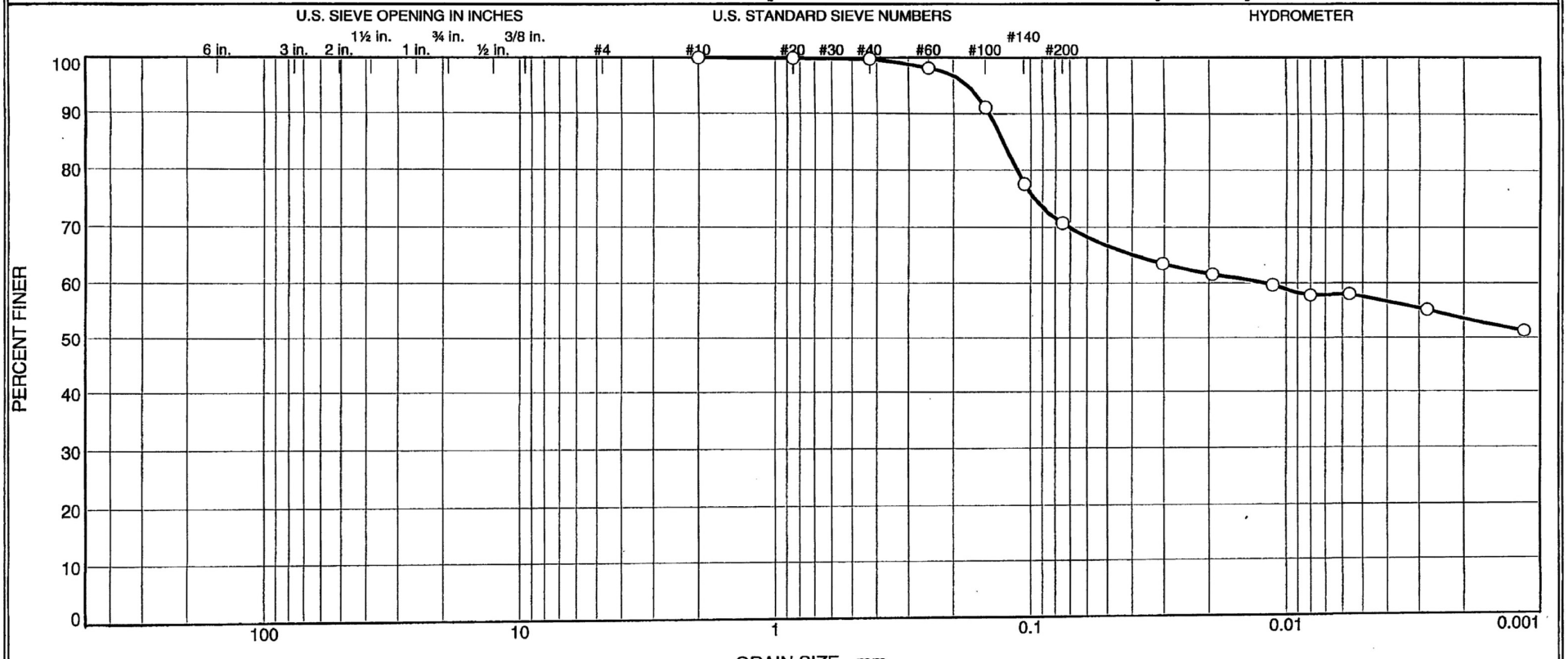
# Particle Size Distribution Report / ASTM D- 422-63(2002)e1




| | % +3" | % Gravel | | % Sand | | | % Fines | |
|---|---|---|---|---|---|---|---|---|
| | | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| ○ | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 29.1 | 13.1 | 57.6 |

| | Source | Sample # | Depth/Elev. | Date Sampled | USCS | Material Description | NM % | LL | PL |
|---|---|---|---|---|---|---|---|---|---|
| ○ | Boring B-2182A | SS-17A | 68.5-69.5 | 11/29/07 | CL | Brownish Gray Lean CLAY with sand | 24.1 | 33 | 15 |

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

**MACTEC, Inc.**

**Raleigh, North Carolina**

○ Specific gravity is assumed

**Tested By:** CS **Checked By:** LBJ DSC 1-25-08

## GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

**Client:** Bechtel
**Project:** Exelon Texas COL (Victoria)
**Project Number:** 6468071777
**Location:** Boring B-2182A
**Depth:** 68.5-69.5 **Sample Number:** SS-17A
**Material Description:** Brownish Gray Lean CLAY with sand
**Date:** 11/29/07 **Natural Moisture:** 24.1
**Liquid Limit:** 33 **Plastic Limit:** 15 **USCS Class.:** CL
**Testing Remarks:** Specific gravity is assumed
**Tested by:** CS **Checked by:** LBJ

### Sieve Test Data

| Dry Sample and Tare (grams) | Tare (grams) | Cumulative Pan Tare Weight (grams) | Sieve Opening Size | Cumulative Weight Retained (grams) | Percent Finer |
|---|---|---|---|---|---|
| 198.68 | 0.00 | 0.00 | #10 | 0.00 | 100.0 |
| 52.51 | 0.00 | 0.00 | #20 | 0.06 | 99.9 |
| | | | #40 | 0.13 | 99.8 |
| | | | #60 | 1.01 | 98.1 |
| | | | #100 | 4.68 | 91.1 |
| | | | #140 | 11.76 | 77.6 |
| | | | #200 | 15.36 | 70.7 |

### Hydrometer Test Data

**Hydrometer test uses material passing #10**
**Percent passing #10 based upon complete sample =** 100.0
**Weight of hydrometer sample =**52.51
**Hygroscopic moisture correction:**
**Moist weight and tare =** 27.28
**Dry weight and tare =** 26.95
**Tare weight =** 15.55
**Hygroscopic moisture =** 2.9%
**Table of composite correction values:**

| | | |
|---|---|---|
| **Temp., deg. C:** | 12.2 | 27.1 |
| **Comp. corr.:** | -7.0 | -3.0 |

**Meniscus correction only =** 1.0
**Specific gravity of solids =** 2.700
**Hydrometer type =** 152H
**Hydrometer effective depth equation: L =** 16.294964 - 0.164 x Rm

| Elapsed Time (min.) | Temp. (deg. C.) | Actual Reading | Corrected Reading | K | Rm | Eff. Depth | Diameter (mm.) | Percent Finer |
|---|---|---|---|---|---|---|---|---|
| 2.00 | 18.8 | 38.0 | 32.8 | 0.0136 | 39.0 | 9.9 | 0.0304 | 63.5 |
| 5.00 | 18.8 | 37.0 | 31.8 | 0.0136 | 38.0 | 10.1 | 0.0194 | 61.6 |
| 15.00 | 18.9 | 36.0 | 30.8 | 0.0136 | 37.0 | 10.2 | 0.0113 | 59.7 |
| 30.00 | 19.1 | 35.0 | 29.9 | 0.0136 | 36.0 | 10.4 | 0.0080 | 57.8 |
| 60.00 | 19.5 | 35.0 | 30.0 | 0.0135 | 36.0 | 10.4 | 0.0056 | 58.1 |
| 240.00 | 21.5 | 33.0 | 28.5 | 0.0132 | 34.0 | 10.7 | 0.0028 | 55.2 |
| 1440.00 | 21.5 | 31.0 | 26.5 | 0.0132 | 32.0 | 11.0 | 0.0012 | 51.3 |

