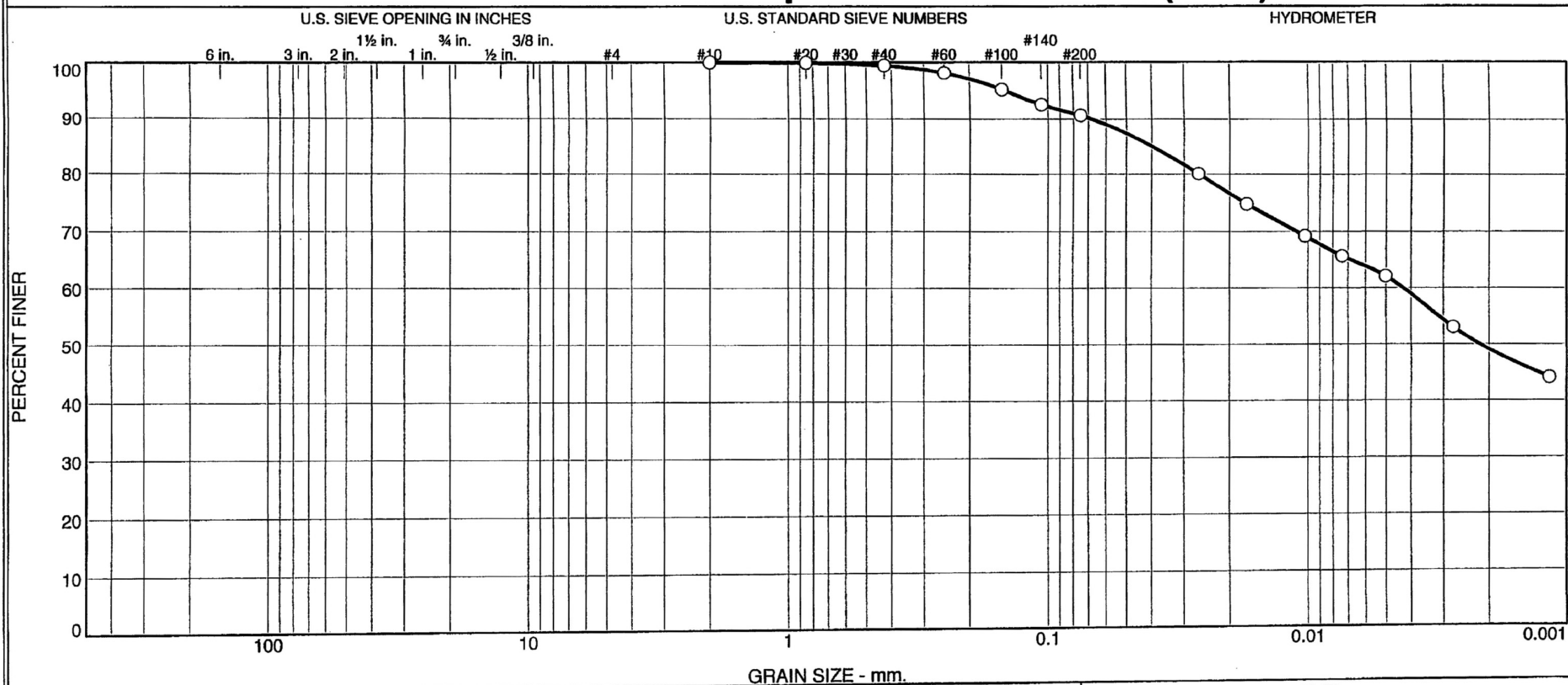


Particle Size Distribution Report / ASTM D 422-63(2002)e1



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.6	8.7	28.6	62.1

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2170R	SS-39	298.5-300.0	1-7-08	CH	Very Pale Brown Fat CLAY	25.2	64	20

Client Bechtel	MACTEC, Inc. Raleigh, North Carolina	○ Specific Gravity = 2.718
Project Exelon Texas COL (Victoria)		
Project No. 6468071777		

Tested By: CS

Checked By: LBJ

DSC 3-13-08

GRAIN SIZE DISTRIBUTION TEST DATA

3/12/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2170R

Depth: 298.5-300.0

Sample Number: SS-39

Material Description: Very Pale Brown Fat CLAY

Date: 1-7-08

Natural Moisture: 25.2

Liquid Limit: 64

Plastic Limit: 20

USCS Class.: CH

Testing Remarks: Specific Gravity = 2.718

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
242.95	0.00	0.00	#10	0.00	100.0
55.11	0.00	0.00	#20	0.05	99.9
			#40	0.31	99.4
			#60	1.03	98.1
			#100	2.64	95.2
			#140	4.11	92.5
			#200	5.15	90.7

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 55.11

Hygroscopic moisture correction:

Moist weight and tare = 27.06

Dry weight and tare = 26.95

Tare weight = 15.64

Hygroscopic moisture = 1.0%

Table of composite correction values:

