

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION

QUALITY ASSURANCE SURVEILLANCE REPORT

OF

REYNOLDS ELECTRICAL AND ENGINEERING COMPANY, INC.

SURVEILLANCE YMP-SR-93-045

CONDUCTED AT FIELD OPERATIONS CENTER, YUCCA MOUNTAIN SITE

SEPTEMBER 1, 1993

ACTIVITIES SURVEILLED:

ACTIVITIES RELATIVE TO THE DRILLING AND BLASTING OF THE  
STARTER TUNNEL PER THE REQUIREMENTS OF TC-581-WP-0003, REVISION 0,  
DRILLING AND BLASTING FOR UNDERGROUND CONSTRUCTION ACTIVITIES

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Approved by: *D. G. Horton* Date: *9/27/93*  
Donald G. Horton  
Director  
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## **1.0 EXECUTIVE SUMMARY**

This report of Reynolds Electrical and Engineering Company, Inc. (REECo) activities, indicates the results of a Quality Assurance Surveillance that was initiated by the Office of Civilian Radioactive Waste Management. This Surveillance was performed on September 1, 1993 at the Exploratory Studies Facility (ESF) North Portal Starter Tunnel and at the Field Operations Center (FOC) to evaluate REECo's ability to conform to the procedural requirements of TC-581-WP-0003, Revision 0, "Drilling and Blasting for Underground Construction Activities." This investigation was performed by the Yucca Mountain Quality Assurance Division (YMQAD) in accordance to the requirements of Quality Assurance Administration Procedure QAAP 18.3, Revision 3, "Surveillance Program."

This surveillance resulted in the initiation of one Corrective Action Request (CAR) relative to personnel training. However, the overall objective evidence that was examined during the course of this surveillance indicated that REECo, has the ability and is adequately conforming to procedural requirements with regard to drilling and blasting for underground construction. An information copy of this CAR is contained in Attachment 1 to this report.

## **2.0 PURPOSE AND SCOPE**

This surveillance is a follow-up to Surveillance YMP-SR-93-029 as part of the effort to evaluate the contractor's ability to adhere to procedural requirements for drilling and blasting as they pertain to the construction of the ESF North Portal Starter Tunnel.

## **3.0 SURVEILLANCE TEAM**

Fred H. Lofftus, Surveillance Team Leader, YMQAD/Quality Assurance Technical Support Services

## **4.0 PERSONNEL CONTACTED DURING THE SURVEILLANCE**

J. P. Hedlund, Senior Engineer, REECo  
J. J. Keating, Senior Engineer, REECo

## **5.0 SURVEILLANCE RESULTS**

### **TC-581-WP-0003**

- a) Paragraph 4.3.2 requires that the original records of starter tunnel activities are provided to the Construction Department Project Engineer. An Audit sample of ten Drill and Blast Logs (three pages each) were selected for this evaluation.

The records were stored in non-fire proof cabinets in the Construction Engineering Department with duplicate copies filed in the Construction Department office. No discrepancies were noted. The Surveillance sample consisted of the following Drill Blast Logs:

NP-CB/NB/SB-005	8/04/93	NP-CB/NB/SB-010	8/13/93
" -006	8/11/93	" -011	8/14/93
" -007	8/11/93	" -012	8/16/93
" -008	8/12/93	" -013	8/16/93
" -009	8/13/93	" -014	8/18/93

- b) Paragraph 4.4.2 requires that personnel working to this procedure were also trained to it. The following nine names were selected from the log sheet samples in "Item 5a" above, they are:

B. Memmott	J. Nelson
L. Atkinson	R. Schutt
R. Kehrmen	C. Ruth
R. Vigil	B. Salaiz
J. Hastings	

Training records could not be located for R. Kehrmen, J. Hastings, and R. Schutt. This condition adverse to quality was documented on CAR YM-93-092. An information copy of the CAR is contained in Attachment 1 of this report.

- c) Paragraph 4.4.3 requires that each round of shots be identified by a unique Drill and Blast Number (See Item 5a), which is also the number assigned to the Drill and Blast Log for each round of shots. This unique number was verified for each round of shots on the Drill and Blast Logs. No deficiencies were noted.
- d) Paragraphs 5.2, 5.5, and 6.2 requires that sheet two of the Drill and Blast Logs indicate the survey sketch of perimeter holes, centerline, and grade. The documented layout sketches plus signatures acknowledging the survey as a Hold Point were verified. No deficiencies were noted.
- e) Paragraph 6.5 requires that the as-built size and location of each individual drill and blast round be plotted on a full size drawings of YMP-025-1-MING-MG138 or 139. The as-built size and location of the individual drill and blast rounds were verified to have been plotted on the required drawing and that the plots were current within one day. No deficiencies were noted.