**MACTEC, Inc.**

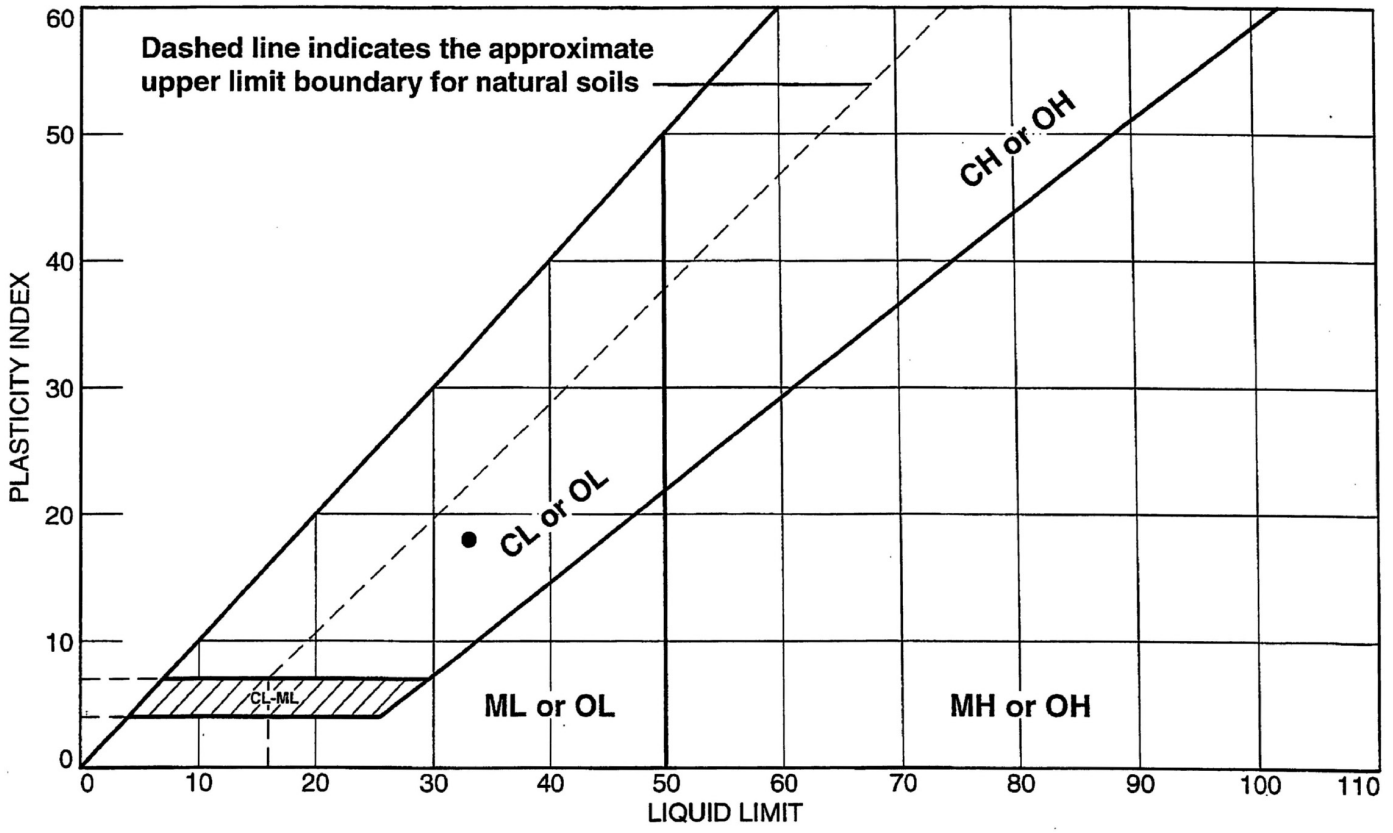
## Fractional Components

| Cobbles | Gravel | | | Sand | | | | Fines | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Total | Coarse | Medium | Fine | Total | Silt | Clay | Total |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 29.1 | 29.3 | 13.1 | 57.6 | 70.7 |

| $D_{10}$ | $D_{15}$ | $D_{20}$ | $D_{30}$ | $D_{50}$ | $D_{60}$ | $D_{80}$ | $D_{85}$ | $D_{90}$ | $D_{95}$ |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 0.0120 | 0.1133 | 0.1280 | 0.1453 | 0.1759 |

| Fineness Modulus |
|---|
| 0.10 |

# LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)




**SOIL DATA**

| | SOURCE | SAMPLE NO. | DEPTH | NATURAL WATER CONTENT (%) | PLASTIC LIMIT (%) | LIQUID LIMIT (%) | PLASTICITY INDEX (%) | USCS |
|---|---|---|---|---|---|---|---|---|
| ● | Boring B-2182A | SS-17A | 68.5-69.5 | 24.1 | 15 | 33 | 18 | CL |

| | |
|---|---|
| **MACTEC, Inc.**<br><br>**Raleigh, North Carolina** | **Client:** Bechtel<br>**Project:** Exelon Texas COL (Victoria)<br><br>**Project No.:** 6468071777 **Figure** NA |

**Tested By:** CS **Checked By:** LBJ DSC 1-25-08

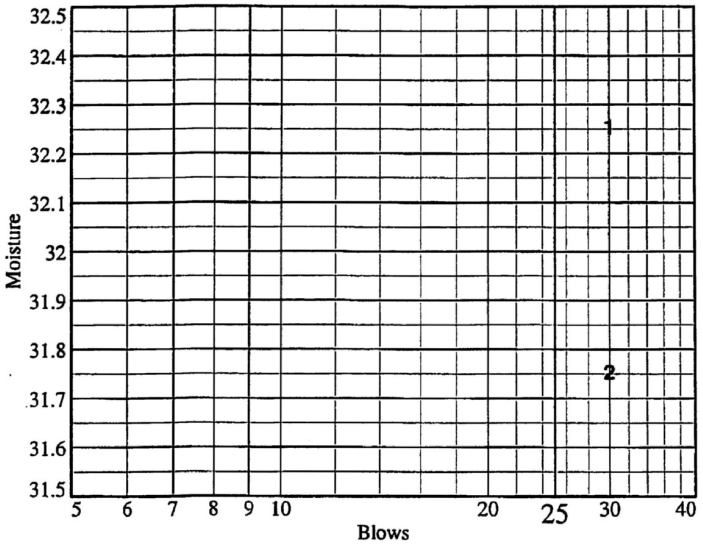
## LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

**Client:** Bechtel
**Project:** Exelon Texas COL (Victoria)
**Project Number:** 6468071777
**Location:** Boring B-2182A
**Depth:** 68.5-69.5 **Sample Number:** SS-17A
**Material Description:** Brownish Gray Lean CLAY with sand
**USCS:** CL **AASHTO:** A-6(10)
**Tested by:** CS **Checked by:** LBJ

### Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Wet+Tare | 29.49 | 31.72 | | | | |
| Dry+Tare | 26.10 | 27.83 | | | | |
| Tare | 15.59 | 15.58 | | | | |
| # Blows | 30 | 30 | | | | |
| Moisture | 32.3 | 31.8 | | | | |




