GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 323
Depth: 83.5'-85.0'
Sample Number: STP-133 (SS-24)
Material Description: Poorly Graded Sand with Silt
Date: 12/3/2006
Natural Moisture: 18.3
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 73.61
Tare Wt. = 0.00
Minus #200 from wash = 7.9%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
254.70	174.80	0.00	3	0.00	100.0			
			2	0.00	100.0			
			1.5	0.00	100.0			
			1	0.00	100.0			
			3/4	0.00	100.0			
			3/8	0.00	100.0			
			#4	0.18	99.8			
			#10	0.52	99.3			
			#20	1.68	97.9			
			#40	18.78	76.5			
			#60	58.49	26.8			
			#100	71.41	10.6			
			#140	72.94	8.7			
			#200	73.61	7.9			

Fractional Components

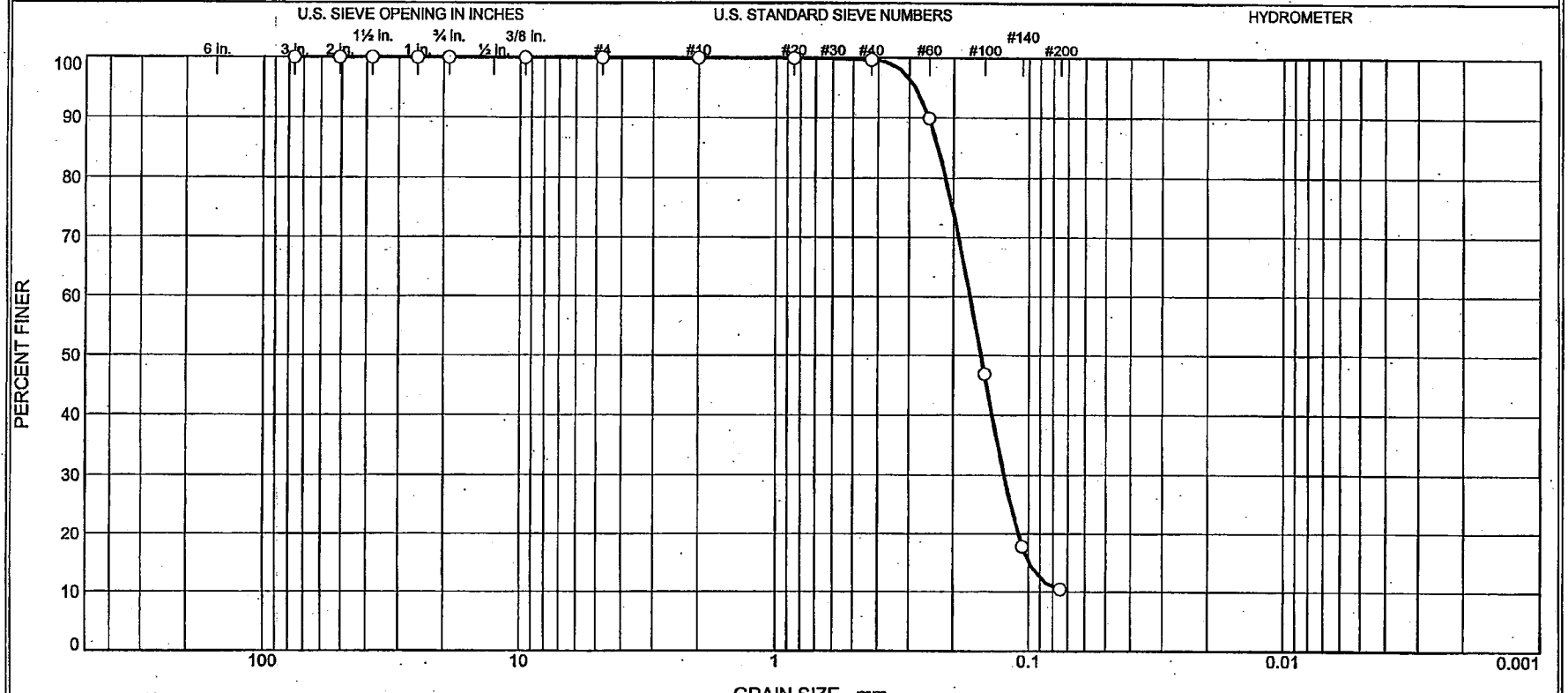
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.2	0.2	0.5	22.8	68.6	91.9			7.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1384	0.1958	0.2232	0.2607	0.3221	0.3551	0.4457	0.4832	0.5379	0.6419

Fineness Modulus	C_u	C_c
1.55	2.57	1.38

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.3	89.3	10.4	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 323	STP-134 (SS-25)	88.5'-90.0'	12/3/2006	SP-SM	Poorly Graded Sand with Silt	22.0		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 323
Depth: 88.5'-90.0'
Sample Number: STP-134 (SS-25)
Material Description: Poorly Graded Sand with Silt
Date: 12/3/2006
Natural Moisture: 22.0
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 71.30
Tare Wt. = 0.00
Minus #200 from wash = 10.4%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
256.10	176.50	0.00	3	0.00	100.0			
			2	0.00	100.0			
			1.5	0.00	100.0			
			1	0.00	100.0			
			3/4	0.00	100.0			
			3/8	0.00	100.0			
			#4	0.00	100.0			
			#10	0.00	100.0			
			#20	0.06	99.9			
			#40	0.26	99.7			
			#60	8.02	89.9			
			#100	42.29	46.9			
			#140	65.46	17.8			
			#200	71.30	10.4			

Fractional Components

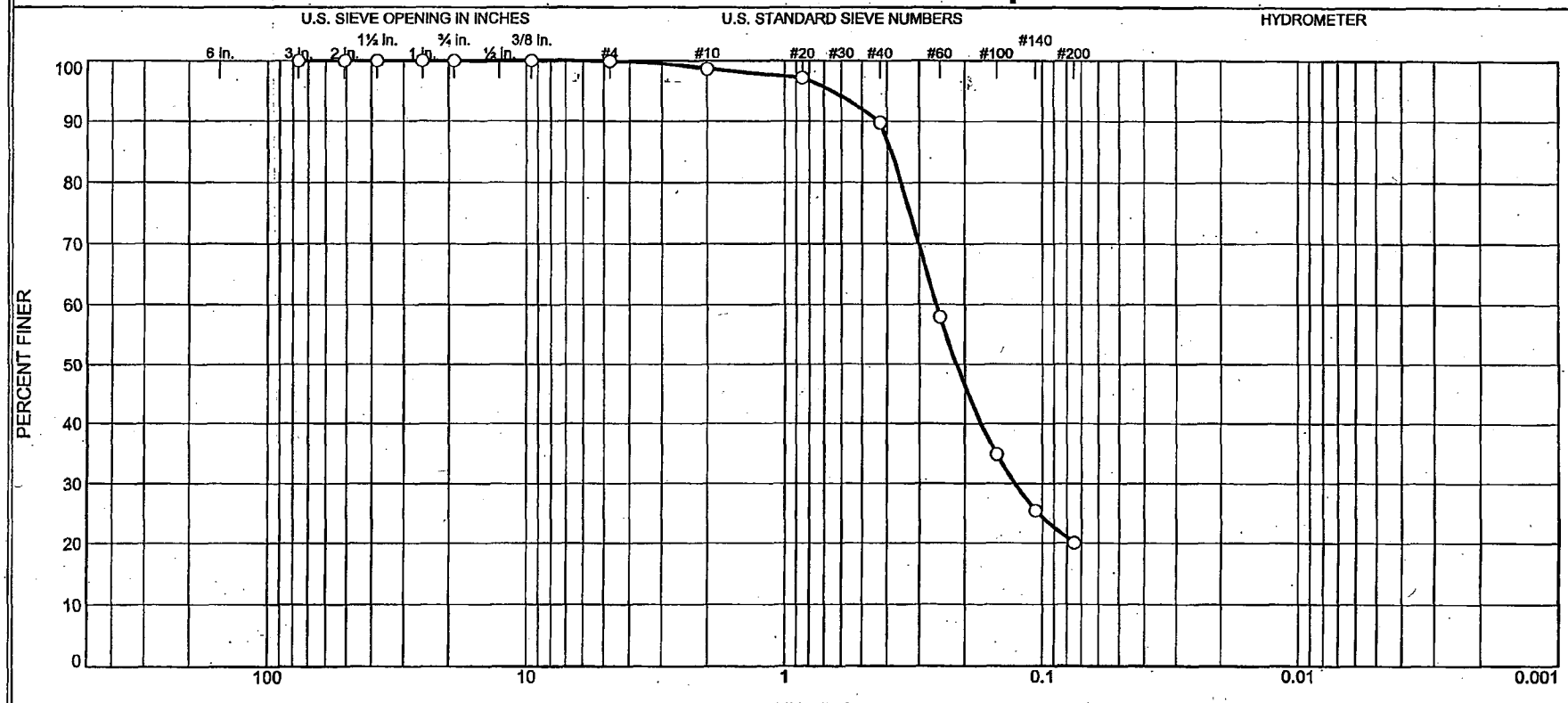
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.3	89.3	89.6			10.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0996	0.1102	0.1257	0.1548	0.1713	0.2147	0.2302	0.2504	0.2825

Fineness Modulus
0.57

4-3-07
MT

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.1	1.2	9.0	69.7	20.0	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 323	STP-135 (SS-26)	93.5'-95.0'	12/3/2006	SM	Silty Sand	17.8		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1

MA
4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 323
Depth: 93.5'-95.0'
Sample Number: STP-135 (SS-26)
Material Description: Silty Sand
Date: 12/3/2006
Natural Moisture: 17.8
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 71.29
Tare Wt. = 0.00
Minus #200 from wash = 20.0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
262.20	173.10	0.00	3	0.00	100.0			
			2	0.00	100.0			
			1.5	0.00	100.0			
			1	0.00	100.0			
			3/4	0.00	100.0			
			3/8	0.00	100.0			
			#4	0.09	99.9			
			#10	1.20	98.7			
			#20	2.48	97.2			
			#40	9.14	89.7			
			#60	37.44	58.0			
			#100	58.03	34.9			
			#140	66.43	25.4			
			#200	71.29	20.0			

Fractional Components

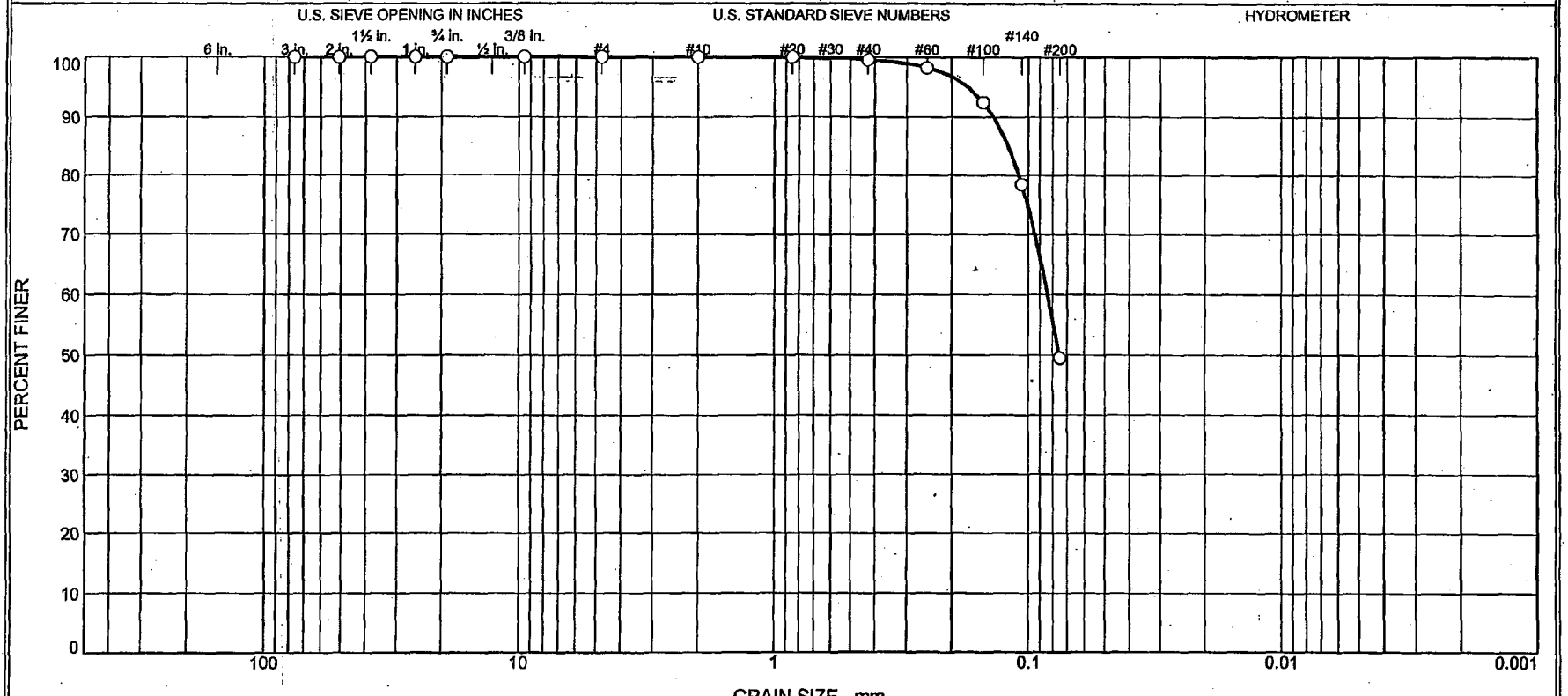
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.1	0.1	1.2	9.0	69.7	79.9			20.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0751	0.1280	0.2163	0.2584	0.3525	0.3847	0.4325	0.6504

Fineness Modulus
1.05

MAC 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.5	50.0	49.5	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 323	STP-136	98.5'-100'	12/3/2006	SC	Clayey Sand	22.4		
		(SS-27)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1

MA 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 323
Depth: 98.5'-100'
Sample Number: STP-136 (SS-27)
Material Description: Clayey Sand
Date: 12/3/2006
Natural Moisture: 22.4
USCS Class.: SC
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 40.41
Tare Wt. = 0.00
Minus #200 from wash = 49.5%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
257.90	177.90	0.00	3	0.00	100.0			
			2	0.00	100.0			
			1.5	0.00	100.0			
			1	0.00	100.0			
			3/4	0.00	100.0			
			3/8	0.00	100.0			
			#4	0.00	100.0			
			#10	0.00	100.0			
			#20	0.03	100.0			
			#40	0.38	99.5			
			#60	1.39	98.3			
			#100	6.05	92.4			
			#140	17.20	78.5			
			#200	40.41	49.5			

Fractional Components

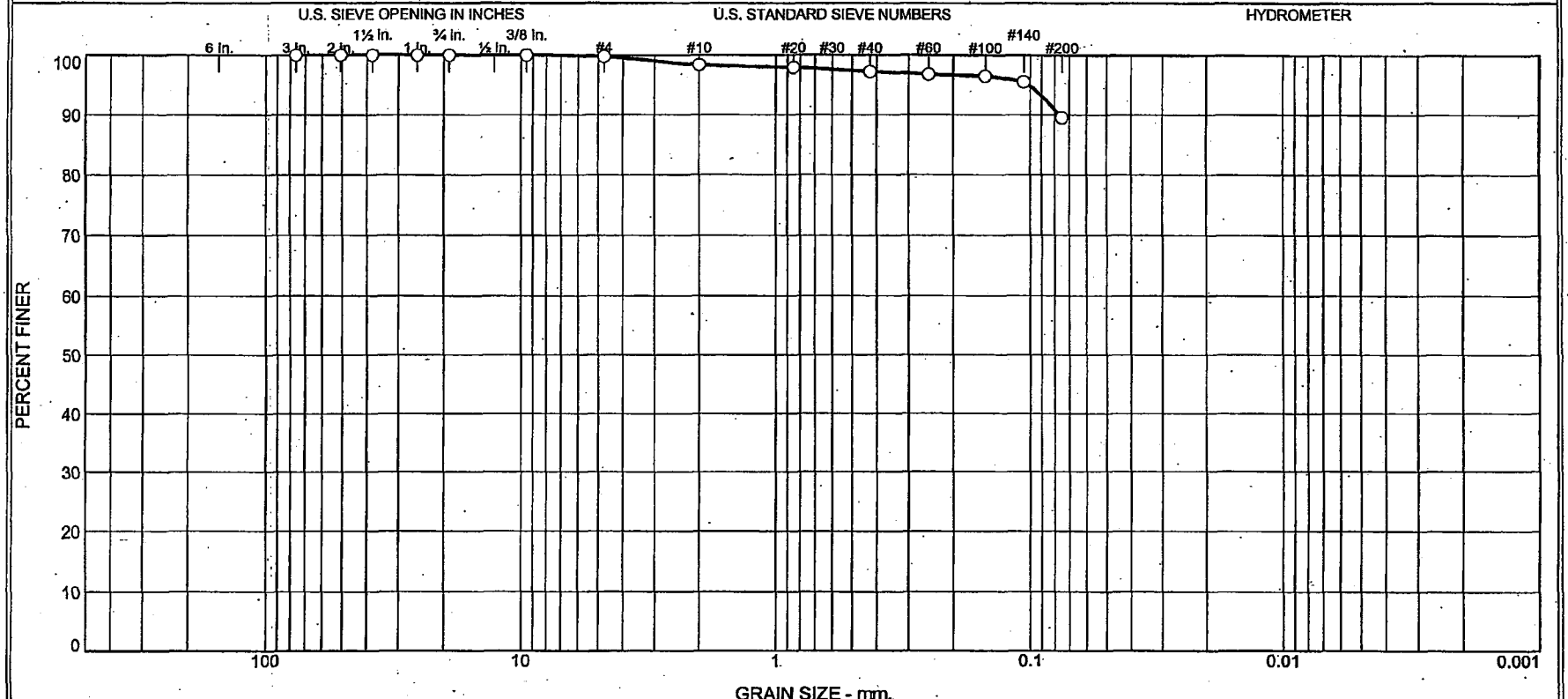
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.5	50.0	50.5			49.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0754	0.0840	0.1086	0.1195	0.1367	0.1717

Fineness Modulus
0.09

4-3-07
MK

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.2	1.4	1.2	7.7	89.5	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 326	STP-305	18.5'-20.0'	12/4/2006	ML	Silt	24.5		
		(SS-11)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

MK 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

3/19/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 326
Depth: 18.5'-20.0'
Sample Number: STP-305 (SS-11)
Material Description: Silt
Date: 12/4/2006
Natural Moisture: 24.5
USCS Class.: ML
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
254.90	178.30	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			.75	0.00	100.0
			.375	0.00	100.0
			#4	0.17	99.8
			#10	1.24	98.4
			#20	1.61	97.9
			#40	2.14	97.2
			#60	2.46	96.8
			#100	2.69	96.5
			#140	3.44	95.5
			#200	8.03	89.5

Percentage Components

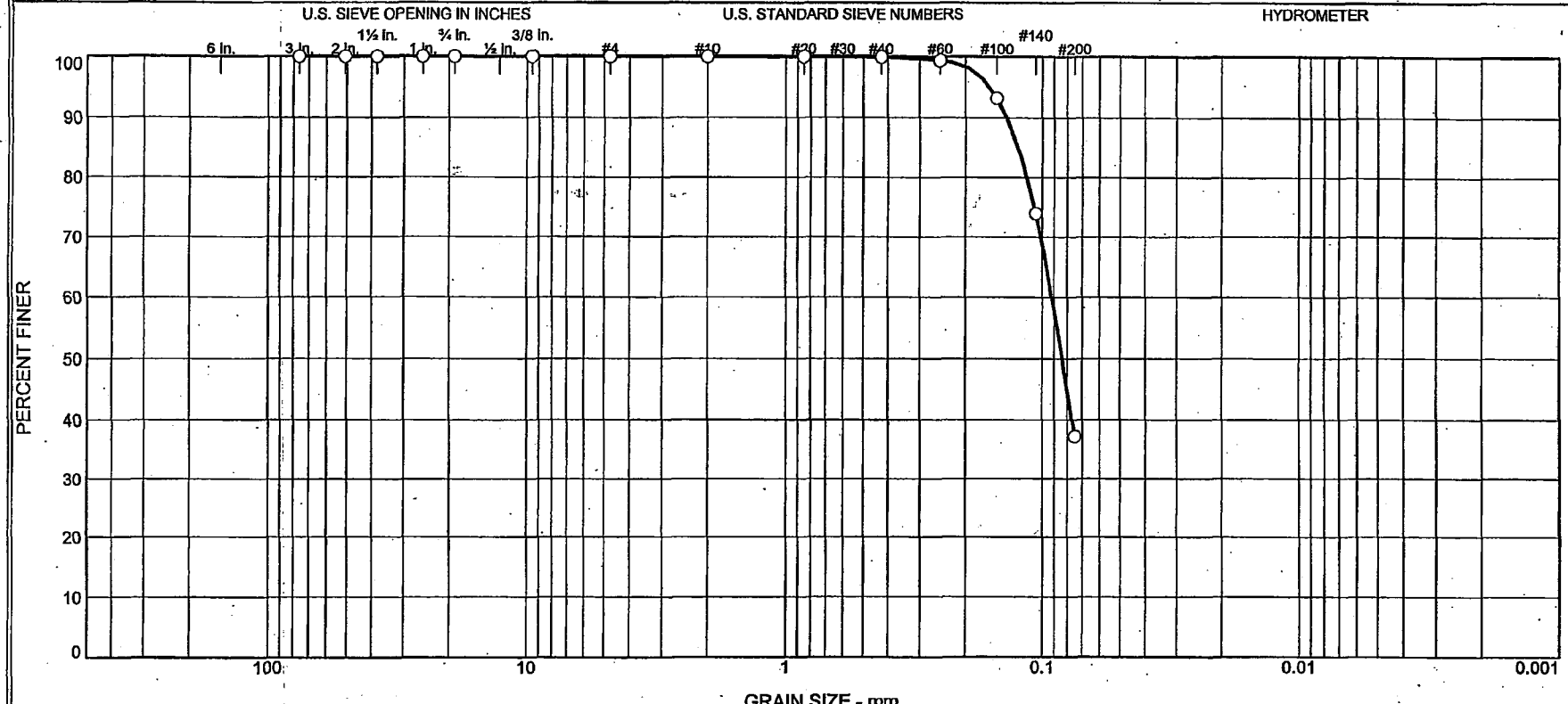
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.2	0.2	1.4	1.2	7.7	10.3			89.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
								0.0767	0.1013

Fineness Modulus
0.13

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.0	62.8	37.2	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 326	STP-306 (SS-13)	28.5'-30.0'	12/14/2006	SM	Silty Sand	21.3		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

3/19/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 326
Depth: 28.5'-30.0'
Sample Number: STP-306 (SS-13)
Material Description: Silty Sand
Date: 12/14/2006
Natural Moisture: 21.3
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
264.00	176.70	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			.75	0.00	100.0
			.375	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.00	100.0
			#40	0.04	100.0
			#60	0.54	99.4
			#100	5.95	93.2
			#140	22.74	74.0
			#200	54.86	37.2

Percentage Components

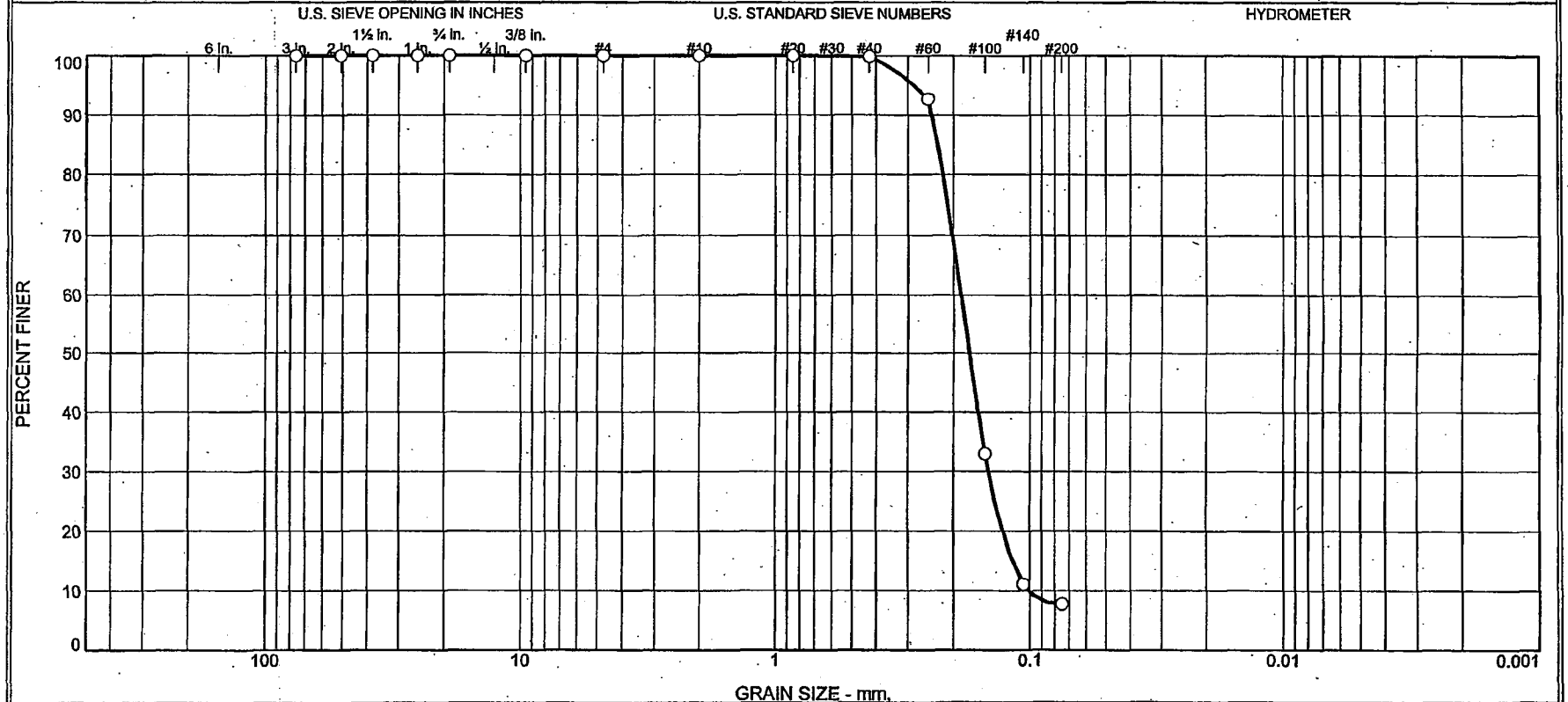
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	62.8	62.8			37.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0838	0.0917	0.1147	0.1242	0.1375	0.1601

Fineness Modulus
0.07

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.1	92.2	7.7	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 326	STP-307	38.5'-40.0'	12/14/2006	SP-SM	Poorly Graded Sand with Silt	23.2		
		(SS-15)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

NAT
4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

3/19/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 326
Depth: 38.5'-40.0'
Sample Number: STP-307 (SS-15)
Material Description: Poorly Graded Sand with Silt
Date: 12/14/2006
Natural Moisture: 23.2
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
253.10	176.50	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			.75	0.00	100.0
			.375	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.00	100.0
			#40	0.10	99.9
			#60	5.57	92.7
			#100	51.33	33.0
			#140	68.11	11.1
			#200	70.67	7.7

Fractional Components

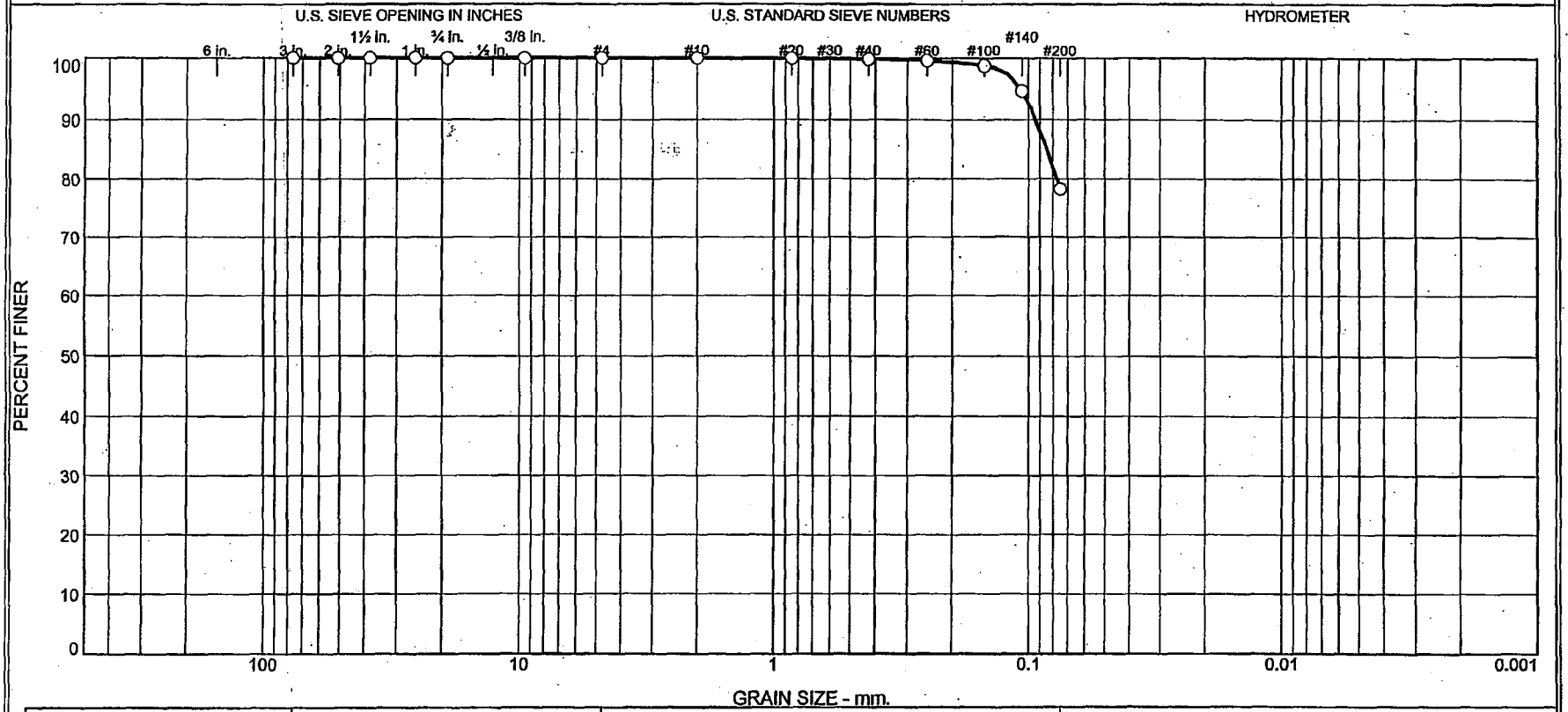
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	92.2	92.3			7.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1015	0.1176	0.1285	0.1456	0.1732	0.1869	0.2192	0.2295	0.2418	0.2840

Fineness Modulus	C_u	C_c
0.71	1.84	1.12

MAT 4-3.01

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.2	21.6	78.2	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 328	STP-028	23.5'-25.0'	11/4/06	ML	Silt with Sand	22.1		
		(SS-10)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1

MH 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 328
Depth: 23.5'-25.0'
Sample Number: STP-028 (SS-10)
Material Description: Silt with Sand
Date: 11/4/06
Natural Moisture: 22.1
USCS Class.: ML
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 18.64
Tare Wt. = 0.00
Minus #200 from wash = 78.2%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
269.80	184.10	0.00	3"	0.00	100.0			
			2"	0.00	100.0			
			1.5"	0.00	100.0			
			1"	0.00	100.0			
			3/4"	0.00	100.0			
			3/8"	0.00	100.0			
			#4	0.00	100.0			
			#10	0.00	100.0			
			#20	0.06	99.9			
			#40	0.16	99.8			
			#60	0.35	99.6			
			#100	1.05	98.8			
			#140	4.54	94.7			
			#200	18.64	78.2			

Fractional Components

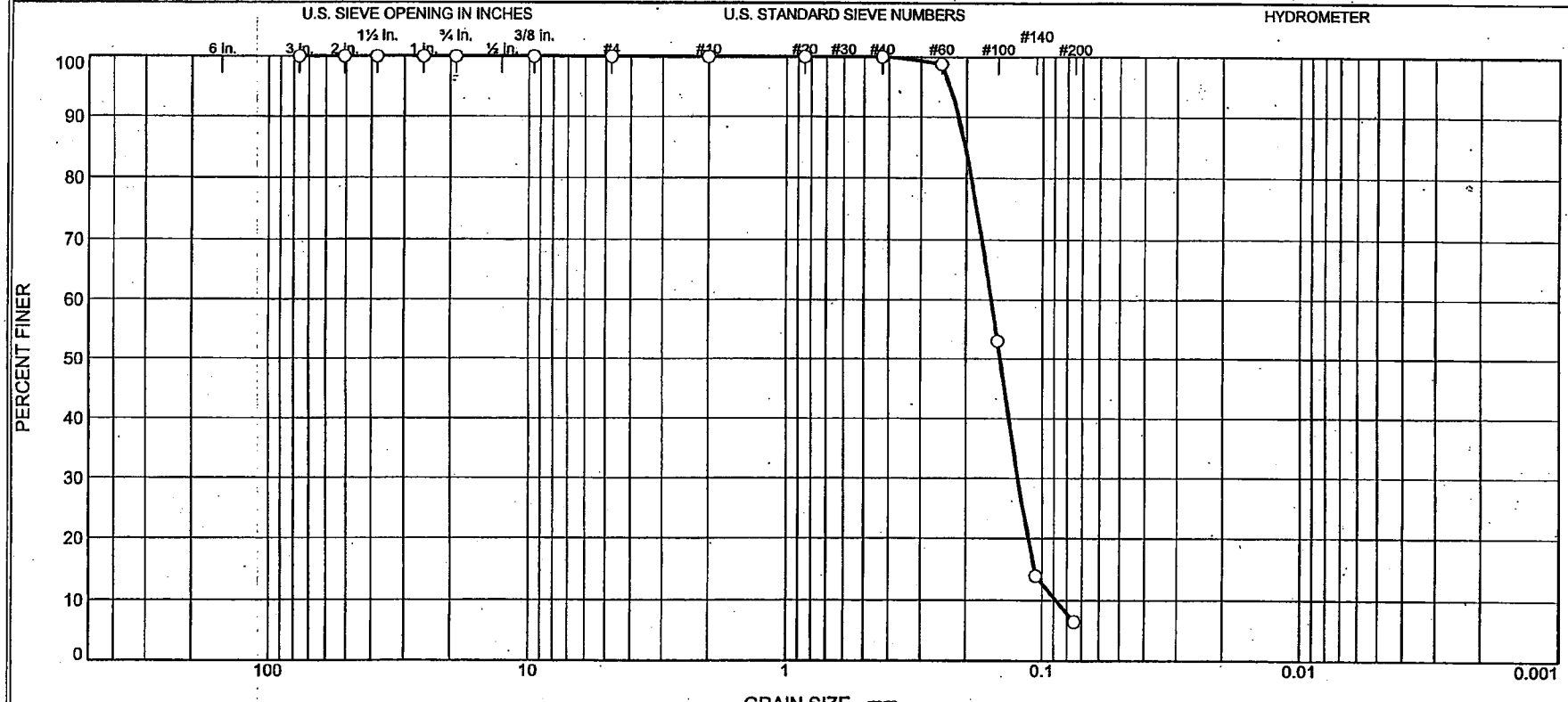
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	21.6	21.8			78.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0774	0.0847	0.0937	0.1071

Fineness Modulus
0.02

MAT 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.0	93.5	6.5	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 328	STP-029	38.5'-40.0'	11/4/2006	SP-SM	Poorly Graded Sand with Silt	23.2		
		(SS-12)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

MA 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 328
Depth: 38.5'-40.0'
Sample Number: STP-029 (SS-12)
Material Description: Poorly Graded Sand with Silt
Date: 11/4/2006
Natural Moisture: 23.2
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 76.23
Tare Wt. = 0.00
Minus #200 from wash = 6.5%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
258.00	176.50	0.00	3"	0.00	100.0			
			2"	0.00	100.0			
			1.5"	0.00	100.0			
			1"	0.00	100.0			
			3/4"	0.00	100.0			
			3/8"	0.00	100.0			
			#4	0.00	100.0			
			#10	0.00	100.0			
			#20	0.00	100.0			
			#40	0.00	100.0			
			#60	0.97	98.8			
			#100	38.29	53.0			
			#140	70.13	14.0			
			#200	76.23	6.5			

Fractional Components

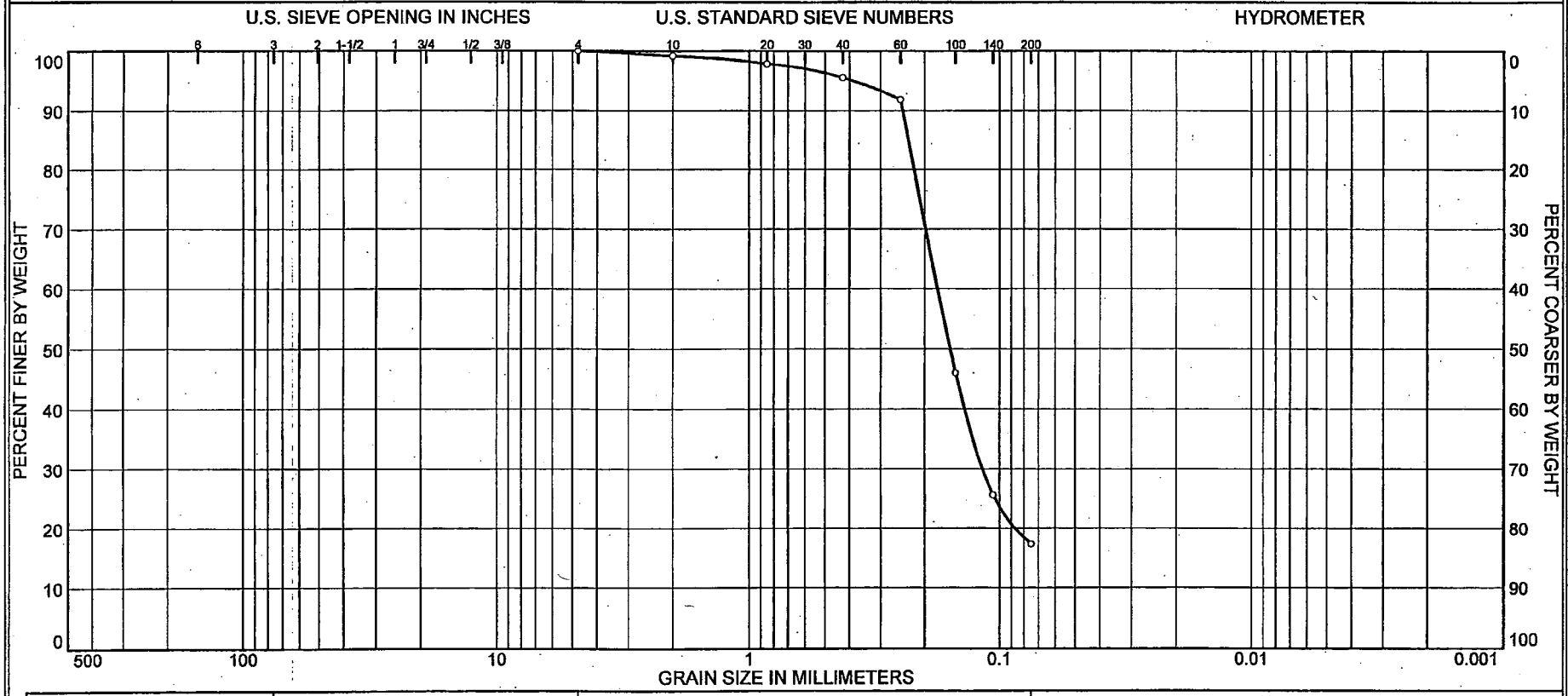
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	93.5	93.5			6.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0883	0.1075	0.1140	0.1250	0.1465	0.1587	0.1909	0.2017	0.2147	0.2315

Fineness Modulus	C_u	C_c
0.48	1.80	1.11

MK 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.8	3.6	78.3	17.3	

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-328	UD-4	73' to 73.8'	2-26-07	SM	Silty Sand	25.8		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: MH KAW 4/3/07
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-328
Sample No.: UD-4
Elev. or Depth: 73' to 73.8' **Sample Length(in./cm.):**
Location: B-328
Description: Silty Sand
Date: 2-26-07 **Natural Moisture:** 25.8
Liquid Limit: **Plastic Limit:** **USCS Class.:** SM
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	471.38
Tare =	156.80
Dry sample weight =	314.58

Tare for cumulative weight retained= .00

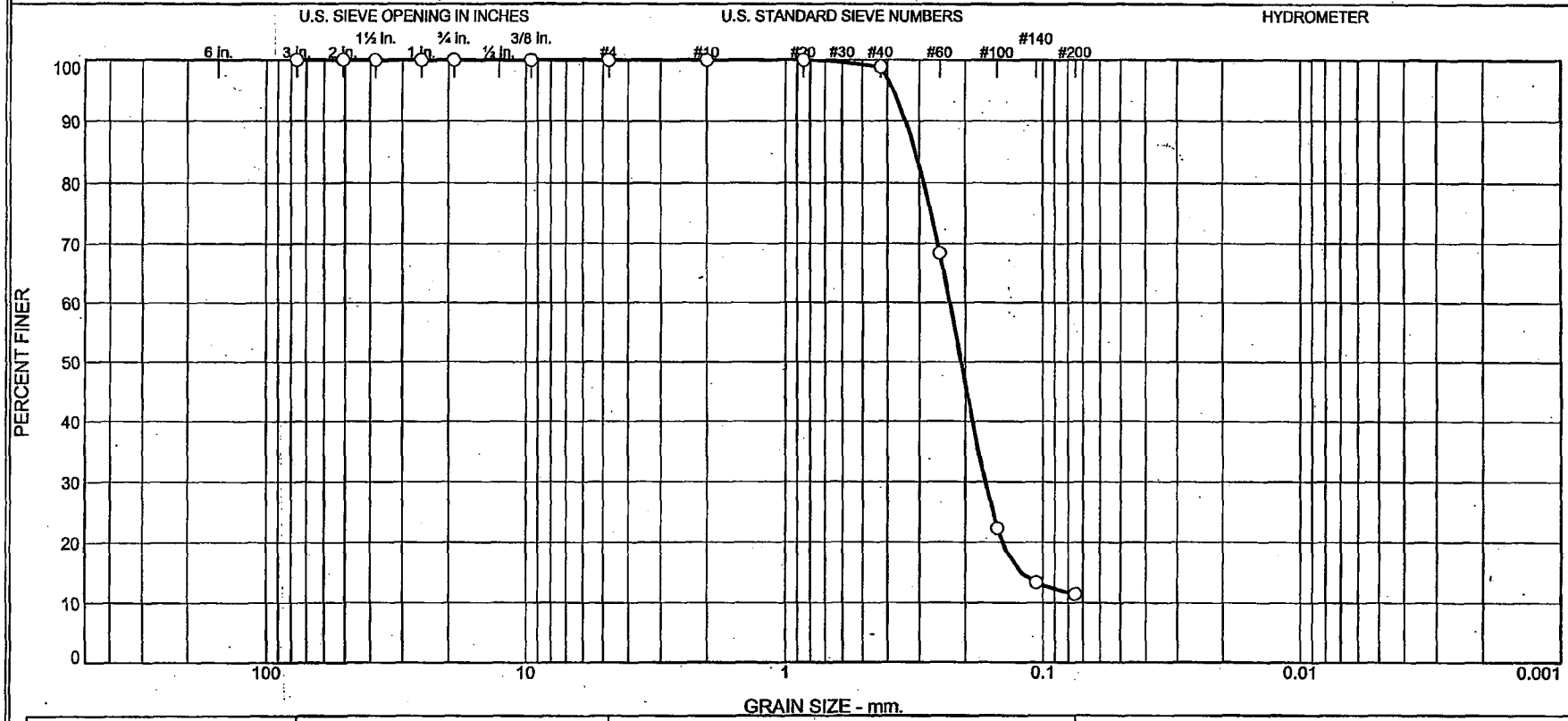
Sieve	Cumul. Wt. retained	Percent finer
# 4	0.00	100.0
# 10	2.48	99.2
# 20	6.67	97.9
# 40	13.81	95.6
# 60	25.54	91.9
# 100	169.90	46.0
# 140	234.11	25.6
# 200	260.21	17.3

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 82.7 (**% coarse** = 0.8 **% medium** = 3.6 **% fine** = 78.3)
% FINES = 17.3

D_{85}= 0.23 D_{60}= 0.18 D_{50}= 0.16
D_{30}= 0.12

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	1.2	87.4	11.4	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 328	STP-032 (SS-18)	78.5'-80.0'	11/5/2006	SP-SM	Poorly Graded Sand with Silt	21.4		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1

MH
4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 328
Depth: 78.5'-80.0'
Sample Number: STP-032 (SS-18)
Material Description: Poorly Graded Sand with Silt
Date: 11/5/2006
Natural Moisture: 21.4
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 77.23
Tare Wt. = 0.00
Minus #200 from wash = 11.4%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
264.40	177.20	0.00	3"	0.00	100.0			
			2"	0.00	100.0			
			1.5"	0.00	100.0			
			1"	0.00	100.0			
			3/4"	0.00	100.0			
			3/8"	0.00	100.0			
			#4	0.00	100.0			
			#10	0.00	100.0			
			#20	0.00	100.0			
			#40	1.01	98.8			
			#60	27.55	68.4			
			#100	67.71	22.4			
			#140	75.55	13.4			
			#200	77.23	11.4			

Fractional Components

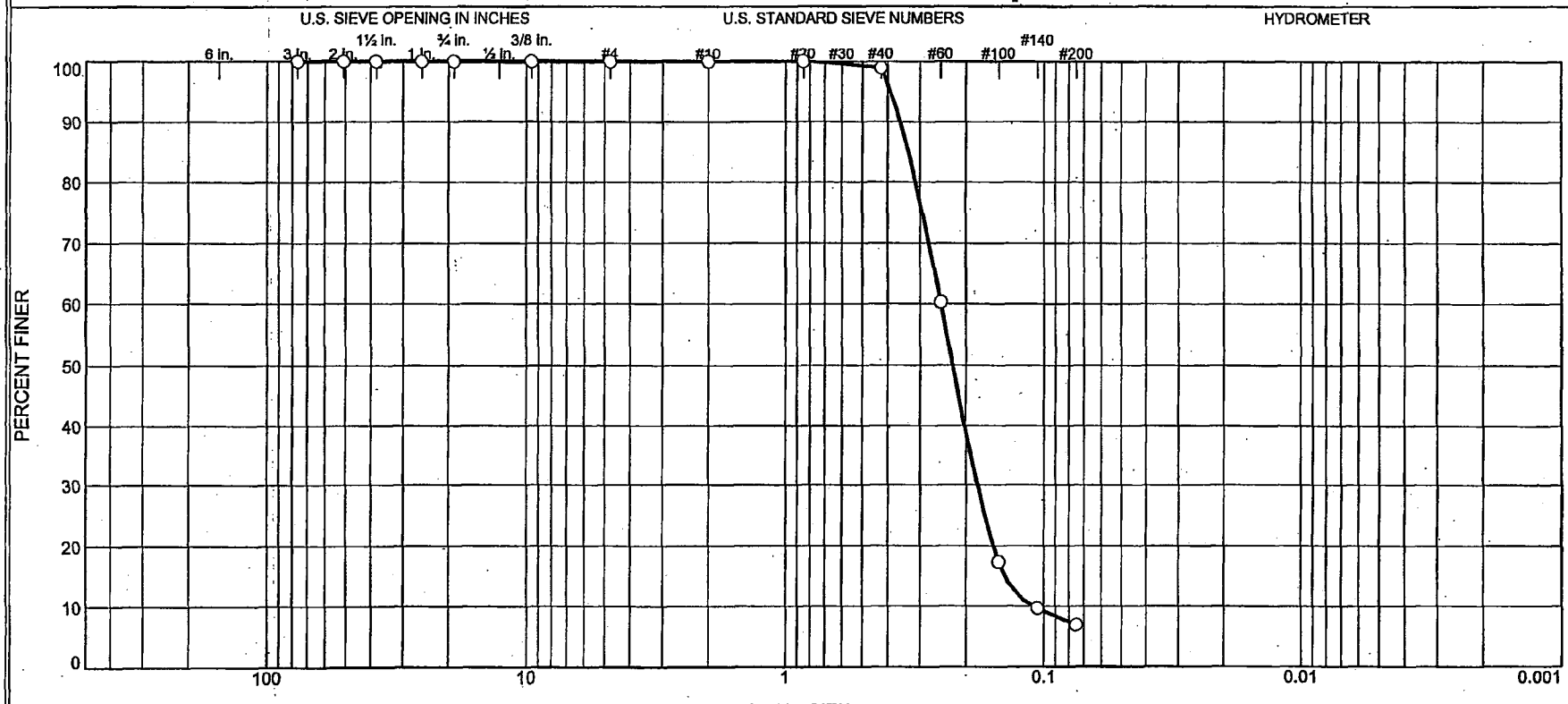
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.2	87.4	88.6			11.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1216	0.1433	0.1674	0.2071	0.2288	0.2884	0.3105	0.3386	0.3776

Fineness Modulus
0.95

MAK 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	1.1	92.0	6.9	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 328	STP-033 (SS-19)	88.5'-90.0'	11/5/2006	SP-SM	Poorly Graded Sand with Silt	21.0		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1

MB 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 328
Depth: 88.5'-90.0'
Sample Number: STP-033 (SS-19)
Material Description: Poorly Graded Sand with Silt
Date: 11/5/2006
Natural Moisture: 21.0
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 86.37
Tare Wt. = 0.00
Minus #200 from wash = 6.9%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
267.30	174.50	0.00	3"	0.00	100.0			
			2"	0.00	100.0			
			1.5"	0.00	100.0			
			1"	0.00	100.0			
			3/4"	0.00	100.0			
			3/8"	0.00	100.0			
			#4	0.00	100.0			
			#10	0.00	100.0			
			#20	0.00	100.0			
			#40	0.98	98.9			
			#60	36.84	60.3			
			#100	76.72	17.3			
			#140	83.83	9.7			
			#200	86.37	6.9			

Fractional Components

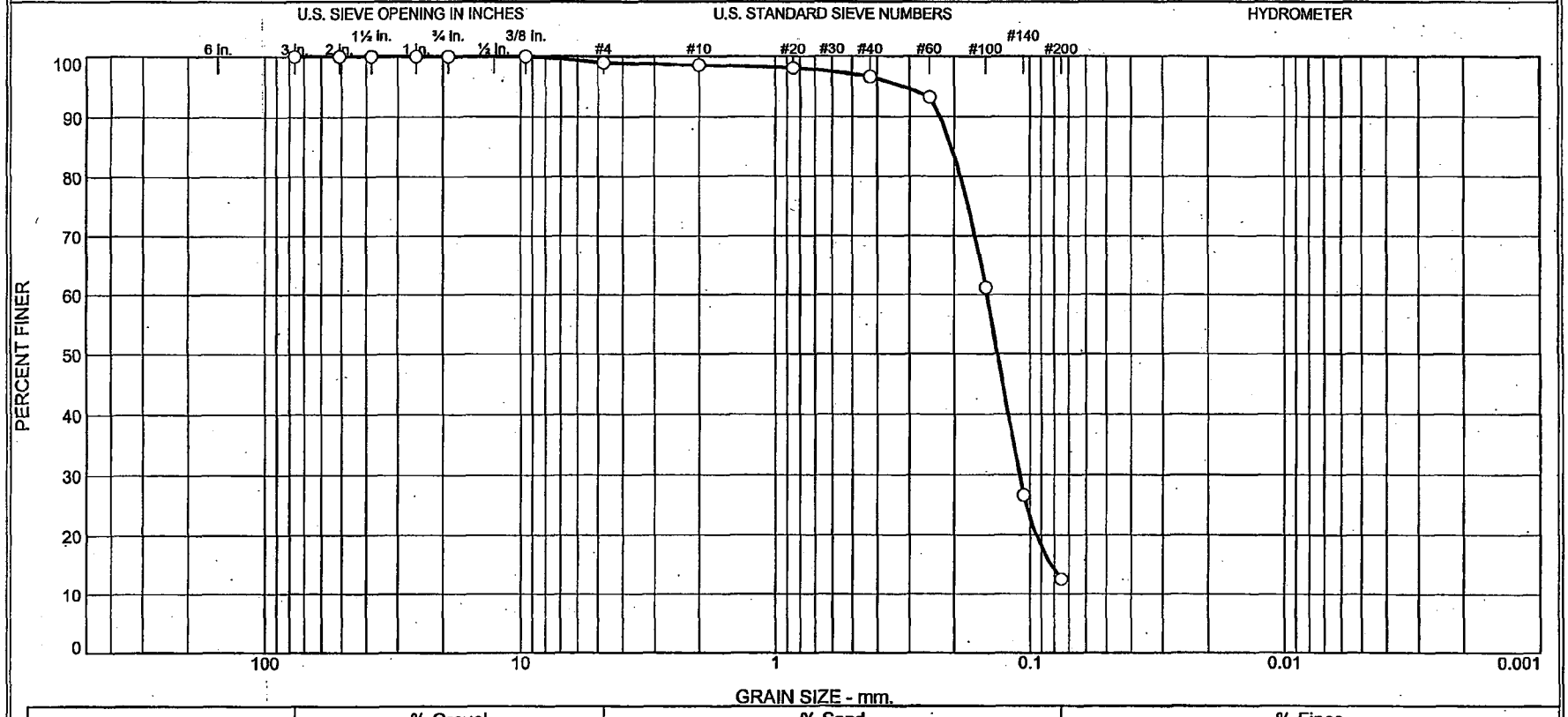
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.1	92.0	93.1			6.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1102	0.1421	0.1576	0.1811	0.2249	0.2492	0.3117	0.3326	0.3575	0.3894

Fineness Modulus	C_u	C_c
1.06	2.26	1.19

MAC 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	1.1	0.4	1.9	84.0	12.6	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 328	STP-034 (SS-21)	98.5'-100.0'	11/20/2006	SM	Silty Sand	21.0		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 328
Depth: 98.5'-100.0'
Sample Number: STP-034 (SS-21)
Material Description: Silty Sand
Date: 11/20/2006
Natural Moisture: 21.0
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 154.31
Tare Wt. = 0.00
Minus #200 from wash = 12.6%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
361.20	184.70	0.00	3"	0.00	100.0			
			2"	0.00	100.0			
			1.5"	0.00	100.0			
			1"	0.00	100.0			
			3/4"	0.00	100.0			
			3/8"	0.00	100.0			
			#4	1.87	98.9			
			#10	2.56	98.5			
			#20	3.35	98.1			
			#40	6.00	96.6			
			#60	12.03	93.2			
			#100	68.48	61.2			
			#140	129.50	26.6			
			#200	154.31	12.6			

Fractional Components

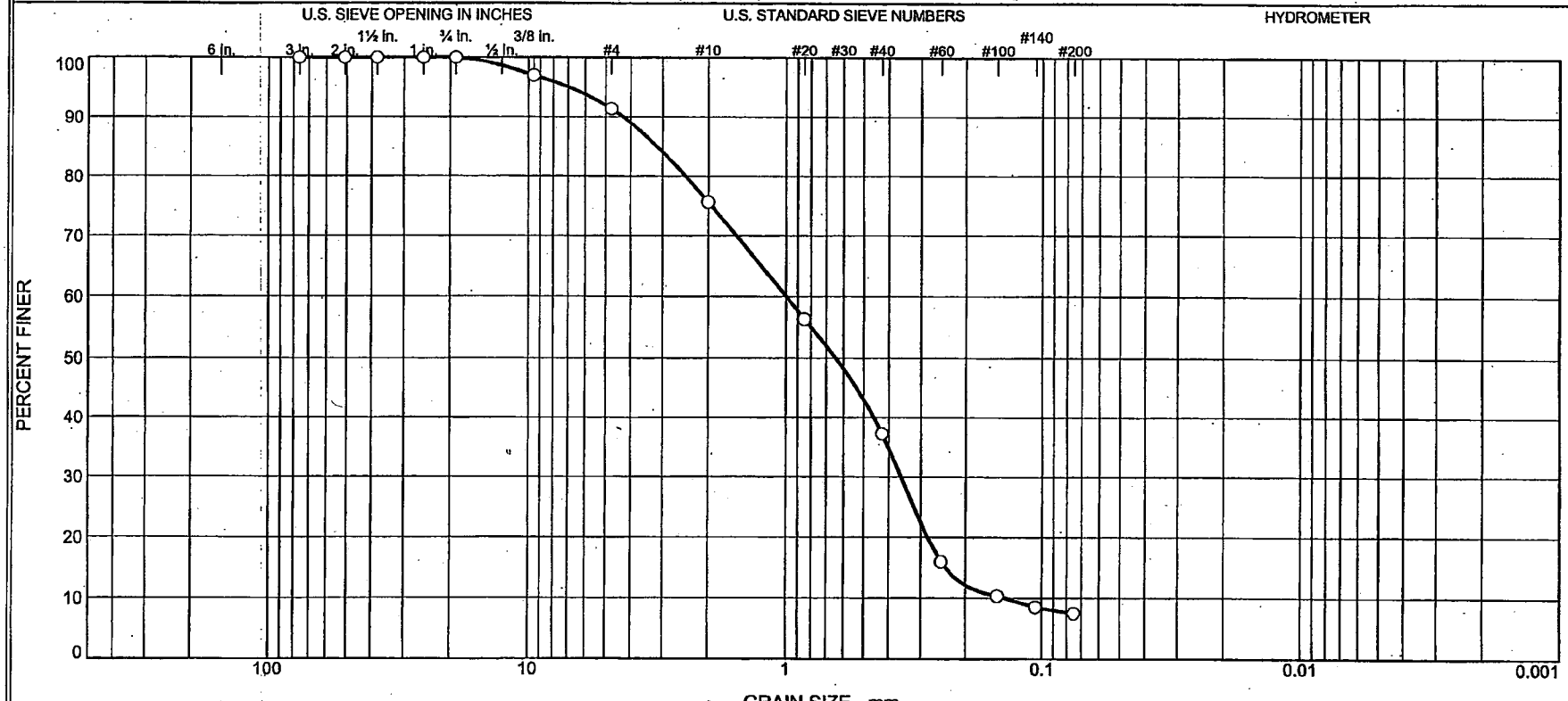
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.1	1.1	0.4	1.9	84.0	86.3			12.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0826	0.0949	0.1106	0.1348	0.1482	0.1884	0.2047	0.2276	0.3191

Fineness Modulus
0.51

MMA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	8.6	15.7	38.4	29.8	7.5	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 328	STP-035 (SS-22)	108.5'-110'	11/5/2006	SP-SM	Poorly Graded Sand with Silt	14.6		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1
Minimum sample size of 1300g was not met for this test.

