CENTER FOR NUCLEAR WASTE REGULATORY ANALYSES
QUALITY ASSURANCE
SURVEILLANCE REPORT

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PROJECT NO.: 20.5704-032	REPORT NO.: 92-13	PAGE 1 OF 1

SURVEILLANCE SCOPE:
Witness of Test 24 - Seismic Rock mechanics TASK 2 AND
Review of Scientific Notebook Entries

REFERENCE DOCUMENTS: QAP-001

STARTING DATE: 11/18/92 ENDING DATE: 11/24/92

QA REPRESENTATIVE: R.D. BRIENT

PERSONS CONDUCTING TEST / EXAM / ACTIVITY:
S. Hsiung, D. Kana (04), A. Pickens (04)

SATISFACTORY FINDINGS:

1. Throughout the SRM task 2 activities, the test methods have evolved. This test was used to review the method presently used and document it in the Scientific Notebook (Controlled # 016).
2. Calibration was verified for the Fluke Dmm model 77, S/N 51502012, cal. due 8/11/93, used for monitoring sensor output.
3. No deviations to requirements were identified.

UNSATISFACTORY FINDINGS: None

NONCONFORMANCE REPORT NO.: N/A

ATTACHMENTS: Procedure for SRM Earthquake Test

RECOMMENDATIONS / ACTIONS
None

APPROVED: [signature]
CENTER DIRECTOR OF QUALITY ASSURANCE

DATE: 11/24/92

DISTRIBUTION:
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CNWRA FORM QAP-8

11/18/92

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PROCEDURE FOR SEISMIC ROCK MECHANICS

EARTHQUAKE TEST

This procedure supplements "Pseudostatic Shear Tests For Jointed Specimens" (20-PST, dated 10/09/90, modified 10/28/91).

Normal Load Conditioning

1. Adjust four vertical displacement detectors to inital range position.

2. Turn on shear displacement actuator at null position and normal load actuators at no-load position.

3. Start digital data acquisition system set to scan sixteen channels every five seconds. Data channels listed on "Instrumentation Channel Identification For Direct Shear Test Apparatus" (dated 10/12/92 and 11/20/92)

4. Apply five sequential normal load cycles 0-~~5~~-0 ~~Mpa~~ per 20-PST Procedure. 73,600 # 11/23/92

Earthquake Shear Load Sequence

Fourteen data channels of backup analog tape recorder are identified in laboratory log. Steps 7 through 14 below are performed in sequence shown on figure of typical drive tape signal as observed on oscilloscope readout.

5. Apply normal load to test Mpa level.

6. Adjust and record horizontal shear null position: Adjust Horizontal load to null (Zero+or-400lb.) on voltmeter. Record vertical displacement detector positions from digital readout. Record horizontal shear LVDT positions from digital readout.

7. Turn on fourteen-channel analog tape recorder.

8. Trigger oscilloscope to observe drive tape signal.

9. Turn on drive tape.

10. At end of square wave, trigger digital data acquisition system set to 40 seconds duration.

11. Turn on horizontal shear actuator switch.

---------- Earthquake test run proceeds ----------

12. When digital data acquisition system sequence stops, turn off horizontal shear actuator switch.

13. Turn off fourteen-channel analog tape recorder.

14. Turn off drive tape.

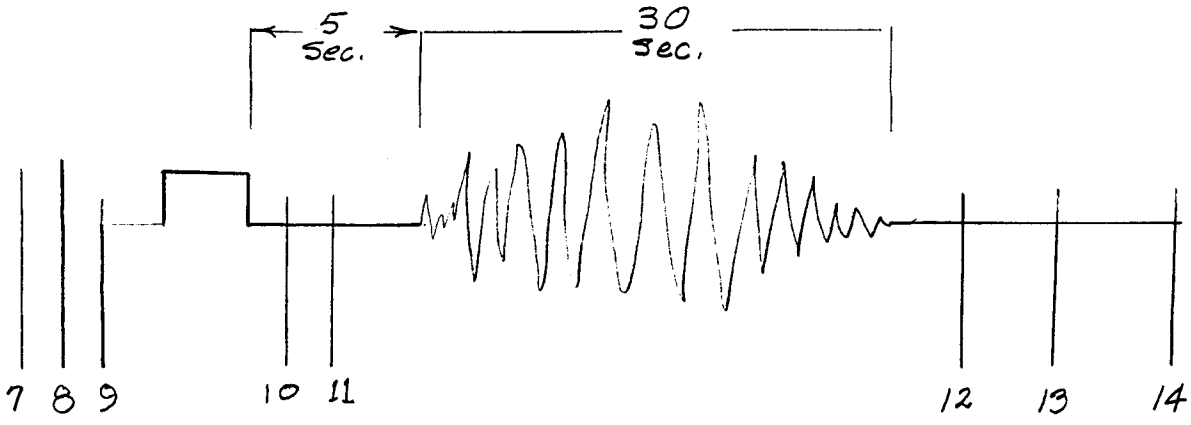
15. Perform digital data copying sequence.

16. Relieve normal load to zero.

17. Rewind drive tape (only if necessary for next run level).

18. Return to Step 5 to initiate next run.

19. Typical earthquake test sequence includes:
    Run 1 - normal load at 1-Mpa, shear disp. 1-in. peak
    Run 2 - normal load at 1-Mpa, shear disp. 2-in. peak
    Run 3 - normal load at 3-Mpa, shear disp. 1-in. peak
    Run 4 - normal load at 3-Mpa, shear disp. 2-in. peak
    Run 5 - normal load at 5-Mpa, shear disp. 1-in. peak
    Run 6 - normal load at 5-Mpa, shear disp. 2-in. peak



Typical Drive Tape Signal Sequence

INSTRUMENTATION CHANNEL IDENTIFICATION FOR DIRECT SHEAR TEST APPARATUS

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500 Hz LP* FILTER	CHANNEL NO.	DESCRIPTION	POLARITY POSITIVE
-	1	Vertical Load Cell No. 1	Compression
-	2	Vertical Load Cell No. 2	Compression
-	3	Vertical Load Cell No. 3	Compression
x	4	Analog Summation of Total Vertical Normal Load	Compression
x	5	Horizontal Load Cell**	Compression
x	6	Horizontal Displacement of Top Block Relative to Bottom Block Near Actuator - LVDT1	Toward Actuator
x	7	Horizontal Displacement of Top Block Relative to Bottom Block Opposite Actuator - LVDT 2	Away From Actuator
-	8	Horizontal Displacement of Top Block Relative to Horizontal Load Cell - LVDT3	Toward Actuator
-	9	Specimen Vertical Relative Displacement Proximeter No. 4	Dilation
x	10	Specimen Vertical Relative Displacement Proximeter No. 5	Dilation
x	11	Specimen Vertical Relative Displacement Proximeter No. 6	Dilation
x	12	Specimen Vertical Relative Displacement Proximeter No. 7	Dilation
x	13	Horizontal Acceleration at Near Right of Lower Specimen Block	Away From Actuator
x	14	Horizontal Acceleration at Near Right of Upper Specimen Block	Away From Actuator
-	15	Horizontal Acceleration at Near Right of Upper Box	Away From Actuator
x	16	Horizontal Displacement of Actuator Piston	Extension

Digitized at 800 samples/sec.

* After 11/02/92
** After 10/21/92