Temp., deg. C: 12.8 27.3

Comp. corr.: -7.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.718

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.5	49.0	44.4	0.0131	50.0	8.1	0.0264	80.1
5.00	21.5	46.0	41.4	0.0131	47.0	8.6	0.0172	74.7
15.00	21.3	43.0	38.3	0.0132	44.0	9.1	0.0102	69.2
30.00	21.4	41.0	36.4	0.0131	42.0	9.4	0.0074	65.6
67.00	21.5	39.0	34.4	0.0131	40.0	9.7	0.0050	62.1
240.00	21.5	34.0	29.4	0.0131	35.0	10.6	0.0028	53.1
1440.00	21.4	29.0	24.4	0.0131	30.0	11.4	0.0012	44.0

MACTEC, Inc.

Fractional Components

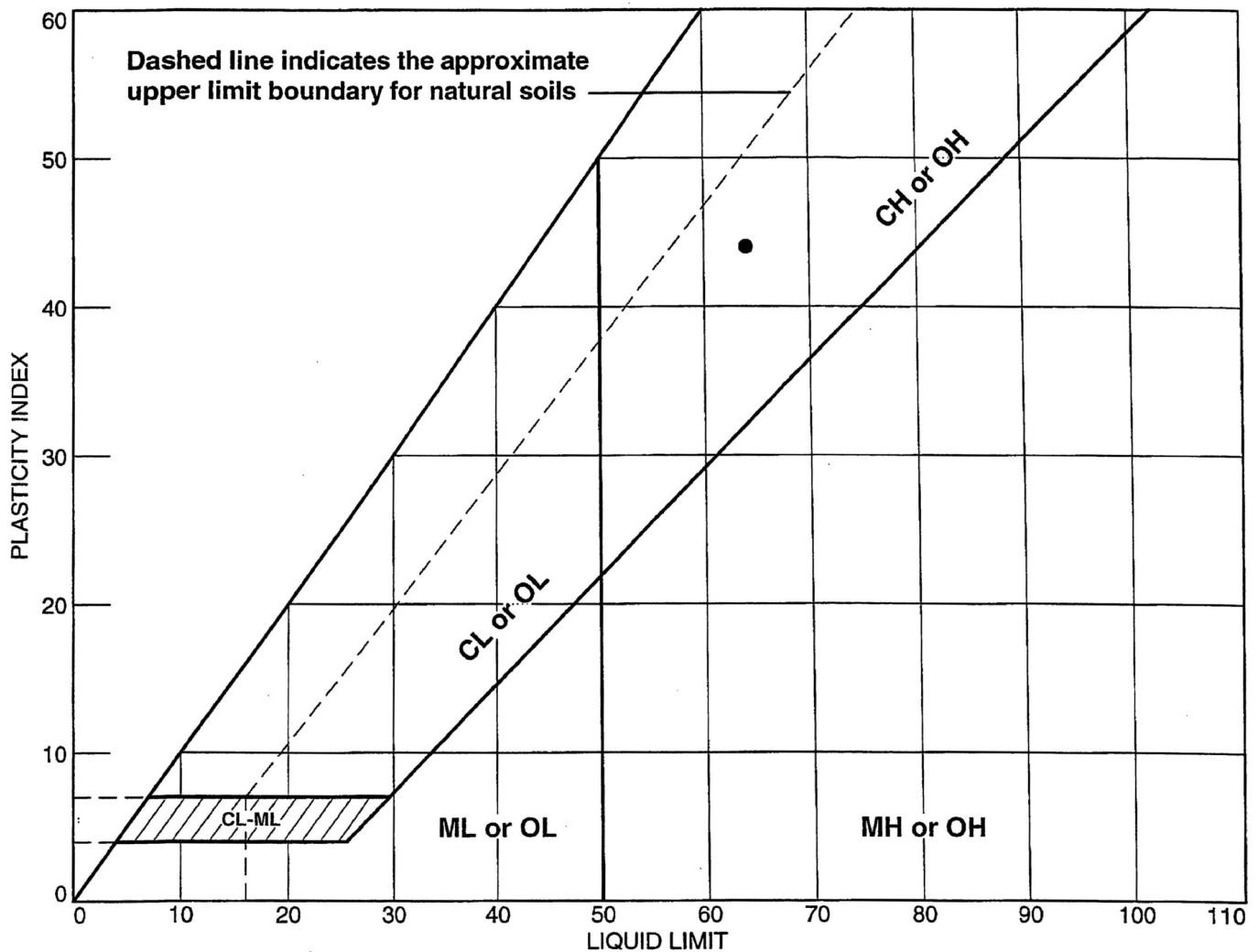
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.6	8.7	9.3	28.6	62.1	90.7

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0022	0.0043	0.0261	0.0394	0.0677	0.1460