MH 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 328
Depth: 108.5'-110'
Sample Number: STP-035 (SS-22)
Material Description: Poorly Graded Sand with Silt
Date: 11/5/2006
Natural Moisture: 14.6
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1
Minimum sample size of 1300g was not met for this test.
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 335.31
Tare Wt. = 0.00
Minus #200 from wash = 7.5%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
539.10	176.60	0.00	3"	0.00	100.0			
			2"	0.00	100.0			
			1.5"	0.00	100.0			
			1"	0.00	100.0			
			3/4"	0.00	100.0			
			3/8"	10.69	97.1			
			#4	31.29	91.4			
			#10	88.13	75.7			
			#20	158.13	56.4			
			#40	227.41	37.3			
			#60	304.56	16.0			
			#100	324.89	10.4			
			#140	331.47	8.6			
			#200	335.31	7.5			

Fractional Components

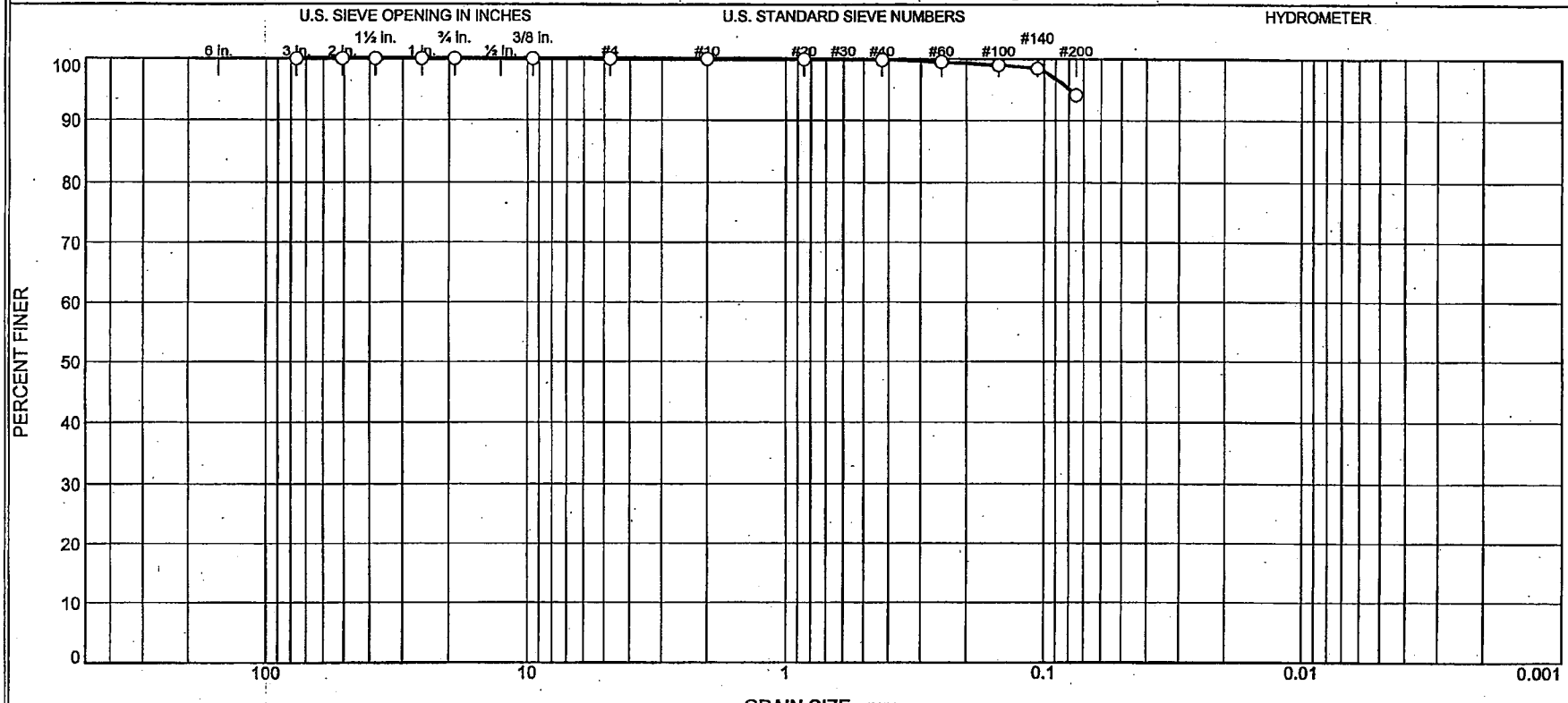
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	8.6	8.6	15.7	38.4	29.8	83.9			7.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1390	0.2404	0.2829	0.3585	0.6424	0.9991	2.4473	3.1573	4.2849	6.9344

Fineness Modulus	C_u	C_c
2.88	7.19	0.93

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.1	5.8	94.1	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 328	STP-036 (SS-23)	118.5'-120.0'	11/5/2006	CL	Lean Clay	22.0	34	16

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:CL Reviewed By:
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 328
Depth: 118.5'-120.0'
Sample Number: STP-036 (SS-23)
Material Description: Lean Clay
Date: 11/5/2006
Natural Moisture: 22.0
Liquid Limit: 34
Plastic Limit: 16
USCS Class.: CL
Testing Remarks: Tested By:CL Reviewed By:
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 4.59
Tare Wt. = 0.00
Minus #200 from wash = 94.1%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
257.60	180.10	0.00	3"	0.00	100.0			
			2"	0.00	100.0			
			1.5"	0.00	100.0			
			1"	0.00	100.0			
			3/4"	0.00	100.0			
			3/8"	0.00	100.0			
			#4	0.00	100.0			
			#10	0.00	100.0			
			#20	0.04	99.9			
			#40	0.11	99.9			
			#60	0.39	99.5			
			#100	0.78	99.0			
			#140	1.20	98.5			
			#200	4.59	94.1			

Fractional Components

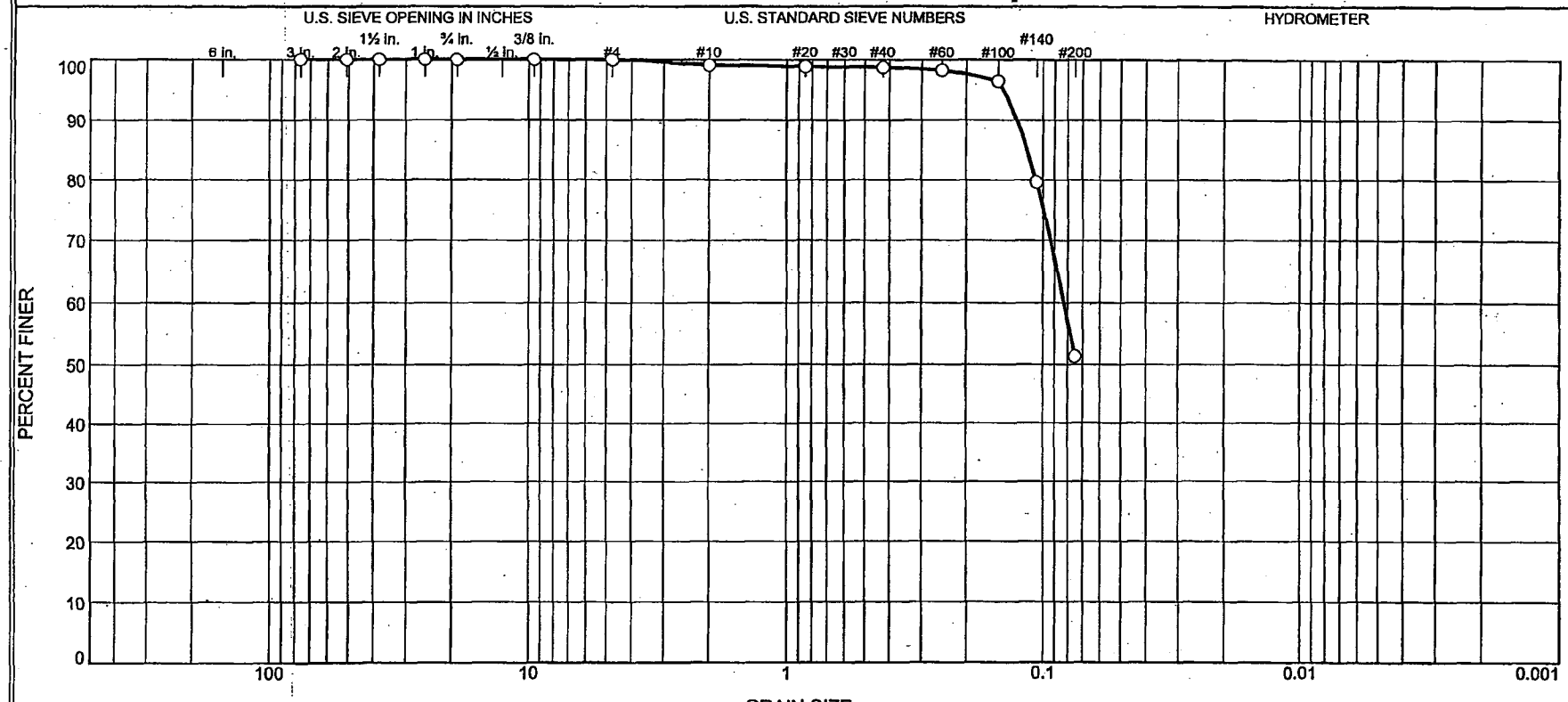
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	5.8	5.9			94.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
									0.0796

Fineness Modulus
0.01

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.9	0.4	47.4	51.3	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 328	STP-037 (SS-24)	128.5'-130'	11/6/2006	CL	Sandy Lean Clay	21.0		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1

MH 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 328
Depth: 128.5'-130'
Sample Number: STP-037 (SS-24)
Material Description: Sandy Lean Clay
Date: 11/6/2006
Natural Moisture: 21.0
USCS Class.: CL
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 51.82
Tare Wt. = 0.00
Minus #200 from wash = 51.3%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
281.60	175.20	0.00	3"	0.00	100.0			
			2"	0.00	100.0			
			1.5"	0.00	100.0			
			1"	0.00	100.0			
			3/4"	0.00	100.0			
			3/8"	0.00	100.0			
			#4	0.00	100.0			
			#10	0.96	99.1			
			#20	1.25	98.8			
			#40	1.38	98.7			
			#60	1.87	98.2			
			#100	3.79	96.4			
			#140	21.68	79.6			
			#200	51.82	51.3			

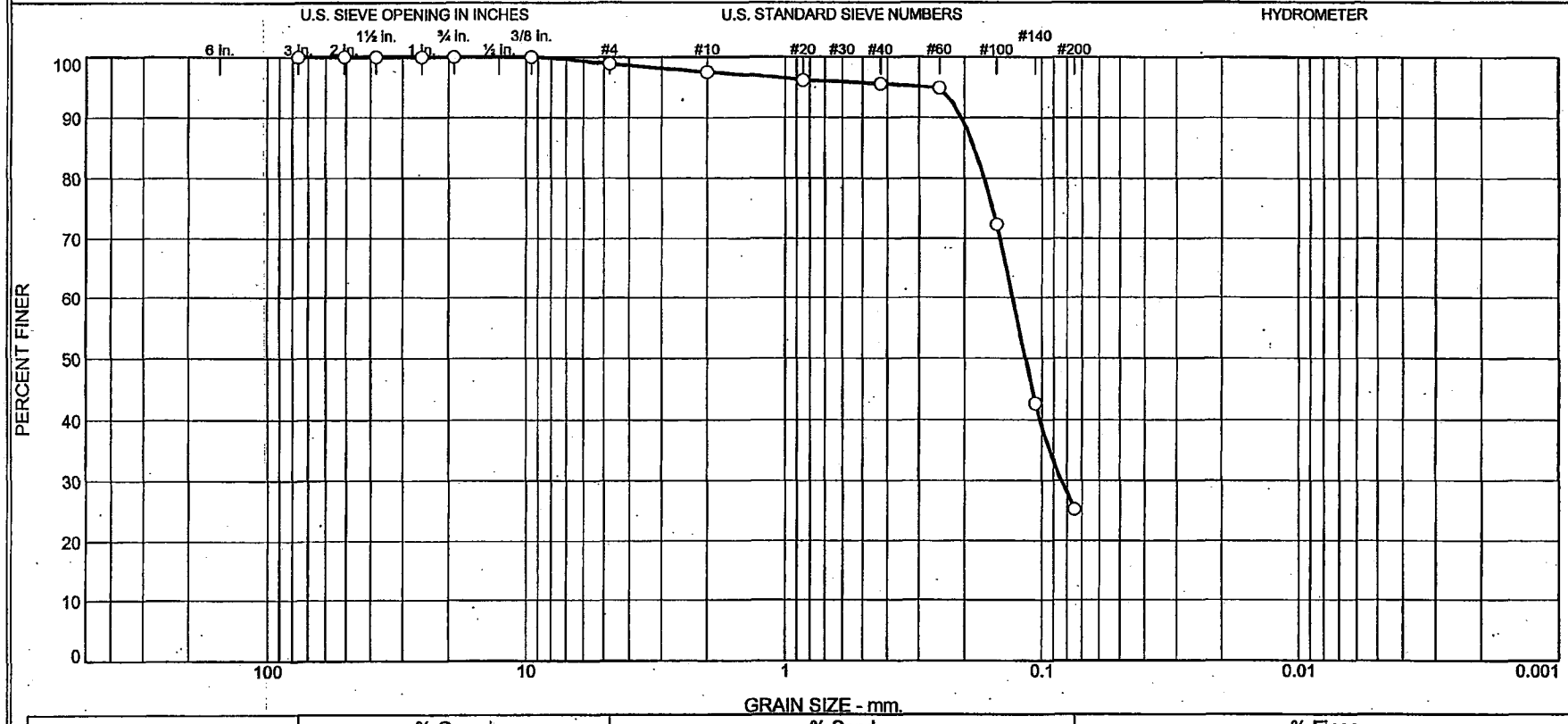
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.9	0.4	47.4	48.7	---		51.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0828	0.1066	0.1152	0.1263	0.1427

Fineness Modulus
0.08

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	1.1	1.4	2.0	70.2	25.3	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 328	STP-039 (SS-26)	148.5'-150'	11/6/2006	SM	Silty Sand	21.3		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1

MH 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 328
Depth: 148.5'-150'
Sample Number: STP-039 (SS-26)
Material Description: Silty Sand
Date: 11/6/2006
Natural Moisture: 21.3
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 64.11
Tare Wt. = 0.00
Minus #200 from wash = 25.3%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
263.50	177.70	0.00	3"	0.00	100.0			
			2"	0.00	100.0			
			1.5"	0.00	100.0			
			1"	0.00	100.0			
			3/4"	0.00	100.0			
			3/8"	0.00	100.0			
			#4	0.96	98.9			
			#10	2.16	97.5			
			#20	3.33	96.1			
			#40	3.82	95.5			
			#60	4.38	94.9			
			#100	23.68	72.4			
			#140	49.18	42.7			
			#200	64.11	25.3			

Fractional Components

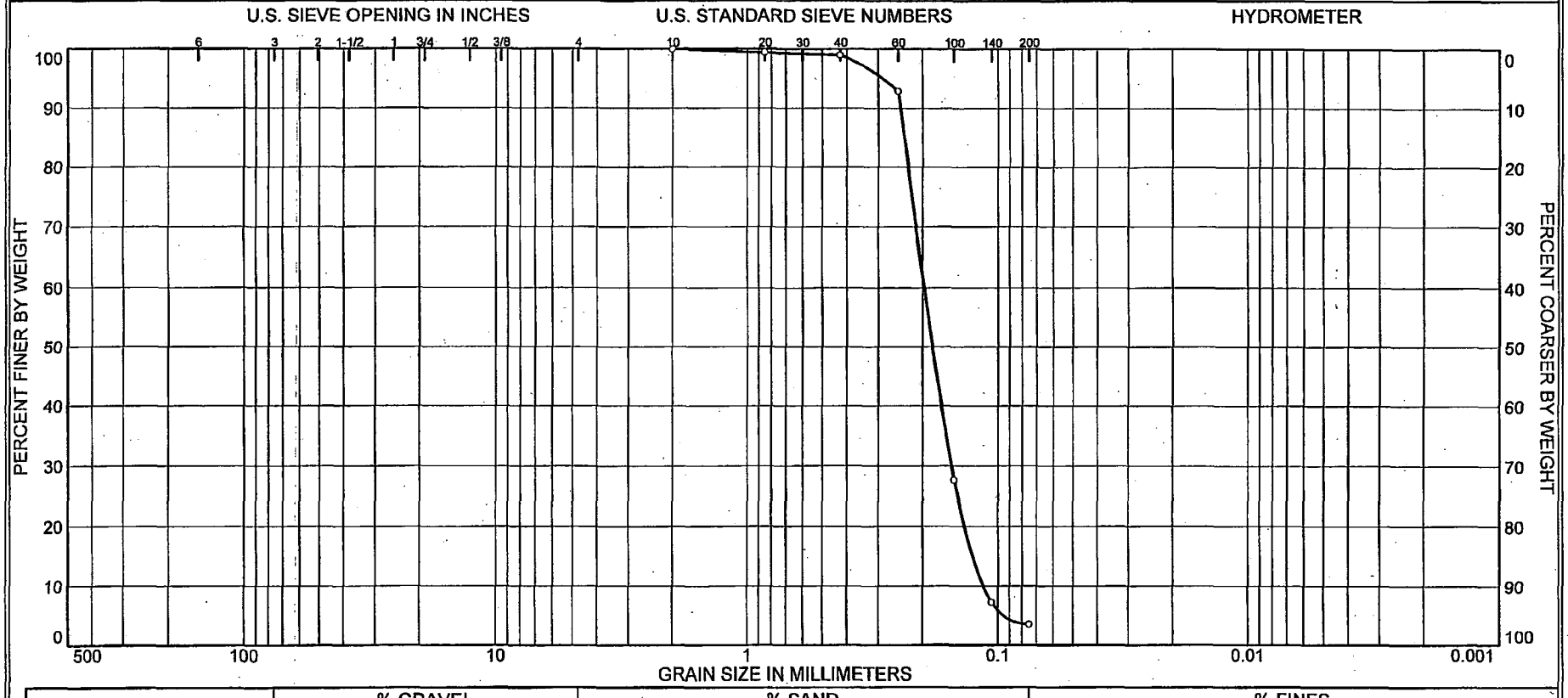
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.1	1.1	1.4	2.0	70.2	73.6			25.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0843	0.1162	0.1299	0.1671	0.1828	0.2055	0.2697

Fineness Modulus
0.43

MK 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	1.0	95.5	3.5	

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-330	UD-3	63' to 65'	3-13-07	SP	Poorly graded sand	25.2	NV	NP

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: MH KAW 4/3/07
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-330
Sample No.: UD-3
Elev. or Depth: 63' to 65' **Sample Length(in./cm.):**
Location: B-330
Description: Poorly graded sand
Date: 3-13-07 **Natural Moisture:** 25.2
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SP
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	353.60
Tare =	189.59
Dry sample weight =	164.01

Tare for cumulative weight retained= .00

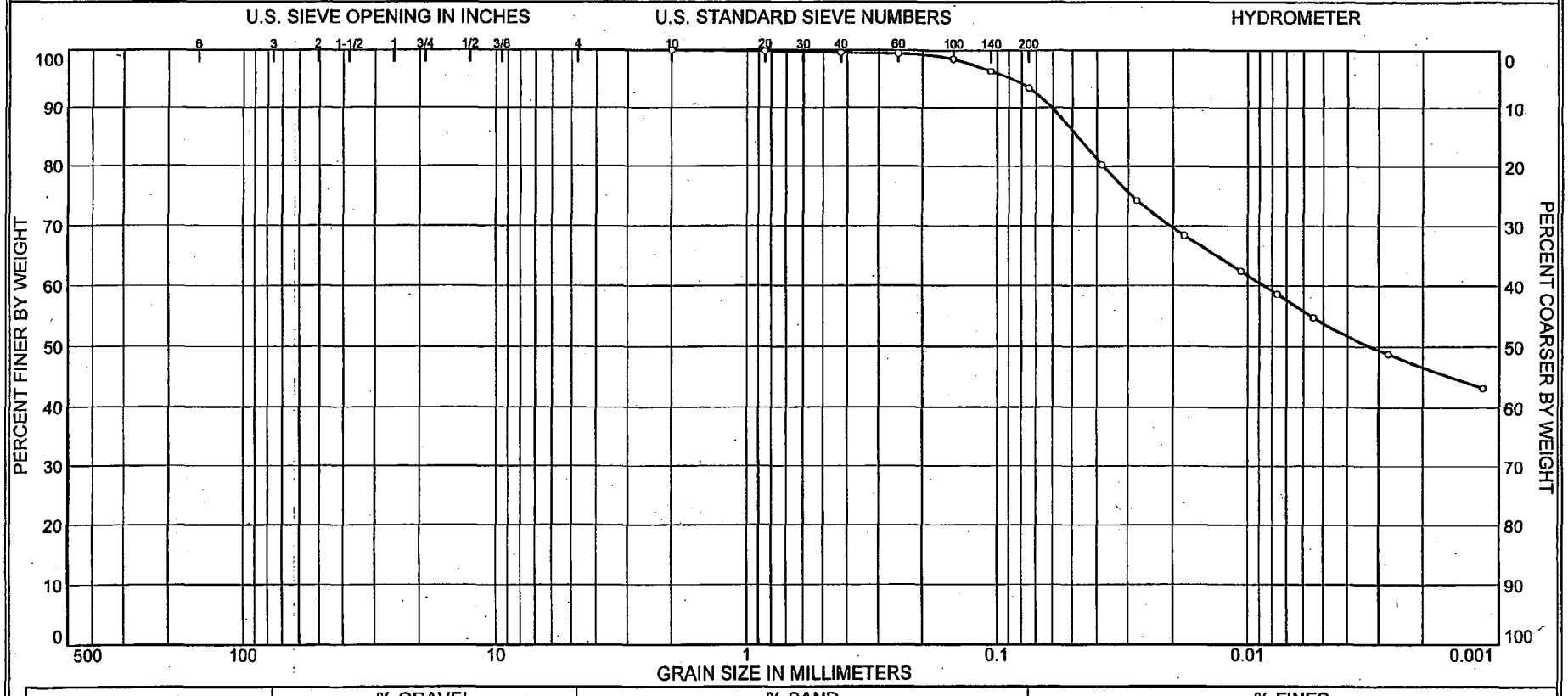
Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	1.06	99.4
# 40	1.63	99.0
# 60	11.63	92.9
# 100	118.65	27.7
# 140	152.16	7.2
# 200	158.19	3.5

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 96.5 **(% coarse =** **% medium =** 1.0 **% fine =** 95.5**)**
% FINES = 3.5

D_{85}= 0.24 D_{60}= 0.20 D_{50}= 0.18
D_{30}= 0.15 D_{15}= 0.13 D_{10}= 0.11
C_c= 1.0393 C_u= 1.7236

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	0.4	6.2	39.7	53.7

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-332	UD-1	3' to 5'	2-22-07	CH	Fat clay	23.1	70	25

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: MH KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-332
Sample No.: UD-1
Elev. or Depth: 3' to 5' **Sample Length(in./cm.):**
Location: B-332
Description: Fat clay
Date: 2-22-07 **Natural Moisture:** 23.1
Liquid Limit: 70 **Plastic Limit:** 25 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	83.99
Tare =	0.00
Dry sample weight =	83.99

Sample split on number 10 sieve
Split sample data:
Sample and tare = 49.87 Tare = .00 Sample weight = 49.87
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.10	99.8
# 40	0.21	99.6
# 60	0.31	99.4
# 100	0.77	98.5
# 140	1.78	96.4
# 200	3.28	93.4

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 51.52
Hygroscopic moisture correction:
Moist weight & tare = 45.99
Dry weight & tare = 44.87
Tare = 10.95
Hygroscopic moisture= 3.3 %
Calculated biased weight= 49.87
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.743
Specific gravity correction factor= 0.980

Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

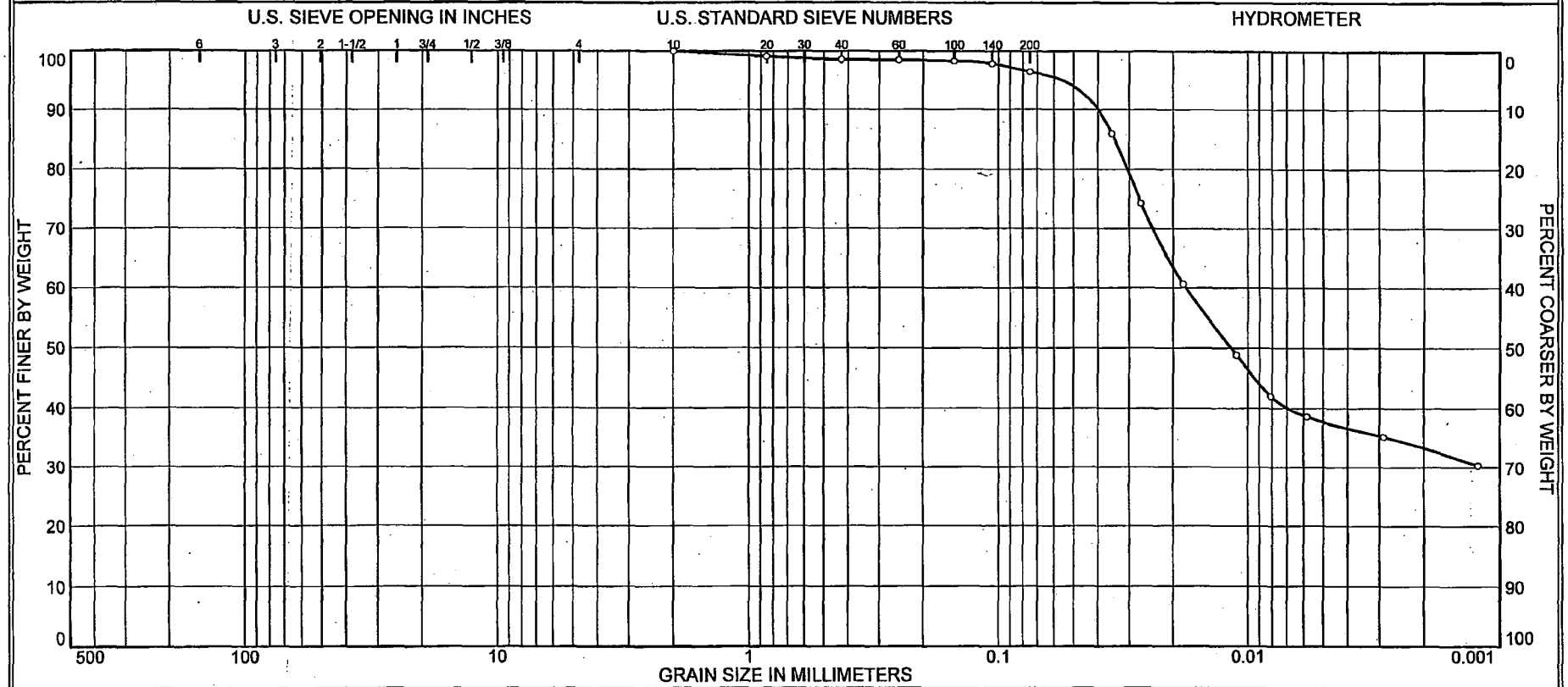
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.00	23.1	44.0	40.8	0.0128	45.0	8.9	0.0382	80.2
2.00	23.1	41.0	37.8	0.0128	42.0	9.4	0.0277	74.3
5.00	23.1	38.0	34.8	0.0128	39.0	9.9	0.0180	68.4
15.00	23.1	35.0	31.8	0.0128	36.0	10.4	0.0106	62.5
30.00	23.1	33.0	29.8	0.0128	34.0	10.7	0.0076	58.6
60.00	23.1	31.0	27.8	0.0128	32.0	11.0	0.0055	54.7
250.00	23.1	28.0	24.8	0.0128	29.0	11.5	0.0027	48.8
1440.00	23.9	25.0	22.0	0.0127	26.0	12.0	0.0012	43.2

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 6.6 (**% coarse =** **% medium** = 0.4 **% fine** = 6.2)
% SILT = 39.7 **% CLAY** = 53.7

D_{85}= 0.05 D_{60}= 0.01 D_{50}= 0.00

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	1.4	2.1	58.8	37.7

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-333	UD-1	8' to 10'	2-19-07	CL	Lean clay	23.7	43	16

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: SS KAW 4/13/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/13/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-333
Sample No.: UD-1
Elev. or Depth: 8' to 10' **Sample Length(in./cm.):**
Location: B-333
Description: Lean clay
Date: 2-19-07 **Natural Moisture:** 23.7
Liquid Limit: 43 **Plastic Limit:** 16 **USCS Class.:** CL
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	85.98
Tare =	0.00
Dry sample weight =	85.98

Sample split on number 10 **sieve**
Split sample data:
Sample and tare = 58.76 **Tare =** .00 **Sample weight =** 58.76
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.53	99.1
# 40	0.83	98.6
# 60	0.91	98.5
# 100	0.97	98.3
# 140	1.23	97.9
# 200	2.08	96.5

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 59.82
Hygroscopic moisture correction:
Moist weight & tare = 38.33
Dry weight & tare = 37.85
Tare = 10.70
Hygroscopic moisture= 1.8 %
Calculated biased weight= 58.78
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1.0
Specific gravity of solids= 2.672
Specific gravity correction factor= 0.995

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

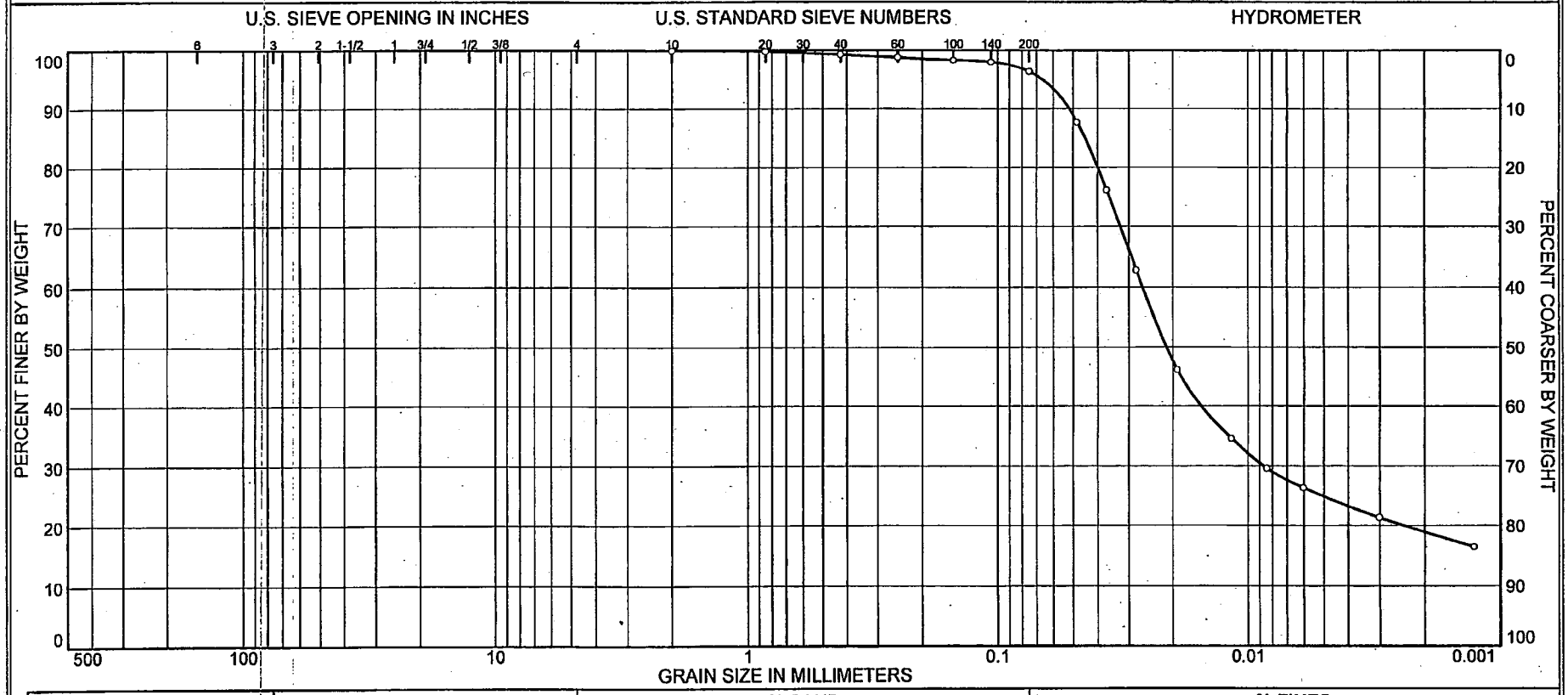
Elapsed ime, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.00	23.1	54.0	50.8	0.0131	55.0	7.3	0.0352	86.0
2.00	23.1	47.0	43.8	0.0131	48.0	8.4	0.0268	74.2
5.00	23.1	39.0	35.8	0.0131	40.0	9.7	0.0182	60.6
15.00	23.1	32.0	28.8	0.0131	33.0	10.9	0.0111	48.8
30.00	23.1	28.0	24.8	0.0131	29.0	11.5	0.0081	42.0
60.00	23.1	26.0	22.8	0.0131	27.0	11.9	0.0058	38.6
250.00	23.1	24.0	20.8	0.0131	25.0	12.2	0.0029	35.2
1440.00	23.4	21.0	17.9	0.0130	22.0	12.7	0.0012	30.3

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 3.5 (**% coarse =** **% medium** = 1.4 **% fine** = 2.1)
% SILT = 58.8 **% CLAY** = 37.7

D_{85}= 0.03 D_{60}= 0.02 D_{50}= 0.01

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	0.7	3.0	71.5	24.8

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-333	UD-2	18' to 20'	2-19-07	CL	Lean clay	23.0	30	19

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1 FAW 4/13/07
ASTM D6913-04e1

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-333
Sample No.: UD-2
Elev. or Depth: 18' to 20' **Sample Length(in./cm.):**
Location: B-333
Description: Lean clay
Date: 2-19-07 **Natural Moisture:** 23.0
Liquid Limit: 30 **Plastic Limit:** 19 **USCS Class.:** CL
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	104.47
Tare =	0.00
Dry sample weight =	104.47

Sample split on number 10 sieve
Split sample data:
Sample and tare = 59.62 Tare = .00 Sample weight = 59.62
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.11	99.8
# 40	0.44	99.3
# 60	0.73	98.8
# 100	0.99	98.3
# 140	1.18	98.0
# 200	2.18	96.3

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 60.22
Hygroscopic moisture correction:
Moist weight & tare = 56.54
Dry weight & tare = 56.09
Tare = 11.58
Hygroscopic moisture= 1.0 %
Calculated biased weight= 59.62
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.697
Specific gravity correction factor= 0.990

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

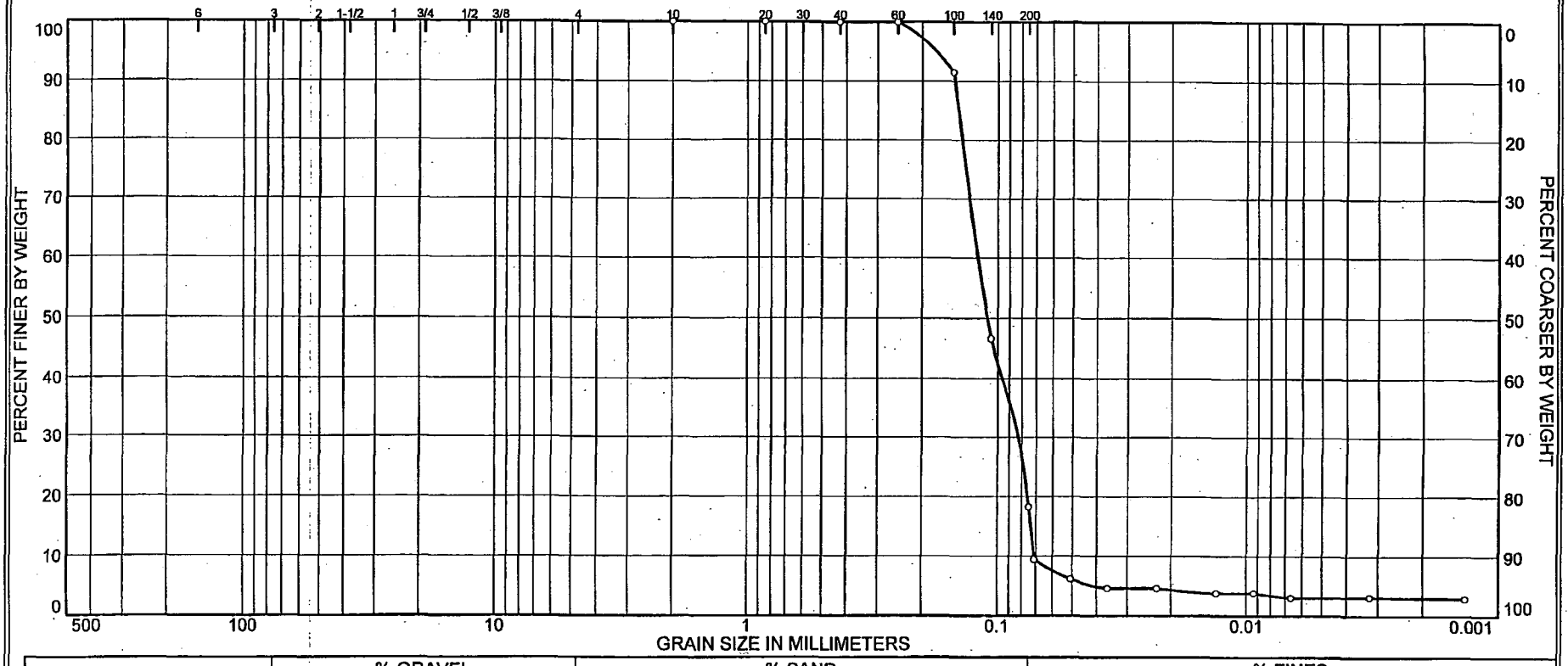
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
0.50	23.1	56.0	52.8	0.0130	57.0	6.9	0.0483	87.7
1.00	23.1	49.0	45.8	0.0130	50.0	8.1	0.0369	76.1
2.00	23.1	41.0	37.8	0.0130	42.0	9.4	0.0281	62.8
5.00	23.1	31.0	27.8	0.0130	32.0	11.0	0.0193	46.2
15.00	23.1	24.0	20.8	0.0130	25.0	12.2	0.0117	34.6
30.00	23.1	21.0	17.8	0.0130	22.0	12.7	0.0084	29.6
60.00	23.1	19.0	15.8	0.0130	20.0	13.0	0.0060	26.3
250.00	23.1	16.0	12.8	0.0130	17.0	13.5	0.0030	21.3
1440.00	23.4	13.0	9.9	0.0129	14.0	14.0	0.0013	16.4

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 3.7 (**% coarse =** **% medium** = 0.7 **% fine** = 3.0)
% SILT = 71.5 **% CLAY** = 24.8

D_{85}= 0.04 D_{60}= 0.03 D_{50}= 0.02
D_{30}= 0.01

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	0.1	81.7	15.2	3.0

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-338	UD-1	28' to 30'	2-19-07	SM	Silty sand	24.1	NV	NP

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: SS KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-338
Sample No.: UD-1
Elev. or Depth: 28' to 30' **Sample Length(in./cm.):**
Location: B-338
Description: Silty sand
Date: 2-19-07 **Natural Moisture:** 24.1
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SM
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	103.80
Tare =	0.00
Dry sample weight =	103.80

Sample split on number 10 sieve
Split sample data:
Sample and tare = 62.60 Tare = .00 Sample weight = 62.60
Cumulative weight retained tare= .00
e for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.00	100.0
# 40	0.05	99.9
# 60	0.05	99.9
# 100	5.30	91.5
# 140	33.44	46.6
# 200	51.18	18.2

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 62.79
Hygroscopic moisture correction:
Moist weight & tare = 52.24
Dry weight & tare = 52.11
Tare = 10.94
Hygroscopic moisture= 0.3 %
Calculated biased weight= 62.59
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.648
Specific gravity correction factor= 1.000

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

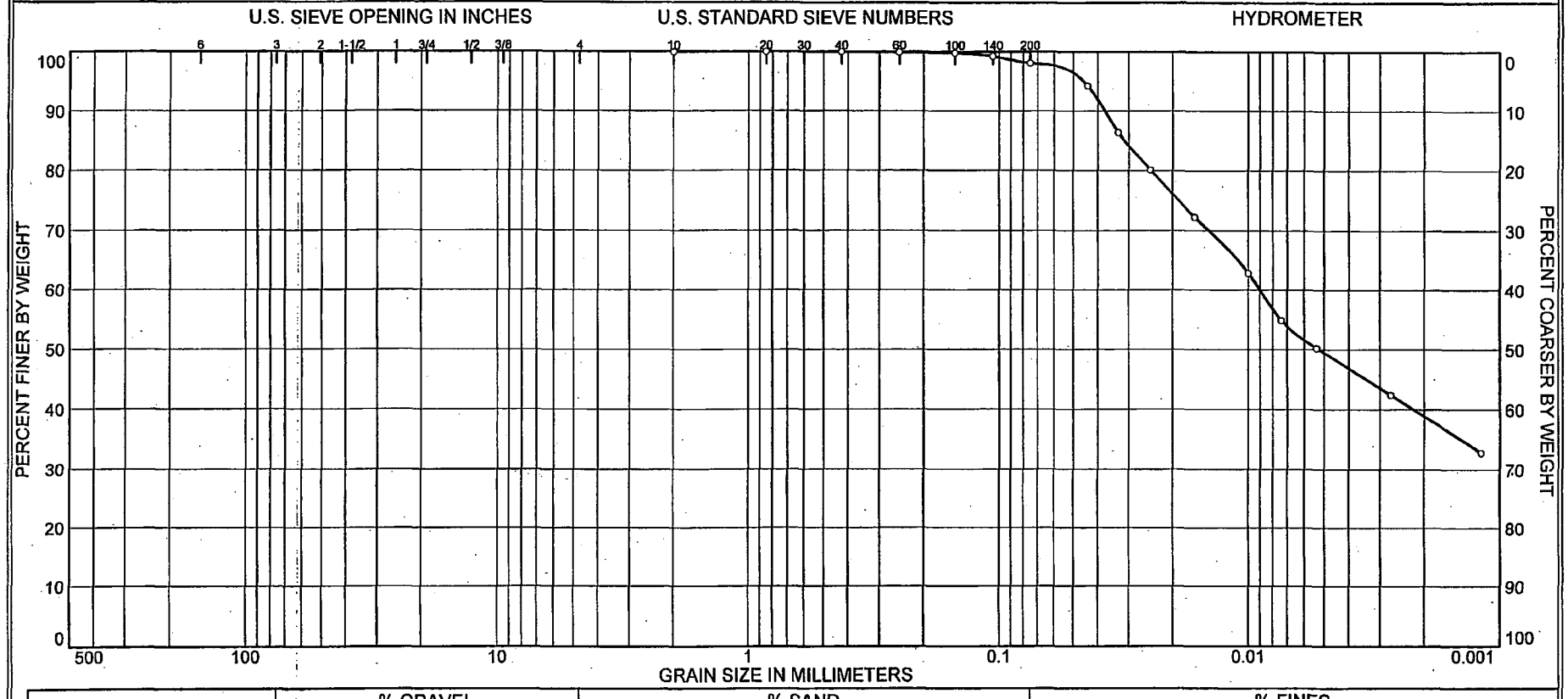
Elapsed ime, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
0.50	23.4	9.0	5.9	0.0131	10.0	14.7	0.0709	9.4
1.00	23.4	7.0	3.9	0.0131	8.0	15.0	0.0507	6.2
2.00	23.4	6.0	2.9	0.0131	7.0	15.1	0.0360	4.6
5.00	23.4	6.0	2.9	0.0131	7.0	15.1	0.0228	4.6
15.00	23.4	5.5	2.4	0.0131	6.5	15.2	0.0132	3.8
30.00	23.4	5.5	2.4	0.0131	6.5	15.2	0.0093	3.8
60.00	23.4	5.0	1.9	0.0131	6.0	15.3	0.0066	3.0
250.00	23.6	5.0	1.9	0.0131	6.0	15.3	0.0032	3.1
1440.00	23.1	5.0	1.8	0.0131	6.0	15.3	0.0014	2.9

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 81.8 (**% coarse =** **% medium** = 0.1 **% fine** = 81.7)
% SILT = 15.2 **% CLAY** = 3.0

D_{85}= 0.14 D_{60}= 0.12 D_{50}= 0.11
D_{30}= 0.08 D_{15}= 0.07 D_{10}= 0.07
C_c= 0.8012 C_u= 1.6898

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	0.0	1.8	48.8	49.4

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-338	UD-2	48' to 50'	2-19-07	CL	Lean clay	26.1	44	18

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: SS KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-338
Sample No.: UD-2
Elev. or Depth: 48' to 50' **Sample Length(in./cm.):**
Location: B-338
Description: Lean clay
Date: 2-19-07 **Natural Moisture:** 26.1
Liquid Limit: 44 **Plastic Limit:** 18 **USCS Class.:** CL
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	104.66
Tare =	0.00
Dry sample weight =	104.66

Sample split on number 10 sieve
Split sample data:
Sample and tare = 62.68 Tare = .00 Sample weight = 62.68
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.00	100.0
# 40	0.02	100.0
# 60	0.06	99.9
# 100	0.12	99.8
# 140	0.41	99.3
# 200	1.14	98.2

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 64.25
Hygroscopic moisture correction:
Moist weight & tare = 53.92
Dry weight & tare = 52.88
Tare = 10.97
Hygroscopic moisture= 2.5 %
Calculated biased weight= 62.69
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1.0
Specific gravity of solids= 2.709
Specific gravity correction factor= 0.987

Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

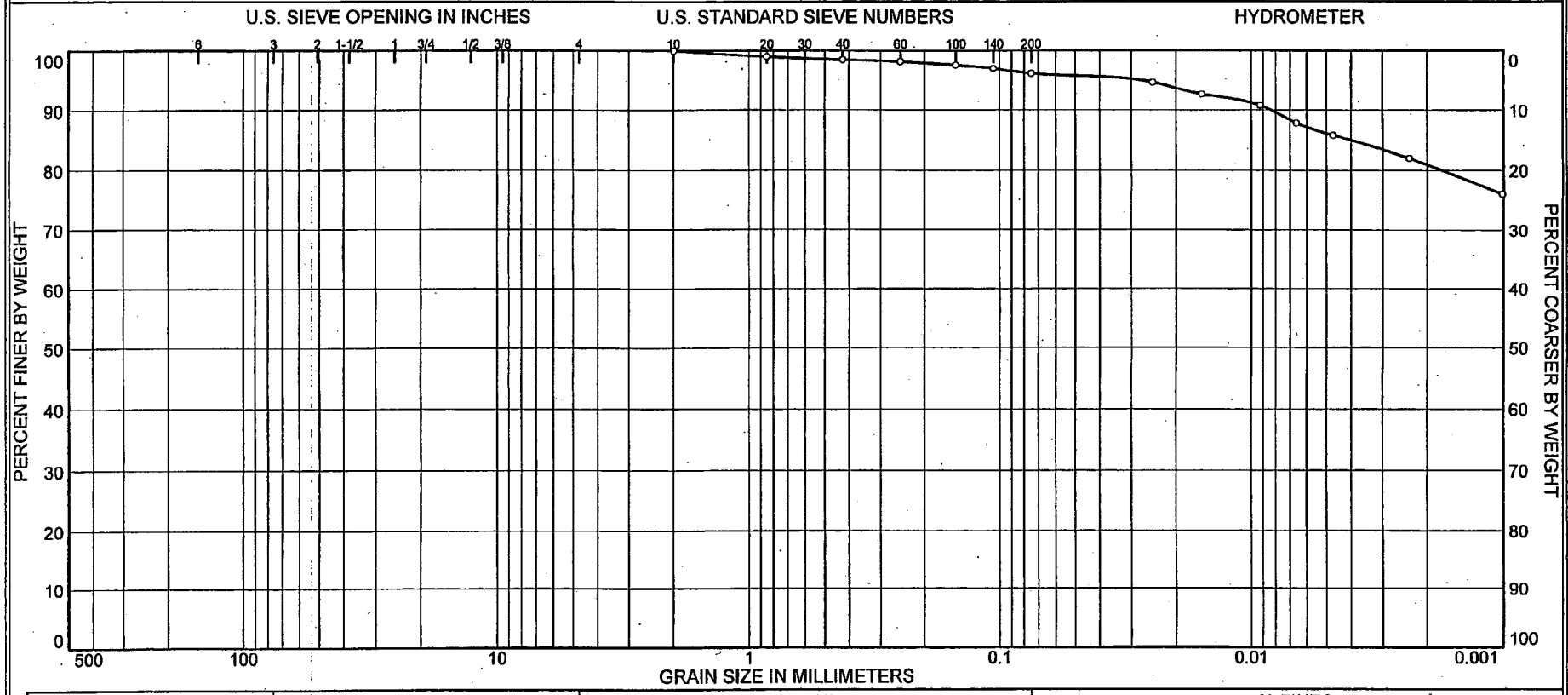
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
0.50	23.4	63.0	59.9	0.0129	64.0	5.8	0.0438	94.3
1.00	23.4	58.0	54.9	0.0129	59.0	6.6	0.0331	86.4
2.00	23.4	54.0	50.9	0.0129	55.0	7.3	0.0245	80.1
5.00	23.4	49.0	45.9	0.0129	50.0	8.1	0.0164	72.2
15.00	23.4	43.0	39.9	0.0129	44.0	9.1	0.0100	62.8
30.00	23.4	38.0	34.9	0.0129	39.0	9.9	0.0074	54.9
60.00	23.4	35.0	31.9	0.0129	36.0	10.4	0.0054	50.2
250.00	23.6	30.0	26.9	0.0128	31.0	11.2	0.0027	42.4
1440.00	23.1	24.0	20.8	0.0129	25.0	12.2	0.0012	32.8

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 1.8 (**% coarse =** **% medium** = 0.0 **% fine** = 1.8)
% SILT = 48.8 **% CLAY** = 49.4

D_{85}= 0.03 D_{60}= 0.01 D_{50}= 0.01

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	1.5	2.3	10.0	86.2

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-343	UD-4A	70' to 72	2-24-07	CH	Fat Clay	23.6		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: MH KAW 4/13/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/13/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-343
Sample No.: UD-4A
Elev. or Depth: 70' to 72 **Sample Length(in./cm.):**
Location: B-343
Description: Fat Clay
Date: 2-24-07 **Natural Moisture:** 23.6
Liquid Limit: **Plastic Limit:** **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	89.14
Tare =	0.00
Dry sample weight =	89.14

Sample split on number 10 sieve
Split sample data:
Sample and tare = 49.71 Tare = .00 Sample weight = 49.71
Cumulative weight retained tare= .00
e for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.52	99.0
# 40	0.75	98.5
# 60	0.90	98.2
# 100	1.18	97.6
# 140	1.51	97.0
# 200	1.87	96.2

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 52.34
Hygroscopic moisture correction:
Moist weight & tare = 46.70
Dry weight & tare = 44.88
Tare = 10.73
Hygroscopic moisture= 5.3 %
Calculated biased weight= 49.69
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.781
Specific gravity correction factor= 0.972

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

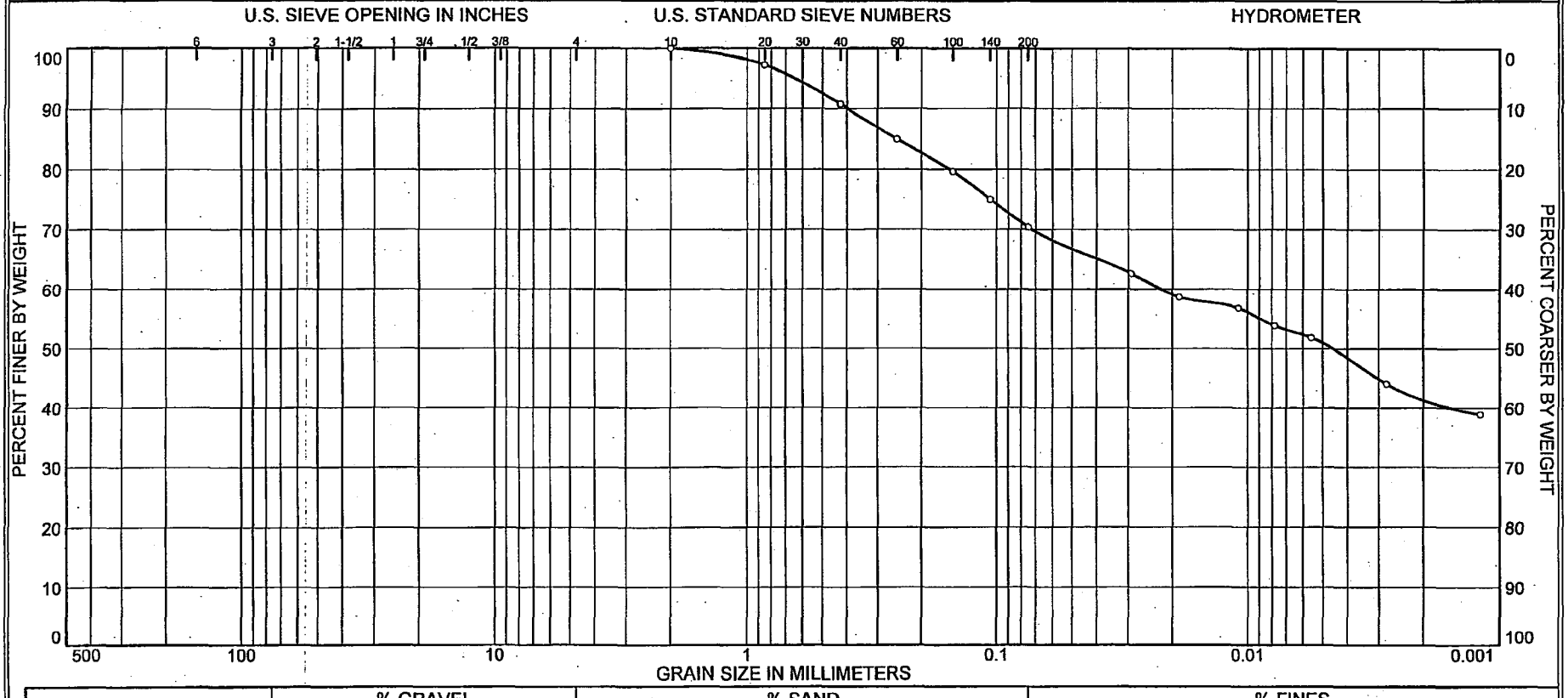
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.00	23.5	51.5	48.4	0.0126	52.5	7.7	0.0247	94.7
5.00	23.5	50.5	47.4	0.0126	51.5	7.8	0.0158	92.7
15.00	23.6	49.5	46.4	0.0126	50.5	8.0	0.0092	90.8
30.00	23.6	48.0	44.9	0.0126	49.0	8.3	0.0066	87.9
60.00	23.6	47.0	43.9	0.0126	48.0	8.4	0.0047	85.9
250.00	23.6	45.0	41.9	0.0126	46.0	8.8	0.0024	82.0
1440.00	23.2	42.0	38.8	0.0126	43.0	9.2	0.0010	76.0

