GRAIN SIZE DISTRIBUTION TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2302A
Depth: 53.5-54.0 **Sample Number:** SS-14A
Material Description: Light Gray Sandy Lean CLAY
Date: 1-2-08 **Natural Moisture:** 18.0
Liquid Limit: 37 **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
248.82	0.00	0.00	#10	0.00	100.0
46.29	0.00	0.00	#20	0.09	99.8
			#40	0.89	98.1
			#60	4.78	89.7
			#100	11.87	74.4
			#140	17.49	62.2
			#200	20.84	55.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =46.29
Hygroscopic moisture correction:
Moist weight and tare = 28.76
Dry weight and tare = 28.53
Tare weight = 15.45
Hygroscopic moisture = 1.8%
Table of composite correction values:

Temp., deg. C:	13.0	29.8
Comp. corr.:	-8.0	-2.0

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	22.4	26.5	21.9	0.0131	27.5	11.8	0.0317	47.5
5.00	22.4	25.0	20.4	0.0131	26.0	12.0	0.0202	44.3
15.00	22.4	23.5	18.9	0.0131	24.5	12.3	0.0118	41.0
30.00	22.4	22.0	17.4	0.0131	23.0	12.5	0.0084	37.7
60.00	22.4	21.0	16.4	0.0131	22.0	12.7	0.0060	35.6
240.00	22.5	18.0	13.4	0.0130	19.0	13.2	0.0031	29.1
1440.00	21.4	16.0	11.0	0.0132	17.0	13.5	0.0013	23.9

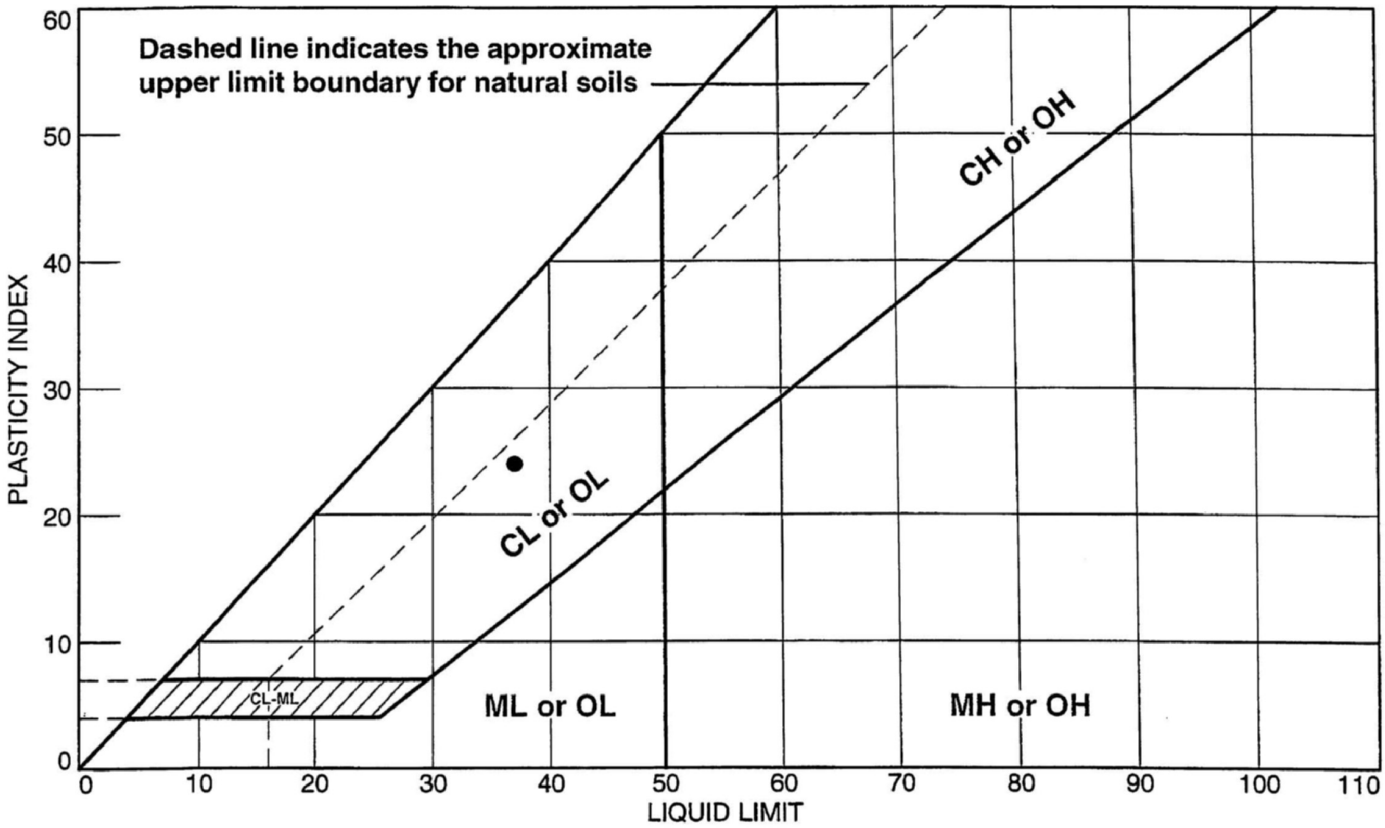
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.9	43.1	45.0	21.0	34.0	55.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0034	0.0460	0.0976	0.1769	0.2086	0.2536	0.3290

Fineness Modulus
0.33

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-2302A	SS-14A	53.5-54.0	18.0	13	37	24	CL

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria Reservoir) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 4-2-08

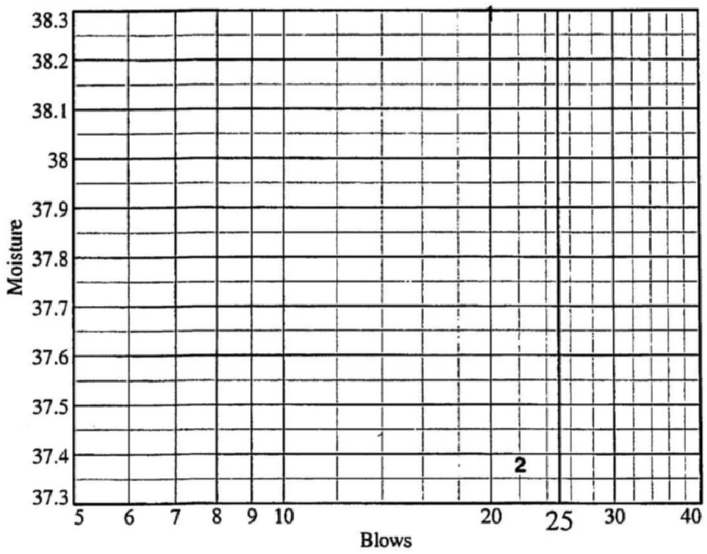
LIQUID AND PLASTIC LIMIT TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2302A
Depth: 53.5-54.0 **Sample Number:** SS-14A
Material Description: Light Gray Sandy Lean CLAY
USCS: CL **AASHTO:** A-6(9)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.40	32.51				
Dry+Tare	27.00	27.86				
Tare	15.51	15.42				
# Blows	20	22				
Moisture	38.3	37.4				



Liquid Limit= 37
Plastic Limit= 13
Plasticity Index= 24
Natural Moisture= 18.0
Liquidity Index= 0.2

