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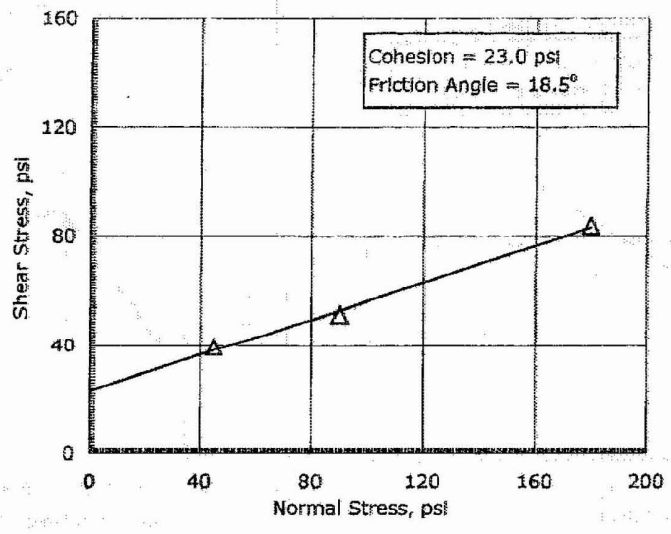
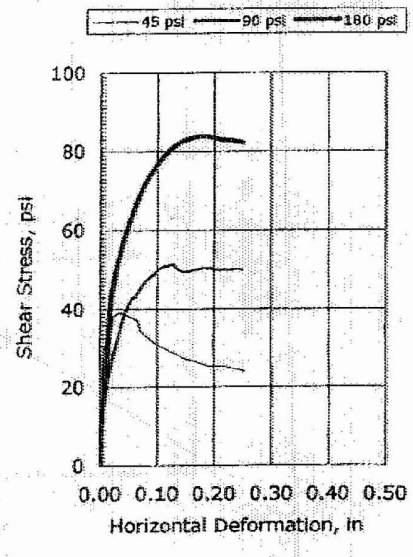
| | |
|---|---|
| Client: | Schnabel Engineering, Inc. |
| Project Name: | Subsurface Investigation Calvert Cliffs Nuclear PP |
| Project Location: | Calvert County, MD |
| GTX #: | 6880 |
| Test Date: | 10/11/2006 |
| Tested By: | md |
| Checked By: | jdt |
| Boring ID: | B-423 |
| Sample ID: | S-41 |
| Depth, ft: | 188.5-189.0 |
| Visual Description: | Moist olive gray silt |

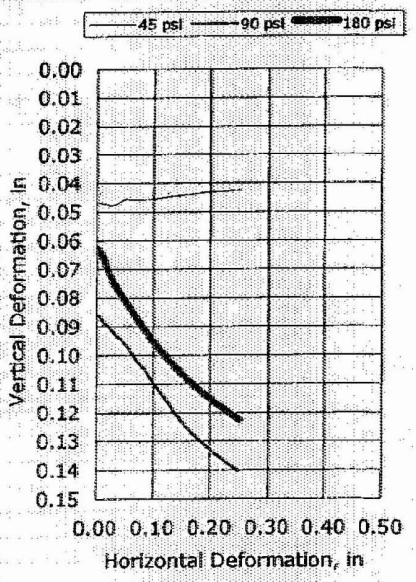
# Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D 3080-04




| Test No.: | DS130 | DS131 | DS132 |
|---|---|---|---|
| Initial Diameter, in: | 2.5 | 2.5 | 2.5 |
| Initial Height, in: | 1.0 | 1.0 | 1.0 |
| Initial Mass, grams: | 123.4 | 111.4 | 107.9 |
| Initial Dry Density, pcf: | 55.9 | 50.5 | 48.5 |
| Initial Moisture Content, %: | 71.4 | 71.2 | 72.7 |
| Initial Bulk Density, pcf: | 95.8 | 86.5 | 83.7 |
| Initial Degree of Saturation: | 99.6 | 85.2 | 81.8 |
| Initial Void Ratio: | 1.793 | 2.090 | 2.220 |
| Final Dry Density, pcf: | 58.4 | 58.8 | 55.3 |
| Final Moisture Content, %: | 76.1 | 90.1 | 70.2 |
| Final Bulk Density, pcf: | 102.7 | 111.7 | 94.0 |
| Normal Stress, psi: | 45.0 | 90.0 | 180 |
| Maximum Shear Stress, psi | 39.2 | 51.4 | 83.8 |
| Shear Rate, in/min: | 0.0006 | 0.0006 | 0.0006 |
| $t_{50}$: | --- | --- | 0.9 |

| | |
|---|---|
| Sample Type: | Tube |
| Measured Specific Gravity: | 2.5 |
| Liquid Limit: | 111 |
| Plastic Limit: | 70 |
| Plasticity Index: | 41 |
| % Passing #200 sieve: | 91 |
| Soil Classification: | Elastic Silt |
| Group Symbol: | MH |




Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

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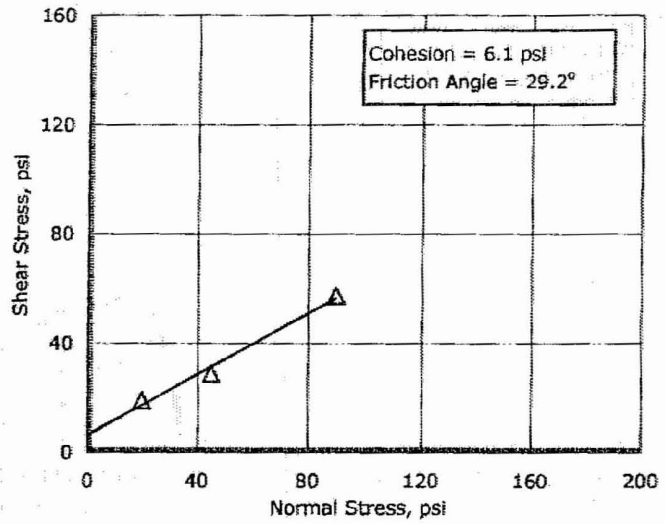
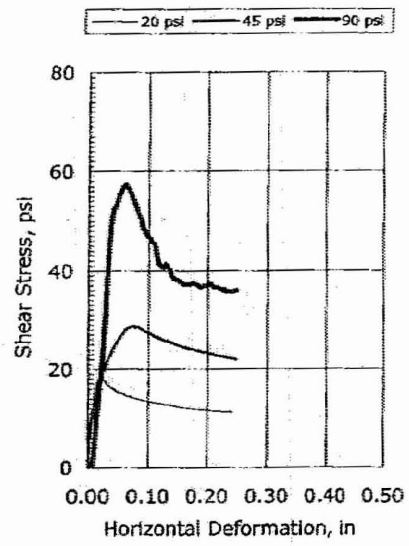
| | |
|---|---|
| Client: | Schnabel Engineering, Inc. |
| Project Name: | Subsurface Investigation Calvert Cliffs Nuclear PP |
| Project Location: | Calvert County, MD |
| GTX #: | 6880 |
| Test Date: | 9/26/2006 |
| Tested By: | md |
| Checked By: | jdt |
| Boring ID: | B-427 |
| Sample ID: | S-16 |
| Depth, ft: | 63.5-65.5 |
| Visual Description: | Moist, black sandy organic clay |

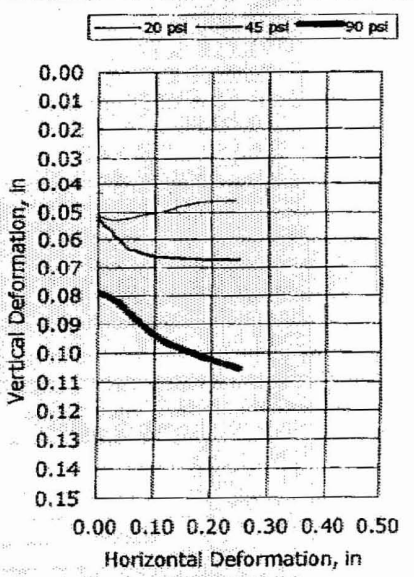
# Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D 3080-04




| Test No.: | DS98 | DS99 | DS100 |
|---|---|---|---|
| Initial Diameter, in: | 2.5 | 2.5 | 2.5 |
| Initial Height, in: | 1.0 | 1.0 | 1.0 |
| Initial Mass, grams: | 147.0 | 144.9 | 146.5 |
| Initial Dry Density, pcf: | 83.0 | 83.7 | 84.4 |
| Initial Moisture Content, %: | 35.5 | 36.2 | 34.7 |
| Initial Bulk Density, pcf: | 112.4 | 114.1 | 113.7 |
| Initial Degree of Saturation: | 91.7 | 95.2 | 92.7 |
| Initial Void Ratio: | 1.062 | 1.043 | 1.026 |
| Final Dry Density, pcf: | 87.0 | 89.8 | 94.4 |
| Final Moisture Content, %: | 37.7 | 36.6 | 37.0 |
| Final Bulk Density, pcf: | 119.7 | 122.6 | 129.2 |
| Normal Stress, psi: | 20.0 | 45.0 | 90.0 |
| Maximum Shear Stress, psi | 19.0 | 28.7 | 57.4 |
| Shear Rate, in/min: | 0.0006 | 0.0006 | 0.0006 |
| $t_{50}$: | --- | --- | 2.4 |

| | |
|---|---|
| Sample Type: | Tube |
| Measured Specific Gravity: | 2.74 |
| Liquid Limit: | 56 |
| Plastic Limit: | 18 |
| Plasticity Index: | 38 |
| % Passing #200 sieve: | 61 |
| Soil Classification: | Sandy organic Clay |
| Group Symbol: | OH |




Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

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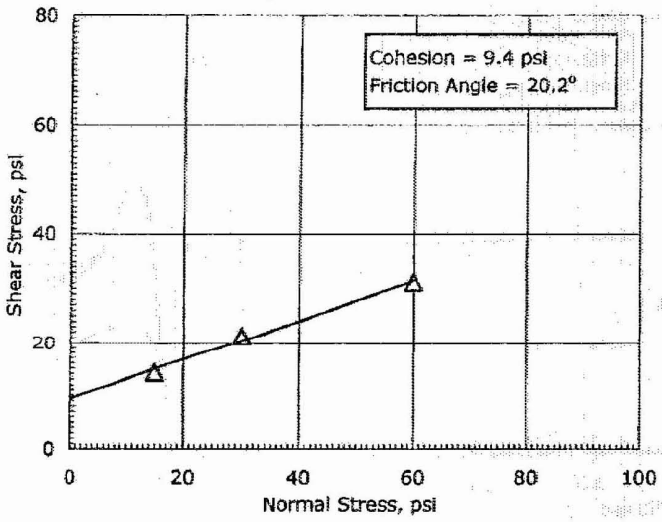
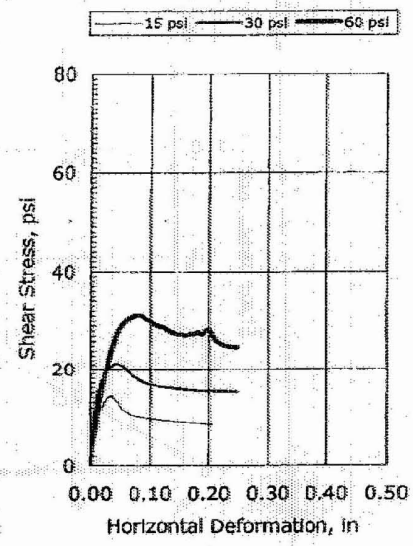
| | |
|---|---|
| Client: | Schnabel Engineering, Inc. |
| Project Name: | Subsurface Investigation Calvert Cliffs Nuclear PP |
| Project Location: | Calvert County, MD |
| GTX #: | 6880 |
| Test Date: | 9/23/2006 |
| Tested By: | md |
| Checked By: | jdl |
| Boring ID: | B-433 |
| Sample ID: | S-11 |
| Depth, ft: | 38.5-40.5 |
| Visual Description: | Moist, very dark gray clay |

