

U.S. NUCLEAR REGULATORY COMMISSION
OBSERVATION AUDIT REPORT - NO. 90-06
FOR THE YUCCA MOUNTAIN PROJECT OFFICE AUDIT NO. 90-06
OF HOLMES AND NARVER

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1.0 INTRODUCTION

From July 31 through August 2, 1990, the U.S. Nuclear Regulatory Commission (NRC) staff observed the U.S. Department of Energy (DOE)/Yucca Mountain Project Office (YMPO) Quality Assurance (QA) Audit No. 90-06 of the Holmes and Narver, Inc. (H&N) Yucca Mountain Project (YMP) work. The DOE/YMPO audit was conducted at the H&N offices in Las Vegas, Nevada and at their Material Test Laboratories (MTL) in Mercury, Nevada. This was a limited scope, programmatic audit and did not include implementation of the program elements concerning technical products (i.e., engineering drawings, specifications, etc.), since H&N has not performed any in-depth Exploratory Shaft Facilities (ESF) Title II design work.

H&N is the ESF architect-engineer responsible for the design of the underground support systems and the aboveground facilities for YMP. Responsibilities include field surveillance, inspection of construction facilities, material test laboratory support, nondestructive examination services, microfilming, and archival storage of YMP records.

This report addresses the adequacy and effectiveness of the DOE/YMPO audit and, to a lesser extent, the adequacy and effectiveness of the H&N QA program.

2.0 OBJECTIVES

The objective of the DOE/YMPO audit was to determine the adequacy and effectiveness of implementation of the H&N QA program in meeting the applicable requirements of the Nevada Nuclear Waste Storage Investigations (NNWSI) Project Quality Assurance Plan NNWSI/88-9, Revision 4 (88-9 QA Plan) for the YMP. The NRC staff's objective was to gain confidence the DOE and H&N are properly implementing the requirements of their QA programs, by evaluating the adequacy and effectiveness of the DOE/YMPO audit and determining whether the H&N QA program is in accordance with the requirements of the 88-9 QA Plan and 10 CFR Part 50, Appendix B.

3.0 SUMMARY AND CONCLUSIONS

The NRC staff based its evaluation of the DOE/YMPO audit process and the H&N QA program on direct observation of the DOE/YMPO auditors, discussions with the audit team, and reviews of the pertinent audit information (e.g., audit plan, checklists and H&N documents).

The NRC staff found that DOE/YMPO Audit No. 90-06 of the H&N QA program was useful and effective. The audit team was well qualified in the QA discipline, and conducted the audit in a professional manner. The audit team's assignment and checklist items were adequately described in the audit plan. The audit team made effective use of its checklists in determining the adequacy and effectiveness of implementation of the H&N QA program.

The audit team determined that the H&N QA program was adequate, and to the extent it has been implemented, effective. The NRC staff agrees with the audit team's evaluation of the H&N QA program.

4.0 AUDIT PARTICIPANTS

4.1 NRC

Tilak R. Verma	Observer
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4.2 DOE

Frank J. Kratzinger	Audit Team Leader	SAIC
Neil D. Cox	Auditor	SAIC
Donald C. Hendrix	Auditor-In-Training	CER
John S. Martin	Auditor-In-Training	SAIC
Steven P. Nolan	Auditor-In-Training	SAIC
Charles C. Warren	Auditor	MACTEC
Richard L. Weeks	Auditor	SAIC

5.0 REVIEW OF THE AUDIT AND AUDITED ORGANIZATION

The DOE audit was conducted in accordance with procedures Waste Management Project Office (WMPO) QMP 18-01, "Audit System for the Waste Management Project Office," Revision 3, and WMPO QMP 16-03, "Standard Deficiency Reporting System," Revision 1. The NRC staff observation of the DOE/YMPO audit was based on the NRC procedure "Conduct of Observation Audits" issued October 6, 1989.

