONTACTED</u>	
				<u>DURING AUDIT</u>	<u>POST AUDIT</u>
Springer, Everett	LANL	Principal Investigator	X	X	X
Starquist, Virginia	LANL	Collaborator	X		
Thomas, Kimberly	LANL	Deputy Group Leader	X	X	
Tillery, Patricia	LATA	QA Support	X	X	X
Triaz, Ines	LANL	Staff Member		X	X
Vaniman, David	LANL	Staff Member	X		X
Verma, Tilak	NRC	Observer	X		X
Vigil, Rachael	LANL	Secretary	X		X
Watson, Clayton	LANL	QAL-EES-S	X		X
West, Karen	LANL	Staff Member	X	X	
Whetten, John T.	LANL	Associate Director			X
Zimmerman, Susan	St. of Nev.	Observer	X		X

NOTE: (1) Identifies attendance at Post-Audit meeting on November 28, 1989

ENCLOSURE 2

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-7-01**

N-QA-012  
4/89

<b>Completed by Originating Organization</b>	<b>2</b> Noted During: Audit 89-7 (LANL)	<b>3</b> Identified By: S. L. Crawford	<b>4</b> Date: 11/28/89	
	<b>5</b> Organization: Los Alamos Nat'l Lab	<b>6</b> Person(s) Contacted: R. Oliver R. Morley	<b>7</b> Response Due Date is 20 Days from Date of Transmittal	
	<b>8</b> Discussion:  A Readiness Review to determine LANL and EG&G readiness to start IDS Title II design was performed in accordance with LANL procedure TWS-QAS-QP-02.3 (Rev. 0) as directed by LANL letter TWS-EES-13-08-89-103, 8/25/89. QP-02.3 provides for review items, objective evidence, evaluation results, and signature authentication to be recorded on a "Readiness Review Checklist."  The specific review items were listed on a Readiness Review Checklist, issued by LANL memo TWS-EES-1-LV-09-89-62; a completed checklist, adding evaluation			
	<b>9</b> QAE/Lead Auditor  <i>S. Dan</i>	Date 12/13/89	<b>10</b> Branch Manager	Date
<b>Completed by Respondee</b>	<b>11</b> Response:			
	<b>12</b> Signature: _____ Date: _____			
<b>Completed by QA Org.</b>	<b>13</b> Response Receipt Acceptable <input type="checkbox"/>			
	Initiator _____ Date _____	QA/Lead Auditor _____ Date _____		
<b>14</b> Remarks:				

8 Discussion: ( continued )

results, was issued as a "Checklist Summary Ledger" by LANL memo TWS-EES-1-LV-10-89-33, Attachment II. However, the actual objective evidence, review comments, and reviewer's signature were recorded on "Readiness Review Objective Evidence Documentation" forms (TWS-EES-1-LV-10-89-33, Attachment III), instead of the "Readiness Review Checklist." The Objective Evidence Documentation form is not discussed in QP-02.3; as a result, there is no provision to assure retention of the objective evidence documentation as a part of the Readiness Review Data Package (Reference QP-02.3, para. 4.5, 4.7, 4.8, 6.8).

This is documented as an Observation because the Readiness Review Objective evidence Documentation forms contained the equivalent information required by QP-02.3, para. 6.3.2 and the Objective Evidence Documentation forms were included in the Readiness Review Data Package in process of review and comment by the review panel members.

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-7-02**

N-QA-012  
4/89

<b>Completed by Originating Organization</b>	2 Noted During: Audit 89-7 (LANL)	3 Identified By: S. L. Crawford	4 Date: 11/28/89
	5 Organization: Los Alamos Nat'l Lab	6 Person(s) Contacted: R. Oliver, R. Morley	7 Response Due Date is 20 Days from Date of Transmittal
	8 Discussion:  A Readiness Review was conducted during September-October 1989 to determine LANL and EG&G readiness to start IDS Title II design. The Readiness Review Objective Evidence Documentation forms, transmitted by LANL memo TWS-EES-1-LV-10-89-33, 10/19/89, identified several review items as satisfactory although the reviewers' comments indicated that documents were not in place or activities had not been completed. The review items were not included on the list of open items, although nine items, previously marked "satisfactory," were identified during final review and approval of the completed readiness review package to		
<b>Completed by Respondee</b>	9 QAE/Lead Auditor <i>S. Dana</i>	Date 12/13/89	10 Branch Manager  Date
	11 Response:		
	12 Signature: _____ Date: _____		
<b>Completed by QA Org.</b>	13 Response Receipt Acceptable <input type="checkbox"/>	Initiator _____ Date _____	QA/Lead Auditor _____ Date _____
	14 Remarks:		

8 Discussion: ( continued )

remain open due to no objective evidence.

This is documented as an Observation because the Readiness Review Report was still in the review process and had not been issued as a final document. In addition, the preliminary conclusion of the draft transmittal letter is "not ready to start Title II design." Finally, the IDS design effort is being halted per LANL letter TWS-EES-13-11-89-075, 11/20/89.

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-7-03**

N-QA-012  
4/89

Completed by Originating Organization

2 Noted During: Audit 89-7  
(LANL)

3 Identified By: S. L. Crawford

4 Date:  
11/16/89

5 Organization: Los Alamos  
Nat'l Lab

6 Person(s) Contacted: K. Foster

7 Response Due Date  
is 20 Days from Date  
of Transmittal

8 Discussion:

Position Descriptions are prepared in accordance with LANL procedure TWS-QAS-QP-02.1 to document the minimum education and experience for each LANL person performing activities that affect quality on the YMP. Position descriptions are not required to be, and have not been, authenticated by signature and date (or revision) to identify the status of the PDs.

9 QAE/Lead Auditor

Date

*S. Dan*      12/13/89

10 Branch Manager

Date

Completed by Respondee

11 Response:

12 Signature:

Date:

Completed by QA Org.

13 Response Receipt Acceptable

Initiator

Date

QA/Lead Auditor

Date

14 Remarks:

Page

1 of 1

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-7-04**

N-QA-012  
4/89

Completed by Originating Organization

2 Noted During: audit 89-1  
(LANL)

3 Identified By: S. L. Crawford

4 Date:  
11/16/89

5 Organization: Los Alamos  
Nat'l Lab

6 Person(s) Contacted: K. Foster

7 Response Due Date  
is 20 Days from Date  
of Transmittal

8 Discussion:

LANL procedure TWS-QAS-QP-02.1 provides for qualification files of LANL personnel to be maintained by QAS Support (QAS) Staff. No qualification file was maintained by QAS for an outside Technical Reviewer who is not a LANL employee but had been certified to perform YMP activities.

9 QAE/Lead Auditor

Date

*S. L. Crawford*      12/13/89

10 Branch Manager

Date

Completed by Respondee

11 Response:

12 Signature:

Date:

Completed by QA Org.

13 Response Receipt Acceptable

Initiator

Date

QA/Lead Auditor

Date

14 Remarks:

Page

1 of 1

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-9-05**

N-QA-012  
4/89

Completed by Originating Organization

2 Noted During: Audit 89-7  
(LANL)

3 Identified By: S. L. Crawford

4 Date:  
11/16/89

5 Organization: Los Alamos  
Nat'l Lab

6 Person(s) Contacted: K. Foster

7 Response Due Date  
is 20 Days from Date  
of Transmittal

8 Discussion:

Personnel qualification files, maintained in accordance with LANL procedure TWS-QAS-DP-02.1, do not contain direct evidence of personnel education. The only auditable evidence that employees' education has been verified is supervisory sign off on the LANL Project Resume form, indicating supervisors have "contacted" the personnel department. There are no procedural measures in LANL QP's describing personnel department actions to verify employee education, experience, and level of responsibility.

9 QAE/Lead Auditor

Date

*S. Dene*

12/19/89

10 Branch Manager

Date

Completed by Respondee

11 Response:

12 Signature:

Date:

13 Response Receipt Acceptable

Initiator

Date

QA/Lead Auditor

Date

Completed by QA Org.

