U.S. DEPARTMENT OF ENERGY
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
OFFICE OF QUALITY ASSURANCE

AUDIT REPORT

OF

CIVILIAN RADIOACTIVE WASTE MANAGEMENT SYSTEM MANAGEMENT AND OPERATING CONTRACTOR

AT

LAS VEGAS, NEVADA

AND

SANDIA NATIONAL LABORATORIES

AT

ALBUQUERQUE, NEW MEXICO

AUDIT NUMBER YM-ARP-96-07
FEBRUARY 26 THROUGH MARCH 1, 1996

Prepared by: _____ **Date:** 4/10/96
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Assurance Division

Approved by: _____ **Date:** 4/10/96
Donald G. Horton
Director
Office of Quality Assurance

1.0 EXECUTIVE SUMMARY

As a result of Performance Based Quality Assurance (QA) Audit YM-ARP-96-07, the audit team determined that the Civilian Radioactive Waste Management System Management and Operating Contractor (CRWMS M&O) and Sandia National Laboratories (SNL) are satisfactorily implementing an adequate and effective QA program and process controls for work performed under Work Breakdown Structure (WBS) 1.2.3.9.5, "Three-Dimensional Geologic Model." The CRWMS M&O and SNL program examined during this audit is in accordance with U.S. Department of Energy (DOE) Office of Civilian Radioactive Waste Management Quality Assurance Requirements and Description (QARD) document DOE/RW-0333P, Revision 4. In addition, overall adequacy of and compliance to selected CRWMS M&O and SNL implementing procedures were found to be satisfactory.

The audit team identified three deficiencies during the course of the audit that resulted in the issuance of one Performance Report (PR) and two Deficiency Reports (DR) plus three deficient conditions that were corrected prior to the postaudit meeting (see Section 5.5.4 of this report). One deficiency concerned deficiency documents that were issued as a result of an SNL surveillance of subsurface activities at the Nevada Test Site for which responses were not received by the response due dates. This is addressed in PR Yucca Mountain Quality Assurance Division (YMQAD)-96-P023. The second deficiency identified SNL Work Agreements (WA) which did not contain adequate qualitative and quantitative acceptance criteria. This is addressed in DR YMQAD-96-D044. The third deficiency concerned the use of Study Plan 8.3.1.4.2.3, "Geologic Framework and Integrated 3-D Site Model," which had not been approved. This deficiency is documented on DR YMQAD-96-D045.

Additionally, there were seven recommendations for process improvements resulting from this audit which are provided in Section 6.0 of this report.

2.0 SCOPE

The performance-based audit was conducted to evaluate the adequacy and effectiveness of CRWMS M&O and SNL controls for performing activities that result in the development of the Three-Dimensional Geologic Model. The audit was intended to determine the progress and development of the models and that the products are being developed in accordance with program requirements and the pertinent sections of the QARD.

The process/activities/end-products evaluated during the audit, in accordance with the approved audit plan, are as follows:

PROCESS/ACTIVITY/OR END-PRODUCT

Activities involving development of the Geologic Framework and Integrated Three-Dimensional Site Model were selected for evaluation from WBS element 1.2.3.9.5, "Three-Dimensional Geologic Model."

The performance based evaluation of process effectiveness and product acceptability was based upon:

1. Satisfactory implementation of the critical process steps;
2. Use of trained and qualified personnel working effectively;
3. Documentation that substantiates the quality of the product;
4. Acceptable results and adequate end-product; and
5. Effectiveness of Corrective Action.

The CRWMS M&O critical process steps involved in the development of the audited deliverable were as follows:

- Data selection and input
- Data transfer to the model
- Data incorporation into the model (i.e., data reduction)
- Data output
- Data output verification
- Data update and changes

TECHNICAL AREAS

The audit included a technical evaluation of the development process and adequacy of the Geological Framework and Integrated Three-Dimensional Site Model. Details of the technical evaluation are included in Section 5.4.

