Department of Energy
Washington, DC 20585

QA: L

FEB 2 8 1997

R. W. Craig, Technical Project Officer
for Yucca Mountain Site
Characterization Project
U.S. Geological Survey
1261 Town Center Drive
Building 12 , Room 1249, M/S 423
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ISSUANCE OF SURVEILLANCE RECORD YM-SR-97-012 RESULTING FROM THE OFFICE OF QUALITY ASSURANCE (OQA) SURVEILLANCE OF THE U.S. GEOLOGICAL SURVEY (USGS)

Enclosed is the record of Surveillance YM-SR-97-012 conducted by the OQA at the USGS facilities at the Yucca Mountain Site, Nevada.

The purpose of the surveillance was verification of compliance with selected requirements from Yucca Mountain Project USGS Quality Management Procedure-12.01, Revision 7, "Control of Measuring and Test Equipment," specifically the calibration intervals and vendors.

There were no Performance Reports, Deficiency Reports, or Corrective Action Requests issued as a result of this surveillance.

This surveillance is considered completed and closed as of the date of this letter. A response to this surveillance record is not required.

If you have any questions, please contact either James Blaylock at (702) 794-1420 or Kenneth T. McFall at (702) 794-5470.

Donald G. Horton, Director
Office of Quality Assurance

OQA:JB-1024

Enclosure:
Surveillance Record YM-SR-97-012

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recip: NMSS/HLWR

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OFFICE OF CIVILIAN
RADIOACTIVE WASTE MANAGEMENT
U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

Surveillance No. YM-SR-97-012

QUALITY ASSURANCE SURVEILLANCE RECORD

SURVEILLANCE DATA

1. ORGANIZATION/LOCATION:	2. SUBJECT:	3. DATE:
United States Geological Survey (USGS)	Pneumatic Borehole Testing	February 11, 1997

4. SURVEILLANCE OBJECTIVE:
Calibration of Measuring and Test Equipment (M&TE)

5. SURVEILLANCE SCOPE:
Verification of compliance with selected requirements from Yucca Mountain Project USGS Quality Management Procedure (QMP)-12.01, Revision 7, "Control of Measuring and Test Equipment" specifically the calibration intervals and vendors.

6. SURVEILLANCE TEAM:
Team Leader:
Kenneth T. McFall

Additional Team Members:
N/A

7. PREPARED BY:		8. CONCURRENCE:	
Kenneth T. McFall	2/4/97		
Surveillance Team Leader	Date	QA Division Director	Date

SURVEILLANCE RESULTS

9. BASIS OF EVALUATION/DESCRIPTION OF OBSERVATIONS:

Surveillance YM-SR-97-12 was conducted February 5 and 10, 1997 at the Hydrologic Research Facility (HRF) and the Unsaturated Zone (UZ) 4/5 complex at the Yucca Mountain Site, Nevada. The intent of the surveillance was to verify the up-to-date status of the calibration of M&TE and to verify that the calibration vendors were included on the Qualified Suppliers List.

(See pages 2-4 continued)

10. SURVEILLANCE CONCLUSIONS:

Based on the examination of objective evidence and discussions with USGS personnel, it is determined that the USGS is adequately implementing their Quality Assurance Program as it applies to their activities involving the pneumatic borehole data collection, specifically, the calibration of instrumentation, M&TE, and the use of calibration vendors. Compliance to the selected requirements of QMP-12.01, Revision 7, are also determined to be adequate.

11. COMPLETED BY:		12. APPROVED BY:	
Kenneth T. McFall	2/19/97		2/24/97
Surveillance Team Leader	Date	QA Division Director	Date

Block 9 (continued) BASIS FOR EVALUATION/DESCRIPTION OF OBSERVATIONS:

The data collection activities are in the middle of an ongoing process. The process is highly automated with the remote locations such as the UZ 4/5 complex instrumentation taking periodic readings from the grouted in-place psychrometers and pressure transducers down the borehole and storing them at the remote site, and transmitting the stored data to the HRF during the early morning hours on a daily basis. The computer system in the HRF holds the data until the Principal Investigator (PI) in Denver, Colorado accesses the data and transfers it to the USGS facilities in Denver. There are no computer codes involved which require computational processes. The data transfer is direct from the remote sites to the HRF where it is stored and then transmitted to Denver. The USGS personnel on site at the HRF do not handle or interpret the data in any way. Their primary function is to monitor the process and insure its smooth operation by making any repairs, adjustments, or equipment replacements found necessary. The instrumentation installed in the boreholes was calibrated prior to emplacement but is no longer accessible for continued calibration. This is addressed by performing annual checks of the system by evacuating the air in teflon tubing attached to the in-ground instrumentation and replacing it with dry nitrogen at known pressure and humidity and comparing the readings received to the readings that would be expected. To date, the equipment has remained in the acceptable range for the instrumentation. When the instrumentation was installed, it was done in a redundant manner with a backup for each instrument; meaning that there are two instruments in the borehole for each data collection point. All data points are still operating whether on the primary or backup instruments.