Fineness Modulus
0.06

MACTEC, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2170R	SS-39	298.5-300.0	25.2	20	64	44	CH

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project No.: 6468071777

Figure NA

Tested By: CS

Checked By: LBJ KAW 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-2170R

Depth: 298.5-300.0

Sample Number: SS-39

Material Description: Very Pale Brown Fat CLAY

USCS: CH

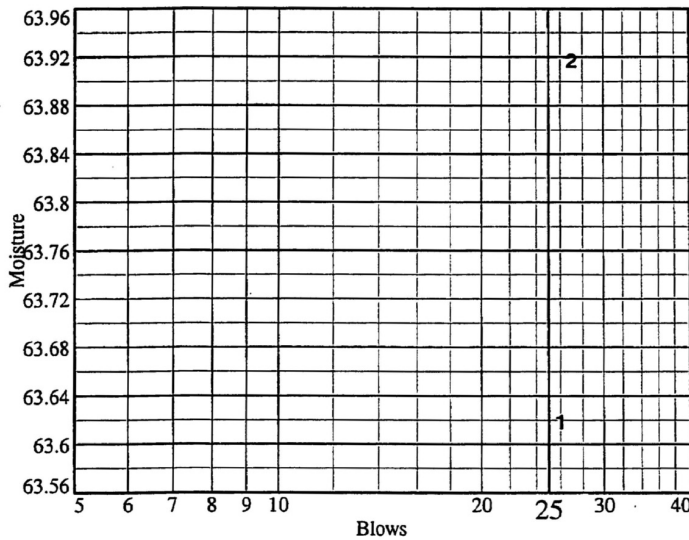
AASHTO: A-7-6(44)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.14	23.47				
Dry+Tare	20.87	20.37				
Tare	15.73	15.52				
# Blows	26	27				
Moisture	63.6	63.9				



Liquid Limit= 64
 Plastic Limit= 20
 Plasticity Index= 44
 Natural Moisture= 25.2
 Liquidity Index= 0.1

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	24.16	23.46		
Dry+Tare	22.70	22.16		
Tare	15.70	15.51		
Moisture	20.9	19.5		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
95.60	78.26	9.50	25.2

MACTEC, Inc.

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME: EXELON COL PROJECT (VICTORIA)

PROJECT NUMBER: 6468071777

DATE: 3/12/08

SAMPLE IDENTIFICATION: B-2170R SS-39

(A) Mass of oven-dried soil, grams:	50.13
(B) Mass of pycnometer filled with water at test temperature (T), grams:	655.74
(C) Mass of pycnometer, water and soil, grams:	687.43
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.4
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.719
(F) <i>Correction factor:</i>	0.99970
(G x F) SPECIFIC GRAVITY @ 20°C:	2.718

MATERIAL TESTED:

☒ X
- # 4

☐
- # 10

PREPARATION METHOD:

☒ X
DRY

☐
WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100%

Fat CLAY (CH)

EQUIPMENT USED

SCALES : 3.1.19

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNOMETER : P-3

TESTED BY: CS

\\Test Reports\\Soils\\SPECIFIC GRAVITY(ref).xls

REVIEWED BY: Brian Johnson

pjc 3-13-08

Boring B-2174A

U.S. SIEVE OPENING IN INCHES

U.S. STANDARD SIEVE NUMBERS

HYDROMETER

PERCENT FINER

GRAIN SIZE - mm.

Grain Size (mm)	Percent Finer (%)
100	100
60	100
40	100
20	100
10	100
7.5	100
6.0	100
4.75	100
3.0	100
2.0	100
1.5	100
1.18	100
0.85	100
0.75	98
0.60	95
0.425	90
0.30	88
0.25	87
0.15	82
0.106	78
0.075	72
0.060	68
0.0425	65
0.030	62
0.025	51
0.015	34

[illegible][illegible]

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 ZHU 4-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

4/10/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2174A

Depth: 418.8-420.3

Sample Number: SS-44

Material Description: Light Gray Mottled with Strong Brown Lean CLAY

Date: 12-16-07

Natural Moisture: 14.7

Liquid Limit: 41

Plastic Limit: 24

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
263.94	0.00	0.00	#10	0.00	100.0
51.22	0.00	0.00	#20	0.19	99.6
			#40	1.97	96.2
			#60	3.37	93.4
			#100	5.13	90.0
			#140	6.03	88.2
			#200	6.76	86.8

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 51.22

Hygroscopic moisture correction:

Moist weight and tare = 29.55

Dry weight and tare = 29.13

Tare weight = 15.49

Hygroscopic moisture = 3.1%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.6	46.0	40.9	0.0129	47.0	8.6	0.0267	81.4
5.00	23.6	44.0	38.9	0.0129	45.0	8.9	0.0172	77.4
23.00	23.6	41.0	35.9	0.0129	42.0	9.4	0.0082	71.4
30.00	23.7	39.0	33.9	0.0129	40.0	9.7	0.0073	67.5
96.00	23.9	36.0	31.0	0.0128	37.0	10.2	0.0042	61.6
240.00	24.4	30.0	25.1	0.0127	31.0	11.2	0.0028	49.9
1449.00	21.0	22.0	16.3	0.0133	23.0	12.5	0.0012	32.4

MACTEC, Inc.

