RIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-15A | SAMPLED | 11/21/13 MWH |
| DEPTH | 41.0-41.5' | TEST STARTED | 02/09/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 02/19/14 DPM |
| SOIL DESCR. | Sandy Clay | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 5040 | TEST TYPE | TX/Pbp/Tap Water |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 1.4 | 10.0 | | | | |
| 50.0 | | 11.5 | 11.7 | 38.5 | 48.3 | 9.8 | 0.98 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT Time (Min) | Burette Reading (CC) | Volume Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.00 | 11.70 | 0.00 |
| 0.25 | 0.50 | 14.45 | -2.75 |
| 0.5 | 0.71 | 14.70 | -3.00 |
| 1 | 1.00 | 14.95 | -3.25 |
| 2 | 1.41 | 15.35 | -3.65 |
| 4 | 2.00 | 16.10 | -4.40 |
| 9 | 3.00 | 17.35 | -5.65 |
| 16 | 4.00 | 18.60 | -6.90 |
| 30 | 5.48 | 20.00 | -8.30 |
| 60 | 7.75 | 21.10 | -9.40 |
| 120 | 10.95 | 21.50 | -9.80 |
| 240 | 15.49 | 21.85 | -10.15 |
| 360 | 18.97 | 22.00 | -10.30 |

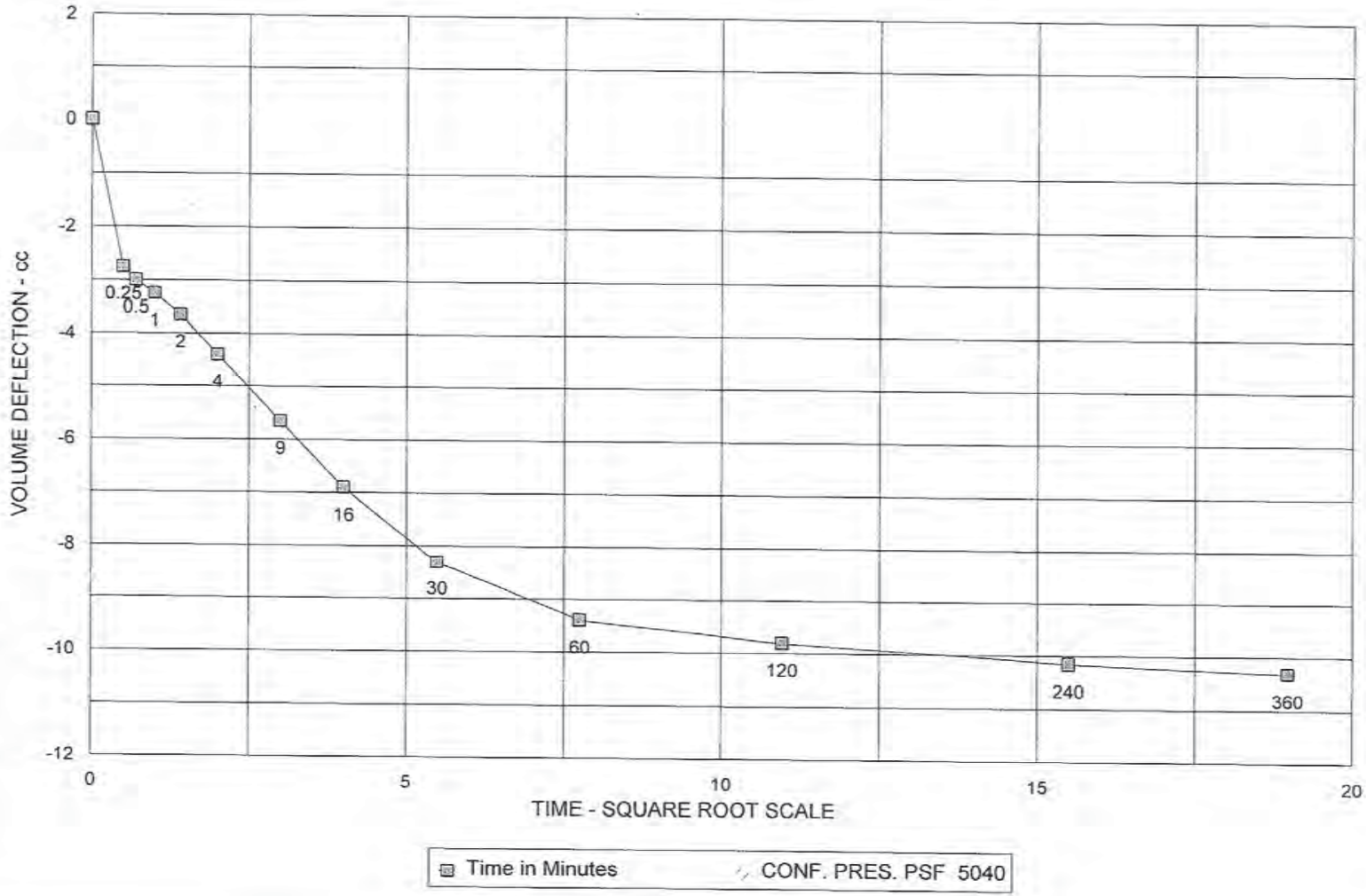
| | | | |
|---|---|---|---|
| Initial Height (in) | 2.960 | Init. Vol. (CC) | 141.42 |
| Height Change (in) | 0.085 | Vol. Change (CC) | 23.20 |
| Ht. After Cons. (in) | 2.875 | Cell Exp. (CC) | 14.50 |
| Initial Area (sq in) | 2.915 | Net Change (CC) | 8.70 |
| Area After Cons. (sq in) | 2.816 | Cons. Vol. (CC) | 132.71 |

Data entry by: DPM Date: 04/04/2014
Checked by: 142 Date: 4/5/14
FileName: PBCH115A

ADVANCED TERRA TESTING, INC. ATT

# CONSOLIDATION DATA

TI-B1-15A, 41.0-41.5', -



PERMEABILITY TEST - BACK PRESSURE CONSTANT HEAD
ASTM D 5084

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-13A | SAMPLED | 11/21/13 MWH |
| DEPTH | 36.0-36.5' | TEST STARTED | 02/08/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 02/19/14 DPM |
| SOIL DESCR. | Clayey Sand | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 4608 | TEST TYPE | TX/Pbp/Tap Water |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 272.8 | 278.0 |
| Wt. Wet Soil & Pan (g) | 279.4 | 284.5 |
| Wt. Dry Soil & Pan (g) | 227.3 | 227.3 |
| Wt. Lost Moisture (g) | 52.0 | 57.1 |
| Wt. of Pan Only (g) | 6.5 | 6.5 |
| Wt. of Dry Soil (g) | 220.8 | 220.8 |
| Moisture Content % | 23.6 | 25.9 |
| Wet Density PCF | 119.3 | 119.8 |
| Dry Density PCF | 96.6 | 95.2 |

| | | | |
|---|---|---|---|
| Init. Diameter (in) | 1.929 | (cm) | 4.900 |
| Init. Area (sq in) | 2.922 | (sq cm) | 18.856 |
| Init. Height (in) | 2.981 | (cm) | 7.572 |
| Vol. Bef. Consol. (cu ft) | 0.00504 | | |
| Vol. After Consol. (cu ft) | 0.00511 | | |
| Porosity % | 39.44 | | |
| Constant Head (PSI) | 2.00 | (cm) | 140.79 |

| Time Min | Time Sec | Init. Burette CC | Final Burette CC | Head Corr. CM | Permeability k cm/sec |
|---|---|---|---|---|---|
| 480.0 | 28800 | 47.4 | 28.8 | 23.9 | 2.1E-06 |
| 440.0 | 26400 | 46.4 | 30.8 | 23.3 | 1.9E-06 |
| 240.0 | 14400 | 47.8 | 39.9 | 17.6 | 1.7E-06 |
| 426.0 | 25560 | 47.6 | 34.0 | 20.9 | 1.7E-06 |
| 240.0 | 14400 | 46.7 | 39.3 | 18.5 | 1.6E-06 |
| 240.0 | 14400 | 39.3 | 32.1 | 26.5 | 1.7E-06 |

Average Temperature 21.1

Data entry by: DPM Date: 04/04/2014
Checked by: KR Date: 4/5/14
FileName: PBCH113A

ADVANCED TERRA TESTING, INC. ATT

RIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-13A | SAMPLED | 11/21/13 MWH |
| DEPTH | 36.0-36.5' | TEST STARTED | 02/08/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 02/19/14 DPM |
| SOIL DESCR. | Clayey Sand | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 4608 | TEST TYPE | TX/Pbp/Tap Water |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 1.8 | 8.3 | | | | |
| 50.0 | 48.0 | 9.1 | 9.9 | 38.1 | 46.9 | 8.8 | 0.88 |
| 60.0 | | 9.4 | 9.4 | 48.0 | 57.6 | 9.6 | 0.96 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT Time (Min) | Burette Reading (CC) | Volume Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.00 | 9.40 | 0.00 |
| 0.25 | 0.50 | 14.25 | -4.85 |
| 0.5 | 0.71 | 14.45 | -5.05 |
| 1 | 1.00 | 14.60 | -5.20 |
| 2 | 1.41 | 14.70 | -5.30 |
| 4 | 2.00 | 14.85 | -5.45 |
| 9 | 3.00 | 14.90 | -5.50 |
| 16 | 4.00 | 15.00 | -5.60 |
| 30 | 5.48 | 15.15 | -5.75 |
| 60 | 7.75 | 15.30 | -5.90 |
| 120 | 10.95 | 15.40 | -6.00 |
| 240 | 15.49 | 15.60 | -6.20 |
| 360 | 18.97 | 15.80 | -6.40 |

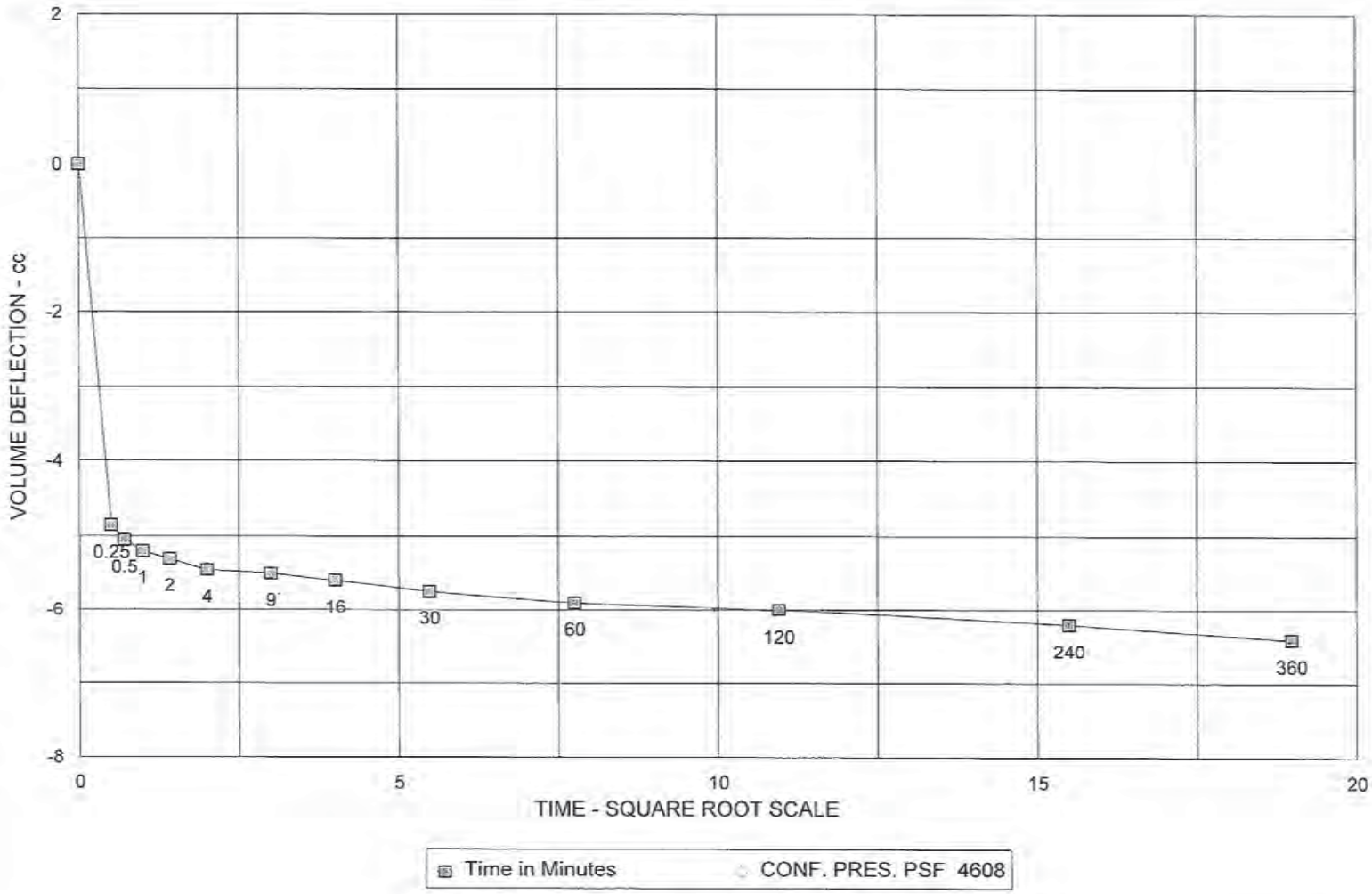
| | | | |
|---|---|---|---|
| Initial Height (in) | 2.981 | Init. Vol. (CC) | 142.79 |
| Height Change (in) | 0.052 | Vol. Change (CC) | 17.70 |
| Ht. After Cons. (in) | 2.929 | Cell Exp. (CC) | 19.72 |
| Initial Area (sq in) | 2.922 | Net Change (CC) | -2.02 |
| Area After Cons. (sq in) | 3.017 | Cons. Vol. (CC) | 144.81 |

Data entry by: DPM Date: 04/04/2014
Checked by: HR Date: 4/5/14
FileName: PBCH113A

ADVANCED TERRA TESTING, INC. ATT

# CONSOLIDATION DATA

TI-B1-13A, 36.0-36.5', -



PERMEABILITY TEST - BACK PRESSURE CONSTANT HEAD
ASTM D 5084

CLIENT MWH

JOB NO. 2512-77

| | | | |
|---|---|---|---|
| BORING NO. | TI-B1-11B | SAMPLED | 11/21/13 MWH |
| DEPTH | 30.5-31.0' | TEST STARTED | 02/08/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 02/20/14 DPM |
| SOIL DESCR. | Sand Tailings (v. fine) | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 3600 | TEST TYPE | TX/Pbp/Tap Water |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 249.8 | 243.4 |
| Wt. Wet Soil & Pan (g) | 256.2 | 249.9 |
| Wt. Dry Soil & Pan (g) | 191.2 | 191.2 |
| Wt. Lost Moisture (g) | 65.1 | 58.7 |
| Wt. of Pan Only (g) | 6.5 | 6.5 |
| Wt. of Dry Soil (g) | 184.7 | 184.7 |
| Moisture Content % | 35.2 | 31.8 |
| Wet Density PCF | 109.4 | 113.8 |
| Dry Density PCF | 80.9 | 86.2 |

| | | | |
|---|---|---|---|
| Init. Diameter (in) | 1.891 | (cm) | 4.803 |
| Init. Area (sq in) | 2.808 | (sq cm) | 18.120 |
| Init. Height (in) | 3.096 | (cm) | 7.864 |
| Vol. Bef. Consol. (cu ft) | 0.00503 | | |
| Vol. After Consol. (cu ft) | 0.00472 | | |
| Porosity % | 43.91 | | |
| Constant Head (PSI) | 2.00 | (cm) | 140.79 |

| Time Min | Time Sec | Init. Burette CC | Final Burette CC | Head Corr. CM | Permeability k cm/sec |
|---|---|---|---|---|---|
| 480.0 | 28800 | 47.5 | 43.3 | 15.9 | 4.9E-07 |
| 1440.0 | 86400 | 47.4 | 36.4 | 19.7 | 4.4E-07 |
| 1331.0 | 79860 | 46.7 | 40.0 | 18.1 | 2.9E-07 |
| 510.0 | 30600 | 40.0 | 37.5 | 23.2 | 2.9E-07 |
| 860.0 | 51600 | 37.5 | 33.3 | 26.8 | 3.0E-07 |
| 489.0 | 29340 | 33.3 | 31.0 | 30.4 | 3.0E-07 |

Note: The sample contains a facies change, Clayey Silt on the bottom with Sand on the top of the sample.

Average Temperature 20.7

Data entry by: DPM Date: 04/10/2014
Checked by: VR Date: 4/11/14
FileName: PBCH111B

ADVANCED TERRA TESTING, Inc. ATT

RIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-11B | SAMPLED | 11/21/13 MWH |
| DEPTH | 30.5-31.0' | TEST STARTED | 02/08/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 02/20/14 DPM |
| SOIL DESCR. | Sand Tailings (v. fine) | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 3600 | TEST TYPE | TX/Pbp/Tap Water |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 1.9 | 9.2 | | | | |
| 50.0 | 48.0 | 10.1 | 11.1 | 38.7 | 48.1 | 9.4 | 0.94 |
| 60.0 | | 10.6 | 10.7 | 48.2 | 58.0 | 9.8 | 0.98 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT Time (Min) | Burette Reading (CC) | Volume Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.00 | 10.70 | 0.00 |
| 0.25 | 0.50 | 15.40 | -4.70 |
| 0.5 | 0.71 | 16.10 | -5.40 |
| 1 | 1.00 | 16.90 | -6.20 |
| 2 | 1.41 | 17.80 | -7.10 |
| 4 | 2.00 | 18.80 | -8.10 |
| 9 | 3.00 | 20.10 | -9.40 |
| 16 | 4.00 | 20.70 | -10.00 |
| 30 | 5.48 | 21.05 | -10.35 |
| 60 | 7.75 | 21.30 | -10.60 |
| 120 | 10.95 | 21.60 | -10.90 |
| 240 | 15.49 | 21.85 | -11.15 |
| 360 | 18.97 | 22.00 | -11.30 |

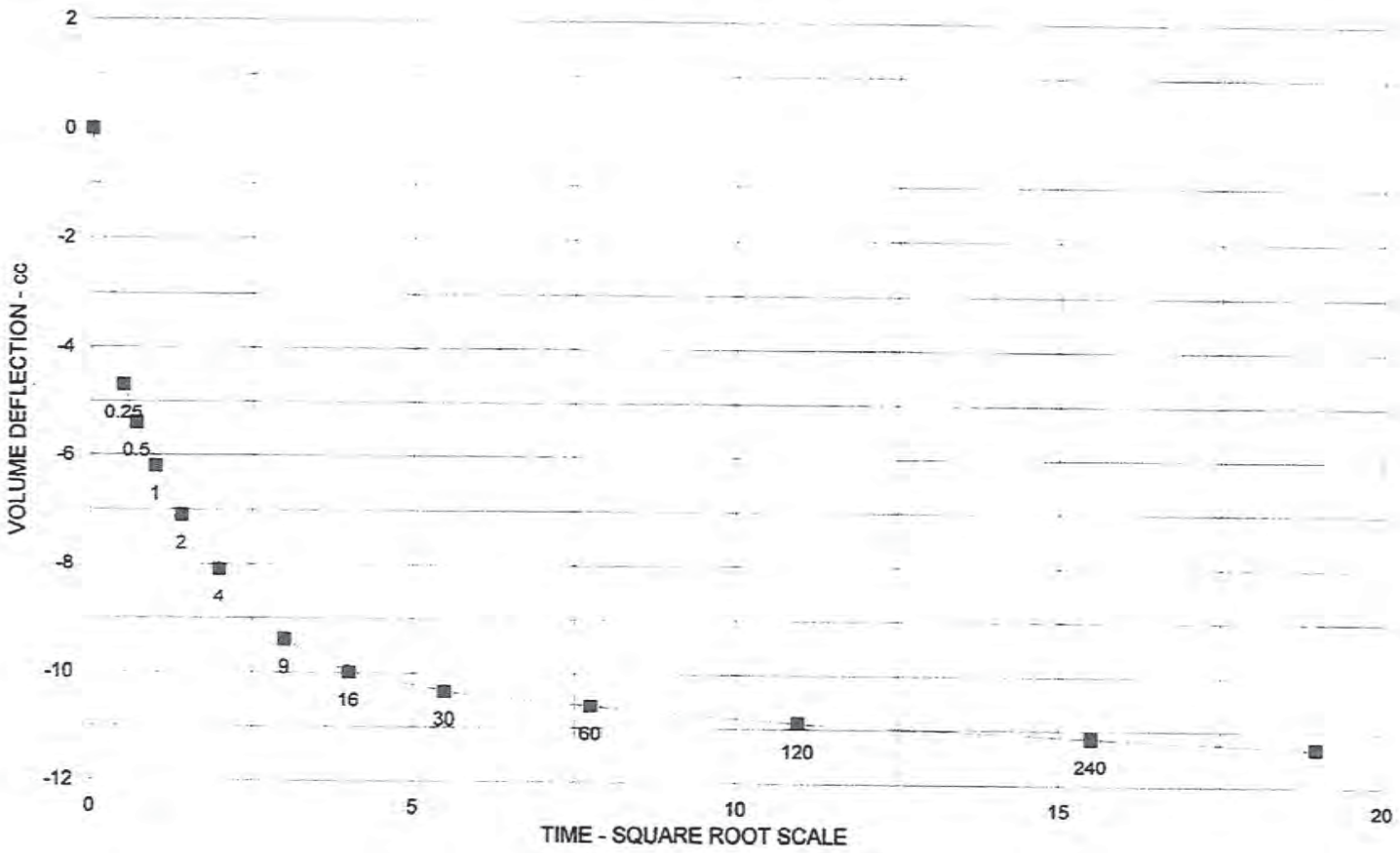
| | | | |
|---|---|---|---|
| Initial Height (in) | 3.096 | Init. Vol. (CC) | 142.51 |
| Height Change (in) | 0.152 | Vol. Change (CC) | 27.00 |
| Ht. After Cons. (in) | 2.944 | Cell Exp. (CC) | 18.23 |
| Initial Area (sq in) | 2.808 | Net Change (CC) | 8.77 |
| Area After Cons. (sq in) | 2.772 | Cons. Vol. (CC) | 133.74 |

Data entry by: DPM Date: 04/10/2014
Checked by: KR Date: 4/11/14
FileName: PBCH111B

ADVANCED TERRA TESTING, INC. ATT

# CONSOLIDATION DATA

TI-B1-11B, 30.5-31.0', -




■ Time in Minutes

CONF. PRES. PSF 3600

PERMEABILITY TEST - BACK PRESSURE CONSTANT HEAD
ASTM D 5084

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B10-14 | SAMPLED | 11/26/13 MWH |
| DEPTH | 40.0-41.0' (40-42.5') | TEST STARTED | 02/21/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 03/04/14 DPM |
| SOIL DESCR. | Clayey Silt Tailings | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 8352 | TEST TYPE | TX/Pbp/Tap Water |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 556.6 | 536.3 |
| Wt. Wet Soil & Pan (g) | 572.4 | 552.1 |
| Wt. Dry Soil & Pan (g) | 396.2 | 396.2 |
| Wt. Lost Moisture (g) | 176.2 | 155.9 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 380.4 | 380.4 |
| Moisture Content % | 46.3 | 41.0 |
| Wet Density PCF | 108.5 | 116.7 |
| Dry Density PCF | 74.2 | 82.7 |

| | | | |
|---|---|---|---|
| Init. Diameter (in) | 2.822 | (cm) | 7.168 |
| Init. Area (sq in) | 6.255 | (sq cm) | 40.355 |
| Init. Height (in) | 3.124 | (cm) | 7.935 |
| Vol. Bef. Consol. (cu ft) | 0.01131 | | |
| Vol. After Consol. (cu ft) | 0.01014 | | |
| Porosity % | 54.32 | | |
| Constant Head (PSI) | 2.00 | (cm) | 140.79 |

| Time Min | Time Sec | Init. Burette CC | Final Burette CC | Head Corr. CM | Permeability k cm/sec |
|---|---|---|---|---|---|
| 1440.0 | 86400 | 47.2 | 44.8 | 15.3 | 4.4E-08 |
| 1440.0 | 86400 | 44.8 | 42.7 | 17.7 | 3.9E-08 |
| 1440.0 | 86400 | 42.7 | 41.1 | 19.7 | 3.1E-08 |
| 1590.0 | 95400 | 41.1 | 39.3 | 21.6 | 3.2E-08 |
| 2880.0 | 172800 | 39.3 | 36.5 | 24.1 | 2.8E-08 |
| 1440.0 | 86400 | 36.5 | 35.1 | 26.4 | 2.9E-08 |

Average Temperature 20.5

Data entry by: DPM Date: 04/10/2014
Checked by: KR Date: 4/11/14
FileName: PBCH1014

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B10-14 | SAMPLED | 11/26/13 MWH |
| DEPTH | 40.0-41.0' (40-42.5') | TEST STARTED | 02/21/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 03/04/14 DPM |
| SOIL DESCR. | Clayey Silt Tailings | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 8352 | TEST TYPE | TX/Pbp/Tap Water |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 3.2 | 9.3 | | | | |
| 50.0 | 48.0 | 9.6 | 10.4 | 38.4 | 47.6 | 9.2 | 0.92 |
| 60.0 | | 10.8 | 10.8 | 48.3 | 58.0 | 9.7 | 0.97 |

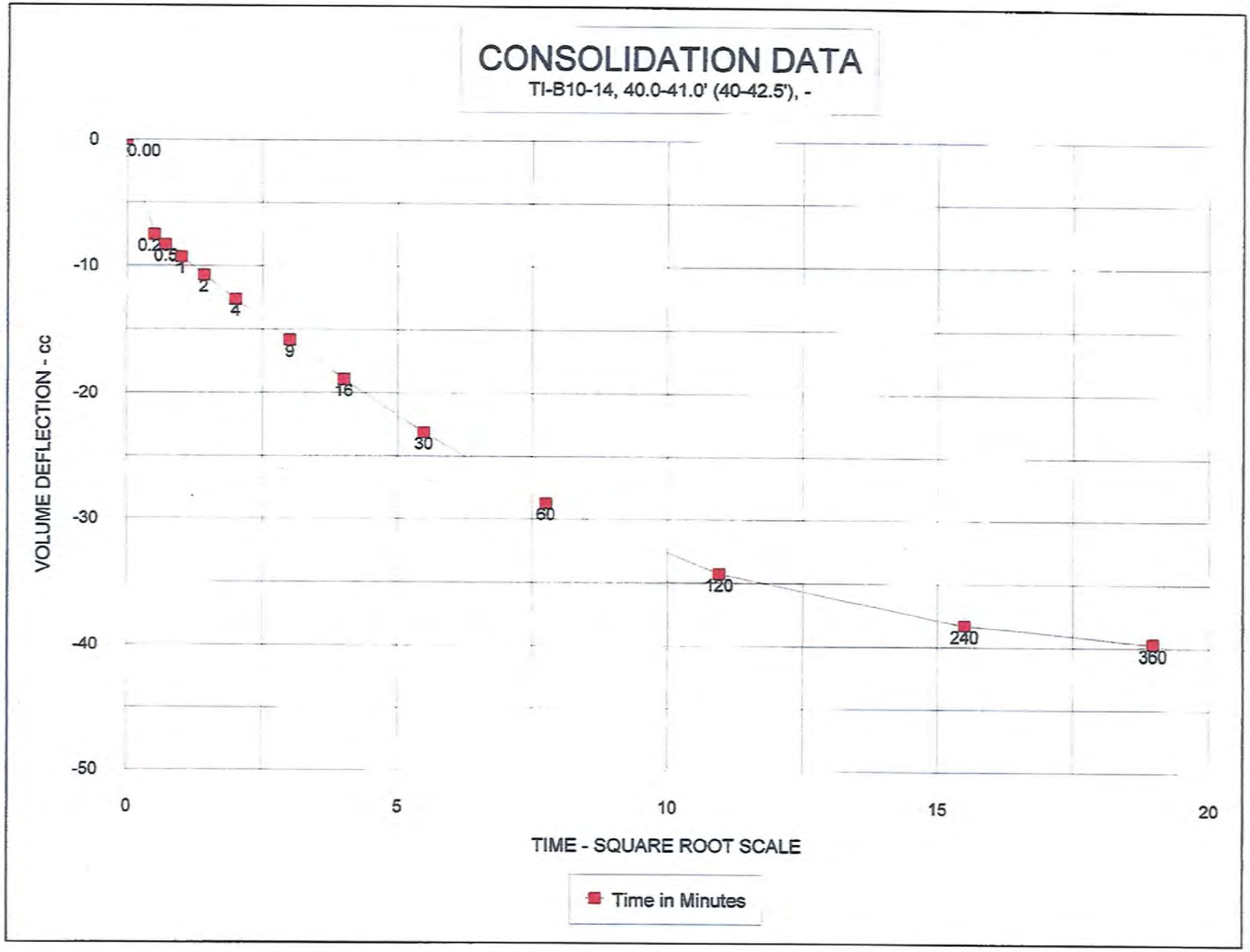
CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT Time (Min) | Burette Reading (CC) | Volume Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.00 | 0.30 | 0.00 |
| 0.25 | 0.50 | 7.80 | -7.50 |
| 0.5 | 0.71 | 8.60 | -8.30 |
| 1 | 1.00 | 9.60 | -9.30 |
| 2 | 1.41 | 11.00 | -10.70 |
| 4 | 2.00 | 12.90 | -12.60 |
| 9 | 3.00 | 16.10 | -15.80 |
| 16 | 4.00 | 19.20 | -18.90 |
| 30 | 5.48 | 23.40 | -23.10 |
| 60 | 7.75 | 29.00 | -28.70 |
| 120 | 10.95 | 34.60 | -34.30 |
| 240 | 15.49 | 38.60 | -38.30 |
| 360 | 18.97 | 40.00 | -39.70 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 3.124 | Init. Vol. (CC) | 320.25 |
| Height Change (in) | 0.144 | Vol. Change (CC) | 54.70 |
| Ht. After Cons. (in) | 2.980 | Cell Exp. (CC) | 21.51 |
| Initial Area (sq in) | 6.255 | Net Change (CC) | 33.19 |
| Area After Cons. (sq in) | 5.877 | Cons. Vol. (CC) | 287.07 |

Data entry by: DPM Date: 03/12/2014
Checked by: VR Date: 4/11/14
FileName: PBCH1014

ADVANCED TERRA TESTING, INC. ATT


CONSOLIDATION DATA
TI-B10-14, 40.0-41.0' (40-42.5'), -
VOLUME DEFLECTION - cc
0
-10
-20
-30
-40
-50
0.00
0.2
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
TIME - SQUARE ROOT SCALE
Time in Minutes

PERMEABILITY TEST - BACK PRESSURE CONSTANT HEAD
ASTM D 5084

CLIENT MWH

JOB NO. 2512-77

| | | | |
|---|---|---|---|
| BORING NO. | TI-B10-26 | SAMPLED | 11/27/13 MWH |
| DEPTH | 106.9-107.3 | TEST STARTED | 02/27/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 3/7/14 DPM |
| SOIL DESCR. | Weathered Sandstone | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 16560 | TEST TYPE | TX/Pbp/Tap Water |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 803.5 | 811.5 |
| Wt. Wet Soil & Pan (g) | 819.3 | 827.3 |
| Wt. Dry Soil & Pan (g) | 719.3 | 719.3 |
| Wt. Lost Moisture (g) | 100.1 | 108.0 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 703.4 | 703.4 |
| Moisture Content % | 14.2 | 15.4 |
| Wet Density PCF | 124.6 | 131.6 |
| Dry Density PCF | 109.1 | 114.1 |

| | | | | |
|---|---|---|---|---|
| Init. Diameter | (in) | 3.040 | (cm) | 7.722 |
| Init. Area | (sq in) | 7.258 | (sq cm) | 46.831 |
| Init. Height | (in) | 3.384 | (cm) | 8.595 |
| Vol. Bef. Consol. | (cu ft) | 0.01421 | | |
| Vol. After Consol. | (cu ft) | 0.01359 | | |
| Porosity % | | 28.06 | | |
| Constant Head | (PSI) | 2.00 | (cm) | 140.79 |

| Time Min | Time Sec | Init. Burette CC | Final Burette CC | Head Corr. CM | Permeability k cm/sec |
|---|---|---|---|---|---|
| 244.0 | 14640 | 43.6 | 42.3 | 18.6 | 1.4E-07 |
| 240.0 | 14400 | 42.3 | 40.8 | 20.1 | 1.6E-07 |
| 916.0 | 54960 | 40.8 | 35.9 | 23.6 | 1.4E-07 |
| 420.0 | 25200 | 35.9 | 33.8 | 27.4 | 1.4E-07 |

Average Temperature 22.1

Data entry by: DPM Date: 04/10/2014
Checked by: KR Date: 4/11/14
FileName: PBCH1026

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B10-26 | SAMPLED | 11/27/13 MWH |
| DEPTH | 106.9-107.3 | TEST STARTED | 02/27/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 3/7/14 DPM |
| SOIL DESCR. | Weathered Sandstone | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 16560 | TEST TYPE | TX/Pbp/Tap Water |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 5.5 | 19.3 | | | | |
| 50.0 | | 21.6 | 22.0 | 38.6 | 48.2 | 9.6 | 0.96 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT Time (Min) | Burette Reading (CC) | Volume Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.00 | 0.30 | 0.00 |
| 0.25 | 0.50 | 16.10 | -15.80 |
| 0.5 | 0.71 | 17.60 | -17.30 |
| 1 | 1.00 | 19.45 | -19.15 |
| 2 | 1.41 | 21.85 | -21.55 |
| 4 | 2.00 | 24.40 | -24.10 |
| 9 | 3.00 | 26.25 | -25.95 |
| 16 | 4.00 | 26.70 | -26.40 |
| 30 | 5.48 | 26.95 | -26.65 |
| 60 | 7.75 | 27.20 | -26.90 |
| 120 | 10.95 | 27.40 | -27.10 |
| 240 | 15.49 | 27.80 | -27.50 |
| 360 | 18.97 | 27.80 | -27.50 |

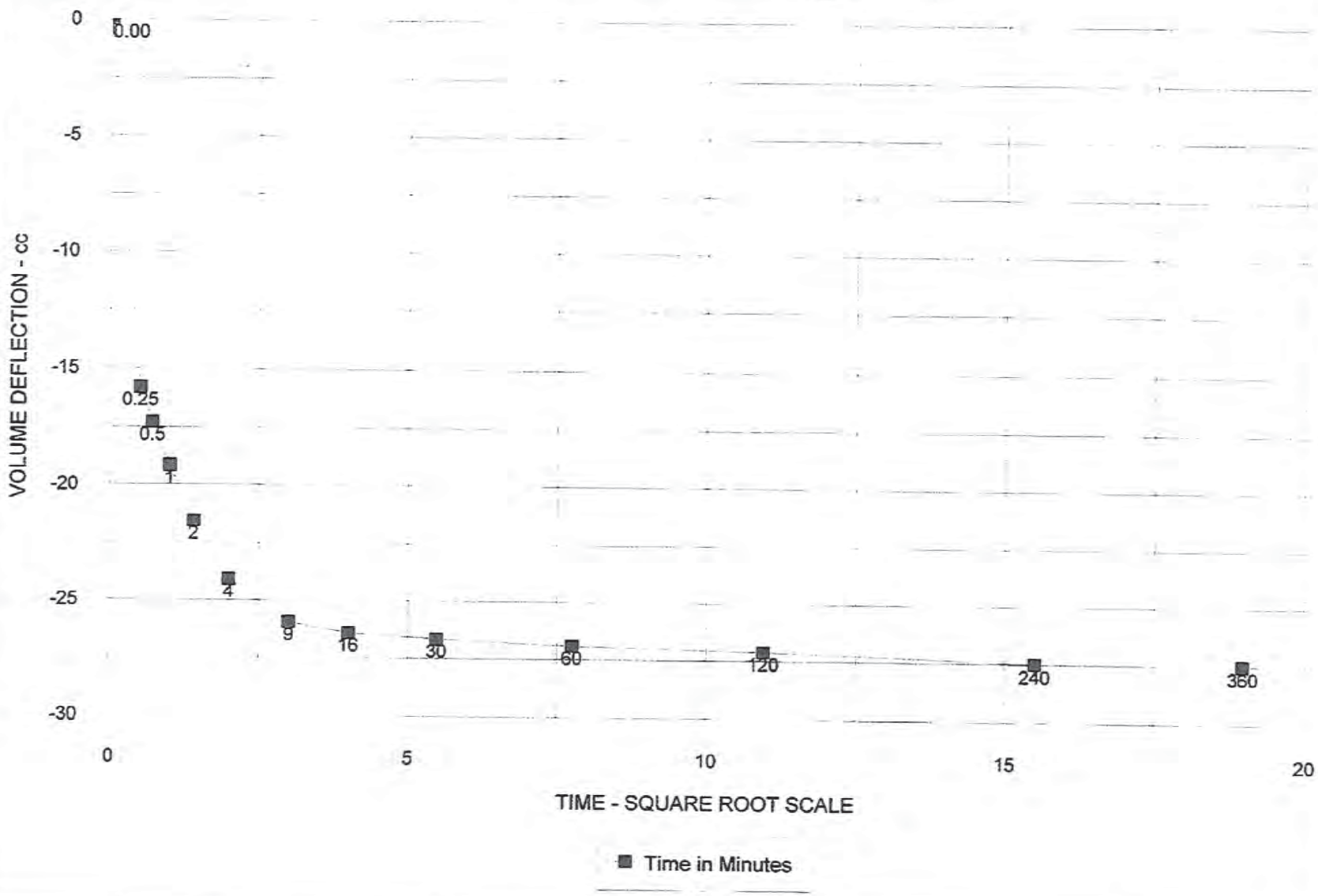
| | | | |
|---|---|---|---|
| Initial Height (in) | 3.384 | Init. Vol. (CC) | 402.57 |
| Height Change (in) | 0.031 | Vol. Change (CC) | 45.50 |
| Ht. After Cons. (in) | 3.353 | Cell Exp. (CC) | 27.94 |
| Initial Area (sq in) | 7.258 | Net Change (CC) | 17.56 |
| Area After Cons. (sq in) | 7.006 | Cons. Vol. (CC) | 385.02 |

Data entry by: DPM Date: 03/12/2014
Checked by: KR Date: 4/10/14
FileName: PBCH1026

ADVANCED TERRA TESTING, INC. ATT

# CONSOLIDATION DATA

TI-B10-26, 106.9-107.3, -



PERMEABILITY TEST - BACK PRESSURE CONSTANT HEAD
ASTM D 5084

CLIENT MWH

JOB NO. 2512-77

| | | | |
|---|---|---|---|
| BORING NO. | TI-B1-09 | SAMPLED | 11/21/13 MWH |
| DEPTH | 27.0-27.5' (25-27.5') | TEST STARTED | 03/27/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/17/14 DPM |
| SOIL DESCR. | Sand Tailings | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 2016 | TEST TYPE | TX/Pbp/Tap Water |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 669.8 | 794.1 |
| Wt. Wet Soil & Pan (g) | 685.6 | 809.8 |
| Wt. Dry Soil & Pan (g) | 659.6 | 659.6 |
| Wt. Lost Moisture (g) | 26.0 | 150.3 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 643.8 | 643.8 |
| Moisture Content % | 4.0 | 23.3 |
| Wet Density PCF | 101.6 | 122.1 |
| Dry Density PCF | 97.6 | 99.0 |

| | | | |
|---|---|---|---|
| Init. Diameter (in) | 2.407 | (cm) | 6.114 |
| Init. Area (sq in) | 4.550 | (sq cm) | 29.359 |
| Init. Height (in) | 5.520 | (cm) | 14.021 |
| Vol. Bef. Consol. (cu ft) | 0.01454 | | |
| Vol. After Consol. (cu ft) | 0.01434 | | |
| Porosity % | 37.01 | | |
| Constant Head (PSI) | 2.00 | (cm) | 140.79 |

| Time Min | Time Sec | Init. Burette CC | Final Burette CC | Head Corr. CM | Permeability k cm/sec |
|---|---|---|---|---|---|
| 0.5 | 30 | 47.1 | 26.6 | 25.2 | 2.8E-03 |
| 0.5 | 30 | 47.0 | 25.7 | 25.8 | 2.9E-03 |
| 0.5 | 30 | 47.7 | 26.8 | 24.8 | 2.9E-03 |
| 0.5 | 30 | 44.9 | 24.4 | 27.6 | 2.9E-03 |

Average Temperature 25.3

Data entry by: DPM/DAW Date: 05/20/2014
Checked by: DPM Date: 5/22/14
FileName: PBCHB109

# TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-09 | SAMPLED | 11/21/13 MWH |
| DEPTH | 27.0-27.5' (25-27.5') | TEST STARTED | 03/27/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/17/14 DPM |
| SOIL DESCR. | Sand Tailings | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 2016 | TEST TYPE | TX/Pbp/Tap Water |

## SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 2.9 | 13.5 | | | | |
| 50.0 | 48.0 | 14.6 | 15.5 | 37.9 | 44.5 | 6.6 | 0.66 |
| 60.0 | 58.0 | 15.7 | 16.8 | 48.6 | 57.0 | 8.4 | 0.84 |
| 70.0 | 68.0 | 16.1 | 17.0 | 58.0 | 66.8 | 8.8 | 0.88 |
| 80.0 | | 19.9 | 19.7 | 67.4 | 77.4 | 10.0 | 1.00 |

## CONSOLIDATION DATA

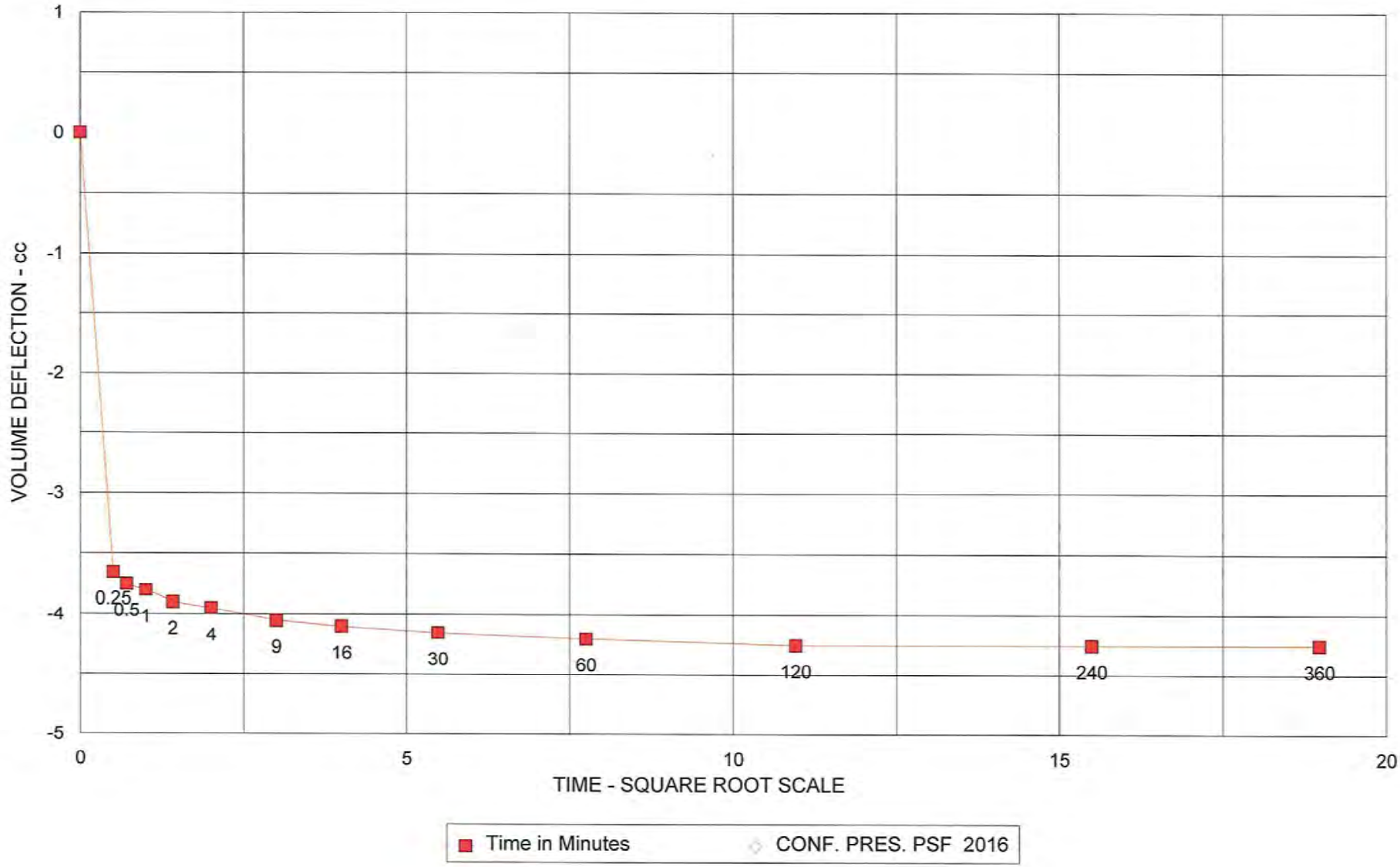
| Elapsed Time (Min) | SQRT Time (Min) | Burette Reading (CC) | Volume Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.00 | 0.60 | 0.00 |
| 0.25 | 0.50 | 4.25 | -3.65 |
| 0.5 | 0.71 | 4.35 | -3.75 |
| 1 | 1.00 | 4.40 | -3.80 |
| 2 | 1.41 | 4.50 | -3.90 |
| 4 | 2.00 | 4.55 | -3.95 |
| 9 | 3.00 | 4.65 | -4.05 |
| 16 | 4.00 | 4.70 | -4.10 |
| 30 | 5.48 | 4.75 | -4.15 |
| 60 | 7.75 | 4.80 | -4.20 |
| 120 | 10.95 | 4.85 | -4.25 |
| 240 | 15.49 | 4.85 | -4.25 |
| 360 | 18.97 | 4.85 | -4.25 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 5.520 | Init. Vol. (CC) | 411.68 |
| Height Change (in) | 0.040 | Vol. Change (CC) | 21.30 |
| Ht. After Cons. (in) | 5.480 | Cell Exp. (CC) | 15.68 |
| Initial Area (sq in) | 4.550 | Net Change (CC) | 5.62 |
| Area After Cons. (sq in) | 4.521 | Cons. Vol. (CC) | 406.06 |

Data entry by: DPM/DAW Date: 05/20/2014
Checked by: DPM Date: 5/22/14
FileName: PBCHB109

# CONSOLIDATION DATA

TI-B1-09, 27.0-27.5' (25-27.5'), -



EFFECTIVE STRESS PATH ANALYSIS TEST DATA
ASTM D4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | | |
| | | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-09 | | |
| DEPTH | 27.0-27.5' (25-27.5') | SAMPLED | 11/21/13 MWH |
| SAMPLE NO. | A,B&C | SATURATED TEST | |
| PROJECT NO. | -- | TEST TYPE | TX/CUPP |
| LOCATION | Tailings Impoundment | | |

| | | | | | | | Peak Points p' PSF | Peak Points q PSF |
|---|---|---|---|---|---|---|---|---|
| CONF. PRES. PSF | SAMPLE A | 2016 | PSF | SAMPLE A | 1958 | 762 |
| | SAMPLE B | 3168 | PSF | SAMPLE B | 3372 | 1888 |
| | SAMPLE C | 4320 | PSF | SAMPLE C | 21139 | 12125 |

**SAMPLE A**

| σ 3' PSF | σ 1' PSF | p' PSF | q PSF |
|---|---|---|---|
| 2016 | 2016 | 2016 | 0 |
| 1987 | 2370 | 2179 | 191 |
| 1786 | 2837 | 2311 | 526 |
| 1541 | 2878 | 2209 | 668 |
| 1354 | 2785 | 2069 | 715 |
| 1195 | 2720 | 1958 | 762 |
| 1080 | 2603 | 1842 | 762 |
| 994 | 2515 | 1754 | 761 |
| 922 | 2442 | 1682 | 760 |
| 850 | 2368 | 1609 | 759 |
| 806 | 2229 | 1518 | 711 |
| 763 | 2184 | 1474 | 710 |
| 720 | 2140 | 1430 | 710 |
| 691 | 2109 | 1400 | 709 |
| 662 | 2079 | 1371 | 708 |
| 634 | 2049 | 1341 | 708 |
| 619 | 2033 | 1326 | 707 |
| 590 | 2003 | 1297 | 706 |
| 590 | 2001 | 1296 | 706 |
| 576 | 1986 | 1281 | 705 |
| 562 | 1970 | 1266 | 704 |

**SAMPLE B**

| σ 3' PSF | σ 1' PSF | p' PSF | q PSF |
|---|---|---|---|
| 3168 | 3168 | 3168 | 0 |
| 2650 | 4717 | 3683 | 1034 |
| 2333 | 5055 | 3694 | 1361 |
| 2146 | 5147 | 3646 | 1501 |
| 2002 | 5093 | 3548 | 1546 |
| 1901 | 5083 | 3492 | 1591 |
| 1814 | 5087 | 3451 | 1636 |
| 1757 | 5026 | 3392 | 1635 |
| 1699 | 5059 | 3379 | 1680 |
| 1656 | 5012 | 3334 | 1678 |
| 1627 | 4980 | 3304 | 1676 |
| 1584 | 5027 | 3305 | 1721 |
| 1570 | 5009 | 3289 | 1720 |
| 1541 | 4977 | 3259 | 1718 |
| 1526 | 5051 | 3289 | 1763 |
| 1512 | 5034 | 3273 | 1761 |
| 1498 | 5016 | 3257 | 1759 |
| 1498 | 5105 | 3301 | 1803 |
| 1483 | 5087 | 3285 | 1802 |
| 1483 | 5175 | 3329 | 1846 |
| 1483 | 5172 | 3327 | 1844 |
| 1483 | 5260 | 3372 | 1888 |
| 1483 | 5259 | 3371 | 1888 |

**SAMPLE C**

| σ 3' PSF | σ 1' PSF | p' PSF | q PSF |
|---|---|---|---|
| 4320 | 4320 | 4320 | 0 |
| 3686 | 7289 | 5488 | 1801 |
| 3499 | 8206 | 5852 | 2353 |
| 3384 | 8731 | 6057 | 2673 |
| 3269 | 9071 | 6170 | 2901 |
| 3197 | 9269 | 6233 | 3036 |
| 3154 | 9404 | 6279 | 3125 |
| 3110 | 9630 | 6370 | 3260 |
| 3082 | 9686 | 6384 | 3302 |
| 3053 | 9834 | 6443 | 3390 |
| 3038 | 9904 | 6471 | 3433 |
| 3038 | 9988 | 6513 | 3475 |
| 3024 | 10058 | 6541 | 3517 |
| 3053 | 10346 | 6700 | 3647 |
| 3053 | 10514 | 6783 | 3730 |
| 3082 | 10800 | 6941 | 3859 |
| 3125 | 11009 | 7067 | 3942 |
| 3139 | 11188 | 7163 | 4024 |
| 3211 | 11604 | 7408 | 4196 |
| 3240 | 11805 | 7522 | 4282 |
| 3398 | 12637 | 8018 | 4619 |
| 3600 | 13594 | 8597 | 4997 |
| 3845 | 14763 | 9304 | 5459 |
| 4090 | 15923 | 10006 | 5916 |
| 4378 | 17115 | 10746 | 6369 |
| 4982 | 19672 | 12327 | 7345 |
| 5674 | 22443 | 14058 | 8385 |
| 6379 | 25180 | 15779 | 9400 |
| 7085 | 27700 | 17393 | 10308 |
| 7790 | 30010 | 18900 | 11110 |
| 9014 | 33264 | 21139 | 12125 |
| 9864 | 33286 | 21575 | 11711 |

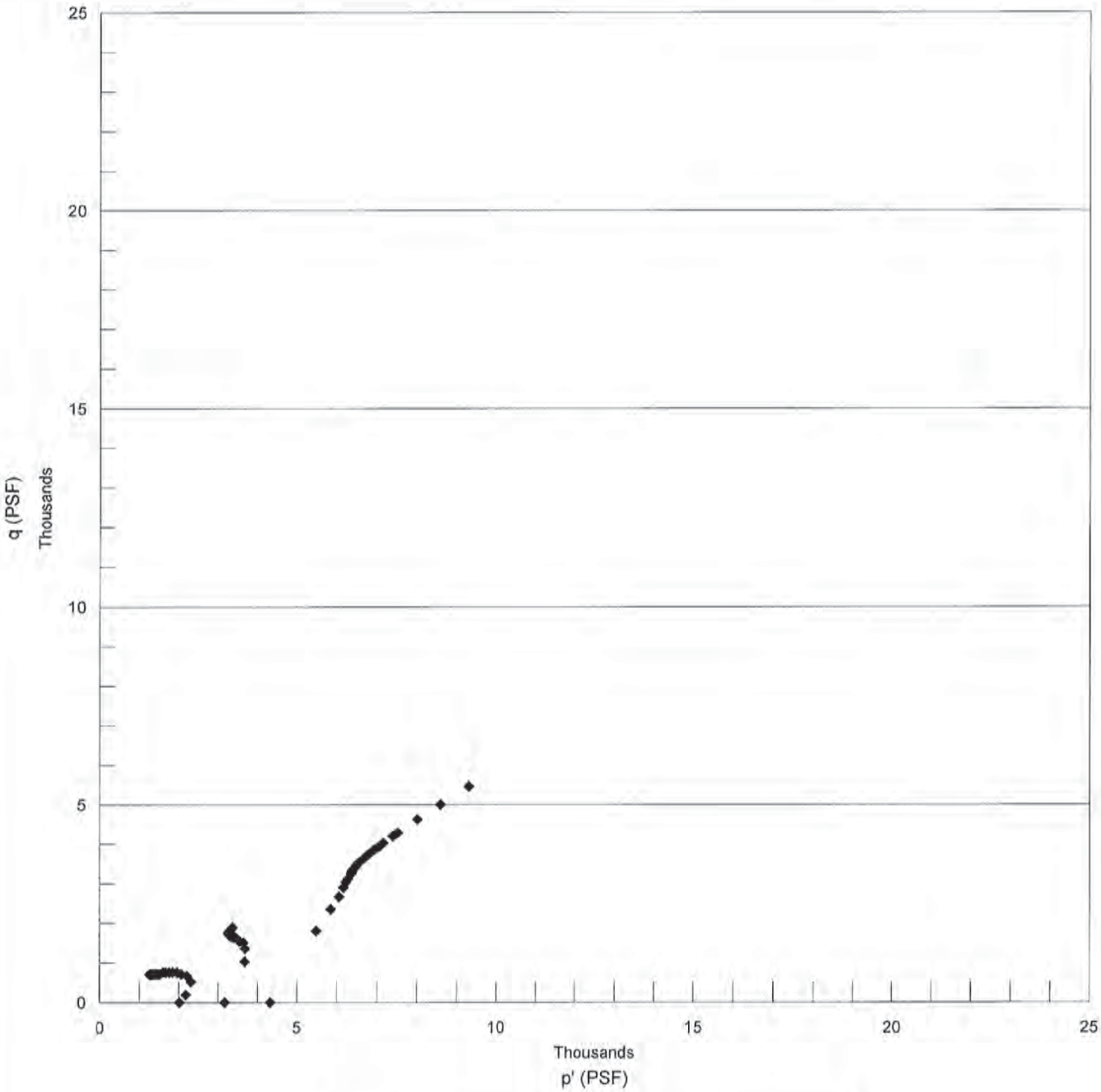
Data entry by: DAW
Data checked by: DRM
FileName: MWPQB109.WK4

Date: 05/22/2014
Date: 5/22/14

ATT
ADVANCED

# Effective Stress Path Analysis - p' q Plots

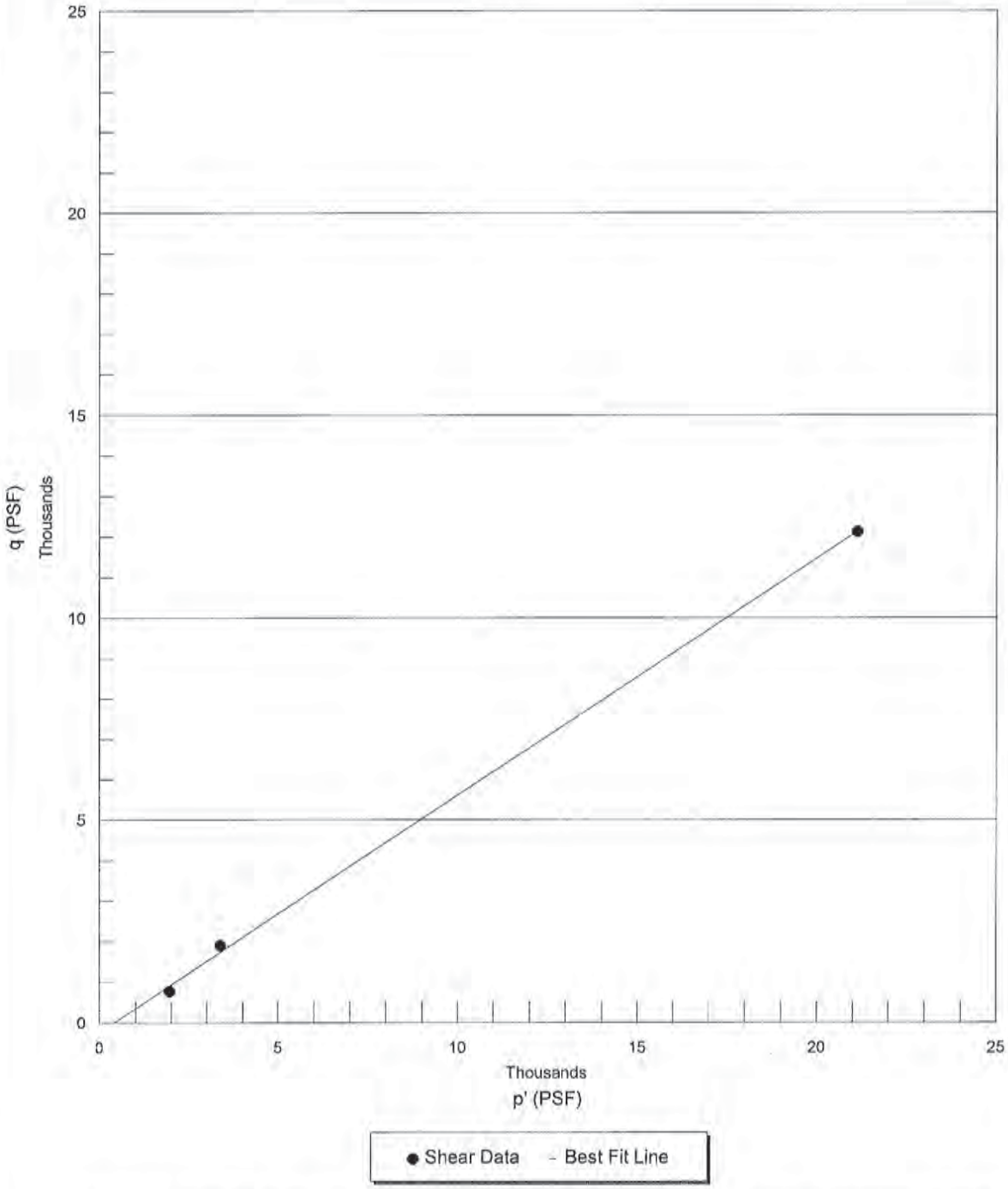
MWH,Tailings Impoundment,--,TI-B1-09,A,B&C,27.0-27.5' (25-27.5')




◆ Stress Paths of Samples A, B & C

# Effective Stress Path Analysis - p'-q Regression Plot

MWH,Tailings Impoundment,--,TI-B1-09,A,B&C,27.0-27.5' (25-27.5')




NOTE: Peak points are plotted for visual verification only. Least squared regression analysis, yields a negative alpha (a) value; therefore no regression analysis has been provided.

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-BI-09 | SAMPLED | 11/21/13 MWH |
| DEPTH | 27.0-27.5' (25-27.5') | TEST STARTED | 03/27/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/17/14 DPM |
| SOIL DESCR. | Sand Tailings | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 2016 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 669.8 | 794.1 |
| Wt. Wet Soil & Pan (g) | 685.6 | 809.8 |
| Wt. Dry Soil & Pan (g) | 659.6 | 659.6 |
| Wt. Lost Moisture (g) | 26.0 | 150.3 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 643.8 | 643.8 |
| Moisture Content % | 4.0 | 23.3 |
| Wet Density PCF | 101.6 | 122.4 |
| Dry Density PCF | 97.6 | 99.2 |

| | |
|---|---|
| Init. Diameter (in) | 2.407 |
| Init. Area (sq in) | 4.550 |
| Init. Height (in) | 5.520 |
| Vol. Bef. Consol. (cu ft) | 0.01454 |
| Vol. After Consol. (cu ft) | 0.01430 |

Notes & Comments:

Data entry by: DAW Date: 05/20/2014
Data checked by: DPM Date: 5/22/14
FileName: MWT0B109.WK4

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-BI-09 | SAMPLED | 11/21/13 MWH |
| DEPTH | 27.0-27.5' (25-27.5') | TEST STARTED | 03/27/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/17/14 DPM |
| SOIL DESCR. | Sand Tailings | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 2016 |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 2.9 | 13.5 | | | | |
| 50.0 | 48.0 | 14.6 | 15.5 | 37.9 | 44.5 | 6.6 | 0.66 |
| 60.0 | 58.0 | 15.7 | 16.8 | 48.6 | 57.0 | 8.4 | 0.84 |
| 70.0 | 68.0 | 16.1 | 17.0 | 58.0 | 66.8 | 8.8 | 0.88 |
| 80.0 | | 19.9 | 19.7 | 67.4 | 77.4 | 10.0 | 1.00 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 0.60 | 0.00 |
| 0.25 | 0.5 | 4.25 | -3.65 |
| 0.5 | 0.7 | 4.35 | -3.75 |
| 1 | 1.0 | 4.40 | -3.80 |
| 2 | 1.4 | 4.50 | -3.90 |
| 4 | 2.0 | 4.55 | -3.95 |
| 9 | 3.0 | 4.65 | -4.05 |
| 16 | 4.0 | 4.70 | -4.10 |
| 30 | 5.5 | 4.75 | -4.15 |
| 60 | 7.7 | 4.80 | -4.20 |
| 120 | 11.0 | 4.85 | -4.25 |
| 240 | 15.5 | 4.85 | -4.25 |
| 360 | 19.0 | 4.85 | -4.25 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 5.520 | Init. Vol. (CC) | 411.68 |
| Height Change (in) | 0.040 | Vol. Change (CC) | 22.10 |
| Ht. After Cons. (in) | 5.480 | Cell Exp. (CC) | 15.55 |
| Initial Area (sq in) | 4.550 | Net Change (CC) | 6.55 |
| Area After Cons. (sq in) | 4.511 | Cons. Vol. (CC) | 405.13 |

Data entry by: DAW Date: 05/20/2014
Data checked by: DPM Date: 5/22/14
FileName: MWT0B109.WK4

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-BI-09 | SAMPLED | 11/21/13 MWH |
| DEPTH | 27.0-27.5' (25-27.5') | TEST STARTED | 03/27/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/17/14 DPM |
| SOIL DESCR. | Sand Tailings | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 2016 |

| | | | |
|---|---|---|---|
| Init. Ht. (in) | 5.520 | Init. Area (sq in) | 4.550 |
| Consol. Ht. (in) | 5.480 | Consol. Area (sq in) | 4.511 |
| Back Pres. PSI | 69.2 | Strain Rate (in/min) | 0.003 |

| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 4.511 | 0 | 69.2 | 0 | 2016 | 2016 | 1.00 |
| 12.0 | 383 | 0.005 | 0.10 | 4.515 | 383 | 69.4 | 29 | 1987 | 2370 | 1.19 |
| 33.0 | 1054 | 0.011 | 0.20 | 4.519 | 1051 | 70.8 | 230 | 1786 | 2837 | 1.59 |
| 42.0 | 1341 | 0.016 | 0.30 | 4.524 | 1337 | 72.5 | 475 | 1541 | 2878 | 1.87 |
| 45.0 | 1437 | 0.022 | 0.39 | 4.528 | 1431 | 73.8 | 662 | 1354 | 2785 | 2.06 |
| 48.0 | 1532 | 0.027 | 0.49 | 4.533 | 1525 | 74.9 | 821 | 1195 | 2720 | 2.28 |
| 48.0 | 1532 | 0.033 | 0.59 | 4.537 | 1523 | 75.7 | 936 | 1080 | 2603 | 2.41 |
| 48.0 | 1532 | 0.038 | 0.69 | 4.542 | 1522 | 76.3 | 1022 | 994 | 2515 | 2.53 |
| 48.0 | 1532 | 0.043 | 0.79 | 4.547 | 1520 | 76.8 | 1094 | 922 | 2442 | 2.65 |
| 48.0 | 1532 | 0.049 | 0.89 | 4.551 | 1519 | 77.3 | 1166 | 850 | 2368 | 2.79 |
| 45.0 | 1437 | 0.054 | 0.99 | 4.556 | 1422 | 77.6 | 1210 | 806 | 2229 | 2.76 |
| 45.0 | 1437 | 0.060 | 1.09 | 4.560 | 1421 | 77.9 | 1253 | 763 | 2184 | 2.86 |
| 45.0 | 1437 | 0.065 | 1.19 | 4.565 | 1420 | 78.2 | 1296 | 720 | 2140 | 2.97 |
| 45.0 | 1437 | 0.071 | 1.29 | 4.569 | 1418 | 78.4 | 1325 | 691 | 2109 | 3.05 |
| 45.0 | 1437 | 0.076 | 1.39 | 4.574 | 1417 | 78.6 | 1354 | 662 | 2079 | 3.14 |
| 45.0 | 1437 | 0.081 | 1.49 | 4.579 | 1415 | 78.8 | 1382 | 634 | 2049 | 3.23 |
| 45.0 | 1437 | 0.087 | 1.58 | 4.583 | 1414 | 78.9 | 1397 | 619 | 2033 | 3.28 |
| 45.0 | 1437 | 0.092 | 1.68 | 4.588 | 1412 | 79.1 | 1426 | 590 | 2003 | 3.39 |
| 45.0 | 1437 | 0.098 | 1.78 | 4.592 | 1411 | 79.1 | 1426 | 590 | 2001 | 3.39 |
| 45.0 | 1437 | 0.103 | 1.88 | 4.597 | 1410 | 79.2 | 1440 | 576 | 1986 | 3.45 |
| 45.0 | 1437 | 0.109 | 1.98 | 4.602 | 1408 | 79.3 | 1454 | 562 | 1970 | 3.51 |

Data entry by: DAW Date: 05/20/2014
Data checked by: DPM Date: 5/22/14
FileName: MWT0B109.WK4

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

CLIENT MWH

JOB NO. 2512-77

| | | | |
|---|---|---|---|
| BORING NO. | TI-BI-09 | SAMPLED | 11/21/13 MWH |
| DEPTH | 27.0-27.5' (25-27.5') | TEST STARTED | 03/27/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/17/14 DPM |
| SOIL DESCR. | Sand Tailings | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 3168 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 669.8 | 794.1 |
| Wt. Wet Soil & Pan (g) | 685.6 | 809.8 |
| Wt. Dry Soil & Pan (g) | 659.6 | 659.6 |
| Wt. Lost Moisture (g) | 26.0 | 150.3 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 643.8 | 643.8 |
| Moisture Content % | 4.0 | 23.3 |
| Wet Density PCF | 103.2 | 122.7 |
| Dry Density PCF | 99.2 | 99.5 |

| | |
|---|---|
| Init. Diameter (in) | 2.421 |
| Init. Area (sq in) | 4.602 |
| Init. Height (in) | 5.372 |
| Vol. Bef. Consol. (cu ft) | 0.01430 |
| Vol. After Consol. (cu ft) | 0.01427 |

Notes & Comments:

Data entry by: DAW Date: 05/20/2014
Data checked by: DPM Date: 5/22/14
FileName: MWT0B109.WK4

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-BI-09 | SAMPLED | 11/21/13 MWH |
| DEPTH | 27.0-27.5' (25-27.5') | TEST STARTED | 03/27/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/17/14 DPM |
| SOIL DESCR. | Sand Tailings | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 3168 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 9.40 | 0.00 |
| 0.25 | 0.5 | 10.80 | -1.40 |
| 0.5 | 0.7 | 10.85 | -1.45 |
| 1 | 1.0 | 10.90 | -1.50 |
| 2 | 1.4 | 10.95 | -1.55 |
| 4 | 2.0 | 10.95 | -1.55 |
| 9 | 3.0 | 11.00 | -1.60 |
| 16 | 4.0 | 11.05 | -1.65 |
| 30 | 5.5 | 11.10 | -1.70 |
| 60 | 7.7 | 11.15 | -1.75 |
| 120 | 11.0 | 11.25 | -1.85 |
| 240 | 15.5 | 11.25 | -1.85 |
| 360 | 19.0 | 11.25 | -1.85 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 5.372 | Init. Vol. (CC) | 405.13 |
| Height Change (in) | 0.002 | Vol. Change (CC) | 2.00 |
| Ht. After Cons. (in) | 5.370 | Cell Exp. (CC) | 1.05 |
| Initial Area (sq in) | 4.602 | Net Change (CC) | 0.95 |
| Area After Cons. (sq in) | 4.593 | Cons. Vol. (CC) | 404.18 |

Data entry by: DAW Date: 05/20/2014
Data checked by: DPM Date: 5/22/14
FileName: MWT0B109.WK4

ADVANCED TERRA TESTING, Inc. ATT

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-BI-09 | SAMPLED | 11/21/13 MWH |
| DEPTH | 27.0-27.5' (25-27.5') | TEST STARTED | 03/27/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/17/14 DPM |
| SOIL DESCR. | Sand Tailings | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 3168 |

| | | | |
|---|---|---|---|
| Init. Ht. (in) | 5.372 | Init. Area (sq in) | 4.602 |
| Consol. Ht. (in) | 5.370 | Consol. Area (sq in) | 4.593 |
| Back Pres. PSI | 69.0 | Strain Rate (in/min) | 0.004 |

| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 4.593 | 0 | 69.0 | 0 | 3168 | 3168 | 1.00 |
| 66.0 | 2069 | 0.005 | 0.10 | 4.597 | 2067 | 72.6 | 518 | 2650 | 4717 | 1.78 |
| 87.0 | 2728 | 0.011 | 0.20 | 4.602 | 2722 | 74.8 | 835 | 2333 | 5055 | 2.17 |
| 96.0 | 3010 | 0.016 | 0.30 | 4.606 | 3001 | 76.1 | 1022 | 2146 | 5147 | 2.40 |
| 99.0 | 3104 | 0.021 | 0.39 | 4.611 | 3092 | 77.1 | 1166 | 2002 | 5093 | 2.54 |
| 102.0 | 3198 | 0.027 | 0.49 | 4.615 | 3182 | 77.8 | 1267 | 1901 | 5083 | 2.67 |
| 105.0 | 3292 | 0.032 | 0.59 | 4.620 | 3273 | 78.4 | 1354 | 1814 | 5087 | 2.80 |
| 105.0 | 3292 | 0.037 | 0.69 | 4.625 | 3270 | 78.8 | 1411 | 1757 | 5026 | 2.86 |
| 108.0 | 3386 | 0.042 | 0.79 | 4.629 | 3360 | 79.2 | 1469 | 1699 | 5059 | 2.98 |
| 108.0 | 3386 | 0.048 | 0.89 | 4.634 | 3356 | 79.5 | 1512 | 1656 | 5012 | 3.03 |
| 108.0 | 3386 | 0.053 | 0.99 | 4.638 | 3353 | 79.7 | 1541 | 1627 | 4980 | 3.06 |
| 111.0 | 3480 | 0.058 | 1.09 | 4.643 | 3443 | 80.0 | 1584 | 1584 | 5027 | 3.17 |
| 111.0 | 3480 | 0.064 | 1.18 | 4.648 | 3439 | 80.1 | 1598 | 1570 | 5009 | 3.19 |
| 111.0 | 3480 | 0.069 | 1.28 | 4.652 | 3436 | 80.3 | 1627 | 1541 | 4977 | 3.23 |
| 114.0 | 3574 | 0.074 | 1.38 | 4.657 | 3525 | 80.4 | 1642 | 1526 | 5051 | 3.31 |
| 114.0 | 3574 | 0.080 | 1.48 | 4.662 | 3522 | 80.5 | 1656 | 1512 | 5034 | 3.33 |
| 114.0 | 3574 | 0.085 | 1.58 | 4.666 | 3518 | 80.6 | 1670 | 1498 | 5016 | 3.35 |
| 117.0 | 3669 | 0.090 | 1.68 | 4.671 | 3607 | 80.6 | 1670 | 1498 | 5105 | 3.41 |
| 117.0 | 3669 | 0.095 | 1.78 | 4.676 | 3603 | 80.7 | 1685 | 1483 | 5087 | 3.43 |
| 120.0 | 3763 | 0.101 | 1.88 | 4.680 | 3692 | 80.7 | 1685 | 1483 | 5175 | 3.49 |
| 120.0 | 3763 | 0.106 | 1.97 | 4.685 | 3688 | 80.7 | 1685 | 1483 | 5172 | 3.49 |
| 123.0 | 3857 | 0.111 | 2.07 | 4.690 | 3777 | 80.7 | 1685 | 1483 | 5260 | 3.55 |
| 123.0 | 3857 | 0.112 | 2.09 | 4.691 | 3776 | 80.7 | 1685 | 1483 | 5259 | 3.55 |

Data entry by: DAW Date: 05/20/2014
Data checked by: DPM Date: 5/22/14
FileName: MWT0B109.WK4

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-BI-09 | SAMPLED | 11/21/13 MWH |
| DEPTH | 27.0-27.5' (25-27.5') | TEST STARTED | 03/27/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/17/14 DPM |
| SOIL DESCR. | Sand Tailings | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 4320 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 669.8 | 794.1 |
| Wt. Wet Soil & Pan (g) | 685.6 | 809.8 |
| Wt. Dry Soil & Pan (g) | 659.6 | 659.6 |
| Wt. Lost Moisture (g) | 26.0 | 150.3 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 643.8 | 643.8 |
| Moisture Content % | 4.0 | 23.3 |
| Wet Density PCF | 103.5 | 123.0 |
| Dry Density PCF | 99.5 | 99.7 |

| | |
|---|---|
| Init. Diameter (in) | 2.444 |
| Init. Area (sq in) | 4.691 |
| Init. Height (in) | 5.257 |
| Vol. Bef. Consol. (cu ft) | 0.01427 |
| Vol. After Consol. (cu ft) | 0.01423 |

Notes & Comments:

Data entry by: DAW Date: 05/20/2014
Data checked by: DPM Date: 5/22/14
FileName: MWT0B109.WK4

