FINAL DATA REPORT Rev 0
GEOTECHNICAL EXPLORATION AND TESTING

EXELON TEXAS COL PROJECT
VICTORIA COUNTY, TEXAS
COOLING BASIN

July 18, 2008

VOLUME 3
Appendix E – Laboratory Test Data

Prepared By:

MACTEC Engineering and Consulting, Inc.
Raleigh, North Carolina

MACTEC Project No. 6468-07-1777

Prepared For:

Bechtel Power Corporation
Subcontract No. 25352-102-HC4-CY00-00001

DATA REPORT REV 0
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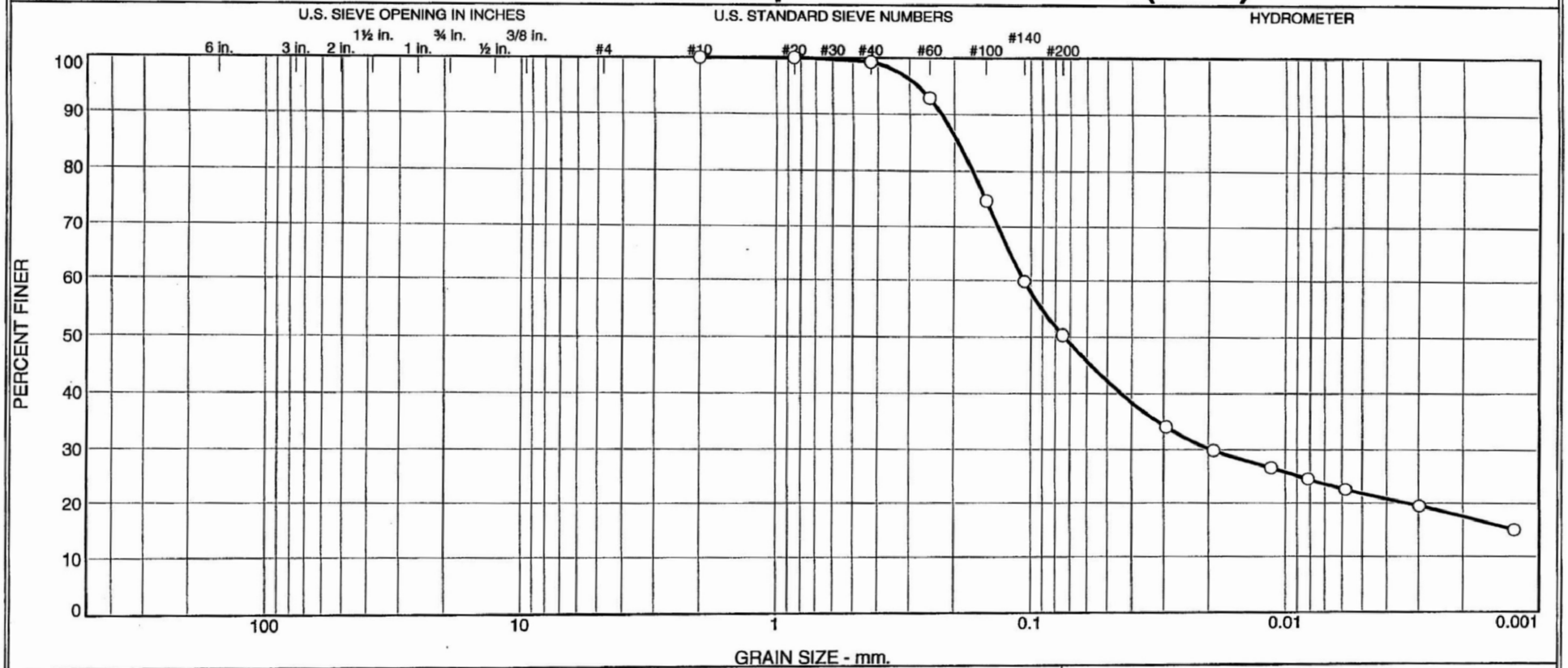


	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.7	48.9	28.6	21.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2302A	SS-1	0.0-1.5	1-2-08	CL	Very Dark Gray Sandy Lean CLAY	11.3	32	14

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure N/A

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed
Organic Content = 2.1% (ASTM D 2794-07)

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: 0.0-1.5 **Sample Number:** SS-1
Material Description: Very Dark Gray Sandy Lean CLAY
Date: 1-2-08 **Natural Moisture:** 11.3
Liquid Limit: 32 **Plastic Limit:** 14 **USCS Class.:** CL
Testing Remarks: Specific Gravity is assumed
Organic Content = 2.1% (ASTM D 2794-07)
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
240.98	0.00	0.00	#10	0.00	100.0
96.04	0.00	0.00	#20	0.01	100.0
			#40	0.65	99.3
			#60	6.84	92.9
			#100	24.22	74.8
			#140	38.60	59.8
			#200	47.68	50.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =96.04
Hygroscopic moisture correction:
Moist weight and tare = 28.09
Dry weight and tare = 27.92
Tare weight = 15.53
Hygroscopic moisture = 1.4%
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 = 2.700
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	37.0	32.6	0.0131	38.0	10.1	0.0293	34.1
5.00	22.4	33.0	28.6	0.0131	34.0	10.7	0.0191	29.9
15.00	22.1	30.0	25.6	0.0131	31.0	11.2	0.0113	26.7
30.00	22.1	28.0	23.6	0.0131	29.0	11.5	0.0081	24.6
60.00	22.4	26.0	21.6	0.0131	27.0	11.9	0.0058	22.6
237.00	22.5	23.0	18.7	0.0130	24.0	12.4	0.0030	19.5
1440.00	21.4	19.0	14.4	0.0132	20.0	13.0	0.0013	15.0

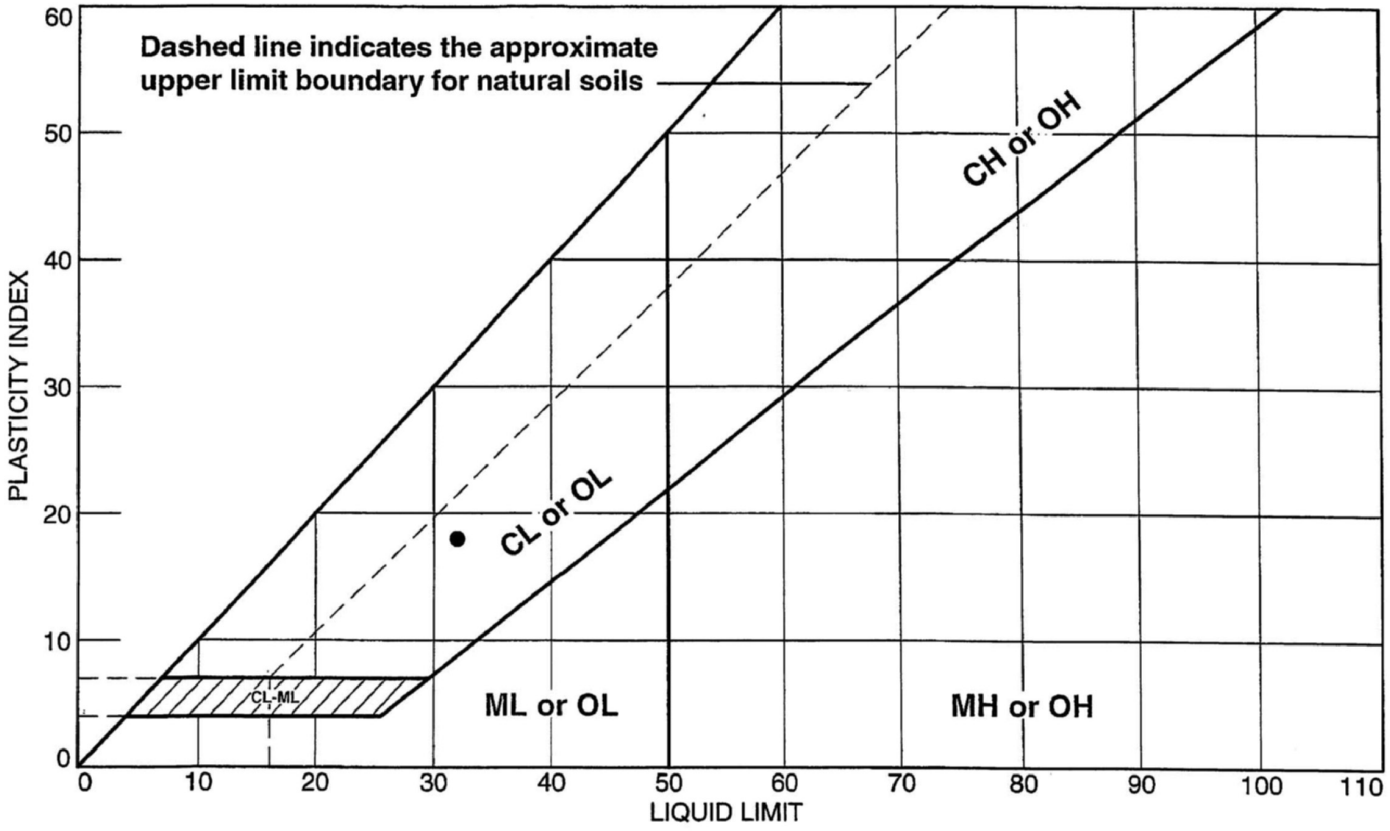
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.7	48.9	49.6	28.6	21.8	50.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0033	0.0194	0.0738	0.1066	0.1694	0.1928	0.2243	0.2768

