

Geotechnical Environmental and Water Resources Fingineering



Transfer of Fugro RCTS Report for Natural Soils Transmittal Letter No. 3

July 10, 2008 Project 07223

Mr. Frank X. Bellini Field Project Manager AREVA NP, INC. Solomon Pond Park 400 Donald Lynch Boulevard Marlborough, MA 01752

Dear Mr. Bellini:

Re: Transmittal No. 3 – Resonant Column Cyclic Torsional Shear Tests (RCTS) Report for Natural Soils Nine Mile Point Site Characterization Oswego, New York

The purpose of this letter is to document GEI Consultants, Inc.'s transmittal (via hardcopy and your ftp site) of the Fugro RCTS Test Report for Natural Soils dated July 9, 2008. This document has been reviewed and revised under the guidance of Larry Peterson for AREVA and Herb Scribner for GEI. This Transmittal is being prepared according to the AREVA NP, INC. Purchase Order and Scope of Work provided in our proposal dated July 6, 2007, which is the basis of our current contract with AREVA.

Documents

This Letter of Transmittal No. 3 transfers Fugro RCTS Tests Report for Natural Soils dated July 9, 2008 for the Nine Mile Point Site Characterization Project; it includes one RCTS test and report.

1. Resonant Column Cyclic Torsional Shear Tests (RCTS) Report for Natural Soils.

All test samples were managed and tested in accordance with the following AREVA-approved procedures:

- 38-9058206-004: GEI Procedure 124 R4 Transportation and Tracking of Soil and Rock Samples.
- 38-9080235-000: GEI Procedure 109 Resonant Column Cyclic Torsional Shear CCyTS).
- 38-9065537-001: GEI Procedure 101 R1- Water Content Measurement.

Prior to testing, all Fugro personnel involved in the work were trained to the procedures.

Please call me, Tom Kahl or Robert Lambe if you have questions regarding this Transmittal Letter.

Sincerely,/ GEI CÓNSULTANTS, INC.

Herbert C. Scribner QA Manager

HCS/bdp

www.geiconsultants.com



6100 Hillcroft (77081) P.O. Box 740010 Houston, Texas 77274 Tel: 713-369-5400 Fax: 713-369-5518

July 8, 2008

Mr. Thomas W. Kahl Senior Vice President GEI Consultants, Inc. 400 Unicorn Park Drive Woburn, MA 01801

Dear Mr. Kahl:

RE: Letter of Transmittal Resonant Column Cyclic Torsional Shear Tests Natural Samples Nine Mile Point Unit 3 Oswego, New York

Test Results Summary

Fugro performed two RCTS tests on remolded specimens of natural samples provided by GEI Consultants, Inc. The <u>final</u> reports of the tests along with Dr. Kenneth Stokoe's approval sheet are presented in Attachment A.

Test Procedures

All test samples were managed and tested in accordance with the following AREVAapproved procedures:

- 38-9058206-004: GEI Procedure 124 R4- Transportation and Tracking of Soil and Rock Samples
- 38-9080235-000: GEI Procedure 109- Resonant Column Cyclic Torsional Shear (RCCyTS)
- 38-9065537-001: GEI Procedure 101 R1- Water Content Measurement

Prior to testing, all Fugro personnel involved in the work were trained to the procedures.

A member of the Fugro group of companies with offices throughout the world.

Test Documents

Copies of completed test forms related to the testing required by the above-referenced procedures are contained in Attachment B.

Please call me at if you have any questions.

Sincerely,

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Jiewu Meng, PhD, P.E. Project Engineer

Enclosure(s)

Bill De Sroff

Bill DeGroff, P.E. Laboratory Department Manager



ATTACHMENT A

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FUGRO #0411-08-1696

RCTS TEST APROVAL

PROJECT SITE/NAME | Nine-Mile Point

| Test ID | Sample ID | Depth B.S. (Ft) | Approved By (Initials) | Date |
|---------|-----------|--------------------|---------------------------|------------|
| RCTS#C | Natural-1 | | KABR | 4 July 08 |
| RCTS#D | Natural-2 | | KIAGA | 4. Tuh '08 |
| | | I., | | 121019 00 |

Two RCTS tests for the site referenced above were tested, and two reports were prepared, by Fugro Consultants, Inc.

I have reviewed the data and associated results listed above and found them to be reasonable.

Approved By:

H. Stolered

Dr. Kenneth Stokoe

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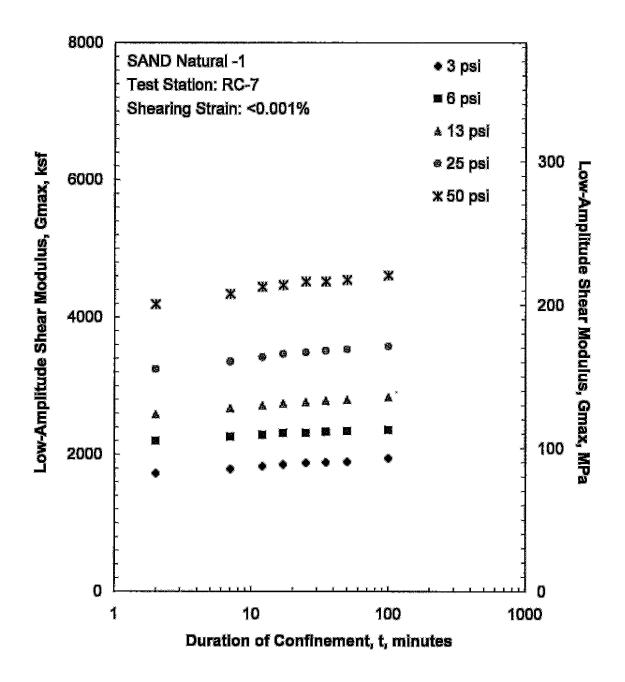


APPENDIX C

Specimen NATURAL

Borehole ---NA Sample ----1 Depth = --- ft (--- m) Total Unit Weight = 124.3 lb/ft³ Water Content = 7.5 % Estimated In-Situ Mean Effective Stress = 13 psi

> FUGRO JOB #: 0411-08-1696 Testing Station: RC7





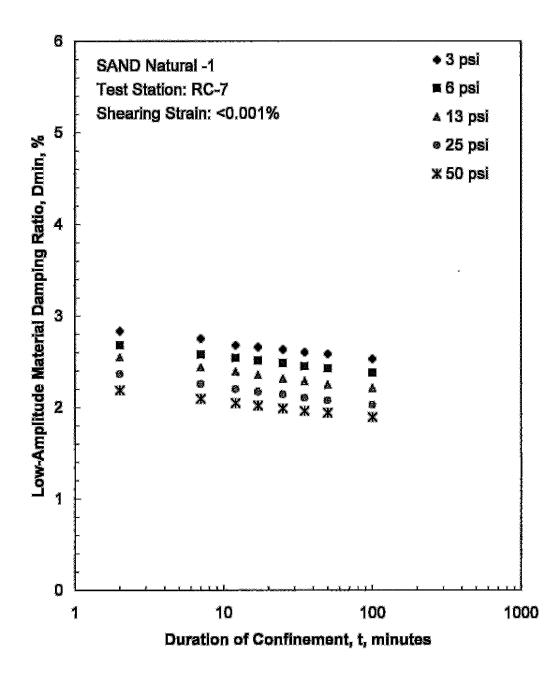


Figure C.2 Variation in Low-Amplitude Material Damping Ratio with Magnitude and Duration of Isotropic Confining Pressure from Resonant Column Tests

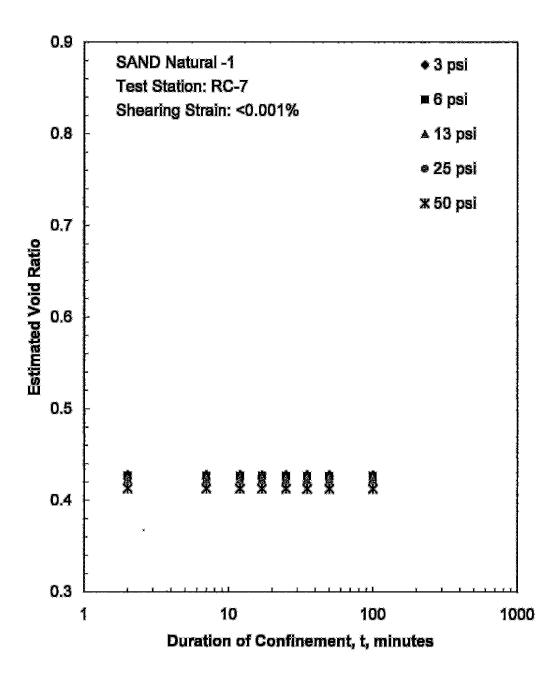


Figure C.3 Variation in Estimated Void Ratio with Magnitude and Duration of Isotropic Confining Pressure from Resonant Column Tests

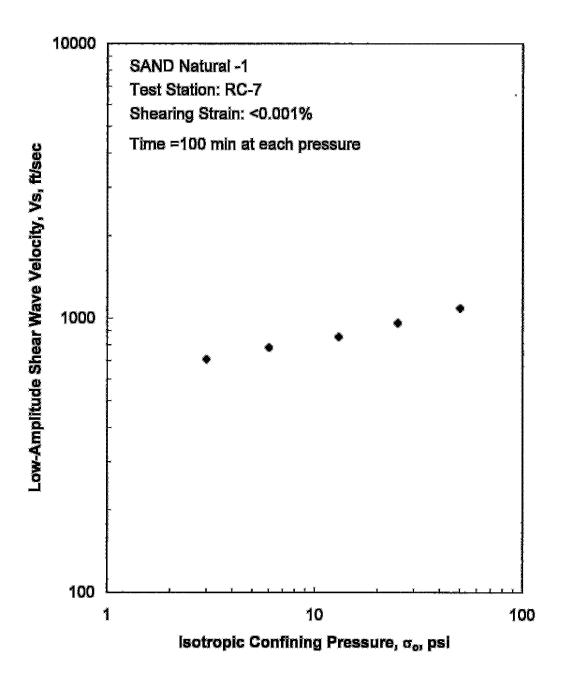


Figure C.4 Variation in Low-Amplitude Shear Wave Velocity with Isotropic Confining Pressure from Resonant Column Tests

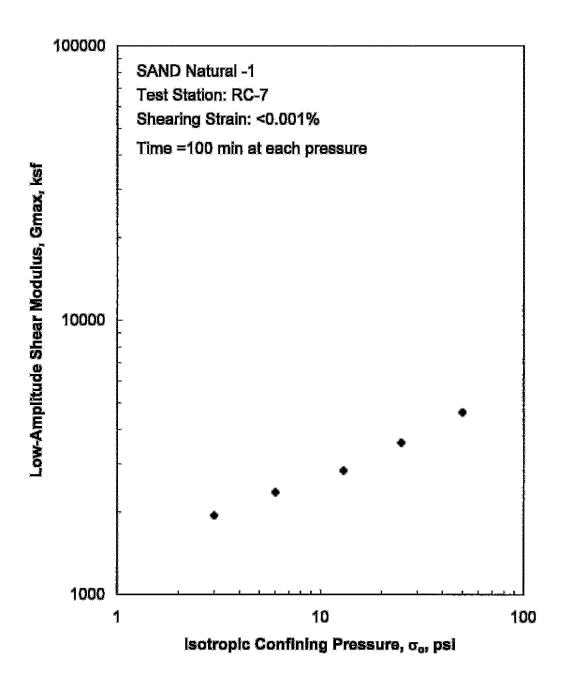


Figure C.5 Variation in Low-Amplitude Shear Modulus with Isotropic Confining Pressure from Resonant Column Tests

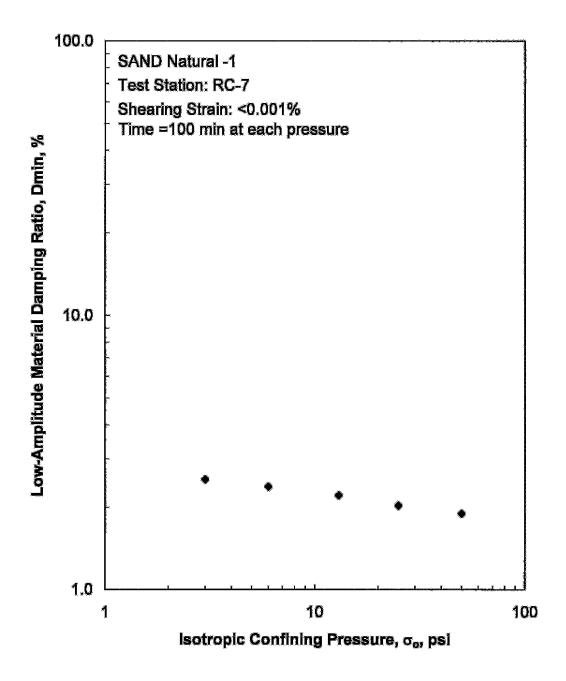


Figure C.6 Variation in Low-Amplitude Material Damping Ratio with Isotropic Confining Pressure from Resonant Column Tests

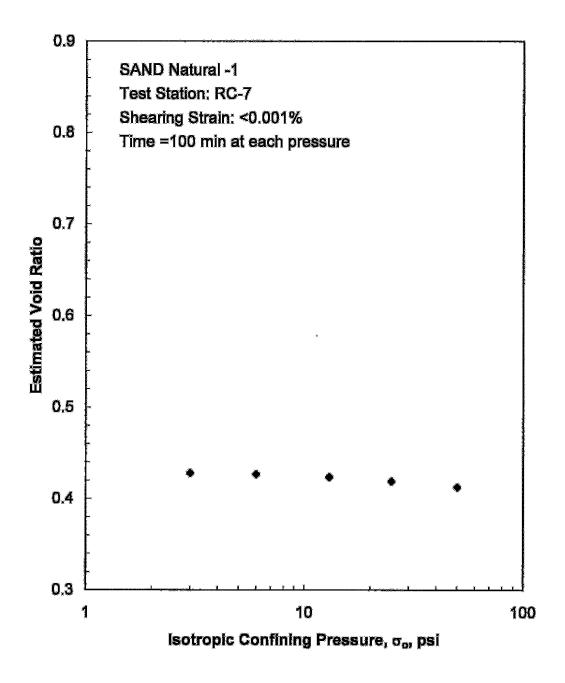


Figure C.7 Variation in Estimated Void Ratio with Isotropic Confining Pressure from Resonant Column Tests

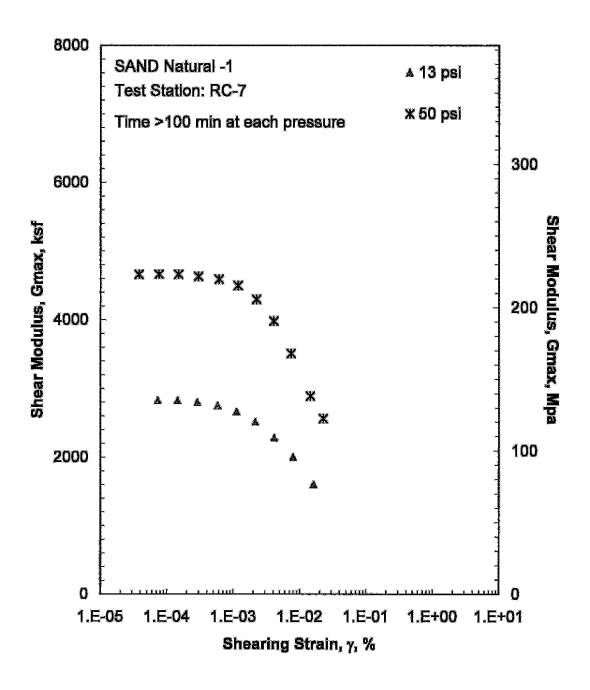


Figure C.8 Comparison of the Variation in Shear Modulus with Shearing Strain and Isotropic Confining Pressure from the Resonant Column Tests

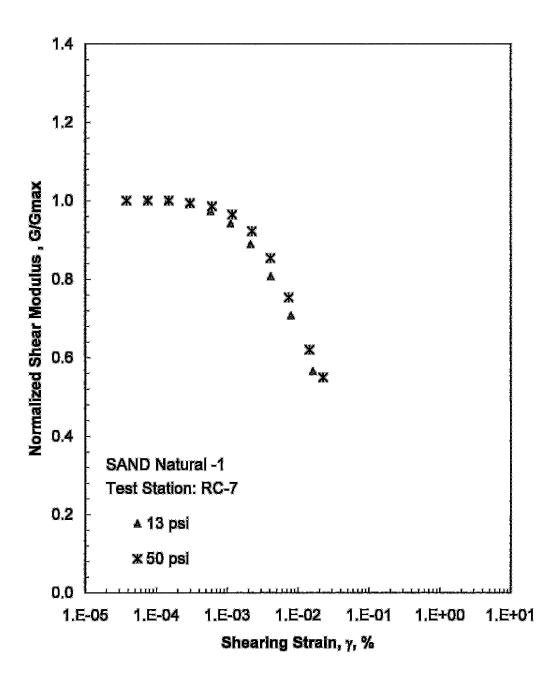
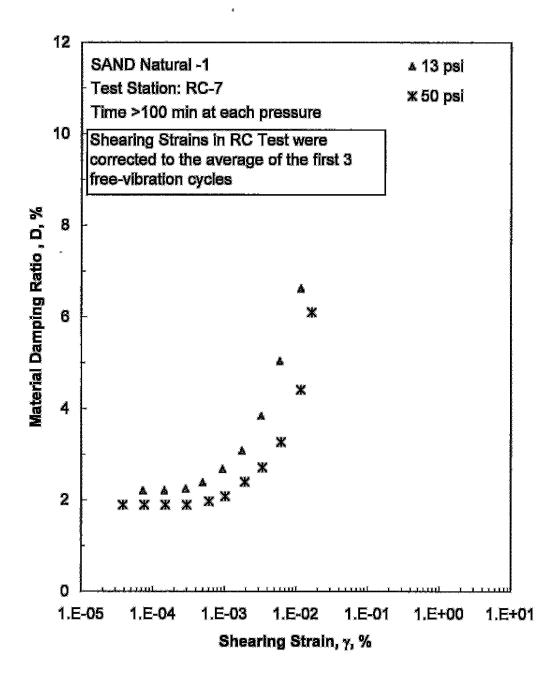


