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U.S. DEPARTMENT OF ENERGY

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

OFFICE OF QUALITY ASSURANCE

AUDIT REPORT FOR THE AUDIT OF

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

LAS VEGAS, NEVADA AND THE NEVADA TEST SITE

AUDIT NO. YMP-92-16

MAY 18 THROUGH 22, 1992

PROGRAM ELEMENTS EVALUATED:

5.0	Instructions, Procedures, Plans, and Drawings
6.0	Document Control
12.0	Control of Measuring and Test Equipment
17.0	Quality Assurance Records
19.0	Software Quality Assurance
20.0	Scientific Investigation Control

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EXECUTIVE SUMMARY

The audit determined that Science Applications International Corporation's (SAIC) implementation of the audited portion of the Quality Assurance (QA) Program, as described in the Technical and Management Support Services (T&MSS) Quality Assurance Program Description Document (QAPD) and implementing procedures, is effective. Implementation of Quality Program Elements 5, 6, 17, 19, and 20 was found to be satisfactory. Element 12 was included in the scope of this audit as it had been evaluated as marginal in the preceding audit (YMP-92-08). This element continues to be considered marginal.

Two Office of Civilian Radioactive Waste Management (OCRWM) Corrective Action Requests (CARs) were issued as the result of this audit. One addresses completion of necessary training before performing quality-related work. The second identifies the unauthorized alteration of vendor-supplied calibration certification documents. Five other deficient conditions were identified and corrected by SAIC during the course of the audit. Details of issued OCRWM CARs and corrected deficient conditions may be found in Sections 6.1 and 6.2 of this report.

1.0 INTRODUCTION

This report contains the results of the U.S. Department of Energy (DOE) OCRWM Office of Quality Assurance (OQA) QA Audit No. YMP-92-16 of SAIC. The audit was performed by a team of auditors from the Yucca Mountain Quality Assurance Division (YMQAD) during the period May 18 through 22, 1992, in Las Vegas, Nevada, and in the vicinity of Yucca Mountain in Area 25 of the Nevada Test Site (NTS), Mercury, Nevada. The QA Program Elements and technical activities evaluated by the audit team are identified in Section 2.0.

2.0 AUDIT SCOPE

The audit evaluated effectiveness of the SAIC program in meeting the requirements and commitments imposed by OCRWM. Specifically, implementation of QA requirements delineated in the SAIC QAPD and implementing procedures were evaluated.

The following QA Program Elements were evaluated by the audit team:

- 5.0 Instructions, Procedures, Plans, and Drawings
- 6.0 Document Control
- 17.0 Quality Assurance Records
- 19.0 Computer Software
- 20.0 Scientific Investigation Control

In addition, Program Element 12.0, "Control of Measuring and Test Equipment," was included in the audit scope as it had been evaluated as marginal in the previous audit (YMP-92-08).

The following two technical activities were reviewed by technical specialists and programmatic auditors at the NTS and at Las Vegas Nevada:

Work Breakdown Structure (WBS) 1.2.5.4.2, Meteorology
WBS 1.2.5.4.5, Environmental Radiological Monitoring.

3.0 AUDIT TEAM AND OBSERVERS

A list of audit team members, the program elements or technical activity they evaluated, and audit observers are contained in Enclosure 1.

4.0 AUDIT MEETINGS AND PERSONNEL CONTACTED

A pre-audit meeting was held at Las Vegas, Nevada on May 18, 1992. Daily meetings were held with SAIC management and staff to discuss audit results from the previous day. Daily meetings were also held with the audit team and observers to discuss audit activities and potential deficient conditions. Enclosure 2 identifies personnel contacted during the audit and those who attended pre-audit and post-audit meetings.

5.0 SUMMARY OF AUDIT RESULTS

5.1 QA Program Effectiveness

SAIC is satisfactorily implementing QA Program controls in accordance with their QAPD and implementing Standard Practice Procedures (SP) for evaluated Program Elements 5.0, 6.0, 17.0, 19.0 and 20.0. However, Program Element 12.0, "Control of Measuring and Test Equipment," is evaluated as marginal in its implementation based upon the following:

1. Corrective action undertaken in response to CAR YM-92-020 which was issued during audit YMP-92-08. While on schedule, CAR YM-92-020 has recently been expanded to include extensive procedural revisions that are incomplete, and therefore cannot be evaluated for adequacy at this time.

2. SAIC's QA organization has recently identified a number of additional deficiencies in their deficiency report, Quality Finding Report QFR 92-005.

3. Three other conditions adverse to quality were identified and corrected during the audit. These are discussed in Section 6.2, Items 3 through 5.

5.2 Programmatic Audit Activities

Details of the evaluation of the QA Program Elements evaluated and of the objective evidence examined during the audit, are provided in Enclosures 3 and 4. respectively.

5.3 Technical Activities

Two technical activities were examined during the course of this audit in Las Vegas, Nevada and at the NTS in the vicinity of Yucca Mountain. These activities are defined in the WBS as elements 1.2.5.4.2 and 1.2.5.4.5. The detailed report by each technical specialist is contained in Enclosure 3A.

5.3.1 WBS 1.2.5.4.2 - Meteorology

The goal was to evaluate the implementation of technical requirements and content as described in the Meteorological Monitoring Plan (MMP) with respect to the objective stated in Study Plan 8.3.1.12.2.1, Revision 0, "Meteorological Data Collection at the Yucca Mountain Site." The overall conclusion of the technical evaluation is that the MMP, as it is presently implemented together with the planned changes in the program as described in draft Revision 1 of the study plan, will be adequate to meet the objectives of this activity. There were no deficiencies noted related to this activity.

5.3.2 WBS 1.2.5.4.5 - Environmental Radiological Monitoring

The second technical area chosen for examination during this audit was the radiological environmental activities in WBS 1.2.5.4.5, Radiological Monitoring. Since the last audit of SAIC for technical requirements, the number of monitoring activities subject to audit has changed. This occurred in February, 1992 when revised Quality Assurance Grading Reports (QAGR) were approved with the result that most of the monitoring activities are no longer designated as quality-related. The remaining quality-related activities in WBS 1.2.5.4.5 are specified in QAGR No. RFP-1, Revision 1. These remaining activities are: 1) the monitoring of surface and groundwater excluding ephemeral streams, and 2) the monitoring of Carbon-14 in air within the near-field study area. The scope of this audit consequently focused on these two activities and their interface, and dependence on the rest of the radiation monitoring program. The conclusion of the technical specialist was that, while there has been no significant quality-related work in either of these two areas, the conduct of work in the associated activities and the general competence of the staff indicates that preparations for the quality-related work and its conduct will be satisfactory. No deficiencies were noted during this portion of the audit.

5.4 Summary of Deficiencies

Two CARs were issued as a result of the audit. In addition, five conditions adverse to quality were identified by the audit team that were considered isolated in nature and corrected by SAIC personnel prior to the post-audit meeting. Details of the CARs and conditions adverse to quality corrected during the audit are contained in Sections 6.1 and 6.2.

