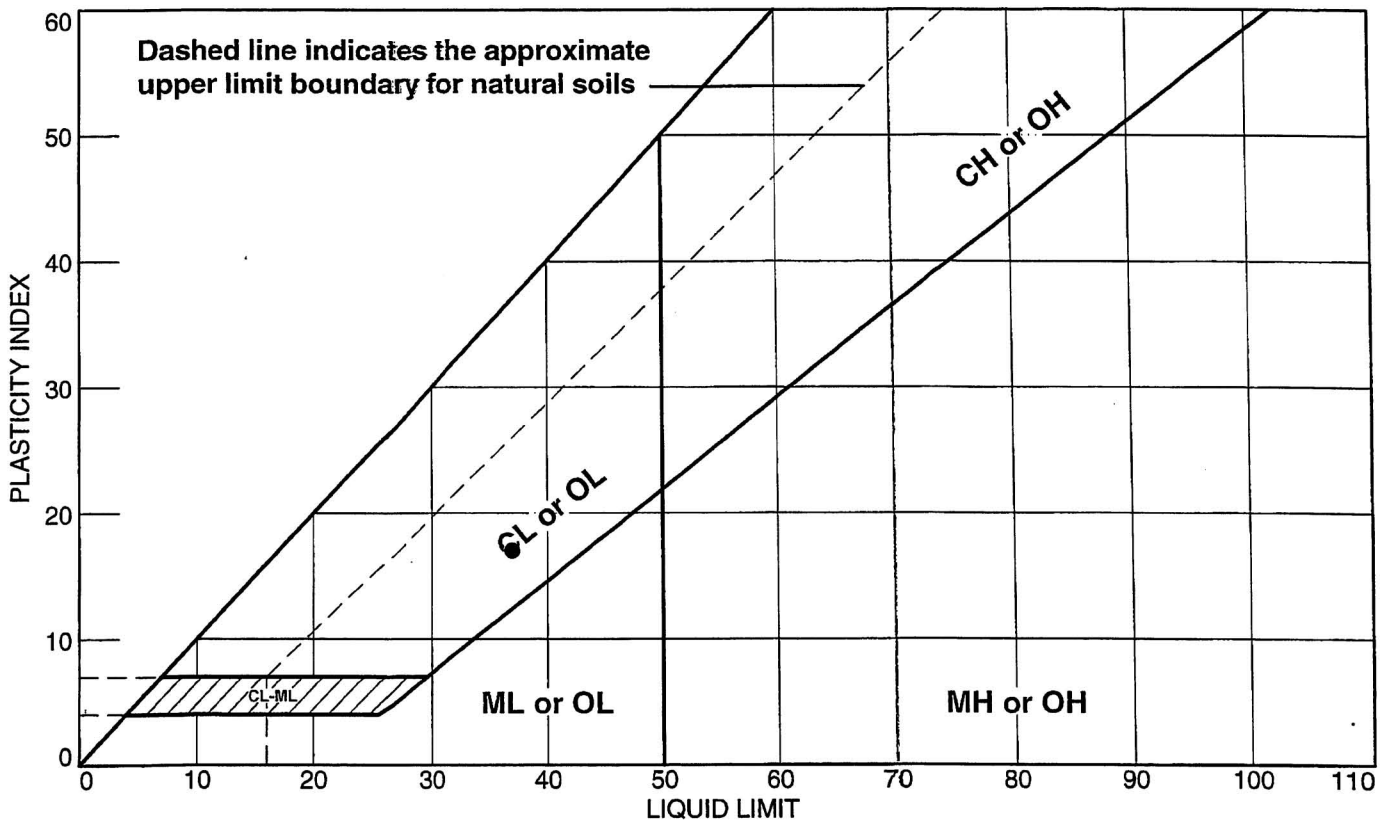
LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2352	SS-1	0.0-1.5	22.8	20	37	17	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 2-28-08

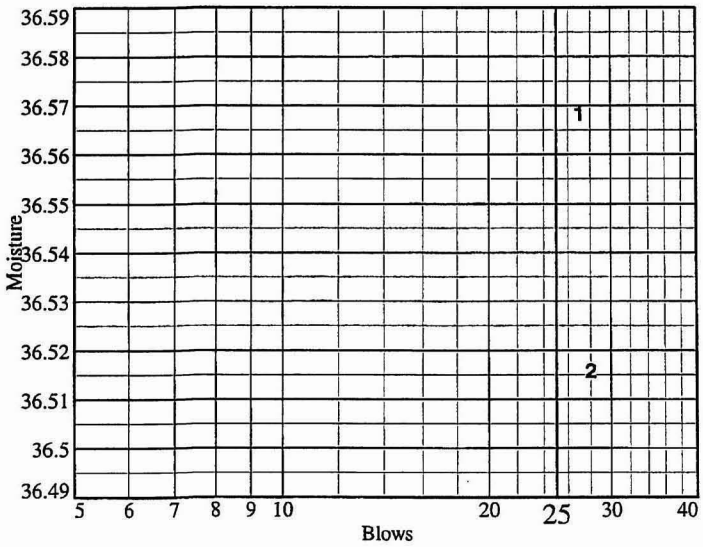
LIQUID AND PLASTIC LIMIT TEST DATA

2/27/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 0.0-1.5 **Sample Number:** SS-1
Material Description: Dark Gray Sandy Lean CLAY
USCS: CL **AASHTO:** A-6(6)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.42	23.79				
Dry+Tare	21.31	21.61				
Tare	15.54	15.64				
# Blows	27	28				
Moisture	36.6	36.5				



Liquid Limit= 37
Plastic Limit= 20
Plasticity Index= 17
Natural Moisture= 22.8
Liquidity Index= 0.2

Plastic Limit Data

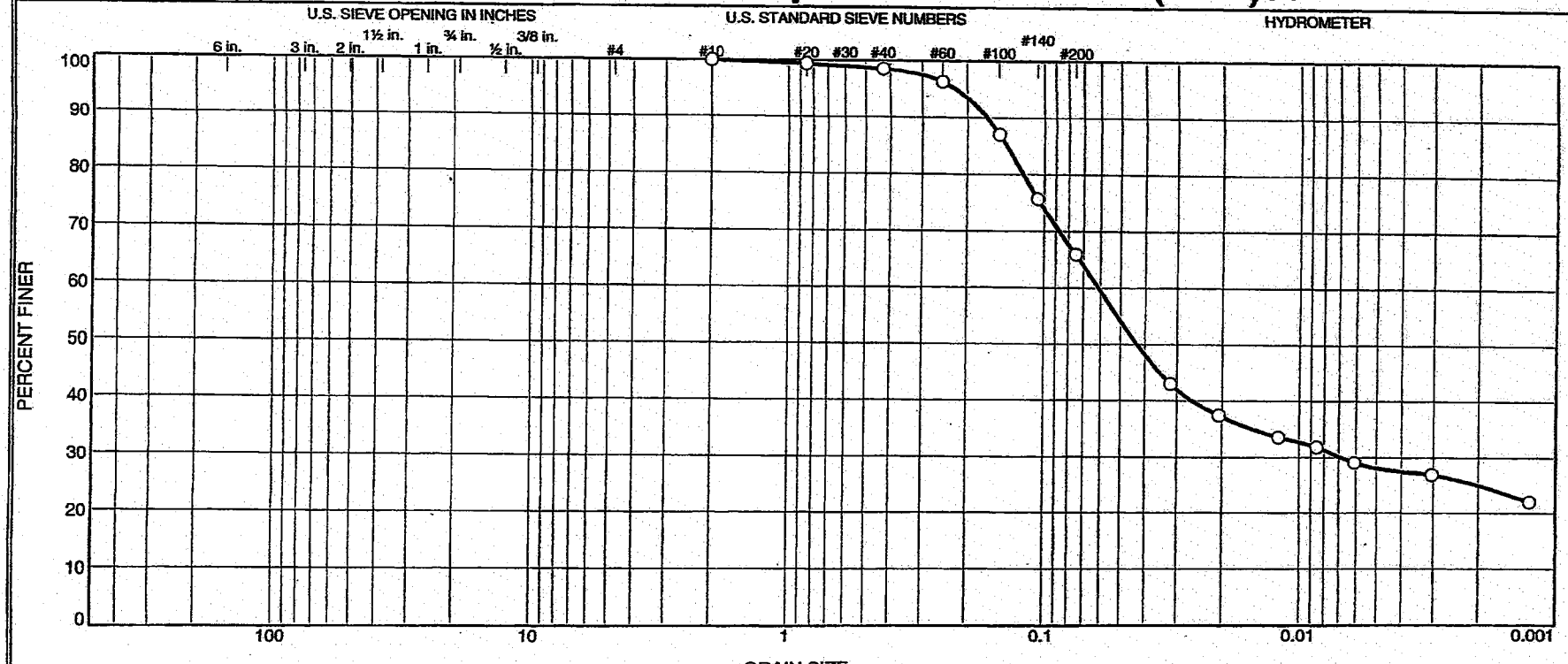
Run No.	1	2	3	4	
Wet+Tare	23.53	23.65			
Dry+Tare	22.19	22.30			
Tare	15.53	15.44			
Moisture	20.1	19.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
101.28	83.73	6.69	22.8

MACTEC, Inc.

Particle Size Distribution Report / ASTM D422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	1.5	32.5	37.9	28.1

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-2352	SS-2	3.4-4.9	1-3-08	CL	Grayish Brown Sandy Lean CLAY	16.9	43	19

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

O Specific Gravity is assumed
Organic Content = 1.8% (ASTM D2974-07)

Tested By: CS **Checked By:** LBJ DSC 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 3.4-4.9 **Sample Number:** SS-2
Material Description: Grayish Brown Sandy Lean CLAY
Date: 1-3-08 **Natural Moisture:** 16.9
Liquid Limit: 43 **Plastic Limit:** 19 **USCS Class.:** CL
Testing Remarks: Specific Gravity is assumed
Organic Content = 1.8% (ASTM D2974-07)
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
263.48	0.00	0.00	#10	0.00	100.0
53.07	0.00	0.00	#20	0.33	99.4
			#40	0.78	98.5
			#60	1.98	96.3
			#100	6.84	87.1
			#140	12.90	75.7
			#200	18.06	66.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =53.07
Hygroscopic moisture correction:
Moist weight and tare = 28.95
Dry weight and tare = 28.89
Tare weight = 15.62
Hygroscopic moisture = 0.5%
Table of composite correction values:

Temp., deg. C:	12.9	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	28.0	23.0	0.0132	29.0	11.5	0.0318	43.0
5.00	21.3	25.0	20.0	0.0132	26.0	12.0	0.0205	37.4
15.00	21.2	23.0	17.9	0.0132	24.0	12.4	0.0120	33.6
30.00	21.4	22.0	17.0	0.0132	23.0	12.5	0.0085	31.9
60.00	21.5	20.5	15.6	0.0132	21.5	12.8	0.0061	29.1
240.00	22.5	19.0	14.4	0.0130	20.0	13.0	0.0030	27.0
1440.00	22.1	16.5	11.8	0.0131	17.5	13.4	0.0013	22.0

MACTEC, Inc.

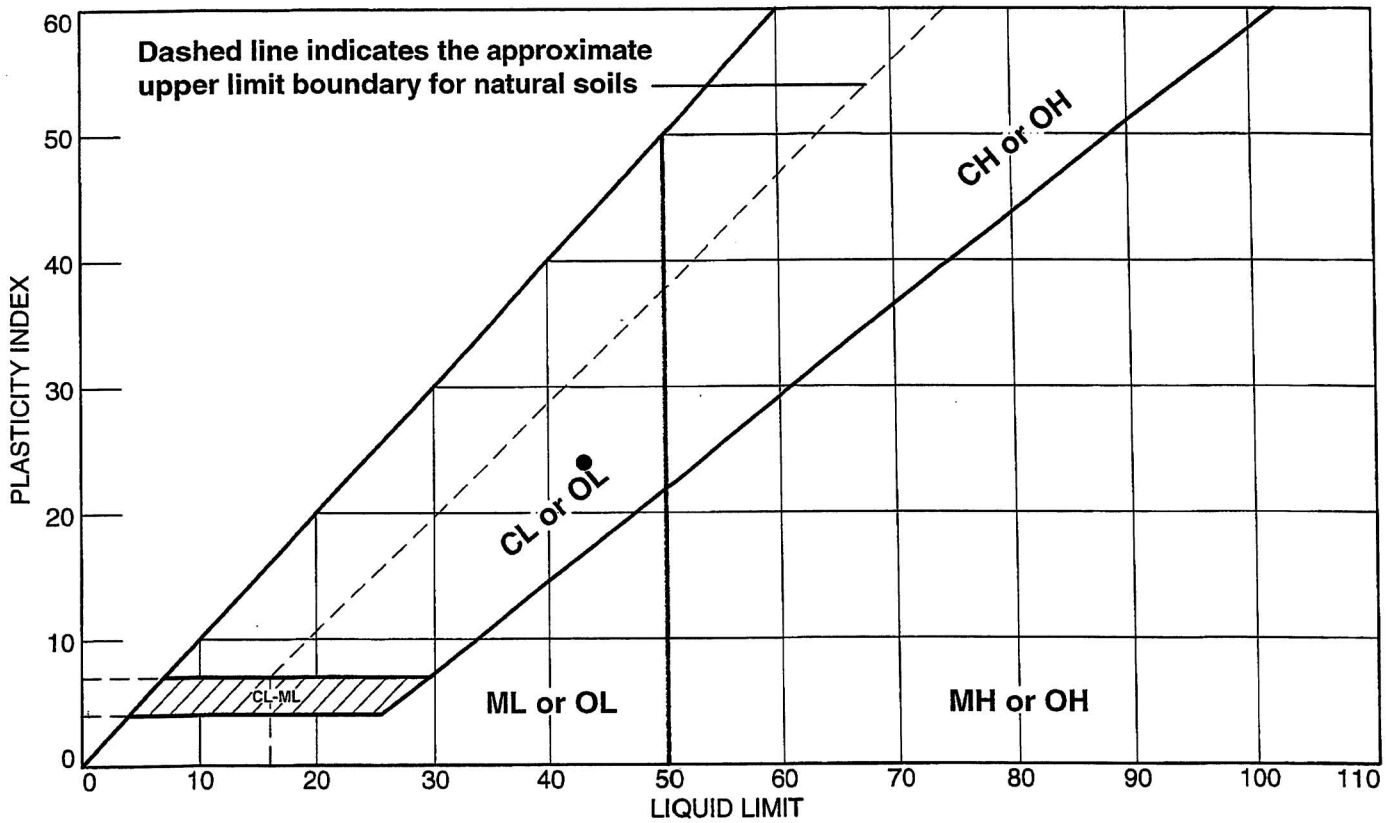
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.5	32.5	34.0	37.9	28.1	66.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0068	0.0430	0.0609	0.1206	0.1400	0.1674	0.2221

Fineness Modulus
0.17

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-2352	SS-2	3.4-4.9	16.9	19	43	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 2-28-08

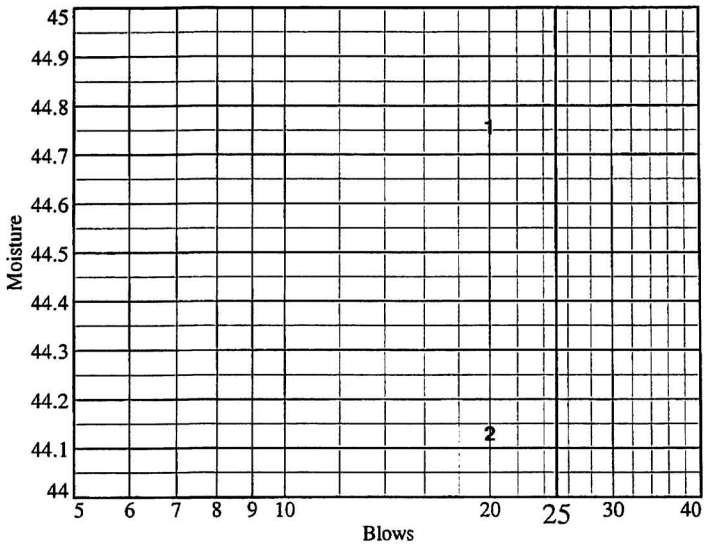
LIQUID AND PLASTIC LIMIT TEST DATA

2/27/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 3.4-4.9 **Sample Number:** SS-2
Material Description: Grayish Brown Sandy Lean CLAY
USCS: CL **AASHTO:** A-7-6(14)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	30.94	34.92				
Dry+Tare	26.16	28.98				
Tare	15.48	15.52				
# Blows	20	20				
Moisture	44.8	44.1				



Liquid Limit= 43
Plastic Limit= 19
Plasticity Index= 24
Natural Moisture= 16.9
Liquidity Index= -0.1

Plastic Limit Data

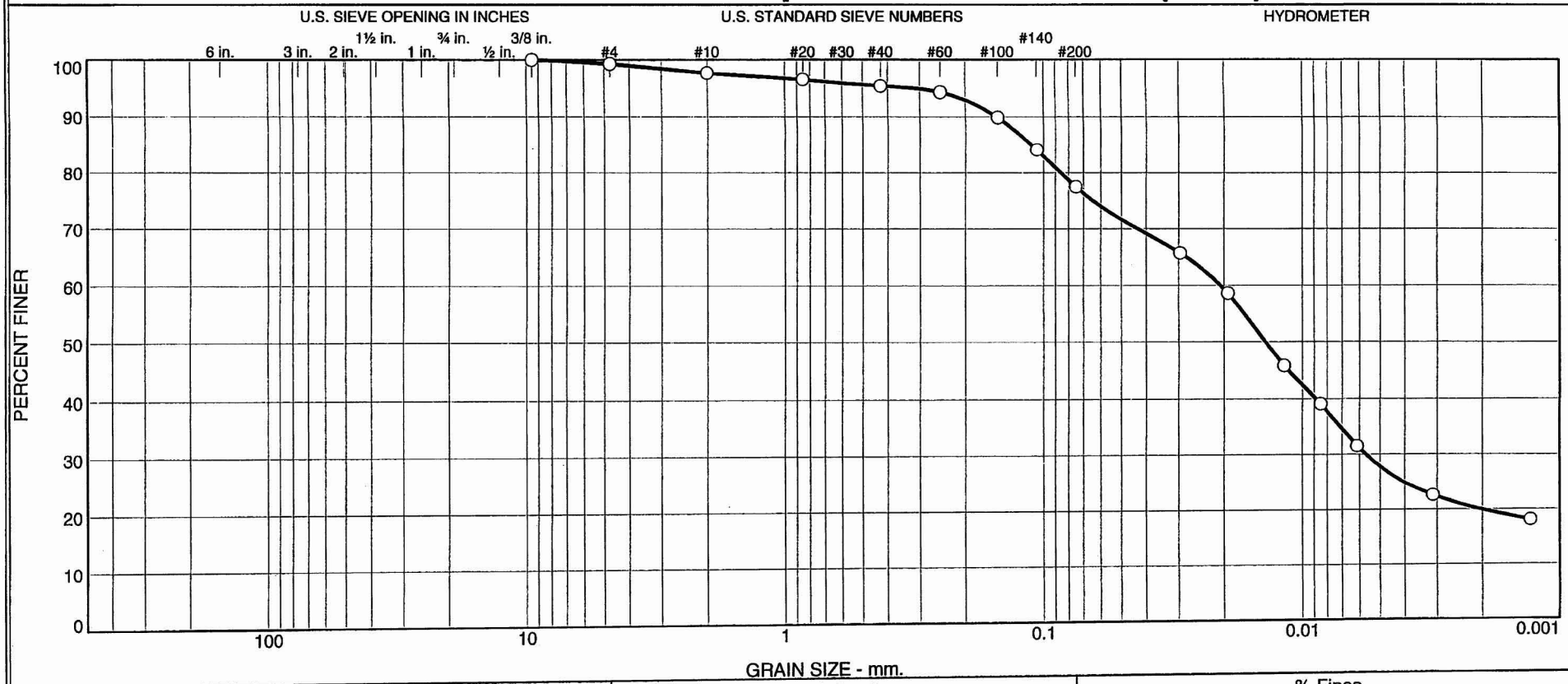
Run No.	1	2	3	4	
Wet+Tare	22.30	23.23			
Dry+Tare	21.26	22.05			
Tare	15.71	15.61			
Moisture	18.7	18.3			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
124.12	107.18	6.89	16.9

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	0.7	1.6	2.3	17.9	49.7	27.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-3	6.6-8.1	1-3-08	CL	Light Brownish Gray Lean CLAY with sand	18.8	32	20

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.662 (ASTM D854)
Organic Content = 1.8% (ASTM D2974-07)

Tested By: CS **Checked By:** LBJ DSC 4-1-08

GRAIN SIZE DISTRIBUTION TEST DATA

4/1/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 6.6-8.1 **Sample Number:** SS-3
Material Description: Light Brownish Gray Lean CLAY with sand
Date: 1-3-08 **Natural Moisture:** 18.8
Liquid Limit: 32 **Plastic Limit:** 20 **USCS Class.:** CL
Testing Remarks: Specific Gravity = 2.662 (ASTM D854)
Organic Content = 1.8% (ASTM D2974-07)
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
206.72	0.00	0.00	3/8"	0.00	100.0
			#4	1.48	99.3
			#10	4.66	97.7
50.82	0.00	0.00	#20	0.62	96.6
			#40	1.22	95.4
			#60	1.78	94.3
			#100	4.07	89.9
			#140	7.05	84.2
			#200	10.54	77.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 97.7
Weight of hydrometer sample =50.82
Hygroscopic moisture correction:
Moist weight and tare = 27.47
Dry weight and tare = 27.23
Tare weight = 15.56
Hygroscopic moisture = 2.1%
Table of composite correction values:

Temp., deg. C:	12.9	29.8
Comp. corr.:	-8.0	-2.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.662
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	21.5	38.5	33.6	0.0133	39.5	9.8	0.0296	65.7
5.00	21.2	35.0	29.9	0.0134	36.0	10.4	0.0193	58.6
15.00	21.0	28.5	23.4	0.0134	29.5	11.5	0.0117	45.8
30.00	21.3	25.0	20.0	0.0134	26.0	12.0	0.0085	39.1
60.00	21.7	21.0	16.1	0.0133	22.0	12.7	0.0061	31.6
240.00	22.9	16.0	11.6	0.0131	17.0	13.5	0.0031	22.6
1440.00	22.1	14.0	9.3	0.0132	15.0	13.8	0.0013	18.1

MACTEC, Inc.