Figure C.9 Comparison of the Variation in Normalized Shear Modulus with Shearing Strain and Isotropic Confining Pressure from the Resonant Column Tests





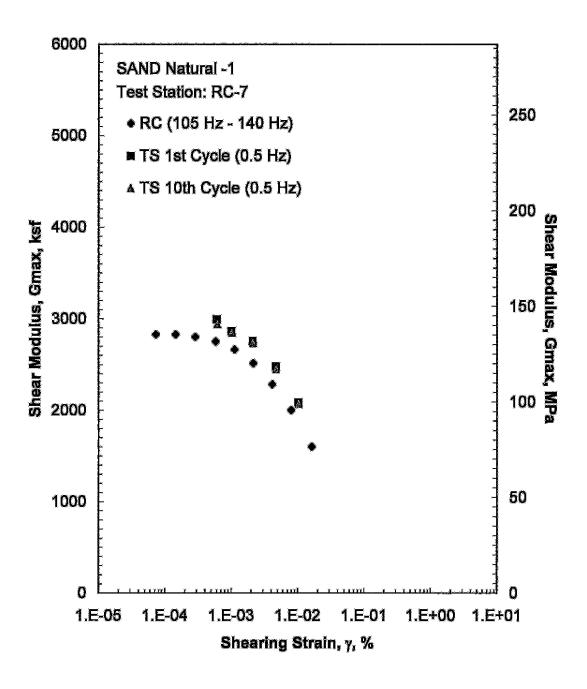
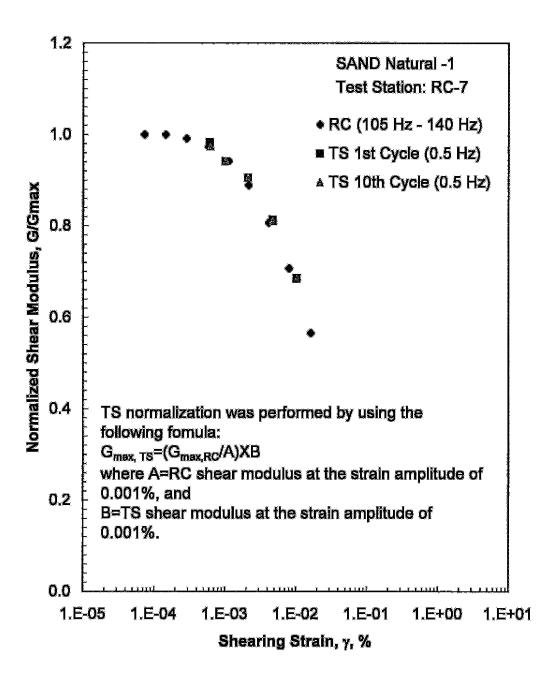
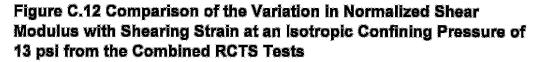
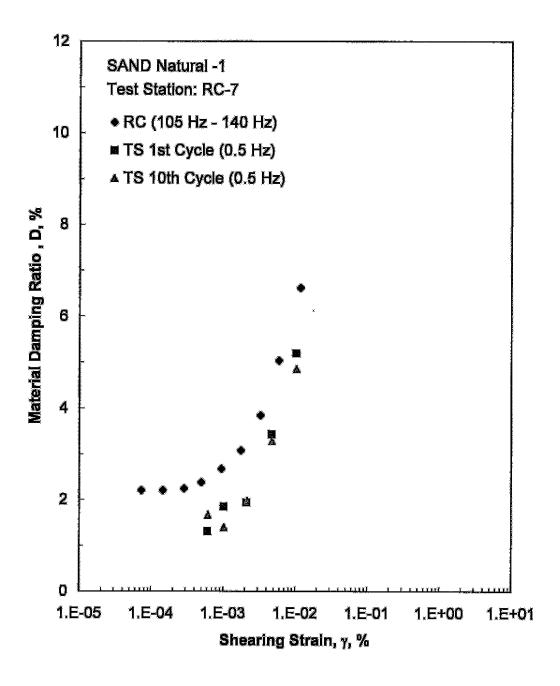


Figure C.11 Comparison of the Variation in Shear Modulus with Shearing Strain at an Isotropic Confining Pressure of 13 psi from the Combined RCTS Tests









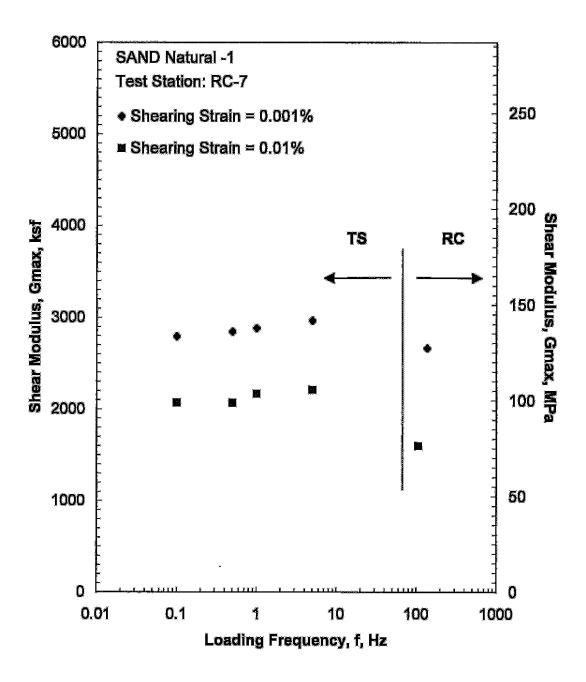


Figure C.14 Comparison of the Variation in Shear Modulus with Loading Frequency at an Isotropic Confining Pressure of 13 psi from the Combined RCTS Tests

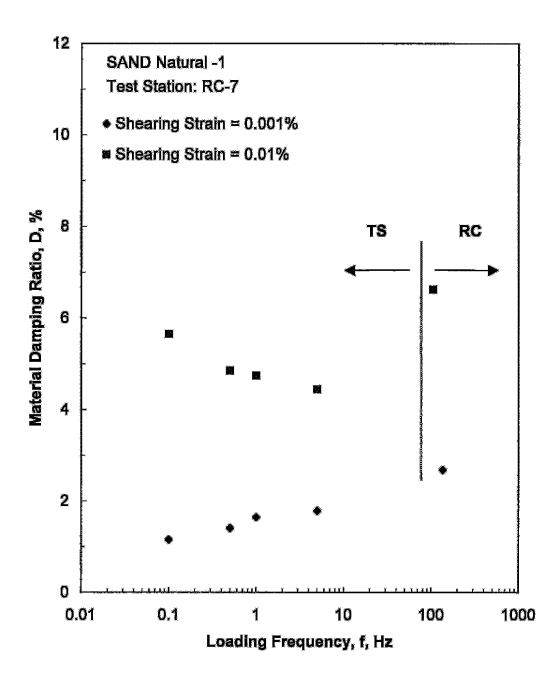


Figure C.15 Comparison of the Variation in Material Damping Ratio with Loading Frequency at an Isotropic Confining Pressure of 13 psi from the Combined RCTS Tests

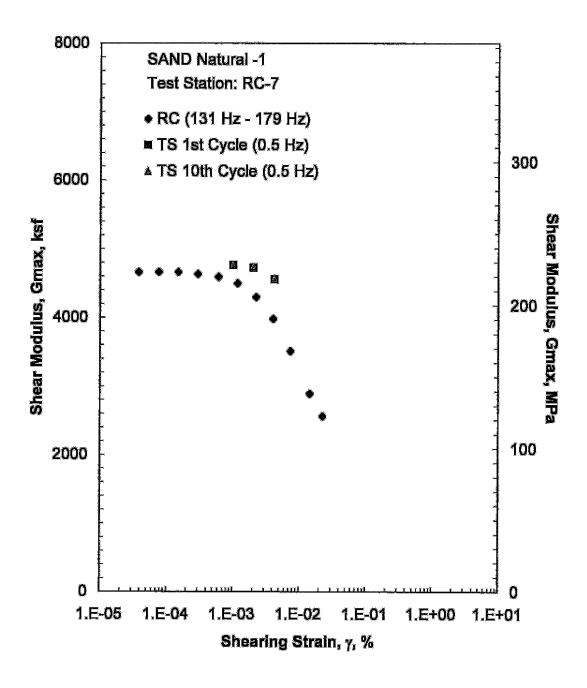
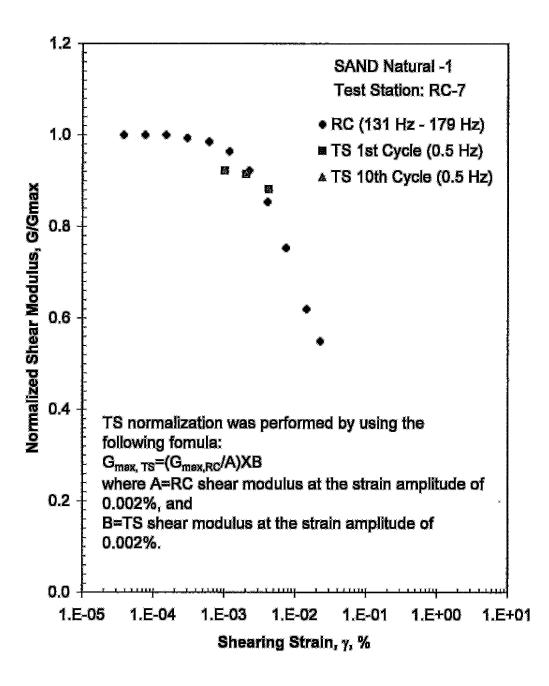
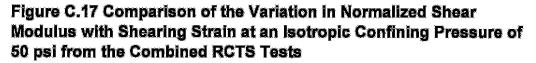


Figure C.16 Comparison of the Variation in Shear Modulus with Shearing Strain at an Isotropic Confining Pressure of 50 psi from the Combined RCTS Tests





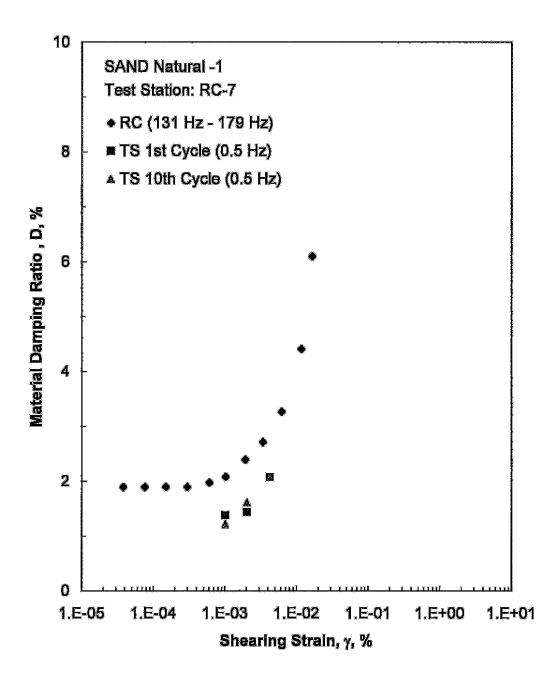


Figure C.18 Comparison of the Variation in Material Damping Ratio with Shearing Strain at an Isotropic Confining Pressure of 50 psi from the Combined RCTS Tests

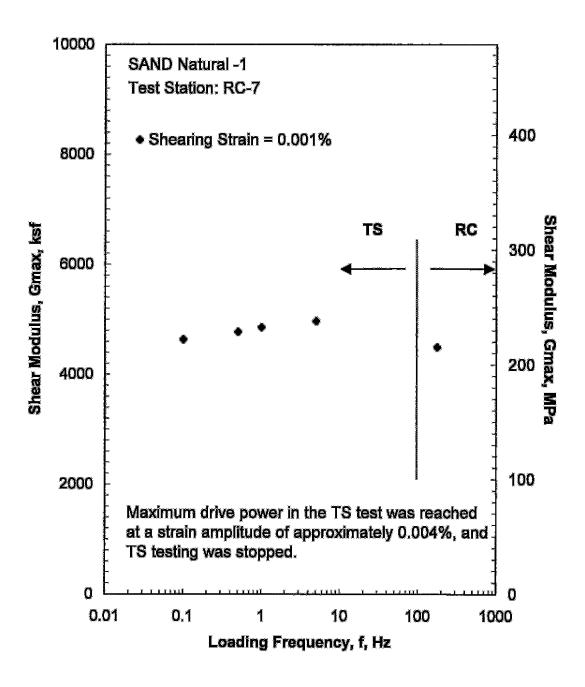


Figure C.19 Comparison of the Variation in Shear Modulus with Loading Frequency at an Isotropic Confining Pressure of 50 psi from the Combined RCTS Tests

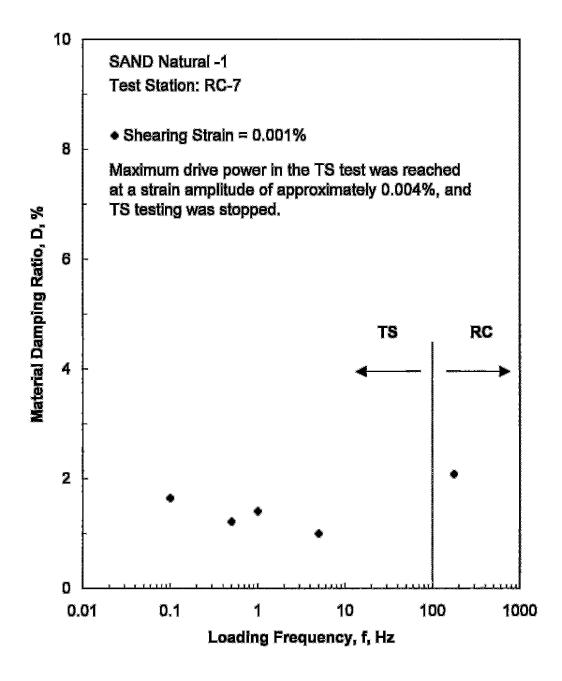


Figure C.20 Comparison of the Variation in Material Damping Ratio with Loading Frequency at an Isotropic Confining Pressure of 50 psi from the Combined RCTS Tests

 Table C.1
 Variation in Low-Amplitude Shear Wave Velocity, Low-Amplitude Shear Modulus, Low-Amplitude

 Material Damping Ratio and Estimated Void Ratio with Isotropic Confining Pressure from RC Tests

 of Specimen NATURAL

| Isotropic Confining Pressure, σ_{a} | | Low-Amplitude Shear Modulus, G _{mex} | | Low-Amplitude Shear Wave Velocity, Vs | Low-Amplitude Material Damping Ratio, Dmin | Estimated Vold Ratio, e | |
|--|-------|--|-------|---|--|-------------------------------|------|
| (psi) | (psf) | (kPa) | (ksf) | (MPa) | (fps) | (%) | |
| 3 | 432 | 21 | 1942 | 93 | 708 | 2.53 | 0,43 |
| 6 | 864 | 41 | 2359 | 113 | 780 | 2.38 | 0.43 |
| 13 | 1872 | 90 | 2831 | 136 | 854 | 2.21 | 0.42 |
| 25 | 3600 | 172 | 3577 | 172 | 958 | 2.03 | 0.42 |
| 50 | 7200 | 345 | 4610 | 221 | 1085 | 1.89 | 0.41 |