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 3.8 (**% coarse =** **% medium** = 1.5 **% fine** = 2.3)
% SILT = 10.0 **% CLAY** = 86.2

D_{85}= 0.00

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	9.3	20.3	19.5	50.9

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-343	UD-8	198' to 200'	2-24-07	CH	Fat Clay	22.1		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: MH KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-343
Sample No.: UD-8
Elev. or Depth: 198' to 200' **Sample Length(in./cm.):**
Location: B-343
Description: Fat Clay
Date: 2-24-07 **Natural Moisture:** 22.1
Liquid Limit: **Plastic Limit:** **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	101.83
Tare =	0.00
Dry sample weight =	101.83

Sample split on number 10 sieve
Split sample data:
Sample and tare = 50.17 Tare = .00 Sample weight = 50.17
Cumulative weight retained tare= .00
a for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	1.42	97.2
# 40	4.66	90.7
# 60	7.54	85.0
# 100	10.22	79.6
# 140	12.55	75.0
# 200	14.83	70.4

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 51.27
Hygroscopic moisture correction:
Moist weight & tare = 54.30
Dry weight & tare = 53.38
Tare = 11.65
Hygroscopic moisture= 2.2 %
Calculated biased weight= 50.16
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.725
Specific gravity correction factor= 0.984

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

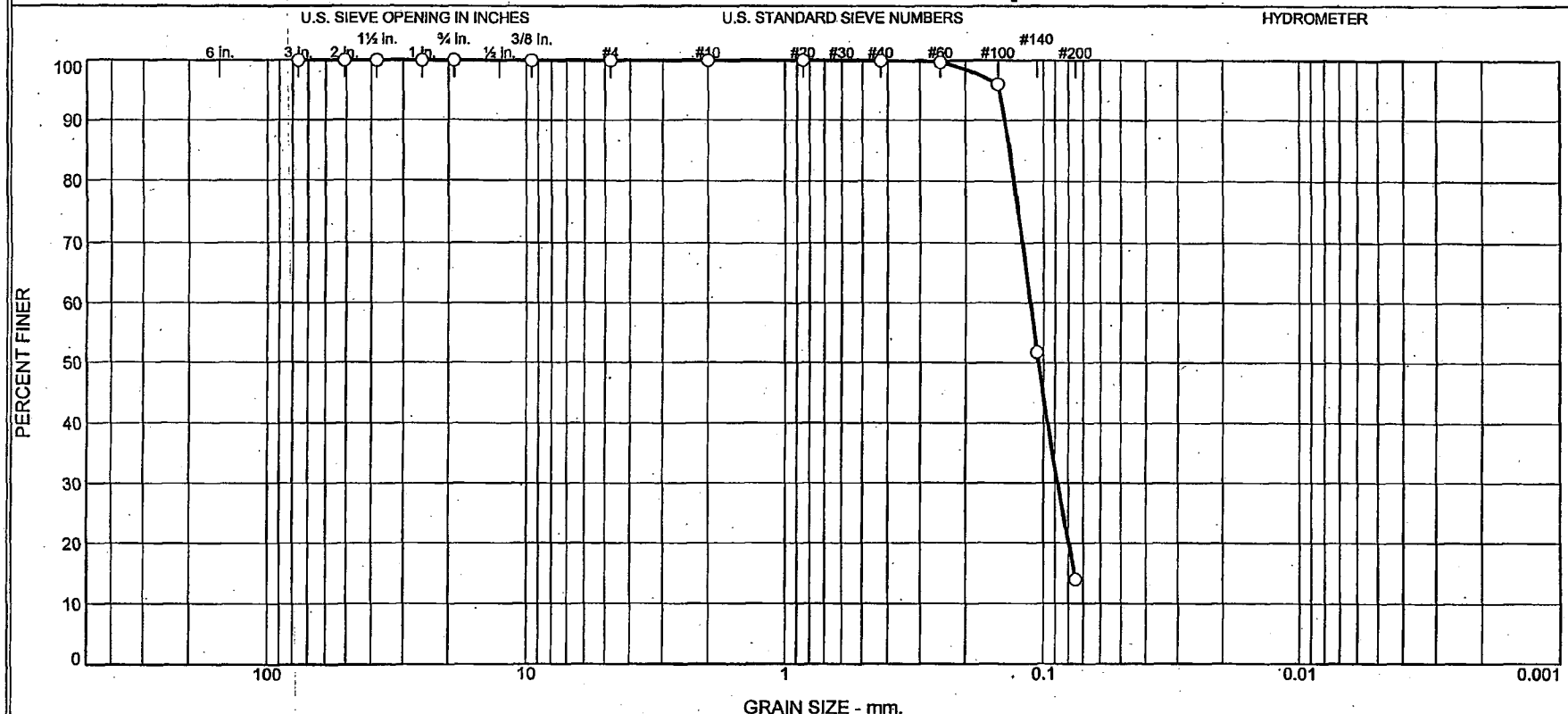
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.00	23.5	35.0	31.9	0.0128	36.0	10.4	0.0291	62.6
5.00	23.5	33.0	29.9	0.0128	34.0	10.7	0.0187	58.7
15.00	23.6	32.0	28.9	0.0128	33.0	10.9	0.0109	56.7
30.00	23.6	30.5	27.4	0.0128	31.5	11.1	0.0078	53.8
60.00	23.6	29.5	26.4	0.0128	30.5	11.3	0.0055	51.8
250.00	23.6	25.5	22.4	0.0128	26.5	11.9	0.0028	44.0
1440.00	23.2	23.0	19.8	0.0128	24.0	12.4	0.0012	38.9

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 29.6 (**% coarse =** **% medium** = 9.3 **% fine** = 20.3)
% SILT = 19.5 **% CLAY** = 50.9

D_{85}= 0.25 D_{60}= 0.02 D_{50}= 0.00

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.1	85.9	14.0	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 344	STP-045 (SS-12)	23.5'-25.0'	11/15/2006	SM	Silty Sand	25.9		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH/MG Reviewed By:ST
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 344
Depth: 23.5'-25.0'
Sample Number: STP-045 (SS-12)
Material Description: Silty Sand
Date: 11/15/2006
Natural Moisture: 25.9
USCS Class.: SM
Testing Remarks: Tested By:TH/MG Reviewed By:ST
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 69.27
Tare Wt. = 0.00
Minus #200 from wash = 14.0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
256.70	176.20	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.00	100.0
			#40	0.05	99.9
			#60	0.24	99.7
			#100	3.22	96.0
			#140	38.86	51.7
			#200	69.27	14.0

Fractional Components

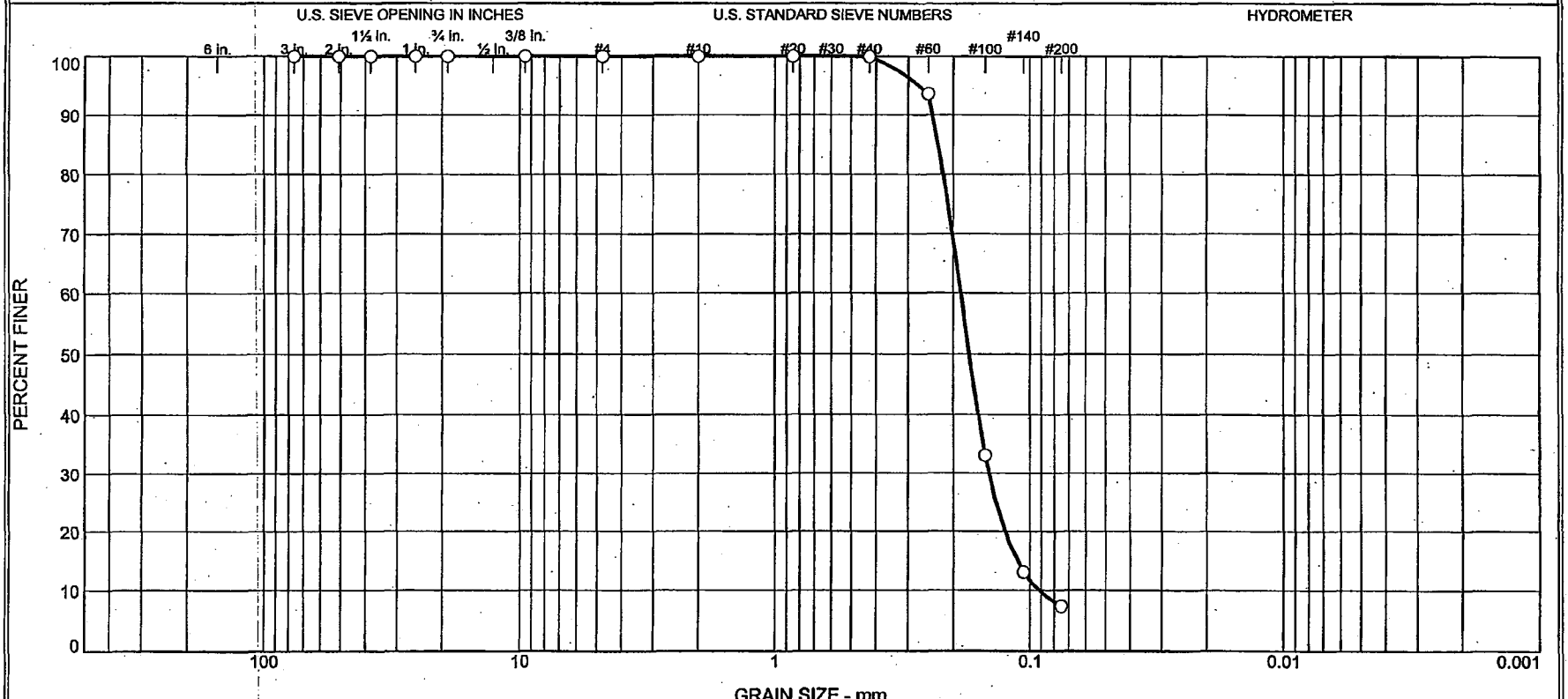
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	85.9	86.0			14.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0758	0.0798	0.0881	0.1046	0.1126	0.1298	0.1350	0.1409	0.1482

Fineness Modulus
0.04

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.1	92.5	7.4	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 344	STP-046	38.5'-40.0'	11/15/2006	SP-SM	Poorly Graded Sand with Silt	21.8		
		(SS-15)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH/MG Reviewed By:ST
ASTM D6913-04e1

MH
4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 344
Depth: 38.5'-40.0'
Sample Number: STP-046 (SS-15)
Material Description: Poorly Graded Sand with Silt
Date: 11/15/2006
Natural Moisture: 21.8
USCS Class.: SP-SM
Testing Remarks: Tested By:TH/MG Reviewed By:ST
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 72.11
Tare Wt. = 0.00
Minus #200 from wash = 7.4%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
254.70	176.80	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.00	100.0
			#40	0.04	99.9
			#60	4.96	93.6
			#100	52.07	33.2
			#140	67.70	13.1
			#200	72.11	7.4

Fractional Components

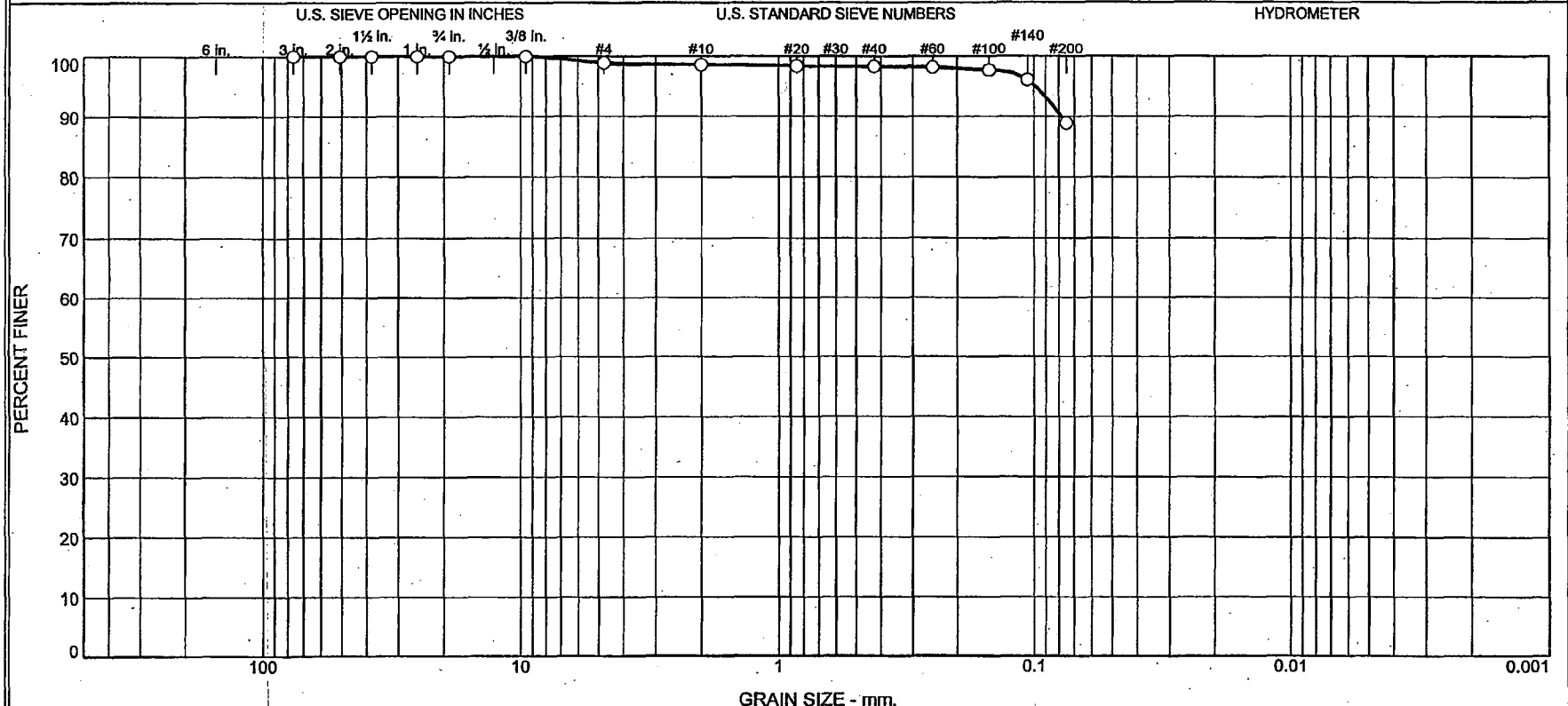
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	92.5	92.6			7.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0920	0.1126	0.1260	0.1451	0.1732	0.1868	0.2181	0.2279	0.2395	0.2720

Fineness Modulus	C_u	C_c
0.70	2.03	1.22

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	1.1	0.3	0.3	9.5	88.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 344	STP-047	48.5'-50.0'	11/15/2006	CL	Lean Clay	27.7	38	15
		(SS-17)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH/MG Reviewed By:RF
ASTM D6913-04e1

MA
4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 344
Depth: 48.5'-50.0'
Sample Number: STP-047 (SS-17)
Material Description: Lean Clay
Date: 11/15/2006
Natural Moisture: 27.7
Liquid Limit: 38
Plastic Limit: 15
USCS Class.: CL
Testing Remarks: Tested By:TH/MG Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 9.59
Tare Wt. = 0.00
Minus #200 from wash = 88.8%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
257.50	171.50	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.93	98.9
			#10	1.22	98.6
			#20	1.40	98.4
			#40	1.48	98.3
			#60	1.56	98.2
			#100	1.98	97.7
			#140	3.36	96.1
			#200	9.59	88.8

Fractional Components

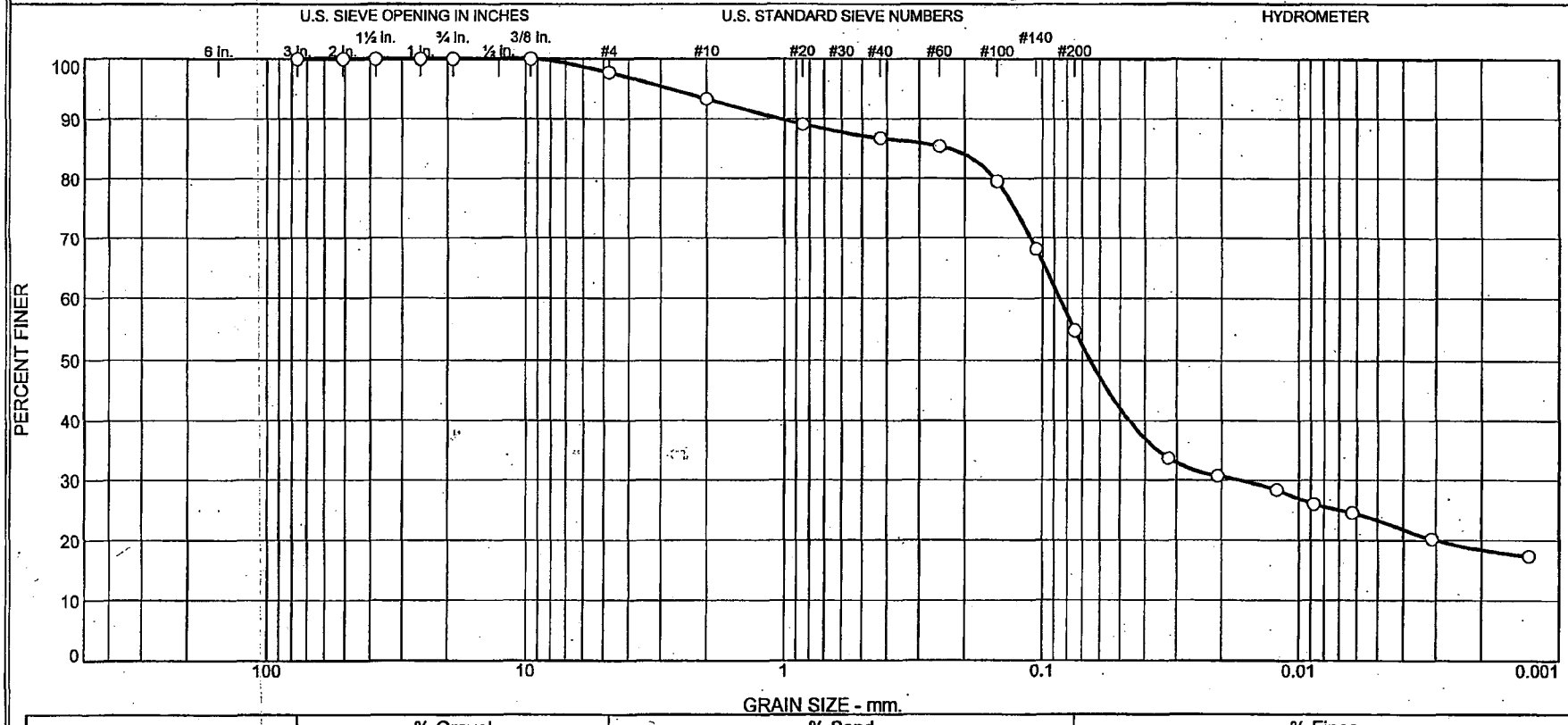
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.1	1.1	0.3	0.3	9.5	10.1			88.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
								0.0785	0.0986

Fineness Modulus
0.10

MAT 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	2.2	4.4	6.7	31.9	31.5	23.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 344	STP-048 (SS-19)	58.5'-60.0'	11/15/2006	CL	Sandy Lean Clay	18.6	30	15

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH/MG/DK Reviewed By:ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated Re-sieveing of the hydrometer sample after drying back was not performed.

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 344
Depth: 58.5'-60.0' **Sample Number:** STP-048 (SS-19)
Material Description: Sandy Lean Clay
Date: 11/15/2006 **Natural Moisture:** 18.6
Liquid Limit: 30 **Plastic Limit:** 15 **USCS Class.:** CL
Testing Remarks: Tested By:TH/MG/DK Reviewed By:ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated Re-sieveing of the hydrometer sample after drying back was not performed.

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 28.27
Tare Wt. = 0.00
Minus #200 from wash = 54.8%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
238.80	176.30	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	1.37	97.8
			#10	4.14	93.4
			#20	6.84	89.1
			#40	8.32	86.7
			#60	9.14	85.4
			#100	12.79	79.5
			#140	19.90	68.2
			#200	28.27	54.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 93.4
Weight of hydrometer sample =64.5
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
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	29.0	23.2	0.0134	29.0	11.5	0.0323	33.6
5.00	21.1	27.0	21.2	0.0135	27.0	11.9	0.0207	30.7
15.00	20.7	25.5	19.6	0.0135	25.5	12.1	0.0122	28.4
30.00	20.1	24.0	18.0	0.0136	24.0	12.4	0.0087	26.0
60.00	20.0	23.0	17.0	0.0136	23.0	12.5	0.0062	24.6
250.00	20.0	20.0	14.0	0.0136	20.0	13.0	0.0031	20.2
1440.00	20.0	18.0	12.0	0.0136	18.0	13.3	0.0013	17.3

MAC 4-3-07

Fractional Components

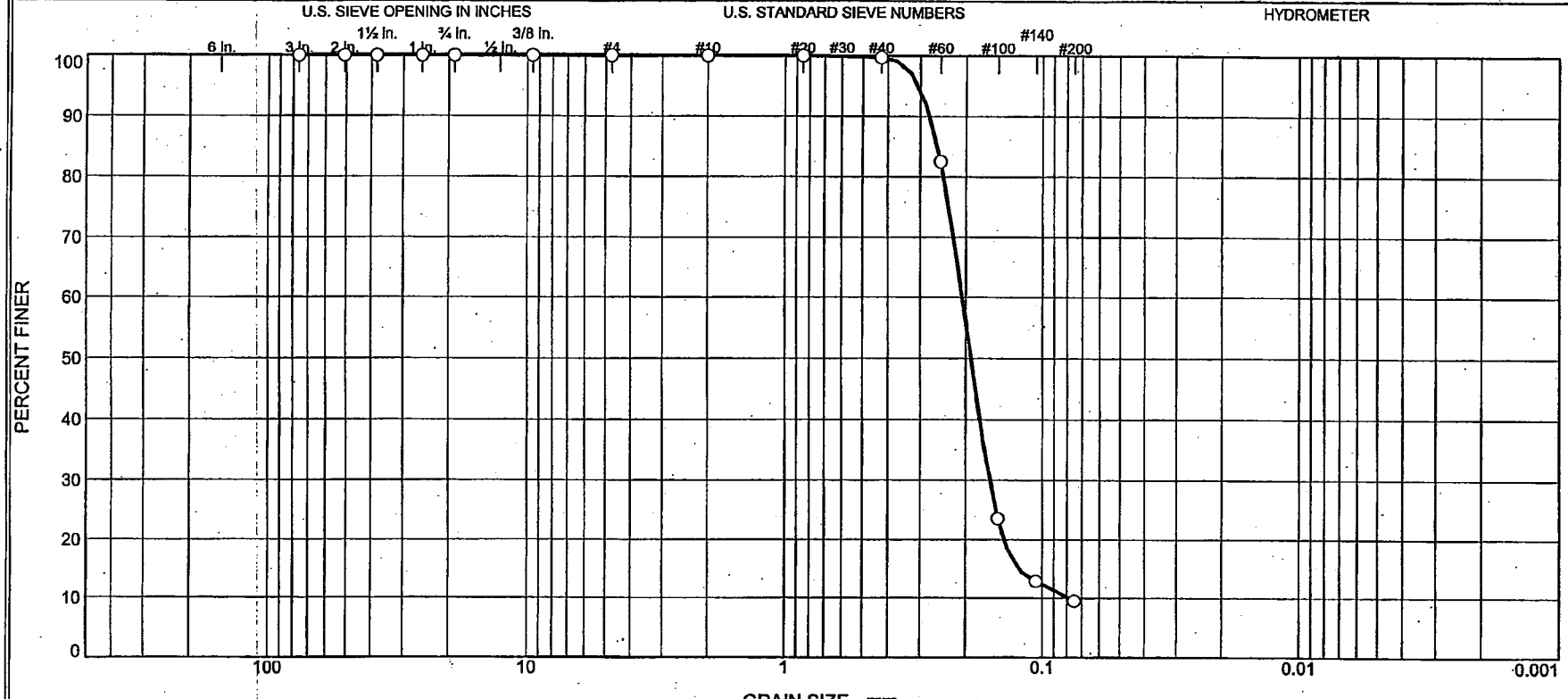
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.2	2.2	4.4	6.7	31.9	43.0	31.5	23.3	54.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0030	0.0170	0.0655	0.0860	0.1530	0.2297	1.0438	2.7028

Fineness Modulus
0.64

MAK 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.3	90.2	9.5	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 344	STP-049	68.5'-70.0'	11/15/2006	SP-SM	Poorly Graded Sand with Silt	21.9		
		(SS-21)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH/MG Reviewed By:ST

ASTM D6913-04e1

MAT 4-3-07

KAW 3440 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 344
Depth: 68.5'-70.0'
Sample Number: STP-049 (SS-21)
Material Description: Poorly Graded Sand with Silt
Date: 11/15/2006
Natural Moisture: 21.9
USCS Class.: SP-SM
Testing Remarks: Tested By:TH/MG Reviewed By:ST
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 69.90
Tare Wt. = 0.00
Minus #200 from wash = 9.5%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
254.40	177.20	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.01	100.0
			#40	0.24	99.7
			#60	13.50	82.5
			#100	58.98	23.6
			#140	67.30	12.8
			#200	69.90	9.5

Fractional Components

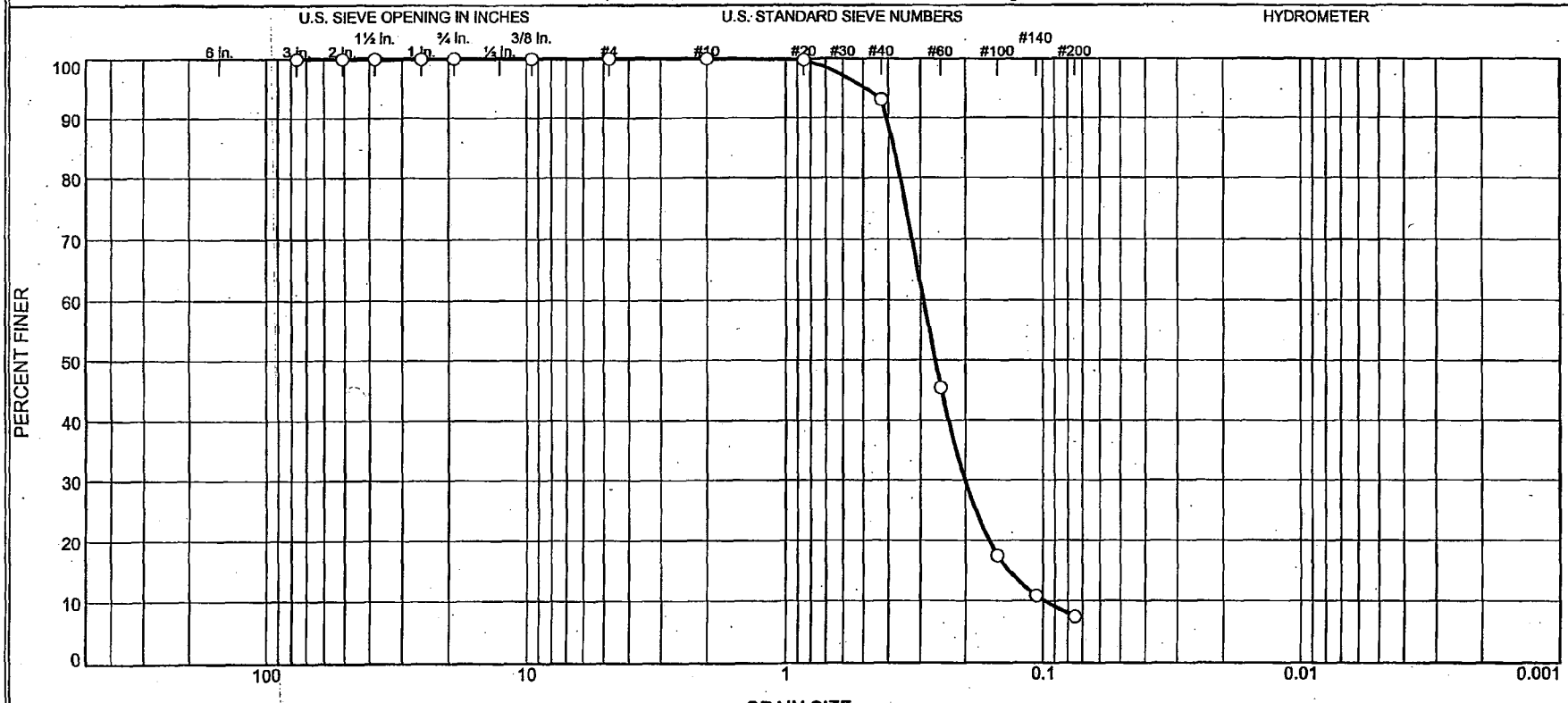
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.3	90.2	90.5			9.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0791	0.1246	0.1421	0.1611	0.1906	0.2058	0.2436	0.2572	0.2756	0.3049

Fineness Modulus	C_u	C_c
0.82	2.60	1.59

MAK 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	7.0	85.6	7.4	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 344	STP-050 (SS-23)	78.5'-80.0'	11/15/2006	SP-SM	Poorly Graded Sand with Silt	20.3		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH/MG Reviewed By:ST
ASTM D6913-04e1

4-3-07

KAW 4/03/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 344
Depth: 78.5'-80.0'
Sample Number: STP-050 (SS-23)
Material Description: Poorly Graded Sand with Silt
Date: 11/15/2006
Natural Moisture: 20.3
USCS Class.: SP-SM
Testing Remarks: Tested By:TH/MG Reviewed By:ST
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 81.10
Tare Wt. = 0.00
Minus #200 from wash = 7.4%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
263.30	175.70	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.19	99.8
			#40	6.10	93.0
			#60	47.82	45.4
			#100	72.29	17.5
			#140	78.12	10.8
			#200	81.10	7.4

Fractional Components

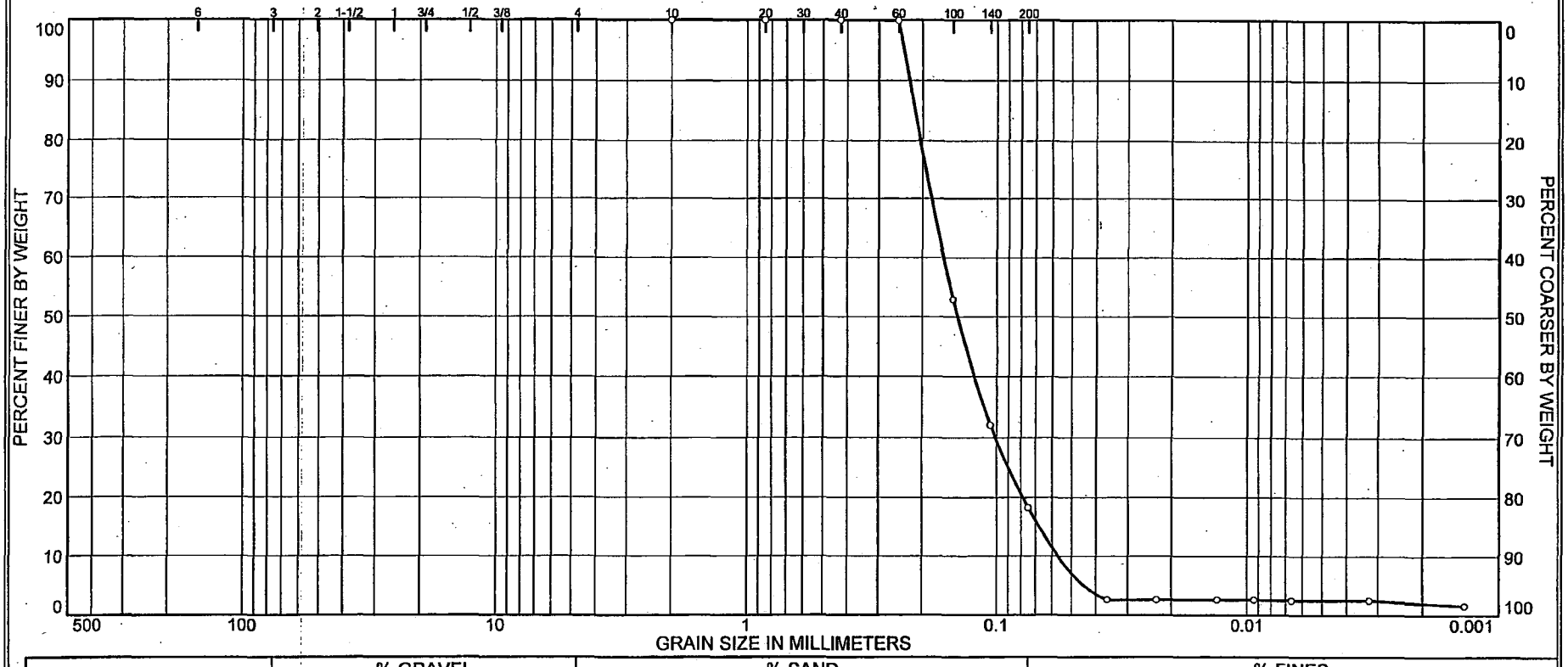
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	7.0	85.6	92.6			7.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0987	0.1363	0.1621	0.2013	0.2632	0.2921	0.3588	0.3802	0.4058	0.4940

Fineness Modulus	C_u	C_c
1.23	2.96	1.41

MK 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	0.0	81.8	15.7	2.5

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-401	UD-4	153' to 154'	3-13-07	SM	Silty sand	24.6	NV	NP

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1 KAW 4/3/07
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-401
Sample No.: UD-4
Elev. or Depth: 153' to 154' **Sample Length(in./cm.):**
Location: B-401
Description: Silty sand
Date: 3-13-07 **Natural Moisture:** 24.6
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SM
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	157.42
Tare =	0.00
Dry sample weight =	157.42

Sample split on number 10 **sieve**
Split sample data:
Sample and tare = 114.34 **Tare =** .00 **Sample weight =** 114.34
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.00	100.0
# 40	0.01	100.0
# 60	0.15	99.9
# 100	53.82	52.9
# 140	77.65	32.1
# 200	93.51	18.2

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 114.75
Hygroscopic moisture correction:
Moist weight & tare = 25.72
Dry weight & tare = 25.67
Tare = 11.59
Hygroscopic moisture= 0.4 %
Calculated biased weight= 114.34
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.627
Specific gravity correction factor= 1.005

Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

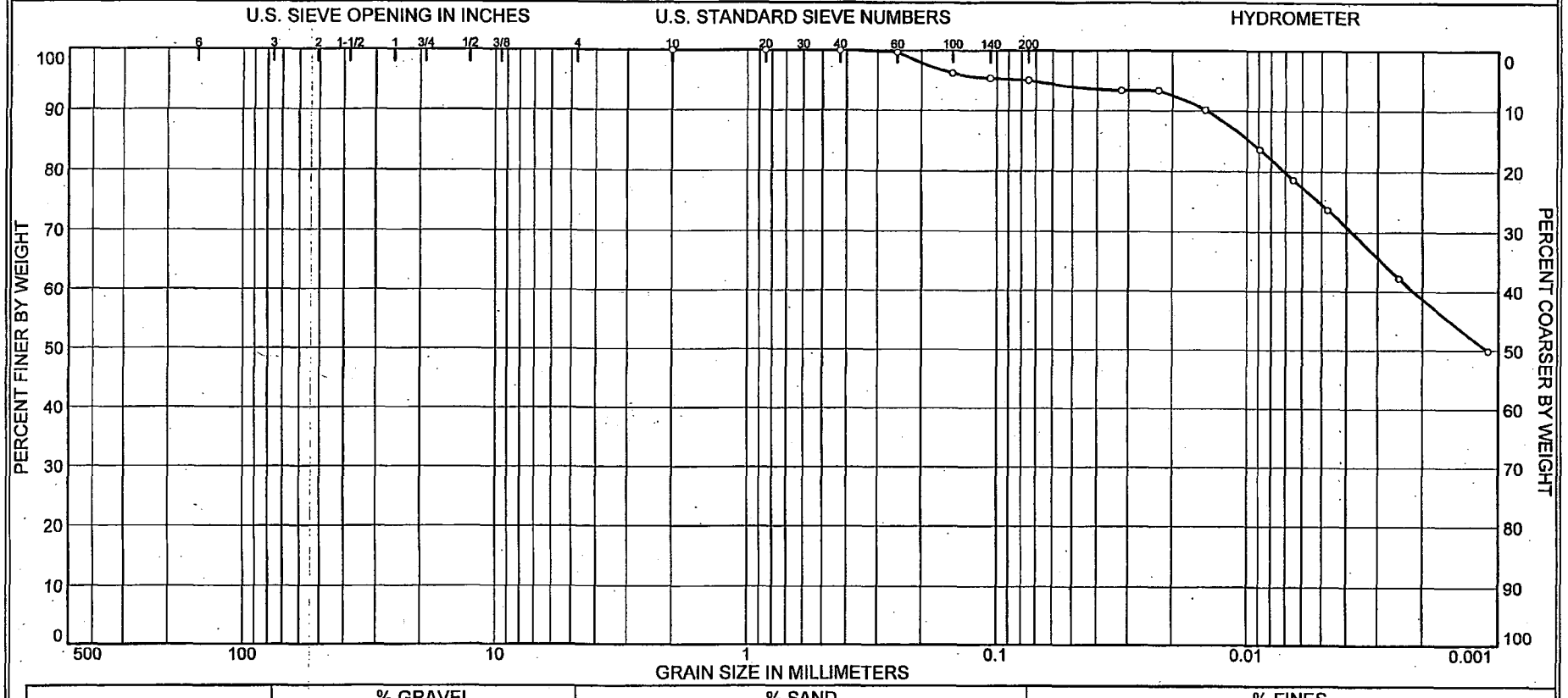
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.00	23.7	6.0	2.9	0.0131	7.0	15.1	0.0361	2.6
5.00	23.6	6.0	2.9	0.0132	7.0	15.1	0.0229	2.6
15.00	23.6	6.0	2.9	0.0132	7.0	15.1	0.0132	2.6
30.00	23.6	6.0	2.9	0.0132	7.0	15.1	0.0093	2.6
60.00	23.5	6.0	2.9	0.0132	7.0	15.1	0.0066	2.5
250.00	23.4	6.0	2.9	0.0132	7.0	15.1	0.0032	2.5
1440.00	23.3	5.0	1.9	0.0132	6.0	15.3	0.0014	1.6

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 81.8 (**% coarse =** **% medium** = 0.0 **% fine** = 81.8)
% SILT = 15.7 **% CLAY** = 2.5

D_{85}= 0.22 D_{60}= 0.16 D_{50}= 0.14
D_{30}= 0.10 D_{15}= 0.07 D_{10}= 0.06
C_c= 1.0991 C_u= 2.882

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	0.0	4.9	20.5	74.6

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-404	UD-2	98' to 100'	2-20-07	CH	Fat clay	25.3	50	20

Client Bechtel Power Corporation
Project Bechtel/STP/COL
Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: SS KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-404
Sample No.: UD-2
Elev. or Depth: 98' to 100' **Sample Length(in./cm.):**
Location: B-404
Description: Fat clay
Date: 2-20-07 **Natural Moisture:** 25.3
Liquid Limit: 50 **Plastic Limit:** 20 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	98.85
Tare =	0.00
Dry sample weight =	98.85

Sample split on number 10 sieve
Split sample data:
Sample and tare = 59.81 **Tare =** .00 **Sample weight =** 59.81
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.00	100.0
# 40	0.02	100.0
# 60	0.17	99.7
# 100	2.27	96.2
# 140	2.76	95.4
# 200	2.92	95.1

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 61.60
Hygroscopic moisture correction:
Moist weight & tare = 50.96
Dry weight & tare = 49.78
Tare = 10.88
Hygroscopic moisture= 3.0 %
Calculated biased weight= 59.79
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1.0
Specific gravity of solids= 2.732
Specific gravity correction factor= 0.982

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

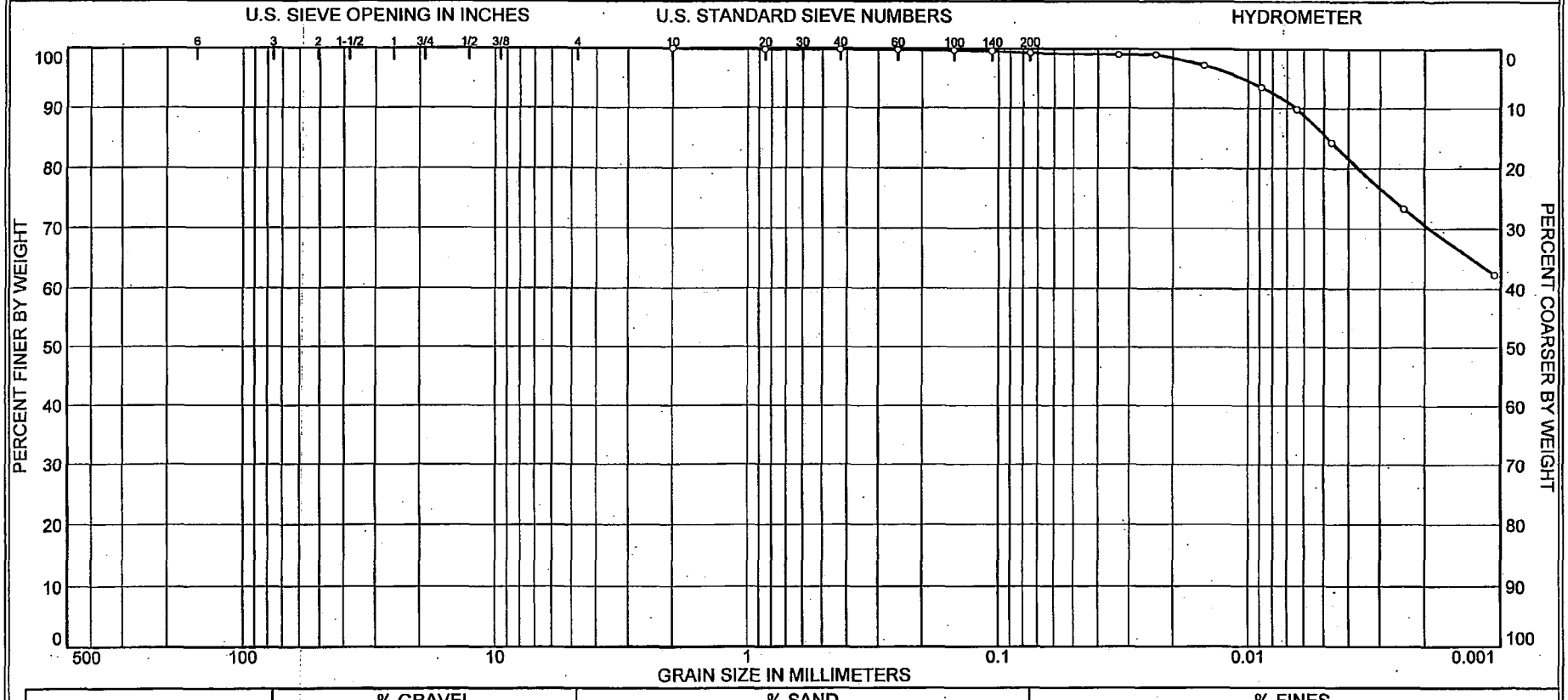
Elapsed ime, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.00	23.4	60.0	56.9	0.0128	61.0	6.3	0.0320	93.4
2.00	23.4	60.0	56.9	0.0128	61.0	6.3	0.0227	93.4
5.00	23.4	58.0	54.9	0.0128	59.0	6.6	0.0147	90.1
15.00	23.4	54.0	50.9	0.0128	55.0	7.3	0.0089	83.6
30.00	23.4	51.0	47.9	0.0128	52.0	7.8	0.0065	78.6
60.00	23.4	48.0	44.9	0.0128	49.0	8.3	0.0047	73.7
250.00	23.4	41.0	37.9	0.0128	42.0	9.4	0.0025	62.2
1440.00	23.4	33.5	30.4	0.0128	34.5	10.6	0.0011	49.9

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 4.9 (**% coarse =** **% medium** = 0.0 **% fine** = 4.9)
% SILT = 20.5 **% CLAY** = 74.6

D_{85}= 0.01 D_{60}= 0.00 D_{50}= 0.00

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	0.2	0.5	13.7	85.6

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-404	UD-3	121' to 123'	2-20-07	CH	Fat clay	23.4	62	23

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: SS KAW 4/3/07

ASTM D422-63 (2002)e1

ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-404
Sample No.: UD-3
Elev. or Depth: 121' to 123' **Sample Length(in./cm.):**
Location: B-404
Description: Fat clay
Date: 2-20-07 **Natural Moisture:** 23.4
Liquid Limit: 62 **Plastic Limit:** 23 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	80.47
Tare =	0.00
Dry sample weight =	80.47

Sample split on number 10 sieve
Split sample data:
Sample and tare = 52.99 **Tare =** .00 **Sample weight =** 52.99
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.09	99.8
# 40	0.10	99.8
# 60	0.12	99.8
# 100	0.17	99.7
# 140	0.23	99.6
# 200	0.37	99.3

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 54.53
Hygroscopic moisture correction:
Moist weight & tare = 39.54
Dry weight & tare = 38.74
Tare = 11.32
Hygroscopic moisture= 2.9 %
Calculated biased weight= 52.98
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.766
Specific gravity correction factor= 0.975

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

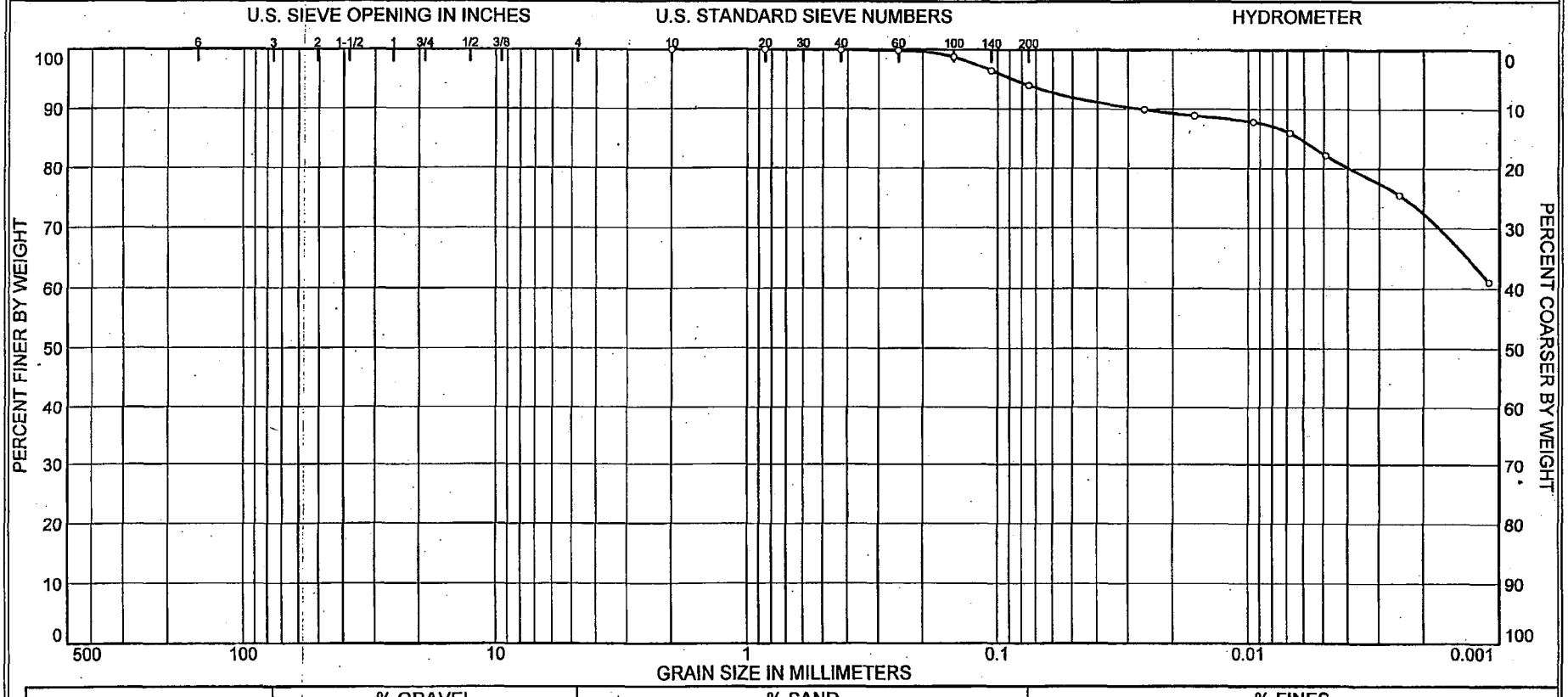
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.00	23.1	57.0	53.8	0.0127	58.0	6.8	0.0331	99.0
2.00	23.1	57.0	53.8	0.0127	58.0	6.8	0.0234	99.0
5.00	23.1	56.0	52.8	0.0127	57.0	6.9	0.0150	97.2
15.00	23.1	54.0	50.8	0.0127	55.0	7.3	0.0088	93.5
30.00	23.1	52.0	48.8	0.0127	53.0	7.6	0.0064	89.8
60.00	23.1	49.0	45.8	0.0127	50.0	8.1	0.0047	84.3
250.00	23.1	43.0	39.8	0.0127	44.0	9.1	0.0024	73.3
1440.00	23.4	37.0	33.9	0.0127	38.0	10.1	0.0011	62.3

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 0.7 (**% coarse =** **% medium** = 0.2 **% fine** = 0.5)
% SILT = 13.7 **% CLAY** = 85.6

D_{85}= 0.00

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	0.1	5.8	11.7	82.4

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-404	UD-4	131' to 133'	2-20-07	CH	Fat clay	20.8	52	22

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: SS KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-404
Sample No.: UD-4
Elev. or Depth: 131' to 133' **Sample Length(in./cm.):**
Location: B-404
Description: Fat clay
Date: 2-20-07 **Natural Moisture:** 20.8
Liquid Limit: 52 **Plastic Limit:** 22 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	79.77
Tare =	0.00
Dry sample weight =	79.77

Sample split on number 10 sieve
Split sample data:
Sample and tare = 51.89 **Tare =** .00 **Sample weight =** 51.89
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.00	100.0
# 40	0.04	99.9
# 60	0.08	99.8
# 100	0.63	98.8
# 140	1.80	96.5
# 200	3.04	94.1

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 53.60
Hygroscopic moisture correction:
Moist weight & tare = 40.25
Dry weight & tare = 39.34
Tare = 11.46
Hygroscopic moisture= 3.3 %
Calculated biased weight= 51.91
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.670
Specific gravity correction factor= 0.995

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

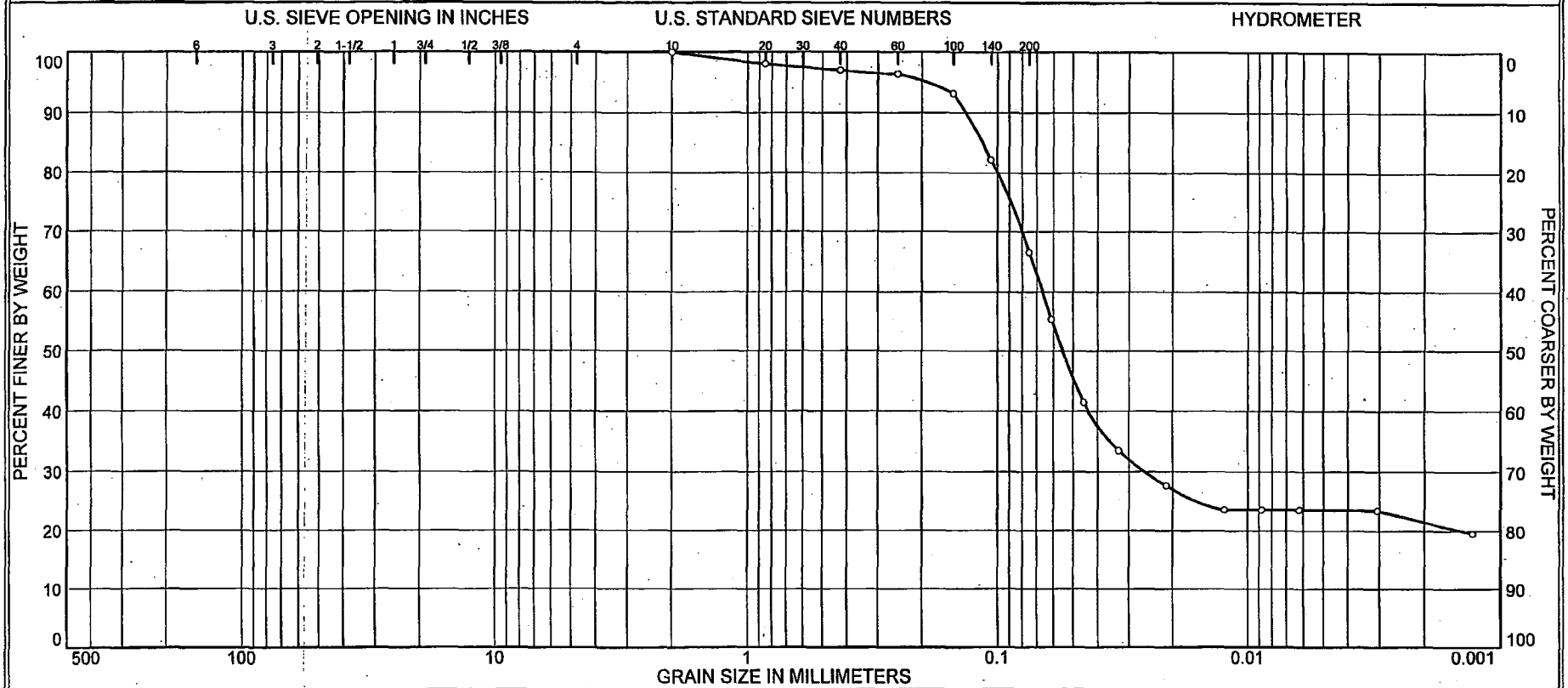
Elapsed ime, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.00	23.4	50.0	46.9	0.0130	51.0	7.9	0.0259	89.9
5.00	23.4	49.5	46.4	0.0130	50.5	8.0	0.0165	88.9
15.00	23.4	49.0	45.9	0.0130	50.0	8.1	0.0096	87.9
30.00	23.4	48.0	44.9	0.0130	49.0	8.3	0.0068	86.0
60.00	23.4	46.0	42.9	0.0130	47.0	8.6	0.0049	82.2
250.00	23.4	42.5	39.4	0.0130	43.5	9.2	0.0025	75.5
1440.00	23.4	35.0	31.9	0.0130	36.0	10.4	0.0011	61.1

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 5.9 **(% coarse =** **% medium =** 0.1 **% fine =** 5.8**)**
% SILT = 11.7 **% CLAY =** 82.4

D_{85}= 0.01

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	3.0	30.4	43.0	23.6

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-404	UD-5	141' to 143'	3-16-07	CL	Sandy lean clay	18.0	30	18

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed: MH KAW 4/13/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/13/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-404
Sample No.: UD-5
Elev. or Depth: 141' to 143' **Sample Length(in./cm.):**
Location: B-404
Description: Sandy lean clay
Date: 3-16-07 **Natural Moisture:** 18.0
Liquid Limit: 30 **Plastic Limit:** 18 **USCS Class.:** CL
Testing Remarks: Tested by: JA Reviewed: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	122.18
Tare =	0.00
Dry sample weight =	122.18

Sample split on number 10 **sieve**
Split sample data:
Sample and tare = 50.30 **Tare =** .00 **Sample weight =** 50.30
Cumulative weight retained tare= .00
e for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.94	98.1
# 40	1.51	97.0
# 60	1.80	96.4
# 100	3.40	93.2
# 140	8.97	82.2
# 200	16.79	66.6