Fractional Components

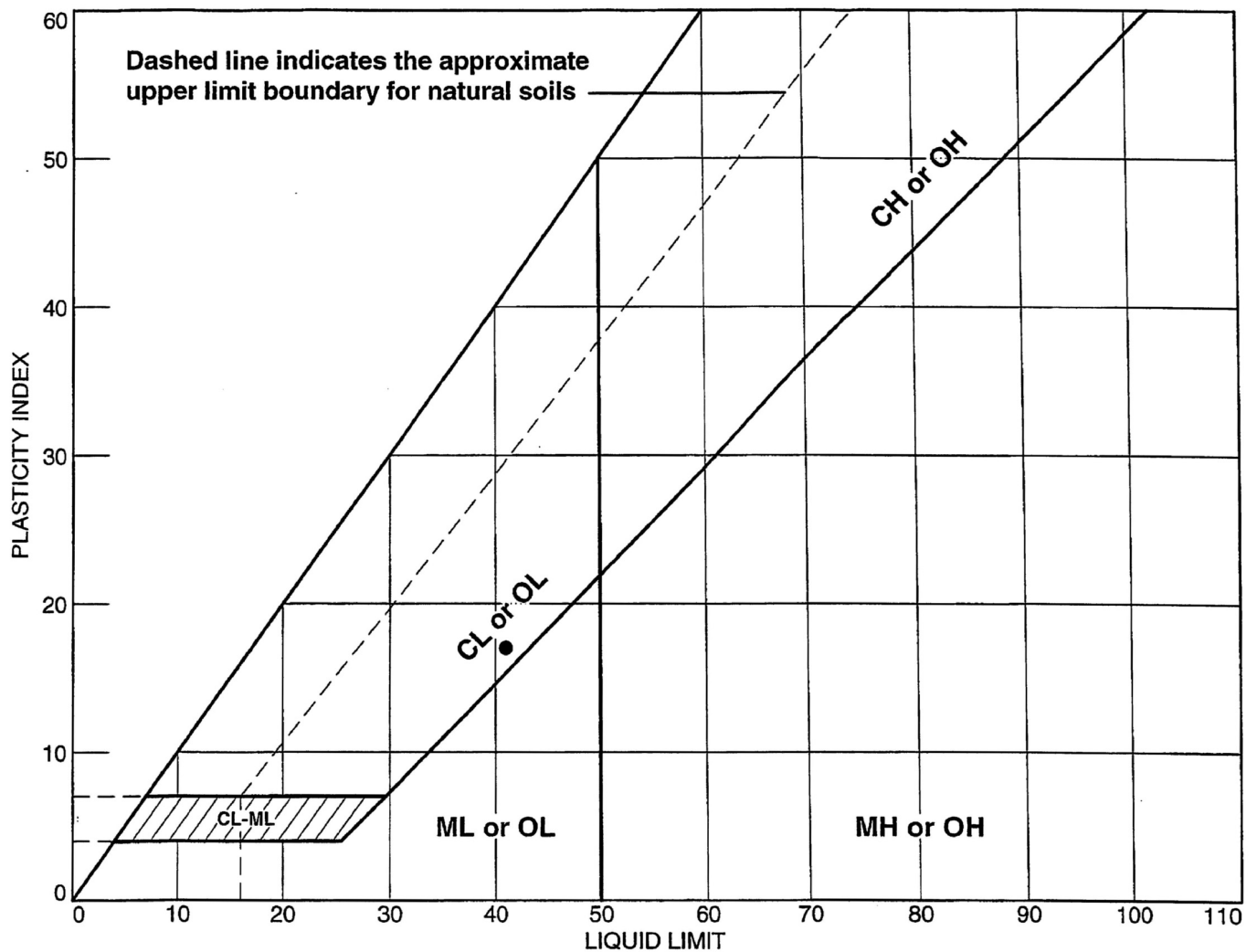
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	3.8	9.4	13.2	23.7	63.1	86.8

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0028	0.0039	0.0234	0.0458	0.1504	0.3363

Fineness Modulus
0.18

MACTEC, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2174A	SS-44	418.8-420.3	14.7	24	41	17	CL