6.0 SYNOPSIS OF DEFICIENCIES

6.1 Corrective Action Requests

The OCRWM CARs listed below were issued as a result of the audit. Information copies of these OCRWM CARs are contained in Enclosure 5.

YM-92-041 - Contrary to the SAIC's T&MSS QAPD, three vendor-supplied calibration reports were corrected prior to submittal to the Records Management System (RMS) and without vendor approval.

YM-92-042 - Contrary to SAIC SP Procedure requirements, quality-affecting work was performed by the Software Librarian prior to completion of the required reading/training assignment.

6.2 Deficiencies Corrected During the Audit

Conditions adverse to quality, that are considered isolated in nature and require only remedial action, can be corrected during the audit without issuance of a CAR. The following conditions adverse to quality were identified and corrected during the audit:

1. The QAPD, Section 6.2, Revision 2, states in part: "Document issuance and distribution shall be controlled to assure that correct, applicable, and current documents are available to personnel performing activities at work locations." It continues in Subsection 6.2.1 with the following partial quotation, "Controls for issuing quality related documents include: ... C. Marking, removal, or destruction of obsolete or superseded documents." Contrary to these requirements, procedure SP 1.34, Revision 5, "Document Control" failed to

provide an adequate mechanism to deal with situations in which the document holder could not or did not mark or remove obsolete or superseded documents from availability for use. This condition resulted in an abandoned manual being available for use in a work area while containing superseded procedures. (The document was T&MSS SP, copy number 131, assigned to a former consultant.) The responsible manager returned the manual to Document Control. During the course of the audit, SAIC issued ICN No. 1 to SP 1.34, Revision 5, which provides corrective action to prevent recurrence. The noted condition was satisfactorily resolved.

2. SP 1.34, Revision 5, "Document Control", Section 5.6.5 states in part: ... "Document Holders are responsible for the maintenance and control of their documents .... " Contrary to this requirement, a T&MSS Operating Procedure (OP) Manual (No. 20) contained a superseded revision of OP 1.7. The current revision of the procedure was inserted during the audit.

3. Procedure SP 2.4, Revision 5, Section 5.6, requires that a request for extension of Measuring and Test Equipment (M&TE) calibration period be made in writing, with justification, and based on calibration data, performance audits/checks, and present use of the instrument. Contrary to this requirement, internal memorandums to extend the calibration period for two barometers (serial numbers 269614 and 269625) and an altimeter/barometer (serial number 9H1029) failed to meet these requirements. The memorandums were amended and contained all the appropriate signatures prior to the audit exit conference.

4. Procedure SP 2.4, Revision 5, Section 5.1.4.2 states: "Establish a history file for each M&TE device after receiving acceptance test documentation or an acceptable calibration certificate. Each file shall contain certificates of calibration, traceability to calibration/performance audit/performance check data, nonconformances, and any additional information as applicable." Contrary to this requirement, three sheets of data supporting a vendor-supplied calibration certificate (multimeter, identification number 09065, dated 1/21/92) lacked the information necessary to link the data sheets and certificate in an unambiguous, traceable manner. The calibration data sheets were corrected by the testing laboratory and are now traceable to the certificate. This action was completed during the audit.

5. Procedure SP 2.4, section 5.1.2.3 states, "Procure M&TE or M&TE calibration/rework services in accordance with ... SP 1.69." Procedure SP 1.69, Revision 0, "Obtaining Services Through the Work Order Process," Section 6.1.1, list the Work Order Package as a QA record that must be submitted to the Records Management System. Contrary to this requirement, the QA Record Package (Accession No. NNA.920211.0092) for the calibration of three instruments by the Reynolds Electrical and Engineering Company California laboratory, did not contain the Work Order. Work Order-0001 was added to the record package during the course of the audit.

7.0 RECOMMENDATIONS

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

1. Data-recording instruments for meteorological monitoring are enclosed in an environmentally controlled shelter at the Main Site. It is recommended that temperature be monitored independently within the shelter in order to identify temperature excursions (e.g. lack of air-conditioning) that might affect the quality of data being recorded.

2. Procedures SP 2.4, Revision 5, "Control Of Measuring And Test Equipment (M&TE) Used For Calibration And As Standards" and SP 2.5, Revision 3, "Maintenance and Control of Operating Equipment," are both written to implement requirements and to provide an acceptable degree of management and operational flexibility. However, the requirement for compliance is at great risk when individuals have the latitude to interpret procedural requirements. SAIC management is encouraged to review these two procedures along with the results of their use.

3. SAIC uses the Purchase Order number as the means of access to calibration certification documents and other quality records associated with M&TE and OE. The consequences of this practice are that (1) it is not possible to go directly from the instrument to its quality records in the RMS and (2) successive calibration certifications for a given instrument are filed individually under different Purchase/Work Orders. It is suggested that a system based on the individual, unique instrument number be the access to all that instrument's quality records.

4. The set of QA grading packages for WBS 1.2.5.4.5 were revised in January, 1992. It is recommended that the procedures used in these activities be reviewed for consistency with the overall QA Program.

5. At the main meteorological monitoring site, the 60-meter tower and rain gauge are sufficiently close to one another that the tower could affect the rain gauge reading. It is recommended that this condition be re-evaluated to assure no adverse effect on precipitation readings.

8.0 ENCLOSURES

Enclosure 1:	Audit Team Members and Observers
Enclosure 2:	Personnel Contacted During the Audit
Enclosure 3:	Details of Program Element Evaluation
Enclosure 3A:	Details of Technical Activity Examination
Enclosure 4:	Objective Evidence Reviewed During the Audit
Enclosure 5:	Information Copies of CARs

ENCLOSURE 1

AUDIT TEAM MEMBERS AND OBSERVERS

TEAM MEMBERS:

Richard L. Maudlin, Audit Team Leader, MAC Technical Services Company/YMQAD

Thomas J. Higgins, Audit Team Leader-in-Training and Lead Technical Specialist SAIC/YMQAD

James Blaylock, Auditor, DOE/YMQAD, Program Element 20.0

Robert B. Constable, Auditor, DOE/YMQAD, Program Elements 6.0 and 17.0

Mario R. Diaz, Auditor, DOE/YMQAD, Program Elements 12.0 and 20.0

John R. Matras, Auditor, SAIC/YMQAD, Program Elements 5.0 and 19.0

Wayne A. Bliss, Technical Specialist, Reynolds Electrical and Engineering Company, Inc., Technical Activity WBS 1.2.5.4.5 - Environmental Radiological Engineering

Dwight T. Hoxie, Technical Specialist, U. S. Geological Survey, Technical Activity WBS 1.2.5.4.2 - Meteorology

OBSERVERS:

William Belke, U.S. Nuclear Regulatory Commission (NRC), Las Vegas and the Nevada Test Site