**Liquid Limit=** 33
**Plastic Limit=** 15
**Plasticity Index=** 18
**Natural Moisture=** 24.1
**Liquidity Index=** 0.5

### Plastic Limit Data

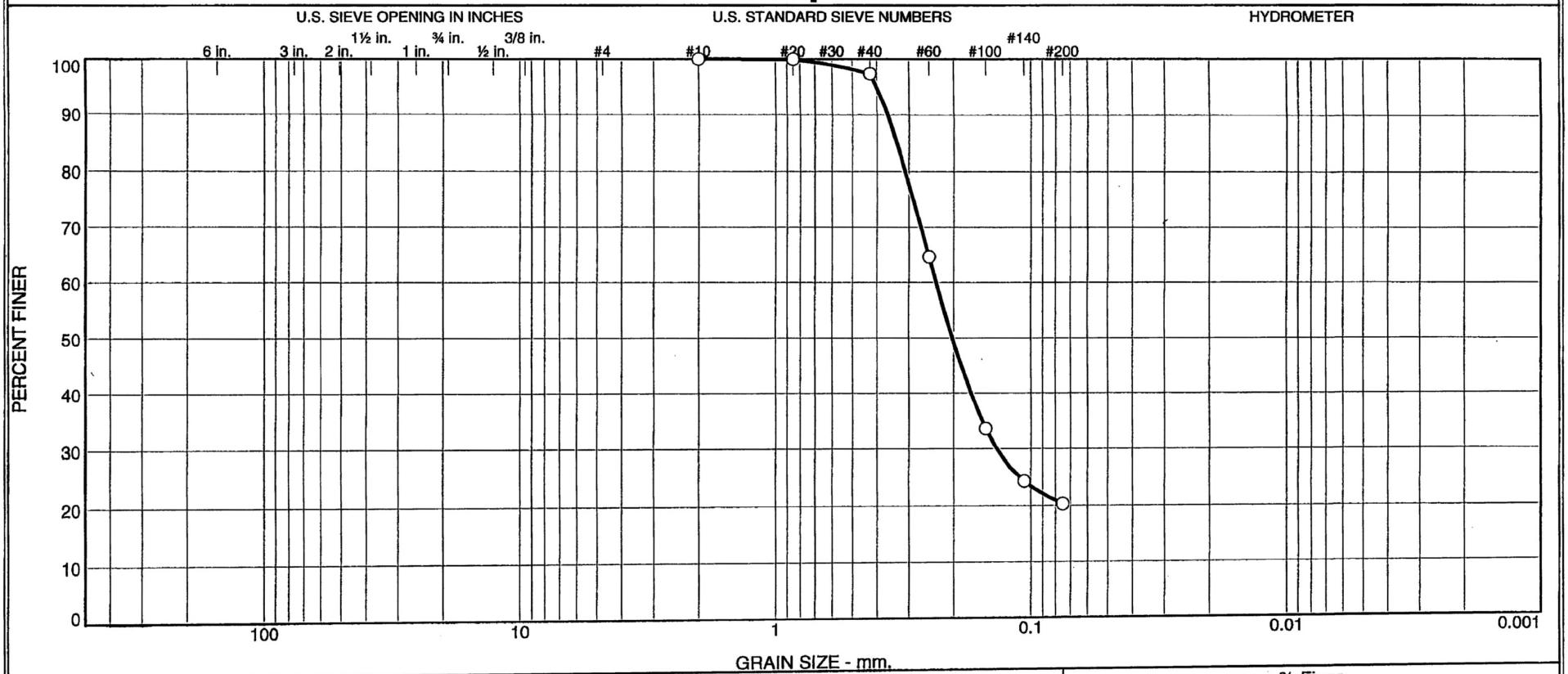
| Run No. | 1 | 2 | 3 | 4 | |
|---|---|---|---|---|---|
| Wet+Tare | 23.40 | 23.20 | | | |
| Dry+Tare | 22.38 | 22.17 | | | |
| Tare | 15.50 | 15.60 | | | |
| Moisture | 14.8 | 15.7 | | | |

### Natural Moisture Data

| Wet+Tare | Dry+Tare | Tare | Moisture |
|---|---|---|---|
| 144.90 | 118.10 | 6.80 | 24.1 |

MACTEC, Inc.

# Particle Size Distribution Report / ASTM D- 6913-04e1




| | % +3" | % Gravel | | % Sand | | | % Fines | |
|---|---|---|---|---|---|---|---|---|
| | | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| O | 0.0 | 0.0 | 0.0 | 0.0 | 2.6 | 77.1 | 20.3 | |

| | Source | Sample # | Depth/Elev. | Date Sampled | USCS | Material Description | NM % | LL | PL |
|---|---|---|---|---|---|---|---|---|---|
| O | Boring B-2182A | SS-17B | 69.5-70 | 11/29/07 | SC | Brownish Gray Clayey SAND (Visual) | ND | ND | ND |

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

**MACTEC, Inc.**

**Raleigh, North Carolina**

O SIEVE ANALYSIS ONLY
ND = Not determined.

**Tested By:** CS **Checked By:** LBJ DSC 1-25-08

## GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

**Client:** Bechtel
**Project:** Exelon Texas COL (Victoria)
**Project Number:** 6468071777
**Location:** Boring B-2182A
**Depth:** 69.5-70 **Sample Number:** SS-17B
**Material Description:** Brownish Gray Clayey SAND (Visual)
**Date:** 11/29/07 **Natural Moisture:** ND
**Liquid Limit:** ND **Plastic Limit:** ND **USCS Class.:** SC
**Testing Remarks:** SIEVE ANALYSIS ONLY
ND = Not determined.
**Tested by:** CS **Checked by:** LBJ

### Sieve Test Data

| Dry Sample and Tare (grams) | Tare (grams) | Cumulative Pan Tare Weight (grams) | Sieve Opening Size | Cumulative Weight Retained (grams) | Percent Finer |
|---|---|---|---|---|---|
| 269.66 | 0.00 | 0.00 | #10 | 0.00 | 100.0 |
| 106.14 | 0.00 | 0.00 | #20 | 0.07 | 99.9 |
| | | | #40 | 2.80 | 97.4 |
| | | | #60 | 37.54 | 64.6 |
| | | | #100 | 70.49 | 33.6 |
| | | | #140 | 80.33 | 24.3 |
| | | | #200 | 84.56 | 20.3 |

### Hydrometer Test Data

**Hydrometer test uses material passing #10**
**Percent passing #10 based upon complete sample =** 100.0
**Weight of hydrometer sample =**106.14
**Hygroscopic moisture correction:**
**Moist weight and tare =** 35.81
**Dry weight and tare =** 35.60
**Tare weight =** 24.78
**Hygroscopic moisture =** 1.9%
**Table of composite correction values:**

| | | |
|---|---|---|
| **Temp., deg. C:** | 12.2 | 27.1 |
| **Comp. corr.:** | -7.0 | -3.0 |

**Meniscus correction only =** 1.0
**Specific gravity of solids =** 2.7
**Hydrometer type =** 152H
**Hydrometer effective depth equation: L =** 16.294964 - 0.164 x Rm

