



CENTER FOR NUCLEAR WASTE REGULATORY ANALYSES QUALITY ASSURANCE SURVEILLANCE REPORT

PROJECT NO.:20-5704-034

REPORT NO.:94-03

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SURVEILLANCE SCOPE: Review of Experimental Preparations for Seismic Rock Mechanics Simulated Tunnel Response Tests

REFERENCE DOCUMENTS:N/A

STARTING DATE: 5/20/94

ENDING DATE: 5/20/94

QA REPRESENTATIVE: R. D. Brient

LDK

PERSONS CONDUCTING TEST/EXAM/ACTIVITY: D. Kana, D. Massey, SwRI Division 04

SATISFACTORY FINDINGS:

1. The experimental set up consists of 2"x2" cast concrete blocks stacked to simulate fractured rock, with a circular tunnel passing through the center of the assembly. The apparatus will have vertical and horizontal loads applied via tensioned cables (in addition to vertical load weights) to approximate the in-situ loading of the rock mass. The tunnel and cables will be instrumented while the assembly is shaken (horizontal direction only) to study how a mined tunnel in fractured rock may react to seismic events.
2. Load cells (calibrated on 5/17/94 by A. Pickens of Division 04) are located on 3 of the 8 vertical and 3 of the 8 horizontal tensioning cables. For the non-instrumented cables, an accelerometer and frequency analyzer (calibration not required because absolute measurements were not made) were used to correlate the load to the natural frequency of the tensioned cables. Tension of the non-instrumented cables was adjusted so that the frequency equalled that of an instrumented cable at the proper tension.
3. Correlation between load and frequency was within about .5 Hz. for the same load, which for typical loads was approximately 2 pounds. This transfer type calibration method appeared sufficiently accurate and repeatable.
4. The activity observed was for preliminary tensioning. The cables will be adjusted again after the vertical loading weights are installed and the apparatus is moved onto the shake table. Testing is scheduled for the week of June 6.
5. Surveillance should be conducted during final preparations.

UNSATISFACTORY FINDINGS: none

NONCONFORMANCE REPORT NO.: none

ATTACHMENTS: none

RECOMMENDATIONS/ACTIONS

none

APPROVED: _____

CENTER DIRECTOR OF QUALITY ASSURANCE

DATE: _____

5/25/94

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ORIGINAL - CENTER QA DIRECTOR

ORIGINATOR

PRINCIPAL INVESTIGATOR - S. Hsiung

ELEMENT MANAGER - A. Chowdhury

A. NAIR, L. McLaughlin, R. SACA

B. Sagar