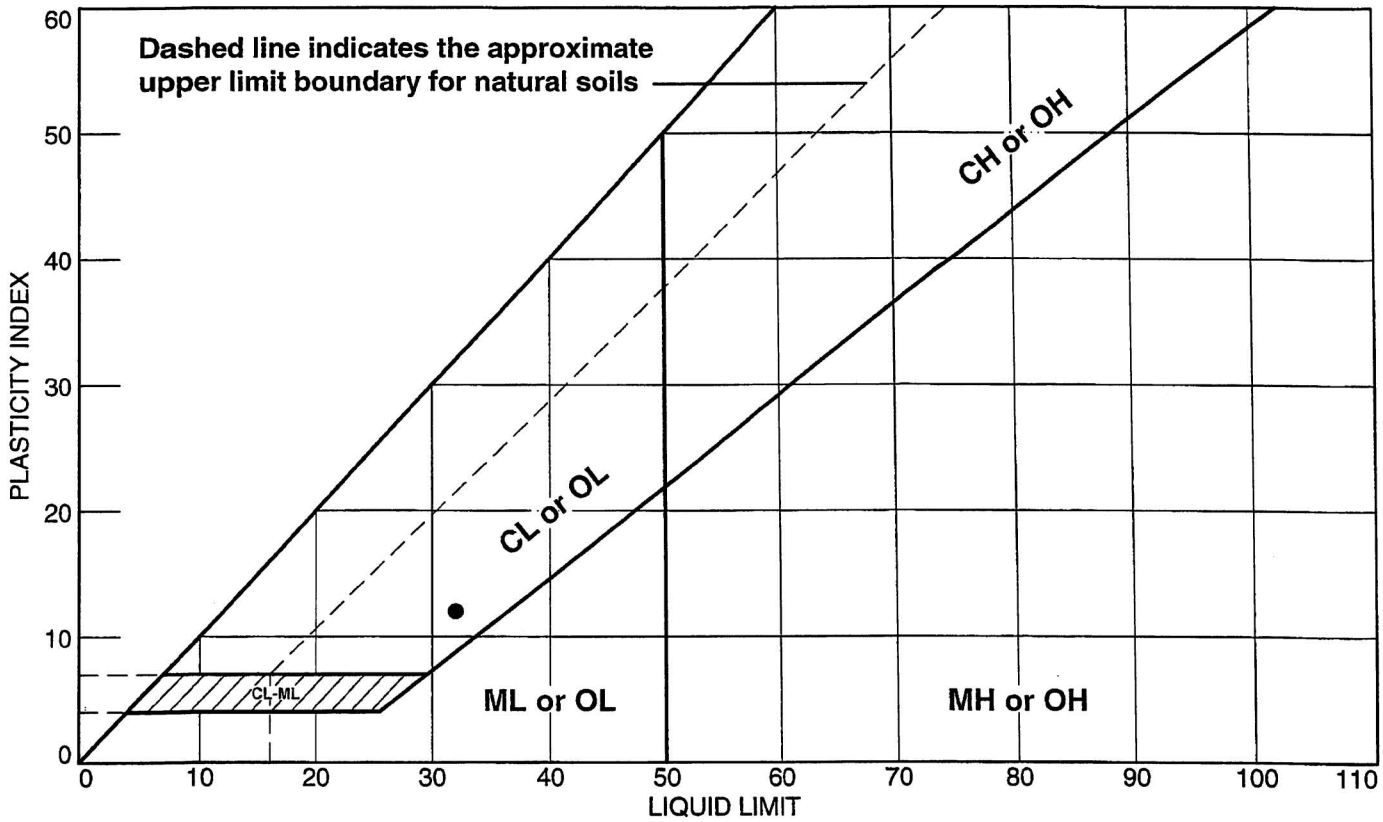
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.7	0.7	1.6	2.3	17.9	21.8	49.7	27.8	77.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0020	0.0057	0.0139	0.0206	0.0858	0.1107	0.1509	0.3133

Fineness Modulus
0.25

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-2352	SS-3	6.6-8.1	18.8	20	32	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 4-1-08

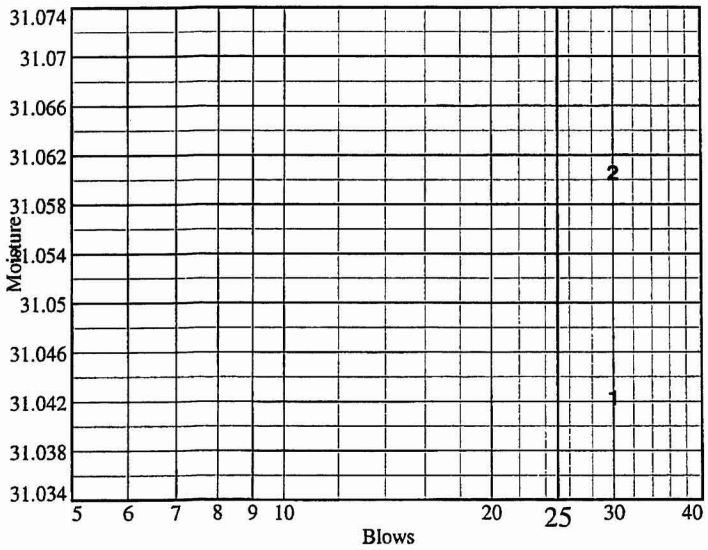
LIQUID AND PLASTIC LIMIT TEST DATA

4/1/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 6.6-8.1 **Sample Number:** SS-3
Material Description: Light Brownish Gray Lean CLAY with sand
USCS: CL **AASHTO:** A-6(8)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	33.14	34.57				
Dry+Tare	29.03	30.06				
Tare	15.79	15.54				
# Blows	30	30				
Moisture	31.0	31.1				



Liquid Limit= 32
Plastic Limit= 20
Plasticity Index= 12
Natural Moisture= 18.8
Liquidity Index= -0.1

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.14	23.01			
Dry+Tare	21.05	21.78			
Tare	15.50	15.66			
Moisture	19.6	20.1			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
182.79	155.28	9.30	18.8

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: 2/8/08

SAMPLE IDENTIFICATION: B-2352 SS-3

(A) Mass of oven-dried soil, grams:		75.01
(B) Mass of pycnometer filled with water at test temperature (T), grams:		655.67
(C) Mass of pycnometer, water and soil, grams:		702.51
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		22.0
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.663
(F)	***Correction factor:***	0.99957
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.662

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

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

REMARKS: Estimated % Passing # 4 :

Lean CLAY with sand (CL)

EQUIPMENT USED

SCALES :3.1.99

OVEN : 5.1.16

THERMOMETER :5.1.01

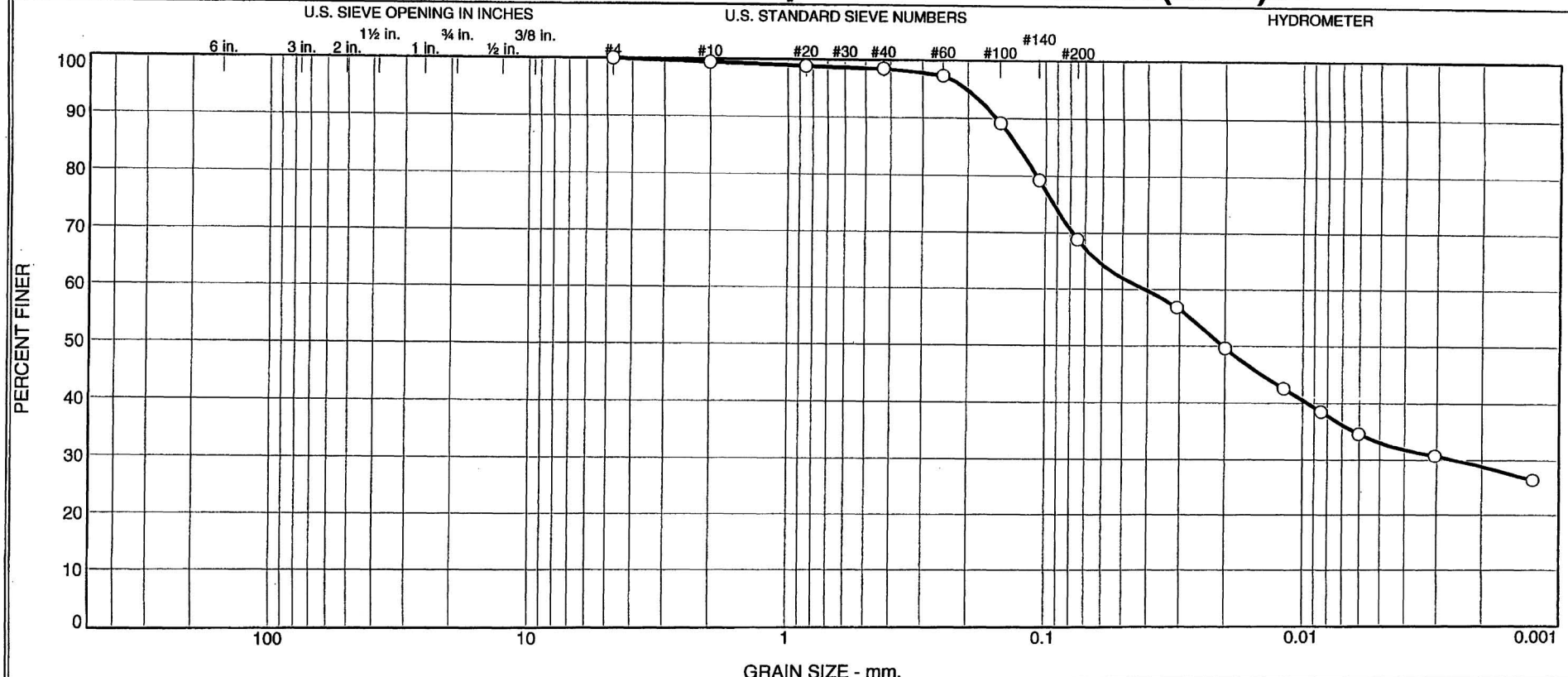
PYCNOMETER : P-3

TESTED BY:

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

REVIEWED BY: DSC 2-28-08

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	0.6	0.9	29.7	35.7	33.1

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2352	SS-4	8.6-10.1	1-3-08	CL	Pale Brown Sandy Lean CLAY	19.6	31	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 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 8.6-10.1 **Sample Number:** SS-4
Material Description: Pale Brown Sandy Lean CLAY
Date: 1-3-08 **Natural Moisture:** 19.6
Liquid Limit: 31 **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
244.60	0.00	0.00	#4	0.00	100.0
			#10	1.36	99.4
49.45	0.00	0.00	#20	0.29	98.9
			#40	0.49	98.5
			#60	1.03	97.4
			#100	5.09	89.2
			#140	10.02	79.3
			#200	15.22	68.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.4
Weight of hydrometer sample =49.45
Hygroscopic moisture correction:
Moist weight and tare = 27.43
Dry weight and tare = 27.14
Tare weight = 15.43
Hygroscopic moisture = 2.5%
Table of composite correction values:

Temp., deg. C:	12.9	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	21.0	33.0	27.9	0.0133	34.0	10.7	0.0307	56.8
5.00	21.0	29.5	24.4	0.0133	30.5	11.3	0.0200	49.7
15.00	21.0	26.0	20.9	0.0133	27.0	11.9	0.0118	42.5
30.00	21.1	24.0	18.9	0.0133	25.0	12.2	0.0085	38.5
60.00	21.3	22.0	17.0	0.0132	23.0	12.5	0.0060	34.6
240.00	21.6	20.0	15.1	0.0132	21.0	12.9	0.0030	30.7
1440.00	21.3	18.0	13.0	0.0132	19.0	13.2	0.0013	26.5

MACTEC, Inc.

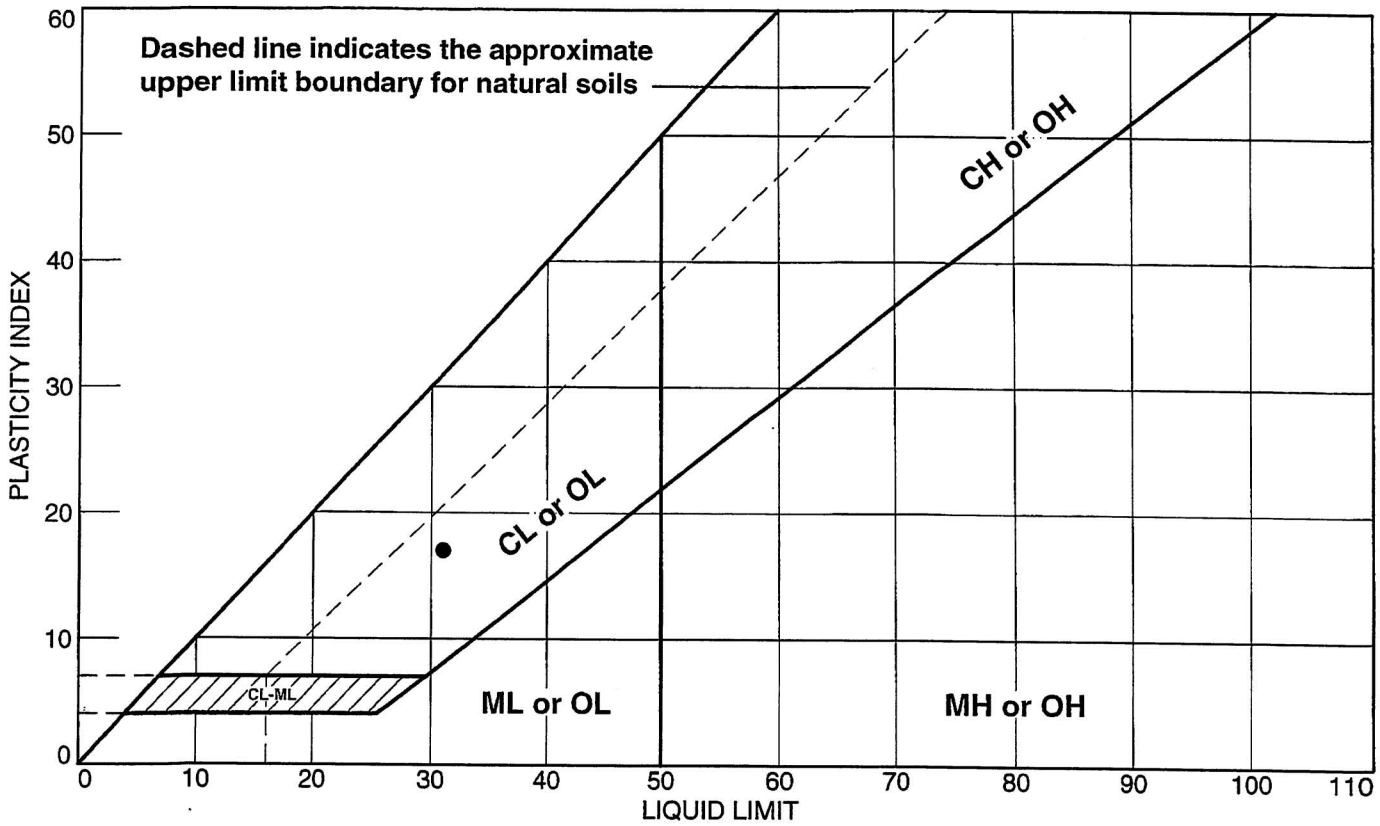
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.6	0.9	29.7	31.2	35.7	33.1	68.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0026	0.0204	0.0410	0.1084	0.1280	0.1551	0.2020

Fineness Modulus
0.16

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-2352	SS-4	8.6-10.1	19.6	14	31	17	CL

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 2-28-08

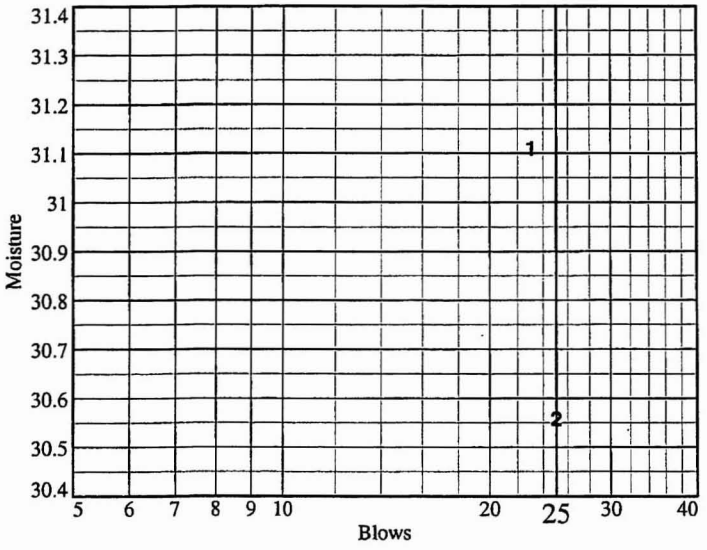
LIQUID AND PLASTIC LIMIT TEST DATA

2/27/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 8.6-10.1 **Sample Number:** SS-4
Material Description: Pale Brown 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	31.48	34.57				
Dry+Tare	27.70	30.09				
Tare	15.55	15.43				
# Blows	23	25				
Moisture	31.1	30.6				



Liquid Limit= 31
Plastic Limit= 14
Plasticity Index= 17
Natural Moisture= 19.6
Liquidity Index= 0.3

Plastic Limit Data

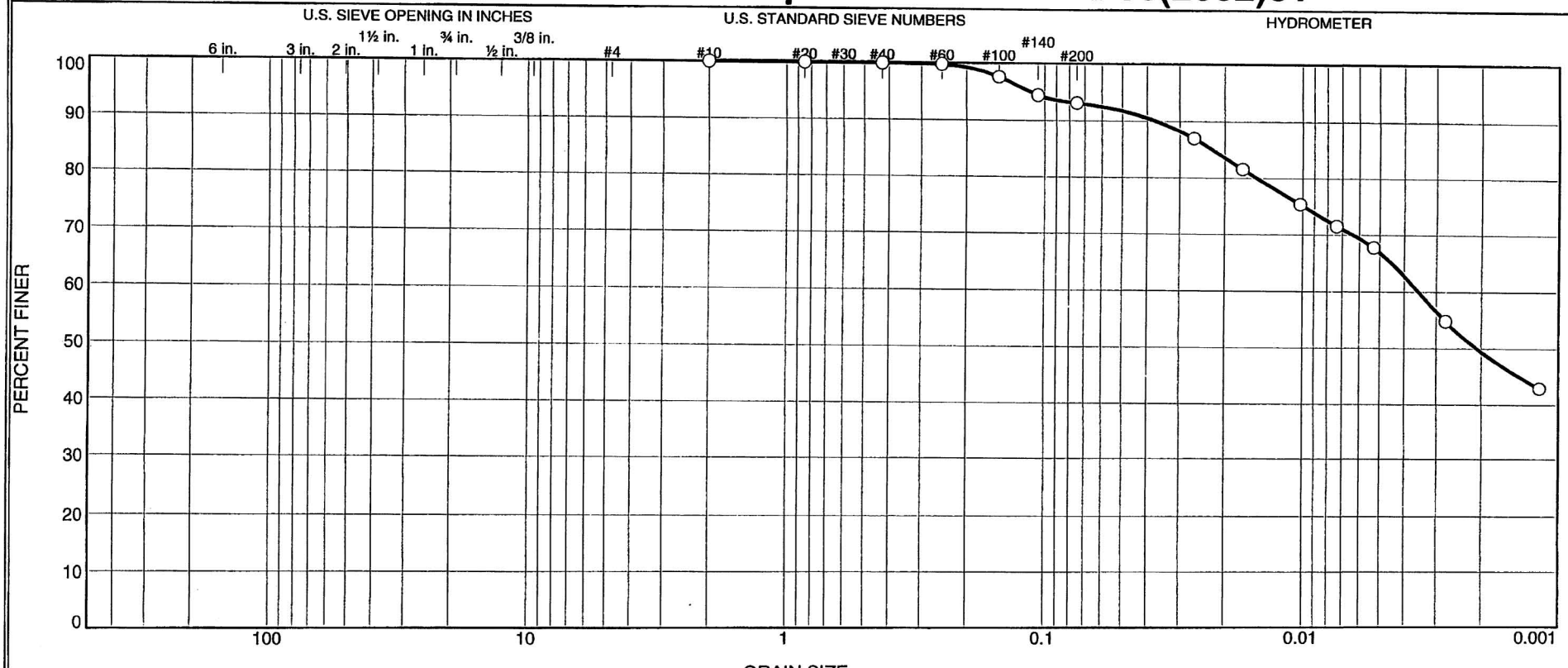
Run No.	1	2	3	4	
Wet+Tare	23.61	22.23			
Dry+Tare	22.58	21.42			
Tare	15.46	15.43			
Moisture	14.5	13.5			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
134.27	113.35	6.78	19.6

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	6.8	26.1	67.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-5	11-12.5	1-3-08	CH	Pale Brown Fat CLAY	17.4	56	22

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 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/19/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 11-12.5 **Sample Number:** SS-5
Material Description: Pale Brown Fat CLAY
Date: 1-3-08 **Natural Moisture:** 17.4
Liquid Limit: 56 **Plastic Limit:** 22 **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
208.04	0.00	0.00	#10	0.00	100.0
52.66	0.00	0.00	#20	0.02	100.0
			#40	0.04	99.9
			#60	0.13	99.8
			#100	1.26	97.6
			#140	2.95	94.4
			#200	3.65	93.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =52.66
Hygroscopic moisture correction:
Moist weight and tare = 29.96
Dry weight and tare = 29.52
Tare weight = 15.65
Hygroscopic moisture = 3.2%
Table of composite correction values:

Temp., deg. C:	12.9	29.9
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	50.0	44.9	0.0132	51.0	7.9	0.0264	87.0
5.00	21.7	47.0	42.1	0.0132	48.0	8.4	0.0171	81.6
15.00	21.2	44.0	38.9	0.0132	45.0	8.9	0.0102	75.4
30.00	21.2	42.0	36.9	0.0132	43.0	9.2	0.0074	71.5
60.00	21.4	40.0	35.0	0.0132	41.0	9.6	0.0053	67.8
240.00	22.3	33.0	28.3	0.0131	34.0	10.7	0.0028	54.9
1440.00	21.9	27.0	22.2	0.0131	28.0	11.7	0.0012	43.0

MACTEC, Inc.

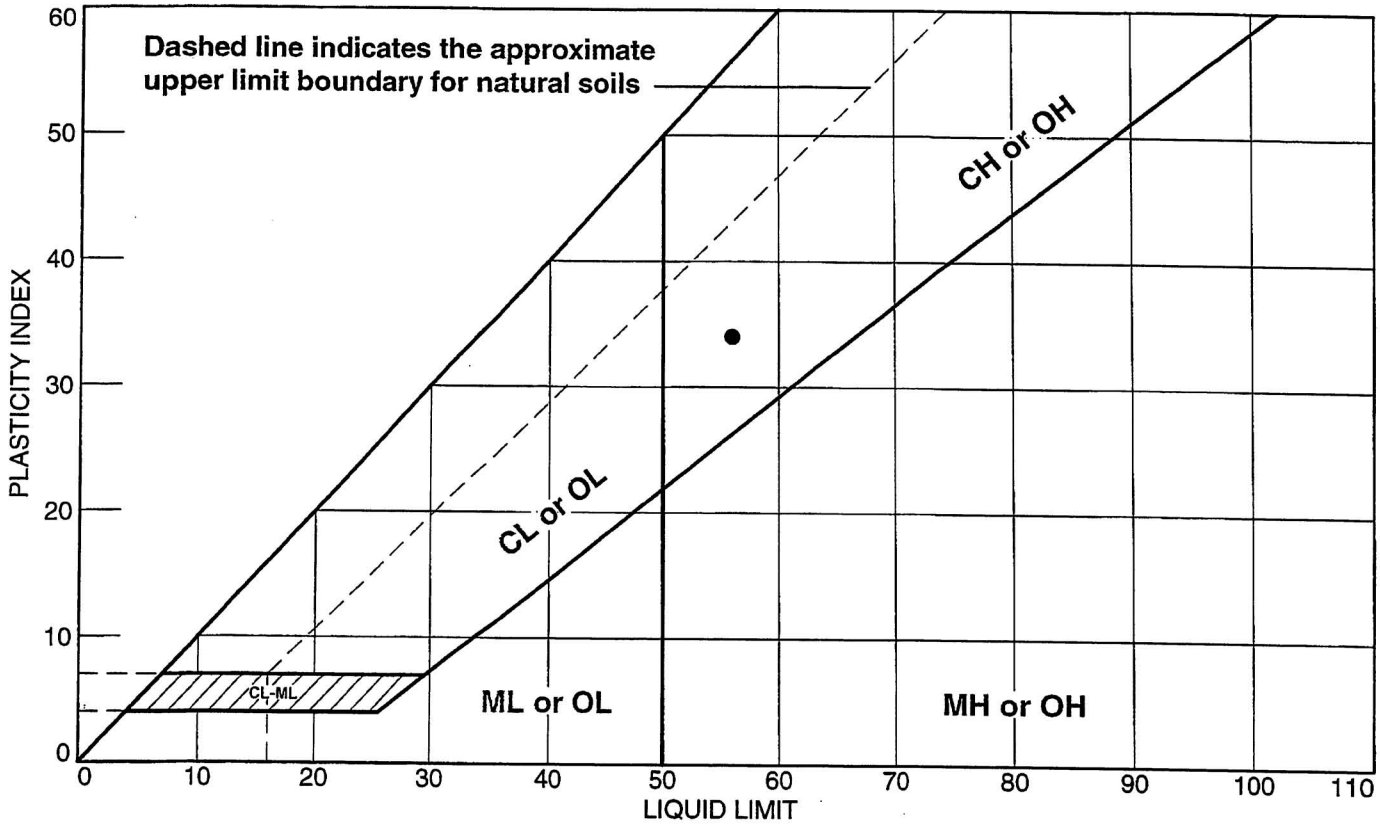
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	6.8	6.9	26.1	67.0	93.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0021	0.0035	0.0150	0.0222	0.0367	0.1142

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-2352	SS-5	11-12.5	17.4	22	56	34	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 2-28-08

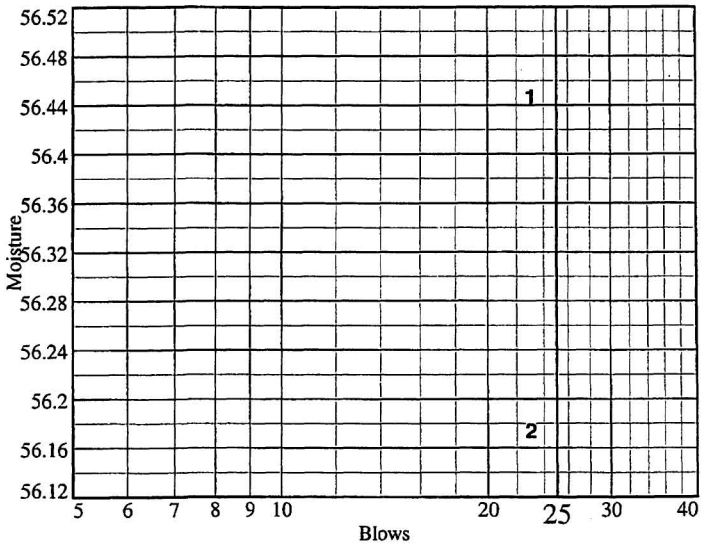
LIQUID AND PLASTIC LIMIT TEST DATA

2/19/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 11-12.5 **Sample Number:** SS-5
Material Description: Pale Brown Fat CLAY
USCS: CH **AASHTO:** A-7-6(35)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.86	32.58				
Dry+Tare	25.95	26.53				
Tare	15.48	15.76				
# Blows	23	23				
Moisture	56.4	56.2				



Liquid Limit= 56
Plastic Limit= 22
Plasticity Index= 34
Natural Moisture= 17.4
Liquidity Index= -0.1

Plastic Limit Data

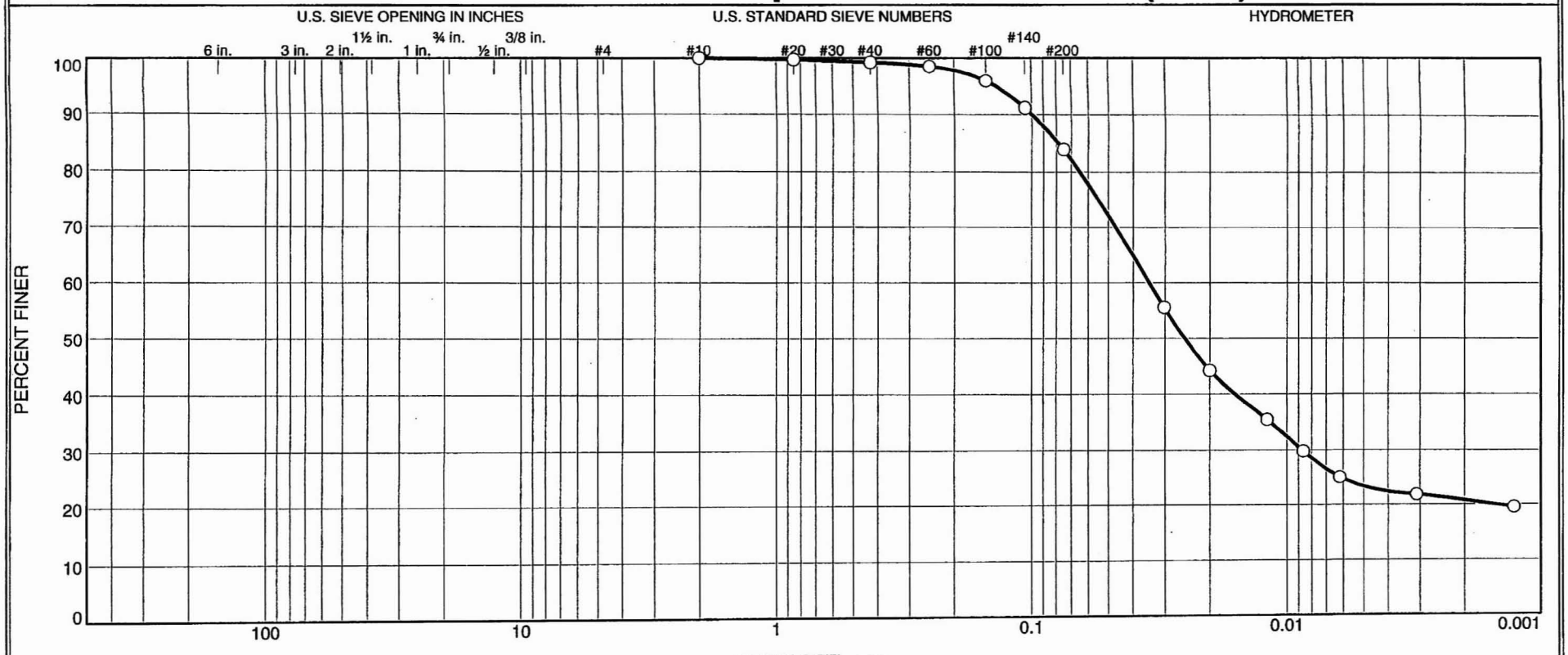
Run No.	1	2	3	4	
Wet+Tare	22.75	23.66			
Dry+Tare	21.43	22.21			
Tare	15.53	15.52			
Moisture	22.4	21.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
172.96	148.30	6.64	17.4

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	0.8	15.2	60.7	23.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-6	13.5-15.0	1-3-08	CL	Light Gray with Brownish Yellow Lean CLAY with sand	22.0	33	16

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 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 13.5-15.0 **Sample Number:** SS-6
Material Description: Light Gray with Brownish Yellow Lean CLAY with sand
Date: 1-3-08 **Natural Moisture:** 22.0
Liquid Limit: 33 **Plastic Limit:** 16 **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
220.88	0.00	0.00	#10	0.00	100.0
52.56	0.00	0.00	#20	0.15	99.7
			#40	0.41	99.2
			#60	0.77	98.5
			#100	2.18	95.9
			#140	4.64	91.2
			#200	8.43	84.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =52.56
Hygroscopic moisture correction:
Moist weight and tare = 28.29
Dry weight and tare = 28.08
Tare weight = 15.55
Hygroscopic moisture = 1.7%
Table of composite correction values:

Temp., deg. C:	12.9	29.9
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	21.7	34.0	29.1	0.0132	35.0	10.6	0.0302	55.7
5.00	21.7	28.0	23.1	0.0132	29.0	11.5	0.0200	44.2
15.00	21.6	23.5	18.6	0.0132	24.5	12.3	0.0119	35.5
30.00	21.6	20.5	15.6	0.0132	21.5	12.8	0.0086	29.8
60.00	21.6	18.0	13.1	0.0132	19.0	13.2	0.0062	25.0
240.00	22.5	16.0	11.4	0.0130	17.0	13.5	0.0031	21.8
1449.00	21.9	15.0	10.2	0.0131	16.0	13.7	0.0013	19.5

MACTEC, Inc.