### Fractional Components

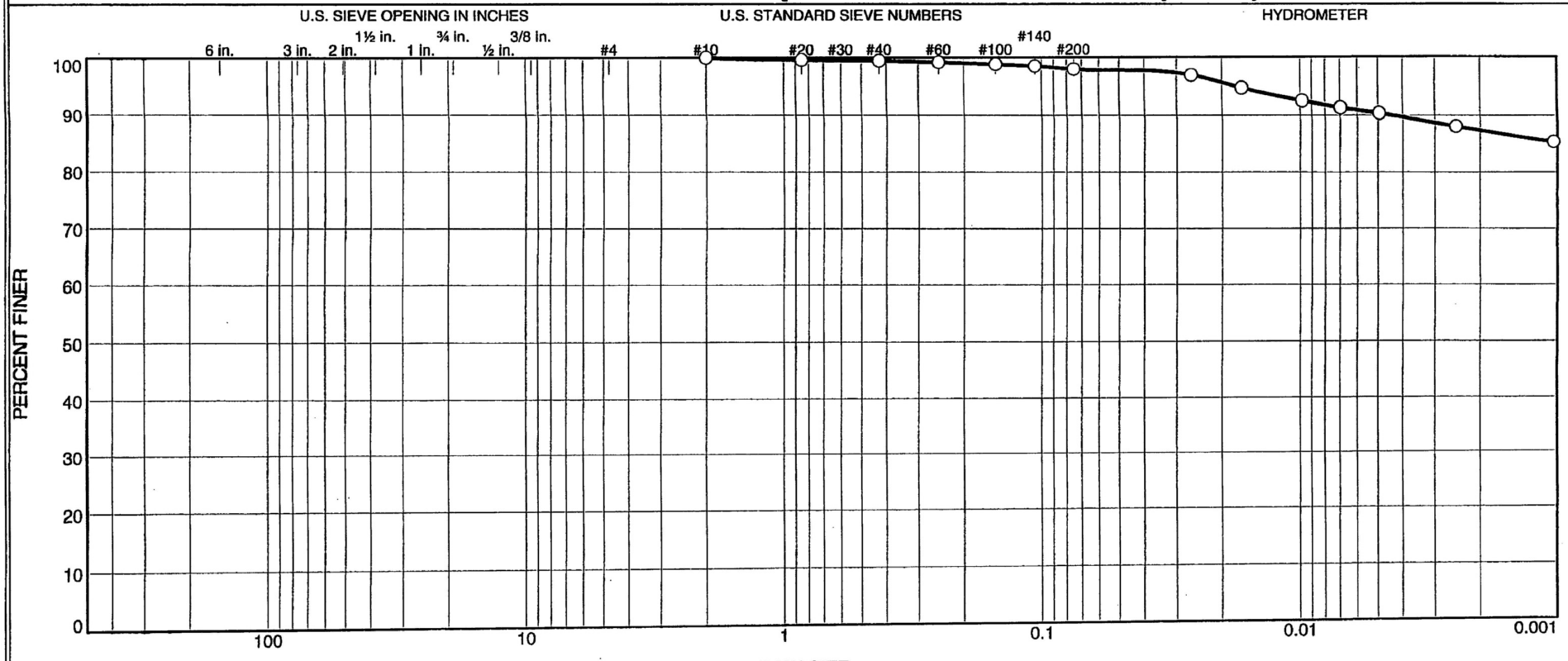
| Cobbles | Gravel | | | Sand | | | | Fines | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Total | Coarse | Medium | Fine | Total | Silt | Clay | Total |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.6 | 77.1 | 79.7 | | | 20.3 |

| $D_{10}$ | $D_{15}$ | $D_{20}$ | $D_{30}$ | $D_{50}$ | $D_{60}$ | $D_{80}$ | $D_{85}$ | $D_{90}$ | $D_{95}$ |
|---|---|---|---|---|---|---|---|---|---|
| | | | 0.1359 | 0.2026 | 0.2344 | 0.3097 | 0.3340 | 0.3630 | 0.4008 |

| Fineness Modulus |
|---|
| 0.90 |

**MACTEC, Inc.**

# Particle Size Distribution Report / ASTM D 422-63(2002)e1




| | % +3" | % Gravel | | % Sand | | | % Fines | |
|---|---|---|---|---|---|---|---|---|
| | | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| O | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 1.5 | 7.5 | 90.4 |

| | Source | Sample # | Depth/Elev. | Date Sampled | USCS | Material Description | NM % | LL | PL |
|---|---|---|---|---|---|---|---|---|---|
| O | Boring B-2182A | SS-18 | 73.5-75 | 11/29/07 | CH | Reddish Brown Fat CLAY | 26.1 | 95 | 26 |

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

**MACTEC, Inc.**

**Raleigh, North Carolina**

O Specific gravity is assumed

**Tested By:** CS **Checked By:** LBJ DSC 1-26-08

## GRAIN SIZE DISTRIBUTION TEST DATA

1/26/2008

**Client:** Bechtel
**Project:** Exelon Texas COL (Victoria)
**Project Number:** 6468071777
**Location:** Boring B-2182A
**Depth:** 73.5-75 **Sample Number:** SS-18
**Material Description:** Reddish Brown Fat CLAY
**Date:** 11/29/07 **Natural Moisture:** 26.1
**Liquid Limit:** 95 **Plastic Limit:** 26 **USCS Class.:** CH
**Testing Remarks:** Specific gravity is assumed
**Tested by:** CS **Checked by:** LBJ

### Sieve Test Data

| Dry Sample and Tare (grams) | Tare (grams) | Cumulative Pan Tare Weight (grams) | Sieve Opening Size | Cumulative Weight Retained (grams) | Percent Finer |
|---|---|---|---|---|---|
| 213.35 | 0.00 | 0.00 | #10 | 0.00 | 100.0 |
| 48.44 | 0.00 | 0.00 | #20 | 0.21 | 99.6 |
| | | | #40 | 0.27 | 99.4 |
| | | | #60 | 0.41 | 99.2 |
| | | | #100 | 0.59 | 98.8 |
| | | | #140 | 0.75 | 98.5 |
| | | | #200 | 1.02 | 97.9 |

### Hydrometer Test Data

**Hydrometer test uses material passing #10**
**Percent passing #10 based upon complete sample =** 100.0
**Weight of hydrometer sample =**48.44
**Hygroscopic moisture correction:**
**Moist weight and tare =** 43.25
**Dry weight and tare =** 42.53
**Tare weight =** 31.75
**Hygroscopic moisture =** 6.7%
**Table of composite correction values:**

| | | |
|---|---|---|
| **Temp., deg. C:** | 12.2 | 27.1 |
| **Comp. corr.:** | -8.0 | -3.0 |

**Meniscus correction only =** 1.0
**Specific gravity of solids =** 2.700
**Hydrometer type =** 152H
**Hydrometer effective depth equation: L =** 16.294964 - 0.164 x Rm

| Elapsed Time (min.) | Temp. (deg. C.) | Actual Reading | Corrected Reading | K | Rm | Eff. Depth | Diameter (mm.) | Percent Finer |
|---|---|---|---|---|---|---|---|---|
| 2.00 | 22.5 | 49.0 | 44.5 | 0.0130 | 50.0 | 8.1 | 0.0262 | 96.8 |
| 5.00 | 22.5 | 48.0 | 43.5 | 0.0130 | 49.0 | 8.3 | 0.0168 | 94.6 |
| 15.00 | 22.5 | 47.0 | 42.5 | 0.0130 | 48.0 | 8.4 | 0.0098 | 92.5 |
| 30.00 | 22.4 | 46.5 | 41.9 | 0.0131 | 47.5 | 8.5 | 0.0069 | 91.3 |
| 60.00 | 22.6 | 46.0 | 41.5 | 0.0130 | 47.0 | 8.6 | 0.0049 | 90.4 |
| 240.00 | 22.5 | 45.0 | 40.5 | 0.0130 | 46.0 | 8.8 | 0.0025 | 88.1 |
| 1440.00 | 21.8 | 44.0 | 39.2 | 0.0131 | 45.0 | 8.9 | 0.0010 | 85.4 |

MACTEC, Inc.

