



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

APR 13 1995

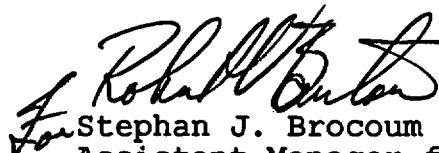
Joseph J. Holonich, Chief
High-Level Waste and Uranium
Recovery Projects Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555

**TUNNEL BORING MACHINE IMPACTS RELATED TO NEWLY ENCOUNTERED
FRACTURED ROCK ZONE (SCPB: N/A)**

In an effort to keep you informed of project activities, I am forwarding for your information an informal memorandum that describes the latest ground conditions within the Exploratory Studies Facility.

We are not invoking Yucca Mountain Site Characterization Project Administrative Procedure 30.27, "Reportable Geologic Conditions" (formerly Administrative Procedure 6.14), with this transmittal, as the fault zone through which the tunnel boring machine (TBM) is now proceeding (known as the imbricate fault zone in the Scott and Bonk mapping of 1984) was clearly anticipated. The ground conditions we are now dealing with were not unexpected from a TBM operations standpoint.

If you have any questions, please contact either Thomas W. Bjerstedt at (702) 794-7950 or Gregory N. Cook at (702) 794-7904.


For Stephan J. Brocoun
Assistant Manager for
Suitability and Licensing

AMSL:TWB-2921

Enclosure:
Memo, 4/12/95, Craun to Barnes

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cc w/encl:

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R. I. Holden, National Congress of American Indians,
Washington, DC
Elwood Lowery, Nevada Indian Environmental Coalition,
Reno, NV

cc w/o encl:

G. N. Cook, YMSCO, NV

INFORMAL MEMORANDUM

TO: Wes Barnes

FROM: Ric Craun

DATE: April 12, 1995

SUBJECT: TUNNEL BORING MACHINE (TBM) IMPACTS RELATED TO NEWLY ENCOUNTERED FRACTURED ROCK ZONE

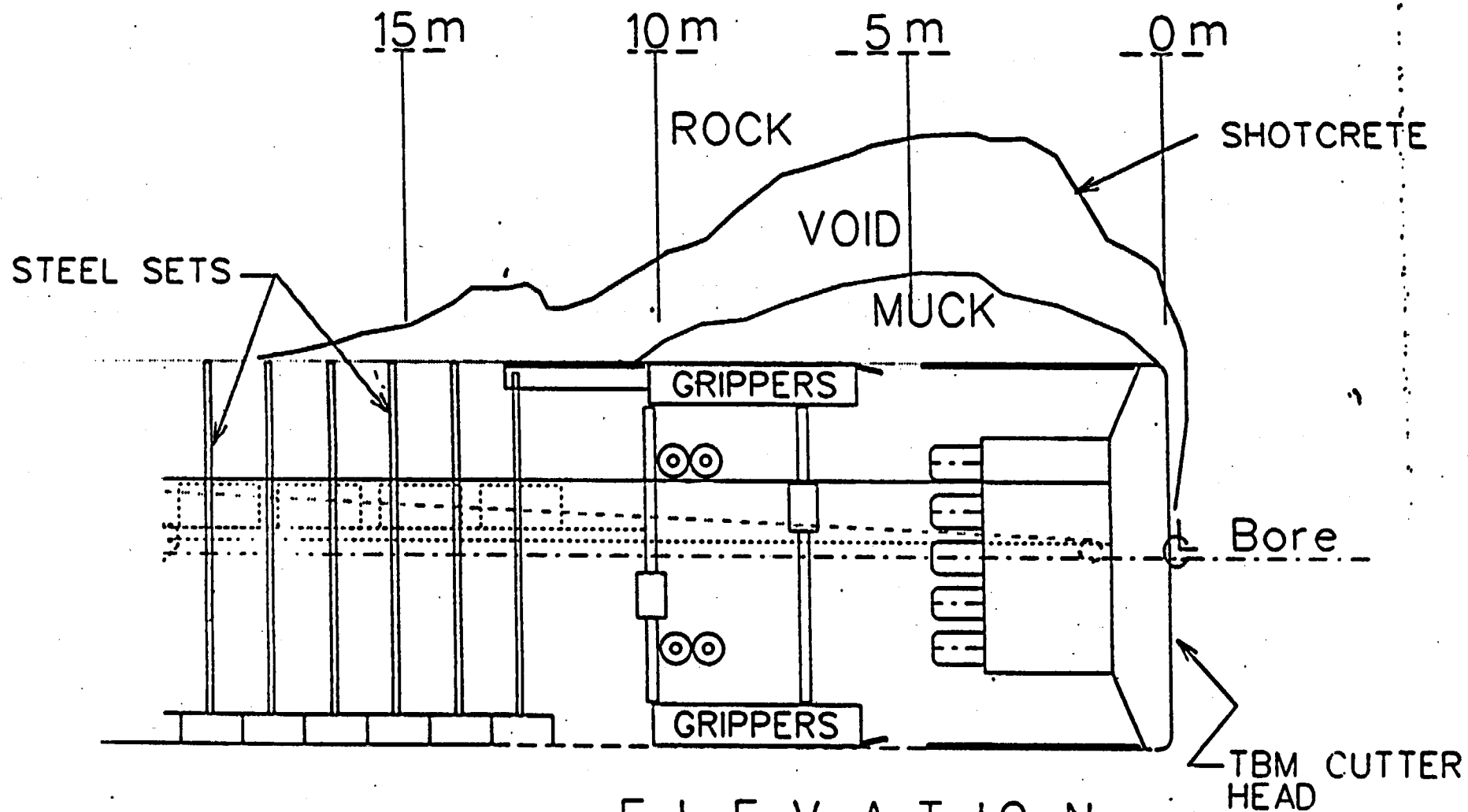
As of April 12, 1995, the TBM was at Station 5+54 (1818.2 feet) in a fault zone identified on geological maps. This fault zone strikes to the north at approximately 60 degrees to the tunnel alignment. The material in the fault is highly fractured unconsolidated breccia (broken rock) material varying from baseball to beach ball size. This program expects to encounter geological structures and ground conditions associated with fault zones.

As the TBM entered this zone, rock was displaced from the matrix by the cutterhead causing the material to fall in around the TBM. This left a void, or opening, around the TBM. The void required backfilling around the grippers of the TBM in order for the machine to advance. This was accomplished by pumping select fill (dirt) behind the grippers. The TBM was slowly advanced in this fashion until it was determined the area needed further consideration. The safety standards for both project personnel and the TBM called for this additional assessment.