14 Remarks:

Page

1 of 1

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-7-06**

N-QA-012  
4/89

Completed by Originating Organization

2 Noted During: Audit 89-7  
(LANL)

3 Identified By: S. L. Crawford

4 Date:  
11/16/89

5 Organization: Los Alamos  
Nat'l Lab

6 Person(s) Contacted: K. Foster

7 Response Due Date  
is 20 Days from Date  
of Transmittal

8 Discussion:  
  
 LANL procedure TWS-QAS-QP-02.1 provides for annual certification of LANL personnel performing YMP activities, to include identification of applicable quality and technical procedures and acknowledgement of receipt and understanding of training and/or indoctrination. Documentation of required Quality (QP) and Detailed (DP) procedures was not consistent in the personnel qualification files:  
  
 1. QPs and DPs typed on the certification form

9 QAE/Lead Auditor  
*S. J. Davis*      Date: 12/13/89

10 Branch Manager  
Date

Completed by Respondee

11 Response:

12 Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Completed by QA Org.

13 Response Receipt Acceptable   
  
 Initiator \_\_\_\_\_ Date \_\_\_\_\_

QA/Lead Auditor \_\_\_\_\_ Date \_\_\_\_\_

14 Remarks:

8 Discussion: ( continued )

2. Procedures stated as "attached list," actually attached
3. Procedures stated as "attached list," not attached
4. DPs (only) listed
5. QPs (only) listed
6. Unissued procedures listed (see SDR #461)

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-7-07**

N-QA-012  
4/89

<b>Completed by Originating Organization</b>	2 Noted During: Audit 89-7 (LANL)	3 Identified By: S. L. Crawford	4 Date: 11/16/89
	5 Organization: Los Alamos Nat'l Lab	6 Person(s) Contacted: K. Foster	7 Response Due Date is 20 Days from Date of Transmittal
	8 Discussion: Many certification forms (per TWS-QAS-QP-02.1), which are also documentation of annual performance evaluation, were signed by the certifier prior to being signed by the individual. The individual signoff (per QP-02.1 Step 17) is to acknowledge receipt and understanding of indoctrination and training. The supervisor (certifier) signoff (per QP-02.1 Step 19) is to accept the individual's records of indoctrination and training and to document annual proficiency evaluation (QP-02.1 Step 21).		
	9 QAE/Lead Auditor <i>S. Dan</i>	Date 11/13/89	10 Branch Manager  Date
<b>Completed by Respondee</b>	11 Response:		
	12 Signature: _____ Date: _____		
<b>Completed by QA Org.</b>	13 Response Receipt Acceptable <input type="checkbox"/>		
	Initiator _____	Date _____	QA/Lead Auditor _____ Date _____
	14 Remarks:		
	Page <u>1</u> of <u>1</u>		

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-7-08**

N-QA-012  
4/89

Completed by Originating Organization

2 Noted During: Audit 89-7  
(LANL)

3 Identified By: S. L. Crawford

4 Date:  
11/16/89

5 Organization: Los Alamos  
Nat'l Lab

6 Person(s) Contacted: H. Nunes, K.  
Foster

7 Response Due Date  
is 20 Days from Date  
of Transmittal

8 Discussion:

1. TWS-QAS-QP-18.3 Rev. 1, paragraph 6.4 allows point award for lead auditor qualification that are more than allowed by NQA-1 Appendix 2A-3 (Nonmandatory Guidance on the Education and Experience of Lead Auditors). Appendix 2A-3 is identified as a reference by QP-18.3.

A. Education

1). Paragraph 6.4.1 allows 5 credits maximum; Appendix 2A-3

9 QAE/Lead Auditor

Date

10 Branch Manager

Date

*S. Dawn* 12/13/89

Completed by Respondee

11 Response:

12 Signature:

Date:

Completed by QA Org.

13 Response Receipt Acceptable

Initiator

Date

QA/Lead Auditor

Date

14 Remarks:

Page

1 of 2

8 Discussion: ( continued )

(and QP-18.3 Attachment 1) allows 4 points maximum.

2). Paragraph 6.4.1 allows 1 additional credit for each masters or advanced degree in engineering, physical sciences, business management, or QA; Appendix 2A-3 allows only 1 additional credit (total) for masters or advanced degrees in the above disciplines.

B. Experience

1). Paragraph 6.4.2 allows additional credit for each of several categories of specialized nuclear, QA, or auditing experience; Appendix 2A-3 does not allow cumulative credits for these areas.

2. TWS-QAS-DP-18.3, Rev.1, paragraph 6.2 does not identify minimum passing lead auditor examination grades.

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-7-09**

N-QA-012  
4/89

Completed by Originating Organization

2 Noted During: Audit 89-7  
(LANL)

3 Identified By: S. L. Crawford

4 Date:  
11/15/89

5 Organization: Los Alamos  
Nat'l Lab

6 Person(s) Contacted: R. Herbst

7 Response Due Date  
is 20 Days from Date  
of Transmittal

8 Discussion:

The term "Technical Review" is used in several different contexts, resulting in confusion in review methods, documentation, and resolution of comments.

- 1. Technical products (publications) QP-03.2
- 2. Study plans QP-03.2 per QP-03.3
- 3. Software Records QP-03.1
- 4. Scientific Notebooks QP-03.5
- 5. Technical Procedures QP-05.2

9 QAE/Lead Auditor

Date

10 Branch Manager

Date

*S. J. Davis*      12/13/89

Completed by Respondee

11 Response:

12 Signature:

Date:

13 Response Receipt Acceptable

Initiator

Date

QA/Lead Auditor

Date

Completed by QA Org.

14 Remarks:

Page

1 of 2

8 Discussion: ( continued )

6. Design Products

QP-3.16

QP-03.1, QP-03.5 and QP-05.2 do not identify specific requirements for reviewer qualification, selection, and documentation; technical review elements; and comment documentation and resolution.

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-7-10**

N-QA-012  
4/89

<b>Completed by Originating Organization</b>	<b>2</b> Noted During: AUDIT-89-7 (LANL)	<b>3</b> Identified By: S. L. Crawford	<b>4</b> Date: 11/15/89	
	<b>5</b> Organization: Los Alamos Nat'l Lab	<b>6</b> Person(s) Contacted: A. Meijer	<b>7</b> Response Due Date is 20 Days from Date of Transmittal	
	<b>8</b> Discussion:  A technical review of a Study Plan (SP 8.3.1.3.4.1 Rev. 0 and SP 8.3.1.3.4.3 Rev. 0 - combined) was performed 10/14/88 in accordance with TWS-QAS-QP-07. Comments consisted of 1 misspelling error and approximately 8 line spacing and page break comments, and did not address open (incomplete) items in the study plan. While it is recognized that there should be no "quota" for comments, the review was clearly an editorial review and did not assess the technical adequacy of the study plan.			
<b>9</b> QAE/Lead Auditor  <i>S. Dan</i>		Date 12/13/89	<b>10</b> Branch Manager  	
<b>Completed by Respondee</b>	<b>11</b> Response:			
<b>12</b> Signature:		Date:		
<b>Completed by QA Org.</b>	<b>13</b> Response Receipt Acceptable <input type="checkbox"/>			
	Initiator  	Date	QA/Lead Auditor	Date
<b>14</b> Remarks:				
Page <u>1</u> of <u>1</u>				

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-7-11**

N-QA-012  
4/89

Completed by Originating Organization

2 Noted During: Audit 89-7  
(LANL)

3 Identified By: P. Cloke

4 Date:  
11/17/89

5 Organization: Los Alamos Nat'l  
Lab

6 Person(s) Contacted: L. Hersman

7 Response Due Date  
is 20 Days from Date  
of Transmittal

8 Discussion:

In examining laboratory notebooks in connection with checklist items T-107, T-109, and T-110, several weaknesses were noted. It was difficult to confirm or locate in the notebooks where procedures that were used are described (copies of several pages from the notebooks are attached). On page 52 (see Attachment, page 1 of 2), 12 May 89, there is not a statement as to the origin for the instructions. It was stated that this was from a telephone call to the supplier. This should have been stated and followed-up by a written copy of the instructions. On page 53 (see Attachment, page 2 of 2), 17 May 89, a cross

9 QAE/Lead Auditor

Date

10 Branch Manager

Date

*S. Davis*

12/13/89

Completed by Respondee

11 Response:

12 Signature:

Date:

Completed by QA Org.