Kenneth Kalman, NRC, Las Vegas only

Bruce Mabrito, NRC, Las Vegas only

ENCLOSURE 2

PERSONNEL CONTACTED DURING THE AUDIT

Name	Organization	Title	Contacted Pre-Audit	During Audit	Post-Audit
Badredine, T. L.	SAIC	Receipt Control Supervisor	X	X	X
Beall, G. K.	SAIC	APM			X
Belke, W.	NRC	Observer			X
Blaylock, J.	YMQAD	Auditor	X		X
Bliss, W. A.	YMQAD	Technical Specialist	X		X
Bostian, R. S.	SAIC	APM			X
Chadwick, P. A.	SAIC	Sys. & Comp. Div. Mgr.	X		
Chandler, D. K.	SAIC	Deputy Proj. Manager	X		X
Clark, J. E.	SAIC	EFPD QA Liaison	X	X	X
Cloke, P. L.	SAIC	Manager, SISD	X		
Constable, R. B.	YMQAD	Auditor	X		X
Conway, Z. J.	SAIC	Site Technician		X	
Croft, L. D.	SAIC	EFPD Manager	X	X	X
Diaz, M. R.	YMQAD	Auditor	X		X
Donaldson, G.	SAIC	M&TE Custodian	X	X	
Estella, J. W.	SAIC	QA		X	
Fransioli, P. M.	SAIC	Meteorologist		X	
Frey, W. K.	SAIC	Management Specialist		X	
Gonzales, R.	SAIC	Deputy APM	X		
Harbert, K. R.	SAIC	Software QA Analyst	X	X	X
Harper, J. B.	SAIC	QA Manager	X	X	X
Harris, M. D.	SAIC	APM	X	X	X
Helms, R. G.	SAIC	Senior Staff	X		X
Higgins, T. J.	YMQAD	ATL-in-Training/LTS	X		X
Hoxie, W. T.	YMQAD	Technical Specialist	X		X
Jacobson, P. J.	SAIC	CRF Supervisor	X	X	X
Jerome, K. M.	M&O	Records Clerk		X	
Johnson, K. B.	SAIC	QA	X	X	X
Jones, G.	SAIC	Air Quality Specialist		X	
Kalman, K.	NRC	Observer	X		X
Lee, D. D.	SAIC	Training Office Asst.			X
Mabrito, B.	NRC	Observer	X		X
Malone, M.	SAIC	QA			X
Matras, J. R.	YMQAD	Auditor	X		X
Maudlin, R. L.	YMQAD	ATL	X		X
Miskech, Y.	SAIC	Software Librarian		X	
Nolan, S. P.	SAIC	QA		X	X
Orchard, C. R.	SAIC	Health Physics Tech.		X	
Osenbaugh, W. E.	SAIC	Buyer		X	

PERSONNEL CONTACTED DURING THE AUDIT
(continuation)

Name	Organization	Title	Contacted Pre-Audit	During Audit	Post-Audit
Payne, T. L.	SAIC	Proj. Admin. Specialist		X	
Prince, J. K.	SAIC	RFPD Manager	X	X	X
Prowell, G.	SAIC	Meteorologist		X	
Rhodes, V. F.	SAIC	D&R Control Div. Mgr.		X	
Rinderman, R. R.	SAIC	Lead Quality Engineer	X	X	X
Rixford, C.	SAIC	LRC Supervisor		X	
Rochester, V.	SAIC	Manager, ISD	X	X	X
Roesner, K. W.	SAIC	Environmental Tech.		X	
Sellards, C. L.	SAIC	RMS Admin. Specialist	X	X	
Shenk, K. J.	SAIC	Health Physicist		X	
Smith, W. C.	M&O	LRC-SAIC Liaison	X	X	
Stonebraker, S.	SAIC	Document Control Coord.		X	
Tait, T. D.	SAIC	APM	X		X
Temple, A. L.	SAIC	QA Analyst			X
Voegele, M. D.	SAIC	TPO - Project Manager	X	X	X
Warner, P. J.	SAIC	Manager, RMD		X	X

ACRONYMS:

APM = Assistant Project Manager
ATL = Audit Team Leader
CRF = Central Records Facility
D&R = Document Records Control Division
EFPD = Environmental Field Programs Division
ISD = Information Systems Department
LRC = Local Records Center
LTS = Lead Technical Specialist
M&O = Management and Operating Contractor
RFPD = Radiation Field Programs Division
RMD = Records Management Department
RMS = Records Management System
SISD = Scientific Investigation Support Department

ENCLOSURE 3

DETAILS OF PROGRAM ELEMENT EVALUATION

This enclosure contains a summary of the evaluations performed by the programmatic auditors. A list of the objective evidence examined during the evaluations is provided in Enclosure 4, as well as a complete reference for each of the documents mentioned in this enclosure.

1. Program Element 5.0, Instructions, Procedures, Plans, and Drawings

The evaluation of this program element was based on the examination of objective evidence to determine compliance with selected requirements taken from the implementing procedure SP 1.1, "Preparation, Review, and Approval of T&MSS Procedures," Revision 7. The selected requirements are listed below:

- A custodian will be assigned to prepare and maintain each SP and OP (Section 5.1.2)
- Procedure review packages shall contain a list of reviewers, Review and Comment form, draft procedure, and new or revised forms (Section 5.1.15)
- A copy of the review package will be sent to the Training Manager for coordination of training requirements (Section 5.1.18)
- Training requirements will be coordinated (Section 5.1.18)
- Resolution of review comments resulting in a substantive change to the draft, will result in a Comment Resolution Meeting or resubmittal to the reviewers (Section 5.1.27)
- Verbal interim changes are handled in accordance with Section 5.4.2 and subsections, particularly the use of a Verbal Interim Change Notice (VICN) number, notation of the VICN on the affected Work Instruction, appropriate approvals, and necessary training and documentation for those performing work according to amended Work Instruction (Section 5.4.2)
- A VICN will be replaced by a permanent ICN within two working days (Section 5.4.2).

Based on the examination of six procedures, two approved procedure review packages, a checklist (New Issues/Revisions) and documentation of the need for training, implementation of this program element is satisfactory.

2. Program Element 6.0, Controlled Documents

The evaluation of this program element was made through the examination of objective evidence to determine compliance with selected requirements taken from the implementing procedure SP 1.34, "Document Control," Revision 5. These selected requirements are listed below:

- Each procedure shall have an assigned document custodian (Section 5.1.1)
- The document's custodian will provide explicit distribution instructions on form TMSS/030/01 (Section 5.1.2)
- The Document Control Center will stamp assigned documents in a red controlled copy stamp and provides for distribution (Section 5.2.1)
- The Document Control Center will maintain the Controlled Document Information System which tracks receipt of distributed controlled documents by the assigned document holder sections (Section 5.3.1)
- The Document Control Center shall notify delinquent document holders, issue document decontrol notices, and remove delinquent document holders from the distribution list (Section 5.3.2)
- Uncontrolled documents shall not be used to perform quality-affecting work (Section 5.5.1)
- The Document Control Center will maintain a database of controlled documents and submit a monthly master list of documents as a quality record to the RMS (Section 5.6)
- Document holders are responsible for control and maintenance of their assigned documents (Section 5.6.5)

During the examination of objective evidence, two conditions adverse to quality were noted and satisfactorily corrected during the audit. These are discussed in Section 6.2, Items 1 and 2 of this report.