Table C.2Variation in Shear Modulus and Material Damping Ratio with Shearing Strain from RC Tests of
Specimen NATURAL; Isoptropic Confining Pressure, $\sigma_o = 13$ psi (1.9 ksf = 90 kPa)

| Peak Shearing Strain, % | Shear Modulus, G, ksf | Normalized Shear Modulus, G/G _{max} | Average ⁺ Shearing Strain, % | Material Damping Ratio ^x , D, % |
|-------------------------------|-----------------------------|---|---|--|
| 7.30E-05 | 2827 | 1.00 | 7.30E-05 | 2.21 |
| 1.45E-04 | 2827 | 1.00 | 1.45E-04 | 2.21 |
| 2.87E-04 | 2802 | 0.99 | 2.87E-04 | 2,25 |
| 5.82E-04 | 2751 | 0.97 | 4.95E-04 | 2.38 |
| 1.12E-03 | 2662 | 0.94 | 9,41E-04 | 2.68 |
| 2.14E-03 | 2513 | 0.89 | 1.75E-03 | 3.08 |
| 4.14E-03 | 2282 | 0.81 | 3.27E-03 | 3.84 |
| 7.96E-03 | 1999 | 0.71 | 5.89E-03 | 5.04 |
| 1.62E-02 | 1599 | 0.57 | 1.17E-02 | 6.62 |

* Average Shearing Strain from the First Three Cycles of the Free Vibration Decay Curve * Average Damping Ratio from the First Three Cycles of the Free Vibration Decay Curve Table C.3Variation in Shear Modulus, Normalized Shear Modulus and Material Damping Ratio with Shearing
Strain from TS Tests of Specimen NATURAL; Isotropic Confining Pressure, σ_o= 13 psi (1.9 ksf
=90 kPa)

| First Cycle | | | | Tenth Cycle | | | | |
|-------------|----------|--------------------|-------------|-------------|----------|--------------------|-------------|--|
| Peak | Shear | Normalized | Material | Peak | Shear | Normalized | Material | |
| Shearing | Modulus, | Shear Modulus, | Damping | Shearing | Modulus, | Shear Modulus, | Damping | |
| Strain, % | G, ksf | G/G _{max} | Ratio, D, % | Strain, % | G, ksf | G/G _{max} | Ratio, D, % | |
| 6.07E-04 | 2992 | 0.98 | 1.31 | 6.18E-04 | 2939 | 0.97 | 1.67 | |
| 1.01E-03 | 2867 | 0.94 | 1.85 | 1.02E-03 | 2843 | 0.94 | 1.40 | |
| 2.11E-03 | 2756 | 0.91 | 1.94 | 2.13E-03 | 2734 | 0.91 | 1.98 | |
| 4.69E-03 | 2478 | 0.81 | 3.43 | 4.75E-03 | 2447 | 0.81 | 3,28 | |
| 1.02E-02 | 2087 | 0.69 | 5.19 | 1.03E-02 | 2068 | 0.68 | 4.85 | |

 Table C.4
 Variation in Shear Modulus and Material Damping Ratio with Shearing Strain from RC Tests

 of Specimen NATURAL; Isoptropic Confining Pressure, σ₀= 50 psi (7.2 ksf = 345 kPa)

| Peak Shearing Strain, % | Shear Modulus, G, ksf | Normalized Shear Modulus, G/G _{max} | Average* Shearing Strain, % | Material Damping Ratio [*] , D, % |
|-------------------------------|-----------------------------|---|-----------------------------------|---|
| 3,80E-05 | 4661 | 1.00 | 3.80E-05 | 1.89 |
| 7.60E-05 | 4661 | 1.00 | 7.60E-05 | 1.89 |
| 1.50E-04 | 4661 | 1.00 | 1.50E-04 | 1.89 |
| 2,97E-04 | 4631 | 0.99 | 2.97E-04 | 1.89 |
| 6.06E-04 | 4591 | 0.99 | 6.06E-04 | 1.97 |
| 1.17E-03 | 4494 | 0.96 | 1.02E-03 | 2.08 |
| 2.23E-03 | 4298 | 0.92 | 1.92E-03 | 2,39 |
| 4.08E-03 | 3980 | 0.85 | 3.38E-03 | 2.71 |
| 7.43E-03 | 3510 | 0.75 | 6.17E-03 | 3.26 |
| 1.45E-02 | 2889 | 0.62 | 1.16E-02 | 4.41 |
| 2.26E-02 | 2561 | 0.55 | 1.65E-02 | 6.10 |

* Average Shearing Strain from the First Three Cycles of the Free Vibration Decay Curve * Average Damping Ratio from the First Three Cycles of the Free Vibration Decay Curve

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Table C.5 Variation in Shear Modulus, Normalized Shear Modulus and Material Damping Ratio with Shearing Strain from TS Tests of Specimen NATURAL; Isotropic Confining Pressure, σ_o= 50 psi (7.2 ksf = 345 kPa)

| First Cycle | | | | Tenth Cycle | | | | |
|-------------------------------|-----------------------------|---|---------------------------------------|-------------------------------|-----------------------------|---|------------------------------------|--|
| Peak Shearing Strain, % | Shear Modulus, G, ksf | Normalized Shear Modulus, G/G _{mex} | Material Damping Ratio, D, % | Peak Shearing Strain, % | Shear Modulus, G, ksf | Normalized Shear Modulus, G/G _{max} | Material Damping Ratio, D, % | |
| 1.01E-03 | 4764 | 0.92 | 1.38 | 1.01E-03 | 4773 | 0.92 | 1.21 | |
| 2.03E-03 | 4726 | 0.91 | 1.44 | 2.03E-03 | 4735 | 0.91 | 1.61 | |
| 4.22E-03 | 4555 | 0.88 | 2.07 | 4.21E-03 | 4567 | 0.88 | 2.07 | |



APPENDIX D

Specimen NATURAL

Borehole ---NA Sample ---2 Depth = --- ft (--- m) Total Unit Weight = 124.3 lb/ft³ Water Content = 7.4 % Estimated In-Situ Mean Effective Stress = 13 psi

> FUGRO JOB #: 0411-08-1696 Testing Station: RC7

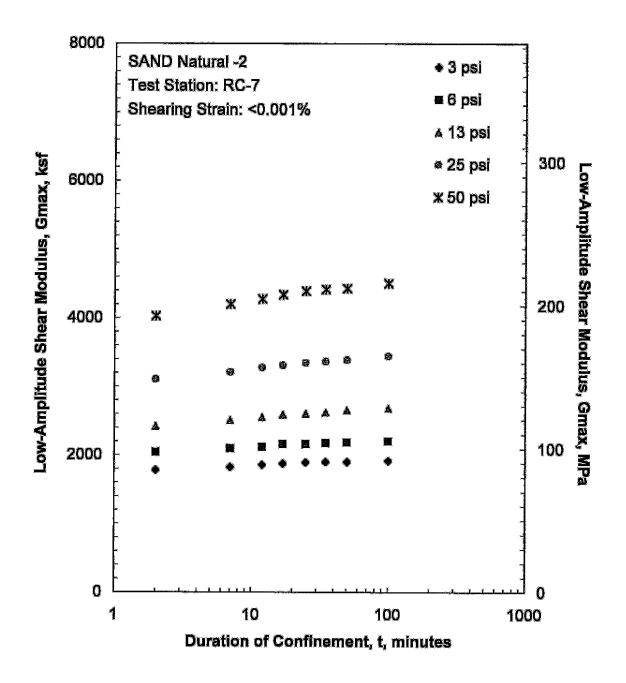
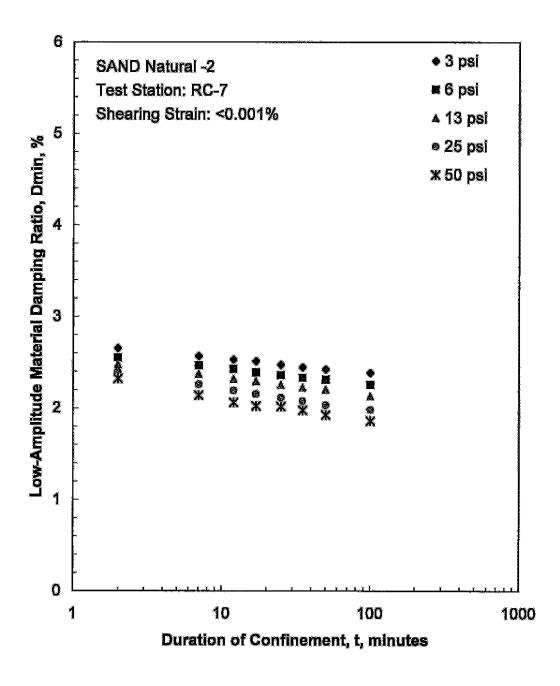


Figure D.1 Variation in Low-Amplitude Shear Modulus with Magnitude and Duration of Isotropic Confining Pressure from Resonant Column Tests





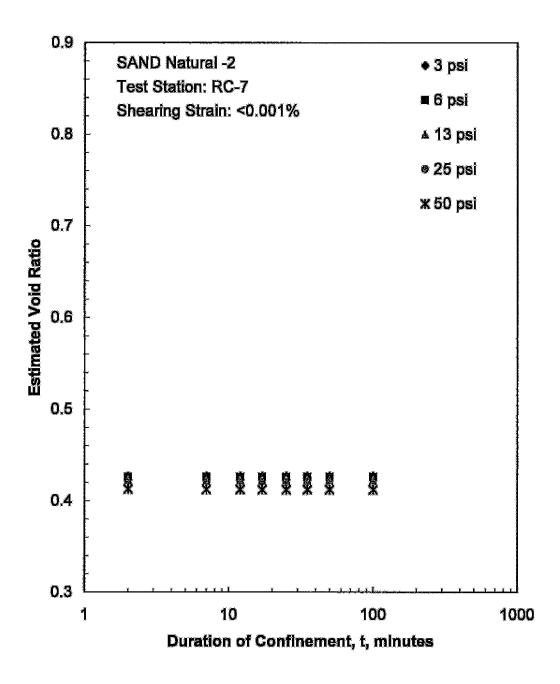


Figure D.3 Variation in Estimated Void Ratio with Magnitude and Duration of Isotropic Confining Pressure from Resonant Column Tests

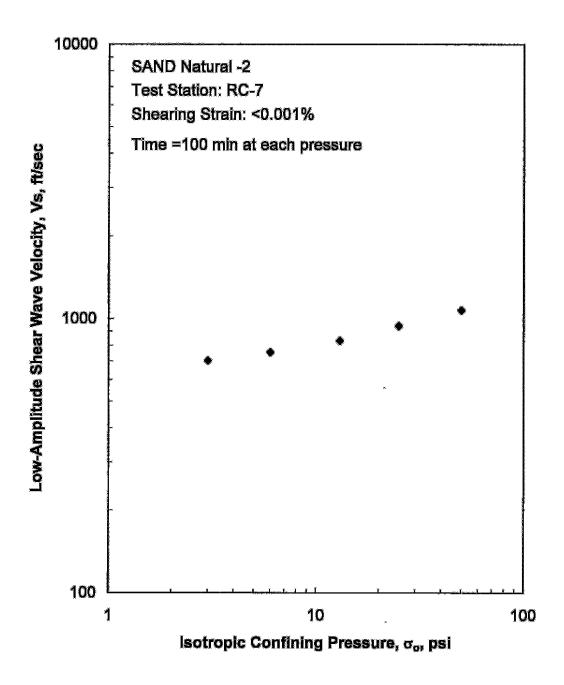


Figure D.4 Variation in Low-Amplitude Shear Wave Velocity with Isotropic Confining Pressure from Resonant Column Tests

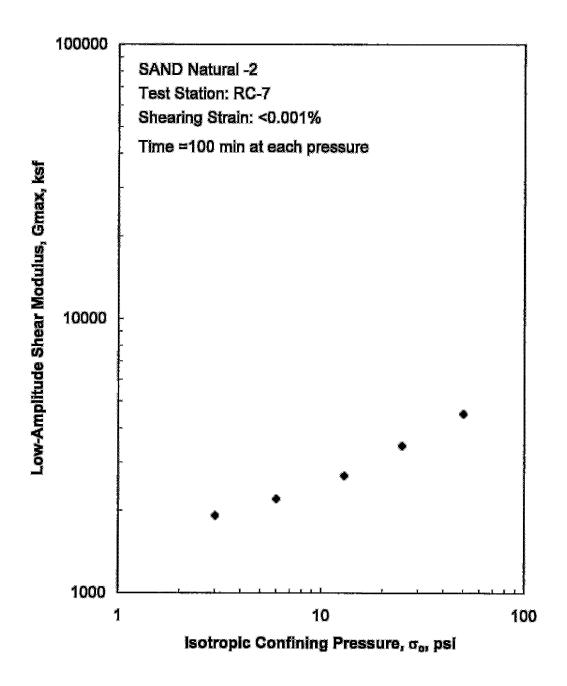


Figure D.5 Variation in Low-Amplitude Shear Modulus with Isotropic Confining Pressure from Resonant Column Tests

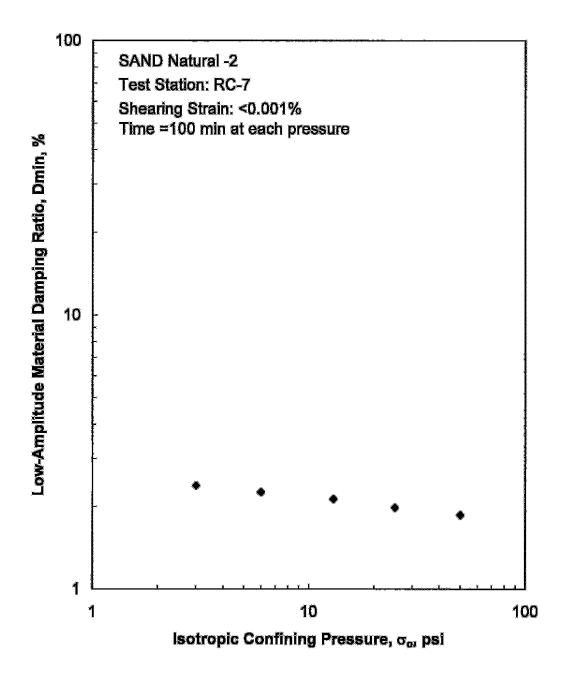


Figure D.6 Variation in Low-Amplitude Material Damping Ratio with Isotropic Confining Pressure from Resonant Column Tests

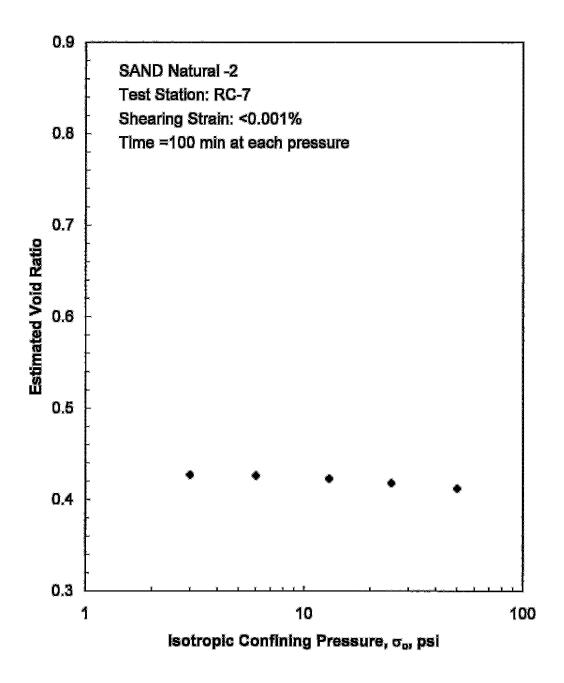


Figure D.7 Variation in Estimated Void Ratio with Isotropic Confining Pressure from Resonant Column Tests