Fineness Modulus
0.29

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-1	0.0-1.5	11.3	14	32	18	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

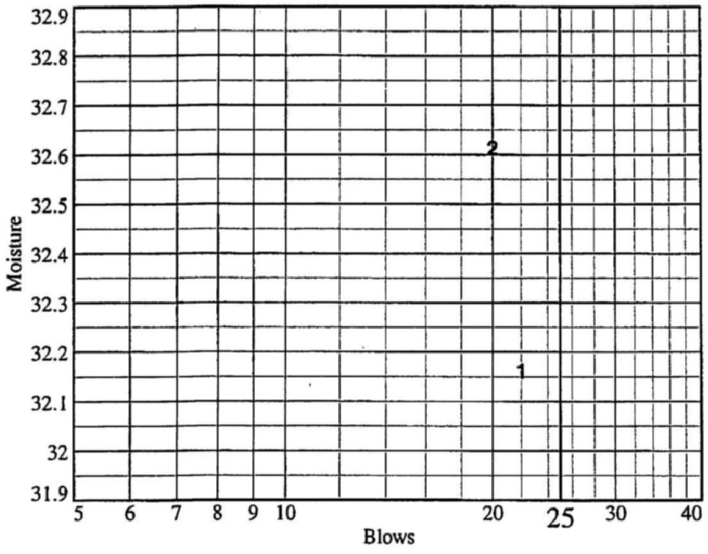
LIQUID AND PLASTIC LIMIT TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2302A
Depth: 0.0-1.5 **Sample Number:** SS-1
Material Description: Very Dark Gray Sandy Lean CLAY
USCS: CL **AASHTO:** A-6(5)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	32.33	33.97				
Dry+Tare	28.21	29.43				
Tare	15.40	15.51				
# Blows	22	20				
Moisture	32.2	32.6				



Liquid Limit= 32
Plastic Limit= 14
Plasticity Index= 18
Natural Moisture= 11.3
Liquidity Index= -0.1

Plastic Limit Data

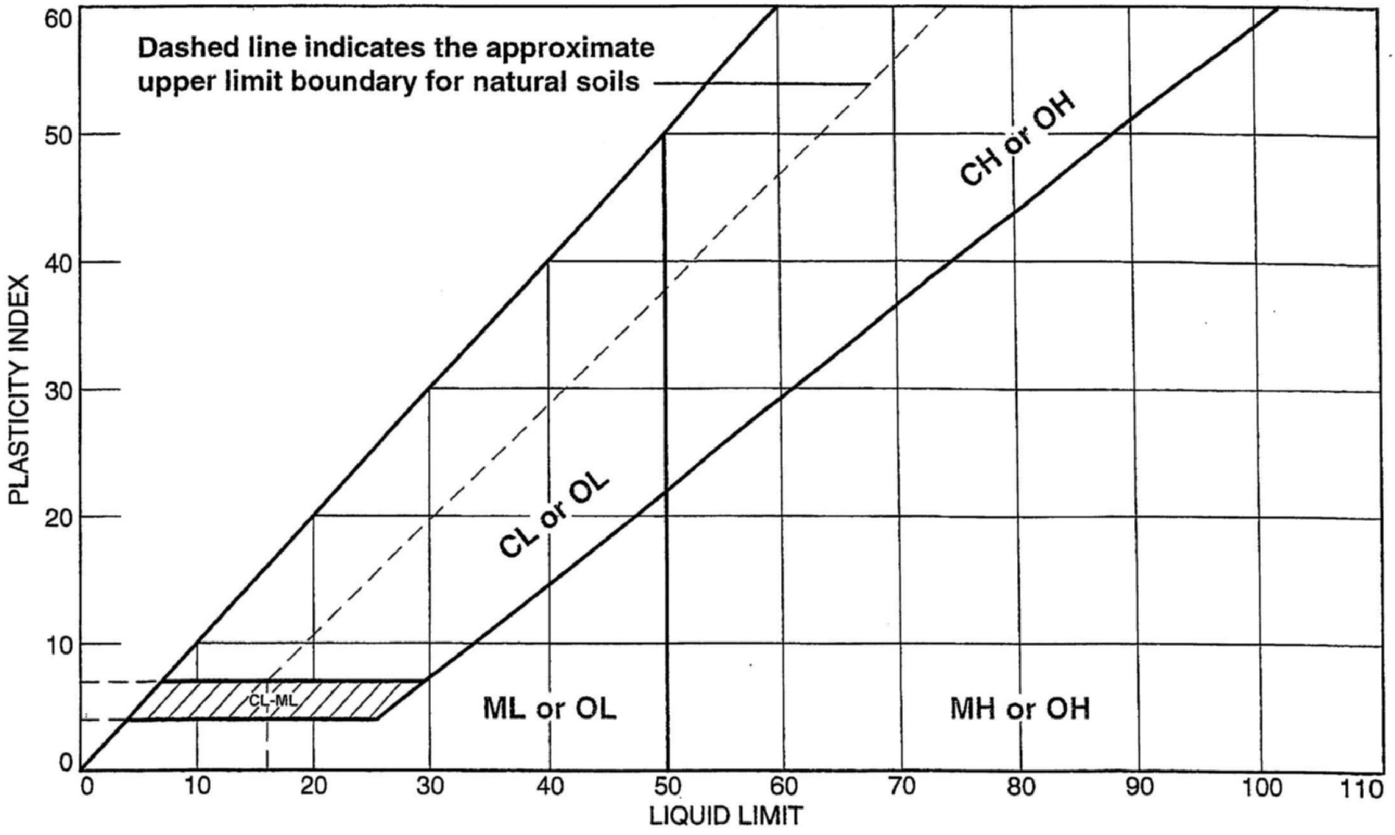
Run No.	1	2	3	4	
Wet+Tare	25.90	22.64			
Dry+Tare	24.65	21.78			
Tare	15.54	15.48			
Moisture	13.7	13.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
109.65	99.44	9.26	11.3

MACTEC, Inc.

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-2A	3.5-5.0	13.2	ND	ND	ND	ND

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

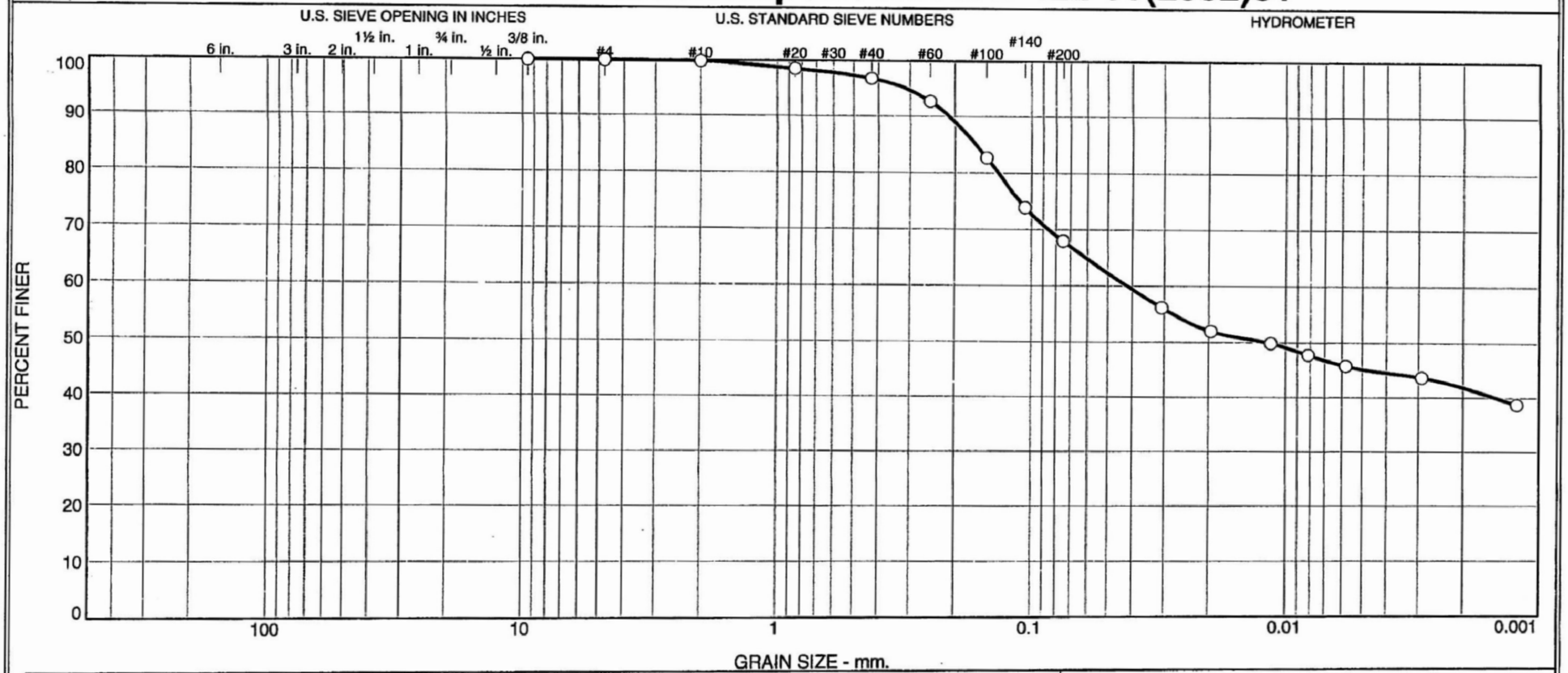
Project: Exelon Texas COL (Victoria Reservoir)