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 51.21
Hygroscopic moisture correction:
Moist weight & tare = 23.18
Dry weight & tare = 22.96
Tare = 10.74
Hygroscopic moisture= 1.8 %
Calculated biased weight= 50.30
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.666
Specific gravity correction factor= 0.996

Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

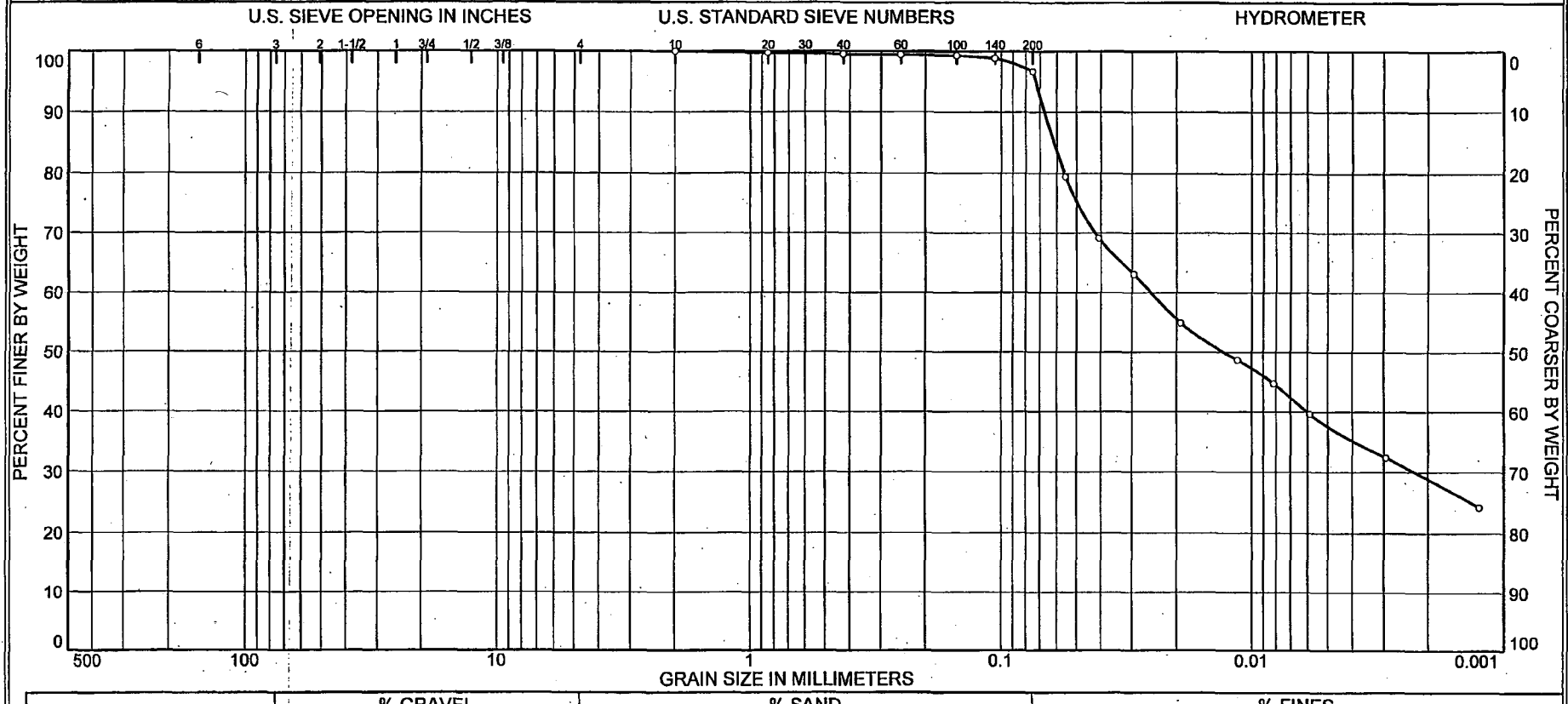
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
0.50	23.6	31.0	27.9	0.0130	32.0	11.0	0.0611	55.3
1.00	23.6	24.0	20.9	0.0130	25.0	12.2	0.0454	41.4
2.00	23.6	20.0	16.9	0.0130	21.0	12.9	0.0329	33.5
5.00	23.6	17.0	13.9	0.0130	18.0	13.3	0.0212	27.6
15.00	23.6	15.0	11.9	0.0130	16.0	13.7	0.0124	23.6
30.00	23.6	15.0	11.9	0.0130	16.0	13.7	0.0088	23.6
60.00	23.5	15.0	11.9	0.0130	16.0	13.7	0.0062	23.6
250.00	23.3	15.0	11.9	0.0130	16.0	13.7	0.0031	23.5
1440.00	23.3	13.0	9.9	0.0130	14.0	14.0	0.0013	19.5

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 33.4 **(% coarse =** **% medium** = 3.0 **% fine** = 30.4)
% SILT = 43.0 **% CLAY** = 23.6

D_{85}= 0.11 D_{60}= 0.07 D_{50}= 0.06
D_{30}= 0.03

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	0.5	2.8	59.2	37.5

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-404	UD-6	161' to 163'	2-20-07	CL	Lean clay	20.2	30	15

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: SS KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-404
Sample No.: UD-6
Elev. or Depth: 161' to 163' **Sample Length(in./cm.):**
Location: B-404
Description: Lean clay
Date: 2-20-07 **Natural Moisture:** 20.2
Liquid Limit: 30 **Plastic Limit:** 15 **USCS Class.:** CL
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	82.08
Tare =	0.00
Dry sample weight =	82.08

Sample split on number 10 sieve
Split sample data:
Sample and tare = 48.35 **Tare =** .00 **Sample weight =** 48.35
Cumulative weight retained tare= .00
Loss for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.14	99.7
# 40	0.25	99.5
# 60	0.28	99.4
# 100	0.36	99.3
# 140	0.55	98.9
# 200	1.58	96.7

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 49.08
Hygroscopic moisture correction:
Moist weight & tare = 45.09
Dry weight & tare = 44.59
Tare = 10.95
Hygroscopic moisture= 1.5 %
Calculated biased weight= 48.36
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.708
Specific gravity correction factor= 0.987

Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

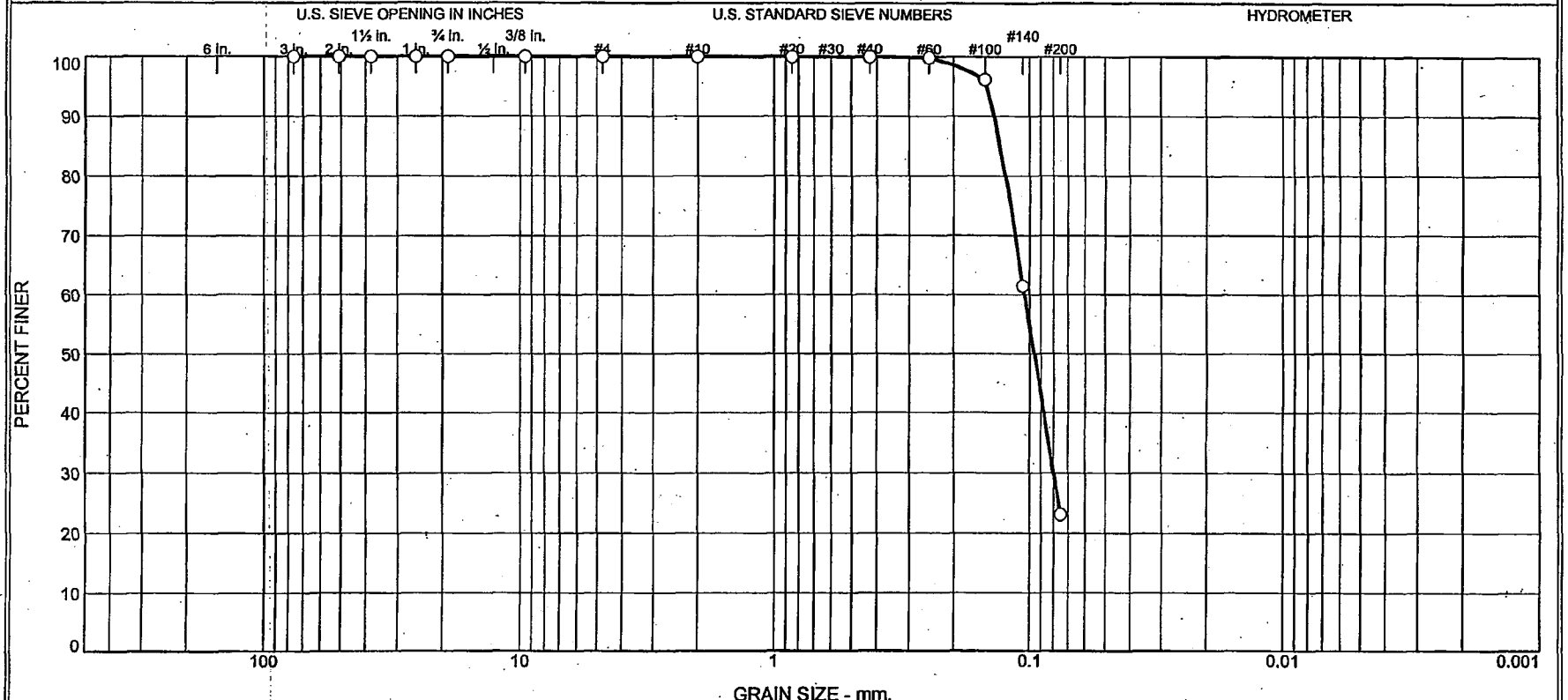
Elapsed ime, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
0.50	23.4	42.0	38.9	0.0129	43.0	9.2	0.0553	79.4
1.00	23.4	37.0	33.9	0.0129	38.0	10.1	0.0408	69.1
2.00	23.4	34.0	30.9	0.0129	35.0	10.6	0.0296	63.0
5.00	23.4	30.0	26.9	0.0129	31.0	11.2	0.0193	54.9
15.00	23.4	27.0	23.9	0.0129	28.0	11.7	0.0114	48.7
30.00	23.4	25.0	21.9	0.0129	26.0	12.0	0.0081	44.7
60.00	23.4	22.5	19.4	0.0129	23.5	12.4	0.0059	39.6
250.00	23.4	19.0	15.9	0.0129	20.0	13.0	0.0029	32.4
1440.00	23.4	15.0	11.9	0.0129	16.0	13.7	0.0013	24.2

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 3.3 (**% coarse =** **% medium** = 0.5 **% fine** = 2.8)
% SILT = 59.2 **% CLAY** = 37.5

D_{85}= 0.06 D_{60}= 0.03 D_{50}= 0.01
D_{30}= 0.00

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.0	76.9	23.1	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 405-DH	STP-058 (SS-11)	33.5'-35.0'	10/19/2006	SM	Silty Sand	25.0		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH/MG Reviewed By:ST

ASTM D6913-04e1

MA 4-3-07

KAW 4/4/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 405-DH
Depth: 33.5'-35.0'
Sample Number: STP-058 (SS-11)
Material Description: Silty Sand
Date: 10/19/2006
Natural Moisture: 25.0
USCS Class.: SM
Testing Remarks: Tested By:TH/MG Reviewed By:ST
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 63.07
Tare Wt. = 0.00
Minus #200 from wash = 23.1%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
258.30	176.30	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.03	100.0
			#40	0.03	100.0
			#60	0.16	99.8
			#100	3.13	96.2
			#140	31.58	61.5
			#200	63.07	23.1

Fractional Components

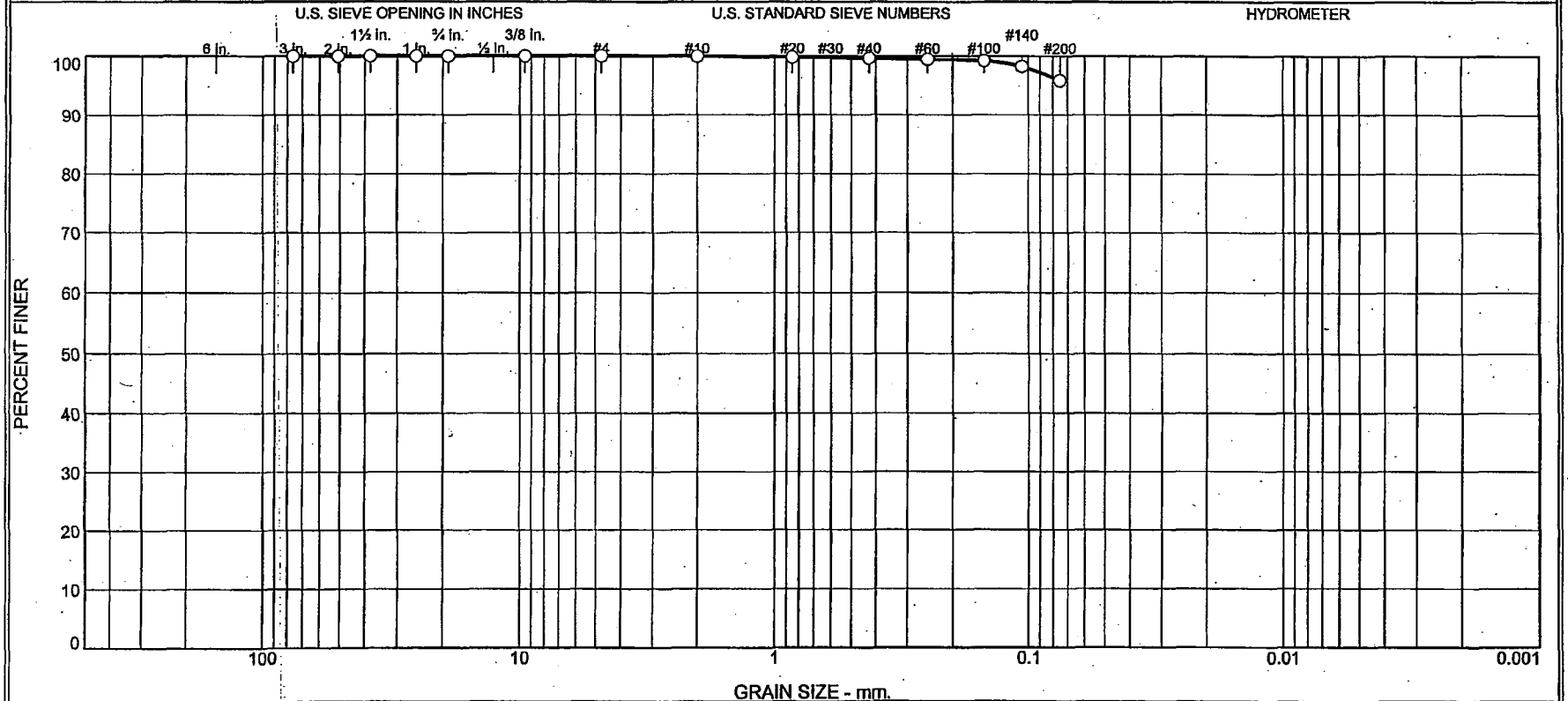
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	76.9	76.9			23.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0799	0.0958	0.1046	0.1247	0.1309	0.1381	0.1473

Fineness Modulus
0.04

MK 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.4	3.7	95.9	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 405-DH	STP-059	43.5'-45.0'	10/19/2006	CL	Lean Clay	26.3		
		(SS-13)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH/MG Reviewed By:ST

ASTM D6913-04e1

MH 4-3-07

KAW 4/4/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 405-DH
Depth: 43.5'-45.0'
Sample Number: STP-059 (SS-13)
Material Description: Lean Clay
Date: 10/19/2006
Natural Moisture: 26.3
USCS Class.: CL
Testing Remarks: Tested By:TH/MG Reviewed By:ST
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 3.68
Tare Wt. = 0.00
Minus #200 from wash = 95.9%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
266.40	177.20	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.04	100.0
			#20	0.19	99.8
			#40	0.34	99.6
			#60	0.48	99.5
			#100	0.71	99.2
			#140	1.56	98.3
			#200	3.68	95.9

Fractional Components

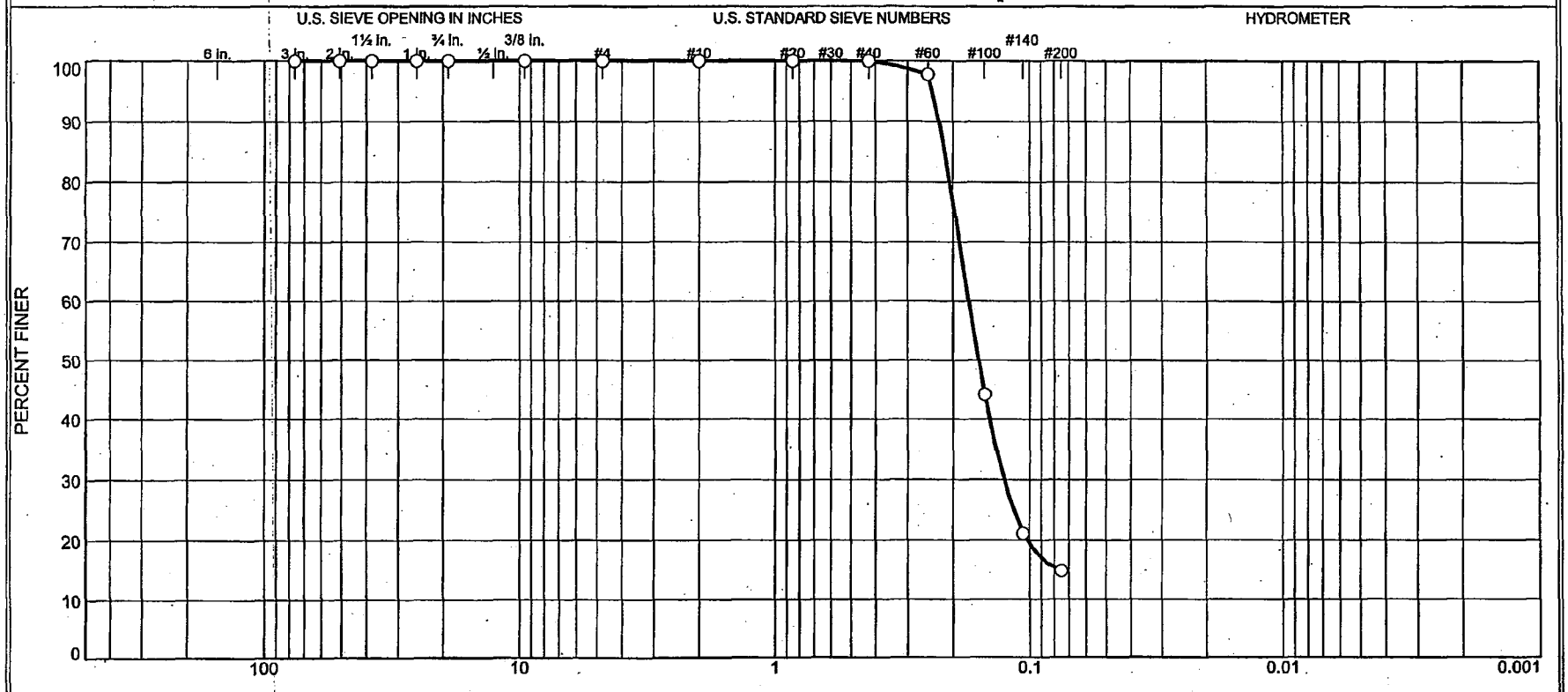
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.4	3.7	4.1			95.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}

Fineness Modulus
0.02

MK 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.0	85.2	14.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 405-DH	STP-061 (SS-17)	68.5'-70.0'	10/19/2006	SM	Silty Sand	20.9		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

4-3-07

KAW 4/4/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 405-DH
Depth: 68.5'-70.0'
Sample Number: STP-061 (SS-17)
Material Description: Silty Sand
Date: 10/19/2006
Natural Moisture: 20.9
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 76.98
Tare Wt. = 0.00
Minus #200 from wash = 14.8%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
267.70	177.30	0.00	3"	0.00	100.0			
			2"	0.00	100.0			
			1.5"	0.00	100.0			
			1"	0.00	100.0			
			3/4"	0.00	100.0			
			3/8"	0.00	100.0			
			#4	0.00	100.0			
			#10	0.00	100.0			
			#20	0.00	100.0			
			#40	0.02	100.0			
			#60	2.01	97.8			
			#100	50.48	44.2			
			#140	71.34	21.1			
			#200	76.98	14.8			

Fractional Components

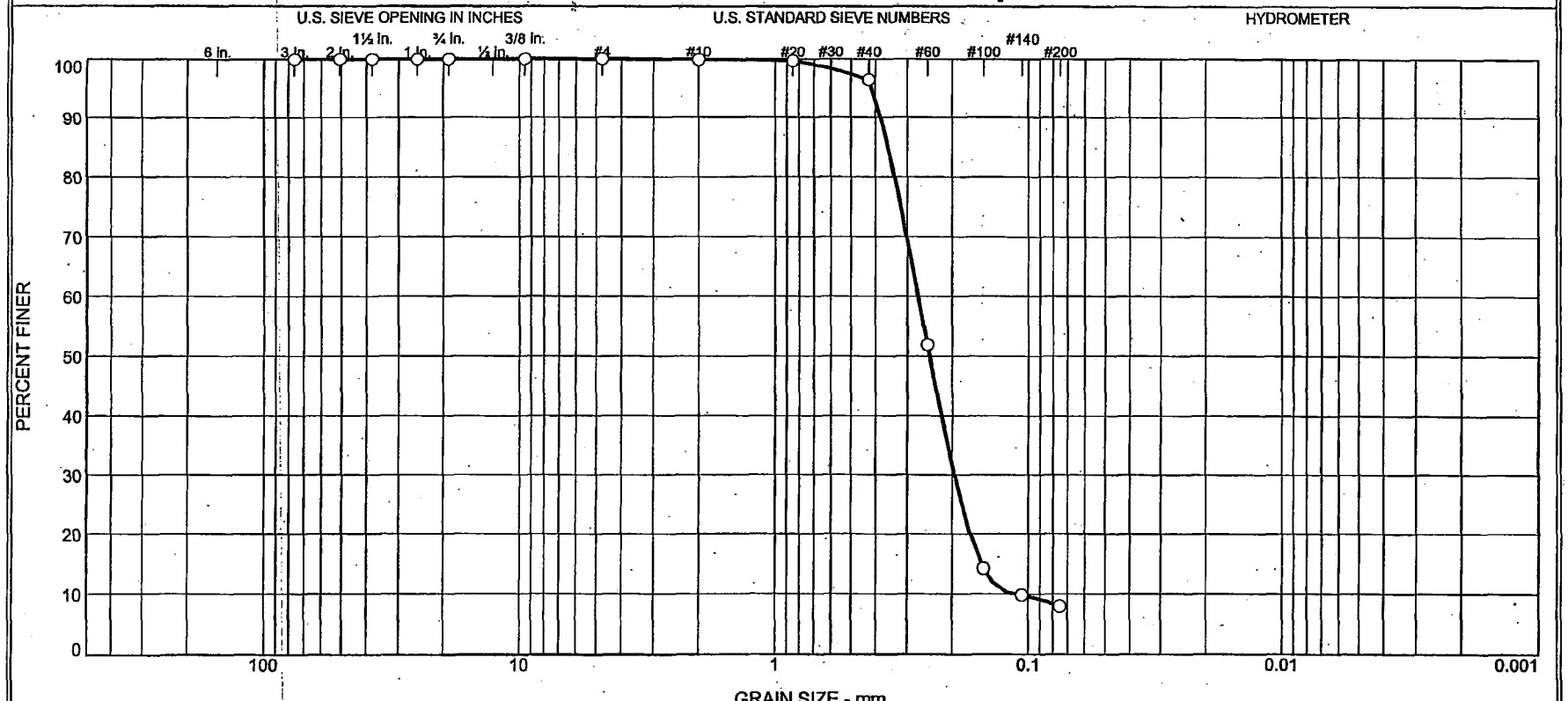
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	85.2	85.2			14.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0763	0.1026	0.1264	0.1586	0.1730	0.2051	0.2149	0.2262	0.2401

Fineness Modulus
0.57

AMt 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.1	3.5	88.5	7.9	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 405-DH	STP-062 (SS-19)	78.5'-80.0'	10/19/2006	SP-SM	Poorly Graded Sand with Silt	21.0		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH/MG Reviewed By:ST
ASTM D6913-04e1

MA 4-3-07

KAW 4/4/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 405-DH
Depth: 78.5'-80.0'
Sample Number: STP-062 (SS-19)
Material Description: Poorly Graded Sand with Silt
Date: 10/19/2006
Natural Moisture: 21.0
USCS Class.: SP-SM
Testing Remarks: Tested By:TH/MG Reviewed By:ST
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 75.85
Tare Wt. = 0.00
Minus #200 from wash = 7.9%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
258.40	176.00	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.07	99.9
			#20	0.27	99.7
			#40	2.95	96.4
			#60	39.64	51.9
			#100	70.70	14.2
			#140	74.32	9.8
			#200	75.85	7.9

Fractional Components

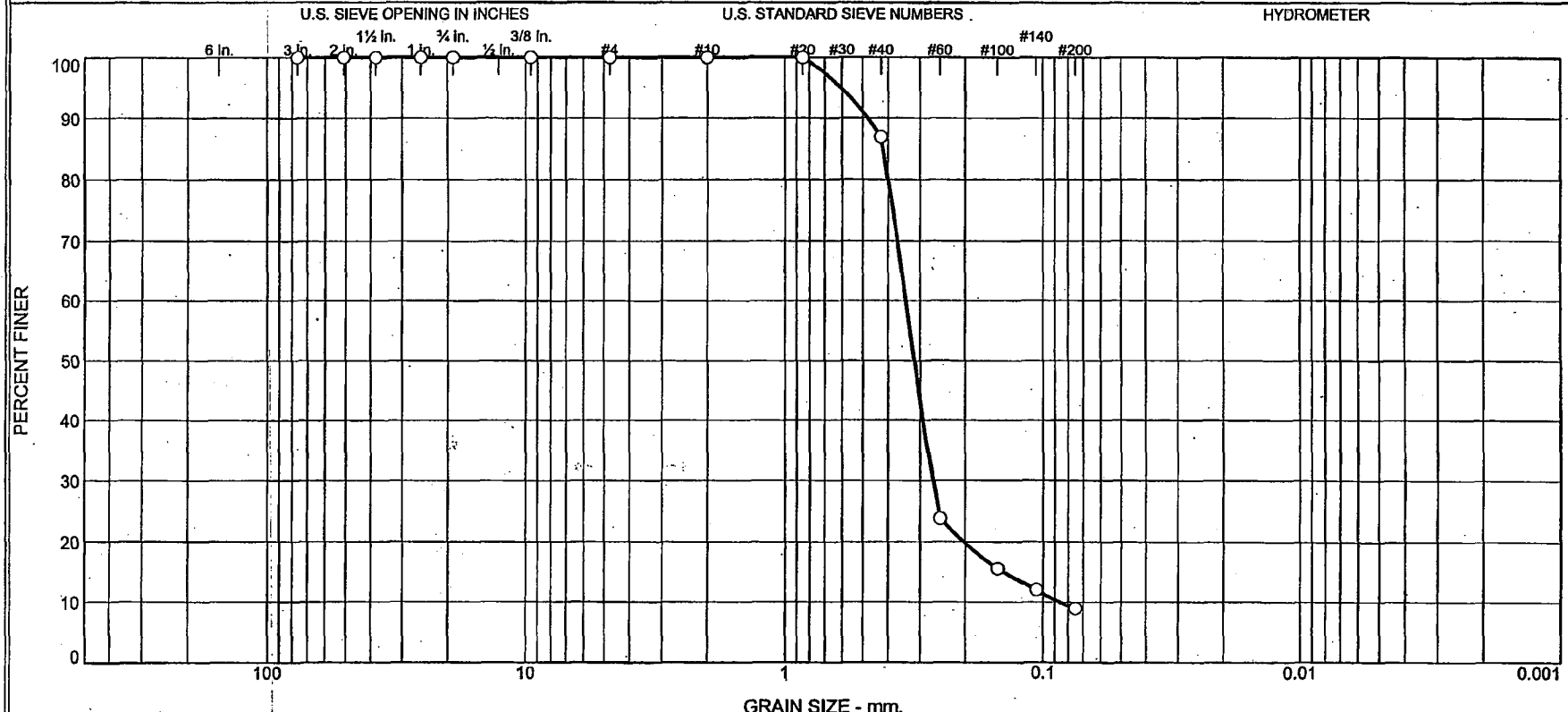
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	3.5	88.5	92.1			7.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1136	0.1532	0.1695	0.1958	0.2452	0.2716	0.3360	0.3568	0.3816	0.4135

Fineness Modulus	C_u	C_c
1.18	2.39	1.24

MT 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	13.1	77.9	9.0	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring 405-DH	STP-064 (SS-23)	108.5'-110'	10/20/2006	SP-SM	Poorly Graded Sand with Silt	19.7		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

○ Tested By:TH/MG Reviewed By:ST

ASTM D6913-04e1

4-3-07

KAW 4/4/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 405-DH
Depth: 108.5'-110'
Sample Number: STP-064 (SS-23)
Material Description: Poorly Graded Sand with Silt
Date: 10/20/2006
Natural Moisture: 19.7
USCS Class.: SP-SM
Testing Remarks: Tested By:TH/MG Reviewed By:ST
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 84.49
Tare Wt. = 0.00
Minus #200 from wash = 9.0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
264.00	171.20	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.02	100.0
			#40	12.16	86.9
			#60	70.66	23.9
			#100	78.38	15.5
			#140	81.63	12.0
			#200	84.49	9.0

Fractional Components

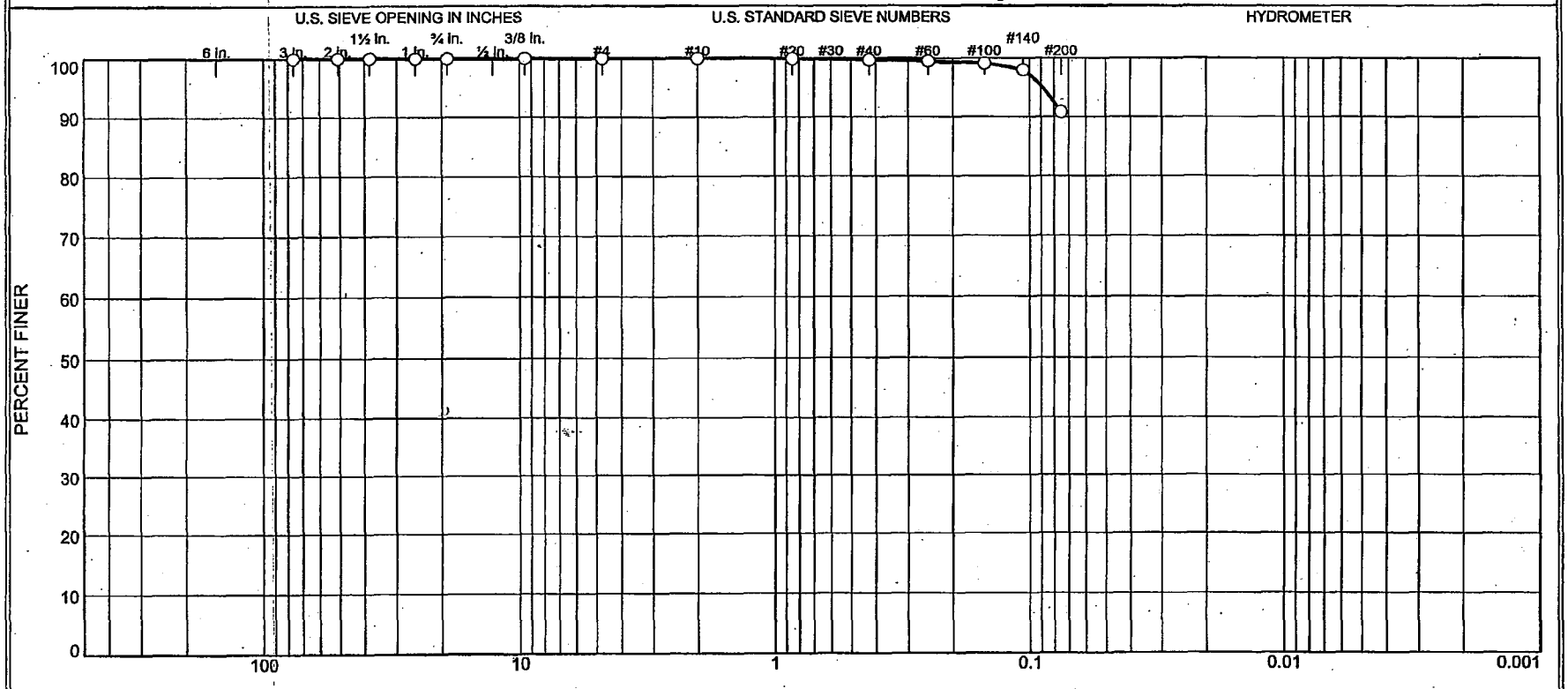
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	13.1	77.9	91.0			9.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0864	0.1426	0.2029	0.2677	0.3158	0.3400	0.3978	0.4168	0.4792	0.6043

Fineness Modulus	C_u	C_c
1.46	3.94	2.44

MAK 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.3	8.9	90.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 405-DH	STP-065	118.5'-120'	10/20/2006	CL	Lean Clay	22.3		
		(SS-24)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST

ASTM D6913-04e1

NM 4-3-07

KAW 4/4/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 405-DH
Depth: 118.5'-120'
Sample Number: STP-065 (SS-24)
Material Description: Lean Clay
Date: 10/20/2006
Natural Moisture: 22.3
USCS Class.: CL
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 6.75
Tare Wt. = 0.00
Minus #200 from wash = 90.8%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
249.80	176.50	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.09	99.9
			#40	0.23	99.7
			#60	0.40	99.5
			#100	0.65	99.1
			#140	1.48	98.0
			#200	6.75	90.8

Fractional Components

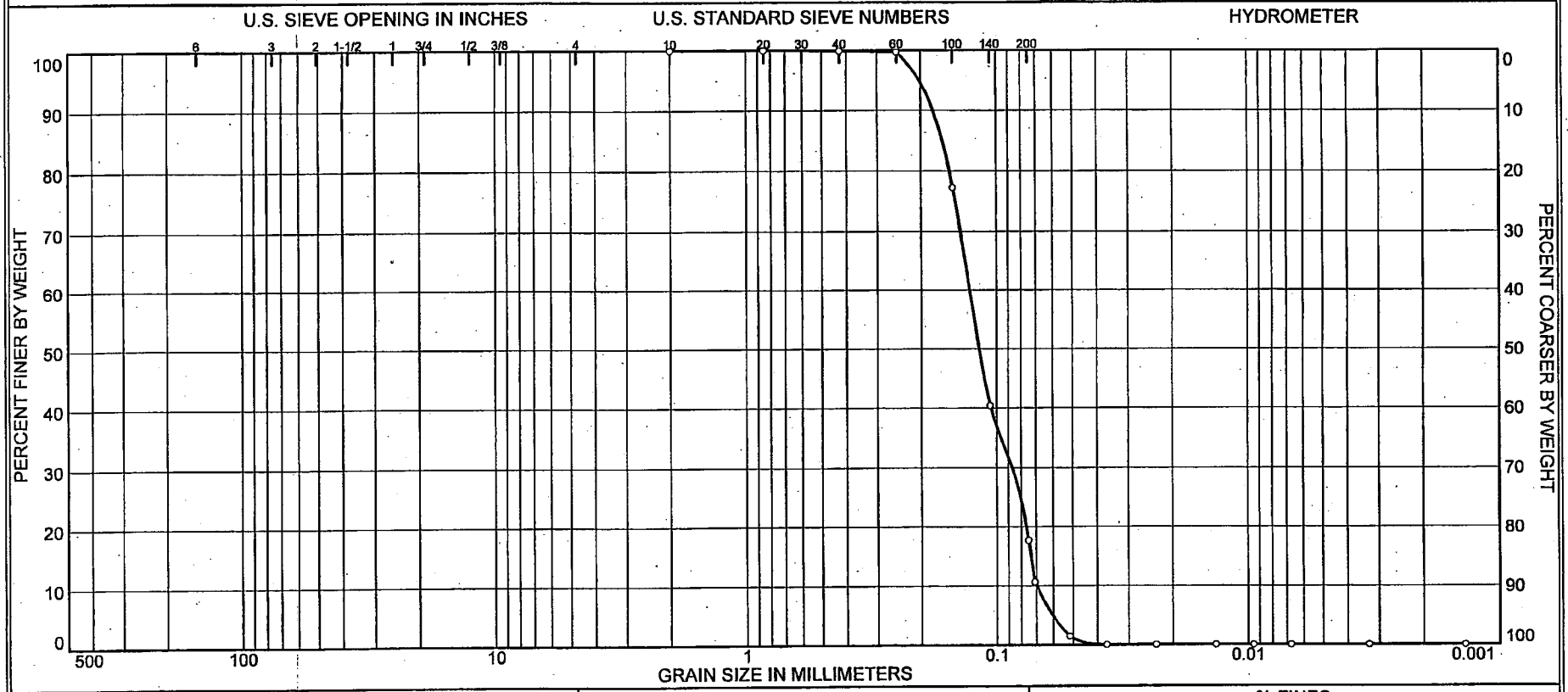
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.3	8.9	9.2			90.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
									0.0893

Fineness Modulus
0.02

MA 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	0.1	82.2	17.7	0.0

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-405-DH	UD-7	148' to 150'	2-14-07	SM	Silty sand	24.0	NV	NP

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: SS KAW 4/13/07

ASTM D422-63 (2002)e1

ASTM D6913-04e1

KAW 4/13/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-405-DH
Sample No.: UD-7
Elev. or Depth: 148' to 150' **Sample Length(in./cm.):**
Location: B-405-DH
Description: Silty sand
Date: 2-14-07 **Natural Moisture:** 24.0
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SM
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	186.87	0.00
Tare =	0.00	0.00
Dry sample weight =	186.87	0.00

Minus #200 from wash= 100.0 %
Sample split on number 10 sieve
Split sample data:
Sample and tare = 54.93 **Tare =** .00 **Sample weight =** 54.93
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.02	100.0
# 40	0.08	99.9
# 60	0.14	99.7
# 100	12.54	77.2
# 140	32.72	40.4
# 200	45.22	17.7

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 55.04
Hygroscopic moisture correction:
Moist weight & tare = 35.46
Dry weight & tare = 35.41
Tare = 10.89
Hygroscopic moisture= 0.2 %
Calculated biased weight= 54.93
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.656

Specific gravity correction factor= 0.999
Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

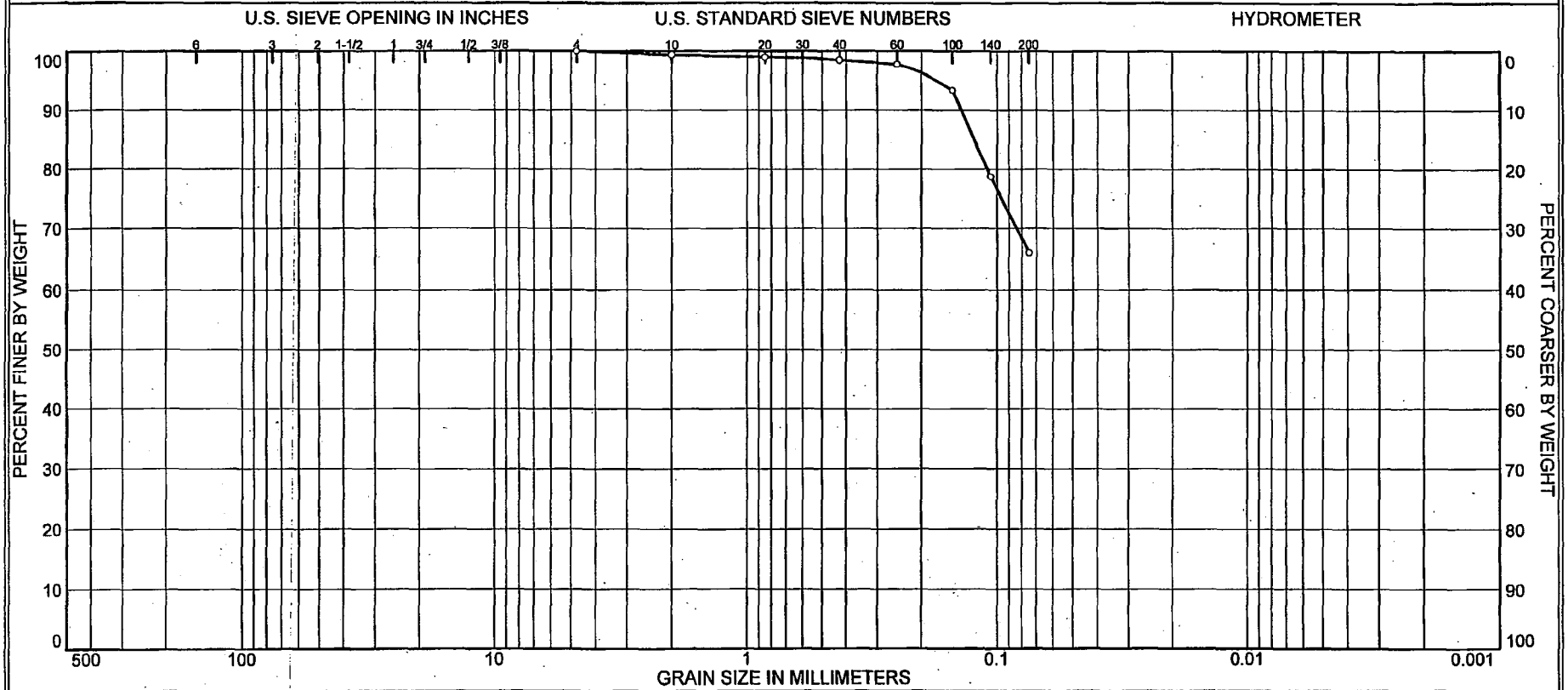
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
0.50	23.1	9.0	5.8	0.0131	10.0	14.7	0.0710	10.6
1.00	23.1	4.0	0.8	0.0131	5.0	15.5	0.0516	1.5
2.00	23.1	3.0	-0.2	0.0131	4.0	15.6	0.0367	0.0
5.00	23.1	2.0	-1.2	0.0131	3.0	15.8	0.0233	0.0
15.00	23.1	2.0	-1.2	0.0131	3.0	15.8	0.0135	0.0
30.00	23.1	2.0	-1.2	0.0131	3.0	15.8	0.0095	0.0
60.00	23.1	2.0	-1.2	0.0131	3.0	15.8	0.0067	0.0
250.00	23.1	2.0	-1.2	0.0131	3.0	15.8	0.0033	0.0
1440.00	23.1	2.0	-1.2	0.0131	3.0	15.8	0.0014	0.0

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 82.3 **(% coarse =** **% medium =** 0.1 **% fine =** 82.2**)**
% FINES = 17.7

D_{85}= 0.16 D_{60}= 0.13 D_{50}= 0.12
D_{30}= 0.09 D_{15}= 0.07 D_{10}= 0.07
C_c= 0.8426 C_u= 1.8369

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.6	0.9	32.5	66.0	

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-405-DH	UD-9	193' to 195'	2-27-07	CL	Sandy Lean Clay			

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: MH
ASTM D6913-04e1 KAW 4/3/07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-405-DH
Sample No.: UD-9
Elev. or Depth: 193' to 195' **Sample Length(in./cm.):**
Location: B-405-DH
Description: Sandy Lean Clay
Date: 2-27-07 **Natural Moisture:**
Liquid Limit: **Plastic Limit:** **USCS Class.:** CL
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D6913-04

Mechanical Analysis Data

	Initial
Dry sample and tare=	257.08
Tare =	87.15
Dry sample weight =	169.93

Tare for cumulative weight retained= .00

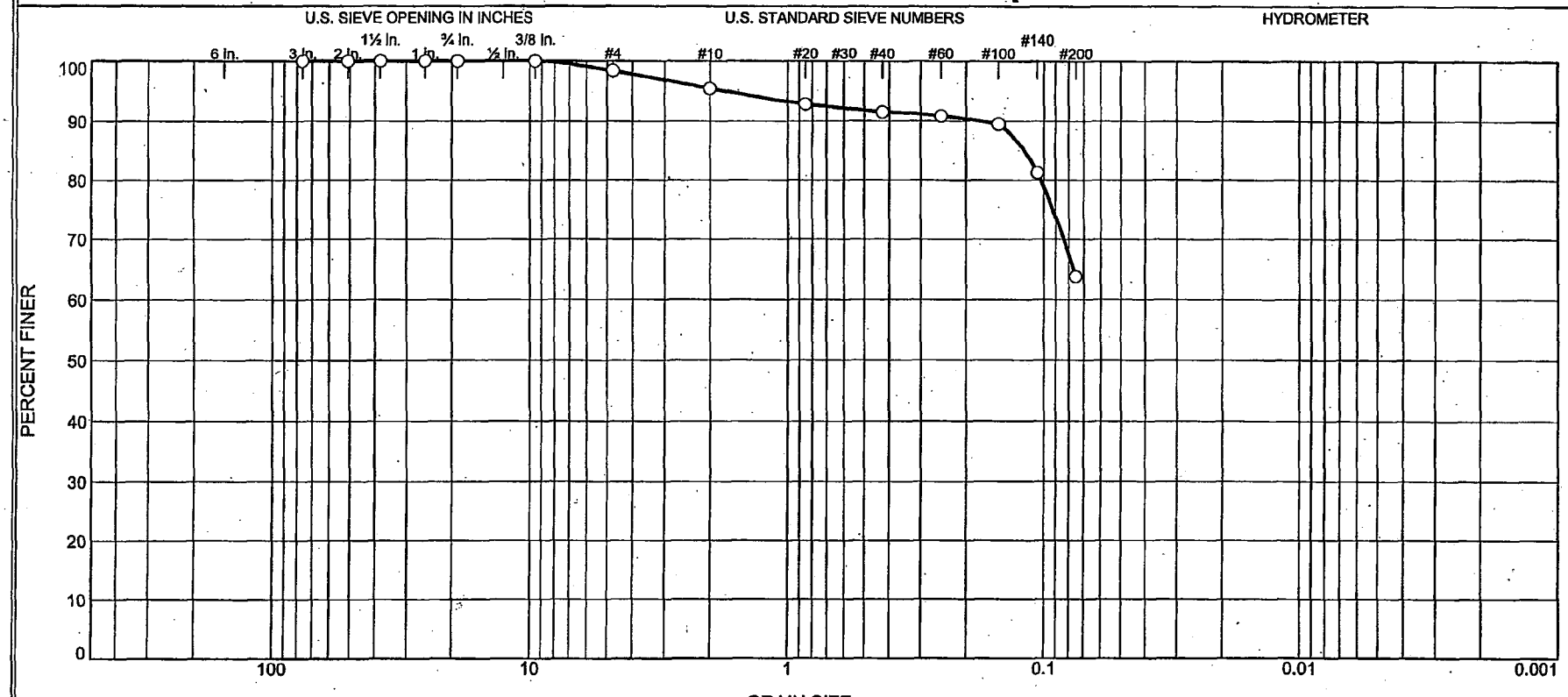
Sieve	Cumul. Wt. retained	Percent finer
# 4	0.00	100.0
# 10	0.95	99.4
# 20	1.69	99.0
# 40	2.47	98.5
# 60	3.73	97.8
# 100	11.15	93.4
# 140	36.24	78.7
# 200	57.79	66.0

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 34.0 (**% coarse** = 0.6 **% medium** = 0.9 **% fine** = 32.5)
% FINES = 66.0

D_{85}= 0.12

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	1.6	2.9	4.0	27.7	63.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 405-DH	STP-071 (SS-32)	238.5'-240'	10/21/2006	ML	Sandy Silt	20.1		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Nat
4-3-07

KAW 4/4/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 405-DH
Depth: 238.5'-240'
Sample Number: STP-071 (SS-32)
Material Description: Sandy Silt
Date: 10/21/2006
Natural Moisture: 20.1
USCS Class.: ML
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 30.19
Tare Wt. = 0.00
Minus #200 from wash = 63.8%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
258.20	174.70	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	1.33	98.4
			#10	3.77	95.5
			#20	5.97	92.9
			#40	7.10	91.5
			#60	7.63	90.9
			#100	8.77	89.5
			#140	15.62	81.3
			#200	30.19	63.8

Fractional Components

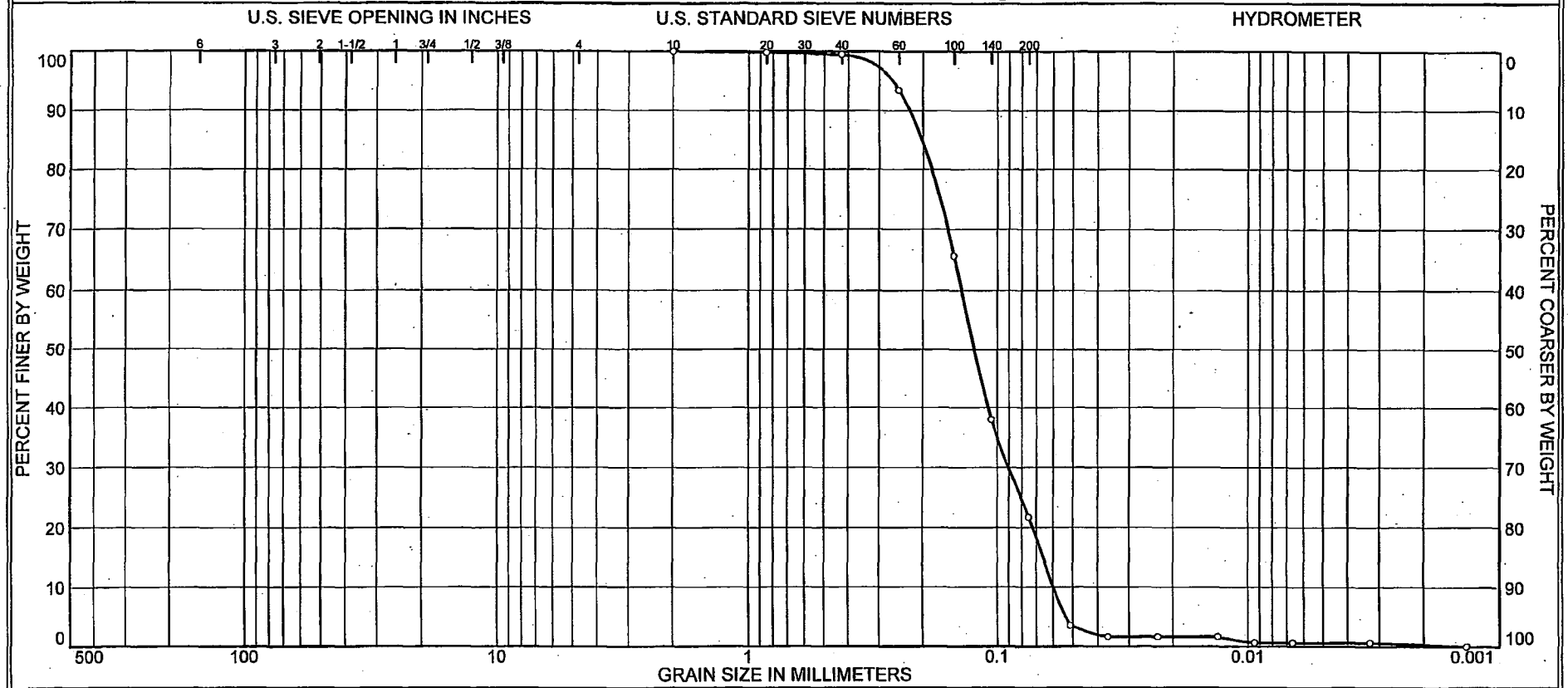
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.6	1.6	2.9	4.0	27.7	34.6			63.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.1026	0.1185	0.1758	1.7373

Fineness Modulus
0.39

MAT 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	0.5	77.8	21.1	0.6

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-405-DH	UD-14	318' to 320'	2-23-07	SC	Clayey sand		50	25

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1 KAW 4/3/07
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-405-DH
Sample No.: UD-14
Elev. or Depth: 318' to 320' **Sample Length(in./cm.):**
Location: B-405-DH
Description: Clayey sand
Date: 2-23-07 **Natural Moisture:**
Liquid Limit: 50 **Plastic Limit:** 25 **USCS Class.:** SC
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	91.07
Tare =	0.00
Dry sample weight =	91.07

Sample split on number 10 sieve
Split sample data:
Sample and tare = 52.24 Tare = .00 Sample weight = 52.24
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.10	99.8
# 40	0.24	99.5
# 60	3.40	93.5
# 100	17.96	65.6
# 140	32.41	38.0
# 200	40.91	21.7

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 52.34
Hygroscopic moisture correction:
Moist weight & tare = 50.27
Dry weight & tare = 50.19
Tare = 11.45
Hygroscopic moisture= 0.2 %
Calculated biased weight= 52.23
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.666
Specific gravity correction factor= 0.996

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

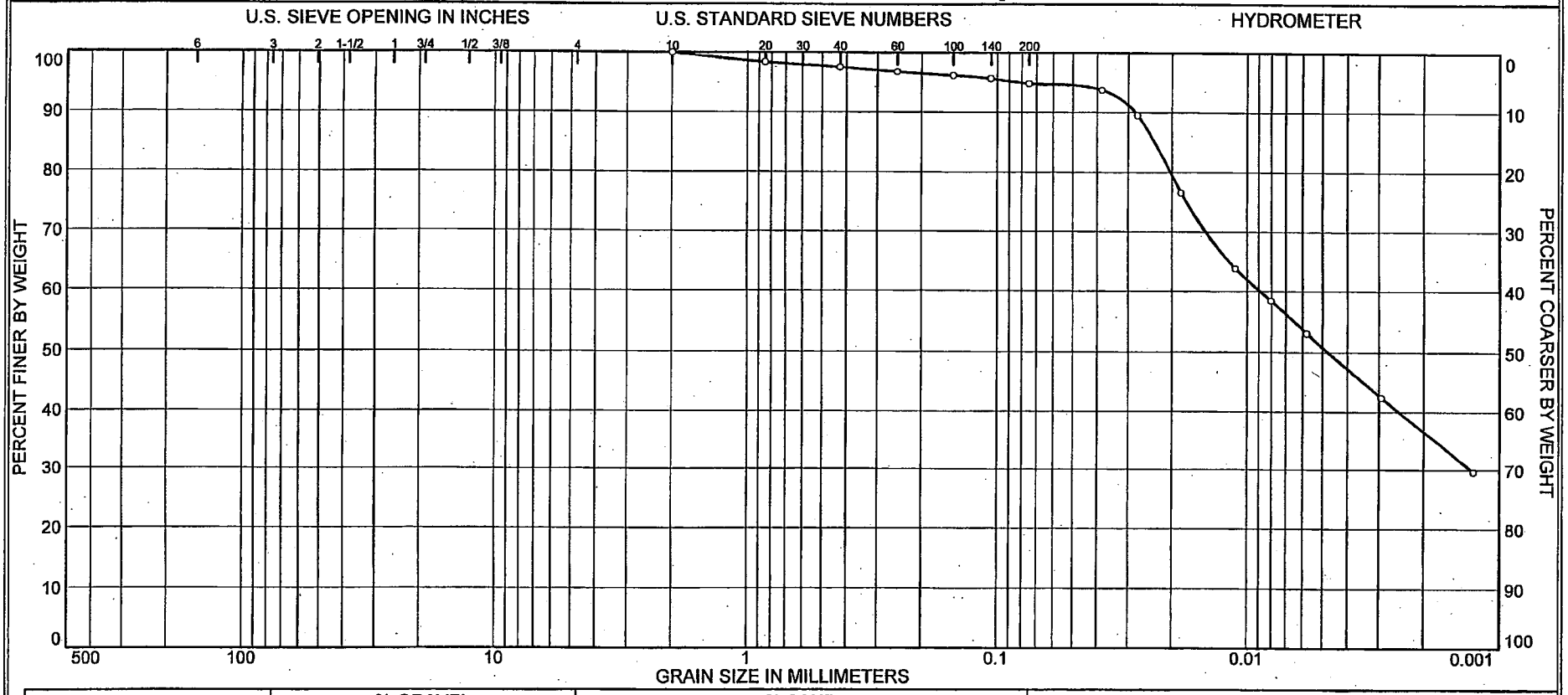
Elapsed ime, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.00	23.1	5.0	1.8	0.0131	6.0	15.3	0.0512	3.5
2.00	23.1	4.0	0.8	0.0131	5.0	15.5	0.0364	1.6
5.00	23.1	4.0	0.8	0.0131	5.0	15.5	0.0230	1.6
15.00	23.1	4.0	0.8	0.0131	5.0	15.5	0.0133	1.6
30.00	23.1	3.5	0.3	0.0131	4.5	15.6	0.0094	0.6
60.00	23.1	3.5	0.3	0.0131	4.5	15.6	0.0067	0.6
250.00	23.1	3.5	0.3	0.0131	4.5	15.6	0.0033	0.6
1440.00	23.9	3.0	0.0	0.0130	4.0	15.6	0.0013	0.0