Plastic Limit Data

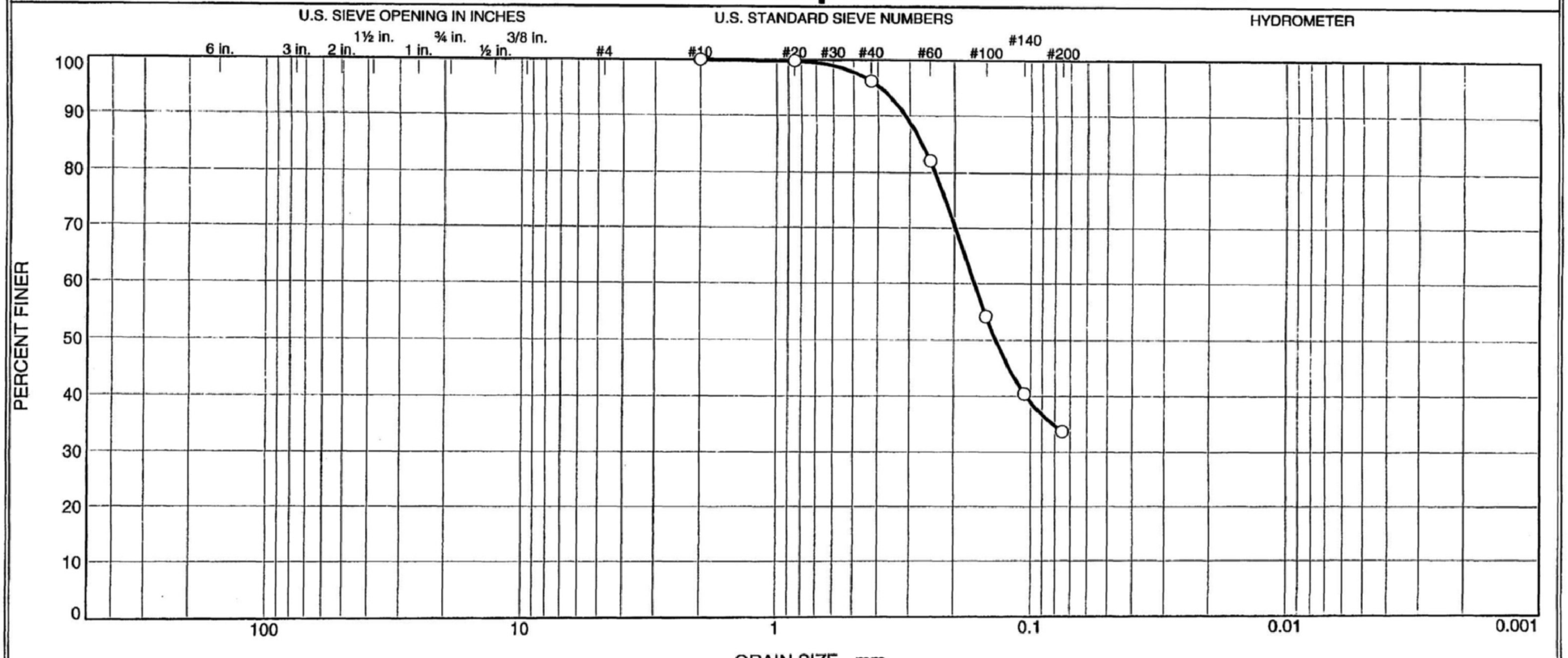
Run No.	1	2	3	4	
Wet+Tare	23.73	24.40			
Dry+Tare	22.82	23.40			
Tare	15.56	15.49			
Moisture	12.5	12.6			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
132.47	113.34	6.80	18.0

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	3.9	62.3	33.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2302A	SS-14B	54-55	1-2-08	SC	Light Gray Clayey SAND (Visual)	17.5		

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
Specific Gravity = 2.660 (ASTM D854-06)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 4-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2302A
Depth: 54-55 **Sample Number:** SS-14B
Material Description: Light Gray Clayey SAND (Visual)
Date: 1-2-08 **Natural Moisture:** 17.5
USCS Class.: SC
Testing Remarks: SIEVE ANALYSIS ONLY
Specific Gravity = 2.660 (ASTM D854-06)
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
194.83	0.00	0.00	#10	0.00	100.0
97.39	0.00	0.00	#20	0.19	99.8
			#40	3.77	96.1
			#60	17.37	82.2
			#100	44.51	54.3
			#140	58.03	40.4
			#200	64.49	33.8

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	3.9	62.3	66.2			33.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1373	0.1666	0.2387	0.2675	0.3108	0.3927

Fineness Modulus
0.58

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: 4/1/08

SAMPLE IDENTIFICATION: B-2302A SS-14B

(A) Mass of oven-dried soil, grams:		75.00
(B) Mass of pycnometer filled with water at test temperature (T), grams:		656.75
(C) Mass of pycnometer, water and soil, grams:		703.56
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		21.8
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.661
(F)	***Correction factor:***	0.99961
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.660

MATERIAL TESTED: [X] **- # 4** [ ] **- # 10**

PREPARATION METHOD: [X] **DRY** [ ] **WET (dispersed)**

REMARKS: Estimated % Passing # 4 : 100%

Clayey SAND (SC) - Visual

EQUIPMENT USED

SCALES : 3.1.19

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNOMETER : P-6

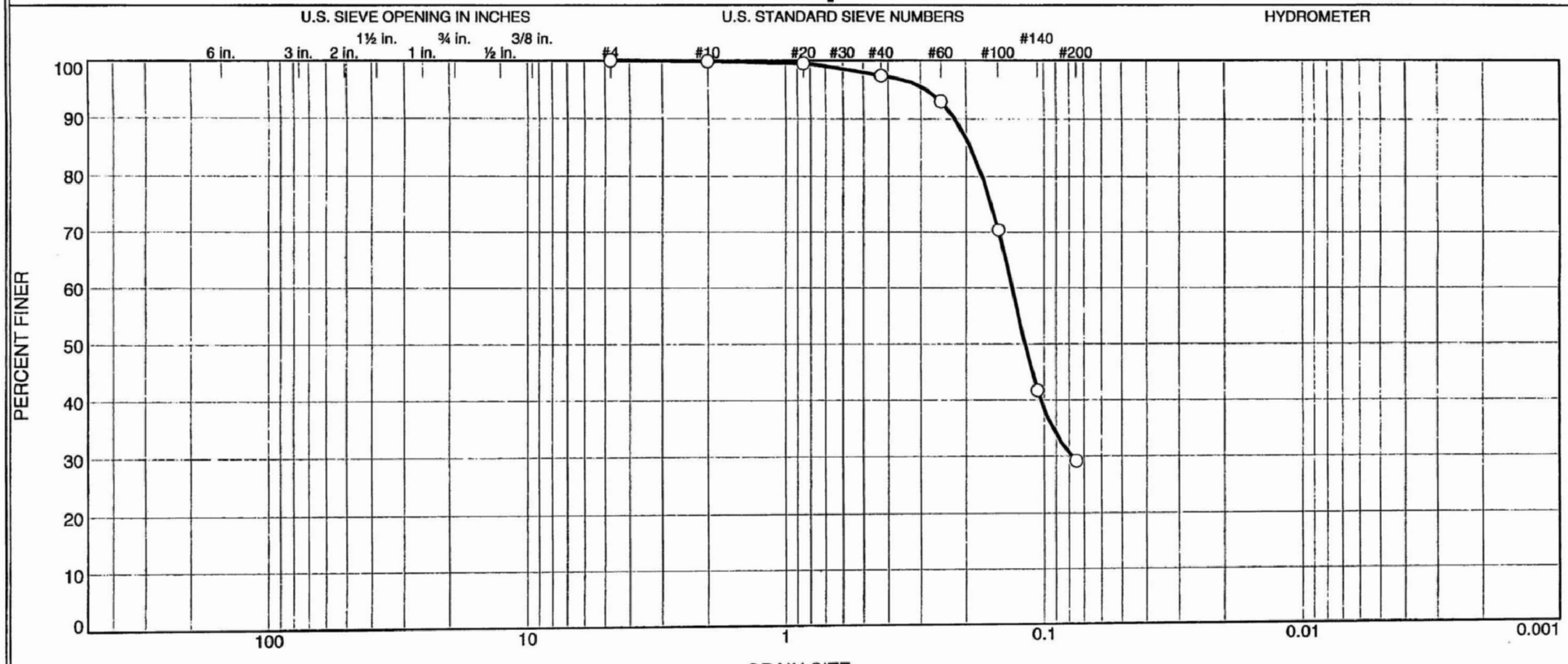
TESTED BY: CS

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

REVIEWED BY: **Brian Johnson**

DSC 4-1-08

Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	2.5	68.2	29.2	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2302A	SS-15A	58.5-59.0	1-2-08	SC	Very Pale Brown Clayey SAND (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS Checked By: LBJ DSC 4-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2302A
Depth: 58.5-59.0 **Sample Number:** SS-15A
Material Description: Very Pale Brown Clayey SAND (Visual)
Date: 1-2-08 **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
153.46	0.00	0.00	#4	0.00	100.0
			#10	0.22	99.9
99.35	0.00	0.00	#20	0.36	99.5
			#40	2.47	97.4
			#60	6.91	92.9
			#100	29.28	70.4
			#140	57.89	41.7
			#200	70.28	29.2