In addition, a sample of the applicable QA program elements were evaluated only as they directly related to the technical areas. These program elements included:

1.0 Organization
2.0 QA Program (Qualification and Training of Personnel)
5.0 Implementing Documents
6.0 Document Control
12.0 Measuring and Test Equipment
16.0 Corrective Action
17.0 QA Records
Supplement I, Software
Supplement III, Scientific Investigation

3.0 AUDIT TEAM AND OBSERVERS

The following is a list of audit team members and observers and their assigned areas of responsibility:

Name/Title/Organization	QA Program Elements/Requirements, Processes, Activities, or End-Products
Dennis C. Threatt, Audit Team Leader YMQAD	QA Program Elements directly related to support of the end product, QA Elements 1.0, 2.0, 5.0, 16.0, 17.0
Daniel A. Klimas, Audit Team Leader In Training, YMQAD	QA Program Elements directly related to support of the end product, QA Elements 1.0, 2.0, 5.0, 16.0, 17.0
Stephen D. Harris, Auditor, YMQAD	Elements 2.0, 6.0, 12.0 Supplements I and III
Jefferson R. McCleary, Technical Specialist, CRWMS M&O	Supplement III, Process Steps for development of the Three-Dimensional Geologic Model
Susan W. Zimmerman, Observer, State of Nevada	
William L. Belke, Observer, U.S. Nuclear Regulatory Commission (NRC)	
Philip Justus, Observer, NRC	

4.0 AUDIT MEETINGS AND PERSONNEL CONTACTED

The preaudit meeting was held at the SNL offices in Albuquerque, New Mexico, on February 26, 1996. A daily debriefing and coordination meeting was held with the CRWMS M&O and SNL management and staff, and daily audit team meetings were held to discuss issues and potential deficiencies. The audit was concluded with a postaudit meeting held at the CRWMS M&O offices in Las Vegas, Nevada, on March 1, 1996. Personnel contacted during the audit are listed in Attachment 1. The list includes those who attended the preaudit and postaudit meetings.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Effectiveness

The audit team concluded that, in general, the process controls are adequately and effectively being implemented by the CRWMS M&O and SNL for the areas identified in the scope of this audit. The process controls for performing activities involving development of the Three-Dimensional Geologic Model, under the management of the CRWMS M&O, were found to be effective. The model deliverable date is June 1, 1996. The audit team determined that the CRWMS M&O and SNL model developers are progressing well in producing a geologic model of the Yucca Mountain Site. The model is being adequately documented as to data sources and development process.

5.2 Stop Work or Immediate Corrective Actions Taken

There were no stop work order, immediate corrective actions or related additional items resulting from this audit.

5.3 QA Program Audit Activities

A summary table of audit results is provided in Attachment 2. The details of the audit evaluation, along with the objective evidence reviewed, are contained within the audit checklists. The checklists are kept and maintained as QA Records.

5.4 Technical Audit Activities

The performance-based QA audit was performed at two locations, SNL in Albuquerque, New Mexico, and the CRWMS M&O in Las Vegas, Nevada. The audit focused on those processes and activities associated with the development of the Three-Dimensional Geologic Model of the Yucca Mountain Site.

The development of the model is a complex technical activity involving the compilation and integration of multiple data sets and the utilization of computer hardware and software. The framework model establishes the basic three-dimensional geometry of the site, such as the thickness and dip of stratigraphic layers and the locations and offsets of faults, that will be utilized by various process modelers. The objective is to ensure that geologic process models, such as unsaturated zone flow, are run of a geometry that represents actual site conditions as accurately as possible. In this context the framework model serves as foundation, first for process models, and ultimately for performance assessment models. Therefore, its accuracy is significant to all subsequent modeling efforts.