Based on the examination of eight Work Instructions (WI), six procedures, five Document Transmittal/Acknowledgement Forms, five Decontrol Notices, five individual document collections in the control of document holders, and four reports and lists, the implementation of this program element is satisfactory.

3. Program Element 12.0, Control of Measuring & Test Equipment

The evaluation of this program element was accomplished through the examination of objective evidence to evaluate compliance with selected requirements taken from the implementing procedures:

SP 2.4, Revision 5, "Control of Measuring and Test Equipment"
SP 2.5, Revision 3, "Maintenance and Control of Operating Equipment."

The selected requirements are listed below:

- The M&TE custodian shall maintain an M&TE list containing all necessary information for tracking, control, and traceability of calibration standards (SP 2.4, Section 5.1.4.1)

- The M&TE Custodian will maintain an historical file for Calibration Standards that includes calibration certifications and traceability documentation, performance data, and nonconformance reports (NCR) (SP 2.4, Section 5.1.4.2)

- The certificate of calibration for laboratory and working standards shall contain all information related to good practice for such documents (SP 2.4, Section 5.1.5.1)

- Calibration Standards shall be traceable to National Institutes of Science & Technology or other recognized agencies (SP 2.4, Section 5.1.6.1)

- Calibration Standards shall have an accuracy greater than the equipment calibrated (SP 2.4, Section 5.1.6.1)

- M&TE and Standards will be handled and stored in an approved manner (SP 2.4, Section 5.1.7.1)

- M&TE will be recalibrated on a scheduled basis as determined by the user with appropriate controls to ensure compliance (SP 2.4, Sections 5.2.1 and 5.6)

- M&TE found in an out-of-tolerance condition shall be documented with an NCR (SP 2.4, Section 5.4.1)

- Out-of-service M&TE will be tagged and physically controlled with appropriate quality records of the process until returned to service (SP 2.4, Sections 5.2.1.3, 5.8, and 7.1)

- Equipment designated Operating Equipment (OE), will have calibration certificates that document all information required by good practice and traceability (SP 2.5, Section 5.1.5.1)

- The responsible manager will utilize appropriate matrices and schedules to assure that OE is maintained, calibrated, and controlled in the prescribed manner (SP 2.5, Sections 5.3.1.1, 5.6.1, 5.7.8, and 5.7.12).

The examined objective evidence included two database reports designed for the control of instruments, and the verification of compliance with the following controls placed upon M&TE and OE. These controls were: five M&TE location, five M&TE calibration due-date, three M&TE status, two M&TE serial number, 26 OE location/calibration/due-date/status, four OE serial number, seven M&TE calibration certification QA records, and five T&MSS NCRs for out-of-tolerance instruments. In addition, areas for instrument storage, holding, and maintenance were examined.

Three conditions adverse to quality were identified and corrected during the audit. These are discussed in this report in Section 6.2, Items 3 through 5.

The evaluation of this program element's implementation was based on the objective evidence and the three deficient conditions mentioned above, as well as the incomplete status of the corrective action of CAR YM-92-020, the previous evaluation of Audit YMP-92-08, and the recent issuance of QFR 92-005 by the T&MSS QA organization (see Section 5.1 of this report). The conclusion was that the basis for a satisfactory evaluation is not present at this time. This program element is judged marginal in its implementation.

4. Program Element 17.0, Quality Assurance Records

The evaluation of this program element was accomplished through the examination of objective evidence to evaluate compliance with selected requirements taken from the implementing procedure SP 1.36, Revision 8, "Records Management: Records Source Implementation." The selected requirements are listed below:

- The RMS will assure traceability among record package number, identifier, source name and organization, and quality-affecting designation (Section 5.1.1.4)

- The record source will protect the record package contents until it is formally transferred to the RMS (Section 5.1.1.5)

- Final technical and scientific reports will be legible, indicate quality-affecting designation, and provide information for easy access to references (Section 5.1.2.)

- Record packages will indicate degree of completion, the presence of protected personal information, and be submitted in the required format (Sections 5.1.5 and 5.2.2)

- Records will be submitted after review, in a timely fashion, and in the required format with the specified forms (Section 5.2.)

- The LRC will review record/package to verify procedural compliance, contact record sources when discrepancies are identified (Section 5.3.)

- Retrieval of records from the RMS will be controlled, documented, with positive verification of the requestor's authorization and identity for protected personal information (Section 5.4)

The examined objective evidence included five record packages submitted to the RMS, two technical reports, two completed T&MSS forms, ten letters of rejection from the RMS to record sources, and successful retrieval of five requested QA records. In addition, the auditor responsible for the verification of Program Element 12, referred records associated with the calibration of three instruments (serial numbers 9H1029, 269625, 269614) for consideration. The condition of these records resulted in OCRWM CAR YM-92-041 being issued under this program element. This is discussed in this report in Section 6.1 and an information copy of the issued CAR is provided in Enclosure 5.

Based on the objective evidence, implementation of this program element is satisfactory.

5. Program Element 19.0, Software Quality Assurance

The evaluation of this program element was accomplished through the examination of objective evidence to evaluate compliance with selected requirements taken from the implementing procedures:

SP 1.52, Revision 1, "Quality Related Software Management Process"
SP 1.56, Revision 0, "Software Configuration Management"

The selected requirements are listed below:

- The software product producer/user (as appropriate) is responsible to initiate implementation of the software quality assurance program for a given software product (SP 1.52, Section 5.1.1)

- The software life cycle shall be initiated through completion and review of the Software Classification Form (SCF) (SP 1.52, Sections 5.1.2 through 5.1.5)

- The software owner/user shall convey the specifications for the requested product in the Software Users' Requirements Document (SP 1.52, Section 5.2.1)

- Conversion of software to a new operating environment will be initiated by the software owner/user on a Change Request Form and performed by the developer who documents that activity on a Software Conversion Report (SP 1.52, Section 5.8)

- Software reclassification will be initiated by the owner/user on a SCF and submitted to the Software Librarian (SP 1.52, Section 5.9)

- The code development phase will include review and approval of the source code in accordance with procedure SP 1.55, review and approval of the User's Manual, and a report of problems or defects by the developer (SP 1.52, Section 5.10)

- All available documentation for existing software will be obtained from the supplier (SP 1.52, Section 5.9)

- Software development or revision will be controlled by a Software Requirements Specification that will contain the necessary technical requirements and specifications for the product (SP 1.52, Section 5.3)

- The technical and quality requirements associated with existing software, that will be modified or maintained by a supplier, will be conveyed to the supplier as a contractual specification (SP 1.52, Section 5.3.2)

- Acceptance of a software product as fit for use will be conditioned on the results of a test plan that will be executed and its results documented (SP 1.52, Section 5.11.7)

- Change control will be applied to software products (SP 1.56, Sections 5.12 and 5.13)

- Change control will be implemented using a configuration management methodology (SP 1.56, Section 5.13)

- Software product documentation will be controlled (SP 1.56, Section 5.13).