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 78.3 (**% coarse =** **% medium** = 0.5 **% fine** = 77.8)
% SILT = 21.1 **% CLAY** = 0.6 (**% CLAY COLLOIDS** = 0.0)

D_{85}= 0.20 D_{60}= 0.14 D_{50}= 0.12
D_{30}= 0.09 D_{15}= 0.07 D_{10}= 0.06
C_c= 0.9814 C_u= 2.3346

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	2.4	2.7	44.1	50.8

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-405-DH	SS-36	320.0' to 321.5'	3-15-07	CH	Fat clay	19.7	53	19

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1 KAW 4/3/07
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-405-DH
Sample No.: SS-36
Elev. or Depth: 320.0' to 321.5' **Sample Length(in./cm.):**
Location: B-405-DH
Description: Fat clay
Date: 3-15-07 **Natural Moisture:** 19.7
Liquid Limit: 53 **Plastic Limit:** 19 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	59.70
Tare =	0.00
Dry sample weight =	59.70

Sample split on number 10 sieve
Split sample data:
Sample and tare = 46.79 Tare = .00 Sample weight = 46.79
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.74	98.4
# 40	1.13	97.6
# 60	1.52	96.8
# 100	1.79	96.2
# 140	1.99	95.7
# 200	2.37	94.9

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 50.16
Hygroscopic moisture correction:
Moist weight & tare = 22.51
Dry weight & tare = 21.77
Tare = 11.45
Hygroscopic moisture= 7.2 %
Calculated biased weight= 46.80
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1.0
Specific gravity of solids= 2.640
Specific gravity correction factor= 1.002

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

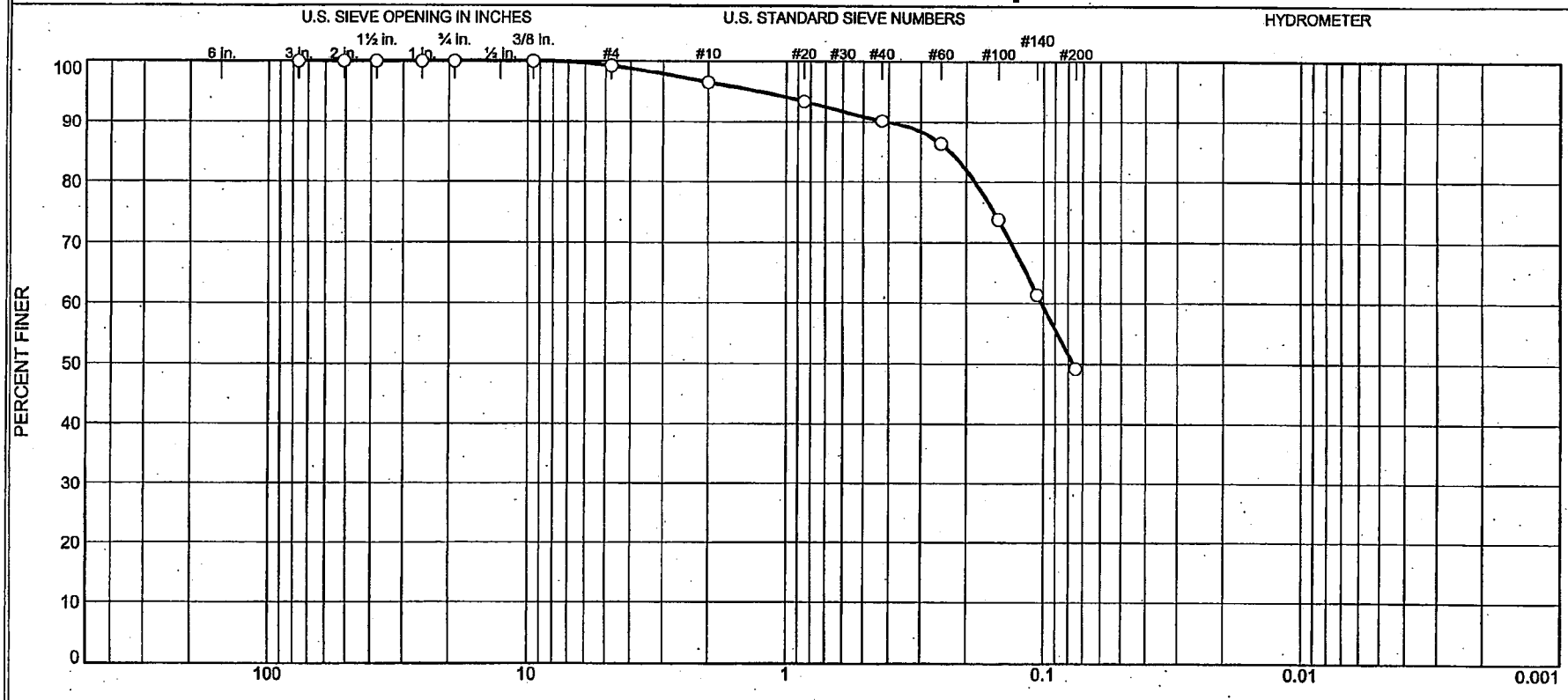
Elapsed ime, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.00	23.0	47.0	43.8	0.0132	48.0	8.4	0.0383	93.8
2.00	23.0	45.0	41.8	0.0132	46.0	8.8	0.0276	89.5
5.00	23.0	39.0	35.8	0.0132	40.0	9.7	0.0184	76.6
15.00	23.0	33.0	29.8	0.0132	34.0	10.7	0.0112	63.8
30.00	23.0	30.5	27.3	0.0132	31.5	11.1	0.0080	58.4
60.00	23.1	28.0	24.8	0.0132	29.0	11.5	0.0058	53.1
250.00	23.1	23.0	19.8	0.0132	24.0	12.4	0.0029	42.4
1440.00	23.1	17.0	13.8	0.0132	18.0	13.3	0.0013	29.6

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 5.1 **(% coarse =** **% medium** = 2.4 **% fine** = 2.7**)**
% SILT = 44.1 **% CLAY =** 50.8

D_{85}= 0.02 D_{60}= 0.01 D_{50}= 0.00
D_{30}= 0.00

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.7	2.7	6.5	40.9	49.2	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 405-DH	STP-073	338.5'-340'	10/24/2006	SM	Silty Sand	16.7		
		(SS-37)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1

NA
4-3-07

KAW 4/4/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 405-DH
Depth: 338.5'-340'
Sample Number: STP-073 (SS-37)
Material Description: Silty Sand
Date: 10/24/2006
Natural Moisture: 16.7
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 40.32
Tare Wt. = 0.00
Minus #200 from wash = 49.2%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
256.30	176.90	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.59	99.3
			#10	2.72	96.6
			#20	5.22	93.4
			#40	7.85	90.1
			#60	10.83	86.4
			#100	20.81	73.8
			#140	30.61	61.4
			#200	40.32	49.2

Fractional Components

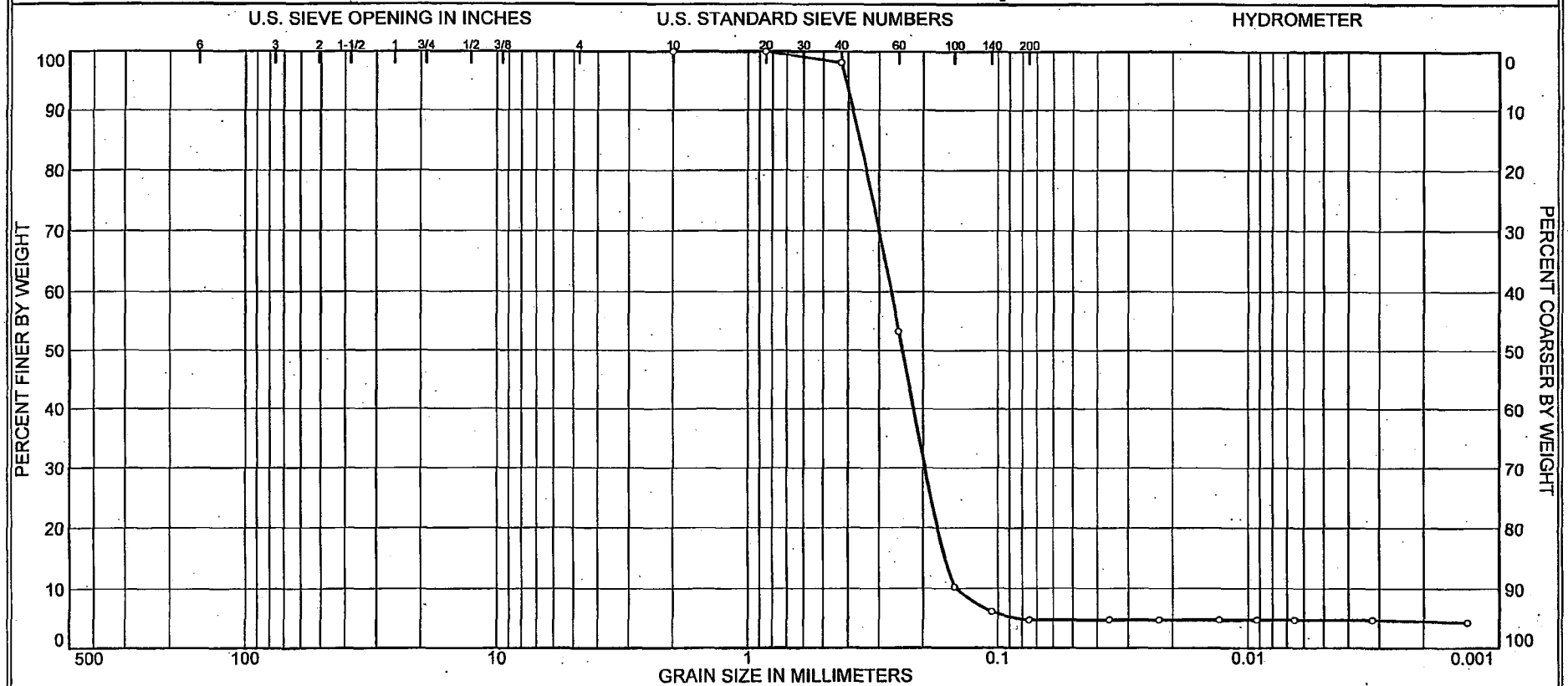
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.7	0.7	2.7	6.5	40.9	50.1			49.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0767	0.1018	0.1846	0.2302	0.4129	1.2592

Fineness Modulus
0.55

MAA 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	1.9	93.4	0.0	4.7

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-405-DH	UD-15	343' to 345'	2-25-07	SP	Poorly graded sand	20.9	NV	NP

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1 KAW 4/3/07
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-405-DH
Sample No.: UD-15
Elev. or Depth: 343' to 345' **Sample Length(in./cm.):**
Location: B-405-DH
Description: Poorly graded sand
Date: 2-25-07 **Natural Moisture:** 20.9
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SP
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	160.22
Tare =	0.00
Dry sample weight =	160.22

Sample split on number 10 **sieve**
Split sample data:
Sample and tare = 101.70 **Tare =** .00 **Sample weight =** 101.70
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.00	100.0
# 40	1.92	98.1
# 60	47.50	53.3
# 100	91.34	10.2
# 140	95.49	6.1
# 200	96.97	4.7

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 101.80
Hygroscopic moisture correction:
Moist weight & tare = 58.58
Dry weight & tare = 58.51
Tare = 10.91
Hygroscopic moisture= 0.1 %
Calculated biased weight= 101.65
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.653
Specific gravity correction factor= 0.999

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

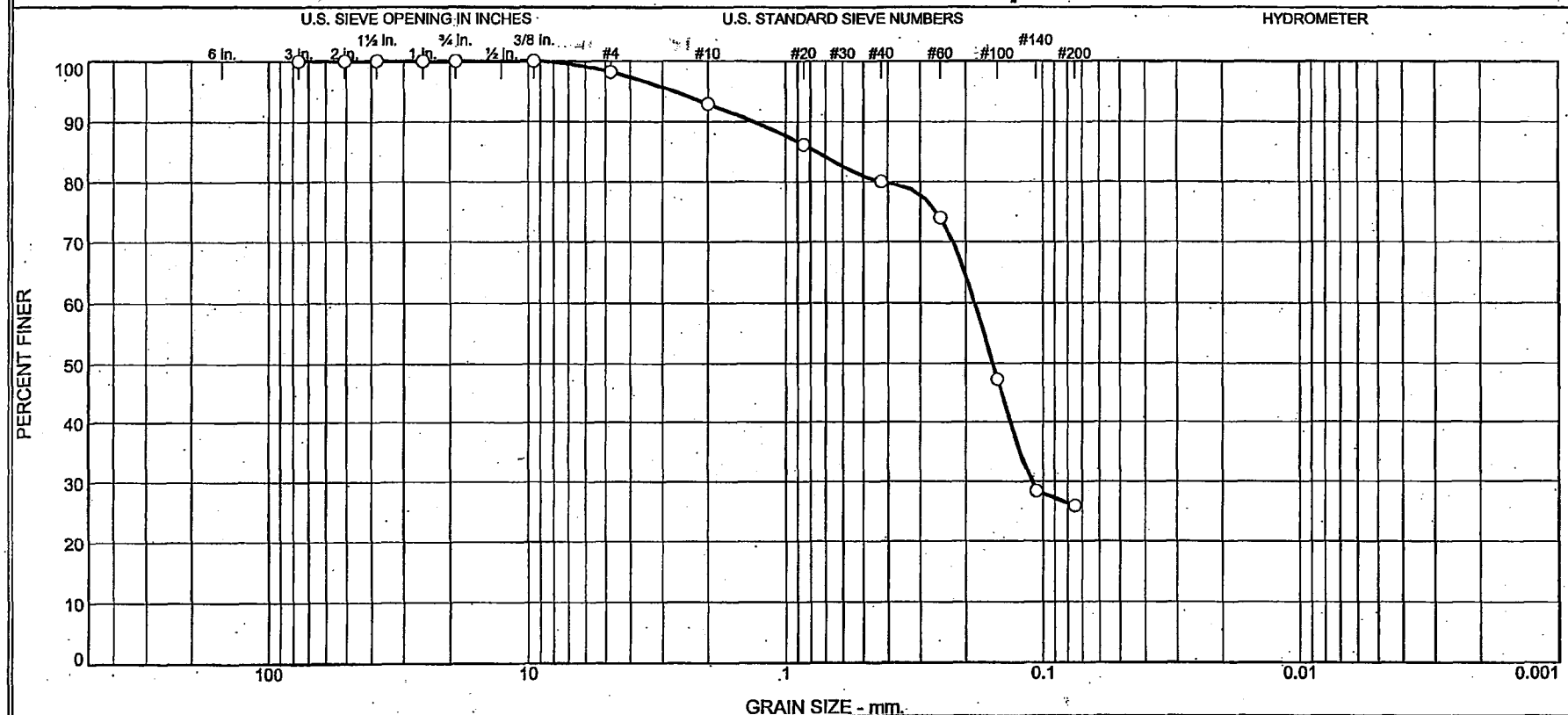
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.00	23.1	8.0	4.8	0.0131	9.0	14.8	0.0357	4.7
5.00	23.1	8.0	4.8	0.0131	9.0	14.8	0.0226	4.7
15.00	23.1	8.0	4.8	0.0131	9.0	14.8	0.0130	4.7
30.00	23.1	8.0	4.8	0.0131	9.0	14.8	0.0092	4.7
60.00	23.1	8.0	4.8	0.0131	9.0	14.8	0.0065	4.7
250.00	23.1	8.0	4.8	0.0131	9.0	14.8	0.0032	4.7
1440.00	23.2	7.5	4.3	0.0131	8.5	14.9	0.0013	4.3

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 95.3 **(% coarse =** **% medium =** 1.9 **% fine =** 93.4)
% SILT = 0.0 **% CLAY =** 4.7

D_{85}= 0.36 D_{60}= 0.27 D_{50}= 0.24
D_{30}= 0.20 D_{15}= 0.16 D_{10}= 0.15
C_c= 0.9794 C_u= 1.8125

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	1.8	5.3	12.9	54.1	25.9	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 405-DH	STP-258 (UD-17)	388'-390'	10/10/2006	SC	Clayey Sand	28.0		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
Noticeable quantity of shells present in sample
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

3/19/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 405-DH
Depth: 388'-390'
Sample Number: STP-258 (UD-17)
Material Description: Clayey Sand
Date: 10/10/2006
Natural Moisture: 28.0
USCS Class.: SC
Testing Remarks: Tested By:TH Reviewed By:RF
Noticeable quantity of shells present in sample
ASTM D6913-04e1

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
335.70	176.60	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			.75	0.00	100.0
			.375	0.00	100.0
			#4	2.86	98.2
			#10	11.29	92.9
			#20	22.07	86.1
			#40	31.83	80.0
			#60	41.28	74.1
			#100	84.00	47.2
			#140	114.01	28.3
			#200	117.87	25.9

Fractional Components

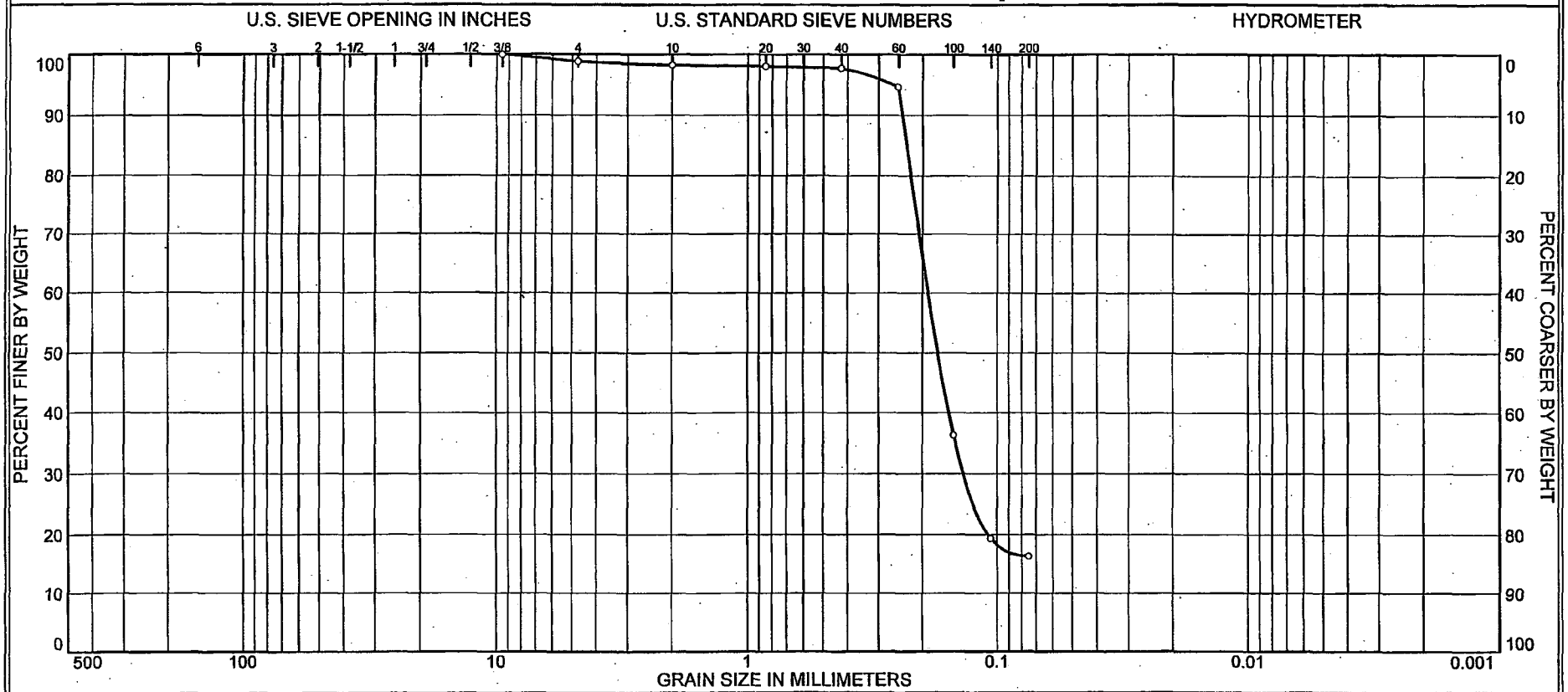
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.8	1.8	5.3	12.9	54.1	72.3			25.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1111	0.1566	0.1842	0.4256	0.7608	1.3334	2.7159

Fineness Modulus
1.11

MK 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	1.1	0.6	0.5	81.5	16.3	

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-405-DH	UD-18	418' to 418.8'	2-26-07	SM	Silty Sand			

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: MH
ASTM D6913-04e1 KAW 4/3/07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-405-DH
Sample No.: UD-18
Elev. or Depth: 418' to 418.8' **Sample Length(in./cm.):**
Location: B-405-DH
Description: Silty Sand
Date: 2-26-07 **Natural Moisture:**
Liquid Limit: **Plastic Limit:** **USCS Class.:** SM
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	188.21
Tare =	93.57
Dry sample weight =	94.64

Tare for cumulative weight retained= .00

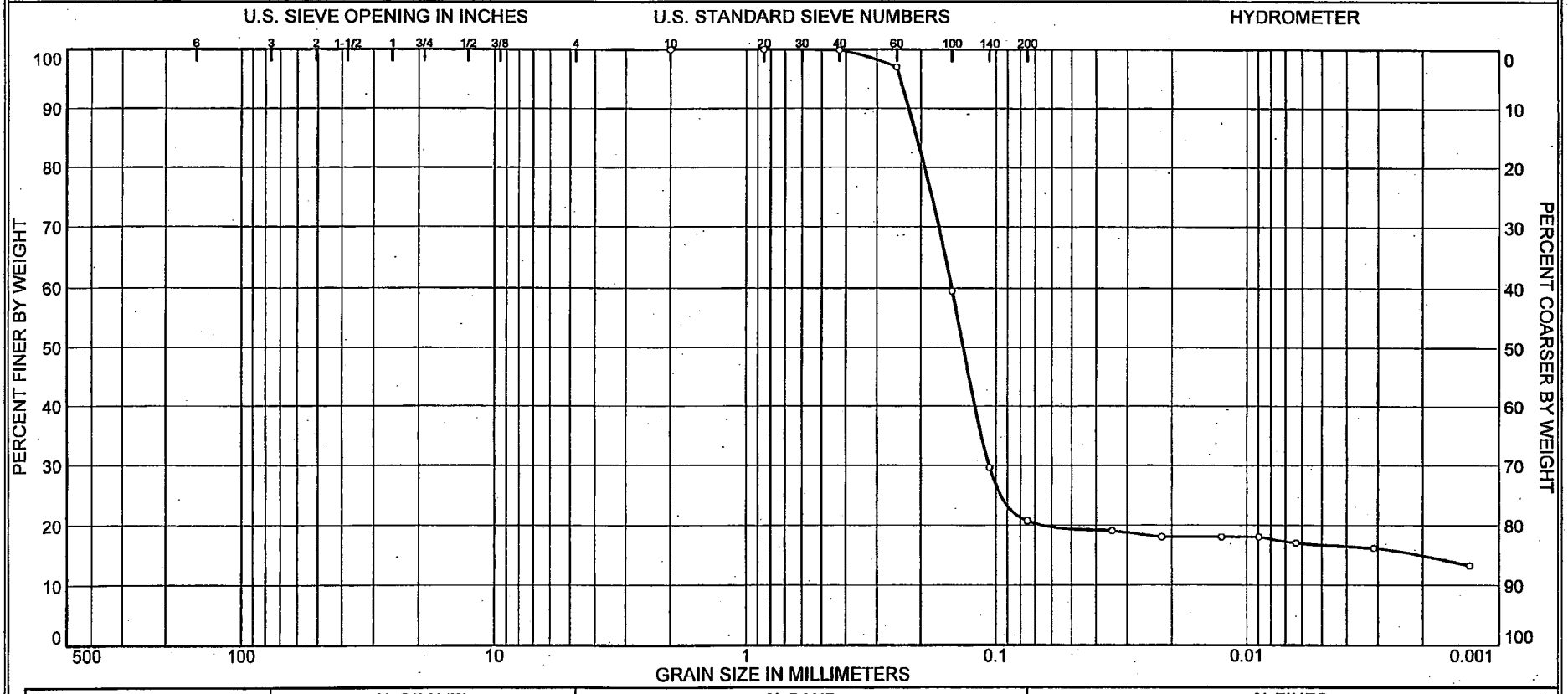
Sieve	Cumul. Wt. retained	Percent finer
3/8in. inch	0.00	100.0
# 4	1.06	98.9
# 10	1.58	98.3
# 20	1.78	98.1
# 40	2.09	97.8
# 60	5.00	94.7
# 100	60.32	36.3
# 140	76.35	19.3
# 200	79.22	16.3

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =** 1.1 **(% coarse =** **% fine =** 1.1)
% SAND = 82.6 **(% coarse =** 0.6 **% medium =** 0.5 **% fine =** 81.5)
% FINES = 16.3

D_{85}= 0.23 D_{60}= 0.19 D_{50}= 0.17
D_{30}= 0.14

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	0.1	79.2	4.1	16.6

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-405-DH	UD-22	518' to 520'	2-25-07	SM	Silty sand		NV	NP

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: MH KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-405-DH
Sample No.: UD-22
Elev. or Depth: 518' to 520' **Sample Length(in./cm.):**
Location: B-405-DH
Description: Silty sand
Date: 2-25-07 **Natural Moisture:**
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SM
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	93.84
Tare =	0.00
Dry sample weight =	93.84

Sample split on number 10 sieve
Split sample data:
Sample and tare = 51.46 Tare = .00 Sample weight = 51.46
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.00	100.0
# 40	0.03	99.9
# 60	1.54	97.0
# 100	20.83	59.5
# 140	36.22	29.6
# 200	40.83	20.7

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 51.92
Hygroscopic moisture correction:
Moist weight & tare = 53.04
Dry weight & tare = 52.68
Tare = 11.03
Hygroscopic moisture= 0.9 %
Calculated biased weight= 51.48
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.678
Specific gravity correction factor= 0.994

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

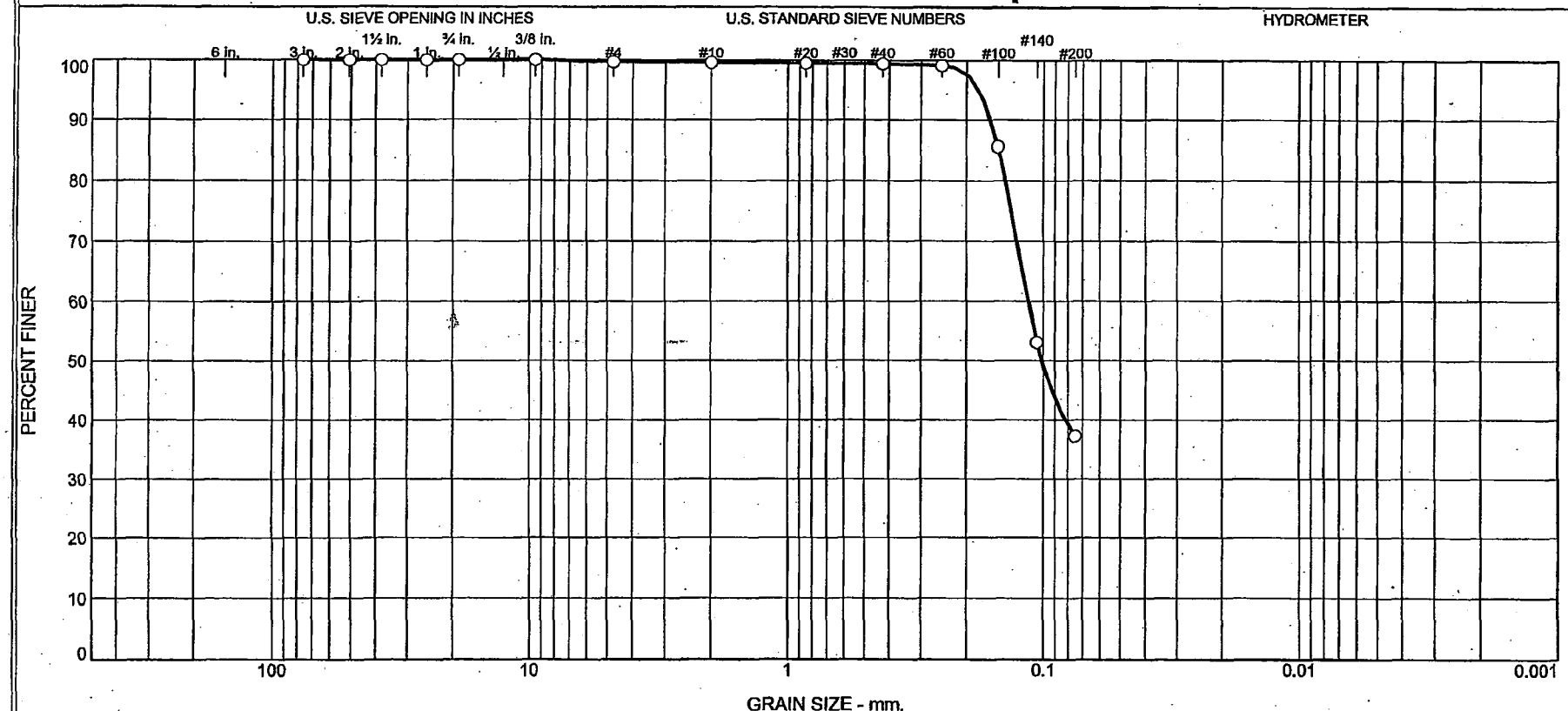
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.00	23.1	13.0	9.8	0.0130	14.0	14.0	0.0345	19.0
5.00	23.1	12.5	9.3	0.0130	13.5	14.1	0.0219	18.0
15.00	23.1	12.5	9.3	0.0130	13.5	14.1	0.0126	18.0
30.00	23.1	12.5	9.3	0.0130	13.5	14.1	0.0089	18.0
60.00	23.1	12.0	8.8	0.0130	13.0	14.2	0.0063	17.0
250.00	23.1	11.5	8.3	0.0130	12.5	14.2	0.0031	16.1
1440.00	23.2	10.0	6.8	0.0130	11.0	14.5	0.0013	13.2

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 79.3 **(% coarse =** **% medium =** 0.1 **% fine =** 79.2**)**
% SILT = 4.1 **% CLAY =** 16.6

D_{85}= 0.21 D_{60}= 0.15 D_{50}= 0.14
D_{30}= 0.11 D_{15}= 0.00

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.4	0.0	0.2	62.2	37.2	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 405-DH	STP-078	523.5'-525'	11/3/2006	SM	Silty Sand	21.6		
		(SS-46)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1

MH 4-3-07

KAW 4/4/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 405-DH
Depth: 523.5'-525'
Sample Number: STP-078 (SS-46)
Material Description: Silty Sand
Date: 11/3/2006
Natural Moisture: 21.6
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 62.23
Tare Wt. = 0.00
Minus #200 from wash = 37.2%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
274.90	175.80	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.35	99.6
			#10	0.38	99.6
			#20	0.53	99.5
			#40	0.60	99.4
			#60	0.93	99.1
			#100	14.30	85.6
			#140	46.53	53.0
			#200	62.23	37.2

Fractional Components

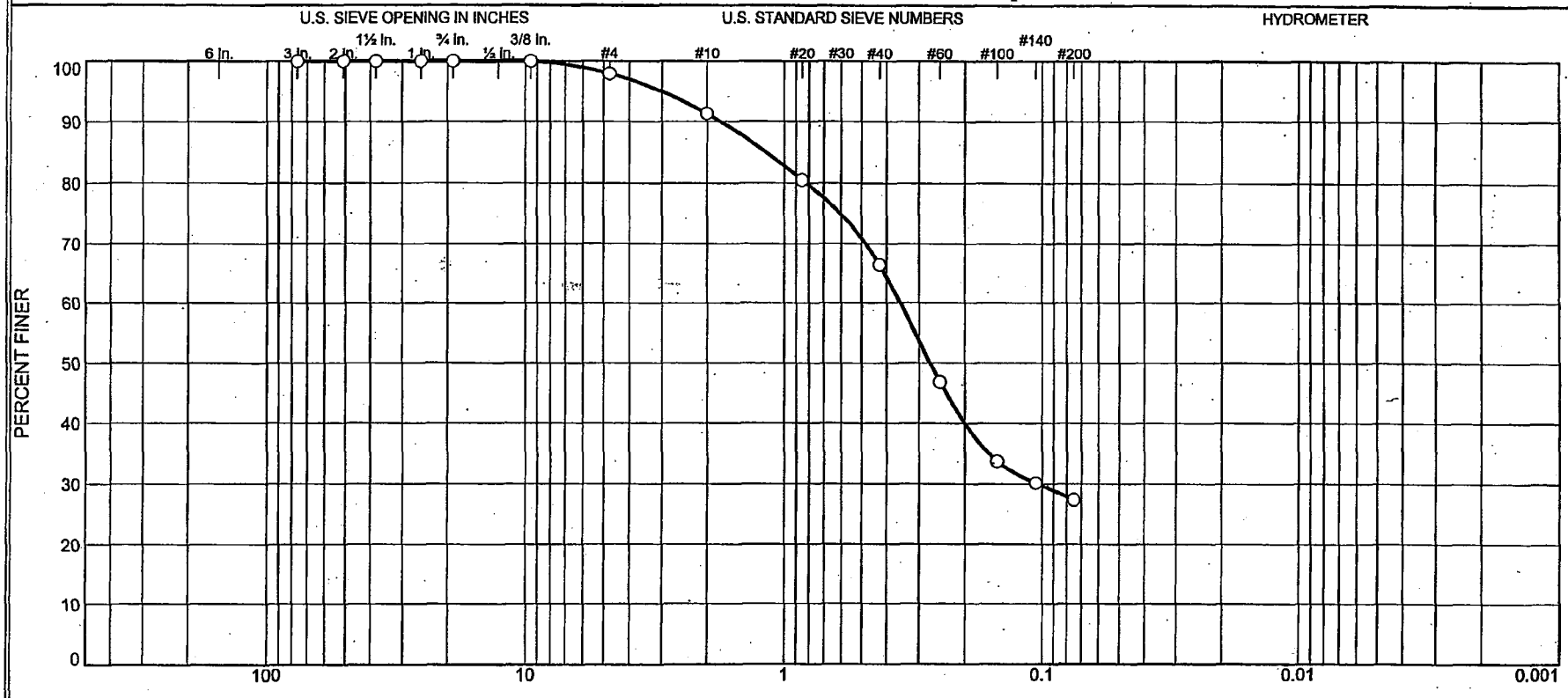
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.4	0.4	0.0	0.2	62.2	62.4			37.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1016	0.1148	0.1404	0.1489	0.1603	0.1789

Fineness Modulus
0.17

4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	2.0	6.7	24.9	39.0	27.4	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 405-DH	STP-079 (SS-47)	538.5'-540'	11/4/2006	SM	Silty Sand	20.8		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

NH 4-3-07

KAW 4/4/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 405-DH
Depth: 538.5'-540'
Sample Number: STP-079 (SS-47)
Material Description: Silty Sand
Date: 11/4/2006
Natural Moisture: 20.8
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 76.98
Tare Wt. = 0.00
Minus #200 from wash = 27.4%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
282.50	176.40	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	2.15	98.0
			#10	9.25	91.3
			#20	20.70	80.5
			#40	35.68	66.4
			#60	56.45	46.8
			#100	70.29	33.8
			#140	74.10	30.2
			#200	76.98	27.4

Fractional Components

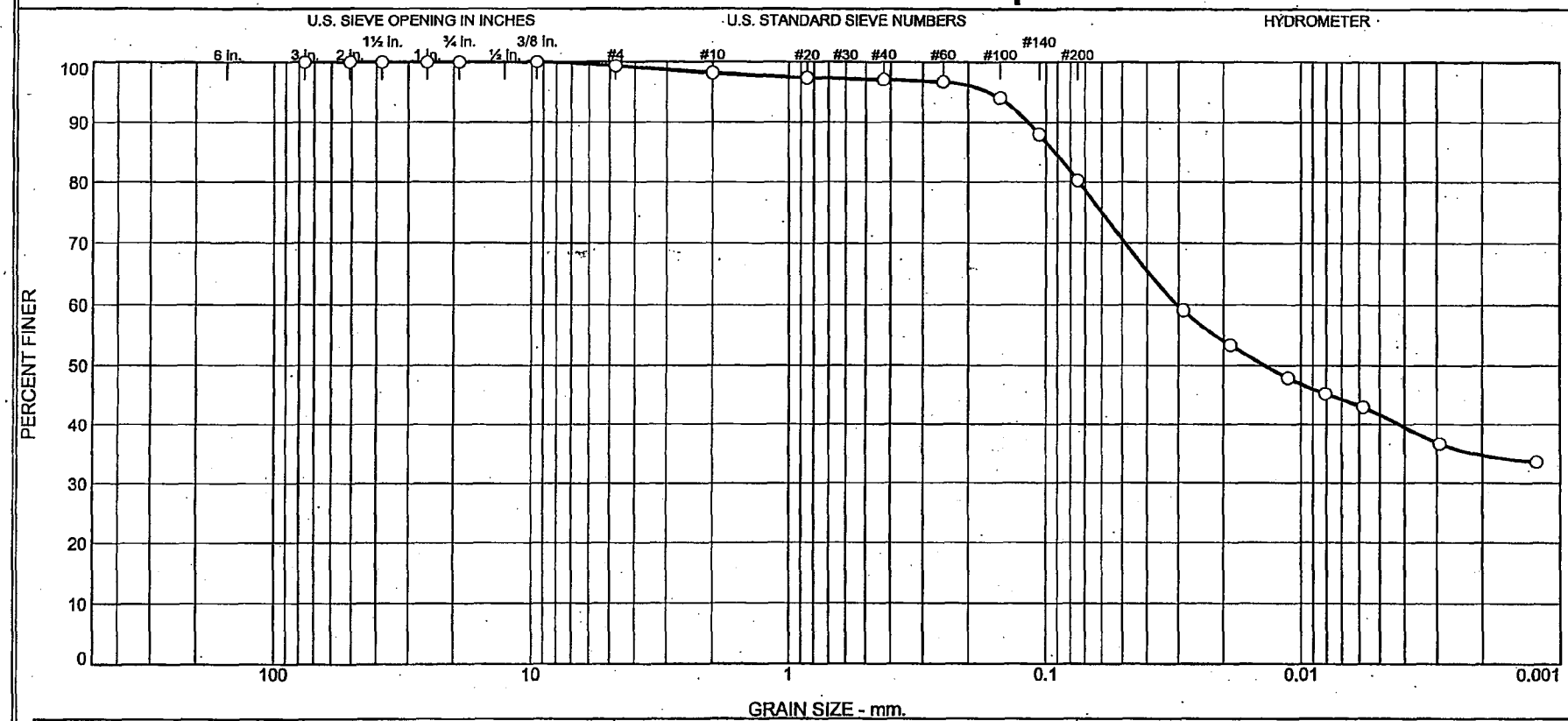
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.0	2.0	6.7	24.9	39.0	70.6			27.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1039	0.2731	0.3543	0.8214	1.1797	1.7763	2.9979

Fineness Modulus
1.62

MAH 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.7	1.1	1.1	16.8	38.6	41.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 405-DH	STP-080 (SS-49)	578.5'-580'	11/5/2006	CL	Lean Clay with Sand	19.9	47	16

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH/DK Reviewed By:ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated Re-sieveing of the hydrometer specimen after drying was not performed.

MH 4-3-07 KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 405-DH
Depth: 578.5'-580' **Sample Number:** STP-080 (SS-49)
Material Description: Lean Clay with Sand
Date: 11/5/2006 **Natural Moisture:** 19.9
Liquid Limit: 47 **Plastic Limit:** 16 **USCS Class.:** CL
Testing Remarks: Tested By:TH/DK Reviewed By:ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated Re-sieveing of the hydrometer specimen after drying was not performed.

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 18.76
Tare Wt. = 0.00
Minus #200 from wash = 80.3%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
272.50	177.40	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.68	99.3
			#10	1.75	98.2
			#20	2.47	97.4
			#40	2.76	97.1
			#60	3.11	96.7
			#100	5.70	94.0
			#140	11.47	87.9
			#200	18.76	80.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 98.2
Weight of hydrometer sample =65.3
Hygroscopic moisture correction:
Moist weight and tare = 191.10
Dry weight and tare = 190.60
Tare weight = 178.40
Hygroscopic moisture = 4.1%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
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	21.4	43.5	37.8	0.0134	43.5	9.2	0.0287	59.1
5.00	20.8	40.0	34.1	0.0135	40.0	9.7	0.0189	53.4
15.00	20.7	36.5	30.6	0.0135	36.5	10.3	0.0112	47.9
30.00	20.0	35.0	29.0	0.0136	35.0	10.6	0.0081	45.3
60.00	20.0	33.5	27.5	0.0136	33.5	10.8	0.0058	43.0

MAC 4-3-07

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
250.00	20.0	29.5	23.5	0.0136	29.5	11.5	0.0029	36.7
1440.00	20.0	27.5	21.5	0.0136	27.5	11.8	0.0012	33.6

Fractional Components

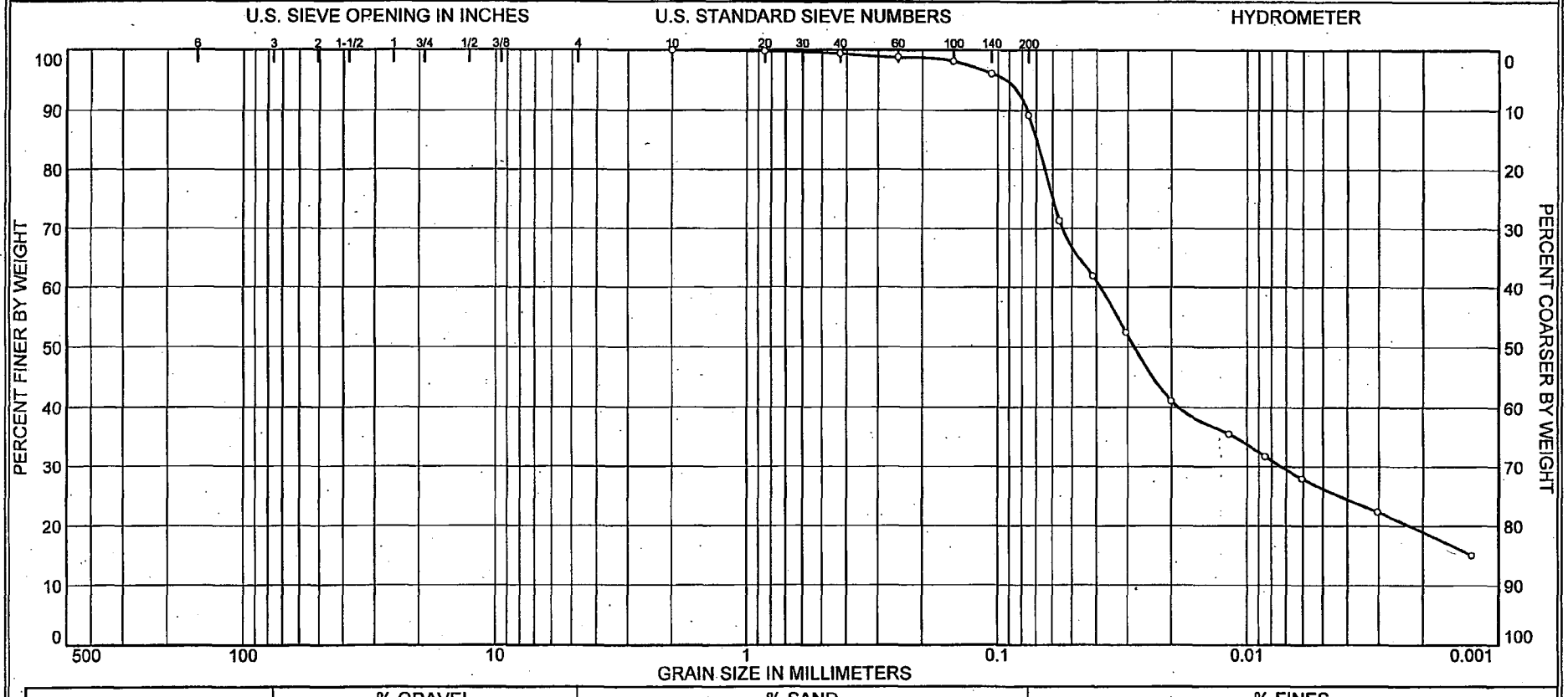
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.7	0.7	1.1	1.1	16.8	19.0	38.6	41.7	80.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0139	0.0303	0.0741	0.0924	0.1174	0.1647

Fineness Modulus
0.17

NM 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	0.6	10.2	63.1	26.1

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-405-DH	UD-25	598' to 599'	2-22-07	CL	Lean clay	18.4	45	16

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: MH KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-405-DH
Sample No.: UD-25
Elev. or Depth: 598' to 599' **Sample Length(in./cm.):**
Location: B-405-DH
Description: Lean clay
Date: 2-22-07 **Natural Moisture:** 18.4
Liquid Limit: 45 **Plastic Limit:** 16 **USCS Class.:** CL
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	98.19
Tare =	0.00
Dry sample weight =	98.19

Sample split on number 10 **sieve**
Split sample data:
Sample and tare = 52.57 **Tare =** .00 **Sample weight =** 52.57
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.13	99.8
# 40	0.34	99.4
# 60	0.62	98.8
# 100	0.92	98.2
# 140	2.07	96.1
# 200	5.67	89.2

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 53.57
Hygroscopic moisture correction:
Moist weight & tare = 50.20
Dry weight & tare = 49.47
Tare = 10.94
Hygroscopic moisture= 1.9 %
Calculated biased weight= 52.57
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.692
Specific gravity correction factor= 0.991

Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

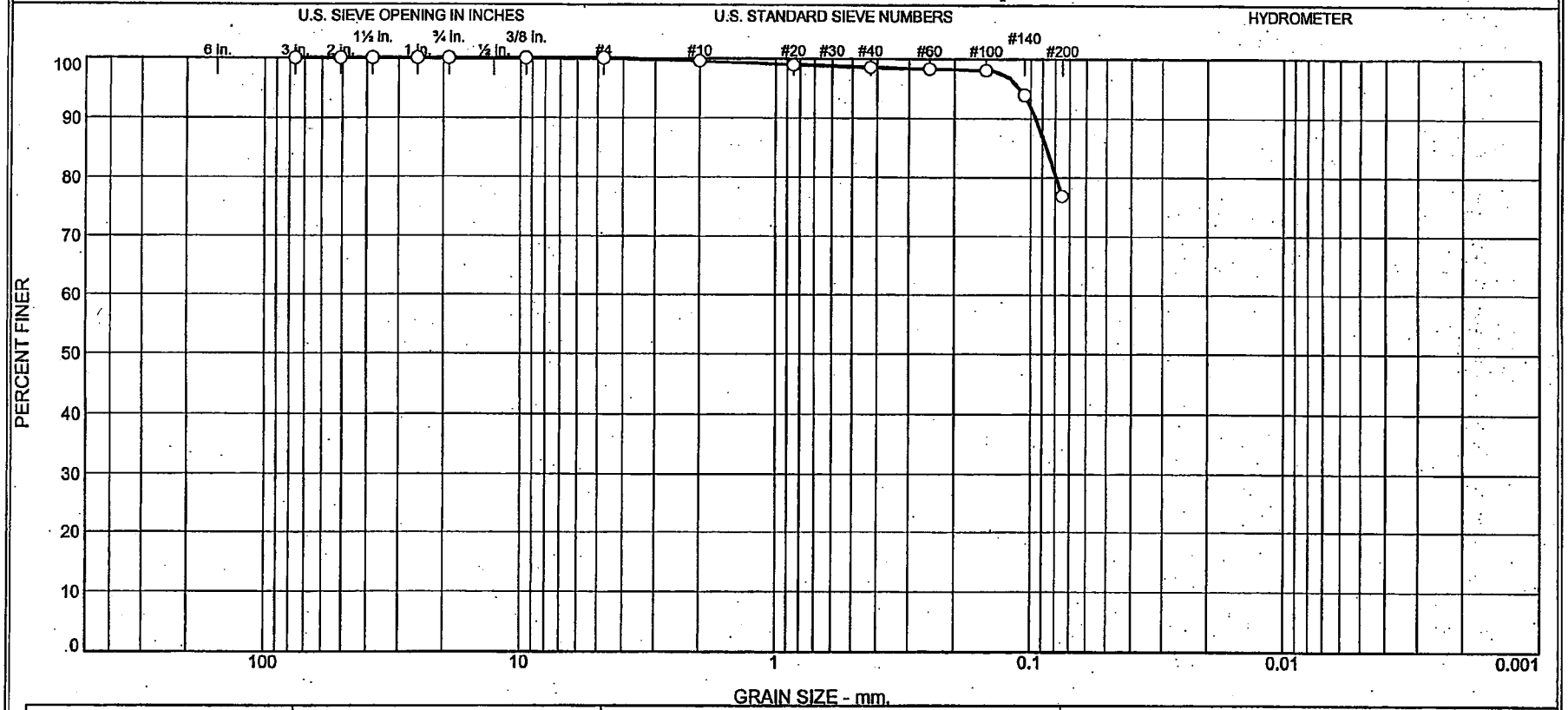
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
0.50	23.1	41.0	37.8	0.0130	42.0	9.4	0.0563	71.3
1.00	23.1	36.0	32.8	0.0130	37.0	10.2	0.0415	61.9
2.00	23.1	31.0	27.8	0.0130	32.0	11.0	0.0305	52.4
5.00	23.1	25.0	21.8	0.0130	26.0	12.0	0.0201	41.1
15.00	23.1	22.0	18.8	0.0130	23.0	12.5	0.0119	35.5
30.00	23.1	20.0	16.8	0.0130	21.0	12.9	0.0085	31.7
60.00	23.1	18.0	14.8	0.0130	19.0	13.2	0.0061	27.9
250.00	23.1	15.0	11.8	0.0130	16.0	13.7	0.0030	22.3
1440.00	23.9	11.0	8.0	0.0129	12.0	14.3	0.0013	15.0

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 10.8 **(% coarse =** **% medium =** 0.6 **% fine =** 10.2**)**
% SILT = 63.1 **% CLAY =** 26.1

D_{85}= 0.07 D_{60}= 0.04 D_{50}= 0.03
D_{30}= 0.01 D_{15}= 0.00

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.5	1.0	21.6	76.9	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 407	STP-308	23.5'-25.0'	12/14/2006	CL	Lean Clay with Sand	22.8	26	18
		(SS-12)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

MM 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

4/1/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 407
Depth: 23.5'-25.0'
Sample Number: STP-308 (SS-12)
Material Description: Lean Clay with Sand
Date: 12/14/2006
Natural Moisture: 22.8
Liquid Limit: 26
Plastic Limit: 18
USCS Class.: CL
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
258.80	177.40	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			.75	0.00	100.0
			.375	0.00	100.0
			#4	0.00	100.0
			#10	0.38	99.5
			#20	0.89	98.9
			#40	1.22	98.5
			#60	1.41	98.3
			#100	1.60	98.0
			#140	4.98	93.9
			#200	18.82	76.9

Fractional Components

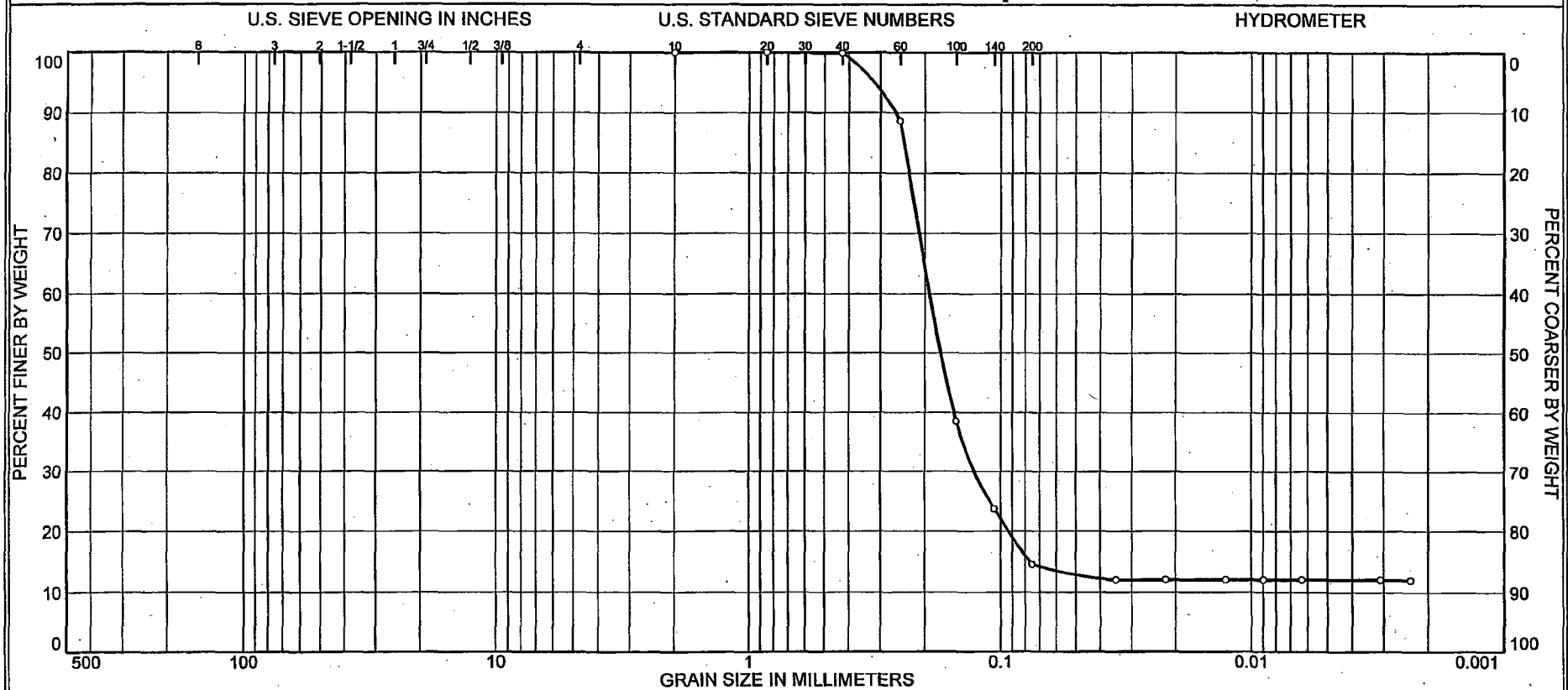
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.5	1.0	21.6	23.1			76.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0791	0.0865	0.0957	0.1104

Fineness Modulus
0.06

MK 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	0.1	85.3	2.6	12.0

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-409	UD-1	68' to 70'	2-14-07	SM	Silty sand	14.9	NV	NP

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: SS KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-409
Sample No.: UD-1
Elev. or Depth: 68' to 70' **Sample Length(in./cm.):**
Location: B-409
Description: Silty sand
Date: 2-14-07 **Natural Moisture:** 14.9
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SM
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	113.46	0.00
Tare =	0.00	0.00
Dry sample weight =	113.46	0.00

Minus #200 from wash= 100.0 %
Sample split on number 10 **sieve**
Split sample data:
Sample and tare = 78.84 **Tare =** .00 **Sample weight =** 78.84
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.00	100.0
# 40	0.08	99.9
# 60	8.88	88.7
# 100	48.45	38.5
# 140	60.13	23.7
# 200	67.29	14.6

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 82.84
Hygroscopic moisture correction:
Moist weight & tare = 45.85
Dry weight & tare = 45.78
Tare = 11.01
Hygroscopic moisture= 0.2 %
Calculated biased weight= 82.67
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.651

Specific gravity correction factor= 1.000
Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