- f) Paragraph 6.8 requires that the Hold Points be indicated and signed off as acknowledgement that the blast hole pattern, size, grade, etc. were in accordance to the drawing. Hold Points were reviewed and signatures verified; no deficiencies were noted.
- g) Paragraphs 6.9 and 6.10 require that water consumption for drilling and other purposes be adequate, but controlled and accounted for during each shifts, i.e. Day, Swing, and Graveyard, and that Lithium Bromide be added to the initial water supply to act as a tracer. Verification was performed through the daily accountability records from August 10 through 27, 1993. These records indicated a rigid accountability and water control as well as the addition of Lithium Bromide. No deficiencies were noted.
- h) Paragraph 6.15 requires that Hold Points be signed off by the appropriate persons at the completion of each round of shots (see item 5a) for the Surveillance sample. Hold Points were verified to be signed off and no deficiencies were noted.
- i) Paragraph 6.32 requires that the FOC, Ranch Control, be notified of approximate blast times 24 hours and one hour before blasting, and notified when blasting is complete. Verified by an examination of the Ranch Control Log that Construction is calling in a notification of pending blasting activity and again when blasting is complete.
- j) Paragraph 6.55 requires that all changes to the blast round to be documented on sheet three of the three pages of the Drill and Blast Log. Ten Drill and Blast Logs (See Item 5a) were examined. Changes from the previous round were documented on page three of the Log. Verification complete, no deficiencies were noted.

## 6.0 RECOMMENDATION

It is recommended that the contractor consider an addition to the Drill and Blast Log indicating the exact time and date that Ranch Control is notified for the 24 hours and one hour interval before blasting time. This entry is not only a reminder, but it is also documentary evidence that the requirement of Paragraph 6.32 of the procedure was met.

## 7.0 ATTACHMENT

Attachment 1 - Information Copy of CAR YM-93-092

ATTACHMENT 1

INFORMATION COPY  
OF  
CORRECTIVE ACTION REQUEST

ATTACHMENT 1

<b>OFFICE OF CIVILIAN          RADIOACTIVE WASTE MANAGEMENT          U.S. DEPARTMENT OF ENERGY          WASHINGTON, D.C.</b>		8 CAR NO.: <u>YM-93-092</u> DATE: <u>9/7/93</u> SHEET: <u>1</u> OF <u>1</u> QA
<b>CORRECTIVE ACTION REQUEST</b>		
1 Controlling Document TC-581-WP-0003, Revision 0, CN 2		2 Related Report No. YMP-SR-93-045
3 Responsible Organization RECCo Construction	4 Discussed With J. Hedlund/W. Glasser/C. Cotten	
5 Requirement: The Drilling and Blasting for Underground Construction Activities Work Procedure; Paragraph 4.4, requires that the Construction Department Operations Superintendent ensures personnel are properly trained. Specifically, Paragraph 4.4.2 states in part: "To ensure that personnel working to this procedure are trained to this procedure...."		
6 Adverse Condition: Of the nine names selected from 10 Drill and Blast Logs, documentation as objective evidence of training could not be produced for R. Kehrman, J. Hasting, and R. Schutt being trained to TC-581-WP-0003, Revision 0, CN 2.		
9 Does a significant condition adverse to quality exist? Yes ___ No <u>X</u> If Yes, Circle One: A B C	10 Does a stop work condition exist? Yes ___ No <u>X</u> ; If Yes - Attach copy of SWO If Yes, Circle One: A B C D	11 Response Due Date: 20 Working Days from Issuance
12 Required Actions: <input checked="" type="checkbox"/> Remedial <input checked="" type="checkbox"/> Extent of Deficiency <input checked="" type="checkbox"/> Preclude Recurrence <input type="checkbox"/> Root Cause Determination		
13 Recommended Actions: a) Immediate training of the three men listed in Block 8 above. b) Impact of using untrained personnel. c) 100% review of all persons involved in underground construction for documented evidence of training and authorization to go into the Starter Tunnel.		
7 Initiator Fred E. Lofftus <i>Fred E. Lofftus</i> Date <u>9/6/93</u>	14 Issuance Approved by: QADD <i>[Signature]</i> Date <u>09-08-93</u>	
15 Response Accepted QAR _____ Date _____	16 Response Accepted QADD _____ Date _____	
17 Amended Response Accepted QAR _____ Date _____	18 Amended Response Accepted QADD _____ Date _____	
19 Corrective Actions Verified QAR _____ Date _____	20 Closure Approved by: QADD _____ Date _____	