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project No.: 6468071777

Figure **NA**

Tested By: CS

Checked By: LBJ ZHU 4-28-08

LIQUID AND PLASTIC LIMIT TEST DATA

4/10/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2174A

Depth: 418.8-420.3

Sample Number: SS-44

Material Description: Light Gray Mottled with Strong Brown Lean CLAY

USCS: CL

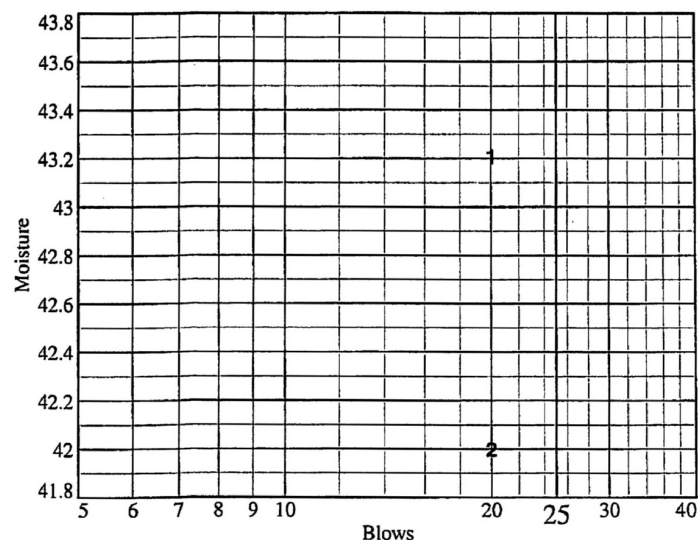
AASHTO: A-7-6(16)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	34.03	36.06				
Dry+Tare	28.43	29.97				
Tare	15.47	15.47				
# Blows	20	20				
Moisture	43.2	42.0				



Liquid Limit= 41
 Plastic Limit= 24
 Plasticity Index= 17
 Natural Moisture= 14.7
 Liquidity Index= -0.5

Plastic Limit Data

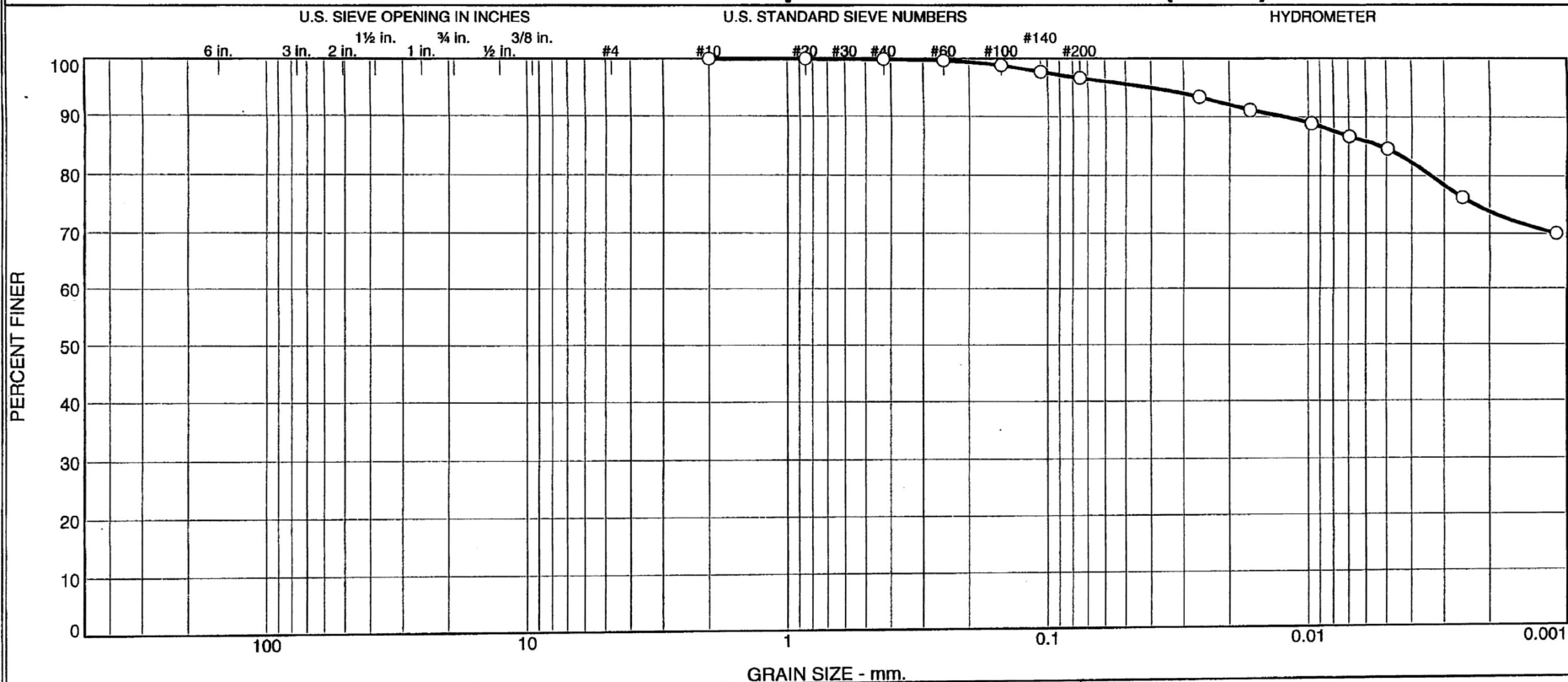
Run No.	1	2	3	4
Wet+Tare	25.65	26.23		
Dry+Tare	23.69	24.13		
Tare	15.48	15.61		
Moisture	23.9	24.6		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
127.63	112.17	6.88	14.7