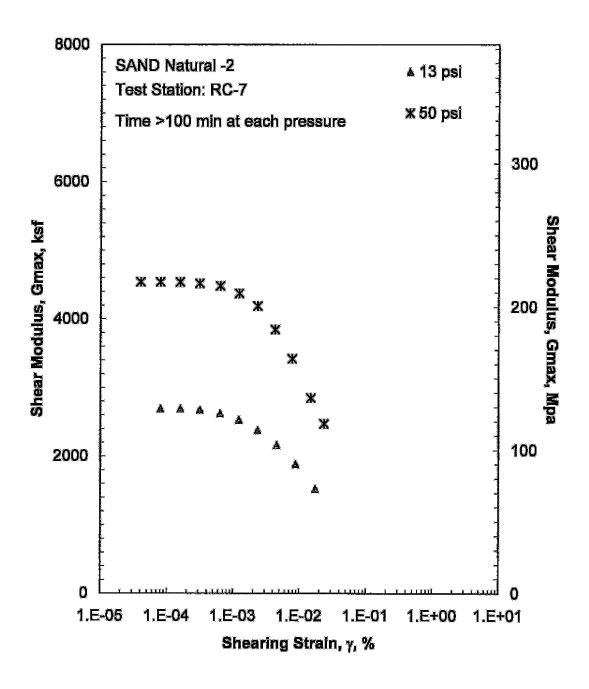
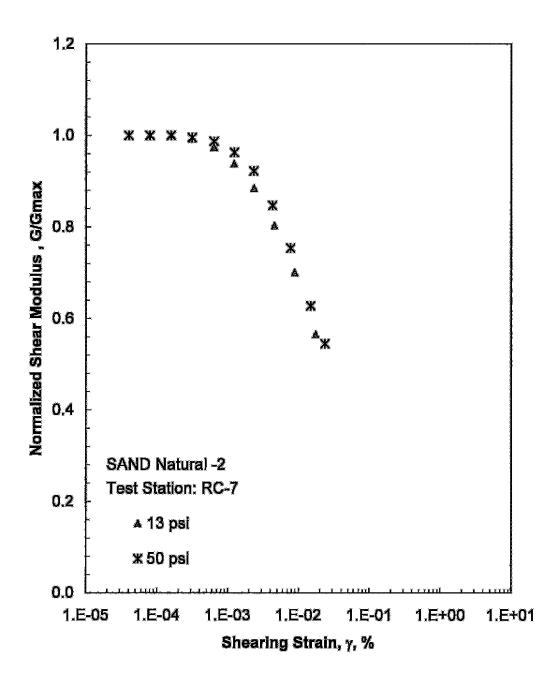
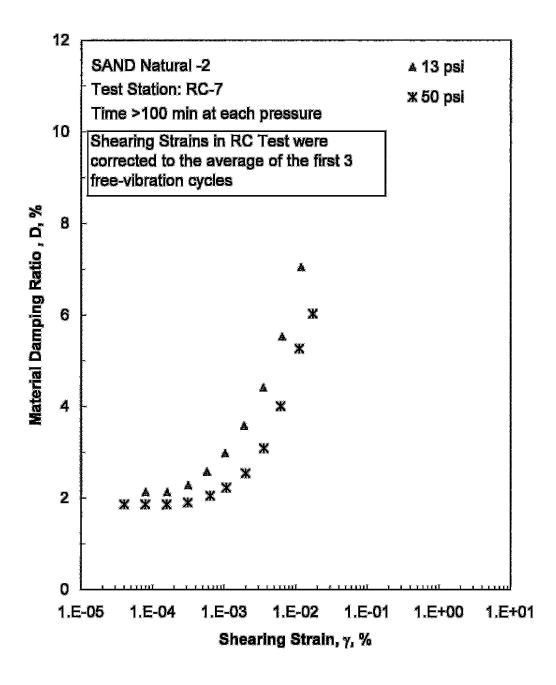
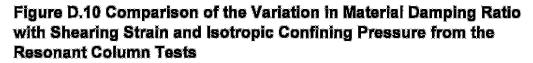


Figure D.8 Comparison of the Variation in Shear Modulus with Shearing Strain and Isotropic Confining Pressure from the Resonant Column Tests









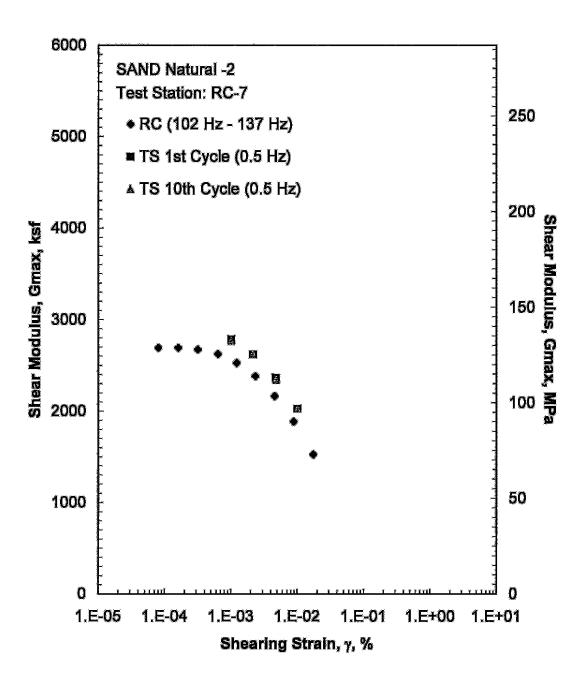
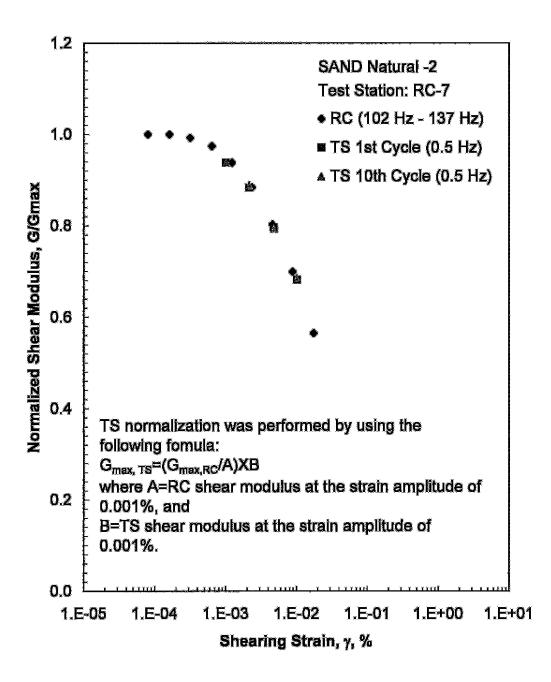
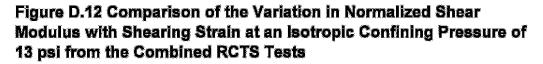
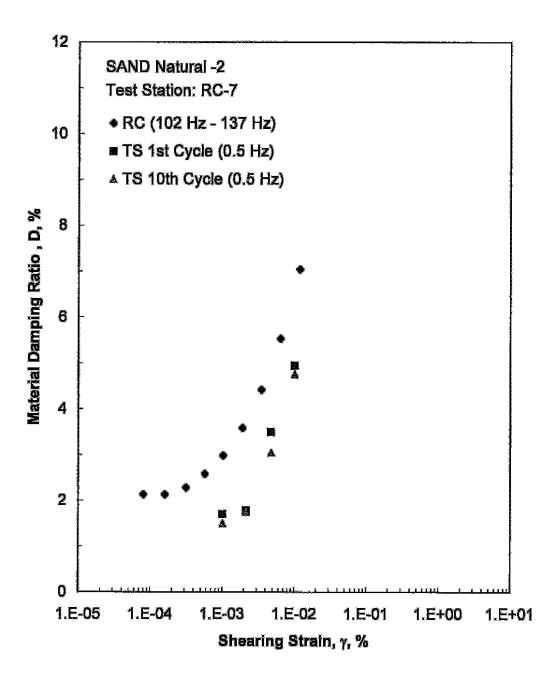


Figure D.11 Comparison of the Variation in Shear Modulus with Shearing Strain at an Isotropic Confining Pressure of 13 psi from the Combined RCTS Tests









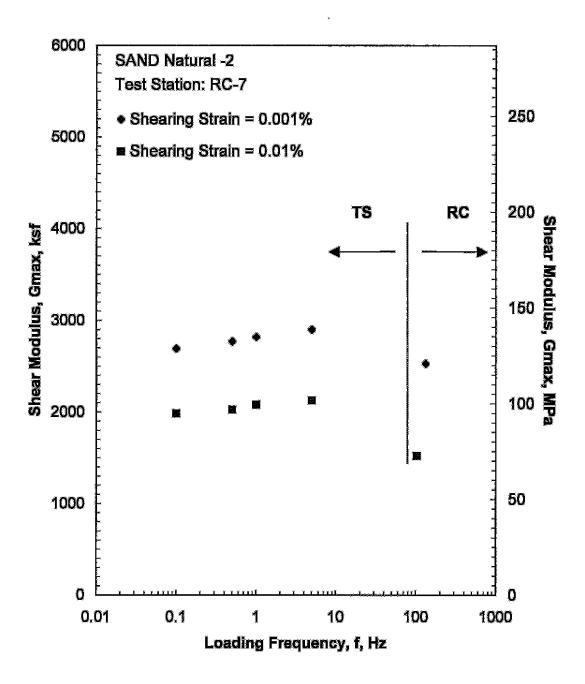
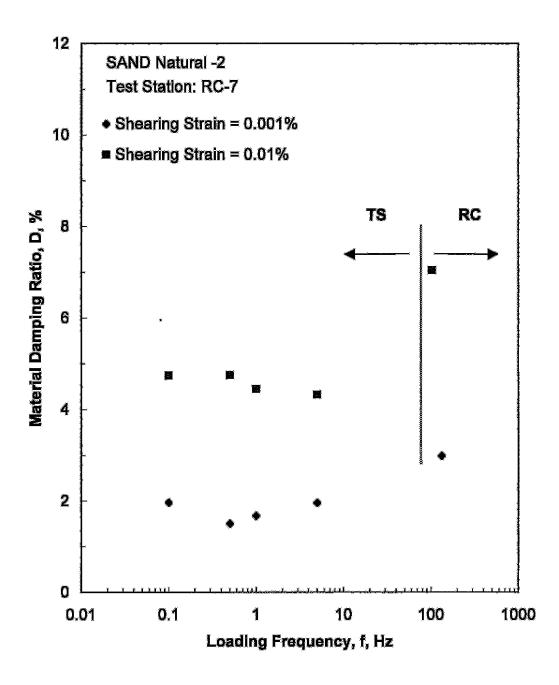


Figure D.14 Comparison of the Variation in Shear Modulus with Loading Frequency at an Isotropic Confining Pressure of 13 psi from the Combined RCTS Tests





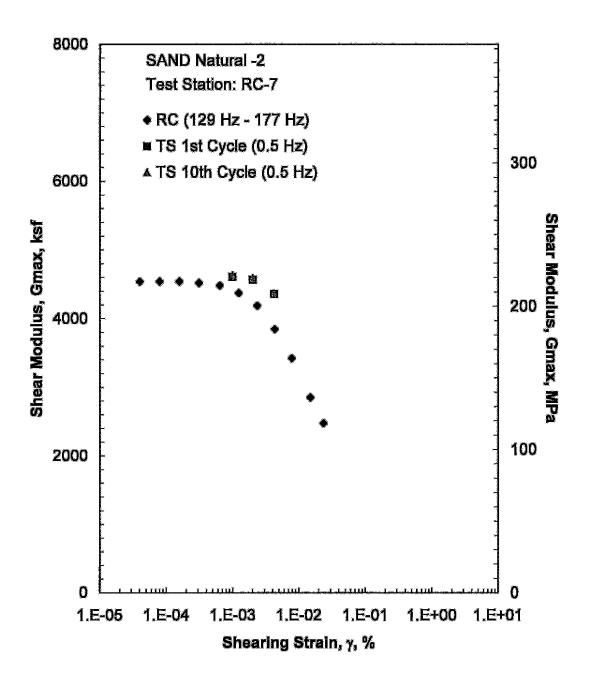
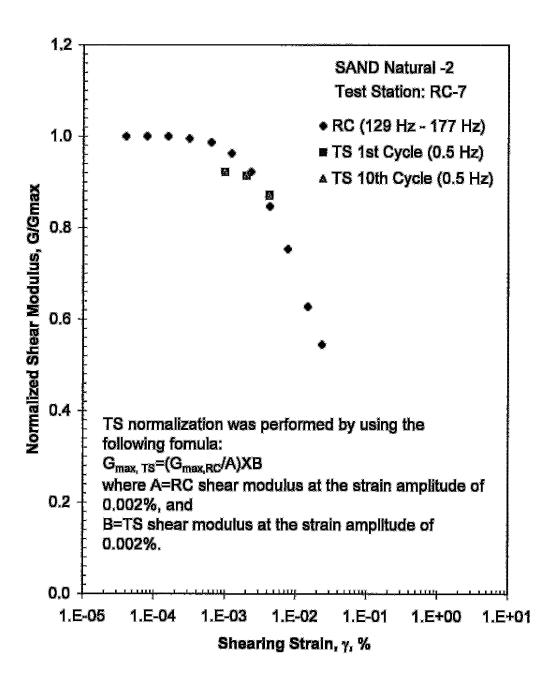
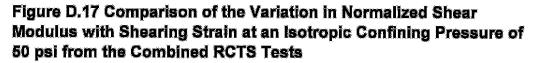
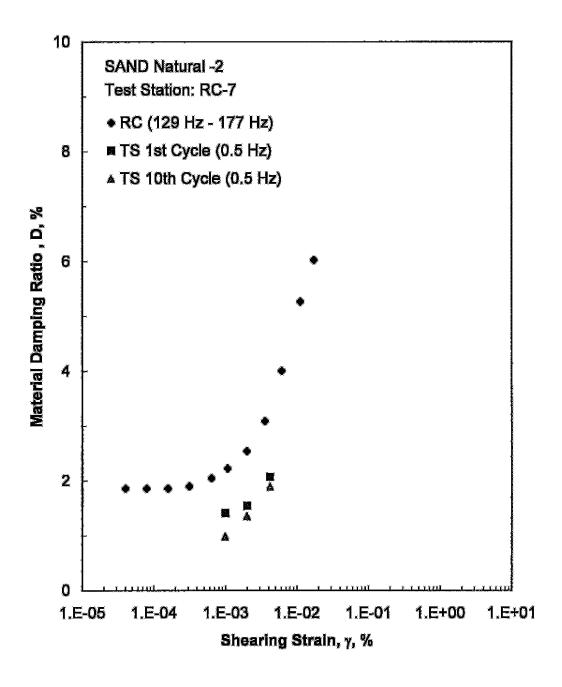


Figure D.16 Comparison of the Variation in Shear Modulus with Shearing Strain at an Isotropic Confining Pressure of 50 psi from the Combined RCTS Tests









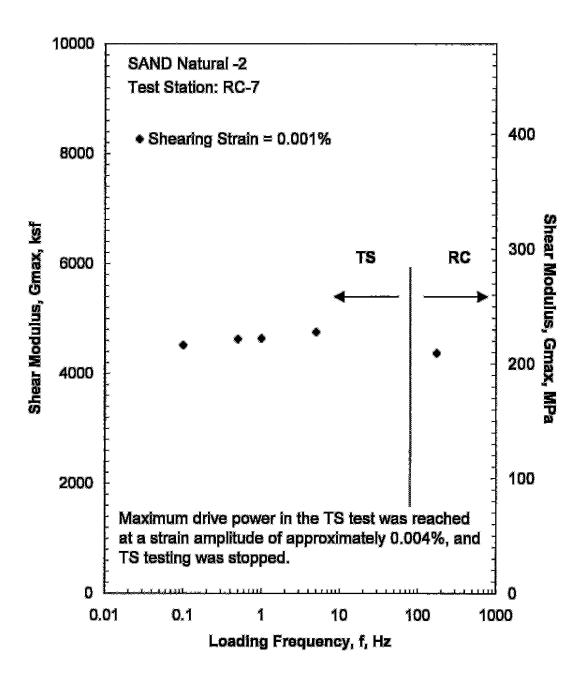


Figure D.19 Comparison of the Variation in Shear Modulus with Loading Frequency at an Isotropic Confining Pressure of 50 psi from the Combined RCTS Tests

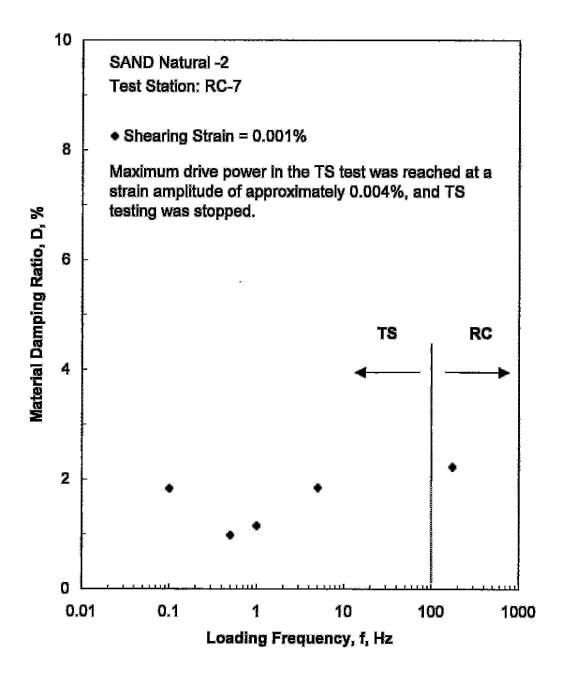


Figure D.20 Comparison of the Variation in Material Damping Ratio with Loading Frequency at an Isotropic Confining Pressure of 50 psi from the Combined RCTS Tests

Table D.1 Variation in Low-Amplitude Shear Wave Velocity, Low-Amplitude Shear Modulus, Low-Amplitude Material Damping Ratio and Estimated Void Ratio with Isotropic Confining Pressure from RC Tests of Specimen NATURAL

| isotropic Confining Pressure, σ_o | | Low-Amplitude Shear Modulus, G _{max} | | Low-Amplitude Shear Wave Velocity, Vs | Low-Amplitude Material Damping Ratio, Dmin | Estimated Void Ratio, e | |
|--|-------|--|-------|---|--|-------------------------------|------|
| (psi) | (psf) | (kPa) | (ksf) | (MPa) | (fps) | (%) | |
| 3 | 432 | 21 | 1916 | 92 | 704 | 2,39 | 0,43 |
| 6 | 864 | 41 | 2203 | 106 | 754 | 2.25 | 0.43 |
| 13 | 1872 | 90 | 2681 | 129 | 831 | 2.13 | 0.42 |
| 25 | 3600 | 172 | 3443 | 165 | 940 | 1.98 | 0.42 |
| 50 | 7200 | 345 | 4504 | 216 | 1073 | 1,86 | 0.41 |