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-BI-09 | SAMPLED | 11/21/13 MWH |
| DEPTH | 27.0-27.5' (25-27.5') | TEST STARTED | 03/27/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/17/14 DPM |
| SOIL DESCR. | Sand Tailings | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 4320 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 13.10 | 0.00 |
| 0.25 | 0.5 | 14.30 | -1.20 |
| 0.5 | 0.7 | 14.35 | -1.25 |
| 1 | 1.0 | 14.35 | -1.25 |
| 2 | 1.4 | 14.40 | -1.30 |
| 4 | 2.0 | 14.45 | -1.35 |
| 9 | 3.0 | 14.50 | -1.40 |
| 16 | 4.0 | 14.50 | -1.40 |
| 30 | 5.5 | 14.55 | -1.45 |
| 60 | 7.7 | 14.55 | -1.45 |
| 120 | 11.0 | 14.55 | -1.45 |
| 240 | 15.5 | 14.55 | -1.45 |
| 360 | 19.0 | 14.55 | -1.45 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 5.257 | Init. Vol. (CC) | 404.18 |
| Height Change (in) | -0.006 | Vol. Change (CC) | 2.20 |
| Ht. After Cons. (in) | 5.263 | Cell Exp. (CC) | 1.05 |
| Initial Area (sq in) | 4.691 | Net Change (CC) | 1.15 |
| Area After Cons. (sq in) | 4.672 | Cons. Vol. (CC) | 403.03 |

Data entry by: DAW Date: 05/20/2014
Data checked by: DPM Date: 5/20/14
FileName: MWT0B109.WK4

TRIAXIAL COMPRESSION TEST DATA

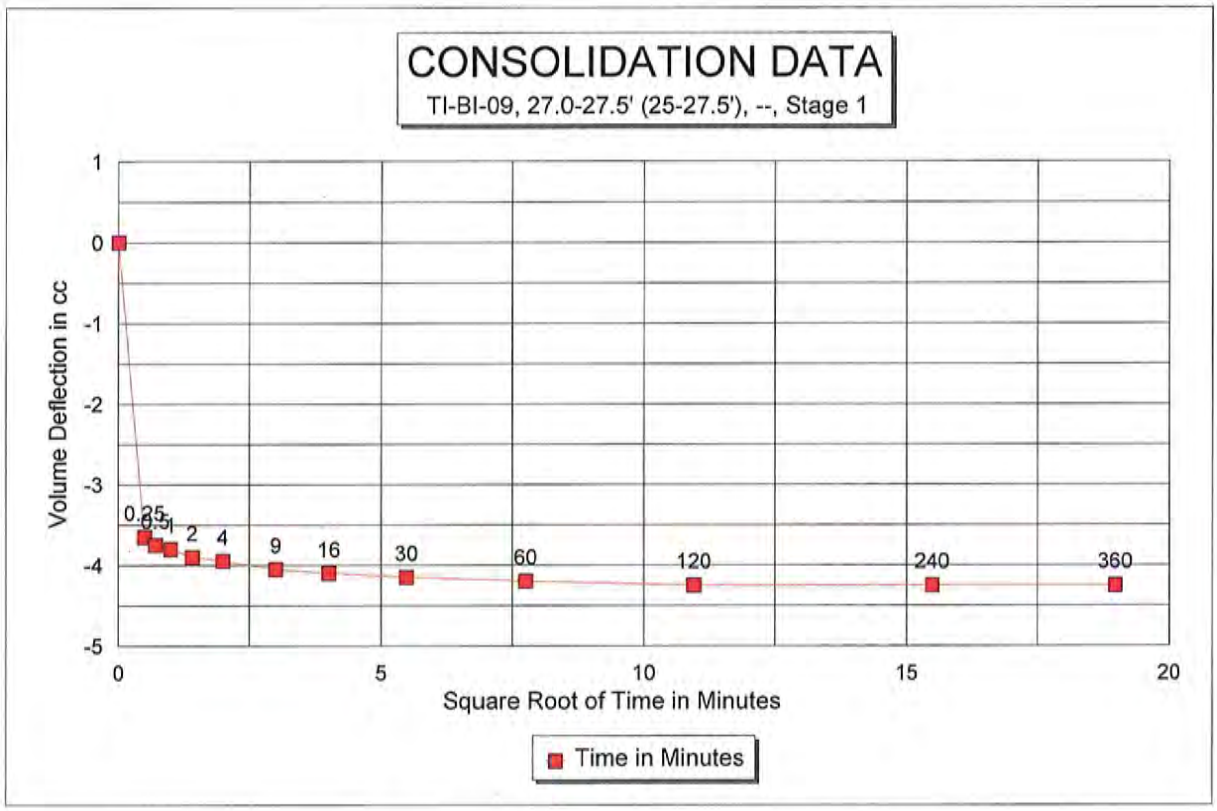
| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-BI-09 | SAMPLED | 11/21/13 MWH |
| DEPTH | 27.0-27.5' (25-27.5') | TEST STARTED | 03/27/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/17/14 DPM |
| SOIL DESCR. | Sand Tailings | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 4320 |

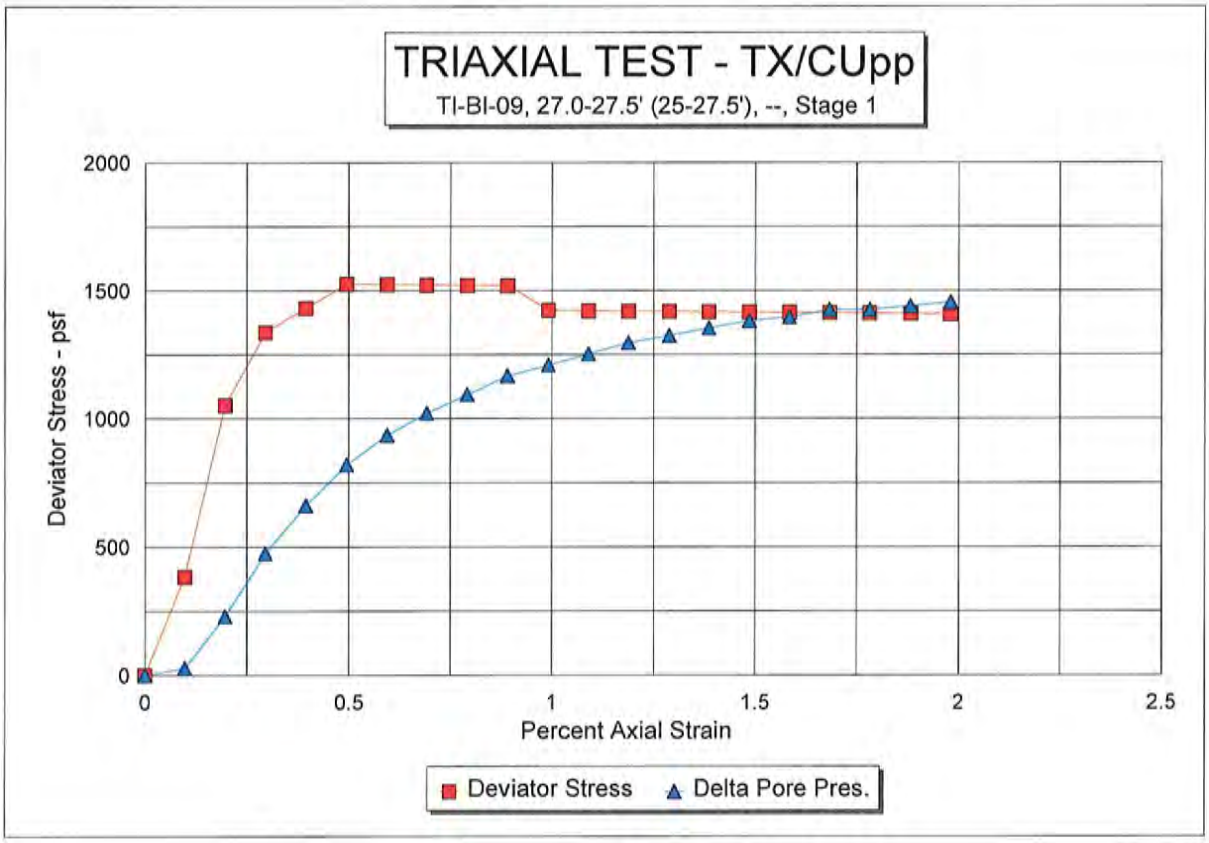
| | | | |
|---|---|---|---|
| Init. Ht. (in) | 5.257 | Init. Area (sq in) | 4.691 |
| Consol. Ht. (in) | 5.263 | Consol. Area (sq in) | 4.672 |
| Back Pres. PSI | 69.4 | Strain Rate (in/min) | 0.010 |

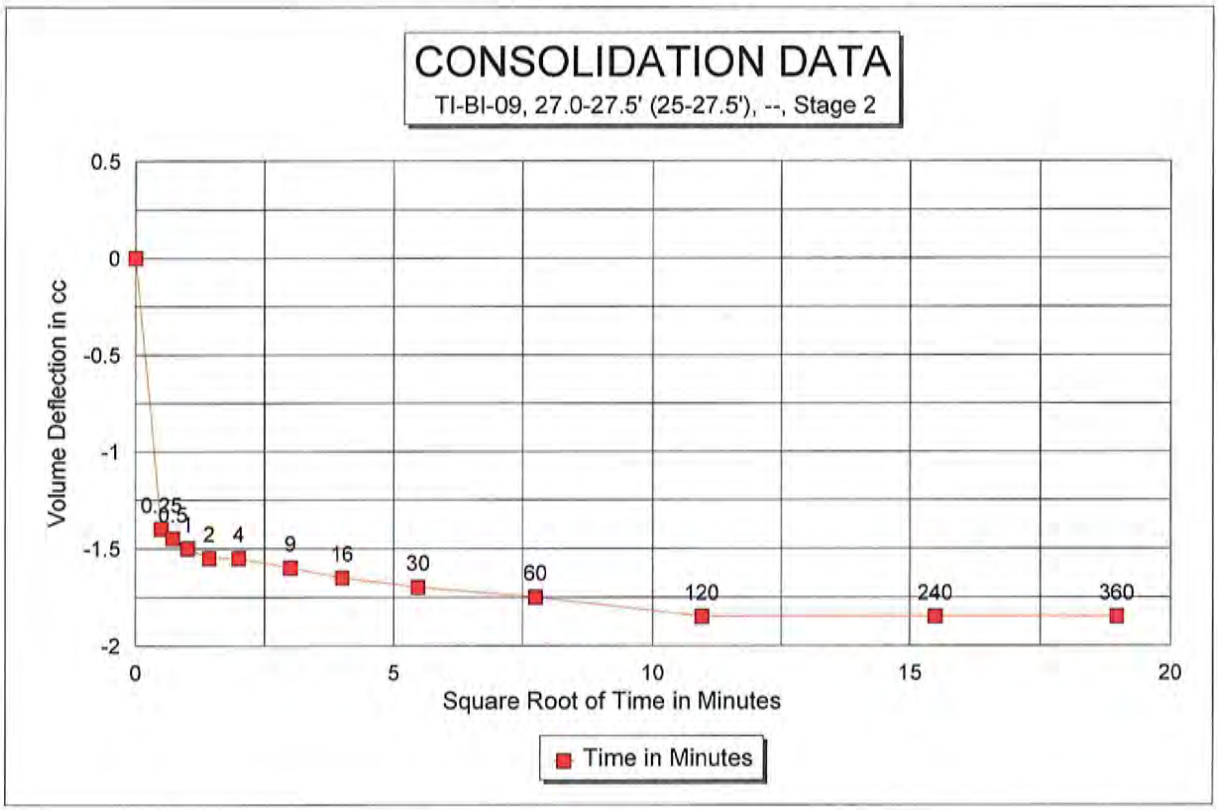
| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 4.672 | 0 | 69.4 | 0 | 4320 | 4320 | 1.00 |
| 117.0 | 3606 | 0.005 | 0.10 | 4.677 | 3603 | 73.8 | 634 | 3686 | 7289 | 1.98 |
| 153.0 | 4716 | 0.011 | 0.20 | 4.681 | 4706 | 75.1 | 821 | 3499 | 8206 | 2.34 |
| 174.0 | 5363 | 0.016 | 0.30 | 4.686 | 5347 | 75.9 | 936 | 3384 | 8731 | 2.58 |
| 189.0 | 5825 | 0.021 | 0.40 | 4.691 | 5802 | 76.7 | 1051 | 3269 | 9071 | 2.77 |
| 198.0 | 6103 | 0.026 | 0.50 | 4.695 | 6072 | 77.2 | 1123 | 3197 | 9269 | 2.90 |
| 204.0 | 6288 | 0.032 | 0.60 | 4.700 | 6250 | 77.5 | 1166 | 3154 | 9404 | 2.98 |
| 213.0 | 6565 | 0.037 | 0.70 | 4.705 | 6519 | 77.8 | 1210 | 3110 | 9630 | 3.10 |
| 216.0 | 6658 | 0.042 | 0.80 | 4.710 | 6604 | 78.0 | 1238 | 3082 | 9686 | 3.14 |
| 222.0 | 6842 | 0.047 | 0.90 | 4.714 | 6781 | 78.2 | 1267 | 3053 | 9834 | 3.22 |
| 225.0 | 6935 | 0.053 | 1.00 | 4.719 | 6866 | 78.3 | 1282 | 3038 | 9904 | 3.26 |
| 228.0 | 7027 | 0.058 | 1.10 | 4.724 | 6950 | 78.3 | 1282 | 3038 | 9988 | 3.29 |
| 231.0 | 7120 | 0.063 | 1.20 | 4.729 | 7034 | 78.4 | 1296 | 3024 | 10058 | 3.33 |
| 240.0 | 7397 | 0.074 | 1.40 | 4.738 | 7294 | 78.2 | 1267 | 3053 | 10346 | 3.39 |
| 246.0 | 7582 | 0.084 | 1.60 | 4.748 | 7461 | 78.2 | 1267 | 3053 | 10514 | 3.44 |
| 255.0 | 7860 | 0.095 | 1.80 | 4.758 | 7718 | 78.0 | 1238 | 3082 | 10800 | 3.50 |
| 261.0 | 8045 | 0.105 | 2.00 | 4.767 | 7884 | 77.7 | 1195 | 3125 | 11009 | 3.52 |
| 267.0 | 8229 | 0.116 | 2.20 | 4.777 | 8048 | 77.6 | 1181 | 3139 | 11188 | 3.56 |
| 279.0 | 8599 | 0.126 | 2.40 | 4.787 | 8393 | 77.1 | 1109 | 3211 | 11604 | 3.61 |
| 285.0 | 8784 | 0.132 | 2.50 | 4.792 | 8565 | 76.9 | 1080 | 3240 | 11805 | 3.64 |
| 309.0 | 9524 | 0.158 | 3.00 | 4.817 | 9238 | 75.8 | 922 | 3398 | 12637 | 3.72 |
| 336.0 | 10356 | 0.184 | 3.50 | 4.841 | 9994 | 74.4 | 720 | 3600 | 13594 | 3.78 |
| 369.0 | 11373 | 0.211 | 4.00 | 4.867 | 10918 | 72.7 | 475 | 3845 | 14763 | 3.84 |
| 402.0 | 12390 | 0.237 | 4.50 | 4.892 | 11833 | 71.0 | 230 | 4090 | 15923 | 3.89 |
| 435.0 | 13408 | 0.263 | 5.00 | 4.918 | 12737 | 69.0 | -58 | 4378 | 17115 | 3.91 |
| 507.0 | 15627 | 0.316 | 6.00 | 4.970 | 14689 | 64.8 | -662 | 4982 | 19672 | 3.95 |
| 585.0 | 18031 | 0.368 | 7.00 | 5.024 | 16769 | 60.0 | -1354 | 5674 | 22443 | 3.96 |
| 663.0 | 20435 | 0.421 | 8.00 | 5.078 | 18800 | 55.1 | -2059 | 6379 | 25180 | 3.95 |
| 735.0 | 22654 | 0.474 | 9.00 | 5.134 | 20616 | 50.2 | -2765 | 7085 | 27700 | 3.91 |
| 801.0 | 24688 | 0.526 | 10.00 | 5.191 | 22220 | 45.3 | -3470 | 7790 | 30010 | 3.85 |
| 894.0 | 27555 | 0.631 | 12.00 | 5.309 | 24249 | 36.8 | -4694 | 9014 | 33264 | 3.69 |
| 894.0 | 27555 | 0.789 | 15.00 | 5.496 | 23422 | 30.9 | -5544 | 9864 | 33286 | 3.37 |

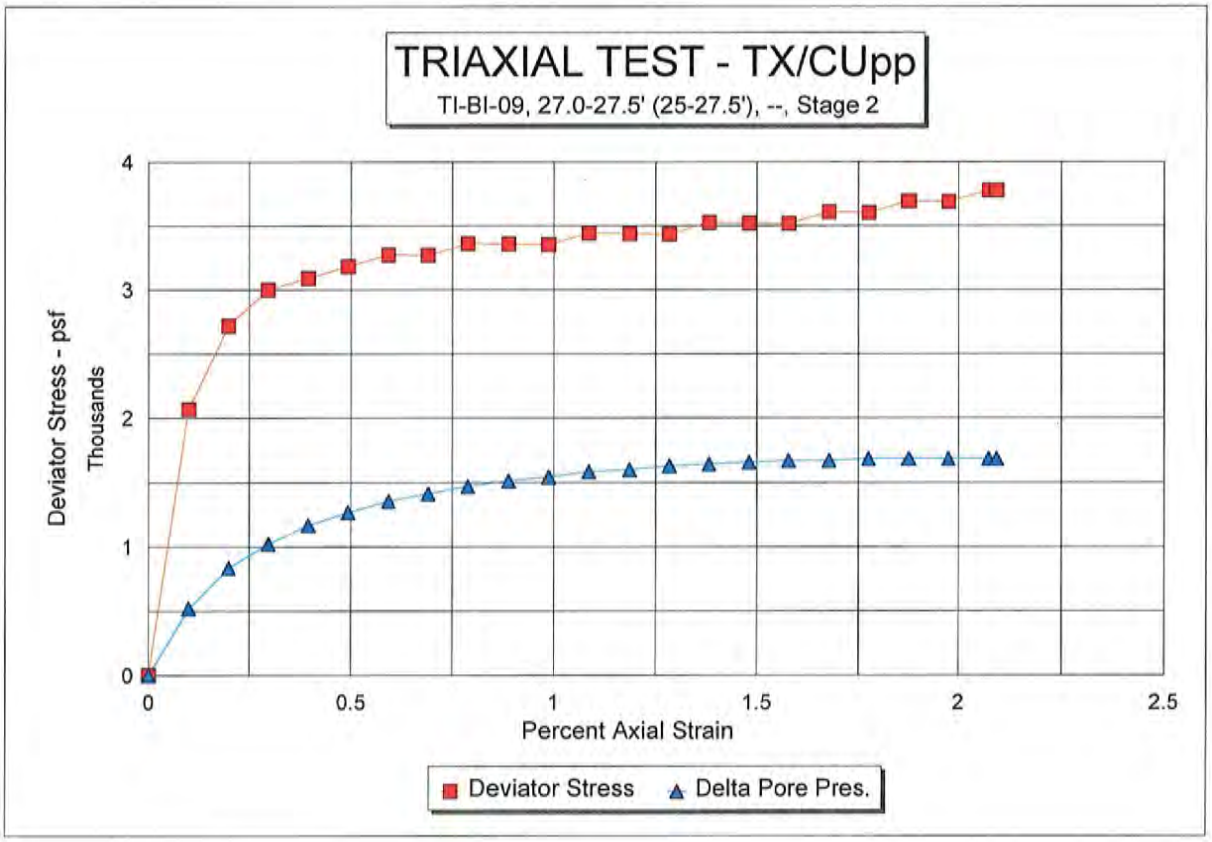
Data entry by: DAW Date: 05/20/2014
Data checked by: DPM Date: 5/22/14
FileName: MWT0B109.WK4

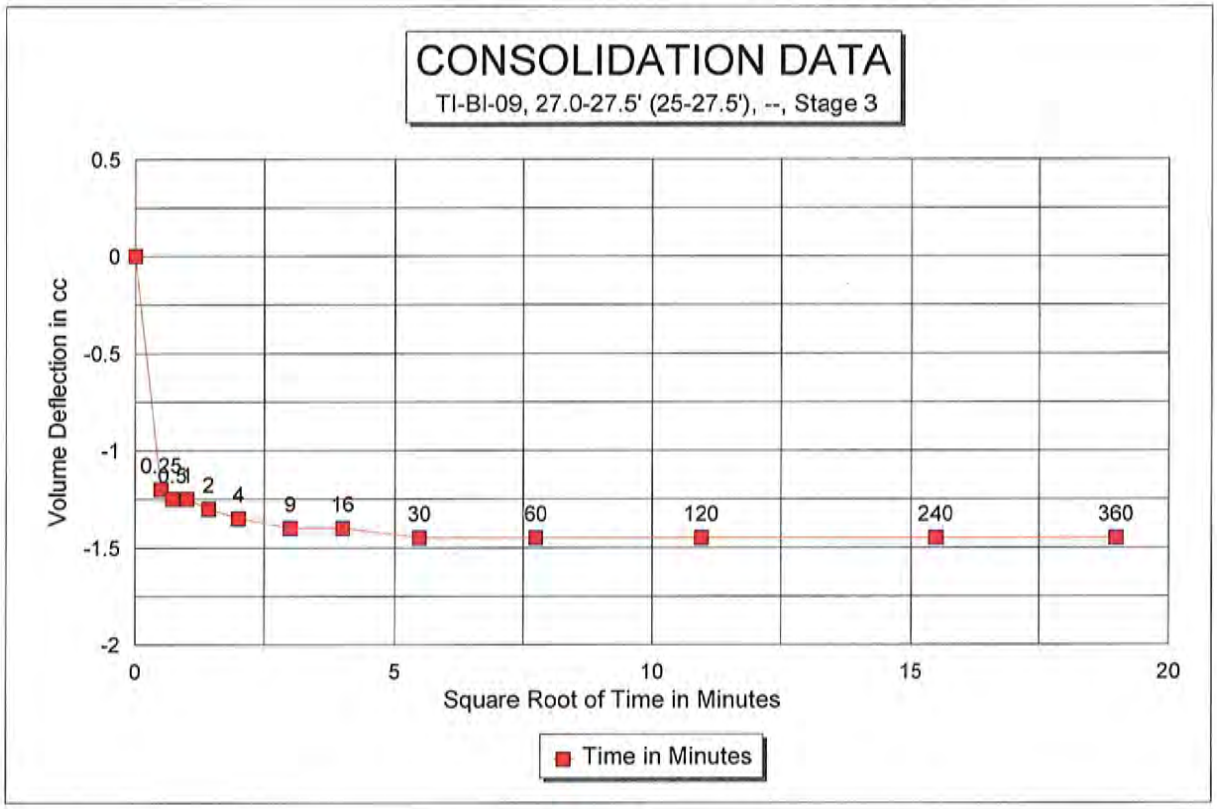
ADVANCED TERRA TESTING, Inc. ATT

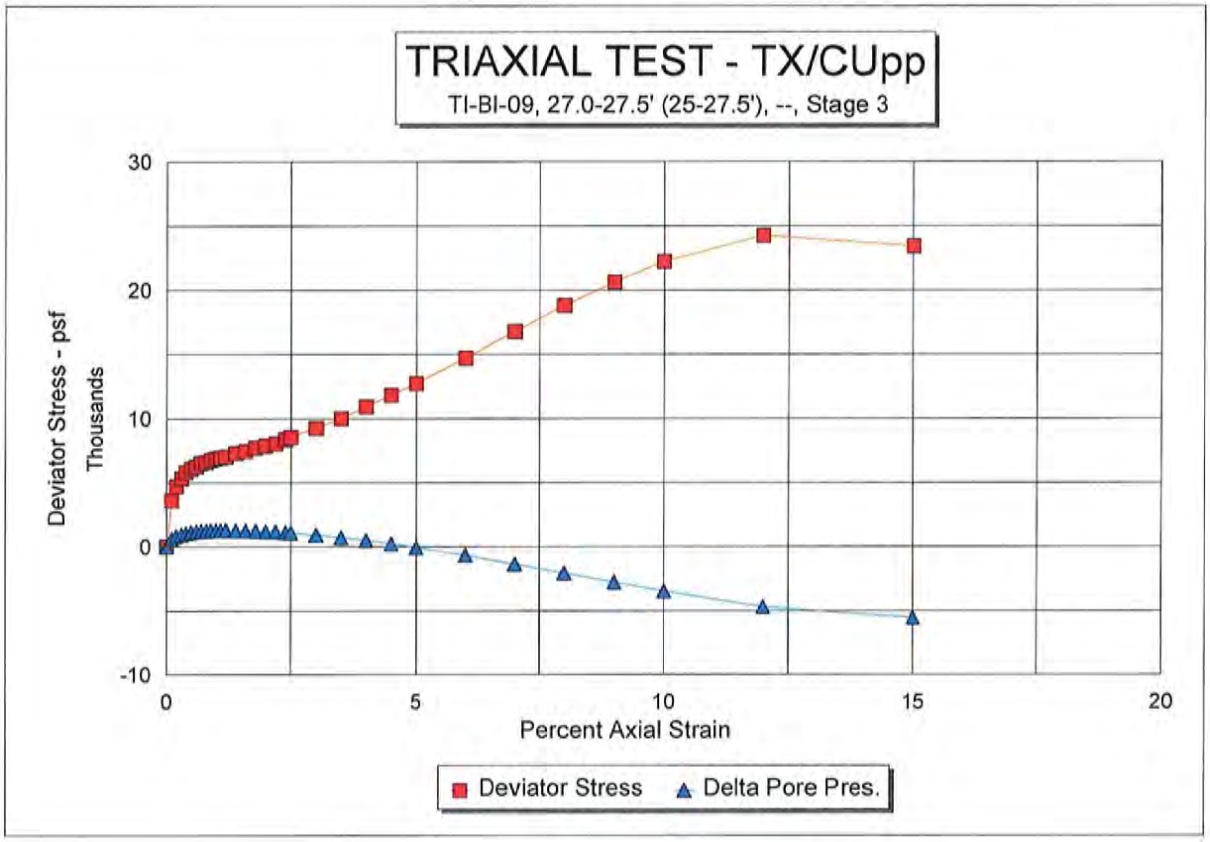

CONSOLIDATION DATA
TI-BI-09, 27.0-27.5' (25-27.5'), --, Stage 1
Volume Deflection in cc
1
0
-1
-2
-3
-4
-5
0.25
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-BI-09, 27.0-27.5' (25-27.5'), --, Stage 1
Deviator Stress - psf
2000
1500
1000
500
0
0
0.5
1
1.5
2
2.5
Percent Axial Strain
Deviator Stress
Delta Pore Pres.


CONSOLIDATION DATA
TI-BI-09, 27.0-27.5' (25-27.5'), --, Stage 2
Volume Deflection in cc
0.5
0
-0.5
-1
-1.5
-2
0.25
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-BI-09, 27.0-27.5' (25-27.5'), --, Stage 2
Deviator Stress - psf
Thousands
4
3
2
1
0
0
0.5
1
1.5
2
2.5
Percent Axial Strain
Deviator Stress
Delta Pore Pres.


CONSOLIDATION DATA
TI-BI-09, 27.0-27.5' (25-27.5'), --, Stage 3
Volume Deflection in cc
0.5
0
-0.5
-1
-1.5
-2
0.25
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-BI-09, 27.0-27.5' (25-27.5'), --, Stage 3
Deviator Stress - psf
Thousands
30
20
10
0
-10
0
5
10
15
20
Percent Axial Strain
Deviator Stress
Delta Pore Pres.

EFFECTIVE STRESS PATH ANALYSIS TEST DATA
ASTM D4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | | |
| | | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-11A | | |
| DEPTH | 31.0-31.5' | SAMPLED | 11/21/13 MWH |
| SAMPLE NO. | A,B&C | SATURATED TEST | |
| PROJECT NO. | -- | TEST TYPE | TX/CUPP |
| LOCATION | Tailings Impoundment | | |

| | | | | | | | Peak Points p' PSF | Peak Points q PSF |
|---|---|---|---|---|---|---|---|---|
| CONF. PRES. PSF | SAMPLE A | 2736 | PSF | SAMPLE A | 2479 | 1212 |
| | SAMPLE B | 3888 | PSF | SAMPLE B | 3499 | 1872 |
| | SAMPLE C | 5040 | PSF | SAMPLE C | 4537 | 2607 |

**SAMPLE A**

| σ 3' PSF | σ 1' PSF | p' PSF | q PSF |
|---|---|---|---|
| 2736 | 2736 | 2736 | 0 |
| 2462 | 3235 | 2849 | 386 |
| 2290 | 3370 | 2830 | 540 |
| 2102 | 3336 | 2719 | 617 |
| 1958 | 3345 | 2652 | 693 |
| 1858 | 3397 | 2627 | 770 |
| 1771 | 3463 | 2617 | 846 |
| 1699 | 3542 | 2621 | 922 |
| 1642 | 3483 | 2562 | 921 |
| 1584 | 3424 | 2504 | 920 |
| 1555 | 3546 | 2551 | 995 |
| 1512 | 3501 | 2506 | 994 |
| 1469 | 3609 | 2539 | 1070 |
| 1440 | 3578 | 2509 | 1069 |
| 1411 | 3547 | 2479 | 1068 |
| 1382 | 3516 | 2449 | 1067 |
| 1354 | 3637 | 2495 | 1142 |
| 1339 | 3620 | 2480 | 1141 |
| 1325 | 3604 | 2464 | 1139 |
| 1296 | 3573 | 2434 | 1138 |
| 1282 | 3556 | 2419 | 1137 |
| 1267 | 3691 | 2479 | 1212 |
| 1238 | 3659 | 2449 | 1210 |
| 1238 | 3657 | 2448 | 1209 |
| 1238 | 3657 | 2448 | 1209 |

**SAMPLE B**

| σ 3' PSF | σ 1' PSF | p' PSF | q PSF |
|---|---|---|---|
| 3888 | 3888 | 3888 | 0 |
| 3456 | 4990 | 4223 | 767 |
| 3154 | 5146 | 4150 | 996 |
| 2880 | 5177 | 4028 | 1148 |
| 2678 | 5126 | 3902 | 1224 |
| 2520 | 5118 | 3819 | 1299 |
| 2376 | 5124 | 3750 | 1374 |
| 2275 | 5173 | 3724 | 1449 |
| 2189 | 5236 | 3712 | 1523 |
| 2117 | 5161 | 3639 | 1522 |
| 2045 | 5237 | 3641 | 1596 |
| 2002 | 5191 | 3596 | 1595 |
| 1944 | 5282 | 3613 | 1669 |
| 1901 | 5235 | 3568 | 1667 |
| 1872 | 5203 | 3538 | 1666 |
| 1829 | 5308 | 3568 | 1740 |
| 1800 | 5275 | 3538 | 1738 |
| 1771 | 5243 | 3507 | 1736 |
| 1742 | 5362 | 3552 | 1810 |
| 1714 | 5329 | 3521 | 1808 |
| 1699 | 5311 | 3505 | 1806 |
| 1685 | 5293 | 3489 | 1804 |
| 1656 | 5261 | 3458 | 1802 |
| 1656 | 5257 | 3456 | 1800 |
| 1642 | 5239 | 3440 | 1799 |
| 1627 | 5370 | 3499 | 1872 |
| 1613 | 5352 | 3482 | 1870 |
| 1598 | 5334 | 3466 | 1868 |
| 1584 | 5316 | 3450 | 1866 |
| 1570 | 5297 | 3434 | 1864 |

**SAMPLE C**

| σ 3' PSF | σ 1' PSF | p' PSF | q PSF |
|---|---|---|---|
| 5040 | 5040 | 5040 | 0 |
| 4406 | 6363 | 5385 | 978 |
| 3960 | 6666 | 5313 | 1353 |
| 3614 | 6769 | 5191 | 1577 |
| 3355 | 6806 | 5081 | 1726 |
| 3154 | 7051 | 5102 | 1949 |
| 2995 | 7038 | 5017 | 2021 |
| 2866 | 7054 | 4960 | 2094 |
| 2750 | 7084 | 4917 | 2167 |
| 2664 | 7142 | 4903 | 2239 |
| 2520 | 7138 | 4829 | 2309 |
| 2405 | 7162 | 4783 | 2379 |
| 2318 | 7066 | 4692 | 2374 |
| 2246 | 7132 | 4689 | 2443 |
| 2203 | 7227 | 4715 | 2512 |
| 2146 | 7159 | 4652 | 2507 |
| 2102 | 7105 | 4604 | 2501 |
| 2074 | 7066 | 4570 | 2496 |
| 2030 | 7153 | 4592 | 2561 |
| 1930 | 7144 | 4537 | 2607 |
| 1886 | 7051 | 4469 | 2582 |
| 1872 | 6987 | 4430 | 2558 |
| 1858 | 7064 | 4461 | 2603 |
| 1872 | 7027 | 4450 | 2578 |
| 1886 | 6991 | 4439 | 2552 |
| 1901 | 6954 | 4427 | 2527 |
| 1944 | 6946 | 4445 | 2501 |
| 1987 | 6939 | 4463 | 2476 |
| 2045 | 6680 | 4363 | 2318 |
| 2030 | 6487 | 4258 | 2228 |
| 2016 | 6166 | 4091 | 2075 |
| 1987 | 6093 | 4040 | 2053 |

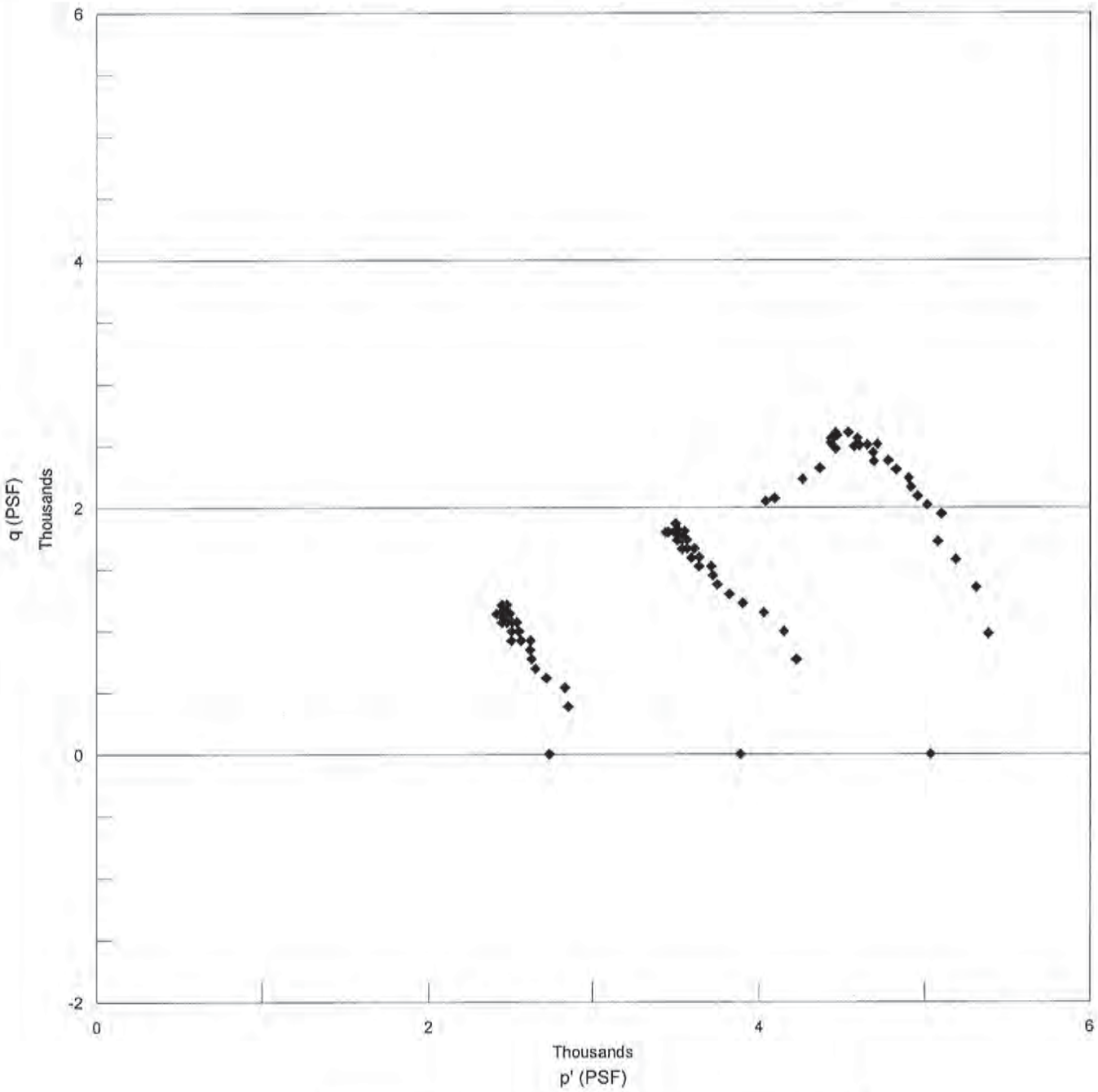
Data entry by: DAW
Data checked by: DDM
FileName: MWPQ111A.WK4

Date: 05/22/2014
Date: 5/22/14

ATT
ADVANCED

# Effective Stress Path Analysis - p' q Plots

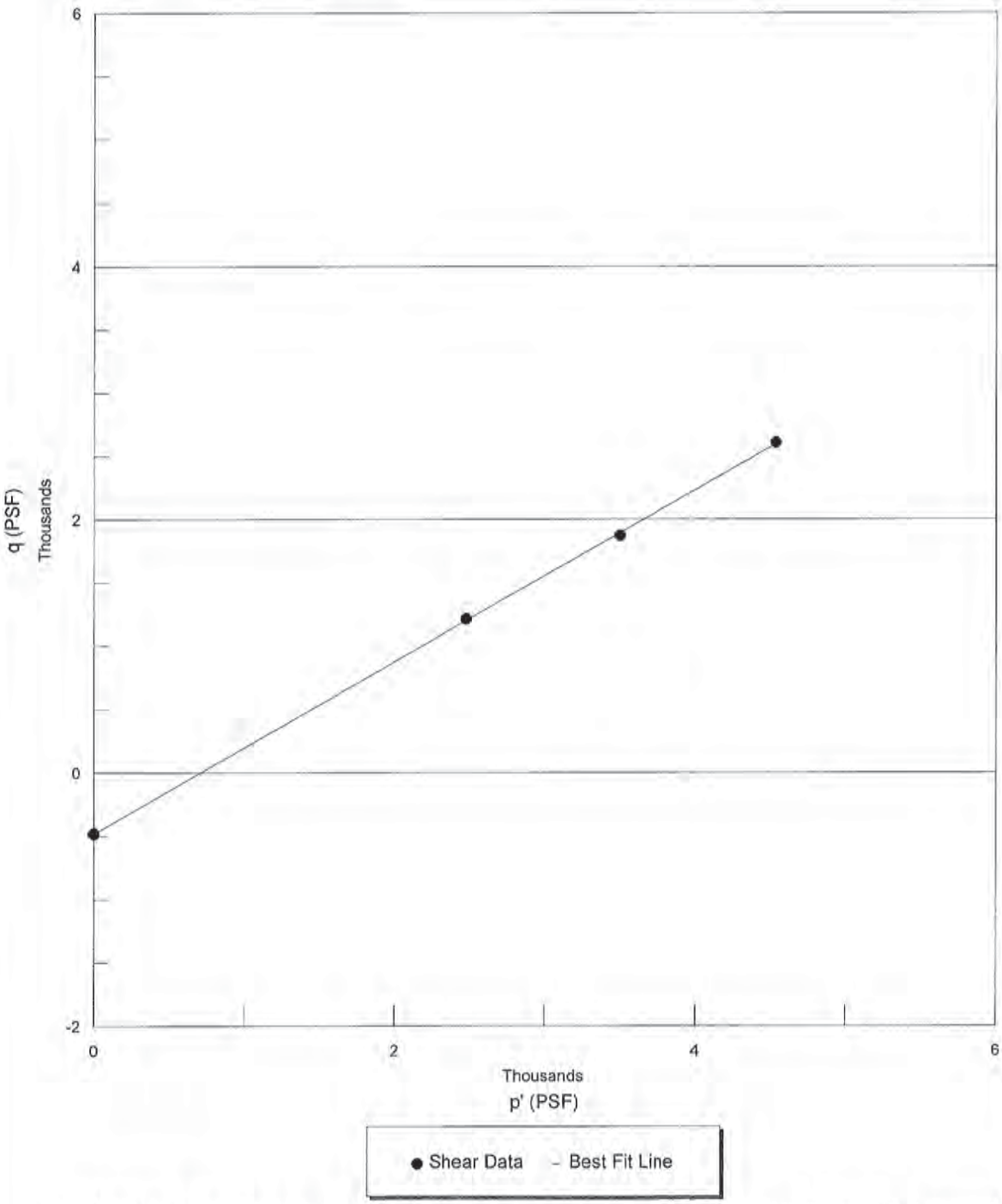
MWH,Tailings Impoundment,--,TI-B1-11A,A,B&C,31.0-31.5'




◆ Stress Paths of Samples A, B & C

# Effective Stress Path Analysis - p'-q Regression Plot

MWH,Tailings Impoundment,--,TI-B1-11A,A,B&C,31.0-31.5'




NOTE: Peak points are plotted for visual verification only. Least squared regression analysis, yields a negative alpha (a) value; therefore no regression analysis has been provided.

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-11A | SAMPLED | 11/21/13 MWH |
| DEPTH | 31.0-31.5' | TEST STARTED | 04/21/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/30/14 DPM |
| SOIL DESCR. | Sand Tailings (V. Fine Clay) | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 2736 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 370.8 | 352.4 |
| Wt. Wet Soil & Pan (g) | 386.6 | 368.2 |
| Wt. Dry Soil & Pan (g) | 277.8 | 277.8 |
| Wt. Lost Moisture (g) | 108.9 | 90.5 |
| Wt. of Pan Only (g) | 15.9 | 15.9 |
| Wt. of Dry Soil (g) | 261.9 | 261.9 |
| Moisture Content % | 41.6 | 34.6 |
| Wet Density PCF | 108.3 | 107.6 |
| Dry Density PCF | 76.5 | 80.0 |

| | |
|---|---|
| Init. Diameter (in) | 1.902 |
| Init. Area (sq in) | 2.841 |
| Init. Height (in) | 4.591 |
| Vol. Bef. Consol. (cu ft) | 0.00755 |
| Vol. After Consol. (cu ft) | 0.00722 |

Notes & Comments: Dried at 60 degrees C.

Data entry by: DAW Date: 05/22/2014
Data checked by: DPM Date: 5/22/14
FileName: MWT0111A.WK4

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-11A | SAMPLED | 11/21/13 MWH |
| DEPTH | 31.0-31.5' | TEST STARTED | 04/21/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/30/14 DPM |
| SOIL DESCR. | Sand Tailings (V. Fine Clay) | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 2736 |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 2.0 | 9.0 | | | | |
| 50.0 | | 10.3 | 10.4 | 39.0 | 48.7 | 9.7 | 0.97 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 10.40 | 0.00 |
| 0.25 | 0.5 | 13.80 | -3.40 |
| 0.5 | 0.7 | 15.40 | -5.00 |
| 1 | 1.0 | 16.40 | -6.00 |
| 2 | 1.4 | 18.10 | -7.70 |
| 4 | 2.0 | 20.20 | -9.80 |
| 9 | 3.0 | 22.30 | -11.90 |
| 16 | 4.0 | 24.40 | -14.00 |
| 30 | 5.5 | 25.50 | -15.10 |
| 60 | 7.7 | 26.10 | -15.70 |
| 120 | 11.0 | 26.50 | -16.10 |
| 240 | 15.5 | 26.80 | -16.40 |
| 360 | 19.0 | 26.80 | -16.40 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 4.591 | Init. Vol. (CC) | 213.79 |
| Height Change (in) | 0.125 | Vol. Change (CC) | 25.90 |
| Ht. After Cons. (in) | 4.466 | Cell Exp. (CC) | 16.53 |
| Initial Area (sq in) | 2.841 | Net Change (CC) | 9.37 |
| Area After Cons. (sq in) | 2.793 | Cons. Vol. (CC) | 204.43 |

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FileName: MWT0111A.WK4

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-11A | SAMPLED | 11/21/13 MWH |
| DEPTH | 31.0-31.5' | TEST STARTED | 04/21/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/30/14 DPM |
| SOIL DESCR. | Sand Tailings (V. Fine Clay) | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 2736 |

| | | | |
|---|---|---|---|
| Init. Ht. (in) | 4.591 | Init. Area (sq in) | 2.841 |
| Consol. Ht. (in) | 4.466 | Consol. Area (sq in) | 2.793 |
| Back Pres. PSI | 38.9 | Strain Rate (in/min) | 0.001 |

| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 2.793 | 0 | 38.9 | 0 | 2736 | 2736 | 1.00 |
| 15.0 | 773 | 0.004 | 0.10 | 2.796 | 773 | 40.8 | 274 | 2462 | 3235 | 1.31 |
| 21.0 | 1083 | 0.009 | 0.20 | 2.798 | 1081 | 42.0 | 446 | 2290 | 3370 | 1.47 |
| 24.0 | 1237 | 0.013 | 0.30 | 2.801 | 1234 | 43.3 | 634 | 2102 | 3336 | 1.59 |
| 27.0 | 1392 | 0.018 | 0.39 | 2.804 | 1387 | 44.3 | 778 | 1958 | 3345 | 1.71 |
| 30.0 | 1547 | 0.022 | 0.49 | 2.807 | 1539 | 45.0 | 878 | 1858 | 3397 | 1.83 |
| 33.0 | 1701 | 0.027 | 0.60 | 2.810 | 1691 | 45.6 | 965 | 1771 | 3463 | 1.95 |
| 36.0 | 1856 | 0.031 | 0.69 | 2.812 | 1843 | 46.1 | 1037 | 1699 | 3542 | 2.08 |
| 36.0 | 1856 | 0.035 | 0.79 | 2.815 | 1841 | 46.5 | 1094 | 1642 | 3483 | 2.12 |
| 36.0 | 1856 | 0.040 | 0.89 | 2.818 | 1840 | 46.9 | 1152 | 1584 | 3424 | 2.16 |
| 39.0 | 2011 | 0.044 | 0.99 | 2.821 | 1991 | 47.1 | 1181 | 1555 | 3546 | 2.28 |
| 39.0 | 2011 | 0.049 | 1.09 | 2.824 | 1989 | 47.4 | 1224 | 1512 | 3501 | 2.32 |
| 42.0 | 2166 | 0.053 | 1.19 | 2.826 | 2140 | 47.7 | 1267 | 1469 | 3609 | 2.46 |
| 42.0 | 2166 | 0.058 | 1.29 | 2.829 | 2138 | 47.9 | 1296 | 1440 | 3578 | 2.48 |
| 42.0 | 2166 | 0.062 | 1.39 | 2.832 | 2135 | 48.1 | 1325 | 1411 | 3547 | 2.51 |
| 42.0 | 2166 | 0.066 | 1.49 | 2.835 | 2133 | 48.3 | 1354 | 1382 | 3516 | 2.54 |
| 45.0 | 2320 | 0.071 | 1.59 | 2.838 | 2283 | 48.5 | 1382 | 1354 | 3637 | 2.69 |
| 45.0 | 2320 | 0.075 | 1.68 | 2.841 | 2281 | 48.6 | 1397 | 1339 | 3620 | 2.70 |
| 45.0 | 2320 | 0.080 | 1.78 | 2.844 | 2279 | 48.7 | 1411 | 1325 | 3604 | 2.72 |
| 45.0 | 2320 | 0.084 | 1.88 | 2.846 | 2277 | 48.9 | 1440 | 1296 | 3573 | 2.76 |
| 45.0 | 2320 | 0.088 | 1.98 | 2.849 | 2274 | 49.0 | 1454 | 1282 | 3556 | 2.77 |
| 48.0 | 2475 | 0.093 | 2.08 | 2.852 | 2423 | 49.1 | 1469 | 1267 | 3691 | 2.91 |
| 48.0 | 2475 | 0.097 | 2.18 | 2.855 | 2421 | 49.3 | 1498 | 1238 | 3659 | 2.95 |
| 48.0 | 2475 | 0.102 | 2.28 | 2.858 | 2419 | 49.3 | 1498 | 1238 | 3657 | 2.95 |
| 48.0 | 2475 | 0.102 | 2.28 | 2.858 | 2418 | 49.3 | 1498 | 1238 | 3657 | 2.95 |

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FileName: MWT0111A.WK4

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

CLIENT MWH

JOB NO. 2512-77

| | | | |
|---|---|---|---|
| BORING NO. | TI-B1-11A | SAMPLED | 11/21/13 MWH |
| DEPTH | 31.0-31.5' | TEST STARTED | 04/21/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/30/14 DPM |
| SOIL DESCR. | Sand Tailings (V. Fine Clay) | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 3888 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 370.8 | 352.4 |
| Wt. Wet Soil & Pan (g) | 386.6 | 368.2 |
| Wt. Dry Soil & Pan (g) | 277.8 | 277.8 |
| Wt. Lost Moisture (g) | 108.9 | 90.5 |
| Wt. of Pan Only (g) | 15.9 | 15.9 |
| Wt. of Dry Soil (g) | 261.9 | 261.9 |
| Moisture Content % | 41.6 | 34.6 |
| Wet Density PCF | 113.2 | 109.5 |
| Dry Density PCF | 80.0 | 81.3 |

| | |
|---|---|
| Init. Diameter (in) | 1.908 |
| Init. Area (sq in) | 2.858 |
| Init. Height (in) | 4.364 |
| Vol. Bef. Consol. (cu ft) | 0.00722 |
| Vol. After Consol. (cu ft) | 0.00710 |

Notes & Comments:

Data entry by: DAW Date: 05/22/2014
Data checked by: DPM Date: 8/22/14
FileName: MWT0111A.WK4

ADVANCED TERRA TESTING, Inc. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-11A | SAMPLED | 11/21/13 MWH |
| DEPTH | 31.0-31.5' | TEST STARTED | 04/21/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/30/14 DPM |
| SOIL DESCR. | Sand Tailings (V. Fine Clay) | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 3888 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 0.50 | 0.00 |
| 0.25 | 0.5 | 1.30 | -0.80 |
| 0.5 | 0.7 | 1.40 | -0.90 |
| 1 | 1.0 | 1.60 | -1.10 |
| 2 | 1.4 | 1.85 | -1.35 |
| 4 | 2.0 | 2.15 | -1.65 |
| 9 | 3.0 | 2.50 | -2.00 |
| 16 | 4.0 | 2.75 | -2.25 |
| 30 | 5.5 | 2.90 | -2.40 |
| 60 | 7.7 | 3.15 | -2.65 |
| 120 | 11.0 | 3.25 | -2.75 |
| 260 | 16.1 | 3.40 | -2.90 |
| 360 | 19.0 | 3.40 | -2.90 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 4.364 | Init. Vol. (CC) | 204.43 |
| Height Change (in) | 0.004 | Vol. Change (CC) | 4.20 |
| Ht. After Cons. (in) | 4.360 | Cell Exp. (CC) | 0.80 |
| Initial Area (sq in) | 2.858 | Net Change (CC) | 3.40 |
| Area After Cons. (sq in) | 2.813 | Cons. Vol. (CC) | 201.03 |

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ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-11A | SAMPLED | 11/21/13 MWH |
| DEPTH | 31.0-31.5' | TEST STARTED | 04/21/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/30/14 DPM |
| SOIL DESCR. | Sand Tailings (V. Fine Clay) | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 3888 |

| | | | |
|---|---|---|---|
| Init. Ht. (in) | 4.364 | Init. Area (sq in) | 2.858 |
| Consol. Ht. (in) | 4.360 | Consol. Area (sq in) | 2.813 |
| Back Pres. PSI | 39.2 | Strain Rate (in/min) | 0.002 |

| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 2.813 | 0 | 39.2 | 0 | 3888 | 3888 | 1.00 |
| 30.0 | 1536 | 0.005 | 0.11 | 2.816 | 1534 | 42.2 | 432 | 3456 | 4990 | 1.44 |
| 39.0 | 1996 | 0.009 | 0.20 | 2.819 | 1992 | 44.3 | 734 | 3154 | 5146 | 1.63 |
| 45.0 | 2304 | 0.013 | 0.30 | 2.822 | 2297 | 46.2 | 1008 | 2880 | 5177 | 1.80 |
| 48.0 | 2457 | 0.017 | 0.40 | 2.824 | 2447 | 47.6 | 1210 | 2678 | 5126 | 1.91 |
| 51.0 | 2611 | 0.022 | 0.50 | 2.827 | 2598 | 48.7 | 1368 | 2520 | 5118 | 2.03 |
| 54.0 | 2764 | 0.026 | 0.60 | 2.830 | 2748 | 49.7 | 1512 | 2376 | 5124 | 2.16 |
| 57.0 | 2918 | 0.031 | 0.70 | 2.833 | 2897 | 50.4 | 1613 | 2275 | 5173 | 2.27 |
| 60.0 | 3071 | 0.035 | 0.80 | 2.836 | 3047 | 51.0 | 1699 | 2189 | 5236 | 2.39 |
| 60.0 | 3071 | 0.039 | 0.90 | 2.839 | 3044 | 51.5 | 1771 | 2117 | 5161 | 2.44 |
| 63.0 | 3225 | 0.044 | 1.00 | 2.842 | 3193 | 52.0 | 1843 | 2045 | 5237 | 2.56 |
| 63.0 | 3225 | 0.048 | 1.10 | 2.844 | 3189 | 52.3 | 1886 | 2002 | 5191 | 2.59 |
| 66.0 | 3378 | 0.052 | 1.20 | 2.847 | 3338 | 52.7 | 1944 | 1944 | 5282 | 2.72 |
| 66.0 | 3378 | 0.057 | 1.30 | 2.850 | 3335 | 53.0 | 1987 | 1901 | 5235 | 2.75 |
| 66.0 | 3378 | 0.061 | 1.40 | 2.853 | 3331 | 53.2 | 2016 | 1872 | 5203 | 2.78 |
| 69.0 | 3532 | 0.065 | 1.50 | 2.856 | 3479 | 53.5 | 2059 | 1829 | 5308 | 2.90 |
| 69.0 | 3532 | 0.070 | 1.60 | 2.859 | 3475 | 53.7 | 2088 | 1800 | 5275 | 2.93 |
| 69.0 | 3532 | 0.074 | 1.70 | 2.862 | 3472 | 53.9 | 2117 | 1771 | 5243 | 2.96 |
| 72.0 | 3686 | 0.079 | 1.80 | 2.865 | 3619 | 54.1 | 2146 | 1742 | 5362 | 3.08 |
| 72.0 | 3686 | 0.083 | 1.90 | 2.868 | 3616 | 54.3 | 2174 | 1714 | 5329 | 3.11 |
| 72.0 | 3686 | 0.087 | 2.00 | 2.871 | 3612 | 54.4 | 2189 | 1699 | 5311 | 3.13 |
| 72.0 | 3686 | 0.092 | 2.10 | 2.873 | 3608 | 54.5 | 2203 | 1685 | 5293 | 3.14 |
| 72.0 | 3686 | 0.096 | 2.20 | 2.876 | 3605 | 54.7 | 2232 | 1656 | 5261 | 3.18 |
| 72.0 | 3686 | 0.100 | 2.30 | 2.879 | 3601 | 54.7 | 2232 | 1656 | 5257 | 3.17 |
| 72.0 | 3686 | 0.105 | 2.40 | 2.882 | 3597 | 54.8 | 2246 | 1642 | 5239 | 3.19 |
| 75.0 | 3839 | 0.109 | 2.50 | 2.885 | 3743 | 54.9 | 2261 | 1627 | 5370 | 3.30 |
| 75.0 | 3839 | 0.113 | 2.60 | 2.888 | 3739 | 55.0 | 2275 | 1613 | 5352 | 3.32 |
| 75.0 | 3839 | 0.118 | 2.70 | 2.891 | 3736 | 55.1 | 2290 | 1598 | 5334 | 3.34 |
| 75.0 | 3839 | 0.122 | 2.80 | 2.894 | 3732 | 55.2 | 2304 | 1584 | 5316 | 3.36 |
| 75.0 | 3839 | 0.126 | 2.90 | 2.897 | 3728 | 55.3 | 2318 | 1570 | 5297 | 3.38 |

Data entry by: DAW Date: 05/22/2014
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FileName: MWT0111A.WK4

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-11A | SAMPLED | 11/21/13 MWH |
| DEPTH | 31.0-31.5' | TEST STARTED | 04/21/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/30/14 DPM |
| SOIL DESCR. | Sand Tailings (V. Fine Clay) | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 5040 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 370.8 | 352.4 |
| Wt. Wet Soil & Pan (g) | 386.6 | 368.2 |
| Wt. Dry Soil & Pan (g) | 277.8 | 277.8 |
| Wt. Lost Moisture (g) | 108.9 | 90.5 |
| Wt. of Pan Only (g) | 15.9 | 15.9 |
| Wt. of Dry Soil (g) | 261.9 | 261.9 |
| Moisture Content % | 41.6 | 34.6 |
| Wet Density PCF | 115.2 | 110.6 |
| Dry Density PCF | 81.3 | 82.2 |

| | |
|---|---|
| Init. Diameter (in) | 1.921 |
| Init. Area (sq in) | 2.897 |
| Init. Height (in) | 4.234 |
| Vol. Bef. Consol. (cu ft) | 0.00710 |
| Vol. After Consol. (cu ft) | 0.00702 |

Notes & Comments:

Data entry by: DAW Date: 05/22/2014
Data checked by: DPM Date: 5/22/14
FileName: MWT0111A.WK4

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-11A | SAMPLED | 11/21/13 MWH |
| DEPTH | 31.0-31.5' | TEST STARTED | 04/21/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/30/14 DPM |
| SOIL DESCR. | Sand Tailings (V. Fine Clay) | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 5040 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 7.70 | 0.00 |
| 0.25 | 0.5 | 9.30 | -1.60 |
| 0.5 | 0.7 | 9.40 | -1.70 |
| 1 | 1.0 | 9.50 | -1.80 |
| 2 | 1.4 | 9.60 | -1.90 |
| 4 | 2.0 | 9.70 | -2.00 |
| 9 | 3.0 | 9.90 | -2.20 |
| 16 | 4.0 | 9.95 | -2.25 |
| 30 | 5.5 | 10.00 | -2.30 |
| 60 | 7.7 | 10.10 | -2.40 |
| 120 | 11.0 | 10.15 | -2.45 |
| 240 | 15.5 | 10.20 | -2.50 |
| 360 | 19.0 | 10.30 | -2.60 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 4.234 | Init. Vol. (CC) | 201.03 |
| Height Change (in) | 0.001 | Vol. Change (CC) | 2.90 |
| Ht. After Cons. (in) | 4.233 | Cell Exp. (CC) | 0.80 |
| Initial Area (sq in) | 2.897 | Net Change (CC) | 2.10 |
| Area After Cons. (sq in) | 2.867 | Cons. Vol. (CC) | 198.92 |

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FileName: MWT0111A.WK4

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

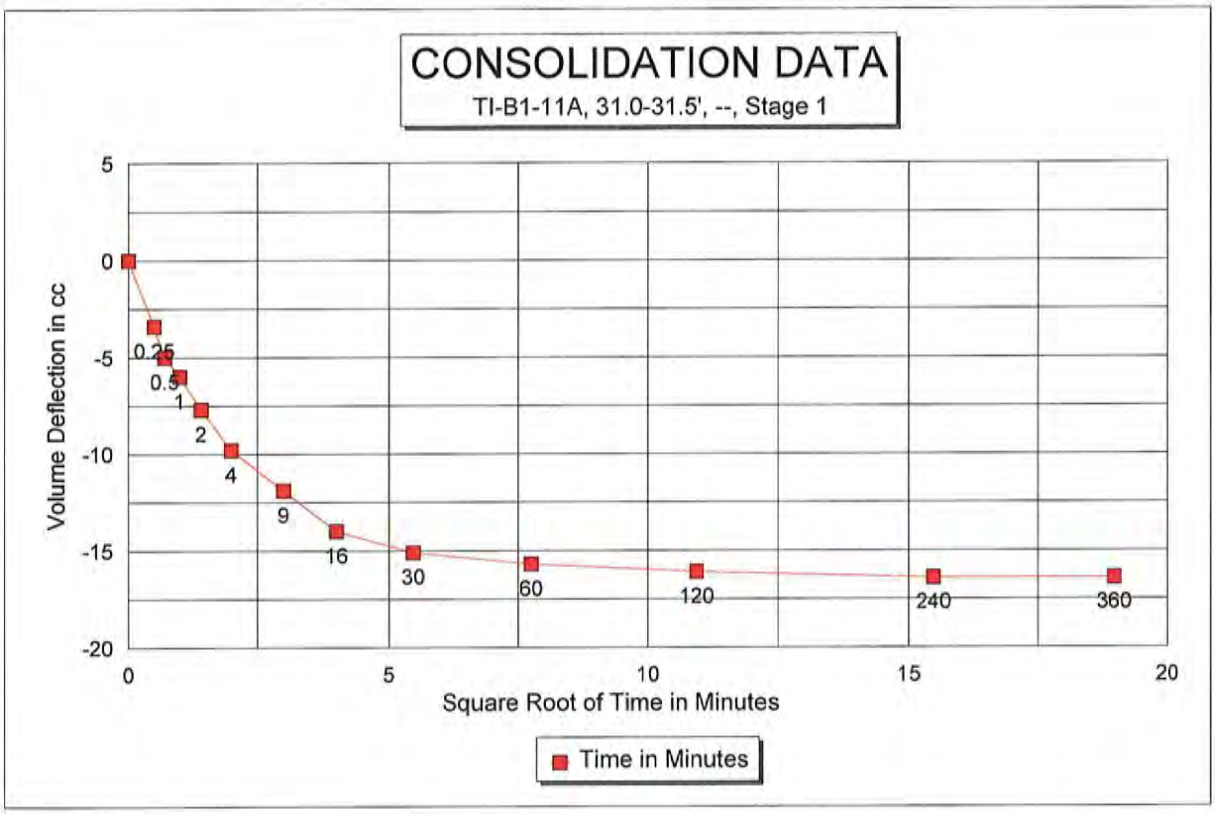
| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-11A | SAMPLED | 11/21/13 MWH |
| DEPTH | 31.0-31.5' | TEST STARTED | 04/21/14 DPM |
| SAMPLE NO. | -- | TEST FINISHED | 04/30/14 DPM |
| SOIL DESCR. | Sand Tailings (V. Fine Clay) | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 5040 |

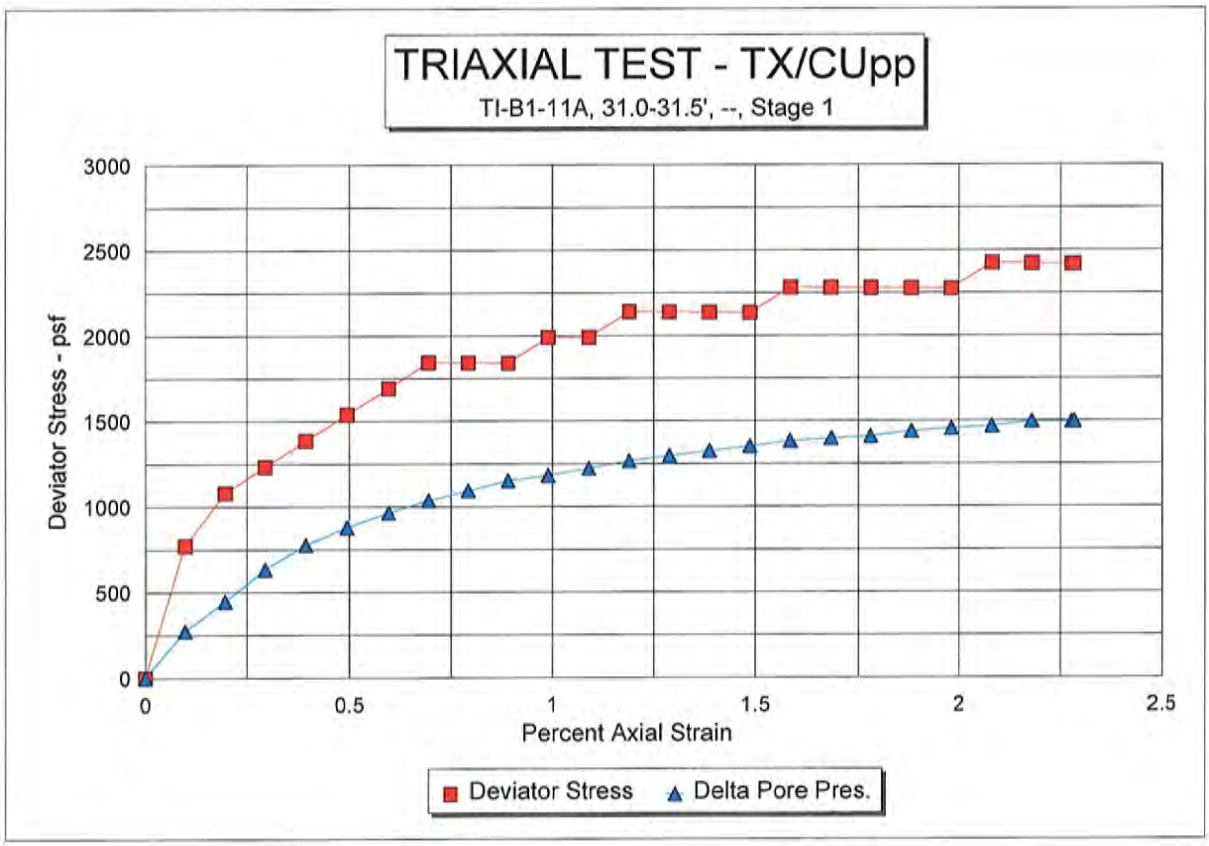
| | | | |
|---|---|---|---|
| Init. Ht. (in) | 4.234 | Init. Area (sq in) | 2.897 |
| Consol. Ht. (in) | 4.233 | Consol. Area (sq in) | 2.867 |
| Back Pres. PSI | 38.1 | Strain Rate (in/min) | 0.002 |

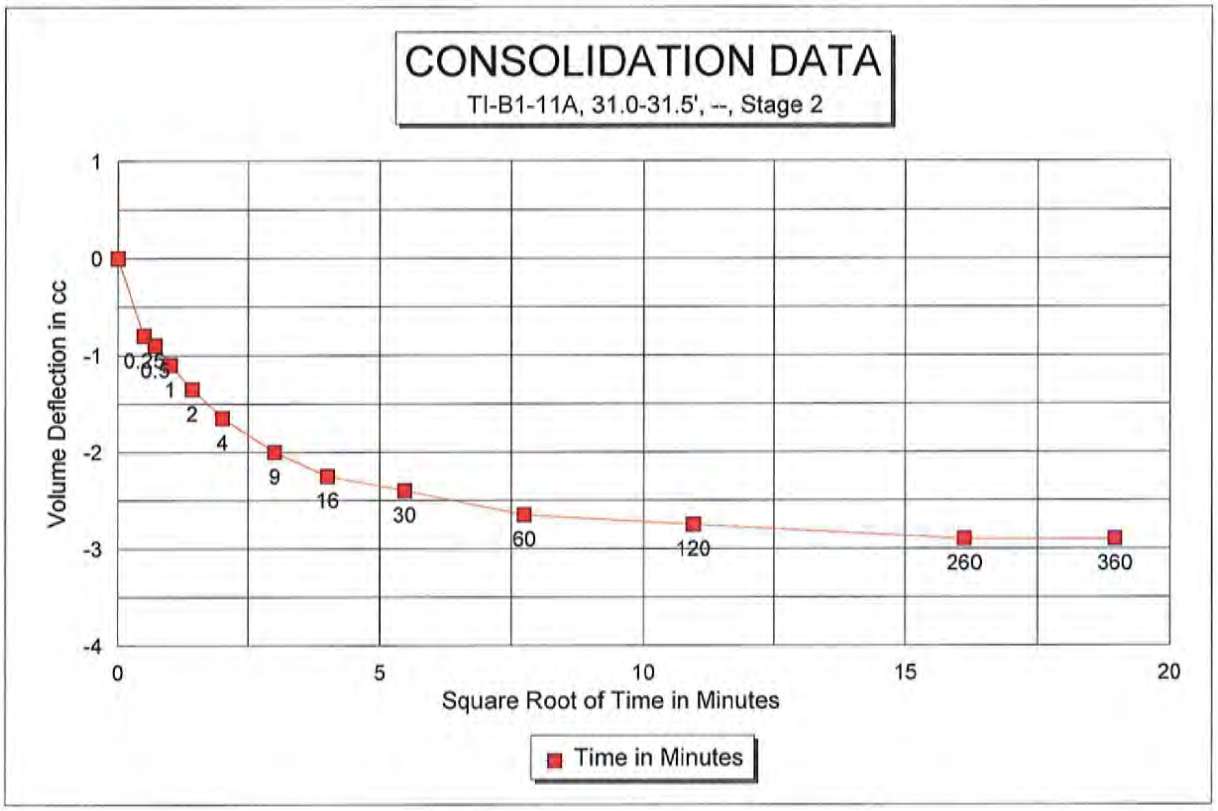
| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 2.867 | 0 | 38.1 | 0 | 5040 | 5040 | 1.00 |
| 39.0 | 1959 | 0.004 | 0.10 | 2.870 | 1957 | 42.5 | 634 | 4406 | 6363 | 1.44 |
| 54.0 | 2712 | 0.009 | 0.20 | 2.873 | 2706 | 45.6 | 1080 | 3960 | 6666 | 1.68 |
| 63.0 | 3164 | 0.013 | 0.30 | 2.876 | 3154 | 48.0 | 1426 | 3614 | 6769 | 1.87 |
| 69.0 | 3465 | 0.017 | 0.41 | 2.879 | 3451 | 49.8 | 1685 | 3355 | 6806 | 2.03 |
| 78.0 | 3917 | 0.022 | 0.51 | 2.882 | 3897 | 51.2 | 1886 | 3154 | 7051 | 2.24 |
| 81.0 | 4068 | 0.026 | 0.61 | 2.885 | 4043 | 52.3 | 2045 | 2995 | 7038 | 2.35 |
| 84.0 | 4218 | 0.030 | 0.71 | 2.888 | 4188 | 53.2 | 2174 | 2866 | 7054 | 2.46 |
| 87.0 | 4369 | 0.034 | 0.81 | 2.891 | 4334 | 54.0 | 2290 | 2750 | 7084 | 2.58 |
| 90.0 | 4520 | 0.039 | 0.91 | 2.894 | 4478 | 54.6 | 2376 | 2664 | 7142 | 2.68 |
| 93.0 | 4670 | 0.047 | 1.12 | 2.900 | 4618 | 55.6 | 2520 | 2520 | 7138 | 2.83 |
| 96.0 | 4821 | 0.056 | 1.32 | 2.906 | 4757 | 56.4 | 2635 | 2405 | 7162 | 2.98 |
| 96.0 | 4821 | 0.065 | 1.52 | 2.912 | 4748 | 57.0 | 2722 | 2318 | 7066 | 3.05 |
| 99.0 | 4972 | 0.073 | 1.73 | 2.918 | 4886 | 57.5 | 2794 | 2246 | 7132 | 3.17 |
| 102.0 | 5122 | 0.082 | 1.93 | 2.924 | 5023 | 57.8 | 2837 | 2203 | 7227 | 3.28 |
| 102.0 | 5122 | 0.090 | 2.13 | 2.930 | 5013 | 58.2 | 2894 | 2146 | 7159 | 3.34 |
| 102.0 | 5122 | 0.099 | 2.34 | 2.936 | 5003 | 58.5 | 2938 | 2102 | 7105 | 3.38 |
| 102.0 | 5122 | 0.108 | 2.54 | 2.942 | 4992 | 58.7 | 2966 | 2074 | 7066 | 3.41 |
| 105.0 | 5273 | 0.120 | 2.84 | 2.951 | 5123 | 59.0 | 3010 | 2030 | 7153 | 3.52 |
| 108.0 | 5424 | 0.163 | 3.86 | 2.983 | 5214 | 59.7 | 3110 | 1930 | 7144 | 3.70 |
| 108.0 | 5424 | 0.202 | 4.77 | 3.011 | 5165 | 60.0 | 3154 | 1886 | 7051 | 3.74 |
| 108.0 | 5424 | 0.241 | 5.69 | 3.040 | 5115 | 60.1 | 3168 | 1872 | 6987 | 3.73 |
| 111.0 | 5574 | 0.280 | 6.60 | 3.070 | 5206 | 60.2 | 3182 | 1858 | 7064 | 3.80 |
| 111.0 | 5574 | 0.318 | 7.52 | 3.101 | 5155 | 60.1 | 3168 | 1872 | 7027 | 3.75 |
| 111.0 | 5574 | 0.357 | 8.43 | 3.132 | 5104 | 60.0 | 3154 | 1886 | 6991 | 3.71 |
| 111.0 | 5574 | 0.396 | 9.35 | 3.163 | 5053 | 59.9 | 3139 | 1901 | 6954 | 3.66 |
| 111.0 | 5574 | 0.434 | 10.26 | 3.195 | 5002 | 59.6 | 3096 | 1944 | 6946 | 3.57 |
| 111.0 | 5574 | 0.473 | 11.18 | 3.228 | 4951 | 59.3 | 3053 | 1987 | 6939 | 3.49 |
| 105.0 | 5273 | 0.512 | 12.09 | 3.262 | 4635 | 58.9 | 2995 | 2045 | 6680 | 3.27 |
| 102.0 | 5122 | 0.550 | 13.00 | 3.296 | 4456 | 59.0 | 3010 | 2030 | 6487 | 3.19 |
| 96.0 | 4821 | 0.589 | 13.92 | 3.331 | 4150 | 59.1 | 3024 | 2016 | 6166 | 3.06 |
| 96.0 | 4821 | 0.628 | 14.83 | 3.367 | 4106 | 59.3 | 3053 | 1987 | 6093 | 3.07 |

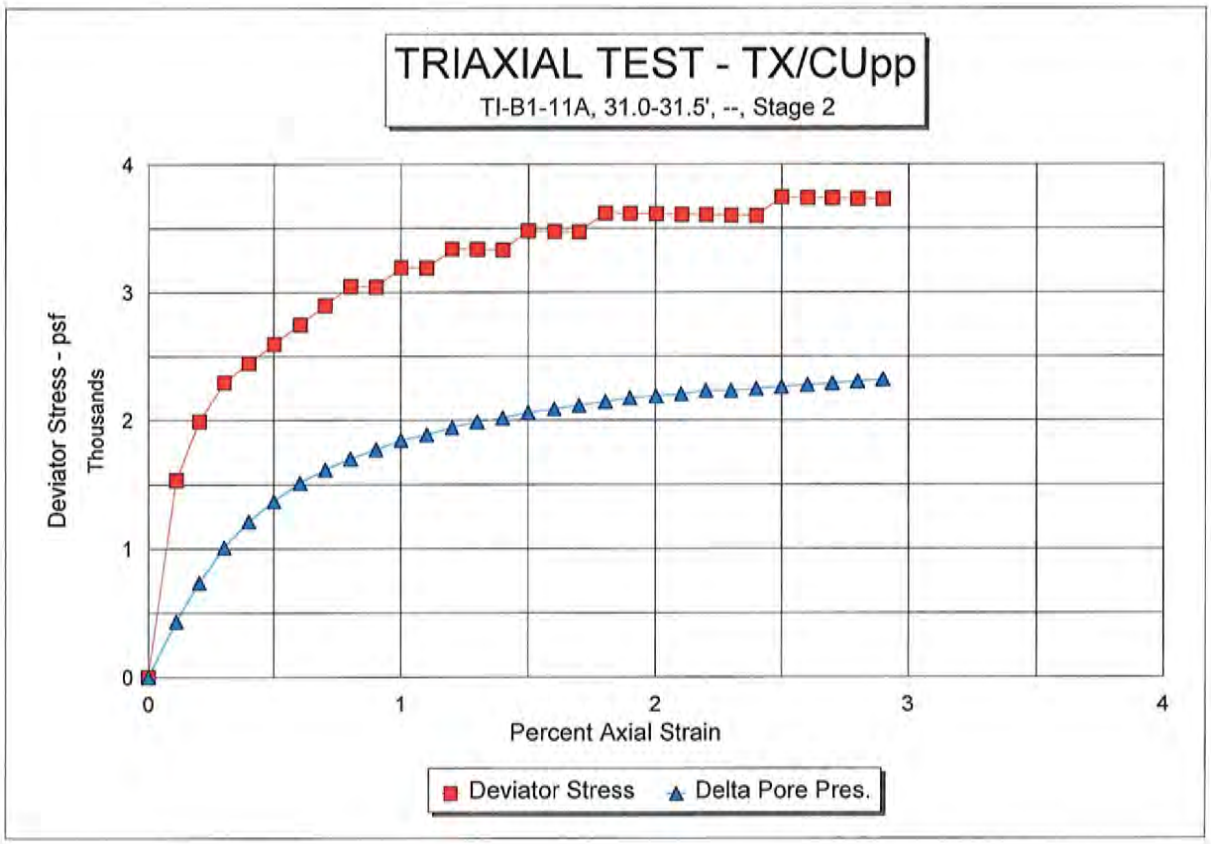
Data entry by: DAW Date: 05/22/2014
Data checked by: DPM Date: 5/24/14
FileName: MWT0111A.WK4

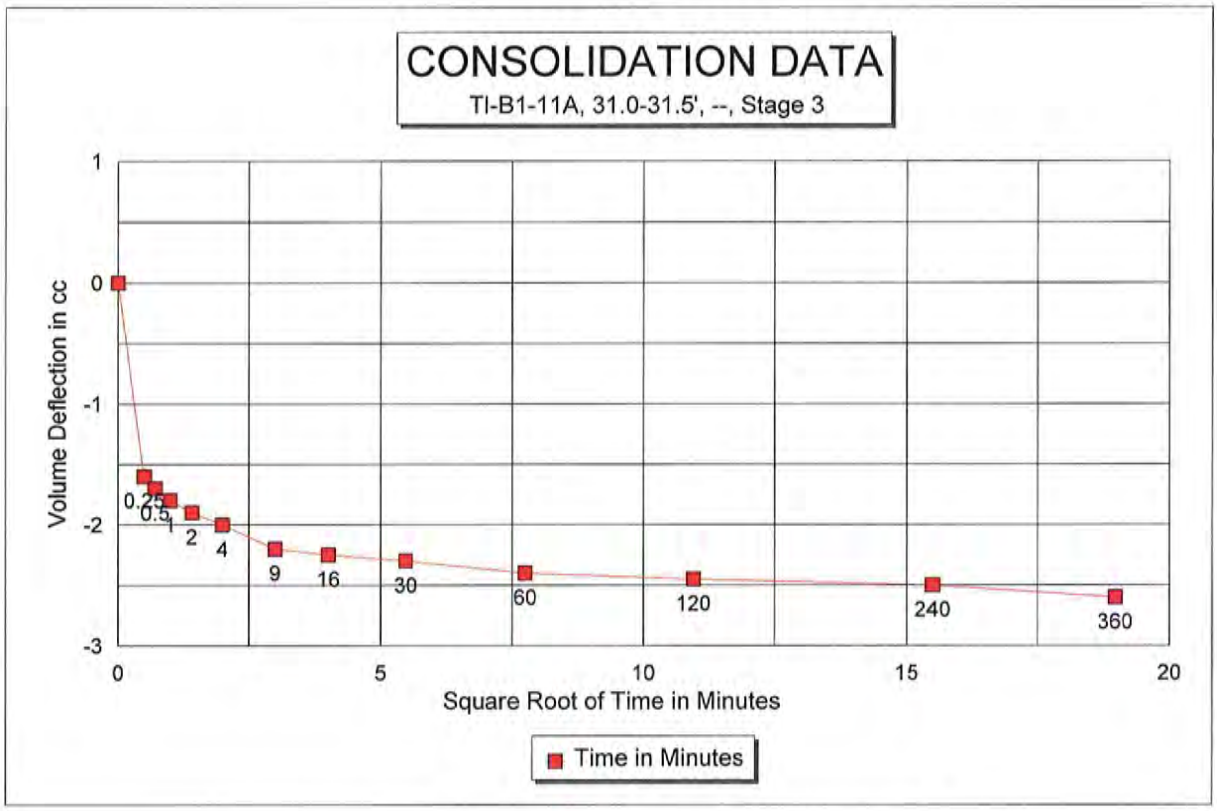
ADVANCED TERRA TESTING, INC. ATT

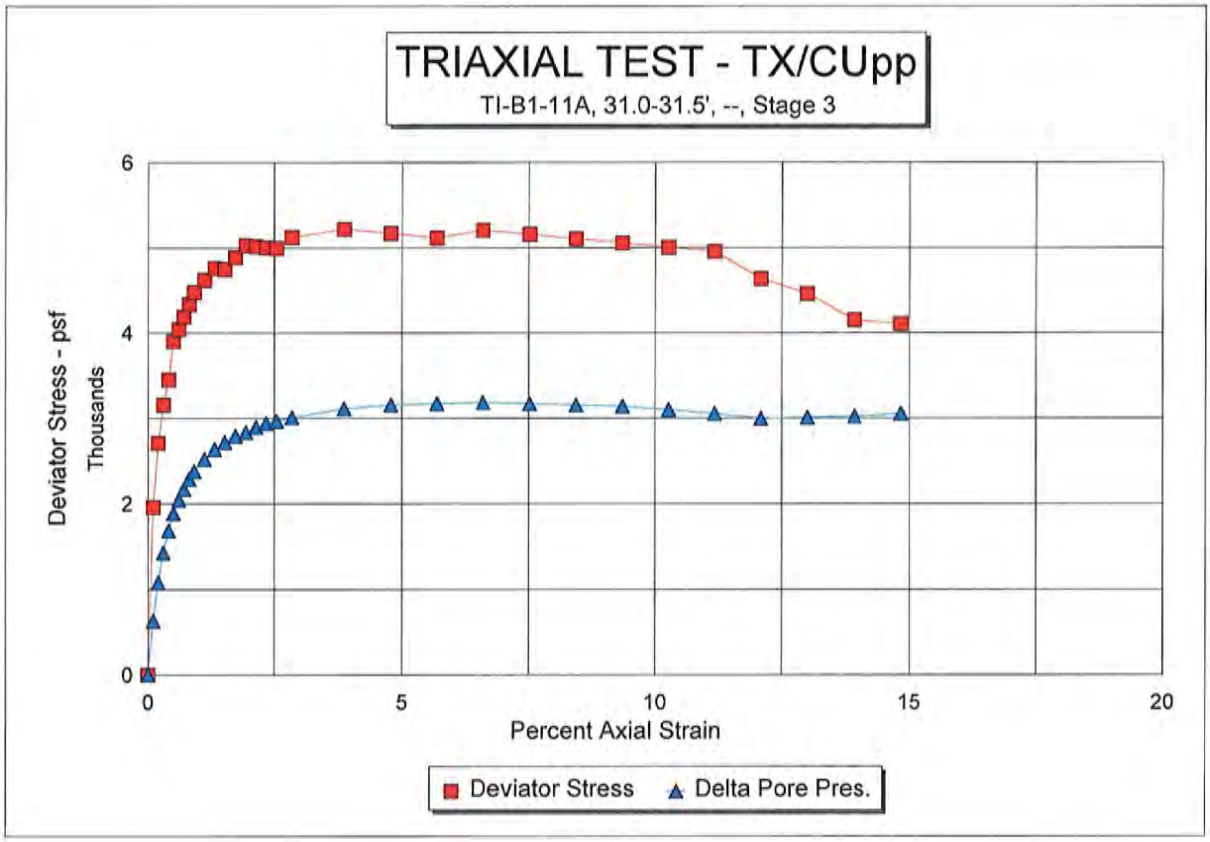

CONSOLIDATION DATA
TI-B1-11A, 31.0-31.5', --, Stage 1
Volume Deflection in cc
5
0
-5
-10
-15
-20
0.25
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B1-11A, 31.0-31.5', --, Stage 1
Deviator Stress - psf
3000
2500
2000
1500
1000
500
0
0
0.5
1
1.5
2
2.5
Percent Axial Strain
Deviator Stress
Delta Pore Pres.


