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

APR 20 1995

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ISSUANCE OF SURVEILLANCE RECORD YMP-SR-95-020 RESULTING FROM YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION'S (YMQAD) SURVEILLANCE OF KIEWIT/PARSONS BRINKERHOFF (K/PB) (SCPB: N/A)

Enclosed is the record of Surveillance YMP-SR-95-020 conducted by the YMQAD at the K/PB facilities in the Exploratory Studies Facility (ESF) at the Yucca Mountain Site, Nevada, February 13 through March 31, 1995.

The purpose of the surveillance was to verify procedural compliance in the installation and subsequent inspection of steel set ground support in the ESF.

Corrective Action Request (CAR) YM-95-030 and CAR YM-95-031 were issued as a result of this surveillance. Response to these CARs, which were transmitted via separate letter, is due by the date indicated in Block 13 of the CARs.

This surveillance is considered completed and closed as of the date of this letter. A response to this surveillance record and any documented recommendations is not required; however, the open CARs will continue to be tracked until they are closed to the satisfaction of the quality assurance representative and the Director, YMQAD.

If you have any questions, please contact either Robert B. Constable at 794-7945 or John R. Doyle at 794-7986.

RE Spence

Richard E. Spence, Director
Yucca Mountain Quality Assurance Division

YMQAD:RBC-2979

Enclosure:
Surveillance Record
YMP-SR-95-020

NH03 1/1
102.7
WM-11

YMP-5

9504250380 950420
PDR WASTE
WM-11 PDR

APR 20 1995

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Surveillance No. YMP-SR-95-020

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:
Kiewit/Parsons Brinkerhoff (K/PB), Exploratory Studies Facility (ESF), Las Vegas, NV	Steel Set Installation & Inspection	2/13 through 3/31/95

[4]SURVEILLANCE OBJECTIVE: To verify procedural compliance in the installation and subsequent inspection of steel set ground supports in the ESF.

[5]SURVEILLANCE SCOPE: K/PB installation and inspection of steel sets in North Portal Ramp section of the ESF with an additional check on control of Measuring and Test Equipment (M&TE) and personnel training requirements.

[6]SURVEILLANCE TEAM:
Team Leader:

John R. Doyle

Additional Team Members:
Fred H. Lofftus
Robert L. Holliday

[7]PREPARED BY:		[8]CONCURRENCE:	
John R. Doyle	2/12/95	N/A	
Surveillance Team Leader	Date	QA Division Director	Date

SURVEILLANCE RESULTS

[9]BASIS OF EVALUATION/DESCRIPTION OF OBSERVATIONS:
See pages 2, 3, 4, and 5

[10]SURVEILLANCE CONCLUSIONS:
See pages 5 and 6

[11]COMPLETED BY:		[12]APPROVED BY:	
John R Doyle	4/14/95	[signature]	4.19.95
Surveillance Team Leader	Date	QA Division Director	Date

DISCLOSURE

Block 9 (continued) Basis of Evaluation/Description of Observations:

On February 13 through 24, 1995, a surveillance was performed of K/PB at the Yucca Mountain Site and their offices in Las Vegas, Nevada. The surveillance consisted of visual observation of steel set erection, personnel interviews, review of M&TE utilized, and examination of applicable documentation. Attachment 1 details the objective evidence observed and documents reviewed and utilized during the course of this surveillance.

The following individuals were contacted during the course of this surveillance:

Howard Cox	Quality Control (QC) Manager, K/PB
Tom Tomek	QC Supervisor, K/PB
Kevin Krank	Quality Engineer, K/PB.
Joe Hays	Title III QC Inspector, Civilian Radioactive Waste Management System, Management and Operating Contractor (CRWMS M&O)
Jim Morris	Tunnel Superintendent, K/PB
Freddie Beason	Title III QC Inspector, CRWMS M&O-Quality Assurance (QA)
Jerry Erickson	Calibration Laboratory Manager, Reynolds Electric and Engineering Company, Inc., (REECo)
Mary Lou Brown	Training Supervisor, K/PB
Fred Ruth	QA Specialist, REECo
John Christensen	QA Manager, K/PB
William Glasser	Project QA Manager, REECo

Attributes Verified:

1) Management Control Procedure (MCP)-12.0, "Control of Measuring and Test Equipment", Revision 3.

   Calibration Reports for each of the M&TE's and associated standards were examined, no discrepancies were noted. M&TEs not in use were verified to be in protected, dry storage under lock and key for detailed information of attributes verified see Attachment 1.

2) Quality Control Procedure (QCP)-004, "Stamp Issue/Control Procedure", Revision 2.