The steps in framework model development have been identified by the CRWMS M&O/SNL as follows: data compilation, data synthesis/issue resolution, model construction, formal review/validation, and submittal to DOE [Technical Data Base (TDB) and numerical model warehouse]. These steps are evaluated in the following paragraphs:

Data Compilation - Data is being compiled for input to the model from a wide variety of sources including borehole legs, published geologic maps, measured sections, and surface geophysics. While it appears that all available data pertinent to the framework model has now been located, it has been a time-consuming and difficult process. It has been necessary to investigate several project data bases (Technical Data Base, Automated Technical Data Tracking, Reference Information Base, Records Information System) as well as local records centers in order to locate the needed information. While the model developers indicated there has been recent improvement in data availability, there still does not appear to be an easy way for Principal Investigators (PI) to locate and acquire data. It was also noted that while some types of data were directly traceable to the data source (stratigraphic contacts from borehole data, for example), other types of data were not consistently categorized as to the data source (i.e., the elevations and thicknesses of stratigraphic units as interpreted from geologic maps). This was discussed with the model developer and the data sources were added to the files so that all data that constrain the interpretation (i.e., structure on tours and isopachs) are now traceable to the data source. This was done very expeditiously and demonstrated excellent cooperation on the part of the developer.

Data Synthesis/Issue Resolution - After the data has been collected and compiled it must be synthesized into a geologic interpretation such as a structure contour map or an isopach thickness map. Multiple local (site) data sets, regional relationships, and sound geologic reasoning and judgment are all utilized to develop the interpretation. During this process issues are sometimes identified which require resolution, such as how to represent faults in the model or what is the configuration of the Paleozia/Testing contact. These issues are resolved in workshops where the model developers can interact with the PIs who collected the input data and arrive at decisions on how to best represent the geologic relationships in the model. These workshops are viewed as a very positive aspect of model development and it is apparent that good technical integration is occurring at the workshops. However, it would be beneficial to the project if the decisions reached during the workshops were documented so they can be retained on project records such as scientific notebooks.

Model Construction - During model construction the various data sets such as fault maps, structure contour and isopach maps, borehole data, etc., are entered into the computer using the Lynx software. This software allows the input of geologic interpretation, has nine design capabilities for Exploratory Studies

Facility (ESF) and repository applications, is cost affective relative to some other modeling software, has geostatistical capabilities and good hardware versatility. Its major disadvantage is in its display capabilities. However, the Lynx model can be translated to Earth Vision (which the project has access to) which has good display capability. It appears, therefore, that the modeling packages available to the project are adequate for project needs.

During the process of assembling the model in three dimension, data conflicts or the depiction of geologically impossible relationships in data inputs are sometimes identified. This is a strength of the model development process. The model itself is an integration tool. It is also apparent that feedback loops have been developed with data generators (geologic mapping, for example) so that when the model developers identify a potential problem, the field relationship can be reexamined in an expeditious manner. This is of benefit to the project. The model development process is being documented in a scientific notebook. It is noted that the loss of this notebook would make it difficult to reconstruct the model development process. The scientific notebook should be periodically copied and stored separately to avoid a potential record loss.

There was considerable discussion during the audit about the limitations of the available data, particularly with regard to the fact that the model is not well constrained by data near the edges of the model and with increasing depth. For example, the elevation of the Paleozoic/Testing contact is only constrained by one borehole. This is not a problem per se, and the model developers are doing an excellent job of making maximum use of multiple data sets and sound geologic reasoning in order to produce the best model possible given the limited data. However, data limitations and the resulting uncertainty in the model should be clearly indicated in the report so that all model users are aware of the limitations/qualifiers/uncertainties that are associated with the model.

Formal Review/Validation - Since the audit occurred during the model development process, this activity has not yet occurred. The intent is to ensure that the model represents the three-dimensional geologic framework of Yucca Mountain as accurately as possible. As described by the model developer, formal review/validation is planned as a three step-process. Step one would be to have the model output all of the surfaces that have been developed (i.e., the tops and/or bottoms of all stratigraphic layers). These surfaces would then be checked against the original data to ensure that all observations (data points) are honored by the model. Next, data developers (mostly at the U.S. Geological Survey) would review the individual components of the model such as isopach maps and fault locations. The last step would be a final review of the entire model.

This planned process, as described, should produce an adequately reviewed/ validated model for submittal to DOE.