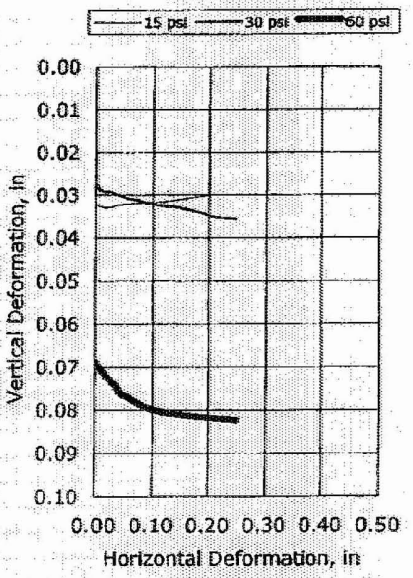
# Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D 3080-04




| Test No.: | DS28 | DS29 | DS30 |
|---|---|---|---|
| Initial Diameter, in: | 2.5 | 2.5 | 2.5 |
| Initial Height, in: | 1.0 | 1.0 | 1.0 |
| Initial Mass, grams: | 149.6 | 152.5 | 152.4 |
| Initial Dry Density, pcf: | 86.7 | 89.5 | 88.7 |
| Initial Moisture Content, %: | 34.0 | 32.3 | 33.3 |
| Initial Bulk Density, pcf: | 116.1 | 118.4 | 118.3 |
| Initial Degree of Saturation: | 94.6 | 95.9 | 97.2 |
| Initial Void Ratio: | 0.995 | 0.933 | 0.949 |
| Final Dry Density, pcf: | 89.3 | 92.8 | 96.7 |
| Final Moisture Content, %: | 33.0 | 35.4 | 34.7 |
| Final Bulk Density, pcf: | 118.8 | 125.6 | 130.3 |
| Normal Stress, psi: | 15.0 | 30.0 | 60.0 |
| Maximum Shear Stress, psi | 14.3 | 21.3 | 31.1 |
| Shear Rate, in/min: | 0.0005 | 0.0005 | 0.0005 |
| $t_{50}$: | --- | --- | 3.2 |

| | |
|---|---|
| Sample Type: | Tube |
| Measured Specific Gravity: | 2.77 |
| Liquid Limit: | 61 |
| Plastic Limit: | 14 |
| Plasticity Index: | 47 |
| % Passing #200 sieve: | 91 |
| Soil Classification: | Fat Clay |
| Group Symbol: | CH |




Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

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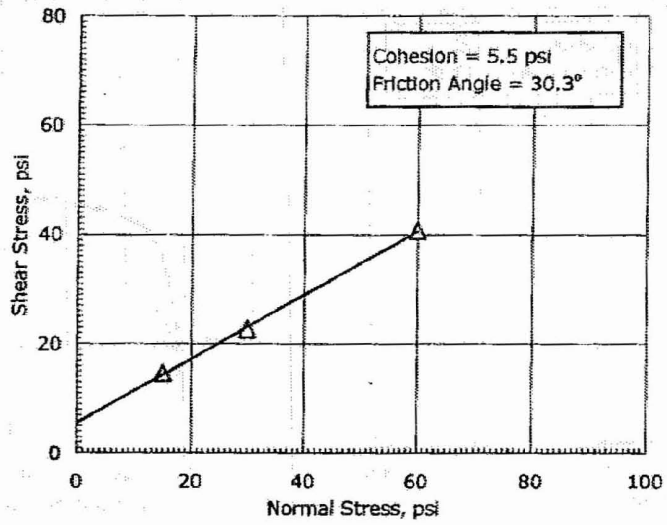
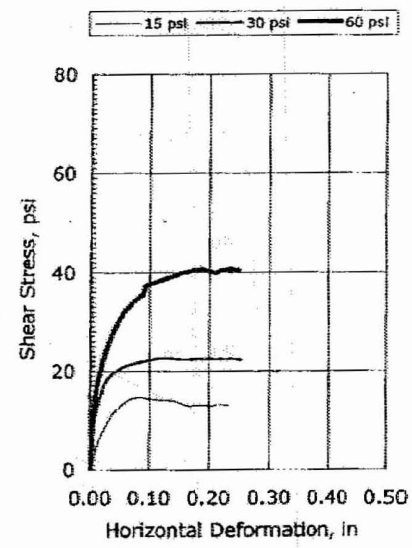
| | |
|---|---|
| Client: | Schnabel Engineering, Inc. |
| Project Name: | Subsurface Investigation Calvert Cliffs Nuclear PP |
| Project Location: | Calvert County, MD |
| GTX #: | 6880 |
| Test Date: | 10/22/2006 |
| Tested By: | md |
| Checked By: | jdt |
| Boring ID: | B-440 |
| Sample ID: | S-14 |
| Depth, ft: | 51-53 |
| Visual Description: | Moist, dark greenish gray clayey sand |