CONSOLIDATION DATA
TI-B1-11A, 31.0-31.5', --, Stage 2
Volume Deflection in cc
1
0
-1
-2
-3
-4
0.25
0.5
1
2
4
9
16
30
60
120
260
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B1-11A, 31.0-31.5', --, Stage 2
Deviator Stress - psf
Thousands
4
3
2
1
0
0
1
2
3
4
Percent Axial Strain
Deviator Stress
Delta Pore Pres.


CONSOLIDATION DATA
TI-B1-11A, 31.0-31.5', --, Stage 3
Volume Deflection in cc
1
0
-1
-2
-3
0.25
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B1-11A, 31.0-31.5', --, Stage 3
Deviator Stress - psf
Thousands
6
4
2
0
0
5
10
15
20
Percent Axial Strain
Deviator Stress
Delta Pore Pres.

EFFECTIVE STRESS PATH ANALYSIS TEST DATA
ASTM D4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-17 | | |
| DEPTH | 45-46' (45-47.5') | SAMPLED | 11/21/13 MWH |
| SAMPLE NO. | A,B&C | SATURATED TEST | |
| PROJECT NO. | -- | TEST TYPE | TX/CUPP |
| LOCATION | Tailings Impoundment | | |

| CONF. PRES. PSF | | | | Peak Points | p' PSF | q PSF |
|---|---|---|---|---|---|---|
| | SAMPLE A | 4608 | PSF | SAMPLE A | 3317 | 1733 |
| | SAMPLE B | 5706 | PSF | SAMPLE B | 6663 | 3754 |
| | SAMPLE C | 6912 | PSF | SAMPLE C | 12621 | 7163 |

**SAMPLE A**

| σ 3' PSF | σ 1' PSF | p' PSF | q PSF |
|---|---|---|---|
| 4608 | 4608 | 4608 | 0 |
| 4277 | 5232 | 4754 | 478 |
| 3629 | 5442 | 4535 | 906 |
| 3125 | 5317 | 4221 | 1096 |
| 2750 | 5226 | 3988 | 1238 |
| 2506 | 5074 | 3790 | 1284 |
| 2318 | 4979 | 3649 | 1330 |
| 2160 | 4913 | 3537 | 1377 |
| 2045 | 4890 | 3467 | 1423 |
| 1958 | 4895 | 3427 | 1469 |
| 1886 | 4820 | 3353 | 1467 |
| 1829 | 4854 | 3342 | 1513 |
| 1771 | 4794 | 3282 | 1511 |
| 1728 | 4842 | 3285 | 1557 |
| 1699 | 4810 | 3255 | 1555 |
| 1670 | 4872 | 3271 | 1601 |
| 1642 | 4934 | 3288 | 1646 |
| 1627 | 4916 | 3272 | 1645 |
| 1613 | 4992 | 3303 | 1690 |
| 1584 | 4960 | 3272 | 1688 |
| 1584 | 5050 | 3317 | 1733 |
| 1584 | 5047 | 3315 | 1731 |
| 1584 | 4857 | 3221 | 1637 |

**SAMPLE B**

| σ 3' PSF | σ 1' PSF | p' PSF | q PSF |
|---|---|---|---|
| 5760 | 5760 | 5760 | 0 |
| 5443 | 6946 | 6195 | 752 |
| 4810 | 8470 | 6640 | 1830 |
| 4378 | 8972 | 6675 | 2297 |
| 4075 | 9226 | 6651 | 2576 |
| 3830 | 9351 | 6591 | 2760 |
| 3658 | 9453 | 6555 | 2897 |
| 3499 | 9475 | 6487 | 2988 |
| 3384 | 9447 | 6415 | 3031 |
| 3298 | 9541 | 6419 | 3122 |
| 3226 | 9555 | 6391 | 3165 |
| 3168 | 9584 | 6376 | 3208 |
| 3110 | 9613 | 6362 | 3251 |
| 3067 | 9656 | 6362 | 3294 |
| 3038 | 9713 | 6376 | 3337 |
| 3010 | 9770 | 6390 | 3380 |
| 2981 | 9827 | 6404 | 3423 |
| 2966 | 9805 | 6386 | 3419 |
| 2952 | 9876 | 6414 | 3462 |
| 2938 | 9947 | 6442 | 3505 |
| 2938 | 10032 | 6485 | 3547 |
| 2923 | 10010 | 6467 | 3543 |
| 2923 | 10095 | 6509 | 3586 |
| 2923 | 10179 | 6551 | 3628 |
| 2923 | 10263 | 6593 | 3670 |
| 2909 | 10333 | 6621 | 3712 |
| 2909 | 10417 | 6663 | 3754 |
| 2923 | 10423 | 6673 | 3750 |
| 2923 | 10327 | 6625 | 3702 |

**SAMPLE C**

| σ 3' PSF | σ 1' PSF | p' PSF | q PSF |
|---|---|---|---|
| 6912 | 6912 | 6912 | 0 |
| 5962 | 10091 | 8026 | 2065 |
| 5501 | 12010 | 8755 | 3254 |
| 5213 | 12997 | 9105 | 3892 |
| 4997 | 13597 | 9297 | 4300 |
| 4838 | 13978 | 9408 | 4570 |
| 4723 | 14219 | 9471 | 4748 |
| 4622 | 14382 | 9502 | 4880 |
| 4550 | 14573 | 9562 | 5011 |
| 4493 | 14596 | 9545 | 5052 |
| 4378 | 14893 | 9635 | 5258 |
| 4291 | 15124 | 9708 | 5417 |
| 4291 | 15439 | 9865 | 5574 |
| 4306 | 15676 | 9991 | 5685 |
| 4334 | 15925 | 10130 | 5795 |
| 4378 | 16186 | 10282 | 5904 |
| 4493 | 16906 | 10699 | 6207 |
| 4637 | 17468 | 11053 | 6416 |
| 4781 | 18108 | 11445 | 6664 |
| 4853 | 18295 | 11574 | 6721 |
| 4925 | 18652 | 11788 | 6864 |
| 5098 | 19216 | 12157 | 7059 |
| 5270 | 19433 | 12352 | 7081 |
| 5357 | 19645 | 12501 | 7144 |
| 5458 | 19784 | 12621 | 7163 |
| 5515 | 19794 | 12655 | 7139 |
| 5573 | 19803 | 12688 | 7115 |
| 5616 | 19796 | 12706 | 7090 |
| 5645 | 19694 | 12669 | 7024 |
| 5659 | 19497 | 12578 | 6919 |
| 5645 | 19401 | 12523 | 6878 |
| 5630 | 19289 | 12460 | 6829 |

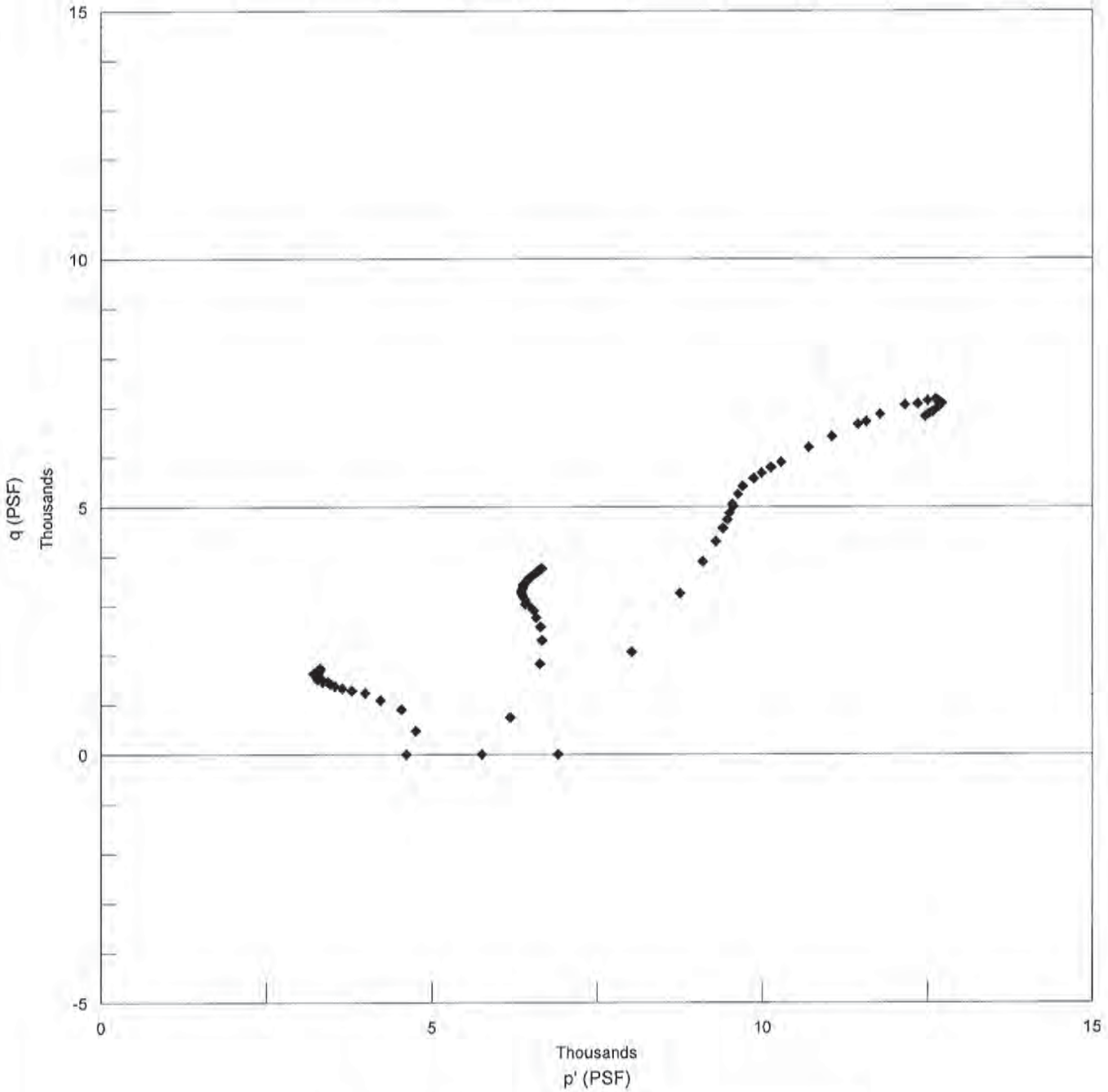
Data entry by: DAW
Data checked by: DPM
FileName: MWPQB117.WK4

Date: 05/22/2014
Date: 5/22/14

ATT
ADVANCED TESTING SYSTEMS

# Effective Stress Path Analysis - p' q Plots

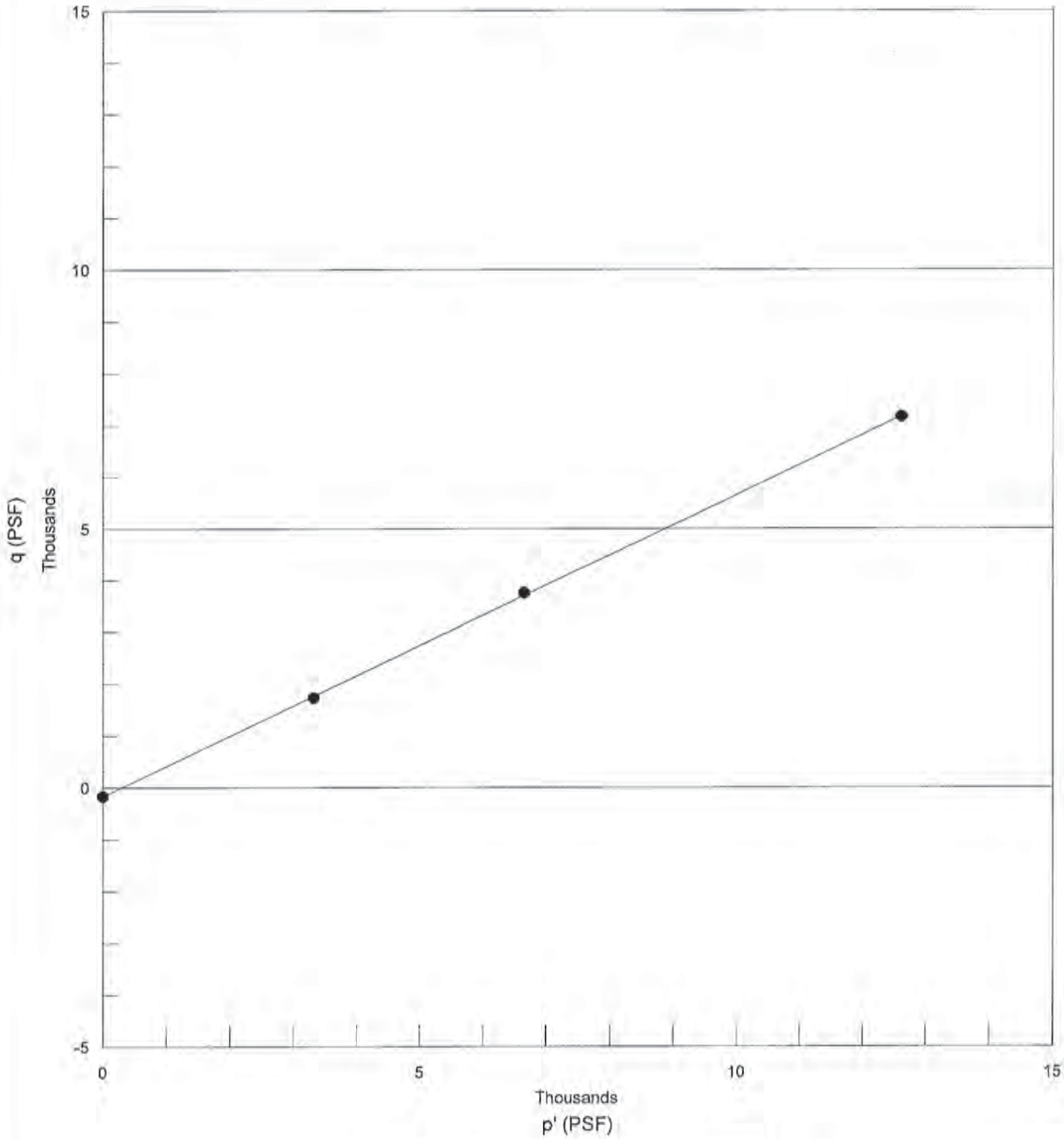
MWH,Tailings Impoundment,--,TI-B1-17,A,B&C,45-46' (45-47.5')




◆ Stress Paths of Samples A, B & C

# Effective Stress Path Analysis - p'-q Regression Plot

MWH,Tailings Impoundment,--,TI-B1-17,A,B&C,45-46' (45-47.5')




● Best Fit Line – Shear Data

NOTE: Peak points are plotted for visual verification only. Least squared regression analysis, yields a negative alpha (a) value; therefore no regression analysis has been provided.

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-17 | SAMPLED | 11/21/13 MWH |
| DEPTH | 45-46' (45-47.5') | TEST STARTED | 04/18/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Clayey Sand | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 4608 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 787.6 | 776.7 |
| Wt. Wet Soil & Pan (g) | 803.4 | 792.4 |
| Wt. Dry Soil & Pan (g) | 665.7 | 665.7 |
| Wt. Lost Moisture (g) | 137.7 | 126.7 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 650.0 | 650.0 |
| Moisture Content % | 21.2 | 19.5 |
| Wet Density PCF | 125.9 | 126.9 |
| Dry Density PCF | 103.9 | 106.2 |

| | |
|---|---|
| Init. Diameter (in) | 2.404 |
| Init. Area (sq in) | 4.539 |
| Init. Height (in) | 5.252 |
| Vol. Bef. Consol. (cu ft) | 0.01380 |
| Vol. After Consol. (cu ft) | 0.01349 |

Notes & Comments: The sample consolidated approximately 0.33" during sub-sampling.
The sample was dried at 60 degrees C.

Data entry by: DPM/DAW Date: 05/22/2014
Data checked by: DPM Date: 5/22/14
FileName: MWT0B117

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-17 | SAMPLED | 11/21/13 MWH |
| DEPTH | 45-46' (45-47.5') | TEST STARTED | 04/18/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Clayey Sand | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 4608 |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 2.5 | 11.8 | | | | |
| 50.0 | 48.0 | 13.7 | 14.6 | 38.4 | 47.7 | 9.3 | 0.93 |
| 60.0 | | 15.1 | 15.1 | 48.0 | 57.9 | 9.9 | 0.99 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 0.30 | 0.00 |
| 0.25 | 0.5 | 9.30 | -9.00 |
| 0.5 | 0.7 | 10.90 | -10.60 |
| 1 | 1.0 | 12.30 | -12.00 |
| 2 | 1.4 | 13.25 | -12.95 |
| 4 | 2.0 | 13.80 | -13.50 |
| 9 | 3.0 | 14.15 | -13.85 |
| 16 | 4.0 | 14.35 | -14.05 |
| 30 | 5.5 | 14.50 | -14.20 |
| 60 | 7.7 | 14.70 | -14.40 |
| 120 | 11.0 | 14.90 | -14.60 |
| 240 | 15.5 | 15.00 | -14.70 |
| 360 | 19.0 | 15.00 | -14.70 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 5.252 | Init. Vol. (CC) | 390.72 |
| Height Change (in) | 0.092 | Vol. Change (CC) | 28.20 |
| Ht. After Cons. (in) | 5.160 | Cell Exp. (CC) | 19.61 |
| Initial Area (sq in) | 4.539 | Net Change (CC) | 8.59 |
| Area After Cons. (sq in) | 4.518 | Cons. Vol. (CC) | 382.13 |

Data entry by: DPM/DAW Date: 05/22/2014
Data checked by: DPM Date: 5/22/14
FileName: MWT0B117

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-17 | SAMPLED | 11/21/13 MWH |
| DEPTH | 45-46' (45-47.5') | TEST STARTED | 04/18/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Clayey Sand | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 4608 |

| | | | |
|---|---|---|---|
| Init. Ht. (in) | 5.252 | Init. Area (sq in) | 4.539 |
| Consol. Ht. (in) | 5.160 | Consol. Area (sq in) | 4.518 |
| Back Pres. PSI | 48.4 | Strain Rate (in/min) | 0.006 |

| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 4.518 | 0 | 48.4 | 0 | 4608 | 4608 | 1.00 |
| 30.0 | 956 | 0.005 | 0.10 | 4.523 | 955 | 50.7 | 331 | 4277 | 5232 | 1.22 |
| 57.0 | 1817 | 0.010 | 0.20 | 4.527 | 1813 | 55.2 | 979 | 3629 | 5442 | 1.50 |
| 69.0 | 2199 | 0.016 | 0.30 | 4.532 | 2192 | 58.7 | 1483 | 3125 | 5317 | 1.70 |
| 78.0 | 2486 | 0.021 | 0.40 | 4.537 | 2476 | 61.3 | 1858 | 2750 | 5226 | 1.90 |
| 81.0 | 2581 | 0.026 | 0.50 | 4.541 | 2568 | 63.0 | 2102 | 2506 | 5074 | 2.03 |
| 84.0 | 2677 | 0.031 | 0.60 | 4.546 | 2661 | 64.3 | 2290 | 2318 | 4979 | 2.15 |
| 87.0 | 2773 | 0.036 | 0.71 | 4.550 | 2753 | 65.4 | 2448 | 2160 | 4913 | 2.27 |
| 90.0 | 2868 | 0.042 | 0.81 | 4.555 | 2845 | 66.2 | 2563 | 2045 | 4890 | 2.39 |
| 93.0 | 2964 | 0.047 | 0.91 | 4.560 | 2937 | 66.8 | 2650 | 1958 | 4895 | 2.50 |
| 93.0 | 2964 | 0.052 | 1.01 | 4.564 | 2934 | 67.3 | 2722 | 1886 | 4820 | 2.56 |
| 96.0 | 3060 | 0.057 | 1.11 | 4.569 | 3026 | 67.7 | 2779 | 1829 | 4854 | 2.65 |
| 96.0 | 3060 | 0.062 | 1.21 | 4.574 | 3023 | 68.1 | 2837 | 1771 | 4794 | 2.71 |
| 99.0 | 3155 | 0.068 | 1.31 | 4.578 | 3114 | 68.4 | 2880 | 1728 | 4842 | 2.80 |
| 99.0 | 3155 | 0.073 | 1.41 | 4.583 | 3111 | 68.6 | 2909 | 1699 | 4810 | 2.83 |
| 102.0 | 3251 | 0.078 | 1.51 | 4.588 | 3202 | 68.8 | 2938 | 1670 | 4872 | 2.92 |
| 105.0 | 3346 | 0.083 | 1.61 | 4.592 | 3292 | 69.0 | 2966 | 1642 | 4934 | 3.01 |
| 105.0 | 3346 | 0.088 | 1.71 | 4.597 | 3289 | 69.1 | 2981 | 1627 | 4916 | 3.02 |
| 108.0 | 3442 | 0.094 | 1.81 | 4.602 | 3380 | 69.2 | 2995 | 1613 | 4992 | 3.10 |
| 108.0 | 3442 | 0.099 | 1.91 | 4.607 | 3376 | 69.4 | 3024 | 1584 | 4960 | 3.13 |
| 111.0 | 3538 | 0.104 | 2.02 | 4.611 | 3466 | 69.4 | 3024 | 1584 | 5050 | 3.19 |
| 111.0 | 3538 | 0.109 | 2.12 | 4.616 | 3463 | 69.4 | 3024 | 1584 | 5047 | 3.19 |
| 105.0 | 3346 | 0.112 | 2.18 | 4.619 | 3273 | 69.4 | 3024 | 1584 | 4857 | 3.07 |

Data entry by: DPM/DAW Date: 05/22/2014
Data checked by: DPM Date: 6/22/14
FileName: MWT0B117

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-17 | SAMPLED | 11/21/13 MWH |
| DEPTH | 45-46' (45-47.5') | TEST STARTED | 04/18/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Clayey Sand | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 5760 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 787.6 | 776.7 |
| Wt. Wet Soil & Pan (g) | 803.4 | 792.4 |
| Wt. Dry Soil & Pan (g) | 665.7 | 665.7 |
| Wt. Lost Moisture (g) | 137.7 | 126.7 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 650.0 | 650.0 |
| Moisture Content % | 21.2 | 19.5 |
| Wet Density PCF | 128.7 | 127.5 |
| Dry Density PCF | 106.2 | 106.7 |

| | |
|---|---|
| Init. Diameter (in) | 2.425 |
| Init. Area (sq in) | 4.619 |
| Init. Height (in) | 5.048 |
| Vol. Bef. Consol. (cu ft) | 0.01349 |
| Vol. After Consol. (cu ft) | 0.01343 |

Notes & Comments:

Data entry by: DPM/DAW Date: 05/22/2014
Data checked by: DPM Date: 6/22/14
FileName: MWT0B117

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-17 | SAMPLED | 11/21/13 MWH |
| DEPTH | 45-46' (45-47.5') | TEST STARTED | 04/18/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Clayey Sand | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 5760 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 0.80 | 0.00 |
| 0.25 | 0.5 | 1.70 | -0.90 |
| 0.5 | 0.7 | 1.80 | -1.00 |
| 1 | 1.0 | 1.90 | -1.10 |
| 2 | 1.4 | 2.00 | -1.20 |
| 4 | 2.0 | 2.05 | -1.25 |
| 9 | 3.0 | 2.10 | -1.30 |
| 16 | 4.0 | 2.20 | -1.40 |
| 30 | 5.5 | 2.25 | -1.45 |
| 60 | 7.7 | 2.35 | -1.55 |
| 120 | 11.0 | 2.40 | -1.60 |
| 240 | 15.5 | 2.40 | -1.60 |
| 360 | 19.0 | 2.40 | -1.60 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 5.048 | Init. Vol. (CC) | 382.13 |
| Height Change (in) | -0.005 | Vol. Change (CC) | 2.60 |
| Ht. After Cons. (in) | 5.053 | Cell Exp. (CC) | 0.90 |
| Initial Area (sq in) | 4.619 | Net Change (CC) | 1.70 |
| Area After Cons. (sq in) | 4.594 | Cons. Vol. (CC) | 380.43 |

Data entry by: DPM/DAW Date: 05/22/2014
Data checked by: DPM Date: 5/22/14
FileName: MWT0B117

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-17 | SAMPLED | 11/21/13 MWH |
| DEPTH | 45-46' (45-47.5') | TEST STARTED | 04/18/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Clayey Sand | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 5760 |

| | | | |
|---|---|---|---|
| Init. Ht. (in) | 5.048 | Init. Area (sq in) | 4.619 |
| Consol. Ht. (in) | 5.053 | Consol. Area (sq in) | 4.594 |
| Back Pres. PSI | 48.7 | Strain Rate (in/min) | 0.009 |

| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 4.594 | 0 | 48.7 | 0 | 5760 | 5760 | 1.00 |
| 48.0 | 1505 | 0.005 | 0.10 | 4.599 | 1503 | 50.9 | 317 | 5443 | 6946 | 1.28 |
| 117.0 | 3667 | 0.010 | 0.20 | 4.603 | 3660 | 55.3 | 950 | 4810 | 8470 | 1.76 |
| 147.0 | 4608 | 0.015 | 0.30 | 4.608 | 4594 | 58.3 | 1382 | 4378 | 8972 | 2.05 |
| 165.0 | 5172 | 0.020 | 0.40 | 4.612 | 5151 | 60.4 | 1685 | 4075 | 9226 | 2.26 |
| 177.0 | 5548 | 0.026 | 0.50 | 4.617 | 5520 | 62.1 | 1930 | 3830 | 9351 | 2.44 |
| 186.0 | 5830 | 0.031 | 0.61 | 4.622 | 5795 | 63.3 | 2102 | 3658 | 9453 | 2.58 |
| 192.0 | 6018 | 0.036 | 0.71 | 4.627 | 5976 | 64.4 | 2261 | 3499 | 9475 | 2.71 |
| 195.0 | 6112 | 0.041 | 0.81 | 4.631 | 6063 | 65.2 | 2376 | 3384 | 9447 | 2.79 |
| 201.0 | 6301 | 0.046 | 0.91 | 4.636 | 6243 | 65.8 | 2462 | 3298 | 9541 | 2.89 |
| 204.0 | 6395 | 0.051 | 1.01 | 4.641 | 6330 | 66.3 | 2534 | 3226 | 9555 | 2.96 |
| 207.0 | 6489 | 0.056 | 1.11 | 4.646 | 6416 | 66.7 | 2592 | 3168 | 9584 | 3.03 |
| 210.0 | 6583 | 0.062 | 1.22 | 4.650 | 6503 | 67.1 | 2650 | 3110 | 9613 | 3.09 |
| 213.0 | 6677 | 0.067 | 1.32 | 4.655 | 6589 | 67.4 | 2693 | 3067 | 9656 | 3.15 |
| 216.0 | 6771 | 0.072 | 1.42 | 4.660 | 6675 | 67.6 | 2722 | 3038 | 9713 | 3.20 |
| 219.0 | 6865 | 0.077 | 1.52 | 4.665 | 6760 | 67.8 | 2750 | 3010 | 9770 | 3.25 |
| 222.0 | 6959 | 0.082 | 1.62 | 4.670 | 6846 | 68.0 | 2779 | 2981 | 9827 | 3.30 |
| 222.0 | 6959 | 0.087 | 1.73 | 4.675 | 6839 | 68.1 | 2794 | 2966 | 9805 | 3.31 |
| 225.0 | 7053 | 0.092 | 1.83 | 4.679 | 6924 | 68.2 | 2808 | 2952 | 9876 | 3.35 |
| 228.0 | 7147 | 0.097 | 1.93 | 4.684 | 7009 | 68.3 | 2822 | 2938 | 9947 | 3.39 |
| 231.0 | 7241 | 0.103 | 2.03 | 4.689 | 7094 | 68.3 | 2822 | 2938 | 10032 | 3.41 |
| 231.0 | 7241 | 0.108 | 2.13 | 4.694 | 7087 | 68.4 | 2837 | 2923 | 10010 | 3.42 |
| 234.0 | 7335 | 0.113 | 2.23 | 4.699 | 7171 | 68.4 | 2837 | 2923 | 10095 | 3.45 |
| 237.0 | 7429 | 0.118 | 2.33 | 4.704 | 7256 | 68.4 | 2837 | 2923 | 10179 | 3.48 |
| 240.0 | 7523 | 0.123 | 2.43 | 4.708 | 7340 | 68.4 | 2837 | 2923 | 10263 | 3.51 |
| 243.0 | 7617 | 0.128 | 2.54 | 4.713 | 7424 | 68.5 | 2851 | 2909 | 10333 | 3.55 |
| 246.0 | 7711 | 0.133 | 2.64 | 4.718 | 7508 | 68.5 | 2851 | 2909 | 10417 | 3.58 |
| 246.0 | 7711 | 0.138 | 2.74 | 4.723 | 7500 | 68.4 | 2837 | 2923 | 10423 | 3.57 |
| 243.0 | 7617 | 0.141 | 2.79 | 4.726 | 7404 | 68.4 | 2837 | 2923 | 10327 | 3.53 |

Data entry by: DPM/DAW Date: 05/22/2014
Data checked by: DPM Date: 5/22/14
FileName: MWT0B117

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-17 | SAMPLED | 11/21/13 MWH |
| DEPTH | 45-46' (45-47.5') | TEST STARTED | 04/18/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Clayey Sand | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 6912 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 787.6 | 776.7 |
| Wt. Wet Soil & Pan (g) | 803.4 | 792.4 |
| Wt. Dry Soil & Pan (g) | 665.7 | 665.7 |
| Wt. Lost Moisture (g) | 137.7 | 126.7 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 650.0 | 650.0 |
| Moisture Content % | 21.2 | 19.5 |
| Wet Density PCF | 129.3 | 127.8 |
| Dry Density PCF | 106.7 | 107.0 |

| | |
|---|---|
| Init. Diameter (in) | 2.453 |
| Init. Area (sq in) | 4.726 |
| Init. Height (in) | 4.911 |
| Vol. Bef. Consol. (cu ft) | 0.01343 |
| Vol. After Consol. (cu ft) | 0.01339 |

Notes & Comments:

Data entry by: DPM/DAW Date: 05/22/2014
Data checked by: DPM Date: 5/22/14
FileName: MWT0B117

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-17 | SAMPLED | 11/21/13 MWH |
| DEPTH | 45-46' (45-47.5') | TEST STARTED | 04/18/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Clayey Sand | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 6912 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 5.90 | 0.00 |
| 0.25 | 0.5 | 6.70 | -0.80 |
| 0.5 | 0.7 | 6.80 | -0.90 |
| 1 | 1.0 | 6.85 | -0.95 |
| 2 | 1.4 | 6.90 | -1.00 |
| 4 | 2.0 | 6.95 | -1.05 |
| 9 | 3.0 | 7.00 | -1.10 |
| 16 | 4.0 | 7.05 | -1.15 |
| 30 | 5.5 | 7.15 | -1.25 |
| 60 | 7.7 | 7.15 | -1.25 |
| 120 | 11.0 | 7.15 | -1.25 |
| 240 | 15.5 | 7.15 | -1.25 |
| 360 | 19.0 | 7.15 | -1.25 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 4.911 | Init. Vol. (CC) | 380.43 |
| Height Change (in) | -0.010 | Vol. Change (CC) | 2.00 |
| Ht. After Cons. (in) | 4.921 | Cell Exp. (CC) | 0.90 |
| Initial Area (sq in) | 4.726 | Net Change (CC) | 1.10 |
| Area After Cons. (sq in) | 4.703 | Cons. Vol. (CC) | 379.33 |

Data entry by: DPM/DAW Date: 05/22/2014
Data checked by: DPM Date: 5/22/14
FileName: MWT0B117

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

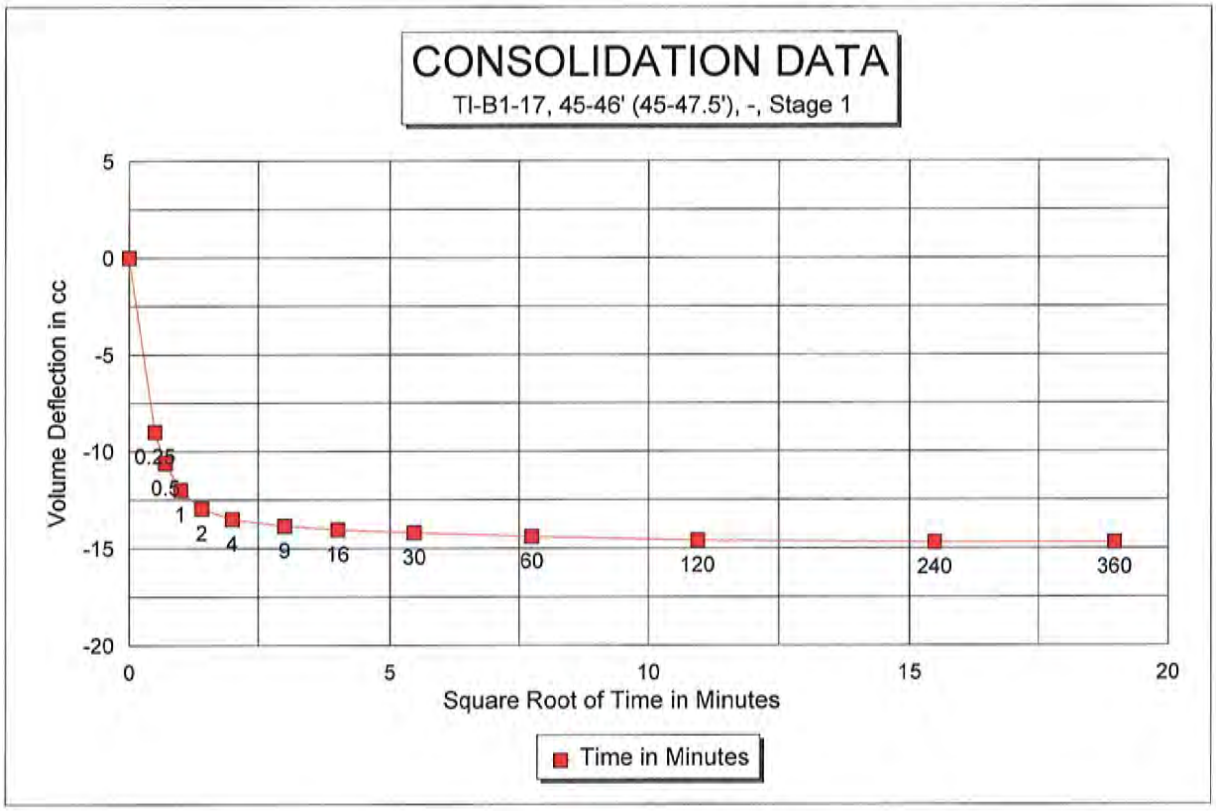
| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B1-17 | SAMPLED | 11/21/13 MWH |
| DEPTH | 45-46' (45-47.5') | TEST STARTED | 04/18/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Clayey Sand | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 6912 |

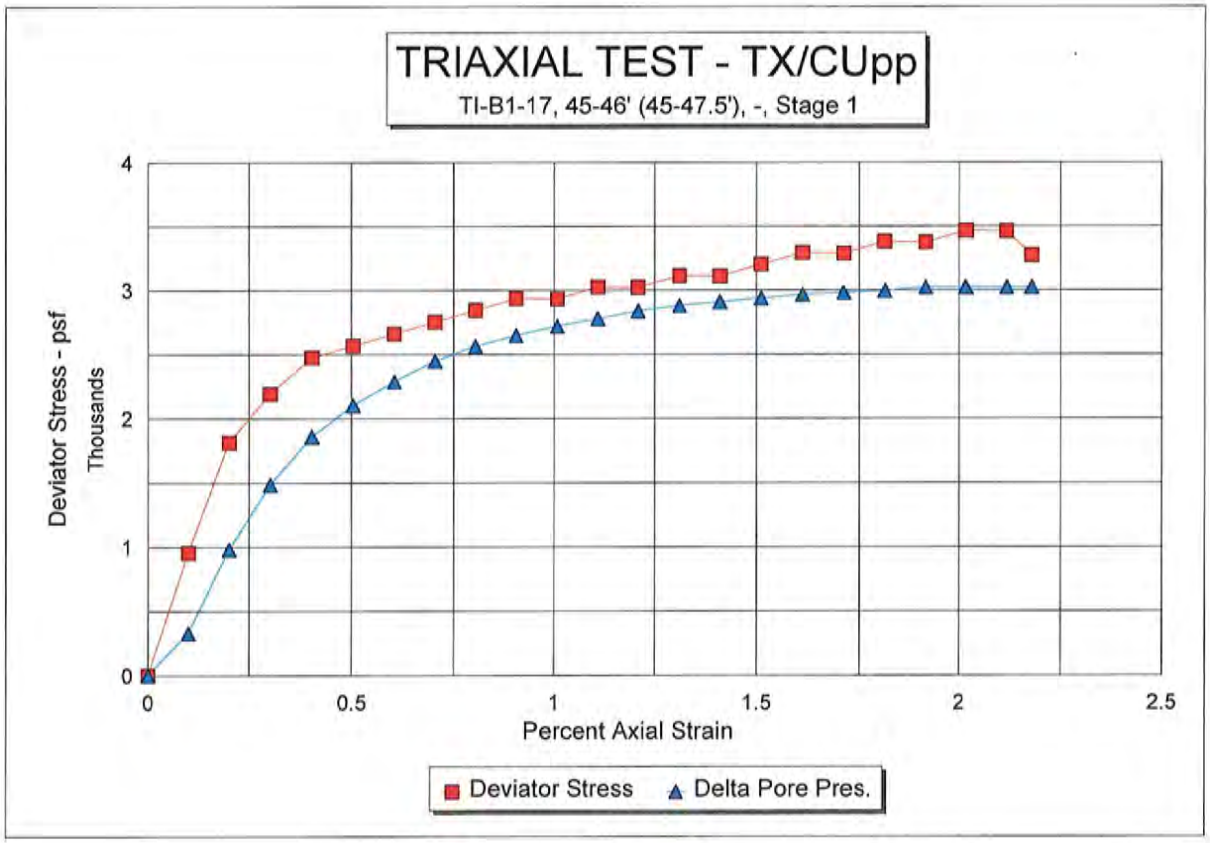
| | | | |
|---|---|---|---|
| Init. Ht. (in) | 4.911 | Init. Area (sq in) | 4.726 |
| Consol. Ht. (in) | 4.921 | Consol. Area (sq in) | 4.703 |
| Back Pres. PSI | 48.6 | Strain Rate (in/min) | 0.002 |

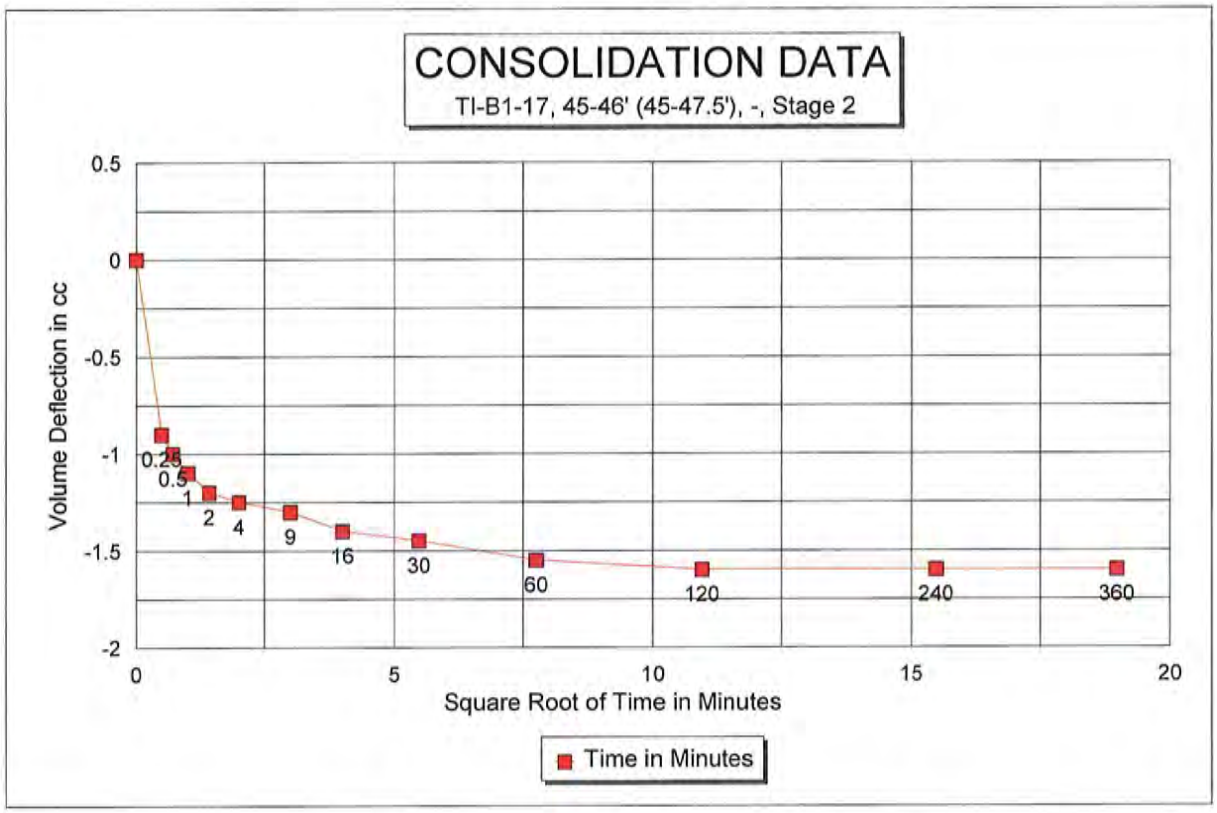
| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 4.703 | 0 | 48.6 | 0 | 6912 | 6912 | 1.00 |
| 135.0 | 4134 | 0.005 | 0.10 | 4.707 | 4130 | 55.2 | 950 | 5962 | 10091 | 1.69 |
| 213.0 | 6522 | 0.010 | 0.20 | 4.712 | 6509 | 58.4 | 1411 | 5501 | 12010 | 2.18 |
| 255.0 | 7808 | 0.015 | 0.30 | 4.717 | 7784 | 60.4 | 1699 | 5213 | 12997 | 2.49 |
| 282.0 | 8635 | 0.020 | 0.41 | 4.722 | 8600 | 61.9 | 1915 | 4997 | 13597 | 2.72 |
| 300.0 | 9186 | 0.025 | 0.51 | 4.727 | 9140 | 63.0 | 2074 | 4838 | 13978 | 2.89 |
| 312.0 | 9554 | 0.030 | 0.61 | 4.732 | 9495 | 63.8 | 2189 | 4723 | 14219 | 3.01 |
| 321.0 | 9829 | 0.035 | 0.71 | 4.736 | 9759 | 64.5 | 2290 | 4622 | 14382 | 3.11 |
| 330.0 | 10105 | 0.040 | 0.81 | 4.741 | 10023 | 65.0 | 2362 | 4550 | 14573 | 3.20 |
| 333.0 | 10197 | 0.045 | 0.91 | 4.746 | 10103 | 65.4 | 2419 | 4493 | 14596 | 3.25 |
| 348.0 | 10656 | 0.065 | 1.32 | 4.766 | 10515 | 66.2 | 2534 | 4378 | 14893 | 3.40 |
| 360.0 | 11023 | 0.085 | 1.73 | 4.785 | 10833 | 66.8 | 2621 | 4291 | 15124 | 3.52 |
| 372.0 | 11391 | 0.105 | 2.13 | 4.805 | 11148 | 66.8 | 2621 | 4291 | 15439 | 3.60 |
| 381.0 | 11666 | 0.125 | 2.54 | 4.825 | 11370 | 66.7 | 2606 | 4306 | 15676 | 3.64 |
| 390.0 | 11942 | 0.145 | 2.95 | 4.845 | 11590 | 66.5 | 2578 | 4334 | 15925 | 3.67 |
| 399.0 | 12218 | 0.165 | 3.35 | 4.866 | 11808 | 66.2 | 2534 | 4378 | 16186 | 3.70 |
| 423.0 | 12953 | 0.205 | 4.17 | 4.907 | 12413 | 65.4 | 2419 | 4493 | 16906 | 3.76 |
| 441.0 | 13504 | 0.245 | 4.98 | 4.949 | 12831 | 64.4 | 2275 | 4637 | 17468 | 3.77 |
| 462.0 | 14147 | 0.285 | 5.79 | 4.992 | 13327 | 63.4 | 2131 | 4781 | 18108 | 3.79 |
| 468.0 | 14330 | 0.305 | 6.20 | 5.013 | 13442 | 62.9 | 2059 | 4853 | 18295 | 3.77 |
| 480.0 | 14698 | 0.325 | 6.60 | 5.035 | 13727 | 62.4 | 1987 | 4925 | 18652 | 3.79 |
| 498.0 | 15249 | 0.365 | 7.42 | 5.079 | 14118 | 61.2 | 1814 | 5098 | 19216 | 3.77 |
| 504.0 | 15433 | 0.405 | 8.23 | 5.124 | 14163 | 60.0 | 1642 | 5270 | 19433 | 3.69 |
| 513.0 | 15708 | 0.445 | 9.04 | 5.170 | 14288 | 59.4 | 1555 | 5357 | 19645 | 3.67 |
| 519.0 | 15892 | 0.485 | 9.85 | 5.217 | 14326 | 58.7 | 1454 | 5458 | 19784 | 3.62 |
| 522.0 | 15984 | 0.525 | 10.67 | 5.264 | 14279 | 58.3 | 1397 | 5515 | 19794 | 3.59 |
| 525.0 | 16076 | 0.565 | 11.48 | 5.313 | 14230 | 57.9 | 1339 | 5573 | 19803 | 3.55 |
| 528.0 | 16168 | 0.605 | 12.29 | 5.362 | 14180 | 57.6 | 1296 | 5616 | 19796 | 3.52 |
| 528.0 | 16168 | 0.645 | 13.11 | 5.412 | 14049 | 57.4 | 1267 | 5645 | 19694 | 3.49 |
| 525.0 | 16076 | 0.685 | 13.92 | 5.463 | 13838 | 57.3 | 1253 | 5659 | 19497 | 3.45 |
| 525.0 | 16076 | 0.710 | 14.43 | 5.496 | 13757 | 57.4 | 1267 | 5645 | 19401 | 3.44 |
| 525.0 | 16076 | 0.740 | 15.04 | 5.535 | 13659 | 57.5 | 1282 | 5630 | 19289 | 3.43 |

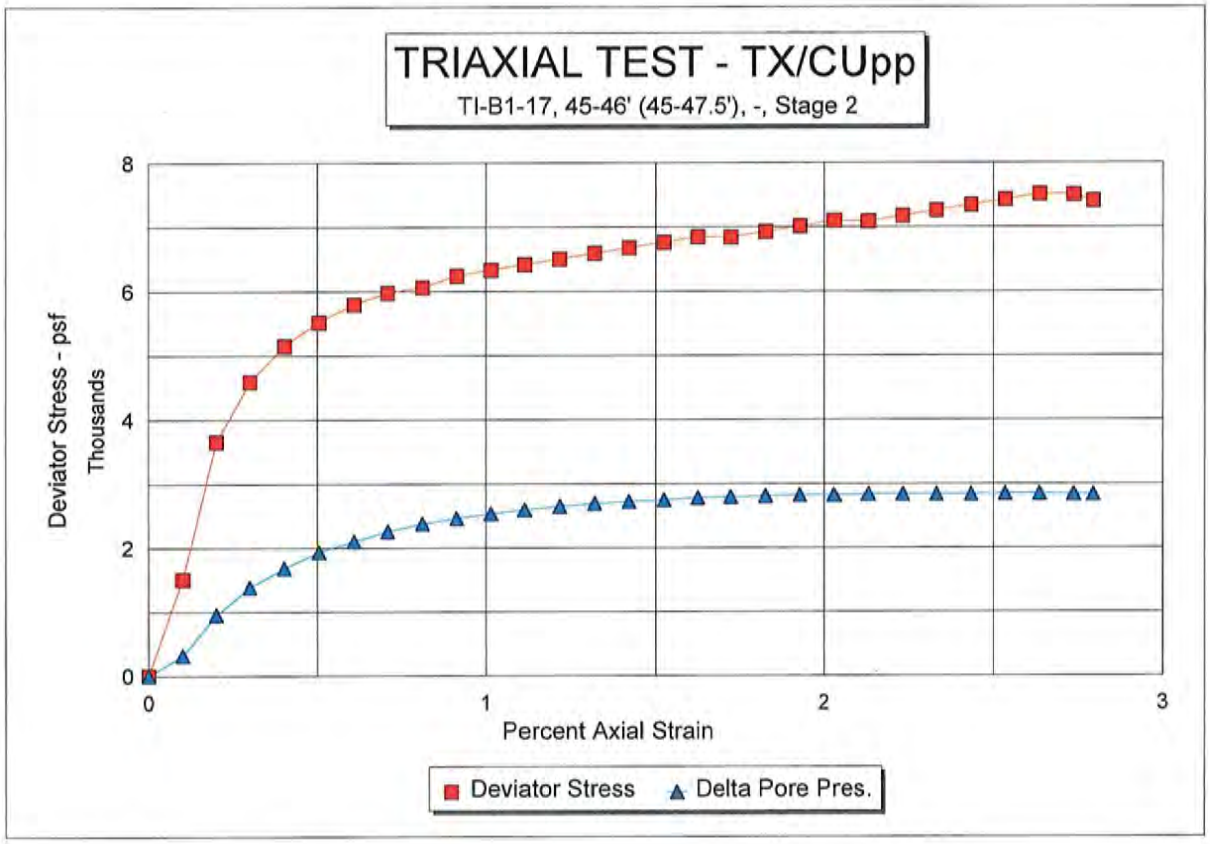
Data entry by: DPM/DAW Date: 05/22/2014
Data checked by: DPM Date: 5/22/14
FileName: MWT0B117

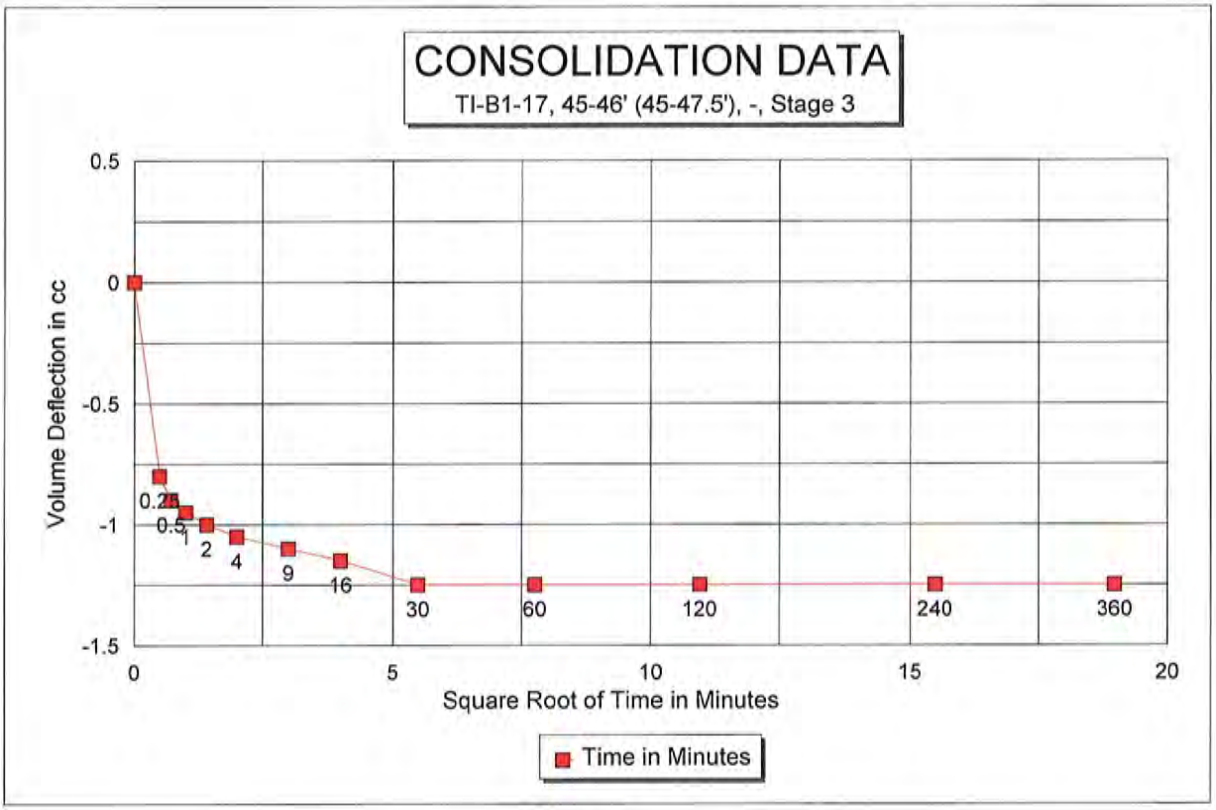
ADVANCED TERRA TESTING, INC. ATT

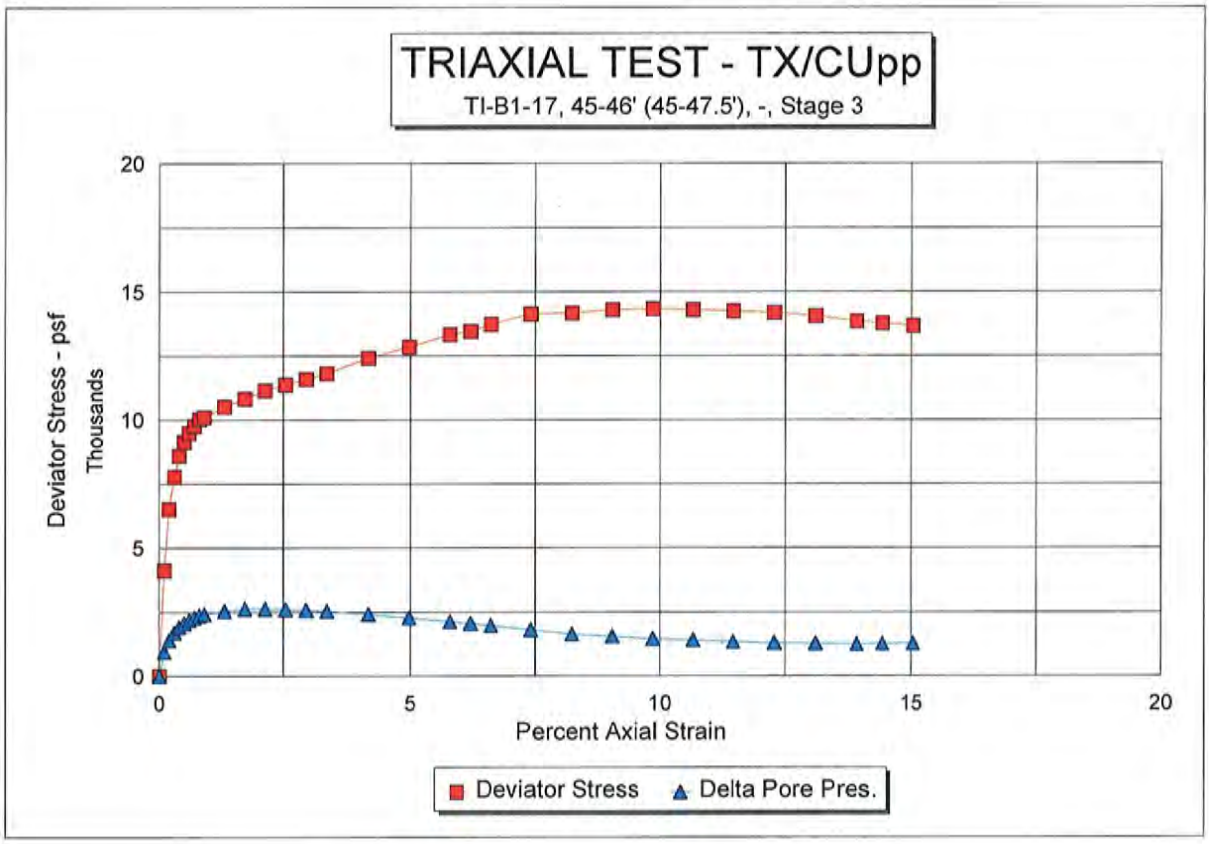

CONSOLIDATION DATA
TI-B1-17, 45-46' (45-47.5'), -, Stage 1
Volume Deflection in cc
5
0
-5
-10
-15
-20
0.25
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B1-17, 45-46' (45-47.5'), -, Stage 1
Deviator Stress - psf
Thousands
4
3
2
1
0
0
0.5
1
1.5
2
2.5
Percent Axial Strain
Deviator Stress
Delta Pore Pres.


CONSOLIDATION DATA
TI-B1-17, 45-46' (45-47.5'), -, Stage 2
Volume Deflection in cc
0.5
0
-0.5
-1
-1.5
-2
0.25
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B1-17, 45-46' (45-47.5'), -, Stage 2
Deviator Stress - psf
Thousands
8
6
4
2
0
0
1
2
3
Percent Axial Strain
Deviator Stress
Delta Pore Pres.


CONSOLIDATION DATA
TI-B1-17, 45-46' (45-47.5'), -, Stage 3
Volume Deflection in cc
0.5
0
-0.5
-1
-1.5
0.25
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B1-17, 45-46' (45-47.5'), -, Stage 3
Deviator Stress - psf
Thousands
20
15
10
5
0
0
5
10
15
20
Percent Axial Strain
Deviator Stress
Delta Pore Pres.

EFFECTIVE STRESS PATH ANALYSIS TEST DATA
ASTM D4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | | |
| | | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-10 | | |
| DEPTH | 56-57' (55-57') | SAMPLED | 11/19/13 MWH |
| SAMPLE NO. | A,B&C | SATURATED TEST | |
| PROJECT NO. | -- | TEST TYPE | TX/CUPP |
| LOCATION | Tailings Impoundment | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | Peak Points | | |
| | | | | | p' PSF | q PSF | |
| CONF. PRES. PSF | SAMPLE A | 6048 | PSF | SAMPLE A | 6409 | 2867 | |
| | SAMPLE B | 7200 | PSF | SAMPLE B | 8918 | 3849 | |
| | SAMPLE C | 8352 | PSF | SAMPLE C | 11550 | 4810 | |

| SAMPLE A | | | | SAMPLE B | | | | SAMPLE C | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| σ 3' PSF | σ 1' PSF | p' PSF | q PSF | σ 3' PSF | σ 1' PSF | p' PSF | q PSF | σ 3' PSF | σ 1' PSF | p' PSF | q PSF |
| 6048 | 6048 | 6048 | 0 | 7200 | 7200 | 7200 | 0 | 8352 | 8352 | 8352 | 0 |
| 5674 | 6529 | 6101 | 428 | 6408 | 8700 | 7554 | 1146 | 7243 | 10214 | 8729 | 1485 |
| 5256 | 6775 | 6016 | 760 | 6034 | 9423 | 7728 | 1695 | 6869 | 11095 | 8982 | 2113 |
| 4982 | 6880 | 5931 | 949 | 5818 | 10027 | 7922 | 2105 | 6667 | 11788 | 9228 | 2560 |
| 4795 | 6975 | 5885 | 1090 | 5645 | 10582 | 8113 | 2468 | 6552 | 12386 | 9469 | 2917 |
| 4637 | 7004 | 5820 | 1183 | 5515 | 10995 | 8255 | 2740 | 6466 | 12921 | 9693 | 3228 |
| 4507 | 7061 | 5784 | 1277 | 5414 | 11345 | 8380 | 2965 | 6422 | 13409 | 9916 | 3493 |
| 4392 | 7132 | 5762 | 1370 | 5342 | 11541 | 8442 | 3099 | 6336 | 13763 | 10050 | 3714 |
| 4306 | 7137 | 5721 | 1416 | 5270 | 11736 | 8503 | 3233 | 6307 | 14085 | 10196 | 3889 |
| 4219 | 7237 | 5728 | 1509 | 5227 | 11868 | 8548 | 3320 | 6278 | 14316 | 10297 | 4019 |
| 4133 | 7241 | 5687 | 1554 | 5198 | 11923 | 8561 | 3362 | 6250 | 14717 | 10483 | 4234 |
| 4075 | 7275 | 5675 | 1600 | 5170 | 12069 | 8620 | 3450 | 6250 | 15047 | 10648 | 4399 |
| 3960 | 7435 | 5697 | 1737 | 5126 | 12110 | 8618 | 3492 | 6221 | 15089 | 10655 | 4434 |
| 3830 | 7486 | 5658 | 1828 | 5098 | 12165 | 8631 | 3534 | 6235 | 15254 | 10744 | 4509 |
| 3758 | 7594 | 5676 | 1918 | 5098 | 12248 | 8673 | 3575 | 6235 | 15324 | 10779 | 4544 |
| 3701 | 7715 | 5708 | 2007 | 5098 | 12331 | 8715 | 3617 | 6235 | 15384 | 10810 | 4574 |
| 3658 | 7850 | 5754 | 2096 | 5083 | 12310 | 8697 | 3613 | 6250 | 15380 | 10815 | 4565 |
| 3629 | 7906 | 5767 | 2138 | 5098 | 12407 | 8752 | 3655 | 6278 | 15556 | 10917 | 4639 |
| 3600 | 8054 | 5827 | 2227 | 5083 | 12475 | 8779 | 3696 | 6293 | 15610 | 10952 | 4659 |
| 3542 | 8172 | 5857 | 2315 | 5083 | 12558 | 8821 | 3737 | 6394 | 15837 | 11115 | 4722 |
| 3542 | 8255 | 5899 | 2356 | 5083 | 12551 | 8817 | 3734 | 6466 | 15946 | 11206 | 4740 |
| 3514 | 8401 | 5957 | 2444 | 5083 | 12633 | 8858 | 3775 | 6566 | 16084 | 11325 | 4759 |
| 3485 | 8455 | 5970 | 2485 | 5098 | 12640 | 8869 | 3771 | 6624 | 16177 | 11401 | 4777 |
| 3499 | 8643 | 6071 | 2572 | 5069 | 12693 | 8881 | 3812 | 6710 | 16298 | 11504 | 4794 |
| 3514 | 8830 | 6172 | 2658 | 5069 | 12685 | 8877 | 3808 | 6739 | 16360 | 11550 | 4810 |
| 3514 | 8910 | 6212 | 2698 | 5069 | 12767 | 8918 | 3849 | 6782 | 16352 | 11567 | 4785 |
| 3528 | 9011 | 6269 | 2741 | 5069 | 12759 | 8914 | 3845 | 6826 | 16343 | 11585 | 4759 |
| 3542 | 9111 | 6327 | 2784 | 5083 | 12766 | 8924 | 3841 | 6869 | 16335 | 11602 | 4733 |
| 3557 | 9119 | 6338 | 2781 | 5098 | 12778 | 8938 | 3840 | 6941 | 16356 | 11649 | 4708 |
| 3542 | 9190 | 6366 | 2824 | | | | | 6984 | 16348 | 11666 | 4682 |
| 3542 | 9276 | 6409 | 2867 | | | | | 7027 | 16269 | 11648 | 4621 |
| 3571 | 9298 | 6435 | 2864 | | | | | 7027 | 16065 | 11546 | 4519 |

Data entry by: DAW
Data checked by: DPM
FileName: MWPQB310.WK4

Date: 05/22/2014
Date: 5/22/14

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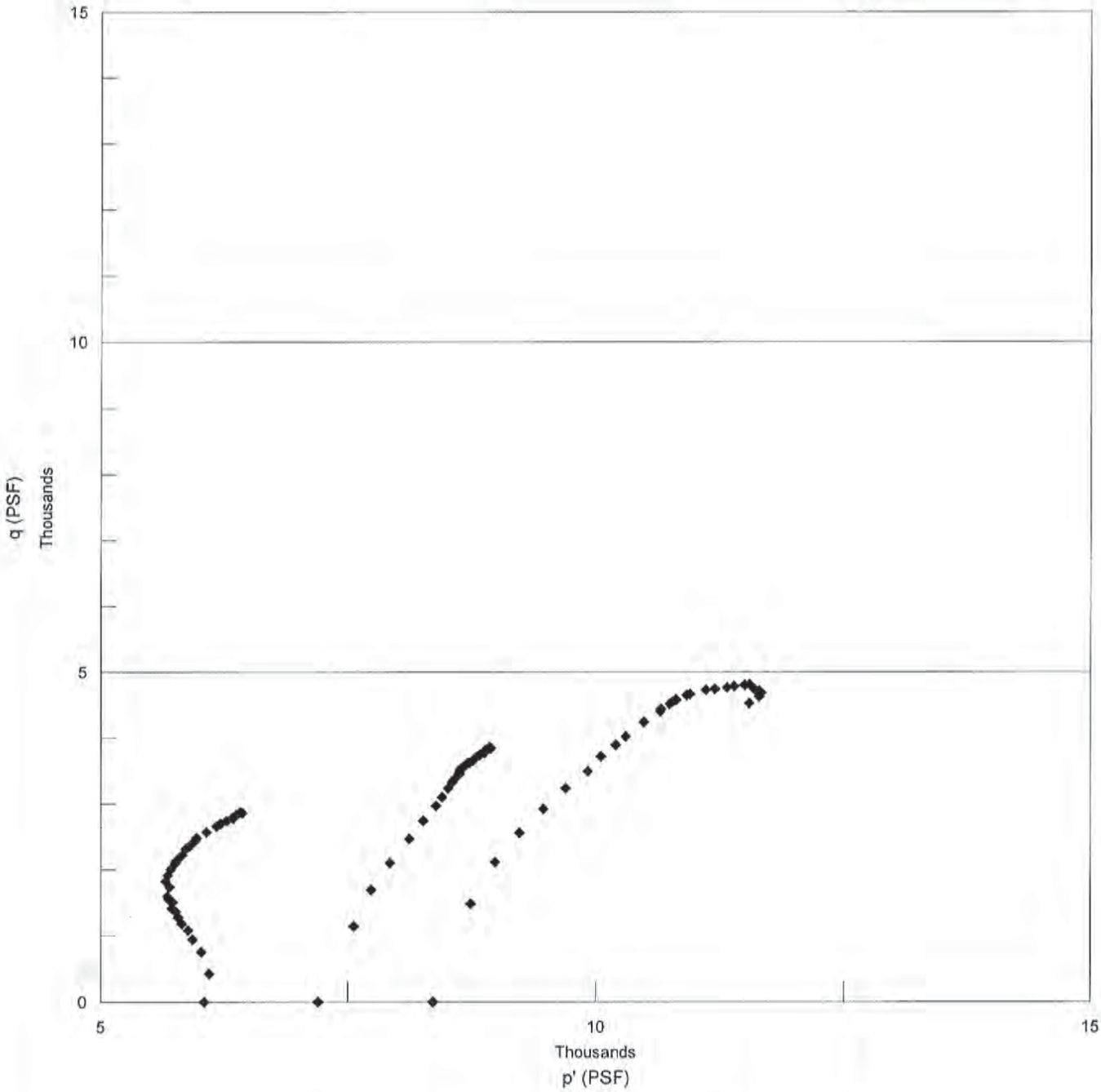
# Effective Stress Path Analysis - p' q Plots

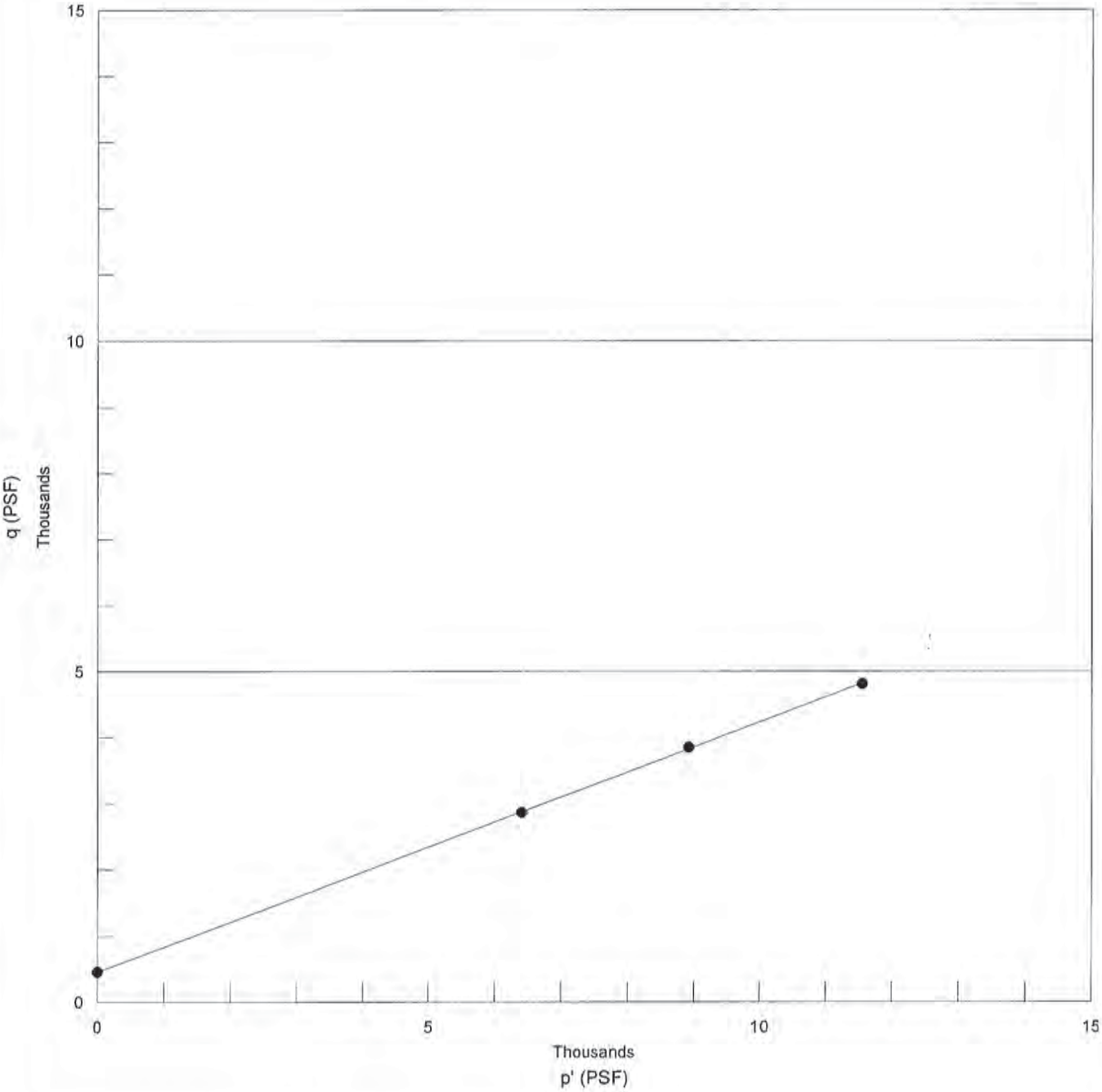
MWH,Tailings Impoundment,--,TI-B3-10,A,B&C,56-57' (55-57')




◆ Stress Paths of Samples A, B & C

# Effective Stress Path Analysis - p'-q Regression Plot

MWH,Tailings Impoundment,--,TI-B3-10,A,B&C,56-57' (55-57')




● Shear Data  – Best Fit Line  psi = 20.7 degrees  a = 455.3 PSF

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-10 | SAMPLED | 11/19/13 MWH |
| DEPTH | 56-57' (55-57') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/05/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 6048 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 816.0 | 800.3 |
| Wt. Wet Soil & Pan (g) | 831.8 | 816.1 |
| Wt. Dry Soil & Pan (g) | 689.3 | 689.3 |
| Wt. Lost Moisture (g) | 142.5 | 126.7 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 673.5 | 673.5 |
| Moisture Content % | 21.1 | 18.8 |
| Wet Density PCF | 128.6 | 129.7 |
| Dry Density PCF | 106.2 | 109.2 |

| | |
|---|---|
| Init. Diameter (in) | 2.411 |
| Init. Area (sq in) | 4.564 |
| Init. Height (in) | 5.296 |
| Vol. Bef. Consol. (cu ft) | 0.01399 |
| Vol. After Consol. (cu ft) | 0.01360 |

Notes & Comments: Dried at 60 degrees C.