Conclusions - The CRWMS M&O/SNL model developers are progressing well in producing a Three-Dimensional Geologic Model of the Yucca Mountain Site. The model is being adequately documented as to data sources and the development process and it should be useable by the project for a number of purposes such as ESF/Repository design and serving as the basic geometry on which to run process models. When physical properties are added, it can evolve into the integrated site model or models. The model developers were open and candid with the audit team and responded quickly to identified deficiencies such as data traceability. Hopefully, the recommendations provided will enhance the model development process and improve the file product that is under development. The fact that the final model will be a data constrained professional interpretation rather than a set of surfaces and volumes generated by a computer algorithm will make the model technically defensible.

5.5 Summary of Deficiencies

The audit team identified three deficiencies during the audit for which two DRs and one PR have been issued. Three additional deficiencies were identified and corrected prior to the postaudit meeting.

Synopses of the deficiencies documented as a PR and DRs and those corrected during the audit are detailed below. The PR and DRs have been transmitted by separate letter, YMQAD:RBC-1320, which was dated March 12, 1996.

5.5.1 Corrective Action Requests (CAR)

None

5.5.2 Deficiency Reports (DR)

YMQAD-96-D044

The QARD, Revision 4, Paragraph 5.2.2D, requires that implementing documents contain quantitative or qualitative acceptance criteria sufficient for determining that activities were satisfactorily accomplished. SNL Quality Assurance Implementing Procedure (QAIP) 5-1, Revision 4, ICN 2,"Quality Assurance Implementing Procedures," Step 3, requires procedure authors to identify applicable requirements and controls from sources including the QARD. SNL procedure QAIP 2-4, Revision 2, "Conducting and Documenting Analyses/Calculations," references QAIP 1-5, Revision 9, "Establishing Work Agreements," for development of a WA. The WA, however, does not contain quantitative or qualitative acceptance criteria for implementation of the above QARD requirements. The PI described a process during the audit that appeared to be satisfactory

for meeting the needs of model validation for the Three-Dimensional Geologic Model. The appropriate implementing document needs to reflect the process intended to be used as well as meet the QARD requirements.

YMQAD-96-D045

The QARD, Revision 4, Section 2.2.4, requires that planning be performed to ensure that work is accomplished under suitably controlled conditions. YAP 2.2Q, Revision 0, "Preparation, Review, Approval, and Revision of Site Characterization Study Plans," Attachment 9.1, second paragraph, requires that all studies be completed under a quality assurance program that has been accepted by the NRC. Contrary to the requirements, the Study Plan for Study 8.3.1.4.2.3, "Geological Framework and Integrated Three-Dimensional Site Model," had not been approved prior to performing work. Numerical model warehousing, described in the draft study plan, is presently being implemented.

5.5.3 Performance Reports (PR)

YMQAD-96-P023

Administrative Procedure (AP)-16.1Q, Revision 0, "Performance/ Deficiency Reporting," Paragraphs 5.2.1c and 5.3h, requires that the responsible individual submit a response to a PR or DR by the response due date. The response to one DR and two PRs that were issued as a result of a surveillance of subsurface activities at the Nevada Test Site by SNL were not received by the response due dates.

5.5.4 Deficiencies Corrected During the Audit

Deficiencies which are considered isolated in nature and only requiring remedial action can be corrected during the audit. The following deficiencies were identified and corrected during the audit:

1. QARD, Revision 4, Section 1.2.3, states, "Quality shall be achieved and maintained by those who have been assigned responsibility for performing work." Section 2.2.3 F states in part, "For items on the Q-List, related activities, and activities associated with site characterization data and samples, quality assurance controls (grading) shall be applied to the degree commensurate with the function or end use of the item." QAIP 19-1, Revision 2, "Software Quality Assurance Requirements," references QAIP 1-5, Revision 9, "Establishing Work Agreements," in which Step 1 requires that QA applicability be documented.

The Lynx software had been recommended as non-Scientific and Engineering Software by a SNL QA representative but no documentation was available expressing this position from the technical organization that used the software. A memorandum was issued by the technical organization documenting the software classification decision.