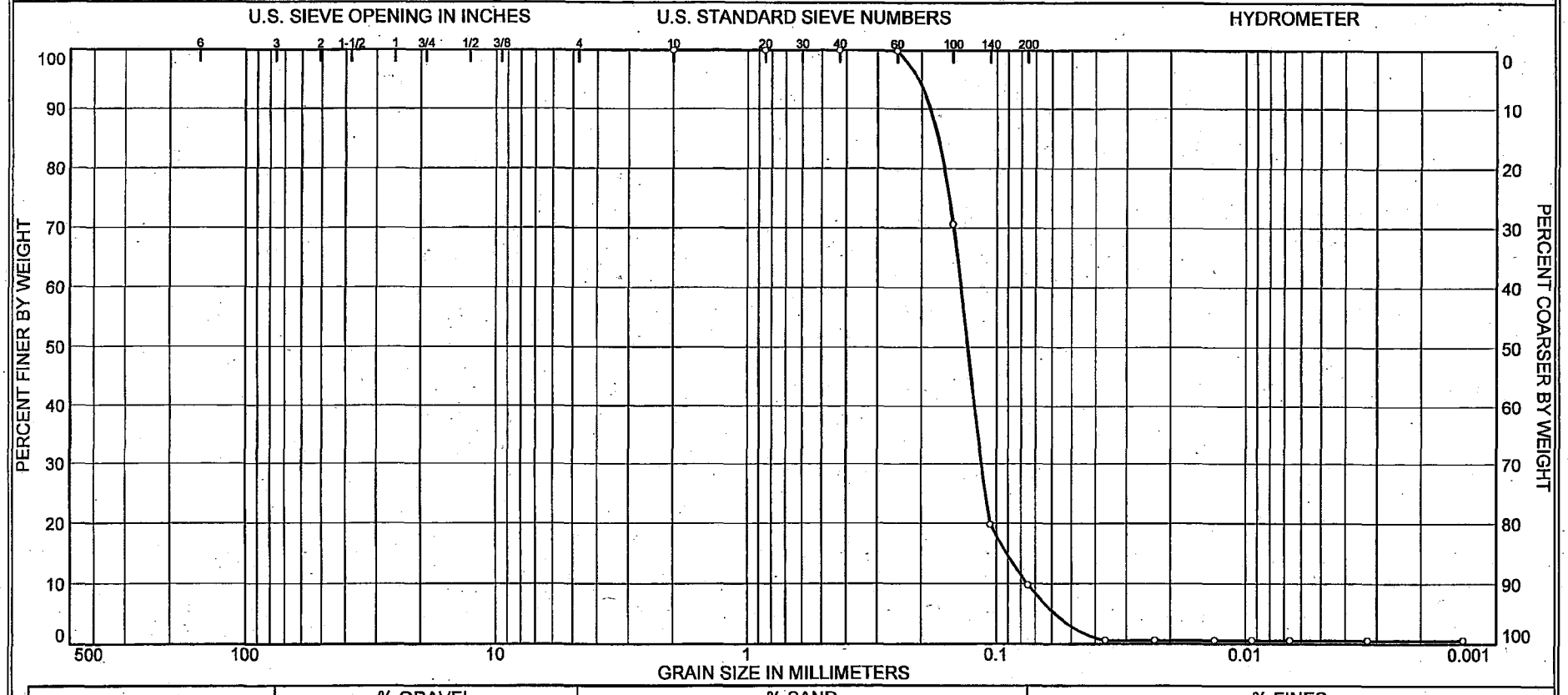
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.00	23.4	13.0	9.9	0.0131	14.0	14.0	0.0346	12.0
5.00	23.4	13.0	9.9	0.0131	14.0	14.0	0.0219	12.0
15.00	23.4	13.0	9.9	0.0131	14.0	14.0	0.0126	12.0
30.00	23.4	13.0	9.9	0.0131	14.0	14.0	0.0089	12.0
60.00	23.4	13.0	9.9	0.0131	14.0	14.0	0.0063	12.0
250.00	23.6	13.0	9.9	0.0131	14.0	14.0	0.0031	12.0
440.00	23.1	13.0	9.8	0.0131	14.0	14.0	0.0023	11.9

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 85.4 (**% coarse =** **% medium** = 0.1 **% fine** = 85.3)
% SILT = 2.6 **% CLAY** = 12.0

D_{85}= 0.24 D_{60}= 0.19 D_{50}= 0.17
D_{30}= 0.13 D_{15}= 0.08

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	0.0	90.2	9.2	0.6

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-409	UD-5	188' to 190'	2-25-07	SP-SM	Poorly graded sand with silt	38.2	NV	NP

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: MH KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-409
Sample No.: UD-5
Elev. or Depth: 188' to 190' **Sample Length(in./cm.):**
Location: B-409
Description: Poorly graded sand with silt
Date: 2-25-07 **Natural Moisture:** 38.2
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SP-SM
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	96.92
Tare =	0.00
Dry sample weight =	96.92

Sample split on number 10 sieve
Split sample data:
Sample and tare = 52.14 **Tare =** .00 **Sample weight =** 52.14
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.00	100.0
# 40	0.01	100.0
# 60	0.06	99.9
# 100	15.34	70.6
# 140	41.82	19.8
# 200	47.01	9.8

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 52.24
Hygroscopic moisture correction:
Moist weight & tare = 50.97
Dry weight & tare = 50.91
Tare = 11.56
Hygroscopic moisture= 0.2 %
Calculated biased weight= 52.16
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.668
Specific gravity correction factor= 0.996

Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

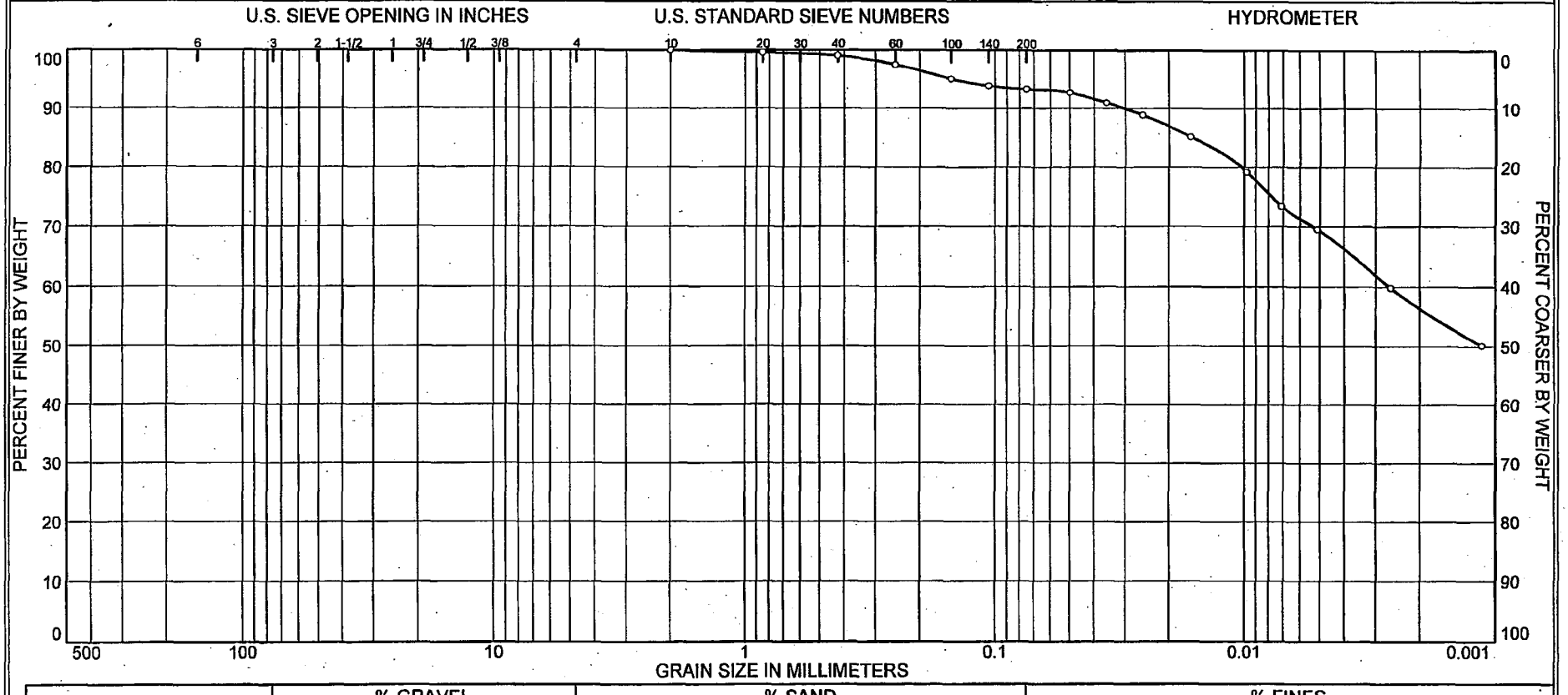
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.00	23.1	3.5	0.3	0.0131	4.5	15.6	0.0364	0.6
5.00	23.1	3.5	0.3	0.0131	4.5	15.6	0.0230	0.6
15.00	23.1	3.5	0.3	0.0131	4.5	15.6	0.0133	0.6
30.00	23.1	3.5	0.3	0.0131	4.5	15.6	0.0094	0.6
60.00	23.1	3.5	0.3	0.0131	4.5	15.6	0.0067	0.6
250.00	23.1	3.5	0.3	0.0131	4.5	15.6	0.0033	0.6
1440.00	23.0	3.5	0.3	0.0131	4.5	15.6	0.0014	0.6

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 90.2 (**% coarse =** **% medium** = 0.0 **% fine** = 90.2)
% SILT = 9.2 **% CLAY** = 0.6

D_{85}= 0.17 D_{60}= 0.14 D_{50}= 0.13
D_{30}= 0.12 D_{15}= 0.09 D_{10}= 0.08
C_c= 1.2606 C_u= 1.844

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	0.9	5.7	24.2	69.2

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-415	UD-1	88' to 90'	3-16-07	CH	Fat clay	23.9	61	17

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1 KAW 4/3/07
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-415
Sample No.: UD-1
Elev. or Depth: 88' to 90' **Sample Length(in./cm.):**
Location: B-415
Description: Fat clay
Date: 3-16-07 **Natural Moisture:** 23.9
Liquid Limit: 61 **Plastic Limit:** 17 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	111.67
Tare =	0.00
Dry sample weight =	111.67

Sample split on number 10 sieve
Split sample data:
Sample and tare = 50.50 Tare = .00 Sample weight = 50.50
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.21	99.6
# 40	0.43	99.1
# 60	1.23	97.6
# 100	2.44	95.2
# 140	3.03	94.0
# 200	3.35	93.4

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 52.62
Hygroscopic moisture correction:
Moist weight & tare = 25.77
Dry weight & tare = 25.20
Tare = 11.62
Hygroscopic moisture= 4.2 %
Calculated biased weight= 50.50
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.752
Specific gravity correction factor= 0.978

Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

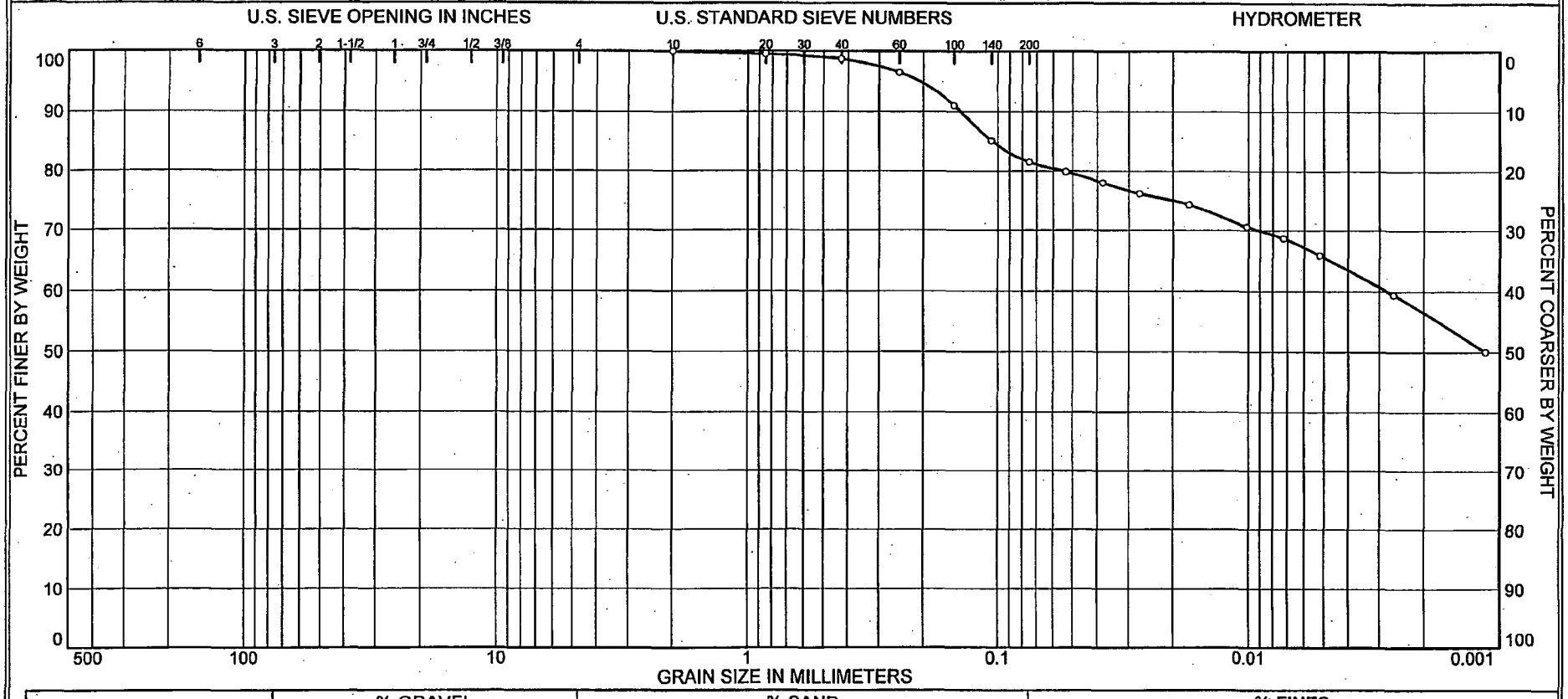
Elapsed ime, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
0.50	23.6	51.0	47.9	0.0127	52.0	7.8	0.0500	92.8
1.00	23.6	50.0	46.9	0.0127	51.0	7.9	0.0357	90.9
2.00	23.6	49.0	45.9	0.0127	50.0	8.1	0.0255	88.9
5.00	23.6	47.0	43.9	0.0127	48.0	8.4	0.0164	85.1
15.00	23.6	44.0	40.9	0.0127	45.0	8.9	0.0098	79.2
30.00	23.5	41.0	37.9	0.0127	42.0	9.4	0.0071	73.4
60.00	23.5	39.0	35.9	0.0127	40.0	9.7	0.0051	69.5
250.00	23.3	34.0	30.9	0.0127	35.0	10.6	0.0026	59.8
1440.00	23.3	29.0	25.9	0.0127	30.0	11.4	0.0011	50.1

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 6.6 **(% coarse =** **% medium =** 0.9 **% fine =** 5.7**)**
% SILT = 24.2 **% CLAY =** 69.2

D_{85}= 0.02 D_{60}= 0.00

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	1.3	17.2	16.0	65.5

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-415	UD-3	124' to 126'	3-16-07	CH	Fat clay with sand	34.0	51	16

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1 KAW 4/3/07
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-415
Sample No.: UD-3
Elev. or Depth: 124' to 126' **Sample Length(in./cm.):**
Location: B-415
Description: Fat clay with sand
Date: 3-16-07 **Natural Moisture:** 34.0
Liquid Limit: 51 **Plastic Limit:** 16 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	138.58
Tare =	0.00
Dry sample weight =	138.58

Sample split on number 10 sieve
Split sample data:
Sample and tare = 52.98 **Tare =** .00 **Sample weight =** 52.98
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.28	99.5
# 40	0.69	98.7
# 60	1.83	96.5
# 100	4.76	91.0
# 140	7.91	85.1
# 200	9.79	81.5

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 55.33
Hygroscopic moisture correction:
Moist weight & tare = 25.85
Dry weight & tare = 25.22
Tare = 10.99
Hygroscopic moisture= 4.4 %
Calculated biased weight= 52.98
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.708
Specific gravity correction factor= 0.987

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

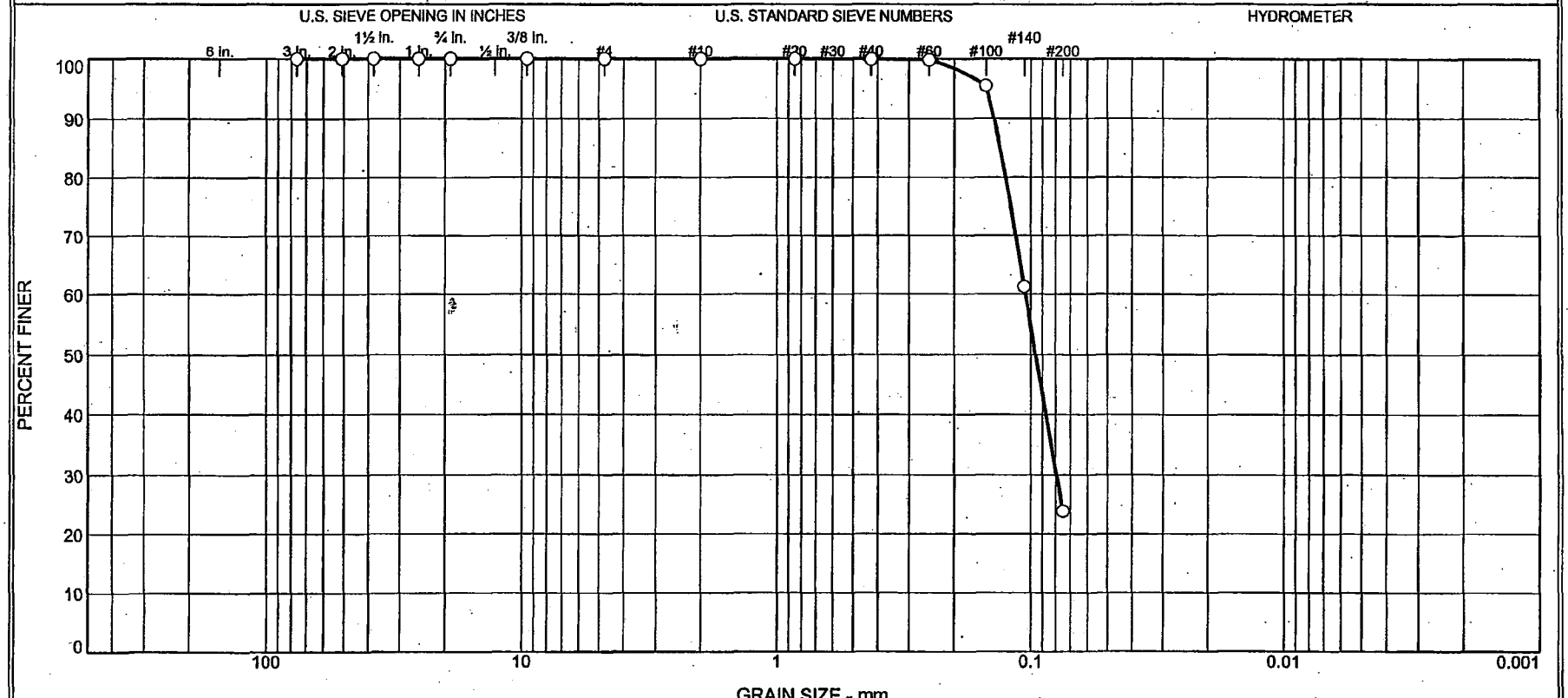
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
0.50	23.4	46.0	42.9	0.0129	47.0	8.6	0.0533	79.9
1.00	23.4	45.0	41.9	0.0129	46.0	8.8	0.0381	78.0
2.00	23.4	44.0	40.9	0.0129	45.0	8.9	0.0272	76.2
5.00	23.4	43.0	39.9	0.0129	44.0	9.1	0.0173	74.3
15.00	23.4	41.0	37.9	0.0129	42.0	9.4	0.0102	70.6
30.00	23.4	40.0	36.9	0.0129	41.0	9.6	0.0073	68.7
60.00	23.3	38.5	35.4	0.0129	39.5	9.8	0.0052	65.9
250.00	23.3	35.0	31.9	0.0129	36.0	10.4	0.0026	59.4
1440.00	23.3	30.0	26.9	0.0129	31.0	11.2	0.0011	50.0

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 18.5 (**% coarse =** **% medium** = 1.3 **% fine** = 17.2)
% SILT = 16.0 **% CLAY** = 65.5

D_{85}= 0.11 D_{60}= 0.00 D_{50}= 0.00

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.1	76.0	23.9	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 419	STP-154 (SS-14)	33.5'-35.0'	12/1/2006	SM	Silty Sand	26.7		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 419
Depth: 33.5'-35.0'
Sample Number: STP-154 (SS-14)
Material Description: Silty Sand
Date: 12/1/2006
Natural Moisture: 26.7
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 60.82
Tare Wt. = 0.00
Minus #200 from wash = 23.9%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
255.80	175.90	0.00	3	0.00	100.0			
			2	0.00	100.0			
			1.5	0.00	100.0			
			1	0.00	100.0			
			3/4	0.00	100.0			
			3/8	0.00	100.0			
			#4	0.00	100.0			
			#10	0.00	100.0			
			#20	0.00	100.0			
			#40	0.04	99.9			
			#60	0.11	99.9			
			#100	3.57	95.5			
			#140	30.94	61.3			
			#200	60.82	23.9			

Additional Components

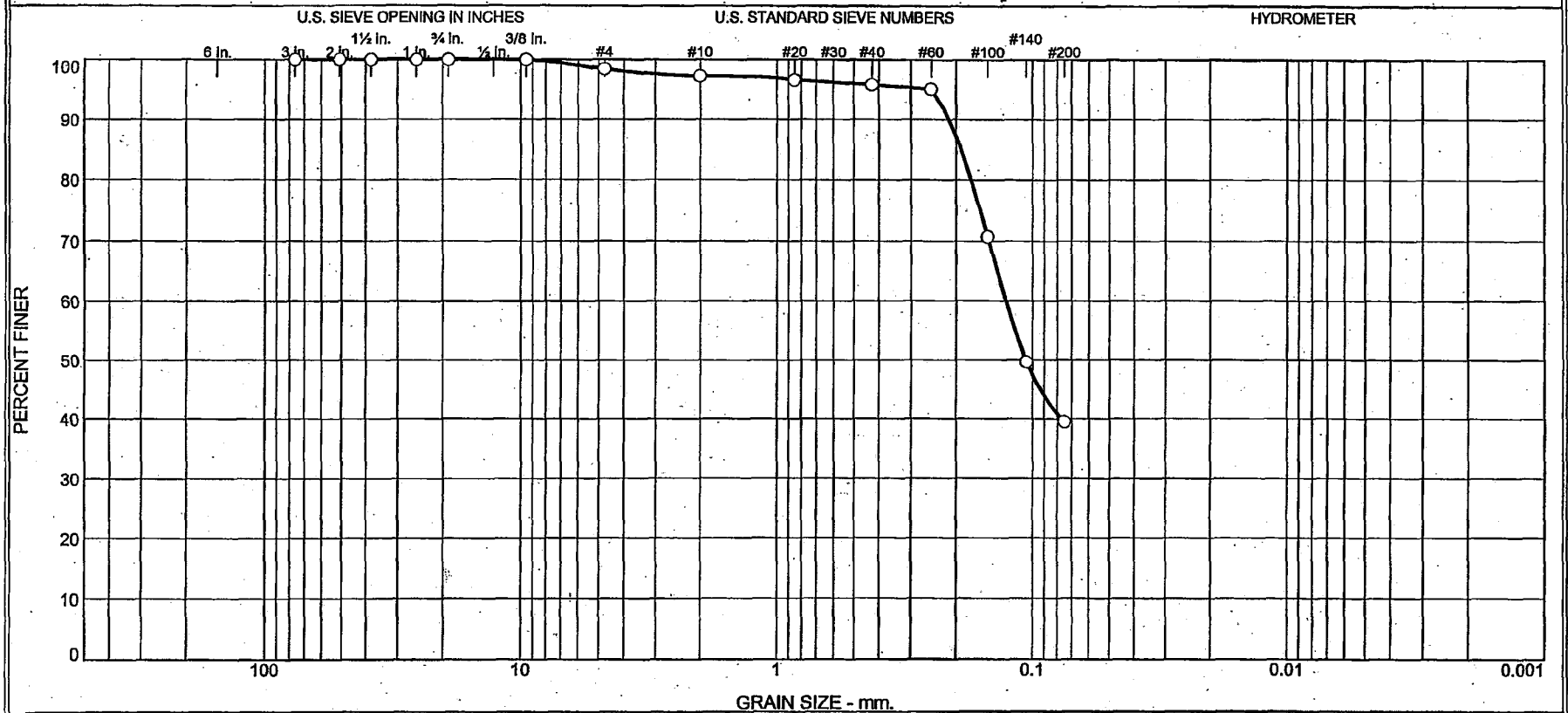
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	76.0	76.1			23.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0795	0.0958	0.1048	0.1253	0.1317	0.1391	0.1487

Fineness Modulus
0.05

MK 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	1.5	1.2	1.5	56.3	39.5	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 419	STP-157	63.5'-65.0'	12/27/2006	SM	Silty Sand	20.5		
		(SS-20)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF

ASTM D6913-04e1

MF 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 419
Depth: 63.5'-65.0'
Sample Number: STP-157 (SS-20)
Material Description: Silty Sand
Date: 12/27/2006
Natural Moisture: 20.5
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 162.86
Tare Wt. = 0.00
Minus #200 from wash = 39.5%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
444.10	175.10	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	4.16	98.5
			#10	7.33	97.3
			#20	9.12	96.6
			#40	11.21	95.8
			#60	13.24	95.1
			#100	78.77	70.7
			#140	135.45	49.6
			#200	162.86	39.5

Fractional Components

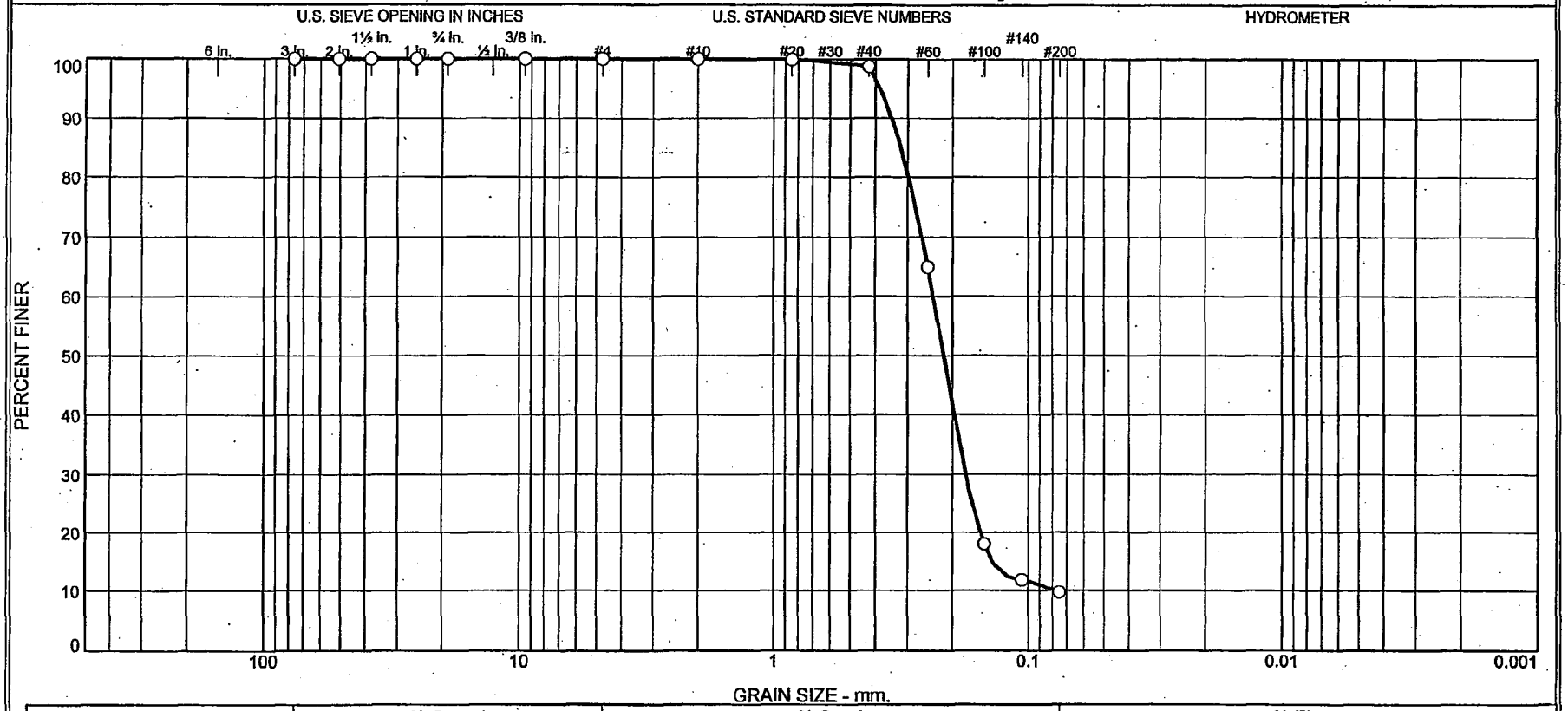
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.5	1.5	1.2	1.5	56.3	59.0			39.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1068	0.1274	0.1744	0.1912	0.2132	0.2491

Fineness Modulus
0.45

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	1.2	89.1	9.7	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 419	STP-158	73.5'-75.0'	12/1/2006	SP-SM	Poorly Graded Sand with Silt	21.1		
		(SS-22)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 419
Depth: 73.5'-75.0'
Sample Number: STP-158 (SS-22)
Material Description: Poorly Graded Sand with Silt
Date: 12/1/2006
Natural Moisture: 21.1
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 75.13
Tare Wt. = 0.00
Minus #200 from wash = 9.7%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
259.70	176.50	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.08	99.9
			#40	1.00	98.8
			#60	29.12	65.0
			#100	68.25	18.0
			#140	73.35	11.8
			#200	75.13	9.7

Fractional Components

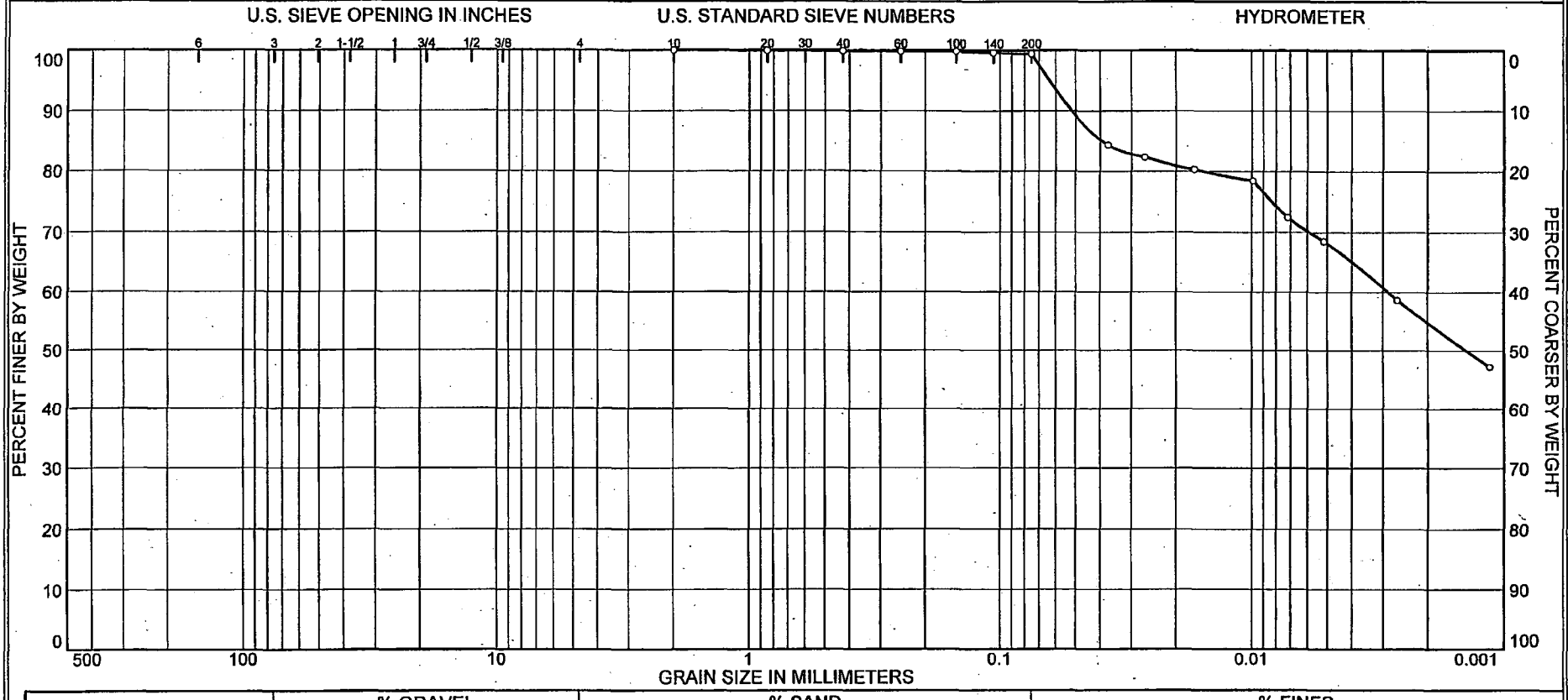
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.2	89.1	90.3			9.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0780	0.1395	0.1555	0.1771	0.2161	0.2378	0.2974	0.3191	0.3461	0.3827

Fineness Modulus	C_u	C_c
1.02	3.05	1.69

MA 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	0.2	0.4	31.3	68.1

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-419	UD-1	78' to 80'	2-22-07	CL	Lean clay	21.3	47	24

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: MH KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM 6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-419
Sample No.: UD-1
Elev. or Depth: 78' to 80' **Sample Length(in./cm.):**
Location: B-419
Description: Lean clay
Date: 2-22-07 **Natural Moisture:** 21.3
Liquid Limit: 47 **Plastic Limit:** 24 **USCS Class.:** CL
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM 6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	77.68
Tare =	0.00
Dry sample weight =	77.68

Sample split on number 10 **sieve**
Split sample data:
Sample and tare = 49.57 **Tare =** .00 **Sample weight =** 49.57
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.07	99.9
# 40	0.08	99.8
# 60	0.08	99.8
# 100	0.12	99.8
# 140	0.20	99.6
# 200	0.32	99.4

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 51.26
Hygroscopic moisture correction:
Moist weight & tare = 39.71
Dry weight & tare = 38.75
Tare = 10.87
Hygroscopic moisture= 3.4 %
Calculated biased weight= 49.55
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.766
Specific gravity correction factor= 0.975

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

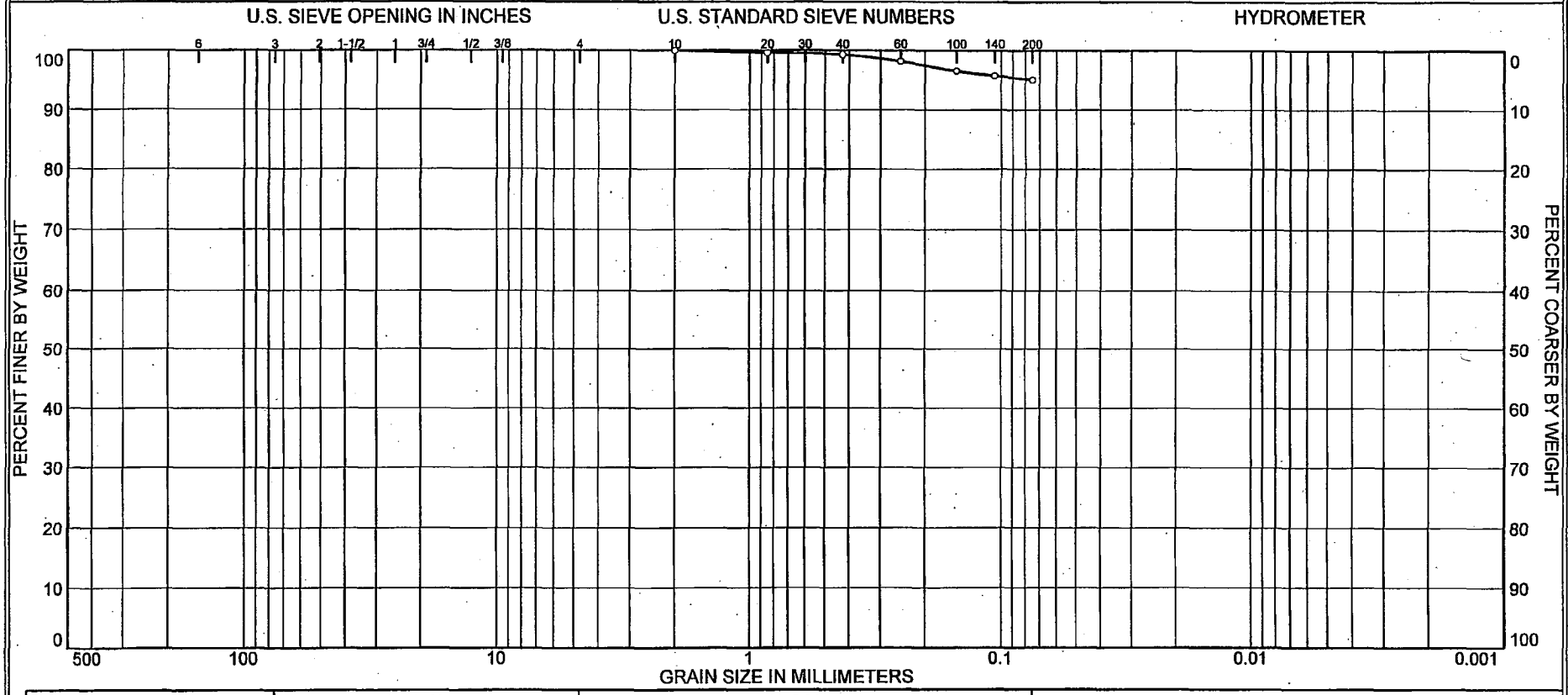
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.00	23.1	46.0	42.8	0.0127	47.0	8.6	0.0372	84.3
2.00	23.1	45.0	41.8	0.0127	46.0	8.8	0.0266	82.3
5.00	23.1	44.0	40.8	0.0127	45.0	8.9	0.0170	80.3
15.00	23.1	43.0	39.8	0.0127	44.0	9.1	0.0099	78.4
30.00	23.1	40.0	36.8	0.0127	41.0	9.6	0.0072	72.5
60.00	23.1	38.0	34.8	0.0127	39.0	9.9	0.0052	68.5
250.00	23.1	33.0	29.8	0.0127	34.0	10.7	0.0026	58.7
1440.00	23.9	27.0	24.0	0.0126	28.0	11.7	0.0011	47.2

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 0.6 **(% coarse =** **% medium =** 0.2 **% fine =** 0.4**)**
% SILT = 31.3 **% CLAY =** 68.1

D_{85}= 0.04 D_{60}= 0.00 D_{50}= 0.00

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	0.7	4.2	95.1	

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-419	UD-2	98' to 100'	2-22-07	CH	Fat clay	27.0	61	24

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: MH
ASTM 6913-04e1

KAW 4/3/07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-419
Sample No.: UD-2
Elev. or Depth: 98' to 100' **Sample Length(in./cm.):**
Location: B-419
Description: Fat clay
Date: 2-22-07 **Natural Moisture:** 27.0
Liquid Limit: 61 **Plastic Limit:** 24 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM 6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	219.64
Tare =	107.33
Dry sample weight =	112.31

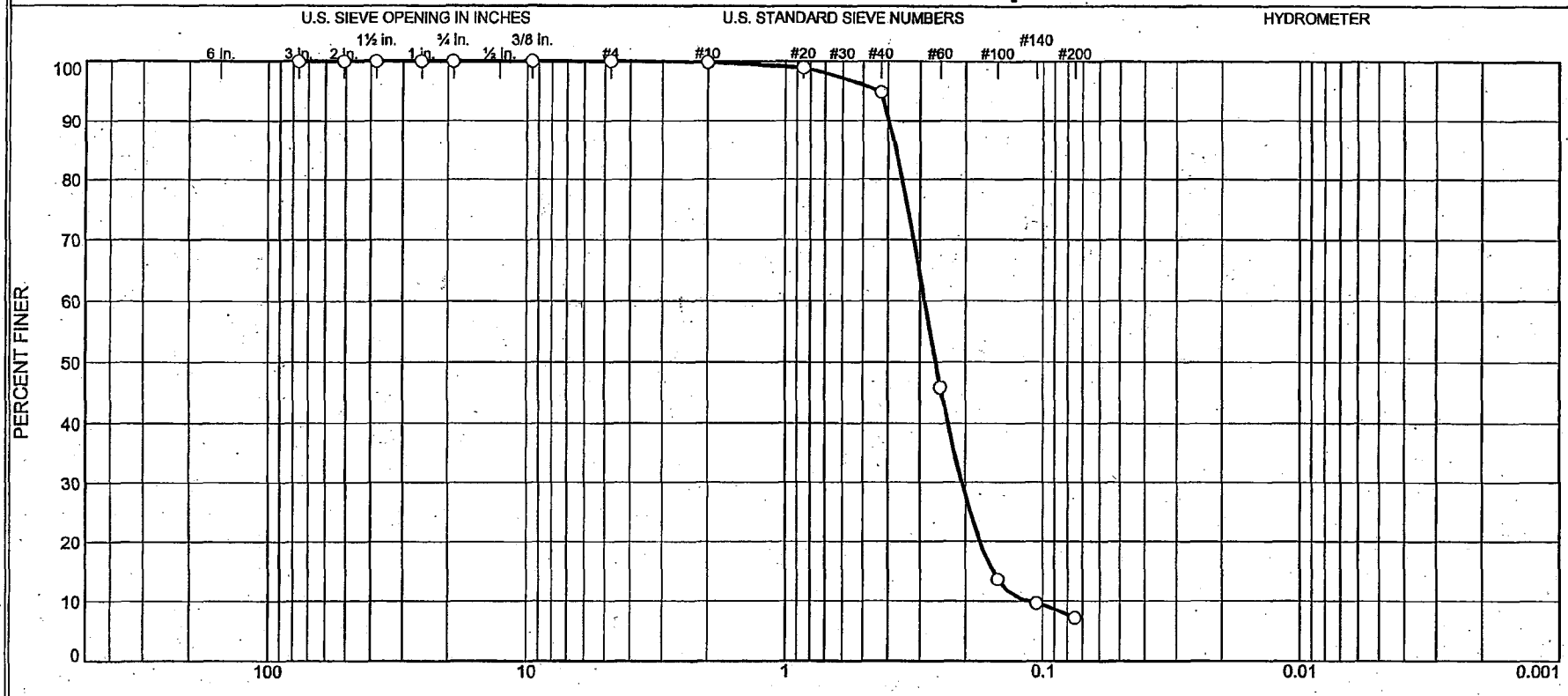
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.40	99.6
# 40	0.80	99.3
# 60	1.99	98.2
# 100	3.87	96.6
# 140	4.75	95.8
# 200	5.50	95.1

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 4.9 **(% coarse =** **% medium =** 0.7 **% fine =** 4.2**)**
% FINES = 95.1

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.2	4.9	87.7	7.2	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 419	STP-160 (SS-26)	108.5'-110'	12/2/2006	SP-SM	Poorly Graded Sand with Silt	20.4		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 419
Depth: 108.5'-110'
Sample Number: STP-160 (SS-26)
Material Description: Poorly Graded Sand with Silt
Date: 12/2/2006
Natural Moisture: 20.4
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 74.27
Tare Wt. = 0.00
Minus #200 from wash = 7.2%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
257.40	177.40	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.16	99.8
			#20	0.88	98.9
			#40	4.10	94.9
			#60	43.30	45.9
			#100	69.09	13.6
			#140	72.29	9.6
			#200	74.27	7.2

Fractional Components

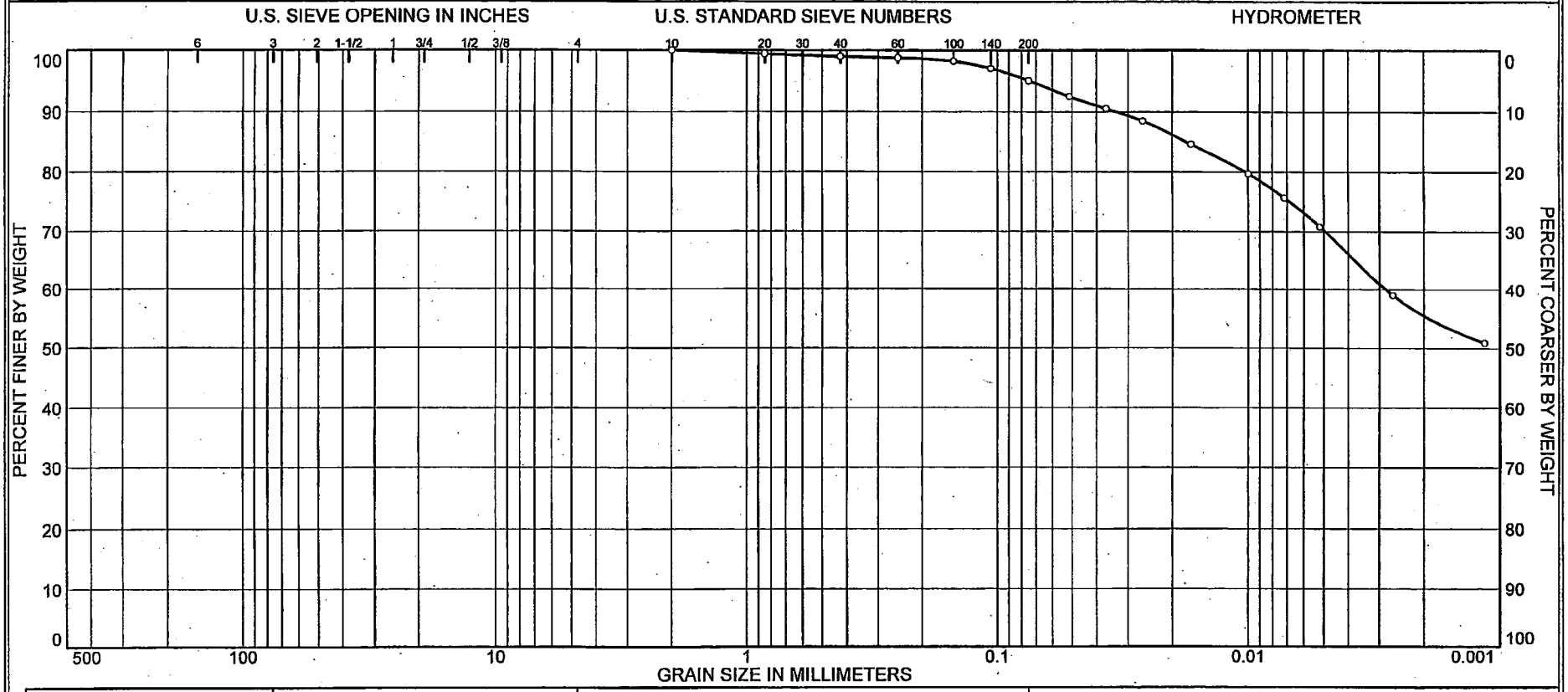
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.2	4.9	87.7	92.8			7.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1145	0.1567	0.1761	0.2069	0.2609	0.2878	0.3509	0.3711	0.3949	0.4318

Fineness Modulus	C_u	C_c
1.26	2.51	1.30

MK 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	1.0	3.9	24.9	70.2

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-419	UD-3	118' to 120'	2-20-07	CH	Fat clay	19.3	56	17

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: SS KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-419
Sample No.: UD-3
Elev. or Depth: 118' to 120' **Sample Length(in./cm.):**
Location: B-419
Description: Fat clay
Date: 2-20-07 **Natural Moisture:** 19.3
Liquid Limit: 56 **Plastic Limit:** 17 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	78.51
Tare =	0.00
Dry sample weight =	78.51

Sample split on number 10 sieve
Split sample data:
Sample and tare = 50.08 **Tare =** .00 **Sample weight =** 50.08
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.31	99.4
# 40	0.50	99.0
# 60	0.61	98.8
# 100	0.83	98.3
# 140	1.45	97.1
# 200	2.46	95.1

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 51.38
Hygroscopic moisture correction:
Moist weight & tare = 40.16
Dry weight & tare = 39.42
Tare = 11.01
Hygroscopic moisture= 2.6 %
Calculated biased weight= 50.08
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.705
Specific gravity correction factor= 0.988

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

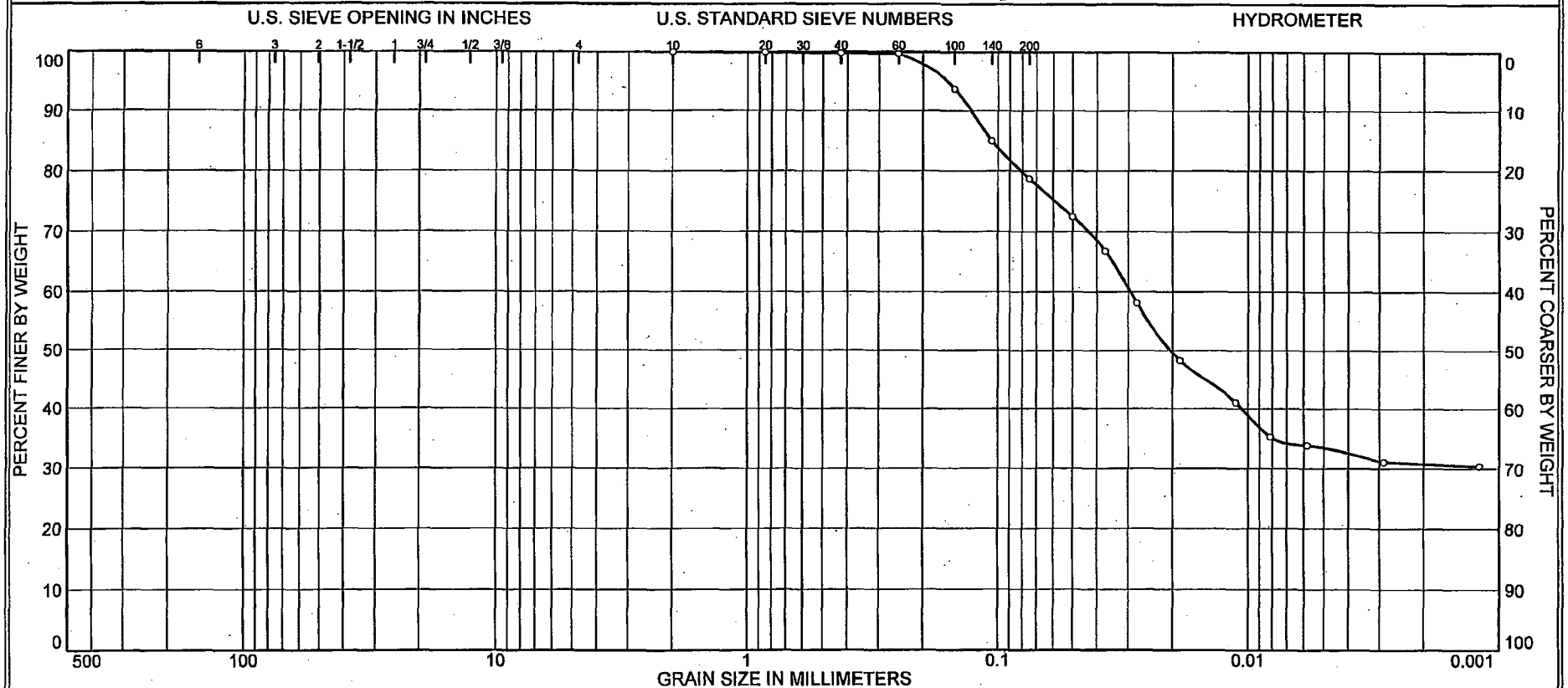
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
0.50	23.4	50.0	46.9	0.0129	51.0	7.9	0.0513	92.5
1.00	23.4	49.0	45.9	0.0129	50.0	8.1	0.0366	90.5
2.00	23.4	48.0	44.9	0.0129	49.0	8.3	0.0262	88.5
5.00	23.4	46.0	42.9	0.0129	47.0	8.6	0.0169	84.6
15.00	23.4	43.5	40.4	0.0129	44.5	9.0	0.0100	79.7
30.00	23.4	41.5	38.4	0.0129	42.5	9.3	0.0072	75.7
60.00	23.4	39.0	35.9	0.0129	40.0	9.7	0.0052	70.8
250.00	23.6	33.0	29.9	0.0128	34.0	10.7	0.0027	59.0
1440.00	23.1	29.0	25.8	0.0129	30.0	11.4	0.0011	50.9

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 4.9 (**% coarse =** **% medium** = 1.0 **% fine** = 3.9)
% SILT = 24.9 **% CLAY** = 70.2

D_{85}= 0.02 D_{60}= 0.00

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	0.2	21.1	45.2	33.5

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-419	UD-4	138' to 140'	2-20-07	CL	Lean clay with sand	14.9	40	15

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1 KAW 4/13/07
ASTM D6913-04e1

KAW 4/13/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-419
Sample No.: UD-4
Elev. or Depth: 138' to 140' **Sample Length(in./cm.):**
Location: B-419
Description: Lean clay with sand
Date: 2-20-07 **Natural Moisture:** 14.9
Liquid Limit: 40 **Plastic Limit:** 15 **USCS Class.:** CL
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	95.83
Tare =	0.00
Dry sample weight =	95.83

Sample split on number 10 sieve
Split sample data:
Sample and tare = 70.20 Tare = .00 Sample weight = 70.20
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.05	99.9
# 40	0.14	99.8
# 60	0.20	99.7
# 100	4.40	93.7
# 140	10.55	85.0
# 200	14.95	78.7

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 71.81
Hygroscopic moisture correction:
Moist weight & tare = 31.02
Dry weight & tare = 30.58
Tare = 11.04
Hygroscopic moisture= 2.3 %
Calculated biased weight= 70.23
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.649
Specific gravity correction factor= 1.000

Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

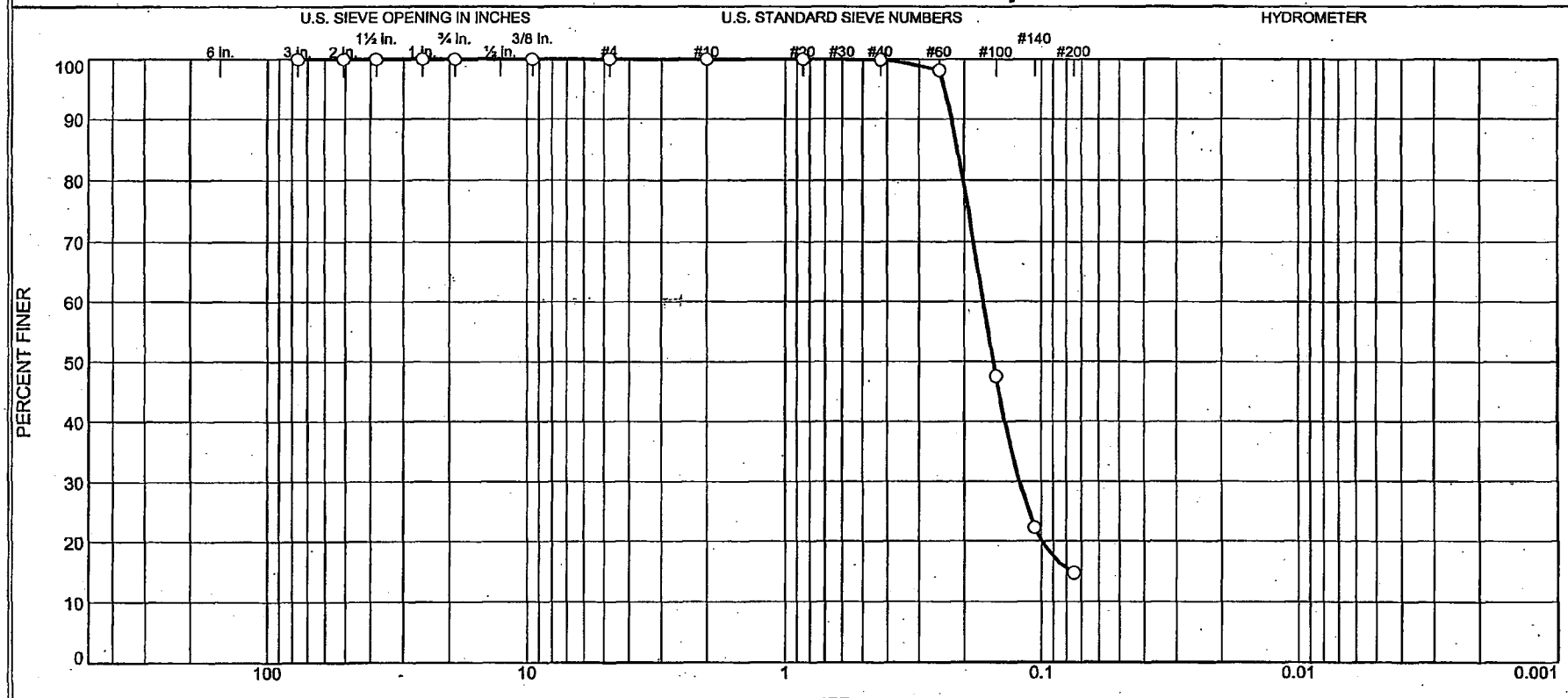
Elapsed ime, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
0.50	23.1	54.0	50.8	0.0131	55.0	7.3	0.0501	72.4
1.00	23.1	50.0	46.8	0.0131	51.0	7.9	0.0370	66.7
2.00	23.1	44.0	40.8	0.0131	45.0	8.9	0.0277	58.1
5.00	23.1	37.0	33.8	0.0131	38.0	10.1	0.0186	48.2
15.00	23.1	32.0	28.8	0.0131	33.0	10.9	0.0112	41.0
30.00	23.1	28.0	24.8	0.0131	29.0	11.5	0.0082	35.3
60.00	23.1	27.0	23.8	0.0131	28.0	11.7	0.0058	33.9
250.00	23.1	25.0	21.8	0.0131	26.0	12.0	0.0029	31.1
1440.00	23.4	24.5	21.4	0.0131	25.5	12.1	0.0012	30.4