There have been no new instruments installed since the original instrumentation of the boreholes. The equipment at the remote sites, which is used to record and store the readings from the borehole instrumentation, is contained in controlled access and controlled environment trailers and is available for inspection. The manufacturer's specifications for this equipment call for an annual calibration. However, since the equipment is in use, the USGS personnel on site have elected to send the equipment in for calibration only every five years. This is allowable and approved by the USGS Quality Assurance procedures due to the annual checks performed on the in-ground instrumentation. The satisfactory results from the annual checks of the instruments also serve as an annual check of the gathering and storing equipment at the surface. If the readings are in the normal range to be expected during the annual checks this would also indicate that the entire data gathering, reading, and storage system is operating properly. The psychrometers and transducers were calibrated at the HRF at the site by USGS personnel prior to installation The equipment used to perform these calibrations is still on hand and was examined for compliance with selected requirements of YMP-USGS-QMP-12.01, Revision 0, the required calibration intervals, and whether the calibration was performed by an approved vendor.

The following requirements from QMP-12.01 were reviewed for compliance:

- Paragraph 5.2.2 requires that when calibrations are to be performed by other than YM-USGS or contractor personnel, the vendor or organization must be identified in the Approved Suppliers List (Since the Qualified Suppliers List [QSL] is now an Office of Quality Assurance function, the QSL replaces the USGS Approved Suppliers List).

- Paragraph 5.3.1 requires all equipment to be uniquely identified consisting of Model Number, Serial Number, or another unique description.

- Paragraph 5.3.2 requires a calibration status sticker to be affixed to all calibrated equipment used for quality-affecting activities.

- Paragraph 5.3.3 requires that identification and stickers be attached to the individual piece of equipment, if practical, or to the container, or in the immediate vicinity for stationary equipment.

The following instrumentation and M&TE were examined:

Remote Sites: UZ 4-5 complex instrumentation:

Keithley 182 Sensitive Digital Voltmeter
Last calibration: 5/16/95
Next calibration due: 5/16/00
Calibrated by: Ball Corporation

Hewlett Packard 3457A Multimeter
Last calibration: 7/16/92
Next calibration due: 7/16/97
Calibrated by: Ball Corporation

Keithley 220 Programmable Current Source
Last calibration: 5/8/95
Next calibration due: 5/8/00
Calibrated by: Ball Corporation

HRF Instrumentation:

Hewlett Packard 3457A Voltmeter (different configuration from above)
Last calibration: 7/25/92
Next calibration due: 7/25/97
Calibrated by: Ball Corporation

Keithley 220 Programmable Current Source
Last calibration: 4/18/96
Next calibration due: 4/18/01
Calibrated by: Ball Corporation

Ruska Instrument Corporation (mass weight set)
Last Calibration: 2/23/96
Next calibration due: 2/23/98
Calibrated by: G. B. Tech Inc.

DPI 140 Digital Pressure Indicator
Operator calibrate before and after each use

Datron Multifunction Calibrator
Last calibration: 8/13/96
Next calibration due: 8/13/97
Calibrated by: Bechtel Nevada

Guideline precision resistors
Last Calibration: 5/17/96
Next calibration due: 5/17/97
Calibrated by: Ball Corporation

All the equipment examined complied with the selected requirements of QMP-12.01 as listed above. Ball Corporation, G. B. Tech Inc., and Bechtel Nevada are all on the Qualified Suppliers List as of February 7, 1997, and the respective vendors are qualified and authorized to perform the calibration of the instruments and equipment examined. There were no deficiencies identified as a result of this surveillance. The cooperation and knowledge of the personnel contacted is appreciated.

Personnel contacted during the surveillance:

Rufus Getzon, USGS, Hydrologist
Dennis Myers, USGS, Hydrologist