2. QARD, Revision 4, Section III.2.3, and QAIP 20-2, Revision 1, Scientific Notebooks," Step 2, require that data be identified to provide traceability, indicate usability, and document validation status. While some types of data input were directly traceable to the data source (i.e., stratigraphic contacts from borehole data), other types of data were not consistently categorized as to data source (i.e., the evaluations and thicknesses of stratigraphic units as interpreted from geologic maps). This was discussed with the model developer and the data sources were added to the data file so that the sources of all data that constrain the interpretation (i.e., structure contours and isopachs) can be identified.

3. The QARD, Revision 4, Section 2.2.11, and CRWMS M&O QAP 2-2, Revision 2, "Verification of Personnel Qualifications," Section 5.2, require that, for personnel performing work subject to the QARD, education and experience shall be verified. Objective evidence of verification of experience for one individual was not available. Documentation of the verification of required experience was provided prior to the conclusion of the audit.

5.5.5 Follow-up of Previously Identified CARs and DRs

There were no previously issued deficiencies that were determined to be applicable to the scope of this audit. However, the audit team evaluated DR YMQAD-96-D036, "Stratigraphic Compendium," for applicability to this audit's deliverable. It was determined that this deficiency has no impact on the audited deliverable at this time.

6.0 RECOMMENDATIONS

The following recommendations resulted from the audit and are presented for consideration by the CRWMS M&O and SNL's management.

1. Comment resolution information for the Study Plan for Rock Characteristics Model was not available at SNL. The comment resolution information was subsequently reviewed at the CRWMS M&O, Las Vegas, and found to be acceptable. It is recommended that comment resolution information be provided

to the author of the document to improve the development process through lessons learned.

2. Documentation of data availability. This recommendation is also presented for project management consideration. There appears to be no project wide bibliography or list of available data to reference and obtain current or older data such that a PI can query needed data easily. Some system needs to be made available from current sources to assist PIs.

3. Documentation of data limitations/qualifiers. It is recommended that, for the report generated to support the results of the Three-Dimensional Geologic Framework Model development, an appendix or separate section be developed that clearly describes the limitations of data availability, assumptions made in computation, and any qualifiers regarding limitations of the output.

4. Documentation of decisions resulting from workshops. It is recommended that decisions resulting from workshops where technical issues are resolved be documented and distributed to the participants and these consensus decisions be entered into scientific notebooks where the decisions affect the methods or assumptions used in the process. It is also recommended that the workshops be expanded to include potential users of the output to ensure that the results more accurately reflect the needs of the users.

5. WA process improvement. It is recommended that SNL conduct an evaluation for improvement of the WA process to eliminate redundancy of information and mitigate the impact of additional paperwork.

6. Participant Planning Sheets (PPS). It was noted during the course of the audit that the Description/Completion Criteria contained in the PPS did not reflect the current phase of activities under the referenced WBS Statement of Work. It is recommended that the PPS process be evaluated for improvements in the Descriptive/Completion Criteria to more specially reflect the objectives of each of the work activities involved. This would provide a better source of information to be used in the work planning process.

7. It is recommended that PIs periodically copy completed sheets of the scientific notebook and retain the copies separately from the originals to guard against loss of data during the development process.

7.0 LIST OF ATTACHMENTS

Attachment 1: Personnel Contacted During the Audit
Attachment 2: Summary Table of Audit Results

ATTACHMENT 1

Personnel Contacted During the Audit

Name	Organization/Title	Preaudit Meeting	Contacted During Audit	Postaudit Meeting
Berlien, R.	CRWMS M&O/QA Surveillance			X
Brady, M.	SNL/Laboratory Lead		X	
Clayton, R.	CRWMS M&O/Model Coordinator	X	X	X
Costin, L.	SNL/Geotech Investigation Mgr.	X		
Friend, J.	SNL/QA Engineer	X	X	
Hodgson, N.	SNL/Technical Representative		X	
James, E.	SNL/Records Coordinator		X	
Jaramillo, C.	SNL/QA Coordinator	X	X	
Mallory, M.	SNL/Document Control		X	
Quittmeyer, R.	CRWMS M&O/Mgr. SPO Geology		X	X
Rautman, C.	SNL/PI	X	X	
Richards, R.	SNL/QA Mgr.	X	X	
Schutt, W.	SNL/Contract Officer		X	
Willis, J.	CRWMS M&O/Location QA Mgr.			X
Zelinski, W.	SNL Geologist/Modeler	X	X	