13 Response Receipt Acceptable

Initiator

Date

QA/Lead Auditor

Date

14 Remarks:

Page

1 of 2

8 Discussion: ( continued )

reference to pages 52 and top of 53 should have been made. In other instances procedures were described many pages later and no cross reference was provided. The manner in which the 81 was reduced to 210ml is not stated. No cross reference to where run #89 is described is provided. In the third to the last line on page 53, "/" presumably means "and." If such shorthand is to be used, there should be a master list of their definitions. On page 56, some of the writing cannot be read, specifically the entry following "10" on the second line, the word following "and" on the fourth line, and the word following "columns" on the first line under the 22 May 89 entries. Also, on the page the meaning of the table entries is not stated. In view of the text, it is presumed that there are conductivities (units inspected) in fractions eluted through a column. However, guesswork is not adequate and units must be stated. The volume of the fractions also needs to be stated. Finally, on this page, the balance on which the weighings was made must be given.

On other pages examined, not all specifications could be read on the xerox copy of a spectrum that was affixed into the notebook. Moreover, there was no legible vertical scale (if any at all) nor indication of units or attenuation on that scale.

These are considered weaknesses rather than deficiencies since Dr. David Updegraff has been able to read and understand the notebooks. However, in the future this should be avoided. It is suggested that the style of entry used by other investigators at LANL be examined (e.g., those used by D. Hobart and similar practices followed in the Biological Sorption Task).

10 May 89

Added 20 ml of Chelex H<sub>2</sub>O to (#1) organic Extraction to help it separate allowed to go overnight again

ACID aka j.55.10-89 washed glassware made 500<sup>ml</sup> of each ingredient for media and passed through a Chelex column

-Johnny A Selzer

11 May 89

Made 8 L of new media for run #89

run #88 was not completed, because (#1) organic Extraction didn't separate on time for next Extraction.

Johnny A Selzer

12 May 89

### Instruction for Packing P-2 Column

How to regenerate P2 Beads Before Packing Column. use a .050 M sodium phosphate Buffer with pH around neutral and equilibrate the P-2 beads for about 4 to 6 hours or...

12 May 89

To Clean P-2  $\bar{F}$  Column use a .1M Sodium Hydroxide pass it through the column at least 3 times the length of the column then rinse the column with Chelex H<sub>2</sub>O one time the length of the column then pass your Buffer at least 5 to 7 times the length of the column before you pass your sample through

Sodium Phosphate Buffer: For 50 mM  
Ex.

Sodium Phosphate Monobasic

$$.025 \text{ M} \times \text{MW. } 137.99 \times \frac{500}{1000} = 1.73 \text{ g}$$

Sodium Phosphate Dibasic

$$.025 \text{ M} \times \text{MW. } 141.96 \times \frac{500}{1000} = 1.77 \text{ g}$$

Put together in 1000 ml of H<sub>2</sub>O gives you pH around 7.0

Johnny A Salzer

17 May 89

packed a P-2 Column (Extra fine mesh)  
used a Sodium Phosphate Buffer

Reduced the volume of run # 89 8 l down to 210 ml of inoculated media then filtered through a Whatman # 54 filter

Organic Extraction

(1) Added 105 ml of chloroform / 105 ml of Phenol to the 210 ml of the inoculated media and allowed to separate overnight

Johnny A Salzer

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-7-12**

N-QA-012  
4/89

<b>Completed by Originating Organization</b>	2 Noted During: Audit 89-7 (LANL)	3 Identified By: S. L. Crawford	4 Date: 11/15/89
	5 Organization: Los Alamos Nat'l Lab	6 Person(s) Contacted: R. Herbst, H. Nunes	7 Response Due Date is 20 Days from Date of Transmittal
	8 Discussion:  LANL-YMP-QAPP, R4.4, identifies several LANL QPs that have not been prepared yet:  <div style="margin-left: 40px;">                     Qualification of Data (AP-5.9Q) - QAPP, Par. 2.1.2                      Graded QA (AP-5.17Q) - QAPP, Par. 2.2.2 (pending PO position)                      QA Level Assignment (AP-5.4Q) - QAPP, Par. 3.2.1.1 (pending PO position)                 </div> The QAPP should be clarified or a schedule for procedure preparation		
	9 QAE/Lead Auditor  <i>S. Davis</i>	Date  12/13/89	10 Branch Manager  
<b>Completed by Respondee</b>	11 Response:		
	12 Signature: _____ Date: _____		
<b>Completed by QA Org.</b>	13 Response Receipt Acceptable <input type="checkbox"/>		
	Initiator _____	Date _____	QA/Lead Auditor _____
	14 Remarks:		

8 Discussion: ( continued )  
established.

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-7-13**

N-QA-012  
4/89

<b>Completed by Originating Organization</b>	2 Noted During: Audit 89-7 (LANL)	3 Identified By: S. I. Crawford	4 Date: 11/15/89
	5 Organization: Los Alamos Nat'l Lab	6 Person(s) Contacted: R. Herbst, H. Nunes	7 Response Due Date is 20 Days from Date of Transmittal
	8 Discussion:  1. LANL-YMP-QAPP, R4.4, pages ii through xi, (Policy, Contents, List of Figures and List of Tables, List of Acronyms) are not identified by Revision level.  2. LANL-YMP-QAPP, R4.4, page xi (Acronyms) and page 42 (Par. 12.3.2) reference NBS (National Bureau of Standards) instead of NIST (National Institute of Standards and Technology).		
9 QAE/Lead Auditor  <i>S. Davis</i>		Date  12/13/89	10 Branch Manager  

<b>Completed by Respondee</b>	11 Response:          
	12 Signature: _____ Date: _____

<b>Completed by QA Org.</b>	13 Response Receipt Acceptable <input type="checkbox"/>			
	<table style="width:100%; border: none;"> <tr> <td style="width: 25%; border: none;">Initiator</td> <td style="width: 25%; border: none;">Date</td> <td style="width: 25%; border: none;">QA/Lead Auditor</td> <td style="width: 25%; border: none;">Date</td> </tr> </table>	Initiator	Date	QA/Lead Auditor
Initiator	Date	QA/Lead Auditor	Date	
14 Remarks:          				

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-7-14**

N-QA-012  
4/89

<b>Completed by Originating Organization</b>	2 Noted During: Audit 89-7 (LANL)	3 Identified By: F. Ruth	4 Date: 11/17/89
	5 Organization: Los Alamos Nat'l Lab	6 Person(s) Contacted: T. Morgan, G. Ortiz	7 Response Due Date is 20 Days from Date of Transmittal
	8 Discussion:  In a review of Detailed Procedures (DPs), it was noted that all three (3) technical areas are reviewing DPs differently. In addition, there was no objective evidence, other than the reviewer's signature on the procedure title page, that a review and comment resolution had been performed (except for HSE).  The following DPs were reviewed:  TWS-EES-DP-601, Rev. 0		
<b>Completed by Respondee</b>	9 QAE/Lead Auditor  <i>S. Davis</i>	Date  12/13/89	10 Branch Manager  
	11 Response:		
<b>Completed by QA Org.</b>	12 Signature:		Date:
	13 Response Receipt Acceptable <input type="checkbox"/>	Initiator	Date
		QA/Lead Auditor	Date
14 Remarks:			
			Page <u>1</u> of <u>2</u>

## 8 Discussion: ( continued )

TWS-INC-DP- 62, Rev. 2

TWS-INC-DP- 82, Rev. 0

TWS-INC-DP- 78, Rev. 0

TWS-INC-DP- 75, Rev. 0

TWS-HSE-12-DP-311, Rev. 1

TWS-HSE-12-DP-314, Rev. 0

The preparation, review, and comment resolution of Detailed Procedures should be the same as Quality Procedures (QPs), as outlined in TWS-QAS-QP-05.1, Rev. 3, Paragraph 6.2, "Review," and Paragraph 6.3, "Comment Resolution Process."

