OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION

QUALITY ASSURANCE SURVEILLANCE REPORT OF THE

UNITED STATES GEOLOGICAL SURVEY

SURVEILLANCE YMP-SR-93-040

CONDUCTED AUGUST 6 AND SEPTEMBER 2, 1993

ACTIVITIES SURVEILLED:

IMPLEMENTATION OF SPECIFIC REQUIREMENTS OF SCIENTIFIC NOTEBOOK PLAN NWM-USGS-HP-231T

Prepared by: C.C. Ware for R.L. WEEKS Date: 9-28-93

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Approved by: _____ Date: 10/5/93

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1.0 EXECUTIVE SUMMARY

The purpose for performing this surveillance was to evaluate the effectiveness of implementation of specific requirements of Scientific Notebook Plan NWM-USGS-HP-231T, Revision 0, "Identification, Monitoring, and Sampling of Perched or Ground Water Encountered While Drilling Surface-Based Boreholes." It was performed at borehole location USW UZ-14 on August 6, 1993, where the scientific notebook was examined, and at the Sample Management Facility (SMF) on September 2, 1993, where collected water samples were examined. The United States Geological Survey (USGS) was effectively implementing the specific requirements evaluated during this surveillance. There were no Corrective Action Requests generated as a result of this surveillance.

2.0 SCOPE

This surveillance evaluated the effectiveness of implementation of requirements of Scientific Notebook Plan NWM-USGS-HP-231T, specifically the collection of water samples.

3.0 SURVEILLANCE TEAM

Richard L. Weeks, Surveillance Team Leader, Yucca Mountain Quality Assurance Division Quality Assurance Technical Support Services, Las Vegas, Nevada

4.0 PERSONNEL CONTACTED

Jack Kume, Hydrologist, USGS
Joe Rousseau, Principle Investigator (PI), USGS
Dorothy Tepper, Hydrologist, USGS

5.0 SURVEILLANCE RESULTS

This surveillance evaluated the implementation of USGS Scientific Notebook Plan NWM-USGS-HP-231T. Specific procedural requirements that were evaluated are described in the following USGS and the Yucca Mountain Site Characterization Project Office implementing procedures:

YMP-USGS-QMP-5.05, Revision 3, Chapter 5, "Instructions, Plans, Procedures and Drawings," Section 5 - Scientific Notebook

NWM-USGS-HP-231T, Revision 0, Scientific Notebook Plan for "Identification, Monitoring, and Sampling of Perched or Ground Water Encountered While Drilling Surface-Based Boreholes"

AP-6.26Q, Revision 0, "Submission and Documentation of Non-Core and Non-Cuttings Samples to the Sample Management Facility for Site Characterization"

Indications that perched water had been encountered at borehole UZ-14 were first noted on July 28, 1993, when moist rock was encountered in core run No. 196 (1208.7 - 1215.8 feet). Drilling continued to a depth of 1282.0 feet at which time drilling ceased per instructions from the PI.

Water sampling techniques (HP-231T, Section 3.4) are described in the scientific notebook labeled (QMP-5.05, Section 5.3), "Samples of Perched Water at UZ-14", HP-231T, Revision 0. A detailed description of type of bailer used and volumes of water removed is recorded in this scientific notebook.

This surveillance was resumed on September 2, 1993 at which time an examination of collected water samples was made. Examined water samples are referenced in the scientific notebook by pump test number and date collected (HP-231T, Section 3.5). Sample Collection Report forms (AP-6.26Q, Revision 1) were found to be complete. A total of 11 samples were examined and it was verified that information on Sample Collection Report forms correlated with information written on sample bottles. The examined samples were stored in the large, walk-in cooler located at the SMF. The examined samples are listed below:

SPC00500604	SPC00501528	SPC00500605
SPC00501529	SPC00500606	SPC00500637
SPC00500607	SPC00500638	SPC00500608
SPC00500639	SPC00501527	

Additionally, during the visit to UZ-14 borehole on September 2, 1993, it was noted that the scientific notebook being utilized for the perched water study was renumbered. USGS-SN-0026, Volume I, titled, "Sampling of Perched Water at UZ-14" is written on the cover of the renumbered scientific notebook. During the previous visit (August 6, 1993), the scientific notebook was uniquely identified using the study plan designation "Samples of Perched Water at UZ-14, HP-231T," Revision 0.

In conclusion, the identified water samples are being controlled and identified in a manner consistent with guidelines described in the Scientific Notebook Plan. The USGS is effectively implementing those requirements evaluated during this surveillance.

6.0 RECOMMENDATIONS

It is recommended that most of the "shoulds" in Scientific Notebook Plan NWM-USGS-HP-231T, be replaced with "shalls." Throughout this notebook plan, required methodology has not been established to ensure consistent results. This scientific notebook has numerous examples where actions "should" be taken; however, an alternate methodology is not provided if the method described in the notebook is not followed. This Scientific Notebook Plan should impose stricter controls to ensure the desired results are obtained.

Examples:

1) Section 3.4 states in part, "...a record of the total volume of water removed from the borehole should be kept."

2) Section 3.5 states in part, "Water samples should be labeled with the borehole designation, the type of sample...." It is a requirement to uniquely identify each sample and a statement to this affect should be made in the Scientific Notebook Plan. All examined water samples were uniquely identified.

October 5, 1993

The signature on Surveillance Report YMP-93-040 was inadvertently left off. This has been corrected and the signature page of the report is hereby reissued. We apologize for the inconvenience.