Project No.: 6468071777

Figure N A

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

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	0.1	3.1	28.8	22.9	45.1

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2302A	SS-2B	3.6-5.0	1-2-08	CH	Dark Gray Sandy Fat CLAY	17.3	50	15

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure N A

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.703 (ASTM D854-06)
Organic Content = 1.8% (ASTM 2794-07)

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: 3.6-5.0 **Sample Number:** SS-2B
Material Description: Dark Gray Sandy Fat CLAY
Date: 1-2-08 **Natural Moisture:** 17.3
Liquid Limit: 50 **Plastic Limit:** 15 **USCS Class.:** CH
Testing Remarks: Specific Gravity = 2.703 (ASTM D854-06)
Organic Content = 1.8% (ASTM 2794-07)
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
242.47	0.00	0.00	3/8"	0.00	100.0
			#4	0.09	100.0
			#10	0.30	99.9
47.80	0.00	0.00	#20	0.63	98.6
			#40	1.47	96.8
			#60	3.43	92.7
			#100	8.21	82.7
			#140	12.42	73.9
			#200	15.25	68.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.9
Weight of hydrometer sample =47.80
Hygroscopic moisture correction:
Moist weight and tare = 28.85
Dry weight and tare = 28.59
Tare weight = 15.60
Hygroscopic moisture = 2.0%
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 = 2.703
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	31.0	26.7	0.0130	32.0	11.0	0.0306	56.2
5.00	22.5	29.0	24.7	0.0130	30.0	11.4	0.0196	52.0
15.00	22.5	28.0	23.7	0.0130	29.0	11.5	0.0114	49.9
30.00	22.5	27.0	22.7	0.0130	28.0	11.7	0.0081	47.8
60.00	22.6	26.0	21.7	0.0130	27.0	11.9	0.0058	45.7
240.00	22.7	25.0	20.7	0.0130	26.0	12.0	0.0029	43.7
1440.00	21.5	23.0	18.4	0.0132	24.0	12.4	0.0012	38.8

MACTEC, Inc.

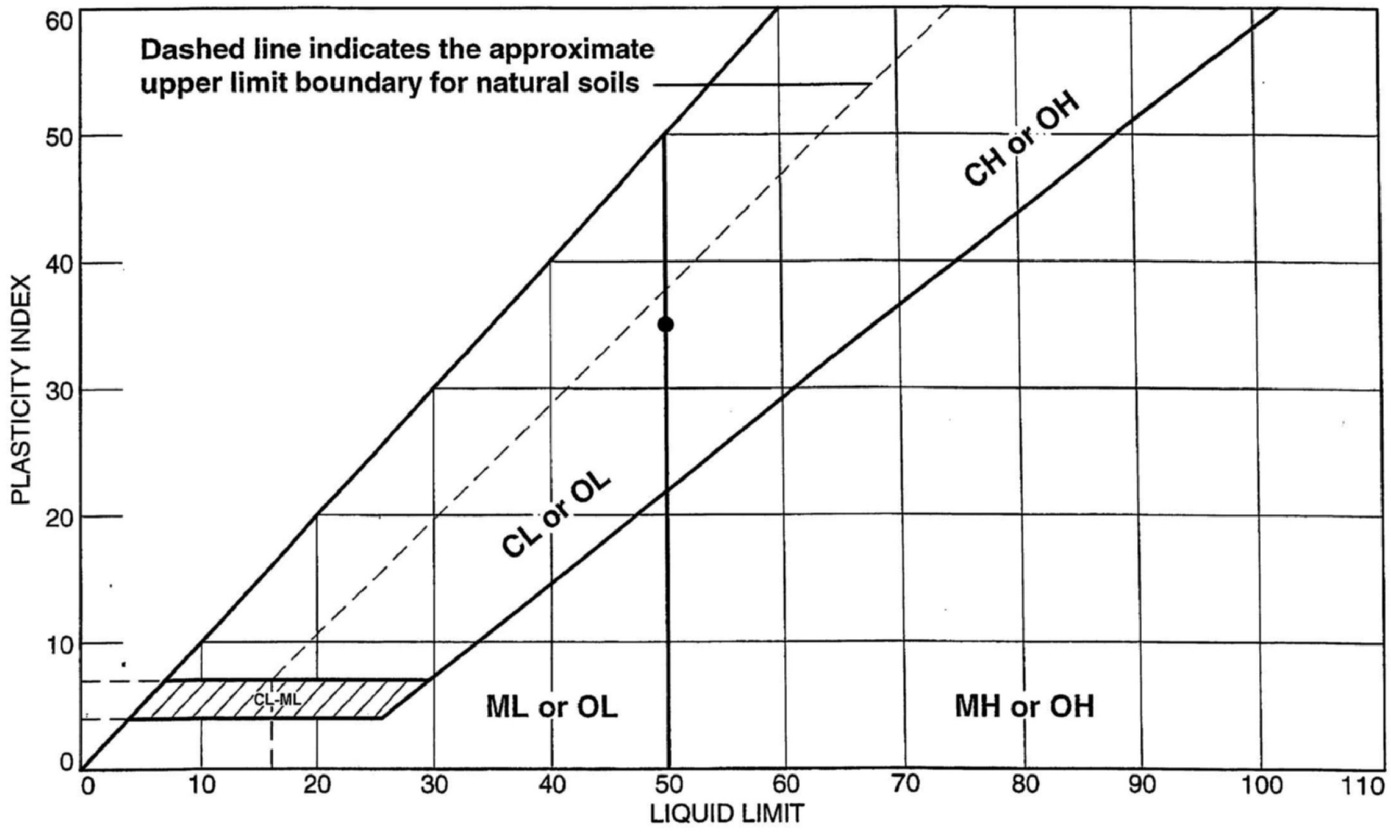
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	3.1	28.8	32.0	22.9	45.1	68.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0118	0.0418	0.1351	0.1647	0.2099	0.3110

Fineness Modulus
0.26

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-2B	3.6-5.0	17.3	15	50	35	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

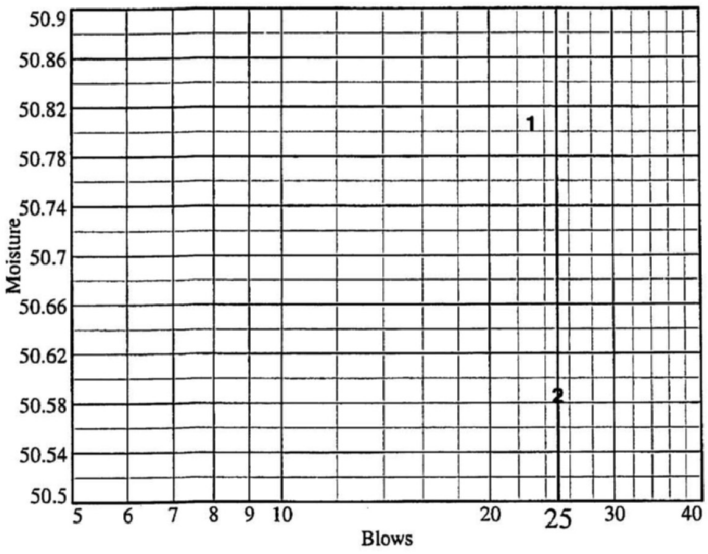
LIQUID AND PLASTIC LIMIT TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2302A
Depth: 3.6-5.0 **Sample Number:** SS-2B
Material Description: Dark Gray Sandy Fat CLAY
USCS: CH **AASHTO:** A-7-6(22)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.22	24.48				
Dry+Tare	20.70	21.46				
Tare	15.74	15.49				
# Blows	23	25				
Moisture	50.8	50.6				



Liquid Limit= 50
Plastic Limit= 15
Plasticity Index= 35
Natural Moisture= 17.3
Liquidity Index= 0.1

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	24.45	23.15			
Dry+Tare	23.27	22.16			
Tare	15.45	15.48			
Moisture	15.1	14.8			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
191.04	164.22	9.39	17.3

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-2B

(A) Mass of oven-dried soil, grams:	52.07
(B) Mass of pycnometer filled with water at test temperature (T), grams:	656.67
(C) Mass of pycnometer, water and soil, grams:	689.49
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	22.5
(G) Specific Gravity at observed temperature: A / [B - (C - A)]	2.705
(F) ***Correction factor:***	0.99945
(G x F) **SPECIFIC GRAVITY @ 20°C:**	2.703

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

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

REMARKS: Estimated % Passing # 4 : 100%

Sandy Fat CLAY (CH)