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-7-15**

N-QA-012  
4/89

<b>Completed by Originating Organization</b>	<b>2</b> Noted During: Audit 89-7 (LANL)	<b>3</b> Identified By: M. Mitchell	<b>4</b> Date: 11/17/89	
	<b>5</b> Organization: Los Alamos Nat'l Lab	<b>6</b> Person(s) Contacted: H. Nunes	<b>7</b> Response Due Date is 20 Days from Date of Transmittal	
	<b>8</b> Discussion:  Several Los Alamos DPs do not contain safety information or warnings when hazardous materials or equipment are to be handled as part of the experiment. Procedure should include such information or references to such information in other documents. Technical review of procedures should include the identification of safety issues and such information or references should be added to procedures.  NO RESPONSE REQUIRED			
	<b>9</b> QA/Lead Auditor  <i>S. Dora</i>	Date 12/15/89	<b>10</b> Branch Manager	Date
<b>Completed by Respondee</b>	<b>11</b> Response:			
	<b>12</b> Signature: _____ Date: _____			
<b>Completed by QA Org.</b>	<b>13</b> Response Receipt Acceptable <input type="checkbox"/>			
	Initiator _____ Date _____	QA/Lead Auditor _____ Date _____		
<b>14</b> Remarks:				
Page <u>1</u> of <u>1</u>				

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-7-16**

N-QA-012  
4/89

Completed by Originating Organization

2 Noted During: Audit 89-7  
(LANL)

3 Identified By: M. Mitchell

4 Date:  
11/17/89

5 Organization: Los Alamos  
Nat'l Lab

6 Person(s) Contacted: H. Nunes

7 Response Due Date  
is 20 Days from Date  
of Transmittal

8 Discussion:

DPs are not required to reference other procedures or documents. This results in a system weakness, in the form of logical disconnects that may eventually lead to implementation errors. This is a possibility particularly when the DP implements higher level Quality Procedures or programmatic elements. This situation is a problem in the areas of sample management and calibration. Lower level implementing procedures should reference higher level procedures and documents or the lower level procedures must include all information required for implementation of the activity.

9 QAE/Lead Auditor

Date

10 Branch Manager

Date

*S. Davis*

12/13/89

Completed by Respondee

11 Response:

12 Signature:

Date:

13 Response Receipt Acceptable

Initiator

Date

QA/Lead Auditor

Date

14 Remarks:

Completed by QA Org.

Page

1 of 1

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-7-17**

N-QA-012  
4/89

<b>Completed by Originating Organization</b>	<b>2</b> Noted During: Audit 89-7 (LANL)	<b>3</b> Identified By: M. Mitchell	<b>4</b> Date: 11/28/89	
	<b>5</b> Organization: Los Alamos Nat'l Lab	<b>6</b> Person(s) Contacted: R. Oliver, R. Mosley	<b>7</b> Response Due Date is 20 Days from Date of Transmittal	
	<b>8</b> Discussion:  During the Los Alamos audit element of the readiness review for the IDS, there was uncertainty on the part of the LANL staff involved in the activity concerning what items were requirements for start and which could be made part of the activity. This uncertainty caused large numbers of open items to be left in the readiness review checklists. An example of this was the QA grading package for the activity. The issue of prerequisites for activities need to be thought out and evaluated during readiness evaluations. This appears to be a result of insufficient attention to systems analysis and the early stages of			
	<b>9</b> QAE/Lead Auditor  <i>S. Davis</i>	Date 12/13/89	<b>10</b> Branch Manager	Date
<b>Completed by Respondee</b>	<b>11</b> Response:			
	<b>12</b> Signature: _____ Date: _____			
<b>Completed by QA Org.</b>	<b>13</b> Response Receipt Acceptable <input type="checkbox"/>			
	Initiator _____ Date _____	QA/Lead Auditor _____ Date _____		
<b>14</b> Remarks:				
Page 1 of 2				

8 Discussion: ( continued )

system engineering. This situation and the extensive number of "TBDs" in the Functional Requirements Document indicates the lack of early involvement of the system users (with the use of interviews and questionnaires as part of system analysis activities) rather than just involving the users as part of the review process. More attention should be given to systems engineering, analysis of needs, and evaluation of options in design areas such as the IDS.

ENCLOSURE 3

**YUCCA MOUNTAIN PROJECT OFFICE**  
**1 YMPO OBSERVATION NO. 89-7-18**

N-QA-012  
4/89

<b>Completed by Originating Organization</b>	2 Noted During: Audit 89-7 (LANL)	3 Identified By: M. Mitchell	4 Date: 11/17/89
	5 Organization: Los Alamos Nat'l Lab	6 Person(s) Contacted: L. Hessman	7 Response Due Date is 20 Days from Date of Transmittal
	8 Discussion:  In some technical areas, Biosorption as an example, the work being done and recorded via the notebook procedure is sufficiently developed and repeated that it could be proceduralized using the detail procedure mechanism. This should be done since it simplifies the information that needs to be recorded in the laboratory notebooks and decreases the need for complex referencing in the notebooks.		
9 QAE/Lead Auditor  <i>S. Dana</i>		Date  12/13/89	10 Branch Manager  

<b>Completed by Respondee</b>	11 Response:          
	12 Signature: _____ Date: _____

<b>Completed by QA Org.</b>	13 Response Receipt Acceptable <input type="checkbox"/>			
	<table style="width:100%; border: none;"> <tr> <td style="width: 33%; border: none;">Initiator</td> <td style="width: 17%; border: none;">Date</td> <td style="width: 33%; border: none;">QA/Lead Auditor</td> <td style="width: 17%; border: none;">Date</td> </tr> </table>	Initiator	Date	QA/Lead Auditor
Initiator	Date	QA/Lead Auditor	Date	
14 Remarks:          				

**YMPO STANDARD DEFICIENCY REPORT**

N-QA-038  
4/89

Completed by Originating QA Organization	1 Date 11/17/89		2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3		Page 1 of 2
	3 Discovered During Audit 89-7		3a Identified By M. Diaz		4 SDR No. 460 Rev. 0
	5 Organization Los Alamos Nat'l Lab		6 Person(s) Contacted R. Herbst, H. Nunes		7 Response Due Date is 20 Working Days from Date of Transmittal
	8 Requirement (Audit Checklist Reference, if Applicable) (Checklist Item 1-1) NNWSI/88-9, Rev. 2, Para. 1.0, states "The organizational structure, lines of communication, authority, and duties of persons and organizations performing				
	9 Deficiency Contrary to the requirements in Item 8 above, the responsibility and authority of each subcontractor for interface controls are not defined and documented in a procedure. Additionally, TWS-QAS-QP-01.1, Rev. 0, does not provide suffi-				
Completed by Organization in Block 5	10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective Identify the remedial action(s) to be taken to correct the deficiencies noted in block 9. Identify the cause of the condition and the planned action to				
	11 QAE/Lead Auditor/Date <i>S. Jones 11/30/89</i>		12 Division Manager/Date <i>N. Herbst 12-1-89</i>		13 Project Quality Mgr./Date <i>[Signature] 12/1/89</i>
	14 Remedial/Investigative Action(s)				15 Effective Date _____
	16 Cause of the Condition & Corrective Action to Prevent Recurrence				17 Effective Date _____
	18 Signature/Date				
Comp. by Orig. QA Org.	19 Response Accepted	QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date	
	20 Corrective Action Verif. Satisfactory	QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date	
	21 Remarks				
	22 QA CLOSURE	QAE/Lead Auditor/Date	Division Manager/Date	PQM/Date	

YMPO STANDARD DEFICIENCY REPORT  
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8 Requirement ( continued )

activities affecting quality shall be clearly established and delineated in writing. These activities affecting quality include both the performing functions of attaining quality objectives and the QA functions."

LANL QAPP, Rev. 4.4, Para. 1.4, states "When more than one LANL subcontractor organization is involved in activities affecting quality, the responsibility and authority of each organization for interface, as well as changes thereto, shall be clearly established and documented and any shared responsibilities shall be defined and documented. To support these interfaces, required interface documentation shall be defined in the administrative procedures. The YMP administrative procedures (APs) shall provide the implementing interface controls used by LANL. A LANL QP shall describe the methods of conducting and documenting interorganizational interfaces."

