Department of Energy
Washington, DC 20585

JUN 09 1997

QA: L

R. W. Craig, Technical Project Officer
For Yucca Mountain Site
Characterization Project
U. S. Geological Survey
1261 Town Center Drive
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ISSUANCE OF SURVEILLANCE RECORD USGS-SR-97-022 RESULTING FROM THE OFFICE OF QUALITY ASSURANCE (OQA) SURVEILLANCE OF THE US GEOLOGICAL SURVEY (USGS) AND YUCCA MOUNTAIN SITE

Enclosed is Surveillance Record USGS-SR-97-022 conducted by the OQA at USGS's facilities in Lakewood, Colorado, April 14-18, 1997, and theYucca Mountain Site, April 30-May 1, 1997.

The purpose of the surveillance was to verify compliance to requirements specified in Implementing Documents related to control of Measuring and Test Equipment.

This surveillance is considered completed and closed as of the date of this letter. No deficiencies were identified as a result of this surveillance. A response to this surveillance record is not required.

If you have any questions, please contact either James Blaylock at (702) 794-1420 or Patout H. Cotter at (702) 794-1332.

Donald G. Horton, Director
Office of Quality Assurance

OQA:JB-1676

Enclosure:
Surveillance Record USGS-SR-97-022

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recip Dom/HLUR

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

Surveillance No. USGS-SR-97-022

QUALITY ASSURANCE SURVEILLANCE RECORD

SURVEILLANCE DATA

1. ORGANIZATION/LOCATION:	2. SUBJECT:	3. DATE:
United States Geological Survey (USGS), Lakewood, Colorado, and Yucca Mountain Site	Control of Measuring and Test Equipment (M&TE)	4/14-18/97 and 4/30-5/1/97

4. SURVEILLANCE OBJECTIVE:
Verify compliance to requirements specified in Implementing Documents related to control of M&TE

5. SURVEILLANCE SCOPE:
Selected M&TE used by USGS in performing scientific investigations (Q-work) associated with Yucca Mountain Site Characterization.

6. SURVEILLANCE TEAM:
Team Leader:
P.H. Cotter
Additional Team Members:
N/A

7. PREPARED BY:		8. CONCURRENCE:	
P.H. Cotter for	3/26/97		
Surveillance Team Leader	Date	Director, OQA	Date

SURVEILLANCE RESULTS

9. BASIS OF EVALUATION/DESCRIPTION OF OBSERVATIONS:

A surveillance was performed of the USGS in Lakewood, Colorado on April 14 through 18, 1997, and at the Yucca Mountain Site on April 30 and May 1, 1997. The objective of this surveillance was to verify that the control of M&TE was performed in accordance with the requirements of **USGS Quality Management Procedures (QMP)** identified on the continuation page.

See Page(s) 2-7

10. SURVEILLANCE CONCLUSIONS:

Based on review of objective evidence and interviews with project personnel it was determined that the adequacy and effectiveness of implementation of the quality assurance program requirements associated with the control of M&TE are satisfactory. No deficient conditions were identified by this surveillance.

DEFICIENT CONDITIONS: None

RECOMMENDATIONS: None

Note: This is the first in a series of surveillances on the Control of M&TE at the Labs/USGS. When the series is complete, there will be a Summary Report issued.

11. COMPLETED BY:		12 APPROVED BY:	
for P.H. Cotter	5/29/97		6/5/97
Surveillance Team Leader	Date	Director, OQA	Date

Enclosure

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

YMP-USGS-QMP-12.01, R7, Instrument Calibration Requirements:

1. Specific calibration procedures have been established and adequately address the following topics

- type of calibration
- intervals of calibration (including one-time-only)
- required material and equipment
- required accuracy
- calibration standards
- acceptance criteria
- documentation of results
- technical manuals
- software validation
- commercial devices

Review of Technical Procedures (refer to Objective Evidence) verified that the above topics were satisfactorily addressed with regard to the procedure.

2. Documentation of M&TE calibration includes the following information as required by the procedure:

- Identification of M&TE calibrated, manufacturer model number, serial number, or other unique identifier
- Name of organization and person performing the calibration
- Identification of calibration standards and traceability to the National Institute of Standards and Technology (NIST)
- Justification for use of standards other than NIST
- If no nationally recognized standards or physical constant exist, the basis for calibration is documented
- Date of calibration and recalibration or interval
- Calibration data, as found and as calibrated, including recording of check points and ranges checked
- Results of calibration and statement of acceptability
- Procedure used to perform calibration and revision number
- Clear indication of condition when instruments are found out of calibration, as submitted, and a statement or clear indication that the recalibrated equipment is within tolerance in all operating ranges
- Review and acceptance upon receipt

Review of documentation of calibration (refer to Objective Evidence) verified that the above topics had been satisfactorily addressed.