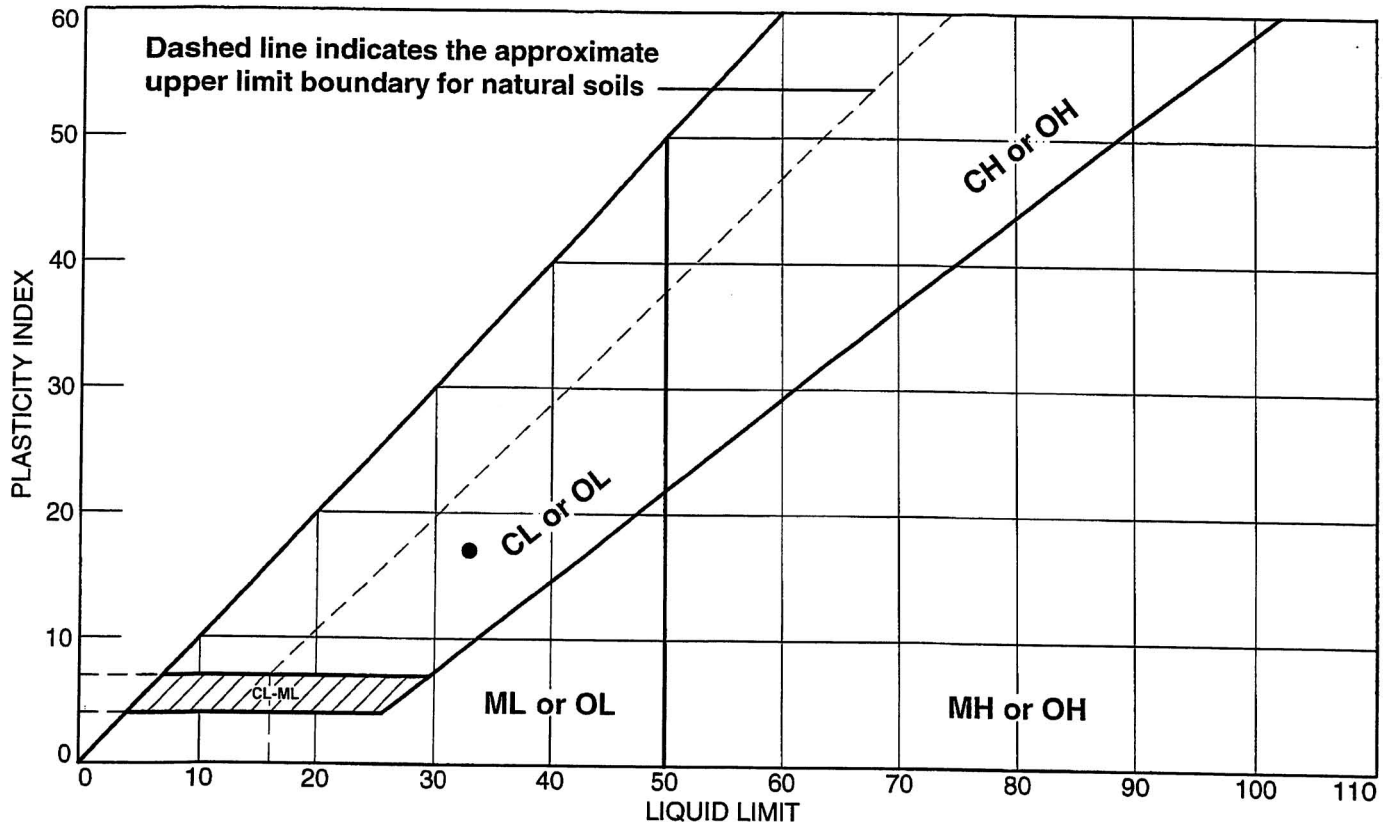
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.8	15.2	16.0	60.7	23.3	84.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0015	0.0087	0.0251	0.0346	0.0647	0.0783	0.0992	0.1384

Fineness Modulus
0.06

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-2352	SS-6	13.5-15.0	22.0	16	33	17	CL

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

Tested By: SA **Checked By:** LBJ DSC 2-28-08

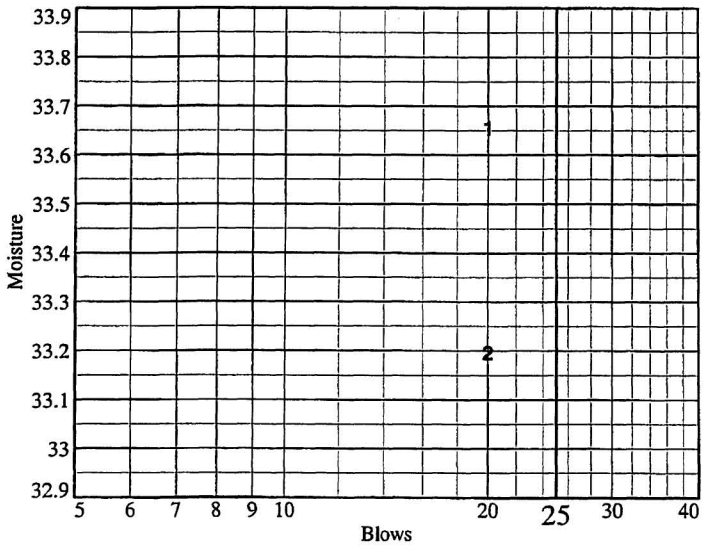
LIQUID AND PLASTIC LIMIT TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 13.5-15.0 **Sample Number:** SS-6
Material Description: Light Gray with Brownish Yellow Lean CLAY with sand
USCS: CL **AASHTO:** A-6(13)
Tested by: SA **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	34.98	31.76				
Dry+Tare	30.11	27.70				
Tare	15.64	15.47				
# Blows	20	20				
Moisture	33.7	33.2				



Liquid Limit= 33
Plastic Limit= 16
Plasticity Index= 17
Natural Moisture= 22.0
Liquidity Index= 0.4

Plastic Limit Data

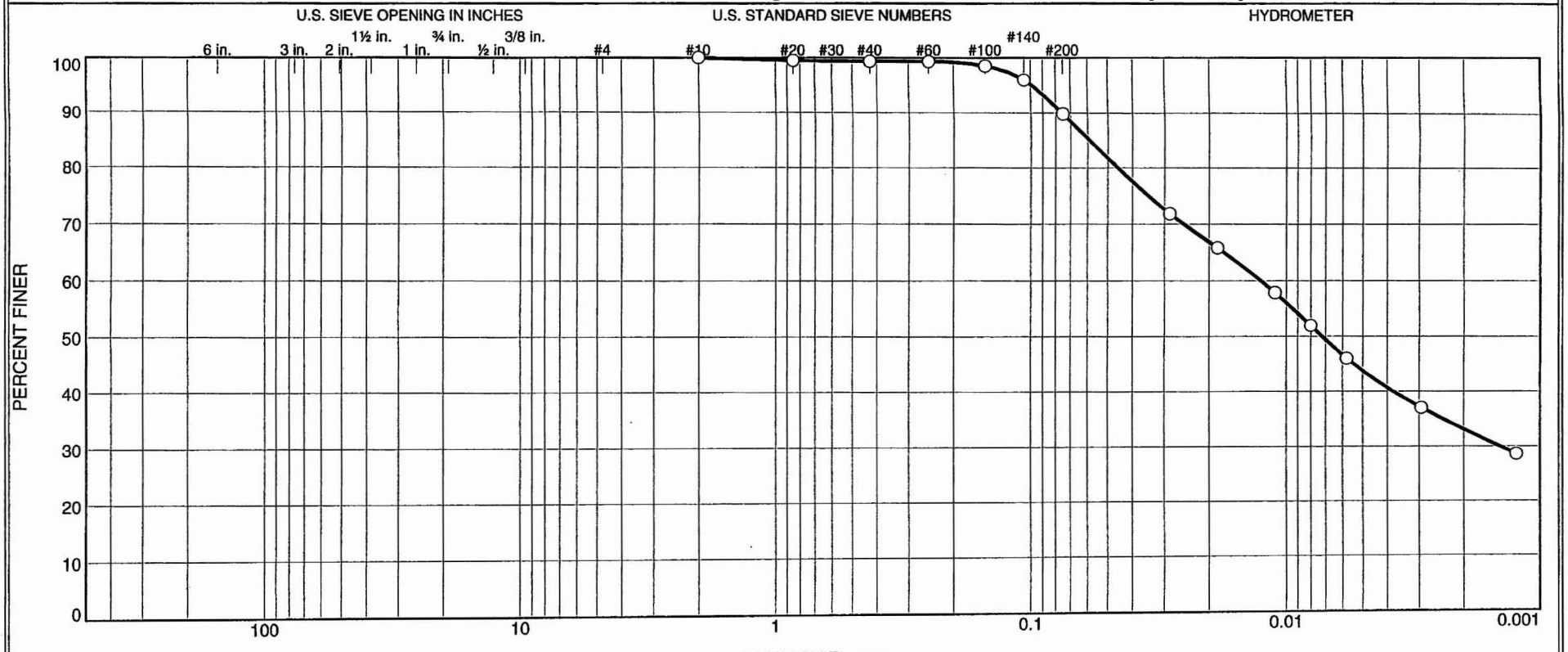
Run No.	1	2	3	4	
Wet+Tare	25.94	25.64			
Dry+Tare	24.52	24.23			
Tare	15.49	15.54			
Moisture	15.7	16.2			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
146.83	122.06	9.41	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	0.7	9.4	46.1	43.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-7	18.6-20.1	1-3-08	CL	Light Yellowish Brown Lean CLAY	23.1	47	19

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:** I.B.I DSC 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 18.6-20.1 **Sample Number:** SS-7
Material Description: Light Yellowish Brown Lean CLAY
Date: 1-3-08 **Natural Moisture:** 23.1
Liquid Limit: 47 **Plastic Limit:** 19 **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
188.44	0.00	0.00	#10	0.00	100.0
51.29	0.00	0.00	#20	0.26	99.5
			#40	0.34	99.3
			#60	0.35	99.3
			#100	0.78	98.5
			#140	2.08	95.9
			#200	5.20	89.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =51.29
Hygroscopic moisture correction:
Moist weight and tare = 29.69
Dry weight and tare = 29.24
Tare weight = 15.51
Hygroscopic moisture = 3.3%
Table of composite correction values:

Temp., deg. C:	12.9	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	21.6	41.0	36.1	0.0132	42.0	9.4	0.0286	71.9
5.00	21.6	38.0	33.1	0.0132	39.0	9.9	0.0185	65.9
15.00	21.6	34.0	29.1	0.0132	35.0	10.6	0.0111	57.9
30.00	21.6	31.0	26.1	0.0132	32.0	11.0	0.0080	51.9
60.00	21.7	28.0	23.1	0.0132	29.0	11.5	0.0058	46.0
240.00	23.0	23.0	18.6	0.0130	24.0	12.4	0.0029	37.0
1440.00	22.4	19.0	14.4	0.0131	20.0	13.0	0.0012	28.6

MACTEC, Inc.

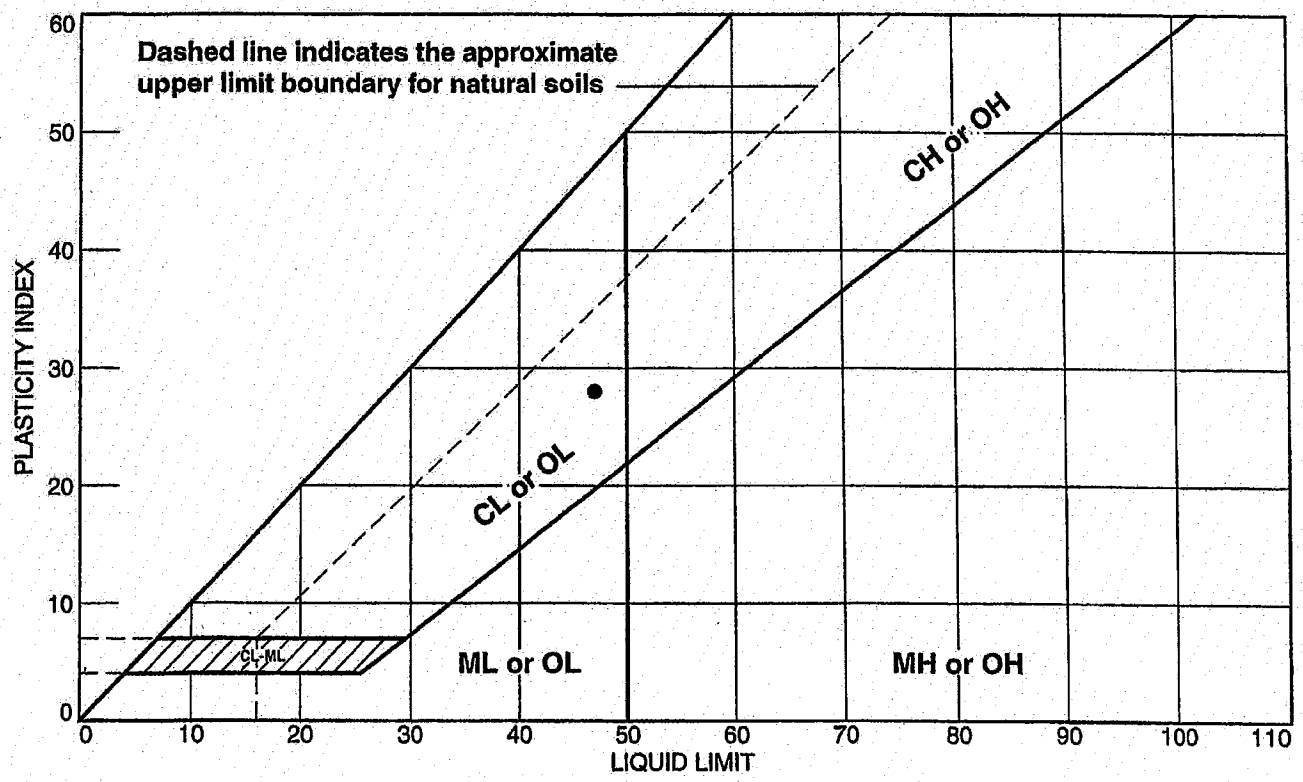
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.7	9.4	10.1	46.1	43.8	89.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0014	0.0072	0.0125	0.0457	0.0589	0.0755	0.0991

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-2352	SS-7	18.6-20.1	23.1	19	47	28	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 2-28-08

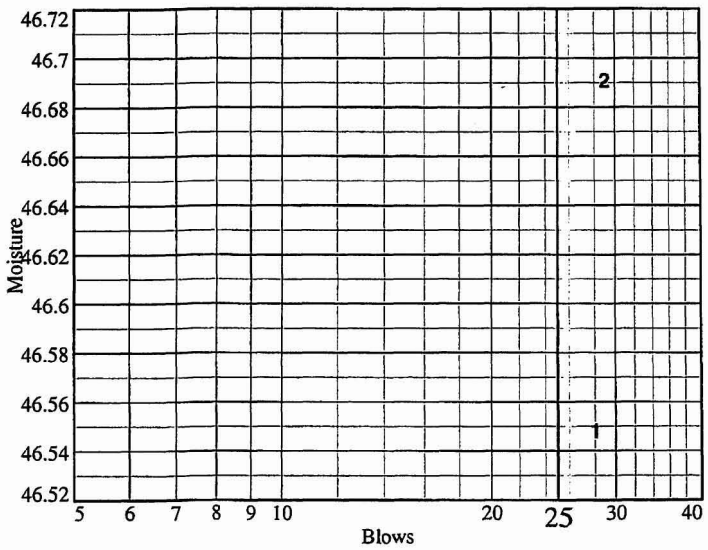
LIQUID AND PLASTIC LIMIT TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 18.6-20.1 **Sample Number:** SS-7
Material Description: Light Yellowish Brown Lean CLAY
USCS: CL **AASHTO:** A-7-6(26)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	30.39	31.43				
Dry+Tare	25.67	26.35				
Tare	15.53	15.47				
# Blows	28	29				
Moisture	46.5	46.7				



Liquid Limit= 47
Plastic Limit= 19
Plasticity Index= 28
Natural Moisture= 23.1
Liquidity Index= 0.1

Plastic Limit Data

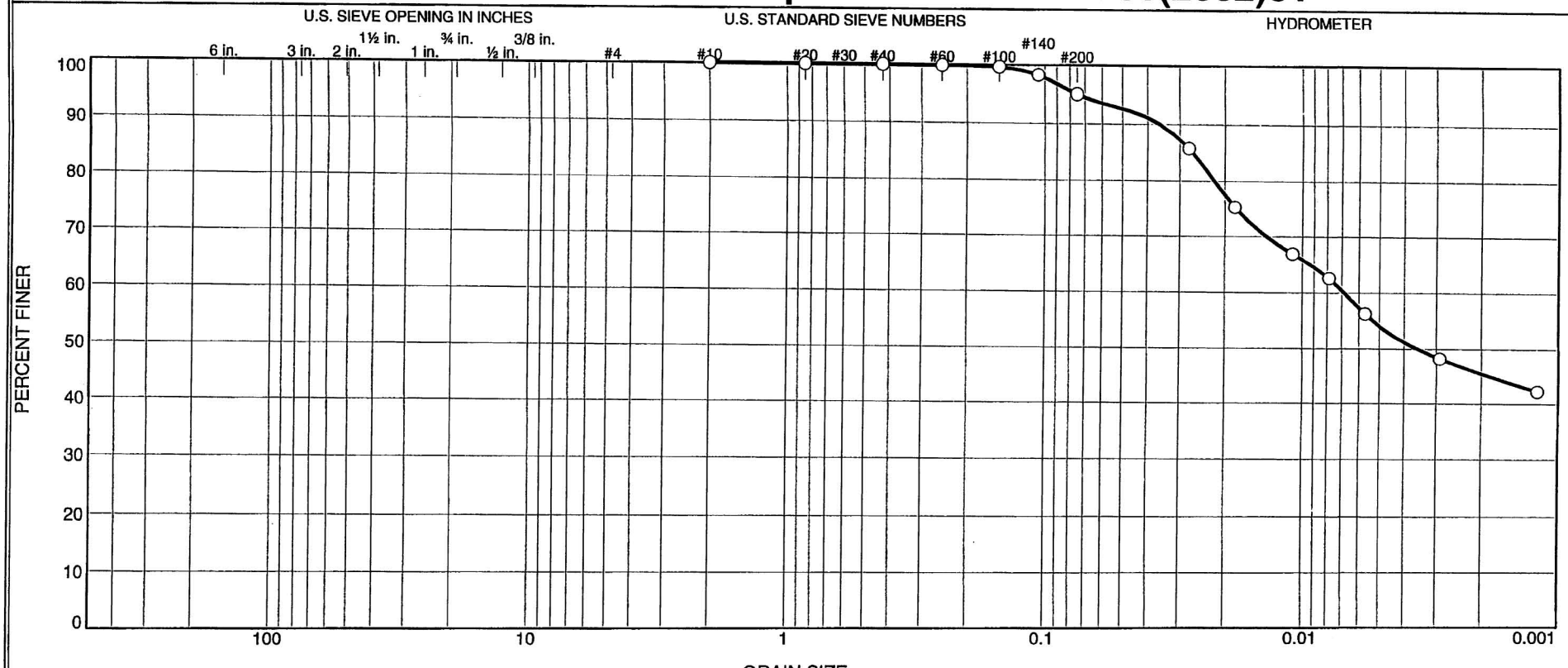
Run No.	1	2	3	4	
Wet+Tare	23.21	22.84			
Dry+Tare	21.97	21.67			
Tare	15.49	15.62			
Moisture	19.1	19.3			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
105.25	86.81	6.82	23.1

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	0.1	4.9	40.9	54.1

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-8	23.5-25.0	1-3-08	CH	Yellowish Brown Fat CLAY	22.1	53	21

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 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/19/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 23.5-25.0 **Sample Number:** SS-8
Material Description: Yellowish Brown Fat CLAY
Date: 1-3-08 **Natural Moisture:** 22.1
Liquid Limit: 53 **Plastic Limit:** 21 **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
239.52	0.00	0.00	#10	0.00	100.0
48.58	0.00	0.00	#20	0.02	100.0
			#40	0.03	99.9
			#60	0.06	99.9
			#100	0.19	99.6
			#140	0.84	98.3
			#200	2.43	95.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =48.58
Hygroscopic moisture correction:
Moist weight and tare = 28.09
Dry weight and tare = 27.67
Tare weight = 15.78
Hygroscopic moisture = 3.5%
Table of composite correction values:

Temp., deg. C:	12.9	29.9
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	20.6	46.0	40.7	0.0133	47.0	8.6	0.0276	85.8
5.00	20.6	41.0	35.7	0.0133	42.0	9.4	0.0183	75.3
15.00	20.8	37.0	31.8	0.0133	38.0	10.1	0.0109	67.0
30.00	20.6	35.0	29.7	0.0133	36.0	10.4	0.0079	62.6
60.00	20.6	32.0	26.7	0.0133	33.0	10.9	0.0057	56.3
240.00	21.1	28.0	22.9	0.0133	29.0	11.5	0.0029	48.2
1440.00	21.5	25.0	20.0	0.0132	26.0	12.0	0.0012	42.2

MACTEC, Inc.

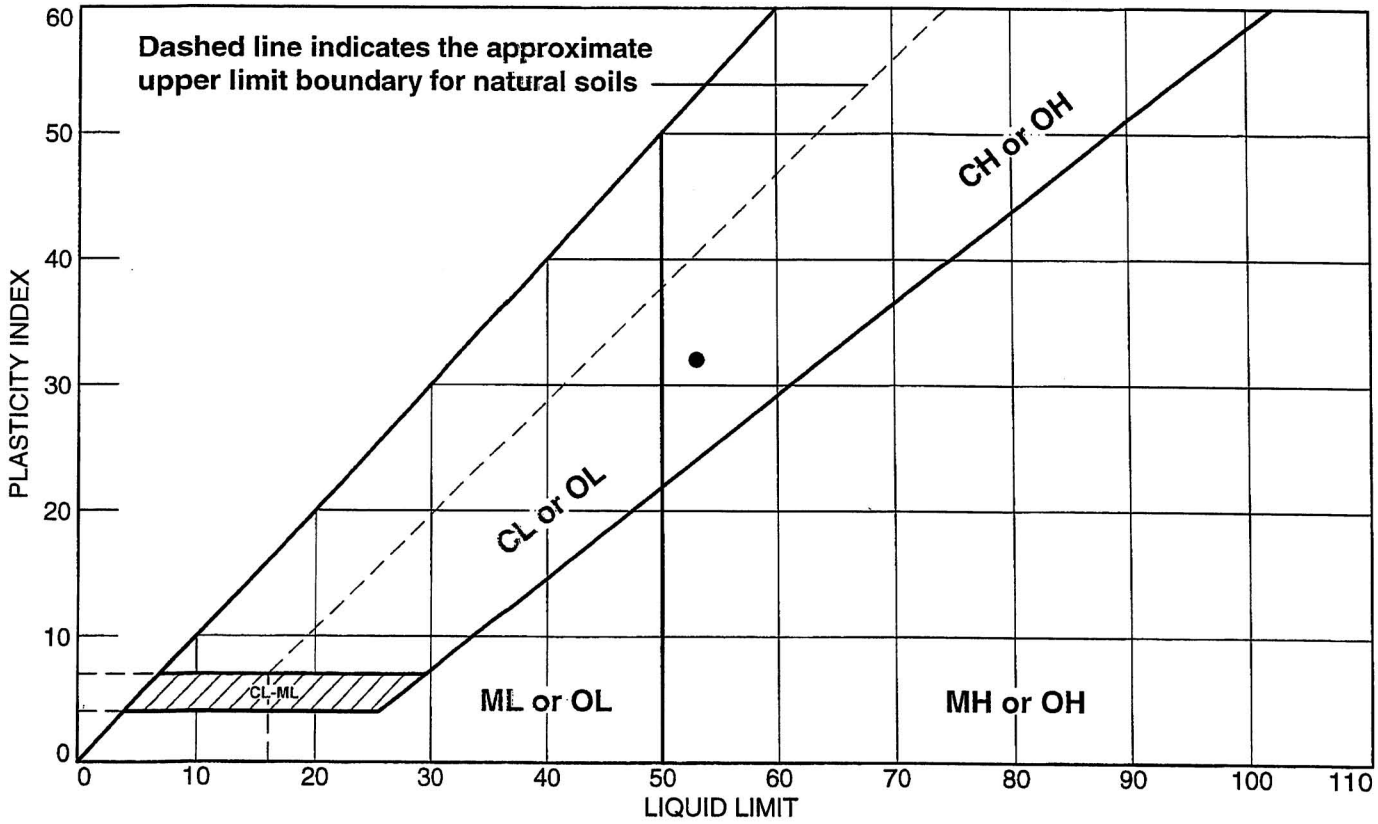
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	4.9	5.0	40.9	54.1	95.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0036	0.0068	0.0220	0.0267	0.0358	0.0750

Fineness Modulus
0.01

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-2352	SS-8	23.5-25.0	22.1	21	53	32	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 2-28-08

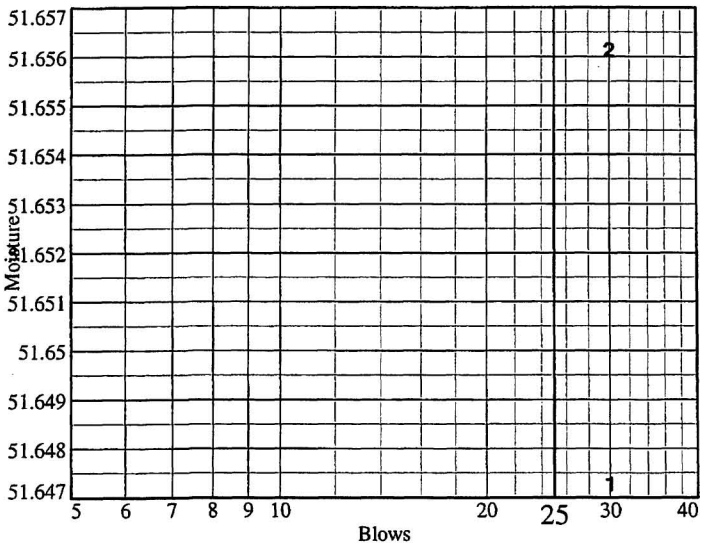
LIQUID AND PLASTIC LIMIT TEST DATA

2/19/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 23.5-25.0 **Sample Number:** SS-8
Material Description: Yellowish Brown Fat CLAY
USCS: CH **AASHTO:** A-7-6(34)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.13	34.82				
Dry+Tare	25.80	28.27				
Tare	15.48	15.59				
# Blows	30	30				
Moisture	51.6	51.7				



Liquid Limit= 53
Plastic Limit= 21
Plasticity Index= 32
Natural Moisture= 22.1
Liquidity Index= 0.0

Plastic Limit Data

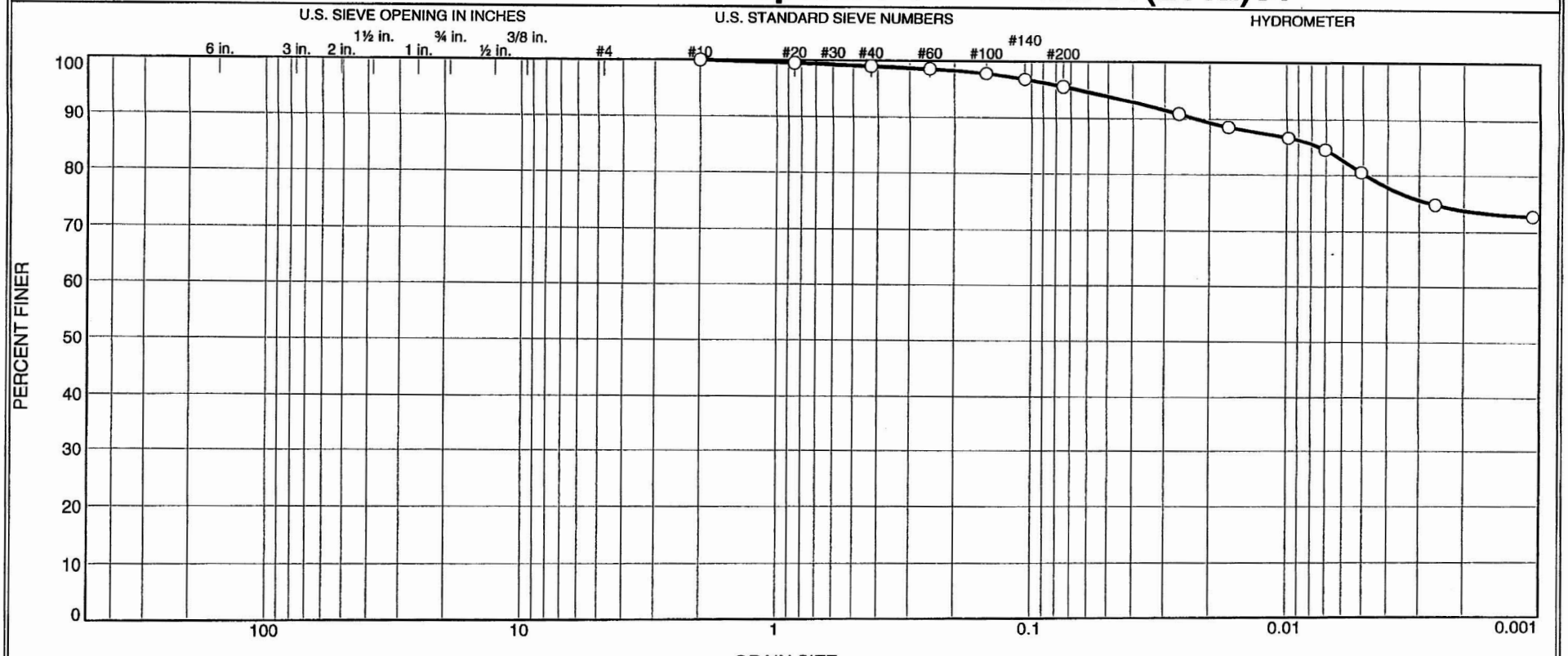
Run No.	1	2	3	4	
Wet+Tare	22.61	23.18			
Dry+Tare	21.38	21.83			
Tare	15.48	15.57			
Moisture	20.8	21.6			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
123.29	102.67	9.27	22.1

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	1.0	3.5	15.2	80.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-2352	SS-9	28.5-30.0	1-3-08	CH	Light Gray Fat CLAY	27.7	79	33

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

O Specific Gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 28.5-30.0 **Sample Number:** SS-9
Material Description: Light Gray Fat CLAY
Date: 1-3-08 **Natural Moisture:** 27.7
Liquid Limit: 79 **Plastic Limit:** 33 **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
211.43	0.00	0.00	#10	0.00	100.0
50.80	0.00	0.00	#20	0.24	99.5
			#40	0.49	99.0
			#60	0.71	98.6
			#100	1.10	97.8
			#140	1.63	96.8
			#200	2.28	95.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.80
Hygroscopic moisture correction:
Moist weight and tare = 29.30
Dry weight and tare = 28.78
Tare weight = 15.43
Hygroscopic moisture = 3.9%
Table of composite correction values:

Temp., deg. C:	12.9	29.9
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	50.0	44.9	0.0132	51.0	7.9	0.0264	90.9
5.00	20.9	49.0	43.8	0.0133	50.0	8.1	0.0169	88.6
15.00	21.1	48.0	42.9	0.0133	49.0	8.3	0.0098	86.8
30.00	20.9	47.0	41.8	0.0133	48.0	8.4	0.0070	84.6
60.00	20.8	45.0	39.8	0.0133	46.0	8.8	0.0051	80.5
240.00	21.4	42.0	37.0	0.0132	43.0	9.2	0.0026	74.8
1440.00	21.4	41.0	36.0	0.0132	42.0	9.4	0.0011	72.8

MACTEC, Inc.

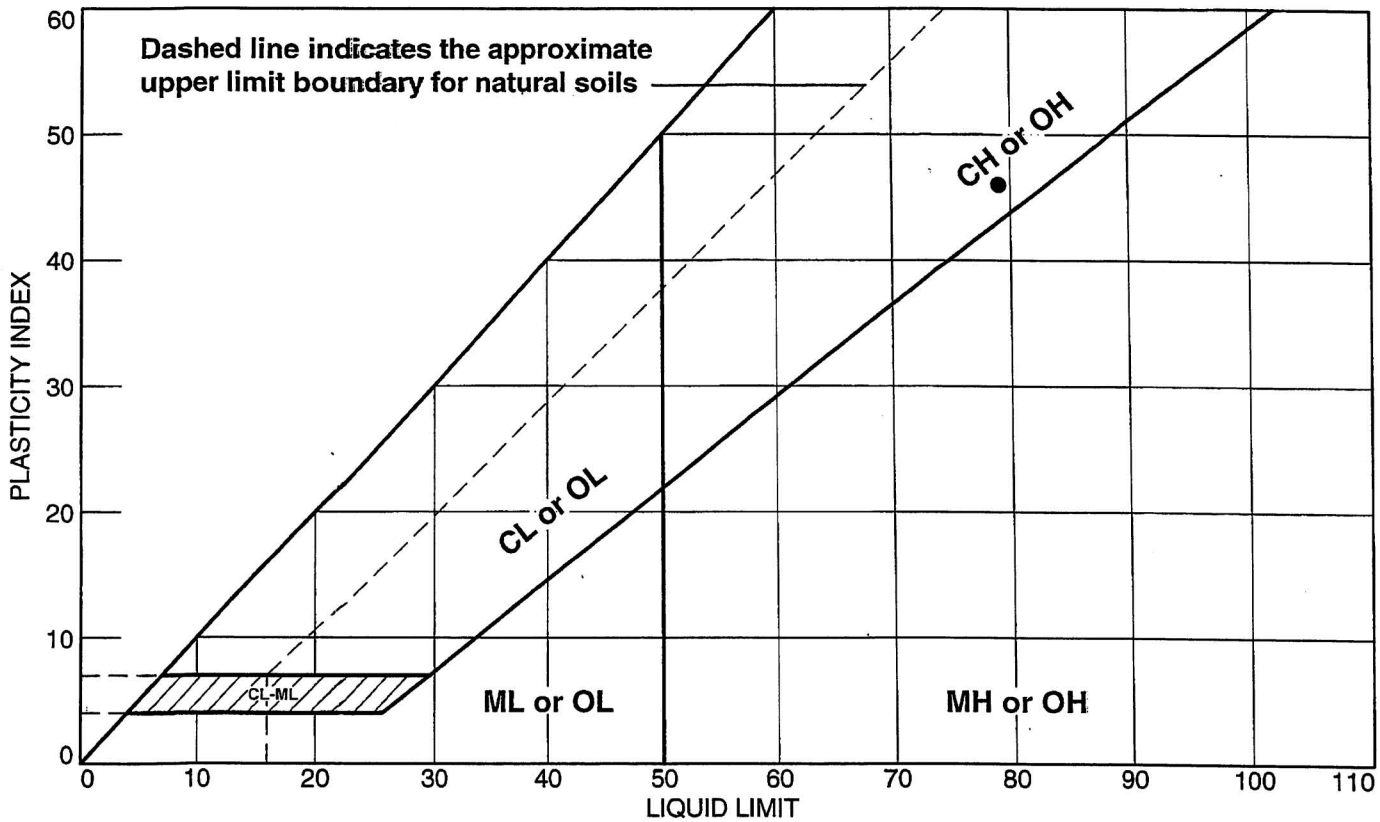
Fractional Components

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	3.5	4.5	15.2	80.3	95.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0049	0.0074	0.0224	0.0658

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-2352	SS-9	28.5-30.0	27.7	33	79	46	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 2-28-08

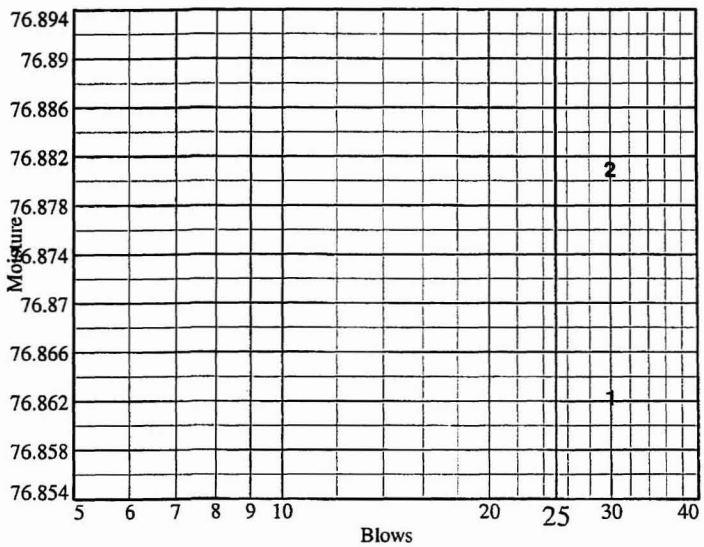
LIQUID AND PLASTIC LIMIT TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 28.5-30.0 **Sample Number:** SS-9
Material Description: Light Gray Fat CLAY
USCS: CH **AASHTO:** A-7-5(53)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.57	28.38				
Dry+Tare	24.76	22.76				
Tare	15.90	15.45				
# Blows	30	30				
Moisture	76.9	76.9				



Liquid Limit= 79
Plastic Limit= 33
Plasticity Index= 46
Natural Moisture= 27.7
Liquidity Index= -0.1

Plastic Limit Data

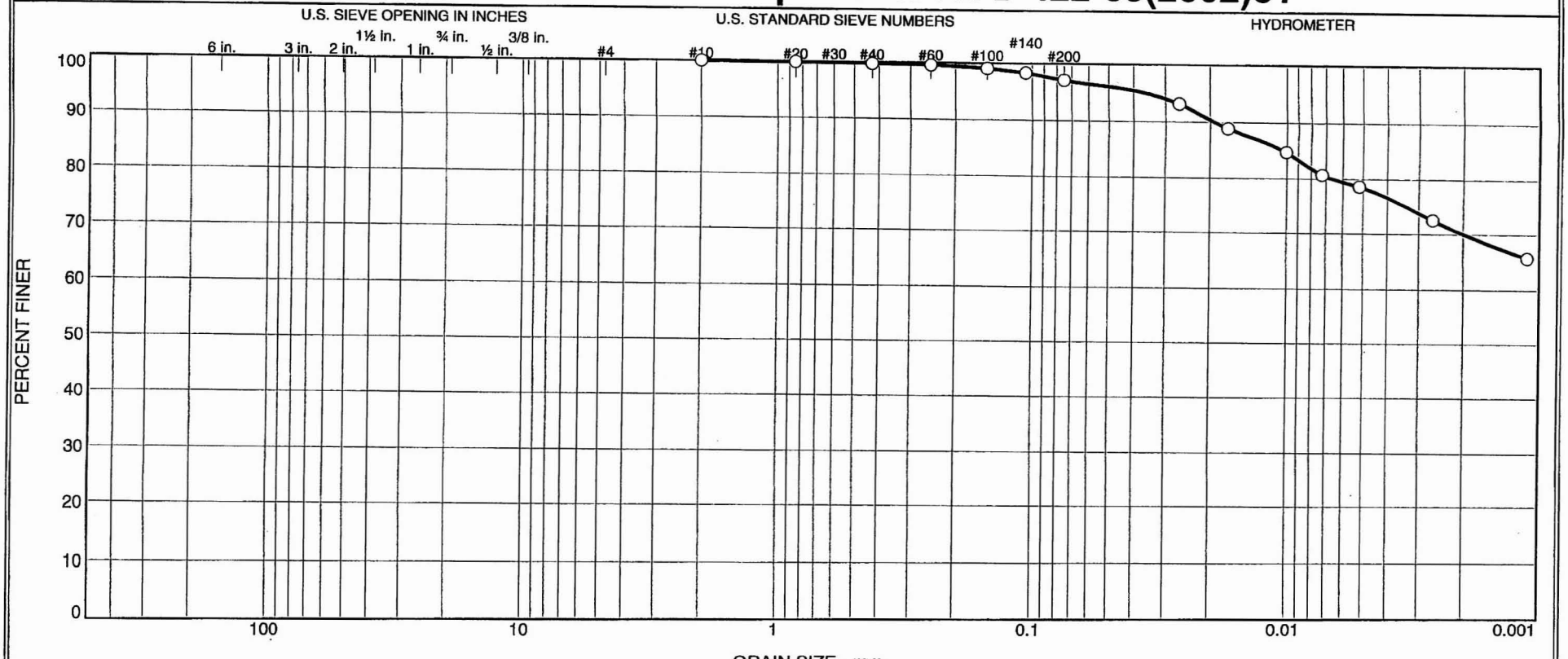
Run No.	1	2	3	4	
Wet+Tare	23.70	22.71			
Dry+Tare	21.77	20.92			
Tare	15.90	15.39			
Moisture	32.9	32.4			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
116.11	92.91	9.16	27.7

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	0.3	2.7	18.6	78.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-2352	SS-10	33.5-35.0	1-3-08	CH	Light Gray with Brownish Yellow Fat CLAY	22.9	72	26

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

O Specific Gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 33.5-35.0 **Sample Number:** SS-10
Material Description: Light Gray with Brownish Yellow Fat CLAY
Date: 1-3-08 **Natural Moisture:** 22.9
Liquid Limit: 72 **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
241.85	0.00	0.00	#10	0.00	100.0
49.78	0.00	0.00	#20	0.06	99.9
			#40	0.13	99.7
			#60	0.21	99.6
			#100	0.49	99.0
			#140	0.86	98.3
			#200	1.48	97.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =49.78
Hygroscopic moisture correction:
Moist weight and tare = 29.02
Dry weight and tare = 28.45
Tare weight = 15.51
Hygroscopic moisture = 4.4%
Table of composite correction values:

Temp., deg. C:	12.9	29.9
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	21.0	50.0	44.9	0.0133	51.0	7.9	0.0264	93.0
5.00	21.0	48.0	42.9	0.0133	49.0	8.3	0.0171	88.9
15.00	21.0	46.0	40.9	0.0133	47.0	8.6	0.0100	84.7
30.00	21.1	44.0	38.9	0.0133	45.0	8.9	0.0072	80.7
60.00	21.1	43.0	37.9	0.0133	44.0	9.1	0.0052	78.6
240.00	21.3	40.0	35.0	0.0132	41.0	9.6	0.0026	72.5
1440.00	20.6	37.0	31.7	0.0133	38.0	10.1	0.0011	65.8

MACTEC, Inc.

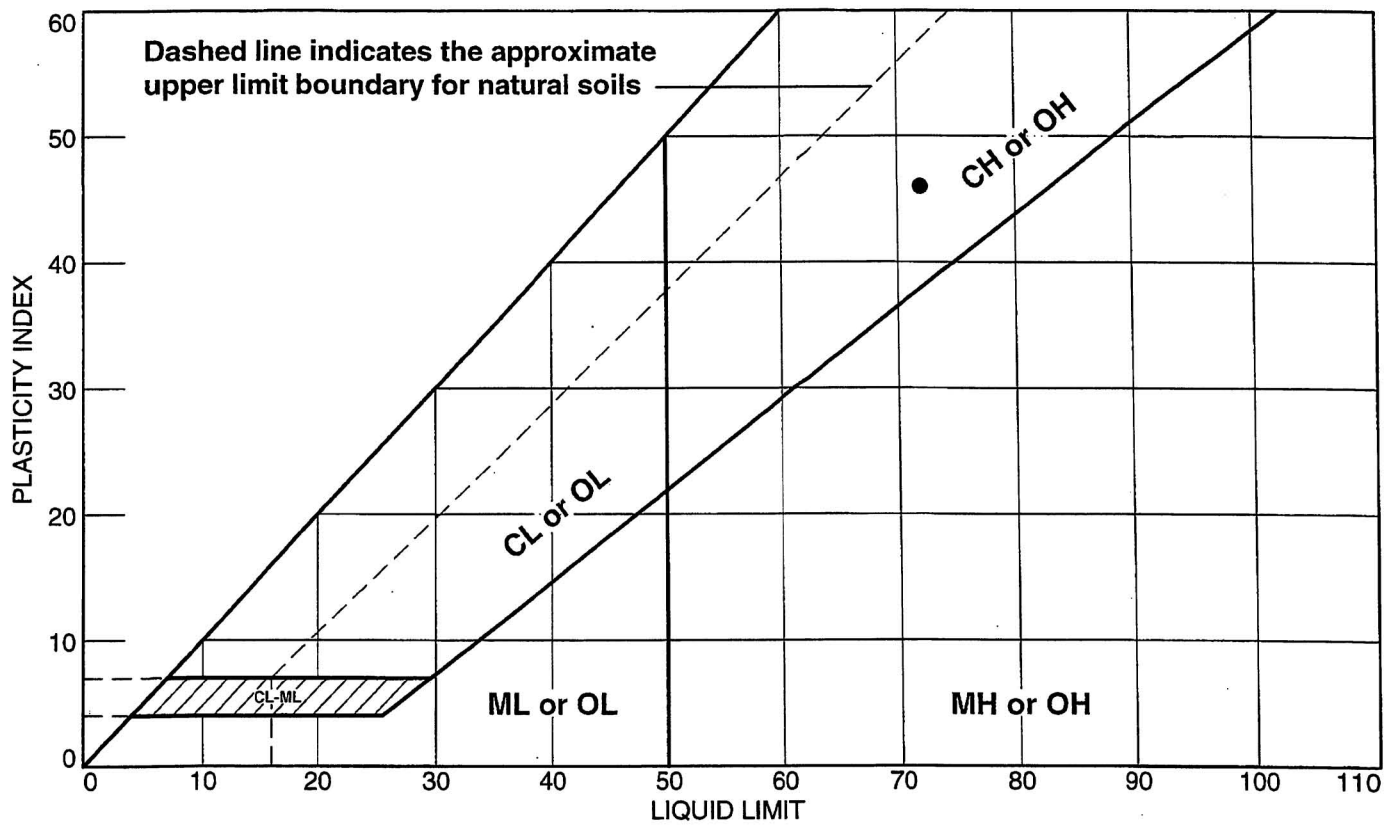
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.3	2.7	3.0	18.6	78.4	97.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0067	0.0103	0.0193	0.0365

Fineness Modulus
0.02

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-2352	SS-10	33.5-35.0	22.9	26	72	46	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 2-28-08

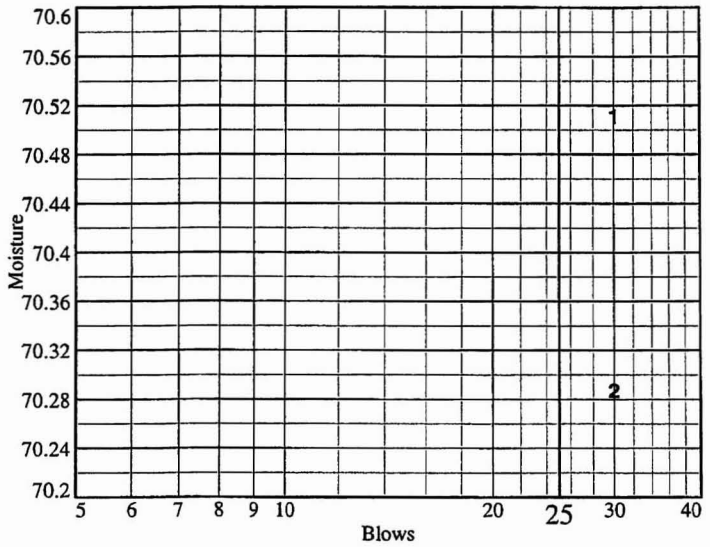
LIQUID AND PLASTIC LIMIT TEST DATA

2/27/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 33.5-35.0 **Sample Number:** SS-10
Material Description: Light Gray with Brownish Yellow 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	31.28	31.49				
Dry+Tare	24.80	24.89				
Tare	15.61	15.50				
# Blows	30	30				
Moisture	70.5	70.3				



Liquid Limit= 72
Plastic Limit= 26
Plasticity Index= 46
Natural Moisture= 22.9
Liquidity Index= -0.1

Plastic Limit Data

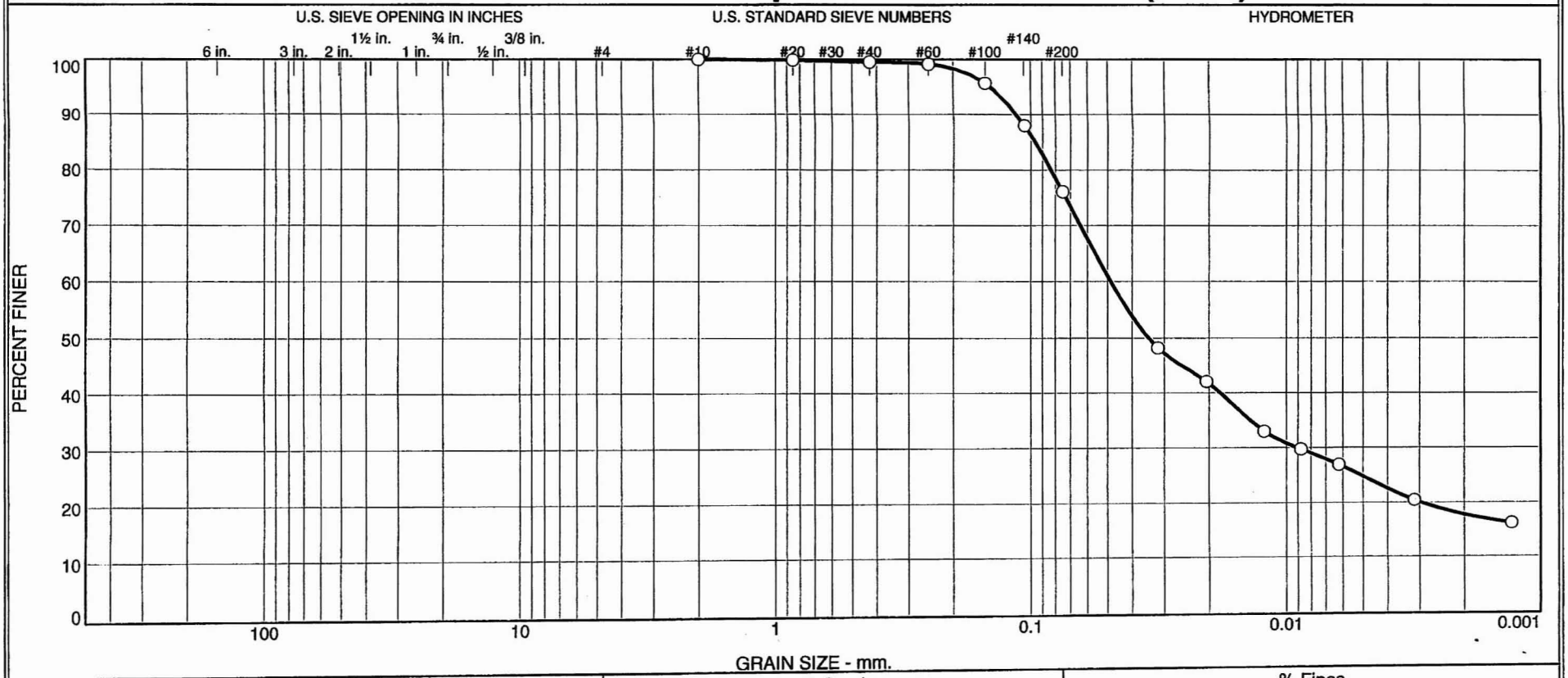
Run No.	1	2	3	4	
Wet+Tare	22.35	22.76			
Dry+Tare	20.94	21.26			
Tare	15.50	15.45			
Moisture	25.9	25.8			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
137.40	113.58	9.48	22.9

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	0.5	23.4	51.3	24.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-11	38.5-40.0	1-3-08	CL	Light Gray with Brownish Yellow Lean CLAY with sand	22.2	31	16

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 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 38.5-40.0 **Sample Number:** SS-11
Material Description: Light Gray with Brownish Yellow Lean CLAY with sand
Date: 1-3-08 **Natural Moisture:** 22.2
Liquid Limit: 31 **Plastic Limit:** 16 **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
199.16	0.00	0.00	#10	0.00	100.0
49.47	0.00	0.00	#20	0.08	99.8
			#40	0.23	99.5
			#60	0.42	99.2
			#100	2.16	95.6
			#140	5.93	88.0
			#200	11.80	76.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =49.67
Hygroscopic moisture correction:
Moist weight and tare = 28.82
Dry weight and tare = 28.62
Tare weight = 15.63
Hygroscopic moisture = 1.5%
Table of composite correction values:

Temp., deg. C:	12.9	29.9
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	20.9	29.0	23.8	0.0133	30.0	11.4	0.0317	48.2
5.00	20.9	26.0	20.8	0.0133	27.0	11.9	0.0205	42.1
15.00	20.9	21.5	16.3	0.0133	22.5	12.6	0.0122	33.0
30.00	20.6	20.0	14.7	0.0133	21.0	12.9	0.0087	29.8
60.00	20.9	18.5	13.3	0.0133	19.5	13.1	0.0062	26.9
240.00	21.7	15.0	10.1	0.0132	16.0	13.7	0.0031	20.4
1440.00	21.5	13.0	8.0	0.0132	14.0	14.0	0.0013	16.2

MACTEC, Inc.

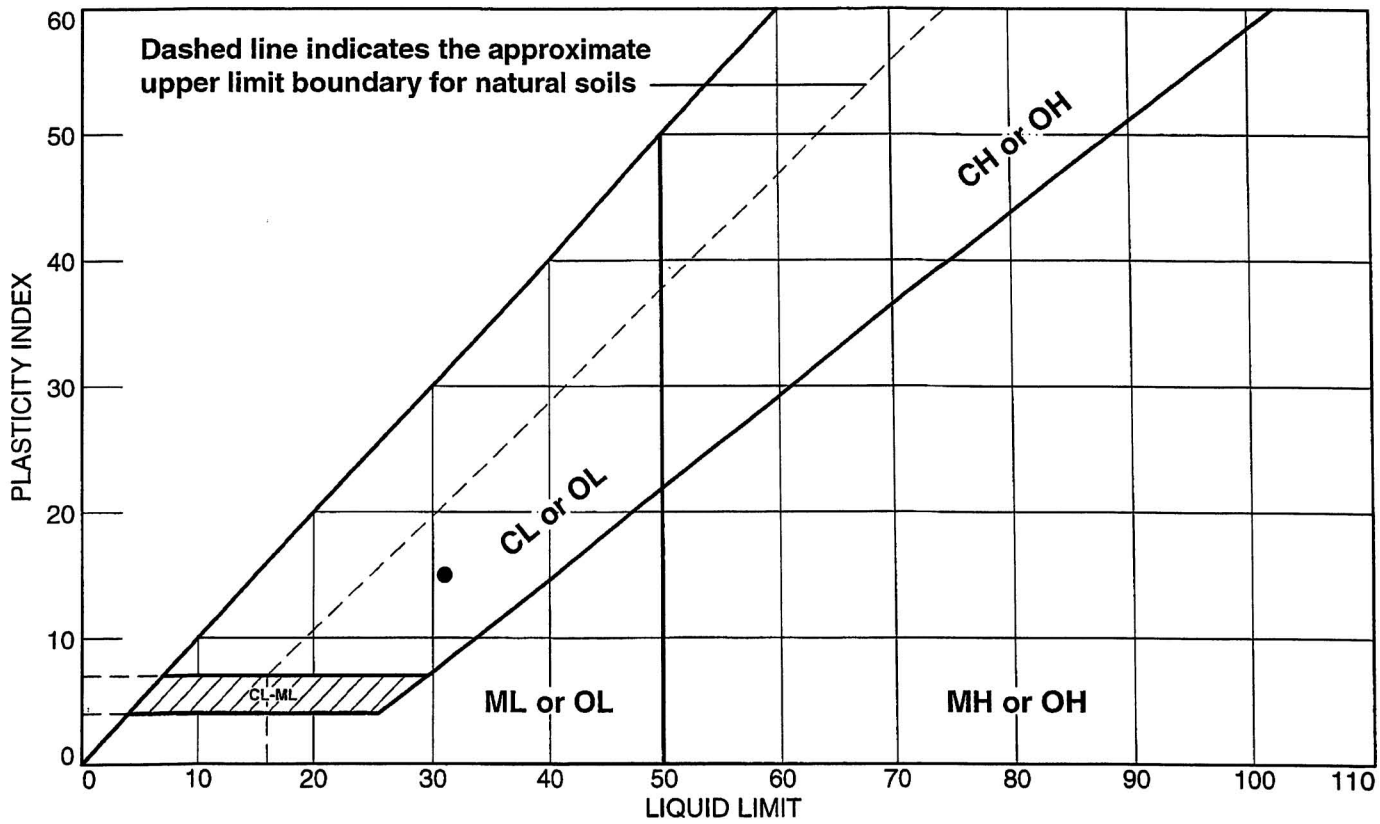
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.5	23.4	23.9	51.3	24.8	76.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0030	0.0090	0.0346	0.0486	0.0832	0.0962	0.1139	0.1440

Fineness Modulus
0.05

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-2352	SS-11	38.5-40.0	22.2	16	31	15	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 2-28-08

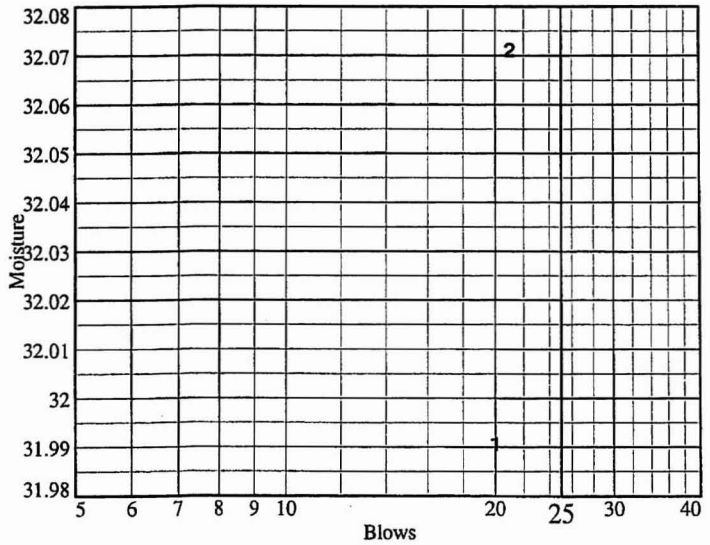
LIQUID AND PLASTIC LIMIT TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 38.5-40.0 **Sample Number:** SS-11
Material Description: Light Gray with Brownish Yellow Lean CLAY with sand
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	32.54	33.30				
Dry+Tare	28.41	28.98				
Tare	15.50	15.51				
# Blows	20	21				
Moisture	32.0	32.1				



Liquid Limit= 31
Plastic Limit= 16
Plasticity Index= 15
Natural Moisture= 22.2
Liquidity Index= 0.4

Plastic Limit Data

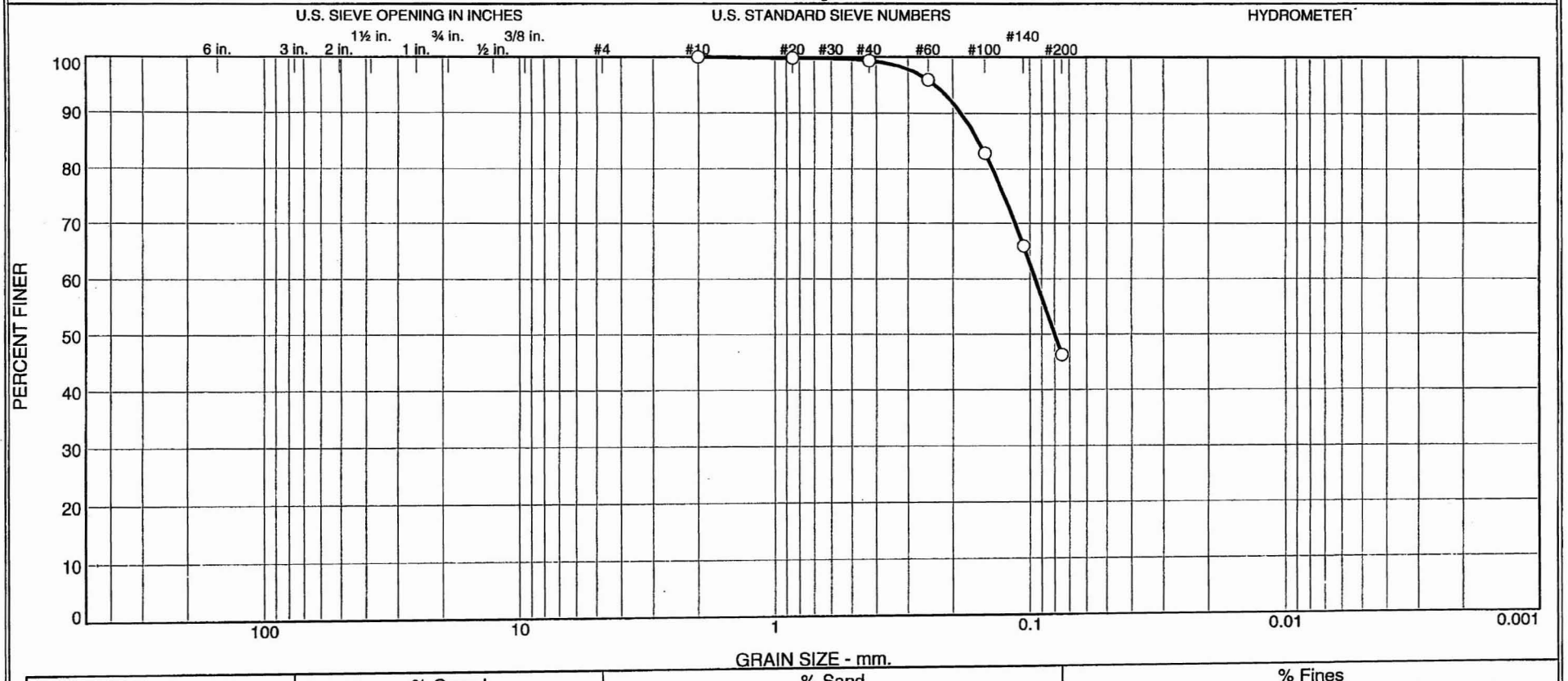
Run No.	1	2	3	4	
Wet+Tare	22.80	22.57			
Dry+Tare	21.78	21.57			
Tare	15.46	15.53			
Moisture	16.1	16.6			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
152.99	126.43	6.93	22.2

MACTEC, Inc.

Particle Size Distribution Report / ASTM D6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.6	53.1	46.3	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-12	43.5-45.0	1-3-08	SC	Light Gray Clayey SAND (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.656 (ASTM D854-06)
ND = Not Determined
SIEVE ANALYSIS ONLY

Tested By: CS **Checked By:** LBJ DSC 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 43.5-45.0 **Sample Number:** SS-12
Material Description: Light Gray Clayey SAND (Visual)
Date: 1-3-08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SC
Testing Remarks: Specific Gravity = 2.656 (ASTM D854-06)
ND = Not Determined
SIEVE ANALYSIS ONLY

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
235.80	0.00	0.00	#10	0.00	100.0
100.25	0.00	0.00	#20	0.19	99.8
			#40	0.65	99.4
			#60	4.13	95.9
			#100	17.18	82.9
			#140	34.10	66.0
			#200	53.88	46.3

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	53.1	53.7			46.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0800	0.0952	0.1401	0.1587	0.1860	0.2355

Fineness Modulus
0.20

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: 2/8/08

SAMPLE IDENTIFICATION: B-2352 SS-12

(A) Mass of oven-dried soil, grams:		76.36
(B) Mass of pycnometer filled with water at test temperature (T), grams:		656.92
(C) Mass of pycnometer, water and soil, grams:		704.53
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		20.3
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.656
(F)	***Correction factor:***	0.99994
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.656

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

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

REMARKS: Estimated % Passing # 4 :100

Clayey SAND (SC)-Visual

EQUIPMENT USED

SCALES :3.1.99

OVEN : 5.1.16

THERMOMETER :5.1.01

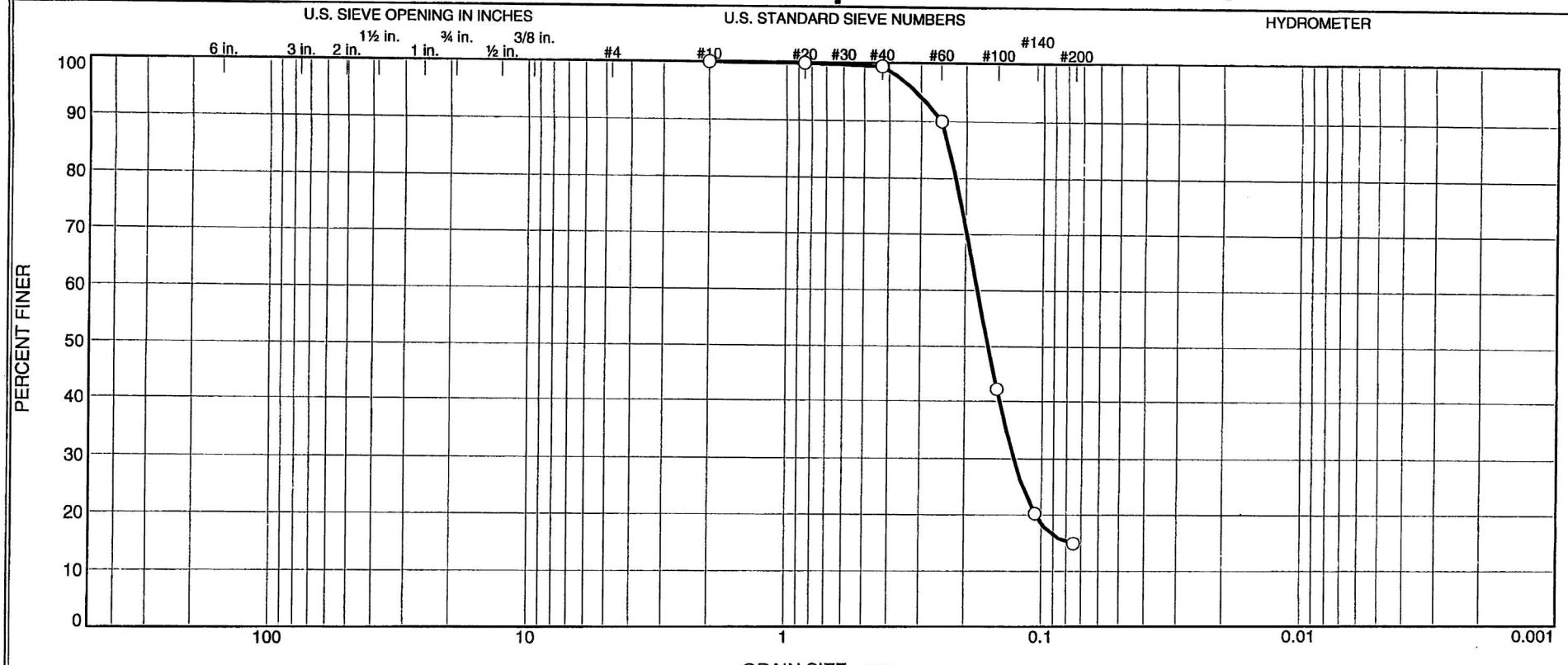
PYCNOMETER : P-6

TESTED BY:

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

REVIEWED BY: DSC 2-28-08

Particle Size Distribution Report / ASTM D6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.6	84.5	14.9	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-13	48.6-50.1	1-3-08	SC	Light Gray 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 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 48.6-50.1 **Sample Number:** SS-13
Material Description: Light Gray Clayey SAND (Visual)
Date: 1-3-08 **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
248.43	0.00	0.00	#10	0.00	100.0
102.38	0.00	0.00	#20	0.14	99.9
			#40	0.64	99.4
			#60	10.24	90.0
			#100	59.22	42.2
			#140	81.65	20.2
			#200	87.09	14.9

Fractional Components

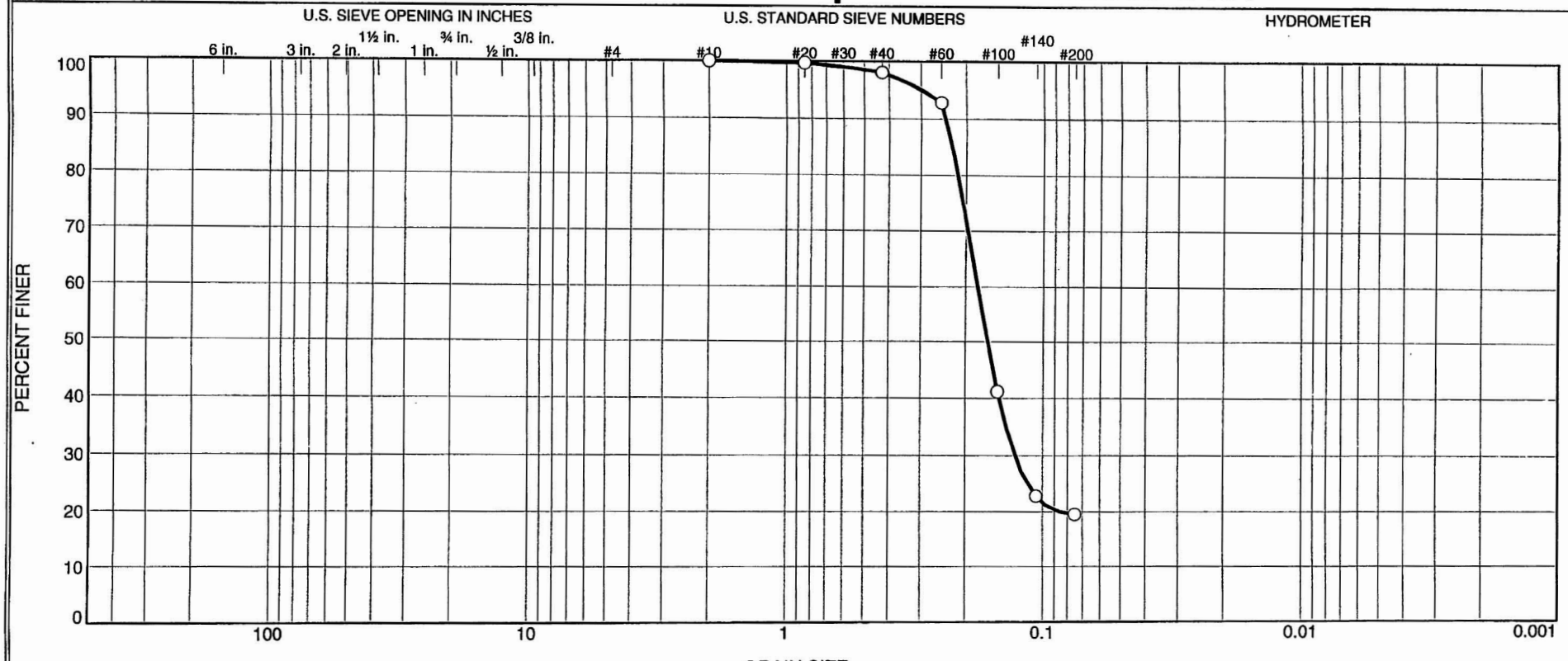
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.6	84.5	85.1			14.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0759	0.1052	0.1285	0.1628	0.1795	0.2195	0.2329	0.2500	0.3143

Fineness Modulus
0.64

MACTEC, Inc.

Particle Size Distribution Report / ASTM D6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	2.0	78.5	19.5	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-14	53.5-55.0	1-3-08	SC	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 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 53.5-55.0 **Sample Number:** SS-14
Material Description: Pale Brown Clayey SAND (Visual)
Date: 1-3-08 **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
245.30	0.00	0.00	#10	0.00	100.0
100.08	0.00	0.00	#20	0.31	99.7
			#40	1.96	98.0
			#60	7.20	92.8
			#100	58.91	41.1
			#140	77.21	22.9
			#200	80.52	19.5

Fractional Components

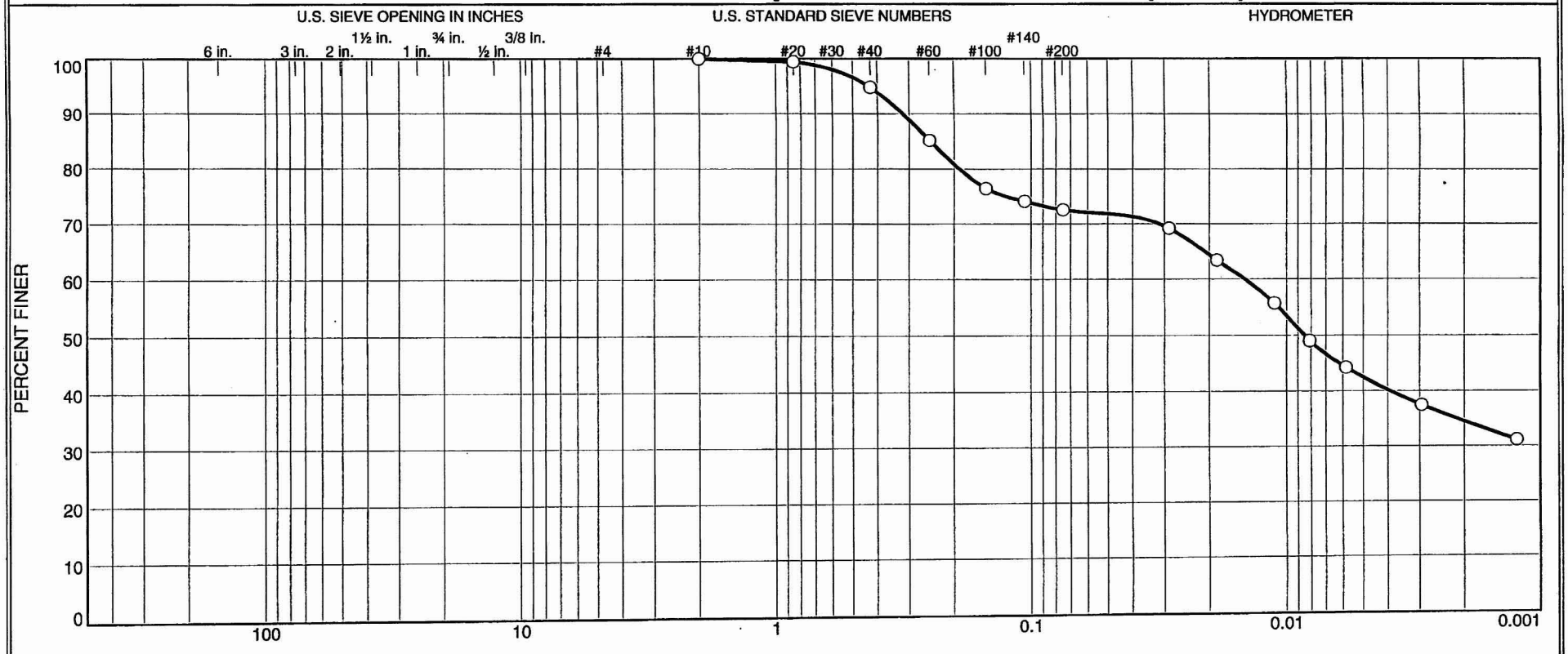
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.0	78.5	80.5			19.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0857	0.1280	0.1642	0.1798	0.2152	0.2265	0.2403	0.3002

Fineness Modulus
0.65

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	5.2	22.2	30.1	42.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-15	58.6-60.1	1-3-08	CL	Light Yellowish Brown Lean CLAY with sand	24.4	44	14

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.673 (ASTM D854-06)

Tested By: CS **Checked By:** LBJ DSC 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 58.6-60.1 **Sample Number:** SS-15
Material Description: Light Yellowish Brown Lean CLAY with sand
Date: 1-3-08 **Natural Moisture:** 24.4
Liquid Limit: 44 **Plastic Limit:** 14 **USCS Class.:** CL
Testing Remarks: Specific Gravity = 2.673 (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
221.03	0.00	0.00	#10	0.00	100.0
52.80	0.00	0.00	#20	0.29	99.5
			#40	2.73	94.8
			#60	7.81	85.2
			#100	12.42	76.5
			#140	13.65	74.1
			#200	14.47	72.6

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =52.80
Hygroscopic moisture correction:
Moist weight and tare = 29.53
Dry weight and tare = 29.30
Tare weight = 15.45
Hygroscopic moisture = 1.7%
Table of composite correction values:

Temp., deg. C:	12.9	29.9
Comp. corr.:	-8.0	-2.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.673
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	21.8	41.0	36.1	0.0133	42.0	9.4	0.0287	69.2
5.00	21.7	38.0	33.1	0.0133	39.0	9.9	0.0187	63.4
15.00	21.7	34.0	29.1	0.0133	35.0	10.6	0.0111	55.7
30.00	21.7	30.5	25.6	0.0133	31.5	11.1	0.0081	49.0
60.00	21.7	28.0	23.1	0.0133	29.0	11.5	0.0058	44.3
240.00	23.0	24.0	19.6	0.0131	25.0	12.2	0.0029	37.5
1440.00	22.1	21.0	16.2	0.0132	22.0	12.7	0.0012	31.1

MACTEC, Inc.

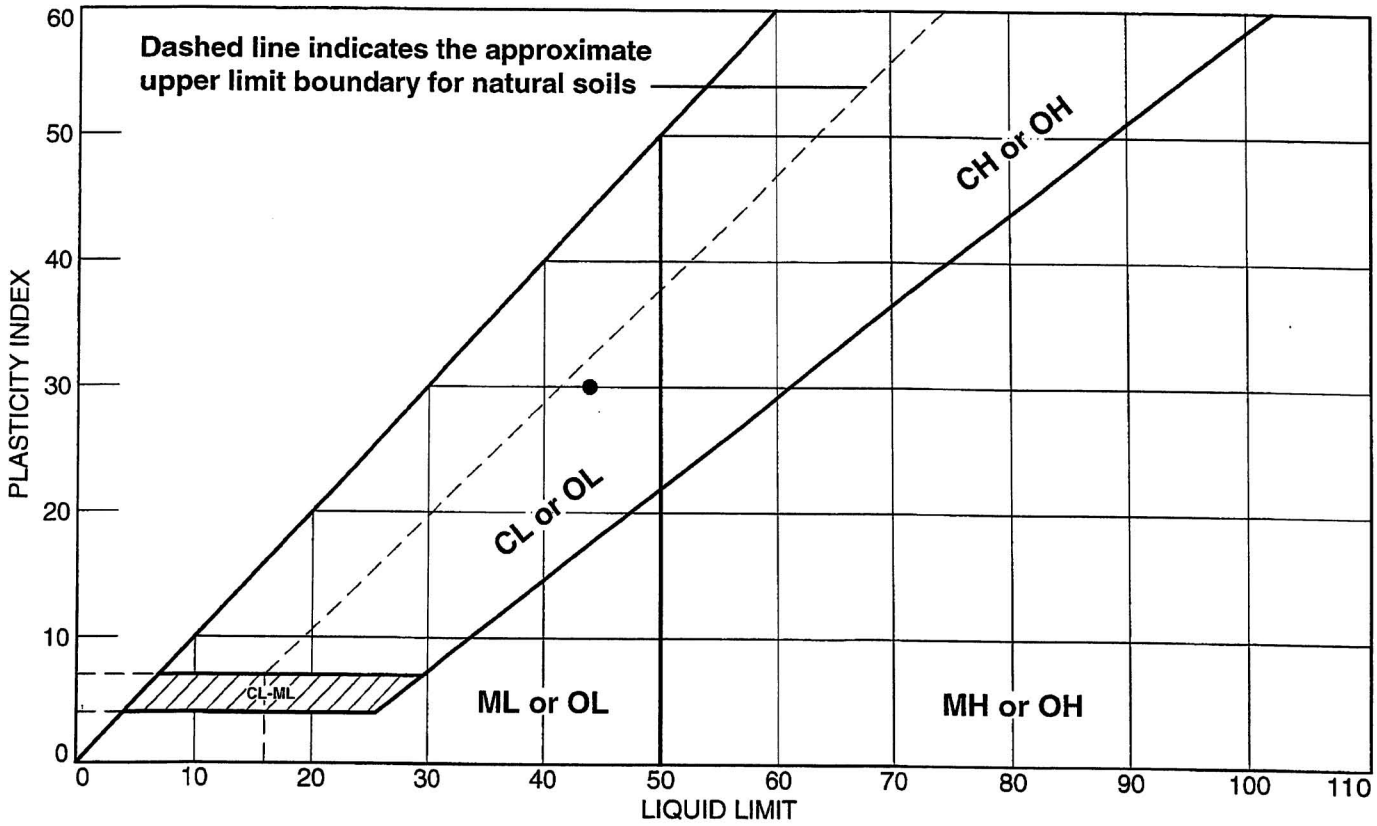
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	5.2	22.2	27.4	30.1	42.5	72.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0085	0.0145	0.1911	0.2475	0.3179	0.4305

Fineness Modulus
0.37

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-2352	SS-15	58.6-60.1	24.4	14	44	30	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 2-28-08

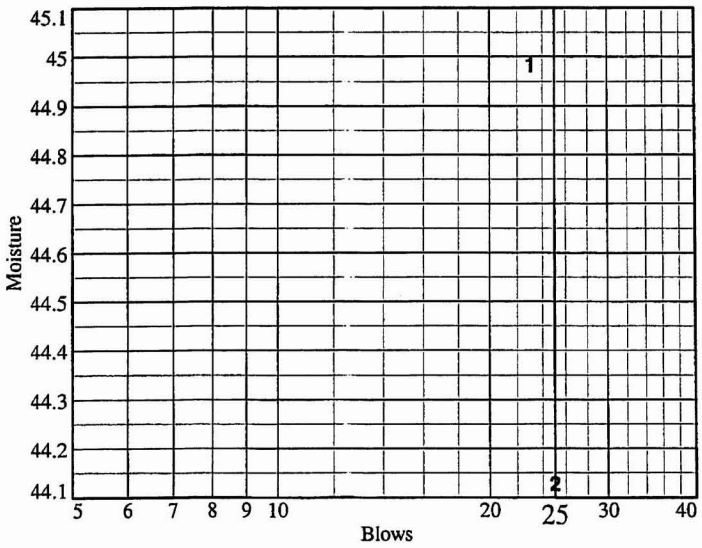
LIQUID AND PLASTIC LIMIT TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 58.6-60.1 **Sample Number:** SS-15
Material Description: Light Yellowish Brown Lean CLAY with sand
USCS: CL **AASHTO:** A-7-6(20)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.57	23.02				
Dry+Tare	21.79	20.84				
Tare	15.61	15.90				
# Blows	23	25				
Moisture	45.0	44.1				



Liquid Limit= 44
Plastic Limit= 14
Plasticity Index= 30
Natural Moisture= 24.4
Liquidity Index= 0.3

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.97	24.07			
Dry+Tare	22.92	23.06			
Tare	15.43	15.65			
Moisture	14.0	13.6			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
141.81	115.19	6.09	24.4

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: 2/9/08

SAMPLE IDENTIFICATION: B-2352 SS-15

(A) Mass of oven-dried soil, grams:		50.72
(B) Mass of pycnometer filled with water at test temperature (T), grams:		655.68
(C) Mass of pycnometer, water and soil, grams:		687.43
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		21.9
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.674
(F)	***Correction factor:***	0.99959
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.673

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

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

REMARKS: Estimated % Passing # 4 :100

Lean CLAY with sand (CL)

EQUIPMENT USED

SCALES :3.1.99

OVEN : 5.1.16

THERMOMETER :5.1.01

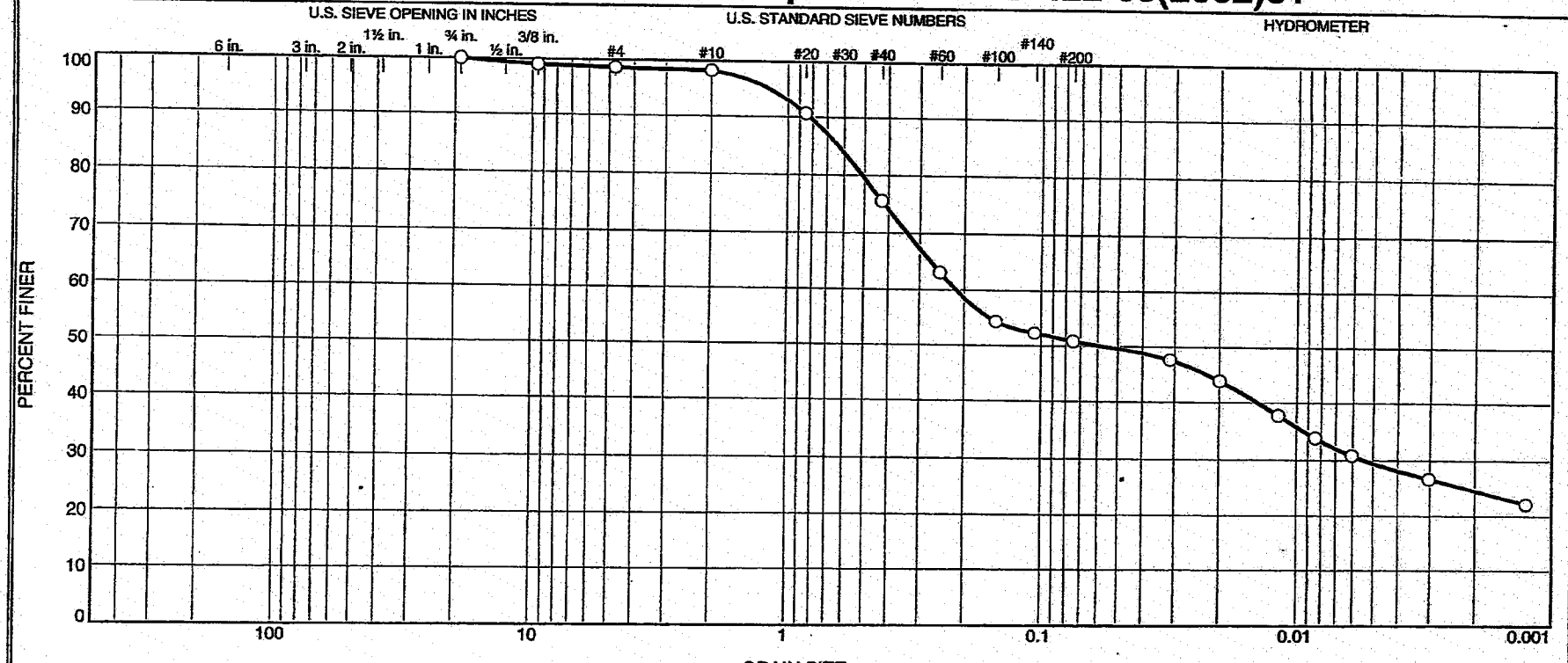
PYCNOMETER : P-6

TESTED BY:

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

REVIEWED BY: DSC 2-28-08

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	1.3	0.4	22.6	24.9	21.3	29.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-16	63.5-65.0	1-3-08	CL	Light Yellowish Brown Sandy Lean CLAY	20.5	35	12

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 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 63.5-65.0 **Sample Number:** SS-16
Material Description: Light Yellowish Brown Sandy Lean CLAY
Date: 1-3-08 **Natural Moisture:** 20.5
Liquid Limit: 35 **Plastic Limit:** 12 **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
243.91	0.00	0.00	3/4	0.00	100.0
			3/8"	2.25	99.1
			#4	3.26	98.7
			#10	4.17	98.3
50.09	0.00	0.00	#20	3.87	90.7
			#40	11.53	75.7
			#60	17.90	63.2
			#100	22.39	54.4
			#140	23.43	52.3
			#200	24.18	50.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 98.3
Weight of hydrometer sample =50.09
Hygroscopic moisture correction:
Moist weight and tare = 27.74
Dry weight and tare = 27.52
Tare weight = 15.44
Hygroscopic moisture = 1.8%
Table of composite correction values:

Temp., deg. C:	12.9	29.9
Comp. corr.:	-8.0	-2.0

Meniscus correction only = 2.0
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	21.6	29.0	24.1	0.0132	31.0	11.2	0.0312	47.6
5.00	21.9	27.0	22.2	0.0131	29.0	11.5	0.0199	43.8
15.00	21.8	24.0	19.1	0.0131	26.0	12.0	0.0118	37.8
30.00	21.9	22.0	17.2	0.0131	24.0	12.4	0.0084	33.9
60.00	21.7	20.5	15.6	0.0132	22.5	12.6	0.0060	30.8
240.00	23.0	18.0	13.6	0.0130	20.0	13.0	0.0030	26.8
1440.00	22.1	16.0	11.2	0.0131	18.0	13.3	0.0013	22.2

MACTEC, Inc.

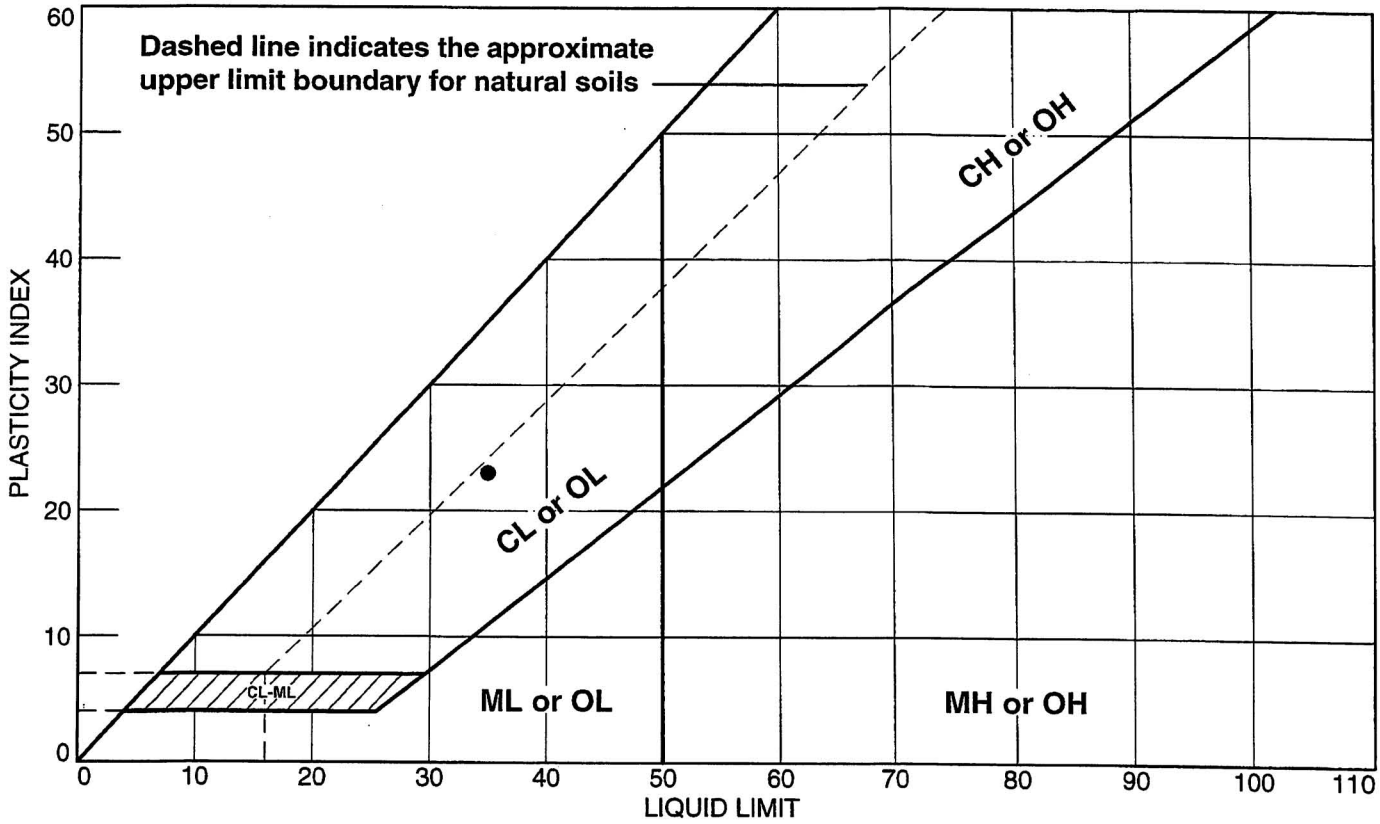
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.3	1.3	0.4	22.6	24.9	47.9	21.3	29.5	50.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0054	0.0579	0.2152	0.5087	0.6333	0.8159	1.1764

Fineness Modulus
1.03

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-2352	SS-16	63.5-65.0	20.5	12	35	23	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 2-28-08

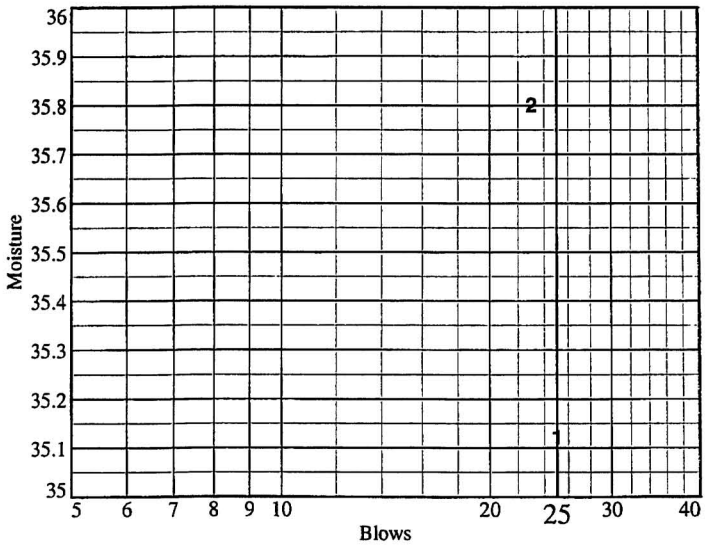
LIQUID AND PLASTIC LIMIT TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 63.5-65.0 **Sample Number:** SS-16
Material Description: Light Yellowish Brown Sandy Lean CLAY
USCS: CL **AASHTO:** A-6(7)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	21.52	23.16				
Dry+Tare	19.95	21.13				
Tare	15.48	15.46				
# Blows	25	23				
Moisture	35.1	35.8				



Liquid Limit= 35
Plastic Limit= 12
Plasticity Index= 23
Natural Moisture= 20.5
Liquidity Index= 0.4

Plastic Limit Data

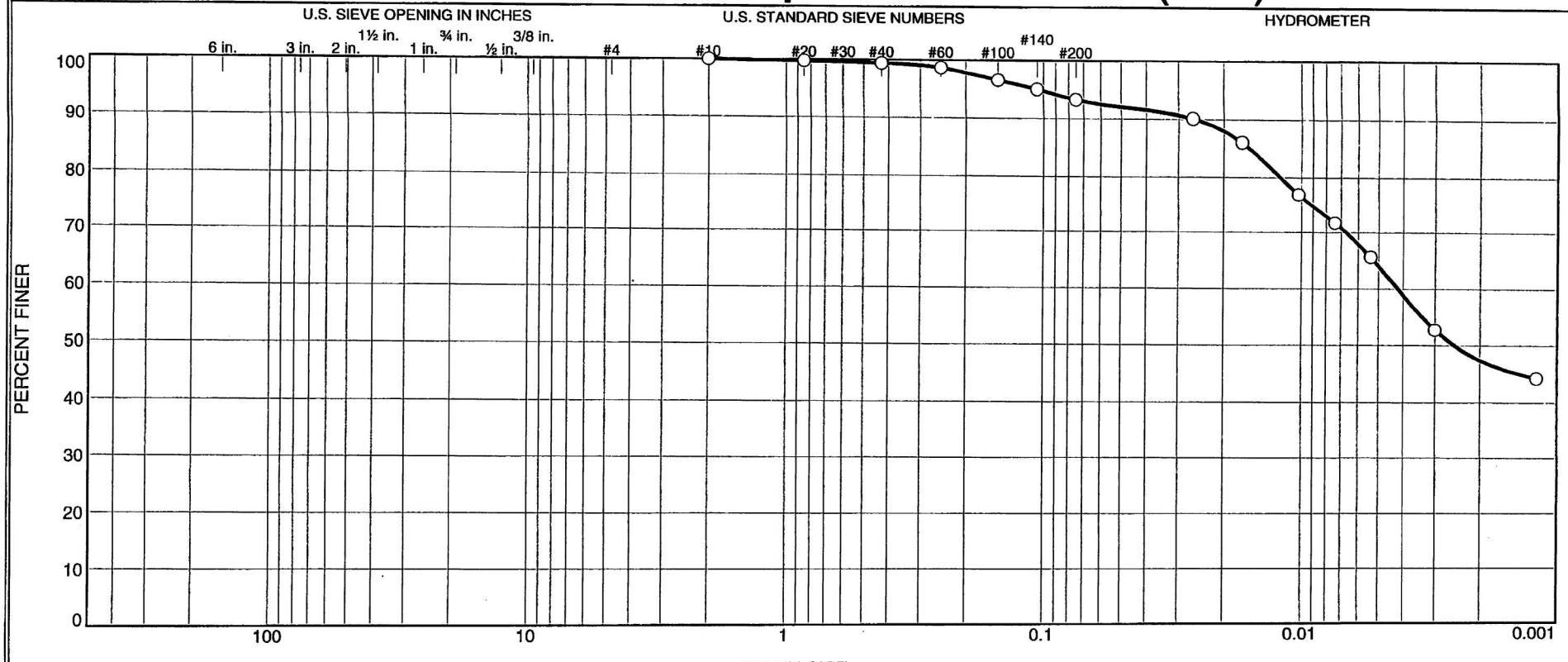
Run No.	1	2	3	4	
Wet+Tare	24.72	24.09			
Dry+Tare	23.72	23.19			
Tare	15.46	15.49			
Moisture	12.1	11.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
167.99	140.93	9.16	20.5

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	6.2	29.0	64.2

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-17	68.6-70.1	1-3-08	CH	Light Gray Fat CLAY	25.1	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 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 68.6-70.1 **Sample Number:** SS-17
Material Description: Light Gray Fat CLAY
Date: 1-3-08 **Natural Moisture:** 25.1
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
278.18	0.00	0.00	#10	0.00	100.0
50.44	0.00	0.00	#20	0.13	99.7
			#40	0.30	99.4
			#60	0.69	98.6
			#100	1.76	96.5
			#140	2.54	95.0
			#200	3.44	93.2

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.44
Hygroscopic moisture correction:
Moist weight and tare = 28.08
Dry weight and tare = 27.60
Tare weight = 15.45
Hygroscopic moisture = 4.0%
Table of composite correction values:

Temp., deg. C:	12.9	29.9
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	22.0	49.0	44.2	0.0131	50.0	8.1	0.0264	90.1
5.00	22.1	47.0	42.2	0.0131	48.0	8.4	0.0170	86.1
15.00	22.1	42.5	37.7	0.0131	43.5	9.2	0.0102	76.9
30.00	22.0	40.0	35.2	0.0131	41.0	9.6	0.0074	71.8
60.00	22.1	37.0	32.2	0.0131	38.0	10.1	0.0054	65.7
215.00	21.1	31.0	25.9	0.0133	32.0	11.0	0.0030	52.8
1440.00	20.6	27.0	21.7	0.0133	28.0	11.7	0.0012	44.3

MACTEC, Inc.