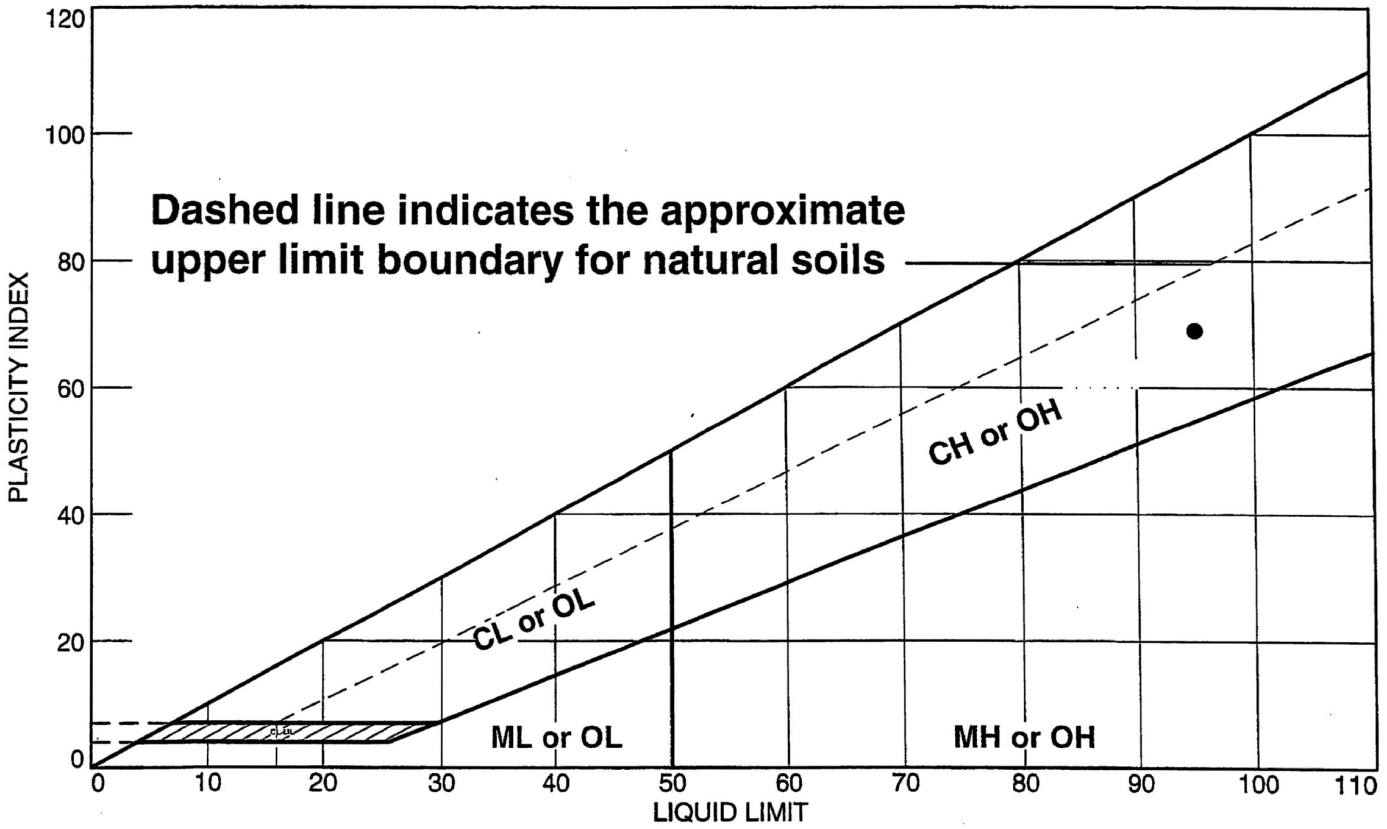
## Fractional Components

| Cobbles | Gravel | | | Sand | | | | Fines | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Total | Coarse | Medium | Fine | Total | Silt | Clay | Total |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 1.5 | 2.1 | 7.5 | 90.4 | 97.9 |

| $D_{10}$ | $D_{15}$ | $D_{20}$ | $D_{30}$ | $D_{50}$ | $D_{60}$ | $D_{80}$ | $D_{85}$ | $D_{90}$ | $D_{95}$ |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 0.0044 | 0.0180 |

| Fineness Modulus |
|---|
| 0.03 |

# LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)




**SOIL DATA**

| | SOURCE | SAMPLE NO. | DEPTH | NATURAL WATER CONTENT (%) | PLASTIC LIMIT (%) | LIQUID LIMIT (%) | PLASTICITY INDEX (%) | USCS |
|---|---|---|---|---|---|---|---|---|
| ● | Boring B-2182A | SS-18 | 73.5-75 | 26.1 | 26 | 95 | 69 | CH |

| | |
|---|---|
| **MACTEC, Inc.**<br><br>**Raleigh, North Carolina** | **Client:** Bechtel<br>**Project:** Exelon Texas COL (Victoria)<br><br>**Project No.:** 6468071777 **Figure** NA |

**Tested By:** CS **Checked By:** LBJ DSC 1-26-08

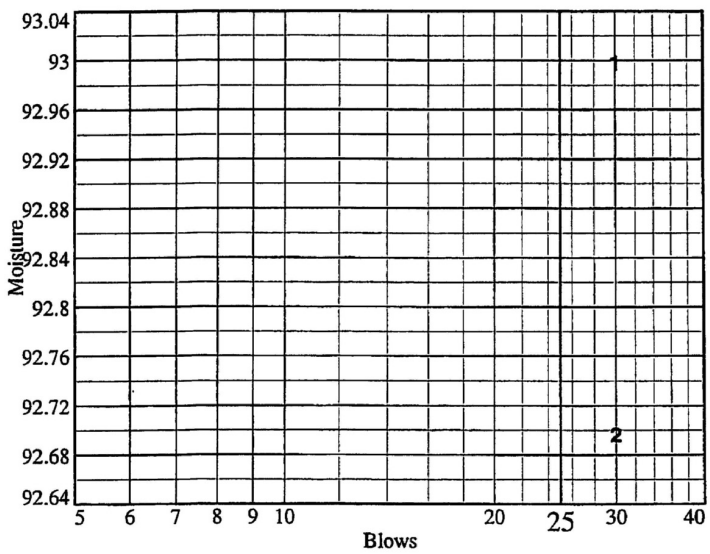
## LIQUID AND PLASTIC LIMIT TEST DATA

1/26/2008

**Client:** Bechtel
**Project:** Exelon Texas COL (Victoria)
**Project Number:** 6468071777
**Location:** Boring B-2182A
**Depth:** 73.5-75 **Sample Number:** SS-18
**Material Description:** Reddish Brown Fat CLAY
**USCS:** CH **AASHTO:** A-7-6(79)
**Tested by:** CS **Checked by:** LBJ

### Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Wet+Tare | 26.08 | 26.01 | | | | |
| Dry+Tare | 20.90 | 21.06 | | | | |
| Tare | 15.33 | 15.72 | | | | |
| # Blows | 30 | 30 | | | | |
| Moisture | 93.0 | 92.7 | | | | |