Fractional Components

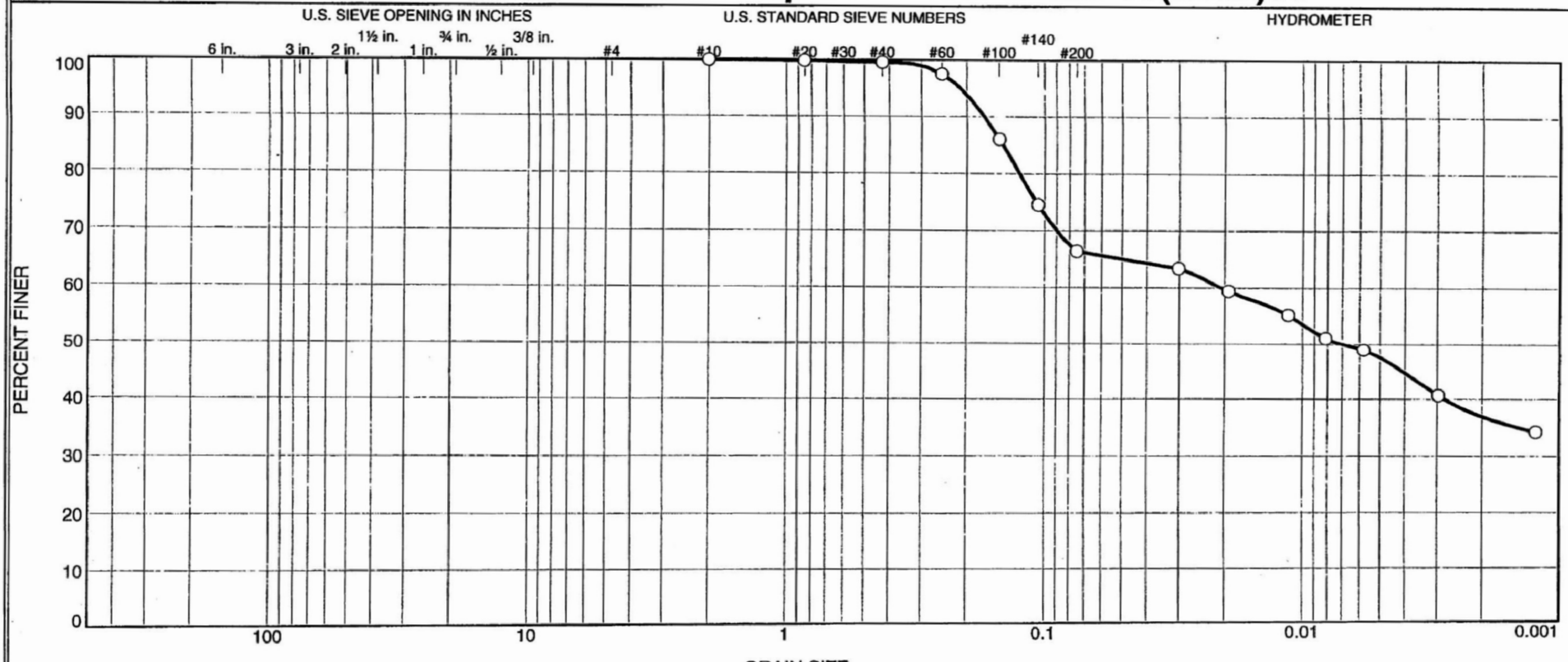
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	2.5	68.2	70.8			29.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0777	0.1184	0.1327	0.1733	0.1918	0.2210	0.2864

Fineness Modulus
0.36

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	0.4	33.1	19.0	47.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2302A	SS-15B	59-60.0	1-2-08	CL	Very Pale Brown Sandy Lean CLAY	18.8	43	14

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 4-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2302A
Depth: 59-60.0 **Sample Number:** SS-15B
Material Description: Very Pale Brown Sandy Lean CLAY
Date: 1-2-08 **Natural Moisture:** 18.8
Liquid Limit: 43 **Plastic Limit:** 14 **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
252.15	0.00	0.00	#10	0.00	100.0
47.69	0.00	0.00	#20	0.06	99.9
			#40	0.20	99.6
			#60	1.16	97.6
			#100	6.63	86.1
			#140	12.15	74.5
			#200	15.98	66.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =47.69
Hygroscopic moisture correction:
Moist weight and tare = 28.70
Dry weight and tare = 28.39
Tare weight = 15.41
Hygroscopic moisture = 2.4%
Table of composite correction values:

Temp., deg. C:	13.0	29.8
Comp. corr.:	-8.0	-2.0

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	21.1	35.0	29.9	0.0133	36.0	10.4	0.0302	63.5
5.00	21.4	33.0	28.0	0.0132	34.0	10.7	0.0193	59.4
15.00	21.4	31.0	26.0	0.0132	32.0	11.0	0.0113	55.2
30.00	21.5	29.0	24.0	0.0132	30.0	11.4	0.0081	51.0
60.00	21.5	28.0	23.0	0.0132	29.0	11.5	0.0058	48.9
240.00	21.8	24.0	19.1	0.0131	25.0	12.2	0.0030	40.6
1440.00	21.8	21.0	16.1	0.0131	22.0	12.7	0.0012	34.3

MACTEC, Inc.

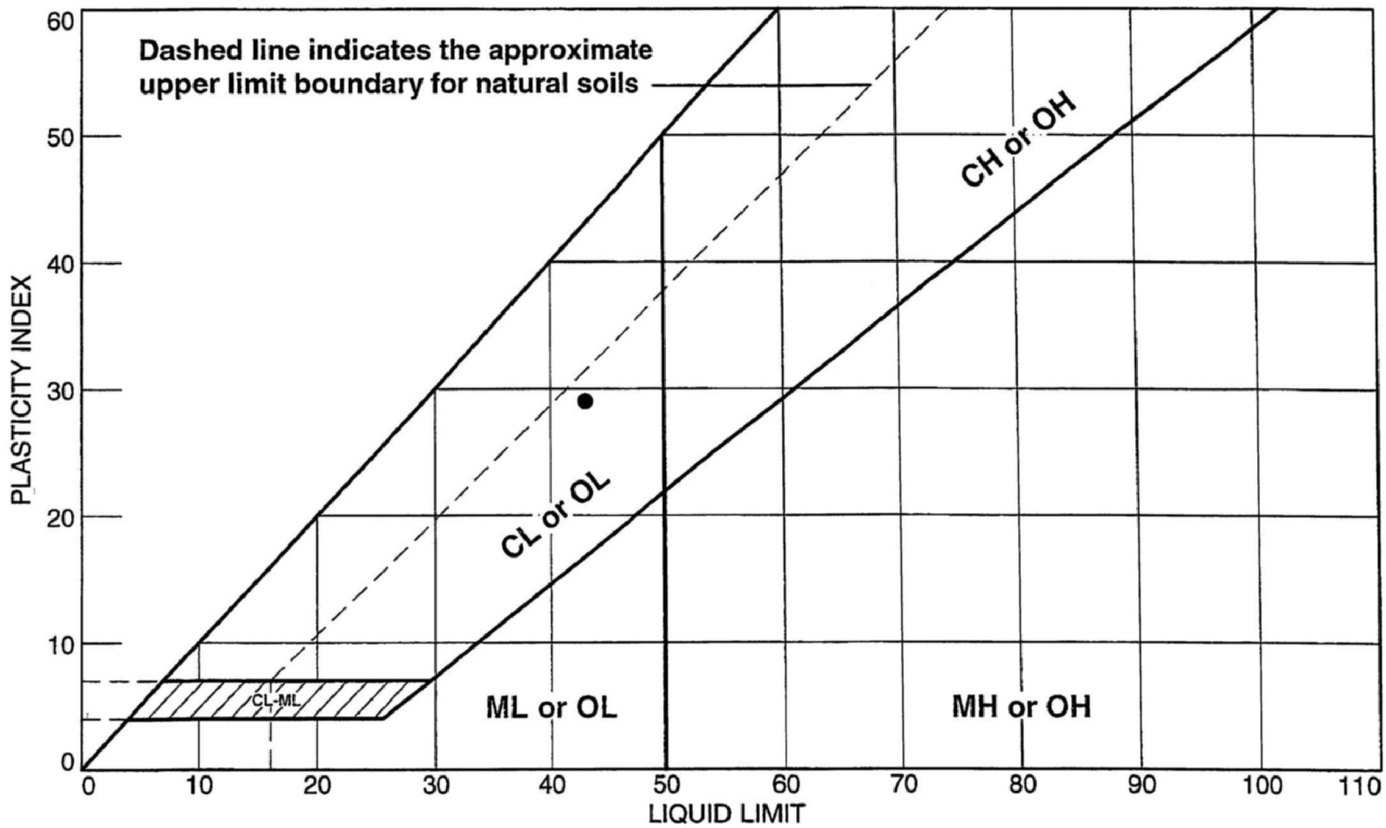
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.4	33.1	33.5	19.0	47.5	66.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0070	0.0205	0.1251	0.1450	0.1711	0.2119