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	0.1	3.3	11.9	84.7

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2174A	SS-45	438.8-440.3	12-16-07	CH	Pale Brown Mottled with Light Brown Fat CLAY	29.9	73	27

Client Bechtel		MACTEC, Inc.	○ Specific Gravity is assumed
Project Exelon Texas COL (Victoria)			
Project No. 6468071777	Figure NA	Raleigh, North Carolina	

Tested By: CS Checked By: LBJ ZHU 4-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

4/10/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2174A

Depth: 438.8-440.3

Sample Number: SS-45

Material Description: Pale Brown Mottled with Light Brown Fat CLAY

Date: 12-16-07

Natural Moisture: 29.9

Liquid Limit: 73

Plastic Limit: 27

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
197.94	0.00	0.00	#10	0.00	100.0
48.30	0.00	0.00	#20	0.01	100.0
			#40	0.05	99.9
			#60	0.16	99.7
			#100	0.59	98.8
			#140	1.13	97.7
			#200	1.66	96.6

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 48.30

Hygroscopic moisture correction:

Moist weight and tare = 29.09

Dry weight and tare = 28.29

Tare weight = 15.44

Hygroscopic moisture = 6.2%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.7	48.0	42.9	0.0129	49.0	8.3	0.0261	93.3
5.00	23.7	47.0	41.9	0.0129	48.0	8.4	0.0167	91.1
15.00	23.7	46.0	40.9	0.0129	47.0	8.6	0.0097	89.0
30.00	23.6	45.0	39.9	0.0129	46.0	8.8	0.0069	86.7
60.00	23.7	44.0	38.9	0.0129	45.0	8.9	0.0050	84.6
240.00	24.4	40.0	35.1	0.0127	41.0	9.6	0.0025	76.3
1440.00	20.7	38.0	32.2	0.0133	39.0	9.9	0.0011	70.1

MACTEC, Inc.

Fractional Components

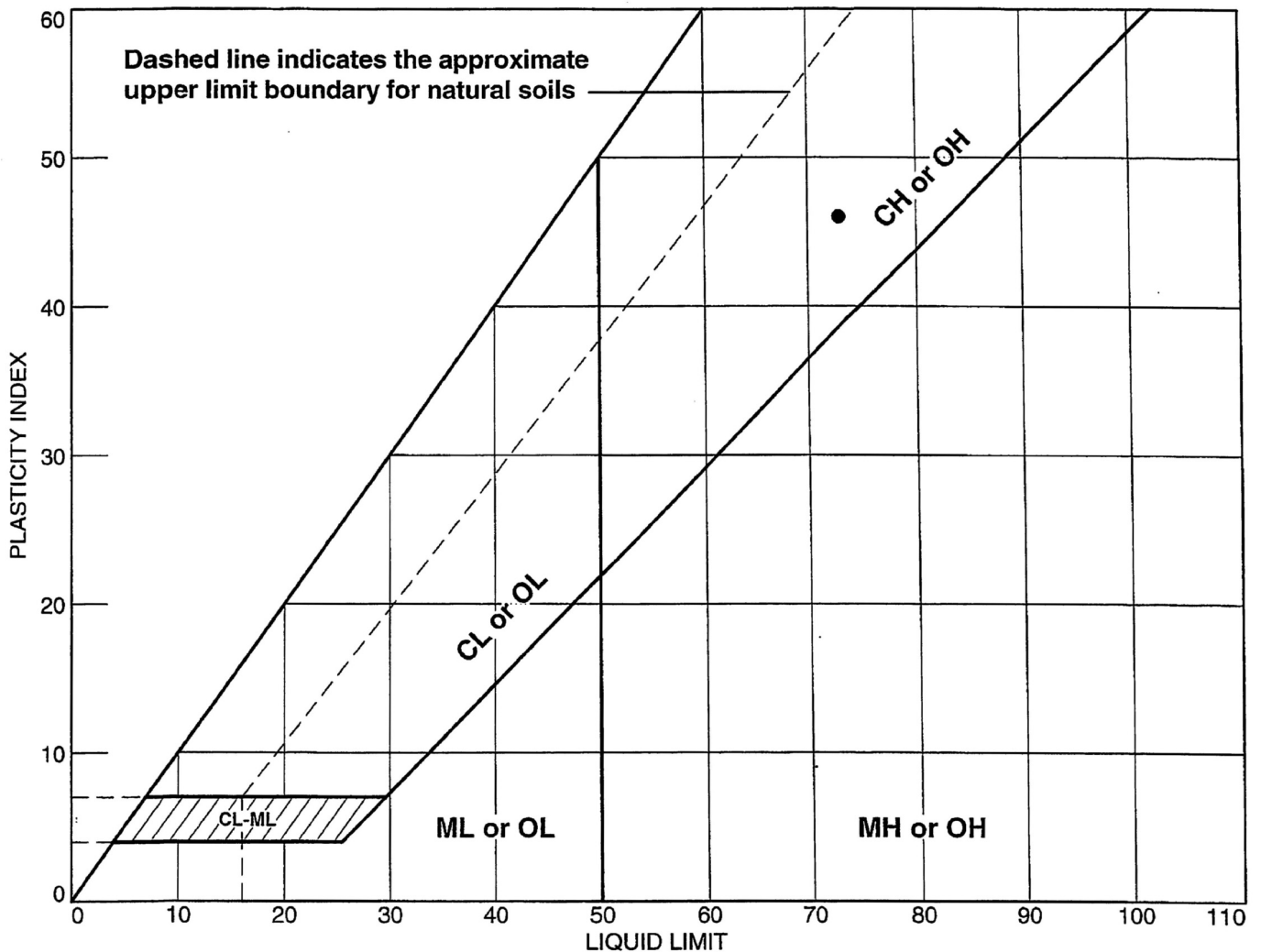
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	3.3	3.4	11.9	84.7	96.6