**Liquid Limit=** 95
**Plastic Limit=** 26
**Plasticity Index=** 69
**Natural Moisture=** 26.1
**Liquidity Index=** 0.0

### Plastic Limit Data

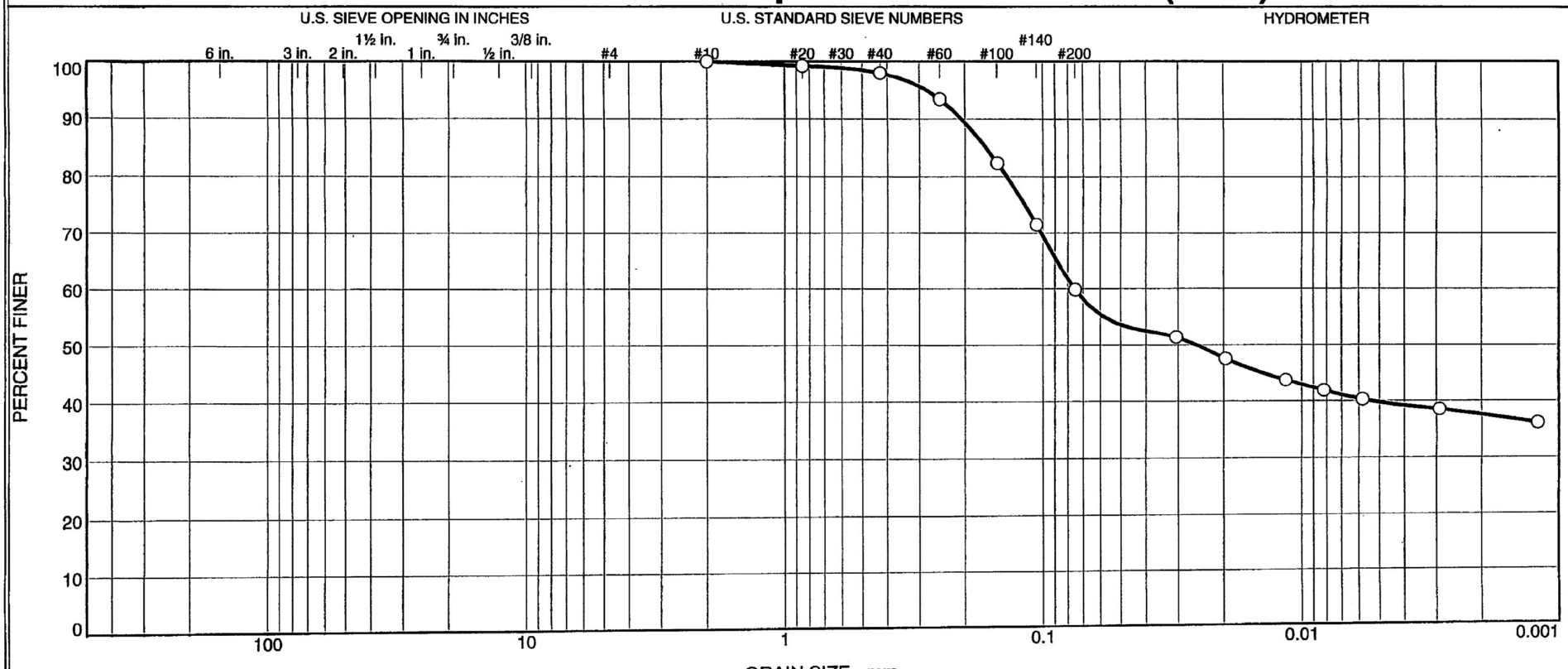
| Run No. | 1 | 2 | 3 | 4 | |
|---|---|---|---|---|---|
| Wet+Tare | 23.20 | 23.29 | | | |
| Dry+Tare | 21.60 | 21.70 | | | |
| Tare | 15.50 | 15.50 | | | |
| Moisture | 26.2 | 25.6 | | | |

### Natural Moisture Data

| Wet+Tare | Dry+Tare | Tare | Moisture |
|---|---|---|---|
| 152.22 | 122.07 | 6.76 | 26.1 |

MACTEC, Inc.

# Particle Size Distribution Report / ASTM D- 422-63(2002)e1




| | % +3" | % Gravel | | % Sand | | | % Fines | |
|---|---|---|---|---|---|---|---|---|
| | | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| ○ | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 38.0 | 20.2 | 39.7 |

| | Source | Sample # | Depth/Elev. | Date Sampled | USCS | Material Description | NM % | LL | PL |
|---|---|---|---|---|---|---|---|---|---|
| ○ | Boring B-2182A | SS-19 | 78.5-80 | 11/29/07 | CL | Pinkish Gray Sandy Lean CLAY | 14.1 | 39 | 13 |

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

**MACTEC, Inc.**

**Raleigh, North Carolina**

○ Specific gravity is assumed

**Tested By:** CS **Checked By:** LBJ DSC 1-25-08

## GRAIN SIZE DISTRIBUTION TEST DATA

**1/24/2008**

**Client:** Bechtel
**Project:** Exelon Texas COL (Victoria)
**Project Number:** 6468071777
**Location:** Boring B-2182A
**Depth:** 78.5-80 **Sample Number:** SS-19
**Material Description:** Pinkish Gray Sandy Lean CLAY
**Date:** 11/29/07 **Natural Moisture:** 14.1
**Liquid Limit:** 39 **Plastic Limit:** 13 **USCS Class.:** CL
**Testing Remarks:** Specific gravity is assumed
**Tested by:** CS **Checked by:** LBJ

### Sieve Test Data

| Dry Sample and Tare (grams) | Tare (grams) | Cumulative Pan Tare Weight (grams) | Sieve Opening Size | Cumulative Weight Retained (grams) | Percent Finer |
|---|---|---|---|---|---|
| 226.28 | 0.00 | 0.00 | #10 | 0.00 | 100.0 |
| 54.08 | 0.00 | 0.00 | #20 | 0.42 | 99.2 |
| | | | #40 | 1.11 | 97.9 |
| | | | #60 | 3.58 | 93.4 |
| | | | #100 | 9.52 | 82.4 |
| | | | #140 | 15.39 | 71.5 |
| | | | #200 | 21.69 | 59.9 |

### Hydrometer Test Data

**Hydrometer test uses material passing** #10
**Percent passing #10 based upon complete sample =** 100.0
**Weight of hydrometer sample =**54.08
**Hygroscopic moisture correction:**
**Moist weight and tare =** 28.20
**Dry weight and tare =** 27.86
**Tare weight =** 15.58
**Hygroscopic moisture =** 2.8%
**Table of composite correction values:**

| | | |
|---|---|---|
| **Temp., deg. C:** | 12.2 | 27.1 |
| **Comp. corr.:** | -8.0 | -3.0 |

**Meniscus correction only =** 1.0
**Specific gravity of solids =** 2.700
**Hydrometer type =** 152H
**Hydrometer effective depth equation: L =** 16.294964 - 0.164 x Rm

| Elapsed Time (min.) | Temp. (deg. C.) | Actual Reading | Corrected Reading | K | Rm | Eff. Depth | Diameter (mm.) | Percent Finer |
|---|---|---|---|---|---|---|---|---|
| 2.00 | 22.2 | 32.0 | 27.4 | 0.0131 | 33.0 | 10.9 | 0.0305 | 51.4 |
| 5.00 | 22.0 | 30.0 | 25.3 | 0.0131 | 31.0 | 11.2 | 0.0196 | 47.5 |
| 15.00 | 22.0 | 28.0 | 23.3 | 0.0131 | 29.0 | 11.5 | 0.0115 | 43.8 |
| 30.00 | 22.0 | 27.0 | 22.3 | 0.0131 | 28.0 | 11.7 | 0.0082 | 41.9 |
| 60.00 | 22.4 | 26.0 | 21.4 | 0.0131 | 27.0 | 11.9 | 0.0058 | 40.3 |
| 240.00 | 22.6 | 25.0 | 20.5 | 0.0130 | 26.0 | 12.0 | 0.0029 | 38.5 |
| 1440.00 | 21.8 | 24.0 | 19.2 | 0.0131 | 25.0 | 12.2 | 0.0012 | 36.1 |