EQUIPMENT USED

SCALES : 3.1.19

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNOMETER : P-6

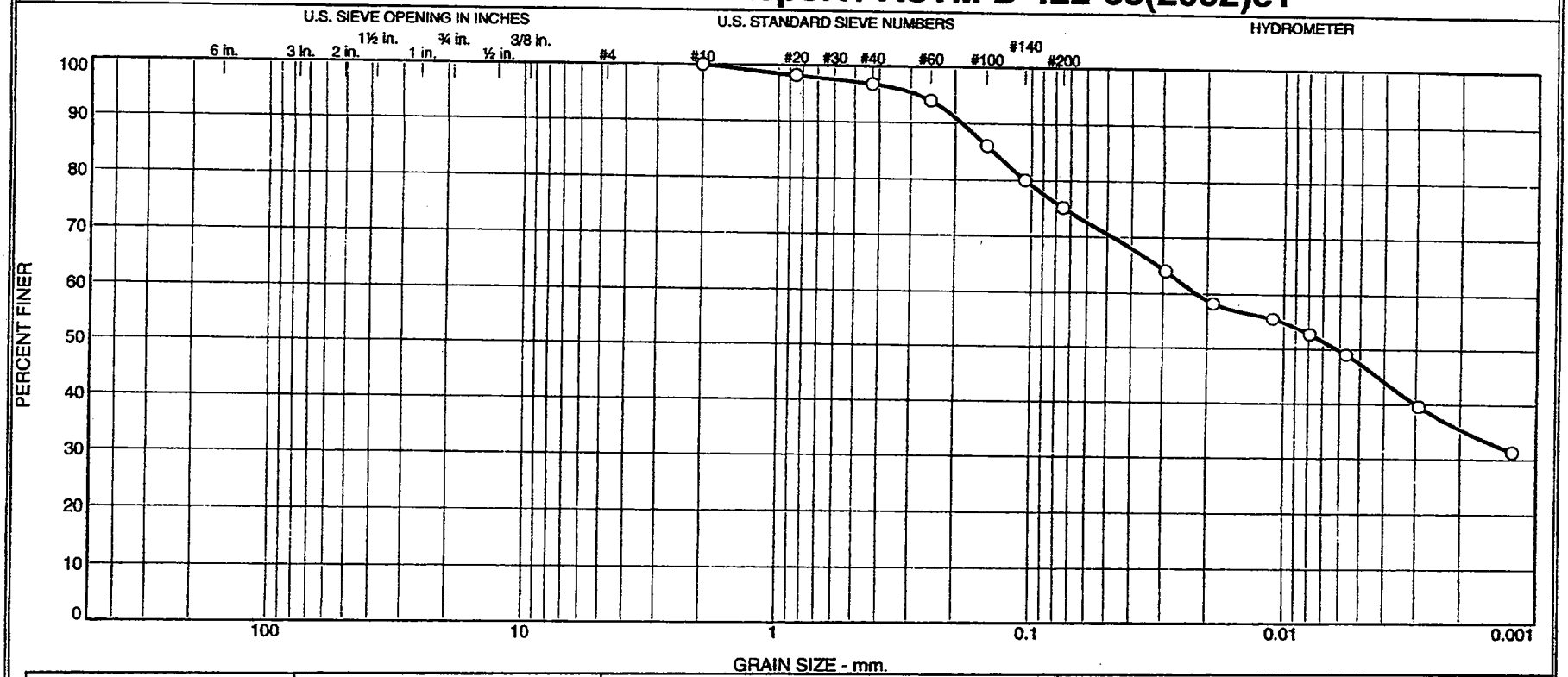
TESTED BY: CS

\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	3.2	21.6	27.9	47.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2302A	SS-3	6.0-7.5	1-2-08	CH	Pale Yellow Fat CLAY with sand	17.6	50	15

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed
Organic Content = 1.3% (ASTM D2794-07)

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: 6.0-7.5 **Sample Number:** SS-3
Material Description: Pale Yellow Fat CLAY with sand
Date: 1-2-08 **Natural Moisture:** 17.6
Liquid Limit: 50 **Plastic Limit:** 15 **USCS Class.:** CH
Testing Remarks: Specific Gravity is assumed
Organic Content = 1.3% (ASTM D2794-07)
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
203.15	0.00	0.00	#10	0.00	100.0
52.79	0.00	0.00	#20	0.93	98.2
			#40	1.67	96.8
			#60	3.18	94.0
			#100	7.31	86.2
			#140	10.53	80.1
			#200	13.08	75.2

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =52.79
Hygroscopic moisture correction:
Moist weight and tare = 28.40
Dry weight and tare = 28.12
Tare weight = 15.54
Hygroscopic moisture = 2.2%
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 = 2.700
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	21.7	38.0	33.5	0.0132	39.0	9.9	0.0293	64.1
5.00	21.7	35.0	30.5	0.0132	36.0	10.4	0.0190	58.3
15.00	21.9	33.5	29.0	0.0131	34.5	10.6	0.0111	55.6
30.00	21.9	32.0	27.5	0.0131	33.0	10.9	0.0079	52.7
60.00	22.1	30.0	25.6	0.0131	31.0	11.2	0.0057	49.0
240.00	22.6	25.0	20.7	0.0130	26.0	12.0	0.0029	39.6
1440.00	21.4	21.0	16.4	0.0132	22.0	12.7	0.0012	31.4

MACTEC, Inc.

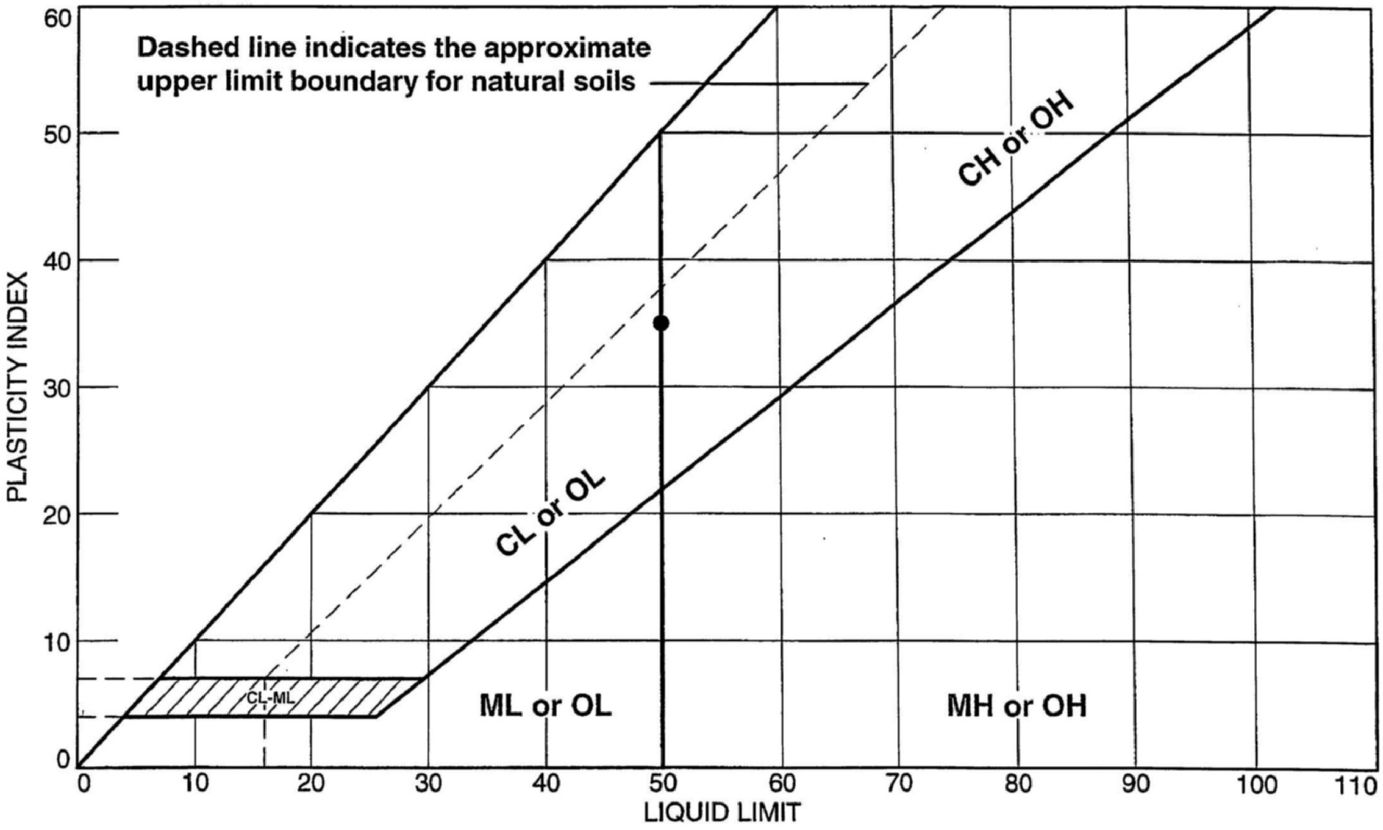
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	3.2	21.6	24.8	27.9	47.3	75.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0062	0.0220	0.1056	0.1408	0.1871	0.2802

Fineness Modulus
0.22

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-3	6.0-7.5	17.6	15	50	35	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

