Department of Energy
Office of Civilian Radioactive Waste Management
Yucca Mountain Site Characterization Office
P.O. Box 98608
Las Vegas, NV 89193-8608

JUN 0 4 1996

Robert W. Craig
Acting Technical Project Officer
for Yucca Mountain
Site Characterization Project
U.S. Geological Survey
1261 Town Center Drive
Building 4, Room 423, M/S 423
Las Vegas, NV 89134

ISSUANCE OF SURVEILLANCE RECORD YMP-SR-96-010 RESULTING FROM YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION'S (YMQAD) SURVEILLANCE OF THE U.S. GEOLOGICAL SURVEY (USGS) (SCPB: N/A)

Enclosed is the record of Surveillance YMP-SR-96-010 conducted by the YMQAD at the USGS facilities at the Yucca Mountain Site, Nevada, May 8 and 15, 1996.

The purpose of the surveillance was to verify compliance with the pertinent Job Package 95-08, Revision 0, Test Planning Package T-92-09, Revision 2, and accepted industry techniques.

There were no deficiency documents generated 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 Mario R. Diaz at (702) 794-1489 or Kenneth T. McFall at (702) 794-5470.

R E Spence

Richard E. Spence, Director
Yucca Mountain Quality Assurance Division

YMQAD:MRD-1836

Enclosure:
Surveillance Record
YMP-SR-96-010

YMP-5

102.7
WM-11
NH03

cc w/encl:
D. A. Dreyfus, HQ (RW-1) FORS
R. W. Clark, HQ (RW-3.1) FORS
C. J. Henkel, NEI, Washington, DC
J. G. Spraul, NRC, Washington, DC
W. L. Belke, NRC, Las Vegas, NV
R. R. Loux, NWPO, Carson City, NV
Cyril Schank, Churchill County Commission, Fallon, NV
D. A. Bechtel, Clark County Comprehensive, Las Vegas, NV
J. D. Hoffman, Esmeralda County, Goldfield, NV
Eureka County Board of Commissioners, Eureka, NV
Lander County Board of Commissioners, Battle Mountain, NV
V. E. Poe, Mineral County, Hawthorne, NV
Wayne Cameron, White Pine County, Ely, NV
B. R. Mettam, County of Inyo, Independence, CA
Mifflin and Associates, Las Vegas, NV
M. J. Clevenger, M&O/LANL, Los Alamos, NM
Donald Mangold, M&O/LBNL, Berkeley, CA
R. E. Monks, M&O/LLNL, Livermore, CA
R. R. Richards, M&O/SNL, Albuquerque, NM, M/S 1333
J. D. Christensen, M&O, Las Vegas, NV
T. H. Chaney, USGS, Denver, CO
D. C. Threatt, YMQAD/QATSS, Las Vegas, NV
File, YMQAD/QATSS, Las Vegas, NV
Records Processing Center

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

QUALITY ASSURANCE SURVEILLANCE RECORD

SURVEILLANCE DATA

[1]ORGANIZATION/LOCATION:	[2]SUBJECT:	[3]DATE: 5/8 and 15/96
U.S. Geological Survey (USGS), Yucca Mountain Site, Nevada	Pump testing at the C-Hole complex	

[4]SURVEILLANCE OBJECTIVE:
Pumping to achieve steady state hydrologic conditions in well C-3.

[5]SURVEILLANCE SCOPE:
Verification of compliance with the pertinent Job Package (JP), Test Planning Package (TPP), and accepted industry techniques.

[6]SURVEILLANCE TEAM:
Team Leader:
Kenneth T. McFall
Additional Team Members:
Richard L. Weeks

[7]PREPARED BY:
Kenneth T. McFall — 5/7/96
Surveillance Team Leader — Date

[8]CONCURRENCE:
N/A — ____
QA Division Director — Date

SURVEILLANCE RESULTS

[9]BASIS OF EVALUATION/DESCRIPTION OF OBSERVATIONS:

See Page(s) 2-4

[10]SURVEILLANCE CONCLUSIONS:

See Page(s) 4

[11]COMPLETED BY:
Kenneth T. McFall 5/30/96
Surveillance Team Leader — Date

[12]APPROVED BY:
for [illegible] — 6-3-96
QA Division Director — Date

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

Surveillance YMP-SR-96-010 was conducted May 8 and 15, 1996 at the C-Hole complex at the Yucca Mountain Site. The intent of the surveillance was to verify that the USGS was following the requirements set forth in JP 95-08, Revision 0, "C-Hole Complex Period 2 Tracer Testing," TPP T-92-09, Revision 2, "Characterization of the Saturated-Zone Ground-Water Flow System, C-Hole Complex," and accepted industry techniques, (i.e., using pressure gauges with the appropriate range for the pressures being monitored).