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0034	0.0052	0.0122	0.0417

Fineness Modulus
0.01

MACTEC, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2174A	SS-45	438.8-440.3	29.9	27	73	46	CH

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project No.: 6468071777

Figure NA

Tested By: CS

Checked By: LBJ

ZHU 4-28-08

LIQUID AND PLASTIC LIMIT TEST DATA

4/25/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2174A

Depth: 438.8-440.3

Sample Number: SS-45

Material Description: Pale Brown Mottled with Light Brown Fat CLAY

USCS: CH

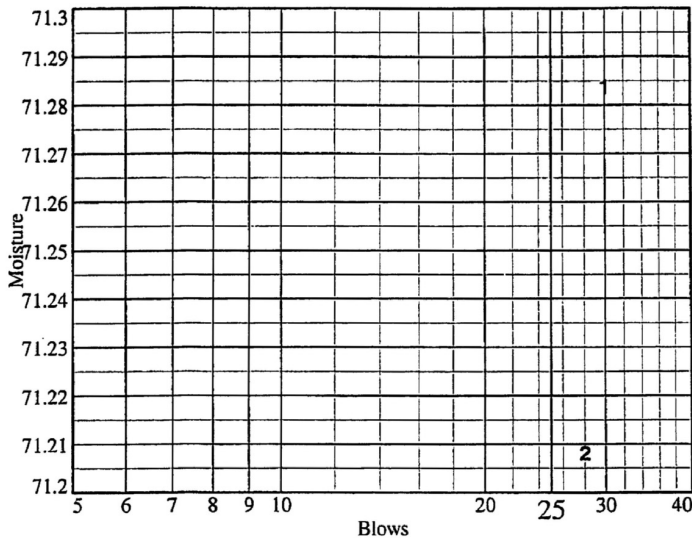
AASHTO: A-7-6(52)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	30.69	35.52				
Dry+Tare	24.36	27.21				
Tare	15.48	15.54				
# Blows	30	28				
Moisture	71.3	71.2				



Liquid Limit= 73
 Plastic Limit= 27
 Plasticity Index= 46
 Natural Moisture= 29.9
 Liquidity Index= 0.1