LEGEND:
Mgr. . . . . Manager
SPO . . . . Site Program Office

ATTACHMENT 2
Summary Table of Audit Results

AUDIT YM-ARP-96-07 DETAIL SUMMARY

ELEMENT	DOCUMENTS REVIEWED	DETAILS (✓list)	CARs	DRs	PRs	CDA	REC	*ADEQUACY*	*COMPLIANCE*	*OVERALL*
1	QAIP 1-2, Rev. 9, "Organization"	pg. 1	N	N	N	N	N	*SAT*	*SAT*	*SAT*
	QAIP 1-5, Rev. 9, "Est. Work Agreements"	pgs. 3 & 3a	N	YMQAD-96-D044	N	N	#5	*SAT*	*UNSAT*	
2	YAP-2.2Q, Rev. 0, ICN 0, "Prep., Rev., Approval, and Rev. of Site Character. Study Plans"	pgs. 1 & 2	N	YMQAD-96-D045	N	N	#1 & #6	*SAT*	*UNSAT*	*SAT*
	QAP-2-2, Rev. 2, "Verif. of Personnel Qualification"	pg. 4	N	N	N	#3	N	*SAT*	*SAT*	
5	QAIP 5-1, Rev. 4, ICN 2, "QA Implement. Procs."	pgs. 5 & 6	N	YMQAD-96-D044	N	N	N	*UNSAT*	*UNSAT*	*SAT*
	QAP-5-2, Rev. 2 "Prep. of M&O Implement. LPS"	pgs. 5 & 6	N	N	N	N	N	*SAT*	*SAT*	
6	QAIP 6-1, Rev. 2, "Doc. Control System"	pg. 7	N	N	N	N	N	*SAT*	*SAT*	*SAT*
	QAIP 6-3, Rev. 3, "Conducting & Documenting Reviews of Documents"	pgs. 7 & 8	N	N	N	N	N	*SAT*	*SAT*	

ATTACHMENT 2
Summary Table of Audit Results

ELEMENT	DOCUMENTS REVIEWED	DETAILS (✓list)	CARs	DRs	PRs	CDA	REC	ADEQUACY	COMPLIANCE	OVERALL
12	QAIP 12-1, Rev. 5 "Measuring and Test Equipment Control"	pg. 8	N	N	N	N	N	*SAT*	*SAT*	*SAT*
16	AP-16.1Q, Rev. 0 "Performance/Deficiency Reporting"	pgs. 9&10	N	N	YMQA D-96-P023	N	N	*SAT*	*SAT*	*SAT*
	AP-16.2Q, Rev. 0 "Corrective Action and Stop Work"	pgs. 9&10	N	N	N	N	N	*SAT*	*SAT*	
17	YAP 17.1Q, Rev.0, ICN 4 "Records Management Requirements and Responsibilities"	pg. 10	N	N	N	N	#7	*SAT*	*SAT*	*SAT*
Supplement I	QAIP 19-1, Rev. 2 "Software Quality Assurance Requirements"	pg. 11	N	N	N	#1	N	*SAT*	*SAT*	*SAT*
Supplement III	QAIP 20-1, R/3 "Technical Procedures."	pg. 12	N	N	N	N	N	*SAT*	*SAT*	*SAT*
	QAIP 20-2, R/1 "Scientific Notebooks"	pgs. 12-14	N	N	N	#2	#2,3,4, &7	*SAT*	*SAT*	
	QAIP 2-4, R/2 "Conducting and Documenting Analyses/Calcs."	pg. 14	N	YMQAD-96-D044	N	N	#3	*UNSAT*	*UNSAT*	
	NLP-SIII-4, R/0 "Scientific Investigation Control"	pg. 14	N	N	N	N	#4	*SAT*	*SAT*	