NRC staff observations are classified in accordance with the following guidelines:

(a) Level 1

Failure of the audit team to independently identify either:

- ° Flaws in completed and accepted work important to safety or waste isolation which renders the work unusable for its intended purpose. Denotes failure of the QA program to verify quality, or
- ° A breakdown in the QA program resulting in multiple examples of the same or similar significant deficiencies over an extended period of time in more than one work activity (technical area), or
- ° Multiple deficiencies of the same or similar significant deficiencies in a single work activity (technical area). Failure of the audit team to adequately assess a significant area of the QA program or its implementation, such as technical products, applicable 10 CFR Part 50, Appendix B criteria, or quality level classifications, without prior justification, such that the overall effectiveness of the QA program being audited is made indeterminate.

(b) Level 2

Failure of the audit team to independently identify an isolated significant deficiency.

(c) Level 3

Failure of the audit team to independently identify deficiencies that have minor significance, or failure of the audit team to follow applicable audit procedures.

Levels 1, 2, and 3 of NRC staff observations require a written response from DOE to be resolved.

The NRC staff findings may also include weaknesses (actions or items which are not deficiencies but could be improved), good practices (actions or items which enhance the QA program) and requests for information required to determine if an action or item is deficient. Written responses to weakness identified by the NRC staff will be requested when appropriate. In general, weaknesses and items related to requests for information will be examined by the NRC staff in future audits or surveillances.

5.1 Scope of Audit

The Audit Plan for Audit No. 90-06 stated that the scope of the audit was strictly programmatic, and was limited to verification of the adequacy and effectiveness of implementation of the H&N QA program under Criteria 1, 2, 8, 12, 13, 16, 17, and 18 of 10 CFR 50 Appendix B. In addition, the deficiencies identified during previous YMPO audits and surveillances of the H&N QA program that had not been closed were added to the scope of this audit to determine whether H&N had taken effective corrective actions in those program areas.

(a) Programmatic Elements

The auditors utilized the checklists based on the requirements in the 88-9 QA Plan and the H&N Quality Assurance Program Plan (QAPP), Revision 4, for the following program elements:

- 1.0 Organization
- 2.0 Quality Assurance Program
- 8.0 Identification and Control of Items, Samples, and Data
- 12.0 Control of Measuring and Test Equipment
- 13.0 Handling, Shipping and Storage
- 16.0 Corrective Action
- 17.0 Quality Assurance Records
- 18.0 Audits

Activities under the program element No. 3.0, Scientific Investigation Control and Design Control, were reviewed during DOE/YMPO surveillance (YMP-SR-90-022) of February 20-23, 1990. There have been no new activities under this program element since that time; therefore, this program element was not added to the scope of this audit. The following QA program elements were not included in the scope of this audit due to the lack of activities under these program elements:

- 4.0 Procurement Document Control
- 5.0 Instructions, Procedures and Drawings
- 6.0 Document Control
- 7.0 Control of Purchased Material, Equipment, and Services
- 9.0 Control of Special Process
- 10.0 Inspection
- 11.0 Test Control
- 14.0 Inspection, Test, and Operating Status
- 15.0 Control of Nonconforming Items

The NRC staff finds the scope of this audit acceptable in that it covered the applicable 10 CFR Part 50, Appendix B criteria for which H&N has any ongoing activities for the YMP. All the 18 program elements addressing the Appendix B criteria were found acceptable by the NRC staff in their review of the H&N QAPP (ref. Linehan/Stein letter dated October 3, 1989).

(b) Technical Areas

The scope did not include the review and evaluation of any of the H&N technical activities or products during the audit.

5.2 Timing of the Audit

The NRC staff believes the timing of the audit was appropriate considering that it has been 15 months since the last audit, and there is a possibility of the current contract being terminated by the end of fiscal year 1990.

5.3 Examination of Program Elements

The NRC staff observed the audit team's evaluation of selected program elements of the H&N QAPP. Only portions of some elements were observed; the details of the H&N program evaluation by the DOE/YMPO audit team members which were not part of the portion observed will not be discussed in this report.

(a) Quality Assurance Program (Criterion 2)

The DOE/YMPO auditors reviewed and evaluated the adequacy and effectiveness of the H&N YMP personnel qualification, experience, indoctrination, and training from the available records and from the interviews with the H&N staff personnel and management. The qualification and training records were reviewed by the DOE/YMPO

auditors and the NRC observer and appeared to satisfy procedural requirements for experience, training and verification of qualifications. H&N records for the H&N YMP management assessment, readiness review, and a selected number of packages for work interface control were also reviewed by the audit team and the NRC observer for adequacy and effectiveness of procedural implementation. No deficiencies were identified.