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 21.3 (**% coarse =** **% medium** = 0.2 **% fine** = 21.1)
% SILT = 45.2 **% CLAY** = 33.5

D_{85}= 0.11 D_{60}= 0.03 D_{50}= 0.02

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.1	85.1	14.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring 419	STP-162 (SS-28)	148.5'-150'	12/2/2006	SM	Silty Sand	21.8		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

○ Tested By:TH Reviewed By:RF

ASTM D6913-04e1

MA 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 419
Depth: 148.5'-150'
Sample Number: STP-162 (SS-28)
Material Description: Silty Sand
Date: 12/2/2006
Natural Moisture: 21.8
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 68.60
Tare Wt. = 0.00
Minus #200 from wash = 14.8%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
257.60	177.10	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.02	100.0
			#40	0.10	99.9
			#60	1.47	98.2
			#100	42.25	47.5
			#140	62.60	22.2
			#200	68.60	14.8

Fractional Components

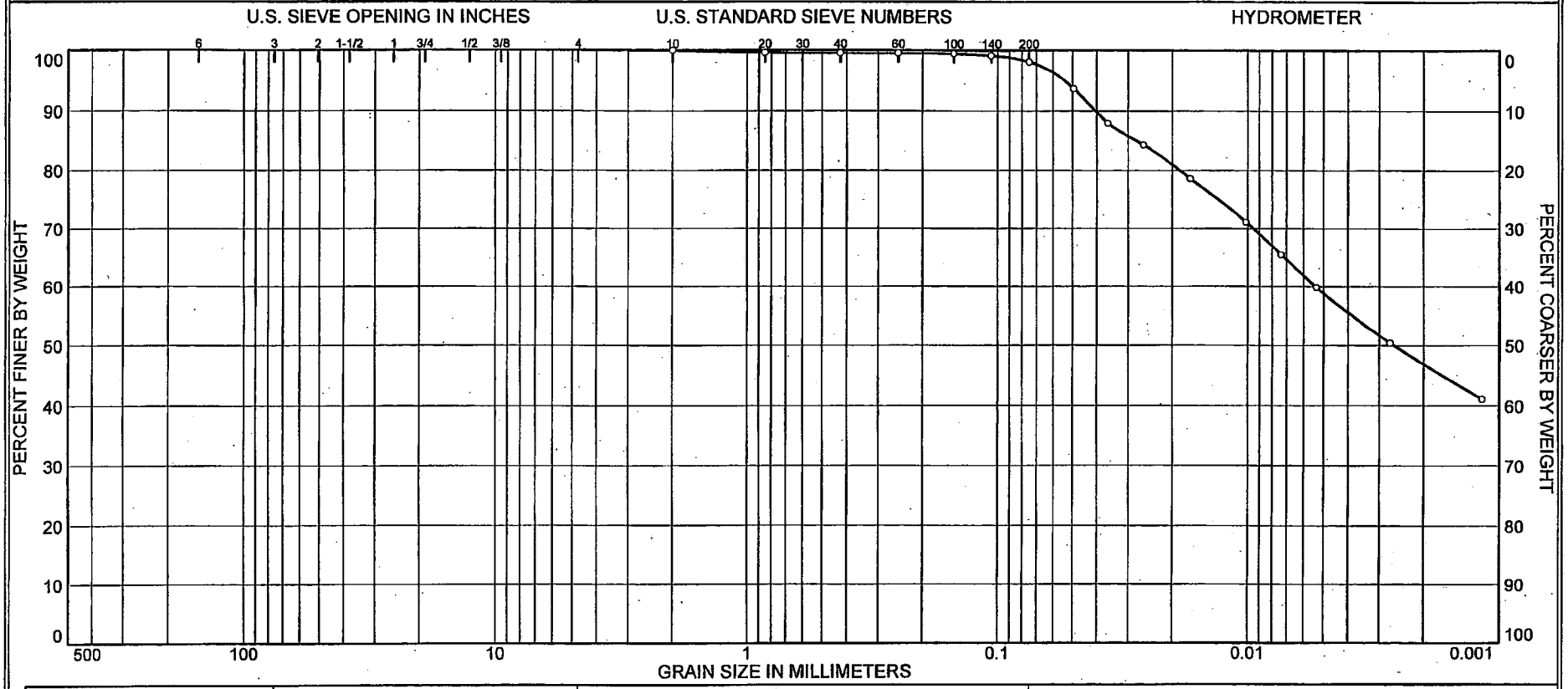
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	85.1	85.2			14.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0765	0.0999	0.1220	0.1537	0.1684	0.2015	0.2116	0.2233	0.2378

Fineness Modulus
0.54

MA 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	0.5	1.4	39.4	58.7

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-419	UD-5	158' to 160'	2-20-07	CL	Lean clay	19.3	47	17

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: SS KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-419
Sample No.: UD-5
Elev. or Depth: 158' to 160' **Sample Length(in./cm.):**
Location: B-419
Description: Lean clay
Date: 2-20-07 **Natural Moisture:** 19.3
Liquid Limit: 47 **Plastic Limit:** 17 **USCS Class.:** CL
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	77.14
Tare =	0.00
Dry sample weight =	77.14

Sample split on number 10 sieve
Split sample data:
Sample and tare = 52.22 **Tare** = .00 **Sample weight** = 52.22
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.20	99.6
# 40	0.24	99.5
# 60	0.26	99.5
# 100	0.29	99.4
# 140	0.47	99.1
# 200	0.99	98.1

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 53.42
Hygroscopic moisture correction:
Moist weight & tare = 36.33
Dry weight & tare = 35.76
Tare = 10.96
Hygroscopic moisture= 2.3 %
Calculated biased weight= 52.22
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.731
Specific gravity correction factor= 0.982

Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

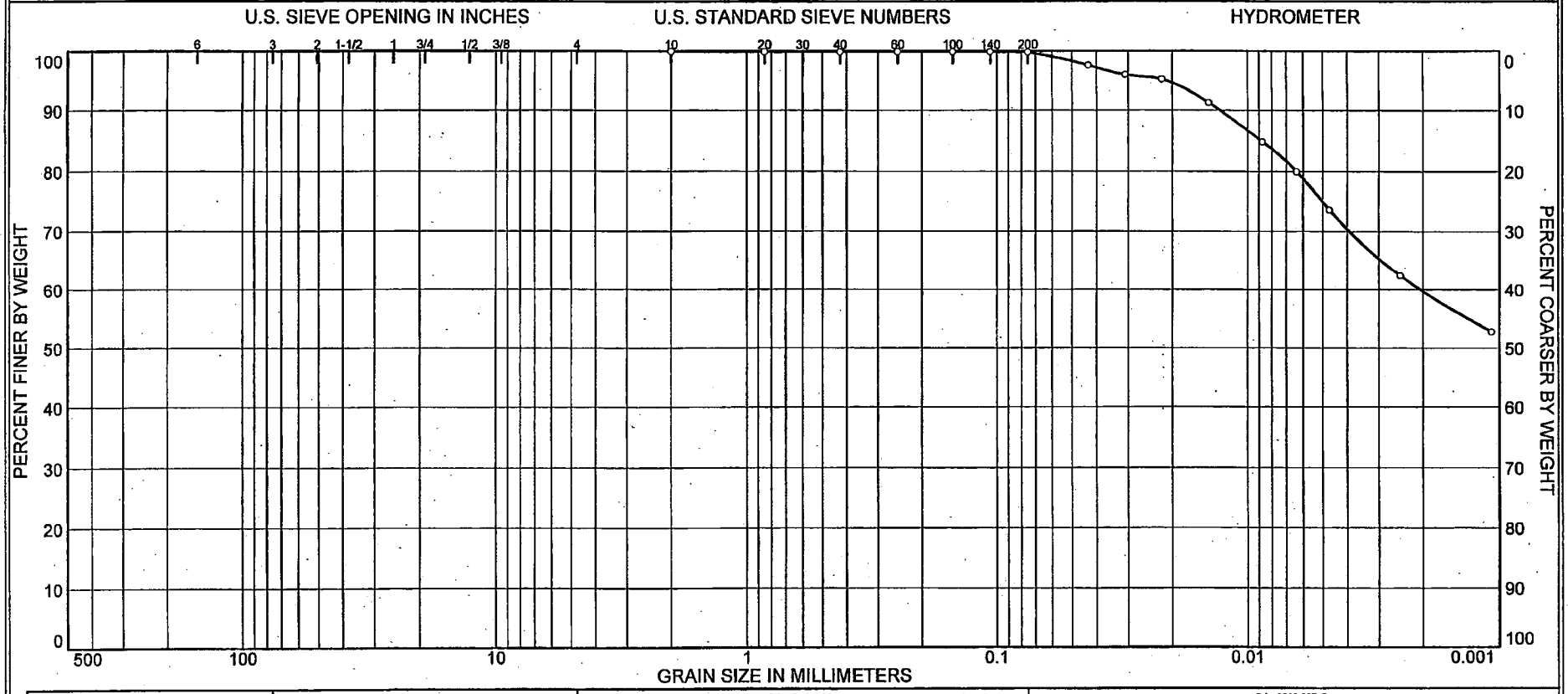
Elapsed ime, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
0.50	23.1	53.0	49.8	0.0128	54.0	7.4	0.0495	93.7
1.00	23.1	50.0	46.8	0.0128	51.0	7.9	0.0361	88.0
2.00	23.1	48.0	44.8	0.0128	49.0	8.3	0.0261	84.3
5.00	23.1	45.0	41.8	0.0128	46.0	8.8	0.0170	78.6
15.00	23.1	41.0	37.8	0.0128	42.0	9.4	0.0102	71.1
30.00	23.1	38.0	34.8	0.0128	39.0	9.9	0.0074	65.5
60.00	23.1	35.0	31.8	0.0128	36.0	10.4	0.0053	59.8
250.00	23.1	30.0	26.8	0.0128	31.0	11.2	0.0027	50.4
1440.00	23.4	25.0	21.9	0.0128	26.0	12.0	0.0012	41.1

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 1.9 (**% coarse =** **% medium** = 0.5 **% fine** = 1.4)
% SILT = 39.4 **% CLAY** = 58.7

D_{85}= 0.03 D_{60}= 0.01 D_{50}= 0.00

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	0.1	0.1	24.9	74.9

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-419	UD-6	178' to 180'	2-20-07	CH	Fat clay	20.6	53	20

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: SS KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-419
Sample No.: UD-6
Elev. or Depth: 178' to 180' **Sample Length(in./cm.):**
Location: B-419
Description: Fat clay
Date: 2-20-07 **Natural Moisture:** 20.6
Liquid Limit: 53 **Plastic Limit:** 20 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	93.59
Tare =	0.00
Dry sample weight =	93.59

Sample split on number 10 sieve
Split sample data:
Sample and tare = 61.04 **Tare =** .00 **Sample weight =** 61.04
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.05	99.9
# 40	0.07	99.9
# 60	0.07	99.9
# 100	0.07	99.9
# 140	0.07	99.9
# 200	0.11	99.8

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 62.57
Hygroscopic moisture correction:
Moist weight & tare = 44.28
Dry weight & tare = 43.48
Tare = 10.95
Hygroscopic moisture= 2.5 %
Calculated biased weight= 61.07
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.737
Specific gravity correction factor= 0.981

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

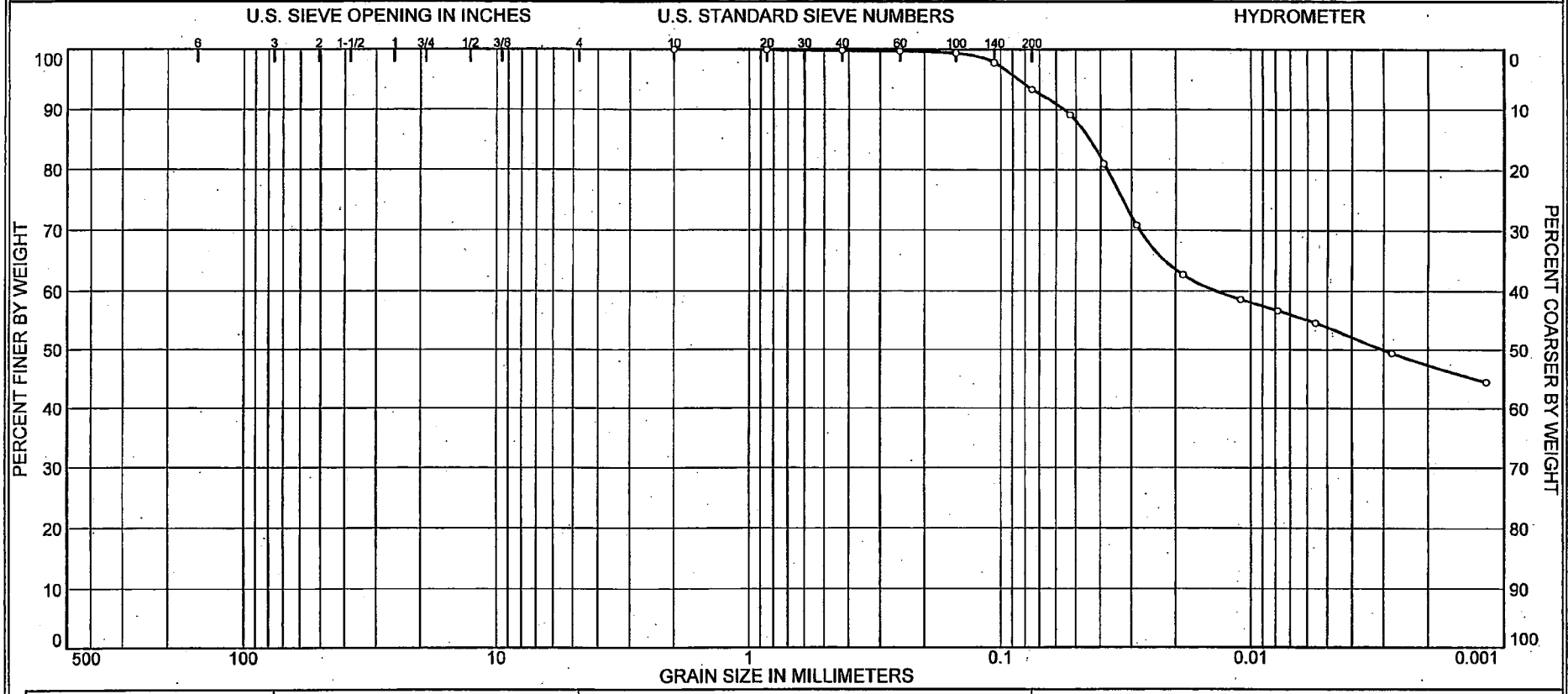
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
0.50	23.1	64.0	60.8	0.0128	65.0	5.6	0.0430	97.7
1.00	23.1	63.0	59.8	0.0128	64.0	5.8	0.0308	96.1
2.00	23.1	62.5	59.3	0.0128	63.5	5.9	0.0220	95.3
5.00	23.1	60.0	56.8	0.0128	61.0	6.3	0.0144	91.3
15.00	23.1	56.0	52.8	0.0128	57.0	6.9	0.0087	84.8
30.00	23.1	53.0	49.8	0.0128	54.0	7.4	0.0064	80.0
60.00	23.1	49.0	45.8	0.0128	50.0	8.1	0.0047	73.6
250.00	23.1	42.0	38.8	0.0128	43.0	9.2	0.0025	62.4
1440.00	23.4	36.0	32.9	0.0128	37.0	10.2	0.0011	52.8

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 0.2 (**% coarse =** **% medium** = 0.1 **% fine** = 0.1)
% SILT = 24.9 **% CLAY** = 74.9

D_{85}= 0.01 D_{60}= 0.00

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	0.2	6.4	39.6	53.8

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-419	UD-7	198' to 200'	2-20-07	CH	Fat clay	22.5	56	20

Client Bechtel Power Corporation
Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1 KAW 4/3/07
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-419
Sample No.: UD-7
Elev. or Depth: 198' to 200' **Sample Length(in./cm.):**
Location: B-419
Description: Fat clay
Date: 2-20-07 **Natural Moisture:** 22.5
Liquid Limit: 56 **Plastic Limit:** 20 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	71.72
Tare =	0.00
Dry sample weight =	71.72

Sample split on number 10 sieve
Split sample data:
Sample and tare = 48.44 **Tare =** .00 **Sample weight =** 48.44
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.07	99.9
# 40	0.10	99.8
# 60	0.15	99.7
# 100	0.29	99.4
# 140	1.06	97.8
# 200	3.20	93.4

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 49.70
Hygroscopic moisture correction:
Moist weight & tare = 34.70
Dry weight & tare = 34.10
Tare = 10.86
Hygroscopic moisture= 2.6 %
Calculated biased weight= 48.45
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.718
Specific gravity correction factor= 0.985

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

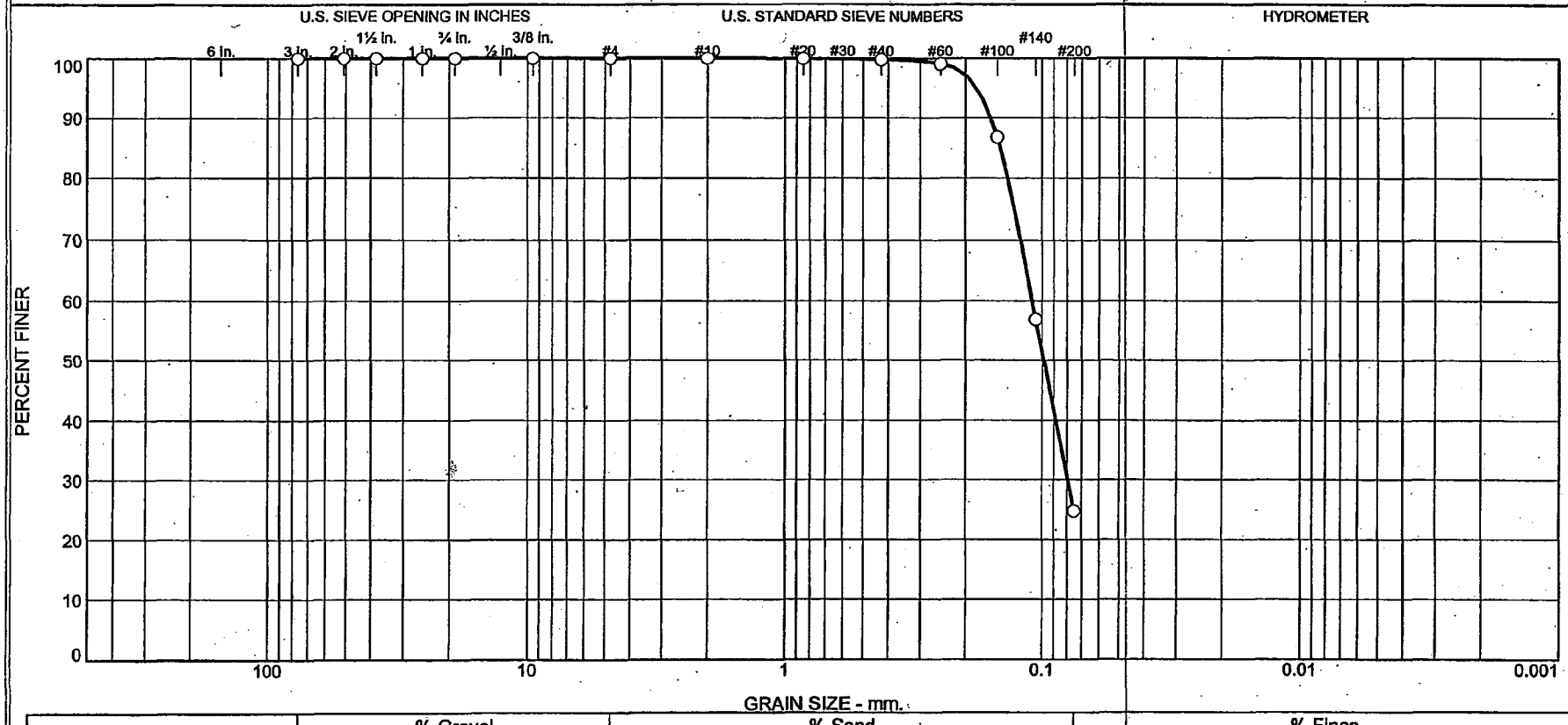
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
0.50	23.1	47.0	43.8	0.0129	48.0	8.4	0.0528	89.1
1.00	23.1	43.0	39.8	0.0129	44.0	9.1	0.0388	81.0
2.00	23.1	38.0	34.8	0.0129	39.0	9.9	0.0286	70.8
5.00	23.1	34.0	30.8	0.0129	35.0	10.6	0.0187	62.7
15.00	23.1	32.0	28.8	0.0129	33.0	10.9	0.0110	58.6
30.00	23.1	31.0	27.8	0.0129	32.0	11.0	0.0078	56.6
60.00	23.1	30.0	26.8	0.0129	31.0	11.2	0.0056	54.5
250.00	23.1	27.5	24.3	0.0129	28.5	11.6	0.0028	49.4
1440.00	23.4	25.0	21.9	0.0128	26.0	12.0	0.0012	44.5

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 6.6 (**% coarse =** **% medium** = 0.2 **% fine** = 6.4)
% SILT = 39.6 **% CLAY** = 53.8

D_{85}= 0.04 D_{60}= 0.01 D_{50}= 0.00

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.2	75.0	24.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 421	STP-141	28.5'-30.0'	1/27/2006	SM	Silty Sand	23.6		
		(SS-13)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST

ASTM D6913-04e1

mt 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 421
Depth: 28.5'-30.0'
Sample Number: STP-141 (SS-13)
Material Description: Silty Sand
Date: 1/27/2006
Natural Moisture: 23.6
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 59.88
Tare Wt. = 0.00
Minus #200 from wash = 24.8%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
258.80	179.20	0.00	3	0.00	100.0			
			2	0.00	100.0			
			1.5	0.00	100.0			
			1	0.00	100.0			
			3/4	0.00	100.0			
			3/8	0.00	100.0			
			#4	0.00	100.0			
			#10	0.00	100.0			
			#20	0.06	99.9			
			#40	0.18	99.8			
			#60	0.72	99.1			
			#100	10.51	86.8			
			#140	34.30	56.9			
			#200	59.88	24.8			

Fractional Components

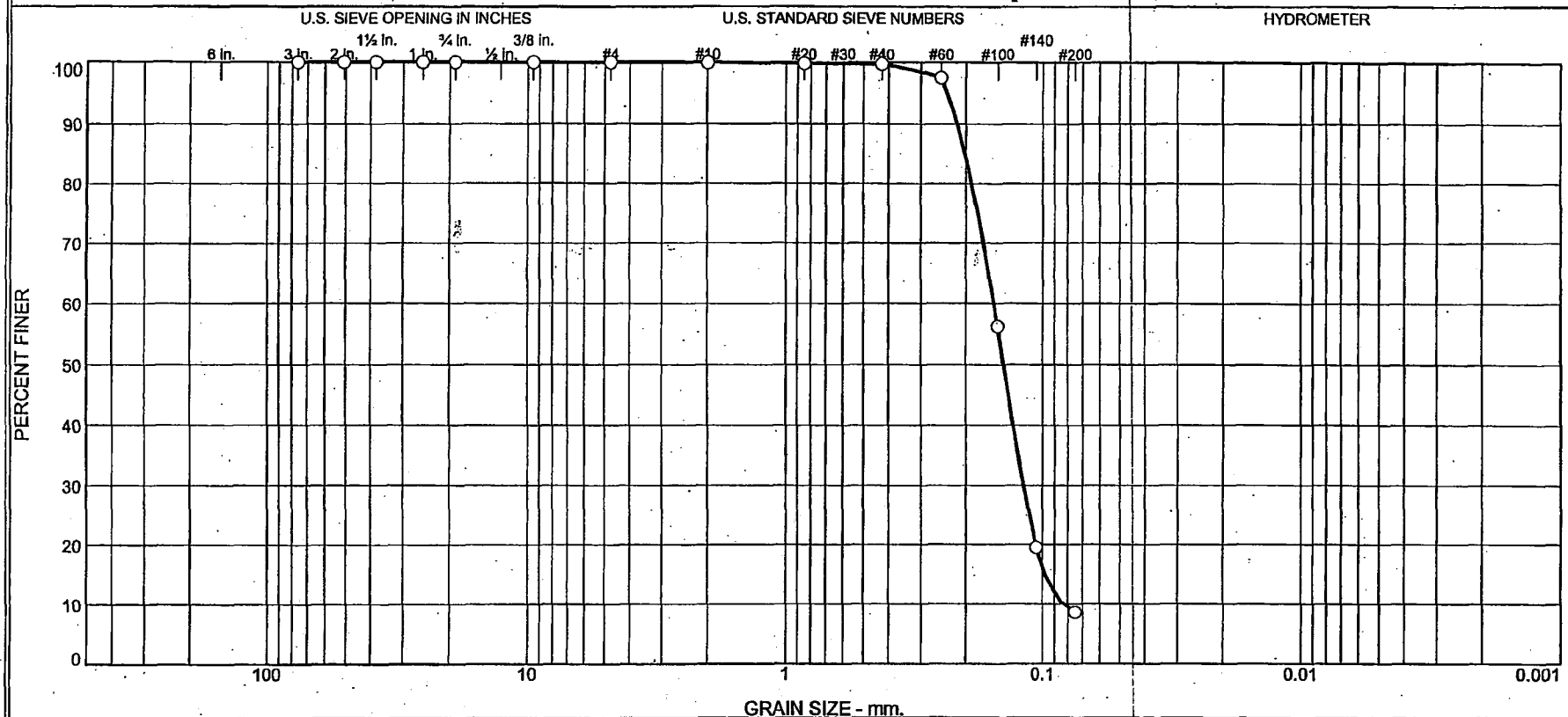
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	75.0	75.2			24.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0794	0.0986	0.1095	0.1364	0.1459	0.1588	0.1804

Fineness Modulus
0.14

MK 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.1	0.2	91.1	8.6	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 421	STP-142 (SS-15)	43.5'-45.0'	11/27/2006	SP-SM	Poorly Graded Sand with Silt	22.8		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1

MH
4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/25/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 421
Depth: 43.5'-45.0'
Sample Number: STP-142 (SS-15)
Material Description: Poorly Graded Sand with Silt
Date: 11/27/2006
Natural Moisture: 22.8
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 64.80
Tare Wt. = 0.00
Minus #200 from wash = 8.6%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
249.20	178.30	0.00	3	0.00	100.0			
			2	0.00	100.0			
			1.5	0.00	100.0			
			1	0.00	100.0			
			3/4	0.00	100.0			
			3/8	0.00	100.0			
			#4	0.00	100.0			
			#10	0.04	99.9			
			#20	0.13	99.8			
			#40	0.19	99.7			
			#60	1.75	97.5			
			#100	31.06	56.2			
			#140	57.08	19.5			
			#200	64.80	8.6			

Fractional Components

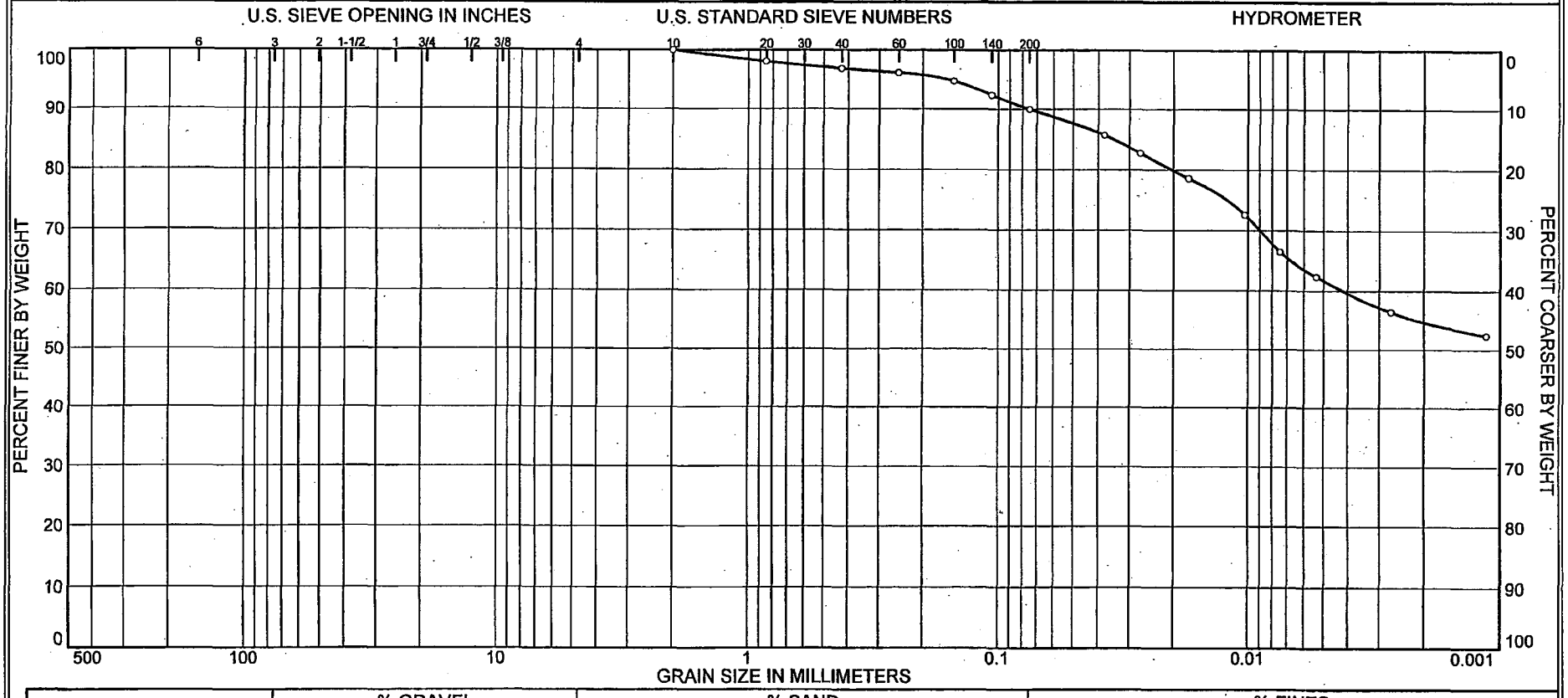
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.2	91.1	91.4			8.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0832	0.0982	0.1067	0.1193	0.1422	0.1551	0.1896	0.2016	0.2162	0.2358

Fineness Modulus	C_u	C_c
0.46	1.86	1.10

MAA 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	3.1	6.9	28.3	61.7

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-421	UD-2	53' to 55'	2-19-07	CH	Fat clay	28.1	63	21

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-421
Sample No.: UD-2
Elev. or Depth: 53' to 55' **Sample Length(in./cm.):**
Location: B-421
Description: Fat clay
Date: 2-19-07 **Natural Moisture:** 28.1
Liquid Limit: 63 **Plastic Limit:** 21 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	74.42
Tare =	0.00
Dry sample weight =	74.42

Sample split on number 10 sieve
Split sample data:
Sample and tare = 48.45 **Tare =** .00 **Sample weight =** 48.45
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.90	98.1
# 40	1.51	96.9
# 60	1.83	96.2
# 100	2.51	94.8
# 140	3.68	92.4
# 200	4.86	90.0

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 49.85
Hygroscopic moisture correction:
Moist weight & tare = 37.73
Dry weight & tare = 36.97
Tare = 11.08
Hygroscopic moisture= 2.9 %
Calculated biased weight= 48.43
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1.0
Specific gravity of solids= 2.737
Specific gravity correction factor= 0.981

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

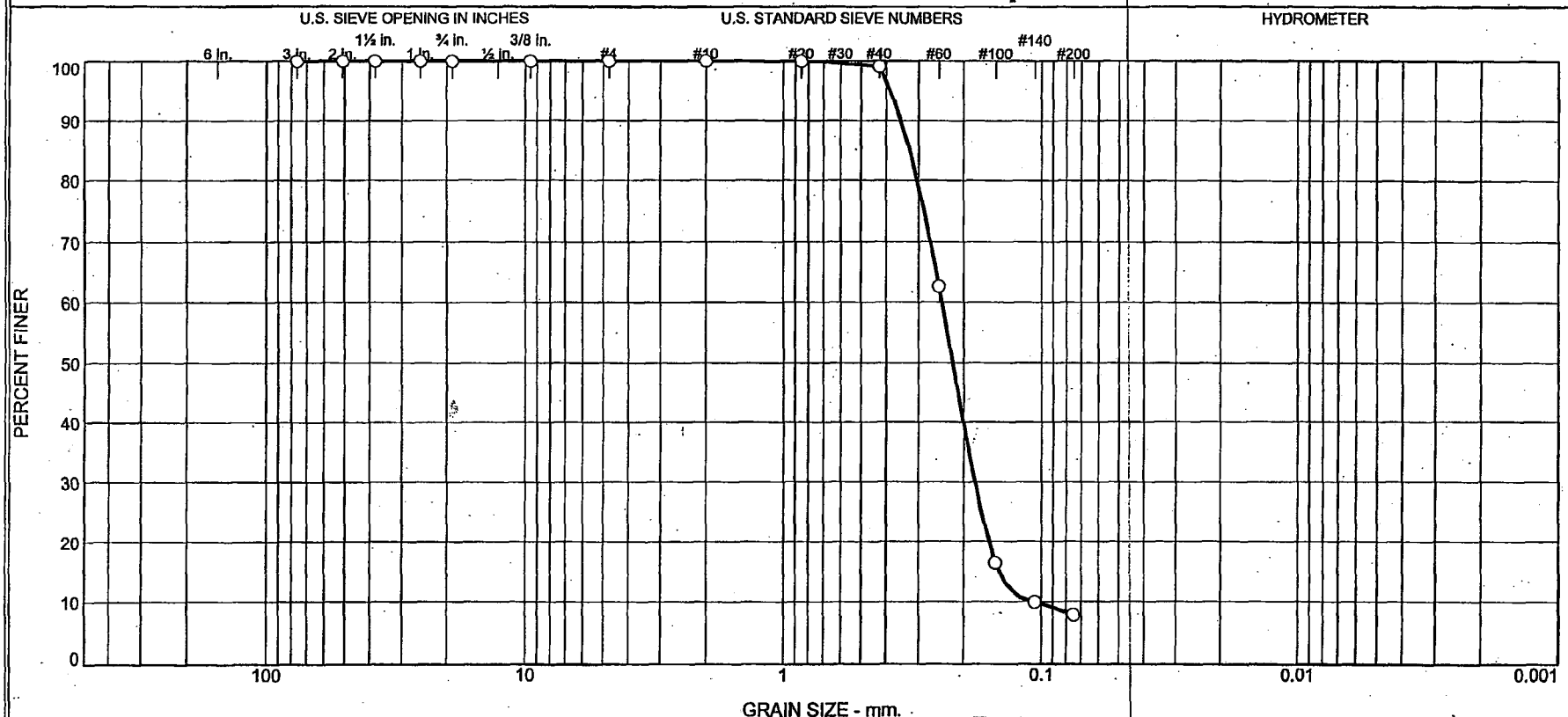
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.00	23.1	45.5	42.3	0.0128	46.5	8.7	0.0377	85.7
2.00	23.1	44.0	40.8	0.0128	45.0	8.9	0.0270	82.7
5.00	23.1	42.0	38.8	0.0128	43.0	9.2	0.0174	78.6
15.00	23.1	39.0	35.8	0.0128	40.0	9.7	0.0103	72.6
30.00	23.1	36.0	32.8	0.0128	37.0	10.2	0.0075	66.5
60.00	23.1	34.0	30.8	0.0128	35.0	10.6	0.0054	62.4
250.00	23.1	31.0	27.8	0.0128	32.0	11.0	0.0027	56.4
1440.00	23.4	29.0	25.9	0.0128	30.0	11.4	0.0011	52.4

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 10.0 **(% coarse =** **% medium** = 3.1 **% fine** = 6.9)
% SILT = 28.3 **% CLAY** = 61.7

D_{85}= 0.03 D_{60}= 0.00

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.9	91.3	7.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring 421	STP-146 (SS-20)	73.5'-75.0'	11/28/2006	SP-SM	Poorly Graded Sand with Silt	20.3		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC

○ Tested By:TH Reviewed By:ST
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/25/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 421
Depth: 73.5'-75.0'
Sample Number: STP-146 (SS-20)
Material Description: Poorly Graded Sand with Silt
Date: 11/28/2006
Natural Moisture: 20.3
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 74.01
Tare Wt. = 0.00
Minus #200 from wash = 7.8%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
257.80	177.50	0.00	3	0.00	100.0			
			2	0.00	100.0			
			1.5	0.00	100.0			
			1	0.00	100.0			
			3/4	0.00	100.0			
			3/8	0.00	100.0			
			#4	0.00	100.0			
			#10	0.00	100.0			
			#20	0.05	99.9			
			#40	0.75	99.1			
			#60	29.98	62.7			
			#100	67.07	16.5			
			#140	72.31	10.0			
			#200	74.01	7.8			

Fractional Components

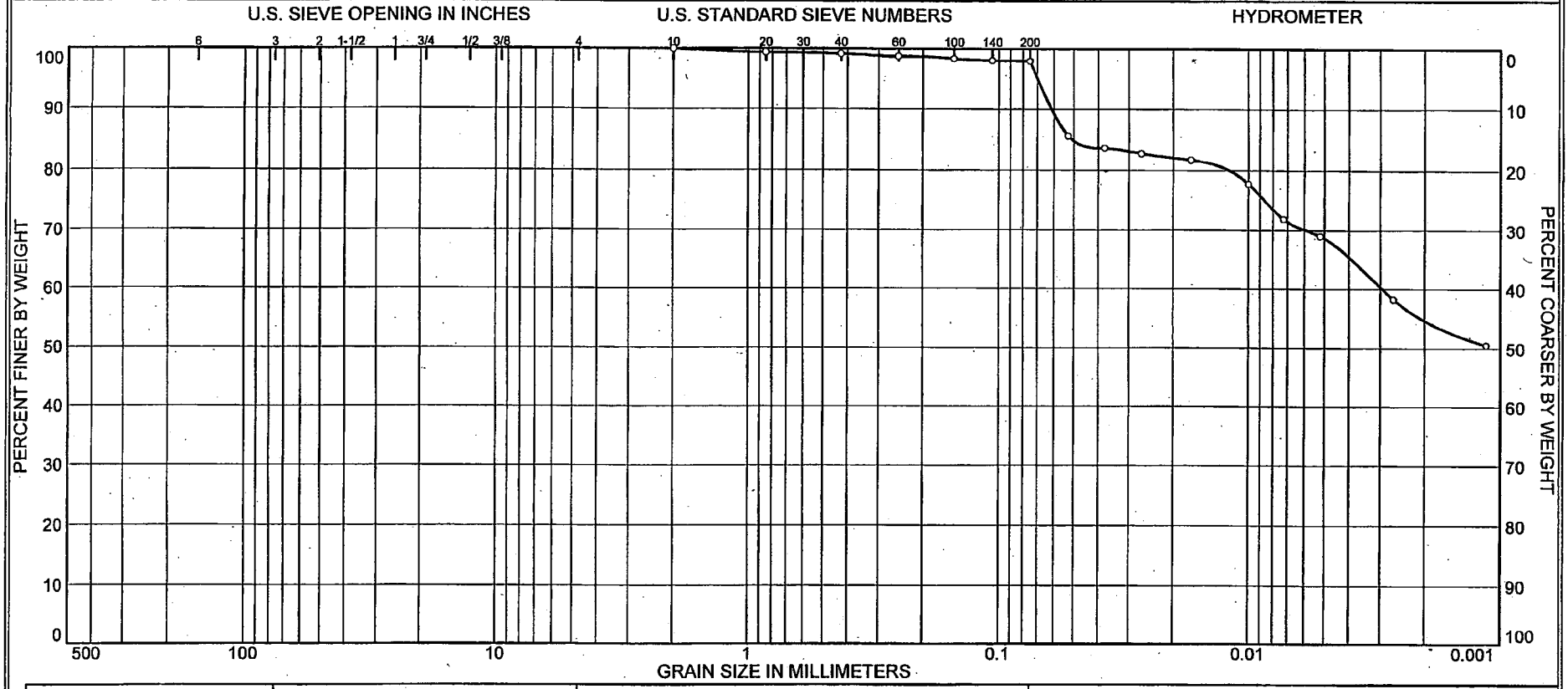
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.9	91.3	92.2			7.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1072	0.1453	0.1593	0.1808	0.2209	0.2434	0.3038	0.3250	0.3507	0.3845

Fineness Modulus	C_u	C_c
1.05	2.27	1.25

MK 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	0.8	1.2	29.4	68.6

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-421	UD-3	83' to 85'	2-20-07	CH	Fat clay	21.3	56	20

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: SS KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-421
Sample No.: UD-3
Elev. or Depth: 83' to 85' **Sample Length(in./cm.):**
Location: B-421
Description: Fat clay
Date: 2-20-07 **Natural Moisture:** 21.3
Liquid Limit: 56 **Plastic Limit:** 20 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	95.05
Tare =	0.00
Dry sample weight =	95.05

Sample split on number 10 sieve
Split sample data:
Sample and tare = 50.31 Tare = .00 Sample weight = 50.31
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.32	99.4
# 40	0.38	99.2
# 60	0.60	98.8
# 100	0.81	98.4
# 140	0.95	98.1
# 200	1.02	98.0

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 51.82
Hygroscopic moisture correction:
Moist weight & tare = 57.57
Dry weight & tare = 56.24
Tare = 11.62
Hygroscopic moisture= 3.0 %
Calculated biased weight= 50.32
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.729
Specific gravity correction factor= 0.983

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

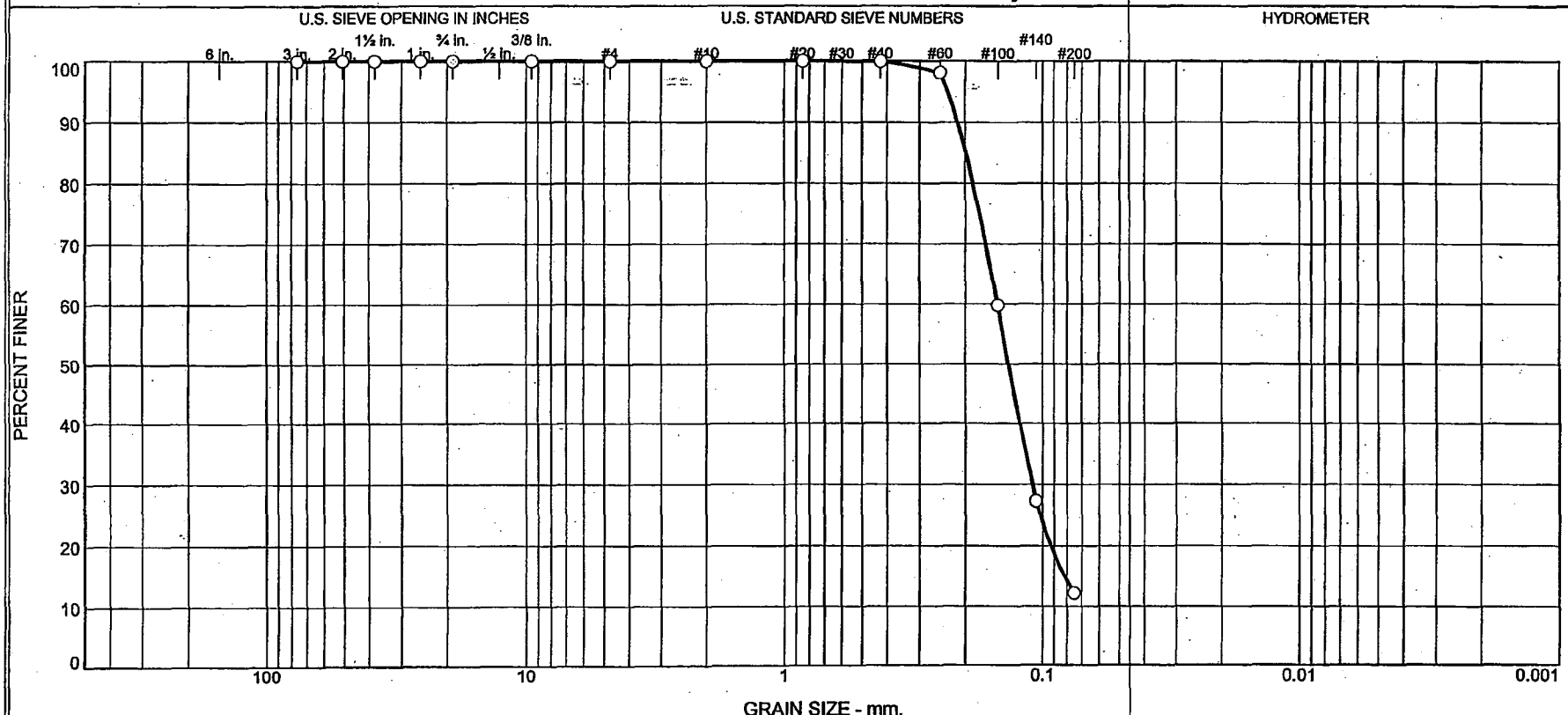
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
0.50	23.1	47.0	43.8	0.0128	48.0	8.4	0.0527	85.6
1.00	23.1	46.0	42.8	0.0128	47.0	8.6	0.0376	83.6
2.00	23.1	45.5	42.3	0.0128	46.5	8.7	0.0267	82.7
5.00	23.1	45.0	41.8	0.0128	46.0	8.8	0.0170	81.7
15.00	23.1	43.0	39.8	0.0128	44.0	9.1	0.0100	77.8
30.00	23.1	40.0	36.8	0.0128	41.0	9.6	0.0072	71.9
60.00	23.1	38.5	35.3	0.0128	39.5	9.8	0.0052	69.0
250.00	23.1	33.0	29.8	0.0128	34.0	10.7	0.0027	58.3
1440.00	23.3	29.0	25.9	0.0128	30.0	11.4	0.0011	50.5

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 2.0 (**% coarse =** **% medium** = 0.8 **% fine** = 1.2)
% SILT = 29.4 **% CLAY** = 68.6

D_{85}= 0.05 D_{60}= 0.00

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.1	87.6	12.3	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 421	STP-149 (SS-24)	98.5'-100'	11/29/2006	SM	Silty Sand	19.3		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed BY:ST
ASTM D6913-04e1

MA
4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 421
Depth: 98.5'-100'
Sample Number: STP-149 (SS-24)
Material Description: Silty Sand
Date: 11/29/2006
Natural Moisture: 19.3
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed BY:ST
ASTM D6913-04e1
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 89.24
Tare Wt. = 0.00
Minus #200 from wash = 12.3%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
274.50	172.80	0.00	3	0.00	100.0			
			2	0.00	100.0			
			1.5	0.00	100.0			
			1	0.00	100.0			
			3/4	0.00	100.0			
			3/8	0.00	100.0			
			#4	0.00	100.0			
			#10	0.00	100.0			
			#20	0.02	100.0			
			#40	0.06	99.9			
			#60	1.92	98.1			
			#100	40.92	59.8			
			#140	73.92	27.3			
			#200	89.24	12.3			

Fractional Components

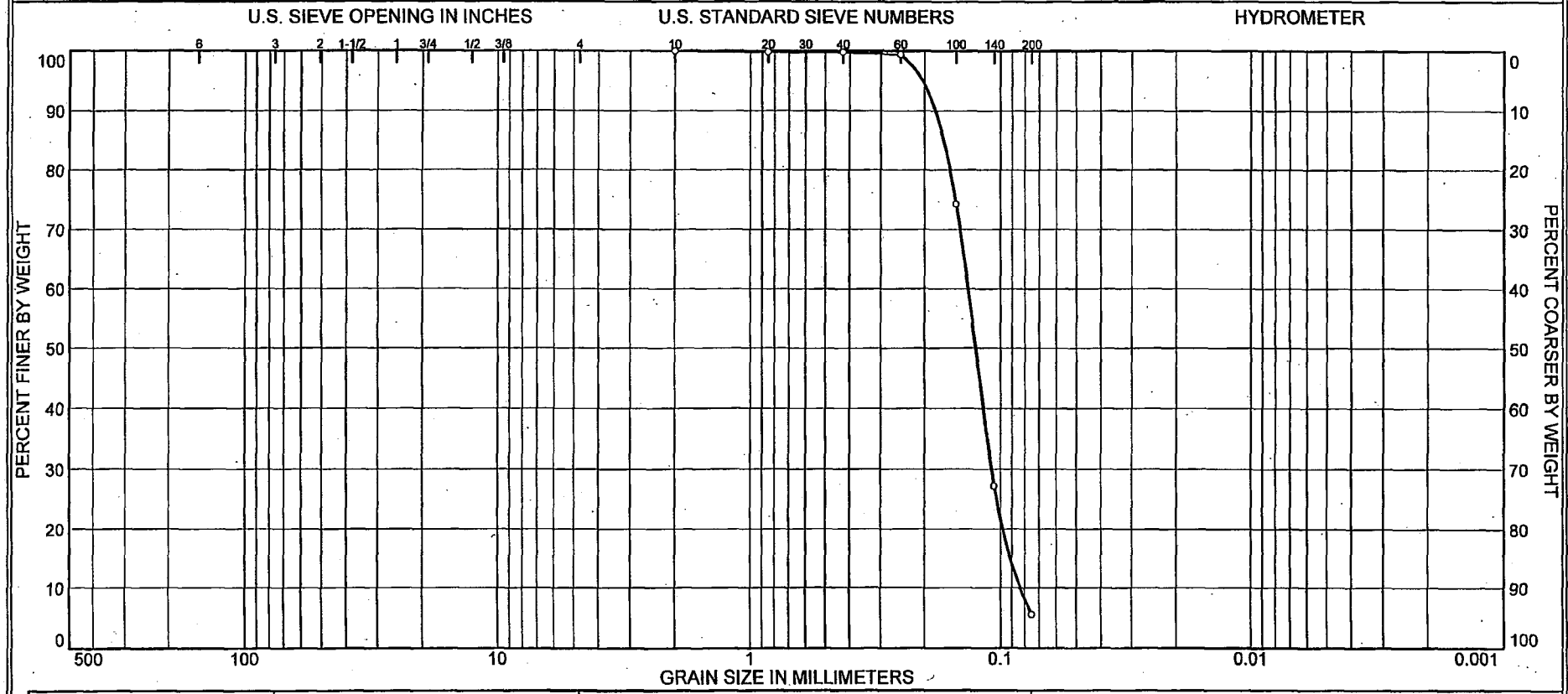
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	87.6	87.7			12.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0819	0.0932	0.1099	0.1363	0.1504	0.1864	0.1986	0.2133	0.2326

Fineness Modulus
0.41

NK 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	0.2	94.3	5.5	

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-421	UD-1A	33.5' to 35.5'	2-14-07	SP-SM	Poorly graded sand with silt	23.0		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: SS
ASTM D6313-04e1

SS 2/25/2007

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-421
Sample No.: UD-1A
Elev. or Depth: 33.5' to 35.5' **Sample Length(in./cm.):**
Location: B-421
Description: Poorly graded sand with silt
Date: 2-14-07 **Natural Moisture:** 23.0
Liquid Limit: **Plastic Limit:** **USCS Class.:** SP-SM
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D6313-04e1

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	179.83	0.00
Tare =	101.97	0.00
Dry sample weight =	77.86	0.00

Minus #200 from wash= 100.0 %
Tare for cumulative weight retained= .00

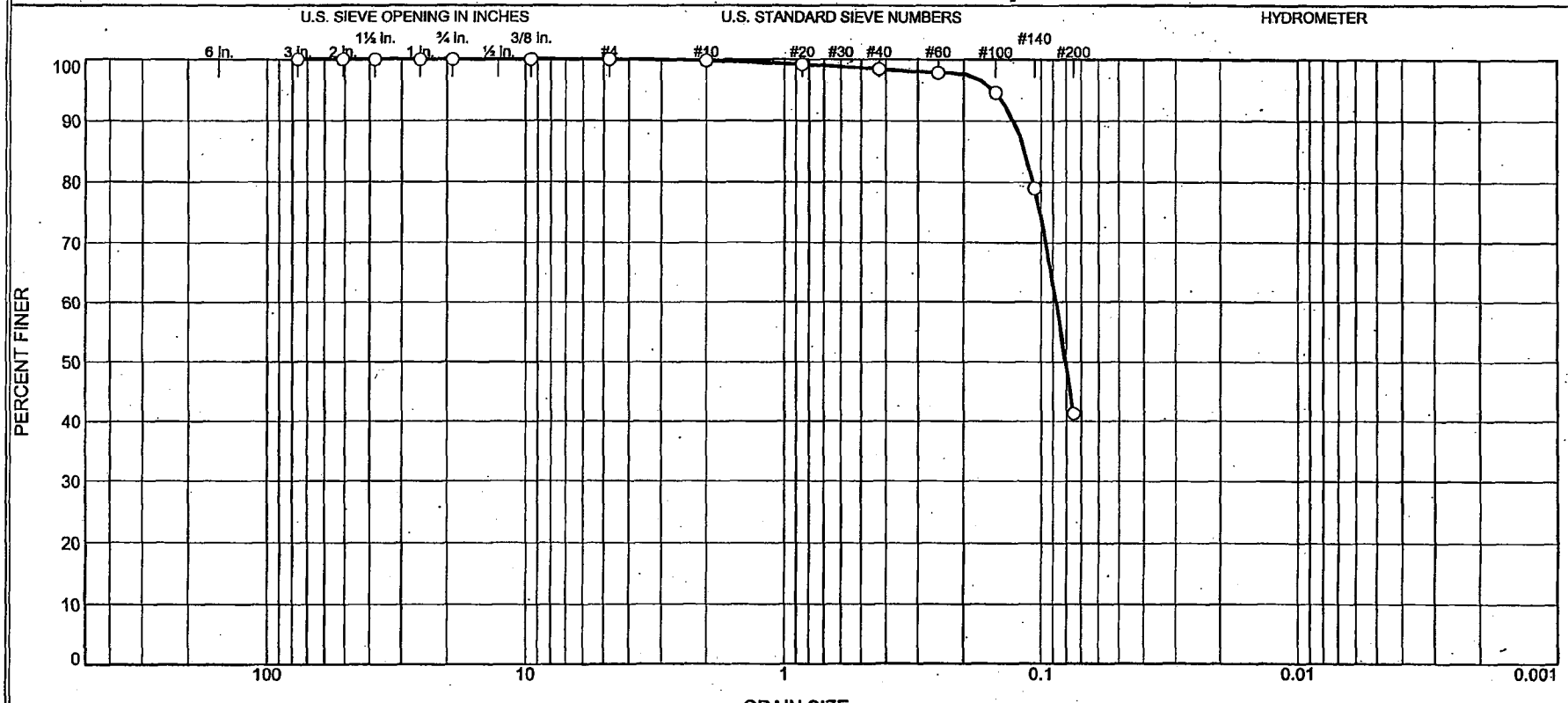
Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
20	0.13	99.8
40	0.13	99.8
# 60	0.45	99.4
# 100	20.05	74.2
# 140	56.71	27.2
# 200	73.55	5.5

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 94.5 **(% coarse =** **% medium** = 0.2 **% fine** = 94.3**)**
% FINES = 5.5

D_{85}= 0.17 D_{60}= 0.13 D_{50}= 0.13
D_{30}= 0.11 D_{15}= 0.09 D_{10}= 0.08
C_c= 1.0483 C_u= 1.6097