During examination of objective evidence, a deficient condition was noted in the area of training (Program Element 2). OCRWM CAR YM-92-042 was generated as a result. The details of this condition are discussed Section 6.1 of the report and an information copy of the issued CAR is provided in Enclosure 5.

The auditor responsible for this program element followed up on a referral from the technical specialist evaluating WBS 1.2.5.4.2, Meteorology. The referral dealt with some statements that "data loggers (and their associated software) are not subject to software quality assurance controls." On investigation, this was found to be incorrect. The affected software (ENVAID 5.0A, DATALOGGER 1.0B, and ENVICOM 4.2.1A) each had a Software Development File and were, in fact, the subject of a T&MSS deficiency report QFR 92-021 dealing with their classification.

Based on examination of the current Software Configuration Management Log and Inventory, two T&MSS internal audit reports, a T&MSS deficiency report, and the Software Development Folders for six software programs containing a total of documents and items, no deficient conditions related to the implementation of Program Element 19.0 were identified. The implementation of Program Element 19.0 is satisfactory.

6. Program Element 20.0, Control of Scientific Investigation

The evaluation of this program element was accomplished through the examination of objective evidence to evaluate compliance with selected requirements taken from the QAPD, Revision 3. The selected requirements are listed below:

- Scientific investigation will conducted in accordance with an planning document (Section 20.1)

- The planning document will be reviewed and approved (Section 20.2)

- Technical procedures will provide a definition of the work and address prerequisites, verification points, criteria for acceptable completion, full documentation, data handling and reduction, error propagation and uncertainties, and technical verification (Section 20.3)

- Scientific notebooks, when employed, shall follow good scientific practice so that traceability of information and repeatability of results by a competent third party is ensured (Section 20.4)

- Field investigations will be protected from competing activities that might adversely them (Section 20.5)

- The development of new techniques for critical application will be adequately controlled (Section 20.6)

- The qualifications of personnel engaged in technical activities will be verified and documented (Section 20.6)

- The results of scientific investigation will be reported and documented in manner consistent with good practice (Section 20.8)

- The quality records of scientific investigation will meet those prescribed by the project (Sections 20.9 and 17.0)

- Technical reviews will meet the requirements of the QAPD, Revision 3, and implementing procedures and instructions (Section 20.10).

- Environmental Radiological Monitoring activities will comply with the requirements set forth in the following WIs: WI-RM-150, WI-RM-153, WI-RM-156, WI-RM-770, and WI-RM-801.

Sufficient objective evidence on which to base an evaluation of implementation does not exist for WBS 1.2.5.4.5, Environmental Radiological Monitoring due to the recent revision of the QAGRs for this WBS element. These reviews removed all but two activities from the classification of "quality-related." Both of these are in the preliminary stages of planning and thus provided no evidence for evaluation. In addition, the existing WIs no longer apply to the remaining, uninitiated quality-related activity as a result of the same QAGR revisions. A recommendation has been included in Section 7.0 of the report (Item 4) which addresses the need to review all radiological procedures to assure correct references and applicability statements.

The meteorological program, defined in WBS 1.2.5.4.2, Meteorology, has been gathering data for a number of years. The implementation of the QA program is limited in that the meteorological program has limited itself to the collection of data. There has been no data reduction and analysis, nor reports issued under the MMP. (Air quality reports have been issued but this is a separate, non-quality related activity.) Nevertheless, the implementation of the program element is sufficient to cover the work done, and has sufficient duration on which to base a judgment.

The objective evidence for WBS 1.2.5.4.2 included the current study plan, its draft revision, and four WIs. Based on the evidence examined, implementation of Program Element 20.0 is satisfactory.

The reports from both technical specialists are provided in Enclosure 3A.

ENCLOSURE 3A

DETAILS OF TECHNICAL ACTIVITY EXAMINATION

This enclosure contains the reports submitted by the technical specialists for the technical area they evaluated.

1. WBS 1.2.5.4.2, Meteorology

The principal focus was to evaluate the technical content and implementation of the Meteorological Monitoring Program (MMP) with respect to the objectives stated in Study Plan 8.3.1.12.2.1, Revision 0, "Meteorological Data Collection at the Yucca Mountain Site." The MMP describes the collecting of quality-affecting site meteorologic data necessary for input to air-quality dispersion models to be used to evaluate possible air-borne transport and dispersal of radionuclides with respect to both public and worker health and safety during pre-closure repository operations should repository construction be undertaken at the Yucca Mountain site. In addition, the MMP describes the collecting of non-quality affecting meteorological data that is required to be submitted to the State of Nevada for evaluating compliance with the air-quality standards promulgated by the U.S. Environmental Protection Agency (EPA).

The information supporting the technical evaluation were gathered through interviews with responsible individuals and the examination/observation of records and equipment. The latter were the Study Plan and its draft revision, the MMP, Regulatory Guide 1.23, a report on instrumentation, an Ambient Air Monitoring Report, and the main monitoring site and its equipment.

The evaluation was based on:

- The purpose and scope of the meteorological program and the intended use of the data

  The principal quality-affecting use of the data will be to provide input to predictive models for evaluating possible air-borne transport and dispersion of radionuclides. Additional data use includes establishing environmental baseline conditions, satisfying State of Nevada environmental regulations, identifying extreme events to support design of surface facilities, determining the ability to comply with the regulations on preclosure radiological safety set down in 10 CFR 960.5-2-3, "Meteorology," and supporting characterization of the regional meteorology.

The technical program of the MMP was examined with respect to the ability of the program to meet these objectives. The overall result is that the enlarged MMP described below will be satisfactory for meeting these objectives.

- The rationale for the selection of monitoring sites

  The original selection of sites (the Main Site and four remote sites) was made in order to collect data near potential Exploratory Studies Facility and repository facilities, and to characterize nocturnal cold-air drainage down Forty-Mile Wash. However, the goals of the MMP now require an expanded data gathering network. Additional sites are planned and are described in draft Revision 1 to Study Plan 8.3.1.12.2.1. The additional four sites will provide greater areal coverage into remote areas. The suite of nine sites are considered adequate to achieve the purposes of the MMP. The present set of five sites has been operating since December 1, 1985.

- The choice of meteorological parameters

  The Technical Specialist verified that all of the appropriate meteorological parameters were being collected at the sites to fulfill the objectives of the MMP. These parameters, as identified by the personnel interviewed and determined by direct inspection at the Main Site and the remote site on Alice Hill, include wind speed, direction, air temperature, relative humidity (dew point temperature at the Main Site), precipitation, barometric pressure, and vertical wind speed and temperature difference at the Main Site. Net solar radiation measurements were discontinued at the Main Site on December 27, 1991, because reliable sensor calibration was unavailable. Net solar-radiation monitoring at some or all sites is planned to be initiated. It is judged that this parameter set is adequate for the purposes of the MMP.

- The meteorological data required for dispersion modeling

  The fundamental meteorological parameters include horizontal wind speed, direction, and air temperature. These parameters are being collected at all sites. In addition, vertical wind speed and temperature differences are needed to evaluate air-mass stability. These data are being collected at the Main Site and are planned to be collected at the new remote sites. Data collection is deemed to be adequate for modeling atmospheric dispersion. In addition, these data will permit evaluation of topographic and air-flow channeling effects that are not readily accessible through presently available dispersion models.