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B310

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-10 | SAMPLED | 11/19/13 MWH |
| DEPTH | 56-57' (55-57') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/05/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 6048 |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 3.6 | 13.0 | | | | |
| 50.0 | | 7.7 | 8.1 | 38.0 | 47.7 | 9.7 | 0.97 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 0.50 | 0.00 |
| 0.25 | 0.5 | 5.80 | -5.30 |
| 0.5 | 0.7 | 6.30 | -5.80 |
| 1 | 1.0 | 6.90 | -6.40 |
| 2 | 1.4 | 7.60 | -7.10 |
| 4 | 2.0 | 8.60 | -8.10 |
| 9 | 3.0 | 10.30 | -9.80 |
| 16 | 4.0 | 11.90 | -11.40 |
| 30 | 5.5 | 14.15 | -13.65 |
| 60 | 7.7 | 17.30 | -16.80 |
| 120 | 11.0 | 20.85 | -20.35 |
| 240 | 15.5 | 23.80 | -23.30 |
| 360 | 19.0 | 24.85 | -24.35 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 5.296 | Init. Vol. (CC) | 396.12 |
| Height Change (in) | 0.121 | Vol. Change (CC) | 30.60 |
| Ht. After Cons. (in) | 5.175 | Cell Exp. (CC) | 19.61 |
| Initial Area (sq in) | 4.564 | Net Change (CC) | 10.99 |
| Area After Cons. (sq in) | 4.541 | Cons. Vol. (CC) | 385.13 |

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B310

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-10 | SAMPLED | 11/19/13 MWH |
| DEPTH | 56-57' (55-57') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/05/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 6048 |

| | | | |
|---|---|---|---|
| Init. Ht. (in) | 5.296 | Init. Area (sq in) | 4.564 |
| Consol. Ht. (in) | 5.175 | Consol. Area (sq in) | 4.541 |
| Back Pres. PSI | 38.2 | Strain Rate (in/min) | 0.0003 |

| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 4.541 | 0 | 38.2 | 0 | 6048 | 6048 | 1.00 |
| 27.0 | 856 | 0.005 | 0.10 | 4.545 | 855 | 40.8 | 374 | 5674 | 6529 | 1.15 |
| 48.0 | 1522 | 0.010 | 0.20 | 4.550 | 1519 | 43.7 | 792 | 5256 | 6775 | 1.29 |
| 60.0 | 1903 | 0.015 | 0.30 | 4.554 | 1897 | 45.6 | 1066 | 4982 | 6880 | 1.38 |
| 69.0 | 2188 | 0.021 | 0.40 | 4.559 | 2180 | 46.9 | 1253 | 4795 | 6975 | 1.45 |
| 75.0 | 2378 | 0.026 | 0.49 | 4.563 | 2367 | 48.0 | 1411 | 4637 | 7004 | 1.51 |
| 81.0 | 2569 | 0.031 | 0.59 | 4.568 | 2554 | 48.9 | 1541 | 4507 | 7061 | 1.57 |
| 87.0 | 2759 | 0.036 | 0.69 | 4.572 | 2740 | 49.7 | 1656 | 4392 | 7132 | 1.62 |
| 90.0 | 2854 | 0.041 | 0.79 | 4.577 | 2832 | 50.3 | 1742 | 4306 | 7137 | 1.66 |
| 96.0 | 3044 | 0.046 | 0.89 | 4.581 | 3017 | 50.9 | 1829 | 4219 | 7237 | 1.72 |
| 99.0 | 3140 | 0.051 | 0.99 | 4.586 | 3109 | 51.5 | 1915 | 4133 | 7241 | 1.75 |
| 102.0 | 3235 | 0.056 | 1.09 | 4.591 | 3200 | 51.9 | 1973 | 4075 | 7275 | 1.79 |
| 111.0 | 3520 | 0.066 | 1.28 | 4.600 | 3475 | 52.7 | 2088 | 3960 | 7435 | 1.88 |
| 117.0 | 3710 | 0.077 | 1.48 | 4.609 | 3655 | 53.6 | 2218 | 3830 | 7486 | 1.95 |
| 123.0 | 3901 | 0.087 | 1.68 | 4.618 | 3835 | 54.1 | 2290 | 3758 | 7594 | 2.02 |
| 129.0 | 4091 | 0.097 | 1.88 | 4.628 | 4014 | 54.5 | 2347 | 3701 | 7715 | 2.08 |
| 135.0 | 4281 | 0.108 | 2.08 | 4.637 | 4192 | 54.8 | 2390 | 3658 | 7850 | 2.15 |
| 138.0 | 4376 | 0.118 | 2.28 | 4.646 | 4277 | 55.0 | 2419 | 3629 | 7906 | 2.18 |
| 144.0 | 4567 | 0.128 | 2.48 | 4.656 | 4454 | 55.2 | 2448 | 3600 | 8054 | 2.24 |
| 150.0 | 4757 | 0.138 | 2.67 | 4.665 | 4630 | 55.6 | 2506 | 3542 | 8172 | 2.31 |
| 153.0 | 4852 | 0.149 | 2.87 | 4.675 | 4713 | 55.6 | 2506 | 3542 | 8255 | 2.33 |
| 159.0 | 5042 | 0.159 | 3.07 | 4.684 | 4888 | 55.8 | 2534 | 3514 | 8401 | 2.39 |
| 162.0 | 5138 | 0.169 | 3.26 | 4.694 | 4970 | 56.0 | 2563 | 3485 | 8455 | 2.43 |
| 168.0 | 5328 | 0.179 | 3.46 | 4.703 | 5143 | 55.9 | 2549 | 3499 | 8643 | 2.47 |
| 174.0 | 5518 | 0.189 | 3.66 | 4.713 | 5316 | 55.8 | 2534 | 3514 | 8830 | 2.51 |
| 177.0 | 5613 | 0.200 | 3.86 | 4.723 | 5397 | 55.8 | 2534 | 3514 | 8910 | 2.54 |
| 180.0 | 5708 | 0.205 | 3.95 | 4.728 | 5483 | 55.7 | 2520 | 3528 | 9011 | 2.55 |
| 183.0 | 5804 | 0.210 | 4.05 | 4.732 | 5568 | 55.6 | 2506 | 3542 | 9111 | 2.57 |
| 183.0 | 5804 | 0.215 | 4.15 | 4.737 | 5563 | 55.5 | 2491 | 3557 | 9119 | 2.56 |
| 186.0 | 5899 | 0.220 | 4.25 | 4.742 | 5648 | 55.6 | 2506 | 3542 | 9190 | 2.59 |
| 189.0 | 5994 | 0.225 | 4.35 | 4.747 | 5733 | 55.6 | 2506 | 3542 | 9276 | 2.62 |
| 189.0 | 5994 | 0.230 | 4.45 | 4.752 | 5727 | 55.4 | 2477 | 3571 | 9298 | 2.60 |

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B310

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-10 | SAMPLED | 11/19/13 MWH |
| DEPTH | 56-57' (55-57') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/05/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 7200 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 816.0 | 800.3 |
| Wt. Wet Soil & Pan (g) | 831.8 | 816.1 |
| Wt. Dry Soil & Pan (g) | 689.3 | 689.3 |
| Wt. Lost Moisture (g) | 142.5 | 126.7 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 673.5 | 673.5 |
| Moisture Content % | 21.1 | 18.8 |
| Wet Density PCF | 132.3 | 130.5 |
| Dry Density PCF | 109.2 | 109.9 |

| | |
|---|---|
| Init. Diameter (in) | 2.460 |
| Init. Area (sq in) | 4.752 |
| Init. Height (in) | 4.945 |
| Vol. Bef. Consol. (cu ft) | 0.01360 |
| Vol. After Consol. (cu ft) | 0.01352 |

Notes & Comments:

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B310

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-10 | SAMPLED | 11/19/13 MWH |
| DEPTH | 56-57' (55-57') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/05/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 7200 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 0.90 | 0.00 |
| 0.25 | 0.5 | 1.50 | -0.60 |
| 0.5 | 0.7 | 1.55 | -0.65 |
| 1 | 1.0 | 1.55 | -0.65 |
| 2 | 1.4 | 1.60 | -0.70 |
| 4 | 2.0 | 1.60 | -0.70 |
| 9 | 3.0 | 1.70 | -0.80 |
| 16 | 4.0 | 1.80 | -0.90 |
| 30 | 5.5 | 1.95 | -1.05 |
| 60 | 7.7 | 2.20 | -1.30 |
| 120 | 11.0 | 2.60 | -1.70 |
| 240 | 15.5 | 3.10 | -2.20 |
| 360 | 19.0 | 3.30 | -2.40 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 4.945 | Init. Vol. (CC) | 385.13 |
| Height Change (in) | -0.018 | Vol. Change (CC) | 3.20 |
| Ht. After Cons. (in) | 4.963 | Cell Exp. (CC) | 0.90 |
| Initial Area (sq in) | 4.752 | Net Change (CC) | 2.30 |
| Area After Cons. (sq in) | 4.706 | Cons. Vol. (CC) | 382.83 |

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B310

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-10 | SAMPLED | 11/19/13 MWH |
| DEPTH | 56-57' (55-57') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/05/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 7200 |

| | | | |
|---|---|---|---|
| Init. Ht. (in) | 4.945 | Init. Area (sq in) | 4.752 |
| Consol. Ht. (in) | 4.963 | Consol. Area (sq in) | 4.706 |
| Back Pres. PSI | 38.3 | Strain Rate (in/min) | 0.0003 |

| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 4.706 | 0 | 38.3 | 0 | 7200 | 7200 | 1.00 |
| 75.0 | 2295 | 0.005 | 0.10 | 4.711 | 2292 | 43.8 | 792 | 6408 | 8700 | 1.36 |
| 111.0 | 3396 | 0.010 | 0.20 | 4.716 | 3389 | 46.4 | 1166 | 6034 | 9423 | 1.56 |
| 138.0 | 4222 | 0.015 | 0.30 | 4.720 | 4210 | 47.9 | 1382 | 5818 | 10027 | 1.72 |
| 162.0 | 4957 | 0.020 | 0.39 | 4.725 | 4937 | 49.1 | 1555 | 5645 | 10582 | 1.87 |
| 180.0 | 5507 | 0.025 | 0.49 | 4.730 | 5480 | 50.0 | 1685 | 5515 | 10995 | 1.99 |
| 195.0 | 5966 | 0.030 | 0.59 | 4.735 | 5931 | 50.7 | 1786 | 5414 | 11345 | 2.10 |
| 204.0 | 6242 | 0.034 | 0.69 | 4.739 | 6198 | 51.2 | 1858 | 5342 | 11541 | 2.16 |
| 213.0 | 6517 | 0.039 | 0.79 | 4.744 | 6465 | 51.7 | 1930 | 5270 | 11736 | 2.23 |
| 219.0 | 6701 | 0.044 | 0.89 | 4.749 | 6641 | 52.0 | 1973 | 5227 | 11868 | 2.27 |
| 222.0 | 6792 | 0.049 | 0.99 | 4.754 | 6725 | 52.2 | 2002 | 5198 | 11923 | 2.29 |
| 228.0 | 6976 | 0.054 | 1.09 | 4.758 | 6900 | 52.4 | 2030 | 5170 | 12069 | 2.33 |
| 231.0 | 7068 | 0.059 | 1.19 | 4.763 | 6984 | 52.7 | 2074 | 5126 | 12110 | 2.36 |
| 234.0 | 7159 | 0.064 | 1.29 | 4.768 | 7067 | 52.9 | 2102 | 5098 | 12165 | 2.39 |
| 237.0 | 7251 | 0.069 | 1.39 | 4.773 | 7151 | 52.9 | 2102 | 5098 | 12248 | 2.40 |
| 240.0 | 7343 | 0.074 | 1.49 | 4.778 | 7234 | 52.9 | 2102 | 5098 | 12331 | 2.42 |
| 240.0 | 7343 | 0.079 | 1.59 | 4.782 | 7227 | 53.0 | 2117 | 5083 | 12310 | 2.42 |
| 243.0 | 7435 | 0.084 | 1.69 | 4.787 | 7309 | 52.9 | 2102 | 5098 | 12407 | 2.43 |
| 246.0 | 7527 | 0.089 | 1.79 | 4.792 | 7392 | 53.0 | 2117 | 5083 | 12475 | 2.45 |
| 249.0 | 7618 | 0.094 | 1.88 | 4.797 | 7475 | 53.0 | 2117 | 5083 | 12558 | 2.47 |
| 249.0 | 7618 | 0.098 | 1.98 | 4.802 | 7467 | 53.0 | 2117 | 5083 | 12551 | 2.47 |
| 252.0 | 7710 | 0.103 | 2.08 | 4.807 | 7550 | 53.0 | 2117 | 5083 | 12633 | 2.49 |
| 252.0 | 7710 | 0.108 | 2.18 | 4.811 | 7542 | 52.9 | 2102 | 5098 | 12640 | 2.48 |
| 255.0 | 7802 | 0.113 | 2.28 | 4.816 | 7624 | 53.1 | 2131 | 5069 | 12693 | 2.50 |
| 255.0 | 7802 | 0.118 | 2.38 | 4.821 | 7616 | 53.1 | 2131 | 5069 | 12685 | 2.50 |
| 258.0 | 7894 | 0.123 | 2.48 | 4.826 | 7698 | 53.1 | 2131 | 5069 | 12767 | 2.52 |
| 258.0 | 7894 | 0.128 | 2.58 | 4.831 | 7690 | 53.1 | 2131 | 5069 | 12759 | 2.52 |
| 258.0 | 7894 | 0.133 | 2.68 | 4.836 | 7683 | 53.0 | 2117 | 5083 | 12766 | 2.51 |
| 258.0 | 7894 | 0.134 | 2.71 | 4.837 | 7680 | 52.9 | 2102 | 5098 | 12778 | 2.51 |

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B310

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-10 | SAMPLED | 11/19/13 MWH |
| DEPTH | 56-57' (55-57') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/05/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 8352 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 816.0 | 800.3 |
| Wt. Wet Soil & Pan (g) | 831.8 | 816.1 |
| Wt. Dry Soil & Pan (g) | 689.3 | 689.3 |
| Wt. Lost Moisture (g) | 142.5 | 126.7 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 673.5 | 673.5 |
| Moisture Content % | 21.1 | 18.8 |
| Wet Density PCF | 133.1 | 131.0 |
| Dry Density PCF | 109.9 | 110.2 |

| | |
|---|---|
| Init. Diameter (in) | 2.482 |
| Init. Area (sq in) | 4.837 |
| Init. Height (in) | 4.829 |
| Vol. Bef. Consol. (cu ft) | 0.01352 |
| Vol. After Consol. (cu ft) | 0.01347 |

Notes & Comments:

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B310

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-10 | SAMPLED | 11/19/13 MWH |
| DEPTH | 56-57' (55-57') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/05/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 8352 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 5.70 | 0.00 |
| 0.25 | 0.5 | 6.25 | -0.55 |
| 0.5 | 0.7 | 6.30 | -0.60 |
| 1 | 1.0 | 6.30 | -0.60 |
| 2 | 1.4 | 6.30 | -0.60 |
| 4 | 2.0 | 6.30 | -0.60 |
| 9 | 3.0 | 6.40 | -0.70 |
| 16 | 4.0 | 6.40 | -0.70 |
| 30 | 5.5 | 6.50 | -0.80 |
| 60 | 7.7 | 6.65 | -0.95 |
| 120 | 11.0 | 6.85 | -1.15 |
| 240 | 15.5 | 7.00 | -1.30 |
| 360 | 19.0 | 7.10 | -1.40 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 4.829 | Init. Vol. (CC) | 382.83 |
| Height Change (in) | -0.027 | Vol. Change (CC) | 2.20 |
| Ht. After Cons. (in) | 4.856 | Cell Exp. (CC) | 0.90 |
| Initial Area (sq in) | 4.837 | Net Change (CC) | 1.30 |
| Area After Cons. (sq in) | 4.794 | Cons. Vol. (CC) | 381.54 |

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B310

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

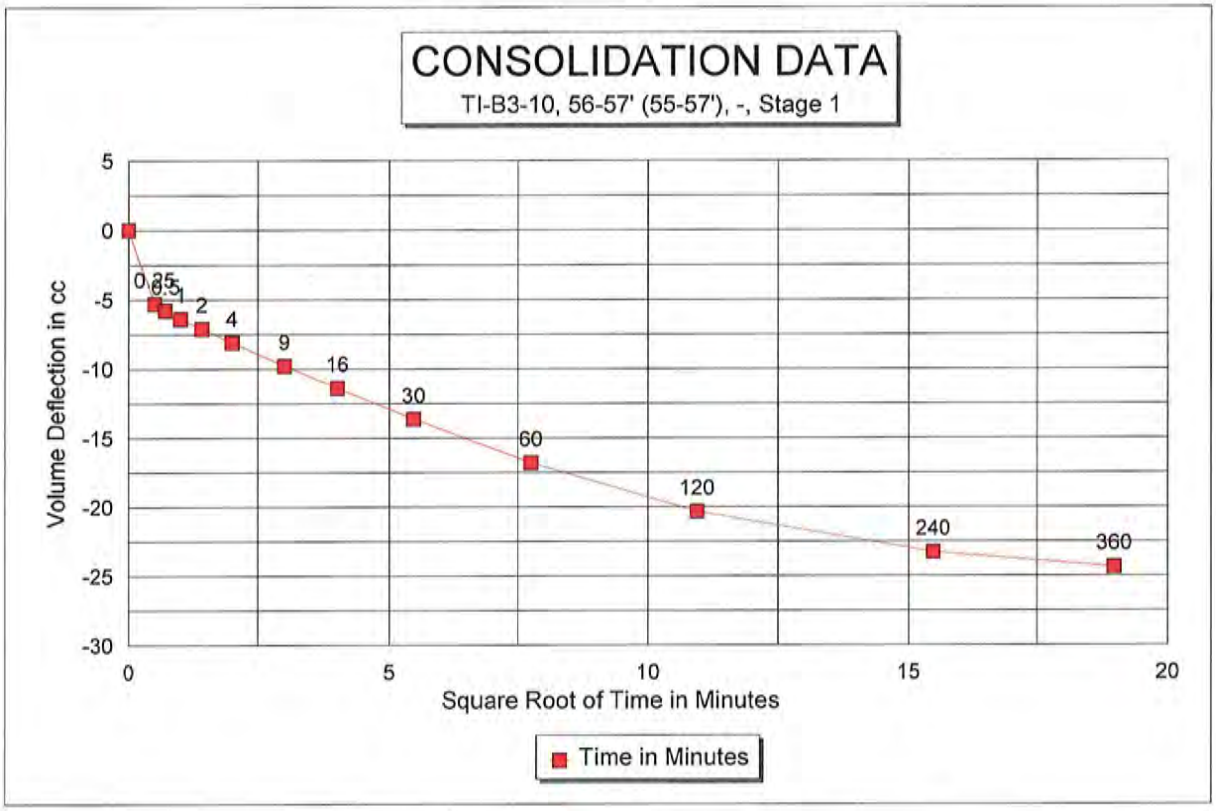
| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-10 | SAMPLED | 11/19/13 MWH |
| DEPTH | 56-57' (55-57') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/05/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 8352 |

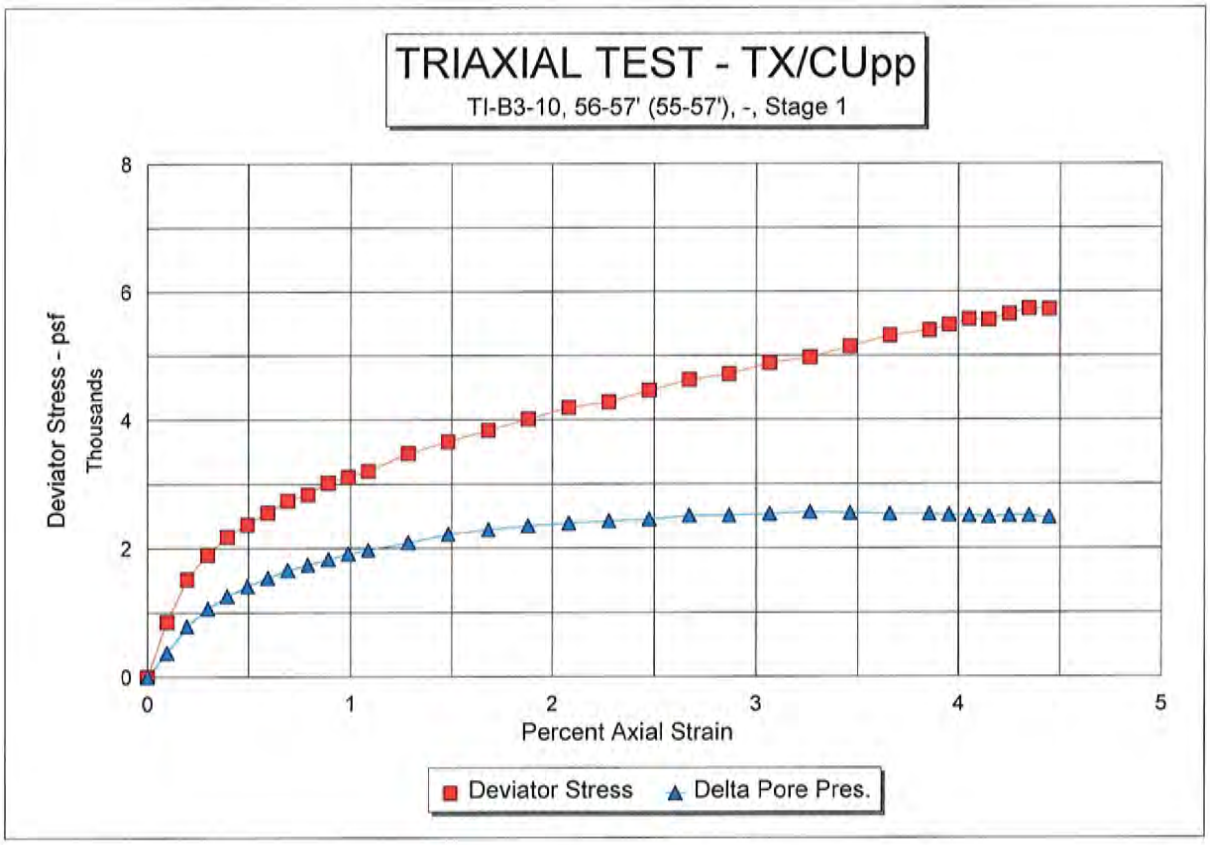
| | | | |
|---|---|---|---|
| Init. Ht. (in) | 4.829 | Init. Area (sq in) | 4.837 |
| Consol. Ht. (in) | 4.856 | Consol. Area (sq in) | 4.794 |
| Back Pres. PSI | 38.3 | Strain Rate (in/min) | 0.0003 |

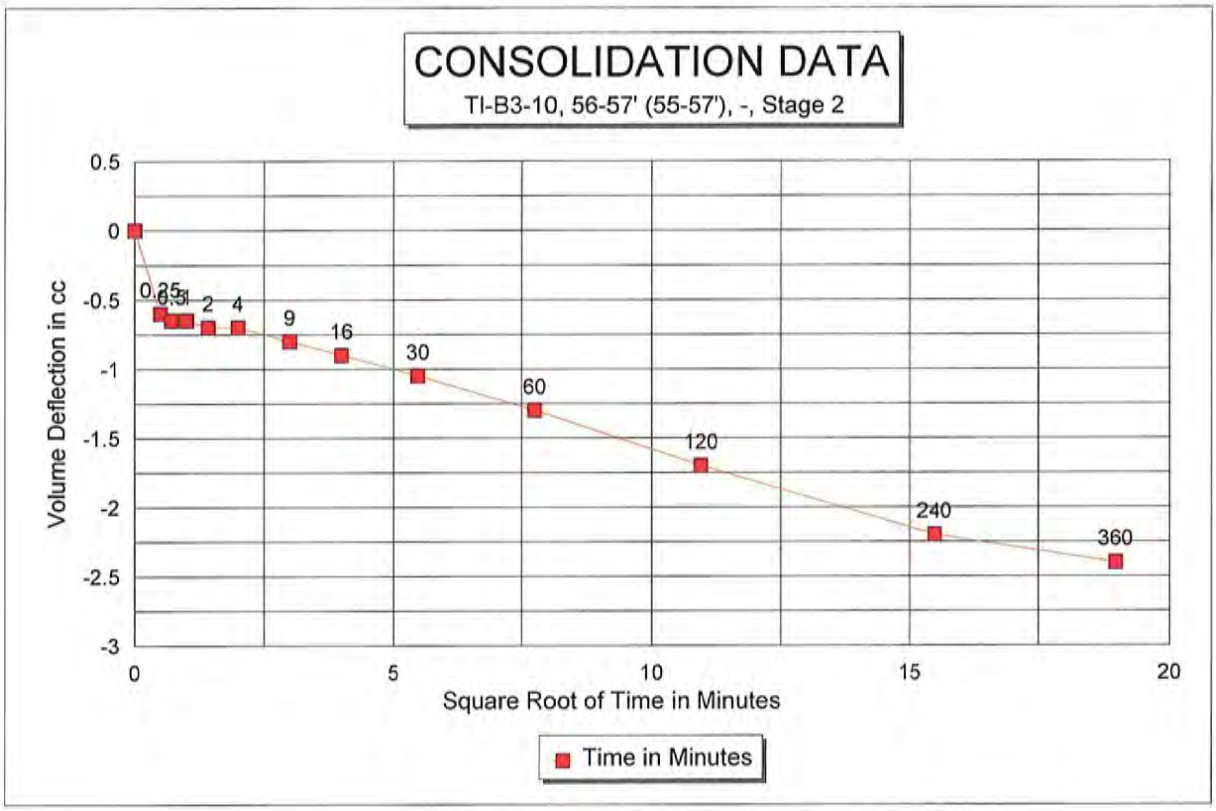
| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 4.794 | 0 | 38.3 | 0 | 8352 | 8352 | 1.00 |
| 99.0 | 2974 | 0.005 | 0.10 | 4.799 | 2971 | 46.0 | 1109 | 7243 | 10214 | 1.41 |
| 141.0 | 4235 | 0.010 | 0.20 | 4.804 | 4227 | 48.6 | 1483 | 6869 | 11095 | 1.62 |
| 171.0 | 5136 | 0.014 | 0.30 | 4.809 | 5121 | 50.0 | 1685 | 6667 | 11788 | 1.77 |
| 195.0 | 5857 | 0.019 | 0.40 | 4.813 | 5834 | 50.8 | 1800 | 6552 | 12386 | 1.89 |
| 216.0 | 6488 | 0.024 | 0.49 | 4.818 | 6456 | 51.4 | 1886 | 6466 | 12921 | 2.00 |
| 234.0 | 7028 | 0.029 | 0.59 | 4.823 | 6987 | 51.7 | 1930 | 6422 | 13409 | 2.09 |
| 249.0 | 7479 | 0.034 | 0.69 | 4.828 | 7427 | 52.3 | 2016 | 6336 | 13763 | 2.17 |
| 261.0 | 7839 | 0.038 | 0.79 | 4.832 | 7777 | 52.5 | 2045 | 6307 | 14085 | 2.23 |
| 270.0 | 8110 | 0.043 | 0.89 | 4.837 | 8038 | 52.7 | 2074 | 6278 | 14316 | 2.28 |
| 285.0 | 8560 | 0.053 | 1.09 | 4.847 | 8467 | 52.9 | 2102 | 6250 | 14717 | 2.35 |
| 297.0 | 8921 | 0.067 | 1.38 | 4.862 | 8797 | 52.9 | 2102 | 6250 | 15047 | 2.41 |
| 300.0 | 9011 | 0.077 | 1.58 | 4.871 | 8868 | 53.1 | 2131 | 6221 | 15089 | 2.43 |
| 306.0 | 9191 | 0.091 | 1.88 | 4.886 | 9018 | 53.0 | 2117 | 6235 | 15254 | 2.45 |
| 309.0 | 9281 | 0.101 | 2.08 | 4.896 | 9088 | 53.0 | 2117 | 6235 | 15324 | 2.46 |
| 312.0 | 9371 | 0.115 | 2.37 | 4.911 | 9149 | 53.0 | 2117 | 6235 | 15384 | 2.47 |
| 312.0 | 9371 | 0.125 | 2.57 | 4.921 | 9130 | 52.9 | 2102 | 6250 | 15380 | 2.46 |
| 318.0 | 9551 | 0.139 | 2.87 | 4.936 | 9278 | 52.7 | 2074 | 6278 | 15556 | 2.48 |
| 321.0 | 9642 | 0.163 | 3.36 | 4.961 | 9317 | 52.6 | 2059 | 6293 | 15610 | 2.48 |
| 327.0 | 9822 | 0.187 | 3.86 | 4.987 | 9443 | 51.9 | 1958 | 6394 | 15837 | 2.48 |
| 330.0 | 9912 | 0.211 | 4.35 | 5.012 | 9481 | 51.4 | 1886 | 6466 | 15946 | 2.47 |
| 333.0 | 10002 | 0.235 | 4.84 | 5.038 | 9517 | 50.7 | 1786 | 6566 | 16084 | 2.45 |
| 336.0 | 10092 | 0.259 | 5.34 | 5.065 | 9553 | 50.3 | 1728 | 6624 | 16177 | 2.44 |
| 339.0 | 10182 | 0.284 | 5.84 | 5.092 | 9587 | 49.7 | 1642 | 6710 | 16298 | 2.43 |
| 342.0 | 10272 | 0.308 | 6.34 | 5.119 | 9621 | 49.5 | 1613 | 6739 | 16360 | 2.43 |
| 342.0 | 10272 | 0.332 | 6.84 | 5.146 | 9569 | 49.2 | 1570 | 6782 | 16352 | 2.41 |
| 342.0 | 10272 | 0.357 | 7.34 | 5.174 | 9518 | 48.9 | 1526 | 6826 | 16343 | 2.39 |
| 342.0 | 10272 | 0.381 | 7.84 | 5.202 | 9467 | 48.6 | 1483 | 6869 | 16335 | 2.38 |
| 342.0 | 10272 | 0.405 | 8.34 | 5.231 | 9415 | 48.1 | 1411 | 6941 | 16356 | 2.36 |
| 342.0 | 10272 | 0.429 | 8.84 | 5.259 | 9364 | 47.8 | 1368 | 6984 | 16348 | 2.34 |
| 339.0 | 10182 | 0.449 | 9.24 | 5.282 | 9241 | 47.5 | 1325 | 7027 | 16269 | 2.32 |
| 333.0 | 10002 | 0.468 | 9.64 | 5.306 | 9038 | 47.5 | 1325 | 7027 | 16065 | 2.29 |

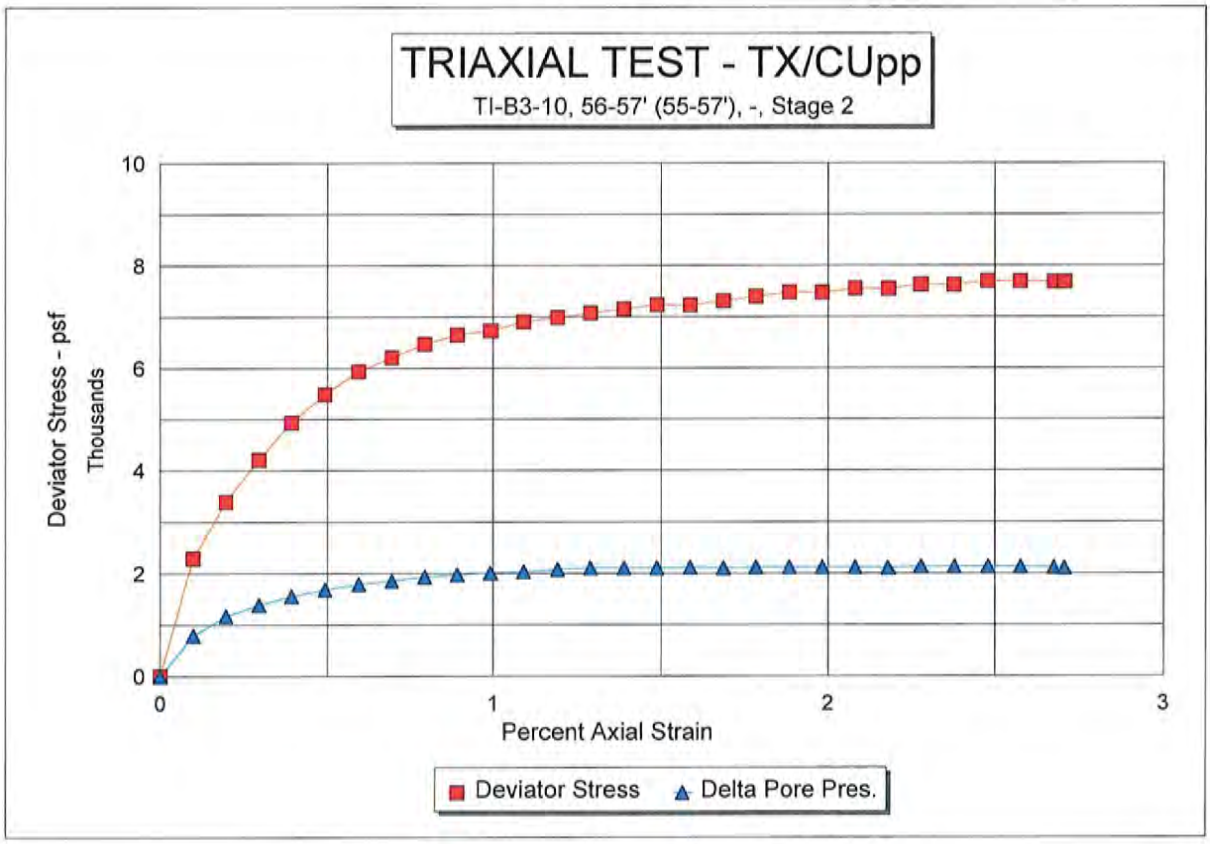
Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B310

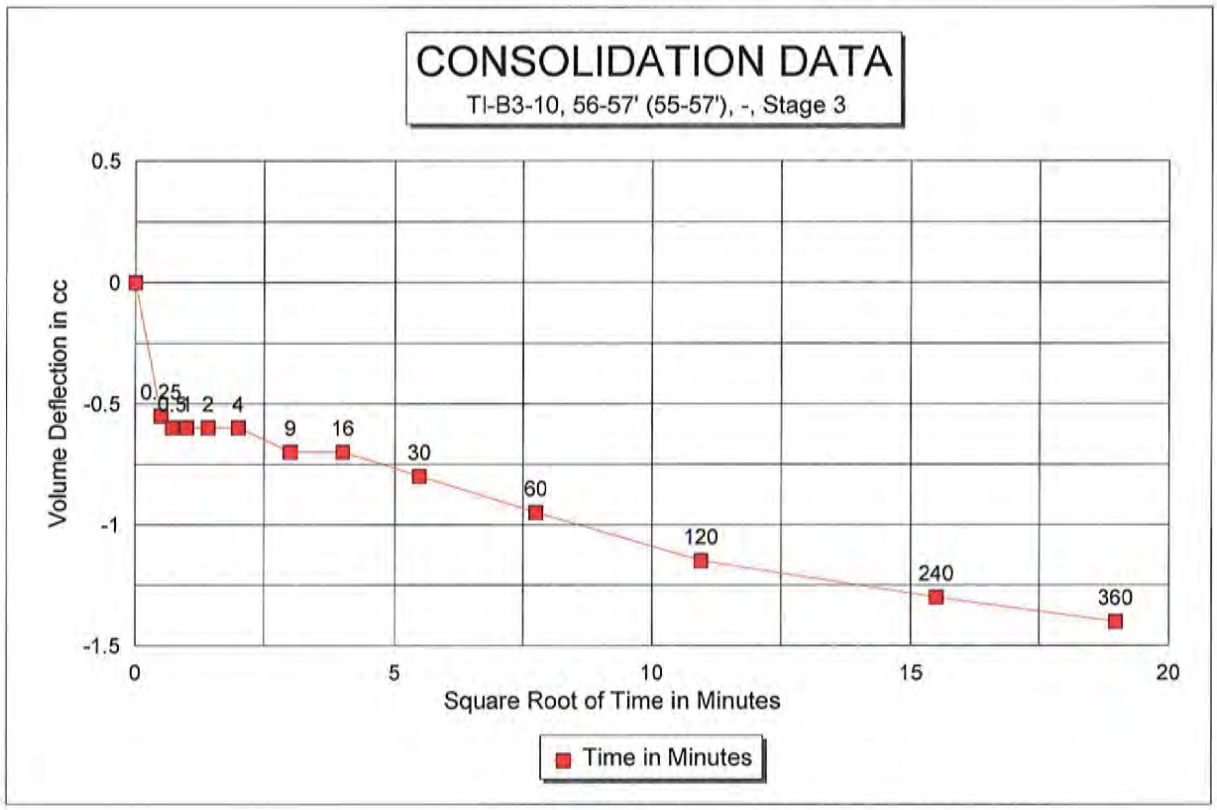
ADVANCED TERRA TESTING, INC. ATT

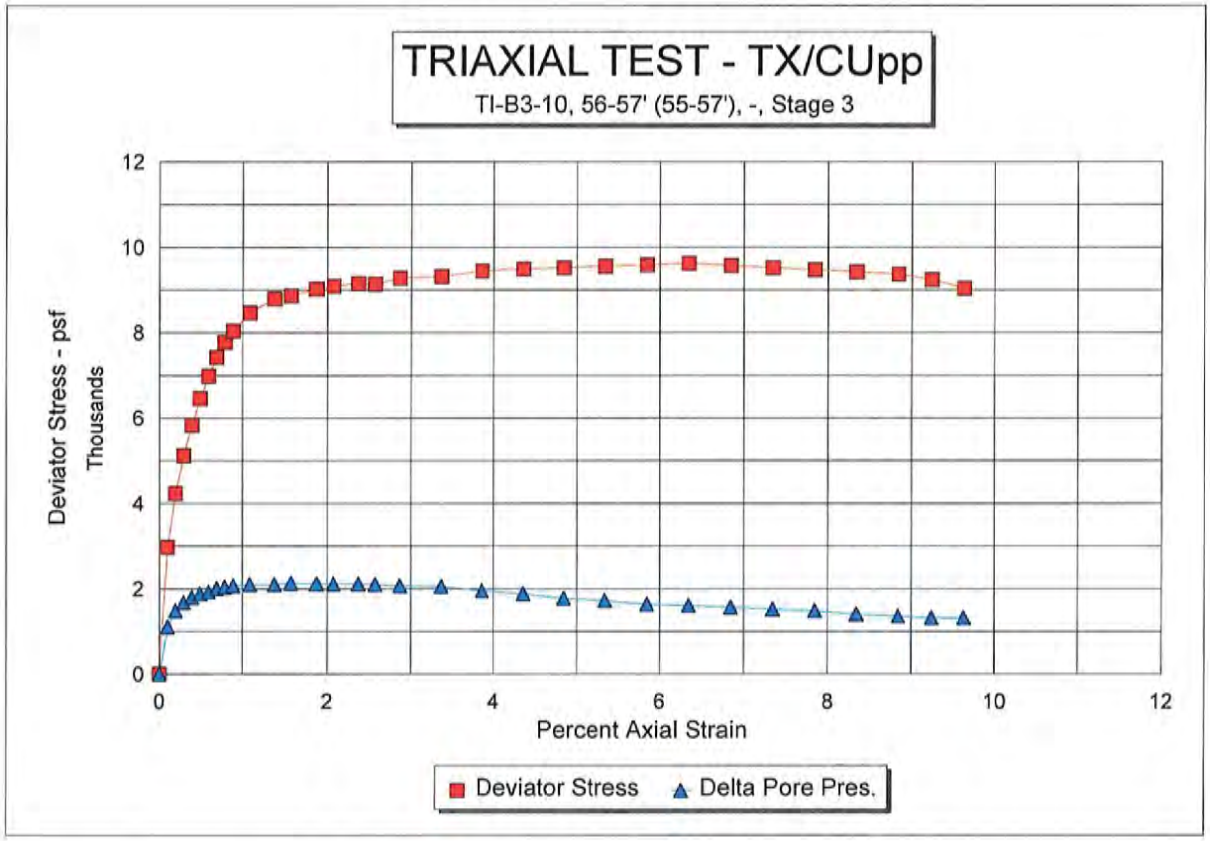

CONSOLIDATION DATA
TI-B3-10, 56-57' (55-57'), -, Stage 1
Volume Deflection in cc
5
0
-5
-10
-15
-20
-25
-30
0.25
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B3-10, 56-57' (55-57'), -, Stage 1
Deviator Stress - psf
Thousands
8
6
4
2
0
0
1
2
3
4
5
Percent Axial Strain
Deviator Stress
Delta Pore Pres.


CONSOLIDATION DATA
TI-B3-10, 56-57' (55-57'), -, Stage 2
Volume Deflection in cc
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
0.25
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B3-10, 56-57' (55-57'), -, Stage 2
Deviator Stress - psf
Thousands
10
8
6
4
2
0
0
1
2
3
Percent Axial Strain
Deviator Stress
Delta Pore Pres.


CONSOLIDATION DATA
TI-B3-10, 56-57' (55-57'), -, Stage 3
Volume Deflection in cc
0.5
0
-0.5
-1
-1.5
0.25
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B3-10, 56-57' (55-57'), -, Stage 3
Deviator Stress - psf
Thousands
12
10
8
6
4
2
0
0
2
4
6
8
10
12
Percent Axial Strain
Deviator Stress
Delta Pore Pres.

EFFECTIVE STRESS PATH ANALYSIS TEST DATA
ASTM D4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-08B | | |
| DEPTH | 45.5-46.0' | SAMPLED | 11/19/13 MWH |
| SAMPLE NO. | A,B&C | SATURATED TEST | |
| PROJECT NO. | -- | TEST TYPE | TX/CUPP |
| LOCATION | Tailings Impoundment | | |

| | | | | | Peak Points p' PSF | Peak Points q PSF |
|---|---|---|---|---|---|---|
| CONF. PRES. PSF | SAMPLE A | 4752 | PSF | SAMPLE A | 4304 | 2345 |
| | SAMPLE B | 5904 | PSF | SAMPLE B | 6742 | 3574 |
| | SAMPLE C | 7056 | PSF | SAMPLE C | 9941 | 5103 |

**SAMPLE A**

| σ 3' PSF | σ 1' PSF | p' PSF | q PSF |
|---|---|---|---|
| 4752 | 4752 | 4752 | 0 |
| 4291 | 5654 | 4973 | 681 |
| 3830 | 5948 | 4889 | 1059 |
| 3499 | 6069 | 4784 | 1285 |
| 3240 | 6109 | 4674 | 1434 |
| 3053 | 6070 | 4561 | 1508 |
| 2894 | 6059 | 4477 | 1582 |
| 2779 | 6091 | 4435 | 1656 |
| 2678 | 6137 | 4408 | 1729 |
| 2578 | 6183 | 4380 | 1803 |
| 2506 | 6108 | 4307 | 1801 |
| 2419 | 6167 | 4293 | 1874 |
| 2362 | 6256 | 4309 | 1947 |
| 2318 | 6209 | 4263 | 1945 |
| 2275 | 6161 | 4218 | 1943 |
| 2232 | 6264 | 4248 | 2016 |
| 2189 | 6216 | 4203 | 2014 |
| 2160 | 6332 | 4246 | 2086 |
| 2131 | 6299 | 4215 | 2084 |
| 2117 | 6281 | 4199 | 2082 |
| 2074 | 6377 | 4226 | 2152 |
| 2030 | 6325 | 4178 | 2148 |
| 2016 | 6450 | 4233 | 2217 |
| 1987 | 6412 | 4200 | 2213 |
| 1973 | 6536 | 4254 | 2282 |
| 1958 | 6512 | 4235 | 2277 |
| 1958 | 6649 | 4304 | 2345 |
| 1958 | 6644 | 4301 | 2343 |
| 1944 | 6625 | 4284 | 2340 |
| 1944 | 6620 | 4282 | 2338 |
| 1944 | 6615 | 4280 | 2336 |
| 1944 | 6610 | 4277 | 2333 |

**SAMPLE B**

| σ 3' PSF | σ 1' PSF | p' PSF | q PSF |
|---|---|---|---|
| 5904 | 5904 | 5904 | 0 |
| 4997 | 8797 | 6897 | 1900 |
| 4450 | 9705 | 7077 | 2628 |
| 4219 | 9470 | 6844 | 2625 |
| 4003 | 9540 | 6772 | 2768 |
| 3845 | 9667 | 6756 | 2911 |
| 3715 | 9823 | 6769 | 3054 |
| 3614 | 9861 | 6738 | 3123 |
| 3542 | 9928 | 6735 | 3193 |
| 3470 | 9994 | 6732 | 3262 |
| 3427 | 10090 | 6758 | 3331 |
| 3384 | 10040 | 6712 | 3328 |
| 3355 | 10149 | 6752 | 3397 |
| 3312 | 10099 | 6705 | 3393 |
| 3298 | 10077 | 6688 | 3390 |
| 3269 | 10042 | 6655 | 3386 |
| 3254 | 10164 | 6709 | 3455 |
| 3240 | 10143 | 6692 | 3452 |
| 3226 | 10122 | 6674 | 3448 |
| 3211 | 10244 | 6727 | 3516 |
| 3197 | 10222 | 6710 | 3513 |
| 3197 | 10215 | 6706 | 3509 |
| 3182 | 10194 | 6688 | 3506 |
| 3168 | 10315 | 6742 | 3574 |
| 3168 | 10308 | 6738 | 3570 |
| 3168 | 10301 | 6734 | 3566 |
| 3168 | 10293 | 6731 | 3563 |
| 3168 | 10286 | 6727 | 3559 |

**SAMPLE C**

| σ 3' PSF | σ 1' PSF | p' PSF | q PSF |
|---|---|---|---|
| 7056 | 7056 | 7056 | 0 |
| 6106 | 9678 | 7892 | 1786 |
| 5602 | 11026 | 8314 | 2712 |
| 5285 | 11844 | 8564 | 3280 |
| 5040 | 12448 | 8744 | 3704 |
| 4896 | 12723 | 8810 | 3914 |
| 4766 | 13012 | 8889 | 4123 |
| 4680 | 13202 | 8941 | 4261 |
| 4608 | 13263 | 8935 | 4327 |
| 4550 | 13338 | 8944 | 4394 |
| 4421 | 13456 | 8938 | 4517 |
| 4349 | 13488 | 8918 | 4570 |
| 4320 | 13563 | 8941 | 4621 |
| 4291 | 13496 | 8894 | 4602 |
| 4277 | 13583 | 8930 | 4653 |
| 4277 | 13545 | 8911 | 4634 |
| 4291 | 13758 | 9025 | 4734 |
| 4291 | 13816 | 9054 | 4763 |
| 4320 | 13805 | 9063 | 4743 |
| 4320 | 13901 | 9110 | 4790 |
| 4378 | 14012 | 9195 | 4817 |
| 4406 | 14091 | 9249 | 4842 |
| 4450 | 14313 | 9381 | 4932 |
| 4478 | 14386 | 9432 | 4954 |
| 4522 | 14342 | 9432 | 4910 |
| 4565 | 14554 | 9560 | 4995 |
| 4608 | 14635 | 9622 | 5014 |
| 4666 | 14728 | 9697 | 5031 |
| 4709 | 14804 | 9757 | 5048 |
| 4752 | 14879 | 9815 | 5063 |
| 4795 | 14951 | 9873 | 5078 |
| 4838 | 15044 | 9941 | 5103 |

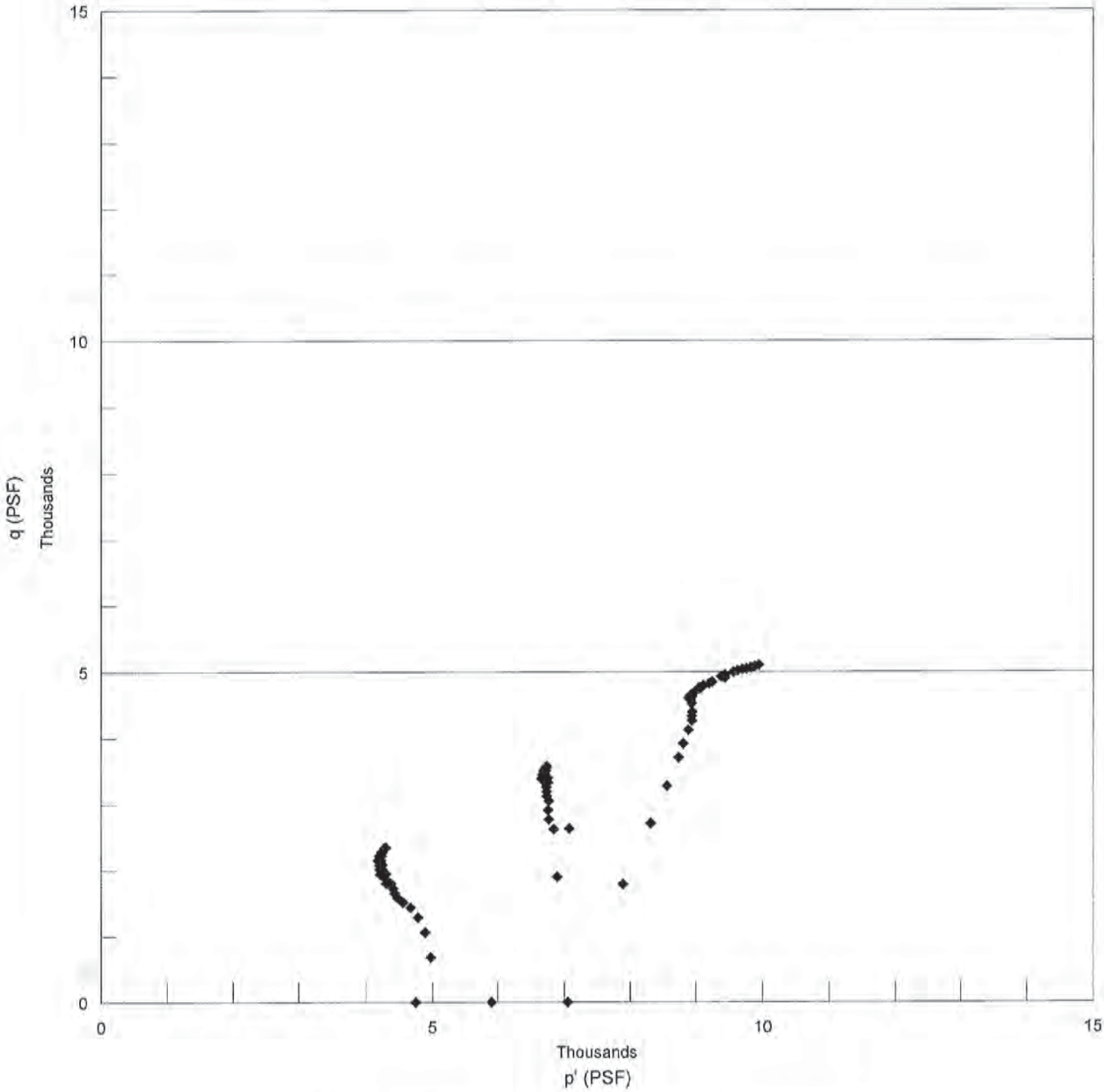
Data entry by: DAW
Data checked by: PPM
FileName: MWPQB308.WK4

Date: 05/22/2014
Date: 5/22/14

ATT
ADVANCED

# Effective Stress Path Analysis - p' q Plots

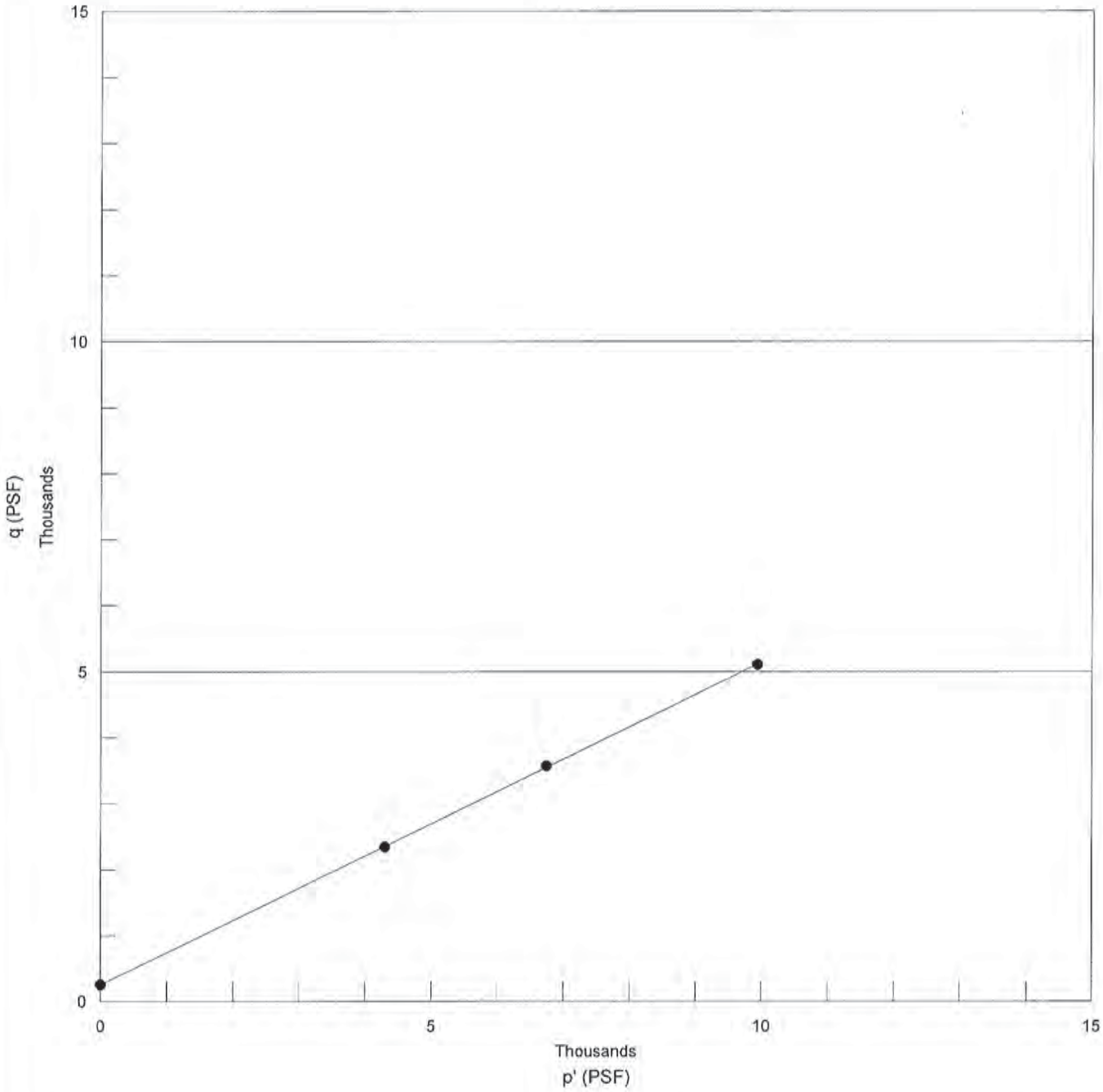
MWH,Tailings Impoundment,--,TI-B3-08B,A,B&C,45.5-46.0'




◆ Stress Paths of Samples A, B & C

# Effective Stress Path Analysis - p'-q Regression Plot

MWH,Tailings Impoundment,--,TI-B3-08B,A,B&C,45.5-46.0'




● Shear Data  – Best Fit Line  psi= 26.0 degrees  a = 256.1 PSF

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-08B | SAMPLED | 11/19/13 MWH |
| DEPTH | 45.5-46.0 | TEST STARTED | 05/01/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/08/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 4752 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 405.8 | 401.2 |
| Wt. Wet Soil & Pan (g) | 441.5 | 436.9 |
| Wt. Dry Soil & Pan (g) | 380.5 | 380.5 |
| Wt. Lost Moisture (g) | 61.0 | 56.4 |
| Wt. of Pan Only (g) | 35.7 | 35.7 |
| Wt. of Dry Soil (g) | 344.8 | 344.8 |
| Moisture Content % | 17.7 | 16.3 |
| Wet Density PCF | 128.8 | 127.4 |
| Dry Density PCF | 109.4 | 109.5 |

| | |
|---|---|
| Init. Diameter (in) | 1.892 |
| Init. Area (sq in) | 2.811 |
| Init. Height (in) | 4.270 |
| Vol. Bef. Consol. (cu ft) | 0.00695 |
| Vol. After Consol. (cu ft) | 0.00694 |

Notes & Comments: Dried at 60 degrees C.

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B308

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-08B | SAMPLED | 11/19/13 MWH |
| DEPTH | 45.5-46.0 | TEST STARTED | 05/01/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/08/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 4752 |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 2.0 | 9.1 | | | | |
| 50.0 | 48.0 | 9.4 | 10.1 | 38.3 | 47.6 | 9.3 | 0.93 |
| 60.0 | | 10.5 | 10.6 | 48.2 | 57.9 | 9.7 | 0.97 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 0.30 | 0.00 |
| 0.25 | 0.5 | 4.30 | -4.00 |
| 0.5 | 0.7 | 4.85 | -4.55 |
| 1 | 1.0 | 5.40 | -5.10 |
| 2 | 1.4 | 6.15 | -5.85 |
| 4 | 2.0 | 7.00 | -6.70 |
| 9 | 3.0 | 8.10 | -7.80 |
| 16 | 4.0 | 8.70 | -8.40 |
| 30 | 5.5 | 9.25 | -8.95 |
| 60 | 7.7 | 9.55 | -9.25 |
| 120 | 11.0 | 9.70 | -9.40 |
| 240 | 15.5 | 9.80 | -9.50 |
| 360 | 19.0 | 9.90 | -9.60 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 4.270 | Init. Vol. (CC) | 196.76 |
| Height Change (in) | 0.060 | Vol. Change (CC) | 19.05 |
| Ht. After Cons. (in) | 4.210 | Cell Exp. (CC) | 18.92 |
| Initial Area (sq in) | 2.811 | Net Change (CC) | 0.13 |
| Area After Cons. (sq in) | 2.850 | Cons. Vol. (CC) | 196.64 |

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B308

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-08B | SAMPLED | 11/19/13 MWH |
| DEPTH | 45.5-46.0 | TEST STARTED | 05/01/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/08/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 4752 |

| | | | |
|---|---|---|---|
| Init. Ht. (in) | 4.270 | Init. Area (sq in) | 2.811 |
| Consol. Ht. (in) | 4.210 | Consol. Area (sq in) | 2.850 |
| Back Pres. PSI | 48.1 | Strain Rate (in/min) | 0.002 |

| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 2.850 | 0 | 48.1 | 0 | 4752 | 4752 | 1.00 |
| 27.0 | 1364 | 0.004 | 0.10 | 2.853 | 1363 | 51.3 | 461 | 4291 | 5654 | 1.32 |
| 42.0 | 2122 | 0.008 | 0.20 | 2.855 | 2118 | 54.5 | 922 | 3830 | 5948 | 1.55 |
| 51.0 | 2577 | 0.013 | 0.30 | 2.858 | 2569 | 56.8 | 1253 | 3499 | 6069 | 1.73 |
| 57.0 | 2880 | 0.017 | 0.40 | 2.861 | 2869 | 58.6 | 1512 | 3240 | 6109 | 1.89 |
| 60.0 | 3032 | 0.021 | 0.50 | 2.864 | 3017 | 59.9 | 1699 | 3053 | 6070 | 1.99 |
| 63.0 | 3183 | 0.025 | 0.60 | 2.867 | 3164 | 61.0 | 1858 | 2894 | 6059 | 2.09 |
| 66.0 | 3335 | 0.029 | 0.70 | 2.870 | 3312 | 61.8 | 1973 | 2779 | 6091 | 2.19 |
| 69.0 | 3487 | 0.034 | 0.80 | 2.873 | 3459 | 62.5 | 2074 | 2678 | 6137 | 2.29 |
| 72.0 | 3638 | 0.038 | 0.90 | 2.876 | 3606 | 63.2 | 2174 | 2578 | 6183 | 2.40 |
| 72.0 | 3638 | 0.042 | 1.00 | 2.878 | 3602 | 63.7 | 2246 | 2506 | 6108 | 2.44 |
| 75.0 | 3790 | 0.046 | 1.10 | 2.881 | 3748 | 64.3 | 2333 | 2419 | 6167 | 2.55 |
| 78.0 | 3941 | 0.051 | 1.20 | 2.884 | 3894 | 64.7 | 2390 | 2362 | 6256 | 2.65 |
| 78.0 | 3941 | 0.055 | 1.30 | 2.887 | 3890 | 65.0 | 2434 | 2318 | 6209 | 2.68 |
| 78.0 | 3941 | 0.059 | 1.40 | 2.890 | 3886 | 65.3 | 2477 | 2275 | 6161 | 2.71 |
| 81.0 | 4093 | 0.063 | 1.50 | 2.893 | 4032 | 65.6 | 2520 | 2232 | 6264 | 2.81 |
| 81.0 | 4093 | 0.068 | 1.60 | 2.896 | 4027 | 65.9 | 2563 | 2189 | 6216 | 2.84 |
| 84.0 | 4245 | 0.072 | 1.70 | 2.899 | 4172 | 66.1 | 2592 | 2160 | 6332 | 2.93 |
| 84.0 | 4245 | 0.076 | 1.80 | 2.902 | 4168 | 66.3 | 2621 | 2131 | 6299 | 2.96 |
| 84.0 | 4245 | 0.080 | 1.90 | 2.905 | 4164 | 66.4 | 2635 | 2117 | 6281 | 2.97 |
| 87.0 | 4396 | 0.089 | 2.10 | 2.911 | 4304 | 66.7 | 2678 | 2074 | 6377 | 3.08 |
| 87.0 | 4396 | 0.097 | 2.30 | 2.917 | 4295 | 67.0 | 2722 | 2030 | 6325 | 3.12 |
| 90.0 | 4548 | 0.105 | 2.50 | 2.923 | 4434 | 67.1 | 2736 | 2016 | 6450 | 3.20 |
| 90.0 | 4548 | 0.114 | 2.70 | 2.929 | 4425 | 67.3 | 2765 | 1987 | 6412 | 3.23 |
| 93.0 | 4699 | 0.122 | 2.90 | 2.935 | 4563 | 67.4 | 2779 | 1973 | 6536 | 3.31 |
| 93.0 | 4699 | 0.131 | 3.10 | 2.941 | 4554 | 67.5 | 2794 | 1958 | 6512 | 3.33 |
| 96.0 | 4851 | 0.139 | 3.30 | 2.947 | 4691 | 67.5 | 2794 | 1958 | 6649 | 3.40 |
| 96.0 | 4851 | 0.143 | 3.40 | 2.950 | 4686 | 67.5 | 2794 | 1958 | 6644 | 3.39 |
| 96.0 | 4851 | 0.148 | 3.51 | 2.953 | 4681 | 67.6 | 2808 | 1944 | 6625 | 3.41 |
| 96.0 | 4851 | 0.152 | 3.61 | 2.956 | 4676 | 67.6 | 2808 | 1944 | 6620 | 3.41 |
| 96.0 | 4851 | 0.156 | 3.71 | 2.960 | 4671 | 67.6 | 2808 | 1944 | 6615 | 3.40 |
| 96.0 | 4851 | 0.161 | 3.81 | 2.963 | 4666 | 67.6 | 2808 | 1944 | 6610 | 3.40 |

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B308

ADVANCED TERRA TESTING, Inc. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-08B | SAMPLED | 11/19/13 MWH |
| DEPTH | 45.5-46.0 | TEST STARTED | 05/01/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/08/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 5904 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 405.8 | 401.2 |
| Wt. Wet Soil & Pan (g) | 441.5 | 436.9 |
| Wt. Dry Soil & Pan (g) | 380.5 | 380.5 |
| Wt. Lost Moisture (g) | 61.0 | 56.4 |
| Wt. of Pan Only (g) | 35.7 | 35.7 |
| Wt. of Dry Soil (g) | 344.8 | 344.8 |
| Moisture Content % | 17.7 | 16.3 |
| Wet Density PCF | 128.9 | 127.8 |
| Dry Density PCF | 109.5 | 109.8 |

| | |
|---|---|
| Init. Diameter (in) | 1.942 |
| Init. Area (sq in) | 2.963 |
| Init. Height (in) | 4.050 |
| Vol. Bef. Consol. (cu ft) | 0.00694 |
| Vol. After Consol. (cu ft) | 0.00692 |

Notes & Comments:

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B308

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-08B | SAMPLED | 11/19/13 MWH |
| DEPTH | 45.5-46.0 | TEST STARTED | 05/01/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/08/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 5904 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 12.80 | 0.00 |
| 0.25 | 0.5 | 13.35 | -0.55 |
| 0.5 | 0.7 | 13.40 | -0.60 |
| 1 | 1.0 | 13.40 | -0.60 |
| 2 | 1.4 | 13.45 | -0.65 |
| 4 | 2.0 | 13.50 | -0.70 |
| 9 | 3.0 | 13.60 | -0.80 |
| 16 | 4.0 | 13.65 | -0.85 |
| 30 | 5.5 | 13.70 | -0.90 |
| 60 | 7.7 | 13.80 | -1.00 |
| 120 | 11.0 | 13.90 | -1.10 |
| 240 | 15.5 | 13.90 | -1.10 |
| 360 | 19.0 | 13.90 | -1.10 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 4.050 | Init. Vol. (CC) | 196.64 |
| Height Change (in) | -0.001 | Vol. Change (CC) | 1.40 |
| Ht. After Cons. (in) | 4.051 | Cell Exp. (CC) | 0.80 |
| Initial Area (sq in) | 2.963 | Net Change (CC) | 0.60 |
| Area After Cons. (sq in) | 2.953 | Cons. Vol. (CC) | 196.03 |

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B308

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-08B | SAMPLED | 11/19/13 MWH |
| DEPTH | 45.5-46.0 | TEST STARTED | 05/01/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/08/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 5904 |

| | | | |
|---|---|---|---|
| Init. Ht. (in) | 4.050 | Init. Area (sq in) | 2.963 |
| Consol. Ht. (in) | 4.051 | Consol. Area (sq in) | 2.953 |
| Back Pres. PSI | 48.1 | Strain Rate (in/min) | 0.001 |

| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 2.953 | 0 | 48.1 | 0 | 5904 | 5904 | 1.00 |
| 78.0 | 3804 | 0.004 | 0.11 | 2.956 | 3800 | 54.4 | 907 | 4997 | 8797 | 1.76 |
| 108.0 | 5267 | 0.009 | 0.21 | 2.959 | 5256 | 58.2 | 1454 | 4450 | 9705 | 2.18 |
| 108.0 | 5267 | 0.013 | 0.31 | 2.962 | 5251 | 59.8 | 1685 | 4219 | 9470 | 2.24 |
| 114.0 | 5559 | 0.017 | 0.41 | 2.965 | 5537 | 61.3 | 1901 | 4003 | 9540 | 2.38 |
| 120.0 | 5852 | 0.021 | 0.51 | 2.968 | 5822 | 62.4 | 2059 | 3845 | 9667 | 2.51 |
| 126.0 | 6145 | 0.025 | 0.60 | 2.971 | 6107 | 63.3 | 2189 | 3715 | 9823 | 2.64 |
| 129.0 | 6291 | 0.029 | 0.70 | 2.974 | 6247 | 64.0 | 2290 | 3614 | 9861 | 2.73 |
| 132.0 | 6437 | 0.033 | 0.80 | 2.977 | 6386 | 64.5 | 2362 | 3542 | 9928 | 2.80 |
| 135.0 | 6583 | 0.037 | 0.90 | 2.980 | 6524 | 65.0 | 2434 | 3470 | 9994 | 2.88 |
| 138.0 | 6730 | 0.041 | 1.00 | 2.983 | 6662 | 65.3 | 2477 | 3427 | 10090 | 2.94 |
| 138.0 | 6730 | 0.045 | 1.10 | 2.986 | 6656 | 65.6 | 2520 | 3384 | 10040 | 2.97 |
| 141.0 | 6876 | 0.049 | 1.20 | 2.989 | 6793 | 65.8 | 2549 | 3355 | 10149 | 3.02 |
| 141.0 | 6876 | 0.053 | 1.30 | 2.992 | 6787 | 66.1 | 2592 | 3312 | 10099 | 3.05 |
| 141.0 | 6876 | 0.057 | 1.40 | 2.995 | 6780 | 66.2 | 2606 | 3298 | 10077 | 3.06 |
| 141.0 | 6876 | 0.061 | 1.50 | 2.998 | 6773 | 66.4 | 2635 | 3269 | 10042 | 3.07 |
| 144.0 | 7022 | 0.065 | 1.60 | 3.001 | 6910 | 66.5 | 2650 | 3254 | 10164 | 3.12 |
| 144.0 | 7022 | 0.069 | 1.70 | 3.004 | 6903 | 66.6 | 2664 | 3240 | 10143 | 3.13 |
| 144.0 | 7022 | 0.073 | 1.80 | 3.007 | 6896 | 66.7 | 2678 | 3226 | 10122 | 3.14 |
| 147.0 | 7169 | 0.077 | 1.90 | 3.010 | 7033 | 66.8 | 2693 | 3211 | 10244 | 3.19 |
| 147.0 | 7169 | 0.081 | 2.00 | 3.013 | 7026 | 66.9 | 2707 | 3197 | 10222 | 3.20 |
| 147.0 | 7169 | 0.085 | 2.10 | 3.016 | 7018 | 66.9 | 2707 | 3197 | 10215 | 3.20 |
| 147.0 | 7169 | 0.089 | 2.19 | 3.019 | 7011 | 67.0 | 2722 | 3182 | 10194 | 3.20 |
| 150.0 | 7315 | 0.093 | 2.30 | 3.022 | 7147 | 67.1 | 2736 | 3168 | 10315 | 3.26 |
| 150.0 | 7315 | 0.097 | 2.39 | 3.025 | 7140 | 67.1 | 2736 | 3168 | 10308 | 3.25 |
| 150.0 | 7315 | 0.101 | 2.49 | 3.028 | 7133 | 67.1 | 2736 | 3168 | 10301 | 3.25 |
| 150.0 | 7315 | 0.105 | 2.59 | 3.032 | 7125 | 67.1 | 2736 | 3168 | 10293 | 3.25 |
| 150.0 | 7315 | 0.109 | 2.69 | 3.035 | 7118 | 67.1 | 2736 | 3168 | 10286 | 3.25 |