**MACTEC, Inc.**

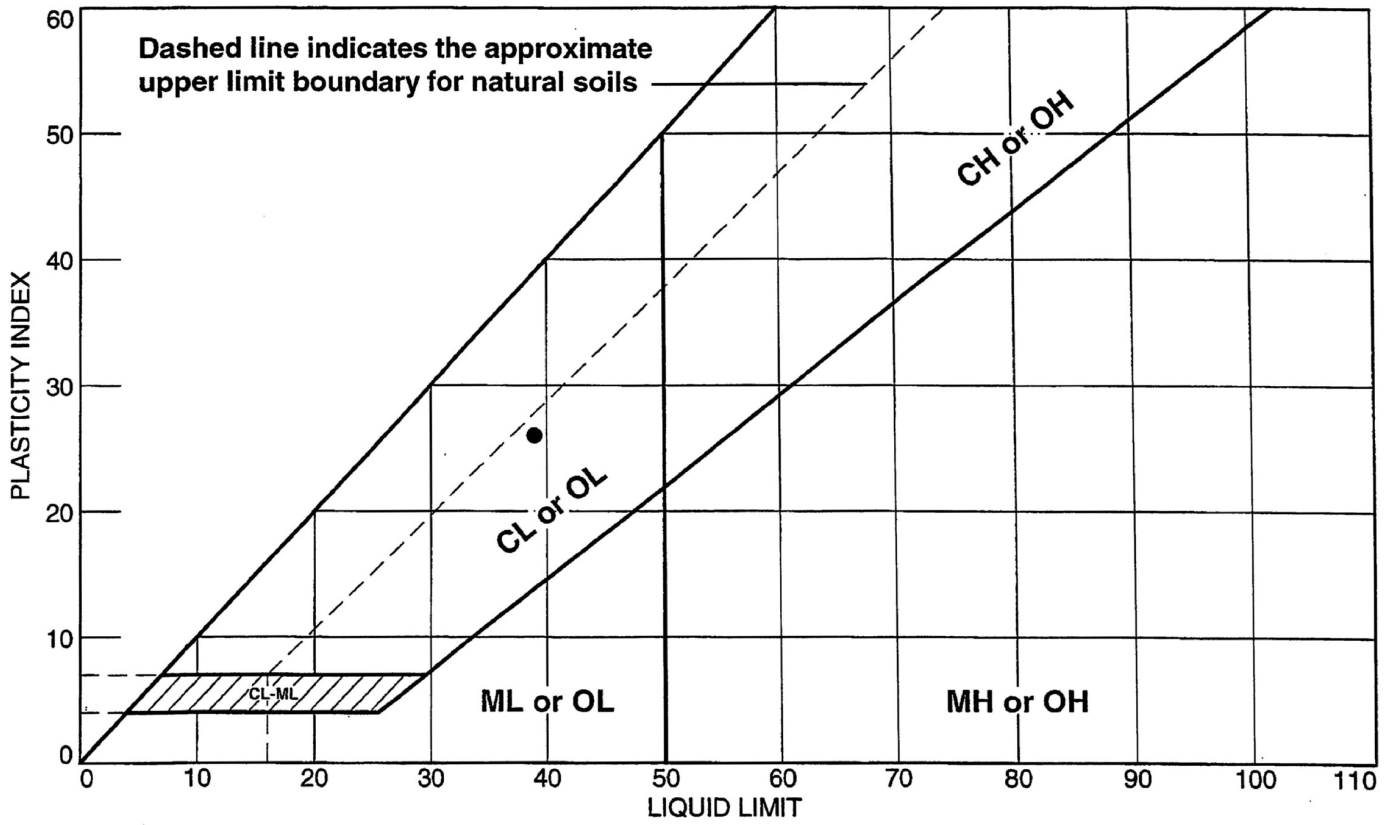
## Fractional Components

| Cobbles | Gravel | | | Sand | | | | Fines | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Total | Coarse | Medium | Fine | Total | Silt | Clay | Total |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 38.0 | 40.1 | 20.2 | 39.7 | 59.9 |

| $D_{10}$ | $D_{15}$ | $D_{20}$ | $D_{30}$ | $D_{50}$ | $D_{60}$ | $D_{80}$ | $D_{85}$ | $D_{90}$ | $D_{95}$ |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 0.0255 | 0.0753 | 0.1379 | 0.1655 | 0.2060 | 0.2832 |

| Fineness Modulus |
|---|
| 0.24 |

# LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)




**SOIL DATA**

| | SOURCE | SAMPLE NO. | DEPTH | NATURAL WATER CONTENT (%) | PLASTIC LIMIT (%) | LIQUID LIMIT (%) | PLASTICITY INDEX (%) | USCS |
|---|---|---|---|---|---|---|---|---|
| ● | Boring B-2182A | SS-19 | 78.5-80 | 14.1 | 13 | 39 | 26 | CL |

| | |
|---|---|
| **MACTEC, Inc.**<br><br>**Raleigh, North Carolina** | **Client:** Bechtel<br>**Project:** Exelon Texas COL (Victoria)<br><br>**Project No.:** 6468071777 **Figure** NA |

**Tested By:** CS **Checked By:** LBJ DSC 1-25-08

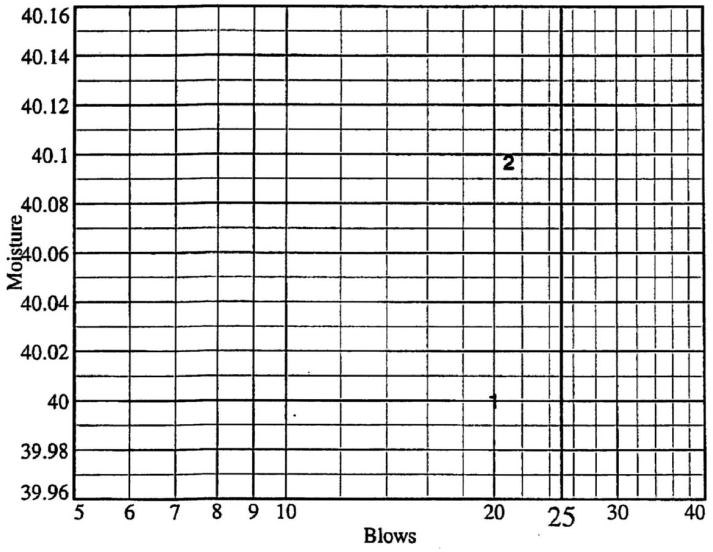
## LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

**Client:** Bechtel
**Project:** Exelon Texas COL (Victoria)
**Project Number:** 6468071777
**Location:** Boring B-2182A
**Depth:** 78.5-80 **Sample Number:** SS-19
**Material Description:** Pinkish Gray Sandy Lean CLAY
**USCS:** CL **AASHTO:** A-6(12)
**Tested by:** CS **Checked by:** LBJ

### Liquid Limit Data

| Run No. | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Wet+Tare | 29.16 | 29.88 | | | | |
| Dry+Tare | 25.34 | 25.75 | | | | |
| Tare | 15.79 | 15.45 | | | | |
| # Blows | 20 | 21 | | | | |
| Moisture | 40.0 | 40.1 | | | | |