Table D.2Variation in Shear Modulus and Material Damping Ratio with Shearing Strain from RC Tests of
Specimen NATURAL; Isoptropic Confining Pressure, σ_0 = 13 psi (1.9 ksf = 90 kPa)

| Peak Shearing Strain, % | Shear Modulus, G, ksf | Normalized Shear Modulus, G/G _{mex} | Average [⁺] Shearing Strain, % | Material Damping Ratio ^x , D, % |
|-------------------------------|-----------------------------|---|---|--|
| 8.00E-05 | 2692 | 1.00 | 8.00E-05 | 2.13 |
| 1.60E-04 | 2692 | 1.00 | 1.60E-04 | 2.13 |
| 3.15E-04 | 2672 | 0.99 | 3.15E-04 | 2.28 |
| 6.36E-04 | 2623 | 0.97 | 5.72E-04 | 2.57 |
| 1.22E-03 | 2526 | 0.94 | 1.03E-03 | 2.98 |
| 2.34E-03 | 2380 | 0.88 | 1.90E-03 | 3,58 |
| 4.54E-03 | 2161 | 0.80 | 3.50E-03 | 4.41 |
| 8.82E-03 | 1884 | 0.70 | 6.44E-03 | 5.52 |
| 1.74E-02 | 1522 | 0.57 | 1.19E-02 | 7.04 |

⁺ Average Shearing Strain from the First Three Cycles of the Free Vibration Decay Curve * Average Damping Ratio from the First Three Cycles of the Free Vibration Decay Curve

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Table D.3Variation in Shear Modulus, Normalized Shear Modulus and Material Damping Ratio with Shearing
Strain from TS Tests of Specimen NATURAL; Isotropic Confining Pressure, σ_e= 13 psi (1.9 ksf
=90 kPa)

| | First Cycle | | | | Tenth Cycle | | | | |
|-------------------------------|-----------------------------|--|------------------------------------|-------------------------------|-----------------------------|--|------------------------------------|--|--|
| Peak Shearing Strain, % | Shear Modulus, G, ksf | Normalized Shear Modulus, G/G _{max} | Material Damping Ratio, D, % | Peak Shearing Strain, % | Shear Modulus, G, ksf | Normalized Shear Modulus, G/G _{max} | Material Damping Ratio, D, % | | |
| 1.01E-03 | 2782 | 0.94 | 1.70 | 1.01E-03 | 2769 | 0.94 | 1.50 | | |
| 2.15E-03 | 2618 | 0.88 | 1.78 | 2.14E-03 | 2622 | 0.89 | 1.75 | | |
| 4.76E-03 | 2363 | 0.80 | 3.49 | 4.80E-03 | 2340 | 0.79 | 3.04 | | |
| 1.01E-02 | 2022 | 0.68 | 4.94 | 1.01E-02 | 2023 | 0.69 | 4.75 | | |

Table D.4 Variation in Shear Modulus and Material Damping Ratio with Shearing Strain from RC Tests of Specimen NATURAL; Isophropic Confining Pressure, σ_o= 50 psi (7.2 ksf = 345 kPa)

| Peak Shearing Strain, % | Shear Modulus, G, ksf | Normalized Shear Modulus, G/G _{max} | Average* Shearing Strain, % | Material Damping Ratio [*] , D, % |
|-------------------------------|-----------------------------|---|-----------------------------------|---|
| 4.00E-05 | 4540 | 1.00 | 4.00E-05 | 1.86 |
| 7.90E-05 | 4540 | 1.00 | 7.90E-05 | 1.86 |
| 1.57E-04 | 4540 | 1.00 | 1.57E-04 | 1.86 |
| 3.11E-04 | 4519 | 1.00 | 3.11E-04 | 1.90 |
| 6.34E-04 | 4480 | 0.99 | 6,34E-04 | 2.05 |
| 1.23E-03 | 4371 | 0.96 | 1.07E-03 | 2.22 |
| 2.32E-03 | 4187 | 0.92 | 1.97E-03 | 2.54 |
| 4.28E-03 | 3845 | 0.85 | 3.55E-03 | 3.09 |
| 7.73E-03 | | 0.75 | 6.10E-03 | 4.00 |
| 1.48E-02 | 2849 | 0.63 | 1.11E-02 | 5.26 |
| 2.34E-02 | 2473 | 0.54 | 1.71E-02 | 6.02 |

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* Average Shearing Strain from the First Three Cycles of the Free Vibration Decay Curve

* Average Damping Ratio from the First Three Cycles of the Free Vibration Decay Curve

Table D.5 Variation in Shear Modulus, Normalized Shear Modulus and Material Damping Ratio with Shearing Strain from TS Tests of Specimen NATURAL; Isotropic Confining Pressure, σ₀= 50 psi (7.2 ksf = 345 kPa)

| First Cycle | | | | Tenth Cycle | | | | |
|-------------------------------|-----------------------------|---|---------------------------------------|-------------------------------|-----------------------------|---|------------------------------------|--|
| Peak Shearing Strain, % | Shear Modulus, G, ksf | Normalized Shear Modulus, G/G _{max} | Material Damping Ratio, D, % | Peak Shearing Strain, % | Shear Modulus, G, ksf | Normalized Shear Modulus, G/G _{max} | Material Damping Ratio, D, % | |
| 9.92E-04 | 4607 | 0.92 | 1.41 | 9.88E-04 | 4628 | 0.92 | 0.98 | |
| 2.00E-03 | 4566 | 0.91 | 1.54 | 1.99E-03 | 4587 | 0.91 | 1.35 | |
| 4.20E-03 | 4357 | 0.87 | 2.07 | 4.19E-03 | 4364 | 0.87 | 1.89 | |

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ATTACHMENT B

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FUGRO #0411-08-1696

| Ano. C | | | | | | | |
|--|---------|--|--|--|--|--|--|
| RESONANT COLUMN CYCLIC TORSIONAL SHEAR (RCCyTS) TEST | | | | | | | |
| Specimen Setup / Take Down | × | | | | | | |
| Project No: 0411-08-1696 Test Type: 4076 Cell No.: RC7 File Name: 8-2-4644 | , (• | | | | | | |
| | (1) | | | | | | |
| Task No.: <u>r-/A</u> Stoke Resonant Column Device Gs = <u>r-/A</u> Meas.; Assumed | | | | | | | |
| Test No.: <u>»///</u> Test Series No.: <u>»//1</u> Top Cap ID: <u>00 3</u> | | | | | | | |
| Assig. Remarks: | | | | | | | |
| Tobe Field Extruded Liner Specimen Preparation (for reconstituted samples) | | | | | | | |
| Boring No.: 2 Reconstituted / Target Dry Density (15.7 % Lift Thickness 36,64,67 No. Lifts 5 Sample No.: Madera (Composite No.: 1/1 Final Ht. 143.18 Final Area 39,7 Final Vol. 34 | 1-1-6 | | | | | | |
| Boring No.: | 51 2100 | | | | | | |
| $ \begin{array}{c} \text{Sample No.:} & \underline{\mu} \\ \text{Depth (ff):} & \underline{\mu} \\ \hline \end{array} \\ \begin{array}{c} \text{Specimen No.:} & \underline{I} \\ \hline \end{array} \\ \end{array} \\ \begin{array}{c} \text{Final Total Mass} \\ \text{Final Total Mass} \\ \hline \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1$ | 53 | | | | | | |
| Spec. Selection by X-ray; Geomarine Sample | | | | | | | |
| Type Ko stress path | 67 84 | | | | | | |
| Consolidation: Anisotropic 45o stress path | CM | | | | | | |
| Water Initial - Trimming Location Final (Wat) SOIL MASSES: Initial Final | | | | | | | |
| Content (WC); Top (Wo,1) Bottom (Wo,2) Sides (Wo,3) (see below) Moist + Tare (etc.)(g): //45.+2 //41.26 | | | | | | | |
| Container No 799 AS 6/11/02 009 Tare (etc.) (g): 0 0 | | | | | | | |
| Mass Moist Soil + Cont. (g) / 32.75 | | | | | | | |
| Mass Dry Soil + Cont. (g) 35.72 (66.29 EXCESS DRY SOIL (stuck to membrane, filters stones, etc.) | | | | | | | |
| Mass Container (g) 72.12 /7.10 . Container No: 4/1 | | | | | | | |
| Water Content, Wo,n (%) 7.51 F/A W/A 7.19 Mass Dry Soil + Container (g): N/A | | | | | | | |
| Avg. Initial WC, Wo,avg (%) 7.5 Final (Wat); Slice; Whole Spec. Mass Container (g): w/A | | | | | | | |
| Mass Excess Dry Soil (g): N/A | | | | | | | |
| Specimen Dimensions Estimated Initial Unit Weight: | | | | | | | |
| Height (mm) Diameter (mm) Total, gt,o (lb/ft3) = ν/μ Dry, gd,o (lb/ft3) = ν/μ | | | | | | | |
| Initial (Ho) Final (Hat) Initial (Do) Final (Dat) Membrane / Filter Paper / Apparatus / | | | | | | | |
| GB O T 71.5 Membrane (mm): Top Bottom | | | | | | | |
| 1 143.37 143.25 M 71.5 71.2 Number: Thickness: NA -A | | | | | | | |
| 2 143.07 143.11 B 71.5 71.0 = Single; × Double 0,77 0.84 | | | | | | | |
| 2 /43./0 /43./8 T 3 /43./0 /43./7 M 4 /43./3 /43./7 M | | | | | | | |
| his and the second seco | | | | | | | |
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| | | | | | | | |
| NA, Naj Analizablar IIV. Dabaanar OD. Cana Black | | | | | | | |
| MATINE >= 2.3/533 | * | | | | | | |
| Note: (1) Each Test Stress is identified as a Test Stage or Sequence on other data sheets. | 3.8% | | | | | | |
| Final Specimen Description (USCS group name & symbol, color, layering, max. part. size, slickensided, fissured, blocky, honeycombed, etc.): | | | | | | | |
| CL CO, DL B w/frew Bravels | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Photo taken (internal sliced surface & outside surface) Other Remarks

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|--|--|-----------------|--|--|
| Resonant Column Cyclic Torsional Sh | Boring: As for 2 | | | |
| Signature & Equipment Pa | Sample: NATURAL-1 | | | |
| | | Depth (ft): ~/A | | |
| | | Test No. ~/A | | |
| Project: Nine Mile Point Site Characterization | Fugro | | | |
| Location: Oswego, New York | Project No.: 0 | ull-08- 1696 | | |
| SIGNA | TURES | | | |
| Specimen Trimmed/Recompacted by: | BN | Date: 6/1/08 | | |
| Specimen Setup by: Jupra | | Date: 6/1/08 | | |
| (per GEI Procedure 109 rev) | Date: $6/1/08$ Date: $6/1/08$ Date: $6/1/08$ | | | |
| Specimen Takedown by: Jup ** 🤇 | Date: 6/3/08 | | | |
| Preliminary Calculations by: | 2 | Date: 6/12/08 | | |
| Calculated by: | | Date: 6/12/08 | | |
| Reviewed by: | | Date: 6/24/08 | | |
| EQUIPMI | ENT USED | | | |
| RCCyTS Workstation No.: RC-7 1 | Balance ID: | BA-006 | | |
| Caliper ID: UH-10838 1 | PI Tape ID: | VH- 10 822 | | |
| Dven ID: #14 8 | Scalping Sieve Size | &ID: 3/8" B.31 | | |
| | Other (specify) ID: | | | |
| Other (specify) ID: | Smer (speeny) ID: | | | |

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| Water Content Measurement | | | | | | | | | |
|---|-------------------------|--------|----------------|--------|----------|---------------|-------|---------|--|
| Project Name: Nine Mile Po Project No.: 07223 | | د ۱ | | | | | | | |
| Performed by, per Proc 101 | , rev (NA): | DANIL | <u>el B. n</u> | VARKO | | | | elislos | |
| Checked By: | Checked By: Date:/16/08 | | | | | | | | |
| Determination No. | 481 # 07223 | | × | | | | | | |
| Boring | TP-102 | | K. | * | | | ļ | | |
| Sample | 1-2 | | | | | | j | | |
| Oven ID | 14 | | | \sim | | |] | | |
| Balance ID | BA 006 | | | \sim | | | e . | | |
| Date/Time in Oven | 5/27/08 | | | | \sim | |] | | |
| Date/Time Out of Oven | 5/28/08 | | | | | \sim | | | |
| Tare No. | 6057 | | | | | | | | |
| (a) Wel Wf. + Tare | 150.29 | ~ | g | 9 | g | 9 | | | |
| (b) Dry Wt. + Tare | 142.079 | 9 | 9 | Ð | 9 | <u> </u> | | | |
| (c) WI. Tare | 31.61 0 | 9 | 9 | | 8 | . 9 | | × | |
| (d) Wt. Water (a – b) | 8.22 0 | 9 | بعر | | 9 | 9 | | × | |
| WI. Wet Solids (a - c) | 118,680 | | 9 | g | <u>a</u> | 9 | | | |
| (a) Wł. Dry Solids (b – c) | (10,469 | - | g | 9 | 9 | g | 135 | 6/18/08 | |
| Water Content (d/e) x 100, % | 7.44 | | | | | | 1 | | |
| Is Wet Wi. Enough for Method B? (ves/no) | YES | | | × | | | , | | |
| Remarks: | | | | × | ~ ~ ~ | | Ţ | | |
| | | | | | | | | | |
| | | | | × | ~~~~ | | | | |
| Test Notes: 1. Oven dry at 110°C (±5°C) for 12 hours minimum. 2. Cool in desiccator for a minimum of 30 minutes before weighing. GEI | | | | | | | | | |
| | | | | | Form | 101.1, rev. 1 | * | | |

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| | RCTS Testing Record (Page 1 of 10) |
|--------|---|
| NATU | rpl-1 |
| 25 | Project #: 0411-08-1696 Project: Nine Mile Point Unit 3, Oswego, New York |
| × 1 | - Specimen #: MATURAL Precimen Description: <u>CL, SA, OL C w/ Fuw GRAVELS</u> |
| 2/9/08 | Tested By, per GEI Procedure 109 rev (o): 746 C Date: 6.1.08 |
| - | Checked By:Date: |
| | 4.7 |
| | Test Station: RC7 |
| | Confining Pressure: <u>3./ 1/21</u> Testing Stage: X0.25 |

RC Time Effect Tests

| | Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
|-----|---------------|---------------------|---------------|-------------------------------|---------|-------|
| fm | 3:17 | B-2-NATURAL-1-P3-TO | , 4 | 1 | 109.3 | |
| рм | 4:57 | B-2-NATULAL 193-T | | 1 | 416, | |
| 200 | <u> </u> | | | | | |

| šime min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
|------------------|-----------------|-------------------|-------------------------------|-----------|--------------|
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| <u>esonant]</u> | Frequency Check | after Higher | | ude Tests | |
| ïme 🖊 | | Input | Gain @ | | |
| min) | File Name | (mV) | Charge | fr (Hz) | Notes |
| <u> </u> | | , | Amplifier | 1 | |

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RCTS Testing Record (Page 2 of 10)

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| Station: | Date: | | | Tested by: | | p5 1 0 0 0 B |
|-------------------|----------------------|--------------------------|--|---------------------|-----------------|--------------|
| Project #: | | Proj | ject Name: | | | p? - 1 1 |
| Boring #: | Speci | imen #: | | | | |
| Confining P | ressure: | _ Te | sting Sta | ge: <u>X0.</u> 2 | 25/ | |
| TS Tests (p | ridr to tests, fr= | Hz) | | / | / | - |
| Frequency (Hz) | File Name | Pre-Amp Input (mV) | Post-Amp Input (mV) | Strain Amplitude | Notes | |
| 0.5 | | | | | |] |
| 0.5 | | | × / | | | |
| 0.5 | | | | | | 7 |
| 0.5 | | | | | × × · · | 1 |
| 0.1 | | | | | | 7 |
| 0.5 | | | | | | |
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| 5 | | | ······································ | | 0.00000000000 | |
| 10 | | | | | | |
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| 0.1 | 1. | | | 8 6 60 F 900 | | |
| 0.5 | | × ********* | | | | Ĩ |
| 1 | 7 | | | | × × × × 3000000 | |
| 5 | 1 | | | | | 1 |
| 10 | | | × | | | 1 |
| 0.5 | / | | - 699 | | * ** | 1 |
| 0.5 | 7 | | | | | 1 |
| L | requency Check after | | in Amplitude | Tests | | |

| Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
|---------------|-----------|---------------|-------------------------------|---------|-------|
| V | | | | I | · . |