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B308

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-08B | SAMPLED | 11/19/13 MWH |
| DEPTH | 45.5-46.0 | TEST STARTED | 05/01/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/08/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 7056 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 405.8 | 401.2 |
| Wt. Wet Soil & Pan (g) | 441.5 | 436.9 |
| Wt. Dry Soil & Pan (g) | 380.5 | 380.5 |
| Wt. Lost Moisture (g) | 61.0 | 56.4 |
| Wt. of Pan Only (g) | 35.7 | 35.7 |
| Wt. of Dry Soil (g) | 344.8 | 344.8 |
| Moisture Content % | 17.7 | 16.3 |
| Wet Density PCF | 129.3 | 128.4 |
| Dry Density PCF | 109.8 | 110.3 |

| | |
|---|---|
| Init. Diameter (in) | 1.966 |
| Init. Area (sq in) | 3.035 |
| Init. Height (in) | 3.941 |
| Vol. Bef. Consol. (cu ft) | 0.00692 |
| Vol. After Consol. (cu ft) | 0.00689 |

Notes & Comments:

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B308

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-08B | SAMPLED | 11/19/13 MWH |
| DEPTH | 45.5-46.0 | TEST STARTED | 05/01/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/08/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 7056 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 15.70 | 0.00 |
| 0.25 | 0.5 | 16.25 | -0.55 |
| 0.5 | 0.7 | 16.25 | -0.55 |
| 1 | 1.0 | 16.25 | -0.55 |
| 2 | 1.4 | 16.30 | -0.60 |
| 4 | 2.0 | 16.30 | -0.60 |
| 9 | 3.0 | 16.35 | -0.65 |
| 16 | 4.0 | 16.40 | -0.70 |
| 30 | 5.5 | 16.45 | -0.75 |
| 60 | 7.7 | 16.50 | -0.80 |
| 120 | 11.0 | 16.60 | -0.90 |
| 240 | 15.5 | 16.80 | -1.10 |
| 360 | 19.0 | 16.90 | -1.20 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 3.941 | Init. Vol. (CC) | 196.03 |
| Height Change (in) | 0.000 | Vol. Change (CC) | 1.70 |
| Ht. After Cons. (in) | 3.941 | Cell Exp. (CC) | 0.80 |
| Initial Area (sq in) | 3.035 | Net Change (CC) | 0.90 |
| Area After Cons. (sq in) | 3.021 | Cons. Vol. (CC) | 195.13 |

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B308

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

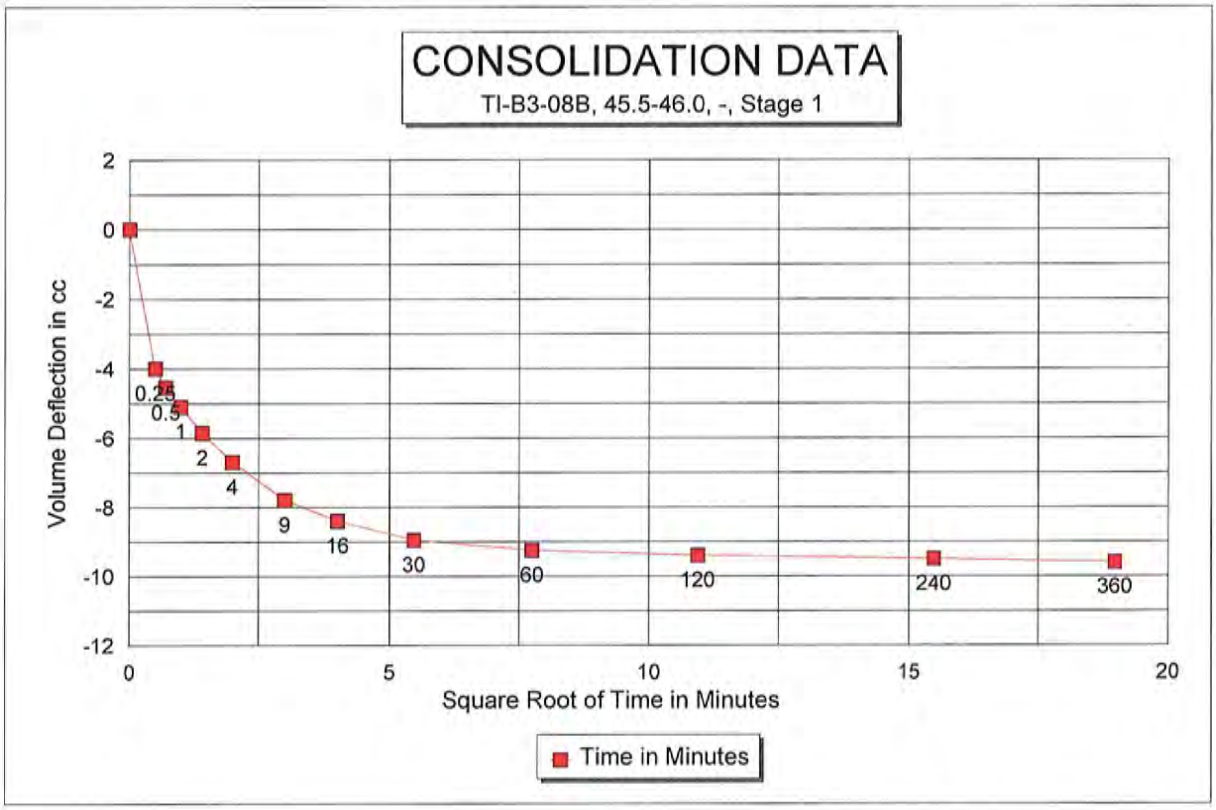
| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-08B | SAMPLED | 11/19/13 MWH |
| DEPTH | 45.5-46.0 | TEST STARTED | 05/01/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/08/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 7056 |

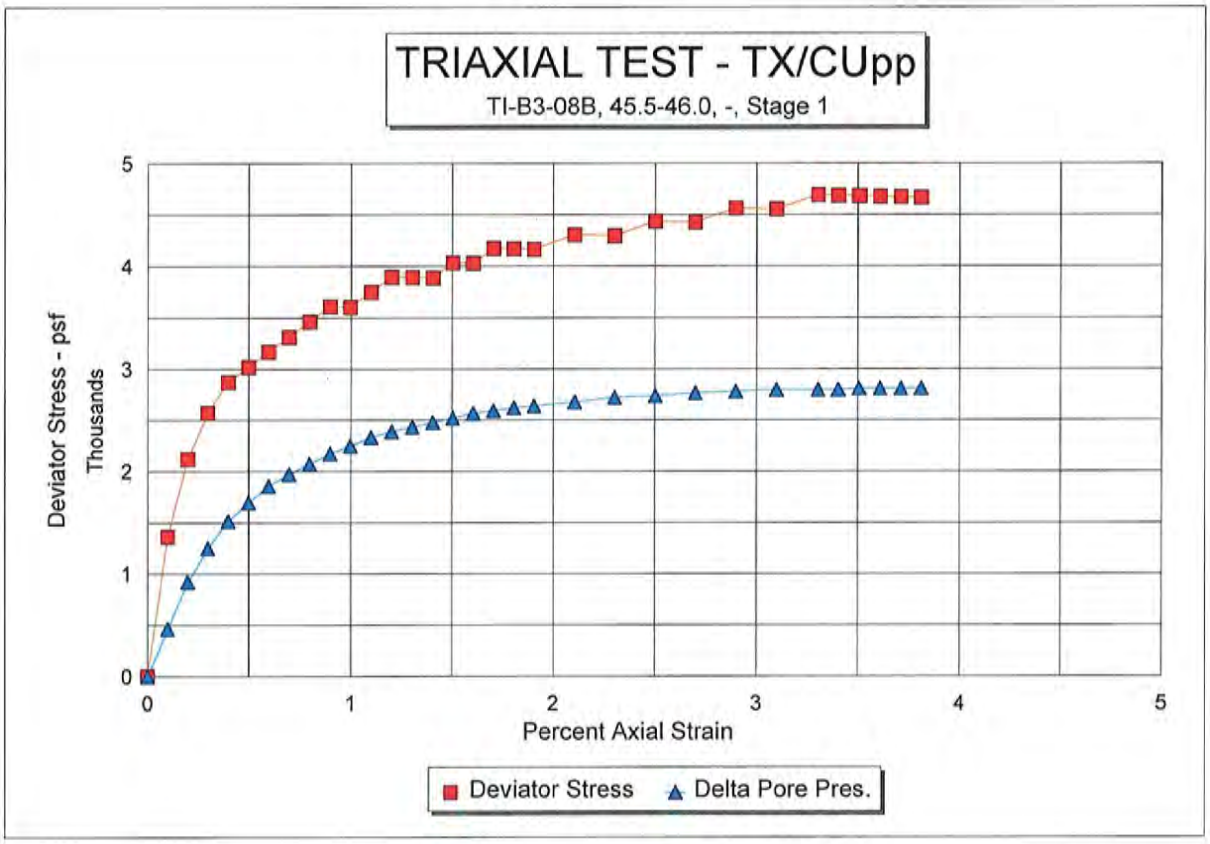
| | | | |
|---|---|---|---|
| Init. Ht. (in) | 3.941 | Init. Area (sq in) | 3.035 |
| Consol. Ht. (in) | 3.941 | Consol. Area (sq in) | 3.021 |
| Back Pres. PSI | 48.5 | Strain Rate (in/min) | 0.001 |

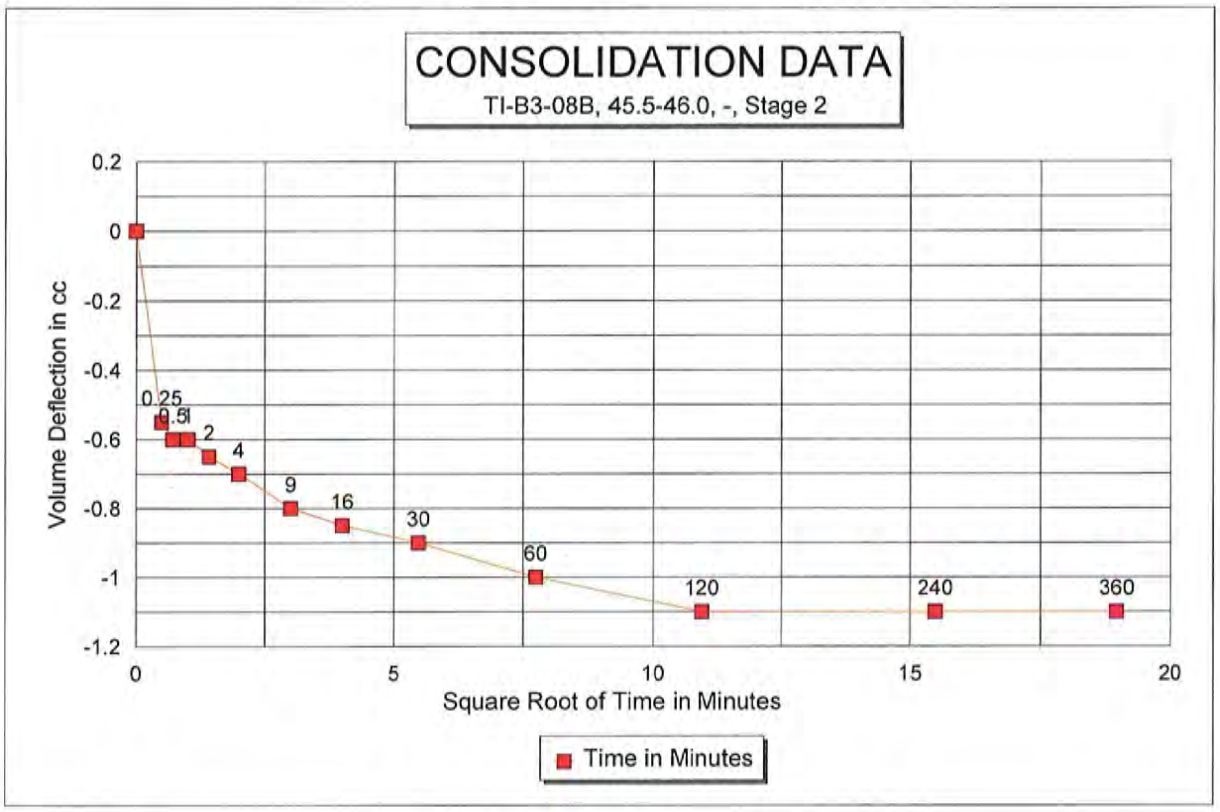
| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 3.021 | 0 | 48.5 | 0 | 7056 | 7056 | 1.00 |
| 75.0 | 3575 | 0.004 | 0.10 | 3.024 | 3572 | 55.1 | 950 | 6106 | 9678 | 1.59 |
| 114.0 | 5435 | 0.008 | 0.20 | 3.027 | 5424 | 58.6 | 1454 | 5602 | 11026 | 1.97 |
| 138.0 | 6579 | 0.012 | 0.30 | 3.030 | 6559 | 60.8 | 1771 | 5285 | 11844 | 2.24 |
| 156.0 | 7437 | 0.016 | 0.40 | 3.033 | 7408 | 62.5 | 2016 | 5040 | 12448 | 2.47 |
| 165.0 | 7866 | 0.020 | 0.49 | 3.036 | 7827 | 63.5 | 2160 | 4896 | 12723 | 2.60 |
| 174.0 | 8295 | 0.023 | 0.59 | 3.039 | 8246 | 64.4 | 2290 | 4766 | 13012 | 2.73 |
| 180.0 | 8581 | 0.027 | 0.69 | 3.042 | 8522 | 65.0 | 2376 | 4680 | 13202 | 2.82 |
| 183.0 | 8724 | 0.031 | 0.79 | 3.045 | 8655 | 65.5 | 2448 | 4608 | 13263 | 2.88 |
| 186.0 | 8867 | 0.035 | 0.89 | 3.048 | 8788 | 65.9 | 2506 | 4550 | 13338 | 2.93 |
| 192.0 | 9153 | 0.051 | 1.29 | 3.060 | 9035 | 66.8 | 2635 | 4421 | 13456 | 3.04 |
| 195.0 | 9296 | 0.067 | 1.69 | 3.072 | 9139 | 67.3 | 2707 | 4349 | 13488 | 3.10 |
| 198.0 | 9439 | 0.082 | 2.08 | 3.085 | 9243 | 67.5 | 2736 | 4320 | 13563 | 3.14 |
| 198.0 | 9439 | 0.098 | 2.48 | 3.097 | 9205 | 67.7 | 2765 | 4291 | 13496 | 3.15 |
| 201.0 | 9582 | 0.113 | 2.88 | 3.110 | 9307 | 67.8 | 2779 | 4277 | 13583 | 3.18 |
| 201.0 | 9582 | 0.129 | 3.27 | 3.123 | 9269 | 67.8 | 2779 | 4277 | 13545 | 3.17 |
| 207.0 | 9868 | 0.160 | 4.06 | 3.149 | 9467 | 67.7 | 2765 | 4291 | 13758 | 3.21 |
| 210.0 | 10011 | 0.191 | 4.86 | 3.175 | 9525 | 67.7 | 2765 | 4291 | 13816 | 3.22 |
| 210.0 | 10011 | 0.207 | 5.25 | 3.188 | 9485 | 67.5 | 2736 | 4320 | 13805 | 3.20 |
| 213.0 | 10154 | 0.223 | 5.65 | 3.201 | 9581 | 67.5 | 2736 | 4320 | 13901 | 3.22 |
| 216.0 | 10297 | 0.254 | 6.44 | 3.228 | 9634 | 67.1 | 2678 | 4378 | 14012 | 3.20 |
| 219.0 | 10440 | 0.285 | 7.24 | 3.256 | 9684 | 66.9 | 2650 | 4406 | 14091 | 3.20 |
| 225.0 | 10726 | 0.317 | 8.04 | 3.285 | 9864 | 66.6 | 2606 | 4450 | 14313 | 3.22 |
| 228.0 | 10869 | 0.349 | 8.84 | 3.314 | 9908 | 66.4 | 2578 | 4478 | 14386 | 3.21 |
| 228.0 | 10869 | 0.380 | 9.65 | 3.343 | 9821 | 66.1 | 2534 | 4522 | 14342 | 3.17 |
| 234.0 | 11155 | 0.412 | 10.45 | 3.373 | 9990 | 65.8 | 2491 | 4565 | 14554 | 3.19 |
| 237.0 | 11298 | 0.443 | 11.25 | 3.403 | 10027 | 65.5 | 2448 | 4608 | 14635 | 3.18 |
| 240.0 | 11441 | 0.475 | 12.05 | 3.435 | 10062 | 65.1 | 2390 | 4666 | 14728 | 3.16 |
| 243.0 | 11584 | 0.507 | 12.85 | 3.466 | 10095 | 64.8 | 2347 | 4709 | 14804 | 3.14 |
| 246.0 | 11727 | 0.538 | 13.65 | 3.498 | 10127 | 64.5 | 2304 | 4752 | 14879 | 3.13 |
| 249.0 | 11870 | 0.570 | 14.45 | 3.531 | 10155 | 64.2 | 2261 | 4795 | 14951 | 3.12 |
| 252.0 | 12014 | 0.593 | 15.05 | 3.556 | 10206 | 63.9 | 2218 | 4838 | 15044 | 3.11 |

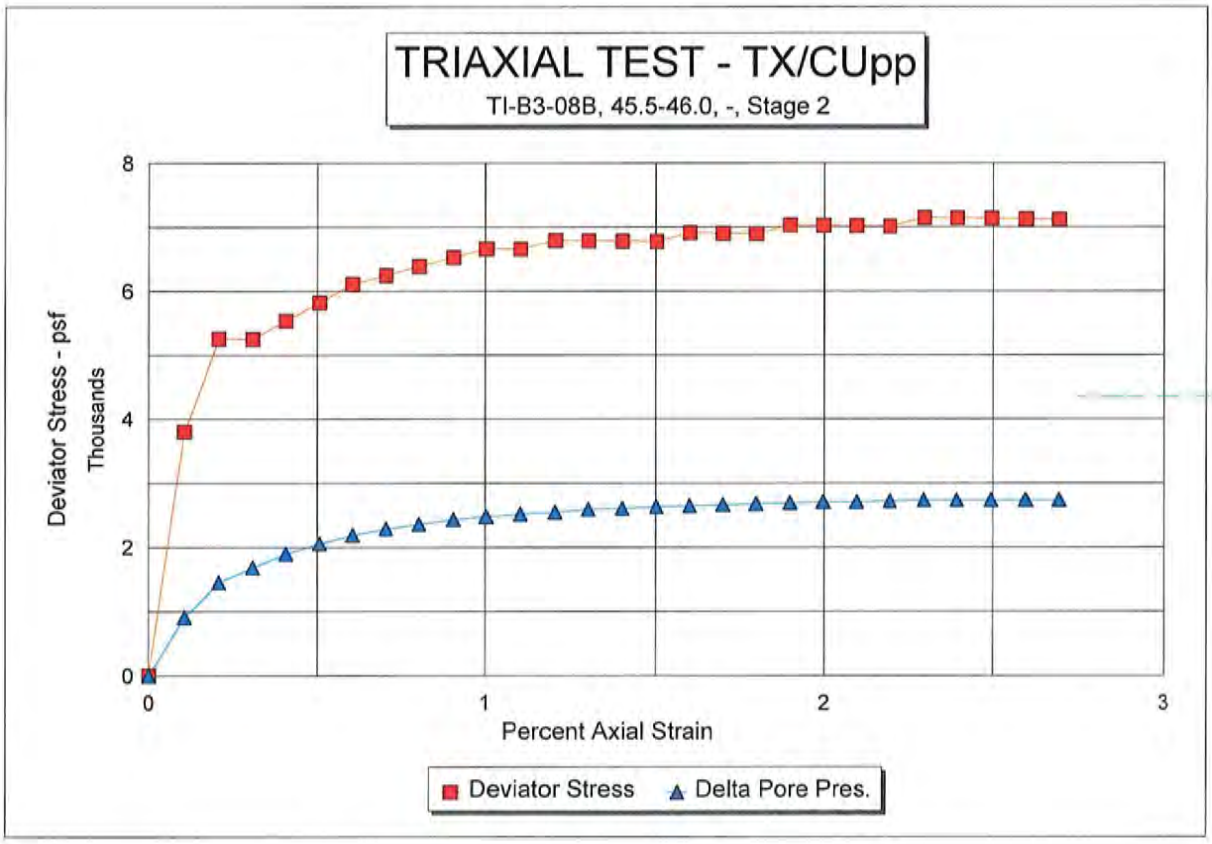
Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B308

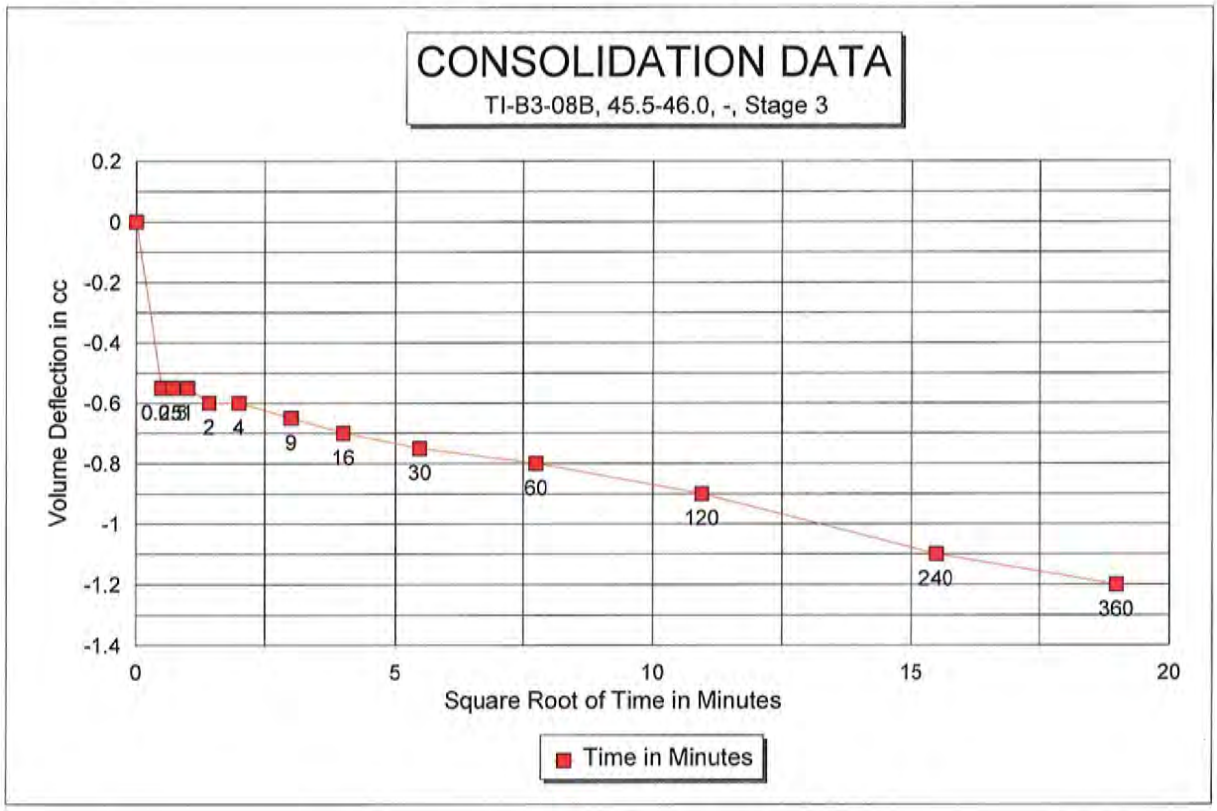
ADVANCED TERRA TESTING, INC. ATT

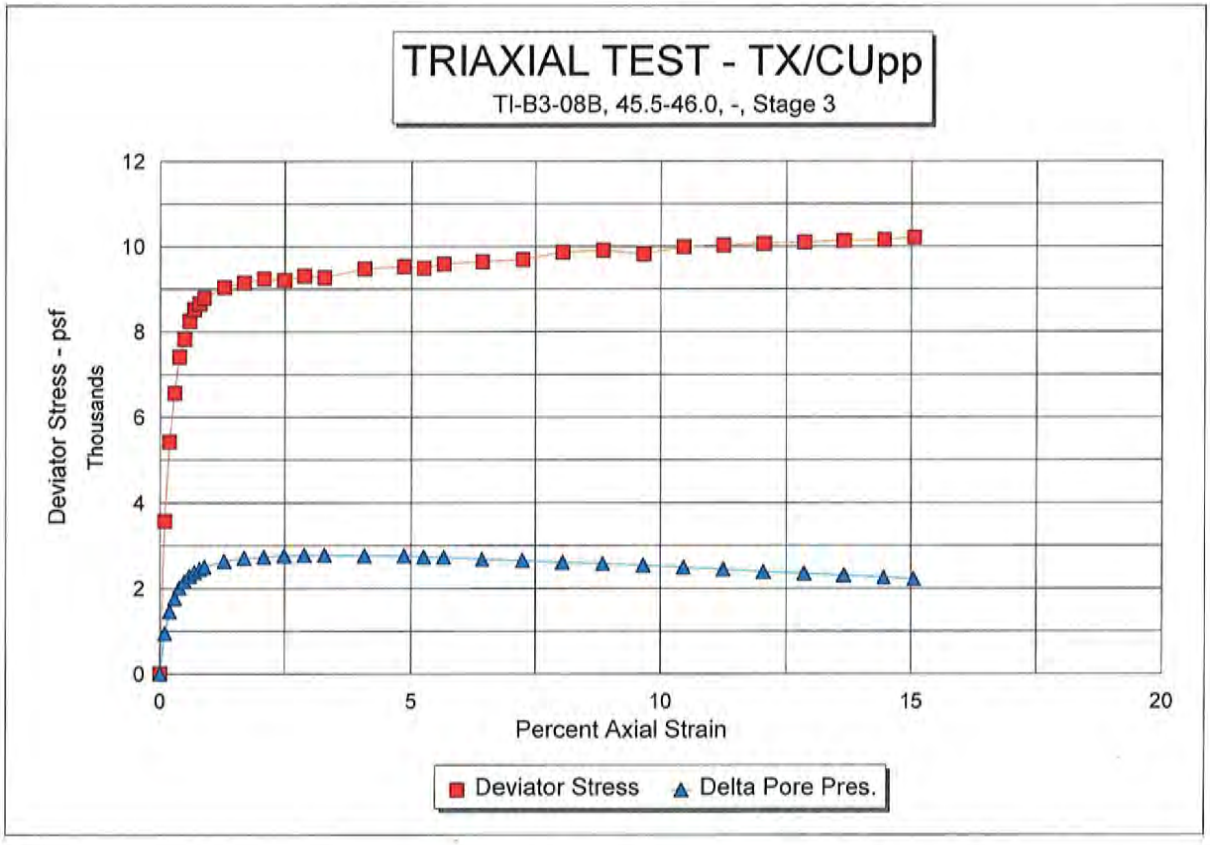

CONSOLIDATION DATA
TI-B3-08B, 45.5-46.0, -, Stage 1
Volume Deflection in cc
2
0
-2
-4
-6
-8
-10
-12
0.25
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B3-08B, 45.5-46.0, -, Stage 1
Deviator Stress - psf
Thousands
5
4
3
2
1
0
0
1
2
3
4
5
Percent Axial Strain
Deviator Stress
Delta Pore Pres.


CONSOLIDATION DATA
TI-B3-08B, 45.5-46.0, -, Stage 2
Volume Deflection in cc
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
-1.2
0.25
0.5
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B3-08B, 45.5-46.0, -, Stage 2
Deviator Stress - psf
Thousands
8
6
4
2
0
0
1
2
3
Percent Axial Strain
Deviator Stress
Delta Pore Pres.


CONSOLIDATION DATA
TI-B3-08B, 45.5-46.0, -, Stage 3
Volume Deflection in cc
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
-1.2
-1.4
0.25
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B3-08B, 45.5-46.0, -, Stage 3
Deviator Stress - psf
Thousands
12
10
8
6
4
2
0
0
5
10
15
20
Percent Axial Strain
Deviator Stress
Delta Pore Pres.

EFFECTIVE STRESS PATH ANALYSIS TEST DATA
ASTM D4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3 06 | | |
| DEPTH | 35-36' (35-37.3') | SAMPLED | 11/19/13 MWH |
| SAMPLE NO. | A,B&C | SATURATED TEST | |
| PROJECT NO. | -- | TEST TYPE | TX/CUPP |
| LOCATION | Tailings Impoundment | | |

| CONF. PRES. PSF | | | | Peak Points p' PSF | q PSF |
|---|---|---|---|---|---|
| | SAMPLE A | 3456 | PSF | SAMPLE A 1924 | 1118 |
| | SAMPLE B | 4608 | PSF | SAMPLE B 6117 | 3583 |
| | SAMPLE C | 5760 | PSF | SAMPLE C 19533 | 10922 |

| SAMPLE A | | | | SAMPLE B | | | | SAMPLE C | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| σ 3' PSF | σ 1' PSF | p' PSF | q PSF | σ 3' PSF | σ 1' PSF | p' PSF | q PSF | σ 3' PSF | σ 1' PSF | p' PSF | q PSF |
| 3456 | 3456 | 3456 | 0 | 4608 | 4608 | 4608 | 0 | 5760 | 5760 | 5760 | 0 |
| 3053 | 3914 | 3484 | 431 | 3744 | 6346 | 5045 | 1301 | 5083 | 7868 | 6476 | 1392 |
| 2549 | 3887 | 3218 | 669 | 3240 | 6644 | 4942 | 1702 | 4781 | 9448 | 7114 | 2333 |
| 2146 | 3674 | 2910 | 764 | 2952 | 6847 | 4899 | 1947 | 4493 | 11665 | 8079 | 3586 |
| 1858 | 3384 | 2621 | 763 | 2765 | 6934 | 4849 | 2084 | 4421 | 12482 | 8451 | 4031 |
| 1670 | 3291 | 2481 | 810 | 2621 | 7063 | 4842 | 2221 | 4349 | 13028 | 8688 | 4340 |
| 1512 | 3226 | 2369 | 857 | 2520 | 7050 | 4785 | 2265 | 4306 | 13513 | 8909 | 4604 |
| 1397 | 3109 | 2253 | 856 | 2434 | 7144 | 4789 | 2355 | 4277 | 13921 | 9099 | 4822 |
| 1282 | 2992 | 2137 | 855 | 2390 | 7189 | 4789 | 2399 | 4248 | 14150 | 9199 | 4951 |
| 1282 | 2991 | 2136 | 855 | 2347 | 7233 | 4790 | 2443 | 4234 | 14394 | 9314 | 5080 |
| 1080 | 2788 | 1934 | 854 | 2304 | 7277 | 4790 | 2486 | 4234 | 14651 | 9442 | 5208 |
| 1080 | 2881 | 1980 | 900 | 2261 | 7407 | 4834 | 2573 | 4262 | 15014 | 9638 | 5376 |
| 1051 | 2850 | 1951 | 899 | 2261 | 7494 | 4877 | 2617 | 4320 | 15571 | 9945 | 5625 |
| 1008 | 2805 | 1907 | 899 | 2246 | 7566 | 4906 | 2660 | 4522 | 16573 | 10547 | 6026 |
| 965 | 2760 | 1862 | 898 | 2218 | 7623 | 4920 | 2703 | 4738 | 17577 | 11158 | 6420 |
| 950 | 2744 | 1847 | 897 | 2218 | 7795 | 5006 | 2789 | 4968 | 18670 | 11819 | 6851 |
| 922 | 2807 | 1865 | 943 | 2232 | 7804 | 5018 | 2786 | 5227 | 19692 | 12460 | 7233 |
| 907 | 2791 | 1849 | 942 | 2232 | 7889 | 5061 | 2829 | 5515 | 20731 | 13123 | 7608 |
| 893 | 2775 | 1834 | 941 | 2246 | 7989 | 5118 | 2871 | 5818 | 21856 | 13837 | 8019 |
| 864 | 2836 | 1850 | 986 | 2275 | 8188 | 5232 | 2957 | 6106 | 22951 | 14528 | 8423 |
| 850 | 2820 | 1835 | 985 | 2290 | 8288 | 5289 | 2999 | 6408 | 23963 | 15185 | 8777 |
| 850 | 2818 | 1834 | 984 | 2290 | 8372 | 5331 | 3041 | 6725 | 25061 | 15893 | 9168 |
| 835 | 2895 | 1865 | 1030 | 2304 | 8471 | 5387 | 3083 | 7013 | 26033 | 16523 | 9510 |
| 835 | 2893 | 1864 | 1029 | 2347 | 8683 | 5515 | 3168 | 7301 | 26911 | 17106 | 9805 |
| 821 | 2876 | 1849 | 1028 | 2362 | 8781 | 5571 | 3210 | 7603 | 27874 | 17739 | 10135 |
| 806 | 2860 | 1833 | 1027 | 2376 | 8879 | 5628 | 3252 | 7877 | 28634 | 18256 | 10379 |
| 806 | 2951 | 1879 | 1072 | 2405 | 8991 | 5698 | 3293 | 8122 | 29356 | 18739 | 10617 |
| 806 | 3042 | 1924 | 1118 | 2448 | 9201 | 5825 | 3377 | 8366 | 29988 | 19177 | 10811 |
| 806 | 3040 | 1923 | 1117 | 2448 | 9284 | 5866 | 3418 | 8611 | 30455 | 19533 | 10922 |
| 806 | 3038 | 1922 | 1116 | 2462 | 9381 | 5922 | 3459 | 8798 | 30467 | 19633 | 10834 |
| 821 | 3050 | 1935 | 1115 | 2506 | 9589 | 6048 | 3542 | 8842 | 30284 | 19563 | 10721 |
| 821 | 3049 | 1935 | 1114 | 2534 | 9700 | 6117 | 3583 | 8914 | 29977 | 19445 | 10532 |

Data entry by: DAW
Data checked by: OPM
FileName: MWPQB306.WK4

Date: 05/22/2014
Date: 5/22/14

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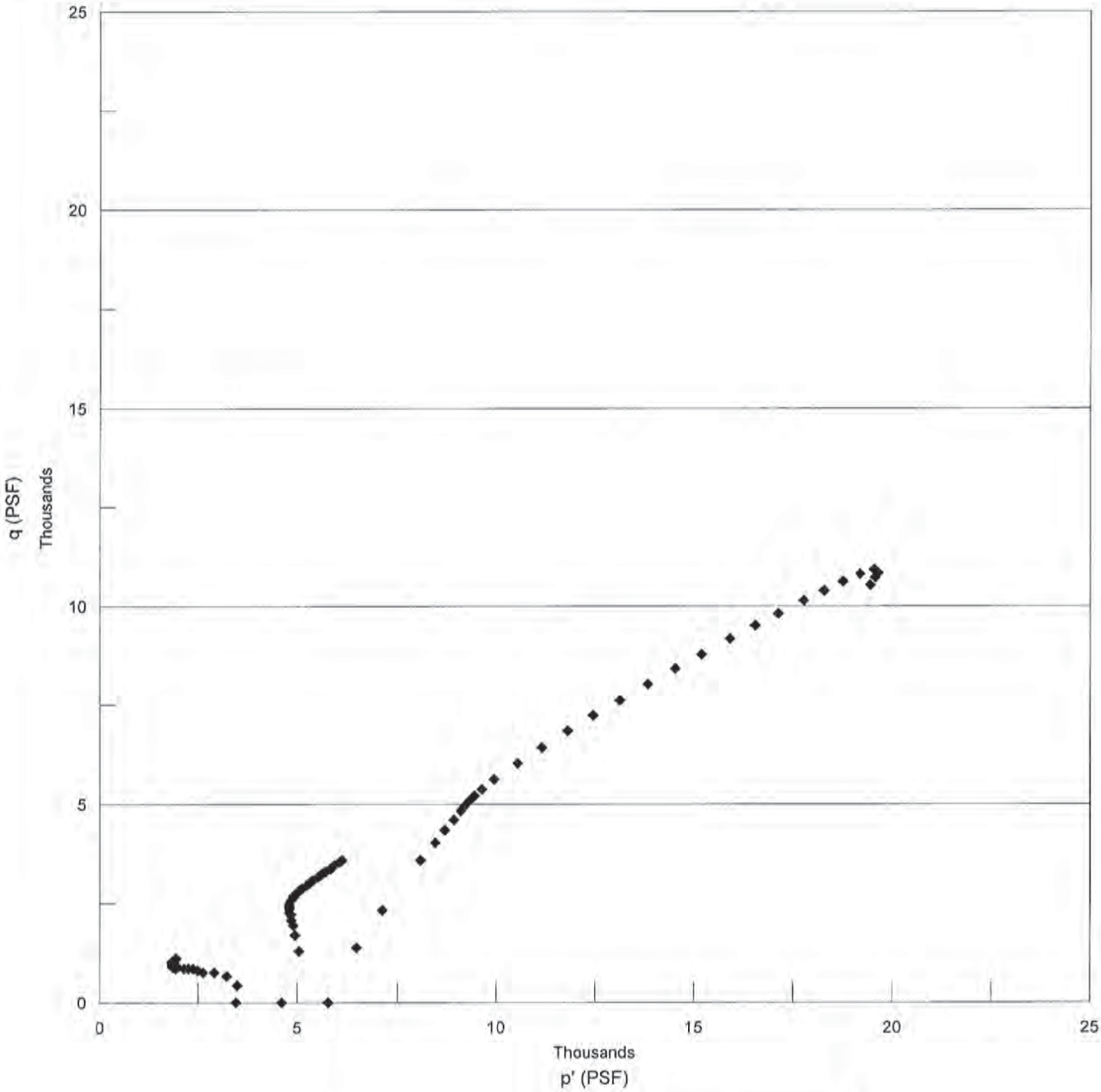
# Effective Stress Path Analysis - p' q Plots

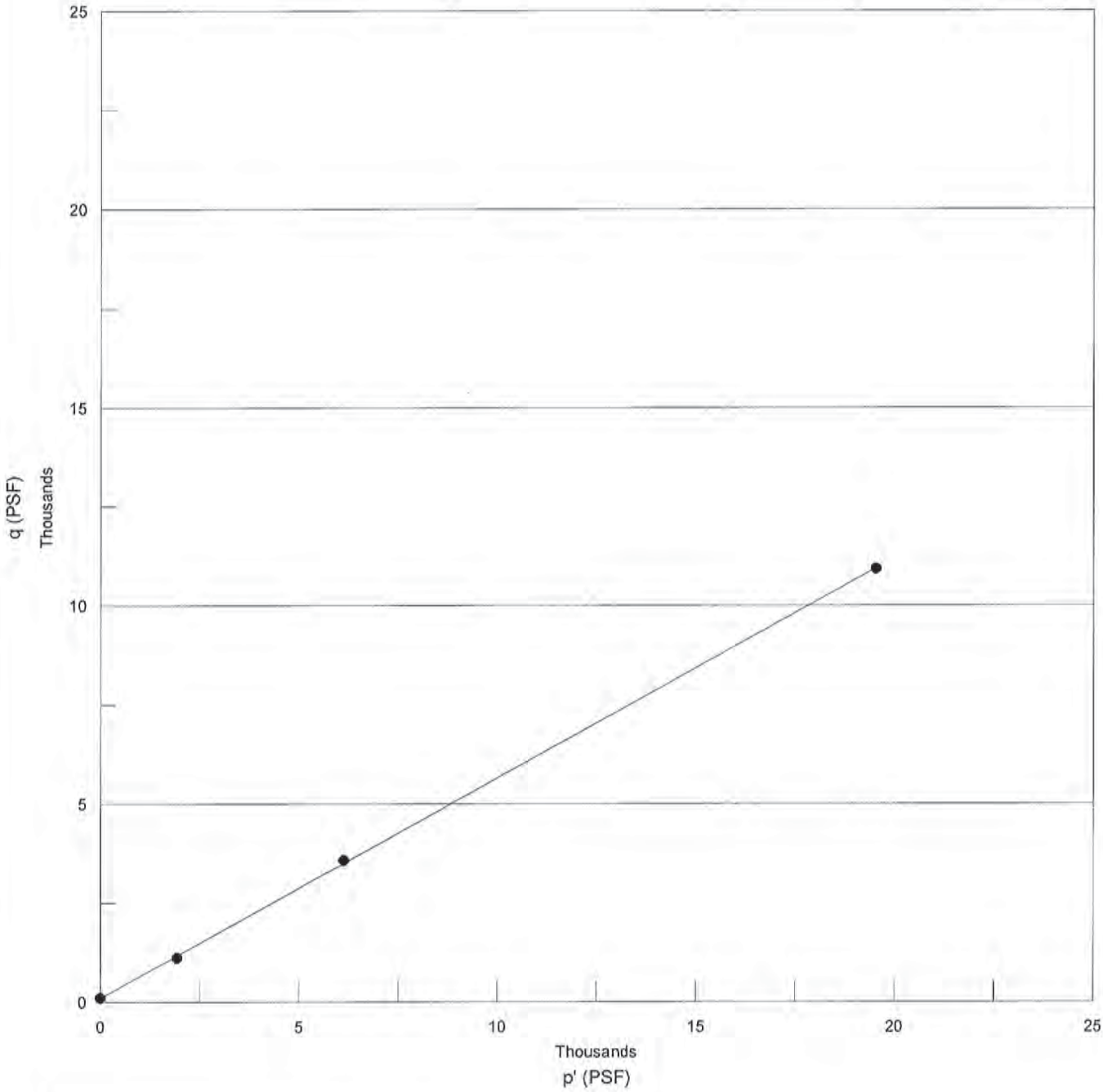
MWH,Tailings Impoundment,--,TI-B3 06,A,B&C,35-36' (35-37.3')




◆ Stress Paths of Samples A, B & C

# Effective Stress Path Analysis - p'-q Regression Plot

MWH,Tailings Impoundment,--,TI-B3 06,A,B&C,35-36' (35-37.3')




● Shear Data  - Best Fit Line  psi = 29.0 degrees  a = 111.8 PSF

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3 06 | SAMPLED | 11/19/13 MWH |
| DEPTH | 35-36' (35-37.3') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/04/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25s |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 3456 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 688.2 | 758.3 |
| Wt. Wet Soil & Pan (g) | 704.1 | 774.1 |
| Wt. Dry Soil & Pan (g) | 640.3 | 640.3 |
| Wt. Lost Moisture (g) | 63.8 | 133.8 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 624.5 | 624.5 |
| Moisture Content % | 10.2 | 21.4 |
| Wet Density PCF | 109.2 | 123.4 |
| Dry Density PCF | 99.1 | 101.7 |

| | |
|---|---|
| Init. Diameter (in) | 2.402 |
| Init. Area (sq in) | 4.531 |
| Init. Height (in) | 5.300 |
| Vol. Bef. Consol. (cu ft) | 0.01390 |
| Vol. After Consol. (cu ft) | 0.01354 |

Notes & Comments: Dried at 60 degrees C.

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DAW Date: 5/21/14
FileName: MWT0B306

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3 06 | SAMPLED | 11/19/13 MWH |
| DEPTH | 35-36' (35-37.3') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/04/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25s |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 3456 |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 3.8 | 14.0 | | | | |
| 50.0 | 48.0 | 15.1 | 16.0 | 38.1 | 47.1 | 9.0 | 0.90 |
| 60.0 | | 17.0 | 17.1 | 47.7 | 57.6 | 9.9 | 0.99 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 0.30 | 0.00 |
| 0.25 | 0.5 | 8.90 | -8.60 |
| 0.5 | 0.7 | 9.25 | -8.95 |
| 1 | 1.0 | 9.60 | -9.30 |
| 2 | 1.4 | 9.90 | -9.60 |
| 4 | 2.0 | 10.10 | -9.80 |
| 9 | 3.0 | 10.40 | -10.10 |
| 16 | 4.0 | 10.50 | -10.20 |
| 30 | 5.5 | 10.65 | -10.35 |
| 60 | 7.7 | 10.70 | -10.40 |
| 120 | 11.0 | 10.80 | -10.50 |
| 240 | 15.5 | 10.90 | -10.60 |
| 360 | 19.0 | 10.95 | -10.65 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 5.300 | Init. Vol. (CC) | 393.63 |
| Height Change (in) | 0.110 | Vol. Change (CC) | 24.30 |
| Ht. After Cons. (in) | 5.190 | Cell Exp. (CC) | 14.24 |
| Initial Area (sq in) | 4.531 | Net Change (CC) | 10.06 |
| Area After Cons. (sq in) | 4.509 | Cons. Vol. (CC) | 383.57 |

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B306

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3 06 | SAMPLED | 11/19/13 MWH |
| DEPTH | 35-36' (35-37.3') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/04/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25s |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 3456 |

| | | | |
|---|---|---|---|
| Init. Ht. (in) | 5.300 | Init. Area (sq in) | 4.531 |
| Consol. Ht. (in) | 5.190 | Consol. Area (sq in) | 4.509 |
| Back Pres. PSI | 48.3 | Strain Rate (in/min) | 0.002 |

| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 4.509 | 0 | 48.3 | 0 | 3456 | 3456 | 1.00 |
| 27.0 | 862 | 0.005 | 0.10 | 4.514 | 861 | 51.1 | 403 | 3053 | 3914 | 1.28 |
| 42.0 | 1341 | 0.010 | 0.20 | 4.518 | 1339 | 54.6 | 907 | 2549 | 3887 | 1.53 |
| 48.0 | 1533 | 0.015 | 0.30 | 4.523 | 1528 | 57.4 | 1310 | 2146 | 3674 | 1.71 |
| 48.0 | 1533 | 0.021 | 0.39 | 4.527 | 1527 | 59.4 | 1598 | 1858 | 3384 | 1.82 |
| 51.0 | 1629 | 0.026 | 0.49 | 4.532 | 1621 | 60.7 | 1786 | 1670 | 3291 | 1.97 |
| 54.0 | 1724 | 0.031 | 0.59 | 4.536 | 1714 | 61.8 | 1944 | 1512 | 3226 | 2.13 |
| 54.0 | 1724 | 0.036 | 0.69 | 4.540 | 1713 | 62.6 | 2059 | 1397 | 3109 | 2.23 |
| 54.0 | 1724 | 0.041 | 0.79 | 4.545 | 1711 | 63.4 | 2174 | 1282 | 2992 | 2.33 |
| 54.0 | 1724 | 0.046 | 0.89 | 4.549 | 1709 | 63.4 | 2174 | 1282 | 2991 | 2.33 |
| 54.0 | 1724 | 0.051 | 0.98 | 4.554 | 1708 | 64.8 | 2376 | 1080 | 2788 | 2.58 |
| 57.0 | 1820 | 0.056 | 1.08 | 4.559 | 1801 | 64.8 | 2376 | 1080 | 2881 | 2.67 |
| 57.0 | 1820 | 0.061 | 1.18 | 4.563 | 1799 | 65.0 | 2405 | 1051 | 2850 | 2.71 |
| 57.0 | 1820 | 0.066 | 1.28 | 4.568 | 1797 | 65.3 | 2448 | 1008 | 2805 | 2.78 |
| 57.0 | 1820 | 0.072 | 1.38 | 4.572 | 1795 | 65.6 | 2491 | 965 | 2760 | 2.86 |
| 57.0 | 1820 | 0.077 | 1.48 | 4.577 | 1793 | 65.7 | 2506 | 950 | 2744 | 2.89 |
| 60.0 | 1916 | 0.082 | 1.58 | 4.581 | 1886 | 65.9 | 2534 | 922 | 2807 | 3.05 |
| 60.0 | 1916 | 0.087 | 1.68 | 4.586 | 1884 | 66.0 | 2549 | 907 | 2791 | 3.08 |
| 60.0 | 1916 | 0.092 | 1.77 | 4.591 | 1882 | 66.1 | 2563 | 893 | 2775 | 3.11 |
| 63.0 | 2012 | 0.102 | 1.97 | 4.600 | 1972 | 66.3 | 2592 | 864 | 2836 | 3.28 |
| 63.0 | 2012 | 0.108 | 2.07 | 4.605 | 1970 | 66.4 | 2606 | 850 | 2820 | 3.32 |
| 63.0 | 2012 | 0.113 | 2.17 | 4.609 | 1968 | 66.4 | 2606 | 850 | 2818 | 3.32 |
| 66.0 | 2108 | 0.118 | 2.27 | 4.614 | 2060 | 66.5 | 2621 | 835 | 2895 | 3.47 |
| 66.0 | 2108 | 0.123 | 2.37 | 4.619 | 2058 | 66.5 | 2621 | 835 | 2893 | 3.46 |
| 66.0 | 2108 | 0.128 | 2.47 | 4.623 | 2056 | 66.6 | 2635 | 821 | 2876 | 3.50 |
| 66.0 | 2108 | 0.133 | 2.57 | 4.628 | 2054 | 66.7 | 2650 | 806 | 2860 | 3.55 |
| 69.0 | 2204 | 0.138 | 2.66 | 4.633 | 2145 | 66.7 | 2650 | 806 | 2951 | 3.66 |
| 72.0 | 2299 | 0.143 | 2.76 | 4.637 | 2236 | 66.7 | 2650 | 806 | 3042 | 3.77 |
| 72.0 | 2299 | 0.149 | 2.86 | 4.642 | 2234 | 66.7 | 2650 | 806 | 3040 | 3.77 |
| 72.0 | 2299 | 0.154 | 2.96 | 4.647 | 2231 | 66.7 | 2650 | 806 | 3038 | 3.77 |
| 72.0 | 2299 | 0.159 | 3.06 | 4.651 | 2229 | 66.6 | 2635 | 821 | 3050 | 3.72 |
| 72.0 | 2299 | 0.160 | 3.07 | 4.652 | 2229 | 66.6 | 2635 | 821 | 3049 | 3.72 |

Data entry by: DPM/DA\Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B306

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3 06 | SAMPLED | 11/19/13 MWH |
| DEPTH | 35-36' (35-37.3') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/04/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25s |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 4608 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 688.2 | 758.3 |
| Wt. Wet Soil & Pan (g) | 704.1 | 774.1 |
| Wt. Dry Soil & Pan (g) | 640.3 | 640.3 |
| Wt. Lost Moisture (g) | 63.8 | 133.8 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 624.5 | 624.5 |
| Moisture Content % | 10.2 | 21.4 |
| Wet Density PCF | 112.0 | 123.6 |
| Dry Density PCF | 101.7 | 101.8 |

| | |
|---|---|
| Init. Diameter (in) | 2.434 |
| Init. Area (sq in) | 4.652 |
| Init. Height (in) | 5.031 |
| Vol. Bef. Consol. (cu ft) | 0.01354 |
| Vol. After Consol. (cu ft) | 0.01352 |

Notes & Comments:

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B306

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3 06 | SAMPLED | 11/19/13 MWH |
| DEPTH | 35-36' (35-37.3') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/04/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25s |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 4608 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 14.70 | 0.00 |
| 0.25 | 0.5 | 15.70 | -1.00 |
| 0.5 | 0.7 | 15.75 | -1.05 |
| 1 | 1.0 | 15.80 | -1.10 |
| 2 | 1.4 | 15.85 | -1.15 |
| 4 | 2.0 | 15.90 | -1.20 |
| 9 | 3.0 | 15.95 | -1.25 |
| 16 | 4.0 | 16.00 | -1.30 |
| 30 | 5.5 | 16.00 | -1.30 |
| 60 | 7.7 | 16.05 | -1.35 |
| 120 | 11.0 | 16.20 | -1.50 |
| 240 | 15.5 | 16.30 | -1.60 |
| 360 | 19.0 | 16.30 | -1.60 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 5.031 | Init. Vol. (CC) | 383.57 |
| Height Change (in) | -0.001 | Vol. Change (CC) | 1.60 |
| Ht. After Cons. (in) | 5.032 | Cell Exp. (CC) | 1.05 |
| Initial Area (sq in) | 4.652 | Net Change (CC) | 0.55 |
| Area After Cons. (sq in) | 4.645 | Cons. Vol. (CC) | 383.02 |

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 05/21/14
FileName: MWT0B306

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3 06 | SAMPLED | 11/19/13 MWH |
| DEPTH | 35-36' (35-37.3') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/04/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25s |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 4608 |

| | | | |
|---|---|---|---|
| Init. Ht. (in) | 5.031 | Init. Area (sq in) | 4.652 |
| Consol. Ht. (in) | 5.032 | Consol. Area (sq in) | 4.645 |
| Back Pres. PSI | 48.8 | Strain Rate (in/min) | 0.001 |

| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 4.645 | 0 | 48.8 | 0 | 4608 | 4608 | 1.00 |
| 84.0 | 2604 | 0.005 | 0.10 | 4.649 | 2602 | 54.8 | 864 | 3744 | 6346 | 1.69 |
| 110.0 | 3410 | 0.010 | 0.20 | 4.654 | 3404 | 58.3 | 1368 | 3240 | 6644 | 2.05 |
| 126.0 | 3907 | 0.015 | 0.30 | 4.658 | 3895 | 60.3 | 1656 | 2952 | 6847 | 2.32 |
| 135.0 | 4186 | 0.020 | 0.40 | 4.663 | 4169 | 61.6 | 1843 | 2765 | 6934 | 2.51 |
| 144.0 | 4465 | 0.025 | 0.50 | 4.668 | 4442 | 62.6 | 1987 | 2621 | 7063 | 2.70 |
| 147.0 | 4558 | 0.030 | 0.60 | 4.672 | 4530 | 63.3 | 2088 | 2520 | 7050 | 2.80 |
| 153.0 | 4744 | 0.035 | 0.70 | 4.677 | 4711 | 63.9 | 2174 | 2434 | 7144 | 2.94 |
| 156.0 | 4837 | 0.040 | 0.80 | 4.682 | 4798 | 64.2 | 2218 | 2390 | 7189 | 3.01 |
| 159.0 | 4930 | 0.045 | 0.90 | 4.687 | 4885 | 64.5 | 2261 | 2347 | 7233 | 3.08 |
| 162.0 | 5023 | 0.050 | 1.00 | 4.691 | 4973 | 64.8 | 2304 | 2304 | 7277 | 3.16 |
| 168.0 | 5209 | 0.060 | 1.19 | 4.701 | 5146 | 65.1 | 2347 | 2261 | 7407 | 3.28 |
| 171.0 | 5302 | 0.065 | 1.29 | 4.705 | 5233 | 65.1 | 2347 | 2261 | 7494 | 3.31 |
| 174.0 | 5395 | 0.070 | 1.40 | 4.710 | 5319 | 65.2 | 2362 | 2246 | 7566 | 3.37 |
| 177.0 | 5488 | 0.075 | 1.49 | 4.715 | 5406 | 65.4 | 2390 | 2218 | 7623 | 3.44 |
| 183.0 | 5674 | 0.085 | 1.70 | 4.725 | 5578 | 65.4 | 2390 | 2218 | 7795 | 3.52 |
| 183.0 | 5674 | 0.090 | 1.79 | 4.729 | 5572 | 65.3 | 2376 | 2232 | 7804 | 3.50 |
| 186.0 | 5767 | 0.095 | 1.90 | 4.734 | 5657 | 65.3 | 2376 | 2232 | 7889 | 3.53 |
| 189.0 | 5860 | 0.100 | 2.00 | 4.739 | 5743 | 65.2 | 2362 | 2246 | 7989 | 3.56 |
| 195.0 | 6046 | 0.111 | 2.20 | 4.749 | 5913 | 65.0 | 2333 | 2275 | 8188 | 3.60 |
| 198.0 | 6139 | 0.116 | 2.30 | 4.754 | 5998 | 64.9 | 2318 | 2290 | 8288 | 3.62 |
| 201.0 | 6232 | 0.121 | 2.40 | 4.759 | 6082 | 64.9 | 2318 | 2290 | 8372 | 3.66 |
| 204.0 | 6325 | 0.126 | 2.50 | 4.763 | 6167 | 64.8 | 2304 | 2304 | 8471 | 3.68 |
| 210.0 | 6511 | 0.136 | 2.70 | 4.773 | 6335 | 64.5 | 2261 | 2347 | 8683 | 3.70 |
| 213.0 | 6604 | 0.141 | 2.79 | 4.778 | 6419 | 64.4 | 2246 | 2362 | 8781 | 3.72 |
| 216.0 | 6697 | 0.146 | 2.89 | 4.783 | 6503 | 64.3 | 2232 | 2376 | 8879 | 3.74 |
| 219.0 | 6790 | 0.151 | 2.99 | 4.788 | 6587 | 64.1 | 2203 | 2405 | 8991 | 3.74 |
| 225.0 | 6976 | 0.161 | 3.19 | 4.798 | 6753 | 63.8 | 2160 | 2448 | 9201 | 3.76 |
| 228.0 | 7069 | 0.166 | 3.30 | 4.803 | 6836 | 63.8 | 2160 | 2448 | 9284 | 3.79 |
| 231.0 | 7162 | 0.171 | 3.39 | 4.808 | 6919 | 63.7 | 2146 | 2462 | 9381 | 3.81 |
| 237.0 | 7348 | 0.181 | 3.60 | 4.818 | 7084 | 63.4 | 2102 | 2506 | 9589 | 3.83 |
| 240.0 | 7441 | 0.186 | 3.69 | 4.823 | 7166 | 63.2 | 2074 | 2534 | 9700 | 3.83 |

Data entry by: DPM/DA\Date: 05/21/2014
Data checked by: ORM Date: 5/21/14
FileName: MWT0B306

ADVANCED TERRA TESTING, Inc. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3 06 | SAMPLED | 11/19/13 MWH |
| DEPTH | 35-36' (35-37.3') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/04/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25s |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 5760 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 688.2 | 758.3 |
| Wt. Wet Soil & Pan (g) | 704.1 | 774.1 |
| Wt. Dry Soil & Pan (g) | 640.3 | 640.3 |
| Wt. Lost Moisture (g) | 63.8 | 133.8 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 624.5 | 624.5 |
| Moisture Content % | 10.2 | 21.4 |
| Wet Density PCF | 112.2 | 123.8 |
| Dry Density PCF | 101.8 | 101.9 |

| | |
|---|---|
| Init. Diameter (in) | 2.478 |
| Init. Area (sq in) | 4.823 |
| Init. Height (in) | 4.846 |
| Vol. Bef. Consol. (cu ft) | 0.01352 |
| Vol. After Consol. (cu ft) | 0.01351 |

Notes & Comments:

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B306

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3 06 | SAMPLED | 11/19/13 MWH |
| DEPTH | 35-36' (35-37.3') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/04/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25s |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 5760 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 0.70 | 0.00 |
| 0.25 | 0.5 | 1.65 | -0.95 |
| 0.5 | 0.7 | 1.65 | -0.95 |
| 1 | 1.0 | 1.70 | -1.00 |
| 2 | 1.4 | 1.70 | -1.00 |
| 4 | 2.0 | 1.75 | -1.05 |
| 9 | 3.0 | 1.80 | -1.10 |
| 16 | 4.0 | 1.80 | -1.10 |
| 30 | 5.5 | 1.85 | -1.15 |
| 60 | 7.7 | 1.90 | -1.20 |
| 120 | 11.0 | 1.90 | -1.20 |
| 240 | 15.5 | 1.90 | -1.20 |
| 360 | 19.0 | 1.90 | -1.20 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 4.846 | Init. Vol. (CC) | 383.02 |
| Height Change (in) | -0.013 | Vol. Change (CC) | 1.50 |
| Ht. After Cons. (in) | 4.859 | Cell Exp. (CC) | 1.05 |
| Initial Area (sq in) | 4.823 | Net Change (CC) | 0.45 |
| Area After Cons. (sq in) | 4.804 | Cons. Vol. (CC) | 382.57 |

Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B306

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

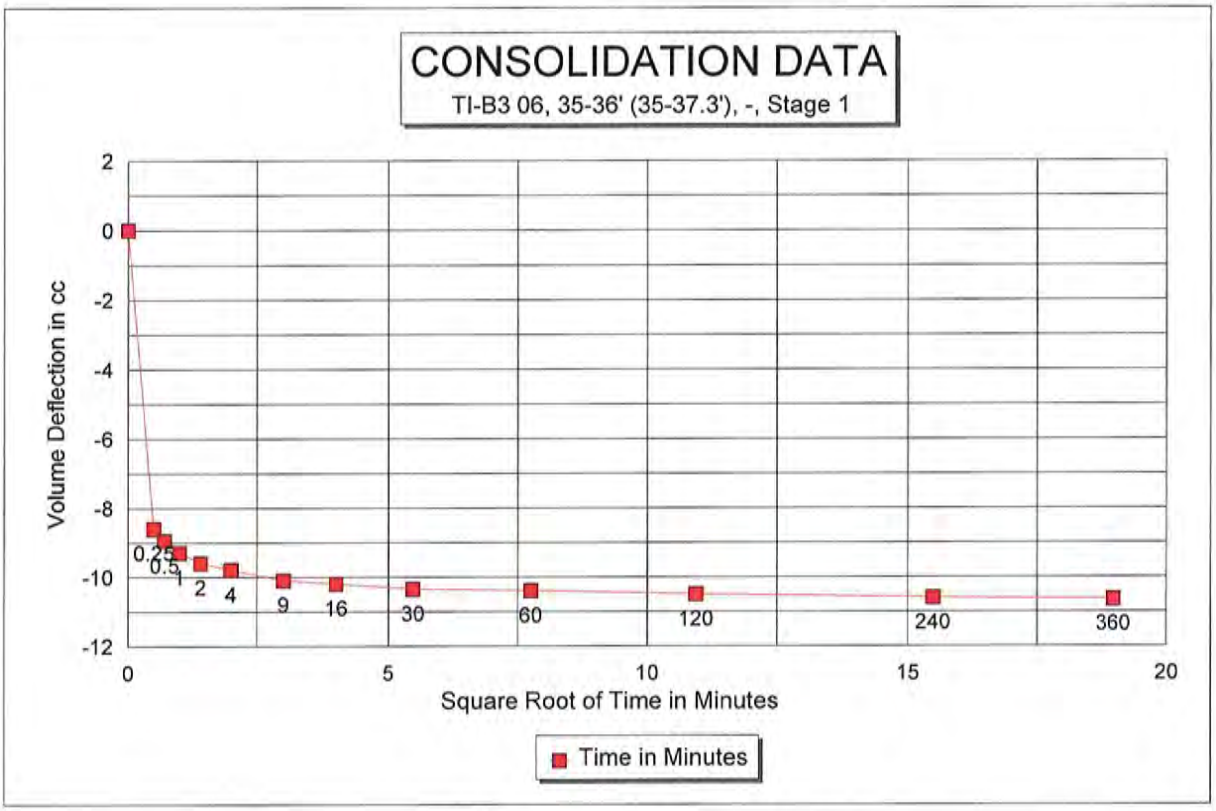
| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3 06 | SAMPLED | 11/19/13 MWH |
| DEPTH | 35-36' (35-37.3') | TEST STARTED | 04/25/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 05/04/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25s |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 5760 |

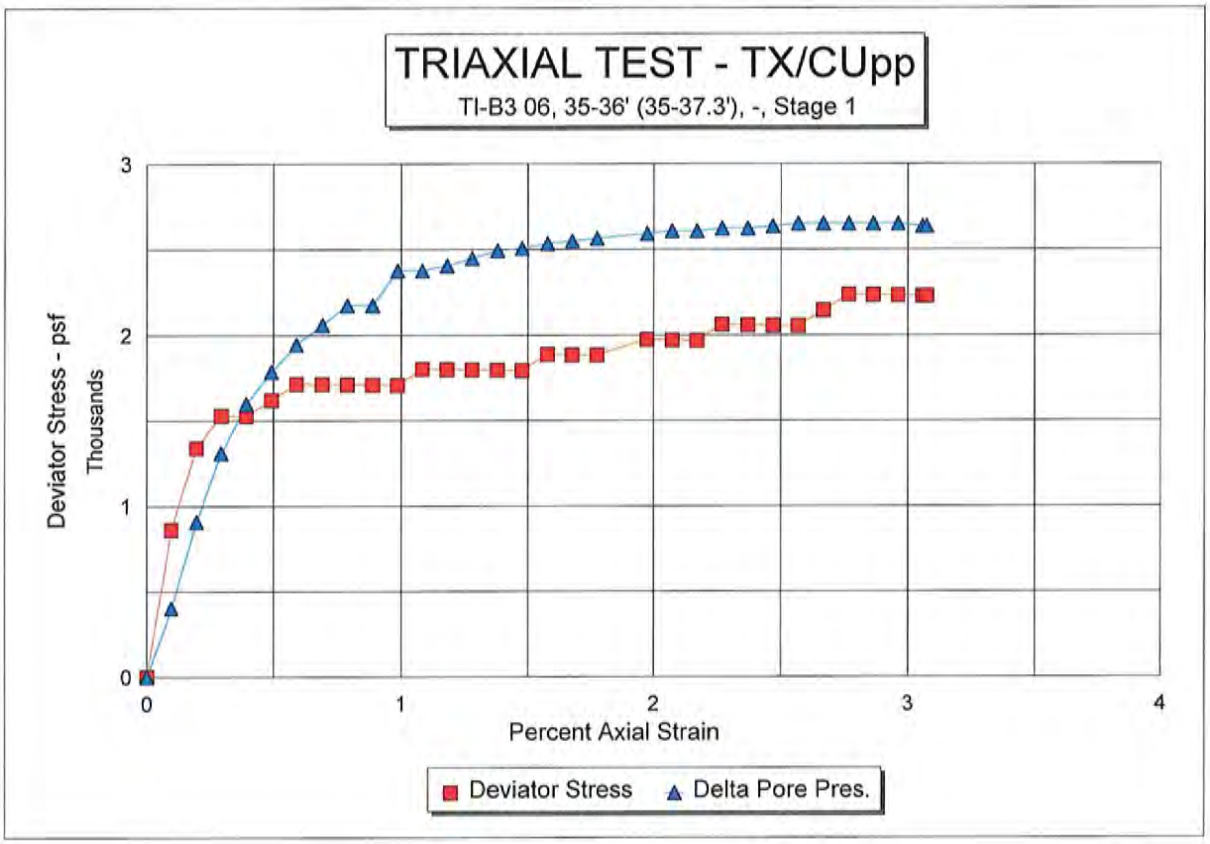
| | | | |
|---|---|---|---|
| Init. Ht. (in) | 4.846 | Init. Area (sq in) | 4.823 |
| Consol. Ht. (in) | 4.859 | Consol. Area (sq in) | 4.804 |
| Back Pres. PSI | 48.8 | Strain Rate (in/min) | 0.001 |

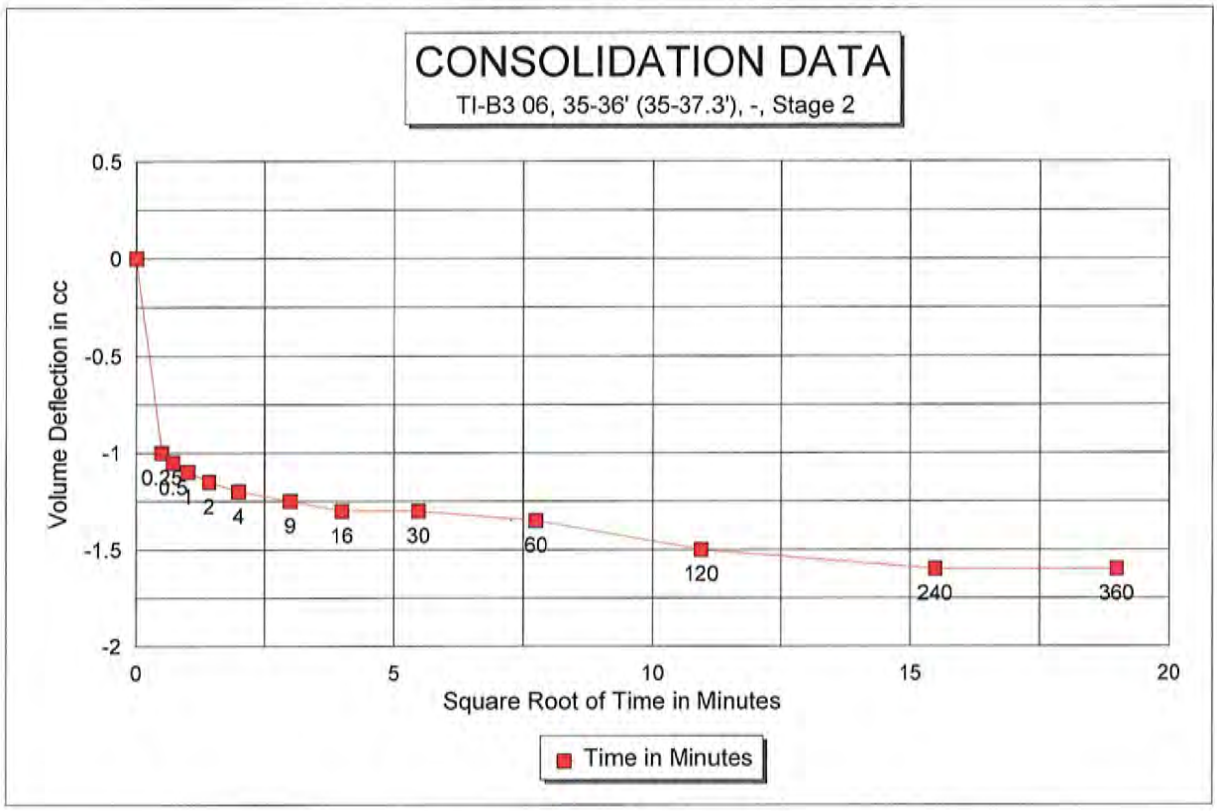
| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 4.804 | 0 | 48.8 | 0 | 5760 | 5760 | 1.00 |
| 93.0 | 2788 | 0.005 | 0.10 | 4.809 | 2785 | 53.5 | 677 | 5083 | 7868 | 1.55 |
| 156.0 | 4676 | 0.010 | 0.20 | 4.814 | 4667 | 55.6 | 979 | 4781 | 9448 | 1.98 |
| 240.0 | 7194 | 0.014 | 0.30 | 4.818 | 7172 | 57.6 | 1267 | 4493 | 11665 | 2.60 |
| 270.0 | 8093 | 0.019 | 0.40 | 4.823 | 8061 | 58.1 | 1339 | 4421 | 12482 | 2.82 |
| 291.0 | 8722 | 0.024 | 0.49 | 4.828 | 8679 | 58.6 | 1411 | 4349 | 13028 | 3.00 |
| 309.0 | 9262 | 0.029 | 0.59 | 4.833 | 9207 | 58.9 | 1454 | 4306 | 13513 | 3.14 |
| 324.0 | 9712 | 0.034 | 0.69 | 4.838 | 9644 | 59.1 | 1483 | 4277 | 13921 | 3.26 |
| 333.0 | 9981 | 0.038 | 0.79 | 4.842 | 9902 | 59.3 | 1512 | 4248 | 14150 | 3.33 |
| 342.0 | 10251 | 0.043 | 0.89 | 4.847 | 10160 | 59.4 | 1526 | 4234 | 14394 | 3.40 |
| 351.0 | 10521 | 0.048 | 0.99 | 4.852 | 10417 | 59.4 | 1526 | 4234 | 14651 | 3.46 |
| 363.0 | 10881 | 0.058 | 1.19 | 4.862 | 10752 | 59.2 | 1498 | 4262 | 15014 | 3.52 |
| 381.0 | 11420 | 0.072 | 1.48 | 4.876 | 11251 | 58.8 | 1440 | 4320 | 15571 | 3.60 |
| 411.0 | 12319 | 0.106 | 2.17 | 4.911 | 12052 | 57.4 | 1238 | 4522 | 16573 | 3.67 |
| 441.0 | 13219 | 0.139 | 2.87 | 4.946 | 12840 | 55.9 | 1022 | 4738 | 17577 | 3.71 |
| 474.0 | 14208 | 0.173 | 3.56 | 4.981 | 13702 | 54.3 | 792 | 4968 | 18670 | 3.76 |
| 504.0 | 15107 | 0.206 | 4.25 | 5.017 | 14465 | 52.5 | 533 | 5227 | 19692 | 3.77 |
| 534.0 | 16006 | 0.240 | 4.94 | 5.054 | 15216 | 50.5 | 245 | 5515 | 20731 | 3.76 |
| 567.0 | 16995 | 0.274 | 5.63 | 5.091 | 16038 | 48.4 | -58 | 5818 | 21856 | 3.76 |
| 600.0 | 17984 | 0.308 | 6.34 | 5.129 | 16845 | 46.4 | -346 | 6106 | 22951 | 3.76 |
| 630.0 | 18884 | 0.342 | 7.04 | 5.168 | 17555 | 44.3 | -648 | 6408 | 23963 | 3.74 |
| 663.0 | 19873 | 0.376 | 7.73 | 5.207 | 18336 | 42.1 | -965 | 6725 | 25061 | 3.73 |
| 693.0 | 20772 | 0.410 | 8.43 | 5.247 | 19020 | 40.1 | -1253 | 7013 | 26033 | 3.71 |
| 720.0 | 21581 | 0.444 | 9.13 | 5.287 | 19610 | 38.1 | -1541 | 7301 | 26911 | 3.69 |
| 750.0 | 22481 | 0.478 | 9.83 | 5.328 | 20271 | 36.0 | -1843 | 7603 | 27874 | 3.67 |
| 774.0 | 23200 | 0.512 | 10.53 | 5.369 | 20758 | 34.1 | -2117 | 7877 | 28634 | 3.64 |
| 798.0 | 23919 | 0.545 | 11.23 | 5.412 | 21234 | 32.4 | -2362 | 8122 | 29356 | 3.61 |
| 819.0 | 24549 | 0.579 | 11.92 | 5.454 | 21622 | 30.7 | -2606 | 8366 | 29988 | 3.58 |
| 834.0 | 24998 | 0.613 | 12.62 | 5.498 | 21844 | 29.0 | -2851 | 8611 | 30455 | 3.54 |
| 834.0 | 24998 | 0.647 | 13.32 | 5.542 | 21669 | 27.7 | -3038 | 8798 | 30467 | 3.46 |
| 831.0 | 24908 | 0.676 | 13.92 | 5.581 | 21442 | 27.4 | -3082 | 8842 | 30284 | 3.43 |
| 822.0 | 24639 | 0.705 | 14.51 | 5.620 | 21063 | 26.9 | -3154 | 8914 | 29977 | 3.36 |

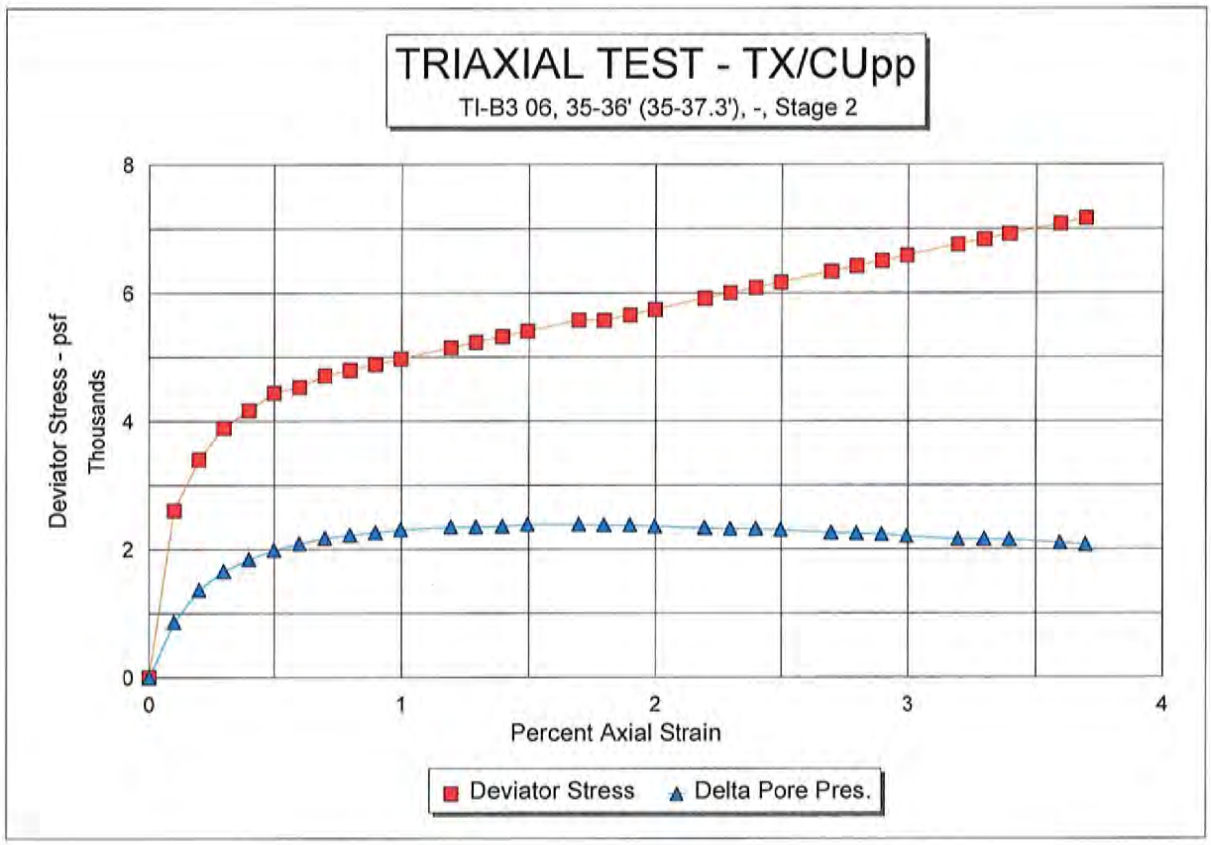
Data entry by: DPM/DAW Date: 05/21/2014
Data checked by: DPM Date: 5/21/14
FileName: MWT0B306

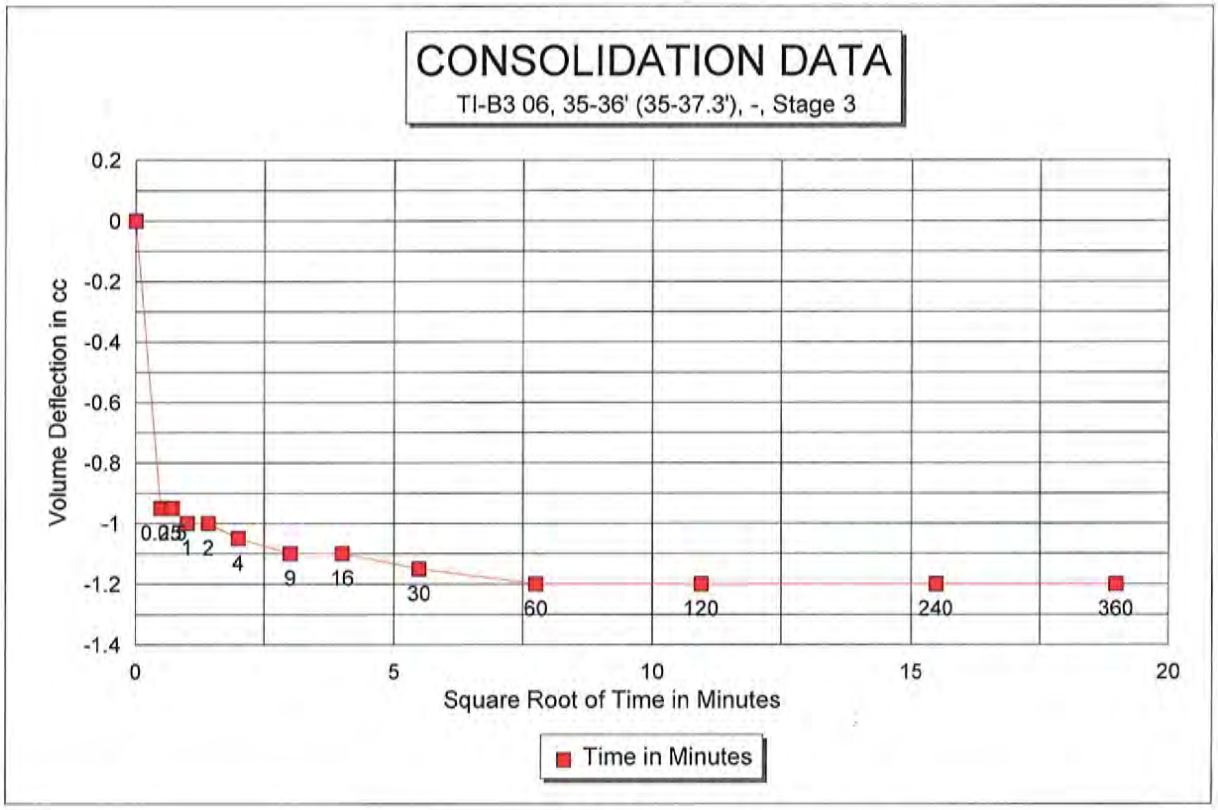
ADVANCED TERRA TESTING, INC. ATT

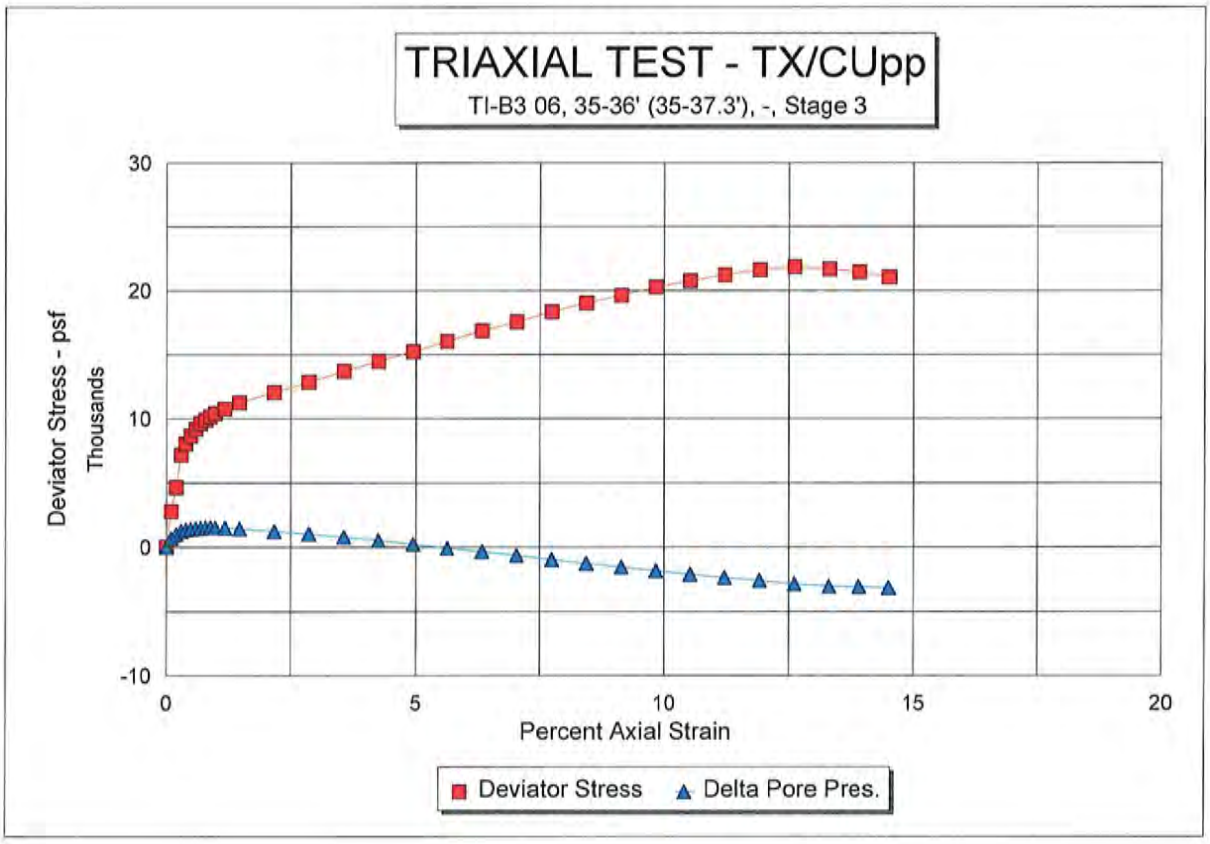

CONSOLIDATION DATA
TI-B3 06, 35-36' (35-37.3'), -, Stage 1
Volume Deflection in cc
2
0
-2
-4
-6
-8
-10
-12
0.25
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B3 06, 35-36' (35-37.3'), -, Stage 1
Deviator Stress - psf
Thousands
3
2
1
0
0
1
2
3
4
Percent Axial Strain
Deviator Stress
Delta Pore Pres.