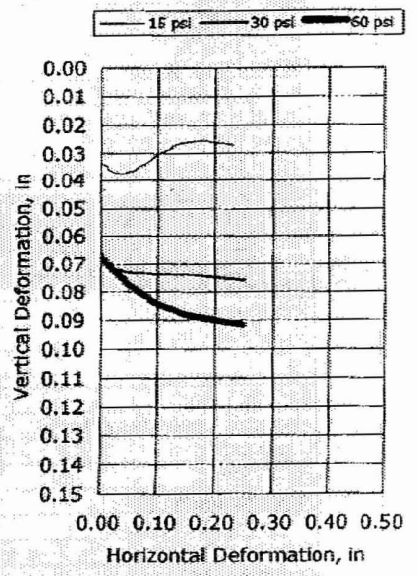
# Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D 3080-04




| Test No.: | DS143 | DS144 | DS145 |
|---|---|---|---|
| Initial Diameter, in: | 2.5 | 2.5 | 2.5 |
| Initial Height, in: | 1.0 | 1.0 | 1.0 |
| Initial Mass, grams: | 154.3 | 148.3 | 150.8 |
| Initial Dry Density, pcf: | 93.1 | 87.2 | 89.6 |
| Initial Moisture Content, %: | 28.6 | 32.1 | 30.7 |
| Initial Bulk Density, pcf: | 119.7 | 115.1 | 117.0 |
| Initial Degree of Saturation: | 93.1 | 91.0 | 92.0 |
| Initial Void Ratio: | 0.794 | 0.821 | 0.741 |
| Final Dry Density, pcf: | 95.7 | 94.3 | 98.6 |
| Final Moisture Content, %: | 28.7 | 31.9 | 27.9 |
| Final Bulk Density, pcf: | 123.2 | 124.3 | 126.1 |
| Normal Stress, psi: | 15.0 | 30.0 | 60.0 |
| Maximum Shear Stress, psi | 14.6 | 22.6 | 40.8 |
| Shear Rate, in/min: | 0.0007 | 0.0007 | 0.0007 |
| $t_{50}$: | --- | --- | 5.8 |

| | |
|---|---|
| Sample Type: | Tube |
| Measured Specific Gravity: | 2.75 |
| Liquid Limit: | 30 |
| Plastic Limit: | 21 |
| Plasticity Index: | 9 |
| % Passing #200 sieve: | 18 |
| Soil Classification: | Clayey Sand |
| Group Symbol: | SC |




Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

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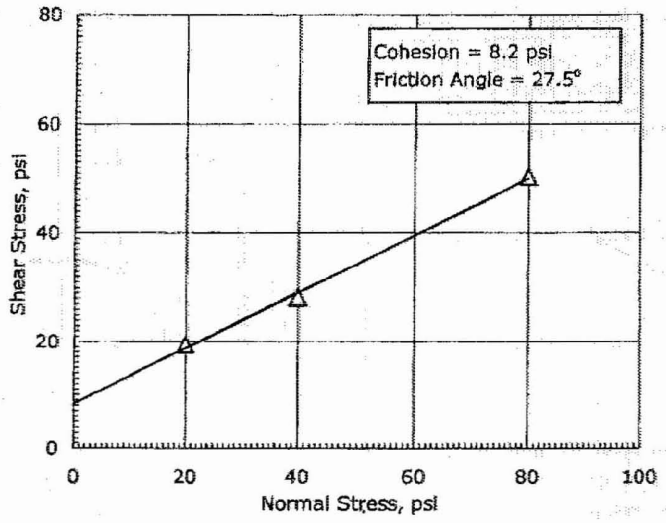
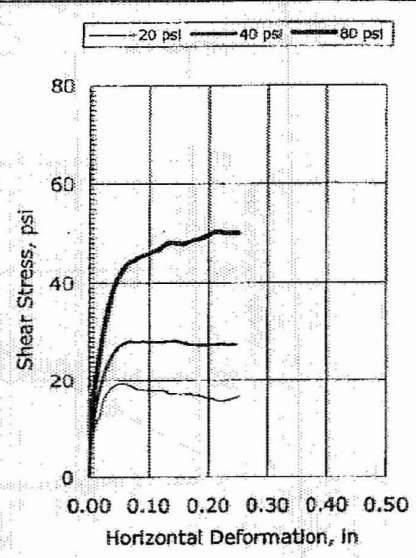
| | |
|---|---|
| Client: | Schnabel Engineering, Inc. |
| Project Name: | Subsurface Investigation Calvert Cliffs Nuclear PP |
| Project Location: | Calvert County, MD |
| GTX #: | 6880 |
| Test Date: | 9/22/2006 |
| Tested By: | md |
| Checked By: | jdt |
| Boring ID: | B-724 |
| Sample ID: | UD-1 |
| Depth, ft: | 73.5-75.5 |
| Visual Description: | Moist, dark olive gray sandy organic clay |

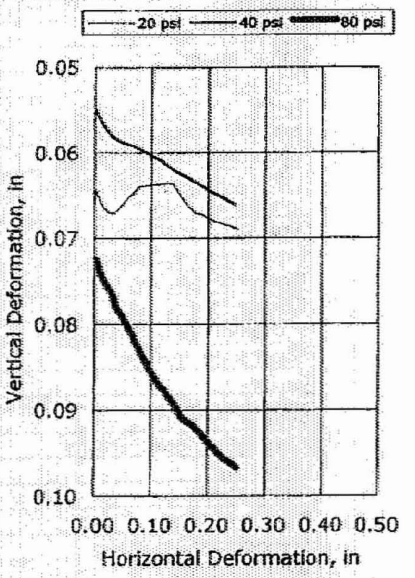
# Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D 3080-04




| Test No.: | DS25 | DS26 | DS27 |
|---|---|---|---|
| Initial Diameter, in: | 2.5 | 2.5 | 2.5 |
| Initial Height, in: | 1.0 | 1.0 | 1.0 |
| Initial Mass, grams: | 149.3 | 152.0 | 151.5 |
| Initial Dry Density, pcf: | 89.0 | 90.8 | 90.1 |
| Initial Moisture Content, %: | 30.1 | 29.9 | 30.6 |
| Initial Bulk Density, pcf: | 115.9 | 117.9 | 117.6 |
| Initial Degree of Saturation: | 91.1 | 94.2 | 94.7 |
| Initial Void Ratio: | 0.893 | 0.856 | 0.872 |
| Final Dry Density, pcf: | 95.6 | 97.2 | 99.6 |
| Final Moisture Content, %: | 33.0 | 32.3 | 31.3 |
| Final Bulk Density, pcf: | 127.2 | 128.7 | 130.8 |
| Normal Stress, psi: | 20.0 | 40.0 | 80.0 |
| Maximum Shear Stress, psi | 19.3 | 28.2 | 50.3 |
| Shear Rate, in/min: | 0.001 | 0.001 | 0.001 |
| $t_{50}$: | --- | --- | 0.2 |

| | |
|---|---|
| Sample Type: | Tube |
| Measured Specific Gravity: | 2.70 |
| Liquid Limit: | 45 |
| Plastic Limit: | 24 |
| Plasticity Index: | 21 |
| % Passing #200 sieve: | 60 |
| Soil Classification: | Sandy Organic Clay |
| Group Symbol: | OL |




Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

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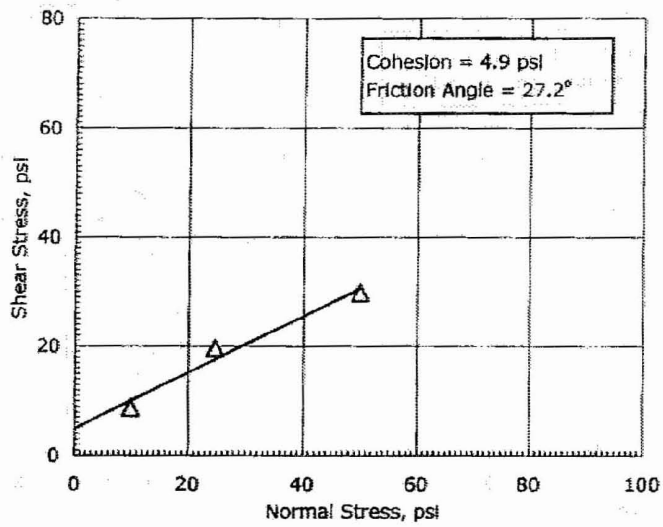
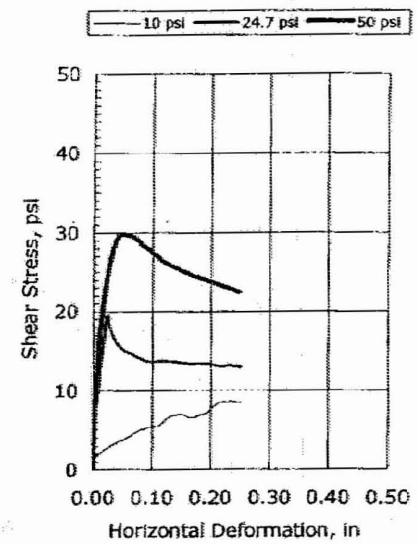
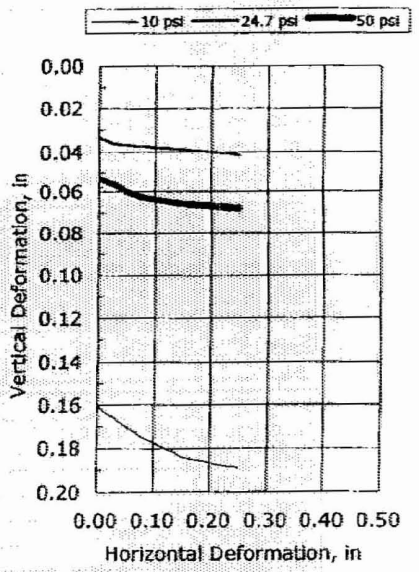
| | |
|---|---|
| Client: | Schnabel Engineering, Inc. |
| Project Name: | Subsurface Investigation Calvert Cliffs Nuclear PP |
| Project Location: | Calvert County, MD |
| GTX #: | 6880 |
| Test Date: | 9/21/2006 |
| Tested By: | md |
| Checked By: | jdt |
| Boring ID: | B-735 |
| Sample ID: | S-9 |
| Depth, ft: | 28-30 |
| Visual Description: | Moist, dark gray clay |

# Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D 3080-04




| Test No.: | DS16 | DS17 | DS18 |
|---|---|---|---|
| Initial Diameter, in: | 2.5 | 2.5 | 2.5 |
| Initial Height, in: | 1.0 | 1.0 | 1.0 |
| Initial Mass, grams: | 142.6 | 153.3 | 153.1 |
| Initial Dry Density, pcf: | 78.0 | 90.1 | 91.3 |
| Initial Moisture Content, %: | 42.0 | 32.0 | 30.2 |
| Initial Bulk Density, pcf: | 110.7 | 119.0 | 118.8 |
| Initial Degree of Saturation: | 97.8 | 99.7 | 96.7 |
| Initial Void Ratio: | 1.153 | 0.863 | 0.840 |
| Final Dry Density, pcf: | 96.2 | 90.9 | 97.9 |
| Final Moisture Content, %: | 30.3 | 33.4 | 33.3 |
| Final Bulk Density, pcf: | 125.3 | 121.2 | 130.5 |
| Normal Stress, psi: | 10.0 | 24.7 | 50.0 |
| Maximum Shear Stress, psi | 8.7 | 19.6 | 29.8 |
| Shear Rate, in/min: | 0.0006 | 0.0006 | 0.0006 |
| $t_{50}$: | --- | --- | 1.1 |




| | |
|---|---|
| Sample Type: | Tube |
| Measured Specific Gravity: | 2.69 |
| Liquid Limit: | 51 |
| Plastic Limit: | 16 |
| Plasticity Index: | 35 |
| % Passing #200 sieve: | 87 |
| Soil Classification: | Fat Clay |
| Group Symbol: | CH |

Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

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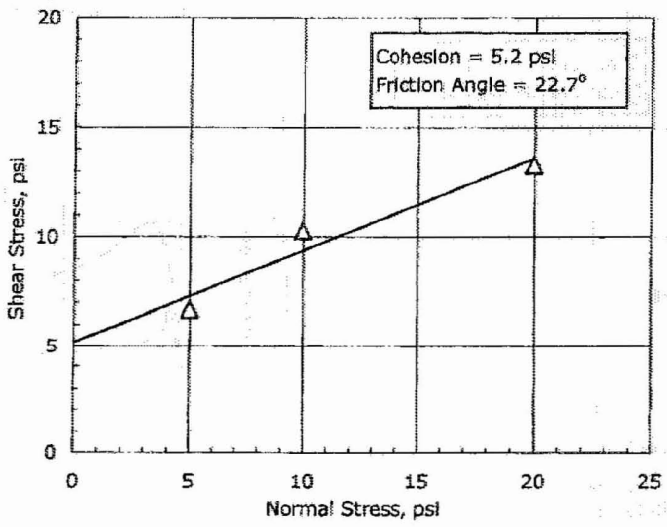
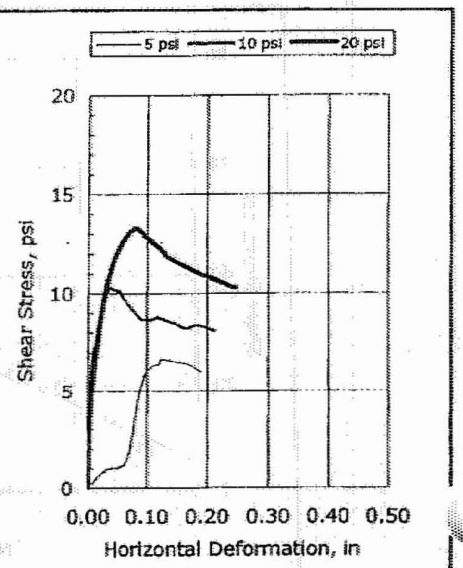
| | |
|---|---|
| Client: | Schnabel Engineering, Inc. |
| Project Name: | Subsurface Investigation Calvert Cliffs Nuclear PP |
| Project Location: | Calvert County, MD |
| GTX #: | 6880 |
| Test Date: | 9/20/2006 |
| Tested By: | md |
| Checked By: | jdt |
| Boring ID: | B-737 |
| Sample ID: | UD-1 |
| Depth, ft: | 10.5-12.5 |
| Visual Description: | Moist, very pale brown clay |

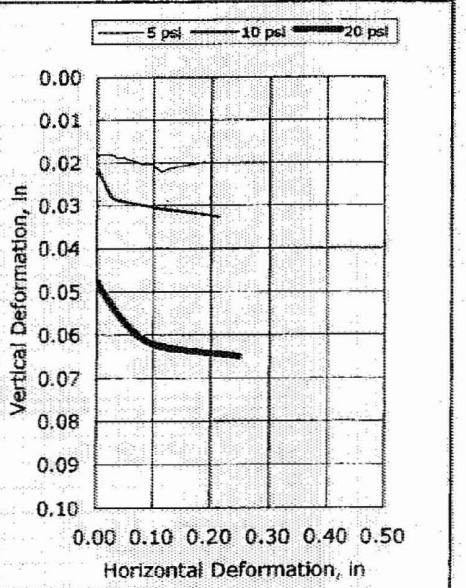
# Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D 3080-04




| Test No.: | DS13 | DS14 | DS15 |
|---|---|---|---|
| Initial Diameter, in: | 2.5 | 2.5 | 2.5 |
| Initial Height, in: | 1.0 | 1.0 | 1.0 |
| Initial Mass, grams: | 147.4 | 146.9 | 144.8 |
| Initial Dry Density, pcf: | 85.0 | 86.2 | 85.3 |
| Initial Moisture Content, %: | 34.6 | 32.3 | 31.7 |
| Initial Bulk Density, pcf: | 114.4 | 114.0 | 112.4 |
| Initial Degree of Saturation: | 97.7 | 93.9 | 90.1 |
| Initial Void Ratio: | 0.933 | 0.906 | 0.924 |
| Final Dry Density, pcf: | 86.3 | 89.2 | 91.3 |
| Final Moisture Content, %: | 38.0 | 34.1 | 33.6 |
| Final Bulk Density, pcf: | 119.1 | 119.6 | 121.9 |
| Normal Stress, psi: | 5.0 | 10.0 | 20.0 |
| Maximum Shear Stress, psi | 6.7 | 10.3 | 13.3 |
| Shear Rate, in/min: | 0.0006 | 0.0006 | 0.0006 |
| $t_{50}$: | --- | --- | 1.1 |

| | |
|---|---|
| Sample Type: | Tube |
| Measured Specific Gravity: | 2.63 |
| Liquid Limit: | 75 |
| Plastic Limit: | 23 |
| Plasticity Index: | 52 |
| % Passing #200 sieve: | 93 |
| Soil Classification: | Fat Clay |
| Group Symbol: | CH |




Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

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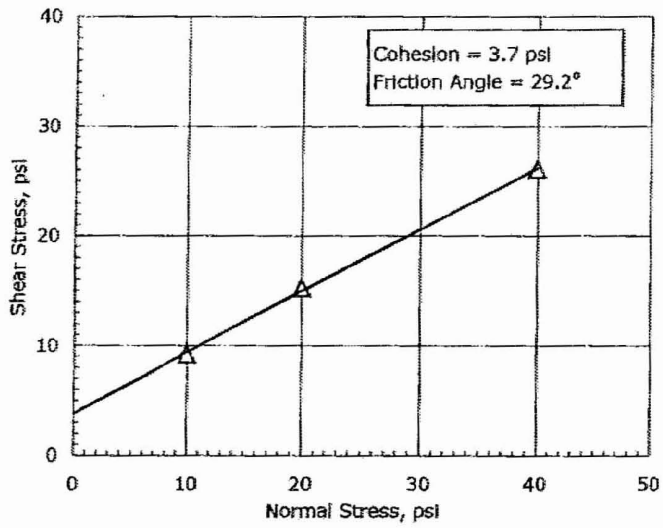
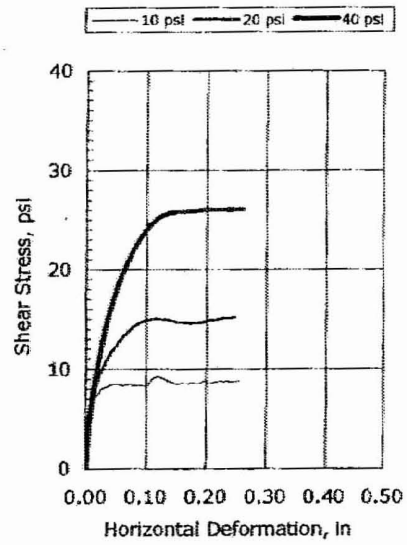
| | |
|---|---|
| Client: | Schnabel Engineering, Inc. |
| Project Name: | Subsurface Investigation Calvert Cliffs Nuclear PP |
| Project Location: | Calvert County, MD |
| GTX #: | 6880 |
| Test Date: | 9/20/2006 |
| Tested By: | md |
| Checked By: | jdt |
| Boring ID: | B-743 |
| Sample ID: | UD-1 |
| Depth, ft: | 23.5-25.5 |
| Visual Description: | Moist, mottled pale yellow, weak red, and brownish yellow sandy clay |