- Adequacy of the combination of site location and data collection

  As discussed above, the present set of operating sites, together with the additional planned four sites, will provide adequate data collection an areal coverage for the purposes of the MMP.

- The possible use of existing data from Yucca Flat (32 km east of Yucca Mountain), and possible emissions and data from the Bond Gold Mine at Beatty, Nevada

  These items pertain to the acquisition, qualification, and use of historical data that were not collected as part of the Yucca Mountain Site-Characterization Project. The use of historical data is outside of the scope of the MMP as now defined in draft Revision 1 of Study Plan 8.3.1.12.2.1; consequently these items were deemed to be not applicable.

- Adequacy of instrument tolerances

  In the documents examined in preparation for the audit, no rationale was found for establishing the acceptable tolerances associated with the meteorological instruments and sensors. However, draft Revision 1 of Study Plan 8.3.1.12.2.1 provides tolerance levels that are explicitly associated with guidelines and regulations issued by the EPA and U.S. Nuclear Regulatory Commission (NRC). This document has been completed by SAIC and transmitted to the Yucca Mountain Site Characterization Project Office for acceptance.

- Adequacy of barometric pressure measurement methodology

  The procedure for measuring and monitoring barometric pressure was described for both the Main Site and the remote sites by the personnel interviewed. The audit team inspected the monitoring equipment at the Main Site and witnessed the field performance/calibration check of the barometric-pressure sensor at the Alice Hill remote site.

- Adequacy of relative humidity and dew point measurement methodology

  Relative humidity is monitored at the remote sites and dew point temperature is monitored at the Main Site. Because, given the ambient air temperature, one can be converted into the other, this approach was judged to be appropriate.

- Methodology for the use of data loggers

  Odessa and Campbell Scientific data loggers are being used to collect data at the Main Site and the remote sites. Internal data reduction by the data loggers is controlled by the sensor-calibration procedures. Interviewed personnel stated that data loggers are not subject explicitly to software quality assurance procedures under the T&MSS Software Quality Assurance Plan. This item was referred to the auditor responsible for the evaluation of Program Element 19, "Software Quality Assurance."

- Adequacy of issued meteorological reports

  No reporting of quality data has occurred, and the preparation of reports is pending the testing and acceptance of software to be used to process data and prepare the reports. A restricted set of site meteorological-monitoring data is being provided to the State of Nevada to fulfill the requirements of Air Quality Permit to Construct No. 2693.

- Interface(s) with the Radiological Monitoring Program

  No formal interface is presently in place; however, the opportunity for informal interaction and cooperation is available. As indicated by the T&MSS organizational chart for Environmental and Regional Programs, the radiological-monitoring and the meteorological-monitoring programs are separate divisions within the Radiological/Environmental Field Programs Department. No technical deficiencies or inadequacies were identified. However, concern was expressed to the technical personnel involved that accurate collection of precipitation data at the Main Site could be adversely affected by the proximity of the precipitation gauge to the 60-meter tower (see Section 7.0, Item 5 of this report). In addition, because the data-recording equipment at the Main Site is enclosed in an environmentally controlled shelter, it is recommended that temperature be monitored independently within the shelter to identify temperature changes occurring, for example, from air-conditioning failure that could affect the quality of the data being recorded. (See Section 7.0, Item 1 of this report.)

  Overall the MMP was judged to be operating well and, with the addition of the new monitoring sites as planned, to be fully adequate for its intended application.

2. WBS 1.2.5.4.5, Environmental Radiological Monitoring

The objective of auditing the Environmental Radiological Monitoring Program was to assure that radiological data were being collected and reported according to the requirements of the program. Reviews of previous grading reports and meeting with the managers of the program concluded that there are no quality affecting activities underway at this time. According to the grading reports, only carbon-14 monitoring in air and monitoring of ground water are quality affecting activities included in the Radiological Monitoring Plan (RMP). As the program is more than a decade away from receiving high level waste for isolation, it is reasonable that these activities have not begun. Other activities are underway which are non-quality affecting. Examples are air monitoring for impacts from outside the Yucca Mountain area, measuring ambient gamma exposures, and measuring ambient radon. The objective of this audit, therefore, became to assure that these activities were being conducted in a manner which indicates that satisfactory performance may be expected when quality affecting work begins.

Interviews were held with the J. K. Prince, Radiological Field Programs Division Manager, K. J. Shenk, Health Physicist, and J. Clark, QA Liaison. Field work by health physics technician (radiological technical), C. R. Orchard, was also observed.

Review of biographies and interviews indicate the health physicists are qualified for the positions they hold. The Lead Health Physicist recognizes the hierarchy of documents which drive the program as well as appropriate references for implementing an effective environmental radiological monitoring program. Practical solutions to inherent problems with the Yucca Mountain area such as the lack of commercial power in remote areas are being addressed. In this case, a solar powered air sampler is being developed.

The monitoring station at Building 4522 was examined. The equipment was properly located, operating, and in good repair. A routine change of the air sampler filters was observed. The change-out was executed in accordance with WI-RM-312. A copy of WI-RM-312 was included in the technicians tool kit and used as a check list. All procedures were appropriate to assure the integrity of the sample.

A cursory review of the radiation laboratory and sample preparation laboratory indicate they are adequate for this review and for the near future. Appropriate instruments and materials are available to conduct the technical work required.

While no quality affecting activities are underway at this time, the environmental radiological monitoring program is operating in other areas which indicate it will perform adequately in developing and executing quality affecting activities when required to do so.

ENCLOSURE 4

OBJECTIVE EVIDENCE REVIEWED DURING THE AUDIT

1.0 GENERAL

T&MSS Quality Assurance Program Description

2.0 PROGRAM ELEMENT 5.0, INSTRUCTIONS, PROCEDURES, PLANS, AND DRAWINGS

Work Instructions & Procedures

WI-AQ-010, Revision 0, "Air Quality Monitoring: Calibration of the Monitor Laboratories Sulfur Dioxide Analyzer"
WI-AQ-008, Revision 0, "Air Quality Monitoring: Calibration of the Monitor Labs Carbon Monoxide Analyzer"
WI-AQ-007, Revision 0, "Air Quality Monitoring: Calibration of the Dasibi Ozone Analyzer"
WI-AQ-009, Revision 0, "Air Quality Monitoring: Calibration of the Monitor Laboratories Nitrogen Oxides Analyzer
SP 1.21, Revision 2, "Verification of Education and Experience"

Review Packages For:

OP 1.2, Revision 4, "Quality Assurance Surveillances"

WI-RM-703, Revision 3, "Near Field Continuous Air Sampler Operation"