9 Deficiency ( continued )

cient details describing the methods of conducting and documenting interorganizational interfaces.

10 Recommended Actions ( continued )

prevent recurrence.

**YMPO STANDARD DEFICIENCY REPORT**

N-QA-038  
4/89

<b>Completed by Originating QA Organization</b>	1 Date 11/16/89		2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3		Page 1 of 2	
	3 Discovered During AUDIT 89-7		3a Identified By S. L. Crawford		4 SDR No. 461 Rev. 0	
	5 Organization Los Alamos Nat'l Lab		6 Person(s) Contacted K. Foster		7 Response Due Date is 20 Working Days from Date of Transmittal	
	8 Requirement (Audit Checklist Reference, If Applicable) (Q#2-5) TWS-QAS-QP-02.1, Rev. 1, Para. 6.5, step 16, requires a record of personnel indoctrination and training to be entered on a Project Certification Form. Step 17 requires the individual to sign the					
	9 Deficiency An individual (Co-PI, Dynamic Transport Column experiments, and Technical Reviewer, Batch Sorption Studies) was certified 5/26/89 to four (4) Quality Procedures that do not exist:					
	10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input checked="" type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective Identify the remedial action(s) to be taken to correct the deficiencies noted in block 9. Investigate the program, process, activities, or documentation to					
	<b>Completed by Organization in Block 5</b>	11 QAE/Lead Auditor/Date <i>S. Dorn 11/30/89</i>		12 Division Manager/Date <i>Kate Hedges 12-1-89</i>		13 Project Quality Mgr./Date <i>[Signature] 12/1/89</i>
14 Remedial/Investigative Action(s)				15 Effective Date _____		
16 Cause of the Condition & Corrective Action to Prevent Recurrence				17 Effective Date _____		
<b>Comp. by Orig. QA Org.</b>	18 Signature/Date					
	19 Response Accepted	QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date		
	20 Corrective Action Verif. Satisfactory	QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date		
	21 Remarks					
22 QA CLOSURE		QAE/Lead Auditor/Date	Division Manager/Date	PQM/Date		

YMPO STANDARD DEFICIENCY REPORT  
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8 Requirement ( continued )

certification acknowledging receipt and understanding of indoctrination and training. Step 19 requires the individual's supervisor to sign the certification accepting the indoctrination and training for the individual's qualification.

9 Deficiency ( continued )

TWS-QAS-QP-03.10

TWS-QAS-QP-03.11

TWS-QAS-QP-03.12

TWS-QAS-QP-03.13

10 Recommended Actions ( continued )

determine the extent and depth of similar deficient conditions listed as examples on the SDR. Identify these deficiencies and provide the measures required to correct them. Identify the cause of the condition and the planned corrective action to prevent recurrence.

ORIGINAL

YMPO STANDARD DEFICIENCY REPORT

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Completed by Originating QA Organization	1 Date 11/16/89		2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3		Page 1 of 2
	3 Discovered During Audit 89-7		3a Identified By A. I. Arceo, S. L. Crawford		4 SDR No. 462 Rev. 0
	5 Organization Los Alamos Nat'l Lab		6 Person(s) Contacted L. Hersman, K. Foster		7 Response Due Date is 20 Working Days from Date of Transmittal
	8 Requirement (Audit Checklist Reference, if Applicable) (C #2-3). LANL-YMP-QAPP, Rev. 4.4, para. 2.5.1 provides "The initial capabilities of an individual shall be based on an evaluation of his education, experience, and training and compared to those established for the				
Completed by Organization In Block 5	9 Deficiency The qualification record files of the following two individuals did not satisfy the minimum education requirements identified in the applicable position descriptions nor had supervisors documented the basis for accepting				
	10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input checked="" type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective Identify the remedial action(s) to be taken to correct the deficiencies noted in block 9. Investigate the program, process, activities, or documentation,				
	11 QAE/Lead Auditor/Date <i>S. Dana 11/30/89</i>	12 Division Manager/Date <i>Walter Hedges 12-1-89</i>		13 Project Quality Mgr./Date <i>[Signature] 12/1/89</i>	
	14 Remedial/Investigative Action(s)			15 Effective Date _____	
Completed by Org. QA Org.	16 Cause of the Condition & Corrective Action to Prevent Recurrence				
	17 Effective Date _____				
	18 Signature/Date				
Comp. by Org. QA Org.	19 Response Accepted	QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date	
	20 Corrective Action Verif. Satisfactory	QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date	
	21 Remarks				
22 QA CLOSURE	QAE/Lead Auditor/Date	Division Manager/Date	PQM/Date		



YMPO STANDARD DEFICIENCY REPORT

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Completed by Originating QA Organization	1 Date 11/27/89		2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3		Page 1 of 2
	3 Discovered During LANL Audit 89-7		3a Identified By S. L. Crawford		4 SDR No. 463 Rev. 0
	5 Organization Los Alamos Nat'l Lab		6 Person(s) Contacted R. Oblad, R. Morley		7 Response Due Date is 20 Working Days from Date of Transmittal
	8 Requirement (Audit Checklist Reference, if Applicable) (Checklist Item 3-7) TWS-QAS-QP-03.15, para. 6.3 and 6.4 provide for review of design documents. LANL letter TWS-EES-1-09-89-16, 9/8/89 transmitted the Integrated Data System (IDS) Functional Requirements Document (FRD) for review				
	9 Deficiency 1. The FRD, as reviewed, and subsequently, as issued (10/04/89, TWS-EES-13-10-89-004) contained numerous errors and inconsistent structure in the logic elements of the IDS that was not identified by the				
Completed by Organization in Block 5	10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective Identify the remedial action(s) to be taken to correct the deficiencies noted in block 9. Identify the cause of the condition and the planned action to				
	11 QAE/Lead Auditor/Date <i>S. L. Crawford</i> 12/1/89	12 Division Manager/Date <i>R. Oblad</i> 12-1-89	13 Project Quality Mgr./Date <i>[Signature]</i> 12/1/89		
	14 Remedial/Investigative Action(s)  15 Effective Date _____				
Completed by Org. QA Org.	16 Cause of the Condition & Corrective Action to Prevent Recurrence 17 Effective Date _____				
	18 Signature/Date				
Comp. by Orig. QA Org.	19 Response Accepted	QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date	
	20 Corrective Action Verif. Satisfactory	QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date	
	21 Remarks				
22 QA CLOSURE		QAE/Lead Auditor/Date	Division Manager/Date	PQM/Date	

YMPO STANDARD DEFICIENCY REPORT  
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8 Requirement ( continued )

per QP-03.15, para. 6.3. The transmitted letter requested the reviewers to assure:

1. The FRD is correct.
2. The FRD is consistent with the ESF SDRD.
3. The FRD is concisely and logically structured.
4. The FRD fulfils its purpose adequately to start Title II design.
5. The FRD complies with the LANL QA plan.

9 Deficiency ( continued )

design review process. (See attached List of Discrepancies)

2. The FRD referenced the design input source as the ESF SDRD, Benchmark #5 draft. Although, that was the issued version at the time of FRD preparation, Benchmark #6 changes had been approved by DOE/HQ (02/21/89) issued by YMPO (08/07/89) for incorporation into the SDRD. The changes of Benchmark #6 impacted the list of DOE orders in para. 2.2 of the FRD.
3. It is noted that QP-03.15, Rev. 0, was the correct procedure for design review at the time of FRD review; subsequently, QP-03.15, Rev. 1, 10/12/89 directs design reviews to be performed in accordance with QP-03.16, Rev. 0, 10/12/89.

10 Recommended Actions ( continued )

prevent recurrence.