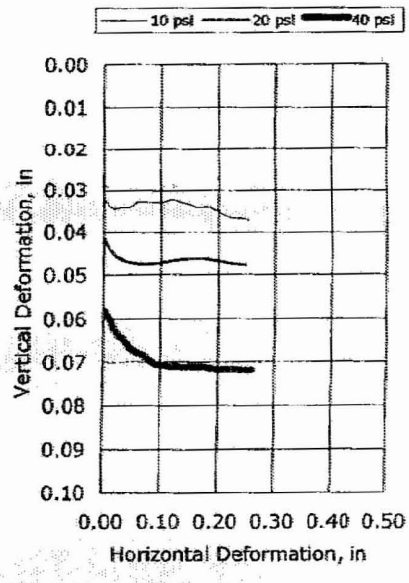
# Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D 3080-04




| Test No.: | DS13 | DS14 | DS15 |
|---|---|---|---|
| Initial Diameter, in: | 2.5 | 2.5 | 2.5 |
| Initial Height, in: | 1.0 | 1.0 | 1.0 |
| Initial Mass, grams: | 158.5 | 156.4 | 152.3 |
| Initial Dry Density, pcf: | 100.6 | 100.2 | 96.6 |
| Initial Moisture Content, %: | 22.2 | 21.1 | 22.4 |
| Initial Bulk Density, pcf: | 123.0 | 121.4 | 118.2 |
| Initial Degree of Saturation: | 89.3 | 84.1 | 81.5 |
| Initial Void Ratio: | 0.669 | 0.676 | 0.739 |
| Final Dry Density, pcf: | 86.3 | 89.2 | 91.3 |
| Final Moisture Content, %: | 21.9 | 22.5 | 22.8 |
| Final Bulk Density, pcf: | 105.3 | 109.2 | 112.0 |
| Normal Stress, psi: | 10.0 | 20.0 | 40.0 |
| Maximum Shear Stress, psi | 9.2 | 15.2 | 26.1 |
| Shear Rate, in/min: | 0.0003 | 0.0003 | 0.0003 |
| $t_{50}$: | --- | --- | 3.7 |

| | |
|---|---|
| Sample Type: | Tube |
| Measured Specific Gravity: | 2.69 |
| Liquid Limit: | 38 |
| Plastic Limit: | 13 |
| Plasticity Index: | 25 |
| % Passing #200 sieve: | 57 |
| Soil Classification: | Sandy Lean Clay |
| Group Symbol: | CL |




Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

# CHEMICAL TEST RESULTS – SOIL

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FINAL REPORT OF ANALYSES

Schnabel Engineering
656 Quince Orchard Road
Suite 700
Gaithersburg, MD 20878

PROJECT NAME:
REPORT DATE: 24-Jan-07

LAB#- ECL013289-012 SAMPLE ID- C-1b
LOCATION- B-301 43.5-45.2
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 13:28 | CHK | 26.3 | meq/100g | 0.3 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 5.9 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 6.0 | S.U. | 0.10 |

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FINAL REPORT OF ANALYSES

Schnabel Engineering
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Gaithersburg, MD 20878

PROJECT NAME:
REPORT DATE: 24-Jan-07

LAB#- ECL013289-007 SAMPLE ID- C-2b
LOCATION- B-303 73.5-75; 78.5-80
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 11:48 | CHK | 7.8 | meq/100g | 0.1 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 7.6 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 7.6 | S.U. | 0.10 |

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FINAL REPORT OF ANALYSES

Schnabel Engineering
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PROJECT NAME:
REPORT DATE: 24-Jan-07

LAB#- ECL013289-020 SAMPLE ID- C-3b
LOCATION- B-318 43.5-45; 48.5-50
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 13:32 | CHK | 27.9 | meq/100g | 0.5 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 2.5 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 2.6 | S.U. | 0.10 |

LABORATORY DIRECTOR

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FINAL REPORT OF ANALYSES

Schnabel Engineering
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PROJECT NAME:
REPORT DATE: 24-Jan-07

LAB#- ECL013289-008 SAMPLE ID- C-4b
LOCATION- B-323 33.5-35; B-324 32.5-34
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 12:05 | CHK | 1.6 | meq/100g | 0.1 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 4.6 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 5.9 | S.U. | 0.10 |

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Schnabel Engineering
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PROJECT NAME:
REPORT DATE: 24-Jan-07

LAB#- ECL013289-017 SAMPLE ID- C-5b
LOCATION- B-335 63.5-65; 68.5-70
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 12:30 | CHK | 10.1 | meq/100g | 0.1 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 7.0 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 7.0 | S.U. | 0.10 |

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PROJECT NAME:
REPORT DATE: 24-Jan-07