Miscellaneous -

Controlled Document Report prepared by the Custodian

Checklist for New Issues/Revisions of Controlled Documents

Procedure Review Approval- Train/No Train decisions

3.0 PROGRAM ELEMENT 6.0, CONTROLLED DOCUMENTS

Work Instructions

WI-REC-002, Revision 6, "Document Control Center Operations"
WI-RM-142, Revision 1, "Radioactive Source Leak Test"
WI-RM-143, Revision 2, "Area Radiation Surveys and Posting Levels"
WI-RM-146, Revision 1, "Personnel Contamination Control"
WI-RM-604, Revision 1, "Min/Max Thermometer"
WI-RM-610, Revision 1, "Digital Barometer Air HP-1"
WI-RM-611, Revision 1, "Merium Manometer Operational Check"
WI-RM-620, Revision 1, "Laboratory Hood Flow Testing"

Standard Procedures

SP 1.1, Revision 7, "Preparation Review and Approval of T&MSS Procedures"
SP 1.7, Revision 5, "Forms Management"
SP 1.32, Revision 1, "Management Assessment""
SP 1.34, Revision 5, "Document Control"
SP 1.35, Revision 1, "Preparation, Review, and Approval of Non-Technical Documents"
SP 1.36, Revision 8, "Records Management: Record Source Implementation"

DATRs - Document Transmittal/Acknowledgement Records

AP 5.13Q, Revision 2, ICN 0, "Readiness Review"
QMP-01-01, Revision 3, ICN 2, "Organization"
QMP-02-08, Revision 1, ICN 0, "Technical Assessment"
QMP-04-03, Revision 0, ICN 0, "Technical Directives"
QMP-06-04, Revision 4, ICN 3, "Project Office Document Development, Review, Approval, and Revision Processes"

Decontrol Notices Issued on 5/15/92 to Individuals

J. A. Docka
J. A. Canepa
F. B. Parker
A. R. Ducharme
M. K. Lohmann

Document Collections Issued of T&MSS Standard Practice Procedures

J. Estella, Copy No. 60
R. Rinderman, Copy No. 30
A. Temple, Copy No. 34
S. Nolan, Copy No. 56
R. Spooner, Copy No. 131

Reports and Lists

Master Distribution Report, dated 5/07/92
Distribution Report, dated 5/04/92 (RW-0197)
Distribution Report, dated 5/18/92 (SP 1.34)
Master Controlled Document List, dated 4/22/92

4.0 PROGRAM ELEMENT 12.0, MEASURING AND TEST EQUIPMENT

Lists

Measuring & Test Equipment List, dated 5/18/92
Operating Equipment List, dated 5/18/92

M&TE Location

Identification Nos. 03356, 03357, 09065, 16358, and 16404

M&TE Calibration Due-Date

Identification Nos. 03356, 03357, 09065, 16358, and 16404

Calibration-related documentation and memoranda for:
Barometer Serial Nos. 269614 and 269625
Altimeter/Barometer Serial No. 9H1029

M&TE Status

Identification Nos. 09065, 16358, and 16404

M&TE Serial Number

Identification Nos. 03373 and 09065

OE Location, Calibration, Due-Date, & Status

Identification Nos. 01501, 01503, 01506, 01507, 01509, 01510, 01511, 01512, 01513, 01521, 03175, 01376, 01380, 03230, 03231, 03232, 03174, 00744, 09297, 16414, 17904, 17922, 17923, 17925, 17949, and 17950

OE Serial Number

Identification Nos. 01506, 01510, 01511, and 01521

M&TE QA Records of Calibration Certification

Identification Nos. 03373, 09065, 16358, 03357, 03357, 03356, and 17922
NNA920211.0092 and Work Order-0001

Areas

Storage, holding, and maintenance were examined for compliance

NCRs - Nonconformance Reports

Out-of-tolerance conditions in various M&TE are documented in the following T&MSS NCRs: 92-012, 92-014, 92-015, 92-016, 92-017, 92-018, and 92-020

Documented evidence of corrective action performed for the NCRs

5.0 PROGRAM ELEMENT 17.0, QUALITY ASSURANCE RECORDS

Record Packages

Accession No. NNA920417.0024, "Meteorological Data for YMP Site Characterization"

Accession No. NNA910927.0073, "YMP Site Radiological Monitoring Report for 1988"

Accession No. NNA920218.0025, "Performance Check/Calibration Forms - Routine Visits"

Accession No. NNA920415.0002, "YMP Meteorological Monitoring & Air Quality Audit, dated 2/92

Accession No. NNA920415.0001, "Main Site/Remote Site Checklist" Technical Scientific Reports

Accession No. NNA911217.0002, "Estimation of Limits for Surficial Water Condition Above A Potential High Level Radioactive Waste Repository

Accession No. NNA911202.0031, "Finite Element Computer Program Analyzing Liquid Water Transport in Porous Media"

Forms Used in the Operation of the Record System

T&MSS/009/01 Oversize Record Submittal
T&MSS/010/02 Record Source Transmittal

Quality Assurance Grading Reports YMP/90-91

WBS 1.2.1.4.7 Report No. 12147A and 12147B
WBS 1.2.1.4.9 Report No. 12149A and 12149B

Request For Records Forms

Accession No. NNA920131.0152
Accession No. NNA910909.0089

Retrieval of Request/Authorization Letters for Access to Privileged Records

Letter: Bostian to Faust, dated 3/10/92
Letter: Nielsen to Verdan, dated 4/21/92
Letter: McCarthy to Faust, dated 5/18/92

6.0 PROGRAM ELEMENT 19.0, SOFTWARE QUALITY ASSURANCE

VAX Software Inventory and Status, dated 5/06/92

Software Configuration Management Log

Software Configuration Management System Quality-Related Software Inventory

T&MSS Audit Reports A91-010 and A92-005

T&MSS Deficiency Report QAFR 92-021

Software Development Folders

DATALOGGER: 1.0B

Software Classification Form 91.007Q
Change Request Form 91.001
User Access Form 91.001
User Access Form 91.002
Memo: Quality Affecting Software Applications
Memo: Acceptance Test for Quality Personal Computer
PC208 Datalogger Support Software Instruction Manual
Printout of magnetic tapes
Special Instruction Sheet

ENVICOM 4.2.1.A:

Software Classification Form 91.020Q
Change Request Form 91.003
User Access Form 91.001
User Access Form 91.002
ENVICOM License Agreement
Memo: Acceptance Test for Quality Personal Computer
Memo: Addendum to Acceptance Test

ENVAID-3.21.A:

Software Classification Form 91.005Q
Change Request Form 91.002
User Access Form 91.001
User Access Form 91.002
User Manual 91.002
License Agreement

DIRECT ACCESS 5.0A:

Change Request Form 91.006
Software Classification Form 91.025Q
Change Request Form 91.004
Software Problem Notification 91.001
Memo: Installation of Software
Memo: Change Previously Submitted

BEEMET 1.0A:

Software Classification Form 92.014Q
Change Request Form 92.004
Software Requirements Specification 92.001

WROSE 2.01A:

Software Requirements Specification 92.002

7.0 PROGRAM ELEMENT 20, CONTROL OF SCIENTIFIC INVESTIGATION

Study Plan 8.3.1.12.2.1, Revisions 0 and 1, "Meteorological Monitoring Plan (Study Plan for Meteorological Data Collection at the Yucca Mountain Site)"