Fineness Modulus
0.15

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-2302A	SS-15B	59-60.0	18.8	14	43	29	CL

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria Reservoir) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 4-2-08

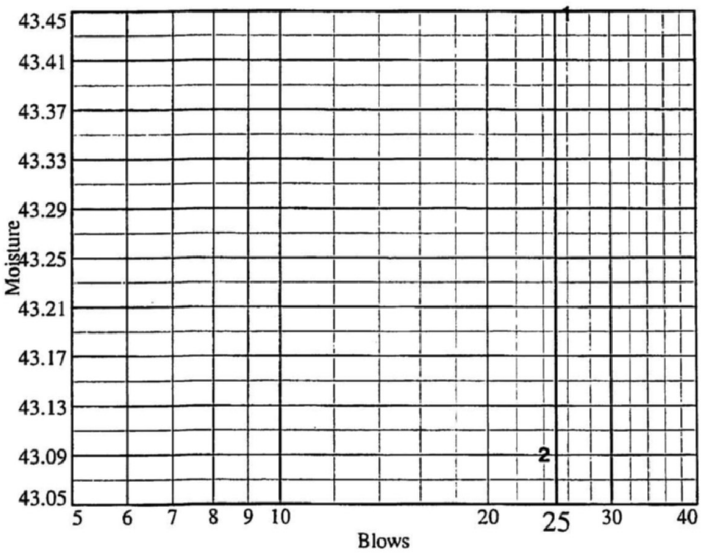
LIQUID AND PLASTIC LIMIT TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2302A
Depth: 59-60.0 **Sample Number:** SS-15B
Material Description: Very Pale Brown Sandy 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	21.65	23.28				
Dry+Tare	19.76	20.91				
Tare	15.41	15.41				
# Blows	26	24				
Moisture	43.4	43.1				



Liquid Limit= 43
Plastic Limit= 14
Plasticity Index= 29
Natural Moisture= 18.8
Liquidity Index= 0.2

Plastic Limit Data

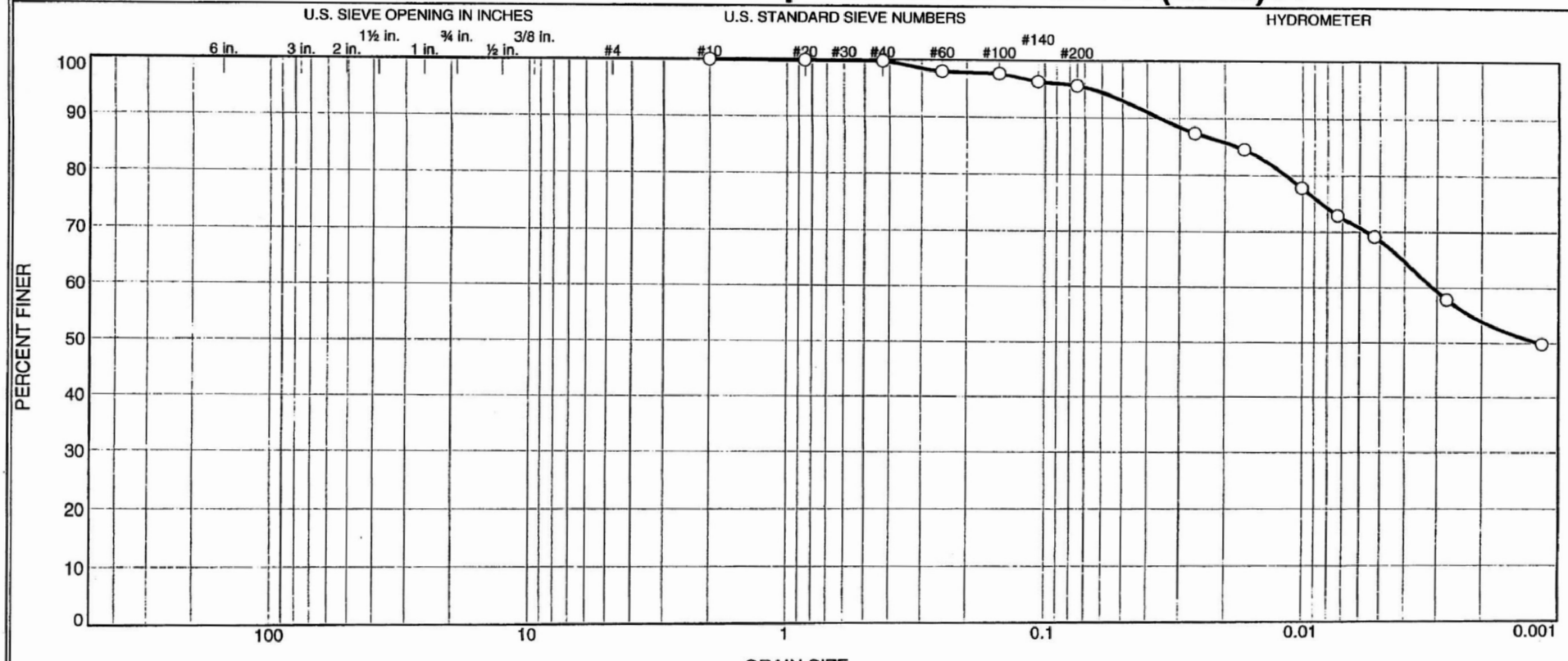
Run No.	1	2	3	4	
Wet+Tare	26.95	29.22			
Dry+Tare	25.54	27.48			
Tare	15.48	15.48			
Moisture	14.0	14.5			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
148.98	126.80	9.12	18.8

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	0.2	4.2	27.1	68.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2302A	SS-17	68.5-70.0	1-2-08	CH	Pale Yellow and Yellow Fat CLAY	22.0	70	18

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 4-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2302A
Depth: 68.5-70.0 **Sample Number:** SS-17
Material Description: Pale Yellow and Yellow Fat CLAY
Date: 1-2-08 **Natural Moisture:** 22.0
Liquid Limit: 70 **Plastic Limit:** 18 **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
235.60	0.00	0.00	#10	0.00	100.0
53.19	0.00	0.00	#20	0.06	99.9
			#40	0.09	99.8
			#60	1.03	98.1
			#100	1.23	97.7
			#140	1.98	96.3
			#200	2.36	95.6

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =53.19
Hygroscopic moisture correction:
Moist weight and tare = 29.57
Dry weight and tare = 29.08
Tare weight = 15.38
Hygroscopic moisture = 3.6%
Table of composite correction values:

Temp., deg. C:	13.0	29.8
Comp. corr.:	-8.0	-2.0

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	21.2	50.5	45.4	0.0132	51.5	7.8	0.0262	87.5
5.00	21.2	49.0	43.9	0.0132	50.0	8.1	0.0169	84.6
15.00	21.2	45.5	40.4	0.0132	46.5	8.7	0.0101	77.9
30.00	21.1	43.0	37.9	0.0133	44.0	9.1	0.0073	73.0
60.00	21.2	41.0	35.9	0.0132	42.0	9.4	0.0052	69.2
240.00	21.6	35.0	30.1	0.0132	36.0	10.4	0.0027	57.9
1440.00	21.1	31.0	25.9	0.0133	32.0	11.0	0.0012	49.9

MACTEC, Inc.