3. Calibration and use of M&TE are in accordance with the requirements of the procedure for the following items:

- calibration is performed at prescribed intervals or prior to use

- calibration is performed by trained personnel
- use of M&TE is documented

Review of documentation of use and calibration (refer to Objective Evidence) verified that the above topics had been satisfactorily performed.

4. M&TE identification and labeling are in accordance with the procedure requirements for the following items:

- is uniquely identified with the USGS ID number
- is labeled, tagged or otherwise suitably marked or documented to indicate due date or interval of the next calibration

The following instruments were checked and were satisfactorily identified and labeled:

ID Number	Instrument Name
PTLY10320/10900864	Sartorius LC 1200 Balance
PTLY10321/10601629	Sartorius LC 4200 Balance
PTLY10428/J08015	Mettler Balance
PTLY10430/91581	Mettler PL 300 Balance
PTLY10516/10900849	Sartorius LC 1200 Balance
PTLY10687/9536	Carl Meyer Oven
PTLY5630/36100031	Analytical Balance
PTLY646/3404066	Sartorius 1507 Balance
PTLY7232/J48849	Mettler Deltarange Balance #3
PTLY7233/H66560	Mettler Balance
PTLY277/J48850	Deltarange Balance #5
SC-16-252	Mass Spectrometer System Calibration
USGS K-4	Class S Weights
MAT262-GCP-03	Mass Spectrometer
Uc	Uranium Spike Calibration
0491	Mass Spectrometer
30471	Class S Weights
800248-7A-1146(B)	Energy Dispersive X-ray Spectrometer

5. The Nonconformance Report (NCR) process is used when M&TE is found to be deficient for any of the following conditions: 1) Calibration due date or interval has passed without recalibration; 2) the device produces results known to be in error or failed in service; or 3) found to be outside of tolerance during recalibration. Evaluations include the determination of acceptability for previously collected data or processes monitored. Investigative and remedial actions taken are documented.

Review of NCRs (refer to Objective Evidence) verified that deficient condition regarding M&TE are satisfactorily dispositioned in accordance with the above procedure requirements.

6. Documentation of calibrations performed by suppliers address the following topics:
   - Calibration services are performed by vendors on the Qualified Suppliers List (QSL)
   - Completeness of calibration documentation
   - USGS review and acceptability statement

Review of procurement documentation and calibration documentation (refer to Objective Evidence) verified that the above topics had been satisfactorily addressed for the following suppliers of calibration services:

Ball Aerospace	Bechtel Nevada
CBS Inc.	Campbell Scientific
Colorado Department of Agriculture	EG&G
Eppley Labs	Geometrics
Paroscientific	Setra Systems Inc
Sverdrup	GB Tech

YMP-USGS-QMP-6.01, R6-M1, "Document Control" Requirements:

Technical procedures are controlled in accordance with procedure requirements for the following topics:
- availability at the work location
- control of changes

Review of the following activities (refer to Objective Evidence) verified that the requirements of the above topics had been satisfactorily performed:

- Uranium-Thorium Disequilibrium Studies
- Oxygen Isotope Analysis of Opal, Chalcedony and Quartz
- Determination of Chemical Composition by Energy Dispersive X-Ray Fluorescence Spectrometry
- Liquid Scintillation Spectrometry Method for Tritium Measurement of Water Samples
- Measurement of Water Potential of Partially Saturated Media using Peltier-Type Thermocouple Psychrometer
- Measurement of Absolute Temperature in Unsaturated Zone Borehole using Thermistors
- Method for Calibrating Peltier-Type Thermocouple Psychrometers for Measuring Water Potential of Partially Saturated Media
- Method for Calibrating Thermistors for Measuring Absolute Temperature in Unsaturated Zone Boreholes

YMP-USGS-QMP-5.01, R6-M2, "Preparation of Technical Procedures" Requirements:

Technical procedures were prepared in accordance with requirements of the procedure for the following topics:
- use of references

- description of methods
- identification of equipment
- independent technical review
- quality assurance review

Review of Technical Procedures (refer to Objective Evidence) verified that the above topics were satisfactorily addressed with regard to the procedure.

