

## QUALITY ASSURANCE AUDIT REPORT

### NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE (NWRPO) AUDIT NUMBER NWRPO-01-2006

**Date:** April 17, 2006

**To:** David Swanson, NWRPO Quality Assurance Officer

**From:** Quality Assurance (QA) Audit Team

**Subject:** Audit of Nye County NWRPO QA Program implementation including Early Warning Drilling Program (EWDP)-Well 32P (NC-EWDP-32P) activities.

**PURPOSE:** To verify that the requirements established by the NWRPO QA Program are being effectively implemented for the Nye County testing activities.

**SCOPE:** The audit included the total QA program, including implementation of the drilling operations being conducted at NC-EWDP-32P. The audit team members interviewed cognizant personnel, examined documentation, reviewed procedures, and evaluated procedure implementation to determine adequacy and effectiveness of compliance with NWRPO QA Program requirements.

**BACKGROUND:** The Nye County Independent Scientific Investigation Program, which includes the EWDP, is intended to provide data on in-situ permeability and transport parameters of lithostratigraphic units in the vicinity of the proposed Yucca Mountain Nuclear Waste Repository. The EWDP is planned to be accomplished in phases with over 30 well drilling operations and locations. Final reports have been issued by Nye County on completed drilling operations and special projects. U.S. Department of Energy (DOE) personnel are located at the drilling sites to confirm the drilling process and core sample collection. Borehole samples to be archived are directed to the DOE Sample Management Facility with chain of custody maintained. The QA Program is intended to ensure that scientific activities are conducted in a systematic manner, using documented instructions and procedures to ensure the validity, integrity, preservation, and retrievability of the data generated.

**SUMMARY:** The audit team determined that the Nye County QA Program requirements were being effectively implemented for the current scope of activities. No

conditions adverse to quality were identified however, several recommendations (listed below) were made to clarify or enhance the QA program implementation.

**AUDIT TEAM MEMBERS:**

William Belke, QA Contractor Auditor  
Kenneth Hooks, QA Contractor Auditor

**DATE OF AUDIT:** March 27-29, 2006

**PERSONNEL CONTACTED:** D. Hammermeister, D. Swanson, S. Dudley, K. Gilmore, L. Kryder, J. Walker, and staff at EWDP-32P drill site.

**AUDIT SCOPE:** In accordance with the audit plan, the following QA Program Plan (QAPP) sections were reviewed and the corresponding Quality Administrative Procedures (QAPs):

- 3.0 Design Control
- 4.0 Procurement Document Control
- 5.0 Instructions, Procedures, and Drawings
- 6.0 Document Control
- 7.0 Control of Items and Services
- 8.0 Identification and Control of Items
- 12.0 Control of Measuring and Test Equipment
- 17.0 Quality Assurance Records
- 18.0 Audits

Work Plan WP-5.0, Phase V Drilling and Construction

Work Plan WP-8.0, Sample Management

Technical Procedure TP-7.0, Drill Site Management

Technical Procedure TP-8.0, Field Collection, Logging and Processing of Borehole Geologic Samples

The audit team focused on the organizational responsibilities and QA elements associated with the implementation of the QAPP and testing activities. This included the procedural implementation and the necessary technical and scientific information of the testing activities. The audit team reviewed extensive documentation retrieved from the QA Records Center (QARC). A visit to EWDP-32P allowed the audit team an opportunity to witness the preparation and drilling initiation for EWDP-32P, including drill cuttings sampling and processing. Also observed was the adherence to procedural requirements and the actual recording of data into the scientific notebook.

In accordance with the QA audit plan, the audit team developed and used formal checklists based on the applicable QAPP sections and technical procedures identified above, and the implementing QAPs. Checklists associated with this audit will be entered into to the QA Records Center as a separate entity.

**OBSERVATIONS, FINDINGS, AND RECOMMENDATIONS:**

1. Section 4.1.2 of WP-5.0 provides the general basis and rationale for drilling site selection for locating wells in the NWRPO EWDP. During this audit, there did not appear to be sufficient documentation available describing why the current location for EWDP-32P and other wells were selected. It is recommended for EWDP-32P and subsequent wells, that such a description be clearly documented. The auditors believe that without such a description of this rationale, it would have the potential to be questioned at future adjudicary hearings.
2. On the top upper right portion of pages 17-19 of WP-10, it is stated it is Work Plan 11 when it is actually Work Plan 10. It is recommended that during the next revision of WP-10, this editorial error be corrected.
3. QAPP Section 7.3 and QAP Section 4.2 require the QA Officer to maintain a current file of all purchase orders for quality-affecting NWRPO activities. It appeared that this requirement was not being totally implemented and that this function was fragmented between other NWRPO sections. It is recommended that this requirement be reviewed to clarify which NWRPO section should be responsible for this function.
4. Training records for six NWRPO and NWRPO contractor personnel were reviewed to determine whether these personnel had received the required training related to conducting quality-affecting work associated with NWRPO-32P activities. The results indicated that all personnel had received the required training with the exception of one individual's record missing a signature for training associated with WP-8.0. This was considered an isolated case and corrected during the audit. No further action is required.
5. Three Procurement Request/Receipt Forms were reviewed to determine whether the requirements of QAP-7.1 were being implemented and complied with. The form for Radiation Safety Engineering Laboratory was missing a signature in the Requestor Inspection Approval and Receipt block. This was considered an isolated case and corrected during the audit. No further action is required.
6. The record/comment package for Change No. 1 for WP-8.0 was reviewed to determine whether the requirements of QAPs-3.1 and 5.2 were being implemented and complied with. One of the comments did not identify the commentator. This was considered an isolated case and corrected during the audit. No further action is required.
7. In addition to the QA audits and surveillances being conducted by the QA contractors, it was noticed that NWRPO has also conducted surveillances during visits to the various drill sites. These surveillances are being conducted by personnel independent of those directly responsible for performing the actual work. It is recommended that consideration be given to posting these documented surveillances

in addition to the formal QA audits and surveillances, on the Nye County web site. This would lend additional confidence to users of Nye County data, that independent overights are being conducted to assure that Nye County is effectively implementing its QA program.