Records Package for Study Plan 8.3.1.12.2.1, Revision 1

T&MSS Deficiency Report QAFR 92-012

Work Instructions

WI-MET-001, Revision 1, "Meteorological Monitoring: Receiving, Acceptance Testing, and Performance Auditing of Meteorological Monitoring Equipment"

WI-MET-002, Revision 2, "Meteorological Monitoring: Operation and Performance Checks of Meteorological Equipment"

WI-MET-003, Revision 3, "Meteorological Monitoring: Instructions for Processing Current Data"

WI-MET-006. Revision , "Meteorological Monitoring: Reporting Formats"

8.0 TECHNICAL ACTIVITIES

WBS 1.2.5.4.2 - Meteorology

Study Plan 8.3.1.12.2.1, Revision 0, "Meteorological Data Collection at the Yucca Mountain Site"

Draft Study Plan 8.3.1.12.2.1, Revision 1, same title

DOE/NV/10270-5, Revision 1, Meteorological Monitoring Plan

Code of Federal Regulations: 10 CFR 960.5.2.3

U. S. Nuclear Regulatory Commission Safety Guide 1.23, "Onsite Meteorological Programs"

General Purpose Meteorological Equipment Calibration Form (T&MSS/259) for: Y.S.I. Barometric Pressure Gauge serial no. J821539, dated 5/19/92

Ambient Air Monitoring Report, Period July to September 1991

Organization Chart, dated 4/15/92 (TMSORGP.1299/4-15-92), Environmental and Regional Programs

Main monitoring site, 60 meter tower and rain gage

WBS 1.2.5.4.5 - Environmental Radiological Monitoring

Radiological Monitoring Plan, Revision 1, YMP/88-14

Scientific Investigation Package For Radiological Monitoring, Revision 1, TMSS/RFPD-91/003

Monitoring station at Building 4522

Field change of air sampler filters

Biographies and Position Descriptions

J. K. Prince and K. Schenk

WI-RM-312, Revision 5, "Continuous Air Sampler Calibration/Verification"

Counting laboratory layout, instruments

Sample preparation laboratory materials

Quality Assurance Grading Reports YMP/90-91

Report RFP 1, Revision 1
Report RFP 1A, Revision 0
Report RFP 2, Revision 1
Report RFP 3, Revision 1
Report RFP 4, Revision 1

ENCLOSURE 5

CORRECTIVE ACTION REQUESTS ISSUED DURING AUDIT

ORIGINAL
THIS IS A RED STAMP

OFFICE OF CIVILIAN
RADIOACTIVE WASTE MANAGEMENT
U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

8 CAR NO.: YM-92-041
DATE: 5/27/92
SHEET: 1 OF 1
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document
SAIC QAPD, Revision 6

2 Related Report No.
Audit Report YMP-92-16

3 Responsible Organization
SAIC

4 Discussed With
J. M. Estella

5 Requirement:
Paragraph 17.4, Records Correction, states in part, "Provisions for correcting records (and documents that will become records) shall ensure that corrected records are reviewed and approved by the originating organization."

6 Adverse Condition:
Contrary to the above requirements, three REECo calibration reports for equipment serial numbers SN1029, 269625, and 269614, were corrected prior to submittal to the LRC without review and approval by REECo.

9 Does a significant condition adverse to quality exist? Yes___ No X
If Yes, Circle One: A B C

10 Does a stop work condition exist? Yes___ No X ; If Yes - Attach copy of SWO
If Yes, Circle One: A B C D

11 Response Due Date:
20 Days From Issuance

12 Required Actions: [X] Remedial [X] Extent of Deficiency [X] Preclude Recurrence [X] Root Cause Determination

13 Recommended Actions:
Training shall be initiated to assure all SAIC record sources and personnel handling records are aware of procedural requirements for correcting records.

7 Initiator R. B. Constable [signature] Date 5/27/92	14 Issuance Approved by QADD R. C. Spence Date 5/29/92
15 Response Accepted QAR Date	16 Response Accepted QADD Date
17 Amended Response Accepted QAR Date	18 Amended Response Accepted QADD Date
19 Corrective Actions Verified QAR Date	20 Closure Approved by: QADD Date

REV. 08/91

ENCLOSURE 5

CORRECTIVE ACTION REQUESTS ISSUED DURING AUDIT
(Continuation)

THIS IS A RED STAMP

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

8 CAR NO.: YM-92-042
DATE: 5/27/92
SHEET: 1 OF 2
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document
SP 1.31, Revision 5, Para. 5.1.8

2 Related Report No.
Audit Report YMP-92-16

3 Responsible Organization
SAIC

4 Discussed With
K. Harbert/R. Lee

5 Requirement:
SP 1.31, Initial Evaluation, Qualification, Indoctrination, and Training of YMSS Personnel, Revision 5, Para. 5.1.8 states: "Employee completes assigned training specified on *Training Assignment Form* within 30 working days. May perform activities affecting quality before completing all assignments provided employee has documented guidance of training to the applicable documents governing the work prior to performing the work."

6 Adverse Condition:
Contrary to the above, the Software Librarian implemented the requirements of SP 1.52 prior to documenting the required reading assignment. Work to SP 1.52 was performed on 05/18/92; however, training was not documented until 05/19/92.

Example:

The following entries were made in the CML:

Page 1	SCF-92Z	5/18/92
Page 3	SCF-92	5/18/92

9 Does a significant condition adverse to quality exist? Yes___ No X
If Yes, Circle One: A B C

10 Does a stop work condition exist? Yes___ No X ; If Yes - Attach copy of SWO
If Yes, Circle One: A B C D

11 Response Due Date:
20 Days From Issuance

12 Required Actions: ☒ Remedial ☐ Extent of Deficiency ☒ Preclude Recurrence ☐ Root Cause Determination

13 Recommended Actions:
1. Identify the remedial actions taken to resolve the noted conditions with the Configuration Management Log (CML).
2. Determine the cause as to why the Software Librarian was allowed to perform work prior to receiving the required training.

7 Initiator R. L. Mandile	Date 05/27/92	14 Issuance Approved by QADD R.E. Spence	Date 5/29/92
15 Response Accepted QAR	Date	16 Response Accepted QADD	Date
17 Amended Response Accepted QAR	Date	18 Amended Response Accepted QADD	Date
19 Corrective Actions Verified QAR	Date	20 Closure Approved by: QADD	Date

REV. 08/91

ENCLOSURE 5

CORRECTIVE ACTION REQUESTS ISSUED DURING AUDIT
(Continuation)

OFFICE OF CIVILIAN
RADIOACTIVE WASTE MANAGEMENT
U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

8 CAR NO.: YM-92-042
DATE: 5/27/92
SHEET: 2 OF 2
QA

CORRECTIVE ACTION REQUEST (Continuation Page)

13 Recommended Action(s) (continued)

3. Develop a plan that provides measures to assure that individuals will complete the necessary training before the performance of quality-related activities.

4. Evaluate personnel training to determine the extent of the condition.

REV 08/91