CONSOLIDATION DATA
TI-B3 06, 35-36' (35-37.3'), -, Stage 2
Volume Deflection in cc
0.5
0
-0.5
-1
-1.5
-2
0.25
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B3 06, 35-36' (35-37.3'), -, Stage 2
Deviator Stress - psf
Thousands
8
6
4
2
0
0
1
2
3
4
Percent Axial Strain
Deviator Stress
Delta Pore Pres.


CONSOLIDATION DATA
TI-B3 06, 35-36' (35-37.3'), -, Stage 3
Volume Deflection in cc
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
-1.2
-1.4
0.05
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B3 06, 35-36' (35-37.3'), -, Stage 3
Deviator Stress - psf
Thousands
30
20
10
0
-10
0
5
10
15
20
Percent Axial Strain
Deviator Stress
Delta Pore Pres.

EFFECTIVE STRESS PATH ANALYSIS TEST DATA
ASTM D4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | | |
| | | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-03 | | |
| DEPTH | 21.0-22.0' (20-22.4') | SAMPLED | 11/19/13 MWH |
| SAMPLE NO. | A,B&C | SATURATED TEST | |
| PROJECT NO. | Church Rock | TEST TYPE | TX/CUPP |
| LOCATION | Tailings Impoundment | | |

| | | | | | | Peak Points p' PSF | Peak Points q PSF |
|---|---|---|---|---|---|---|---|
| CONF. PRES. PSF | SAMPLE A | 1584 | PSF | SAMPLE A | | 2176 | 1298 |
| | SAMPLE B | 2736 | PSF | SAMPLE B | | 4225 | 2469 |
| | SAMPLE C | 3888 | PSF | SAMPLE C | | 8006 | 4406 |

**SAMPLE A**

| σ 3' PSF | σ 1' PSF | p' PSF | q PSF |
|---|---|---|---|
| 1584 | 1584 | 1584 | 0 |
| 1382 | 2227 | 1805 | 422 |
| 1210 | 2429 | 1819 | 610 |
| 1094 | 2500 | 1797 | 703 |
| 1022 | 2614 | 1818 | 796 |
| 965 | 2648 | 1806 | 842 |
| 936 | 2805 | 1870 | 934 |
| 907 | 2867 | 1887 | 980 |
| 893 | 2944 | 1919 | 1026 |
| 878 | 3021 | 1950 | 1071 |
| 878 | 3112 | 1995 | 1117 |
| 864 | 3188 | 2026 | 1162 |
| 878 | 3293 | 2086 | 1207 |
| 864 | 3369 | 2117 | 1253 |
| 878 | 3474 | 2176 | 1298 |
| 893 | 3486 | 2189 | 1297 |
| 907 | 3498 | 2202 | 1295 |

**SAMPLE B**

| σ 3' PSF | σ 1' PSF | p' PSF | q PSF |
|---|---|---|---|
| 2736 | 2736 | 2736 | 0 |
| 2347 | 4209 | 3278 | 931 |
| 2117 | 4999 | 3558 | 1441 |
| 1973 | 5410 | 3691 | 1718 |
| 1930 | 5642 | 3786 | 1856 |
| 1843 | 5737 | 3790 | 1947 |
| 1800 | 5875 | 3838 | 2038 |
| 1771 | 5935 | 3853 | 2082 |
| 1757 | 6009 | 3883 | 2126 |
| 1742 | 5990 | 3866 | 2124 |
| 1742 | 6078 | 3910 | 2168 |
| 1742 | 6166 | 3954 | 2212 |
| 1742 | 6254 | 3998 | 2256 |
| 1742 | 6341 | 4042 | 2299 |
| 1757 | 6351 | 4054 | 2297 |
| 1757 | 6438 | 4098 | 2341 |
| 1757 | 6525 | 4141 | 2384 |
| 1757 | 6521 | 4139 | 2382 |
| 1757 | 6607 | 4182 | 2425 |
| 1757 | 6694 | 4225 | 2469 |
| 1771 | 6706 | 4239 | 2468 |

**SAMPLE C**

| σ 3' PSF | σ 1' PSF | p' PSF | q PSF |
|---|---|---|---|
| 3888 | 3888 | 3888 | 0 |
| 3269 | 6395 | 4832 | 1563 |
| 3082 | 7490 | 5286 | 2204 |
| 2966 | 8288 | 5627 | 2661 |
| 2909 | 8684 | 5796 | 2887 |
| 2851 | 8895 | 5873 | 3022 |
| 2822 | 9043 | 5933 | 3110 |
| 2794 | 9190 | 5992 | 3198 |
| 2779 | 9261 | 6020 | 3241 |
| 2765 | 9331 | 6048 | 3283 |
| 2765 | 9415 | 6090 | 3325 |
| 2765 | 9493 | 6129 | 3364 |
| 2765 | 9660 | 6213 | 3448 |
| 2765 | 9646 | 6205 | 3441 |
| 2765 | 9722 | 6244 | 3479 |
| 2779 | 9812 | 6296 | 3517 |
| 2808 | 9984 | 6396 | 3588 |
| 2851 | 10258 | 6555 | 3703 |
| 2880 | 10425 | 6653 | 3773 |
| 2938 | 10620 | 6779 | 3841 |
| 2981 | 10798 | 6890 | 3909 |
| 3024 | 10975 | 6999 | 3975 |
| 3082 | 11164 | 7123 | 4041 |
| 3125 | 11250 | 7187 | 4063 |
| 3168 | 11421 | 7295 | 4127 |
| 3211 | 11591 | 7401 | 4190 |
| 3298 | 11755 | 7526 | 4229 |
| 3384 | 11999 | 7691 | 4307 |
| 3456 | 12140 | 7798 | 4342 |
| 3542 | 12292 | 7917 | 4375 |
| 3600 | 12411 | 8006 | 4406 |
| 3658 | 12447 | 8052 | 4395 |

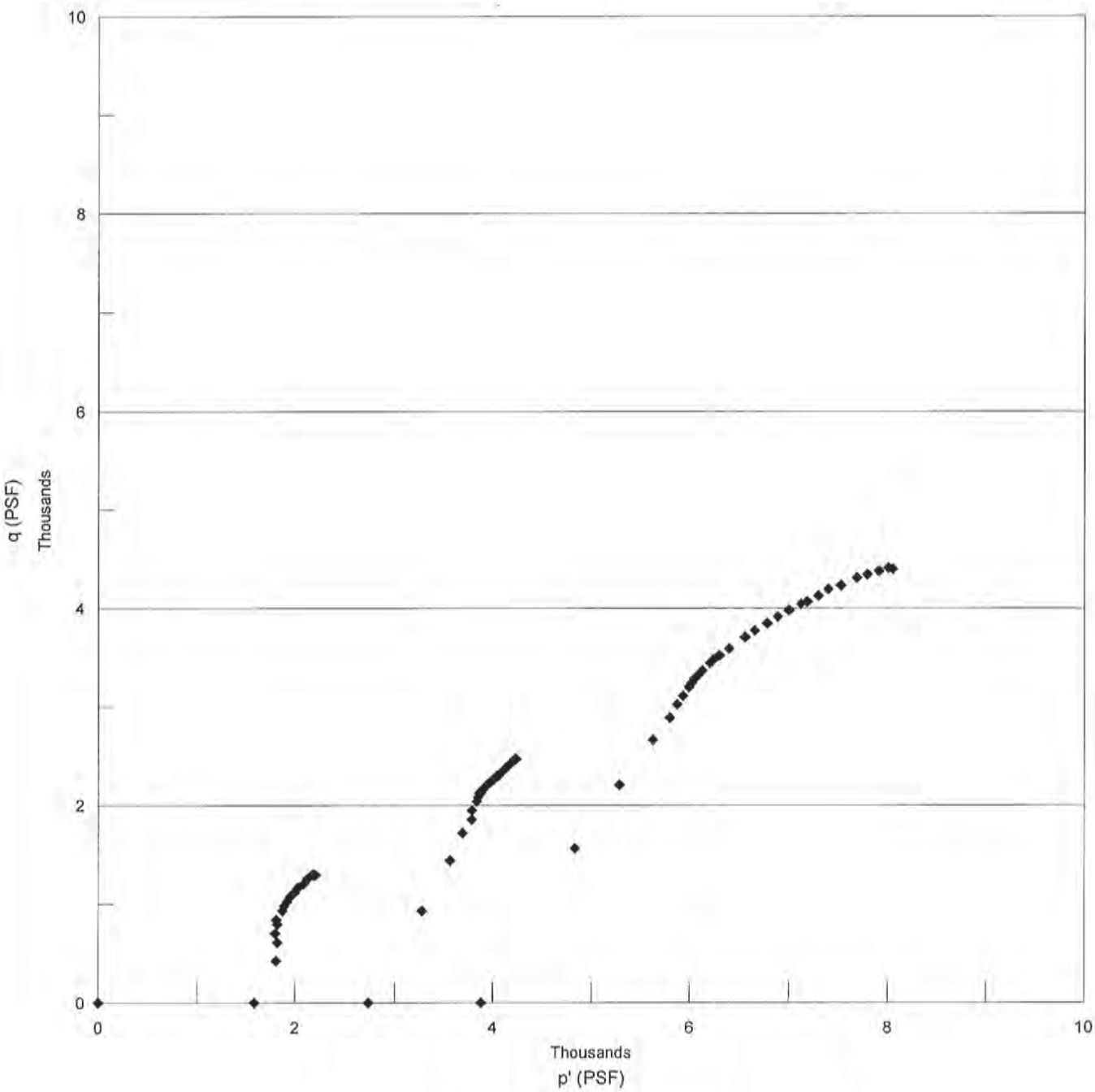
Data entry by: DPM
Data checked by: KR
FileName: MWPQB303

Date: 05/27/2014
Date: 5/27/14

ATT
ADVANCED

# Effective Stress Path Analysis - p' q Plots

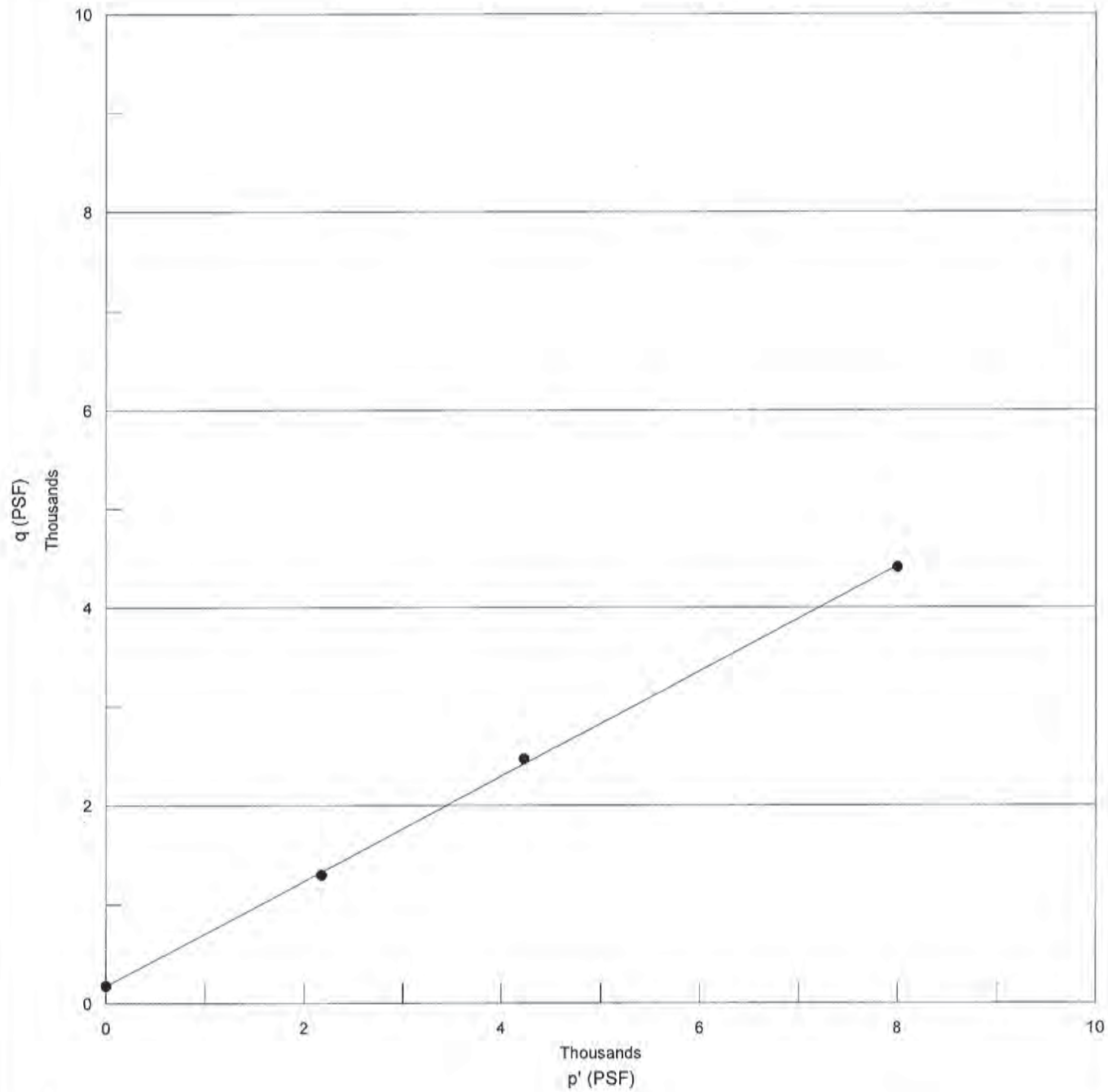
MWH,Tailings Impoundment,Church Rock,TI-B3-03,A,B&C,21.0-22.0' (20-22.4')




◆ Stress Paths of Samples A, B & C

# Effective Stress Path Analysis - p'-q Regression Plot

MWH,Tailings Impoundment,Church Rock,TI-B3-03,A,B&C,21.0-22.0' (20-22.4')




● Shear Data – Best Fit Line psi= 27.9 degrees a = 176.1 PSF

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

CLIENT MWH

JOB NO. 2512-77

| | | | |
|---|---|---|---|
| BORING NO. | TI-B3-03 | SAMPLED | 11/19/13 MWH |
| DEPTH | 21.0-22.0' (20-22.4') | TEST STARTED | 04/17/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 1584 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 771.1 | 808.0 |
| Wt. Wet Soil & Pan (g) | 786.8 | 823.8 |
| Wt. Dry Soil & Pan (g) | 698.3 | 698.3 |
| Wt. Lost Moisture (g) | 88.6 | 125.6 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 682.5 | 682.5 |
| Moisture Content % | 13.0 | 18.4 |
| Wet Density PCF | 123.3 | 128.9 |
| Dry Density PCF | 109.1 | 108.9 |

| | |
|---|---|
| Init. Diameter (in) | 2.407 |
| Init. Area (sq in) | 4.550 |
| Init. Height (in) | 5.237 |
| Vol. Bef. Consol. (cu ft) | 0.01379 |
| Vol. After Consol. (cu ft) | 0.01382 |

Notes & Comments:

Data entry by: DPM Date: 05/27/2014
Data checked by: VA Date: 5/27/14
FileName: MWT0B303

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-03 | SAMPLED | 11/19/13 MWH |
| DEPTH | 21.0-22.0' (20-22.4') | TEST STARTED | 04/17/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 1584 |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 2.9 | 9.3 | | | | |
| 50.0 | 48.0 | 7.6 | 8.7 | 38.1 | 46.2 | 8.1 | 0.81 |
| 60.0 | 58.0 | 8.0 | 9.0 | 47.6 | 55.9 | 8.3 | 0.83 |
| 70.0 | 68.0 | 10.0 | 10.7 | 57.7 | 66.0 | 8.3 | 0.83 |
| 80.0 | | 11.2 | 11.1 | 67.3 | 76.9 | 9.6 | 0.96 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 0.80 | 0.00 |
| 0.25 | 0.5 | 3.45 | -2.65 |
| 0.5 | 0.7 | 4.10 | -3.30 |
| 1 | 1.0 | 4.70 | -3.90 |
| 2 | 1.4 | 5.05 | -4.25 |
| 4 | 2.0 | 5.30 | -4.50 |
| 9 | 3.0 | 5.45 | -4.65 |
| 16 | 4.0 | 5.55 | -4.75 |
| 30 | 5.5 | 5.70 | -4.90 |
| 60 | 7.7 | 5.80 | -5.00 |
| 120 | 11.0 | 6.00 | -5.20 |
| 240 | 15.5 | 6.10 | -5.30 |
| 360 | 19.0 | 6.10 | -5.30 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 5.237 | Init. Vol. (CC) | 390.57 |
| Height Change (in) | 0.042 | Vol. Change (CC) | 14.30 |
| Ht. After Cons. (in) | 5.195 | Cell Exp. (CC) | 15.15 |
| Initial Area (sq in) | 4.550 | Net Change (CC) | -0.85 |
| Area After Cons. (sq in) | 4.597 | Cons. Vol. (CC) | 391.43 |

Data entry by: DPM Date: 05/27/2014
Data checked by: Date: 5/27/14
FileName: MWT0B303

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-03 | SAMPLED | 11/19/13 MWH |
| DEPTH | 21.0-22.0' (20-22.4') | TEST STARTED | 04/17/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 1 | CONF. PRES. PSF | 1584 |

| | | | |
|---|---|---|---|
| Init. Ht. (in) | 5.237 | Init. Area (sq in) | 4.550 |
| Consol. Ht. (in) | 5.195 | Consol. Area (sq in) | 4.597 |
| Back Pres. PSI | 68.7 | Strain Rate (in/min) | 0.006 |

| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 4.597 | 0 | 68.7 | 0 | 1584 | 1584 | 1.00 |
| 27.0 | 846 | 0.005 | 0.10 | 4.602 | 845 | 70.1 | 202 | 1382 | 2227 | 1.61 |
| 39.0 | 1222 | 0.010 | 0.19 | 4.606 | 1219 | 71.3 | 374 | 1210 | 2429 | 2.01 |
| 45.0 | 1410 | 0.015 | 0.29 | 4.610 | 1406 | 72.1 | 490 | 1094 | 2500 | 2.28 |
| 51.0 | 1598 | 0.020 | 0.38 | 4.615 | 1591 | 72.6 | 562 | 1022 | 2614 | 2.56 |
| 54.0 | 1691 | 0.025 | 0.48 | 4.619 | 1683 | 73.0 | 619 | 965 | 2648 | 2.74 |
| 60.0 | 1879 | 0.030 | 0.58 | 4.624 | 1869 | 73.2 | 648 | 936 | 2805 | 3.00 |
| 63.0 | 1973 | 0.035 | 0.68 | 4.628 | 1960 | 73.4 | 677 | 907 | 2867 | 3.16 |
| 66.0 | 2067 | 0.040 | 0.77 | 4.633 | 2051 | 73.5 | 691 | 893 | 2944 | 3.30 |
| 69.0 | 2161 | 0.045 | 0.87 | 4.637 | 2143 | 73.6 | 706 | 878 | 3021 | 3.44 |
| 72.0 | 2255 | 0.050 | 0.96 | 4.642 | 2234 | 73.6 | 706 | 878 | 3112 | 3.54 |
| 75.0 | 2349 | 0.055 | 1.06 | 4.646 | 2324 | 73.7 | 720 | 864 | 3188 | 3.69 |
| 78.0 | 2443 | 0.060 | 1.16 | 4.651 | 2415 | 73.6 | 706 | 878 | 3293 | 3.75 |
| 81.0 | 2537 | 0.065 | 1.25 | 4.655 | 2505 | 73.7 | 720 | 864 | 3369 | 3.90 |
| 84.0 | 2631 | 0.070 | 1.35 | 4.660 | 2596 | 73.6 | 706 | 878 | 3474 | 3.95 |
| 84.0 | 2631 | 0.075 | 1.45 | 4.665 | 2593 | 73.5 | 691 | 893 | 3486 | 3.90 |
| 84.0 | 2631 | 0.080 | 1.54 | 4.669 | 2591 | 73.4 | 677 | 907 | 3498 | 3.86 |

Data entry by: DPM Date: 05/27/2014
Data checked by: 14 Date: 5/27/14
FileName: MWT0B303

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-03 | SAMPLED | 11/19/13 MWH |
| DEPTH | 21.0-22.0' (20-22.4') | TEST STARTED | 04/17/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 2736 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 771.1 | 808.0 |
| Wt. Wet Soil & Pan (g) | 786.8 | 823.8 |
| Wt. Dry Soil & Pan (g) | 698.3 | 698.3 |
| Wt. Lost Moisture (g) | 88.6 | 125.6 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 682.5 | 682.5 |
| Moisture Content % | 13.0 | 18.4 |
| Wet Density PCF | 123.0 | 129.7 |
| Dry Density PCF | 108.9 | 109.6 |

| | |
|---|---|
| Init. Diameter (in) | 2.438 |
| Init. Area (sq in) | 4.669 |
| Init. Height (in) | 5.115 |
| Vol. Bef. Consol. (cu ft) | 0.01382 |
| Vol. After Consol. (cu ft) | 0.01373 |

Notes & Comments:

Data entry by: DPM Date: 05/27/2014
Data checked by: KR Date: 5/27/14
FileName: MWT0B303

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-03 | SAMPLED | 11/19/13 MWH |
| DEPTH | 21.0-22.0' (20-22.4') | TEST STARTED | 04/17/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 2736 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 7.50 | 0.00 |
| 0.25 | 0.5 | 8.70 | -1.20 |
| 0.5 | 0.7 | 8.95 | -1.45 |
| 1 | 1.0 | 9.20 | -1.70 |
| 2 | 1.4 | 9.50 | -2.00 |
| 4 | 2.0 | 9.70 | -2.20 |
| 9 | 3.0 | 9.80 | -2.30 |
| 16 | 4.0 | 9.90 | -2.40 |
| 30 | 5.5 | 9.95 | -2.45 |
| 60 | 7.7 | 10.00 | -2.50 |
| 120 | 11.0 | 10.05 | -2.55 |
| 240 | 15.5 | 10.05 | -2.55 |
| 360 | 19.0 | 10.05 | -2.55 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 5.115 | Init. Vol. (CC) | 391.43 |
| Height Change (in) | -0.002 | Vol. Change (CC) | 3.60 |
| Ht. After Cons. (in) | 5.117 | Cell Exp. (CC) | 1.05 |
| Initial Area (sq in) | 4.669 | Net Change (CC) | 2.55 |
| Area After Cons. (sq in) | 4.637 | Cons. Vol. (CC) | 388.88 |

Data entry by: DPM Date: 05/27/2014
Data checked by: Date: 5/27/14
FileName: MWT0B303

ADVANCED TERRA TESTING, Inc. ATT

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-03 | SAMPLED | 11/19/13 MWH |
| DEPTH | 21.0-22.0' (20-22.4') | TEST STARTED | 04/17/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 2 | CONF. PRES. PSF | 2736 |

| | | | |
|---|---|---|---|
| Init. Ht. (in) | 5.115 | Init. Area (sq in) | 4.669 |
| Consol. Ht. (in) | 5.117 | Consol. Area (sq in) | 4.637 |
| Back Pres. PSI | 68.4 | Strain Rate (in/min) | 0.005 |

| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 4.637 | 0 | 68.4 | 0 | 2736 | 2736 | 1.00 |
| 60.0 | 1863 | 0.005 | 0.10 | 4.642 | 1861 | 71.1 | 389 | 2347 | 4209 | 1.79 |
| 93.0 | 2888 | 0.010 | 0.20 | 4.646 | 2882 | 72.7 | 619 | 2117 | 4999 | 2.36 |
| 111.0 | 3447 | 0.015 | 0.29 | 4.651 | 3437 | 73.7 | 763 | 1973 | 5410 | 2.74 |
| 120.0 | 3727 | 0.020 | 0.39 | 4.655 | 3712 | 74.0 | 806 | 1930 | 5642 | 2.92 |
| 126.0 | 3913 | 0.025 | 0.49 | 4.660 | 3894 | 74.6 | 893 | 1843 | 5737 | 3.11 |
| 132.0 | 4099 | 0.030 | 0.59 | 4.664 | 4075 | 74.9 | 936 | 1800 | 5875 | 3.26 |
| 135.0 | 4192 | 0.035 | 0.69 | 4.669 | 4164 | 75.1 | 965 | 1771 | 5935 | 3.35 |
| 138.0 | 4286 | 0.040 | 0.78 | 4.674 | 4252 | 75.2 | 979 | 1757 | 6009 | 3.42 |
| 138.0 | 4286 | 0.045 | 0.88 | 4.678 | 4248 | 75.3 | 994 | 1742 | 5990 | 3.44 |
| 141.0 | 4379 | 0.050 | 0.98 | 4.683 | 4336 | 75.3 | 994 | 1742 | 6078 | 3.49 |
| 144.0 | 4472 | 0.055 | 1.08 | 4.687 | 4424 | 75.3 | 994 | 1742 | 6166 | 3.54 |
| 147.0 | 4565 | 0.060 | 1.17 | 4.692 | 4511 | 75.3 | 994 | 1742 | 6254 | 3.59 |
| 150.0 | 4658 | 0.065 | 1.27 | 4.697 | 4599 | 75.3 | 994 | 1742 | 6341 | 3.64 |
| 150.0 | 4658 | 0.070 | 1.37 | 4.701 | 4594 | 75.2 | 979 | 1757 | 6351 | 3.62 |
| 153.0 | 4751 | 0.075 | 1.47 | 4.706 | 4682 | 75.2 | 979 | 1757 | 6438 | 3.66 |
| 156.0 | 4845 | 0.080 | 1.57 | 4.711 | 4769 | 75.2 | 979 | 1757 | 6525 | 3.71 |
| 156.0 | 4845 | 0.085 | 1.67 | 4.716 | 4764 | 75.2 | 979 | 1757 | 6521 | 3.71 |
| 159.0 | 4938 | 0.090 | 1.76 | 4.720 | 4851 | 75.2 | 979 | 1757 | 6607 | 3.76 |
| 162.0 | 5031 | 0.095 | 1.86 | 4.725 | 4937 | 75.2 | 979 | 1757 | 6694 | 3.81 |
| 162.0 | 5031 | 0.097 | 1.90 | 4.727 | 4935 | 75.1 | 965 | 1771 | 6706 | 3.79 |

Data entry by: DPM Date: 05/27/2014
Data checked by: KA Date: 5/27/14
FileName: MWT0B303

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

CLIENT MWH

JOB NO. 2512-77

| | | | |
|---|---|---|---|
| BORING NO. | TI-B3-03 | SAMPLED | 11/19/13 MWH |
| DEPTH | 21.0-22.0' (20-22.4') | TEST STARTED | 04/17/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 3888 |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 771.1 | 808.0 |
| Wt. Wet Soil & Pan (g) | 786.8 | 823.8 |
| Wt. Dry Soil & Pan (g) | 698.3 | 698.3 |
| Wt. Lost Moisture (g) | 88.6 | 125.6 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 682.5 | 682.5 |
| Moisture Content % | 13.0 | 18.4 |
| Wet Density PCF | 123.8 | 130.4 |
| Dry Density PCF | 109.6 | 110.1 |

| | |
|---|---|
| Init. Diameter (in) | 2.453 |
| Init. Area (sq in) | 4.727 |
| Init. Height (in) | 5.020 |
| Vol. Bef. Consol. (cu ft) | 0.01373 |
| Vol. After Consol. (cu ft) | 0.01366 |

Notes & Comments:

Data entry by: DPM Date: 05/27/2014
Data checked by: KL Date: 5/27/14
FileName: MWT0B303

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA
ASTM D 4767

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-03 | SAMPLED | 11/19/13 MWH |
| DEPTH | 21.0-22.0' (20-22.4') | TEST STARTED | 04/17/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 3888 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT TIME (Min) | Burette Reading (CC) | Vol. Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.0 | 12.00 | 0.00 |
| 0.25 | 0.5 | 12.90 | -0.90 |
| 0.5 | 0.7 | 13.05 | -1.05 |
| 1 | 1.0 | 13.25 | -1.25 |
| 2 | 1.4 | 13.40 | -1.40 |
| 4 | 2.0 | 13.60 | -1.60 |
| 9 | 3.0 | 13.80 | -1.80 |
| 16 | 4.0 | 13.90 | -1.90 |
| 30 | 5.5 | 13.90 | -1.90 |
| 60 | 7.7 | 14.00 | -2.00 |
| 120 | 11.0 | 14.00 | -2.00 |
| 240 | 15.5 | 14.00 | -2.00 |
| 360 | 19.0 | 14.00 | -2.00 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 5.020 | Init. Vol. (CC) | 388.88 |
| Height Change (in) | -0.010 | Vol. Change (CC) | 3.00 |
| Ht. After Cons. (in) | 5.030 | Cell Exp. (CC) | 1.05 |
| Initial Area (sq in) | 4.727 | Net Change (CC) | 1.95 |
| Area After Cons. (sq in) | 4.694 | Cons. Vol. (CC) | 386.93 |

Data entry by: DPM Date: 05/27/2014
Data checked by: KR Date: 5/27/14
FileName: MWT0B303

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

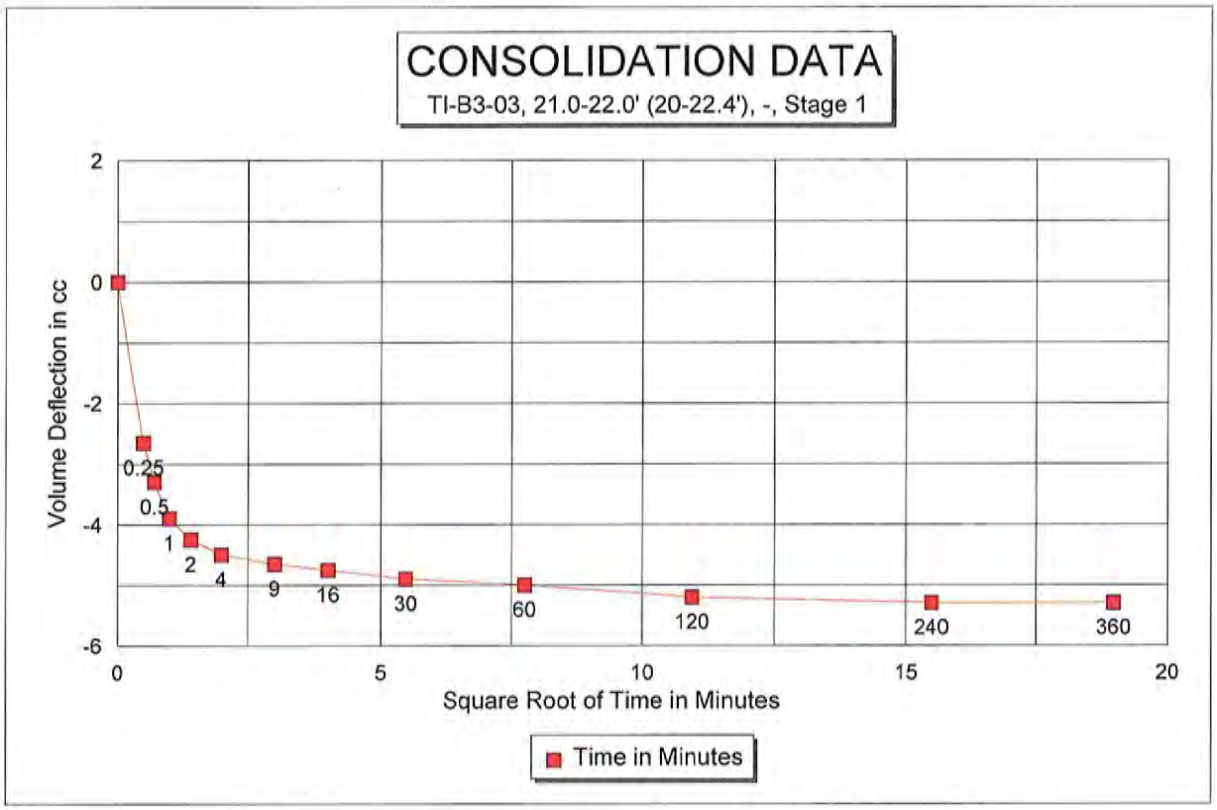
| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B3-03 | SAMPLED | 11/19/13 MWH |
| DEPTH | 21.0-22.0' (20-22.4') | TEST STARTED | 04/17/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/23/14 DPM |
| SOIL DESCR. | Silty Clay | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| TEST TYPE | TX/CUpp, Stage 3 | CONF. PRES. PSF | 3888 |

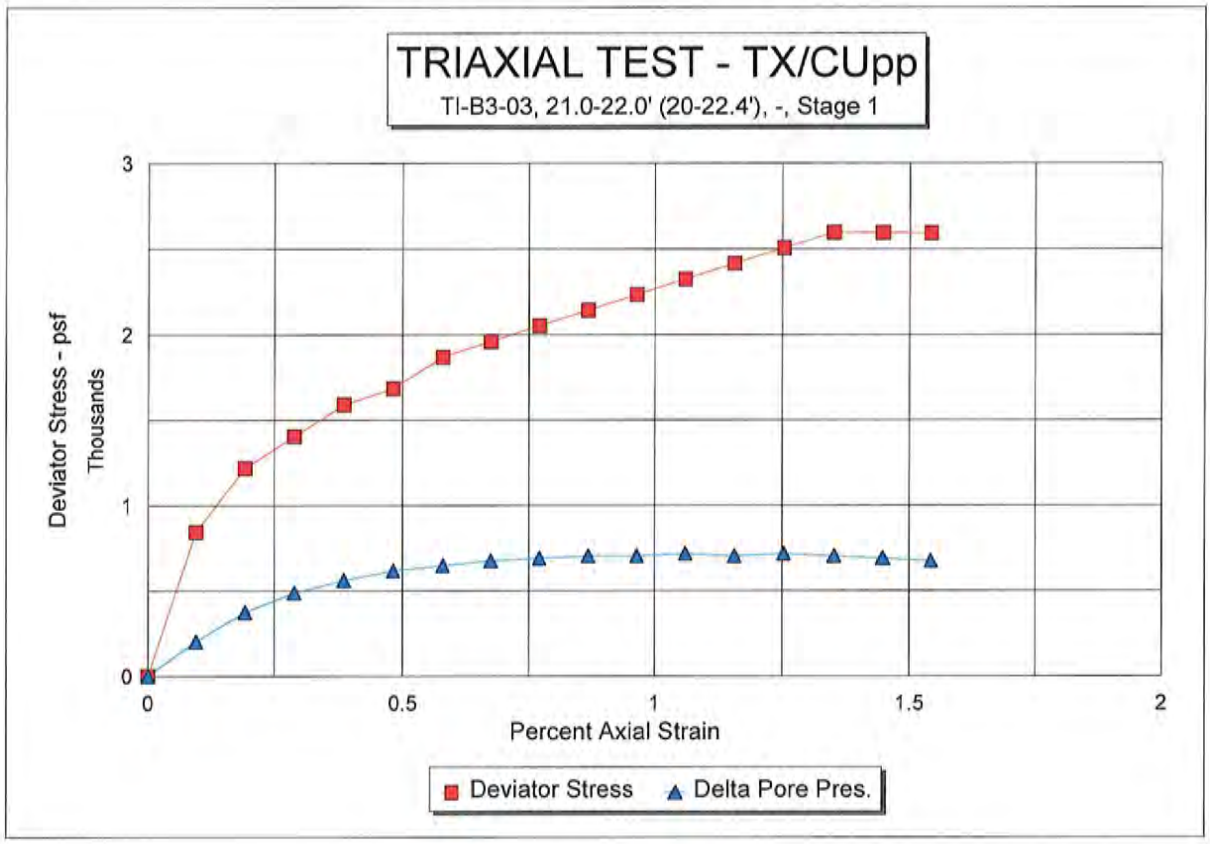
| | | | |
|---|---|---|---|
| Init. Ht. (in) | 5.020 | Init. Area (sq in) | 4.727 |
| Consol. Ht. (in) | 5.030 | Consol. Area (sq in) | 4.694 |
| Back Pres. PSI | 68.7 | Strain Rate (in/min) | 0.003 |

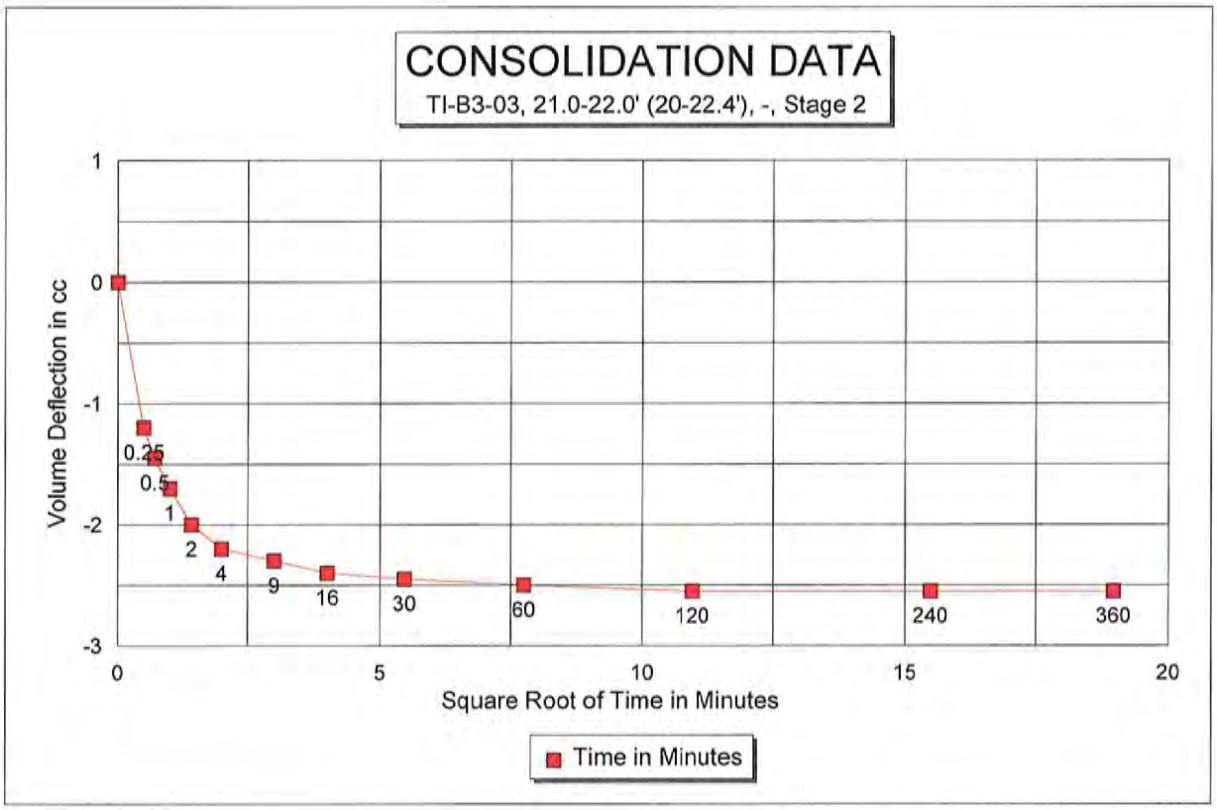
| Axial Load Lbs. | Axial Load PSF | Delta Ht. In. | Axial % Strain | Area Final Sq In. | Dev. Stress PSF | Pore Pres. PSI | Delta Pres. PSF | Sigma 3' PSF | Sigma 1' PSF | Prin. Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0 | 0.000 | 0.00 | 4.694 | 0 | 68.7 | 0 | 3888 | 3888 | 1.00 |
| 102.0 | 3129 | 0.005 | 0.10 | 4.699 | 3126 | 73.0 | 619 | 3269 | 6395 | 1.96 |
| 144.0 | 4418 | 0.010 | 0.20 | 4.703 | 4409 | 74.3 | 806 | 3082 | 7490 | 2.43 |
| 174.0 | 5338 | 0.015 | 0.30 | 4.708 | 5322 | 75.1 | 922 | 2966 | 8288 | 2.79 |
| 189.0 | 5798 | 0.020 | 0.41 | 4.713 | 5775 | 75.5 | 979 | 2909 | 8684 | 2.99 |
| 198.0 | 6074 | 0.026 | 0.51 | 4.718 | 6044 | 75.9 | 1037 | 2851 | 8895 | 3.12 |
| 204.0 | 6258 | 0.031 | 0.61 | 4.723 | 6220 | 76.1 | 1066 | 2822 | 9043 | 3.20 |
| 210.0 | 6443 | 0.036 | 0.71 | 4.727 | 6397 | 76.3 | 1094 | 2794 | 9190 | 3.29 |
| 213.0 | 6535 | 0.041 | 0.81 | 4.732 | 6482 | 76.4 | 1109 | 2779 | 9261 | 3.33 |
| 216.0 | 6627 | 0.046 | 0.91 | 4.737 | 6566 | 76.5 | 1123 | 2765 | 9331 | 3.37 |
| 219.0 | 6719 | 0.051 | 1.01 | 4.742 | 6651 | 76.5 | 1123 | 2765 | 9415 | 3.41 |
| 222.0 | 6811 | 0.061 | 1.22 | 4.752 | 6728 | 76.5 | 1123 | 2765 | 9493 | 3.43 |
| 228.0 | 6995 | 0.071 | 1.42 | 4.761 | 6895 | 76.5 | 1123 | 2765 | 9660 | 3.49 |
| 228.0 | 6995 | 0.082 | 1.62 | 4.771 | 6881 | 76.5 | 1123 | 2765 | 9646 | 3.49 |
| 231.0 | 7087 | 0.092 | 1.83 | 4.781 | 6957 | 76.5 | 1123 | 2765 | 9722 | 3.52 |
| 234.0 | 7179 | 0.102 | 2.03 | 4.791 | 7033 | 76.4 | 1109 | 2779 | 9812 | 3.53 |
| 240.0 | 7363 | 0.128 | 2.54 | 4.816 | 7176 | 76.2 | 1080 | 2808 | 9984 | 3.56 |
| 249.0 | 7639 | 0.153 | 3.04 | 4.841 | 7407 | 75.9 | 1037 | 2851 | 10258 | 3.60 |
| 255.0 | 7823 | 0.179 | 3.55 | 4.867 | 7545 | 75.7 | 1008 | 2880 | 10425 | 3.62 |
| 261.0 | 8007 | 0.204 | 4.06 | 4.892 | 7682 | 75.3 | 950 | 2938 | 10620 | 3.62 |
| 267.0 | 8191 | 0.230 | 4.56 | 4.918 | 7817 | 75.0 | 907 | 2981 | 10798 | 3.62 |
| 273.0 | 8375 | 0.255 | 5.07 | 4.944 | 7951 | 74.7 | 864 | 3024 | 10975 | 3.63 |
| 279.0 | 8559 | 0.281 | 5.58 | 4.971 | 8082 | 74.3 | 806 | 3082 | 11164 | 3.62 |
| 282.0 | 8651 | 0.306 | 6.08 | 4.998 | 8125 | 74.0 | 763 | 3125 | 11250 | 3.60 |
| 288.0 | 8835 | 0.332 | 6.59 | 5.025 | 8253 | 73.7 | 720 | 3168 | 11421 | 3.61 |
| 294.0 | 9020 | 0.357 | 7.10 | 5.052 | 8379 | 73.4 | 677 | 3211 | 11591 | 3.61 |
| 300.0 | 9204 | 0.408 | 8.11 | 5.108 | 8457 | 72.8 | 590 | 3298 | 11755 | 3.56 |
| 309.0 | 9480 | 0.459 | 9.13 | 5.165 | 8615 | 72.2 | 504 | 3384 | 11999 | 3.55 |
| 315.0 | 9664 | 0.510 | 10.14 | 5.223 | 8684 | 71.7 | 432 | 3456 | 12140 | 3.51 |
| 321.0 | 9848 | 0.561 | 11.15 | 5.283 | 8749 | 71.1 | 346 | 3542 | 12292 | 3.47 |
| 327.0 | 10032 | 0.612 | 12.17 | 5.344 | 8811 | 70.7 | 288 | 3600 | 12411 | 3.45 |
| 330.0 | 10124 | 0.663 | 13.18 | 5.406 | 8789 | 70.3 | 230 | 3658 | 12447 | 3.40 |

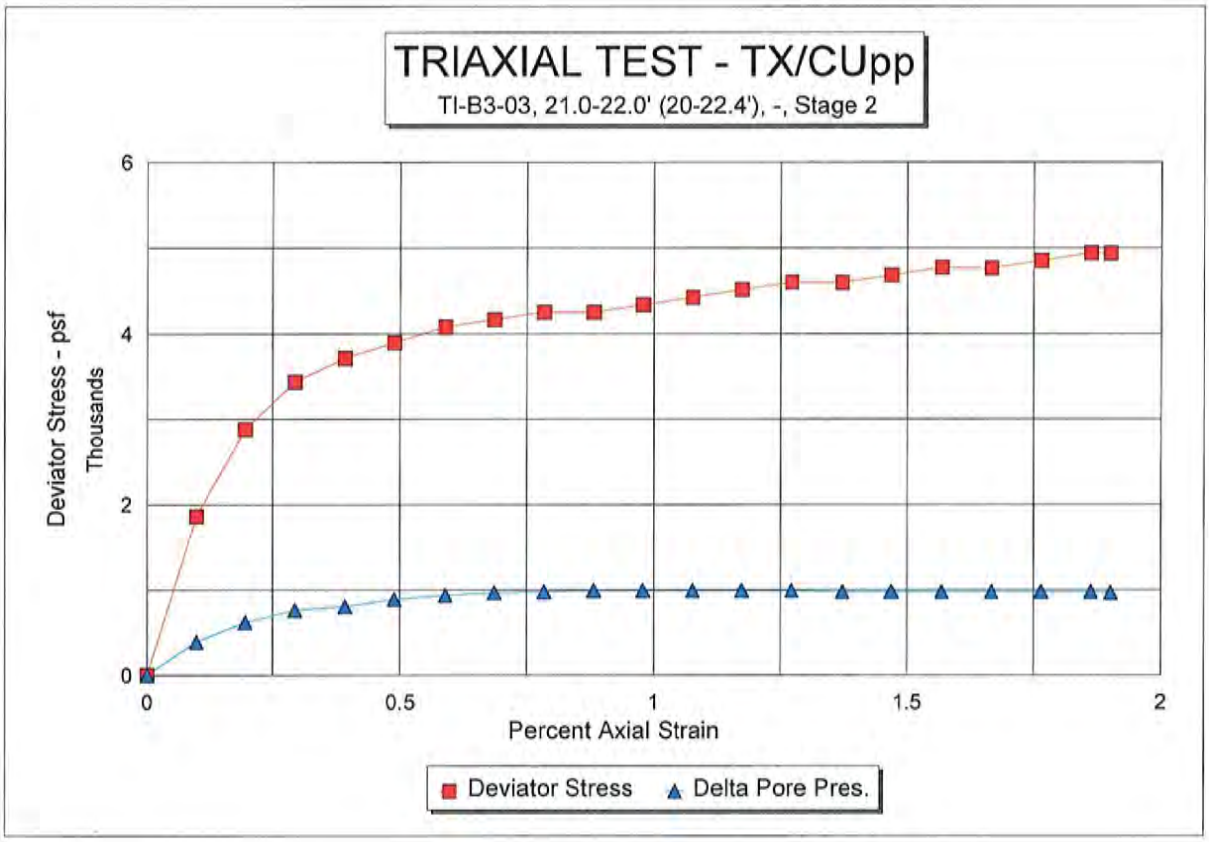
Data entry by: DPM Date: 05/27/2014
Data checked by: KR Date: 5/27/14
FileName: MWT0B303

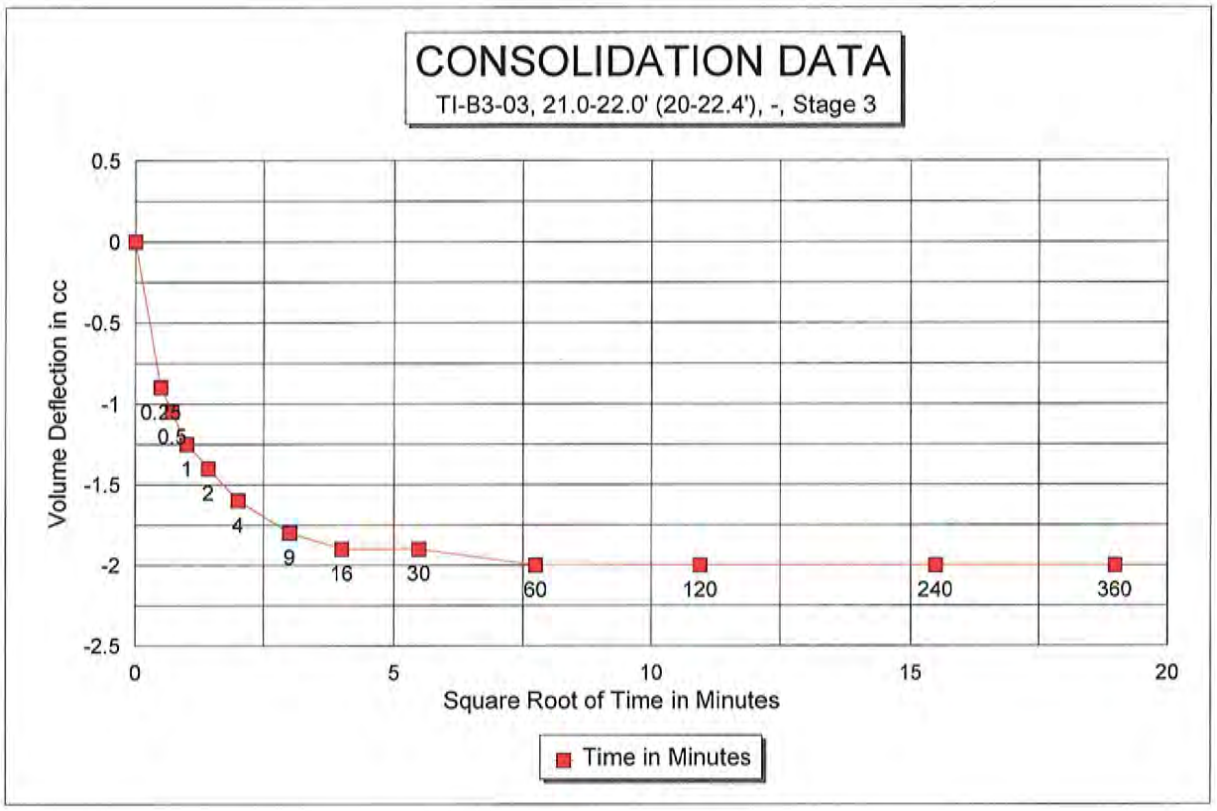
ADVANCED TERRA TESTING, INC. ATT

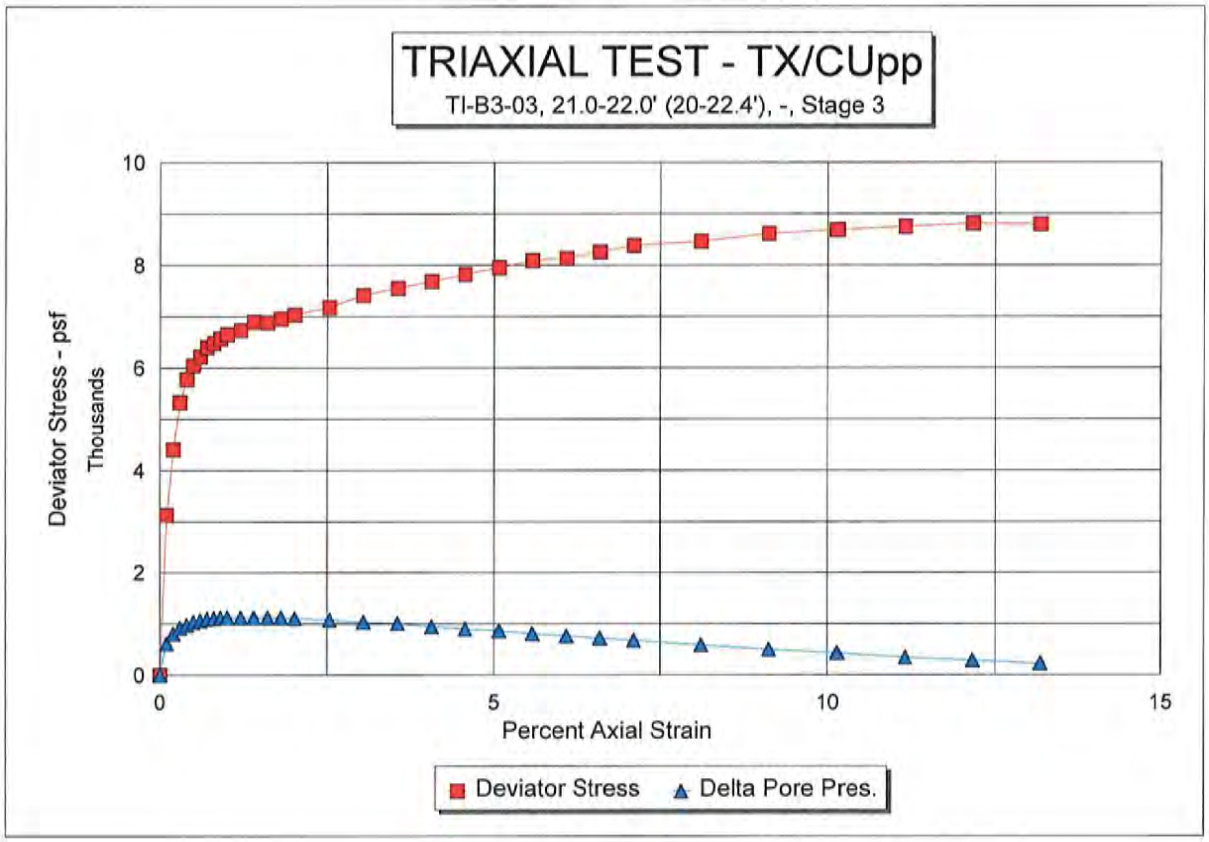

CONSOLIDATION DATA
TI-B3-03, 21.0-22.0' (20-22.4'), -, Stage 1
Volume Deflection in cc
2
0
-2
-4
-6
0.25
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B3-03, 21.0-22.0' (20-22.4'), -, Stage 1
Deviator Stress - psf
Thousands
3
2
1
0
0
0.5
1
1.5
2
Percent Axial Strain
Deviator Stress
Delta Pore Pres.


CONSOLIDATION DATA
TI-B3-03, 21.0-22.0' (20-22.4'), -, Stage 2
Volume Deflection in cc
1
0
-1
-2
-3
0.25
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B3-03, 21.0-22.0' (20-22.4'), -, Stage 2
Deviator Stress - psf
Thousands
6
4
2
0
0
0.5
1
1.5
2
Percent Axial Strain
Deviator Stress
Delta Pore Pres.


CONSOLIDATION DATA
TI-B3-03, 21.0-22.0' (20-22.4'), -, Stage 3
Volume Deflection in cc
0.5
0
-0.5
-1
-1.5
-2
-2.5
0.25
0.5
1
2
4
9
16
30
60
120
240
360
0
5
10
15
20
Square Root of Time in Minutes
Time in Minutes


TRIAXIAL TEST - TX/CUpp
TI-B3-03, 21.0-22.0' (20-22.4'), -, Stage 3
Deviator Stress - psf
Thousands
10
8
6
4
2
0
0
5
10
15
Percent Axial Strain
Deviator Stress
Delta Pore Pres.

PERMEABILITY TEST - BACK PRESSURE CONSTANT HEAD
ASTM D 5084

CLIENT MWH

JOB NO. 2512-77

| | | | |
|---|---|---|---|
| BORING NO. | TI-B23-10A | SAMPLED | 12/06/13 MWH |
| DEPTH | 45.2-45.7' | TEST STARTED | 04/10/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/17/14 DPM |
| SOIL DESCR. | Sandstone | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 6192 | TEST TYPE | TX/Pbp/Tap Water |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture ( g) | 287.5 | 298.2 |
| Wt. Wet Soil & Pan ( g) | 293.9 | 304.7 |
| Wt. Dry Soil & Pan ( g) | 259.2 | 259.2 |
| Wt. Lost Moisture ( g) | 34.8 | 45.5 |
| Wt. of Pan Only ( g) | 6.5 | 6.5 |
| Wt. of Dry Soil ( g) | 252.7 | 252.7 |
| Moisture Content % | 13.8 | 18.0 |
| Wet Density PCF | 123.6 | 129.3 |
| Dry Density PCF | 108.7 | 109.6 |

| | | | | |
|---|---|---|---|---|
| Init. Diameter | ( in) | 1.915 | ( cm) | 4.864 |
| Init. Area | ( sq in) | 2.880 | ( sq cm) | 18.583 |
| Init. Height | ( in) | 3.076 | ( cm) | 7.813 |
| Vol. Bef. Consol. | ( cu ft) | 0.00513 | | |
| Vol. After Consol. | ( cu ft) | 0.00509 | | |
| Porosity % | | 31.61 | | |
| Constant Head | ( PSI) | 2.00 | ( cm) | 140.79 |

| Time Min | Time Sec | Init. Burette CC | Final Burette CC | Head Corr. CM | Permeability k cm/sec |
|---|---|---|---|---|---|
| 340.0 | 20400 | 46.8 | 44.4 | 15.7 | 3.8E-007 |
| 900.0 | 54000 | 44.4 | 40.5 | 19.1 | 2.4E-007 |
| 524.0 | 31440 | 40.5 | 38.3 | 22.5 | 2.4E-007 |
| 890.0 | 53400 | 38.3 | 34.7 | 25.6 | 2.4E-007 |
| 1440.0 | 86400 | 34.7 | 29.4 | 30.5 | 2.3E-007 |
| 587.0 | 35220 | 29.4 | 27.2 | 34.6 | 2.4E-007 |

Average Temperature 21.6

Data entry by: DPM Date: 05/23/2014
Checked by: Va Date: 5/23/14
FileName: PBCH2310

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B23-10A | SAMPLED | 12/06/13 MWH |
| DEPTH | 45.2-45.7' | TEST STARTED | 04/10/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/17/14 DPM |
| SOIL DESCR. | Sandstone | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 6192 | TEST TYPE | TX/Pbp/Tap Water |

SATURATION DATA

| Cell Pres. ( PSI) | Back Pres. ( PSI) | Burette Reading ( CC) | | Pore Pressure ( PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 2.5 | 9.5 | | | | |
| 50.0 | 48.0 | 11.8 | 12.9 | 38.5 | 47.0 | 8.5 | 0.85 |
| 60.0 | 58.0 | 12.7 | 13.7 | 48.1 | 57.2 | 9.1 | 0.91 |
| 70.0 | 68.0 | 14.7 | 15.7 | 58.7 | 67.8 | 9.1 | 0.91 |
| 80.0 | | 16.3 | 16.3 | 67.4 | 77.1 | 9.7 | 0.97 |

CONSOLIDATION DATA

| Elapsed Time ( Min) | SQRT Time ( Min) | Burette Reading ( CC) | Volume Defl. ( CC) |
|---|---|---|---|
| 0.00 | 0.00 | 16.30 | 0.00 |
| 0.25 | 0.50 | 21.90 | -5.60 |
| 0.5 | 0.71 | 22.30 | -6.00 |
| 1 | 1.00 | 22.70 | -6.40 |
| 2 | 1.41 | 23.20 | -6.90 |
| 4 | 2.00 | 23.70 | -7.40 |
| 9 | 3.00 | 24.20 | -7.90 |
| 16 | 4.00 | 24.40 | -8.10 |
| 30 | 5.48 | 24.50 | -8.20 |
| 60 | 7.75 | 24.60 | -8.30 |
| 120 | 10.95 | 24.65 | -8.35 |
| 240 | 15.49 | 24.70 | -8.40 |
| 360 | 18.97 | 24.80 | -8.50 |

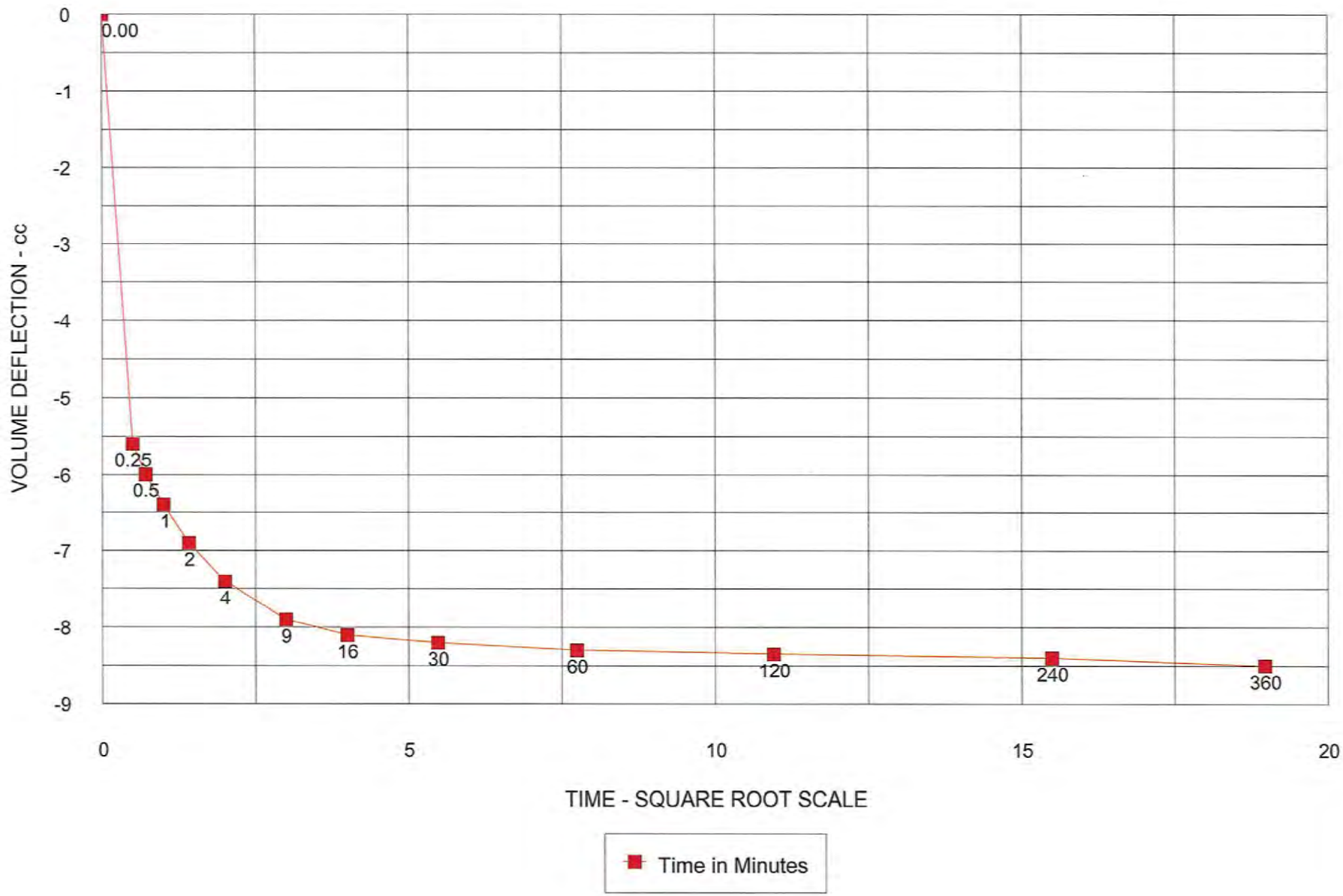
| | | | |
|---|---|---|---|
| Initial Height ( in) | 3.076 | Init. Vol. ( CC) | 145.21 |
| Height Change ( in) | 0.056 | Vol. Change ( CC) | 24.40 |
| Ht. After Cons. ( in) | 3.020 | Cell Exp. ( CC) | 23.21 |
| Initial Area ( sq in) | 2.880 | Net Change ( CC) | 1.19 |
| Area After Cons. ( sq in) | 2.910 | Cons. Vol. ( CC) | 144.02 |

Data entry by: DPM Date: 05/23/2014
Checked by: KR Date: 5/28/14
FileName: PBCH2310

ADVANCED TERRA TESTING, Inc. ATT

# CONSOLIDATION DATA

TI-B23-10A, 45.2-45.7', -



PERMEABILITY TEST - BACK PRESSURE CONSTANT HEAD
ASTM D 5084

CLIENT MWH

JOB NO. 2512-77

| | | | |
|---|---|---|---|
| BORING NO. | TI-B23-13A | SAMPLED | 12/06/13 MWH |
| DEPTH | 65.5-66.0' | TEST STARTED | 03/26/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/20/14 DPM |
| SOIL DESCR. | Clay Shale | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 8928 | TEST TYPE | TX/Pbp/Tap Water |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 226.3 | 238.0 |
| Wt. Wet Soil & Pan (g) | 232.9 | 244.6 |
| Wt. Dry Soil & Pan (g) | 211.9 | 211.9 |
| Wt. Lost Moisture (g) | 21.0 | 32.7 |
| Wt. of Pan Only (g) | 6.6 | 6.6 |
| Wt. of Dry Soil (g) | 205.3 | 205.3 |
| Moisture Content % | 10.2 | 15.9 |
| Wet Density PCF | 113.5 | 134.4 |
| Dry Density PCF | 103.0 | 115.9 |

| | | | |
|---|---|---|---|
| Init. Diameter (in) | 1.912 | (cm) | 4.856 |
| Init. Area (sq in) | 2.871 | (sq cm) | 18.525 |
| Init. Height (in) | 2.645 | (cm) | 6.718 |
| Vol. Bef. Consol. (cu ft) | 0.00439 | | |
| Vol. After Consol. (cu ft) | 0.00390 | | |
| Porosity % | 29.56 | | |
| Constant Head (PSI) | 2.00 | (cm) | 140.79 |

| Time Min | Time Sec | Init. Burette CC | Final Burette CC | Head Corr. CM | Permeability k cm/sec |
|---|---|---|---|---|---|
| 660.0 | 39600 | 47.8 | 47.6 | 13.4 | 1.3E-08 |
| 1564.0 | 93840 | 47.4 | 46.8 | 14.1 | 1.8E-08 |
| 1500.0 | 90000 | 46.8 | 46.0 | 14.9 | 2.2E-08 |
| 1500.0 | 90000 | 46.0 | 45.2 | 15.7 | 2.4E-08 |
| 1440.0 | 86400 | 45.2 | 44.2 | 16.7 | 3.2E-08 |
| 1453.0 | 87180 | 44.2 | 43.0 | 17.9 | 3.8E-08 |
| 1440.0 | 86400 | 43.0 | 41.7 | 19.2 | 4.2E-08 |
| 1440.0 | 86400 | 41.7 | 40.0 | 20.9 | 5.5E-08 |
| 1440.0 | 86400 | 40.0 | 38.0 | 22.9 | 6.6E-08 |
| 1440.0 | 86400 | 38.0 | 35.3 | 25.5 | 9.2E-08 |
| 1440.0 | 86400 | 35.3 | 32.4 | 28.5 | 1.0E-07 |
| 1440.0 | 86400 | 32.4 | 29.7 | 31.6 | 9.7E-08 |

Average Temperature 22.0
Note: There were multiple horizontal cracks in the sample.