LANL AUDIT 89-7

LIST OF DISCREPANCIES  
INTEGRATED DATA SYSTEM (IDS) FUNCTIONAL REQUIREMENTS DOCUMENT (FRD)

	<u>PAGE</u>	<u>REFERENCE</u>	<u>DISCREPANCY</u>
1.	2	para 2.2	DOE Order 1330 Draft is 1330.1B Draft per SDRD BM6.
2.	2	para 2.2	DOE Order 1450.1C, listed in SDRD BM5 and BM6, is not listed in the FRD.
3.	2	para 2.2	DOE Order 5310.1A is not listed in SDRD BM5 or BM6 and DOE Order 5300.1B, listed in SDRD BM6, is not listed in the FRD.
4.	11	fig. 3.2.1	Element 1.1.1.5 is identified as "IDS Installation Tests" on logic tree, but "IDS Installation Checks" on page 12.
5.	13	fig.3.2.1	Element 1.1.1.6 and 1.1.1.7 are identified as "System Configuration" and "Instrument Configuration" on logic tree, but "System Configuration Input" and "Instrument Configuration Input" on page 11 (fig. 3.2.1) and page 12.
6.	17	fig. 3.2.4	Element 1.2.1.2 is identified as "Verify" on logic tree, but "Protect" on page 15 (fig. 3.2.3) and page 16.
7.	19	fig. 3.2.5	Element 1.2.1.2 is identified as "Verify" on logic tree; same as comment 6 above.
8.	20	para 3.2.5	"Test Controls" is identified as element 1.1.3, a part of element 1.1, "ACQUIRE"; fig. 3.1.2 (page 5) and fig. 3.2.5 (page 19) show the elements as 1.2 "PROCESS" and 1.2.3 "Test Controls."
9.	22	para. 3.2.6	Paragraph "Store" is a 2nd level element. previous paragraphs and figures are 3rd level elements. The paragraph title should be "IDS Data Archive". A new paragraph 3.2.7, "On-Line" should be inserted.
10.	22	para. 3.2.6	"STORE" is identified as element 1; the correct element designation is 1.3.
11.	24	para. 3.2.7	Paragraph "Distribute" is a 2nd level element; same as comment 9.

12. 25            fig. 3.2.8        Figure does not include 5th level elements 1.5.1.1.1, 1.5.1.1.2, 1.5.1.2.1, 1.5.1.2.2, 1.5.1.2.3; 5th level elements are presented on fig. 3.2.3 (page 15), fig. 3.2.4 (page 17), and fig. 3.2.5 (page 19).
13. 26            para. 3.2.8        "Malfunction Alarm" and subelements are identified as 1.5.1.4, 1.5.1.4.1, etc. The correct elements designations are 1.5.1.2, 1.5.1.2.1, etc.
14. 27            fig. 3.2.9        Figure does not include 5th level elements 1.5.2.3.1, 1.5.2.3.2; same as comment 12 above.
15. 28            para. 3.2.9        "Instrument Malfunction Alarm" subelements are identified as 1.5.2.4.1 and 1.5.2.4.2; the correct element designations are 1.5.2.3.1 and 1.5.2.3.2
16. 29            fig. 3.2.10        Element 1.6.3.2 is identified as "Provide Data I/O Terminals"; para. 3.2.10 (page 30) identifies the element title as "Provide Data I/O Terminals and Remote Access."
17. 30            para. 3.2.10        Paragraph "Operate" is a 2nd level element; same as comment 9 above.
18. 30            para. 3.2.10        "Maintenance and Operations" and subelements are identified as 1.6.4, 1.6.4.1, etc. The correct element designations are 1.6.3, 1.6.3.1, etc. Also "Maintenance and Operations" should be italicized.
19. 49            Appdx. B            "National Bureau of Standards" (NBS) should be "National Institute of Standards and Technology" (NIST). NIST was correctly identified on pages 12 and 16.
20. 52            Appdx. E            "NBS" should be "NIST"; same as comment 19 above.

YMPO STANDARD DEFICIENCY REPORT

N-QA-038  
4/89

Completed by Originating QA Organization	1 Date 11/14/89		2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3		Page 1 of 2
	3 Discovered During Audit-89-7		3a Identified By S.L. Crawford		4 SDR No. 464 Rev. 0
	5 Organization Los Alamos Nat'l Lab		6 Person(s) Contacted R. Herbst, various PI's		7 Response Due Date is 20 Working Days from Date of Transmittal
	8 Requirement (Audit Checklist Reference, if Applicable) (Q#3-1, 3-2) YMP AP-1.10Q, Rev. 0, paras. 5.1.2 and 5.1.5 require project participants to perform a technical review of SCP study plans prior to submittal to the Project Office. LANL TWS-QAS-QP-03.3, Rev. 0, para 6.2.1,				
Completed by Organization in Block 5	9 Deficiency Several study plans, submitted to the Project Office subsequent to the effective date of AP-1.10Q, had been technically reviewed in a different form and content than the version actually submitted to the Project Office. No				
	10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective Identify the remedial action to be taken to correct the deficiencies noted in block 9. Identify the cause of the condition and the planned action to				
	11 QAE/Lead Auditor/Date <i>S. Jones 11/30/89</i>		12 Division Manager/Date <i>R. Herbst 12-1-89</i>		13 Project Quality Mgr./Date <i>W. ... 12/1/89</i>
	14 Remedial/Investigative Action(s)				15 Effective Date _____
Completed by Org. QA Org.	16 Cause of the Condition & Corrective Action to Prevent Recurrence				
					17 Effective Date _____
	18 Signature/Date				
Completed by Org. QA Org.	19 Response Accepted		QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date
	20 Corrective Action Verf. Satisfactory		QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date
	21 Remarks				
22 QA CLOSURE		QAE/Lead Auditor/Date	Division Manager/Date	PQM/Date	

YMPO STANDARD DEFICIENCY REPORT  
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N-QA-038  
12/88

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Page 2 of 2

8 Requirement ( continued )

requires study plans to be "...reviewed technically according to QPS-3.02..."

9 Deficiency ( continued )

check or review was documented to assure that changes occurring between the technical review and submission to the Project Office either did not impact technical content of the study plan or that an additional review of the changes for technical adequacy was performed.

It is noted that all study plans having technical reviews performed prior to AP-1.10Q (and prior to QP-03.3) have already been submitted to the Project Office. Only three (3) LANL study plans remain to be submitted.

10 Recommended Actions ( continued )

prevent recurrence.



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N-QA-036  
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8 Requirement ( continued )

- o Acceptance and rejection limits and criteria, including required levels of precision and accuracy."

TWS-QAS-QP-05.2, Rev. 2, Para. 6.3.7.6 states in part "Include criteria (eg., prerequisites and final conditions) for ensuring that DPs have been performed correctly."

9 Deficiency ( continued )

TWS-EES-DP-54, Rev. 1  
TWS-EES-DP-102, Rev. 1  
TWS-EES-DP-114, Rev. 1  
TWS-EES-DP-124, Rev. 0  
TWS-INC-DP-27, Rev. 0

10 Recommended Actions ( continued )

determine the extent and depth of similar deficient conditions listed as examples on the SDR. Identify the deficiencies and provide the measures required to correct them. Identify the cause of the condition and the planned corrective action to prevent recurrence.

**YMPO STANDARD DEFICIENCY REPORT**

N-QA-038  
4/89

Completed by Originating QA Organization

1 Date 11/17/89	2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	Page 1 of 2
3 Discovered During Audit 89-7	3a Identified By F. Ruth/ J. Hadden	4 SDR No. 466 Rev. 0
5 Organization Los Alamos Nat'l Lab	6 Person(s) Contacted K. Foster	7 Response Due Date is 20 Working Days from Date of Transmittal
8 Requirement (Audit Checklist Reference, if Applicable) (Checklist Item 6-4) TWS-QAS-QP-06.1, Rev. 1, Para. 6.5, states "The holder of a controlled document removes and destroys obsolete documents in accordance with directions		
9 Deficiency A random sample of the 59 controlled manuals were reviewed in accordance with the latest revision of the table of contents, dated October 13, 1989, to determine if all appropriate procedures had been removed or marked superceded		
10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input checked="" type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective Identify the remedial action(s) to be taken to correct the deficiencies noted in block 9. Investigate the program, process, activities or documentation, to		

Completed by Organization In Block 5

11 QAE/Lead Auditor/Date <i>S. Davis 11/30/89</i>	12 Division Manager/Date <i>K. Foster 12-1-89</i>	13 Project Quality Mgr./Date <i>[Signature] 12/1/89</i>
14 Remedial/Investigative Action(s)		15 Effective Date _____
16 Cause of the Condition & Corrective Action to Prevent Recurrence		17 Effective Date _____
18 Signature/Date		

Comp. by Orig. QA Org.