8. During this QA audit and prior QA audits and surveillances, due to the focus and selected scope of work being conducted by Nye County, it brought into question whether QAPP Sections 10.0 (Inspection), 15.0 (Control of Nonconforming Items), and 16.0 (Corrective Action) need to be clarified. These three sections are not being used as described and consequently, not being totally implemented.

Inspections traditionally measure whether an item or activity conforms to known or specified requirements. Since NWRPO is performing investigative type activities and scientific investigations, inspections against known values are somewhat absent or impracticable. Audits, surveillances, and documentation of activities are being documented and recorded. However, inspections are not being performed as Section 10.0 of the QAPP requires. Scientific investigations related to inspection activities are performed, reviewed, and documented in scientific notebooks. Therefore, it is recommended that Section 10.0 of the QAPP be reviewed and consideration be given to revising it to align it more closely with the work being accomplished by NWRPO. QAPP sections 15.0 and 16.0 likewise do not correctly reflect to current scope of work being performed by NWRPO. Nonconformances as defined in QAPP Section 15.0, are not being written. Nonconformances can only be written if a significant condition adverse to quality that renders an item or activity unacceptable or indeterminate. Since this scenario has not occurred with NWRPO (significant condition adverse to quality), nonconformances have not been written and consequently, trending as required by QAPP Section 16.0 has not occurred. Therefore, it is recommended that QAPP Sections 15.0 and 16.0 also be reviewed and consideration given to revising these sections to reflect the current NWRPO scope of work. The review should consider revising and broadening the nonconformance process to reflect all conditions based on their importance and severity of impact. This would include conditions ranging from an actual deficiency to a recommendation. In this manner, trending of conditions could be brought into a realistic operable manner.

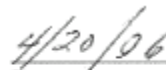
9. The comment and resolution packages for Work Plans 5.0 and 8.0 were reviewed from Revision 0 through the latest revision (6 and 4 respectively), to determine that the WPs had been reviewed, commented upon, the commentors were identified, resolution of the comments and the person making the decision was identified. The procedural requirements were met, but tracking the changes was difficult in the earlier revisions. The later revision packages contained discs that tracked the comments and resolutions in a transparent fashion. The auditors recommend that future revisions to QA documents be documented in this fashion.
10. The revision package for an external report (NWRPO-2005-01) was reviewed for

traceability of comments and resolutions. The comments were clearly identified, but all resolution was performed by a single NWRPO reviewer, and resolution of the reviewer comments was not indicated. Verbal discussions with the reviewer was satisfactory, but the auditors recommend that a minimum of two reviewers participate in future reviews of such documents, and the resolution of comments be clearly identified.


11. Field Change Approval Forms were reviewed. And the auditors could not identify from the forms when they were initiated that the changes had been approved prior to the start of the work in the field. Subsequent discussions with the initiators indicated that the changes had been discussed with the Principal Investigator (PI) and approved prior to the start of work. The auditors recommend that the date that the change is requested and the date of the PI's approval be indicated on the form, in the future.
12. During the visit to drill site EWDP-32P, the site office documents were reviewed to determine that the latest versions of WPs 5.0 and 8.0 were available at the site, as required by procedures prior to the start of the work. Although the presence of the revision of the WPs was confirmed, the auditors recommend that an effort be made to return the signed and dated Quality Assurance Program Document Receipt form to the QARC prior to the start of work to provide transparency to the process.
13. Bagging of drill cutting samples was observed at the drill site, and transfer of split samples to representatives of the DOE Sample Management Facility. The presence of the NWRPO portion of the split samples was verified the same day. Transfer of Custody Forms from the drill site to the Nye County NWRPO Laboratory were reviewed and found to be satisfactory. It was determined that the residue from the samples was disposed of when testing was complete, as verified by the test records in the electronic database. The auditors recommended that the laboratory technician document such disposal in the scientific notebook for closure.
14. A short review was performed between one Drilling/Coring Data Sheet for NC-EWDP-19PB and the same date pages from Scientific Notebook 170. The Data Sheet and the information in the Scientific Notebook were compatible.

**EXIT SUMMARY:** During the exit meeting, the audit team expressed their appreciation for the cooperation and responsiveness from all personnel during the audit. Especially notable was the knowledgeable QA Records Specialist who retrieved all requested information in a timely manner. The audit team also commended the NWRPO EWDP-32P drilling personnel for their cooperation and teamwork in performing the drilling operation in accordance with the established NWRPO procedural requirements.


  
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William Belke, Contract QA Auditor

  
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Kenneth Hooks, Contract QA Auditor

  
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Date

CONCURRENCE:

  
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David Swanson, QA Officer

5-3-06  
Date

  
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Dale Hammermeister, Project Manager

5/3/06  
Date

- cc: Nye County Commissioners  
D. Swanson  
D. Hammermeister  
K. Gilmore  
L. Kryder  
S. Dudley  
J. Walker & NC EWDP-32 Staff