   The Stamp Control log was reviewed for signature and assigned stamp numbers for each of the K/PB Inspectors. The stamp numbers were then cross checked against resulting Inspection forms for confirmation. It was noted on a review of this log that stamp numbers issued to personnel terminated were still in effect, but not used.

An expedited Document Review Request was submitted and approved on February 24, 1995, effective March 3, 1995, to revise QCP-004 to retire stamp numbers of lost stamps or those that were held by terminated personnel. No deficiencies were noted.

3) Technical Control Procedure (TCP)-2.23, "Steel Set Jacking/Expansion Procedure", Revision 0.

The gauge on the jacking system was verified to be number Y111322, it was calibrated on October 19, 1994 and is due for calibration on October 19, 1995. See Attachment 1 for additional details.

TCP-2.23 was revised and submitted to REECo on March 28, 1995 during the course of the surveillance to clarify paragraphs 3.1.1, 3.1.2, 3.1.3, and 3.2.3 regarding the use of a pressure relief valve.

Paragraph 3.1.1 requires that hydraulic jacks be equipped with pressure gauges **and** pressure relief valves.

Paragraphs 3.1.2 and 3.1.3 gives the option of using **either** the relief valve **or** the gauge for steel set installation.

Paragraph 3.2.3 requires that **both** the relief valve and the gauge identification number be recorded on the Steel Set Jacking/Expansion Report, implying that both pieces of equipment were to be used.

Procedure paragraphs appeared to be ambiguous and needed further explanation via revision to the procedure during the course of the surveillance.

4) A review of Steel Set Inspection Forms for steel sets 11, 15, 19 reveals that these steel sets were installed for safety purposes with implementing procedures not in place. Subsequent meetings with cognizant QA management during the course of the surveillance resulted in generation of additional information added to Nonconformance Report (NCR) Yucca Mountain Site Characterization Office-95-0007. This additional information explains this condition.

5) QCP-008, "Steel Set Installation Inspection"

The following Steel Set Installation Inspection Records were examined for compliance to procedural requirements. No deficiencies were observed.

Segment	Station (Steel Set)	Jack Pressure (Per Square Inch [psi])
16-017	69	7,700
04-018	71	4,000
13-018	67	2,000
07-018	66	8,500
01-018	70	6,900
08-018	65	8,800

Each steel set, bolt installation placement and jacking operation is monitored by K/PB inspectors as indicated on the installation inspection forms. Attributes verified include the steel set segment by piece number and position, in, center, and right or left side, bolts by grade and length, shims - thickness and quantity used. The form also shows jacking pressure, placements dimensions, and the number of lagging installed as well as the rod spacers between steel sets.

QCP-008 Paragraph 3.5.1 states "Minimum of two bolts or ten percent (10%) of the bolts in a connection, whichever is greater, shall be inspected for proper tightening...." On the Steel Set Inspection Forms reviewed, the snug tight verification did not appear to be clear to the surveillance team. QC personnel had been trained to the procedure and were aware of this requirement, but the Inspection Form appeared vague for this verification. Letter Cox to staff generated during the course of the surveillance gives additional explanation to inspectors to verify bolt tightening (snug tight) on Steel Set Inspection Forms.

It was noted that where the inspection forms identified the quantity of lagging installed between the steel sets, lagging were removed at the direction of Bureau of Reclamation personnel to aid in geologic mapping of the tunnel for characterization activities. Sets were inspected by K/PB personnel for the number of lagging installed, this lagging has been removed and has not been replaced after the mapping has been completed. (See Block 10, Corrective Action Request [CAR] YM-95-030)

6) MCP 2.4, "Indoctrination, Training, and Qualification", Revision 4.

Reviewed QCP-008 training records for Rick Noel, Ed Hyatt, Hara Miller and Gordon Stewart. Also reviewed MCP-2.23 training records for John Lemire, Chris Rodgers and Clay Spellman. No objective evidence could be found for personnel performing quality affecting activities as per MCP-2.3 (See Block 10, CAR YM-95-031).

Block 10 (continued) Surveillance Conclusions:

SUMMARY:

Based on documentation reviews and personal interviews and the issuance of two CARs, the surveillance team has determined that the overall adequacy and effectiveness of implementation of the quality program for steel set installation process is marginally effective.

The surveillance team identified two conditions adverse to quality during the course of the surveillance. A summary is as follows:

CAR-YM-95-030

QCP-008 Steel Set Installation Inspection Form calls for the recording of the quantity of lagging installed for each steel set installed.