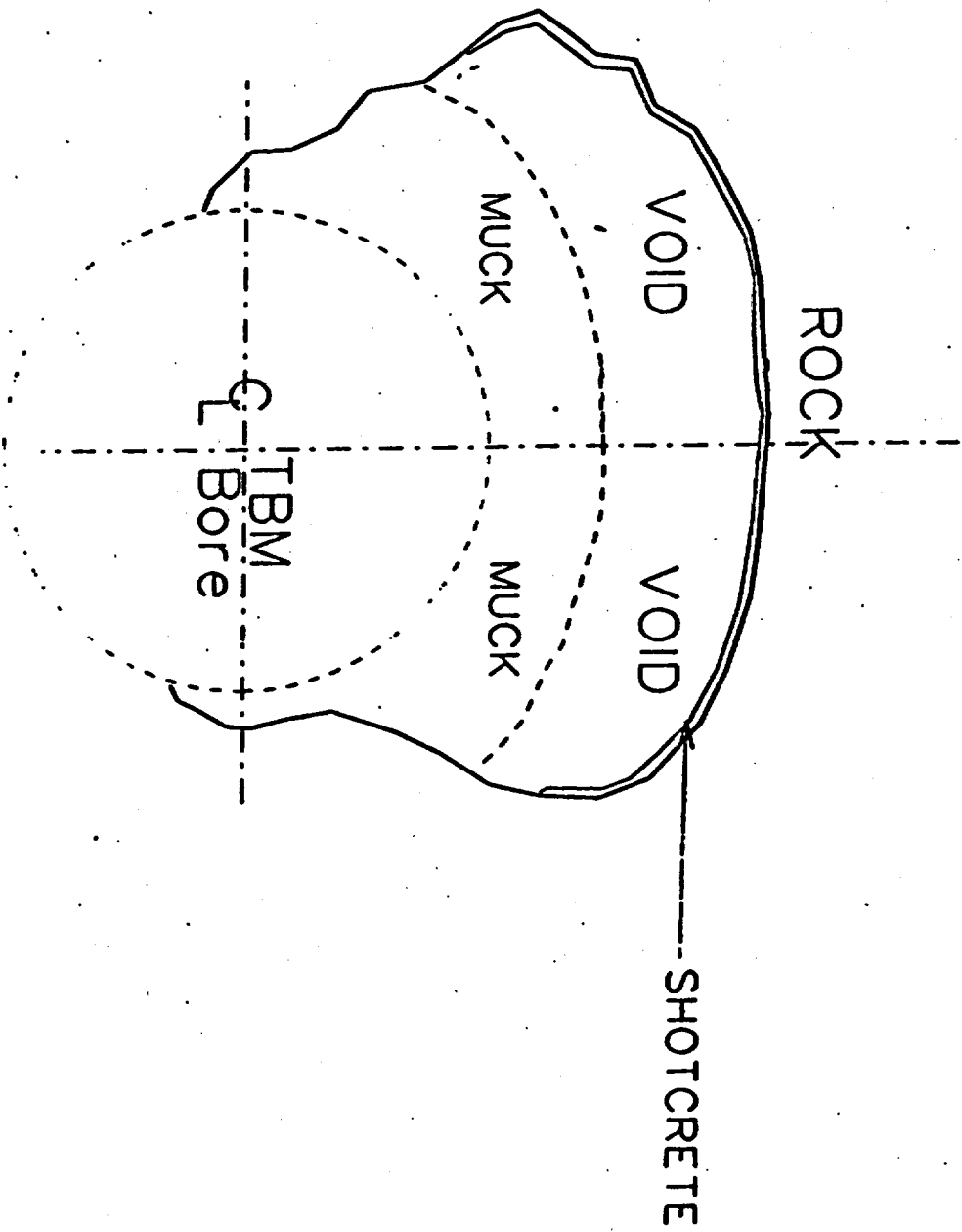
At that time, the contractor informed the Civilian Radioactive Waste Management System Management and Operating Contractor (CRWMS M&O) of the situation, and a meeting was held at the Exploratory Studies Facility which included representatives from the CRWMS M&O, U.S. Department of Energy, and the Test Coordination Office. The Nuclear Regulatory Commission on site representative was also notified of the situation. The facts were presented and a plan to proceed was formulated.

The plan includes three elements: (1) drill a probe hole to determine the width of the fault zone; (2) support the void over the TBM through additional ground support; and (3) consolidate the ground ahead of the TBM. Element number 1 is in progress as of April 11, 1995, as a drill was located and mounted behind the cutterhead to drill through a cutter saddle hole along the tunnel alignment. After the void above the TBM has been further stabilized, and after consolidation is performed, backfilling will occur. Consultations with Hayward Baker (a grouting consultant) and underground specialists will be conducted prior to backfilling. The fault area ahead of the TBM may be grouted after the methods and equipment are determined. When these elements are complete, the TBM will be able to advance.

ENCLOSURE



ELEVATION



CROSS - SECTION