Data entry by: DPM Date: 05/01/2014
Checked by: KA Date: 5/23/14
FileName: PBCH2313

ADVANCED TERRA TESTING, INC. ATT

TRIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B23-13A | SAMPLED | 12/06/13 MWH |
| DEPTH | 65.5-66.0' | TEST STARTED | 03/26/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 04/20/14 DPM |
| SOIL DESCR. | Clay Shale | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 8928 | TEST TYPE | TX/Pbp/Tap Water |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 2.9 | 13.3 | | | | |
| 50.0 | 48.0 | 12.5 | 13.2 | 38.4 | 47.3 | 8.9 | 0.89 |
| 60.0 | | 13.7 | 14.0 | 48.0 | 57.5 | 9.5 | 0.95 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT Time (Min) | Burette Reading (CC) | Volume Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.00 | 0.60 | 0.00 |
| 0.25 | 0.50 | 8.00 | -7.40 |
| 0.5 | 0.71 | 8.70 | -8.10 |
| 1 | 1.00 | 9.70 | -9.10 |
| 2 | 1.41 | 10.80 | -10.20 |
| 4 | 2.00 | 12.10 | -11.50 |
| 9 | 3.00 | 14.00 | -13.40 |
| 16 | 4.00 | 15.30 | -14.70 |
| 30 | 5.48 | 16.70 | -16.10 |
| 60 | 7.75 | 18.30 | -17.70 |
| 120 | 10.95 | 19.50 | -18.90 |
| 240 | 15.49 | 20.40 | -19.80 |
| 360 | 18.97 | 20.80 | -20.20 |

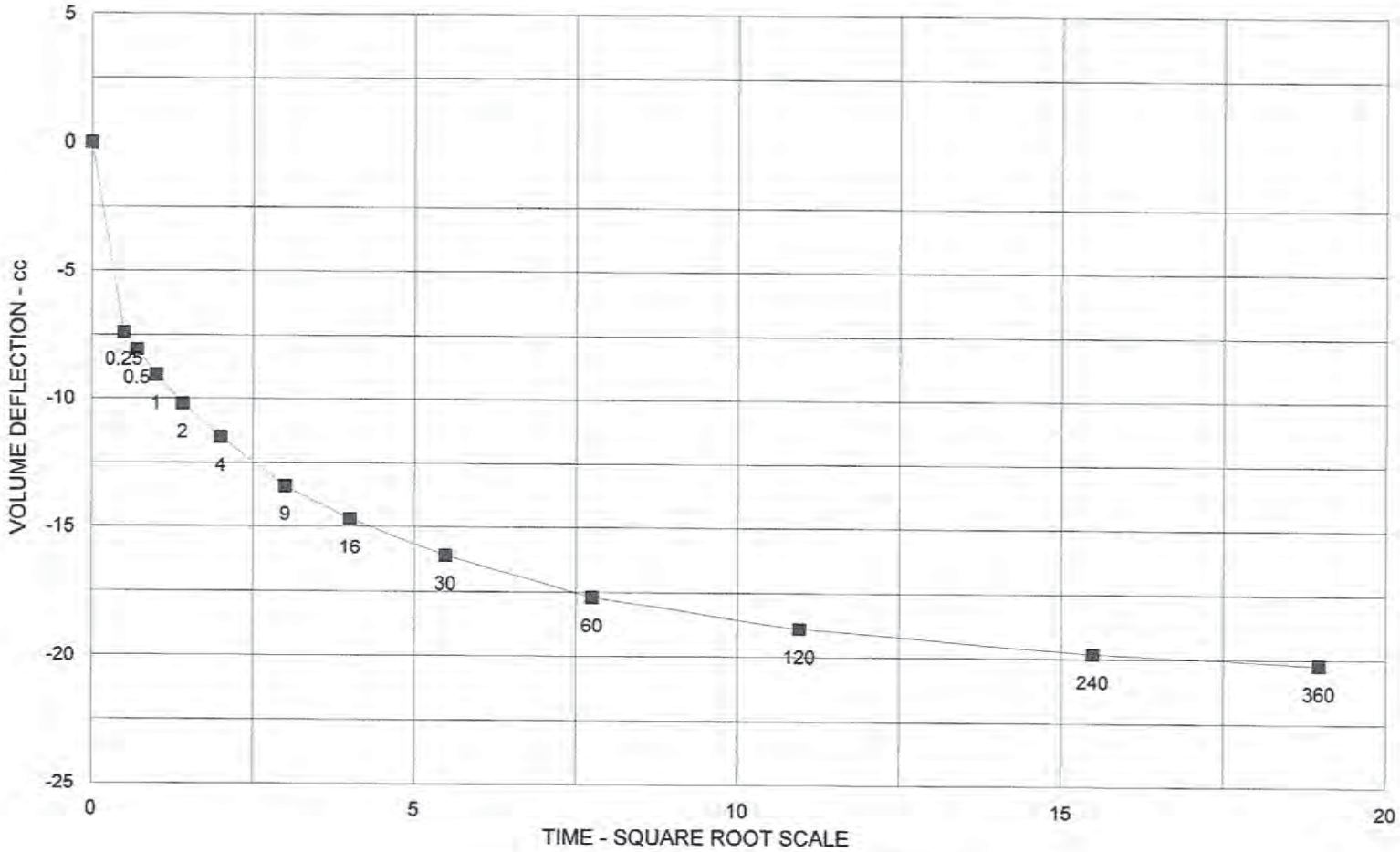
| | | | |
|---|---|---|---|
| Initial Height (in) | 2.645 | Init. Vol. (CC) | 124.47 |
| Height Change (in) | 0.239 | Vol. Change (CC) | 35.80 |
| Ht. After Cons. (in) | 2.406 | Cell Exp. (CC) | 21.91 |
| Initial Area (sq in) | 2.871 | Net Change (CC) | 13.89 |
| Area After Cons. (sq in) | 2.804 | Cons. Vol. (CC) | 110.58 |

Data entry by: DPM Date: 05/01/2014
Checked by: KL Date: 5/23/14
FileName: PBCH2313

ADVANCED TERRA TESTING, INC. ATT

# CONSOLIDATION DATA

TI-B23-13A, 65.5-66.0', -




■ Time in Minutes CONF. PRES. PSF 8928

PERMEABILITY TEST - BACK PRESSURE CONSTANT HEAD
ASTM D 5084

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B11-06 | SAMPLED | 12/02/13 MWH |
| DEPTH | 30.5-31.5 (30-31.7') | TEST STARTED | 03/18/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 03/28/14 DPM |
| SOIL DESCR. | Sandy Clay | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 7344 | TEST TYPE | TX/Pbp/Tap Water |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 465.5 | 478.1 |
| Wt. Wet Soil & Pan (g) | 481.4 | 494.0 |
| Wt. Dry Soil & Pan (g) | 425.3 | 425.3 |
| Wt. Lost Moisture (g) | 56.1 | 68.7 |
| Wt. of Pan Only (g) | 15.9 | 15.9 |
| Wt. of Dry Soil (g) | 409.4 | 409.4 |
| Moisture Content % | 13.7 | 16.8 |
| Wet Density PCF | 127.8 | 136.8 |
| Dry Density PCF | 112.4 | 117.2 |

| | | | |
|---|---|---|---|
| Init. Diameter (in) | 2.405 | (cm) | 6.109 |
| Init. Area (sq in) | 4.543 | (sq cm) | 29.310 |
| Init. Height (in) | 3.054 | (cm) | 7.757 |
| Vol. Bef. Consol. (cu ft) | 0.00803 | | |
| Vol. After Consol. (cu ft) | 0.00770 | | |
| Porosity % | 31.48 | | |
| Constant Head (PSI) | 2.00 | (cm) | 140.79 |

| Time Min | Time Sec | Init. Burette CC | Final Burette CC | Head Corr. CM | Permeability k cm/sec |
|---|---|---|---|---|---|
| 360.0 | 21600 | 47.5 | 38.9 | 18.3 | 8.7E-07 |
| 810.0 | 48600 | 47.7 | 28.2 | 24.0 | 9.2E-07 |
| 1420.0 | 85200 | 47.2 | 15.9 | 31.0 | 8.9E-07 |
| 625.0 | 37500 | 46.2 | 31.3 | 23.2 | 9.0E-07 |

Average Temperature 21.4

Data entry by: DPM Date: 04/07/2014
Checked by: KR Date: 4/7/14
FileName: PBCH1106

ADVANCED TERRA TESTING, INC. ATT

RIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B11-06 | SAMPLED | 12/02/13 MWH |
| DEPTH | 30.5-31.5 (30-31.7') | TEST STARTED | 03/18/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 03/28/14 DPM |
| SOIL DESCR. | Sandy Clay | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 7344 | TEST TYPE | TX/Pbp/Tap Water |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 3.3 | 11.7 | | | | |
| 50.0 | 48.0 | 13.7 | 14.6 | 38.7 | 47.7 | 9.0 | 0.90 |
| 60.0 | | 15.3 | 15.6 | 48.2 | 57.8 | 9.6 | 0.96 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT Time (Min) | Burette Reading (CC) | Volume Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.00 | 1.20 | 0.00 |
| 0.25 | 0.50 | 9.10 | -7.90 |
| 0.5 | 0.71 | 10.40 | -9.20 |
| 1 | 1.00 | 11.60 | -10.40 |
| 2 | 1.41 | 12.30 | -11.10 |
| 4 | 2.00 | 12.75 | -11.55 |
| 9 | 3.00 | 13.00 | -11.80 |
| 16 | 4.00 | 13.20 | -12.00 |
| 30 | 5.48 | 13.40 | -12.20 |
| 60 | 7.75 | 13.60 | -12.40 |
| 120 | 10.95 | 13.90 | -12.70 |
| 240 | 15.49 | 14.15 | -12.95 |
| 360 | 18.97 | 14.30 | -13.10 |

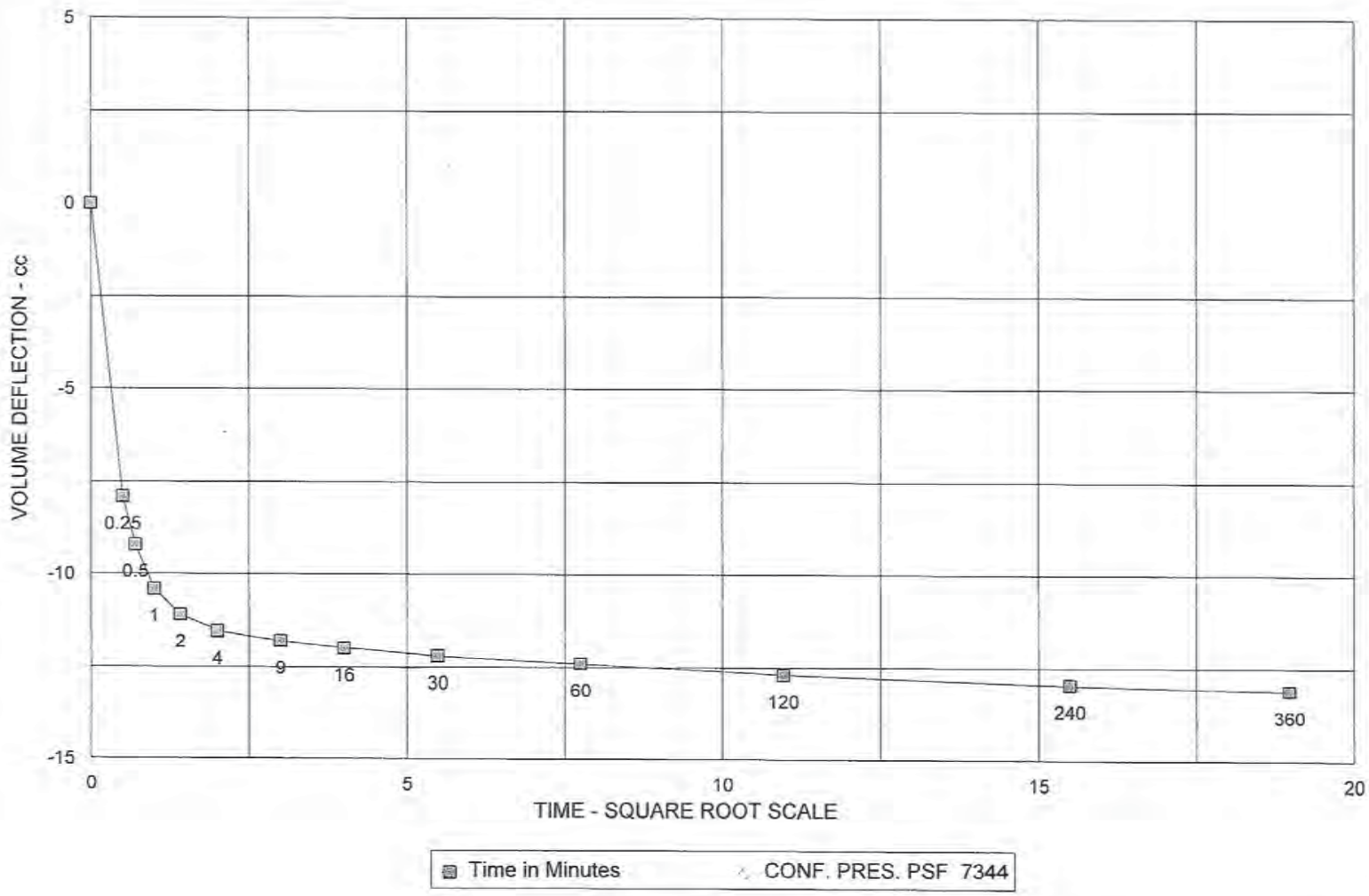
| | | | |
|---|---|---|---|
| Initial Height (in) | 3.054 | Init. Vol. (CC) | 227.39 |
| Height Change (in) | 0.052 | Vol. Change (CC) | 31.10 |
| Ht. After Cons. (in) | 3.002 | Cell Exp. (CC) | 21.86 |
| Initial Area (sq in) | 4.543 | Net Change (CC) | 9.24 |
| Area After Cons. (sq in) | 4.434 | Cons. Vol. (CC) | 218.15 |

Data entry by: DPM Date: 04/07/2014
Checked by: KR Date: 4/7/14
FileName: PBCH1106

ADVANCED TERRA TESTING, INC. ATT

# CONSOLIDATION DATA

TI-B11-06, 30.5-31.5 (30-31.7'), -



PERMEABILITY TEST - BACK PRESSURE CONSTANT HEAD
ASTM D 5084

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B11-20A | SAMPLED | 12/03/13 MWH |
| DEPTH | 100.0-100.2 | TEST STARTED | 03/06/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 03/13/14 DPM |
| SOIL DESCR. | Weathered Sandstone | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 16128 | TEST TYPE | TX/Pbp/Tap Water |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 288.8 | 289.3 |
| Wt. Wet Soil & Pan (g) | 298.0 | 298.5 |
| Wt. Dry Soil & Pan (g) | 247.7 | 247.7 |
| Wt. Lost Moisture (g) | 50.3 | 50.8 |
| Wt. of Pan Only (g) | 9.2 | 9.2 |
| Wt. of Dry Soil (g) | 238.4 | 238.4 |
| Moisture Content % | 21.1 | 21.3 |
| Wet Density PCF | 125.8 | 123.3 |
| Dry Density PCF | 103.9 | 101.6 |

| | | | |
|---|---|---|---|
| Init. Diameter (in) | 1.893 | (cm) | 4.808 |
| Init. Area (sq in) | 2.814 | (sq cm) | 18.159 |
| Init. Height (in) | 3.106 | (cm) | 7.889 |
| Vol. Bef. Consol. (cu ft) | 0.00506 | | |
| Vol. After Consol. (cu ft) | 0.00517 | | |
| Porosity % | 34.70 | | |
| Constant Head (PSI) | 2.00 | (cm) | 140.79 |

| Time Min | Time Sec | Init. Burette CC | Final Burette CC | Head Corr. CM | Permeability k cm/sec |
|---|---|---|---|---|---|
| 60.0 | 3600 | 46.0 | 32.6 | 22.6 | 1.3E-05 |
| 138.0 | 8280 | 47.0 | 22.0 | 27.8 | 1.1E-05 |
| 60.0 | 3600 | 46.1 | 33.5 | 22.0 | 1.2E-05 |
| 61.0 | 3660 | 46.0 | 32.9 | 22.4 | 1.3E-05 |

Average Temperature 22.1

Data entry by: DPM Date: 04/07/2014
Checked by: KL Date: 4/7/14
FileName: PBCH1120

ADVANCED TERRA TESTING, Inc. ATT

RIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B11-20A | SAMPLED | 12/03/13 MWH |
| DEPTH | 100.0-100.2 | TEST STARTED | 03/06/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 03/13/14 DPM |
| SOIL DESCR. | Weathered Sandstone | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 16128 | TEST TYPE | TX/Pbp/Tap Water |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 2.2 | 9.8 | | | | |
| 50.0 | 48.0 | 10.1 | 10.9 | 38.2 | 46.2 | 8.0 | 0.80 |
| 60.0 | | 11.9 | 12.0 | 48.3 | 57.9 | 9.6 | 0.96 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT Time (Min) | Burette Reading (CC) | Volume Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.00 | 2.60 | 0.00 |
| 0.25 | 0.50 | 14.10 | -11.50 |
| 0.5 | 0.71 | 14.20 | -11.60 |
| 1 | 1.00 | 14.30 | -11.70 |
| 2 | 1.41 | 14.40 | -11.80 |
| 4 | 2.00 | 14.50 | -11.90 |
| 9 | 3.00 | 14.65 | -12.05 |
| 16 | 4.00 | 14.75 | -12.15 |
| 30 | 5.48 | 14.85 | -12.25 |
| 60 | 7.75 | 14.95 | -12.35 |
| 133 | 11.53 | 15.10 | -12.50 |
| 240 | 15.49 | 15.20 | -12.60 |
| 360 | 18.97 | 15.30 | -12.70 |

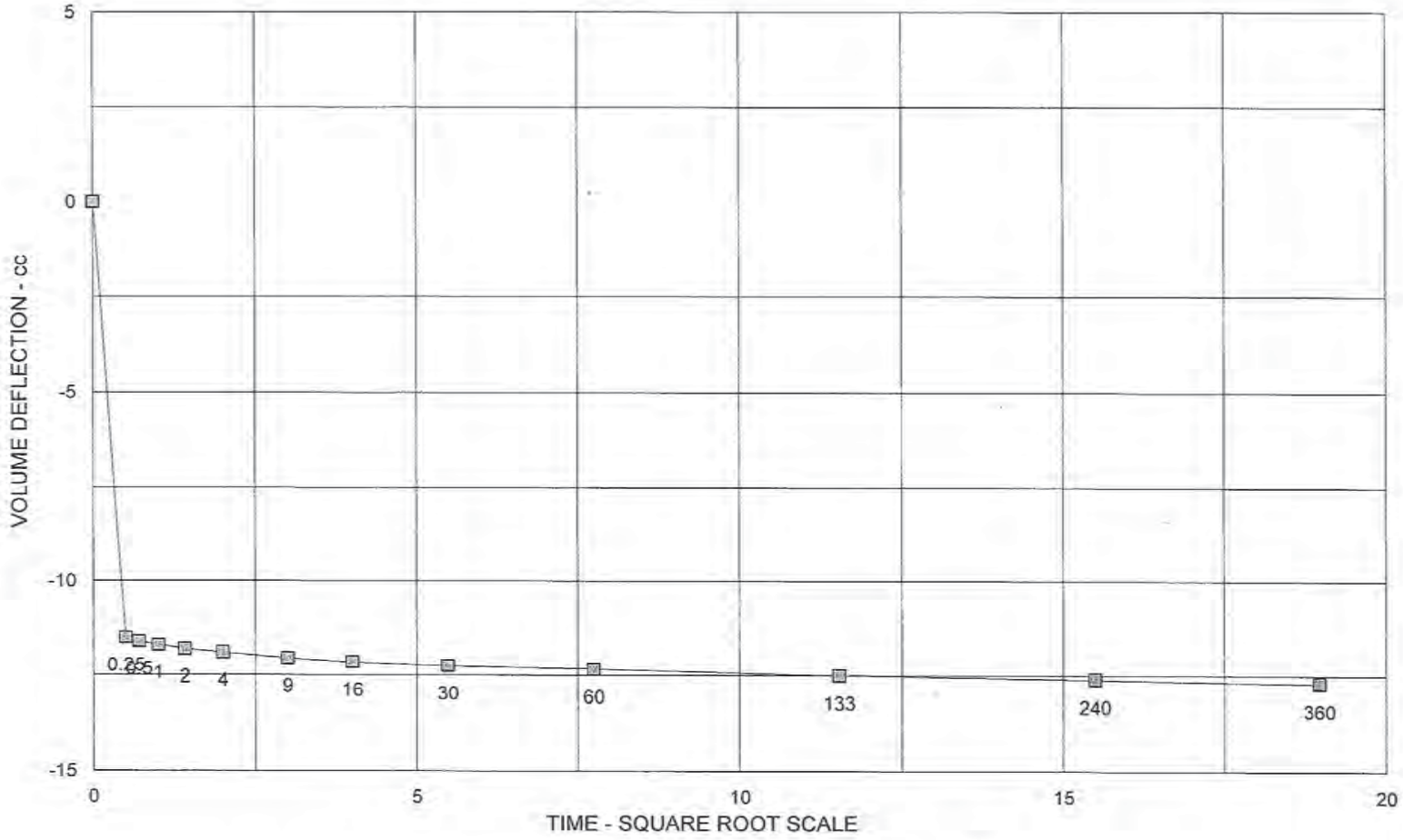
| | | | |
|---|---|---|---|
| Initial Height (in) | 3.106 | Init. Vol. (CC) | 143.28 |
| Height Change (in) | 0.038 | Vol. Change (CC) | 23.70 |
| Ht. After Cons. (in) | 3.068 | Cell Exp. (CC) | 26.89 |
| Initial Area (sq in) | 2.814 | Net Change (CC) | -3.19 |
| Area After Cons. (sq in) | 2.913 | Cons. Vol. (CC) | 146.47 |

Data entry by: DPM Date: 04/07/2014
Checked by: KR Date: 4/7/14
FileName: PBCH1120

ADVANCED TERRA TESTING, Inc. ATT

# CONSOLIDATION DATA

TI-B11-20A, 100.0-100.2, -




Time in Minutes  CONF. PRES. PSF 16128

PERMEABILITY TEST - BACK PRESSURE CONSTANT HEAD
ASTM D 5084

CLIENT MWH

JOB NO. 2512-77

| | | | |
|---|---|---|---|
| BORING NO. | TI-B8-02A&B | SAMPLED | 12/03/13 MWH |
| DEPTH | 25.5-26.5' | TEST STARTED | 03/17/14 DPM |
| SAMPLE NO. | Composite Remold | TEST FINISHED | 03/25/14 DPM |
| SOIL DESCR. | Sand Tailings & Clayey Silt | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 6624 | TEST TYPE | TX/Pbp/Tap Water |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 249.5 | 278.1 |
| Wt. Wet Soil & Pan (g) | 256.1 | 284.7 |
| Wt. Dry Soil & Pan (g) | 230.2 | 230.2 |
| Wt. Lost Moisture (g) | 25.9 | 54.5 |
| Wt. of Pan Only (g) | 6.6 | 6.6 |
| Wt. of Dry Soil (g) | 223.6 | 223.6 |
| Moisture Content % | 11.6 | 24.4 |
| Wet Density PCF | 108.0 | 122.6 |
| Dry Density PCF | 96.8 | 98.5 |

| | | | |
|---|---|---|---|
| Init. Diameter (in) | 1.915 | (cm) | 4.864 |
| Init. Area (sq in) | 2.880 | (sq cm) | 18.583 |
| Init. Height (in) | 3.056 | (cm) | 7.762 |
| Vol. Bef. Consol. (cu ft) | 0.00509 | | |
| Vol. After Consol. (cu ft) | 0.00500 | | |
| Porosity % | 38.47 | | |
| Constant Head (PSI) | 2.00 | (cm) | 140.79 |

| Time Min | Time Sec | Init. Burette CC | Final Burette CC | Head Corr. CM | Permeability k cm/sec |
|---|---|---|---|---|---|
| 4.0 | 240 | 46.9 | 23.8 | 26.9 | 3.5E-04 |
| 4.0 | 240 | 47.6 | 24.1 | 26.3 | 3.5E-04 |
| 4.0 | 240 | 48.6 | 25.0 | 25.3 | 3.5E-04 |
| 4.0 | 240 | 48.7 | 24.7 | 25.4 | 3.6E-04 |

Average Temperature 21.0

Data entry by: DPM Date: 04/10/2014
Checked by: KR Date: 4/11/14
FileName: PBCHB802

ADVANCED TERRA TESTING, INC. ATT

RIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B8-02A&B | SAMPLED | 12/03/13 MWH |
| DEPTH | 25.5-26.5' | TEST STARTED | 03/17/14 DPM |
| SAMPLE NO. | Composite Remold | TEST FINISHED | 03/25/14 DPM |
| SOIL DESCR. | Sand Tailings & Clayey Silt | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 6624 | TEST TYPE | TX/Pbp/Tap Water |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 2.1 | 11.0 | | | | |
| 50.0 | 48.0 | 11.6 | 12.6 | 38.4 | 46.5 | 8.1 | 0.81 |
| 60.0 | 58.0 | 12.8 | 13.6 | 48.6 | 57.8 | 9.2 | 0.92 |
| 70.0 | | 13.5 | 13.6 | 58.3 | 67.8 | 9.5 | 0.95 |

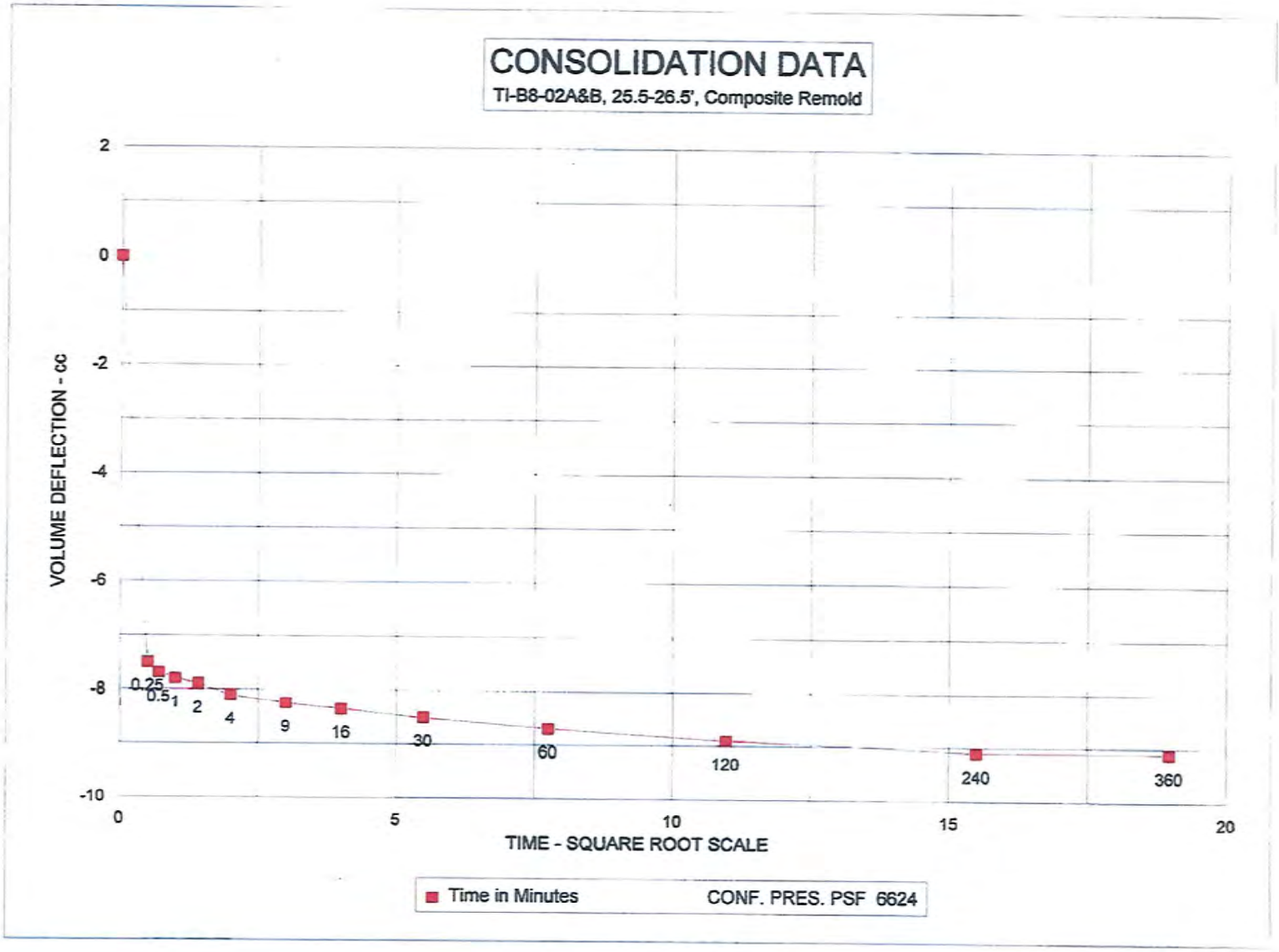
CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT Time (Min) | Burette Reading (CC) | Volume Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.00 | 1.60 | 0.00 |
| 0.25 | 0.50 | 9.10 | -7.50 |
| 0.5 | 0.71 | 9.30 | -7.70 |
| 1 | 1.00 | 9.40 | -7.80 |
| 2 | 1.41 | 9.50 | -7.90 |
| 4 | 2.00 | 9.70 | -8.10 |
| 9 | 3.00 | 9.85 | -8.25 |
| 16 | 4.00 | 9.95 | -8.35 |
| 30 | 5.48 | 10.10 | -8.50 |
| 60 | 7.75 | 10.30 | -8.70 |
| 120 | 10.95 | 10.50 | -8.90 |
| 240 | 15.49 | 10.70 | -9.10 |
| 360 | 18.97 | 10.70 | -9.10 |

| | | | |
|---|---|---|---|
| Initial Height (in) | 3.056 | Init. Vol. (CC) | 144.26 |
| Height Change (in) | 0.046 | Vol. Change (CC) | 23.90 |
| Ht. After Cons. (in) | 3.010 | Cell Exp. (CC) | 21.32 |
| Initial Area (sq in) | 2.880 | Net Change (CC) | 2.58 |
| Area After Cons. (sq in) | 2.872 | Cons. Vol. (CC) | 141.68 |

Data entry by: DPM Date: 04/10/2014
Checked by: KR Date: 4/11/14
FileName: PBCHB802

ADVANCED TERRA TESTING, INC. ATT


CONSOLIDATION DATA
TI-B8-02A&B, 25.5-26.5', Composite Remold
VOLUME DEFLECTION - cc
2
0
-2
-4
-6
-8
-10
0
5
10
15
20
TIME - SQUARE ROOT SCALE
0.25
0.5
1
2
4
9
16
30
60
120
240
360
Time in Minutes
CONF. PRES. PSF 6624

PERMEABILITY TEST - BACK PRESSURE CONSTANT HEAD
ASTM D 5084

CLIENT MWH

JOB NO. 2512-77

| | | | |
|---|---|---|---|
| BORING NO. | TI-B11-03 | SAMPLED | 12/02/13 MWH |
| DEPTH | 15-16' | TEST STARTED | 02/27/14DPM |
| SAMPLE NO. | - | TEST FINISHED | 3/5/14 DPM |
| SOIL DESCR. | Sand | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 5472 | TEST TYPE | TX/Pbp/Tap Water |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 626.9 | 673.5 |
| Wt. Wet Soil & Pan (g) | 642.7 | 689.3 |
| Wt. Dry Soil & Pan (g) | 595.1 | 595.1 |
| Wt. Lost Moisture (g) | 47.6 | 94.2 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 579.3 | 579.3 |
| Moisture Content % | 8.2 | 16.3 |
| Wet Density PCF | 119.5 | 135.6 |
| Dry Density PCF | 110.4 | 116.6 |

| | | | |
|---|---|---|---|
| Init. Diameter (in) | 2.862 | (cm) | 7.269 |
| Init. Area (sq in) | 6.433 | (sq cm) | 41.507 |
| Init. Height (in) | 3.107 | (cm) | 7.892 |
| Vol. Bef. Consol. (cu ft) | 0.01157 | | |
| Vol. After Consol. (cu ft) | 0.01095 | | |
| Porosity % | 30.38 | | |
| Constant Head (PSI) | 2.00 | (cm) | 140.79 |

| Time Min | Time Sec | Init. Burette CC | Final Burette CC | Head Corr. CM | Permeability k cm/sec |
|---|---|---|---|---|---|
| 15.0 | 900 | 45.0 | 31.2 | 23.9 | 2.4E-05 |
| 15.0 | 900 | 46.7 | 33.5 | 21.7 | 2.3E-05 |
| 15.0 | 900 | 44.3 | 30.5 | 24.6 | 2.5E-05 |
| 15.0 | 900 | 45.6 | 31.4 | 23.4 | 2.5E-05 |

Average Temperature 20.3

Data entry by: DPM Date: 04/10/2014
Checked by: KR Date: 4/11/14
FileName: PBCH1103

ADVANCED TERRA TESTING, INC. ATT

RIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B11-03 | SAMPLED | 12/02/13 MWH |
| DEPTH | 15-16' | TEST STARTED | 02/27/14DPM |
| SAMPLE NO. | - | TEST FINISHED | 3/5/14 DPM |
| SOIL DESCR. | Sand | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 5472 | TEST TYPE | TX/Pbp/Tap Water |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 4.4 | 18.8 | | | | |
| 50.0 | 48.0 | 19.6 | 20.8 | 38.0 | 46.2 | 8.2 | 0.82 |
| 60.0 | 58.0 | 21.0 | 22.0 | 47.7 | 56.6 | 8.9 | 0.89 |
| 70.0 | 68.0 | 21.9 | 22.8 | 58.5 | 67.9 | 9.4 | 0.94 |
| 80.0 | | 23.0 | 23.0 | 67.8 | 77.6 | 9.8 | 0.98 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT Time (Min) | Burette Reading (CC) | Volume Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.00 | 1.20 | 0.00 |
| 0.25 | 0.50 | 15.40 | -14.20 |
| 0.5 | 0.71 | 15.90 | -14.70 |
| 1 | 1.00 | 16.40 | -15.20 |
| 2 | 1.41 | 16.80 | -15.60 |
| 4 | 2.00 | 17.10 | -15.90 |
| 9 | 3.00 | 17.45 | -16.25 |
| 16 | 4.00 | 17.70 | -16.50 |
| 30 | 5.48 | 17.80 | -16.60 |
| 60 | 7.75 | 18.00 | -16.80 |
| 120 | 10.95 | 18.20 | -17.00 |
| 240 | 15.49 | 18.40 | -17.20 |
| 360 | 18.97 | 18.50 | -17.30 |

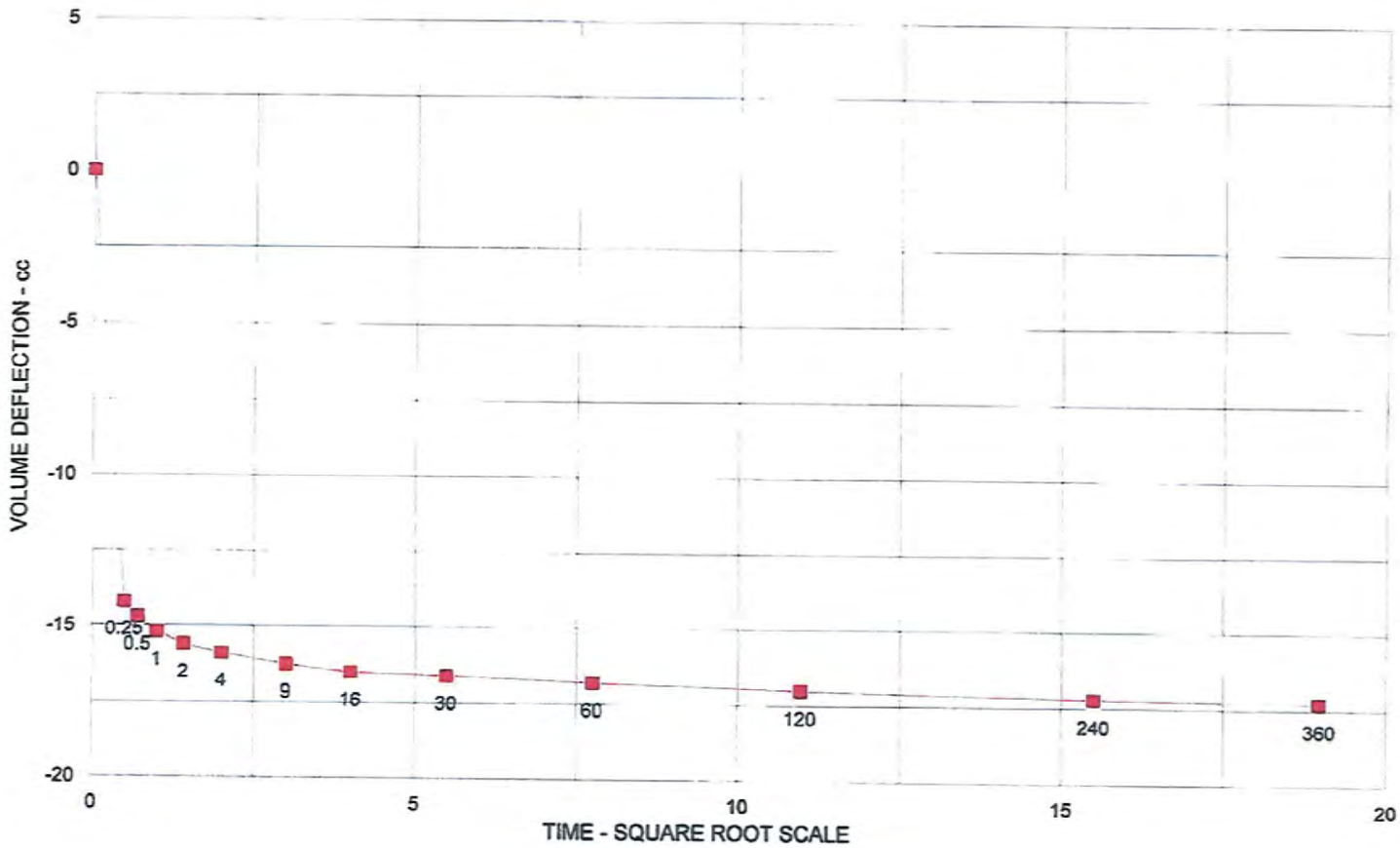
| | | | |
|---|---|---|---|
| Initial Height (in) | 3.107 | Init. Vol. (CC) | 327.60 |
| Height Change (in) | 0.112 | Vol. Change (CC) | 36.30 |
| Ht. After Cons. (in) | 2.995 | Cell Exp. (CC) | 18.82 |
| Initial Area (sq in) | 6.433 | Net Change (CC) | 17.48 |
| Area After Cons. (sq in) | 6.318 | Cons. Vol. (CC) | 310.13 |

Data entry by: DPM Date: 04/10/2014
Checked by: VR Date: 4/11/14
FileName: PBCH1103

ADVANCED TERRA TESTING, INC. ATT

# CONSOLIDATION DATA

TI-B11-03, 15-16', -




Time in Minutes

CONF. PRES. PSF 5472

PERMEABILITY TEST - BACK PRESSURE CONSTANT HEAD
ASTM D 5084

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B15-05 | SAMPLED | 12/05/13 MWH |
| DEPTH | 15.5-16.0' (15-17.5') | TEST STARTED | 03/19/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 03/26/14 DPM |
| SOIL DESCR. | Sand Tailings | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 5472 | TEST TYPE | TX/Pbp/Tap Water |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 494.4 | 569.4 |
| Wt. Wet Soil & Pan (g) | 510.3 | 585.2 |
| Wt. Dry Soil & Pan (g) | 476.6 | 476.6 |
| Wt. Lost Moisture (g) | 33.6 | 108.5 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 460.8 | 460.8 |
| Moisture Content % | 7.3 | 23.6 |
| Wet Density PCF | 101.2 | 124.0 |
| Dry Density PCF | 94.3 | 100.4 |

| | | | |
|---|---|---|---|
| Init. Diameter (in) | 2.837 | (cm) | 7.206 |
| Init. Area (sq in) | 6.321 | (sq cm) | 40.785 |
| Init. Height (in) | 2.944 | (cm) | 7.478 |
| Vol. Bef. Consol. (cu ft) | 0.01077 | | |
| Vol. After Consol. (cu ft) | 0.01012 | | |
| Porosity % | 37.86 | | |
| Constant Head (PSI) | 2.00 | (cm) | 140.79 |

| Time Min | Time Sec | Init. Burette CC | Final Burette CC | Head Corr. CM | Permeability k cm/sec |
|---|---|---|---|---|---|
| 1.00 | 60 | 46.8 | 17.1 | 30.6 | 8.2E-04 |
| 0.75 | 45 | 46.6 | 24.6 | 26.6 | 7.8E-04 |
| 0.75 | 45 | 47.6 | 25.2 | 25.7 | 7.9E-04 |
| 0.75 | 45 | 47.7 | 25.9 | 25.3 | 7.7E-04 |
| 0.75 | 45 | 47.0 | 23.6 | 26.9 | 8.3E-04 |

Note: The facies changed within the requested testing interval. The perm came from the clean Sand portion of the requested interval, and the consol came from the Silty Clayey Sand portion of the requested interval.

Average Temperature 23.0

Data entry by: DPM Date: 04/07/2014
Checked by: KR Date: 4/7/14
FileName: PBCH1505

ADVANCED TERRA TESTING, INC. ATT

RIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B15-05 | SAMPLED | 12/05/13 MWH |
| DEPTH | 15.5-16.0' (15-17.5') | TEST STARTED | 03/19/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 03/26/14 DPM |
| SOIL DESCR. | Sand Tailings | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 5472 | TEST TYPE | TX/Pbp/Tap Water |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 5.9 | 22.8 | | | | |
| 50.0 | 48.0 | 23.8 | 24.9 | 38.8 | 46.9 | 8.1 | 0.81 |
| 60.0 | 58.0 | 24.8 | 25.7 | 48.0 | 56.9 | 8.9 | 0.89 |
| 70.0 | | 27.4 | 27.5 | 58.3 | 67.9 | 9.6 | 0.96 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT Time (Min) | Burette Reading (CC) | Volume Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.00 | 1.20 | 0.00 |
| 0.25 | 0.50 | 13.40 | -12.20 |
| 0.5 | 0.71 | 13.70 | -12.50 |
| 1 | 1.00 | 13.90 | -12.70 |
| 2 | 1.41 | 14.05 | -12.85 |
| 4 | 2.00 | 14.15 | -12.95 |
| 9 | 3.00 | 14.30 | -13.10 |
| 16 | 4.00 | 14.40 | -13.20 |
| 30 | 5.48 | 14.50 | -13.30 |
| 60 | 7.75 | 14.65 | -13.45 |
| 120 | 10.95 | 14.75 | -13.55 |
| 240 | 15.49 | 14.80 | -13.60 |
| 360 | 18.97 | 14.80 | -13.60 |

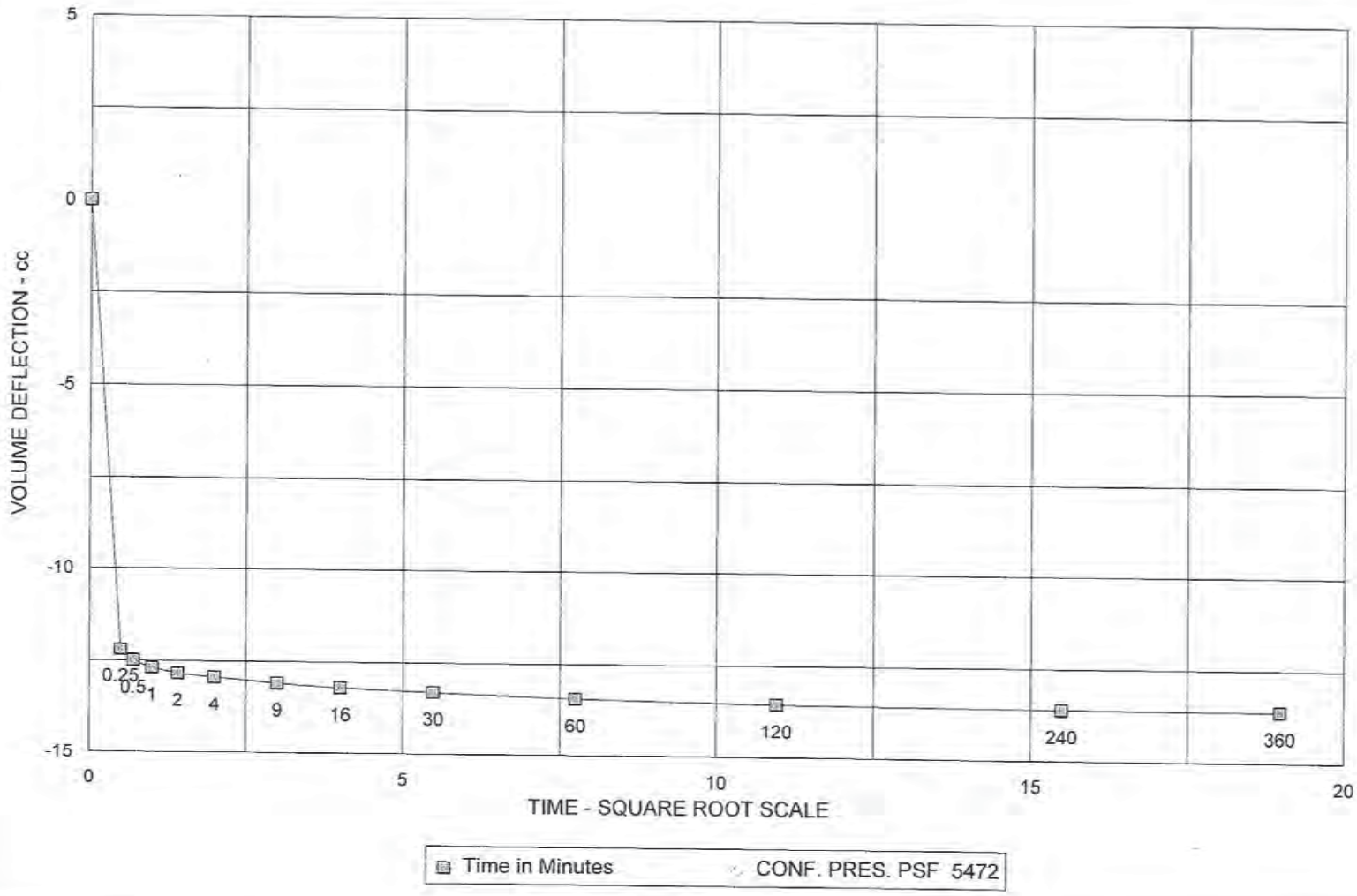
| | | | |
|---|---|---|---|
| Initial Height (in) | 2.944 | Init. Vol. (CC) | 305.02 |
| Height Change (in) | 0.097 | Vol. Change (CC) | 35.10 |
| Ht. After Cons. (in) | 2.847 | Cell Exp. (CC) | 16.73 |
| Initial Area (sq in) | 6.321 | Net Change (CC) | 18.37 |
| Area After Cons. (sq in) | 6.143 | Cons. Vol. (CC) | 286.65 |

Data entry by: DPM Date: 04/07/2014
Checked by: KR Date: 4/7/14
FileName: PBCH1505

ADVANCED TERRA TESTING, INC. ATT

# CONSOLIDATION DATA

TI-B15-05, 15.5-16.0' (15-17.5'), -



PERMEABILITY TEST - BACK PRESSURE CONSTANT HEAD
ASTM D 5084

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B8-09 | SAMPLED | 12/04/13 MWH |
| DEPTH | 43.5-44.5' (42.5-45.0') | TEST STARTED | 02/19/14 DPM |
| SAMPLE NO. | Remolded | TEST FINISHED | 02/26/14 DPM |
| SOIL DESCR. | Clayey Silt | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 8784 | TEST TYPE | TX/Pbp/Tap Water |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 379.8 | 337.3 |
| Wt. Wet Soil & Pan (g) | 386.5 | 344.0 |
| Wt. Dry Soil & Pan (g) | 267.5 | 267.5 |
| Wt. Lost Moisture (g) | 119.0 | 76.5 |
| Wt. of Pan Only (g) | 6.7 | 6.7 |
| Wt. of Dry Soil (g) | 260.9 | 260.9 |
| Moisture Content % | 45.6 | 29.3 |
| Wet Density PCF | 107.2 | 121.2 |
| Dry Density PCF | 73.6 | 93.7 |

| | | | | |
|---|---|---|---|---|
| Init. Diameter | (in) | 2.406 | (cm) | 6.111 |
| Init. Area | (sq in) | 4.547 | (sq cm) | 29.334 |
| Init. Height | (in) | 2.969 | (cm) | 7.541 |
| Vol. Bef. Consol. | (cu ft) | 0.00781 | | |
| Vol. After Consol. | (cu ft) | 0.00613 | | |
| Porosity % | | 44.01 | | |
| Constant Head | (PSI) | 2.00 | (cm) | 140.79 |

| Time Min | Time Sec | Init. Burette CC | Final Burette CC | Head Corr. CM | Permeability k cm/sec |
|---|---|---|---|---|---|
| 1500.0 | 90000 | 45.8 | 44.3 | 16.3 | 3.4E-08 |
| 2880.0 | 172800 | 44.3 | 41.9 | 18.4 | 2.9E-08 |
| 1440.0 | 86400 | 41.9 | 40.7 | 20.4 | 2.9E-08 |
| 1440.0 | 86400 | 40.7 | 39.5 | 21.7 | 3.0E-08 |

Note: Could not achieve target density.

Average Temperature 21.1

Data entry by: DPM Date: 04/04/2014
Checked by: KR Date: 4/5/14
FileName: PBCHB809

ADVANCED TERRA TESTING, INC. ATT

RIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B8-09 | SAMPLED | 12/04/13 MWH |
| DEPTH | 43.5-44.5' (42.5-45.0') | TEST STARTED | 02/19/14 DPM |
| SAMPLE NO. | Remolded | TEST FINISHED | 02/26/14 DPM |
| SOIL DESCR. | Clayey Silt | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 8784 | TEST TYPE | TX/Pbp/Tap Water |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 2.9 | 17.4 | | | | |
| 50.0 | | 20.9 | 21.0 | 38.6 | 48.4 | 9.8 | 0.98 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT Time (Min) | Burette Reading (CC) | Volume Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.00 | 0.30 | 0.00 |
| 0.25 | 0.50 | 7.40 | -7.10 |
| 0.5 | 0.71 | 8.20 | -7.90 |
| 1 | 1.00 | 9.20 | -8.90 |
| 2 | 1.41 | 10.60 | -10.30 |
| 4 | 2.00 | 12.45 | -12.15 |
| 9 | 3.00 | 15.55 | -15.25 |
| 16 | 4.00 | 18.70 | -18.40 |
| 30 | 5.48 | 23.20 | -22.90 |
| 60 | 7.75 | 30.00 | -29.70 |
| 120 | 10.95 | 37.80 | -37.50 |
| 240 | 15.49 | 43.00 | -42.70 |
| 360 | 18.97 | 44.20 | -43.90 |

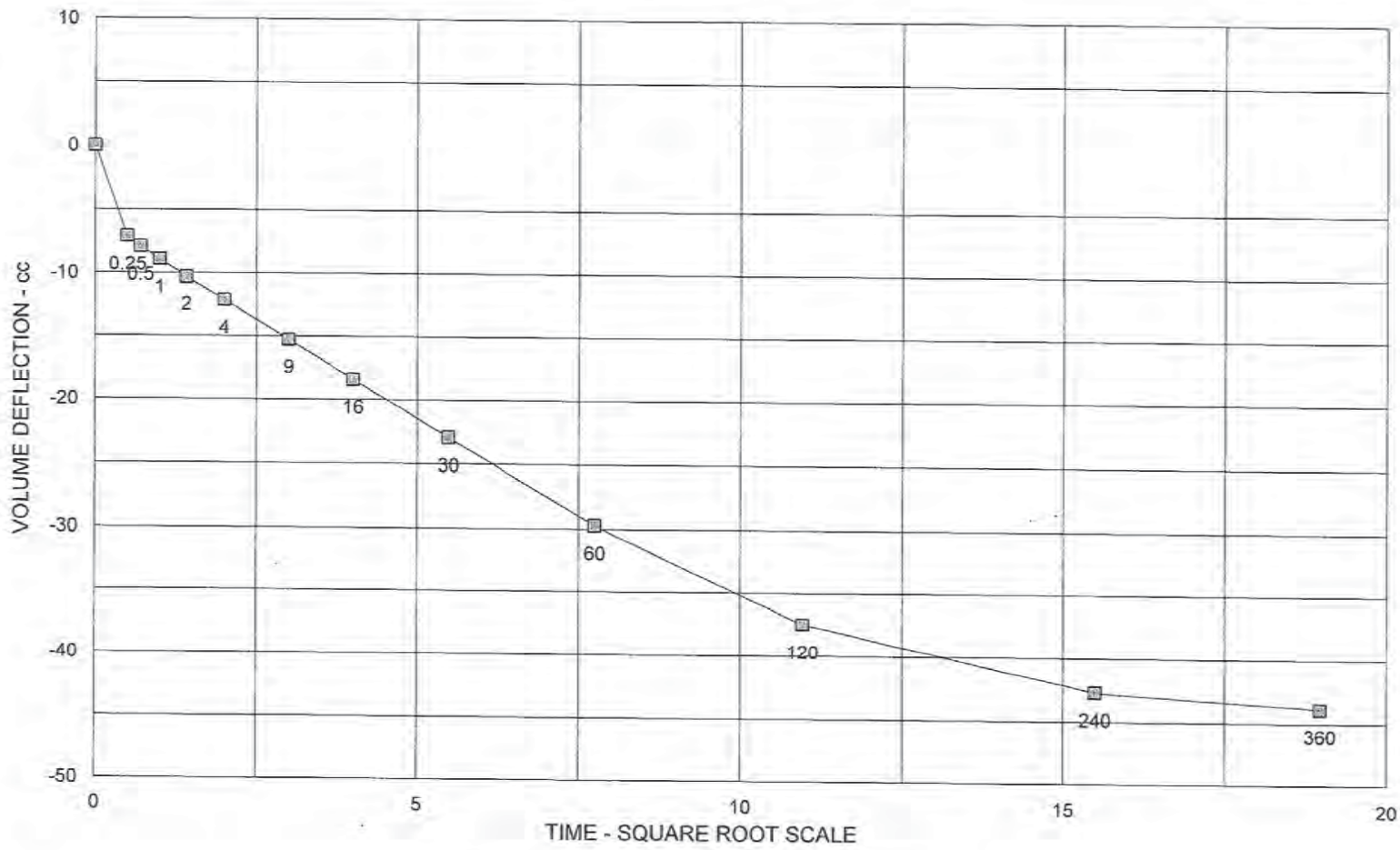
| | | | |
|---|---|---|---|
| Initial Height (in) | 2.969 | Init. Vol. (CC) | 221.24 |
| Height Change (in) | 0.346 | Vol. Change (CC) | 65.40 |
| Ht. After Cons. (in) | 2.623 | Cell Exp. (CC) | 17.91 |
| Initial Area (sq in) | 4.547 | Net Change (CC) | 47.49 |
| Area After Cons. (sq in) | 4.042 | Cons. Vol. (CC) | 173.75 |

Data entry by: DPM Date: 04/04/2014
Checked by: KR Date: 4/5/14
FileName: PBCHB809

ADVANCED TERRA TESTING, INC. ATT

# CONSOLIDATION DATA

TI-B8-09, 43.5-44.5' (42.5-45.0'), Remolded




Time in Minutes

CONF. PRES. PSF 8784

PERMEABILITY TEST - BACK PRESSURE CONSTANT HEAD
ASTM D 5084

CLIENT MWH

JOB NO. 2512-77

| | | | |
|---|---|---|---|
| BORING NO. | TI-B8-08 | SAMPLED | 12/04/13 MWH |
| DEPTH | 41-42' (40-42.5') | TEST STARTED | 01/21/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 2/8/14 DPM |
| SOIL DESCR. | Clayey Silt | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 7632 | TEST TYPE | TX/Pbp/Tap Water |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 284.1 | 284.1 |
| Wt. Wet Soil & Pan (g) | 300.0 | 299.9 |
| Wt. Dry Soil & Pan (g) | 244.9 | 244.9 |
| Wt. Lost Moisture (g) | 55.1 | 55.0 |
| Wt. of Pan Only (g) | 15.9 | 15.9 |
| Wt. of Dry Soil (g) | 229.0 | 229.0 |
| Moisture Content % | 24.1 | 24.0 |
| Wet Density PCF | 119.1 | 125.1 |
| Dry Density PCF | 96.0 | 100.8 |

| | | | |
|---|---|---|---|
| Init. Diameter (in) | 1.933 | (cm) | 4.910 |
| Init. Area (sq in) | 2.935 | (sq cm) | 18.934 |
| Init. Height (in) | 3.096 | (cm) | 7.864 |
| Vol. Bef. Consol. (cu ft) | 0.00526 | | |
| Vol. After Consol. (cu ft) | 0.00501 | | |
| Porosity % | 38.81 | | |
| Constant Head (PSI) | 2.00 | (cm) | 140.79 |

| Time Min | Time Sec | Init. Burette CC | Final Burette CC | Head Corr. CM | Permeability k cm/sec |
|---|---|---|---|---|---|
| 1442.0 | 86520 | 47.2 | 42.9 | 16.3 | 1.6E-07 |
| 1440.0 | 86400 | 44.8 | 41.0 | 18.6 | 1.4E-07 |
| 5760.0 | 345600 | 48.6 | 35.0 | 19.8 | 1.3E-07 |
| 1440.0 | 86400 | 35.0 | 31.8 | 29.0 | 1.3E-07 |
| 1440.0 | 86400 | 31.8 | 29.0 | 32.3 | 1.2E-07 |
| 1440.0 | 86400 | 29.0 | 26.4 | 35.2 | 1.1E-07 |
| 1322.0 | 79320 | 46.4 | 43.1 | 16.6 | 1.3E-07 |

Note: Could not reach 59psi confining pressure due to saturation pressure and air compressor limitations.

Average Temperature 19.2

Data entry by: KR DPM Date: 04/04/2014
Checked by: 4/6/14 Date: 4/6/14
FileName: PBCHB808

ADVANCED TERRA TESTING, INC. ATT

RIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B8-08 | SAMPLED | 12/04/13 MWH |
| DEPTH | 41-42' (40-42.5') | TEST STARTED | 01/21/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 2/8/14 DPM |
| SOIL DESCR. | Clayey Silt | CELL NUMBER | 27S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 7632 | TEST TYPE | TX/Pbp/Tap Water |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 2.4 | 11.7 | | | | |
| 50.0 | 48.0 | 13.0 | 14.3 | 38.5 | 47.3 | 8.8 | 0.88 |
| 60.0 | 58.0 | 14.3 | 15.3 | 48.0 | 57.1 | 9.1 | 0.91 |
| 70.0 | | 15.9 | 16.0 | 57.7 | 67.2 | 9.5 | 0.95 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT Time (Min) | Burette Reading (CC) | Volume Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.00 | 0.30 | 0.00 |
| 0.25 | 0.50 | 7.30 | -7.00 |
| 0.5 | 0.71 | 8.00 | -7.70 |
| 1 | 1.00 | 8.70 | -8.40 |
| 2 | 1.41 | 9.50 | -9.20 |
| 4 | 2.00 | 10.30 | -10.00 |
| 9 | 3.00 | 11.30 | -11.00 |
| 16 | 4.00 | 11.70 | -11.40 |
| 30 | 5.48 | 12.05 | -11.75 |
| 60 | 7.75 | 12.25 | -11.95 |
| 120 | 10.95 | 12.55 | -12.25 |
| 240 | 15.49 | 12.90 | -12.60 |
| 360 | 18.97 | 12.90 | -12.60 |

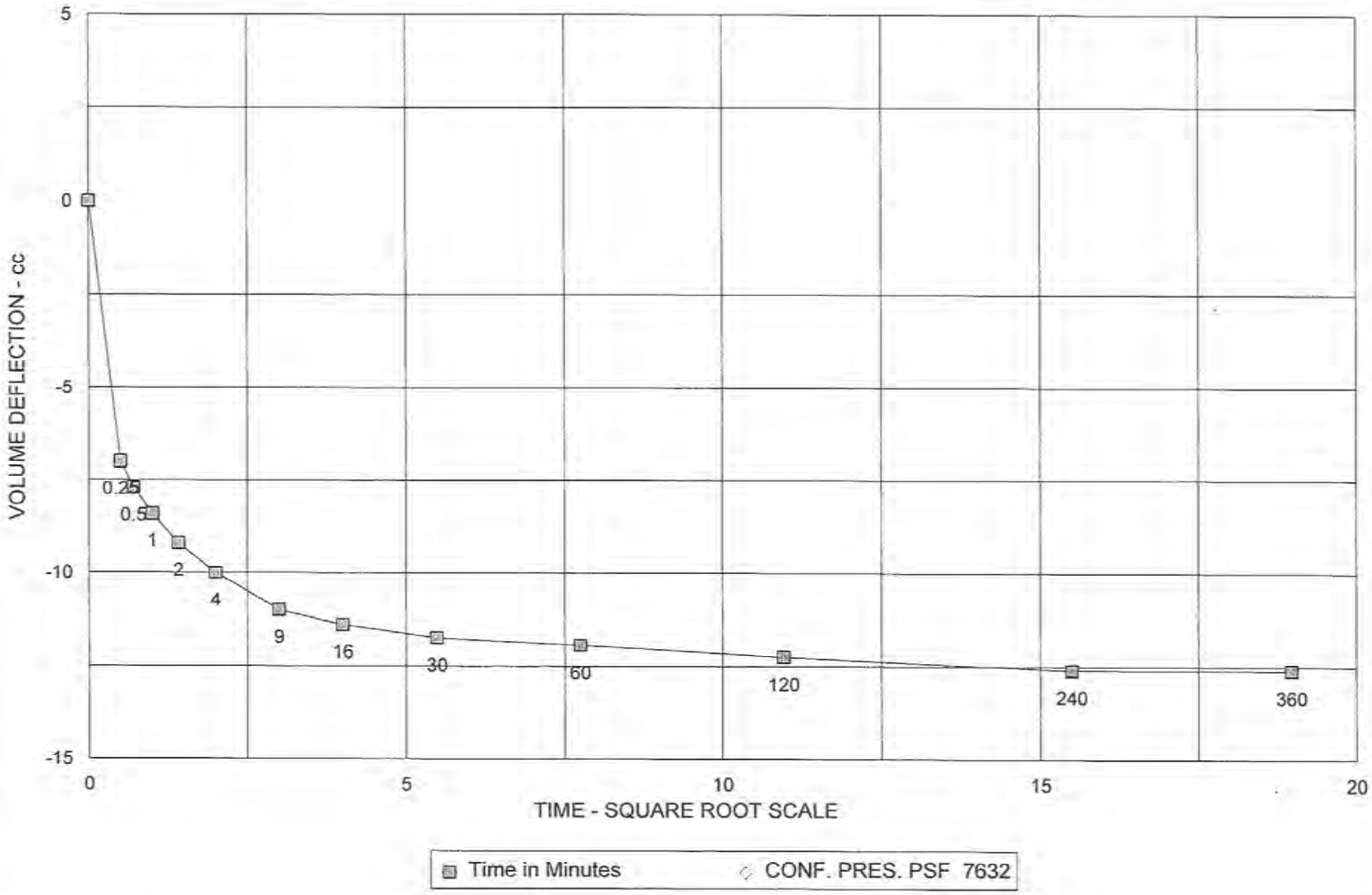
| | | | |
|---|---|---|---|
| Initial Height (in) | 3.096 | Init. Vol. (CC) | 148.91 |
| Height Change (in) | 0.122 | Vol. Change (CC) | 30.30 |
| Ht. After Cons. (in) | 2.974 | Cell Exp. (CC) | 23.21 |
| Initial Area (sq in) | 2.935 | Net Change (CC) | 7.09 |
| Area After Cons. (sq in) | 2.910 | Cons. Vol. (CC) | 141.83 |

Data entry by: KR DPM Date: 04/04/2014
Checked by: 4/6/14 Date: 4/6/14
FileName: PBCHB808

ADVANCED TERRA TESTING, Inc. ATT

# CONSOLIDATION DATA

TI-B8-08, 41-42' (40-42.5'), -



PERMEABILITY TEST - BACK PRESSURE CONSTANT HEAD
ASTM D 5084

CLIENT MWH

JOB NO. 2512-77

| | | | |
|---|---|---|---|
| BORING NO. | TI-B8-06 | SAMPLED | 12/04/13 MWH |
| DEPTH | 35-36' (35-37.5') | TEST STARTED | 01/22/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 01/30/14 DPM |
| SOIL DESCR. | Clayey Silt/Sand | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 6192 | TEST TYPE | TX/Pbp/Tap Water |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 244.1 | 265.9 |
| Wt. Wet Soil & Pan (g) | 259.9 | 281.8 |
| Wt. Dry Soil & Pan (g) | 225.4 | 225.4 |
| Wt. Lost Moisture (g) | 34.5 | 56.4 |
| Wt. of Pan Only (g) | 15.8 | 15.8 |
| Wt. of Dry Soil (g) | 209.6 | 209.6 |
| Moisture Content % | 16.5 | 26.9 |
| Wet Density PCF | 104.3 | 125.3 |
| Dry Density PCF | 89.6 | 98.7 |

| | | | | |
|---|---|---|---|---|
| Init. Diameter | (in) | 1.927 | (cm) | 4.895 |
| Init. Area | (sq in) | 2.916 | (sq cm) | 18.817 |
| Init. Height | (in) | 3.056 | (cm) | 7.762 |
| Vol. Bef. Consol. | (cu ft) | 0.00516 | | |
| Vol. After Consol. | (cu ft) | 0.00468 | | |
| Porosity % | | 42.52 | | |
| Constant Head | (PSI) | 2.00 | (cm) | 140.79 |

| Time Min | Time Sec | Init. Burette CC | Final Burette CC | Head Corr. CM | Permeability k cm/sec |
|---|---|---|---|---|---|
| 60.0 | 3600 | 47.0 | 18.6 | 29.6 | 3.0E-05 |
| 60.0 | 3600 | 47.4 | 25.2 | 25.8 | 2.3E-05 |
| 61.0 | 3660 | 46.2 | 33.6 | 21.9 | 1.2E-05 |
| 60.0 | 3600 | 33.6 | 26.4 | 32.7 | 7.8E-06 |
| 60.0 | 3600 | 46.1 | 23.4 | 27.5 | 2.3E-05 |
| 90.0 | 5400 | 45.0 | 23.4 | 28.1 | 1.5E-05 |
| 60.0 | 3600 | 47.7 | 27.8 | 24.3 | 2.0E-05 |
| 60.0 | 3600 | 44.2 | 28.4 | 25.8 | 1.6E-05 |

Average Temperature 19.3

Note: Could not reach the requested confining pressure due to Saturation pressure and air compessor limitations.