**Liquid Limit=** 39
**Plastic Limit=** 13
**Plasticity Index=** 26
**Natural Moisture=** 14.1
**Liquidity Index=** 0.0

### Plastic Limit Data

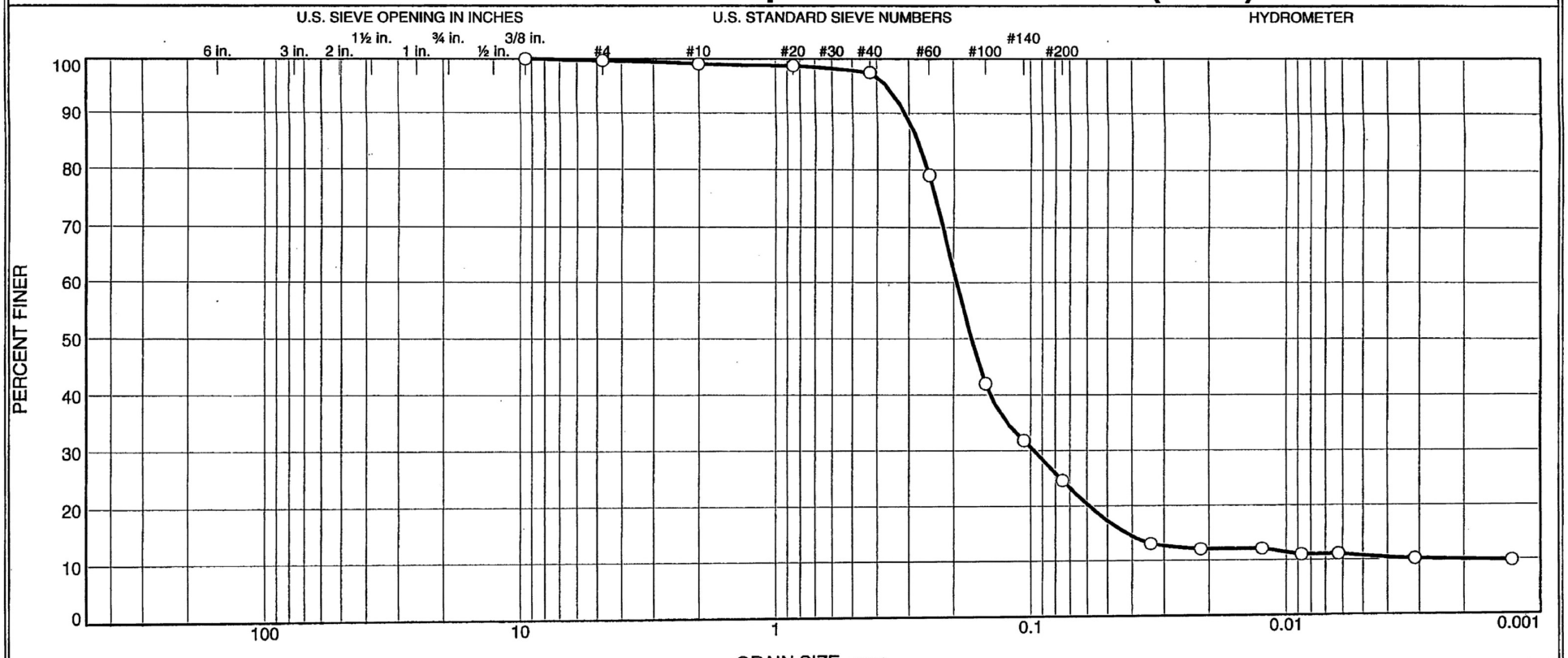
| Run No. | 1 | 2 | 3 | 4 | |
|---|---|---|---|---|---|
| Wet+Tare | 23.60 | 22.49 | | | |
| Dry+Tare | 22.70 | 21.36 | | | |
| Tare | 15.46 | 12.48 | | | |
| Moisture | 12.4 | 12.7 | | | |

### Natural Moisture Data

| Wet+Tare | Dry+Tare | Tare | Moisture |
|---|---|---|---|
| 161.31 | 142.16 | 6.64 | 14.1 |

MACTEC, Inc.

# Particle Size Distribution Report / ASTM D- 422-63(2002)e1




| | % +3" | % Gravel | | % Sand | | | % Fines | |
|---|---|---|---|---|---|---|---|---|
| | | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| ○ | 0.0 | 0.0 | 0.3 | 0.6 | 1.6 | 72.9 | 13.9 | 10.7 |

| | Source | Sample # | Depth/Elev. | Date Sampled | USCS | Material Description | NM % | LL | PL |
|---|---|---|---|---|---|---|---|---|---|
| ○ | Boring B-2182A | SS-20 | 83.5-85 | 11/29/07 | SC | Light Gray Clayey SAND | 17.3 | 26 | 16 |

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

**MACTEC, Inc.**

**Raleigh, North Carolina**

○ Specific gravity is assumed

**Tested By:** CS **Checked By:** LBJ DSC 1-25-08

## GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

**Client:** Bechtel
**Project:** Exelon Texas COL (Victoria)
**Project Number:** 6468071777
**Location:** Boring B-2182A
**Depth:** 83.5-85 **Sample Number:** SS-20
**Material Description:** Light Gray Clayey SAND
**Date:** 11/29/07 **Natural Moisture:** 17.3
**Liquid Limit:** 26 **Plastic Limit:** 16 **USCS Class.:** SC
**Testing Remarks:** Specific gravity is assumed
**Tested by:** CS **Checked by:** LBJ

### Sieve Test Data

| Dry Sample and Tare (grams) | Tare (grams) | Cumulative Pan Tare Weight (grams) | Sieve Opening Size | Cumulative Weight Retained (grams) | Percent Finer |
|---|---|---|---|---|---|
| 254.24 | 0.00 | 0.00 | 3/8 | 0.00 | 100.0 |
| | | | #4 | 0.80 | 99.7 |
| | | | #10 | 2.40 | 99.1 |
| 96.70 | 0.00 | 0.00 | #20 | 0.32 | 98.7 |
| | | | #40 | 1.56 | 97.5 |
| | | | #60 | 19.52 | 79.1 |
| | | | #100 | 55.68 | 42.0 |
| | | | #140 | 65.62 | 31.8 |
| | | | #200 | 72.66 | 24.6 |

### Hydrometer Test Data

**Hydrometer test uses material passing #10**
**Percent passing #10 based upon complete sample =** 99.1
**Weight of hydrometer sample =**96.7
**Hygroscopic moisture correction:**
**Moist weight and tare =** 33.19
**Dry weight and tare =** 32.95
**Tare weight =** 19.75
**Hygroscopic moisture =** 1.8%
**Table of composite correction values:**

| | | |
|---|---|---|
| **Temp., deg. C:** | 12.2 | 27.1 |
| **Comp. corr.:** | -7.0 | -3.0 |

**Meniscus correction only =** 1.0
**Specific gravity of solids =** 2.700
**Hydrometer type =** 152H
**Hydrometer effective depth equation: L =** 16.294964 - 0.164 **x Rm**

| Elapsed Time (min.) | Temp. (deg. C.) | Actual Reading | Corrected Reading | K | Rm | Eff. Depth | Diameter (mm.) | Percent Finer |
|---|---|---|---|---|---|---|---|---|
| 2.00 | 22.1 | 17.0 | 12.7 | 0.0131 | 18.0 | 13.3 | 0.0338 | 13.1 |
| 5.00 | 22.1 | 16.0 | 11.7 | 0.0131 | 17.0 | 13.5 | 0.0215 | 12.0 |
| 15.00 | 22.3 | 16.0 | 11.7 | 0.0131 | 17.0 | 13.5 | 0.0124 | 12.1 |
| 31.00 | 22.1 | 15.0 | 10.7 | 0.0131 | 16.0 | 13.7 | 0.0087 | 11.0 |
| 60.00 | 22.4 | 15.0 | 10.7 | 0.0131 | 16.0 | 13.7 | 0.0062 | 11.1 |
| 240.00 | 22.7 | 14.0 | 9.8 | 0.0130 | 15.0 | 13.8 | 0.0031 | 10.1 |
| 1440.00 | 21.6 | 14.0 | 9.5 | 0.0132 | 15.0 | 13.8 | 0.0013 | 9.8 |

**MACTEC, Inc.**

## Fractional Components

| Cobbles | Gravel | | | Sand | | | | Fines | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Coarse | Fine | Total | Coarse | Medium | Fine | Total | Silt | Clay | Total |
| 0.0 | 0.0 | 0.3 | 0.3 | 0.6 | 1.6 | 72.9 | 75.1 | 13.9 | 10.7 | 24.6 |

| $D_{10}$ | $D_{15}$ | $D_{20}$ | $D_{30}$ | $D_{50}$ | $D_{60}$ | $D_{80}$ | $D_{85}$ | $D_{90}$ | $D_{95}$ |
|---|---|---|---|---|---|---|---|---|---|
| 0.0022 | 0.0419 | 0.0589 | 0.0968 | 0.1706 | 0.1944 | 0.2537 | 0.2771 | 0.3105 | 0.3680 |

| Fineness Modulus | $C_u$ | $C_c$ |
|---|---|---|
| 0.73 | 90.02 | 22.32 |