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| | Testing Record (Pag | | | | 6.24.08 sted by: <u>Ft Surg</u> |
|---------------|---------------------------------------|---------------------------------------|---|--|--|
| | | Date: 6.2. | <u> </u> | Ter | |
| roject | #:0411-08-1696 | II | Project Name: | <u> </u> | <u></u> |
| loring | #: <u>8·2</u> | Specimen #: | | | |
| onfini | ing Pressure: 6.2 | <u>tı/</u> | Testing S | Stage: | <u>X0.5</u> |
| RC Th | me Effect Tests | | × 35. | | |
| l'ime min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
| 7:36 | B-2- wohral-1-P | 6-76 10 | 1 | 123.3 | |
| | 12-Natural-1-P6 | | 1 | 127.8 | |
| ENO | | | | | A |
| <u></u> | 118/08 | y Yweenel | l v vointenannen er | | |
| lC Sh | ain Amplitude Effec | t Tests | | | /· |
| Sime min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
| | | | | | |
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| | | I | I | | · · · · · · · · · · · · · · · · · · · |
| eenn | ant Frequency Check | after Higher | Strain Amnlit | ude Tests | |
| Гіте | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
| 'miŋ) | | | | | |

RCTS Testing Record (Page 4 of 10)

| Station: | | | <u>. </u> | Tested by | | 105 1/108 |
|-------------------|---------------------------|--------------------------|--|---------------------|------------|-----------|
| Project #: | × | _ Proj | ect Name: | xxxxxx | | 4- 11 |
| Boring #: | n. n. | | | | _ / | |
| Confining P | ressure: | _ Te | sting Sta | ge: <u>X0.</u> | <u>5/·</u> | |
| | rior to tests, fr= | Hz) | | | <u>.</u> | |
| Frequency (Hz) | Rile Name | Pre-Amp Input (mV) | Post-Amp Input (mV) | Strein Amplitude | Notes | |
| 0.5 | | | | | | |
| 0.5 | \ | | | | 0 00 0.48 | × |
| 0.5 | | | | | | |
| 0.5 | | | | | | |
| 0.1 | | | | | | |
| 0.5 | | \mathbf{N} | | | | |
| 1 | | | | | | |
| 5 | | | | | | |
| 10 | | | c | | | |
| 0.5 | | | | · | | |
| 0.5 | | | | | | |
| 0.5 | | | | | | |
| 0.1 | \sim | | | | | |
| 0.5 | | | | | |] |
| 1 | | | | | | |
| 5 | | | | N ~ [| | |
| 10 | | | | | * | |
| 0.5 | | | | | * |] |
| 0.5 | | | * | | | |
| Resonant | / requency Check after | Higher Strai | in Amplitude | Tests | | |

Resonant/Frequency Check after Higher Strain Amplitude Tests

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| Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
|---------------|-----------|---------------|-------------------------------|---------|-------|
| **** | | | | | |
| | * | | | | |
| | *** ** | | | | |

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51 **RCTS Testing Record (Page 5 of 10)** 6.2404 Tested by: St Sword Lupic Date: 6.2.08 Station: RC7
 9 4
 Project Name:

 Specimen #:
 N-1-L9(-)
 Project #: 0411-08-1694 Bei Boring #: B-2 Testing Stage: X1 Confining Pressure: 12. (Psi **RC Time Effect Tests** Gain @ Time Input File Name Charge fr (Hz) Notes (min) (mV)

Amplifier

1

×.

1725

139.8

| kn | 7:21 | K+Z= N=10/91=17-12- |
|------|----------------|-------------------------|
| An | 11:06 | B-2- Nuchural -1-P12-T7 |
| eng. | {r9 | |

15 6/18/68 RC Strain Amplitude Effect Tests

9:27 B-2- Noloral -1-P-12-TO 10

| KC SI | ram Amphitude Effect 1 e | SIS | | | *** |
|---------------|--|---------------|-------------------------------|---------|-------|
| Time (min) | Rife Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
| 12:36 | B-2-Natural-1-8/2-5- | 5 | 1 | 139.6 | |
| 12:36 | B-2-10-6-1-1-12- 5-1 | 10 | ١ | 139.8 | * |
| 12:37 | B-2-N-hurd-1-PR-5-2 | 20 | 1 | 139.1 | * |
| 12:37 | 8-2-Untral-1-12-5-2 | 40 | 1 | 137.8 | |
| 12:28 | B-2-Nahal-1-P12-5-4 | 80 | 1 | 135-6 | |
| 12:39 | B2-Nahral-1-MJA.0 | 160 | 10 | 174 8 | V |
| 12:39 | B2-N-torol-1-PR-CA-1 | 320 | 10 | 125.5 | |
| 12:40 | B-2-10-4-101-102 0 | 640 | 10 | 117.0 | |
| 12:41 | B-2-N-44-1-1-1-1-5-5-6-3 | 12 80 | 10 | 104.9 | |
| | Sind | 205 6/24 | | | |
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Resonant Frequency Check after Higher Strain Amplitude Tests

| Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
|---------------|----------------------|---------------|-------------------------------|---------|-------|
| A:43 | B-2-Natural -1-PR-10 | /L 10 | 1 | ,36.4 | |

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108,74

~ 60%.

(1)Station: $\mathcal{R} \subset 7$ Date: 6.2.08Tested by: \mathcal{H} Sured JupicProject #: 0 + 1/1 - 08 - 1/694Project Name: $G \in I$ Boring #: B - 2Specimen #: N - h/0 I - 1Confining Pressure: $12 \cdot \Gamma f ci$ Testing Stage: X1

| TS Tests (p | rior to tests, $fr = /31 $ | HZ) | | X X 200000 | |
|-------------------|---|--------------------------|---------------------------|---------------------|-------|
| Frequency (Hz) | File Name | Pre-Amp Input (mV) | Post-Amp Input (mV) | Strain Amplitude | Notes |
| 0.5 | B-2-Natural -PR-Tio | 0.1 | 1.98 | 1.53-6 | |
| 0.5 | 1-2-6-6-1-12-12-12-12-12-12-12-12-12-12-12-12-1 | 0.2 | 3.96 | 2.9-6 | |
| 0.5 | 8-2-10-1-12-TSO2 | 0.4 | 7. 73 | 0.6-5 | |
| 0,5 | B-2-webral-PR-TIOY | 0.64 | 12.70 | 1.02-5 | |
| 0.1 | 81-10-401-P12-750C | 0.64 | 12.70 | 1.03-5 | |
| 0.5 | 22-matural-1912-1506 | 1 | 1 | 1.02-5 | |
| 1 | 82-Volunl-PN-5507 | | | 1.21-5 | |
| 5 | 02-naturel-112-1508 | V | V | 0-98-5 | |
| 10 | 87- Notorol-PN-TS 09 | 0.64 | 12.70 | 0.95-5 | |
| 0.5 | 8-2-10-6-1-1-15/0 | 1.28 | 25.40 | 2.1-5 | |
| 0.5 | B-2-wotoric-FR-TI/ | 2.56 | 50.81 | 0.4.7-5 | |
| 0.5 | B-2-Nohmi-PR-T-S 12 | 4.7 | 93.35 | 1.07-4 | |
| 0.1 | 8-2-Nation (-PR-TS/) | 1 | | 1.0r-4 | |
| 0.5 | BA-Lowbrod-112-TS14 | | | 1-4 | |
| 1 | 22-mahral-pro-TSIS | | | 0.98-4 | |
| 5 | Br-w-wn1-PN-TS/L | Ŵ | V | 0.96-4 | |
| 10 | 8-2-M-hol-12-TS 17 | 4.7 | 93.71 | 0-95-4 | |
| 0.5 | END | | | | |
| 0.5 | | | | | |

TS Tests (prior to tests, fr=/31 & Hz)

Resonant Frequency Check after Higher Strain Amplitude Tests

| Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
|---------------|--------------------------|---------------|-------------------------------|---------|---------------------------------------|
| 11:35 | 8-2- Natural - 812-75 CK | 10 | 1 | 136.3 | · · · · · · · · · · · · · · · · · · · |
| 2:34 | NA | 10 | / | 139.6 | |
| 100 | | | | | |

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| | | _ | Project Name | i | | — |
|---------------|---------------------------------------|----------------------|-------------------------------|---------|-----------|------------|
| Confinin | ng Pressure: 2 C Pr | <u>. (</u> | Testing 8 | Stage: | <u>X2</u> | |
| RC Tim | ie Effect Tests | | | | | |
| Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes | |
| 17:47 | 3.2. unhanl-1-P25-To | 10 | 1 | 149.6 | | |
| 126 | 1-2-potent-1-1-P25-77 | 10 | | 1:7.1 | | |
| RC Stre | ain Amplitude Effect Tes | | Gain @ | | | |
| | ain Amplitude Effect Tes File Name | its Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes | 25 6 1 6 1 |
| RC Stre | | Input | Charge | fr (Hz) | Notes | |
| RC Stre | | Input | Charge | fr (Hz) | Notes | |
| RC Stre | | Input | Charge | fr (Hz) | Notes | |
| RC Stre | | Input | Charge | fr (Hz) | Notes | |
| RC Stre | | Input | Charge | fr (Hz) | Notes | |
| RC Stre | | Input | Charge | fr (Hz) | Notes | |

| Resonant Frequency Check after | er Higher | Strain Amplitu | ıde Tests | |
|--------------------------------|---------------|-------------------------------|-----------|-------|
| Time (min) File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
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RCTS Testing Record (Page 8 of 10)

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| Station: | Date: | | | Tested by: | : • | , as plalot |
|-------------------|----------------------|--------------------------|---------------------------|---------------------|----------|-------------|
| Project #: | | Pro | ject Name: | - | | - |
| Boring #: | Speci | men #; | | | | |
| Confining Pr | essure: | _ Te | sting Sta | ge: <u>X2</u> | | |
| TS Tests (p) | nar to tests, fr= | Hz) | | | <i>•</i> | |
| Frequency (Hz) | Rile Name | Pre-Amp Input (mV) | Post-Amp Input (mV) | Strain Amplitude | Notes | |
| 0.5 | | | | | | _ |
| 0.5 | * \ | | / | 1 | | |
| 0.5 | <u>\</u> | | | ļ | ***** | с — |
| 0.5 | | | | | | |
| 0.1 | <u> </u> | | | | | |
| 0.5 | | | | | | š |
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| 10 | | \wedge | x | | | s |
| 0.5 | | | | | | |
| 0.5 | | | | | | |
| 0.5 | | | | | | |
| 0.1 | | | | | | |
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| 1 | | | | | | |
| 5 | | | | | | |
| 10 | 7 | | <pre></pre> | | | |
| 0.5 | • / | | < | | | |
| 0.5 · | | | 8 | | | * |
| Resonant | requency Check after | Higher Stra | in Amplitude | Tests | <u> </u> | - |

| Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
|---------------|-----------|---------------|-------------------------------|---------|-------|
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11 **RCTS Testing Record (Page 9 of 10)** 6.24.08 Tested by: At Surad Jupic Date: 6.2.08 Station: RC7 Project #: 04/1-0 8 - 169 6 GÉÍ Project Name: Specimen #: No~~(-) Boring #: B-2 Testing Stage: X4 Confining Pressure: Cota' **RC Time Effect Tests** Gain @ Time Input File Name Charge fr (Hz) Notes (min) (mV) Amplifier m 2:15 B-2-Nohral-1-950-TO 169. 5 10 1 Pn 4:13 B-2-Natural -1-950-T7 177.9 1 10 147 11 6242 - 11 FA 147 min 1 5701 178.<u>6</u> 10 Qmp B-2-4-4/14-1-10-TA **RC Strain Amplitude Effect Tests** Gain @ Time Input File Name Charge fr (Hz) Notes (min) (mV)Amplifier J PM 6:02 B-2-MAMAL-PPSO-S 179.1 (103 B2-mhoral-1-Pro-S, 10 178.8 1 22-10-fal-1-P50-52 61=3 178.8 20 ¥ 6:03 B.J. wateral-1-pro-1.7 40 178.Y 1 6103 B-2-6-1-1-P50-5-4 80 177. 4 6105 22-u-hal-1-P50-5-0-0 175.5 160 10 6:05 171,6 Br-Nohrd-1-Pro-SA-1 320 10 2017 B-1-N-4-1-1-PTO- 10-0 640 105 10 154 Cia C Br- unfrol-1-PRO-16-0 1280 10 140.1 (:07 B-2-200-01-1-PO-50-0 10 2560 C-08 22-Notorel-1-PREF-2 4000 10 131.4 PA 4.ND

Resonant Frequency Check after Higher Strain Amplitude Tests

| Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
|---------------|-----------------------|---------------|-------------------------------|---------|-------|
| 6:09 | B-2-Noberal-P-PSO-SCL | 10 | 1 | 172.8 | |

Station: AC.7Date: 6.2.98Tested by: 145000 JupicStation: AC.7Date: 6.2.98Tested by: 145000 JupicProject #: 0411-98-169 CProject Name: 551Boring #: B-2Specimen #: M-h/h(-)Confining Pressure: 59 PuiTesting Stage: X4

Pre-Amp Post-Amp Frequency Strain File Name Input Input Notes (Hz)Amplitude (mV) (mV) 0.5 B-2-Natural-PSO-TLOI 1.5-5 0.15 2.975 0.5 B2-Noton 1- PSO-TO2 0.3 C.95 3 - 6 0.5 pe-untral -pro-1203 0.6 11.9 0.58-5 0.5 B-2-MAKAL-PRO-TSOY 1.05 20, 33 1.01 - 5 0.1 B2-Notural-Pro-7505 1.05 20.83 1.03-5 0.5 Bi-Noticl-100-TSOK 1-5 1 02-1-tord-pro-7507 0.99-5 5 0.96-5 10 1.05 8-2-4-61-1-PSR-7509 20.93 0.94 0.5 B2-Notuni-RD-TS 10 41.67 2.03-5 2.1 0.5 4.2-5 B-2-Nohral-Pro-TS/1 85.40 4.2 0.5 BI-Noton -Pro-TIN 4.6r - 5 4.7 93.75 MGA la pro t 0.1 az-untural ATO-TS12 <u>4.7</u> 93.75 4.75-5 0.54.6-5 1 22- Notoral -ASD-TS M 95-5 5 B2-10-1-10-75/6 44-5 10 BZ-Latura-Ro 751 97.21 4.7 4.3.5 0.5 END 0.5

TS Tests (prior to tests, fr=178.6 Hz)

Resonant Frequency Check after Higher Strain Amplitude Tests

| Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
|---------------|------------------------|---------------|-------------------------------|---------|---------------------------------------|
| <u>(</u> 128 | 8-2-Natura (-1- P50-70 | £ 10 | 1 | 177.4 | |
| ۲،۰۱ | Wh | /0 | 1 | 178.6 | |
| 21-10 | t. 10% | | | | · · · · · · · · · · · · · · · · · · · |

p5 6/08

| RESC | | I CYCLIC TOR Decimen Setup | | AR (RCCyTS) TES | гÅ | pp. D |) • | | |
|--|---|-------------------------------|---|--|------------------|--|--------------------|--|--|
| Project No: 0 | 411-08-1696 | Test Type: | | Cell No.: 257 | - File Name: | Ala | | | |
| - | (<u>a</u> v | est Stress(es), o' = | | 62,125, | 25 8 | 50 psi | (1) | | |
| | | okoe Resonant Colu | | M/ب = Gs | Meas.; | Assumed | \. <u>,</u> | | |
| Test No.: 🙀 👍 | Test Series No.: | <u> N/A Top C</u> | 2ap ID; 003 | , <u>, , , </u> | | | | | |
| Assig. Remarks: | | | | | 3 | 7.38cm ² | | | |
| Tube Field Extruded | 1 Liner | HR_Specimen I | Preparation (for rec | constituted samples) | - 01.10 | Tax 9/9 | [न्ह] | | |
| Boring No.: 2 | Reconstituted | | ry Density 115 | R LIFE Thickness | 28.612 | | | | |
| Sample No .: NATURAL | Compostite No.: | S C C | Final Ht. 1413 |).06 Final Area ユ | 19-78 M | Final Vol. | .40 m ³ | | |
| Depth (ft): | | Final To | otal Mass 📢 | 11.08 Water Cont. | 1.8% | 563 | 40 | | |
| Spec. Selection by X-ray; | Geomarine S | ample | | | • | <u>~</u> | | | |
| Type 🛛 Iso | tropic Ko str | ess path | | | X 1999 X 1999 | | | | |
| Consolidation: An | isotropic 45o st | ress path | | | | | | | |
| Water | Initial - Trim | ming Location | Final (Wat) | SOIL MASSES: | Initial | Final | | | |
| Content (WC); | (Wo,2) Sides (Wo, | | Moist + Tare (etc.)(g): | 1144.1 | 1141,08 | | | | |
| Container No | | 17-5 | Tare (etc.) (g): | 0 | 0 | | | | |
| Mass Moist Soil + Cont. (g) | 138.67 | - Vila | 192.82 | Spec. Moist Mass (g): | 1144.1 | 1141.03 | | | |
| Mass Dry Soil + Cont. (g) | | | 181.0= EXCESS DRY SOIL (stuck to membrane, filters storpes, etc.) | | | | | | |
| Mass Container (g) | | | 17.14 Container No: N/A | | | | | | |
| Water Content, Wo,n (%) | | | | | | m/A | | | |
| Avg. Initial WC, Wo,avg (%) | q.uy Fina | i (Wat); Slice; | Whole Spec. | | Container (g): | N/∩ | | | |
| 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 | | | | Mass Exce | ss Dry Soil (g): | r/8 | | | |
| | en Dimensions | | | Estimated Initial Unit | | | | | |
| Height (mm) | Diamete | | Total, gt, o (lb/ft3) = h_{A} Dry, gd, o (lb/ft3) = h_{A} | | | | | | |
| Initial (Ho) Final (Ha | | Final (Dat) | P: N | <u>//embrane / Filter Paper /</u> | | | | | |
| GB 0 0 1 /43.08 143.1 | | | Membrane (mm): | 5997 X. X | | Bottom | | | |
| | | 70.8 | Number: | Thickness: | -14 | 0.84 | | | |
| 2 143.01 1430 | The second se | | = (| Single; < Double Circumference (Crm,o) | 0.72 216 | 216 | | | |
| | | And a | (1) Total thickness | ~ | hickness (1) | Dia.(Crm.o/p) | | | |
| 5 143.12 143.1 | | | (1) 1000 (11000)0000 | Average: | HICKIESS (1) | W/A | | | |
| | Dbave 745 | 70.83 | Filter Paper: | Top + Bottom: Yes ; | | | | | |
| / Measuring Devices: | Ao (cm2) = | | | | x | mber = <i>»(n</i> | | | |
| C.433 Pi Tape: X | Dia. ^{2,2747} Vo (cm3) = | | lf yes number = | i hand i h | | 1 E | | | |
| | Dia. Aat (cm2)= | /n | " or = | A or Spriak: 14" | | | | | |
| Dial Comparator: X Ht. | Dia. Vat (cm3) = | r-/81 | Mass p | rive Plate & Cap, Mdpc = | MIK 9. | MA Ibf | | | |
| NA - Nat Applicables UK - Unknown CB - Core Black // / ///// | | | | | | | | | |
| -2.24326 | | | | | | | | | |
| Note: (1) Each Test Stress is identified as a Test Stage or Sequence on other data sheets. | | | | | | | | | |
| Final Specimen Description (USCS group, name & symbol, color, layering, max. part. size, slickensided, fissured, blocky, honeycombed, etc.): | | | | | | | | | |
| ClSa, OCG uffeu Gravels | | | | | | | | | |
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Photo taken (Internal sliced surface & outside surface) Other Remarks