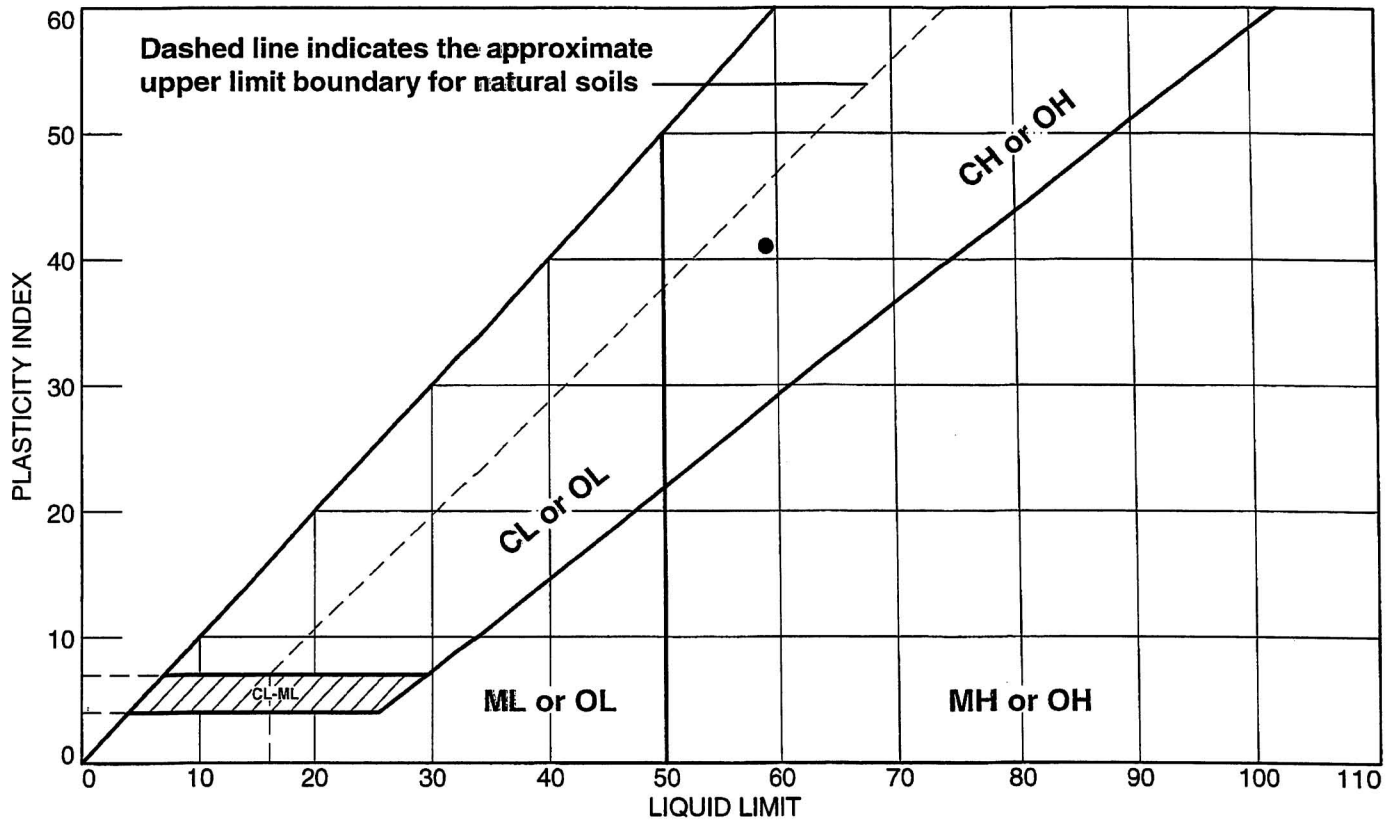
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.6	6.2	6.8	29.0	64.2	93.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0025	0.0042	0.0121	0.0158	0.0259	0.1068

Fineness Modulus
0.05

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-2352	SS-17	68.6-70.1	25.1	18	59	41	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 2-28-08

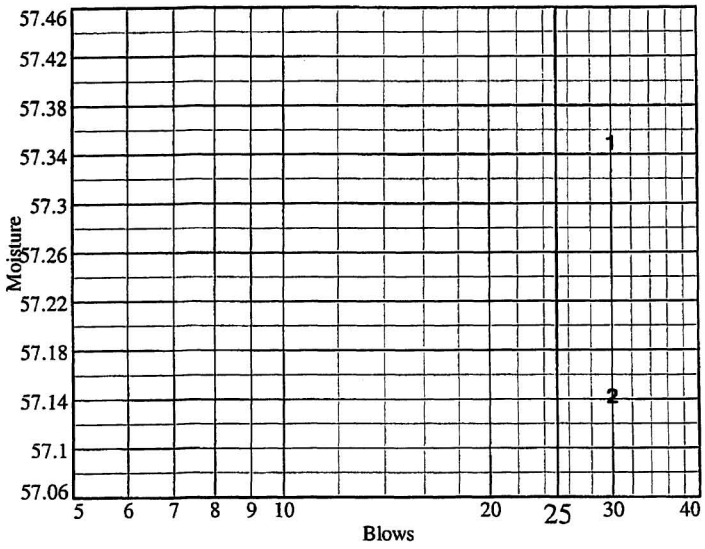
LIQUID AND PLASTIC LIMIT TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 68.6-70.1
Sample Number: SS-17
Material Description: Light Gray Fat CLAY
USCS: CH
AASHTO: A-7-6(41)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	29.62	31.00				
Dry+Tare	24.47	25.36				
Tare	15.49	15.49				
# Blows	30	30				
Moisture	57.3	57.1				



Liquid Limit= 59
Plastic Limit= 18
Plasticity Index= 41
Natural Moisture= 25.1
Liquidity Index= 0.2

Plastic Limit Data

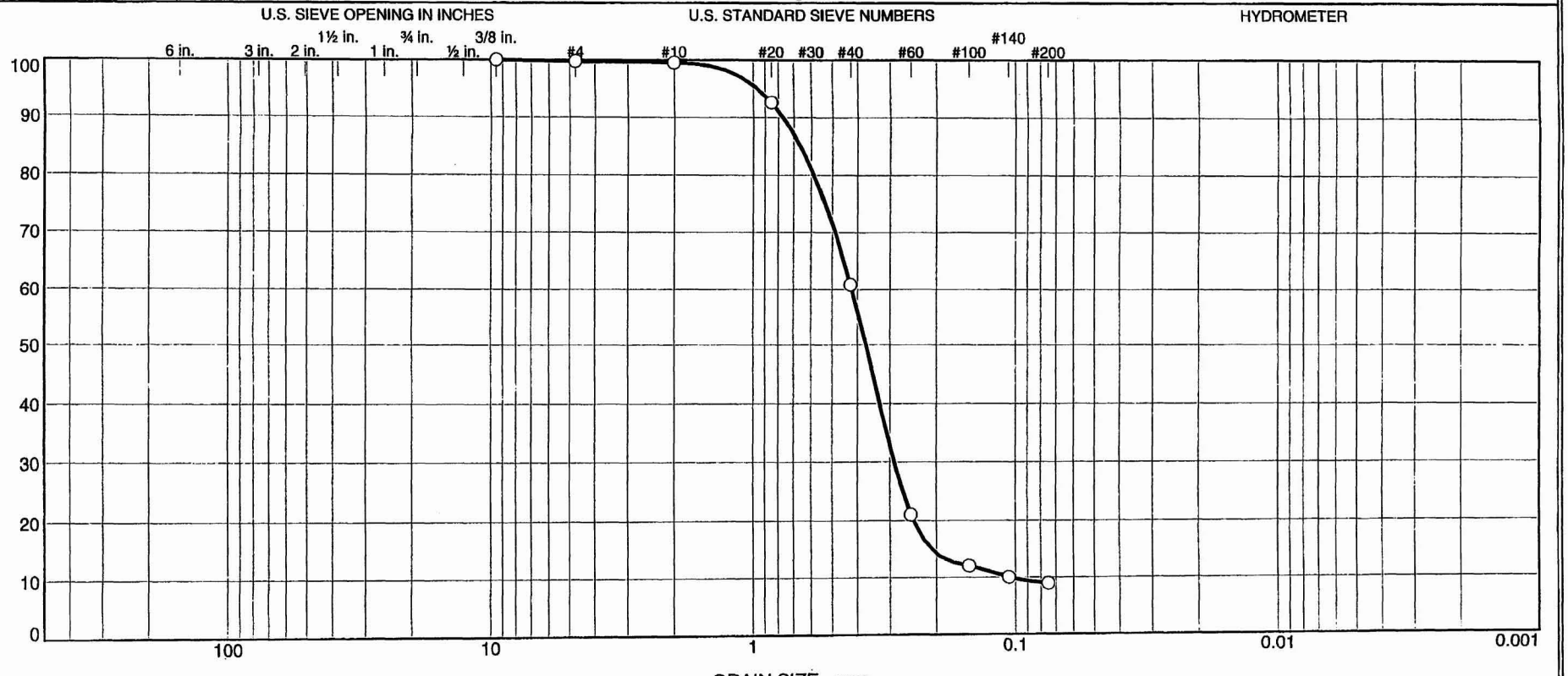
Run No.	1	2	3	4	
Wet+Tare	22.90	23.12			
Dry+Tare	21.81	21.95			
Tare	15.43	15.50			
Moisture	17.1	18.1			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
131.16	106.14	6.53	25.1

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	0.2	0.3	38.7	51.8	9.0	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-2352	SS-18	73.5-75.0	1-3-08	SP-SM	Pale Brown Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 73.5-75.0 **Sample Number:** SS-18
Material Description: Pale Brown Poorly Graded SAND with silt (Visual)
Date: 1-3-08 **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
328.36	0.00	0.00	3/8"	0.00	100.0
			#4	0.81	99.8
			#10	1.61	99.5
100.24	0.00	0.00	#20	6.93	92.6
			#40	38.95	60.8
			#60	79.09	21.0
			#100	88.10	12.1
			#140	90.12	10.0
			#200	91.18	9.0

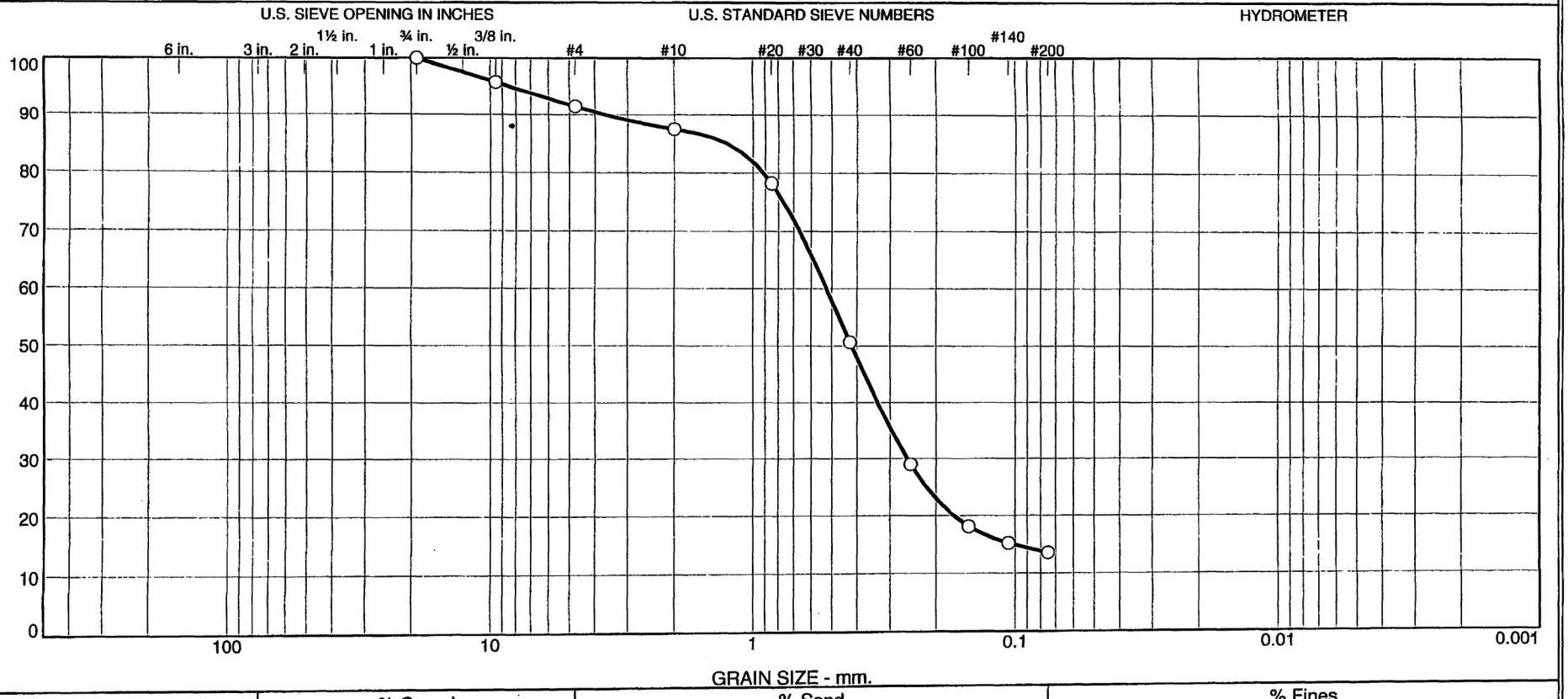
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.2	0.2	0.3	38.7	51.8	90.8			9.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1050	0.2097	0.2448	0.2894	0.3710	0.4203	0.5847	0.6583	0.7663	0.9585

Fineness Modulus	C_u	C_c
1.77	4.00	1.90

Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	8.6	3.9	36.9	37.0	13.6	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-2352	SS-19	78.5-80.0	1-3-08	SC	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

O Specific Gravity = 2.656 (ASTM D854-06)
SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 78.5-80.0 **Sample Number:** SS-19
Material Description: Pale Brown Clayey SAND (Visual)
Date: 1-3-08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SC
Testing Remarks: Specific Gravity = 2.656 (ASTM D854-06)
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
357.56	0.00	0.00	3/4	0.00	100.0
			3/8	15.23	95.7
			#4	30.66	91.4
			#10	44.69	87.5
100.11	0.00	0.00	#20	10.60	78.2
			#40	42.19	50.6
			#60	66.94	29.0
			#100	79.33	18.2
			#140	82.63	15.3
			#200	84.52	13.6

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	8.6	8.6	3.9	36.9	37.0	77.8			13.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1008	0.1708	0.2578	0.4192	0.5224	0.9123	1.2506	3.6362	8.4780

Fineness Modulus
2.21

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: 2/9/08

SAMPLE IDENTIFICATION: B-2352 SS-19

(A) Mass of oven-dried soil, grams:		75.96
(B) Mass of pycnometer filled with water at test temperature (T), grams:		656.73
(C) Mass of pycnometer, water and soil, grams:		704.10
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		22.1
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.657
(F)	***Correction factor:***	0.99954
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.656

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

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

REMARKS: Estimated % Passing # 4 :100

Clayey SAND (SC)-Visual

EQUIPMENT USED

SCALES :3.1.99

OVEN : 5.1.16

THERMOMETER :5.1.01

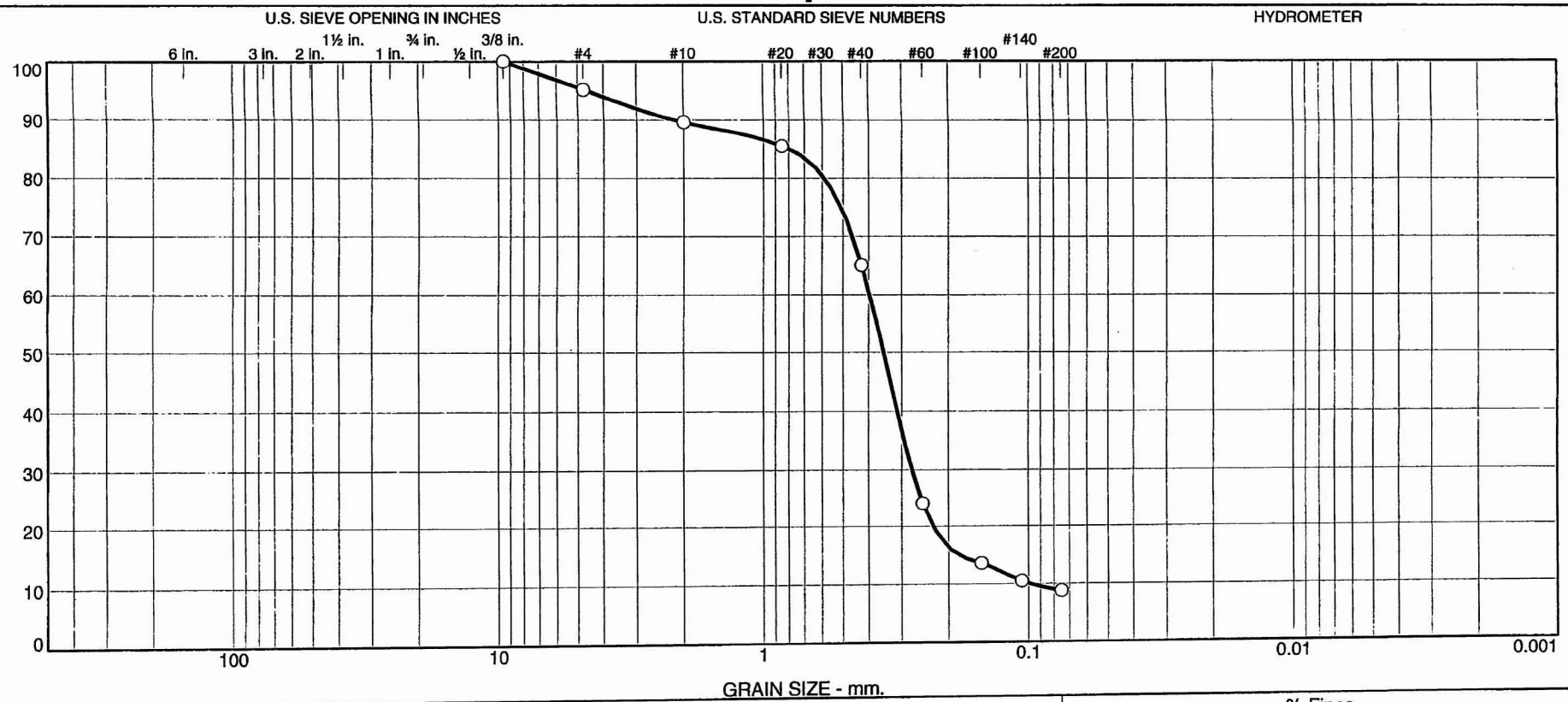
PYCNOMETER : P-6

TESTED BY:

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

REVIEWED BY: DSC 2-28-08

Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	4.8	5.6	24.4	56.4	8.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-20	83.6-85.1	1-3-08	SP-SM	Pale Brown Poorly Graded SAND with silt (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 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 83.6-85.1 **Sample Number:** SS-20
Material Description: Pale Brown Poorly Graded SAND with silt (Visual)
Date: 1-3-08 **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
302.70	0.00	0.00	3/8"	0.00	100.0
			#4	14.68	95.2
			#10	31.40	89.6
100.55	0.00	0.00	#20	4.53	85.6
			#40	27.44	65.2
			#60	73.60	24.0
			#100	85.30	13.6
			#140	88.75	10.5
			#200	90.69	8.8

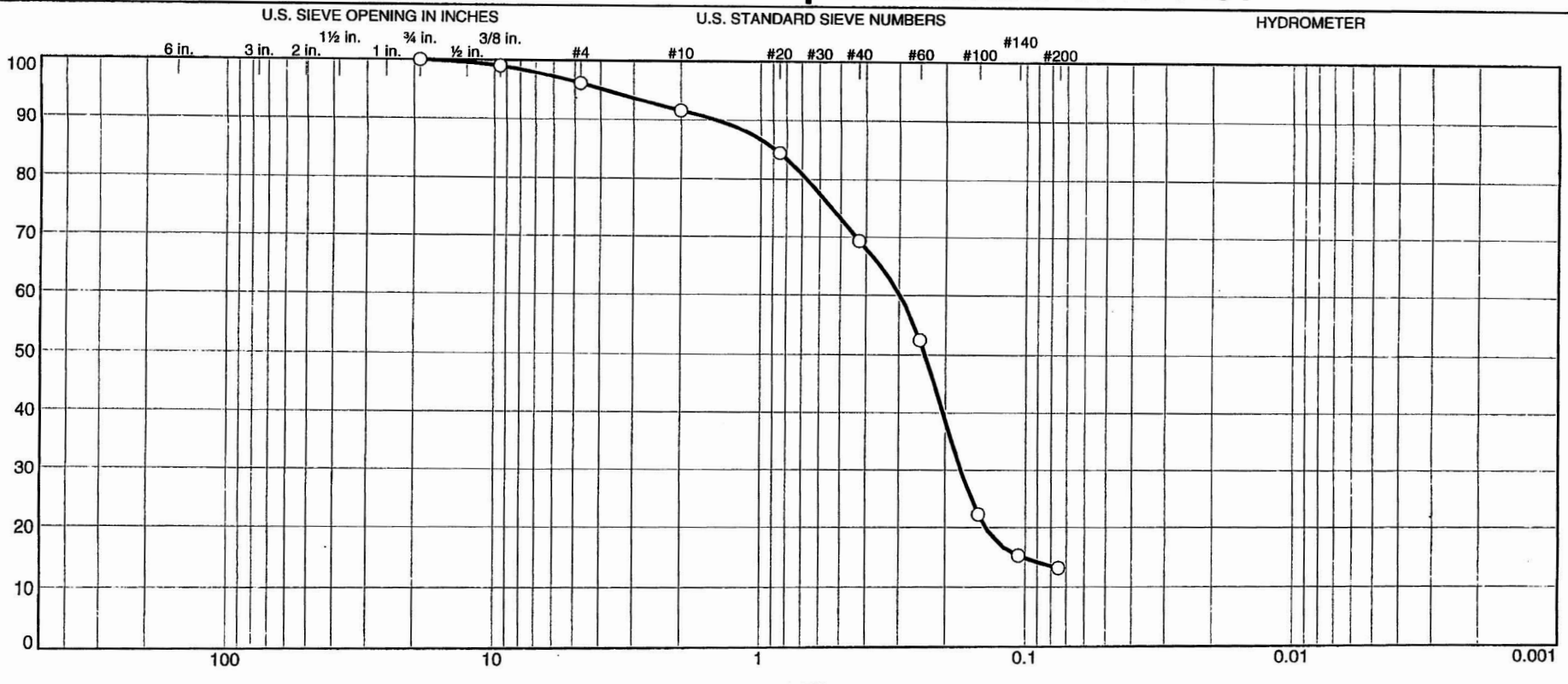
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	4.8	4.8	5.6	24.4	56.4	86.4			8.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0983	0.1819	0.2288	0.2748	0.3508	0.3960	0.5875	0.7926	2.1603	4.6510

Fineness Modulus	C_u	C_c
1.96	4.03	1.94

Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	3.9	4.5	22.2	56.2	13.2	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-2352	SS-21	88.5-90.0	1-3-08	SM	Pale Brown Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 2-28-08

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DCN# EXE-008

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 88.5-90.0 **Sample Number:** SS-21
Material Description: Pale Brown Silty SAND (Visual)
Date: 1-3-08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
329.80	0.00	0.00	3/4	0.00	100.0
			3/8"	3.29	99.0
			#4	12.90	96.1
			#10	27.77	91.6
103.87	0.00	0.00	#20	8.03	84.5
			#40	25.20	69.4
			#60	44.39	52.4
			#100	78.73	22.2
			#140	86.54	15.3
			#200	88.91	13.2

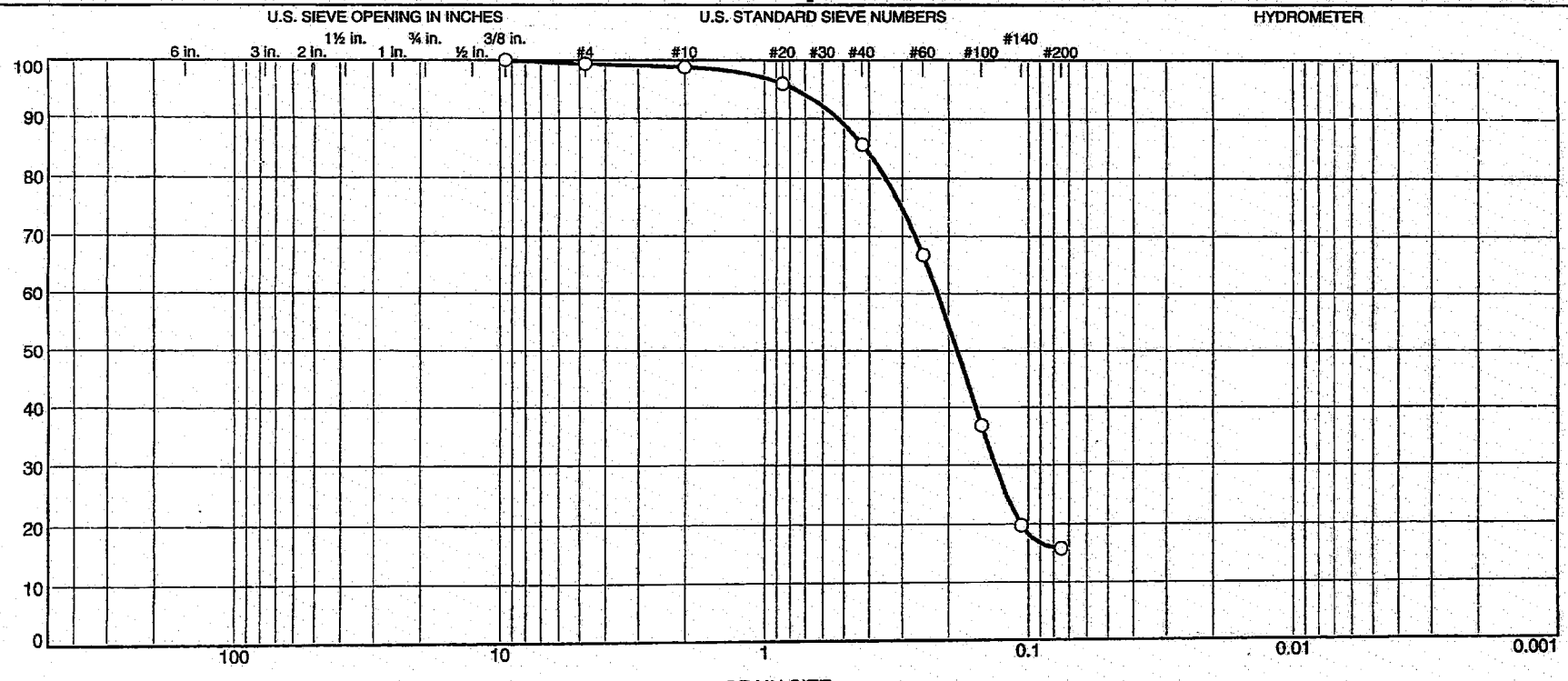
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	3.9	3.9	4.5	22.2	56.2	82.9			13.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1022	0.1412	0.1747	0.2392	0.2976	0.6723	0.8773	1.4586	3.8621

Fineness Modulus
1.64

Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.6	0.7	13.0	69.9	15.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-2352	SS-22	93.6-95.1	1-4-08	SC	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

O SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 93.6-95.1 **Sample Number:** SS-22
Material Description: Pale Brown Clayey SAND (Visual)
Date: 1-4-08 **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
329.92	0.00	0.00	3/8"	0.00	100.0
			#4	2.13	99.4
			#10	4.14	98.7
105.38	0.00	0.00	#20	3.08	95.9
			#40	13.94	85.7
			#60	34.07	66.8
			#100	65.98	36.9
			#140	84.29	19.8
			#200	88.50	15.8

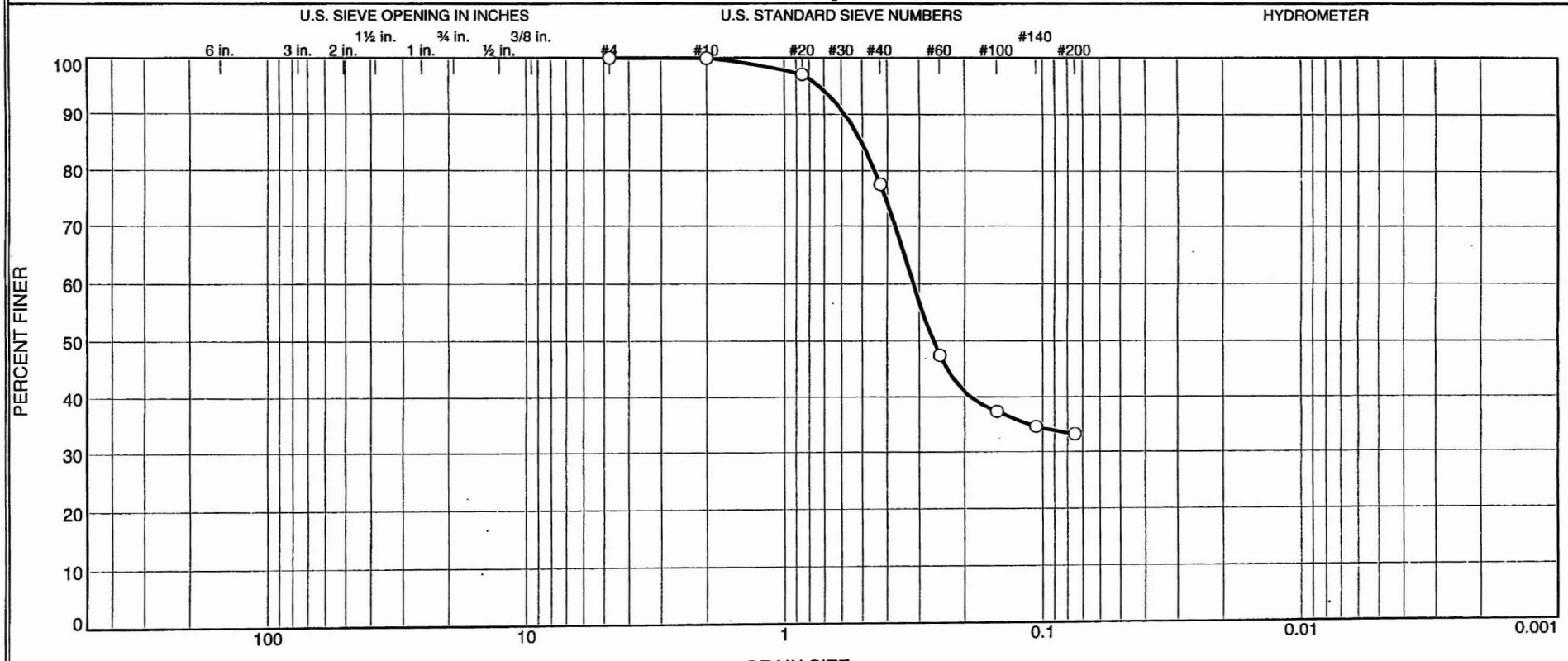
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.6	0.6	0.7	13.0	69.9	83.6			15.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.1068	0.1333	0.1856	0.2198	0.3467	0.4134	0.5231	0.7667

Fineness Modulus
1.00

Particle Size Distribution Report / ASTM D6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	22.4	44.4	33.2	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-23	98.5-100.0	1-4-08	SM	Very Pale Brown 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 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 98.5-100.0 **Sample Number:** SS-23
Material Description: Very Pale Brown Silty SAND (Visual)
Date: 1-4-08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
357.65	0.00	0.00	#4	0.00	100.0
			#10	0.16	100.0
101.31	0.00	0.00	#20	3.02	97.0
			#40	22.69	77.6
			#60	53.24	47.4
			#100	63.47	37.3
			#140	66.27	34.6
			#200	67.69	33.2

Fractional Components

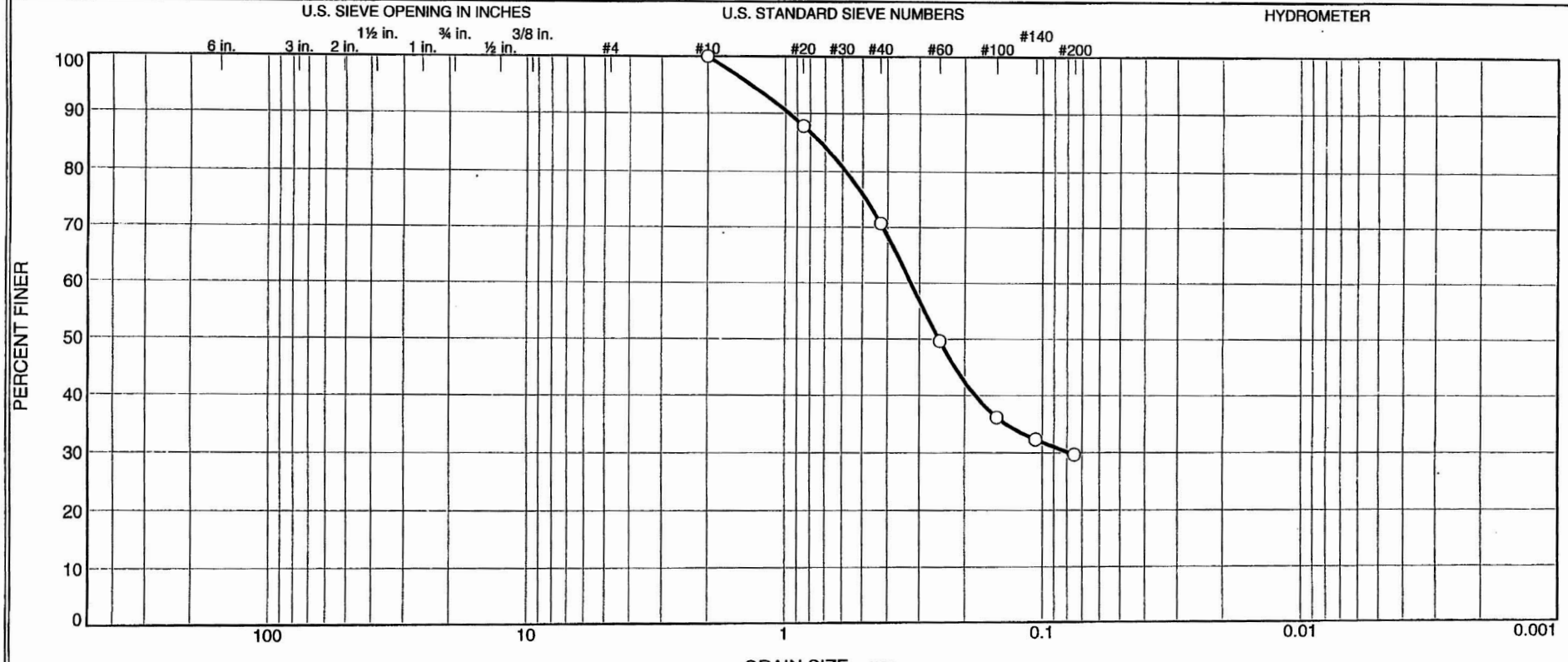
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	22.4	44.4	66.8			33.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.2646	0.3165	0.4462	0.5011	0.5829	0.7342

Fineness Modulus
1.17

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	29.3	41.0	29.7	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-24	108.5-110.0	1-4-08	SM	Pale Brown 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 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 108.5-110.0 **Sample Number:** SS-24
Material Description: Pale Brown Silty SAND (Visual)
Date: 1-4-08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
335.17	0.00	0.00	#10	0.00	100.0
101.26	0.00	0.00	#20	12.30	87.9
			#40	29.67	70.7
			#60	50.99	49.6
			#100	64.68	36.1
			#140	68.58	32.3
			#200	71.19	29.7

Fractional Components

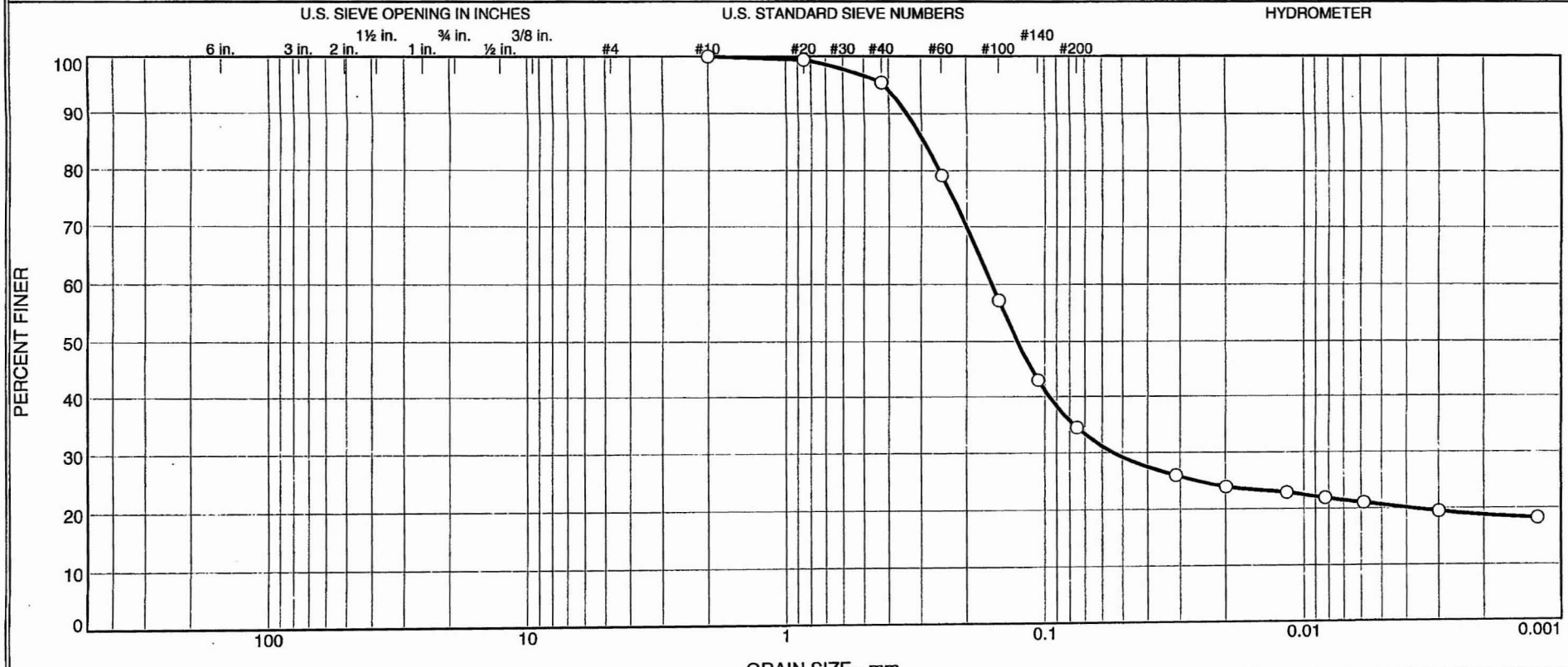
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	29.3	41.0	70.3			29.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0783	0.2524	0.3242	0.5801	0.7279	0.9668	1.3589

Fineness Modulus
1.33

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	4.6	60.9	13.9	20.6

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-25	118.6-120.1	1-4-08	SC	Light Gray with Brownish Yellow Clayey SAND	19.9	26	15

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure N/A

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 118.6-120.1 **Sample Number:** SS-25
Material Description: Light Gray with Brownish Yellow Clayey SAND
Date: 1-4-08 **Natural Moisture:** 19.9
Liquid Limit: 26 **Plastic Limit:** 15 **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
232.26	0.00	0.00	#10	0.00	100.0
97.95	0.00	0.00	#20	0.58	99.4
			#40	4.49	95.4
			#60	20.45	79.1
			#100	41.90	57.2
			#140	55.89	42.9
			#200	64.15	34.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =97.95
Hygroscopic moisture correction:
Moist weight and tare = 27.75
Dry weight and tare = 27.50
Tare weight = 15.54
Hygroscopic moisture = 2.1%
Table of composite correction values:

Temp., deg. C:	12.9	29.9
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	22.0	30.0	25.2	0.0131	31.0	11.2	0.0311	26.0
5.00	22.0	28.0	23.2	0.0131	29.0	11.5	0.0199	23.9
15.00	21.9	27.0	22.2	0.0131	28.0	11.7	0.0116	22.9
30.00	22.0	26.0	21.2	0.0131	27.0	11.9	0.0082	21.9
60.00	22.5	25.0	20.4	0.0130	26.0	12.0	0.0058	21.0
240.00	21.1	24.0	18.9	0.0133	25.0	12.2	0.0030	19.5
1440.00	20.6	23.0	17.7	0.0133	24.0	12.4	0.0012	18.3

MACTEC, Inc.

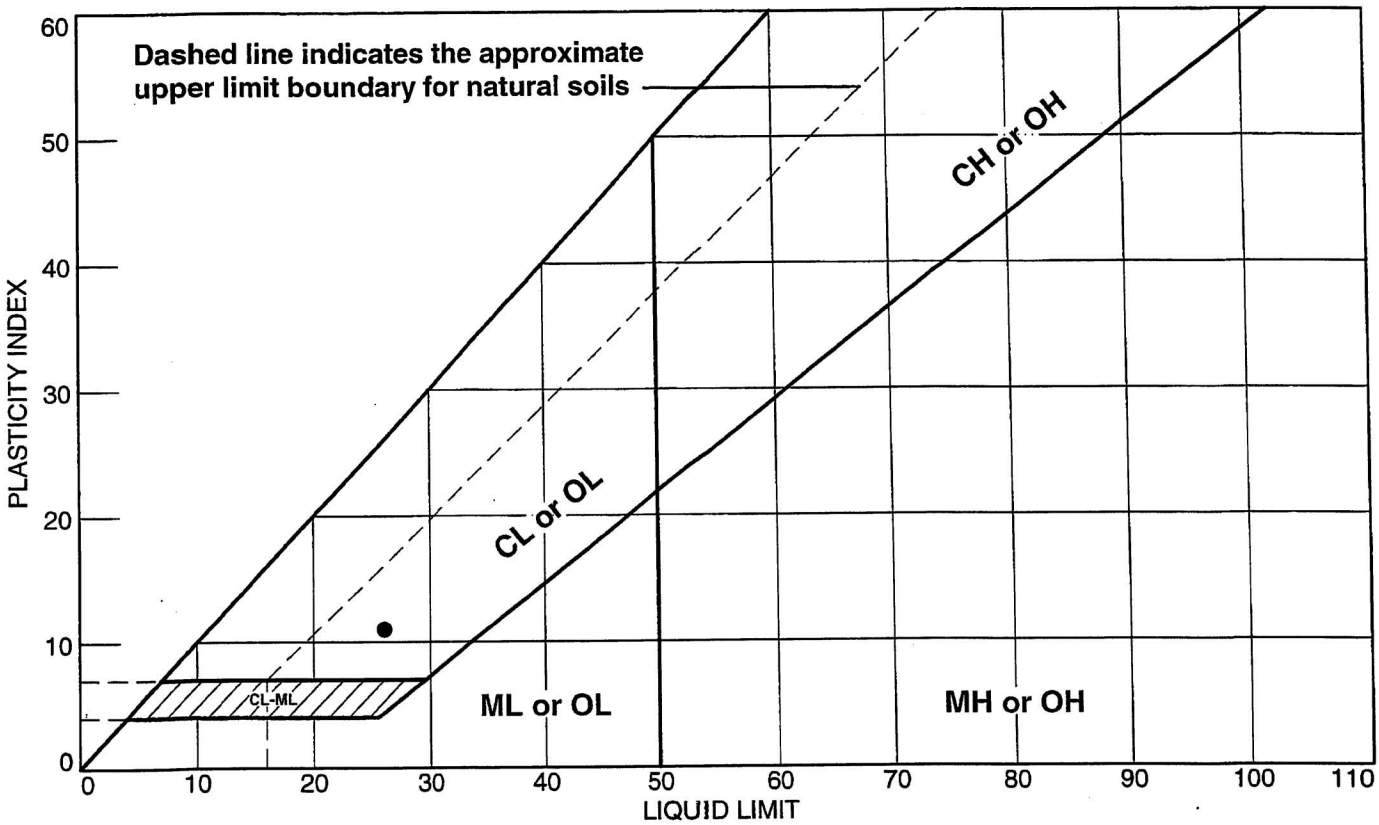
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	4.6	60.9	65.5	13.9	20.6	34.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0038	0.0540	0.1273	0.1596	0.2557	0.2924	0.3408	0.4160

Fineness Modulus
0.59

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-2352	SS-25	118.6-120.1	19.9	15	26	11	SC

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 2-28-08

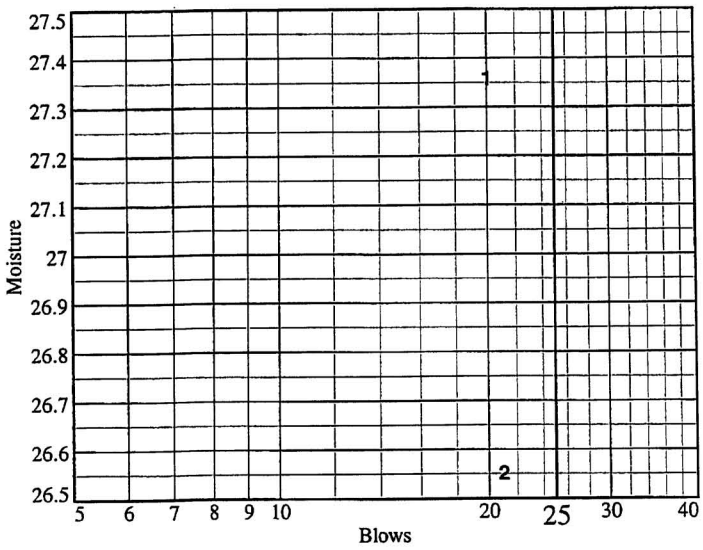
LIQUID AND PLASTIC LIMIT TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 118.6-120.1 **Sample Number:** SS-25
Material Description: Light Gray with Brownish Yellow Clayey SAND
USCS: SC **AASHTO:** A-2-6(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	36.82	32.53				
Dry+Tare	32.24	28.94				
Tare	15.50	15.42				
# Blows	20	21				
Moisture	27.4	26.6				



Liquid Limit= 26
Plastic Limit= 15
Plasticity Index= 11
Natural Moisture= 19.9
Liquidity Index= 0.4

Plastic Limit Data

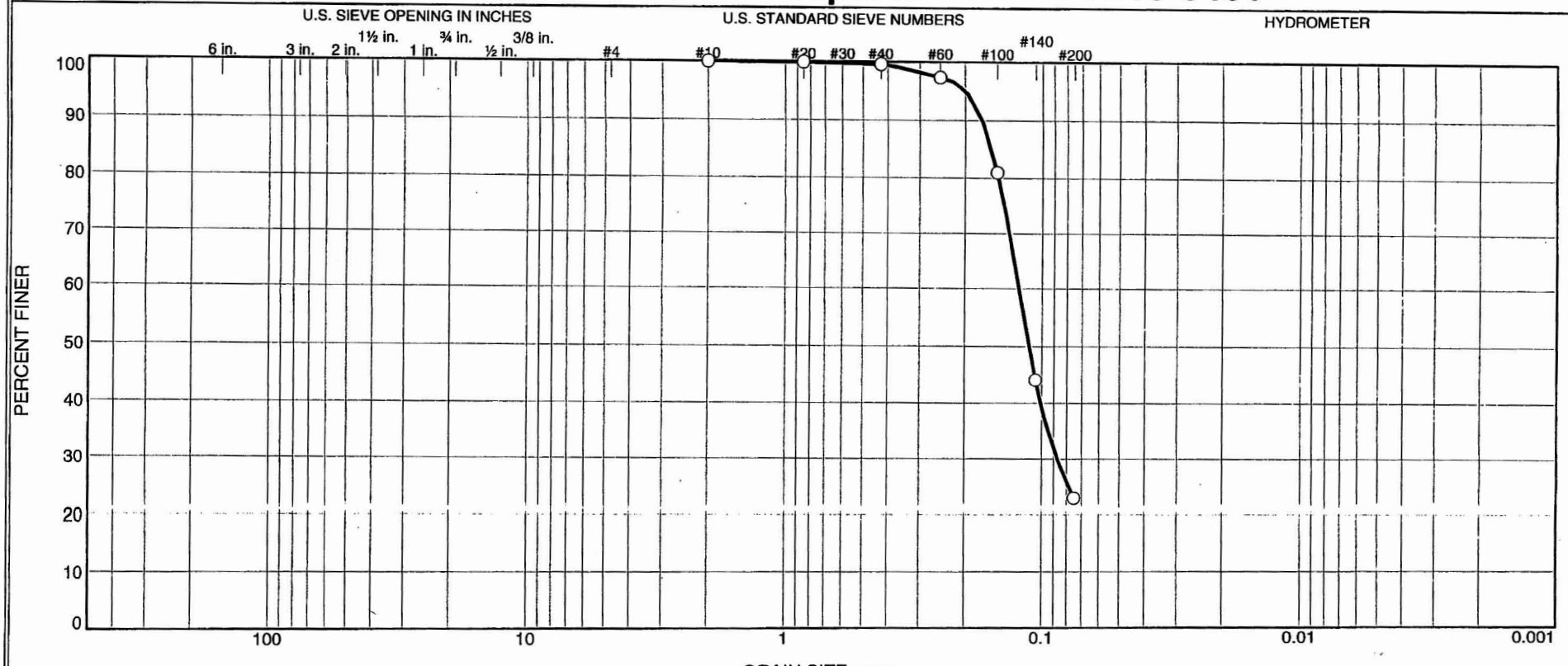
Run No.	1	2	3	4	
Wet+Tare	24.71	25.14			
Dry+Tare	23.51	23.85			
Tare	15.43	15.48			
Moisture	14.9	15.4			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
211.27	177.31	7.00	19.9

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	0.4	76.7	22.9	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-26	128.6-130.1	1-4-08	SC	Pinkish Gray 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 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 128.6-130.1 **Sample Number:** SS-26
Material Description: Pinkish Gray Clayey SAND (Visual)
Date: 1-4-08 **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
268.18	0.00	0.00	#10	0.00	100.0
99.69	0.00	0.00	#20	0.12	99.9
			#40	0.43	99.6
			#60	2.65	97.3
			#100	18.97	81.0
			#140	55.78	44.0
			#200	76.88	22.9

Fractional Components

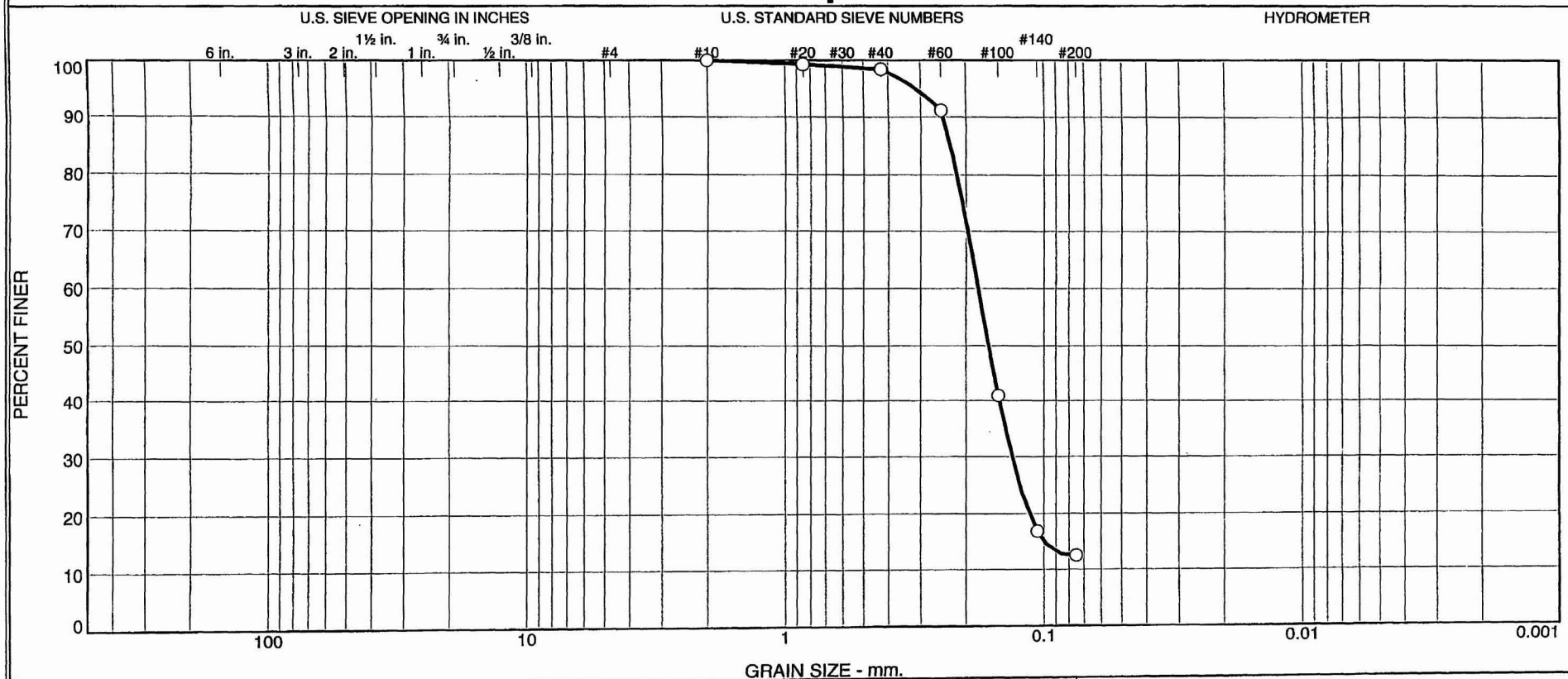
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.4	76.7	77.1			22.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0869	0.1125	0.1230	0.1483	0.1580	0.1719	0.1996

Fineness Modulus
0.21

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	1.6	85.8	12.6	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2352	SS-27	138.4-139.9	1-4-08	SM	Light Yellowish Brown 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 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: Boring B-2352
Depth: 138.4-139.9 **Sample Number:** SS-27
Material Description: Light Yellowish Brown Silty SAND (Visual)
Date: 1-4-08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
210.20	0.00	0.00	#10	0.00	100.0
97.86	0.00	0.00	#20	0.69	99.3
			#40	1.53	98.4
			#60	8.65	91.2
			#100	57.81	40.9
			#140	81.35	16.9
			#200	85.56	12.6

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	1.6	85.8	87.4			12.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0997	0.1138	0.1326	0.1638	0.1794	0.2171	0.2297	0.2455	0.3142

Fineness Modulus
0.66

MACTEC, Inc.