LAB#- ECL013289-018 SAMPLE ID- C-6b
LOCATION- B-401 63.5-65; 73.5-75
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 12:32 | CHK | 8.0 | meq/100g | 0.1 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 7.4 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 7.4 | S.U. | 0.10 |

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PROJECT NAME:
REPORT DATE: 24-Jan-07

LAB#- ECL013289-019 SAMPLE ID- C-7b
LOCATION- B-402 23.5-25; 28.5-30
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 13:30 | CHK | 31.9 | meq/100g | 0.3 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 2.9 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 3.0 | S.U. | 0.10 |

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PROJECT NAME:
REPORT DATE: 24-Jan-07

LAB#- ECL013289-005 SAMPLE ID- C-8b
LOCATION- B-422 48.5-50.5
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 13:26 | CHK | 22.8 | meq/100g | 0.3 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 4.8 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 4.9 | S.U. | 0.10 |

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FINAL REPORT OF ANALYSES

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PROJECT NAME:
REPORT DATE: 24-Jan-07

LAB#- ECL013289-009 SAMPLE ID- C-9b
LOCATION- B-424 33.5-35; 38.5-40
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 12:09 | CHK | 3.1 | meq/100g | 0.1 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 5.0 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 5.8 | S.U. | 0.10 |

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Schnabel Engineering
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PROJECT NAME:
REPORT DATE: 24-Jan-07

LAB#- ECL013289-014 SAMPLE ID- C-10b
LOCATION- B-428 38.5-40; B-429 38.5-40
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 12:25 | CHK | 2.0 | meq/100g | 0.1 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 7.1 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 7.8 | S.U. | 0.10 |

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FINAL REPORT OF ANALYSES

Schnabel Engineering
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PROJECT NAME:
REPORT DATE: 30-Jan-07

LAB#- ECL013289-004 SAMPLE ID- C-11b
LOCATION- B-428 63-65
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 13:24 | CHK | 24.9 | meq/100g | 0.3 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 3.8 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 3.9 | S.U. | 0.10 |

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Schnabel Engineering
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PROJECT NAME:
REPORT DATE: 24-Jan-07

LAB#- ECL013289-011 SAMPLE ID- C-12b
LOCATION- B-705 43.5-45; 48.5-50
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 12:13 | CHK | 7.0 | meq/100g | 0.1 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 7.3 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 7.3 | S.U. | 0.10 |

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FINAL REPORT OF ANALYSES

Schnabel Engineering
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Gaithersburg, MD 20878

PROJECT NAME:
REPORT DATE: 24-Jan-07

LAB#- ECL013289-015 SAMPLE ID- C-13b
LOCATION- B-708 23.5-25; 28.5-30
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 12:27 | CHK | 7.2 | meq/100g | 0.1 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 7.3 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 7.4 | S.U. | 0.10 |

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FINAL REPORT OF ANALYSES

Schnabel Engineering
656 Quince Orchard Road
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Gaithersburg, MD 20878

PROJECT NAME:
REPORT DATE: 24-Jan-07

LAB#- ECL013289-013 SAMPLE ID- C-14b
LOCATION- B-711 28.5-30; 33.5-35
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 12:19 | CHK | 6.6 | meq/100g | 0.1 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 7.7 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 7.8 | S.U. | 0.10 |

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FINAL REPORT OF ANALYSES

Schnabel Engineering
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PROJECT NAME:
REPORT DATE: 30-Jan-07

LAB#- ECL013289-002 SAMPLE ID- C-15b
LOCATION- B-725 48.5-50; 53.5-55
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 11:39 | CHK | 8.5 | meq/100g | 0.1 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 7.7 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 7.8 | S.U. | 0.10 |

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FINAL REPORT OF ANALYSES

Schnabel Engineering
656 Quince Orchard Road
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Gaithersburg, MD 20878

PROJECT NAME:
REPORT DATE: 24-Jan-07

LAB#- ECL013289-001 SAMPLE ID- C-16b
LOCATION- B-735 63.5-65; 68.5-70
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 11:35 | CHK | 6.6 | meq/100g | 0.1 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 7.7 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 7.7 | S.U. | 0.10 |

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Schnabel Engineering
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Gaithersburg, MD 20878

PROJECT NAME:
REPORT DATE: 30-Jan-07

LAB#- ECL013289-003 SAMPLE ID- C-17b
LOCATION- B-744 48.5-50; 53.5-55
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 11:41 | CHK | 16.8 | meq/100g | 0.1 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 3.0 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 3.4 | S.U. | 0.10 |

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Schnabel Engineering
656 Quince Orchard Road
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Gaithersburg, MD 20878

PROJECT NAME:
REPORT DATE: 24-Jan-07

LAB#- ECL013289-016 SAMPLE ID- C-18b
LOCATION- B-756 33.5-35; 38.5-40
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 12:28 | CHK | 9.6 | meq/100g | 0.1 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 5.8 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 6.4 | S.U. | 0.10 |

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Schnabel Engineering
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Gaithersburg, MD 20878

PROJECT NAME:
REPORT DATE: 24-Jan-07

LAB#- ECL013289-006 SAMPLE ID- C-19b
LOCATION- B-768 43.5-45
DATE SAMPLED- TIME SAMPLED- SAMPLER-
DATE RECEIVED- 1/8/2007 TIME RECEIVED- 16:15
DELIVERED BY- M. Dunscomb RECEIVED BY- VPS



| ANALYSIS | METHOD | ANALYSIS DATE/TIME | BY | RESULT | | DETECTION LIMIT |
|---|---|---|---|---|---|---|
| Cation Exch. Capacity | EPA 9081 | 1/17/2007 11:46 | CHK | 6.8 | meq/100g | 0.1 |
| pH in calcium chloride | ASTM D4972 | 1/15/2007 13:20 | SES | 7.1 | S.U. | 0.10 |
| pH in deionized water | ASTM D4972 | 1/15/2007 13:20 | SES | 7.2 | S.U. | 0.10 |