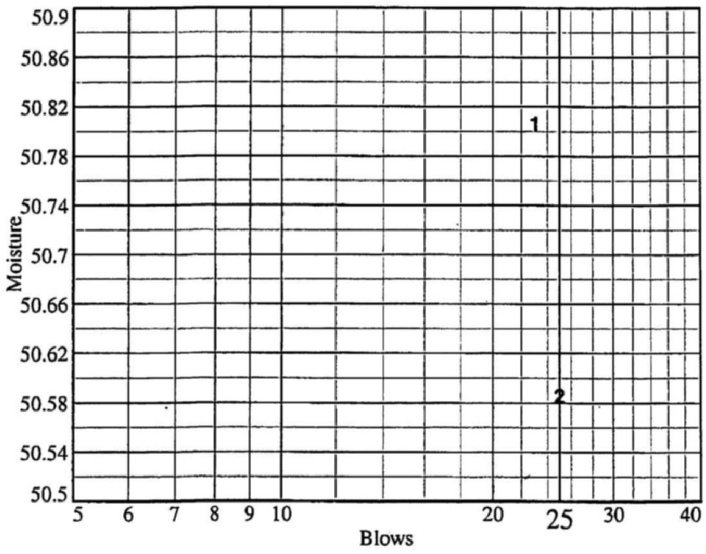
LIQUID AND PLASTIC LIMIT TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2302A
Depth: 6.0-7.5 **Sample Number:** SS-3
Material Description: Pale Yellow Fat CLAY with sand
USCS: CH **AASHTO:** A-7-6(25)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.22	24.48				
Dry+Tare	20.70	21.46				
Tare	15.74	15.49				
# Blows	23	25				
Moisture	50.8	50.6				



Liquid Limit= 50
Plastic Limit= 15
Plasticity Index= 35
Natural Moisture= 17.6
Liquidity Index= 0.1

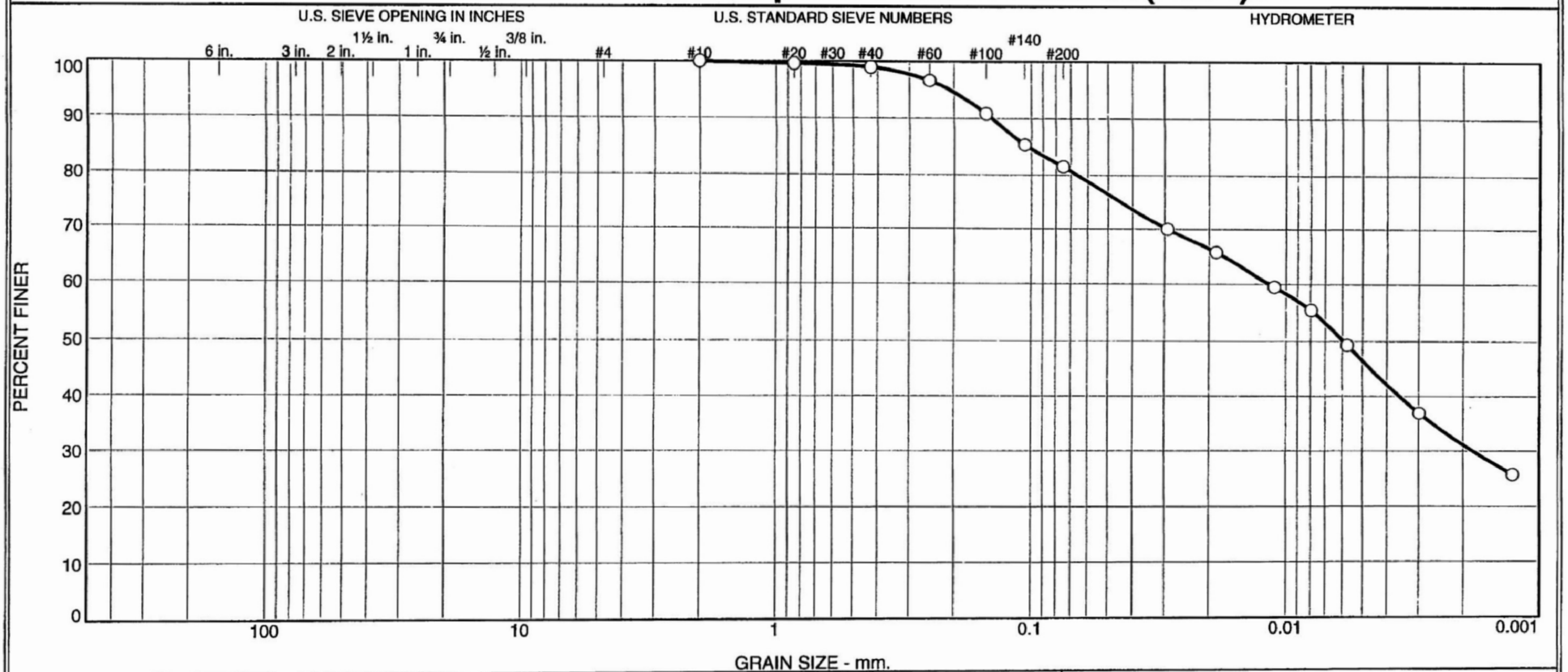
Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	24.49	26.09			
Dry+Tare	23.29	24.69			
Tare	15.50	15.41			
Moisture	15.4	15.1			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
141.23	121.14	6.81	17.6

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	1.0	17.5	35.0	46.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2302A	SS-4	8.5-10.0	1-2-08	CH	Pale Yellow Fat CLAY with sand	18.4	50	15

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: 8.5-10.0 **Sample Number:** SS-4
Material Description: Pale Yellow Fat CLAY with sand
Date: 1-2-08 **Natural Moisture:** 18.4
Liquid Limit: 50 **Plastic Limit:** 15 **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
220.16	0.00	0.00	#10	0.00	100.0
48.33	0.00	0.00	#20	0.18	99.6
			#40	0.47	99.0
			#60	1.59	96.7
			#100	4.42	90.9
			#140	7.01	85.5
			#200	8.94	81.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =48.33
Hygroscopic moisture correction:
Moist weight and tare = 28.42
Dry weight and tare = 28.17
Tare weight = 15.53
Hygroscopic moisture = 2.0%
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 = 2.700
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	22.0	38.0	33.5	0.0131	39.0	9.9	0.0292	70.0
5.00	21.9	36.0	31.5	0.0131	37.0	10.2	0.0188	65.7
15.00	21.9	33.0	28.5	0.0131	34.0	10.7	0.0111	59.5
30.00	22.1	31.0	26.6	0.0131	32.0	11.0	0.0079	55.4
60.00	22.3	28.0	23.6	0.0131	29.0	11.5	0.0057	49.3
238.00	22.6	22.0	17.7	0.0130	23.0	12.5	0.0030	36.9
1440.00	21.3	17.0	12.3	0.0132	18.0	13.3	0.0013	25.8

MACTEC, Inc.

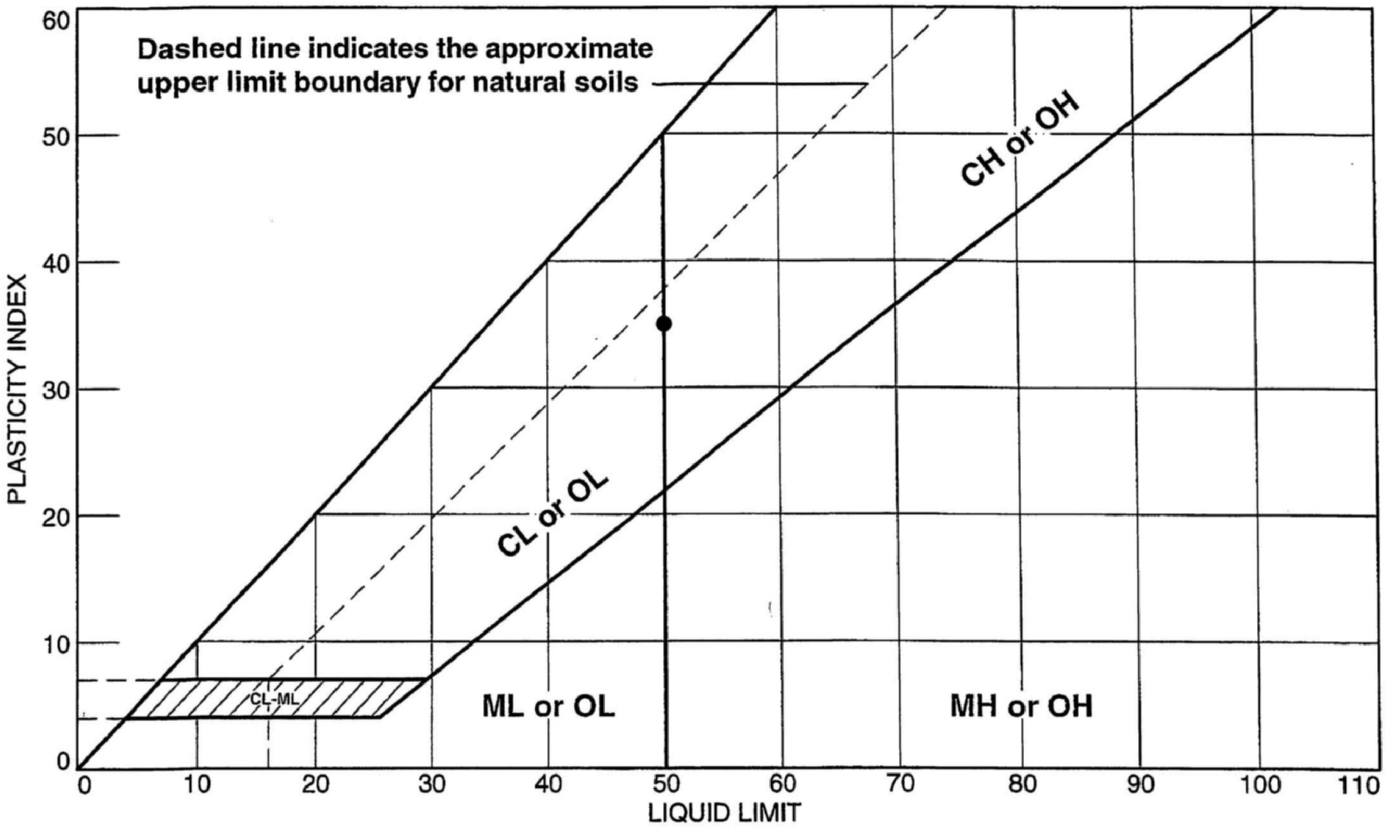
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.0	17.5	18.5	35.0	46.5	81.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0018	0.0059	0.0116	0.0660	0.1021	0.1419	0.2071