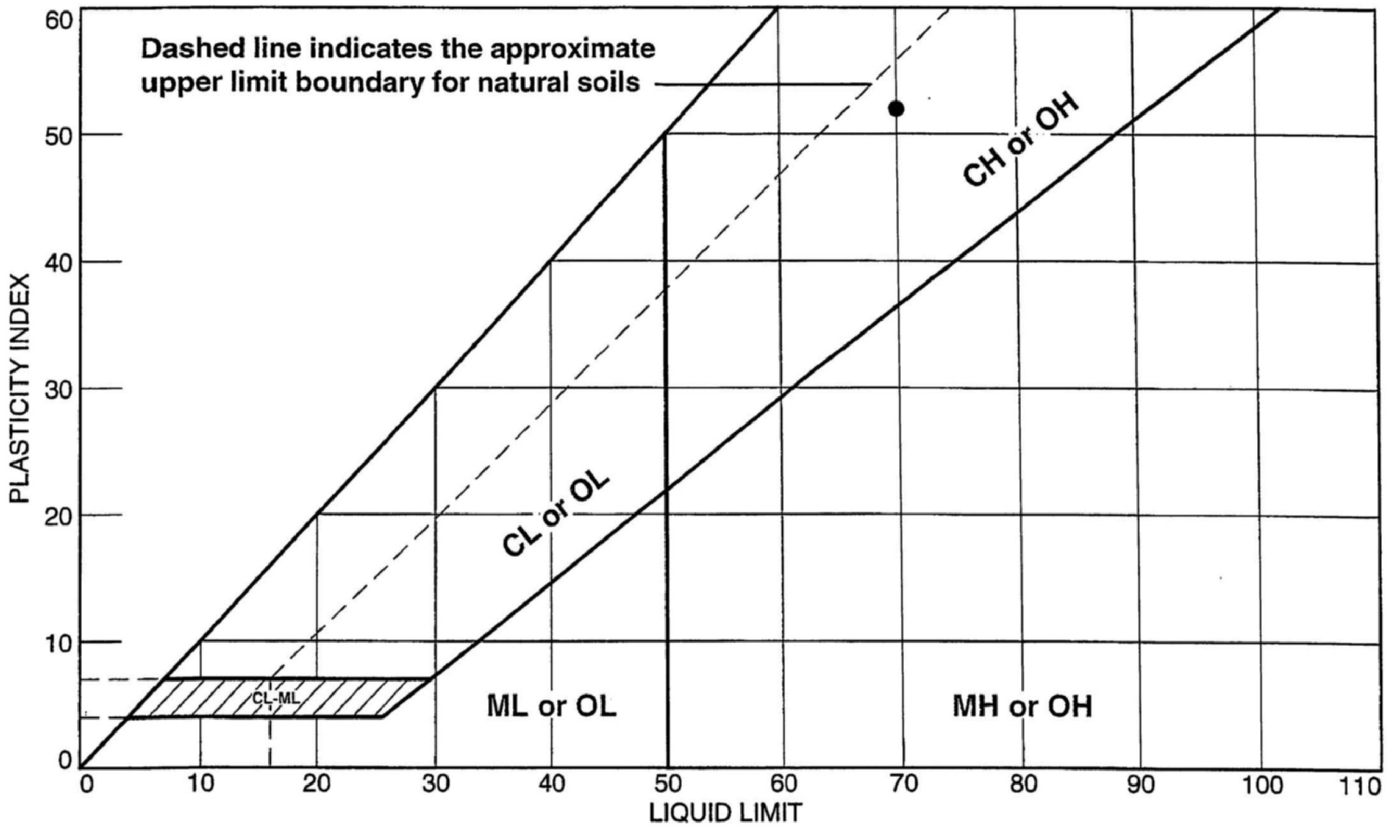
Fractional Components

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	4.2	4.4	27.1	68.5	95.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0012	0.0031	0.0116	0.0177	0.0357	0.0659

Fineness Modulus
0.04

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-2302A	SS-17	68.5-70.0	22.0	18	70	52	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria Reservoir) **Project No.:** 6468071777 **Figure** N A

Tested By: CS **Checked By:** LBJ DSC 4-2-08

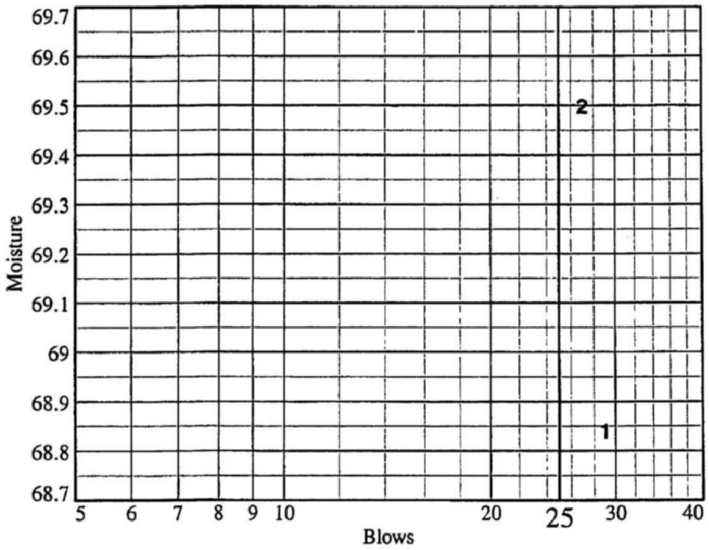
LIQUID AND PLASTIC LIMIT TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2302A
Depth: 68.5-70.0 **Sample Number:** SS-17
Material Description: Pale Yellow and Yellow Fat CLAY
USCS: CH **AASHTO:** A-7-6(55)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	20.29	22.42				
Dry+Tare	18.39	19.64				
Tare	15.63	15.64				
# Blows	29	27				
Moisture	68.8	69.5				



Liquid Limit= 70
Plastic Limit= 18
Plasticity Index= 52
Natural Moisture= 22.0
Liquidity Index= 0.1

Plastic Limit Data

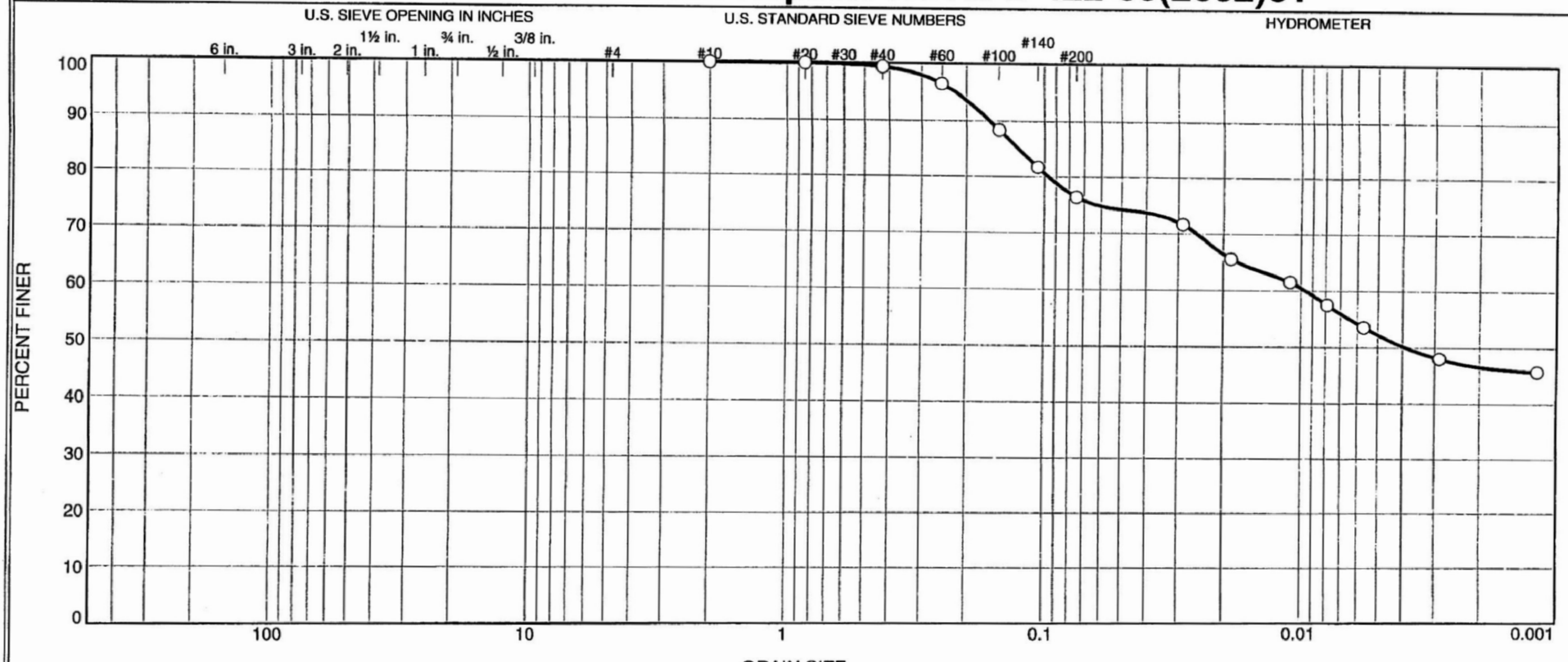
Run No.	1	2	3	4	
Wet+Tare	26.51	23.98			
Dry+Tare	24.78	22.66			
Tare	15.40	15.27			
Moisture	18.4	17.9			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
121.10	100.95	9.31	22.0