Plastic Limit Data

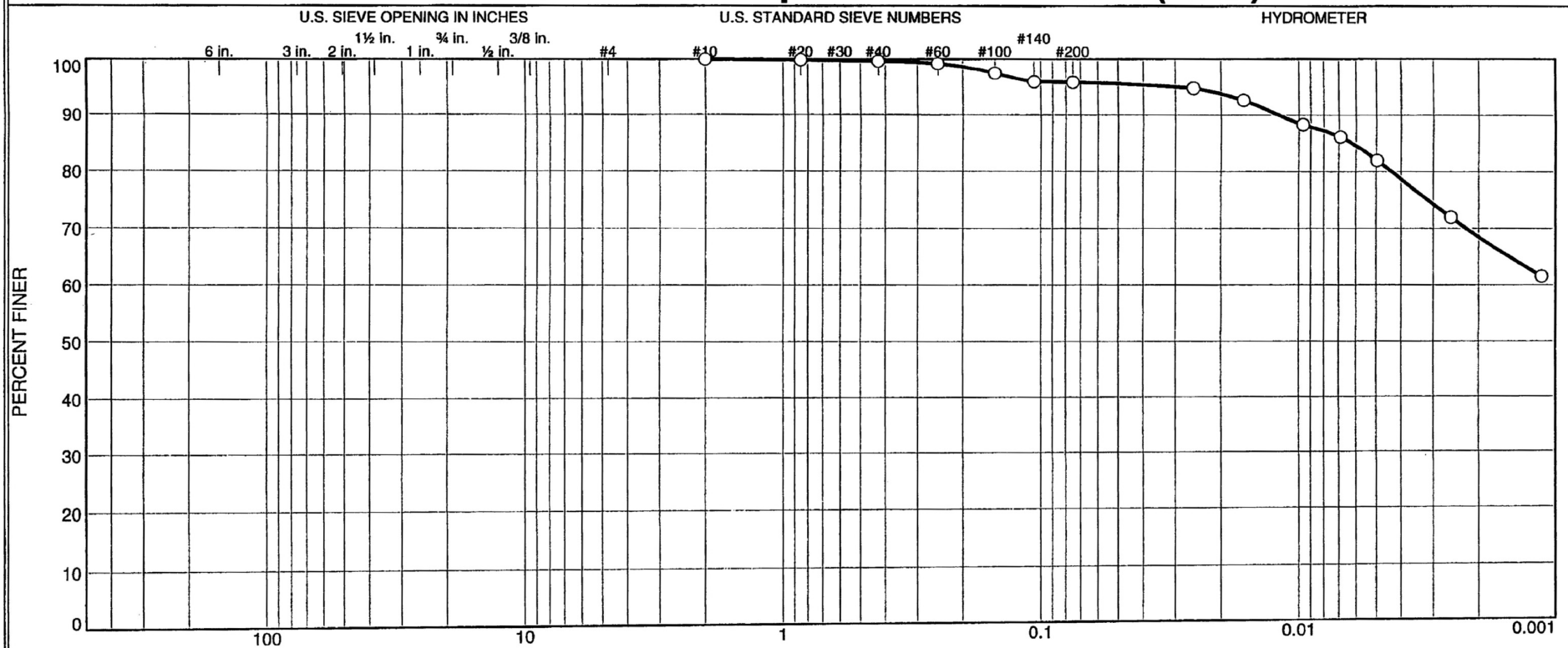
Run No.	1	2	3	4
Wet+Tare	22.88	23.90		
Dry+Tare	21.30	22.12		
Tare	15.42	15.40		
Moisture	26.9	26.5		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
137.83	107.67	6.86	29.9

MACTEC, Inc.

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



GRAIN SIZE - mm.							
% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	3.8	13.7	82.1

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2174A	SS-46	458.8-460.3	12-17-07	CH	Light Gray Fat CLAY	27.8	90	36

Client Bechtel		MACTEC, Inc.	○ Specific Gravity is assumed
Project Exelon Texas COL (Victoria)			
Project No. 6468071777	Figure NA	Raleigh, North Carolina	

Tested By: CS

Checked By: LBJ ZHU 4-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

4/10/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2174A

Depth: 458.8-460.3

Sample Number: SS-46

Material Description: Light Gray Fat CLAY

Date: 12-17-07

Natural Moisture: 27.8

Liquid Limit: 90

Plastic Limit: 36

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
226.23	0.00	0.00	#10	0.00	100.0
49.03	0.00	0.00	#20	0.07	99.9
			#40	0.18	99.6
			#60	0.41	99.2
			#100	1.25	97.5
			#140	2.01	95.9
			#200	2.06	95.8

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 49.03

Hygroscopic moisture correction:

Moist weight and tare = 29.59

Dry weight and tare = 28.98

Tare weight = 15.50

Hygroscopic moisture = 4.5%

Table of composite correction values:

Temp., deg. C: 11.2 28.4

Comp. corr.: -8.0 -4.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.8	50.0	44.9	0.0128	51.0	7.9	0.0256	94.7
5.00	23.8	49.0	43.9	0.0128	50.0	8.1	0.0163	92.6
15.00	23.7	47.0	41.9	0.0129	48.0	8.4	0.0096	88.3
30.00	23.6	46.0	40.9	0.0129	47.0	8.6	0.0069	86.2
60.00	23.6	44.0	38.9	0.0129	45.0	8.9	0.0050	82.0
240.00	24.6	39.0	34.1	0.0127	40.0	9.7	0.0026	71.9
1440.00	20.6	35.0	29.2	0.0133	36.0	10.4	0.0011	61.5

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	0.4	3.8	4.2	13.7	82.1	95.8

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0044	0.0062	0.0119	0.0310

Fineness Modulus
0.03

MACTEC, Inc.