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| Location: Oswego, New York Project No.: $0411-08-1696$ SIGNATURES Specimen Trimmed/Recompacted by: DBN Date: $6[3/08]$ Specimen Setup by: J.p.* Date: $6[3/08]$ Specimen Setup by: J.p.* Date: $6[3/08]$ Specimen Setup by: J.p.* Date: $6[3/08]$ Specimen Setup by: J.p.* Date: $6[3/08]$ Specimen Takedown by: J.p.* Date: $6/10/08$ Specimen Takedown by: J.p.* Date: $6/10/08$ Specimen Takedown by: J.p.* Date: $6/10/08$ Calculated by: Date: $6/10/08$ Reviewed by: Date: $6/29/08$ EQUIPMENT USED CCcyTS Workstation No.: $R (-7)$ Balance ID: $9/8 - 0.06$ | 4 | |
|---|------------|---|
| Depin (it):Test No.Project: Nine Mile Point Site Characterization Location: Oswego, New YorkFugro Project No.:Oct11-05-1696SignATURESSpecimen Trimmed/Recompacted by:DBNDate:bignameSpecimen Setup by:J.p.*Date:bignameSpecimen Setup by:J.p.*Date:bignameSpecimen Setup by:J.p.*Date:bignameSpecimen Takedown by:J.p.*Date:bignameSpecimen Takedown by:J.p.*Date:bignameDate:< | RAL" | |
| Project: Nine Mile Point Site Characterization Fugro Project No.: $0411-05-1696$ SignATURES SignATURES Specimen Trimmed/Recompacted by: $) \beta N$ Date: $6 3 08$ Specimen Trimmed/Recompacted by: Date: $6 3 08$ Specimen Technologies Date: $6 3 08$ Specimen Trimmed/Recompacted by: Date: $6 3 08$ Specimen Setup by: $J - p^{-1}$ Date: $6 3 08$ Project No.: Date: $6 3 08$ Specimen Setup by: $J - p^{-1}$ Date: $6 3 08$ Date: $6 5 08$ Specimen Takedown by: $J - p^{-1}$ Date: $6 5 08$ Calculations by: $J - p^{-1}$ Date: $6 5 08$ Reviewed by: Date: $6 5 08$ EQUIPMENT USED RCCyTS Workstation No.: $R (-7)$ Balance ID: $D A - 006$ Culter | ŧ | |
| Location: Oswego, New York Project No.: $0411-08-1696$ SIGNATURES Specimen Trimmed/Recompacted by: DBN Date: $6[3/08]$ Specimen Setup by: J.p.* Date: $6[3/08]$ Specimen Setup by: J.p.* Date: $6[3/08]$ Specimen Setup by: J.p.* Date: $6[3/08]$ Specimen Setup by: J.p.* Date: $6[3/08]$ Specimen Takedown by: J.p.* Date: $6/10/08$ Specimen Takedown by: J.p.* Date: $6/10/08$ Specimen Takedown by: J.p.* Date: $6/10/08$ Calculated by: Date: $6/10/08$ Reviewed by: Date: $6/29/08$ EQUIPMENT USED CCcyTS Workstation No.: $R (-7)$ Balance ID: $9/8 - 0.06$ | | |
| SIGNATURES SIGNATURES SignATURES Specimen Trimmed/Recompacted by: DAV Date: 6 $\left 3 \middle 0 8$ Specimen Setup by: Jr'' Date: 6 $\left 3 \middle 0 8$ Specimen Setup by: Jr'' Date: 6 $\left 3 \middle 0 8$ Specimen Setup by: Jr'' Date: 6 $\left 3 \middle 0 8$ Specimen Setup by: Jr'' Date: 6 $\left 3 \middle 0 8$ Specimen Takedown by: Jr'' Date: 6 $\left 1 6 \biggr 0 8$ Specimen Takedown by: Jr'' Date: 6 $\left 1 6 \biggr 0 8$ Date: 6 $\left 1 6 \biggr 0 8$ Calculated by: Date: 6 $\left 1 6 \biggr 0 8$ EQUIPMENT USED RCCyTS Workstation No.: R (-7 Balance ID: $\mathcal{D} A - OO_{D}$ Caliper ID: $\mathcal{U} H - 10 8 3 3$ Differ ID: <th c<="" td=""><td>ļ</td></th> | <td>ļ</td> | ļ |
| Specimen Trimmed/Recompacted by: $\mathcal{D}\mathcal{BN}$ Date: $6 3 0 8$ Specimen Setup by: $\mathcal{D}\mathcal{A}^{+-}$ Date: $6 3 0 8$ Test Performed by: $\mathcal{D}\mathcal{A}^{+-}$ Date: $6 3 0 8$ Specimen Setup by: $\mathcal{D}\mathcal{A}^{+-}$ Date: $6 3 0 8$ Specimen Setup by: $\mathcal{D}\mathcal{A}^{+-}$ Date: $6 3 0 8$ Specimen Takedown by: $\mathcal{D}\mathcal{A}^{+-}$ Date: $6 5 0 8$ Preliminary Calculations by: $\mathcal{D}\mathcal{A}^{+-}$ Date: $6 1 b 0 8$ Calculated by: Date: $6 1 b 0 8$ Bate: $6 2 4 0 8$ Reviewed by: $\mathcal{M}\mathcal{A}^{+}\mathcal{A}^{+}$ Date: $6 2 4 0 8$ EQUIPMENT USED RCCyTS Workstation No.: $\mathcal{R} (-7)$ Balance ID: $\mathcal{D} A - 006$ Caliper ID: $\mathcal{V} H - \{0 8 3 8$ PI Tape ID: $\mathcal{V} H - \{0 8 3 4$ Diven ID: $\mathcal{H} (\mathcal{L})$ Scalping Sieve Size & ID: $3 / 8$ $B - 3 / 2$ Diher (specify) ID: Other (specify) ID: $ -$ | <u> </u> | |
| Specimen Setup by: $J \neq \cdot \cdot$ Date: $b 3 08$ Test Performed by: $J \neq \cdot \cdot \cdot$ Date: $b 3 08$ Specimen Takedown by: $J \neq \cdot \cdot \cdot \cdot$ Date: $b 5 08$ Specimen Takedown by: $J \neq \cdot \cdot \cdot \cdot$ Date: $b 5 08$ Preliminary Calculations by: $J \neq \cdot \cdot \cdot \cdot$ Date: $b 5 08$ Calculated by: Date: $b 1b 08$ Reviewed by: Date: $b 1b 08$ Reviewed by: Date: $b 24 08$ EQUIPMENT USED Balance ID: $\beta A - 006$ Caliper ID: $V H - \{ 0838$ PI Tape ID: $V H - \{ 0832$ Oven ID: $4 4$ Scalping Sieve Size & ID: $3/8$ " Diher (specify) ID: Other (specify) ID: $-$ | | |
| Test Performed by: John Markov Date: $b/8/06$ Specimen Takedown by: John Markov Date: $b/8/08$ Preliminary Calculations by: Date: $b/10/08$ Calculated by: Date: $b/10/08$ Reviewed by: Date: $b/10/08$ EQUIPMENT USED Date: $6/10/08$ RCCyTS Workstation No.: $R(-7)$ Balance ID: $DA - 00/6$ Caliper ID: $V I - 10838$ PI Tape ID: $V I - 10832$ Oven ID: $H = 14$ Scalping Sieve Size & ID: $3/8$ " $B.3/$ Other (specify) ID: Other (specify) ID: Other (specify) ID: $-$ | 8 | |
| Iper GEI Procedure 109 rev.))) Date: $b/8/08$ Specimen Takedown by: Jupro Date: $b/8/08$ Preliminary Calculations by: Date: $b/1b/08$ Calculated by: Date: $b/1b/08$ Reviewed by: Date: $b/1b/08$ EQUIPMENT USED RCCyTS Workstation No.: $R (-7)$ Balance ID: $\mathcal{D} A - 006$ Caliper ID: VH - 10838 PI Tape ID: Oven ID: $\mathcal{H} (\mathcal{A})$ Scalping Sieve Size & ID: $3/8$ " Other (specify) ID: Other (specify) ID: — | | |
| Specimen Takedown by: J_{PP} · · · · · Date: $b 5/08$ Preliminary Calculations by:Date: $b / 1b/08$ Calculated by:Date: $b / 1b/08$ Reviewed by:Date: $b / 1b/08$ EQUIPMENT USEDDate: $6 / 24/08$ EQUIPMENT USEDEQUIPMENT USEDRCCyTS Workstation No.: $R (-7)$ Balance ID:Balance ID: $\mathcal{D} A - 00/6$ Caliper ID: $V H - 10838$ PI Tape ID: $\cdot V H - 10832$ Oven ID: $\# (4)$ Scalping Sieve Size & ID: $3/8$ '' $B - 3/2$ Other (specify) ID:Other (specify) ID: | | |
| Calculated by:Date: $6/16/08$ Reviewed by:NetworkDate: $6/24/08$ EQUIPMENT USEDRCCyTS Workstation No.: $R(-7)$ Balance ID: $\beta A - 00.6$ Caliper ID: $V H - 10838$ PI Tape ID: $V H - 10832$ Coven ID: $4/4$ Scalping Sieve Size & ID: $3/8$ $B - 3/4$ Other (specify) ID: | * | |
| Calculated by:Date: $6/16/08$ Reviewed by:NetworkDate: $6/24/08$ EQUIPMENT USEDRCCyTS Workstation No.: $R(-7)$ Balance ID: $\beta A - 00.6$ Caliper ID: $V H - 10838$ PI Tape ID: $V H - 10832$ Coven ID: $4/4$ Scalping Sieve Size & ID: $3/8$ $B - 3/4$ Other (specify) ID: | 8 | |
| Reviewed by: $Melger D$ Date: $6/24/28$ EQUIPMENT USEDRCCyTS Workstation No.: $R (-7)$ Balance ID: $B A - 00/6$ Caliper ID: $VH - 10838$ PI Tape ID: $VH - 10832$ Coven ID: $H (H)$ Scalping Sieve Size & ID: $3/8$ " $B - 3/7$ Other (specify) ID: | | |
| ACCyTS Workstation No.: R (-7Balance ID: $\oint A - 006$ Caliper ID: $\vee H - 10835$ PI Tape ID: $\vee H - 10832$ Oven ID: $\# (4)$ Scalping Sieve Size & ID: $3/8$ '' $B - 3/2$ Other (specify) ID: \bigcirc Other (specify) ID: | ଞ | |
| Caliper ID: $VH - (083\%)$ PI Tape ID: $VH - 10832$ Oven ID: $#(4)$ Scalping Sieve Size & ID: $3/8$ " $B.3/2$ Other (specify) ID:Other (specify) ID: $-$ | | |
| Oven ID: $4(4)$ Scalping Sieve Size & ID: $3/8$ '' $B.3/2$ Other (specify) ID:Other (specify) ID: | | |
| Oven ID: $#(4)$ Scalping Sieve Size & ID: $3/8$ '' $B-3/2$ Other (specify) ID: $-$ | | |
| | . 3/ | |
| | | |
| Comments/Notes: | | |
| | | |
| Comments/Notes: | | |

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| Y | Water | Content N | <i>l</i> easureme | ent | , <u>, , , , , , , , , , , , , , , , </u> | ····· ······· | |
|---|----------------------------------|-----------------------|---------------------|---------|---|---------------------------------------|------------|
| Project Name: Nine Mile Po Project No.: 07223 Performed by, per Proc 101 | × ** | - · · · | wego, NY EL B. N |) VARKO | | | x X |
| Checked By: | 05 | 2 | Date: | 3/10/0 | 8 | | |
| Determination No. | 07223 | | | ps unio | | | 65 6/18/08 |
| Boring | TP-102 | | × · | | | | - |
| Sample | 1-2 | k | | | | · · · · · · · · · · · · · · · · · · · | |
| Oven ID | 14 | | | | / | | - |
| Balance ID | BAOOL | | | X | | | |
| Date/Time in Oven | 5/27/08 | | | | \sim | | 1 |
| Date/Time Out of Oven | 5/28/08 | | \sim | * | | | 1 |
| Tare No. | 6057 | | ſ | | | \sim | |
| (a) Wet Wi. + Tare | 150,298 | \sum | g | g | g | | |
| (b) Dry Wl. + Tare | 142.079 | g | 9 | g | 9 | g | |
| (c) WI. Tare | 31.61 9 | 9 | ġ | | g | g | × |
| (d) Wt. Waler (a - b) | 8.22 8 | g | | | | g | * |
| WI. Wet Solids (a - c) | 118,68° | a) | 9 | g | 7 | g | |
| (e) Wi. Dry Solids (b - a) | 110.460 | | 9 | 9 | 9 |) a | 15 1/18/08 |
| Water Content (d/e) x 100, % | 7.44 | | | | | | |
| Is Wet WI. Enough for Method B? (ves/no) | YES | | | | | | |
| Remarks: | | | | k | • | | 6 * |
| | | | | | | * | 5 |
| Test Notes: 1. Oven dry at 110°C (±5°C) for 2. Cool in desiccator for a minim | 12 heurs minin um of 30 minul | wm. les before wei | ghing. | | 0 | EI 💭 | × |
| | <u> </u> | | | | Form ' | 101.1, rev. 1 | |

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RCTS Testing Record (Page 1 of 10)

| | Project | #: 0411-08-1695 | _Project: | : <u>Nine Mile Poin</u> | t Unit 3, Os | wego, New York | |
|---------|-----------------------|---|-------------------|-------------------------|---|--------------------|------------|
| NATORIN | Specim | ien #: <u>#-1</u> | en Descri | iption: <u>CLS</u> | /بد ٢٠ | for gravell | |
| 233/08 | Checke | tien #: <u>#-A-A</u> Specim By, per GEI Procedure 10 ed By: | 2 rev (0) Date | 1: Jupic C | <u> </u> | te: <u>6. 9.58</u> | |
| 3/1/08 | | . (_ | | · | | | |
| | ~~~~ | ation: $2c7$ | | Pers 1.8 00 | | | |
| | Confin | ing Pressure: 3. 1 P. | <u> </u> | Testing S | stage: | <u>X0.25</u> | |
| | RC Th | me Effect Tests | | | | | |
| | Time | | Input | Gain @ | | | |
| | (min) | File Name | (mV) | Charge Amplifier | fr (Hz) | Notes | |
| AM | 8:-5 | B-2-Amtral-2-13-To | 4 | / | 111.1 | | |
| | | 82-10t-n1-2-13.T-1 | 4 | 1 | 115.4 | | |
| | -62D 45 b/ | | | | 1 | | 1.1.4 |
| , | | ain Amplitude Effect Tes | sts | | | | 1036/10/08 |
| | Time (min) | File Name | Input (mV) | Gain @ Charge | fr (Hz) | Notes | • • |
| | | | | Amplifier | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | |
| | | | | | * *** | / | |
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| | united and the of the | | 4 | | | | |
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| | Resona | int Frequency Check afte | r Hjøher | Strain Amelite | ide Tests | | |
| | Time | | | Gain @ | | | |
| | (min) | File Name | Input (mV) | Charge Amplifier | fr (Hz) | Nôtes | |
| | | | | | | | |

| | | | | . 6 | (1 ,24.08 | |
|----------------|---|-------------------------|---------------------------------|---------------------|---------------------------------------|-------------|
| RCTS | Festing Record (Page 2 | of 10) | 8 23/19/ | 08 | | |
| Station: | AC7 Da | te: 6.4.0 | 8 | Tested b | v: fts | wood Jupic |
| Project | #:041-08-1696 | P | roject Name: | <u> </u> | | |
| Boring | #: sint B-2 Sp | ecimen #: 1 | toral of - | | | ¥# |
| Confini | Festing Record (Page 2 AC.7 Da #: o.441-o.8-1696 #: b.447-0.8-1696 #: b.447-0.8-2 Sp ag Pressure $Magain Graves 1$ | | Cesting Sta | nge: <u>X0</u> | .25 | 123 6/10/08 |
| TS Test | ts (prior to tests, fr= | Hz) | | | | 10 |
| Freque (Hz) | ncy File Name | Pre-Am Input (mV) | p Post-Amp Input (mV) | Strain Amplitude | Notes | |
| 0.5 | | (m +)_ | (| | | - |
| 0.5 | | | | | / | - |
| 0.5 | | * | | | | |
| 0.5 | | | | | | |
| 0.1 | | | | | | |
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| 0.5 | | | ···· | | | |
| 0.5 | | | | | | |
| Resona | at Frequency Check aft | er Higher St | rain Amplitude | Tests | | |
| Time (min) | File Name | Input (mV) | Gain @ Charge # Amplifier | îr (Hz) | Notes | |
| | | | | | | 1 |