The DOE/YMPO auditors were knowledgeable of the procedural requirements in this area, had prepared their checklists appropriately, and used the checklists in an effective manner. The auditors were thorough and professional in questioning the H&N staff and management. The DOE/YMP audit team conducted an effective audit under this criterion.

(b) Identification and Control of Items, Samples, and Data (Criterion 8)

The DOE/YMPO audit team toured the MTL and questioned the H&N QA and technical staff about the procedures for identification and control of items, samples and activities for the YMP work. At present, there are no activities being conducted under this program element.

(c) Control of Measuring and Test Equipment (Criterion 12)

The DOE/YMPO audit team reviewed the H&N procedure under this criterion. The team was told that no QA Level 1 or Level 2 work is being done for the YMP under this criterion. The team looked at several pieces of equipment for compliance with the calibration requirements. No discrepancies were identified. The audit team was well qualified and knowledgeable about the calibration requirements.

(d) Conclusions

(a) Audit Effectiveness

The H&N audit was conducted in an effective and professional manner. The DOE/YMPO audit team members had detailed and complete checklists covering their assigned areas; however, they were not able to complete these checklists in two of the three areas, primarily due to lack of YMP activities by H&N in these areas. The auditors asked questions to ascertain complete understanding of the QA program by the H&N personnel under the criteria that were audited.

(b) H&N QA Program

The H&N QA program was adequate and effective to the extent it has been implemented. The H&N QA personnel and management seemed to have a good understanding and knowledge of the applicable QA requirements for the YMP work done by the H&N staff. No deficiencies in the implementation of the QA program by the H&N, under these criteria, were identified during this audit.

5.4 Examination of Technical Activities

Since the DOE/YMPO audit of the H&N program was strictly programmatic, no efforts were made to review any of the H&N YMP technical activities.

5.5 Conduct of Audit

The audit team members were well prepared and demonstrated a sound knowledge of the QA requirements of the H&N program. The audit checklists included the important QA controls addressed in the 88-9 QA Plan for the criteria that were audited. The auditors were not able to

complete their checklist in certain areas, primarily due to lack of activities in these areas. The audit was conducted in an effective and professional manner.

5.6 Qualification of Auditors

The qualifications of the QA auditors on the team were previously accepted by the NRC staff (ref. NRC Observation Audit Report for USGS dated August 22, 1988) or were acceptable based on QMP-02-02, the DOE procedure for qualifying auditors.

5.7 Audit Team Preparation

The DOE/YMPO auditors were well prepared in the areas they were assigned to audit and knowledgeable in the H&N QAPP and implementing procedures. Audit Plan 90-06 was complete and included: (1) the audit scope; (2) a list of audit team personnel and observers; (3) a list of all the audit activities; (4) the audit notification letter; (5) the H&N QAPP; (6) last years DOE/YMPO audit report; and (7) the audit checklists.

5.8 Audit Team Independence

The audit team members did not have prior responsibility for performing the activities they investigated. Members of the team had sufficient independence to carry out their assigned functions in a correct manner without adverse pressure or influence from the H&N personnel.

5.9 Review of Previous Audits Findings

- (a) The previous DOE/YMPO audit identified one deficiency and eleven observations. All these have been closed as a result of H&N corrective actions.
- (b) The NRC had ten observations from the DOE/YMPO Audit No. 89-02 of H&N conducted during April, 1989. All these observations had been

effectively resolved prior to this audit.

5.10 Summary of NRC Staff Findings

(a) Observations

The NRC staff did not identify any observations relating to deficiencies in either the DOE/YMPO audit process or the H&N QA program for the programmatic elements that were evaluated during this audit.

(b) Weaknesses

No weaknesses in the adequacy or implementation of the H&N QA program were identified by the NRC staff

5.11 Summary - DOE/YMPO Audit Team Findings

The DOE/YMPO audit team did not generate any audit findings from their assessment of the H&N QA program.