YMP-USGS-QMP-2.07, R2-M4, "YMP-USGS Training" Requirements:

Personnel have completed training on procedure YMP-USGS-QMP-12.01, R7, and applicable technical procedures for M&TE calibration.

Review of YMP-USGS Training Completion Reports (refer to Objective Evidence) verified that the following personnel had completed required training:

J.G Darnell	A.L. Flint	R.T. Getzen
R.L. Goemaat	S. Kassabian	L.M. Kwak
G.D. LeCain	S.A. Mahan	R.J. Moscati
B.D. Marshall		

OBJECTIVE EVIDENCE

1. The following technical procedures were reviewed:

Document No., Rev, Mod	Title
GCP-03, R3-M1	Uranium-Thorium Disequilibrium Studies
GCP-15, R3	Oxygen Isotope Analysis of Opal, Chalcedony and Quartz
GCP-16, R4	Carbonate Carbon and Oxygen Isotope Analyses
GCP-25, RO	Determination of Chemical Composition by Energy Dispersive X-Ray Fluorescence Spectrometry
GPP-20, R3-M2	Measurement of Subsurface Temperature
HP-14, R2-M2	Method for Calibrating Peltier-Type Thermocouple Psychrometers for Measuring Water Potential of Partially Saturated Media
HP-26, R2	Method for Calibrating Water-Level Measurement Equipment Using the Reference Steel Tape
HP-60, R4-M2	Methods for Monitoring Water Level Changes Using Pressure Transducers and Pressure Transmitters
HP-97, R2	Measurement of Temperature and Relative Humidity Using a Temperature and Relative Humidity Probe
HP-162, R1-M1	Method for Calibrating Thermistors for Measuring Absolute Temperature in Unsaturated Zone Boreholes
HP-177, R2	Operation of a Barometric Pressure Transducer

HP-178, R2	Procedure to Measure Temperature, Humidity, Differential Pressure and Airflow at Selected Depths in UZ Borehole
HP-229, R3-M3	Determination of Water Content and Physical Properties for Laboratory Rock Samples and Soil Drive Core
HP-243, RO-M2	Method for Measuring the Particle Volume and/or Partial Density of Rock or Soil Samples Using the Micrometrics Accupyc™ 1330 Pycometer

2. Calibration records were reviewed for the following M&TE

ID Number	Instrument Name
1700	Datalogger
1762	Datalogger
220403	Barometric Pressure Transducer
231525	Barometric Pressure Transducer
PTLY10023/S1	Small Gage Ball
PTLY10023/S2	Small Gage Ball
PTLY10024/B1	Large Gage Ball
AKMC134E	Mass Flow Controller, 0-10 SLPM
AKMC178	Mass Flow Controller, 0-50 SLPM
AKMC227	Mass Flow Controller, 999 SCCM
AKMC378	Mass Flow Controller, 0-1000 SLP
AKMP229	MFC Power Supply
588128	Barometer
62271	Digital Transducer
65024	Digital Transducer
395949	Barometric Pressure Transducer
522806	Barometric Pressure Transducer
522807	Barometric Pressure Transducer
538725	Barometric Pressure Transducer
21X-3810, W-440579	Datalogger

3. The following Nonconformance Reports were reviewed

USGS-97-008, Barometer s/n 385845, was found to be outside of tolerance during routine recalibration

USGS-97-0001, Transducer s/n 631046, installed at well USW H-5, lower tube, failed on 8/3/96.

4. Procurement documentation in the QA procurement file folders for the following suppliers were reviewed:

Ball Aerospace	Bechtel Nevada
CBS Inc.	Campbell Scientific
Colorado Department of Agriculture	EG&G
Eppley Labs	Geometrics
Paroscientific	Setra Systems Inc
Sverdrup	GB Tech

5. YMP-USGS Training Completion Reports, YMP-USGS-QMP-2.07, R2 , ATT, 9, dated 4/18/97, for the following personnel were reviewed:

J.G Darnell	A.L. Flint	R.T. Getzen
R.L. Goemaat	S. Kassabian	L.M. Kwak
G.D. LeCain	S.A. Mahan	R.J. Moscati
B.D. Marshall		

6. The Office of Civilian Radioactive Waste Management QSL, dated 3/29/97, was used to verify qualification status of suppliers.

PERSONNEL CONTACTED:

W. Rodman
T. Chaney
A. Whiteside
J. Paces
S. Kassabian-Darnell
R. Moscati
J. Whelan
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