At the current point in the C-Hole complex testing, there are no tracers being injected into the saturated zone. The work taking place and the subject of the surveillance is the pumping of an isolated horizon in the saturated zone to achieve steady state hydrologic conditions prior to the injection of a conservative tracer by Los Alamos National Laboratory. The pumping is taking place in UE-25 C#3 at a rate of approximately 150 gallons per minute (GPM). A steady state is reached when the water recharging the well is equal to the amount being pumped out resulting in a stable water level in the well.

There were no procedures involved in the testing due to the experimental nature of the work. USGS Scientific Notebook (SN)-0036 is used to record data, notes, actions, observations, equipment used, and other information pertinent to the testing. M. J. Umari of the USGS is the Principal Investigator (PI) for the tests and he maintains the SN and oversees the gathering of data and scientific information. SN-0036, initiated on October 25, 1993, is in good condition, and complies with the requirements of Yucca Mountain Site Characterization Project (YMP)-USGS-Quality Management Procedure (QMP)-5.05, Revision 4, "Scientific Notebook." SN-0036: Looseleaf Addendum 1 contains backup information for the formal SN which may not be suitable for the bound notebook, such as down-hole configuration sketches, pipe joint tally sheets, field calibrations, string maps, and preliminary procedures that are under development. This addendum is supplied with a Table of Contents and is orderly and in good condition.

The following attributes were reviewed for compliance:

TPP T-92-09, Revision 2, "Characterization of the Saturated-Zone Ground-Water Flow System, C-Hole Complex."

- The USGS has provided a calibrated flowmeter capable of measuring both instantaneous flow rates and volume pumped. (A.1.e)

  The USGS was using only one flowmeter for this activity; manufactured by Endress and Hauser, serial number 1831-021714092, last calibration December 4, 1995, next calibration due December 4, 1996, calibrated at the Stennis Space Center. The range of the flowmeter is from 0 to 308 GPM.

- Water pumped from the boreholes at the C-Hole Complex is discharged into Forty Mile Wash via the C-Hole discharge pipeline and spreading basin. (A.5)

- Ponding of water on the C-Hole complex shall be minimized to the extent practical (no standing water was observed at the C-Hole complex). (B.1)

- All computer software is either off the shelf, word processing, software that is bundled with the equipment, or QA approved standard data analysis software. (D.2)

- The following Work Programs (WP) have been developed in conjunction with the C-Hole activities: (D.9.b)

  YMP/WP/95-14, Revision 0, "C-Hole Complex 200 GPM Pump Installation."
  YMP/WP/95-22, Revision 0, "UE-25 C-Hole Complex Multiple-Well Hydrolic Interference Testing-Work Period 2."

JP 95-08, Revision 0, "C-Hole Complex Period 2 Tracer Testing."

- The pumping rate does not exceed 400 GPM. (AMESH:MER-3178[2.b])

- The spreading basin is not overflowing. (AMESH:MER-3178[2.c])

- Calibrated flow instrumentation is being used. (DIE#BAAAD0000-01717-2200-00008, Revision 2 [2 .0])

- The flow meter being used is in-line and is capable of handling 250 GPM. (Ltr; Craig to Jones, dtd 11/7/94 [#5 YMP Criteria for Contract Support])

- Packer strings in each borehole have isolated the testing zones. (Determination of Importance Evaluation # BAAAD0000-01717-2200-00008, Revision 2, [2.0])

Accepted industry techniques:

- The pressure gauges' range of readings are appropriate to the pressures being monitored. Gauges with a range of 0 to 1500 pounds per square inch (PSI) manufactured by NOSHOK are being used to measure pressures between 500 and 800 PSI.

- The flow through the 250 GPM rated inline calibrated flow-meters is approximately 150 GPM.

- Stainless steel tubing is used for pressuring the packers.

- The down-hole submersible pump is a 72 stage pump manufactured by Centerlift capable of pumping 200 GPM from the required interval.

- The submersible and non-submersible transducers used in the borehole (C#3) are not retrievable for calibration and are off the shelf items manufactured by ParoScientific Incorporated.

Personnel contacted during the surveillance:

M. J. Umari, PI, USGS
John Earle, Hydrologist, USGS

Block 10 (continued) SURVEILLANCE CONCLUSIONS:

Based on the examination of objective evidence and discussions with the investigators it is determined that the USGS is adequately implementing their QA program as it applies to the activities at the C-Hole complex. The selected requirements from JP 95-08, Revision 0, TPP T-92-09, Revision 2, and selected accepted industry techniques were found to be properly implemented. No deficiency documents have been issued as a result of this surveillance. The cooperation extended to the surveillance team and cordial interactions are appreciated.