19 Response Accepted	QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date
20 Corrective Action Verif. Satisfactory	QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date
21 Remarks			

22 QA CLOSURE

22 QA CLOSURE	QAE/Lead Auditor/Date	Division Manager/Date	PQM/Date
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YMPO STANDARD DEFICIENCY REPORT  
CONTINUATION SHEET

N-QA-038  
12/88

SDR No. 466

Rev. 0

Page 2 of 2

8 Requirement ( continued )

given in the receipt acknowledgement form. If the holder of a controlled document prefers to keep obsolete revisions, he may do so, but he must mark "superseded," "obsolete," or a similar expression on the cover page of the outdated version and note this action on the receipt acknowledgement form."

9 Deficiency ( continued )

or obsolete as required. During the review, procedures were found which should have been removed or marked obsolete. In one case (#90), one procedure was missing from the manual.

Note: The following is a list of the controlled manuals that were reviewed and all discrepancies discovered during the review were corrected during the audit:

#4

#5

#27

#40

#48

#50

#85

#86

#90

10 Recommended Actions ( continued )

determine the extent and depth of similar deficient conditions listed as examples on the SDR. Identify these deficiencies and provide the measures required to correct them. Identify the cause of the condition and the planned corrective action to prevent recurrence.

**ORIGINAL**  
THIS IS A RED STAMP

**YMPO STANDARD DEFICIENCY REPORT**

N-QA-038  
4/89

Completed by Originating QA Organization

1 Date 11/17/89	2 Severity Level <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3		Page 1 of 2
3 Discovered During Audit 89-7	3a Identified By M. Diaz	4 SDR No. 467 Rev. 0	
5 Organization Los Alamos Nat'l Lab	6 Person(s) Contacted P. Goulding	7 Response Due Date is 20 Working Days from Date of Transmittal	
8 Requirement (Audit Checklist Reference, If Applicable) (Checklist Item 15-7) NNWSI/88-9, Rev. 2, Section XV, Para. 3.0, states "Nonconformance reports shall be periodically analyzed by the QAS organization to show quality trends"			
9 Deficiency Contrary to the above requirements, there is no documentation to show that a trend report has been issued on NCRs since the effective date of 6/20/89 of the procedure.			
10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input type="checkbox"/> Investigative <input type="checkbox"/> Corrective Identify the remedial actions to be taken to correct the deficiency(ies) noted in block 9.			

Aprvl.

11 QAE/Lead Auditor/Date <i>J. Jones 11/30/89</i>	12 Division Manager/Date <i>P. Goulding 12-1-89</i>	13 Project Quality Mgr./Date <i>[Signature] 12/1/89</i>
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Completed by Organization in Block 5

14 Remedial/Investigative Action(s)	15 Effective Date _____
16 Cause of the Condition & Corrective Action to Prevent Recurrence	17 Effective Date _____
18 Signature/Date	

Comp. by Org. QA Org.

19 Response Accepted	QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date
20 Corrective Action Verif. Satisfactory	QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date
21 Remarks			
22 QA CLOSURE	QAE/Lead Auditor/Date	Division Manager/Date	PQM/Date

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8 Requirement ( continued )

and to help identify root causes of nonconformances. Results shall be reported to upper management for review and assessment." TWS-QAS-QP-16.2, Rev. 0, Para. 5.2, states "The Quality Assurance Support group generates trending data on a quarterly basis, beginning in January, and delivers these data to the QAPL." TWS-QAS-QP-16.2, Rev. 0, Para. 8.0, states "An approved quarterly trending report is the criterion that demonstrates satisfactory compliance with this QP."

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Completed by Originating QA Organization	1 Date 11-17-89		2 Severity Level <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3		Page 1 of 3
	3 Discovered During Audit 89-7		3a Identified By A. I. Arceo		4 SDR No. 468 Rev. 0
	5 Organization Los Alamos Nat'l Lab		6 Person(s) Contacted P. Goulding/H. Nunes		7 Response Due Date is 20 Working Days from Date of Transmittal
	8 Requirement (Audit Checklist Reference, if Applicable) (Checklist Items 16-1, 16-2, 16-3, and 16-4) NNWSI/88-9, Rev. 2, Section XVI, Para. 1.0, and LANL-YMP-QAPP, Rev. 4.4, Para. 16.1, state "The corrective Action System shall ensure that conditions adverse or potentially adverse to				
Completed by Organization in Block 5	9 Deficiency Contrary to the requirements stated above:  1. Actions to prevent recurrence of significant conditions were not				
	10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input checked="" type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective Identify the remedial action(s) to be taken to correct the deficiencies noted in block 9. Investigate the program, process, activities, or documentation to				
	11 QAE/Lead Auditor/Date <i>2 Jan 11/30/89</i>	12 Division Manager/Date <i>[Signature] 12-1-89</i>	13 Project Quality Mgr./Date <i>[Signature] 12/1/89</i>		
	14 Remedial/Investigative Action(s)				15 Effective Date _____
Comp. by Org. QA Org.	16 Cause of the Condition & Corrective Action to Prevent Recurrence				
					17 Effective Date _____
	18 Signature/Date				
19 Response Accepted		QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date	
20 Corrective Action Verif. Satisfactory		QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date	
21 Remarks					
22 QA CLOSURE		QAE/Lead Auditor/Date	Division Manager/Date	PQM/Date	

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8 Requirement ( continued )

quality are identified promptly and corrected as soon as practical." NNWSI/88-9, Rev. 2, Section XVI, Para. 1.1, and LANL-YMP-QAPP, Rev. 4.4, Para. 16.2, state "For significant conditions adverse to quality, the identification, cause, and corrective action taken to prevent recurrence shall be documented and reported to immediate management and upper levels of management for review and assessment... Upon discovering or receiving notification that a significant condition adverse to quality or unusual occurrence exists, each NNWSI Project Participant shall ensure that:

- o Immediate actions have been taken to remedy the specific condition(s).
- o Causative factors have been determined.
- o Controls have been reviewed, implemented, monitored, and revised, if necessary.
- o Affected managers at all levels have been notified of adverse condition(s) and of lessons to be learned to improve conditions or avoid similar occurrences."

NNWSI/88-9, Rev. 2, Section XVI, Para. 1.2, and LANL-YMP-QAPP, Rev. 4.4, Para. 16.3, state "The QA organization shall document concurrence of the adequacy of proposed corrective actions to assure that QA requirements will be satisfied. Follow-up action shall be taken by the QA organization to verify proper implementation of this corrective action and to close out the corrective action. The organization responsible for implementing the corrective action shall assure that the corrective action is completed in a timely manner." NNWSI/88-9, Rev. 2, Sec. XVI, Para. 1.3, and LANL-YMP-QAP Rev. 4.4, Para. 16.4, state "The QA organization shall periodically analyze corrective action reports to establish quality trends. The results shall be reported to the TPO and QAPL for review and assessment." TWS-QAS-QP-16.1, Rev. 1, Para. 6.3, states "A copy of the CAR Log is sent to the RPC annually in the first quarter of the calendar year."

9 Deficiency ( continued )

indicated on the CARs reviewed (CAR Nos. 043; 043, Rev. 1; 044; 046; 055, and 055, Rev 1).

2. Verification of corrective action implementation was not documented on the CAR other than the signature of the person who performed the verification. There were no references as to what was performed (survey, desk survey, or audit) or documents reviewed to verify corrective action implementation.
3. CARs were revised; however QP-16.1, Rev. 1, does not provide for revisions to CARs.
4. CARs and CAR Log do not provide information as to why the CARs were revised. The CAR Log showed that the CARs were voided, but in reality,

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9 Deficiency ( continued )

the CARs were revised (CAR No. 043, 046, and 055).