Fineness Modulus
0.12

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-4	8.5-10.0	18.4	15	50	35	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

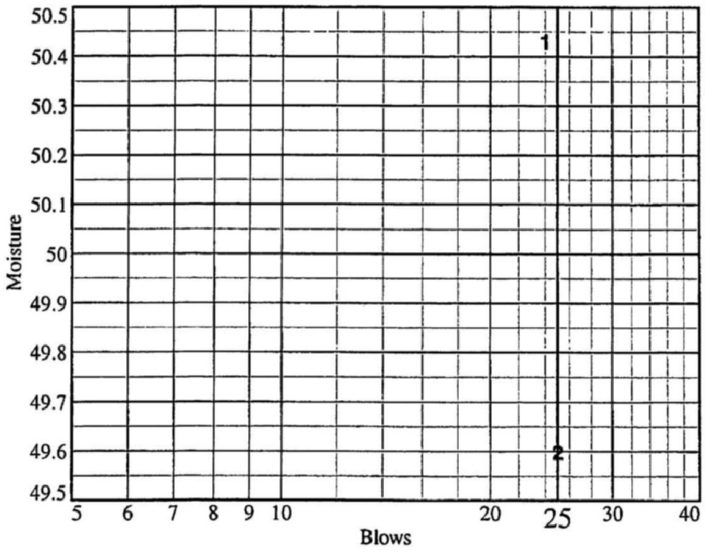
LIQUID AND PLASTIC LIMIT TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2302A
Depth: 8.5-10.0 **Sample Number:** SS-4
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	29.65	26.72				
Dry+Tare	24.97	23.01				
Tare	15.69	15.53				
# Blows	24	25				
Moisture	50.4	49.6				



Liquid Limit= 50
Plastic Limit= 15
Plasticity Index= 35
Natural Moisture= 18.4
Liquidity Index= 0.1

Plastic Limit Data

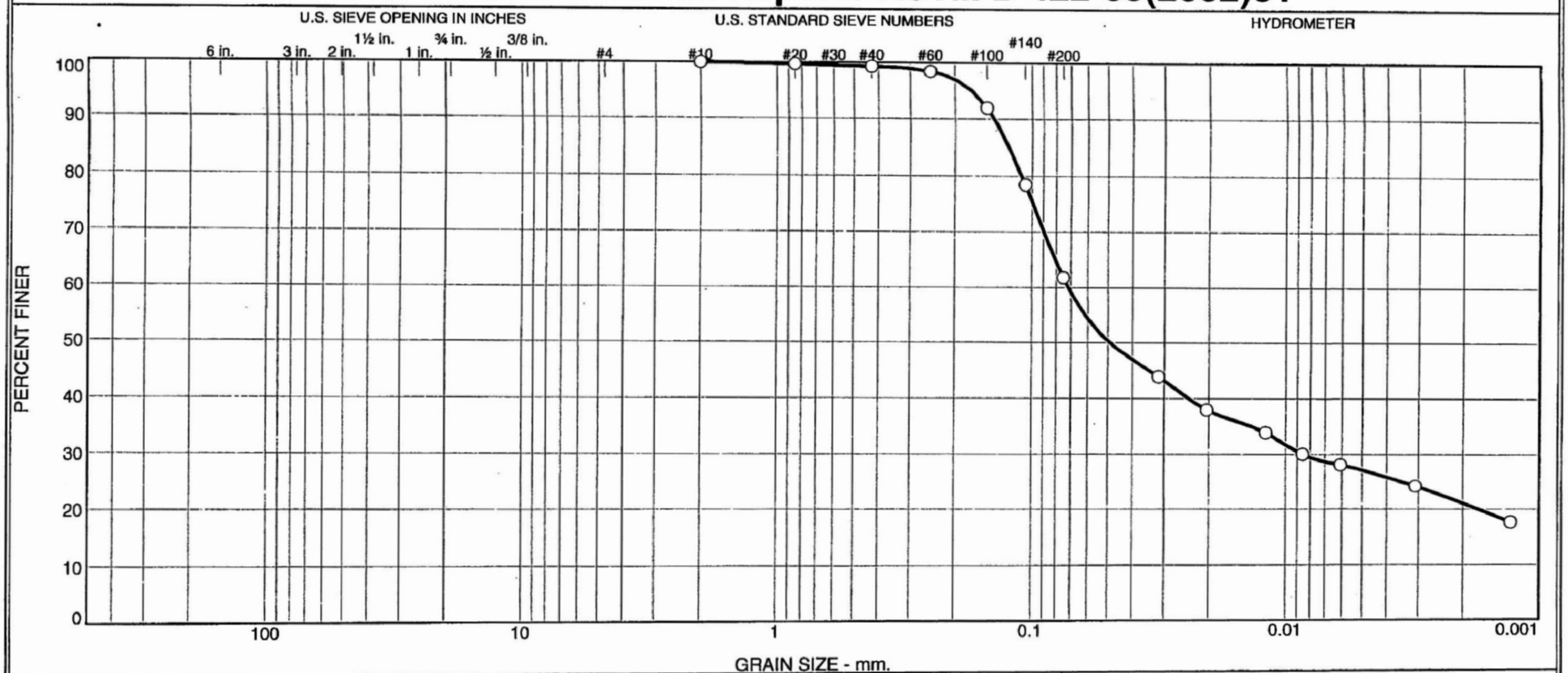
Run No.	1	2	3	4	
Wet+Tare	24.07	18.96			
Dry+Tare	22.94	17.94			
Tare	15.52	11.12			
Moisture	15.2	15.0			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
128.22	109.39	7.13	18.4

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	0.7	37.5	34.6	27.2

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2302A	SS-5	11.0-12.5	1-2-08	CL	Pale Yellow Sandy Lean CLAY	15.8	26	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: 11.0-12.5 **Sample Number:** SS-5
Material Description: Pale Yellow Sandy Lean CLAY
Date: 1-2-08 **Natural Moisture:** 15.8
Liquid Limit: 26 **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
204.74	0.00	0.00	#10	0.00	100.0
50.37	0.00	0.00	#20	0.15	99.7
			#40	0.35	99.3
			#60	0.79	98.4
			#100	4.10	91.9
			#140	10.83	78.5
			#200	19.23	61.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.37
Hygroscopic moisture correction:
Moist weight and tare = 28.76
Dry weight and tare = 28.74
Tare weight = 15.57
Hygroscopic moisture = 0.2%
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 = 2.700
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	22.3	27.0	22.3	0.0131	28.0	11.7	0.0316	43.9
5.00	22.3	24.0	19.3	0.0131	25.0	12.2	0.0204	38.0
15.00	22.1	22.0	17.3	0.0131	23.0	12.5	0.0120	33.9
30.00	22.2	20.0	15.3	0.0131	21.0	12.9	0.0086	30.1
60.00	22.3	19.0	14.3	0.0131	20.0	13.0	0.0061	28.2
240.00	22.3	17.0	12.3	0.0131	18.0	13.3	0.0031	24.2
1440.00	21.4	14.0	9.0	0.0132	15.0	13.8	0.0013	17.7