RCTS Testing Record (Page 3 of 10)

| 12 | |
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| 624 | 0B |

| | Station: Project | <u>дс7</u> #:0411-08-1696 | e:6: 4 | Project Name: Notoro | Ter G | sted by: £+ Sov | ad Jupic |
|------|---------------------|--|---------------|-------------------------------|-----------|--|--------------|
| | Boring | #: <u>8-2</u> Spe | cimen #:_ | Notoral -1 | جير | | |
| | Confini | ing Pressure: 6.2 13 | <u>1</u> | Testing S | tage: | <u>X0.5</u> | × |
| | RC Tir | ne Effect Tests | | | ····· | * | |
| | Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes | |
| AM | 9:54 | 8-2-Notrol-2-96 -T.O | 10 | _/ | 119 | | |
| A٩ | 11:33 | 2-2-Notoral-2-96-7.7 | 10 | 1 | 123.6 | | 108 |
| Engl | Cort. | B-2-Notrol-2-96-T.0 B-2-Notrol-2-96-T.7 | · | | | | - chpt- |
| | 4 | /18 /08 ain Amplitude Effect Tes | ate | | | | · p3 6/10/08 |
| (| Rime (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes | ¢ B |
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| | Resona | ant Frequency Check afte | er Higher | Strain Amplitu | nde Tests | | |
| | Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes | |

RCTS Testing Record (Page 4 of 10)

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| Station: | Dat | e* | | Tested by | ¢. | ,050/10/0 |
|-------------------|---------------------------------------|-------------------------------|---------------------------|---------------------|---------------------------------------|-----------|
| Project #: | | e:Pro Pro cimen #: | iect Name: | roatou oy. | · · · · · · · · · · · · · · · · · · · | 1 P · · |
| Boring #: | Spe | cimen #: | , | | / | |
| Confining Pr | essure: | _ T (| esting Sta | ge: <u>X0.</u> | 5 | |
| TS Tests (pr | har to tests, fr= | Hz) | | | | |
| Frequency (Hz) | Rile Name | Pre-Amp Input (mV) | Post-Amp Input (mV) | Strain Amplitude | Notes | |
| 0.5 | | | | | <u></u> | |
| 0.5 | | | | | |] |
| 0.5 | | | | | |] |
| 0.5 | | | | | |] |
| 0.1 | | | | | |] |
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| 10 | | | | | | 1 |
| 0.5 | | | | | |] |
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| 10 | | | | | | 1 |
| 0.5 | | | к с | | |] |
| 0,5 | | | | | | |
| | equency Check afte File Name | Input (| Fain @ | | Notes | - |
| <u> </u> | | | mpimer | N | | |

RCTS Testing Record (Page 5 of 10)

| Contin | ng Pressure: 12.5 P. | <u>//</u> | Testing | stage: | |
|---------------|---------------------------|---------------|-------------------------------|----------|---------------------------------------|
| RC Tir | ne Effect Tests | | | | |
| Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
| | B-2-N-+(-2-P12-1 | 0 10 | 1 | 129.3 | |
| 1127 | 0.2-Nutoral -2-112-T-7 | ,0 | 1 | 136.1 | |
| END. | 5 6/18/08 | | | | |
| | 5 6/18/08 | | | | |
| RC Str | ain Amplitude Effect Te | sts | | | · |
| Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
| 3~18 | B-2-Notun 1-2-12- 5.0 | r | } | 136.6 | |
| 1.18 | B-2-1-60-1-2-P12-5-1 | 10 | ١ | 136.1 | |
| 7~19 | B.Z-Notical-2-PR-S-2 | | | 125.9 | |
| \$/9 | B-2-Nahral-2-P12-5-3 | | 1 | 134.6 | |
| 19 | B-2-Autoral -2-12-5-4 | | 1 | 132.1 | |
| 1.20 | B-2-Nator-l-2-PA-5A.0 | | 10 | 12.8.1 | <u>v</u> |
| 1:2/ | Ba-w-ford-z-pa-sh-1 | 320 | 10 | 122 | |
| | B-2-Notur-1-2-PN-58-0 | 640 | 10 | 113.8 | |
| 3.12 | 8-2- Natura (-2- PA-5 C-0 | 12 80 | 10 | 102.3 | |
| | p luz | | | <u> </u> | * * * * * * * * * * * * * * * * * * * |
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Resonant Frequency Check after Higher Strain Amplitude Tests

| | Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
|-----|---------------|----------------------|---------------|-------------------------------|---------|-------|
| -PM | 3.24 | B. 2-Nahral-2-PR-SCI | . /0 | 1 | /]2,8 | |

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RCTS Testing Record (Page 6 of 10)

| Station: RC7 Date: 6.4 | .08 | Tested by: Sur | 1 Jupic |
|----------------------------------|----------------------|----------------|---------|
| Project #: 0411~08~1694 | Project Name | <u>GET</u> | |
| Boring #: <u>B-2</u> Specimen #: | Project Name: | | |
| Confining Pressure: 12. [Pal | Testing Stage | : <u>X1</u> | |

| Frequency (Hz) | File Name | Pre-Amp Input (mV) | Post-Amp Input (mV) | Strain Amplitude | Notes | |
|-------------------|------------------------|--------------------------|---------------------------|---------------------|-----------|--------|
| 0.5 | B-2-U-H-1-2-PM-TS | 010.10 | 1.98 | 1.3-6 | | |
| 0.5 | B-2-10-10-2-7/201502 | 0.20 | 3.96 | 2.8-6 | | |
| 0.5 | \$2-04-1-2-P12-TSO> | 0.4 | 7.92 | 0.6-5. | | . ini |
| 0.5 | 82-14/001-2-PR-TSOY | 0.640 | 613ª n. 28 | 1.07-5 | 1.02-5 5 | f 61 |
| 0.1 | B2-1-40-1-2-192-7505 | 0.62 | 12.28 | 1.05-5 | | |
| 0.5 | or-w-fund-r-p12-7506 | 1 | | 1.01 -5 | | |
| 1 | 82-11-1-1-1-11-1507 | | | 1-5 | | |
| 5 | BI-Andrond-2-PATS08 | · • • | 4 | 0.97-5 | | |
| . 10 | 82-U-M-1-2-PA 7109 | 0.62 | 12.28 | 0.95-5 | | |
| 0.5 | 02-10-10-12-11-TJ10 | 1.24 | 24.56 | 2.15-5 | | |
| 0.5 | 82-11-hand-2-PR-7311 | 2.48 | 49.13 | 4.8-5 | | |
| 0.5 | Bruchenles-PRTS12 | 4.5 | 89.31 | 1.01-4 | | |
| 0.1 | 12-10-1-1-PD-T-117 | 4.5 | B9.75 | 1.04-4 | | |
| 0,5 | 12-10-toral-2-172-1514 | r |) | 1-4 | | с с |
| 1 | 92-Not-1-2-P127515 | | | 0.99-4 | | 6 |
| 5 | 82-Notural-2-PA-TS/6 | Ŵ | V . | 0-96 - 4 | * * * * * | |
| | 02-10-turl-2-1712-1517 | 4.0 | 89.71 | 0.94-4 | | |
| 0.5 | 4.~9 | • • | | | | |
| 0.5 | | | | | | |

TS Tests (prior to tests, fr=/36.1 Hz)

Resonant Frequency Check after Higher Strain Amplitude Tests

| Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
|---------------|---------------------|---------------|---------------------------------------|---------|-------|
| 2:/2 | B 2-NAMA (-2-P/2-7) | ck 10 | 1 | 171.8 | |
| D:12 | NK | 10 | 1 | 36.1 | |
| ' ENO | , | | · · · · · · · · · · · · · · · · · · · | | |

| Project Boring | $\frac{P-C7}{\#; 0.41-08-169}$ $\frac{B-2}{2}$ $\frac{P-C7}{2}$ | ≦_ cimen#: ∘ | Project Name: | <u> </u> | sted by: f^{f} |
|------------------------------|---|---------------------------------------|--|-----------|------------------|
| Confini | ing Pressure: 2 (p_4 | | Testing S | Stage: | <u>X2</u> |
| RC Th | ne Effect Tests | | | | |
| Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
| :29 | B-2-Looky 1-2-125-T. | . 10 | 1 | 1462 | |
| | | | 1 | 1541 | |
| | | , , | | | |
| I <mark>C Str</mark> Sime | 5 6/18/08 ain Amplitude Effect Tes | sts Input | Gain @ | | |
| (mid) | File Name | (mV) | Charge Amplifier | fr (Hz) | Notes |
| <u> </u> | | | | | |
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| Reson | ant Frequency Check after | er Higher | | ude Tests | |
| Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |

RCTS Testing Record (Page 8 of 10)

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| Station: | Date | × | | Tested by: | |
|-------------------|-------------------|--------------------------|---------------------------------------|---------------------------------------|---------------|
| Project #: | | Pro | ject Name: | | |
| Boring #: | Spec | 1111 men #: | | | |
| <i>S</i> . | essure: | | | | |
| TS Tests (pr | ior to tests, fr= | Hz) | | | / |
| Frequency (Hz) | File Name | Pre-Amp Input (mV) | Post-Amp Input (mV) | Strain Amplitude | Notes |
| 0.5 | | | | | |
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| 0.5 | | | | · · · · · · · · · · · · · · · · · · · | |
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| 5 | | | · · · · · · · · · · · · · · · · · · · | | x 2000,200 |
| 10 | | | × | | |
| 0.5 | | | ~ * | | |
| 0.5 | 7 | | ······ | | * */**/ |

| Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
|---------------|-----------|---------------|-------------------------------|---------|-------|
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| | RCTS | Testing Record (Page 9 a | | 51 6.2408 | | | | | |
|-----------------|---------------|---|---------------------------------------|-------------------------------|---|--|----|--|--|
| | Station | <u>pc</u> Dat | e: <u>6.4</u> | | Te | sted by: At Surad Jup | ic | | |
| | Project | Station: $\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $ | | | | | | | |
| | Boring | #: <u></u> Spe | | | | | | | |
| | Confin | ing Pressure: TO Pri | <u> </u> | Testing 8 | Stage: | <u>X4</u> | | | |
| | RC Ti | me Effect Tests | | | | | | | |
| | Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes | | | |
| P/7 | 5:12 | 8-2-10/1-2-P50-50 | 10 | 1 | 166.3 | | | | |
| 10 | 6:49 | 0-2-Notion -2-1 50-7-7 | 10 | / | 175.9 | 2 A.F. 200 X 2 (0) (0) (0) (0) (0) (0) (0) (0) (0) (0) | | | |
| 147 <i>m</i> in | 7:38 | 147 1 62408 -TA | 10 | 1 | 176.6 | | | | |
| * * * * * | | | | | * | | | | |
| | RC Sta | ain Amplitude Effect Te | sts | | | | | | |
| | Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes | * | | |
| PM | 8:47 | 8-2-Nof-1-2-150-5- | 2 5 | 1 | 176.6 | | | | |
| | 8147 | 8-2-Notoral-2- 750-5-1 | ular o | I | 174.6 | | | | |
| 1 | | B-2-Nohon (-2- Pro-S-2 | | 1 | 176.3 | | | | |
| | B:48 | B-2-MAMI-2-Pro-(_) | 40 | 1 | 176.1 | | | | |
| | 8:48 | 87-N+421-2-P50-1-4 | 80 | 1 | 1253 | | | | |
| 1 | | B-2-1-1-1-2-10-1 A-0 | 160 | 10 | 173.1 | | | | |
| | 8:50 | BZ-Habural-Z-PSOSA-1 | 320 | 10 | 169.4 | i i | | | |
| l l | 8:51 | 0-2-Notrol-2-POR-50-0 | 640 | 10 | 162.4 | | | | |
| 1 | 8:52 | 0-2-wotur-1-2-P.00-56-00 | 1280 | 10 | 152.7 | | | | |
| 4 | | 22-110-2-Pro-1D-2 | 2560 | 10 | 138.9 | | | | |
| РM | 8:54 | 8-2-Hohural-2-AD-17= 0 | 4000 | 10 | 129.4 | | | | |
| | Ļ | LooD | | | ~~ <u>~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~</u> | | | | |
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Resonant Frequency Check after Higher Strain Amplitude Tests

| | Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
|----|---------------|----------------------|---------------|-------------------------------|---------|-------|
| pm | 6:22 | B-2-Nahral 2-Pro-SCK | | | 171.6 | |

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RCTS Testing Record (Page 10 of 10)

| RC18 Testing Record (Page 10 o | * | 6.24.08 | |
|--------------------------------|------------------------|------------------|----------|
| | 6.4.08 | Tested by: FJSuv | ad Jupic |
| Project #:0411-08-1696 | Project Name: | GÉI | |
| Boring #: <u>B-2</u> Speci | men #: <u>Nation</u> 7 | | |
| Confining Pressure:/ | _ Testing Stage | e: <u>X4</u> | |

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| Frequency (Hz) | File Name | Pre-Amp Input (mV) | Post-Amp Input (mV) | Strain Amplitude | Notes |
|-------------------|------------------------|--------------------------|---------------------------|---------------------|---------------------------------------|
| 0.5 | B-2-N-K-1-2-PSO-74 | 01 0.15 | 2.97 | 1.56-6 | X XX |
| 0.5 | 8-2-40/ml-2-Pro-102 | 0.7 | 5.94 | 7.1 - 6 | |
| 0.5 | \$-2-4-hora(-2-10-150) | 0.6 | 11.89 | 0.6-5 | · · · · · · · · · · · · · · · · · · · |
| 0.5 | B2-U-ture (-2-Pro-TSOY |] | 19.83 | 1-5 | ana di X |
| 0.1 | \$2-40hrol-2-Pro.7607 | 1 | 17.87 | 1.07-5 | x |
| 0:5 | B2-Mahal-2-PSD-TSOL | 1 | 1 | 1-5 | |
| 1 | B2-Noturel-2-PSD-TSO7 | 1 | | 0.98-5 | 0.000 |
| 5 | 82-babreliz-pro-7508 | 1 | ¥ | 0.96-5 | |
| 10 | 12-40/4-1-2-770-7809 | 1 | 19.83 | 0.77-5 | |
| 0.5 | 32-10-1-2-Pro-7510 | 2 | 39.66 | 2-1 | |
| 0.5 | 8-2-16fund-2-750-TS11 | 4 | 73.35 | 4.2-5 | |
| 0.5 | 07-110/-1-2-P50-75/L | 4.7 | 92.27 | 4.2-5 | |
| 0.1 | p-2-410/mal-2-Pro-251) | 47 | 93.27 | 4.9-1 | |
| 0.5 | BZ-Hafuni-L-Pro-III | 1 | 1 | 4717-r | x you paysoned |
| 1 | B-2-Hatural-2-PSO-THS | | | 4-7-5 | |
| 5 | 82-11-1-2-750-7516 | ¥ | | 4.55-5 | |
| | 102-Hofurd-2-750-15/7 | 4.7 | 93.27 | 4.4-5 | |
| 0.5 | LwD | | | | |
| 0.5 | | | | | 97 |

TS Tests (prior to tests, fr=176, 6 Hz)

Resonant Frequency Check after Higher Strain Amplitude Tests

| Time (min) | File Name | Input (mV) | Gain @ Charge Amplifier | fr (Hz) | Notes |
|---------------|------------------------|---------------|-------------------------------|---------|-------|
| 8:17 | B-2-habra (-2-PJa-+SCK | 10 | 1 | 174.8 | |
| 8:41 | Wh | 10 | 1 | 176.6 | |
| END | | | 5 | | |