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	0.6	23.0	24.1	52.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2302A	SS-18	73.5-75.0	1-2-08	CH	Pale Yellow Fat CLAY with sand	17.9	52	15

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.690 (ASTM D854-06)

Tested By: CS **Checked By:** LBJ DSC 4-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2302A
Depth: 73.5-75.0 **Sample Number:** SS-18
Material Description: Pale Yellow Fat CLAY with sand
Date: 1-2-08 **Natural Moisture:** 17.9
Liquid Limit: 52 **Plastic Limit:** 15 **USCS Class.:** CH
Testing Remarks: Specific Gravity = 2.690 (ASTM D854-06)
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
204.77	0.00	0.00	#10	0.00	100.0
50.81	0.00	0.00	#20	0.03	99.9
			#40	0.31	99.4
			#60	1.78	96.5
			#100	5.84	88.5
			#140	9.29	81.7
			#200	12.00	76.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.81
Hygroscopic moisture correction:
Moist weight and tare = 28.67
Dry weight and tare = 28.39
Tare weight = 15.54
Hygroscopic moisture = 2.2%
Table of composite correction values:

Temp., deg. C:	13.0	29.8
Comp. corr.:	-8.0	-2.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.690
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	21.2	41.0	35.9	0.0133	42.0	9.4	0.0288	71.6
5.00	21.2	38.0	32.9	0.0133	39.0	9.9	0.0187	65.6
15.00	21.1	36.0	30.9	0.0133	37.0	10.2	0.0110	61.6
30.00	21.1	34.0	28.9	0.0133	35.0	10.6	0.0079	57.6
60.00	21.1	32.0	26.9	0.0133	33.0	10.9	0.0057	53.6
240.00	21.6	29.0	24.1	0.0132	30.0	11.4	0.0029	48.0
1440.00	21.2	28.0	22.9	0.0133	29.0	11.5	0.0012	45.7

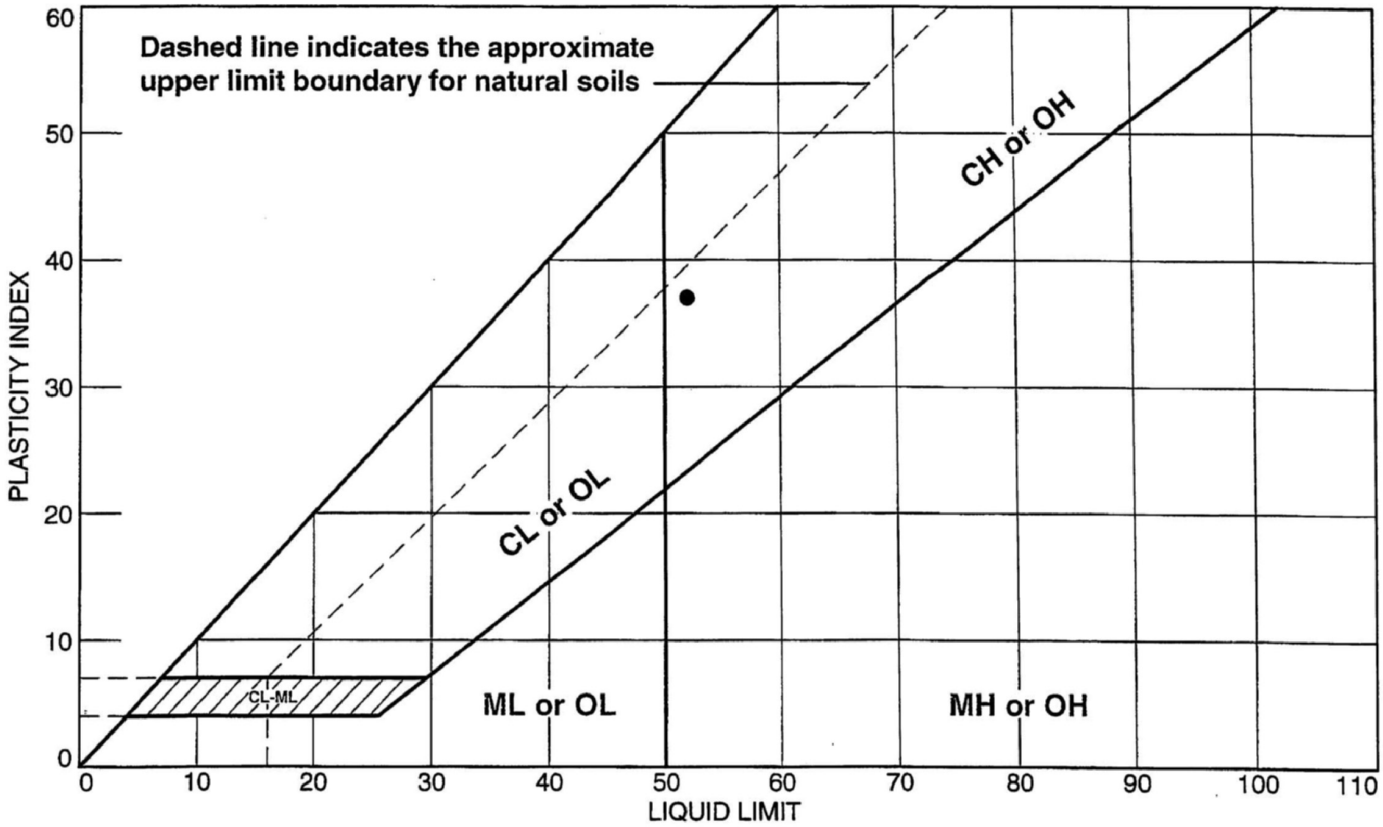
Fractional Components

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	23.0	23.6	24.1	52.3	76.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0039	0.0095	0.0964	0.1255	0.1623	0.2208

Fineness Modulus
0.14

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-2302A	SS-18	73.5-75.0	17.9	15	52	37	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria Reservoir) **Project No.:** 6468071777 **Figure** N A

Tested By: CS **Checked By:** LBJ DSC 4-2-08

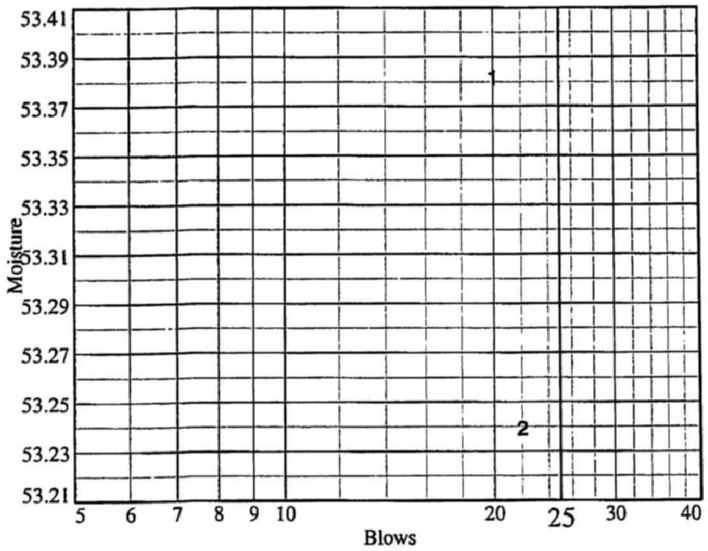
LIQUID AND PLASTIC LIMIT TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2302A
Depth: 73.5-75.0 **Sample Number:** SS-18
Material Description: Pale Yellow Fat CLAY with sand
USCS: CH **AASHTO:** A-7-6(27)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	22.00	20.87				
Dry+Tare	19.79	18.98				
Tare	15.65	15.43				
# Blows	20	22				
Moisture	53.4	53.2				