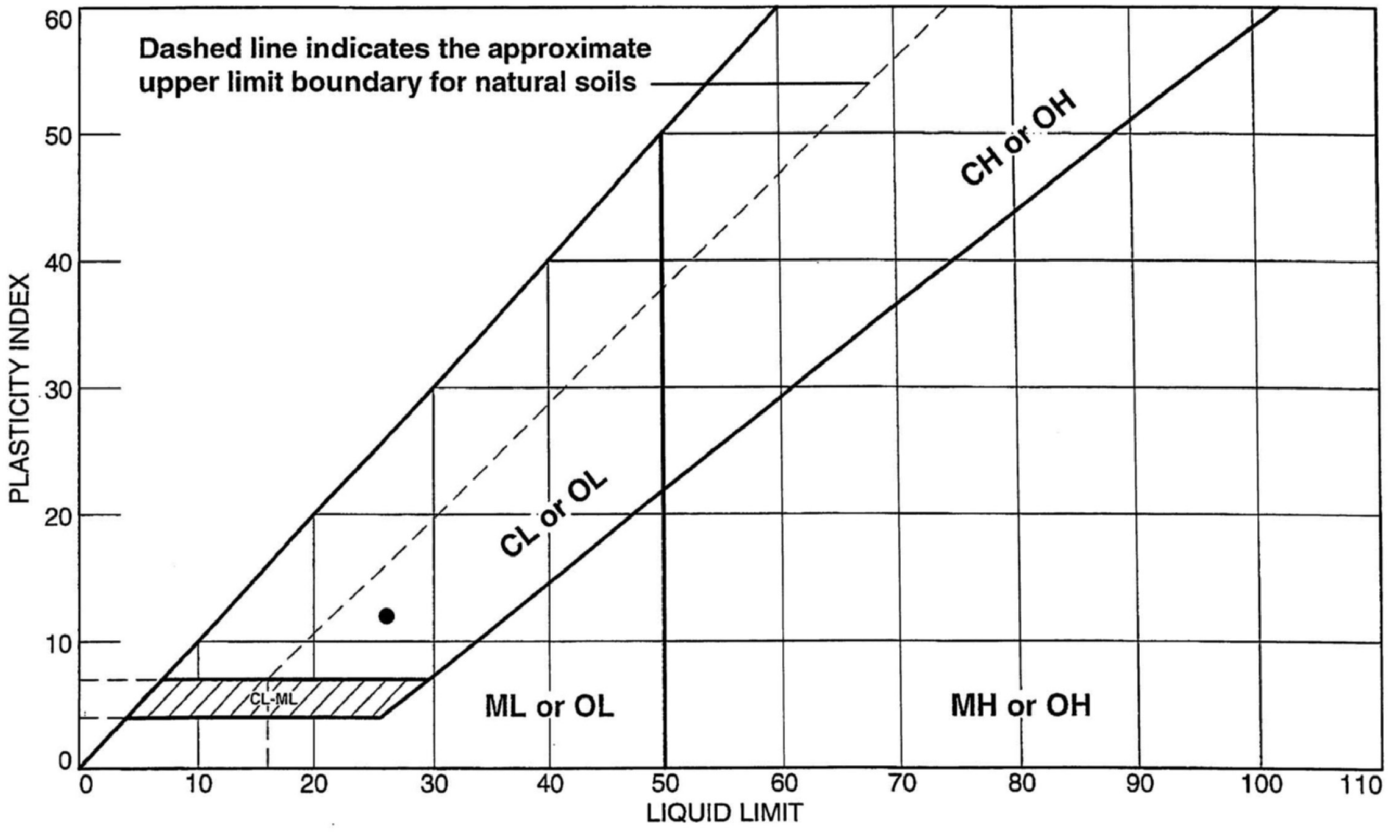
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.7	37.5	38.2	34.6	27.2	61.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0017	0.0085	0.0492	0.0716	0.1094	0.1227	0.1408	0.1729

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-2302A	SS-5	11.0-12.5	15.8	14	26	12	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

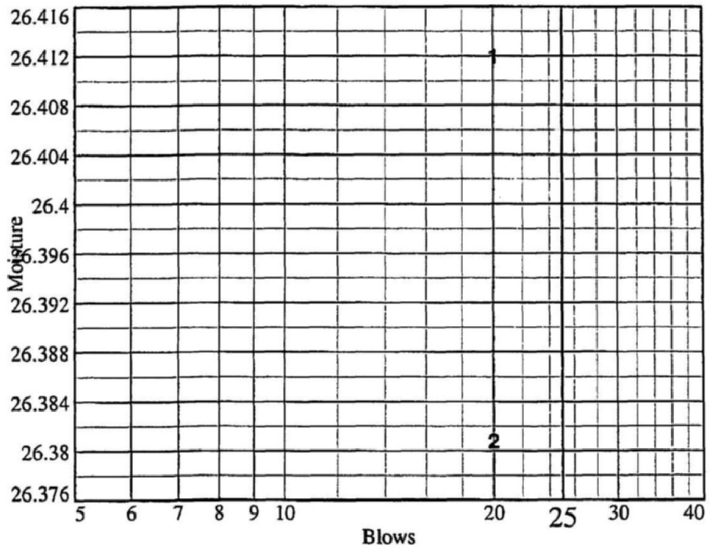
LIQUID AND PLASTIC LIMIT TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2302A
Depth: 11.0-12.5 **Sample Number:** SS-5
Material Description: Pale Yellow Sandy Lean CLAY
USCS: CL **AASHTO:** A-6(4)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	30.75	32.90				
Dry+Tare	27.57	29.27				
Tare	15.53	15.51				
# Blows	20	20				
Moisture	26.4	26.4				



Liquid Limit= 26
Plastic Limit= 14
Plasticity Index= 12
Natural Moisture= 15.8
Liquidity Index= 0.2

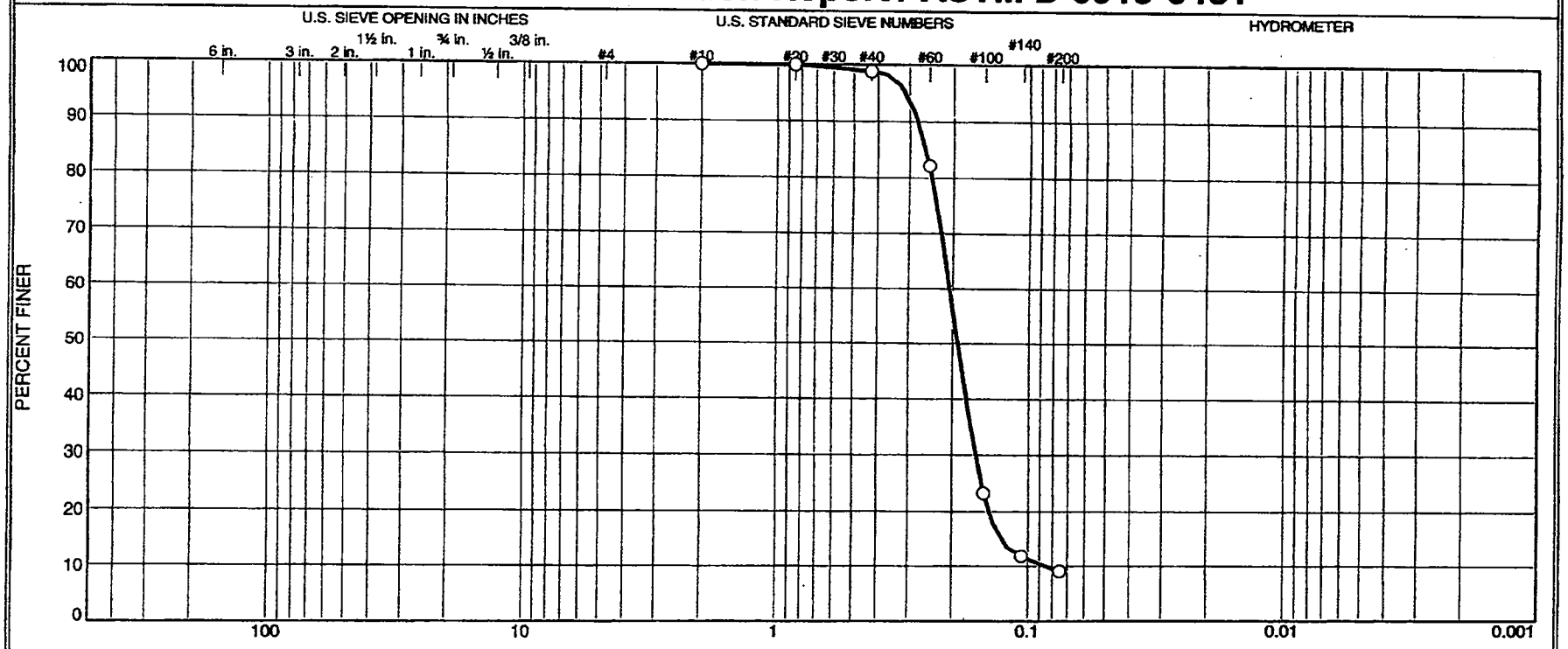
Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	26.99	28.06			
Dry+Tare	25.58	26.52			
Tare	15.48	15.48			
Moisture	14.0	13.9			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
148.42	129.12	6.66	15.8

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	1.1	89.8	9.1	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2302A	SS-6	13.5-15.0	1-2-08	SP-SM	Pale Yellow Poorly Graded SAND with silt (Visual)	20.9		

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
Specific Gravity = 2.654 (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: 13.5-15.0 **Sample Number:** SS-6
Material Description: Pale Yellow Poorly Graded SAND with silt (Visual)
Date: 1-2-08 **Natural Moisture:** 20.9
USCS Class.: SP-SM
Testing Remarks: SIEVE ANALYSIS ONLY
Specific Gravity = 2.654 (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
255.54	0.00	0.00	#10	0.00	100.0
100.51	0.00	0.00	#20	0.07	99.9
			#40	1.15	98.9
			#60	17.87	82.2
			#100	77.11	23.3
			#140	88.61	11.8
			#200	91.38	9.1

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	1.1	89.8	90.9			9.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0849	0.1280	0.1431	0.1615	0.1908	0.2060	0.2442	0.2583	0.2775	0.3097

Fineness Modulus	C_u	C_c
0.83	2.43	1.49

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-6

(A) Mass of oven-dried soil, grams:		76.09
(B) Mass of pycnometer filled with water at test temperature (T), grams:		655.63
(C) Mass of pycnometer, water and soil, grams:		703.06
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		22.3
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.655
(F)	***Correction factor:***	0.99950
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.654

