

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION
QUALITY ASSURANCE SURVEILLANCE REPORT
OF
UNITED STATES GEOLOGICAL SURVEY
SURVEILLANCE YMP-SR-93-024
CONDUCTED AT THE NEVADA TEST SITE
MAY 10 - 21, 1993

ACTIVITY SURVEILLED:

UNITED STATES GEOLOGICAL SURVEY MEASUREMENTS OF
SUB-SURFACE MOISTURE CONTENT OF NEUTRON HOLES
USW N-43, N-42 AND N-41 (COYOTE WASH)
AT THE NEVADA TEST SITE

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Date: *6-1-93*

Approved by:

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Director

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Date: *6/3/93*

1.0 EXECUTIVE SUMMARY

This report contains the results of the Office of Civilian Radioactive Waste Management Quality Assurance Surveillance YMP-SR-93-024 conducted at the Nevada Test Site on May 10-17, 1993. The purpose of this surveillance was to verify compliance to United States Geological Survey (USGS) technical procedure NWM-USGS-HP-62, Revision 6, "Method for Measuring Sub-Surface Moisture Content Using a Neutron Moisture Meter."

Field activities observed during this surveillance consisted of the actual measurements of the subsurface moisture content at Neutron Boreholes USW N-41, N-42, and N-43 using Compbell Pacific Nuclear (CPN) Model 503DR, Hydroprobe Moisture Depth Gauge, ID No. 6, in the area designated as Coyote Wash. No deficiencies were observed.

This surveillance indicated that the procedural requirements of NWS-USGS-HP-62 are being satisfactorily implemented with respect to the activities monitored.

There were no Corrective Action Requests issued as a result of this surveillance.

2.0 PURPOSE AND SCOPE

The purpose and scope of this surveillance was to verify procedural compliance by USGS personnel and personnel contracted to USGS, while performing subsurface moisture measurements. These measurements are made using neutron moisture meters.

NOTE: The following are the relevant to this activity:

Test Planning Package TPP 91-34, Evaluation of Natural Infiltration
Study Plan 8.3.1.2.2.1, Characterization of the Unsaturated Zone Infiltration
Work Breakdown Structure No. 1.2.3.3.1.2.1

3.0 SURVEILLANCE TEAM

This surveillance was performed by the following personnel:

Raul A. Hinojosa, Quality Assurance Engineer, Surveillance Team Leader, Yucca Mountain Quality Assurance Division (YMQAD)

Fred H. Lofftus, Quality Assurance Engineer, Surveillance Team Member, YMQAD

4.0 PERSONNEL CONTACTED DURING THE SURVEILLANCE

Bill Guertal, USGS (Foothill Engineering [FEC]), Hydrologist
David Hudson, USGS (FEC), Hydrologist
Lorrie Flint, USGS (Raytheon Services Nevada [RSN]), Geologist
Jose Gonzales, USGS (RSN), Senior Geologist
Dale Ambos, USGS, Meteorologist
Sue Gilbert, USGS, Senior Secretary
Martha Mustard, USGS, Quality Assurance Specialist, Denver, Colorado
Daniel Soeder, USGS, Field Test Coordinator
Jon Woolverton, USGS, Quality Assurance Specialist, Denver, Colorado

5.0 SURVEILLANCE RESULTS

The following activities (reference USGS Technical Procedure NWM-USGS-HP-62, Revision 6) were observed during the course of this surveillance:

- Paragraph 4.2.2 Meter Standardization Check - Prior to going to field, ten shielded readings were entered into the memory, recorded on "Meter Standardization Check" sheet, and calculations were performed to established acceptable range. Location: Hydrologic Research Facility. Performed satisfactorily and in accordance with the procedure. The neutron moisture meter standardized was CPN Model 503DR, Hydroprobe Moisture Depth Gauge, ID No. 7.
- Paragraph 4.2.3 Records Check - Verified - Satisfactory
- Paragraph 4.2.4 Meter Setup - Verified - Satisfactory
- Paragraph 4.2.5 Site Identification Entry - Verified - Satisfactory
- Paragraph 4.2.6 Data Collection Operation - Observation/Verified - Satisfactory
- Paragraph 5.0 Calibration - There are no "calibrations" performed on these instruments. There are only operational verification tests performed. (Reference Procedure NWM-USGS-HP-62, Revision 6, Paragraphs 4.2.2 and 4.2.8)

6.0 RECOMMENDATIONS

None