Data entry by: DPM Date: 04/04/2014
Checked by: KR Date: 4/5/14
FileName: PBBCHB806

ADVANCED TERRA TESTING, Inc. ATT

RIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B8-06 | SAMPLED | 12/04/13 MWH |
| DEPTH | 35-36' (35-37.5') | TEST STARTED | 01/22/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 01/30/14 DPM |
| SOIL DESCR. | Clayey Silt/Sand | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 6192 | TEST TYPE | TX/Pbp/Tap Water |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 7.8 | 17.5 | | | | |
| 50.0 | 48.0 | 19.5 | 20.7 | 38.1 | 44.8 | 6.7 | 0.67 |
| 60.0 | 58.0 | 21.3 | 22.3 | 48.0 | 56.1 | 8.1 | 0.81 |
| 70.0 | 68.0 | 24.1 | 24.9 | 58.1 | 67.4 | 9.3 | 0.93 |
| 80.0 | | 25.6 | 25.7 | 67.5 | 77.3 | 9.8 | 0.98 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT Time (Min) | Burette Reading (CC) | Volume Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.00 | 0.70 | 0.00 |
| 0.25 | 0.50 | 8.30 | -7.60 |
| 0.5 | 0.71 | 8.55 | -7.85 |
| 1 | 1.00 | 8.65 | -7.95 |
| 2 | 1.41 | 8.80 | -8.10 |
| 4 | 2.00 | 8.90 | -8.20 |
| 9 | 3.00 | 9.05 | -8.35 |
| 16 | 4.00 | 9.20 | -8.50 |
| 30 | 5.48 | 9.40 | -8.70 |
| 60 | 7.75 | 9.60 | -8.90 |
| 120 | 10.95 | 9.90 | -9.20 |
| 240 | 15.49 | 10.30 | -9.60 |
| 360 | 18.97 | 10.50 | -9.80 |

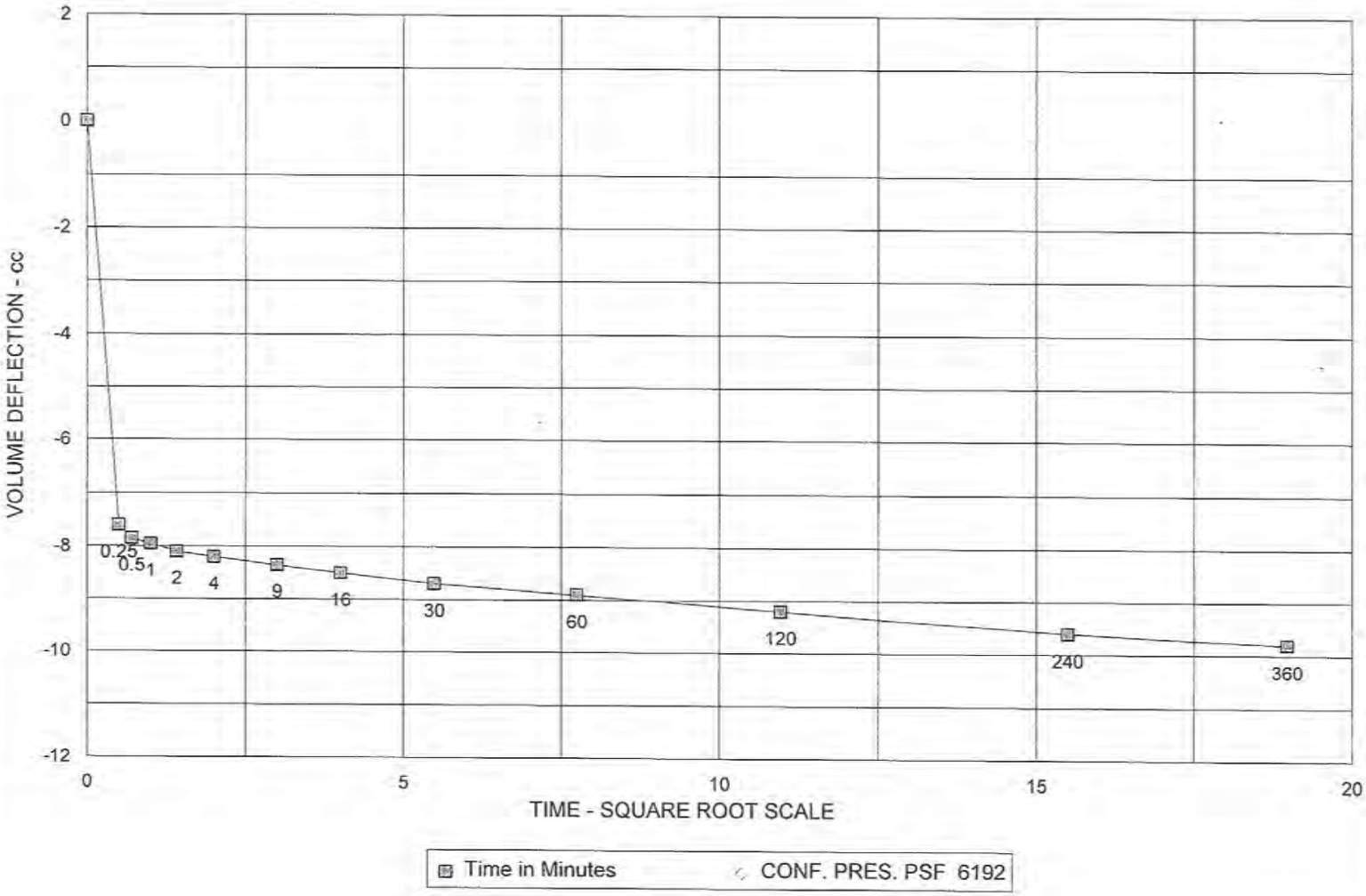
| | | | |
|---|---|---|---|
| Initial Height (in) | 3.056 | Init. Vol. (CC) | 146.08 |
| Height Change (in) | 0.115 | Vol. Change (CC) | 33.00 |
| Ht. After Cons. (in) | 2.941 | Cell Exp. (CC) | 19.48 |
| Initial Area (sq in) | 2.916 | Net Change (CC) | 13.52 |
| Area After Cons. (sq in) | 2.750 | Cons. Vol. (CC) | 132.56 |

Data entry by: DPM Date: 04/04/2014
Checked by: KK Date: 4/5/14
FileName: PBBCHB806

ADVANCED TERRA TESTING, INC. ATT

# CONSOLIDATION DATA

TI-B8-06, 35-36' (35-37.5'), -



PERMEABILITY TEST - BACK PRESSURE CONSTANT HEAD
ASTM D 5084

CLIENT MWH

JOB NO. 2512-77

| | | | |
|---|---|---|---|
| BORING NO. | TI-B11-10 | SAMPLED | 12/02/13 MWH |
| DEPTH | 56-57' (55-57') | TEST STARTED | 01/21/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 02/08/14 DPM |
| SOIL DESCR. | Silty Sand | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 10368 | TEST TYPE | TX/Pbp/Tap Water |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 499.4 | 571.9 |
| Wt. Wet Soil & Pan (g) | 515.3 | 587.8 |
| Wt. Dry Soil & Pan (g) | 459.8 | 459.8 |
| Wt. Lost Moisture (g) | 55.5 | 128.0 |
| Wt. of Pan Only (g) | 15.9 | 15.9 |
| Wt. of Dry Soil (g) | 443.9 | 443.9 |
| Moisture Content % | 12.5 | 28.8 |
| Wet Density PCF | 99.7 | 118.6 |
| Dry Density PCF | 88.6 | 92.1 |

| | | | |
|---|---|---|---|
| Init. Diameter (in) | 2.822 | (cm) | 7.168 |
| Init. Area (sq in) | 6.255 | (sq cm) | 40.355 |
| Init. Height (in) | 3.050 | (cm) | 7.747 |
| Vol. Bef. Consol. (cu ft) | 0.01104 | | |
| Vol. After Consol. (cu ft) | 0.01063 | | |
| Porosity % | 42.51 | | |
| Constant Head (PSI) | 2.00 | (cm) | 140.79 |

| Time Min | Time Sec | Init. Burette CC | Final Burette CC | Head Corr. CM | Permeability k cm/sec |
|---|---|---|---|---|---|
| 1.0 | 60 | 45.0 | 24.7 | 27.4 | 5.8E-04 |
| 1.0 | 60 | 48.4 | 28.8 | 23.3 | 5.4E-04 |
| 1.0 | 60 | 47.9 | 29.5 | 23.2 | 5.1E-04 |
| 1.0 | 60 | 47.9 | 27.9 | 24.1 | 5.6E-04 |

Average Temperature 19.4

Data entry by: DPM Date: 04/04/2014
Checked by: KR Date: 4/6/14
FileName: PBCH1110

ADVANCED TERRA TESTING, INC. ATT

RIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B11-10 | SAMPLED | 12/02/13 MWH |
| DEPTH | 56-57' (55-57') | TEST STARTED | 01/21/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 02/08/14 DPM |
| SOIL DESCR. | Silty Sand | CELL NUMBER | 26S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 10368 | TEST TYPE | TX/Pbp/Tap Water |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 4.0 | 16.9 | | | | |
| 50.0 | 48.0 | 20.4 | 21.4 | 38.8 | 45.5 | 6.7 | 0.67 |
| 60.0 | 58.0 | 21.7 | 22.5 | 47.9 | 55.7 | 7.8 | 0.78 |
| 70.0 | 68.0 | 23.0 | 23.8 | 57.8 | 66.4 | 8.6 | 0.86 |
| 80.0 | | 25.2 | 25.2 | 68.0 | 77.8 | 9.8 | 0.98 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT Time (Min) | Burette Reading (CC) | Volume Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.00 | 2.70 | 0.00 |
| 0.25 | 0.50 | 14.40 | -11.70 |
| 0.5 | 0.71 | 14.60 | -11.90 |
| 1 | 1.00 | 14.80 | -12.10 |
| 2 | 1.41 | 14.95 | -12.25 |
| 4 | 2.00 | 15.10 | -12.40 |
| 9 | 3.00 | 15.30 | -12.60 |
| 16 | 4.00 | 15.40 | -12.70 |
| 30 | 5.48 | 15.60 | -12.90 |
| 60 | 7.75 | 15.80 | -13.10 |
| 120 | 10.95 | 16.10 | -13.40 |
| 240 | 15.49 | 16.50 | -13.80 |
| 360 | 18.97 | 16.70 | -14.00 |

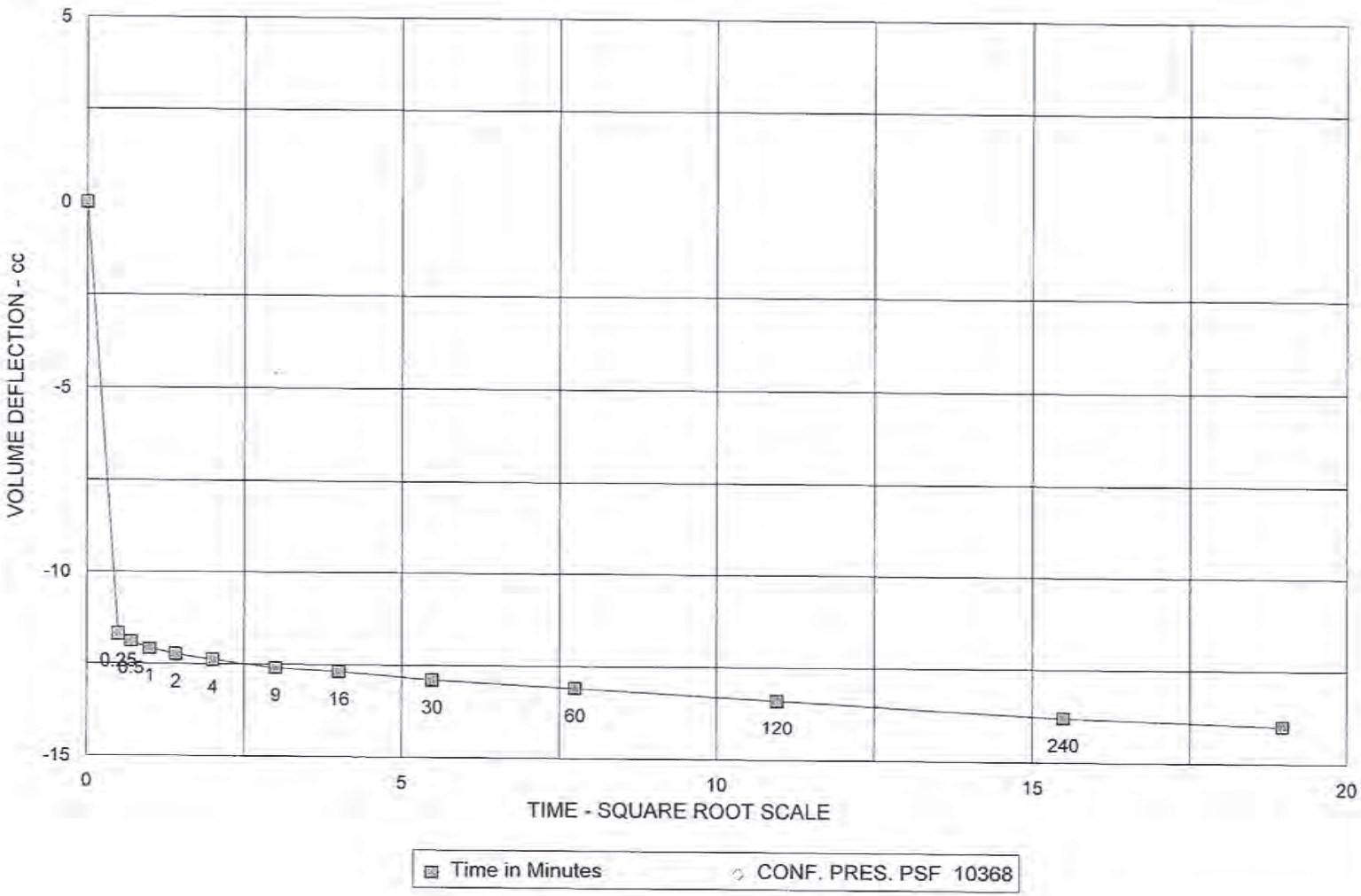
| | | | |
|---|---|---|---|
| Initial Height (in) | 3.050 | Init. Vol. (CC) | 312.67 |
| Height Change (in) | 0.037 | Vol. Change (CC) | 36.50 |
| Ht. After Cons. (in) | 3.013 | Cell Exp. (CC) | 24.90 |
| Initial Area (sq in) | 6.255 | Net Change (CC) | 11.60 |
| Area After Cons. (sq in) | 6.097 | Cons. Vol. (CC) | 301.07 |

Data entry by: DPM Date: 04/04/2014
Checked by: KR Date: 9/6/14
FileName: PBCH1110

ADVANCED TERRA TESTING, INC. ATT

# CONSOLIDATION DATA

TI-B11-10, 56-57' (55-57'), -



PERMEABILITY TEST - BACK PRESSURE CONSTANT HEAD
ASTM D 5084

CLIENT MWH

JOB NO. 2512-77

| | | | |
|---|---|---|---|
| BORING NO. | TI-B11-08 | SAMPLED | 12/02/13 MWH |
| DEPTH | 51.5-52.5' (50-52.5') | TEST STARTED | 03/05/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 03/18/14 DPM |
| SOIL DESCR. | Fine Tailings | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 9648 | TEST TYPE | TX/Pbp/Tap Water |

| MOISTURE/DENSITY DATA | BEFORE TEST | AFTER TEST |
|---|---|---|
| Wt. Soil + Moisture (g) | 362.2 | 334.6 |
| Wt. Wet Soil & Pan (g) | 368.7 | 341.1 |
| Wt. Dry Soil & Pan (g) | 225.8 | 225.8 |
| Wt. Lost Moisture (g) | 142.9 | 115.3 |
| Wt. of Pan Only (g) | 6.6 | 6.6 |
| Wt. of Dry Soil (g) | 219.2 | 219.2 |
| Moisture Content % | 65.2 | 52.6 |
| Wet Density PCF | 99.8 | 111.5 |
| Dry Density PCF | 60.4 | 73.0 |

| | | | |
|---|---|---|---|
| Init. Diameter (in) | 2.412 | (cm) | 6.126 |
| Init. Area (sq in) | 4.569 | (sq cm) | 29.481 |
| Init. Height (in) | 3.026 | (cm) | 7.686 |
| Vol. Bef. Consol. (cu ft) | 0.00800 | | |
| Vol. After Consol. (cu ft) | 0.00662 | | |
| Porosity % | 61.54 | | |
| Constant Head (PSI) | 2.00 | (cm) | 140.79 |

| Time Min | Time Sec | Init. Burette CC | Final Burette CC | Head Corr. CM | Permeability k cm/sec |
|---|---|---|---|---|---|
| 1480.0 | 88800 | 45.2 | 43.3 | 17.2 | 4.5E-08 |
| 1440.0 | 86400 | 43.3 | 41.8 | 19.0 | 3.7E-08 |
| 1450.0 | 87000 | 41.8 | 40.6 | 20.5 | 3.0E-08 |
| 2880.0 | 172800 | 40.6 | 38.5 | 22.3 | 2.7E-08 |
| 1440.0 | 86400 | 38.5 | 37.3 | 24.1 | 3.1E-08 |

Average Temperature 21.2

Data entry by: DPM Date: 04/04/2014
Checked by: KH Date: 4/6/14
FileName: PBCH1108

ADVANCED TERRA TESTING, INC. ATT

RIAXIAL COMPRESSION TEST DATA

| | | | |
|---|---|---|---|
| CLIENT | MWH | JOB NO. | 2512-77 |
| BORING NO. | TI-B11-08 | SAMPLED | 12/02/13 MWH |
| DEPTH | 51.5-52.5' (50-52.5') | TEST STARTED | 03/05/14 DPM |
| SAMPLE NO. | - | TEST FINISHED | 03/18/14 DPM |
| SOIL DESCR. | Fine Tailings | CELL NUMBER | 25S |
| LOCATION | Tailings Impoundment | SATURATED TEST | Yes |
| CONF. PRES. PSF | 9648 | TEST TYPE | TX/Pbp/Tap Water |

SATURATION DATA

| Cell Pres. (PSI) | Back Pres. (PSI) | Burette Reading (CC) | | Pore Pressure (PSI) | | Change | B |
|---|---|---|---|---|---|---|---|
| | | Close | Open | Close | Open | | |
| 40.0 | 38.0 | 1.2 | 9.4 | | | | |
| 50.0 | 48.0 | 10.3 | 11.4 | 38.0 | 47.1 | 9.1 | 0.91 |
| 60.0 | | 11.8 | 12.0 | 48.2 | 57.8 | 9.6 | 0.96 |

CONSOLIDATION DATA

| Elapsed Time (Min) | SQRT Time (Min) | Burette Reading (CC) | Volume Defl. (CC) |
|---|---|---|---|
| 0.00 | 0.00 | 0.60 | 0.00 |
| 0.25 | 0.50 | 7.80 | -7.20 |
| 0.5 | 0.71 | 8.50 | -7.90 |
| 1 | 1.00 | 9.60 | -9.00 |
| 2 | 1.41 | 11.00 | -10.40 |
| 4 | 2.00 | 13.00 | -12.40 |
| 9 | 3.00 | 16.30 | -15.70 |
| 16 | 4.00 | 19.50 | -18.90 |
| 30 | 5.48 | 23.70 | -23.10 |
| 60 | 7.75 | 29.50 | -28.90 |
| 137 | 11.70 | 36.70 | -36.10 |
| 240 | 15.49 | 40.50 | -39.90 |
| 360 | 18.97 | 42.30 | -41.70 |

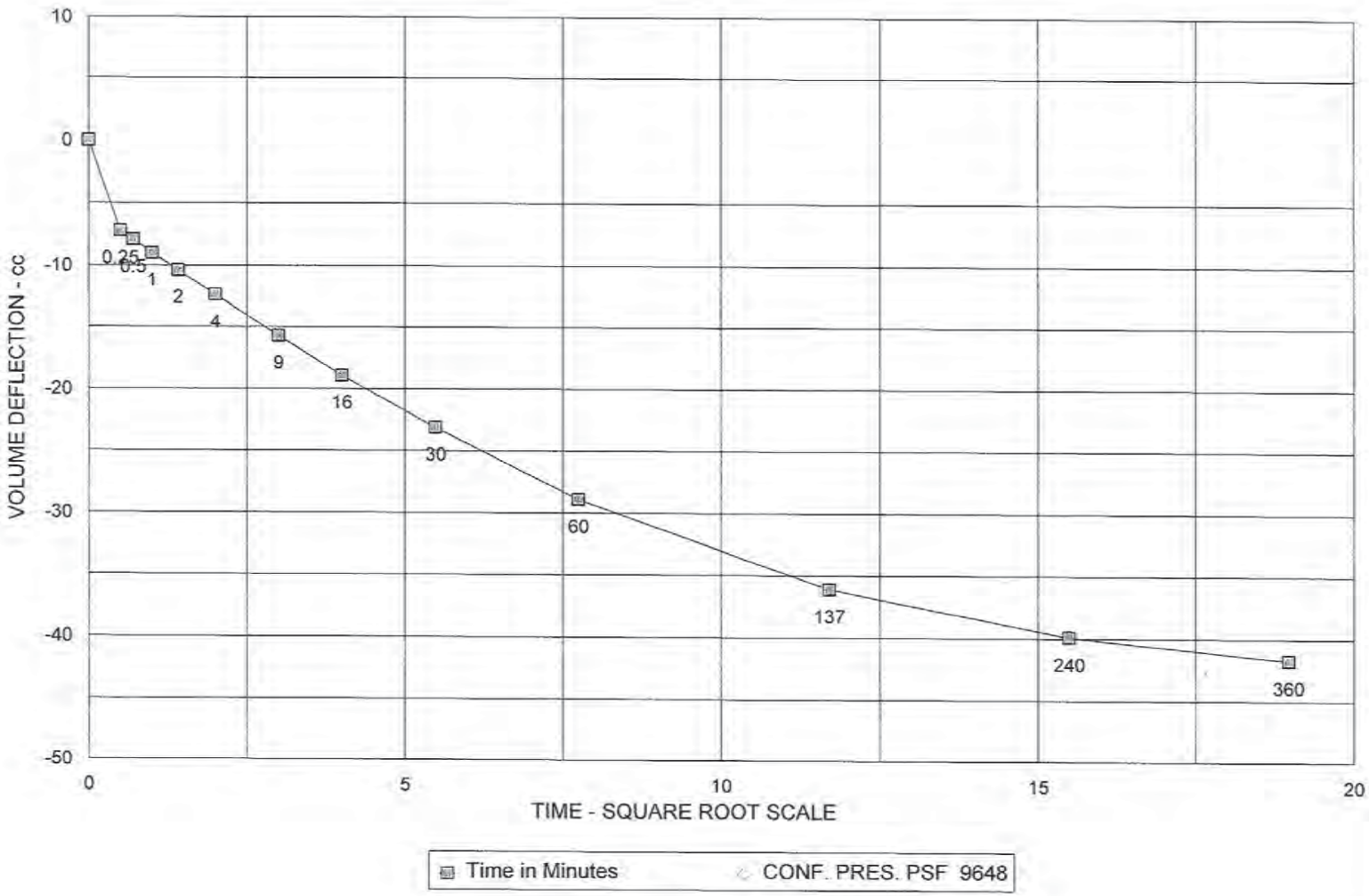
| | | | |
|---|---|---|---|
| Initial Height (in) | 3.026 | Init. Vol. (CC) | 226.62 |
| Height Change (in) | 0.265 | Vol. Change (CC) | 59.20 |
| Ht. After Cons. (in) | 2.761 | Cell Exp. (CC) | 20.00 |
| Initial Area (sq in) | 4.569 | Net Change (CC) | 39.20 |
| Area After Cons. (sq in) | 4.142 | Cons. Vol. (CC) | 187.42 |

Data entry by: DPM Date: 04/04/2014
Checked by: KR Date: 4/6/14
FileName: PBCH1108

ADVANCED TERRA TESTING, INC. ATT

# CONSOLIDATION DATA

TI-B11-08, 51.5-52.5' (50-52.5'), -



Moisture Content Determinations
ASTM D 2216

| | | | |
|---|---|---|---|
| CLIENT: | MWH | JOB NO. | 2512-77 |
| PROJECT | Church Rock | | |
| PROJECT NO. | -- | | |

| BORING NO. | CS-5 | CS-6 | CS-7 | CS-8 |
|---|---|---|---|---|
| DEPTH | 9-24" | 7-24" | 0-20" | 8-28" |
| SAMPLE NO. | TI-CS05-04A(9-24") | TI-CS06-04A(7-24") | TI-CS07-02A(0-20") | TI-CS08-04A(8-28") |
| DATE SAMPLED | 11/12/13 MWH | 11/13/13 MWH | 11/13/13 MWH | 11/13/13 MWH |
| DATE TESTED | 11/22/13 CAL | 11/22/13 CAL | 11/22/13 CAL | 11/22/13 CAL |
| LOCATION | Tailings Impoundment | Tailings Impoundment | Tailings Impoundment | Tailings Impoundment |
| MOISTURE DETERMINATIONS | | | | |
| Wt. of Wet Soil & Dish (gms) | 414.50 | 391.13 | 532.93 | 528.02 |
| Wt. of Dry Soil & Dish (gms) | 378.91 | 352.93 | 494.69 | 489.34 |
| Net Loss of Moisture (gms) | 35.59 | 38.20 | 38.24 | 38.68 |
| Wt. of Dish (gms) | 6.62 | 6.56 | 6.55 | 9.27 |
| Wt. of Dry Soil (gms) | 372.29 | 346.37 | 488.14 | 480.07 |
| Moisture Content (%) | 9.6 | 11.0 | 7.8 | 8.1 |

| BORING NO. | CS-9 |
|---|---|
| DEPTH | 9-26" |
| SAMPLE NO. | TI-CS09-04A(9-26") |
| DATE SAMPLED | 11/13/13 MWH |
| DATE TESTED | 11/22/13 CAL |
| LOCATION | Tailings Impoundment |
| MOISTURE DETERMINATIONS | |
| Wt. of Wet Soil & Dish (gms) | 461.42 |
| Wt. of Dry Soil & Dish (gms) | 428.77 |
| Net Loss of Moisture (gms) | 32.65 |
| Wt. of Dish (gms) | 6.57 |
| Wt. of Dry Soil (gms) | 422.20 |
| Moisture Content (%) | 7.7 |

Data entry by: CAL Date: 12/3/2013
Checked by: KP Date: 12/5/13
File name: 2512-77-M&D-ASTMD-2216-2937-R0-AS3-P1.xls

ATT
ADVANCED TERRA TESTING

Moisture Content Determinations
ASTM D 2216

| | | | |
|---|---|---|---|
| CLIENT: | MWH | | JOB NO. |
| PROJECT | Church Rock | | |
| PROJECT NO. | -- | | |

| | | | |
|---|---|---|---|
| BORING NO. | CS-11 | CS-1 | CS-4 |
| DEPTH | 9-24" | 11-24" | 10-24" |
| SAMPLE NO. | TI-CS11-04A(9-24") | TI-CS01-04A(11-24") | TI-CS04-04A(10-24") |
| DATE SAMPLED | 11/13/13 MWH | 11/12/13 MWH | 11/12/13 MWH |
| DATE TESTED | 12/3/13 CAL | 12/4/13 KMR | 12/4/13 KMR |
| LOCATION | Tailings Impoundment | Tailings Impoundment | Tailings Impoundment |
| MOISTURE DETERMINATIONS | | | |
| Wt. of Wet Soil & Dish (gms) | 241.48 | 312.07 | 402.15 |
| Wt. of Dry Soil & Dish (gms) | 222.88 | 286.52 | 350.83 |
| Net Loss of Moisture (gms) | 18.60 | 25.55 | 51.32 |
| Wt. of Dish (gms) | 6.72 | 9.23 | 9.26 |
| Wt. of Dry Soil (gms) | 216.16 | 277.29 | 341.57 |
| Moisture Content (%) | 8.6 | 9.2 | 15.0 |

| | | | |
|---|---|---|---|
| Data entry by: | CAL | Date: | 12/5/2013 |
| Checked by: | KR | Date: | 12/5/13 |
| File name: | 2512-77-M&D-ASTMD-2216-2937-R0-7.xls | | |

Moisture Content Determinations
ASTM D 2216

| | | | |
|---|---|---|---|
| CLIENT: | MWH | JOB NO. | 2512-77 |
| PROJECT | Church Rock | LOCATION | Tailings Impoundment |
| PROJECT NO. | -- | | |

| | | | |
|---|---|---|---|
| BORING NO. | CS-12 | CS-2 | CS-10 |
| DEPTH | 0-14" | 10-24" | 7-25" |
| SAMPLE NO. | TI-CS12-02A(0-14") | TI-CS2-04A(10-24") | TI-CS10-04A(7-25") |
| DATE SAMPLED | 11/13/2013 | 11/12/2013 | 11/13/2013 |
| DATE TESTED | 12/6/2013 KMR | 12/10/2013 DPM | 12/10/2013 DPM |
| SOIL DESCRIPTION | -- | -- | -- |
| MOISTURE DETERMINATIONS | | | |
| Wt. of Wet Soil & Dish (gms) | 244.75 | 495.60 | 597.59 |
| Wt. of Dry Soil & Dish (gms) | 225.12 | 445.63 | 555.15 |
| Net Loss of Moisture (gms) | 19.63 | 49.97 | 42.44 |
| Wt. of Dish (gms) | 9.24 | 6.58 | 6.66 |
| Wt. of Dry Soil (gms) | 215.88 | 439.05 | 548.49 |
| Moisture Content (%) | 9.1 | 11.4 | 7.7 |

Data entry by: KMR Date: 12/11/2013
Checked by: DPM Date: 12/12/13
File name: 2512-77-M&D-ASTMD-2216-2937-R0-8.xls

ATT
ADVANCED TERRA TESTING

Moisture Content Determinations
ASTM D 2216

| | | | |
|---|---|---|---|
| CLIENT: | MWH | JOB NO. | 2512-77 |
| PROJECT | Church Rock | LOCATION | Tailings Impoundment |
| PROJECT NO. | - | | |

| | |
|---|---|
| BORING NO. | CS-3 |
| DEPTH | 6-24" |
| SAMPLE NO. | TI-CS03-04A(6-24") |
| DATE SAMPLED | 11/12/13 MWH |
| DATE TESTED | 12/19/13 DPM |
| SOIL DESCRIPTION | - |

MOISTURE DETERMINATIONS

| | |
|---|---|
| Wt. of Wet Soil & Dish (gms) | 1331.96 |
| Wt. of Dry Soil & Dish (gms) | 1257.37 |
| Net Loss of Moisture (gms) | 74.59 |
| Wt. of Dish (gms) | 15.79 |
| Wt. of Dry Soil (gms) | 1241.58 |
| Moisture Content (%) | 6.0 |

| | | | |
|---|---|---|---|
| Data entry by: | DPM | Date: | 12/20/2013 |
| Checked by: | DPM | Date: | 12/20/13 |
| File name: | 2512-77- M&D-ASTMD-2216-2937-R0-10.xls | | |

ATT
ADVANCED TERRA TESTING

Atterberg Limits Test
ASTM D 4318

Client: MWH
Job Number: 2512-77
Project: Church Rock
Location: Tailings Impoundment
Project Number: -

Boring Number: CS-1
Depth: 11-24"
Sample Number: TI-CS01-04A(11-24")
Test Date: 12/20/2013
Technician: MLM
Sampled Date: 11/12/2013
Sampled By: MWH
Method: Method A

## Test Configuration

Liquid Limits Device: 0860
Material Size of Fines: -#40

## Plastic Limits

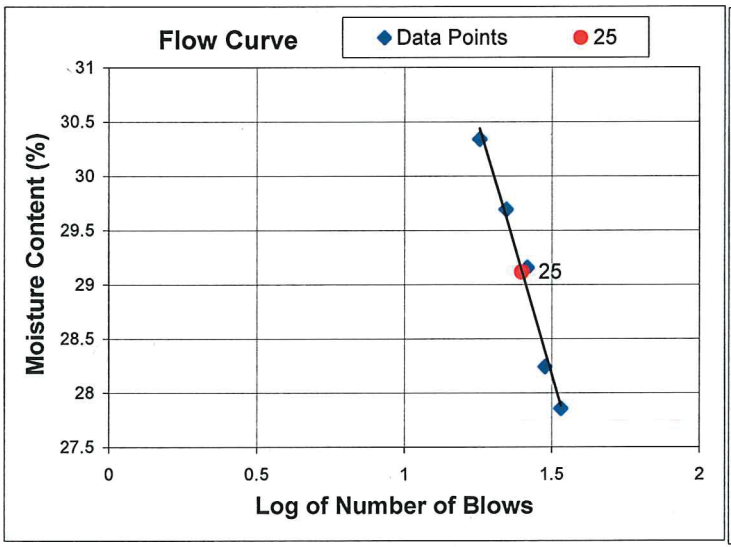
| | Sample 1 | Sample 2 | Sample 3 |
|---|---|---|---|
| Weight of Wet Soil & Pan (g): | 9.611 | 9.535 | 10.520 |
| Weight of Dry Soil & Pan (g): | 8.503 | 8.431 | 9.319 |
| Weight of Water (g): | 1.108 | 1.104 | 1.201 |
| Weight of Pan (g): | 1.135 | 1.117 | 1.133 |
| Moisture Content (%): | 15.0 | 15.1 | 14.7 |

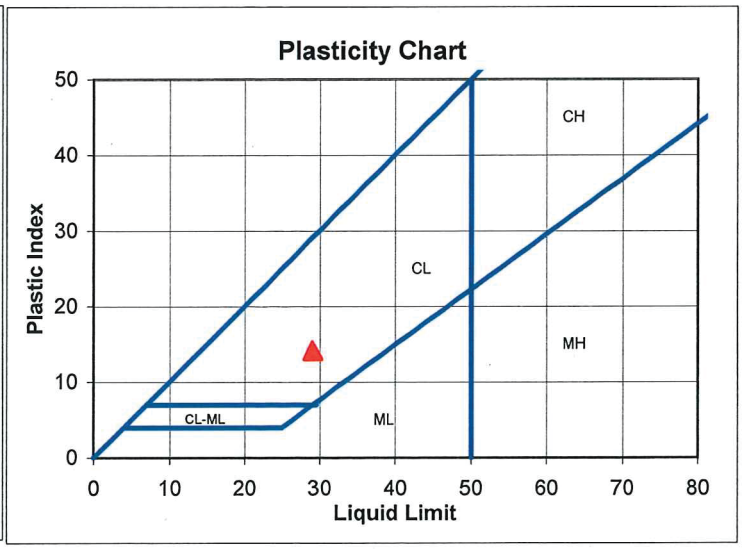
**Average:** 14.9%
**Standard Deviation:** 0.2%

## Liquid Limits

| | Sample 1 | Sample 2 | Sample 3 | Sample 4 | Sample 5 |
|---|---|---|---|---|---|
| Number of Blows: | 34 | 30 | 26 | 22 | 18 |
| Weight of Wet Soil & Pan (g): | 16.758 | 16.257 | 17.649 | 17.054 | 16.046 |
| Weight of Dry Soil & Pan (g): | 13.357 | 12.928 | 13.924 | 13.416 | 12.580 |
| Weight of Water (g): | 3.401 | 3.329 | 3.725 | 3.638 | 3.466 |
| Weight of Pan (g): | 1.148 | 1.140 | 1.147 | 1.162 | 1.155 |
| Moisture Content (%): | 27.9 | 28.2 | 29.2 | 29.7 | 30.3 |

**Plastic Limit:** 15
**Liquid Limit:** 29
**Plastic Index:** 14
**Atterberg Classification** CL




Data Entered By: SKL Date: 12/27/2013 Data Checked By: MLM
File Name: atterberg-ASTM_4318-R6_1.xls Date: 12/30/13

ATT
ADVANCED TERRA TESTING

Atterberg Limits Test
ASTM D 4318

Client: MWH
Job Number: 2512-77
Project: Church Rock
Location: Tailings Impoundment
Project Number: -

Boring Number: CS-4
Depth: 10-24"
Sample Number: TI-CS04-04A(10-24")
Test Date: 12/20/2013
Technician: MLM
Sampled Date: 11/12/2013
Sampled By: MWH
Method: Method A

## Test Configuration

Liquid Limits Device: 0860
Material Size of Fines: -#40

## Plastic Limits

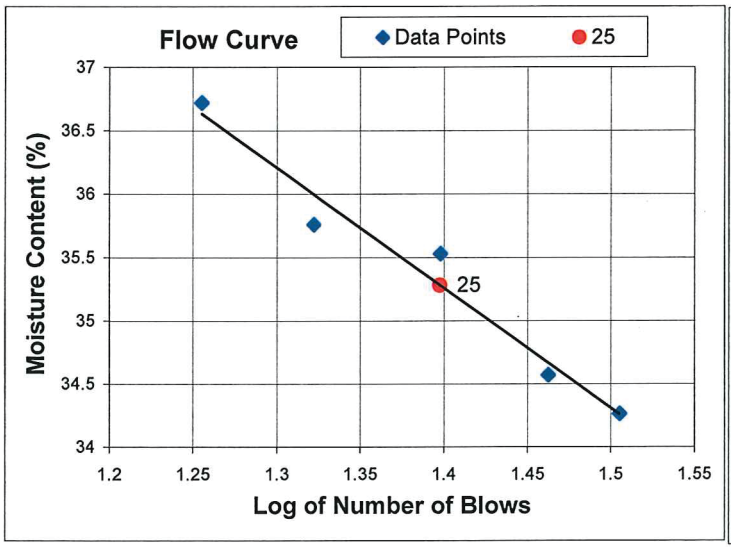
| | Sample 1 | Sample 2 | Sample 3 |
|---|---|---|---|
| Weight of Wet Soil & Pan (g): | 9.185 | 9.680 | 9.404 |
| Weight of Dry Soil & Pan (g): | 8.121 | 8.543 | 8.311 |
| Weight of Water (g): | 1.064 | 1.137 | 1.093 |
| Weight of Pan (g): | 1.108 | 1.136 | 1.133 |
| Moisture Content (%): | 15.2 | 15.4 | 15.2 |

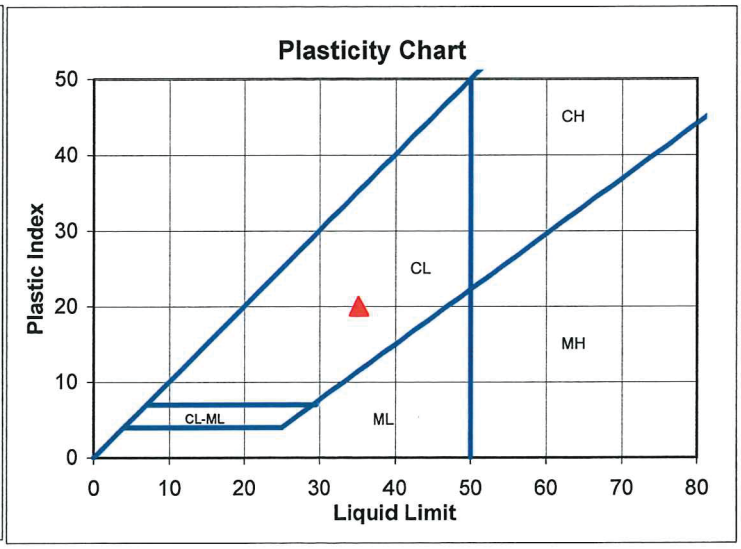
**Average:** 15.2%
**Standard Deviation:** 0.1%

## Liquid Limits

| | Sample 1 | Sample 2 | Sample 3 | Sample 4 | Sample 5 |
|---|---|---|---|---|---|
| Number of Blows: | 32 | 29 | 25 | 21 | 18 |
| Weight of Wet Soil & Pan (g): | 15.825 | 16.545 | 14.944 | 16.252 | 14.906 |
| Weight of Dry Soil & Pan (g): | 12.081 | 12.589 | 11.303 | 12.263 | 11.201 |
| Weight of Water (g): | 3.744 | 3.956 | 3.641 | 3.989 | 3.705 |
| Weight of Pan (g): | 1.153 | 1.145 | 1.054 | 1.107 | 1.111 |
| Moisture Content (%): | 34.3 | 34.6 | 35.5 | 35.8 | 36.7 |

**Plastic Limit:** 15
**Liquid Limit:** 35
**Plastic Index:** 20
**Atterberg Classification** CL




Data Entered By: SKL Date: 12/27/2013 Data Checked By: MLM
File Name: atterberg-ASTM_4318-R6_0.xls Date: 12/30/13

ATT
ADVANCED TERRA TESTING

Atterberg Limits Test
ASTM D 4318

Client: MWH
Job Number: 2512-77
Project: Church Rock
Location: Tailings Impoundment
Project Number:

Boring Number: CS-5
Depth: 9-24"
Sample Number: TI-CS05-04A(9-24")
Test Date: 12/3/2013
Technician: CAL
Sampled Date: 11/12/2013
Sampled By: MWH
Method: Method A

## Test Configuration

Liquid Limits Device: 1080
Material Size of Fines: -#40

## Plastic Limits

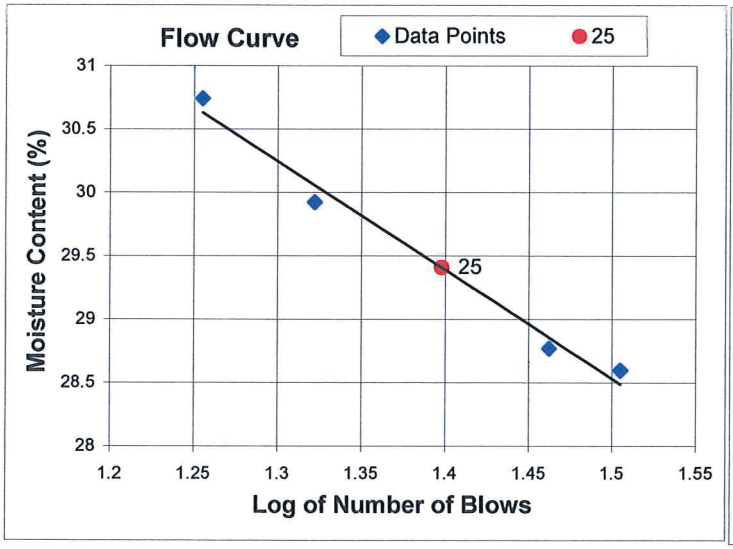
| | Sample 1 | Sample 2 | Sample 3 |
|---|---|---|---|
| Weight of Wet Soil & Pan (g): | 8.110 | 8.158 | 7.578 |
| Weight of Dry Soil & Pan (g): | 7.299 | 7.357 | 6.825 |
| Weight of Water (g): | 0.811 | 0.801 | 0.753 |
| Weight of Pan (g): | 0.738 | 0.763 | 0.743 |
| Moisture Content (%): | 12.4 | 12.1 | 12.4 |

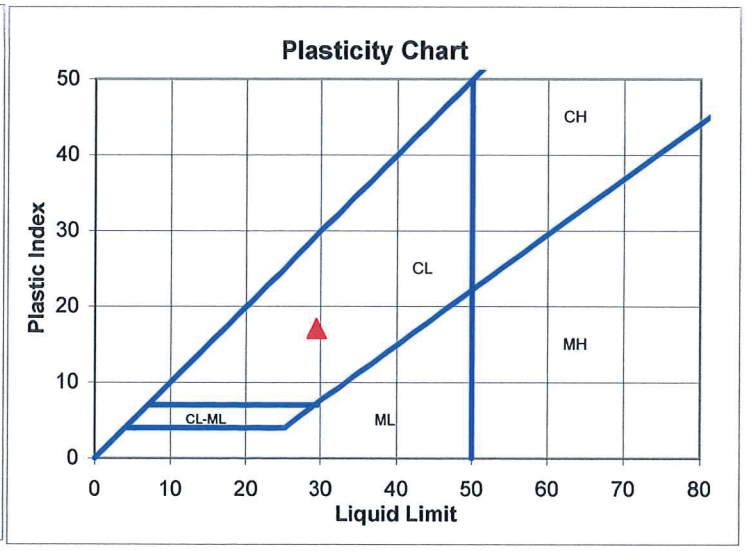
**Average:** 12.3%
**Standard Deviation:** 0.1%

## Liquid Limits

| | Sample 1 | Sample 2 | Sample 3 | Sample 4 |
|---|---|---|---|---|
| Number of Blows: | 32 | 29 | 21 | 18 |
| Weight of Wet Soil & Pan (g): | 11.769 | 11.305 | 11.298 | 9.415 |
| Weight of Dry Soil & Pan (g): | 9.315 | 8.948 | 8.871 | 7.382 |
| Weight of Water (g): | 2.454 | 2.357 | 2.427 | 2.033 |
| Weight of Pan (g): | 0.733 | 0.755 | 0.760 | 0.769 |
| Moisture Content (%): | 28.6 | 28.8 | 29.9 | 30.7 |

**Plastic Limit:** 12
**Liquid Limit:** 29
**Plastic Index:** 17
**Atterberg Classification** CL




Data Entered By: CAL Date: 12/4/2013 Data Checked By: KR
File Name: atterberg-ASTM_4318-R6_4.xls Date: 12/5/13

ATT
ADVANCED TERRA TESTING

Atterberg Limits Test
ASTM D 4318

| | | | |
|---|---|---|---|
| Client: | MWH | Boring Number: | CS-6 |
| Job Number: | 2512-77 | Depth: | 7-24" |
| Project: | Church Rock | Sample Number: | TI-CS06-04A(7-24") |
| Location: | Tailings Impoundment | Test Date: | 12/3/2013 |
| Project Number: | | Technician: | CAL |
| | | Sampled Date: | 11/13/2013 |
| | | Sampled By: | MWH |
| | | Method: | Method A |

## Test Configuration

Liquid Limits Device: 1080
Material Size of Fines: -#40

## Plastic Limits

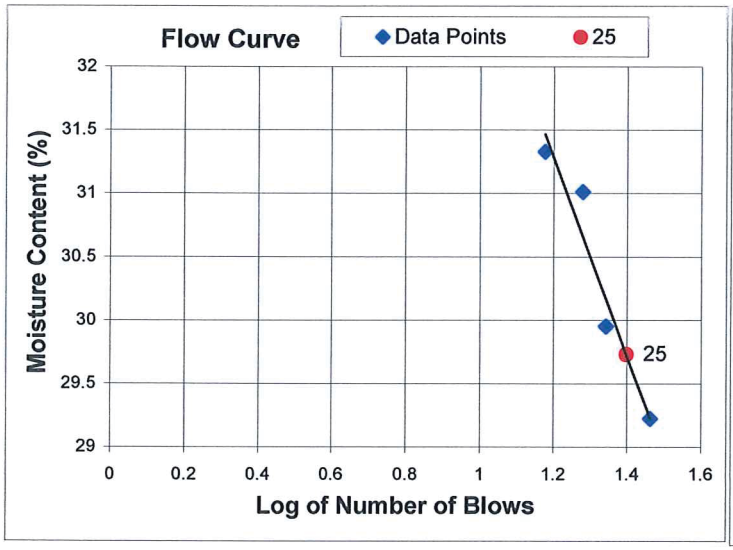
| | Sample 1 | Sample 2 | Sample 3 |
|---|---|---|---|
| Weight of Wet Soil & Pan (g): | 8.088 | 7.135 | 7.931 |
| Weight of Dry Soil & Pan (g): | 7.293 | 6.417 | 7.099 |
| Weight of Water (g): | 0.795 | 0.718 | 0.832 |
| Weight of Pan (g): | 0.766 | 0.746 | 0.734 |
| Moisture Content (%): | 12.2 | 12.7 | 13.1 |

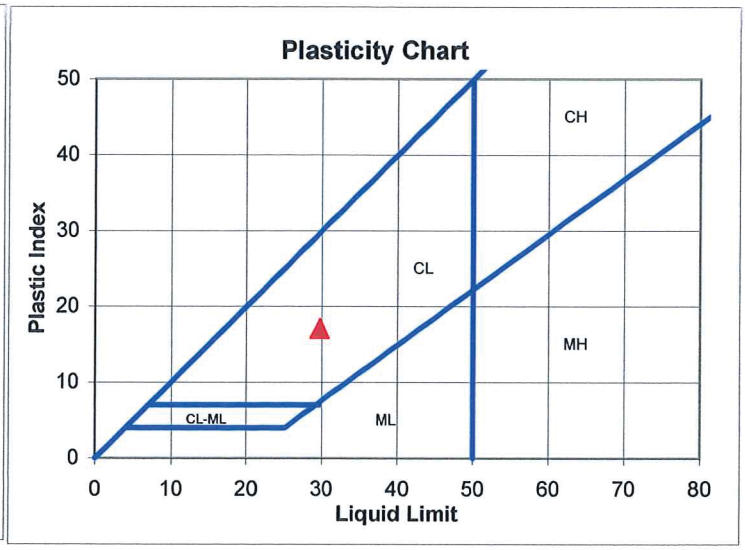
**Average:** 12.6%
**Standard Deviation:** 0.4%

## Liquid Limits

| | Sample 1 | Sample 2 | Sample 3 | Sample 4 |
|---|---|---|---|---|
| Number of Blows: | 29 | 22 | 19 | 15 |
| Weight of Wet Soil & Pan (g): | 11.472 | 12.036 | 11.694 | 10.611 |
| Weight of Dry Soil & Pan (g): | 9.043 | 9.438 | 9.108 | 8.261 |
| Weight of Water (g): | 2.429 | 2.598 | 2.586 | 2.350 |
| Weight of Pan (g): | 0.731 | 0.764 | 0.769 | 0.760 |
| Moisture Content (%): | 29.2 | 30.0 | 31.0 | 31.3 |

**Plastic Limit:** 13
**Liquid Limit:** 30
**Plastic Index:** 17
**Atterberg Classification** CL




Data Entered By: CAL Date: 12/4/2013 Data Checked By: KR
File Name: atterberg-ASTM_4318-R6_5.xls Date: 12/5/13

ADVANCED TERRA TESTING

Atterberg Limits Test
ASTM D 4318

Client: MWH
Job Number: 2512-77
Project: Church Rock
Location: Tailings Impoundment
Project Number:

Boring Number: CS-7
Depth: 0-20"
Sample Number: TI-CS07-02A(0-20")
Test Date: 12/2/2013
Technician: CAL
Sampled Date: 11/13/2013
Sampled By: MWH
Method: Method A

## Test Configuration

Liquid Limits Device: 1080
Material Size of Fines: -#40

## Plastic Limits

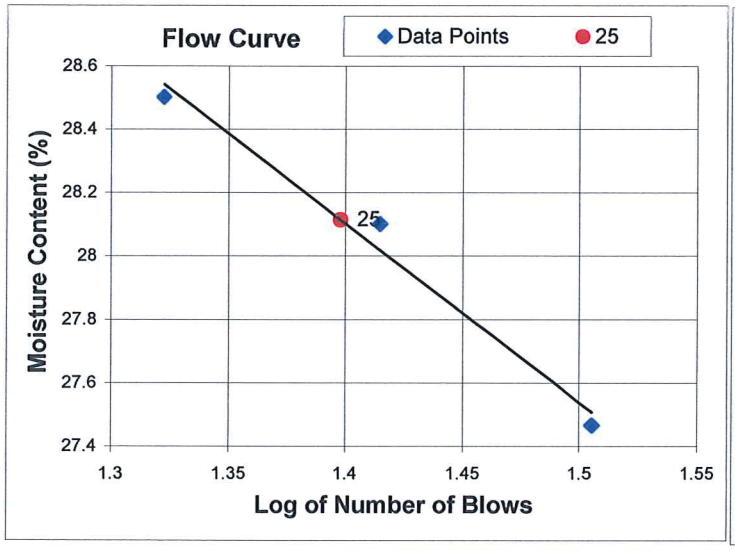
| | Sample 1 | Sample 2 |
|---|---|---|
| Weight of Wet Soil & Pan (g): | 6.558 | 7.430 |
| Weight of Dry Soil & Pan (g): | 5.888 | 6.648 |
| Weight of Water (g): | 0.670 | 0.782 |
| Weight of Pan (g): | 0.747 | 0.738 |
| Moisture Content (%): | 13.0 | 13.2 |

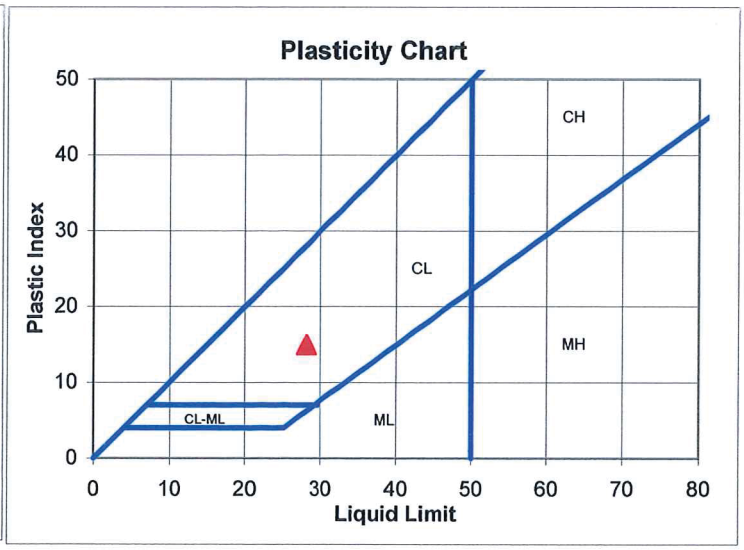
**Average:** 13.1%
**Standard Deviation:** 0.1%

## Liquid Limits

| | Sample 1 | Sample 2 | Sample 3 |
|---|---|---|---|
| Number of Blows: | 32 | 21 | 26 |
| Weight of Wet Soil & Pan (g): | 11.095 | 10.501 | 13.216 |
| Weight of Dry Soil & Pan (g): | 8.870 | 8.342 | 10.484 |
| Weight of Water (g): | 2.225 | 2.159 | 2.732 |
| Weight of Pan (g): | 0.769 | 0.767 | 0.762 |
| Moisture Content (%): | 27.5 | 28.5 | 28.1 |

**Plastic Limit:** 13
**Liquid Limit:** 28
**Plastic Index:** 15
**Atterberg Classification** CL




Data Entered By: KR Date: 12/3/2013 Data Checked By: CVL
File Name: atterberg-ASTM_4318-R6_0.xls Date: 12/3/13

ADVANCED TERRA TESTING

Atterberg Limits Test
ASTM D 4318

Client: MWH
Job Number: 2512-77
Project: Church Rock
Location: Tailings Impoundment
Project Number:

Boring Number: CS-8
Depth: 8-28"
Sample Number: TI-CS08-04A(8-28")
Test Date: 12/2/2013
Technician: CAL
Sampled Date: 11/13/2013
Sampled By: MWH
Method: Method A

## Test Configuration

Liquid Limits Device: 1080
Material Size of Fines: -#40

## Plastic Limits

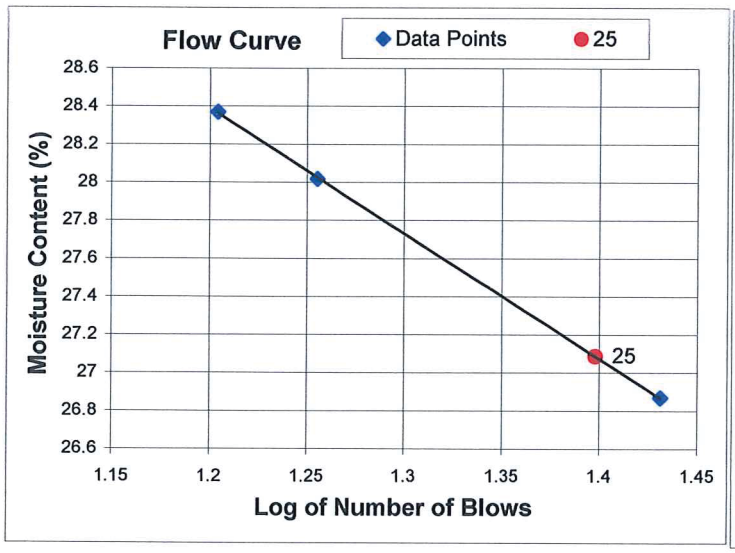
| | Sample 1 | Sample 2 | Sample 3 |
|---|---|---|---|
| Weight of Wet Soil & Pan (g): | 7.783 | 6.527 | 5.558 |
| Weight of Dry Soil & Pan (g): | 7.010 | 5.904 | 5.035 |
| Weight of Water (g): | 0.773 | 0.623 | 0.523 |
| Weight of Pan (g): | 0.770 | 0.763 | 0.732 |
| Moisture Content (%): | 12.4 | 12.1 | 12.2 |

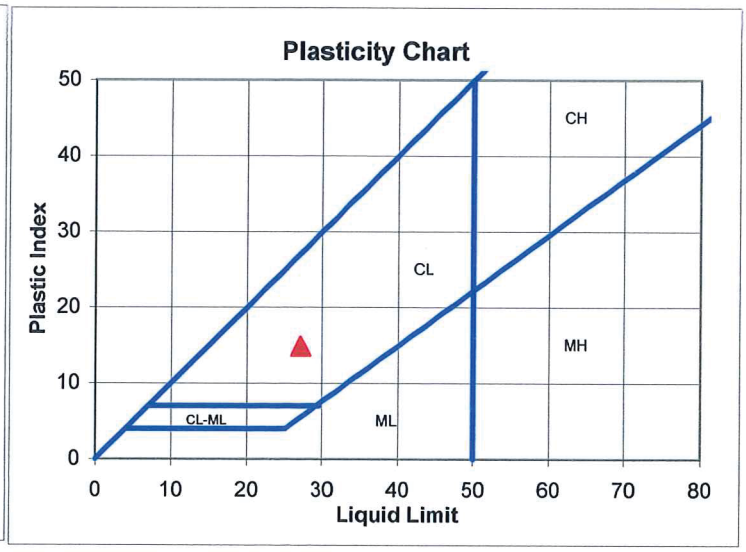
**Average:** 12.2%
**Standard Deviation:** 0.1%

## Liquid Limits

| | Sample 1 | Sample 2 | Sample 3 |
|---|---|---|---|
| Number of Blows: | 16 | 18 | 27 |
| Weight of Wet Soil & Pan (g): | 11.528 | 9.880 | 9.560 |
| Weight of Dry Soil & Pan (g): | 9.147 | 7.883 | 7.691 |
| Weight of Water (g): | 2.381 | 1.997 | 1.869 |
| Weight of Pan (g): | 0.754 | 0.755 | 0.735 |
| Moisture Content (%): | 28.4 | 28.0 | 26.9 |

**Plastic Limit:** 12
**Liquid Limit:** 27
**Plastic Index:** 15
**Atterberg Classification** CL




Data Entered By: KR Date: 12/3/2013 Data Checked By: CAL
File Name: atterberg-ASTM_4318-R6_1.xls Date: 12/4/13

ADVANCED TERRA TESTING

Atterberg Limits Test
ASTM D 4318

| | | | |
|---|---|---|---|
| Client: | MWH | Boring Number: | CS-9 |
| Job Number: | 2512-77 | Depth: | 9-26" |
| Project: | Church Rock | Sample Number: | TI-CS09-04A(9-26") |
| Location: | Tailings Impoundment | Test Date: | 12/3/2013 |
| Project Number: | | Technician: | CAL |
| | | Sampled Date: | 11/13/2013 |
| | | Sampled By: | MWH |
| | | Method: | Method A |

## Test Configuration

Liquid Limits Device: 1080
Material Size of Fines: -#40

## Plastic Limits

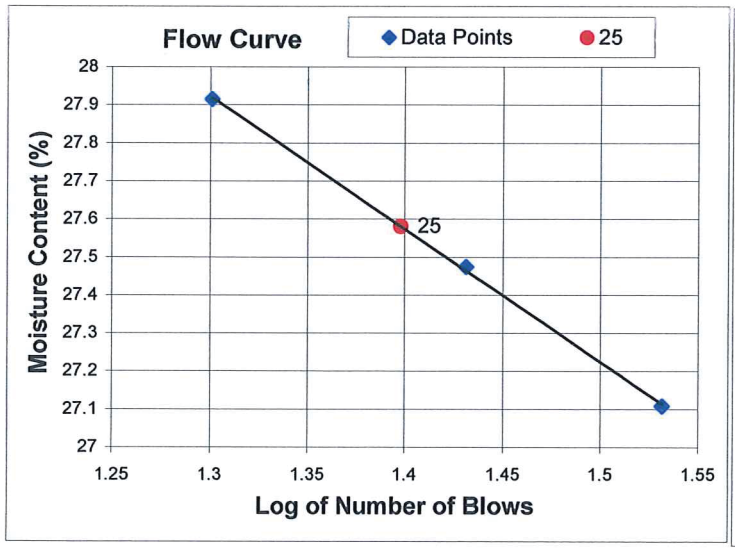
| | Sample 1 | Sample 2 | Sample 3 |
|---|---|---|---|
| Weight of Wet Soil & Pan (g): | 6.448 | 6.674 | 6.508 |
| Weight of Dry Soil & Pan (g): | 5.800 | 5.999 | 5.866 |
| Weight of Water (g): | 0.648 | 0.675 | 0.642 |
| Weight of Pan (g): | 0.744 | 0.732 | 0.755 |
| Moisture Content (%): | 12.8 | 12.8 | 12.6 |

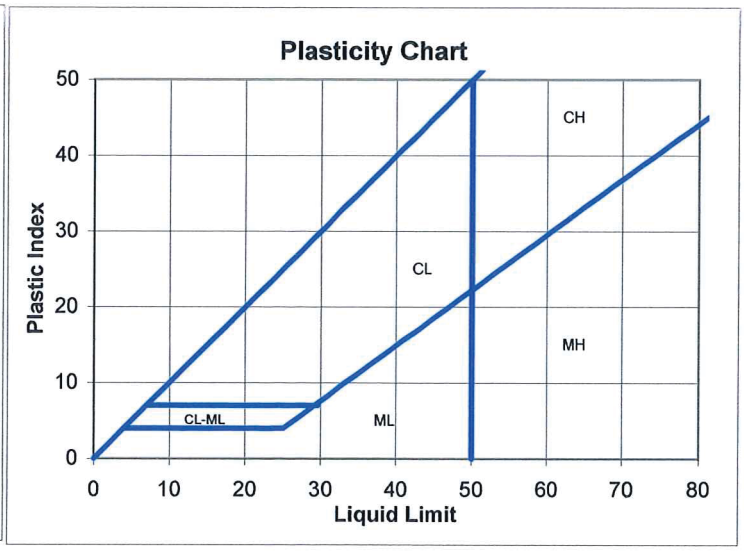
**Average:** -880.1%
**Standard Deviation:** 27.5%

## Liquid Limits

| | Sample 1 | Sample 2 | Sample 3 |
|---|---|---|---|
| Number of Blows: | 20 | 27 | 34 |
| Weight of Wet Soil & Pan (g): | 9.990 | 9.271 | 11.723 |
| Weight of Dry Soil & Pan (g): | 7.974 | 7.436 | 9.386 |
| Weight of Water (g): | 2.016 | 1.835 | 2.337 |
| Weight of Pan (g): | 0.752 | 0.757 | 0.765 |
| Moisture Content (%): | 27.9 | 27.5 | 27.1 |

**Plastic Limit:** -880
**Liquid Limit:** 28
**Plastic Index:** 908
**Atterberg Classification** CL




Data Entered By: KR Date: 12/4/2013 Data Checked By: CAL
File Name: atterberg-ASTM_4318-R6_3.xls Date: 12/4/13

ATT
ADVANCED TERRA TESTING

Atterberg Limits Test
ASTM D 4318

| | | | |
|---|---|---|---|
| Client: | MWH | Boring Number: | CS-3 |
| Job Number: | 2512-77 | Depth: | 6-24" |
| Project: | Church Rock | Sample Number: | TI-CS03-04A(6-24") |
| Location: | Tailings Impoundment | Test Date: | 12/11/2013 |
| Project Number: | | Technician: | KMR |
| | | Sampled Date: | 11/12/2013 |
| | | Sampled By: | MWH |
| | | Method: | Method A |

## Test Configuration

Liquid Limits Device: 1080
Material Size of Fines: -#40

## Plastic Limits

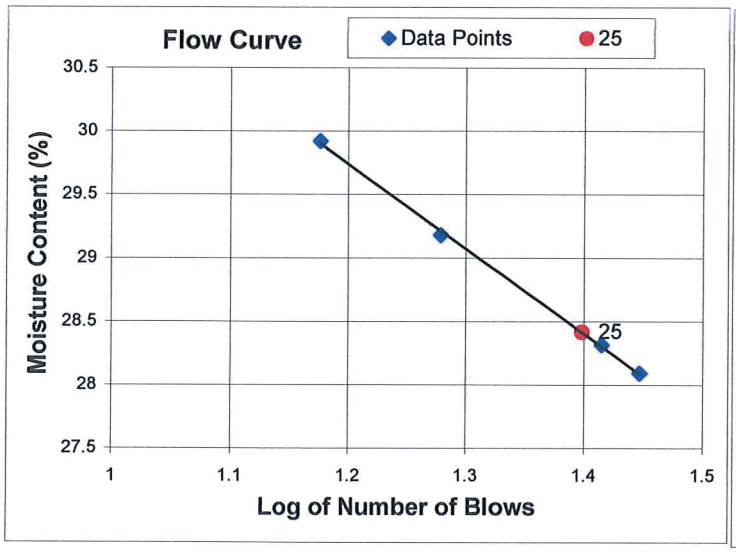
| | Sample 1 | Sample 2 | Sample 3 |
|---|---|---|---|
| Weight of Wet Soil & Pan (g): | 6.623 | 6.911 | 6.271 |
| Weight of Dry Soil & Pan (g): | 5.911 | 6.168 | 5.617 |
| Weight of Water (g): | 0.712 | 0.743 | 0.654 |
| Weight of Pan (g): | 0.735 | 0.736 | 0.759 |
| Moisture Content (%): | 13.8 | 13.7 | 13.5 |

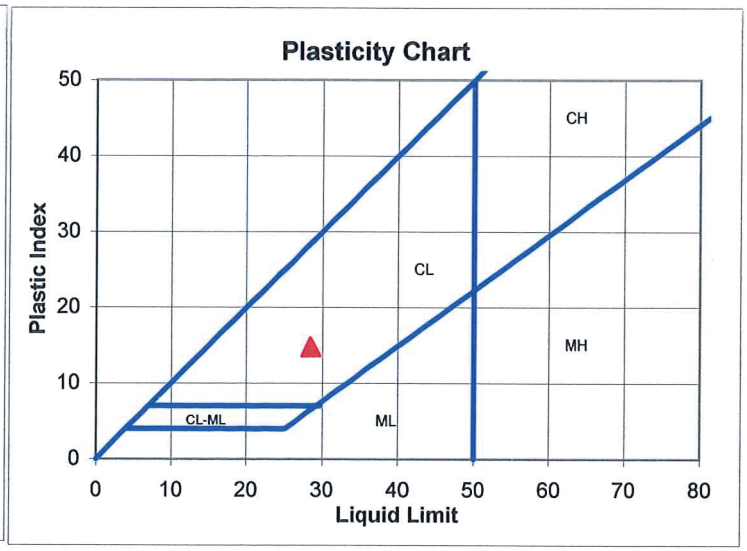
**Average:** 13.6%
**Standard Deviation:** 0.2%

## Liquid Limits

| | Sample 1 | Sample 2 | Sample 3 | Sample 4 |
|---|---|---|---|---|
| Number of Blows: | 28 | 26 | 19 | 15 |
| Weight of Wet Soil & Pan (g): | 11.741 | 12.307 | 14.543 | 12.590 |
| Weight of Dry Soil & Pan (g): | 9.334 | 9.756 | 11.432 | 9.870 |
| Weight of Water (g): | 2.407 | 2.551 | 3.111 | 2.720 |
| Weight of Pan (g): | 0.765 | 0.746 | 0.770 | 0.779 |
| Moisture Content (%): | 28.1 | 28.3 | 29.2 | 29.9 |

**Plastic Limit:** 14
**Liquid Limit:** 28
**Plastic Index:** 15
**Atterberg Classification** CL




Data Entered By: KMR Date: 12/12/2013 Data Checked By: DPW
File Name: atterberg-ASTM_4318-R6_7.xls Date: 12/13/13

ATT
ADVANCED TERRA TESTING

Atterberg Limits Test
ASTM D 4318

| | | | |
|---|---|---|---|
| Client: | MWH | Boring Number: | CS-10 |
| Job Number: | 2512-77 | Depth: | 7-25" |
| Project: | Church Rock | Sample Number: | TI-CS10-04A(7-25") |
| Location: | Tailings Impoundment | Test Date: | 12/12/2013 |
| Project Number: | | Technician: | KMR |
| | | Sampled Date: | 11/13/2013 |
| | | Sampled By: | MWH |
| | | Method: | Method A |

## Test Configuration

Liquid Limits Device: 1080
Material Size of Fines: -#40

## Plastic Limits

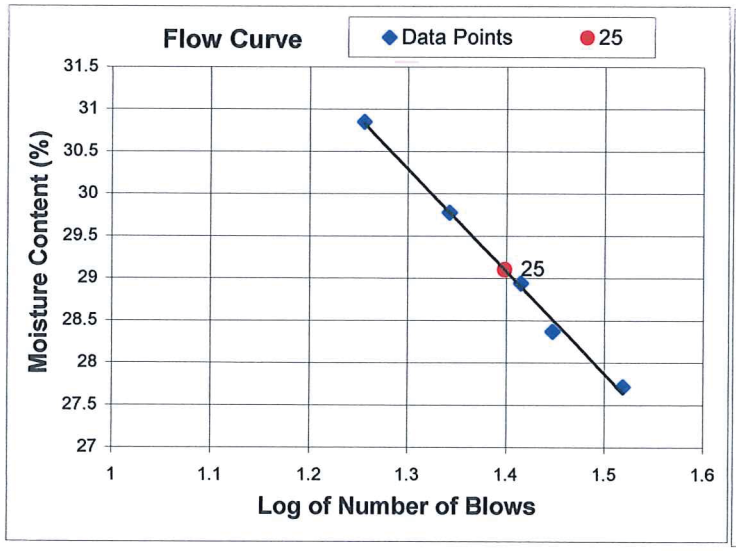
| | Sample 1 | Sample 2 | Sample 3 |
|---|---|---|---|
| Weight of Wet Soil & Pan (g): | 5.870 | 6.032 | 6.324 |
| Weight of Dry Soil & Pan (g): | 5.244 | 5.397 | 5.652 |
| Weight of Water (g): | 0.626 | 0.635 | 0.672 |
| Weight of Pan (g): | 0.759 | 0.771 | 0.731 |
| Moisture Content (%): | 14.0 | 13.7 | 13.7 |

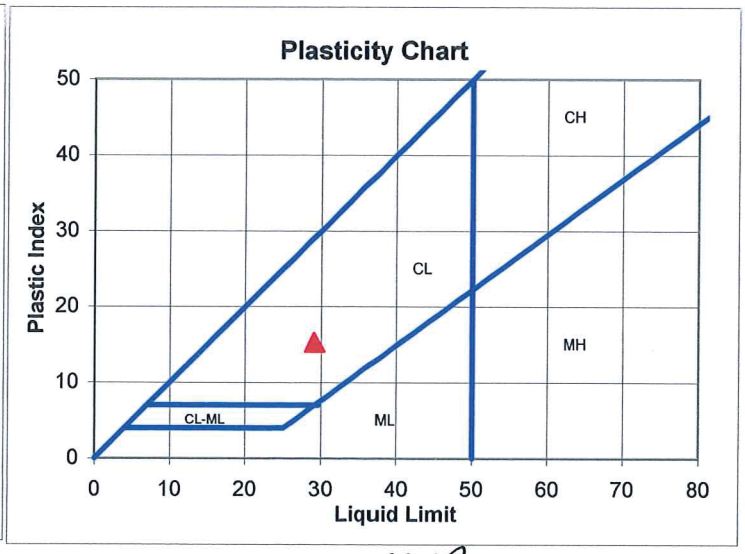
**Average:** 13.8%
**Standard Deviation:** 0.2%

## Liquid Limits

| | Sample 1 | Sample 2 | Sample 3 | Sample 4 | Sample 5 |
|---|---|---|---|---|---|
| Number of Blows: | 33 | 28 | 26 | 22 | 18 |
| Weight of Wet Soil & Pan (g): | 14.400 | 15.122 | 13.908 | 18.819 | 15.267 |
| Weight of Dry Soil & Pan (g): | 11.441 | 11.951 | 10.958 | 14.677 | 11.845 |
| Weight of Water (g): | 2.959 | 3.171 | 2.950 | 4.142 | 3.422 |
| Weight of Pan (g): | 0.765 | 0.773 | 0.764 | 0.766 | 0.752 |
| Moisture Content (%): | 27.7 | 28.4 | 28.9 | 29.8 | 30.8 |

**Plastic Limit:** 14
**Liquid Limit:** 29
**Plastic Index:** 15
**Atterberg Classification** CL

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File Name: atterberg-ASTM_4318-R6_9.xls Date: 12/13/13

ATT
ADVANCED TERRA TESTING

Atterberg Limits Test
ASTM D 4318

| | | | |
|---|---|---|---|
| Client: | MWH | Boring Number: | CS-11 |
| Job Number: | 2512-77 | Depth: | 9-24" |
| Project: | Church Rock | Sample Number: | TI-CS11-04A(9-24") |
| Location: | Tailings Impoundment | Test Date: | 12/5/2013 |
| Project Number: | | Technician: | CAL |
| | | Sampled Date: | 11/13/2013 |
| | | Sampled By: | MWH |
| | | Method: | Method A |

## Test Configuration

Liquid Limits Device: 1080
Material Size of Fines: -#40

## Plastic Limits

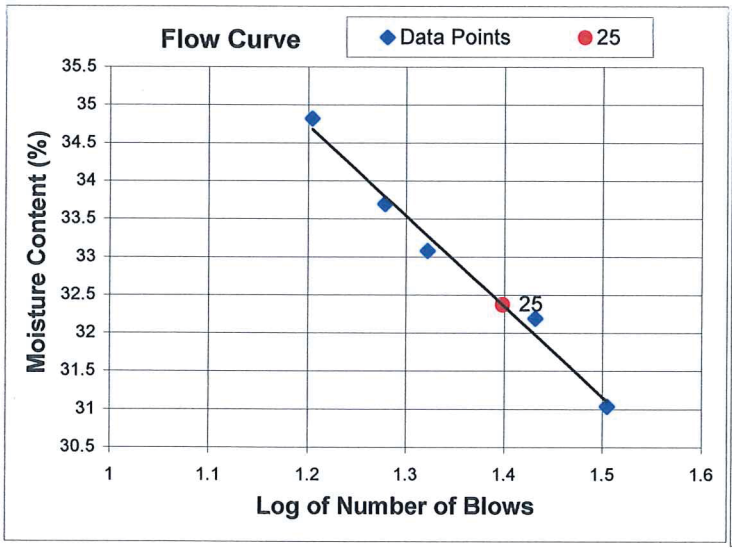
| | Sample 1 | Sample 2 | Sample 3 |
|---|---|---|---|
| Weight of Wet Soil & Pan (g): | 6.818 | 7.132 | 7.445 |
| Weight of Dry Soil & Pan (g): | 6.139 | 6.413 | 6.699 |
| Weight of Water (g): | 0.679 | 0.719 | 0.746 |
| Weight of Pan (g): | 0.735 | 0.746 | 0.768 |
| Moisture Content (%): | 12.6 | 12.7 | 12.6 |

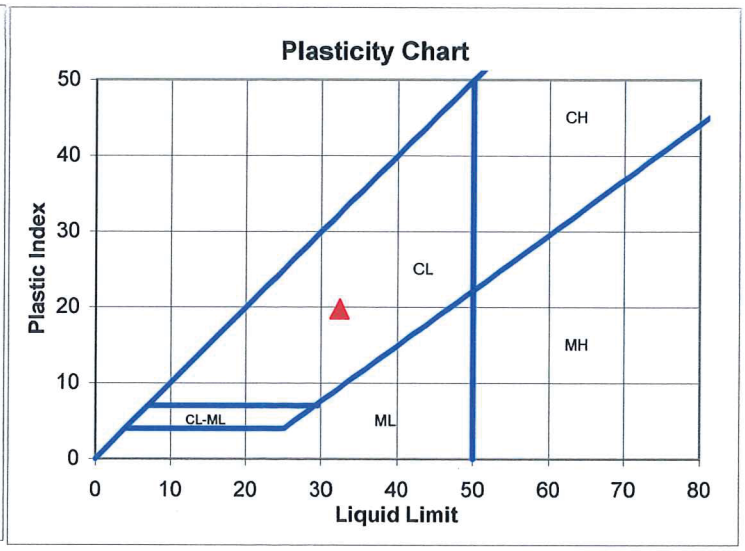
**Average:** 12.6%
**Standard Deviation:** 0.1%

## Liquid Limits

| | Sample 1 | Sample 2 | Sample 3 | Sample 4 | Sample 5 |
|---|---|---|---|---|---|
| Number of Blows: | 32 | 27 | 21 | 19 | 16 |
| Weight of Wet Soil & Pan (g): | 10.899 | 10.245 | 9.851 | 10.238 | 8.958 |
| Weight of Dry Soil & Pan (g): | 8.501 | 7.936 | 7.590 | 7.843 | 6.844 |
| Weight of Water (g): | 2.398 | 2.309 | 2.261 | 2.395 | 2.114 |
| Weight of Pan (g): | 0.775 | 0.763 | 0.755 | 0.735 | 0.773 |
| Moisture Content (%): | 31.0 | 32.2 | 33.1 | 33.7 | 34.8 |

**Plastic Limit:** 13
**Liquid Limit:** 32
**Plastic Index:** 20
**Atterberg Classification** CL

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ADVANCED TERRA TESTING

Atterberg Limits Test
ASTM D 4318

Client: MWH
Job Number: 2512-77
Project: Church Rock
Location: Tailings Impoundment
Project Number:

Boring Number: CS-12
Depth: 0-14"
Sample Number: TI-CS12-02A(0-14")
Test Date: 12/11/2013
Technician: KMR
Sampled Date: 11/13/2013
Sampled By: MWH
Method: Method A

## Test Configuration

Liquid Limits Device: 1080
Material Size of Fines: -#40

## Plastic Limits

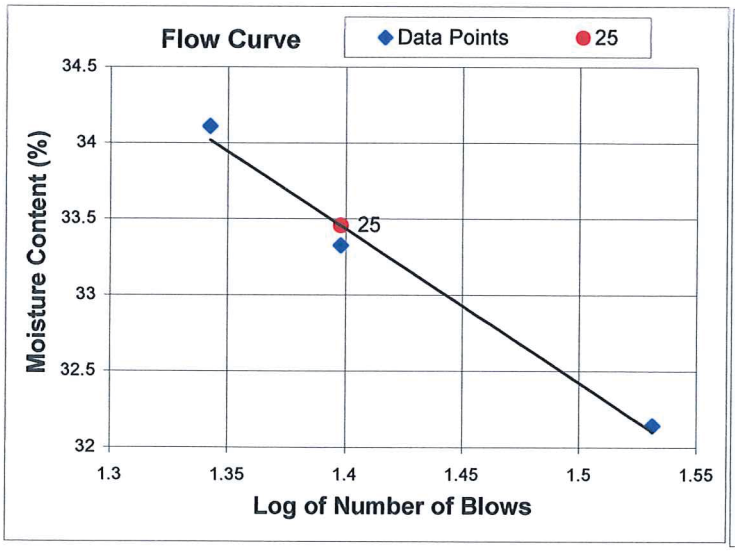
| | Sample 1 | Sample 2 | Sample 3 |
|---|---|---|---|
| Weight of Wet Soil & Pan (g): | 5.056 | 5.335 | 5.968 |
| Weight of Dry Soil & Pan (g): | 4.558 | 4.790 | 5.354 |
| Weight of Water (g): | 0.498 | 0.545 | 0.614 |
| Weight of Pan (g): | 0.744 | 0.724 | 0.733 |
| Moisture Content (%): | 13.1 | 13.4 | 13.3 |

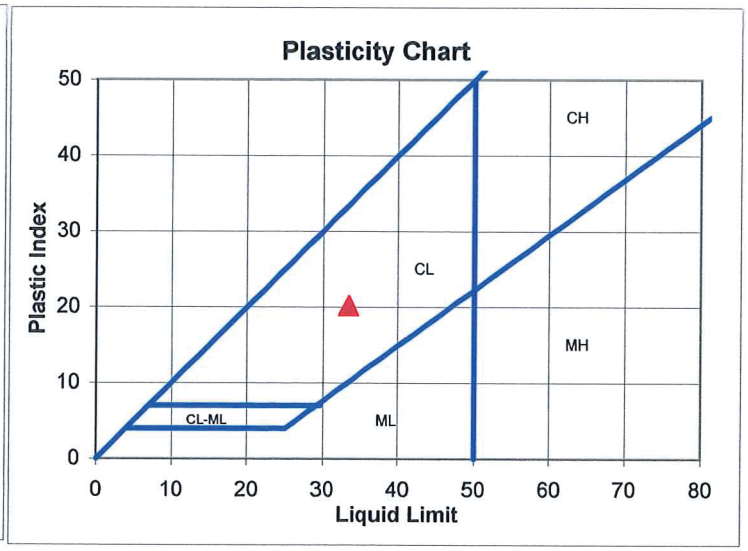
**Average:** 13.2%
**Standard Deviation:** 0.2%

## Liquid Limits

| | Sample 1 | Sample 2 | Sample 3 |
|---|---|---|---|
| Number of Blows: | 34 | 25 | 22 |
| Weight of Wet Soil & Pan (g): | 14.697 | 12.843 | 15.671 |
| Weight of Dry Soil & Pan (g): | 11.301 | 9.819 | 11.877 |
| Weight of Water (g): | 3.396 | 3.024 | 3.794 |
| Weight of Pan (g): | 0.736 | 0.745 | 0.754 |
| Moisture Content (%): | 32.1 | 33.3 | 34.1 |

**Plastic Limit:** 13
**Liquid Limit:** 33
**Plastic Index:** 20
**Atterberg Classification** CL

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File Name: atterberg-ASTM_4318-R6_8.xls Date: 12/13/13

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ADVANCED TERRA TESTING