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

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

REMARKS: Estimated % Passing # 4 : 100%

Poorly Graded SAND with silt (SP-SM) - Visual

EQUIPMENT USED

SCALES : 3.1.19

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNOMETER : P-3

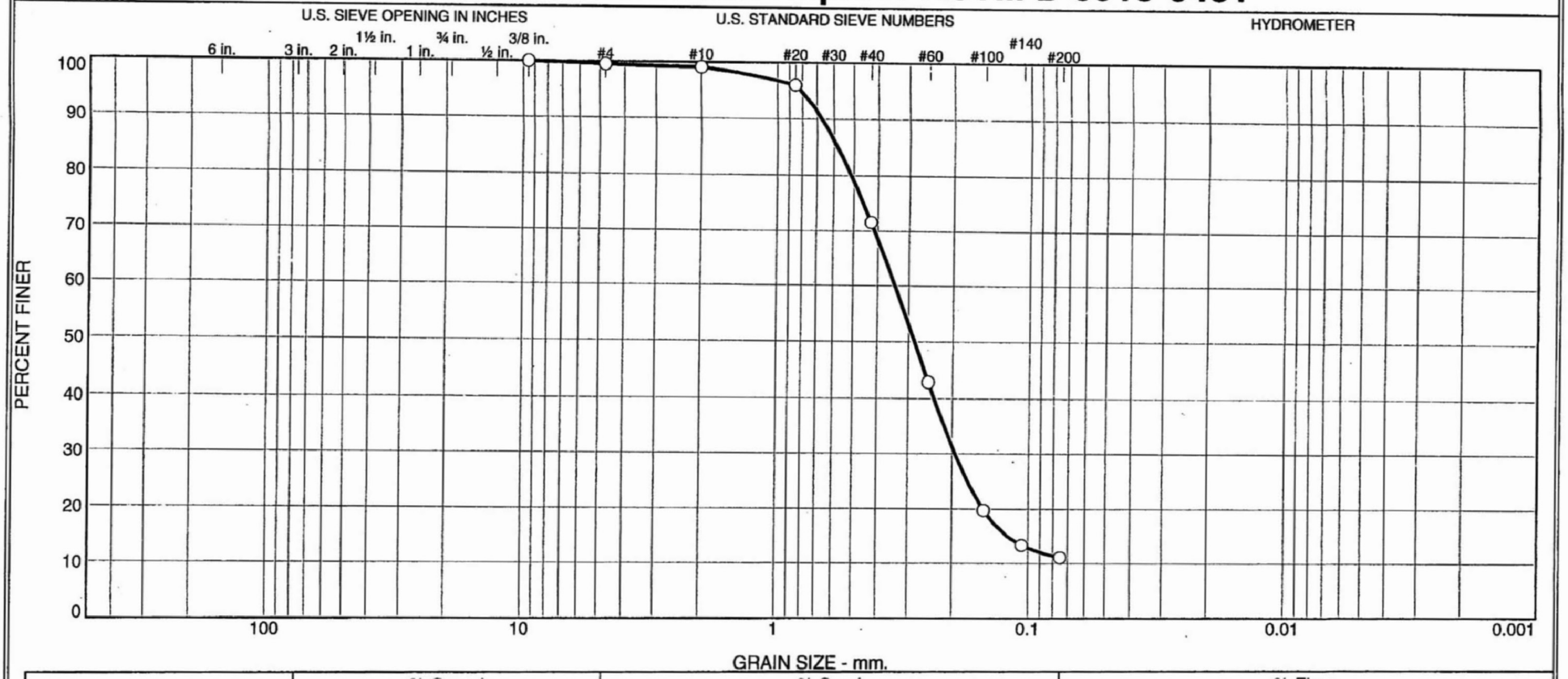
TESTED BY: CS

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

REVIEWED BY: **Brian Johnson**

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	0.5	0.4	27.5	60.5	11.1	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2302A	SS-7	18.5-20.0	1-2-08	SP-SM	Pale Yellow Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure N A

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** J.B.J 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: 18.5-20.0 **Sample Number:** SS-7
Material Description: Pale Yellow Poorly Graded SAND with silt (Visual)
Date: 1-2-08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
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
224.21	0.00	0.00	3/8"	0.00	100.0
			#4	1.06	99.5
			#10	2.02	99.1
101.00	0.00	0.00	#20	3.20	96.0
			#40	28.01	71.6
			#60	57.27	42.9
			#100	80.86	19.8
			#140	87.39	13.4
			#200	89.73	11.1

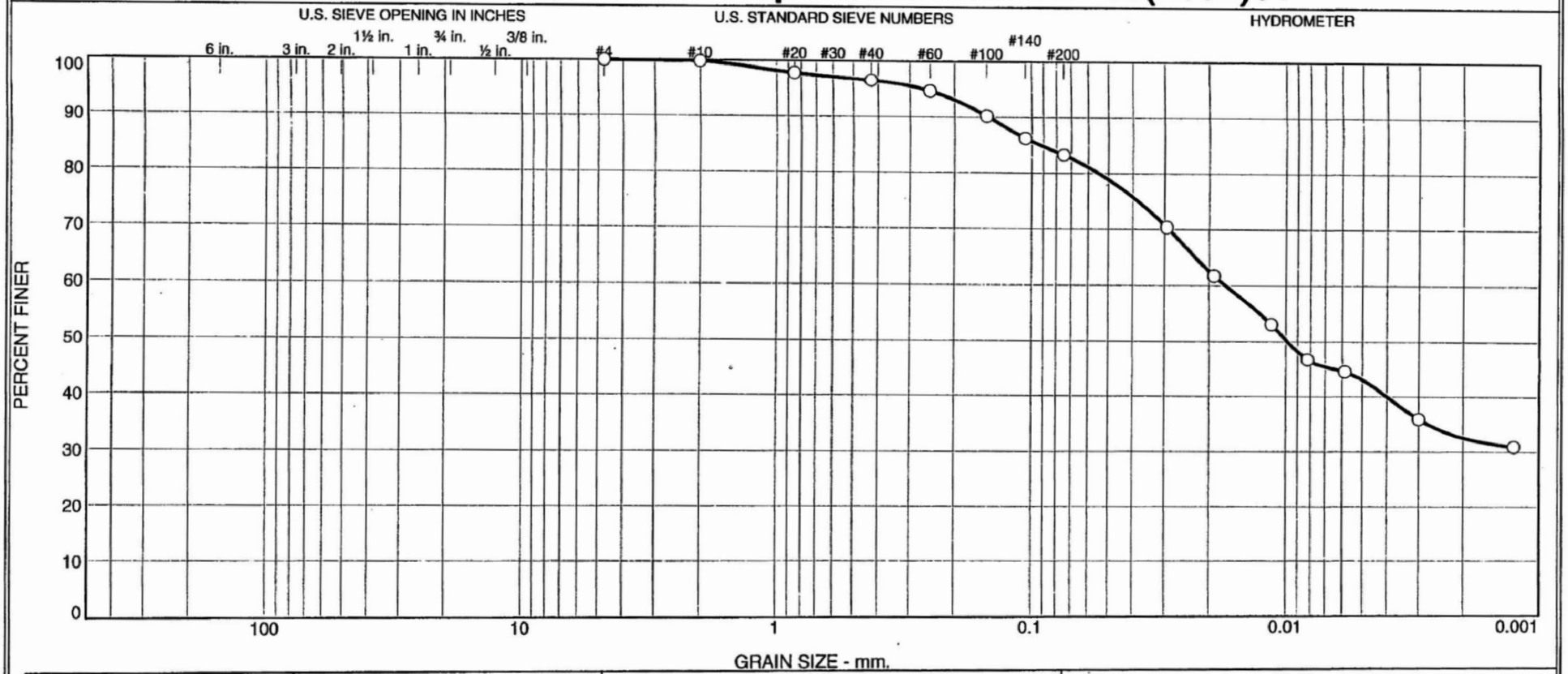
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.5	0.5	0.4	27.5	60.5	88.4			11.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1209	0.1512	0.1947	0.2842	0.3404	0.5098	0.5773	0.6681	0.8096

Fineness Modulus
1.45

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	0.1	3.4	13.2	40.2	43.1

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2302A	SS-8	23.5-25.0	1-2-08	CH	Light Gray and Olive Yellow Fat CLAY with sand	20.7	59	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: 23.5-25.0 **Sample Number:** SS-8
Material Description: Light Gray and Olive Yellow Fat CLAY with sand
Date: 1-2-08 **Natural Moisture:** 20.7
Liquid Limit: 59 **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
254.45	0.00	0.00	#4	0.00	100.0
			#10	0.35	99.9
46.54	0.00	0.00	#20	0.95	97.8
			#40	1.56	96.5
			#60	2.43	94.6
			#100	4.48	90.2
			#140	6.31	86.3
			#200	7.71	83.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.9
Weight of hydrometer sample =46.54
Hygroscopic moisture correction:
Moist weight and tare = 28.19
Dry weight and tare = 27.98
Tare weight = 15.50
Hygroscopic moisture = 1.7%
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 = 2.700
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	37.0	32.6	0.0131	38.0	10.1	0.0294	70.3
5.00	22.3	33.0	28.6	0.0131	34.0	10.7	0.0191	61.8
15.00	22.3	29.0	24.6	0.0131	30.0	11.4	0.0114	53.1
30.00	22.3	26.0	21.6	0.0131	27.0	11.9	0.0082	46.6
60.00	22.3	25.0	20.6	0.0131	26.0	12.0	0.0059	44.5
240.00	22.5	21.0	16.7	0.0130	22.0	12.7	0.0030	36.0
1440.00	21.3	19.0	14.3	0.0132	20.0	13.0	0.0013	31.0

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	3.4	13.2	16.7	40.2	43.1	83.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0099	0.0172	0.0544	0.0916	0.1467	0.2667

Fineness Modulus
0.19