ATTACHMENT 2
Summary Table of Audit Results

PERFORMANCE BASED										
	PROCESS STEP	**DETAILS**	**CARs**	**DRs**	**PRs**	**CDA**	**REC**	***ADEQUACY***	***COMPLIANCE***	***OVERALL***
THREE-DIMENSIONAL GEOLOGIC MODEL	Data Selection & Input	QA pgs. 12-14 TS pgs. 1, 2, 4, 6, 11 & 16	N	N	N	#2	#2	*SAT*	*SAT*	*SAT*
	Data Transfer to Model	QA pgs. 12-14 TS pgs. 1, 2, 4, 6, 11 & 16	N	N	N	#2	#2	*SAT*	*SAT*	
	Data Incorporation into Model	QA pgs. 13&14 TS pg. 2, 3, 5, 10, 12 & 16	N	N	N	N	N	*SAT*	*SAT*	
	Data Output	QA pgs. 13&14 TS pgs. 7, 8, 9 & 14	N	N	N	N	#3	*SAT*	*SAT*	
	Data Output Verification	QA pgs. 11, 13 & 14 TS pgs. 7, 9, 10* & 16	N	N	N	N	#3	*SAT*	*SAT*	
	Data Updates & Changes	QA pgs. 12-14 TS pgs. 1, 11, 13, 15, 16 & 17	N	N	N	N	N	*SAT*	*SAT*	
TOTAL		QA - 14 pgs. TS - 17 pgs.	N	2	1	3	7			*SAT*

* Some aspects of verification are covered in validation.

"DOCUMENTS REVIEWED" includes the referenced procedure or process step and the associated records/objective evidence

CARs ..... Corrective Action Requests
DRs ..... Deficiency Reports
PRs ..... Performance Reports
CDA ..... Corrected During Audit
REC ..... Recommendations
N ..... None

ADEQUACY .. Requirements in Procedures meet QARD
COMPLIANCE . Procedures Implemented
OVERALL .... Summary of Element
UNSAT ..... Unsatisfactory
SAT ..... Satisfactory
TS ..... Technical Specialist

OCRWM

OFFICE OF QUALITY ASSURANCE

CUSTOMER FEEDBACK

HOW SATISFACTORY WAS OUR SERVICE ?

THE AUDIT REPORT

Rev. 3/25/96

AUDIT NO: YM-ARP-96-07

FEEDBACK REQUESTED FROM:

ORGANIZATION: M&O/SNL

NAME: L. Dale Foust

RETURN TO:

ORGANIZATION: OQA

NAME: D. G. Horton

Mail Stop 523

[redacted]

Enclosure 2

TO OUR CUSTOMERS:

In the ongoing effort to improve the quality of our verification services, we are asking your help in the completion of this Customer Feedback questionnaire.

Your feedback will be used internally by the Office of Quality Assurance to promote open, candid, and cooperative work relationships as we strive to improve our services.

Should your desire to expand on the input requested in this questionnaire or provide additional input, please attach a continuation sheet to this questionnaire.

Thank you for your valuable time and your input.

Sincerely,
Donald G. Horton, Director
Office of Quality Assurance

I. AUDIT REPORT

1. Did the audit report provide useful information?

VERY MUCH NOT AT ALL
6 5 4 3 2 1

2. Was the audit report consistent with information provided at the exit?

VERY MUCH NOT AT ALL
6 5 4 3 2 1

3. Did the audit report reflect your corrective actions taken or committed to during the course of the audit or exit conference?

VERY MUCH NOT AT ALL
6 5 4 3 2 1

4. Was the report written in clear and concise language?

VERY MUCH NOT AT ALL
6 5 4 3 2 1

5. Were the conclusions reached consistent with your analysis of issues described in the report?

VERY MUCH NOT AT ALL
6 5 4 3 2 1

6. Were the conclusions objective and unequivocally stated?

VERY MUCH NOT AT ALL
6 5 4 3 2 1

7. Was the report well balanced, addressing both positive and negative results?

VERY MUCH NOT AT ALL
6 5 4 3 2 1

8. Comments/suggestions for improvement:

II. ADDITIONAL COMMENTS/ SUGGESTIONS FOR IMPROVEMENT: