

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT  
YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION  
QUALITY ASSURANCE SURVEILLANCE REPORT OF  
BOREHOLE SAMPLE HANDLING  
AT YUCCA MOUNTAIN, NEVADA AND  
YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT OFFICE  
LAS VEGAS, NEVADA  
SURVEILLANCE NO. YMP-SR-92-017  
CONDUCTED JUNE 13 THROUGH 15, 1992

ACTIVITIES SURVEILLED:

FIELD LOGGING, HANDLING AND DOCUMENTING OF BOREHOLE SAMPLES  
RECEIVED FROM THE UE-25 UZ-16 VERTICAL SEISMIC PROFILE (VSP-2)  
BOREHOLE BY THE YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT  
DRILLING SUPPORT PERSONNEL

Prepared by:



Date:

7-2-92

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Yucca Mountain Quality Assurance Division

Approved by:



For

Date:

7/12/92

Donald G. Horton  
Director  
Office of Quality Assurance

## 1.0 EXECUTIVE SUMMARY

The surveillance of the implementation of field logging, handling and documenting of borehole samples, was conducted to verify compliance by the Sample Management Facility (SMF) to Branch Technical Procedure BTP-SMF-008. In general, implementation was found to be acceptable.

There were no deficiency documents generated as a result of this surveillance.

Recommendations which are not considered deficiencies, but as areas in which it is felt that the program could be improved and/or enhanced, are included in Section 6.0 of the report.

## 2.0 SCOPE

This report contains the results of the Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance (QA) Surveillance No. YMP-SR-017 of the implementation of the field logging, handling and documenting of borehole samples taken at UE-25 UZ-16 (VSP-2) borehole. The surveillance was conducted at Yucca Mountain, and at the Yucca Mountain Site Characterization Project Office (YMPO) Las Vegas, Nevada, on June 13 through 15, 1992. The surveillance was conducted by an individual from the Yucca Mountain Quality Assurance Division (YMQAD) of the Office of Quality Assurance (OQA) in accordance with OCRWM Quality Assurance Administrative Procedure (QAAP) 18.3, Revision 3, "Surveillance Program."

The surveillance was intended to examine implementation of BTP-SMF-008, "Field Logging, Handling and Documenting Borehole Samples," Revision 3.

## 3.0 SURVEILLANCE TEAM

The surveillance team consisted of the following personnel:

John S. Martin, QA Engineer, Surveillance Team Leader, Science Applications  
International Corporation (SAIC)/YMQAD

In addition to the above, one observer was present during the course of the surveillance:

Charles Warren, Quality Assurance Engineer, MAC Technical Services/YMQAD

#### 4.0 PERSONNEL CONTACTED DURING THE COURSE OF THE SURVEILLANCE

Uel Clanton, Branch Chief, Site Investigations Branch, U.S. Department of Energy (DOE)  
John Doyle, Shift Supervisor, Drilling Support, SAIC  
Mark Edwards, Field Operations Geologist, Drilling Support, SAIC  
John Hartley, Shift Supervisor, Drilling Support, SAIC  
Mike Mapa, Manager, Drilling Support, SAIC  
Arthur Mendenhall, Senior Geologist, Drilling Support, SAIC  
James Moyer, Shift Supervisor, Drilling Support, Westinghouse  
John Peck, Manager, Drilling Support and SMF, SAIC  
Mike Pitterly, Senior Geologist, Drilling Support, SAIC  
Chris Scroggins, Senior Geologist, Drilling Support, SAIC

#### 5.0 SURVEILLANCE RESULTS

The surveillance consisted of field observation, personnel interviews, and documentation reviews. Field observation consisted of witnessing the transfer of custody of rotary core (material, typically solid rock or fragments thereof, extracted by the wireline method) from Reynolds Electrical and Engineering Company to Drilling Support personnel, extraction of the core from the barrels, video tapping of the core, reconciliation of core lengths based upon projected intervals and actual intervals retrieved, marking for orientation, processing of the core per the PIs instructions, packaging for shipment to the SMF, temporary storage, and access control of the Drilling Support trailer.

Drive Core Observed: UE-25 UZ-16 (VSP-2)

Intervals: 53.0 to 60.8 and 60.8 to 62.9 (preliminary identified as Paintbrush Tuff, Tiva Canyon member).

Personnel interviews were conducted to determine the overall knowledge of the drilling support personnel specific to BTP-SMF-008. In general, these interviews provided positive evidence of the field personnel's overall knowledge and comprehension of programmatic requirements.

Documentation review consisted of examination of the following letter and forms to ensure proper completion and for providing an appropriate status for the point in time in which each document exists:

Shift Drilling Summaries, dated 5/28/92, 5/29/92, 6/1/92 and 6/15/92

Letter Flint-Peck, dated 5/26/92 (USGS LRC# 3.8.01-02, PIs directions for sample packaging)

In addition, the following non-quality (non-Q) documents were reviewed for procedural compliance and management information:

Lithologic Logs, dated 5/28/92, 5/29/92, and 6/15/92  
Structural Logs, dated 5/29/92, 6/1/92, 6/2/92, and 6/15/92  
Daily Activity Logs, dated 5/29/92 and 6/15/92  
Field Facility Access Log, dated 6/13/92, 6/14/92, and 6/15/92  
Field Photographic Log, dated 6/15/92

Overall, the adequacy and effectiveness of implementation of BTP-SMF-008 was found to be acceptable.

## 6.0 RECOMMENDATIONS

There were no deficiency documents issued as a result of this surveillance. However, there are two recommendations relative to BTP-SMF-008 which are provided based upon discussions with Drilling Support personnel.

1. In review of the above referenced procedure it was found that Drilling Support personnel are required to 1) Complete a Lithologic Log detailing the characterization of rock formations encountered, and 2) Complete a Structural Log detailing the structural properties of these rock formations. In discussions with cognizant DOE personnel, it was noted that programmatically Sandia National Laboratory is responsible for structural logging and that USGS is ultimately responsible for lithologic logging. During these discussions it was also noted that the logs generated by Drilling Support are considered non-Q, and that the information is collected only to aid in the decision making process for future boreholes and prioritization of specific work activities. Based upon this, it is recommended that these forms be labeled "For Information Only" to preclude inadvertent use by PIs in support of quality data.
2. In close examination of the Structural Log (a non-Q document) referenced in recommendation 1 above, it was found that Drilling Support personnel were to provide orientation of fractures relative to the orientation stripes marked upon the core. However, in review of BTP-SMF-008, no example is provided as to how this orientation is determined. In review of previous revisions of this procedure, it was found that a guide was provided for this determination. It is recommended that BTP-SMF-008 be revised to include this guide so that orientation information may be utilized by others.