Liquid Limit= 52
Plastic Limit= 15
Plasticity Index= 37
Natural Moisture= 17.9
Liquidity Index= 0.1

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	24.33	24.39			
Dry+Tare	23.16	23.24			
Tare	15.55	15.40			
Moisture	15.4	14.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
102.84	88.29	6.91	17.9

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: 4/1/08

SAMPLE IDENTIFICATION: B-2302A SS-18

(A) Mass of oven-dried soil, grams:	50.48
(B) Mass of pycnometer filled with water at test temperature (T), grams:	656.79
(C) Mass of pycnometer, water and soil, grams:	688.51
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.4
(G) Specific Gravity at observed temperature: A / [B - (C - A)]	2.691
(F) ***Correction factor:***	0.99970
(G x F) **SPECIFIC GRAVITY @ 20°C:**	2.690

MATERIAL TESTED: [X] **- # 4** [ ] **- # 10**

PREPARATION METHOD: [X] **DRY** [ ] **WET (dispersed)**

REMARKS: Estimated % Passing # 4 : 100%

Fat CLAY with sand (CH)

EQUIPMENT USED

SCALES : 3.1.19

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNOMETER : P-6

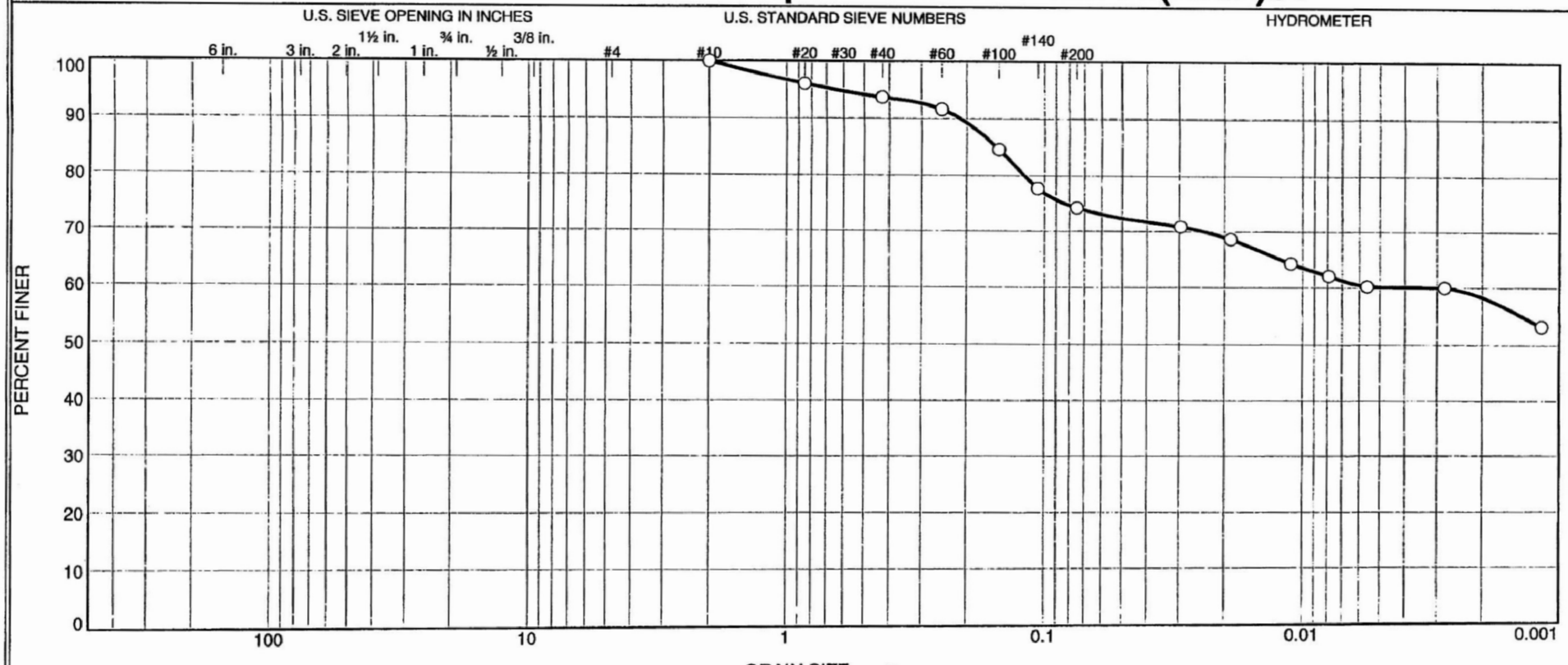
TESTED BY: CS

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

REVIEWED BY: **Brian Johnson**

DSC 4-1-08

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	6.3	19.4	14.1	60.2

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2302A	SS-19	78.8-80.0	1-2-08	CH	Pale Yellow Fat CLAY with sand	23.3	58	19

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specfic Gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 4-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2302A
Depth: 78.8-80.0 **Sample Number:** SS-19
Material Description: Pale Yellow Fat CLAY with sand
Date: 1-2-08 **Natural Moisture:** 23.3
Liquid Limit: 58 **Plastic Limit:** 19 **USCS Class.:** CH
Testing Remarks: Specfic 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
204.16	0.00	0.00	#10	0.00	100.0
46.67	0.00	0.00	#20	1.83	96.1
			#40	2.93	93.7
			#60	3.90	91.6
			#100	7.16	84.7
			#140	10.37	77.8
			#200	12.00	74.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =46.67
Hygroscopic moisture correction:
Moist weight and tare = 29.47
Dry weight and tare = 28.85
Tare weight = 15.50
Hygroscopic moisture = 4.6%
Table of composite correction values:

Temp., deg. C:	13.0	29.8
Comp. corr.:	-8.0	-2.0

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	21.3	37.0	32.0	0.0132	38.0	10.1	0.0297	70.9
5.00	21.3	36.0	31.0	0.0132	37.0	10.2	0.0189	68.7
15.00	21.4	34.0	29.0	0.0132	35.0	10.6	0.0111	64.3
30.00	21.4	33.0	28.0	0.0132	34.0	10.7	0.0079	62.1
60.00	21.8	32.0	27.1	0.0131	33.0	10.9	0.0056	60.2
240.00	21.6	32.0	27.1	0.0132	33.0	10.9	0.0028	60.0
1440.00	21.4	29.0	24.0	0.0132	30.0	11.4	0.0012	53.2

MACTEC, Inc.