5. The CAR Log was not sent to the RPC as required by QP-16.1, Rev. 1.

6. The form used for CAR does not reflect all the information required by the example form in QP-16.1, Rev. 1.

7. Some CARs (043, 044, and 055) were not completed in a timely manner.

8. CARs were not analyzed to establish quality trends.

9. Corrective Action Reports were issued to identify procedural noncompliance instead of "...significant breakdown in the QA Program or repeated nonconformances." Procedural noncompliance should be identified in another deficiency reporting system and when it becomes repetitive, then a CAR should be written.

10 Recommended Actions ( continued )

determine the extent and depth of similar deficient conditions listed as examples on the SDR. Identify these deficiencies and provide the measures required to correct them. Identify the cause of the condition and the planned corrective action to prevent recurrence.

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Completed by Originating QA Organization	1 Date 11/17/89		2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3		Page 1 of 2
	3 Discovered During Audit 89-7		3a Identified By M. Diaz		4 SDR No. 469 Rev. 0
	5 Organization Los Alamos Nat'l Lab		6 Person(s) Contacted E. Cole/P. Tillery		7 Response Due Date is 20 Working Days from Date of Transmittal
	8 Requirement (Audit Checklist Reference, if Applicable) (Checklist Item 18-5-1) TWS-QAS-QP-18.1, Rev. 1, Para. 6.6.1, states in part "If any findings have been identified, a response is sent to the audit team leader within 20 working				
Completed by Organization In Block 5	9 Deficiency Contrary to the requirements cited above, audit report LANL-YMP-89-02 contains the following deficiencies:				
	10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input checked="" type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective Identify the remedial action(s) to be taken to correct the deficiencies noted in block 9. Investigate the program, process, activities or documentation to				
	11 QAE/Lead Auditor/Date <i>S. Deane</i> 11/30/89		12 Division Manager/Date <i>Walter Edge</i> 12-1-89		13 Project Quality Mgr./Date <i>[Signature]</i> 12/1/89
	14 Remedial/Investigative Action(s)  15 Effective Date _____				
Completed by Org. QA Org.	16 Cause of the Condition & Corrective Action to Prevent Recurrence  17 Effective Date _____				
	18 Signature/Date				
	19 Response Accepted	QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date	
20 Corrective Action Verif. Satisfactory	QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date		
21 Remarks					
22 QA CLOSURE	QAE/Lead Auditor/Date	Division Manager/Date	PQM/Date		

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8 Requirement ( continued )

days of the audit report." Para. 6.7.1 states in part "The status of audit findings for the current year shall be updated monthly by the QAS and reported to the QAPL." LANL-YMP-QAPP, Rev. 4.4, Para. 16.1, states in part "The corrective action system shall ensure that conditions adverse to quality shall be identified promptly, documented on corrective action reports, and corrected as soon as practical."

9 Deficiency ( continued )

1. The audit report was issued on July 11, 1989. However, a response was not issued until October 6, 1989, 63 days after the due date.
2. Status of the audit findings was not reported to the QAPL as required.
3. A corrective action report was never issued. However, the affected audit team leader was aware of the situation but did not take any action to identify it nor to document it.

10 Recommended Actions ( continued )

determine the extent and depth of similar deficient conditions listed as examples on the SDR. Identify these deficiencies and provide the measures required to correct them. Identify the cause of the condition and the planned corrective action to prevent recurrence.

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Completed by Originating QA Organization

1 Date 11/17/89	2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3		Page 1 of 2
3 Discovered During Audit 89-7	3a Identified By M. Diaz	4 SDR No. 470 Rev. 0	
5 Organization Los Alamos Nat'l Lab	6 Person(s) Contacted E. Cole/P. Tillery	7 Response Due Date is 20 Working Days from Date of Transmittal	
8 Requirement (Audit Checklist Reference, if Applicable) (Checklist Items 18-2, 18-3-1) NNWSI/88-9, Rev. 2, Section XVIII, Para. 1.3.1, states in part "Audit plans shall identify organizations to be notified,...applicable documents."			
9 Deficiency Contrary to the requirements cited above:  1. Audit plans do not identify organizations to be notified and the appli-			
10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input checked="" type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective Identify the remedial action(s) to be taken to correct the deficiencies noted in block 9. Investigate the program, process, activities or documentation, to			

Completed by Organization In Block 5

11 QAE/Lead Auditor/Date <i>S. Dana</i> 11/30/89	12 Division Manager/Date <i>W. H. Helgen</i> 12-1-89	13 Project Quality Mgr./Date <i>[Signature]</i> 12/1/89
14 Remedial/Investigative Action(s)		15 Effective Date _____
16 Cause of the Condition & Corrective Action to Prevent Recurrence		17 Effective Date _____
18 Signature/Date		

Comp. by Org. QA Org.

19 Response Accepted	QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date
20 Corrective Action Verif. Satisfactory	QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date
21 Remarks			
22 QA CLOSURE	QAE/Lead Auditor/Date	Division Manager/Date	PQM/Date

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8 Requirement ( continued )

TWS-QAS-QP-18.1, Rev. 1, Para. 6.4.2, states in part "Auditors document their investigations, observations, and names of personnel interviewed on the audit checklist." NNWSI/88-9, Rev. 2, Section XVIII, Para. 1.4, states in part "Objective evidence shall be examined to the depth necessary to determine if these elements are adequate for effective control and to determine whether or not they are being implemented effectively."

9 Deficiency ( continued )

cable documents to be used during the audit.

2. Numerous audit checklists do not contain the documented evidence reviewed during the audit.
3. Checklists do not contain qualitative or quantitative criteria to determine whether or not the objective evidence examined during the audit is acceptable to the scope and requirements of the audit.

10 Recommended Actions ( continued )

determine the extent and depth of similar deficient conditions listed as examples on the SDR. Identify these deficiencies and provide the measures required to correct them. Identify the cause of the condition and the planned corrective action to prevent recurrence.

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Completed by Originating QA Organization	1 Date 11/16/89		2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3		Page 1 of 2	
	3 Discovered During Audit 89-7		3a Identified By S.L. Crawford		4 SDR No. 471 Rev. 0	
	5 Organization Los Alamos Nat'l Lab		6 Person(s) Contacted K. Foster		7 Response Due Date is 20 Working Days from Date of Transmittal	
	8 Requirement (Audit Checklist Reference, if Applicable) (Q #2-2) LANL-YMP-QAPP, Rev. 4.4, para. 2.5 provides "Position descriptions shall establish minimum personnel qualifications and the necessary indoctrination or training or both before a person starts work on activities"					
	9 Deficiency TWS-QAS-QP-02.1, Rev.1, para. 4.2 and para 6.1, step 5, do not require position descriptions to identify needed indoctrination or training. Position descriptions do not generally identify training and indoctrination					
	10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective Identify the remedial action(s) to be taken to correct the deficiencies noted in block 9. Identify the cause of the condition and the planned action to					
	Aprv.	11 QAE/Lead Auditor/Date <i>S. Jones 11/30/89</i>		12 Division Manager/Date <i>W. L. ... 12-1-89</i>		13 Project Quality Mgr./Date <i>... 12/1/89</i>
		14 Remedial/Investigative Action(s)				15 Effective Date _____
		16 Cause of the Condition & Corrective Action to Prevent Recurrence				17 Effective Date _____
	Completed by Organization In Block 5	18 Signature/Date				
19 Response Accepted		QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date		
20 Corrective Action Verif. Satisfactory		QAE/Lead Auditor/Date	Division Manager/Date	Project Quality Mgr./Date		
21 Remarks						
Comp. by Org. QA Org.	22 QA CLOSURE					
		QAE/Lead Auditor/Date	Division Manager/Date	PQM/Date		

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8 Requirement ( continued )  
that affect quality."

9 Deficiency ( continued )

requirements; training matrices, per QP-02.2 are not attached to certifications, resumes, or position descriptions, to show required training prior to annual certification.

10 Recommended Actions ( continued )

prevent recurrence.