A review of selected Steel Set Installation Inspection Forms reveals that the item inspected does not reflect the configuration as observed by the surveillance team. The number of lagging recorded on inspection for steel sets 65 through 71 is inconsistent with that observed in place. The lagging had been removed to aid in geologic mapping of the tunnel in support of Site Characterization Activities.

CAR-YM-031

Training records were reviewed of selected K/PB personnel. Personnel have either not been trained to implementing procedures or have been trained after the effective date of the procedure.

RECOMMENDATIONS:

The following recommendation resulted from the surveillance and is presented for consideration by management:

1) Specification BABEAB000-01717-6300-02341, Revision 3, Section 1.01, gives reference to erection of steel sets in the Topopah Springs (TS) North Ramp. All Steel sets erected have been in the Tiva Canyon or Rainier Mesa members of the Paintbrush Tuff. Suggest changing the specification to reflect proper stratigraphic units.

ATTACHMENT 1

The following documents were reviewed during the course of this surveillance:

QCP-004, Revision 2, "QC Stamp Issue/Control Procedure
QCP-008, Revision 1, "Steel Set Installation Inspection"
TCP-2.23, Revision 0, "Steel Set Jacking/ Expansion Procedure
MCP-2.4, Revision 4, "Indoctrination, Training, and Qualification"
MCP-12.0, Revision 3, "Control of Measuring & Test Equipment
BABEAB000-01717-6300-02341, Revision 3, "Steel Set & Accessories Subsurface"

Specific Attributes Verified are listed below:

QCP-004:

a. Paragraph 3.3.1	QC stamps shall be issued and signed out on a QC Stamp log.
b. Paragraph 3.1.2	QC stamps ... may be used in place of the QC Inspector's signature or initials.
c. Paragraph 3.3.4	Lost QC stamps shall be identified as lost on the QC Stamp Log.

MCP-12.0:

a. Paragraph 3.1:	M&TE's shall be identified by number.
b. Paragraph 3.1.1:	A data package shall be developed for each piece of equipment issued
c. Paragraph 3.2.1:	Calibration Standards shall be traceable to nationally recognized standards
d. Paragraph 3.22:	Calibration standards shall have greater accuracy that the required accuracy of the M&TE being calibrated.
e. Paragraph 3.3:	M&TE shall be controlled and maintained ... under environmental conditions
f. Paragraph 3.4.:	1 Out of calibration equipment shall be tagged and segregated

M&TEs and their respective data packages were reviewed and attributes verified for the following instruments:

Pressure Gauge:
Identification No.Y11322
Calibration Standard . Digital Pressure Gage #111, Accuracy 4/ 1

Hydraulic Torque System:
Identification No. . Y11163, Model XLT, MOD-3
Calibration Standard . Torque Cell with Indicator #22D, Accuracy-4/1

BK Clamp on Ammeter:

Identification No.	Y11275, SN-21912286, Model 350A
Calibration Standards	Fluke Calibrator, Model -5110B (Accuracy 4/1) Fluke Trans amplifier, Model 5220 Fluke, AC Calibrator, Model 5200A Fluke Power Amplifier, Model 5215A EG&G Current loop, Model-JS. 5/10/15 EG&G Current loop Model-JS 40-3 White Box Humicheck, Model-C7485RS.

TCP 2.23:

a. Paragraph 3.1.3	It shall be demonstrated on a weekly basis that the pressure relief valves jacking system opens at a pressure not to exceed 9,000 psig. Results shall be documented .
b. Paragraph 3.2.2	Nuts & bolts on the steel sets shall be tightened to a snug fit.
c. Paragraph 3.2.3	Steel set identification number, gauge number, and relief valve number (if used) on the jacking system shall be documented.
d. Paragraph 3.2.5	The jacking force on each side of the steel set shall not exceed a 5-ton differential.

QCP-008:

a. Paragraph 3.1	Bolt installation placement tolerance and jacking operation shall be inspected & documented on the steel set installation inspection form.
b. Paragraph 3.2	with reference to the steel sets - all bolt holes shall be properly installed.
c. Paragraph 3.3	Differential pressure between the two jacks shall not exceed 1900psig (5-tons).
d. Paragraph 3.4.1	Horizontal steel set spacing of 2 to 4 feet shall be within a tolerance of plus, minus 2 inches.
e. Paragraph 3.4.2	Steel set foot plates shall not be situated less than 4 inches from the front or rear edge.
f. Paragraph 3.5	A minimum of two or ten percent of the bolts in a connection shall be inspected for proper tightening.
g. Paragraph 3.6	Bolt types shall be either ASTM A325 or A490 and shall be in good condition and free from detrimental rust.
h. Paragraph 3.7	Wooden blocking left in place shall be recorded.