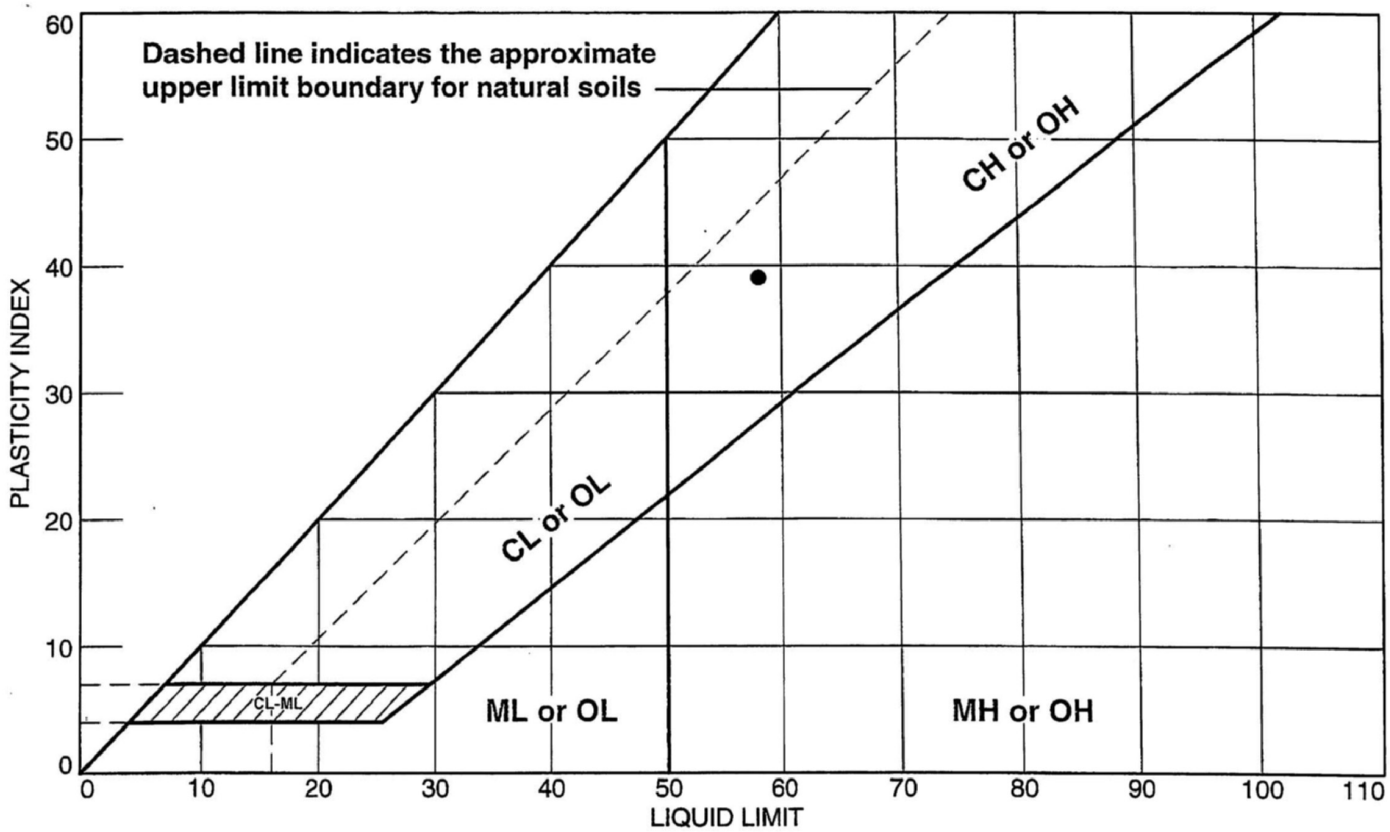
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	6.3	19.4	25.7	14.1	60.2	74.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0028	0.1197	0.1527	0.2110	0.6443

Fineness Modulus
0.30

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-2302A	SS-19	78.8-80.0	23.3	19	58	39	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria Reservoir) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 4-2-08

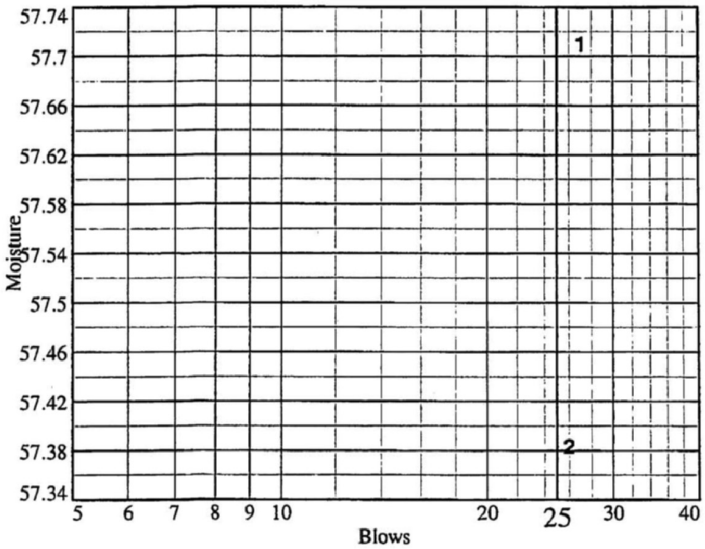
LIQUID AND PLASTIC LIMIT TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2302A
Depth: 78.8-80.0 **Sample Number:** SS-19
Material Description: Pale Yellow Fat CLAY with sand
USCS: CH **AASHTO:** A-7-6(28)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	22.36	22.97				
Dry+Tare	19.89	20.25				
Tare	15.61	15.51				
# Blows	27	26				
Moisture	57.7	57.4				



Liquid Limit= 58
Plastic Limit= 19
Plasticity Index= 39
Natural Moisture= 23.3
Liquidity Index= 0.1

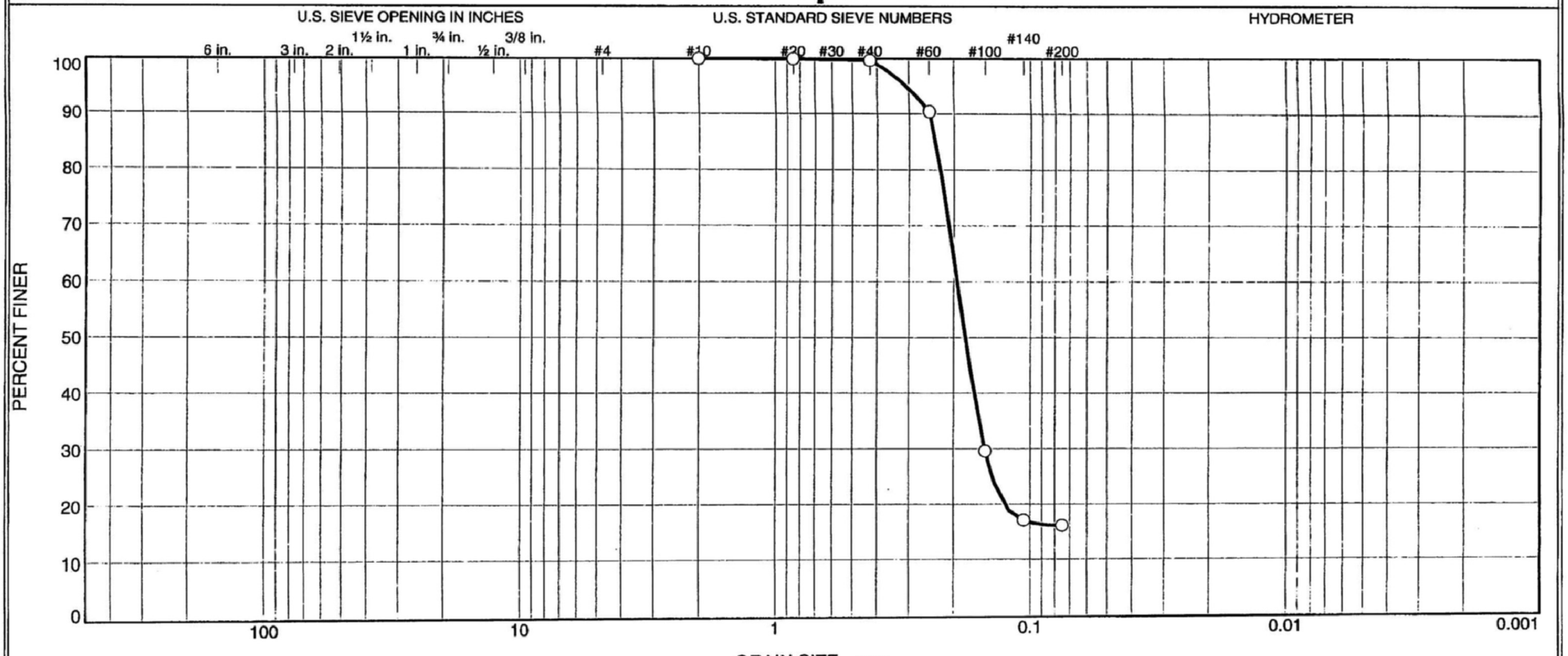
Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.41	26.14			
Dry+Tare	22.14	24.47			
Tare	15.48	15.51			
Moisture	19.1	18.6			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
122.39	101.06	9.34	23.3

Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.3	83.7	16.0	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2302A	SS-20	83.5-85	1-2-08	SM	Pale Yellow Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 4-2-08