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: 2/18/08

SAMPLE IDENTIFICATION: TP-2310, BULK 2,10'

(A) Mass of oven-dried soil, grams:		75.01
(B) Mass of pycnometer filled with water at test temperature (T), grams:		655.69
(C) Mass of pycnometer, water and soil, grams:		702.49
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		21.4
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.659
(F)	***Correction factor:***	0.99970
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.658

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

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

REMARKS: Estimated % Passing # 4 : 100
Silty,Clayey SAND (SC-SM)

EQUIPMENT USED
SCALES :3.1.99
OVEN : 5.1.16
THERMOMETER :5.1.01
PYCNOMETER :P-6

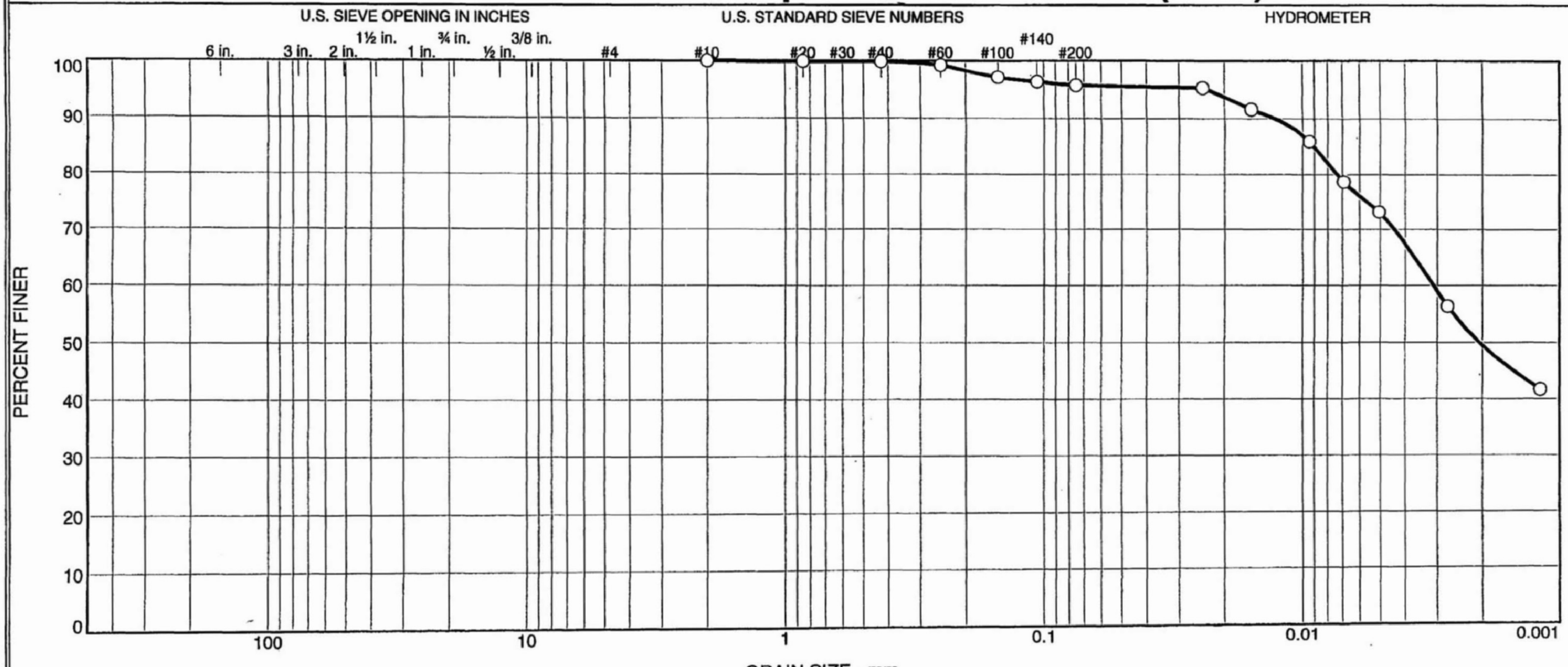
TESTED BY: CS

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

REVIEWED BY: **Brian Johnson**

DSC 3-4-08

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



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.2	4.1	22.7	73.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	TP-2314	Bulk-2	5.0-10.0'	1/22/08	CH	Light Yellowish Brown Fat CLAY	22.7	54	23

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.717 (ASTM D854-06)
Natural Moisture obtained from Jar Sample S-4, 10'

Tested By: CS **Checked By:** LBJ DSC 3-4-08

GRAIN SIZE DISTRIBUTION TEST DATA

3/4/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: TP-2314
Depth: 5.0-10.0' **Sample Number:** Bulk-2
Material Description: Light Yellowish Brown Fat CLAY
Date: 1/22/08 **Natural Moisture:** 22.7
Liquid Limit: 54 **Plastic Limit:** 23 **USCS Class.:** CH
Testing Remarks: Specific Gravity = 2.717 (ASTM D854-06)
Natural Moisture obtained from Jar Sample S-4, 10'
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
317.84	0.00	0.00	#10	0.00	100.0
54.98	0.00	0.00	#20	0.05	99.9
			#40	0.09	99.8
			#60	0.43	99.2
			#100	1.59	97.1
			#140	2.00	96.4
			#200	2.35	95.7

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =54.98
Hygroscopic moisture correction:
Moist weight and tare = 29.41
Dry weight and tare = 29.09
Tare weight = 15.56
Hygroscopic moisture = 2.4%
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 = 2.717
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	57.0	51.9	0.0132	58.0	6.8	0.0243	95.3
5.00	21.2	55.0	49.9	0.0132	56.0	7.1	0.0157	91.6
15.00	21.1	52.0	46.9	0.0132	53.0	7.6	0.0094	86.0
30.00	21.1	48.0	42.9	0.0132	49.0	8.3	0.0069	78.7
60.00	21.1	45.0	39.9	0.0132	46.0	8.8	0.0050	73.2
240.00	20.7	36.0	30.8	0.0133	37.0	10.2	0.0027	56.4
1440.00	20.6	28.0	22.7	0.0133	29.0	11.5	0.0012	41.7

MACTEC, Inc.

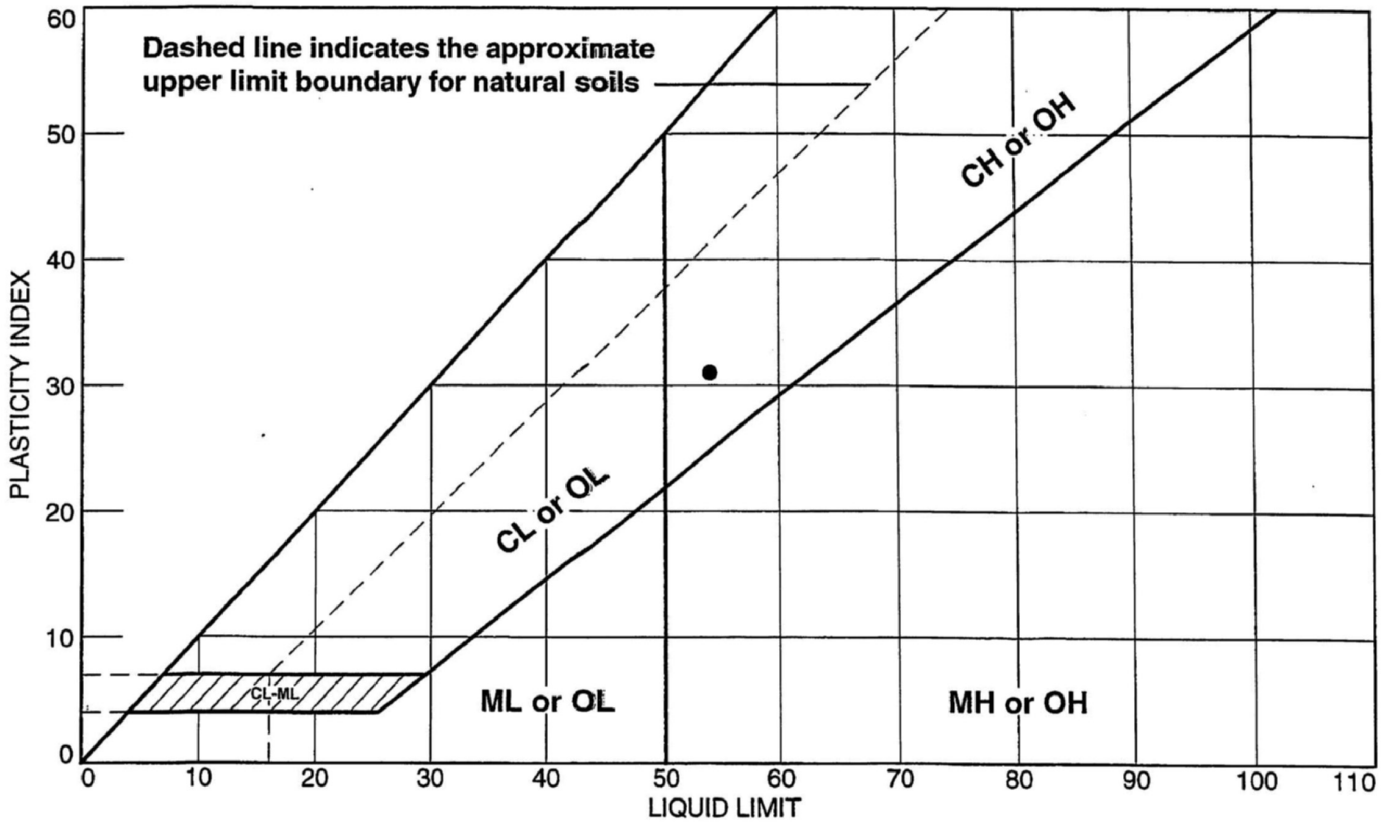
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	4.1	4.3	22.7	73.0	95.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0021	0.0031	0.0073	0.0090	0.0127	0.0234

Fineness Modulus
0.03

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	TP-2314	Bulk-2	5.0-10.0'	22.7	23	54	31	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 3-4-08

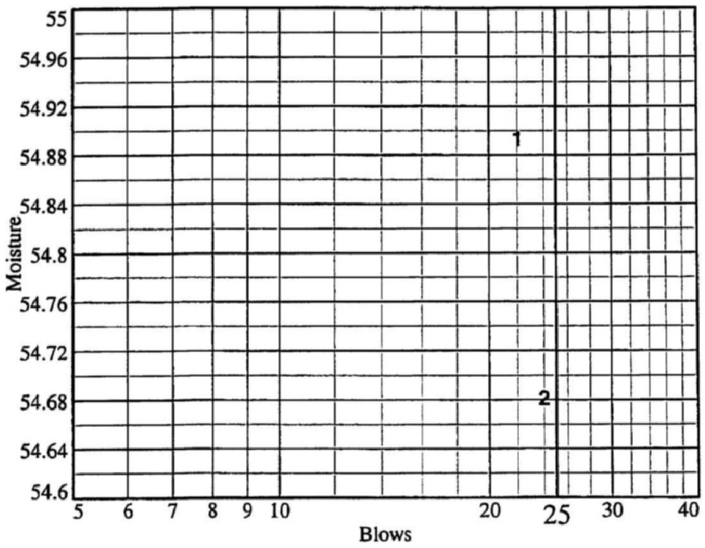
LIQUID AND PLASTIC LIMIT TEST DATA

3/4/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: TP-2314
Depth: 5.0-10.0'
Sample Number: Bulk-2
Material Description: Light Yellowish Brown Fat CLAY
USCS: CH
AASHTO: A-7-6(33)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	22.76	23.81				
Dry+Tare	20.18	20.89				
Tare	15.48	15.55				
# Blows	22	24				
Moisture	54.9	54.7				



Liquid Limit= 54
Plastic Limit= 23
Plasticity Index= 31
Natural Moisture= 22.7
Liquidity Index= 0.0

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.05	23.41			
Dry+Tare	20.80	21.93			
Tare	15.48	15.49			
Moisture	23.5	23.0			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
207.10	170.49	9.34	22.7

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: 2/19/08

SAMPLE IDENTIFICATION: TP-2314 BULK 2,5'-10'

(A) Mass of oven-dried soil, grams:		50.01
(B) Mass of pycnometer filled with water at test temperature (T), grams:		656.44
(C) Mass of pycnometer, water and soil, grams:		688.05
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		22.1
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.718
(F)	***Correction factor:***	0.99954
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.717

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

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

REMARKS: Estimated % Passing # 4 : 100

Fat CLAY (CH)

EQUIPMENT USED

SCALES : 3.1.99

OVEN :5.1.16

THERMOMETER :5.1.01

PYCNOMETER :P-6

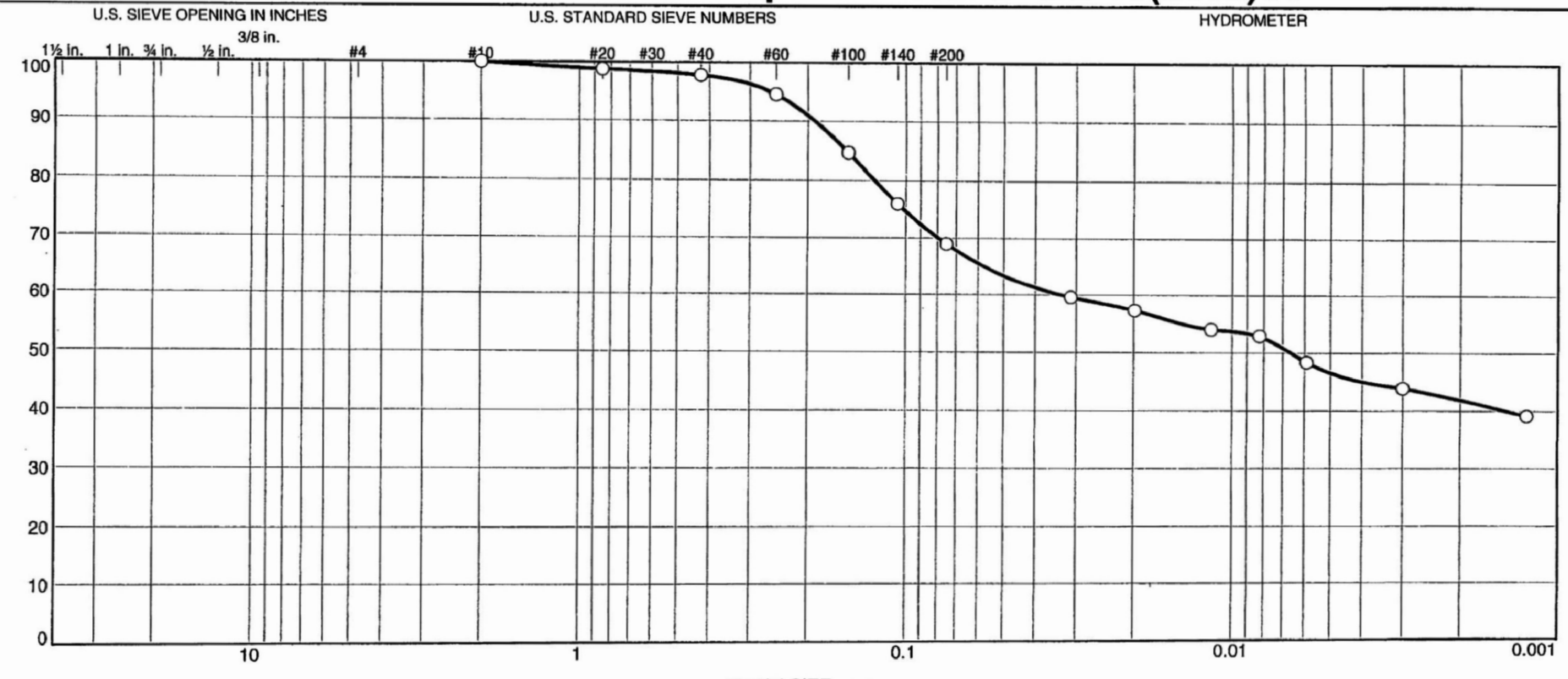
TESTED BY: CS

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

REVIEWED BY: LBJ

DSC 3-4-08

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



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	2.2	28.8	22.5	46.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	TP-2317	Bulk-1	3.0-5.0'	1/22/08	CL	Gray Sandy Lean CLAY	19.1	48	24

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

O Specific Gravity = 2.673 (ASTM D854-06)
Organic Content = 2.1% (ASTM D2974-07)
Natural Moisture and Organic Content obtained from Jar Sample S-2, 3.5-5.0'

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

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DCN# EXE-8

GRAIN SIZE DISTRIBUTION TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: TP-2317
Depth: 3.0-5.0' **Sample Number:** Bulk-1
Material Description: Gray Sandy Lean CLAY
Date: 1/22/08 **Natural Moisture:** 19.1
Liquid Limit: 48 **Plastic Limit:** 24 **USCS Class.:** CL
Testing Remarks: Specific Gravity = 2.673 (ASTM D854-06)
Organic Content = 2.1% (ASTM D2974-07)
Natural Moisture and Organic Content obtained from Jar Sample S-2, 3.5-5.0'
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
408.32	0.00	0.00	#10	0.00	100.0
46.26	0.00	0.00	#20	0.55	98.8
			#40	1.02	97.8
			#60	2.53	94.5
			#100	7.08	84.7
			#140	11.09	76.0
			#200	14.35	69.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =46.26
Hygroscopic moisture correction:
Moist weight and tare = 29.67
Dry weight and tare = 29.27
Tare weight = 15.52
Hygroscopic moisture = 2.9%
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 = 2.673
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	21.2	32.0	26.9	0.0134	33.0	10.9	0.0311	59.6
5.00	21.1	31.0	25.9	0.0134	32.0	11.0	0.0199	57.3
15.00	21.1	29.5	24.4	0.0134	30.5	11.3	0.0116	54.0
30.00	21.1	29.0	23.9	0.0134	30.0	11.4	0.0082	52.9
60.00	21.0	27.0	21.9	0.0134	28.0	11.7	0.0059	48.4
240.00	20.9	25.0	19.8	0.0134	26.0	12.0	0.0030	43.9
1440.00	20.5	23.0	17.7	0.0135	24.0	12.4	0.0012	39.1

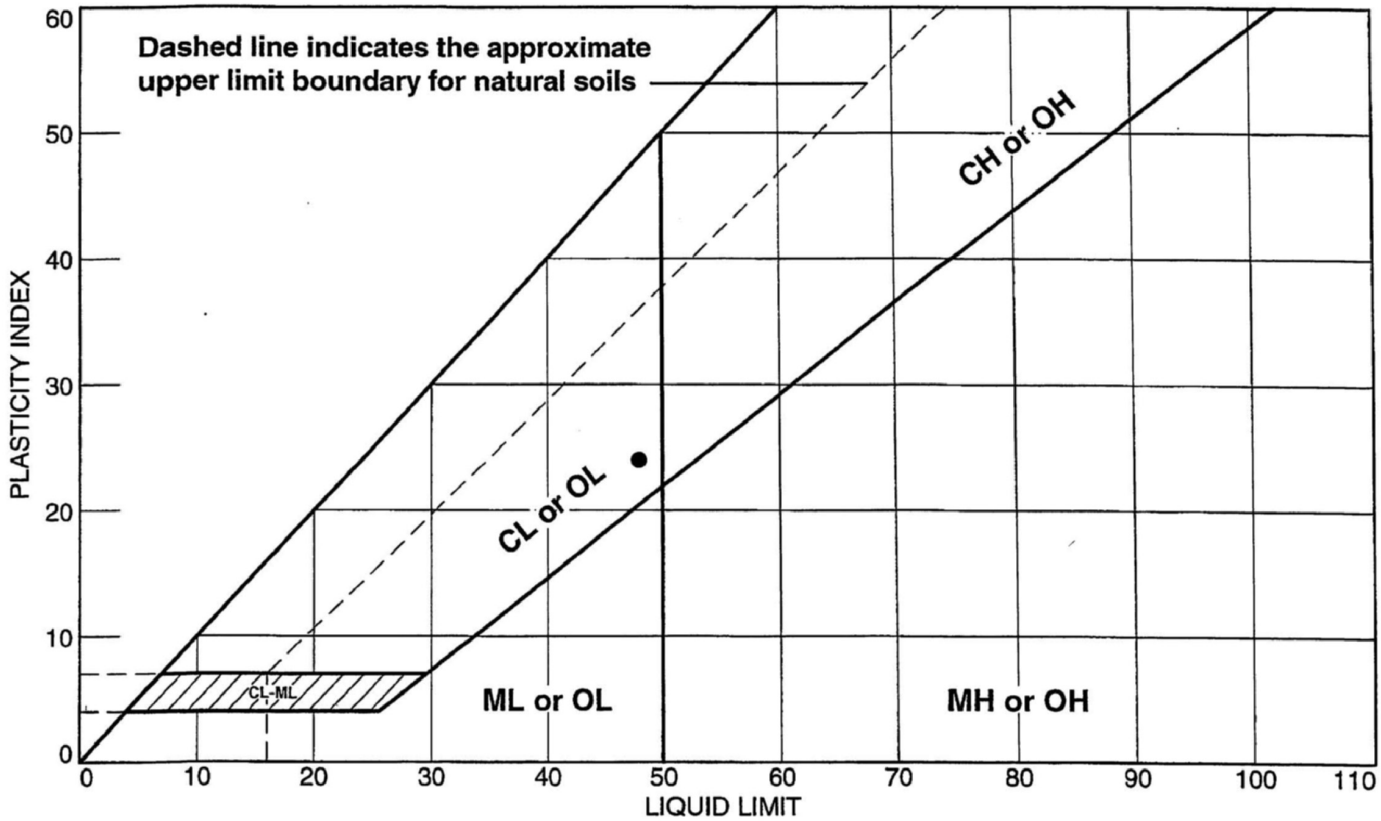
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.2	28.8	31.0	22.5	46.5	69.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0066	0.0334	0.1245	0.1519	0.1900	0.2602

Fineness Modulus
0.21

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	TP-2317	Bulk-1	3.0-5.0'	19.1	24	48	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 3-4-08

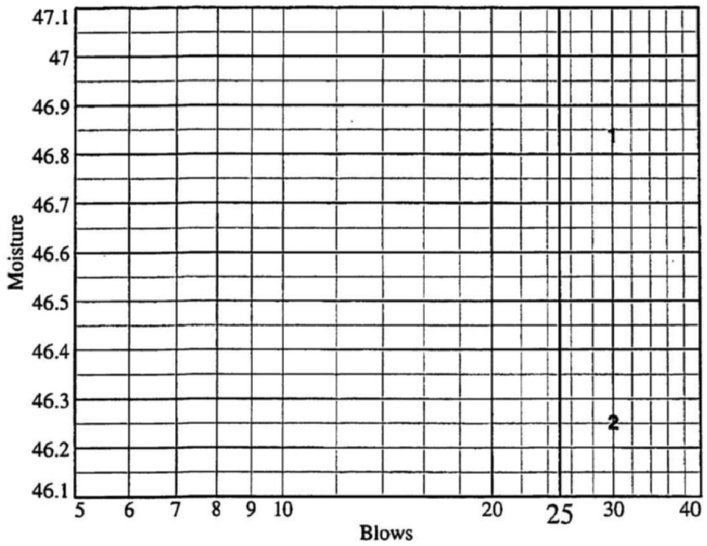
LIQUID AND PLASTIC LIMIT TEST DATA

3/4/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: TP-2317
Depth: 3.0-5.0'
Sample Number: Bulk-1
Material Description: Gray Sandy Lean CLAY
USCS: CL
AASHTO: A-7-6(16)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.92	31.34				
Dry+Tare	26.66	26.34				
Tare	15.43	15.53				
# Blows	30	30				
Moisture	46.8	46.3				



Liquid Limit= 48
Plastic Limit= 24
Plasticity Index= 24
Natural Moisture= 19.1
Liquidity Index= -0.2

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.02	21.75			
Dry+Tare	20.77	20.53			
Tare	15.55	15.50			
Moisture	23.9	24.3			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
208.21	175.89	6.54	19.1

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: 2/19/08

SAMPLE IDENTIFICATION: TP-2317 BULK 1,3-5'

(A) Mass of oven-dried soil, grams:		50.37
(B) Mass of pycnometer filled with water at test temperature (T), grams:		655.68
(C) Mass of pycnometer, water and soil, grams:		687.21
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		21.5
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.674
(F)	***Correction factor:***	0.99968
(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

Sandy Lean CLAY (CL)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER :5.1.01

PYCNOMETER : P-3

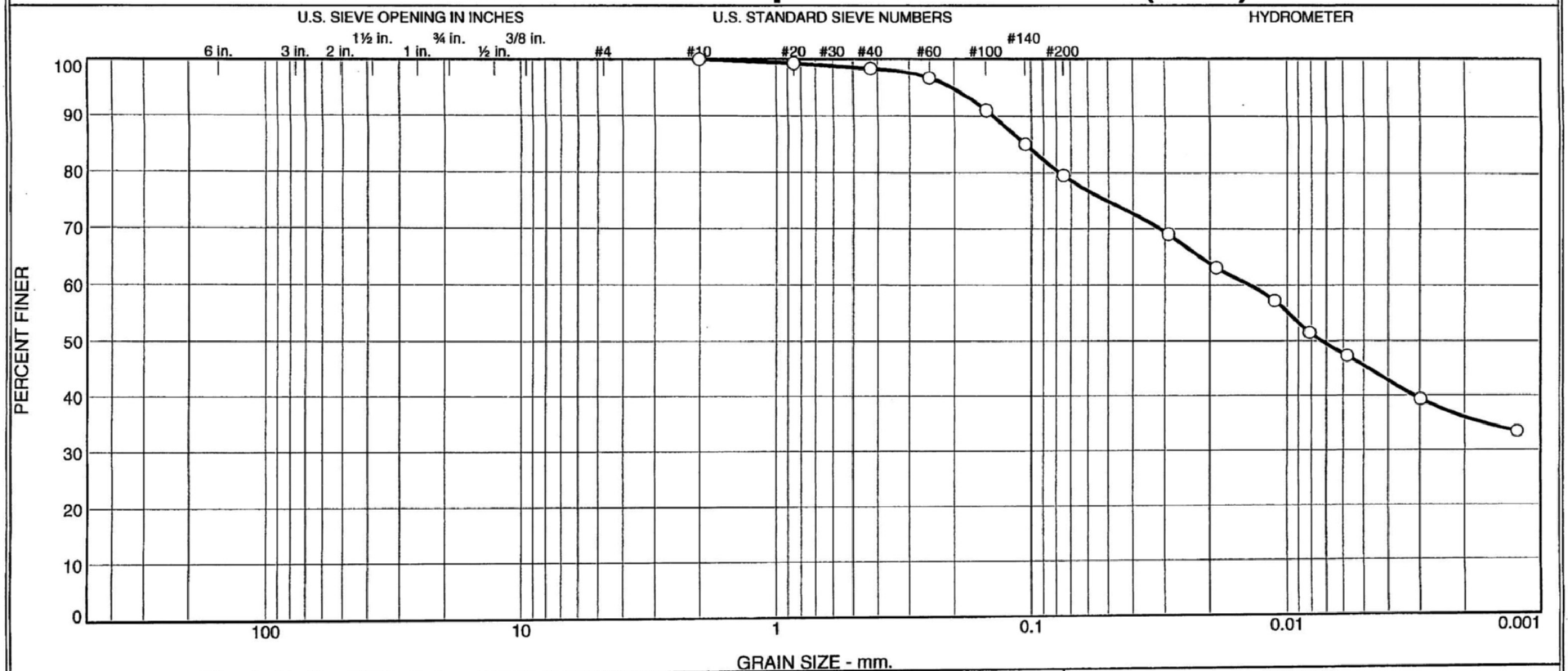
TESTED BY: CS

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

REVIEWED BY: **Brian Johnson**

DSC 3-4-08

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



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	1.7	18.8	34.0	45.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	TP-2317	Bulk-2	5.0-10.0	1/22/08	CL	Pale Yellow Lean CLAY with sand	16.4	45	17

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure N4

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.698 (ASTM D854-06)
Natural Moisture obtained from Jar Sample S-3, 5-8'

Tested By: CS **Checked By:** LBJ DSC 3-4-08

GRAIN SIZE DISTRIBUTION TEST DATA

3/4/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: TP-2317
Depth: 5.0-10.0 **Sample Number:** Bulk-2
Material Description: Pale Yellow Lean CLAY with sand
Date: 1/22/08 **Natural Moisture:** 16.4
Liquid Limit: 45 **Plastic Limit:** 17 **USCS Class.:** CL
Testing Remarks: Specific Gravity = 2.698 (ASTM D854-06)
Natural Moisture obtained from Jar Sample S-3, 5-8'
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
450.20	0.00	0.00	#10	0.00	100.0
51.17	0.00	0.00	#20	0.39	99.2
			#40	0.85	98.3
			#60	1.70	96.7
			#100	4.62	91.0
			#140	7.61	85.1
			#200	10.48	79.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =51.17
Hygroscopic moisture correction:
Moist weight and tare = 28.23
Dry weight and tare = 27.91
Tare weight = 15.52
Hygroscopic moisture = 2.6%
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 = 2.698
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	40.0	34.8	0.0133	41.0	9.6	0.0291	69.1
5.00	20.9	37.0	31.8	0.0133	38.0	10.1	0.0189	63.1
15.00	21.0	34.0	28.9	0.0133	35.0	10.6	0.0111	57.2
30.00	20.0	31.5	26.0	0.0135	32.5	11.0	0.0081	51.6
60.00	20.9	29.0	23.8	0.0133	30.0	11.4	0.0058	47.3
240.00	20.9	25.0	19.8	0.0133	26.0	12.0	0.0030	39.3
1440.00	21.0	22.0	16.9	0.0133	23.0	12.5	0.0012	33.4

MACTEC, Inc.

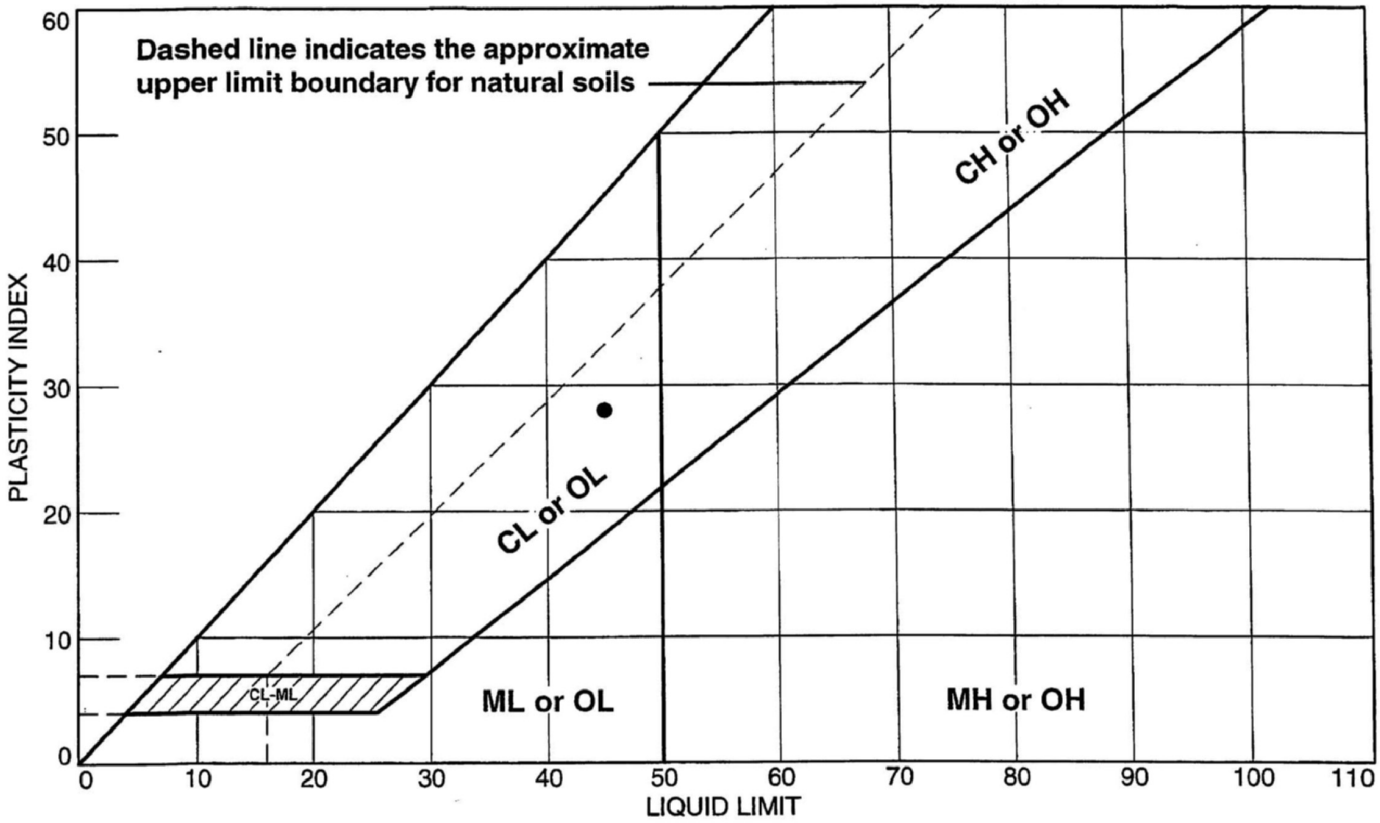
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.7	18.8	20.5	34.0	45.5	79.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0073	0.0139	0.0775	0.1052	0.1410	0.2051

Fineness Modulus
0.13

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	TP-2317	Bulk-2	5.0-10.0	16.4	17	45	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 3-4-08

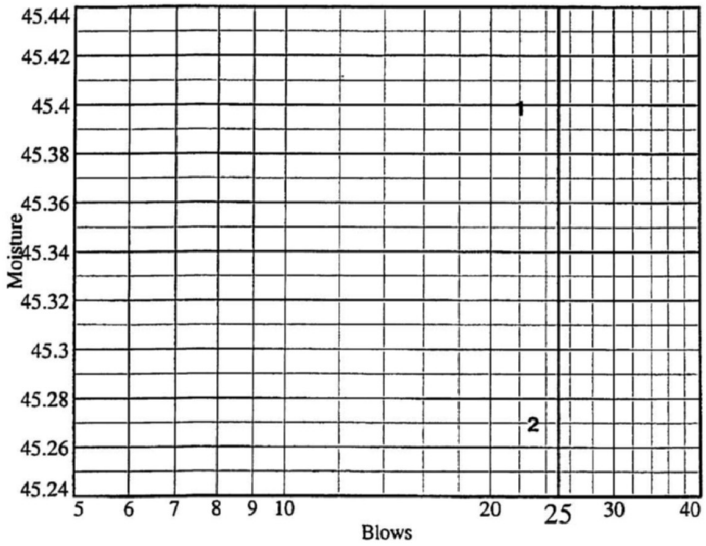
LIQUID AND PLASTIC LIMIT TEST DATA

3/4/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: TP-2317
Depth: 5.0-10.0 **Sample Number:** Bulk-2
Material Description: Pale Yellow Lean CLAY with sand
USCS: CL **AASHTO:** A-7-6(22)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.94	36.65				
Dry+Tare	26.76	30.19				
Tare	15.35	15.92				
# Blows	22	23				
Moisture	45.4	45.3				



Liquid Limit= 45
Plastic Limit= 17
Plasticity Index= 28
Natural Moisture= 16.4
Liquidity Index= 0.0

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.42	22.50			
Dry+Tare	21.40	21.44			
Tare	15.44	15.45			
Moisture	17.1	17.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
151.37	131.00	6.68	16.4

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: 2/20/08

SAMPLE IDENTIFICATION: TP-2317 BULK 2,5-10'

(A) Mass of oven-dried soil, grams:		49.56
(B) Mass of pycnometer filled with water at test temperature (T), grams:		655.55
(C) Mass of pycnometer, water and soil, grams:		686.75
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		22.6
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.699
(F)	***Correction factor:***	0.99943
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.698

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-3

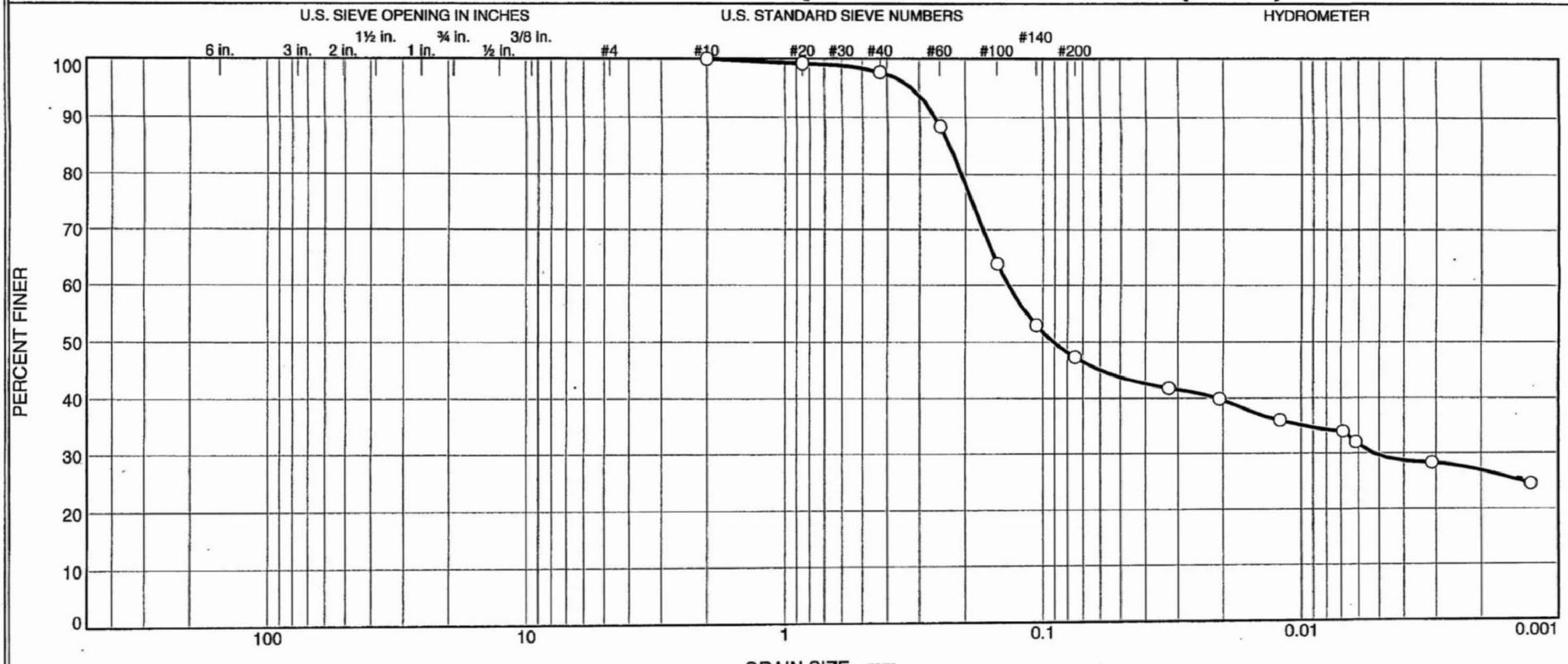
TESTED BY: CS

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

REVIEWED BY: **Brian Johnson**

DSC 3-4-08

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



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	2.3	50.4	17.7	29.6

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	TP-2319	Bulk-2	3.0-10'	1/20/08	SC	Light Brownish Gray Clayey SAND	13.0	32	22

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777 Figure N4

MACTEC, Inc.

Raleigh, North Carolina

O Specific Gravity = 2.667 (ASTM D854-06)
Natural Moisture obtained from Jar Sample S-3, 6.5'

Tested By: CS **Checked By:** LBJ DSC 3-4-08

GRAIN SIZE DISTRIBUTION TEST DATA

3/4/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: TP-2319
Depth: 3.0-10' **Sample Number:** Bulk-2
Material Description: Light Brownish Gray Clayey SAND
Date: 1/20/08 **Natural Moisture:** 13.0
Liquid Limit: 32 **Plastic Limit:** 22 **USCS Class.:** SC
Testing Remarks: Specific Gravity = 2.667 (ASTM D854-06)
Natural Moisture obtained from Jar Sample S-3, 6.5'
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
401.47	0.00	0.00	#10	0.00	100.0
52.88	0.00	0.00	#20	0.42	99.2
			#40	1.23	97.7
			#60	6.10	88.5
			#100	19.11	63.9
			#140	24.89	52.9
			#200	27.85	47.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =52.88
Hygroscopic moisture correction:
Moist weight and tare = 27.70
Dry weight and tare = 27.55
Tare weight = 15.47
Hygroscopic moisture = 1.2%
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 = 2.667
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.1	27.0	21.9	0.0134	28.0	11.7	0.0324	41.8
5.00	21.1	26.0	20.9	0.0134	27.0	11.9	0.0206	39.8
15.00	21.1	24.0	18.9	0.0134	25.0	12.2	0.0121	36.0
47.00	20.9	23.0	17.8	0.0134	24.0	12.4	0.0069	34.0
60.00	20.8	22.0	16.8	0.0134	23.0	12.5	0.0061	32.0
240.00	20.9	20.0	14.8	0.0134	21.0	12.9	0.0031	28.3
1440.00	21.0	18.0	12.9	0.0134	19.0	13.2	0.0013	24.5

MACTEC, Inc.

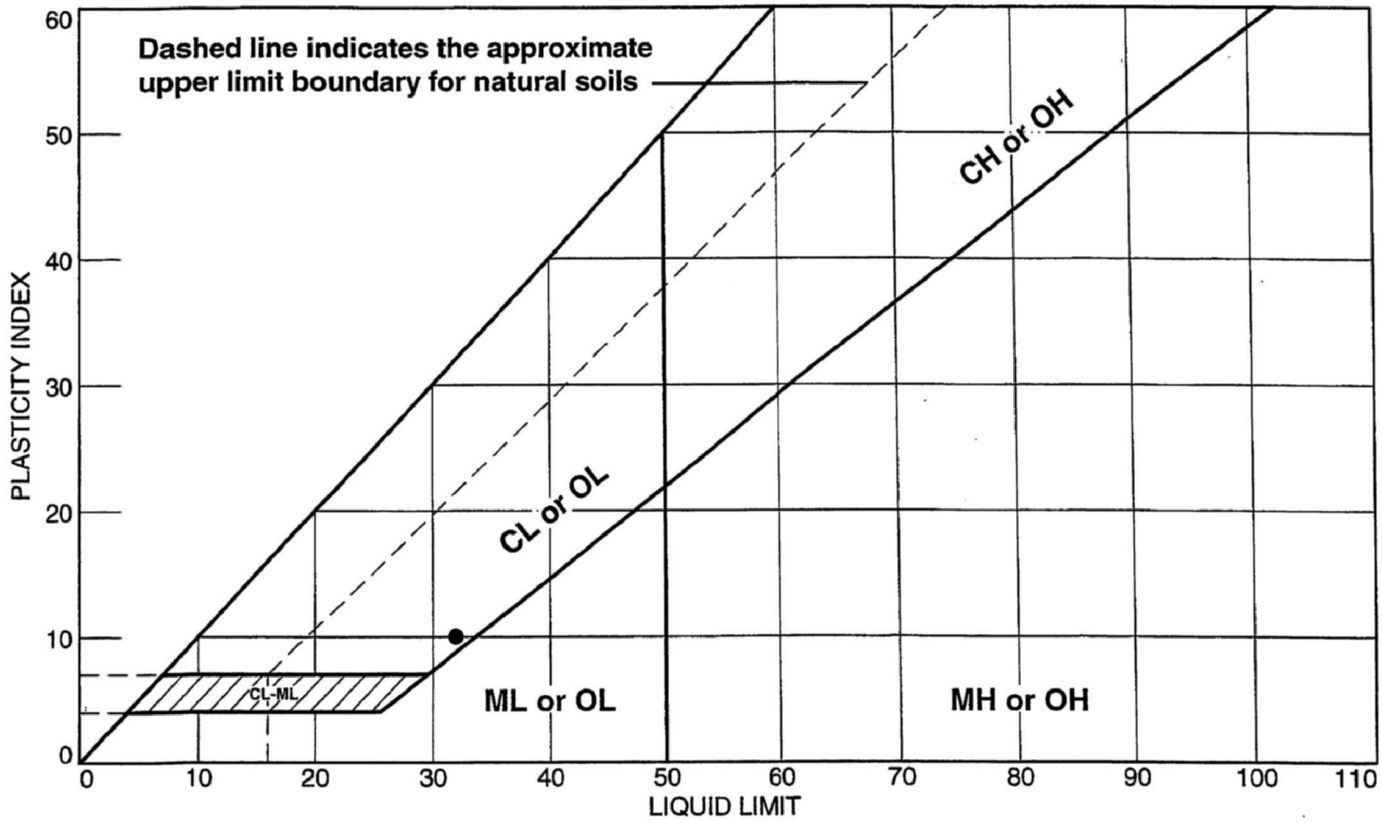
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.3	50.4	52.7	17.7	29.6	47.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0052	0.0909	0.1360	0.2071	0.2298	0.2612	0.3224

Fineness Modulus
0.44

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	TP-2319	Bulk-2	3.0-10'	13.0	22	32	10	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 3-4-08

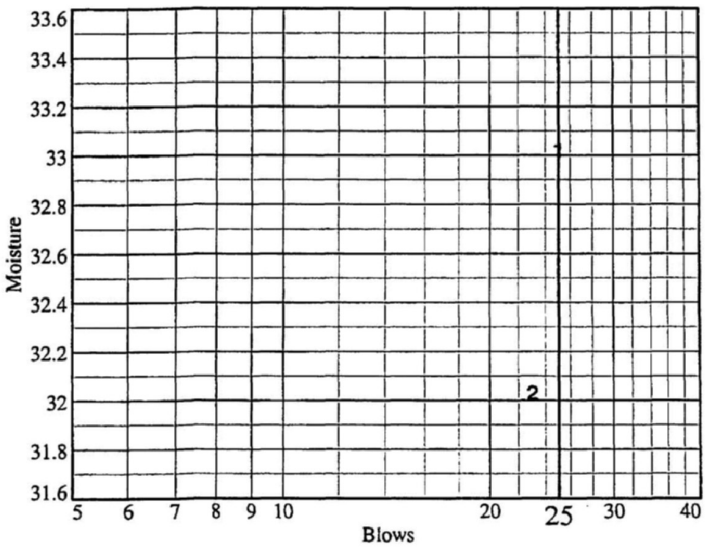
LIQUID AND PLASTIC LIMIT TEST DATA

3/4/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria Reservoir)
Project Number: 6468071777
Location: TP-2319
Depth: 3.0-10'
Sample Number: Bulk-2
Material Description: Light Brownish Gray Clayey SAND
USCS: SC
AASHTO: A-4(2)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.06	25.24				
Dry+Tare	21.94	22.86				
Tare	15.52	15.43				
# Blows	25	23				
Moisture	33.0	32.0				



Liquid Limit= 32
Plastic Limit= 22
Plasticity Index= 10
Natural Moisture= 13.0
Liquidity Index= -0.9

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.78	21.90			
Dry+Tare	21.46	20.78			
Tare	15.47	15.45			
Moisture	22.0	21.0			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
174.25	154.95	6.80	13.0

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: 2/20/08

SAMPLE IDENTIFICATION: TP-2319 BULK 2,3-10'

(A) Mass of oven-dried soil, grams:		75.01
(B) Mass of pycnometer filled with water at test temperature (T), grams:		656.50
(C) Mass of pycnometer, water and soil, grams:		703.39
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		21.6
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.668
(F)	***Correction factor:***	0.99966
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.667

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

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

REMARKS: Estimated % Passing # 4 :100

Clayey SAND (SC)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER :5.1.01

PYCNOMETER :P-6

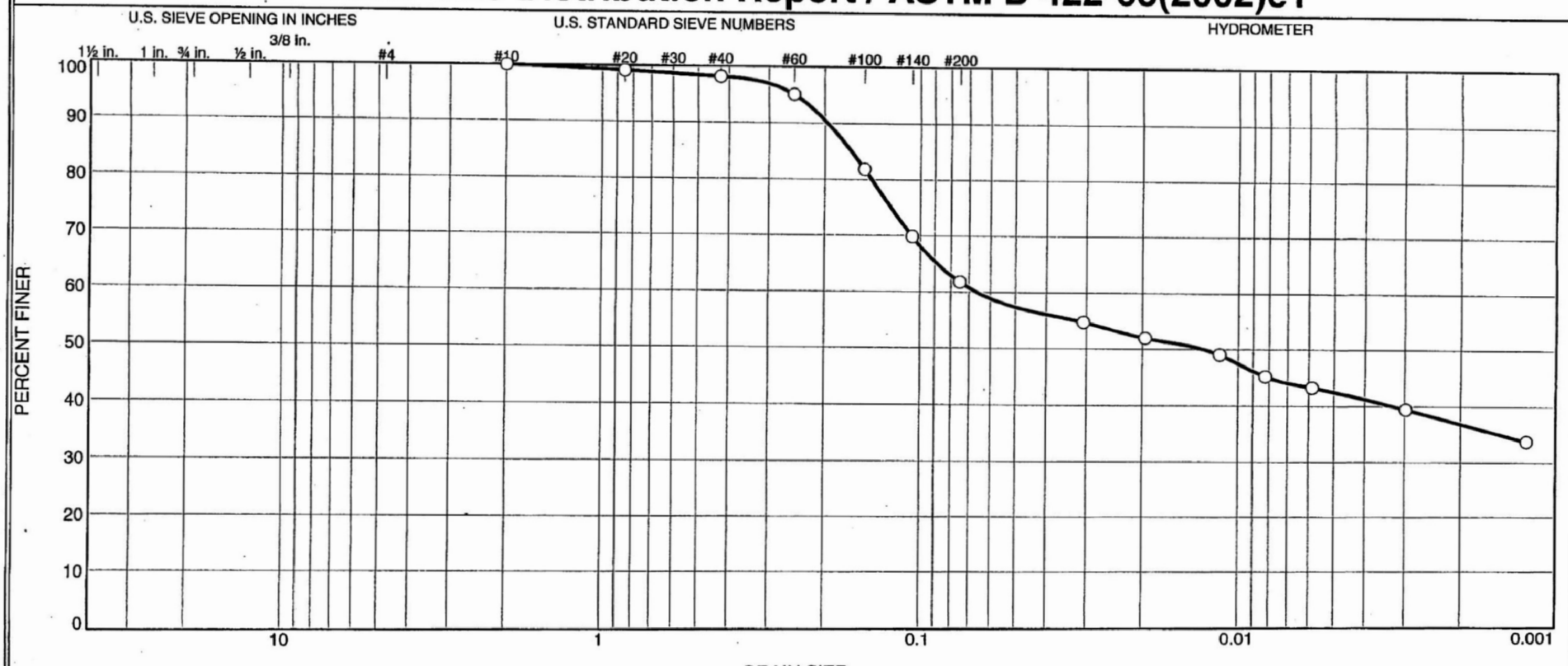
TESTED BY:CS

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

REVIEWED BY: **Brian Johnson**

DSC 3-4-08

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



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	1.8	36.4	19.3	42.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	TP-2320	Bulk 1	5.0'	1/19/08	CL	Light Brownish Gray Sandy Lean CLAY	12.0	42	17

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.686 (ASTM D854-06)
Organic Content = 2.6% (ASTM D2974-07)
Natural Moisture and Organic Content obtained from Jar Sample S-3, 5-10'

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

GRAIN SIZE DISTRIBUTION TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: TP-2320
Depth: 5.0' **Sample Number:** Bulk 1
Material Description: Light Brownish Gray Sandy Lean CLAY
Date: 1/19/08 **Natural Moisture:** 12.0
Liquid Limit: 42 **Plastic Limit:** 17 **USCS Class.:** CL
Testing Remarks: Specific Gravity = 2.686 (ASTM D854-06)
Organic Content = 2.6% (ASTM D2974-07)
Natural Moisture and Organic Content obtained from Jar Sample S-3, 5-10'
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
277.62	0.00	0.00	#10	0.00	100.0
53.24	0.00	0.00	#20	0.46	99.1
			#40	0.98	98.2
			#60	2.63	95.1
			#100	9.67	81.8
			#140	16.05	69.9
			#200	20.33	61.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =53.24
Hygroscopic moisture correction:
Moist weight and tare = 28.72
Dry weight and tare = 28.48
Tare weight = 15.50
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 = 1.0
Specific gravity of solids = 2.686
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	34.0	28.9	0.0133	35.0	10.6	0.0306	54.8
5.00	21.0	32.5	27.4	0.0133	33.5	10.8	0.0196	51.9
15.00	21.0	31.0	25.9	0.0133	32.0	11.0	0.0114	49.1
30.00	20.9	29.0	23.8	0.0133	30.0	11.4	0.0082	45.2
60.00	20.8	28.0	22.8	0.0134	29.0	11.5	0.0059	43.2
240.00	20.8	26.0	20.8	0.0134	27.0	11.9	0.0030	39.4
1440.00	20.9	23.0	17.8	0.0133	24.0	12.4	0.0012	33.8

MACTEC, Inc.

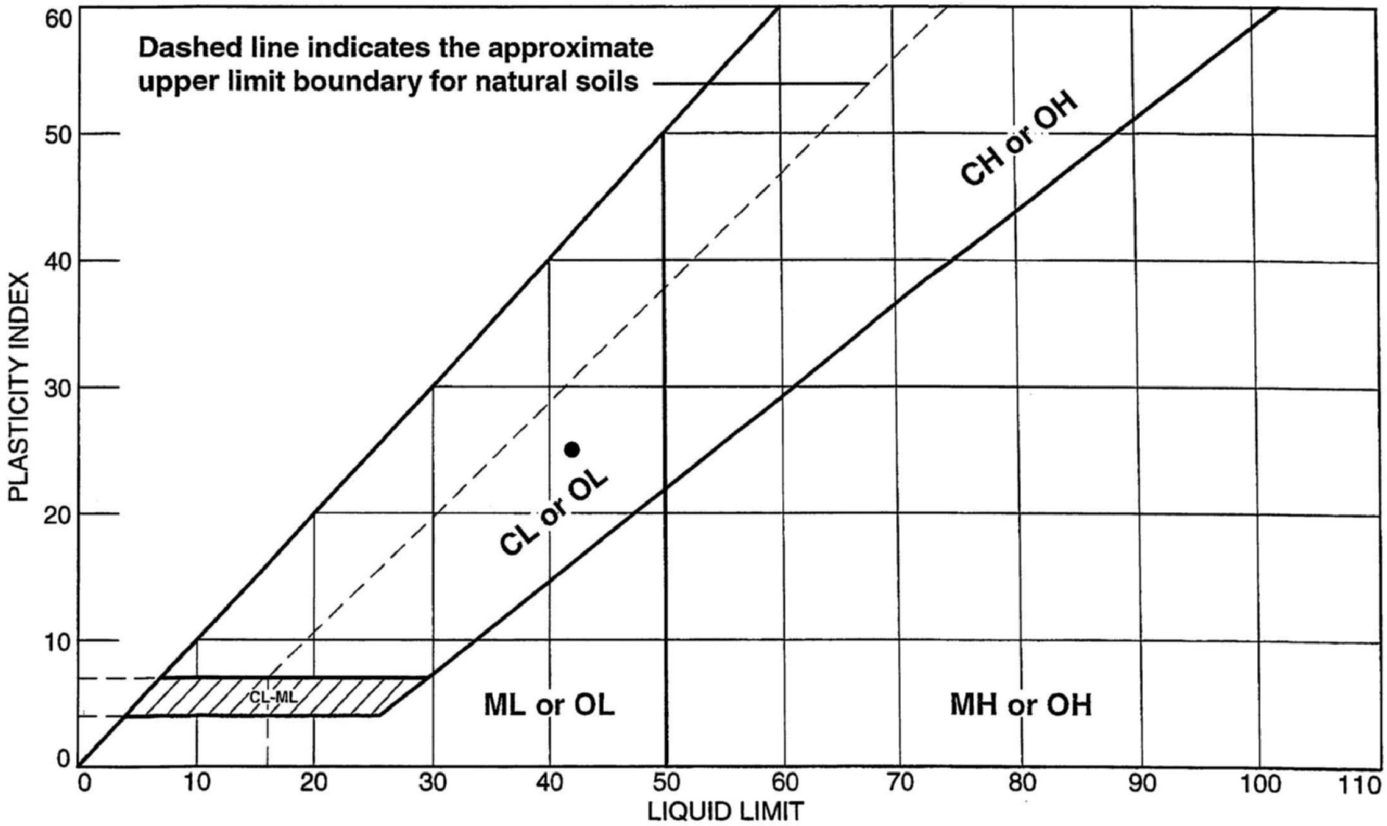
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.8	36.4	38.2	19.3	42.5	61.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0128	0.0662	0.1423	0.1650	0.1960	0.2490

Fineness Modulus
0.23

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	TP-2320	Bulk 1	5.0'	12.0	17	42	25	CL

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

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

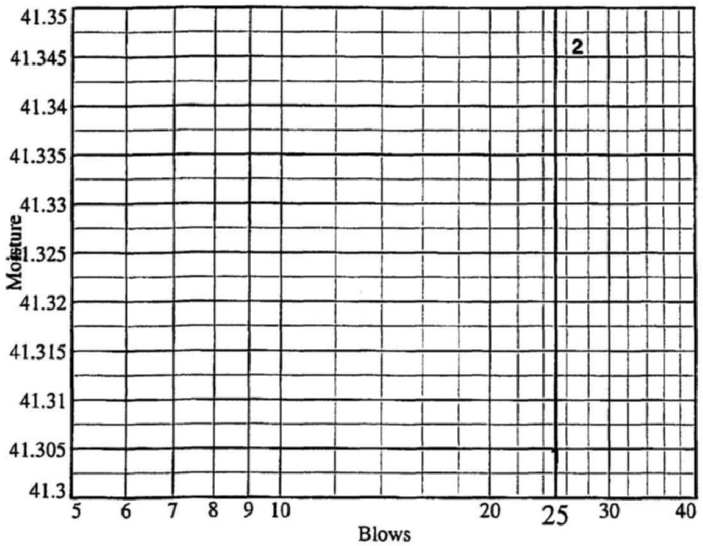
LIQUID AND PLASTIC LIMIT TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: TP-2320
Depth: 5.0'
Sample Number: Bulk 1
Material Description: Light Brownish Gray Sandy Lean CLAY
USCS: CL
AASHTO: A-7-6(13)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	25.25	25.89				
Dry+Tare	22.40	22.88				
Tare	15.50	15.60				
# Blows	25	27				
Moisture	41.3	41.3				



Liquid Limit= 42
Plastic Limit= 17
Plasticity Index= 25
Natural Moisture= 12.0
Liquidity Index= -0.2

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.52	22.16			
Dry+Tare	21.53	21.21			
Tare	15.48	15.50			
Moisture	16.4	16.6			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
183.27	164.63	9.24	12.0

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: 2/21/08

SAMPLE IDENTIFICATION: TP-2320 BULK 1,5'

(A) Mass of oven-dried soil, grams:		52.69
(B) Mass of pycnometer filled with water at test temperature (T), grams:		656.59
(C) Mass of pycnometer, water and soil, grams:		689.67
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		20.8
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.687
(F)	***Correction factor:***	0.99983
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.686

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

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

REMARKS: Estimated % Passing # 4 : 100

Sandy Lean CLAY (CL)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER :5.1.01

PYCNOMETER : P-6

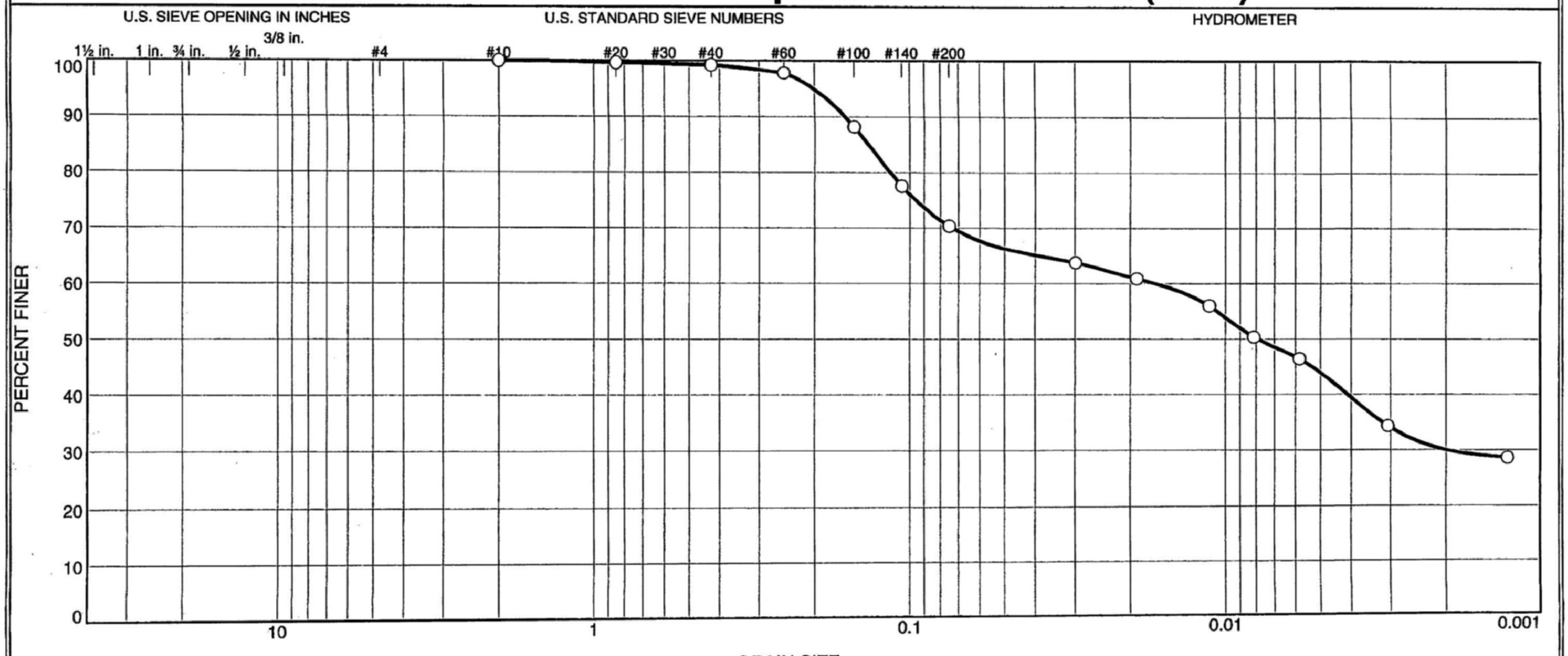
TESTED BY: CS

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

REVIEWED BY: **Brian Johnson**

DSC 3-4-08

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



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.7	28.9	26.4	44.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	TP-2320	Bulk 2	5.0-10.0'	1/19/08	CL	Olive Yellow Sandy Lean CLAY	9.3	41	16

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.671 (ASTM D854-06)
Natural Moisture obtained from Jar Sample S-4, 10'

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

GRAIN SIZE DISTRIBUTION TEST DATA

4/2/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: TP-2320
Depth: 5.0-10.0' **Sample Number:** Bulk 2
Material Description: Olive Yellow Sandy Lean CLAY
Date: 1/19/08 **Natural Moisture:** 9.3
Liquid Limit: 41 **Plastic Limit:** 16 **USCS Class.:** CL
Testing Remarks: Specific Gravity = 2.671 (ASTM D854-06)
Natural Moisture obtained from Jar Sample S-4, 10'
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
408.44	0.00	0.00	#10	0.00	100.0
51.83	0.00	0.00	#20	0.16	99.7
			#40	0.38	99.3
			#60	1.10	97.9
			#100	6.08	88.3
			#140	11.62	77.6
			#200	15.36	70.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =51.83
Hygroscopic moisture correction:
Moist weight and tare = 28.62
Dry weight and tare = 28.46
Tare weight = 15.47
Hygroscopic moisture = 1.2%
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 = 2.671
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	38.0	32.8	0.0134	39.0	9.9	0.0298	63.8
5.00	20.9	36.5	31.3	0.0134	37.5	10.1	0.0191	60.9
15.00	20.9	34.0	28.8	0.0134	35.0	10.6	0.0112	56.0
30.00	21.1	31.0	25.9	0.0134	32.0	11.0	0.0081	50.3
60.00	21.1	29.0	23.9	0.0134	30.0	11.4	0.0058	46.4
240.00	20.5	23.0	17.7	0.0135	24.0	12.4	0.0031	34.4
1440.00	20.6	20.0	14.7	0.0135	21.0	12.9	0.0013	28.6

MACTEC, Inc.

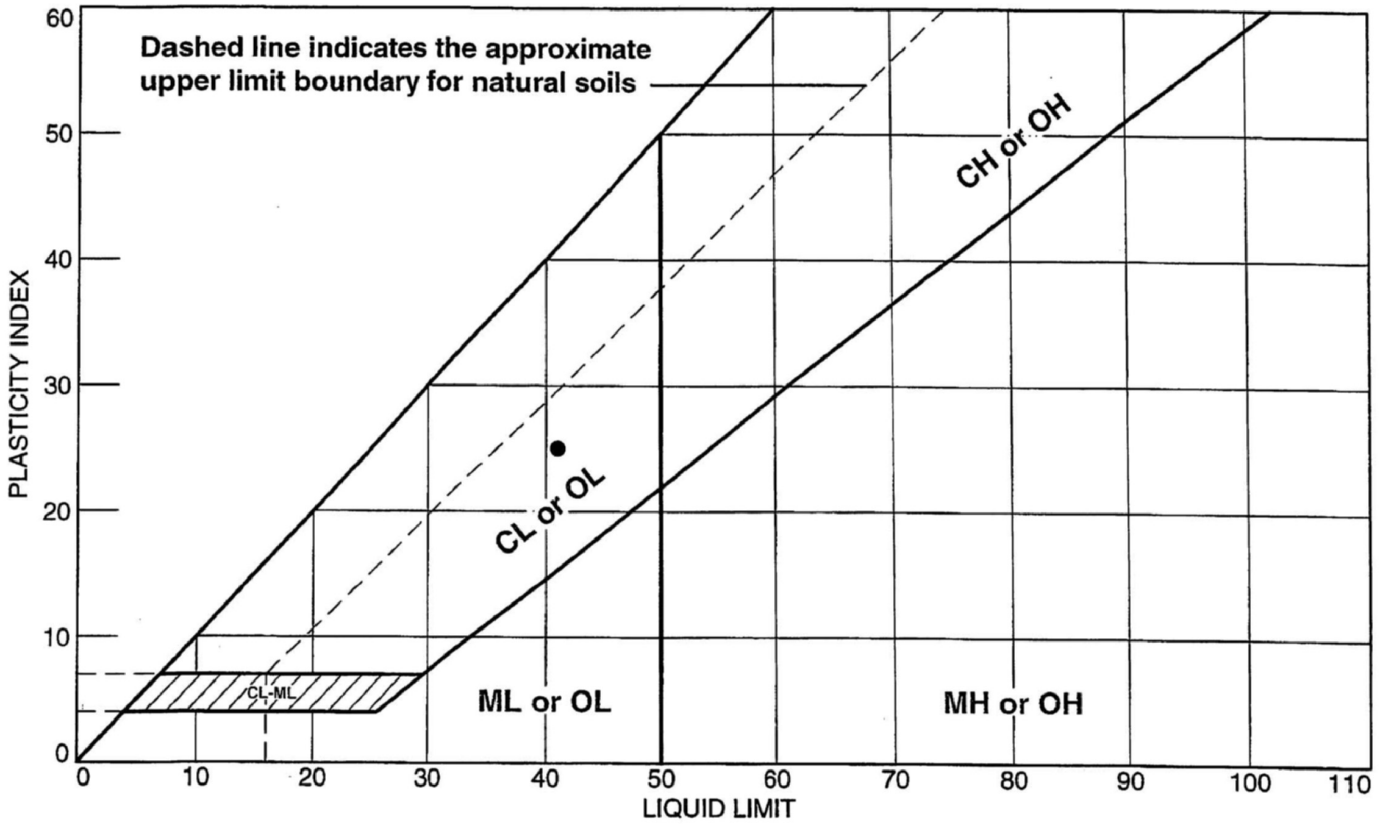
Fractional Components

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	28.9	29.6	26.4	44.0	70.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0020	0.0079	0.0167	0.1151	0.1347	0.1597	0.2009

Fineness Modulus
0.14

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	TP-2320	Bulk 2	5.0-10.0'	9.3	16	41	25	CL

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

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