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.2	1.4	57.1	41.3	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 422	STP-302	23.5'-25.0'	12/04/2006	SC	Clayey Sand	27.0		
		(SS-14)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

NM 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

3/19/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 422
Depth: 23.5'-25.0'
Sample Number: STP-302 (SS-14)
Material Description: Clayey Sand
Date: 12/04/2006
Natural Moisture: 27.0
USCS Class.: SC
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Results

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
258.90	175.90	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			.75	0.00	100.0
			.375	0.00	100.0
			#4	0.00	100.0
			#10	0.16	99.8
			#20	0.69	99.2
			#40	1.31	98.4
			#60	1.76	97.9
			#100	4.46	94.6
			#140	17.43	79.0
			#200	48.74	41.3

Fractional Components

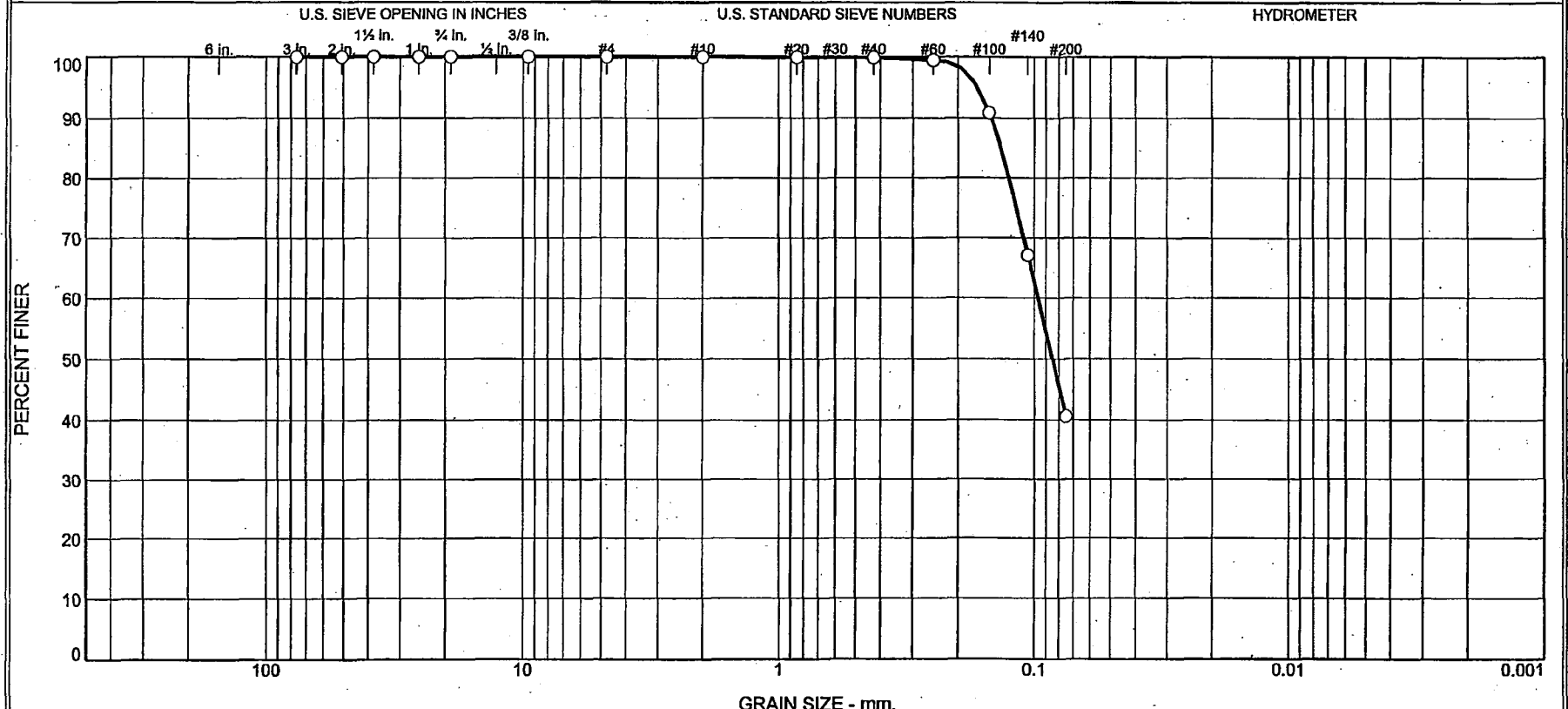
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.2	1.4	57.1	58.7			41.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0805	0.0876	0.1074	0.1156	0.1280	0.1529

Fineness Modulus
0.09

NW 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.1	59.3	40.6	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 427	STP-167 (SS-12)	23.5'-25.0'	11/29/2006	SM	Silty Sand	23.8		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

MAF 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 427
Depth: 23.5'-25.0'
Sample Number: STP-167 (SS-12)
Material Description: Silty Sand
Date: 11/29/2006
Natural Moisture: 23.8
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 49.08
Tare Wt. = 0.00
Minus #200 from wash = 40.6%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
259.70	177.10	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.06	99.9
			#40	0.12	99.9
			#60	0.44	99.5
			#100	7.54	90.9
			#140	27.18	67.1
			#200	49.08	40.6

Fractional Components

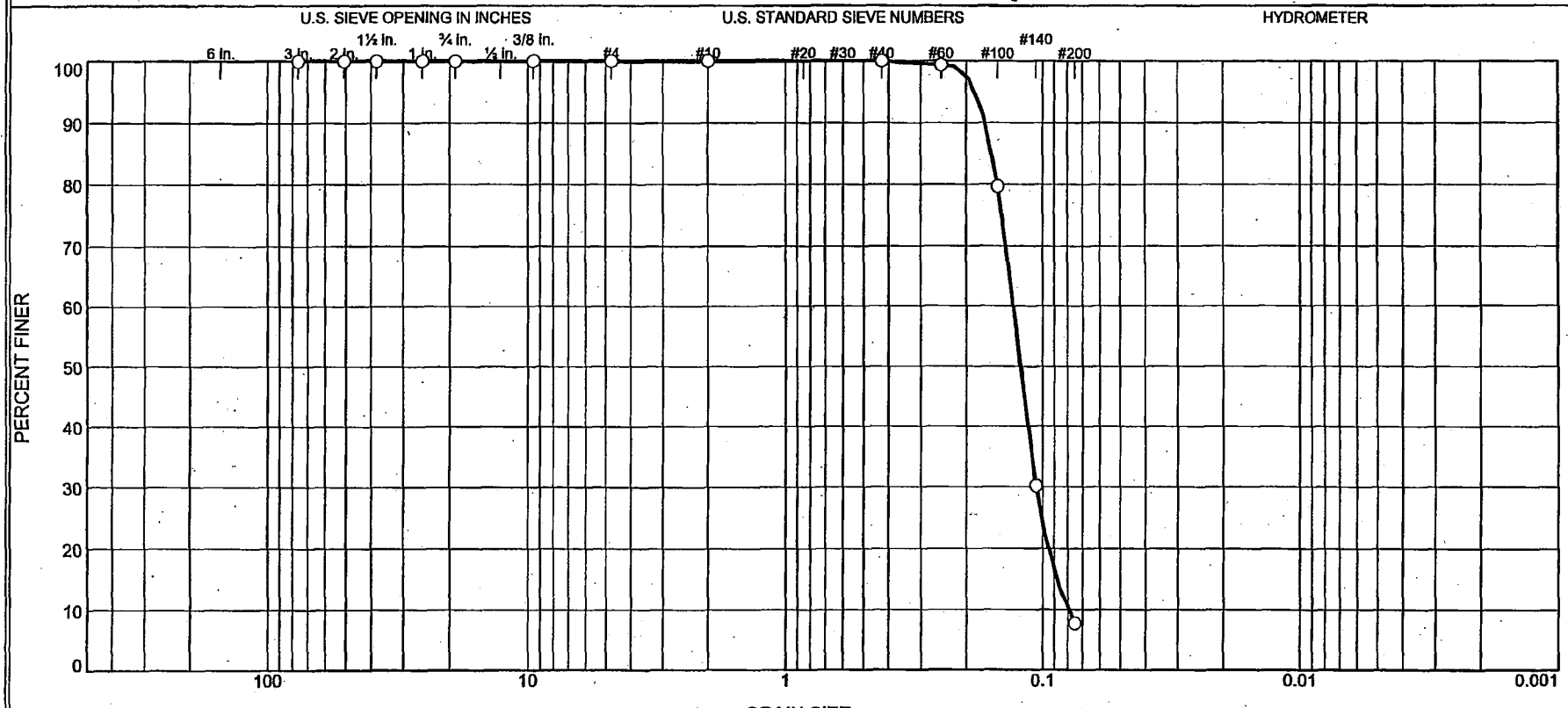
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	59.3	59.4			40.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0849	0.0967	0.1256	0.1352	0.1474	0.1668

Fineness Modulus
0.10

MM 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.0	92.2	7.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring 427	STP-168	33.5'-35.0'	11/29/2006	SP-SM	Poorly Graded Sand with Silt	24.6		
		(SS-14)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

○ Tested By:TH Reviewed By:RF
ASTM D6913-04e1

4-3-07

KAW 4/13/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 427
Depth: 33.5'-35.0'
Sample Number: STP-168 (SS-14)
Material Description: Poorly Graded Sand with Silt
Date: 11/29/2006
Natural Moisture: 24.6
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 71.02
Tare Wt. = 0.00
Minus #200 from wash = 7.8%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
253.50	176.50	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#40	0.00	100.0
			#60	0.51	99.3
			#100	15.67	79.6
			#140	53.73	30.2
			#200	71.02	7.8

Fractional Components

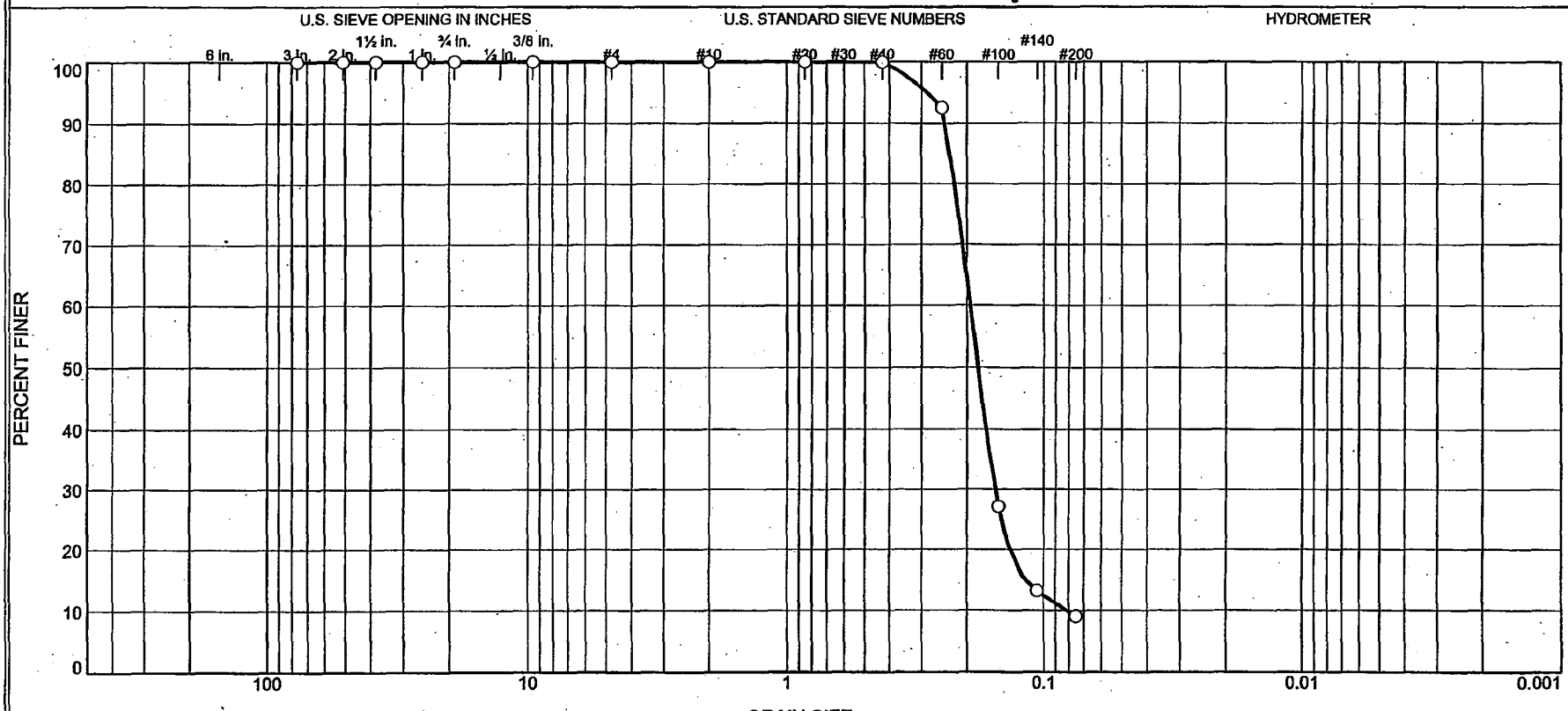
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	92.2	92.2			7.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0793	0.0882	0.0952	0.1058	0.1221	0.1302	0.1505	0.1579	0.1679	0.1838

Fineness Modulus	C_u	C_c
0.21	1.64	1.08

MAT 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.1	90.8	9.1	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 427	STP-171	68.5'-70.0'	12/1/2006	SP-SM	Poorly Graded Sand with Silt	20.3		
		(SS-21)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF

ASTM D6913-04e1

NM 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 427
Depth: 68.5'-70.0'
Sample Number: STP-171 (SS-21)
Material Description: Poorly Graded Sand with Silt
Date: 12/1/2006
Natural Moisture: 20.3
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Analysis

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 72.03
Tare Wt. = 0.00
Minus #200 from wash = 9.1%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
256.40	177.20	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.01	100.0
			#40	0.06	99.9
			#60	5.92	92.5
			#100	57.75	27.1
			#140	68.70	13.3
			#200	72.03	9.1

Fractional Components

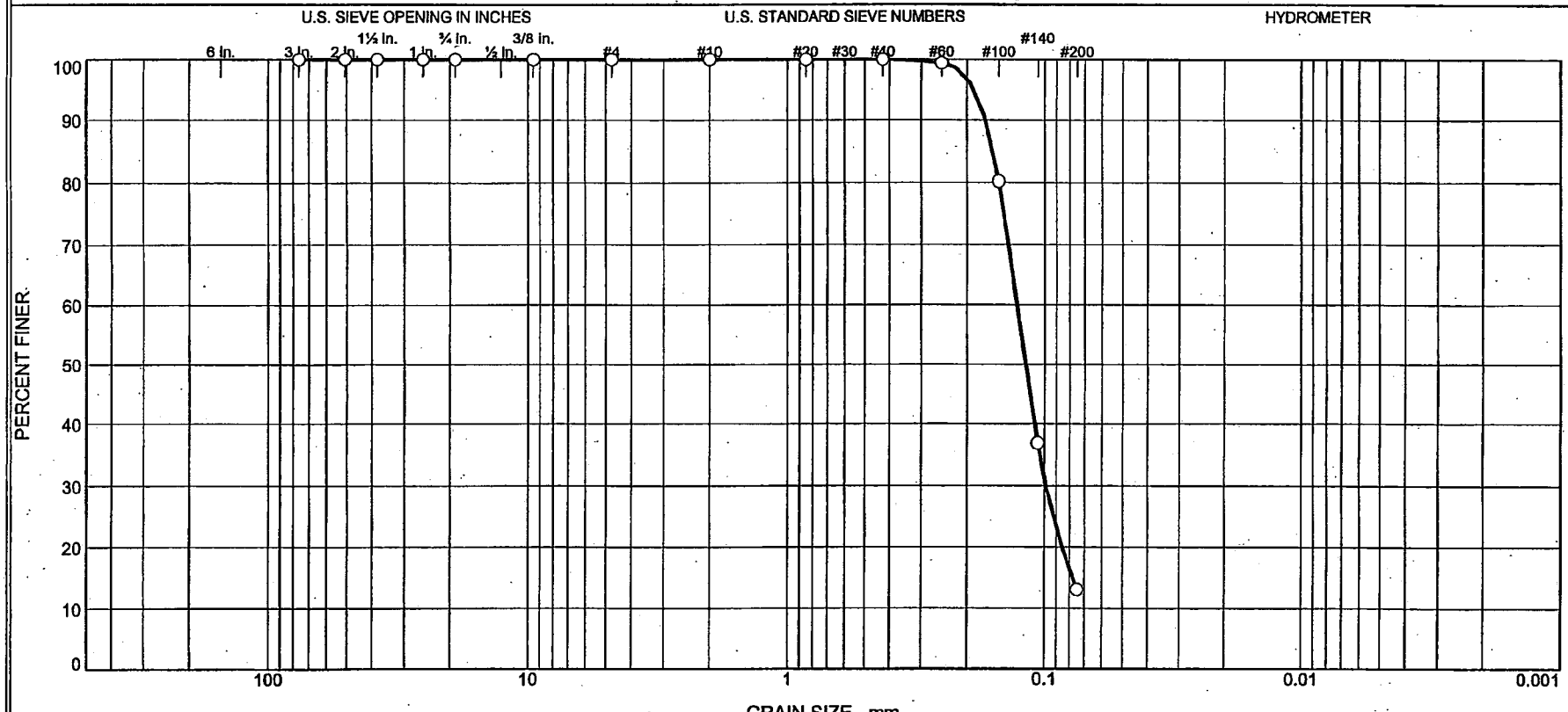
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	90.8	90.9			9.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0813	0.1181	0.1359	0.1545	0.1808	0.1936	0.2232	0.2324	0.2434	0.2859

Fineness Modulus	C_u	C_c
0.77	2.38	1.52

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.1	86.8	13.1	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 427	STP-173	93.5'-95.0'	12/1/2006	SM	Silty Sand	21.5		
		(SS-26)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

MA 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 427
Depth: 93.5'-95.0'
Sample Number: STP-173 (SS-26)
Material Description: Silty Sand
Date: 12/1/2006
Natural Moisture: 21.5
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 73.97
Tare Wt. = 0.00
Minus #200 from wash = 13.1%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
261.90	176.80	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.02	100.0
			#20	0.04	100.0
			#40	0.05	99.9
			#60	0.55	99.4
			#100	16.85	80.2
			#140	53.68	36.9
			#200	73.97	13.1

Fractional Components

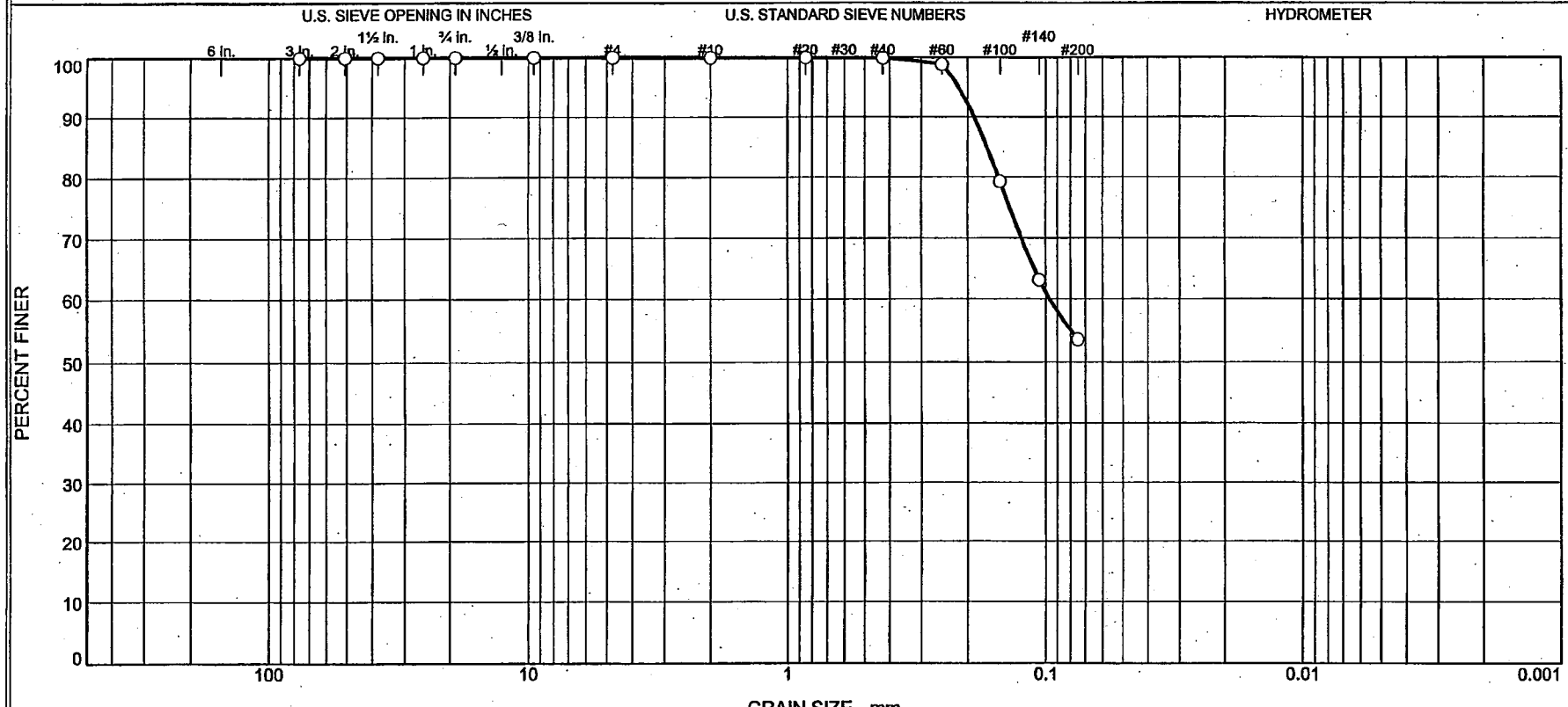
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	86.8	86.9			13.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0779	0.0856	0.0986	0.1181	0.1272	0.1497	0.1580	0.1694	0.1878

Fineness Modulus
0.20

MAT 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.1	46.4	53.5	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring 427	STP-178	148.5'-150'	12/1/2006	ML	Sandy Silt	22.3		
		(SS-32)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

○ Tested By:TH Reviewed By:RF
ASTM D6913-04e1

NM
4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 427
Depth: 148.5'-150'
Sample Number: STP-178 (SS-32)
Material Description: Sandy Silt
Date: 12/1/2006
Natural Moisture: 22.3
USCS Class.: ML
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 46.67
Tare Wt. = 0.00
Minus #200 from wash = 53.5%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
276.90	176.60	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.03	100.0
			#40	0.09	99.9
			#60	1.13	98.9
			#100	20.78	79.3
			#140	37.08	63.0
			#200	46.67	53.5

Fractional Components

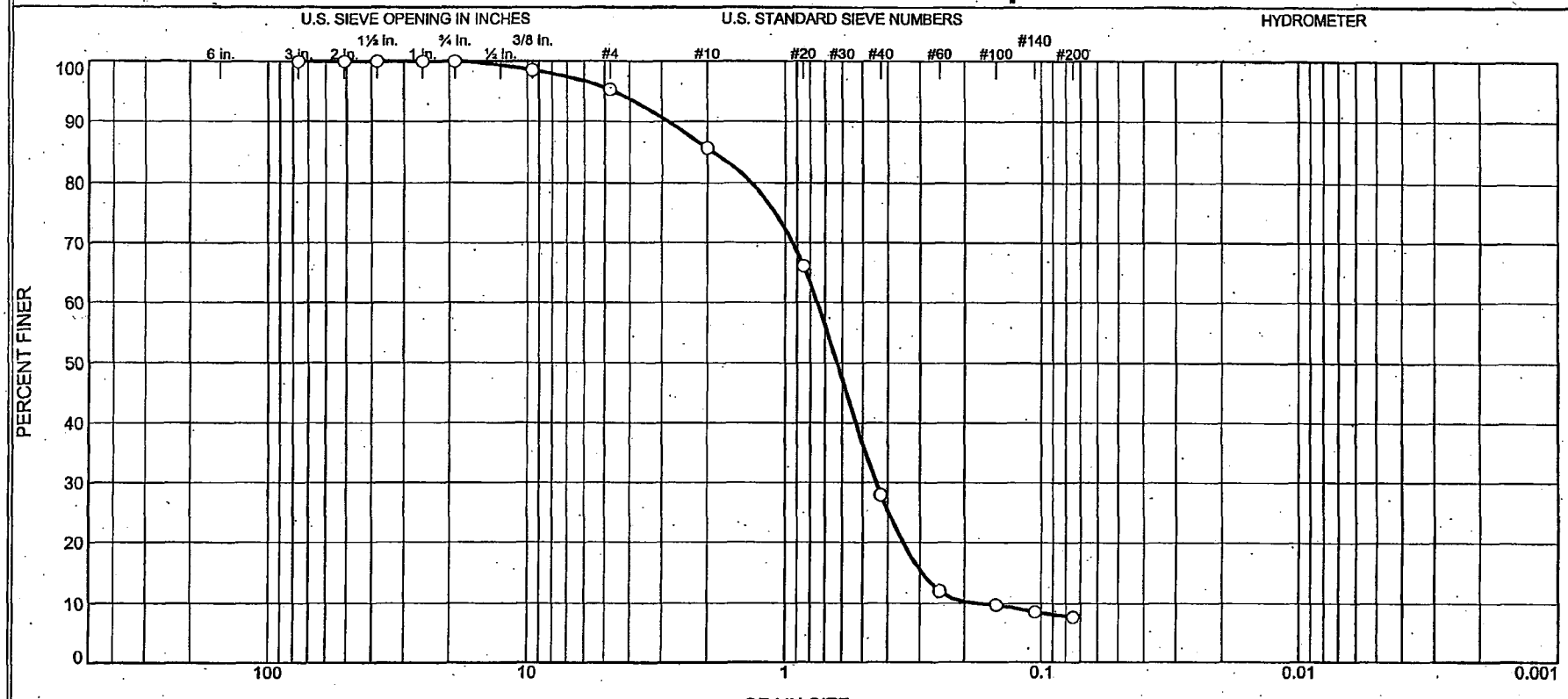
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	46.4	46.5			53.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0970	0.1522	0.1687	0.1887	0.2156

Fineness Modulus
0.21

MK 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	4.8	9.6	57.7	20.2	7.7	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 428-DH	STP-303 (SS-23)	108.5'-110'	11/20/2006	SP-SM	Poorly Graded Sand with Silt	13.5		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Teeted By:TH Reviewed By:RF
ASTM D6913-04e1

NM 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

3/19/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 428-DH
Depth: 108.5'-110'
Sample Number: STP-303 (SS-23)
Material Description: Poorly Graded Sand with Silt
Date: 11/20/2006
Natural Moisture: 13.5
USCS Class.: SP-SM
Testing Remarks: Teeted By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
332.50	174.20	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			.75	0.00	100.0
			.375	2.34	98.5
			#4	7.52	95.2
			#10	22.72	85.6
			#20	53.79	66.0
			#40	114.17	27.9
			#60	139.28	12.0
			#100	142.89	9.7
			#140	144.77	8.5
			#200	146.18	7.7

Fractional Components

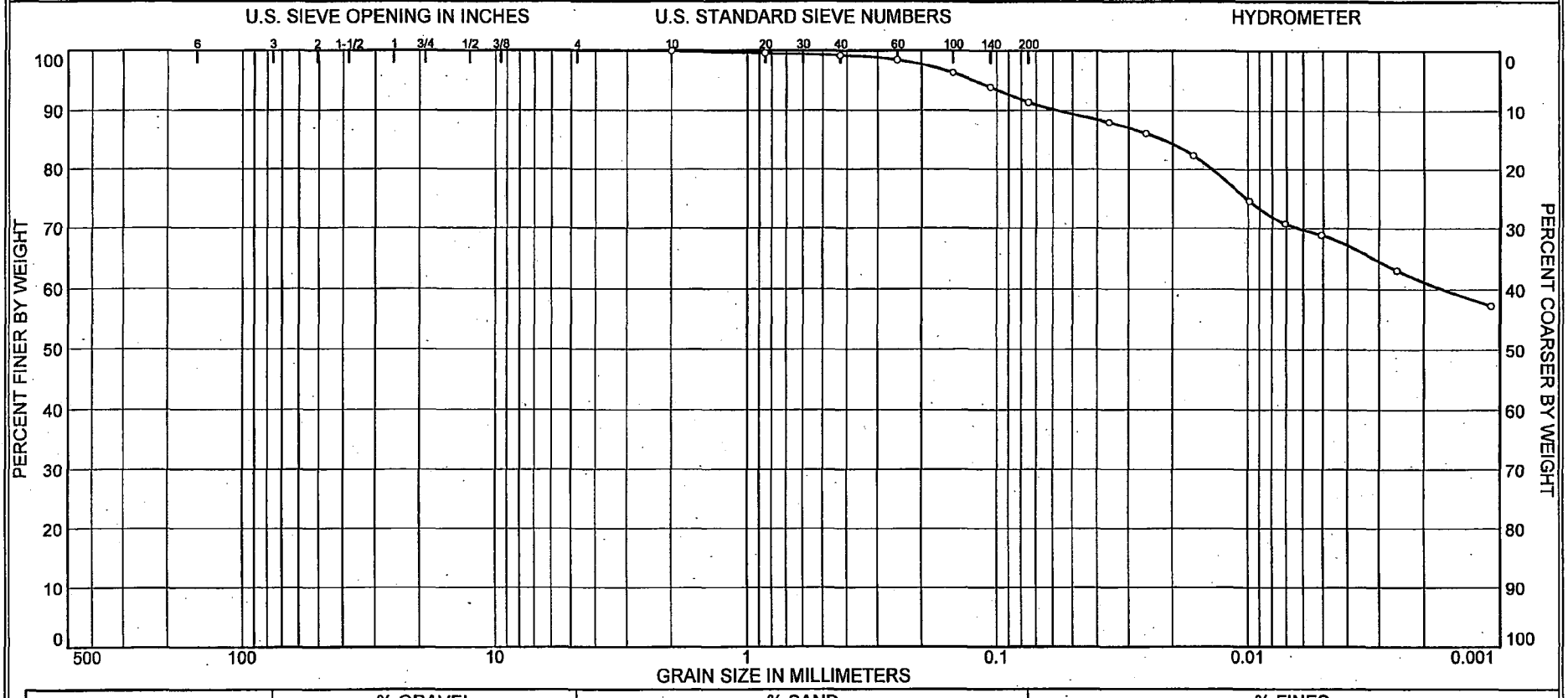
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	4.8	4.8	9.6	57.7	20.2	87.5			7.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1796	0.2947	0.3507	0.4438	0.6304	0.7524	1.3492	1.8975	2.8457	4.6030

Fineness Modulus	C_u	C_c
2.69	4.19	1.46

MAA 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	0.8	7.8	22.6	68.8

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-428-DH	UD-6	113' to 115'	3-16-07	CH	Fat clay	27.3	62	21

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: MH KAW 4/3/07

ASTM D422-63 (2002)e1

ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-428-DH
Sample No.: UD-6
Elev. or Depth: 113' to 115' **Sample Length(in./cm.):**
Location: B-428-DH
Description: Fat clay
Date: 3-16-07 **Natural Moisture:** 27.3
Liquid Limit: 62 **Plastic Limit:** 21 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	76.72
Tare =	0.00
Dry sample weight =	76.72

Sample split on number 10 sieve
Split sample data:
Sample and tare = 50.41 Tare = .00 Sample weight = 50.41
Cumulative weight retained tare= .00
a for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.19	99.6
# 40	0.39	99.2
# 60	0.75	98.5
# 100	1.89	96.3
# 140	3.10	93.9
# 200	4.35	91.4

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 52.78
Hygroscopic moisture correction:
Moist weight & tare = 21.58
Dry weight & tare = 21.10
Tare = 10.88
Hygroscopic moisture= 4.7 %
Calculated biased weight= 50.41
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.796
Specific gravity correction factor= 0.969

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

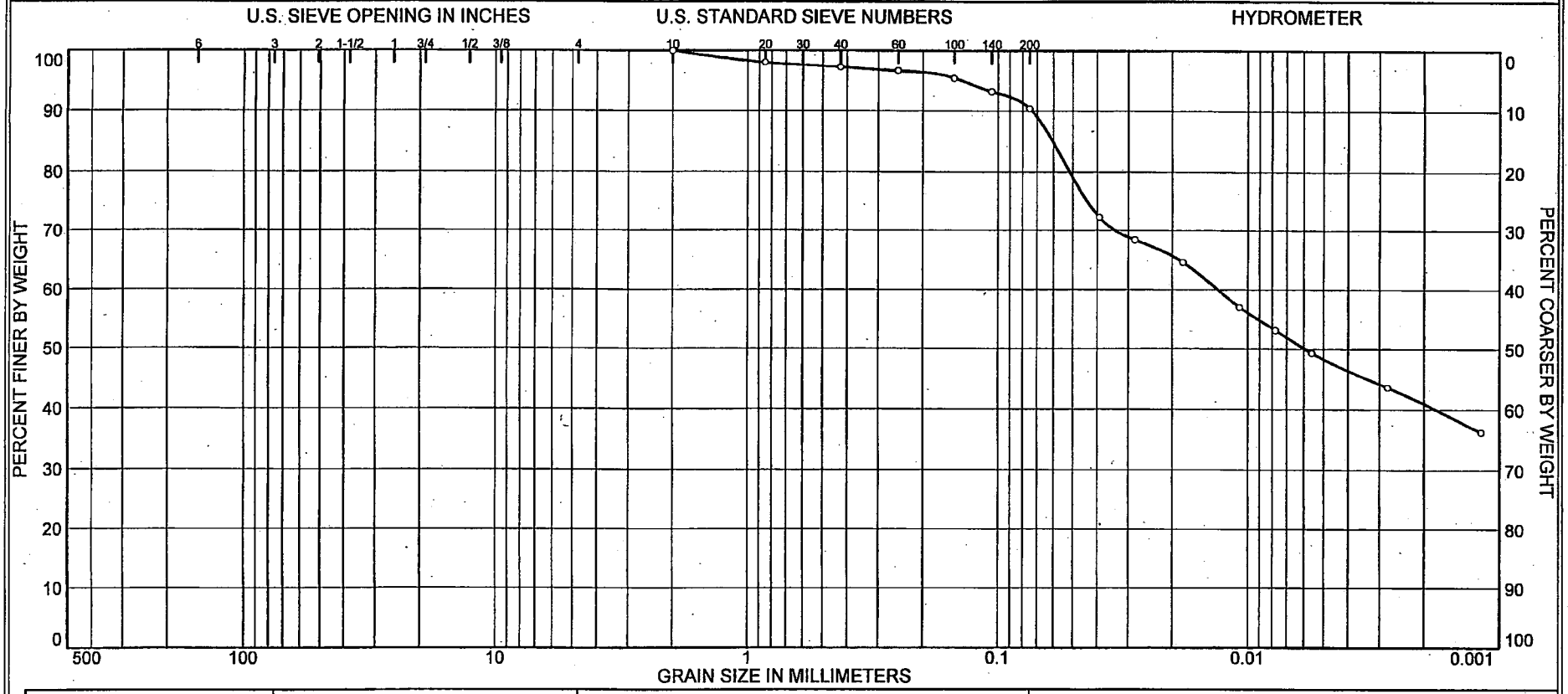
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.00	23.0	49.0	45.8	0.0126	50.0	8.1	0.0359	88.0
2.00	23.0	48.0	44.8	0.0126	49.0	8.3	0.0256	86.1
5.00	23.0	46.0	42.8	0.0126	47.0	8.6	0.0165	82.3
15.00	23.1	42.0	38.8	0.0126	43.0	9.2	0.0099	74.6
30.00	23.1	40.0	36.8	0.0126	41.0	9.6	0.0071	70.8
60.00	23.2	39.0	35.8	0.0126	40.0	9.7	0.0051	68.9
250.00	23.1	36.0	32.8	0.0126	37.0	10.2	0.0025	63.1
1440.00	23.1	33.0	29.8	0.0126	34.0	10.7	0.0011	57.3

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 8.6 **(% coarse =** **% medium** = 0.8 **% fine** = 7.8)
% SILT = 22.6 **% CLAY** = 68.8

D_{85}= 0.02 D_{60}= 0.00

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	2.7	6.9	42.2	48.2

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-432	UD-1	3' to 5'	2-22-07	CH	Fat clay	20.7	65	23

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1 KAW 413107
ASTM D6913-04e1

KAW 413107

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-432
Sample No.: UD-1
Elev. or Depth: 3' to 5' **Sample Length(in./cm.):**
Location: B-432
Description: Fat clay
Date: 2-22-07 **Natural Moisture:** 20.7
Liquid Limit: 65 **Plastic Limit:** 23 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	83.90
Tare =	0.00
Dry sample weight =	83.90

Sample split on number 10 sieve
Split sample data:
Sample and tare = 51.31 Tare = .00 Sample weight = 51.31
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.98	98.1
# 40	1.41	97.3
# 60	1.68	96.7
# 100	2.31	95.5
# 140	3.48	93.2
# 200	4.93	90.4

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 53.16
Hygroscopic moisture correction:
Moist weight & tare = 44.65
Dry weight & tare = 43.48
Tare = 11.06
Hygroscopic moisture= 3.6 %
Calculated biased weight= 51.31
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.742
Specific gravity correction factor= 0.980

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

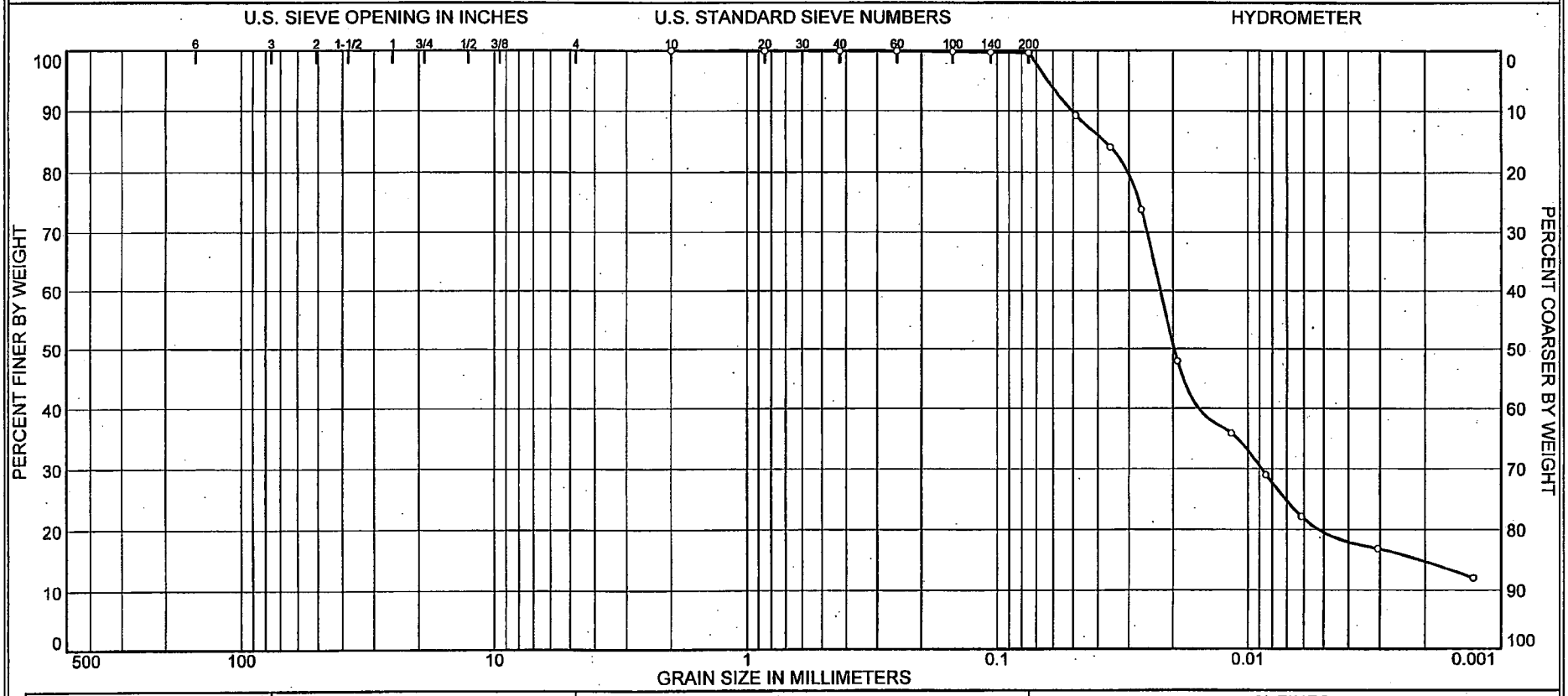
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.00	23.1	41.0	37.8	0.0128	42.0	9.4	0.0392	72.2
2.00	23.1	39.0	35.8	0.0128	40.0	9.7	0.0282	68.4
5.00	23.1	37.0	33.8	0.0128	38.0	10.1	0.0181	64.6
15.00	23.1	33.0	29.8	0.0128	34.0	10.7	0.0108	57.0
30.00	23.1	31.0	27.8	0.0128	32.0	11.0	0.0078	53.1
60.00	23.1	29.0	25.8	0.0128	30.0	11.4	0.0056	49.3
250.00	23.1	26.0	22.8	0.0128	27.0	11.9	0.0028	43.6
1440.00	23.9	22.0	19.0	0.0127	23.0	12.5	0.0012	36.3

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 9.6 **(% coarse =** **% medium =** 2.7 **% fine =** 6.9)
% SILT = 42.2 **% CLAY =** 48.2

D_{85}= 0.06 D_{60}= 0.01 D_{50}= 0.01

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	0.1	0.3	80.1	19.5

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-432	UD-2	15' to 17'	2-22-07	CL	Lean clay	23.2	31	20

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: MH KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-432
Sample No.: UD-2
Elev. or Depth: 15' to 17' **Sample Length(in./cm.):**
Location: B-432
Description: Lean clay
Date: 2-22-07 **Natural Moisture:** 23.2
Liquid Limit: 31 **Plastic Limit:** 20 **USCS Class.:** CL
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	99.21
Tare =	0.00
Dry sample weight =	99.21

Sample split on number 10 **sieve**
Split sample data:
Sample and tare = 57.42 **Tare =** .00 **Sample weight =** 57.42
Cumulative weight retained tare= .00
a for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.03	99.9
# 40	0.05	99.9
# 60	0.07	99.9
# 100	0.12	99.8
# 140	0.17	99.7
# 200	0.25	99.6

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 58.22
Hygroscopic moisture correction:
Moist weight & tare = 45.93
Dry weight & tare = 45.43
Tare = 10.84
Hygroscopic moisture= 1.4 %
Calculated biased weight= 57.39
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.701
Specific gravity correction factor= 0.989

Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

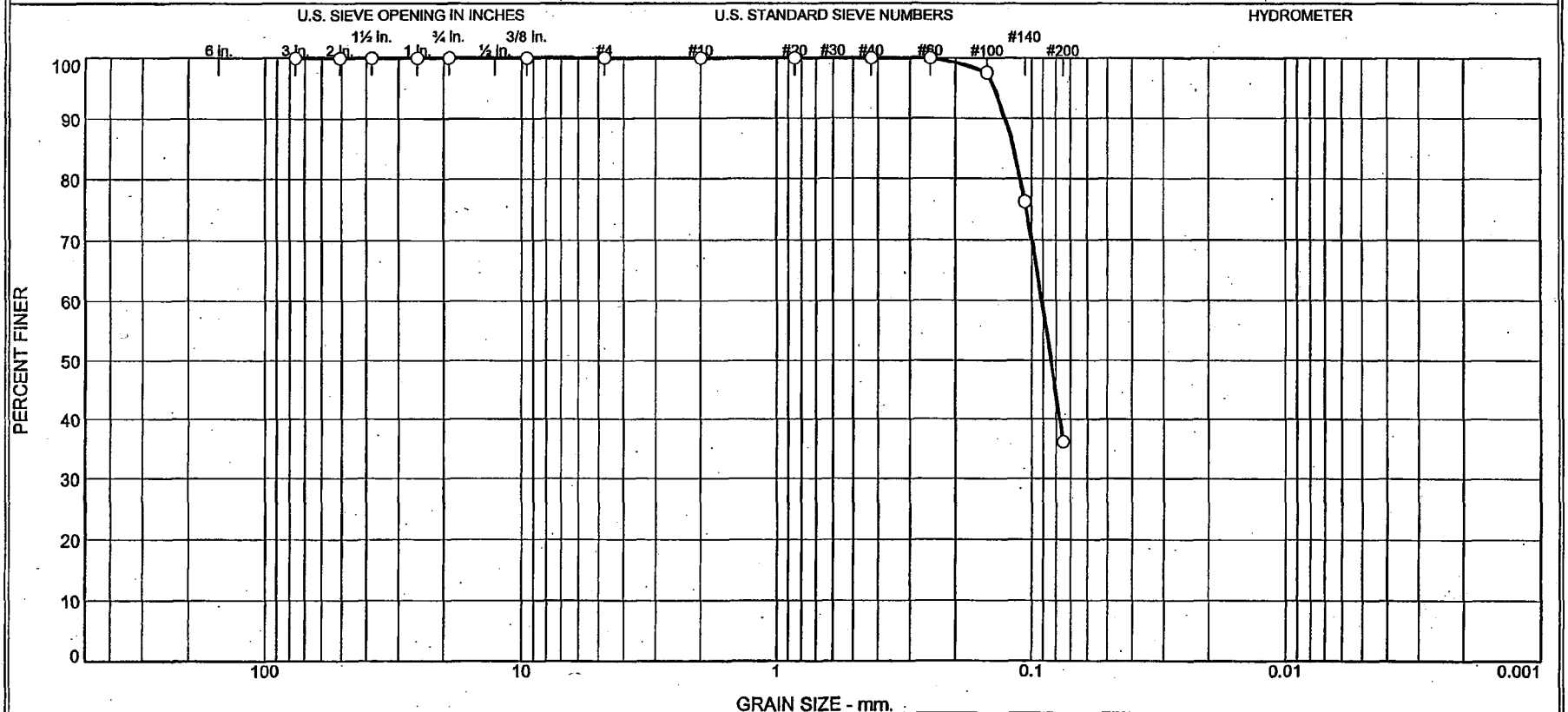
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
0.50	23.1	55.0	51.8	0.0129	56.0	7.1	0.0488	89.3
1.00	23.1	52.0	48.8	0.0129	53.0	7.6	0.0357	84.1
2.00	23.1	46.0	42.8	0.0129	47.0	8.6	0.0268	73.8
5.00	23.1	31.0	27.8	0.0129	32.0	11.0	0.0192	47.9
15.00	23.1	24.0	20.8	0.0129	25.0	12.2	0.0117	35.9
30.00	23.1	20.0	16.8	0.0129	21.0	12.9	0.0085	29.0
60.00	23.1	16.0	12.8	0.0129	17.0	13.5	0.0061	22.1
250.00	23.1	13.0	9.8	0.0129	14.0	14.0	0.0031	16.9
1440.00	23.9	10.0	7.0	0.0128	11.0	14.5	0.0013	12.0

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 0.4 (**% coarse =** **% medium** = 0.1 **% fine** = 0.3)
% SILT = 80.1 **% CLAY** = 19.5

D_{85}= 0.04 D_{60}= 0.02 D_{50}= 0.02
D_{30}= 0.01 D_{15}= 0.00

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.0	63.9	36.1	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 432	STP-083	23.5'-25.0'	11/8/2006	SM	Silty Sand	25.6		
		(SS-10)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 432
Depth: 23.5'-25.0'
Sample Number: STP-083 (SS-10)
Material Description: Silty Sand
Date: 11/8/2006
Natural Moisture: 25.6
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 58.87
Tare Wt. = 0.00
Minus #200 from wash = 36.1%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
265.00	172.90	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.00	100.0
			#40	0.00	100.0
			#60	0.02	100.0
			#100	2.23	97.6
			#140	21.88	76.2
			#200	58.87	36.1

Fractional Components

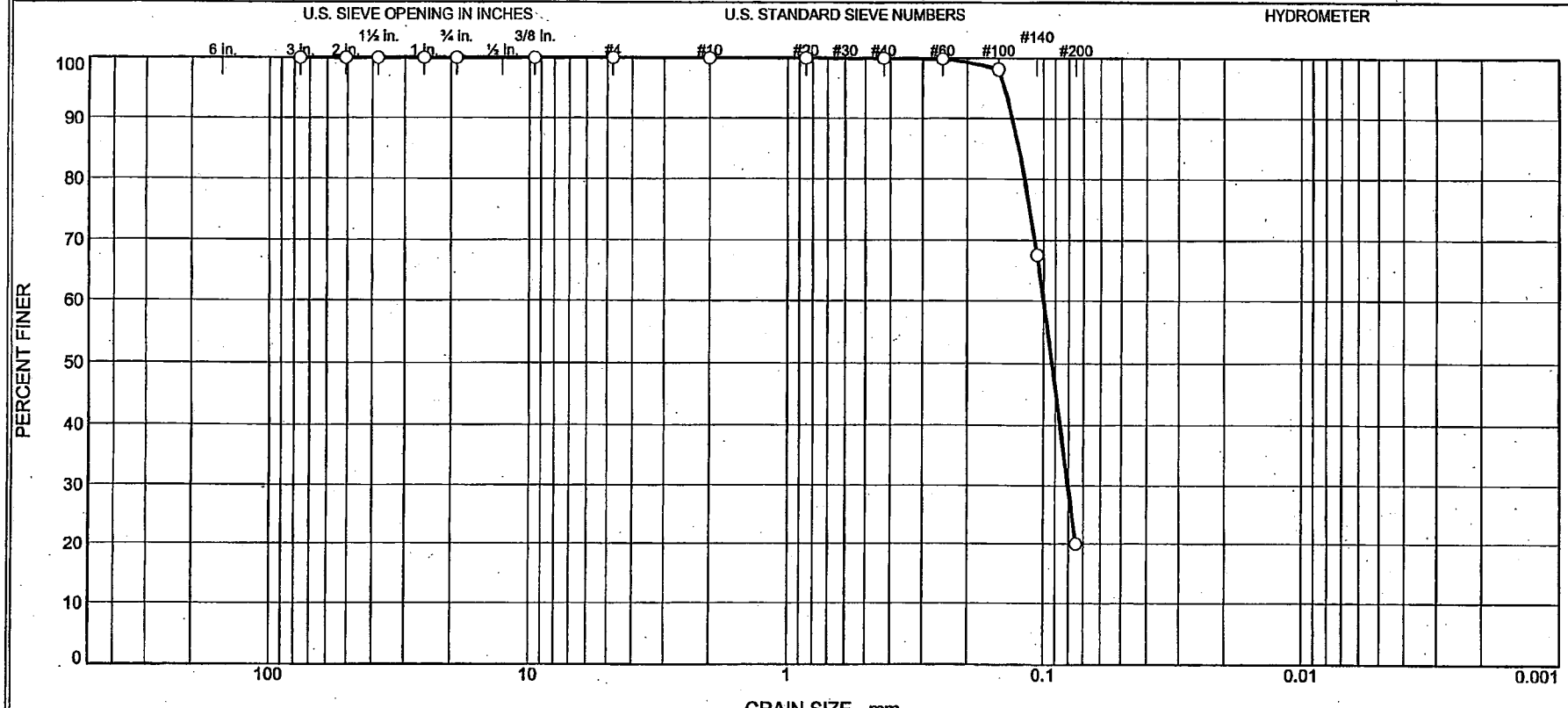
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	63.9	63.9			36.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0837	0.0910	0.1105	0.1177	0.1268	0.1398

Fineness Modulus
0.02

MAK 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.0	80.0	20.0	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 432	STP-084 (SS-12)	33.5'-35.0'	11/8/2006	SM	Silty Sand	24.2		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1

MH
4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 432
Depth: 33.5'-35.0'
Sample Number: STP-084 (SS-12)
Material Description: Silty Sand
Date: 11/8/2006
Natural Moisture: 24.2
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 69.35
Tare Wt. = 0.00
Minus #200 from wash = 20.0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
263.60	176.90	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.02	100.0
			#40	0.03	100.0
			#60	0.12	99.9
			#100	1.62	98.1
			#140	28.13	67.6
			#200	69.35	20.0

Fractional Components

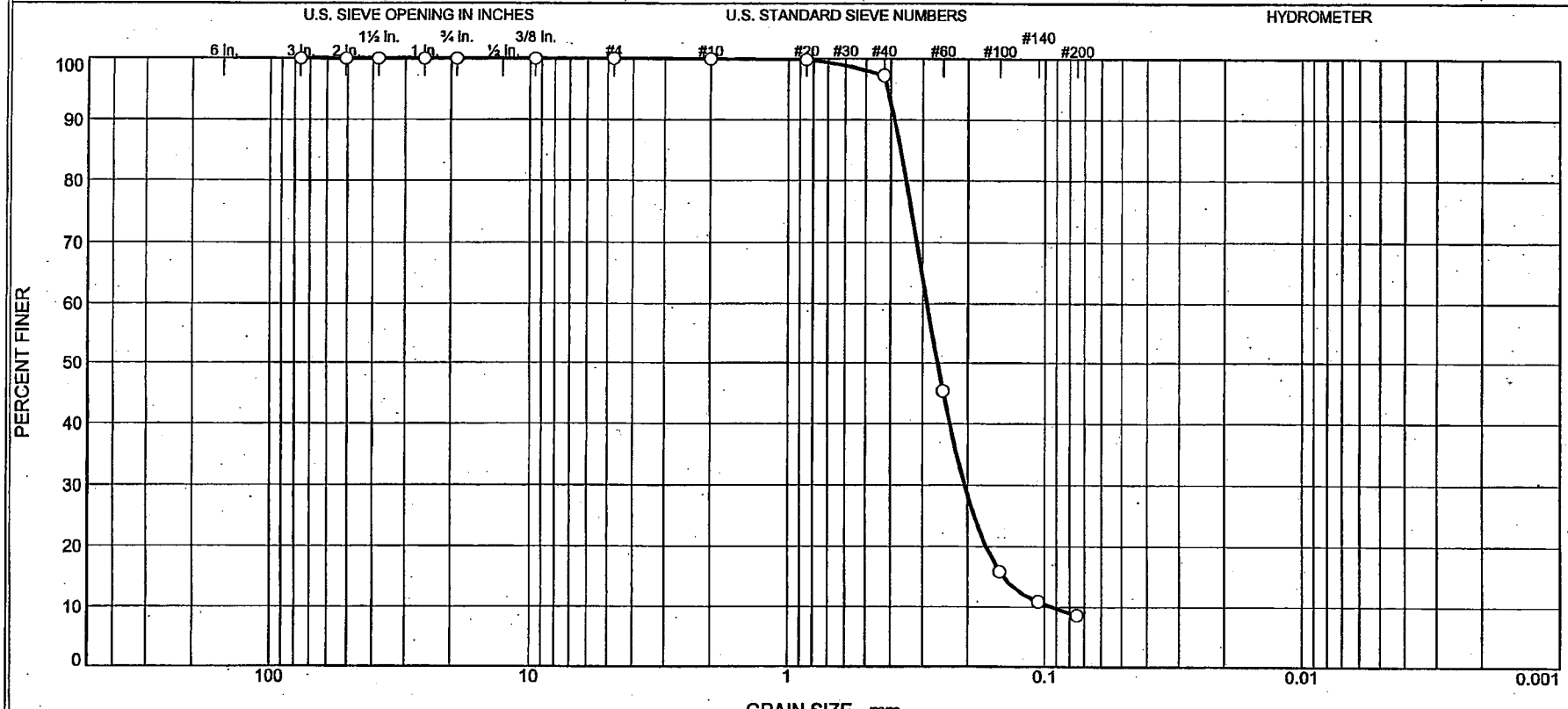
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	80.0	80.0			20.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0803	0.0926	0.0998	0.1184	0.1246	0.1321	0.1416

Fineness Modulus
0.02

MAA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.1	2.6	88.7	8.6	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 432	STP-091 (SS-21)	78.5'-80.0'	11/14/2006	SP-SM	Poorly Graded Sand with Silt	20.8		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1

NM 4-3-07

ICAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 432
Depth: 78.5'-80.0'
Sample Number: STP-091 (SS-21)
Material Description: Poorly Graded Sand with Silt
Date: 11/14/2006
Natural Moisture: 20.8
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 68.72
Tare Wt. = 0.00
Minus #200 from wash = 8.6%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
252.40	177.20	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.05	99.9
			#20	0.14	99.8
			#40	2.02	97.3
			#60	41.14	45.3
			#100	63.25	15.9
			#140	67.03	10.9
			#200	68.72	8.6

Particle Composition

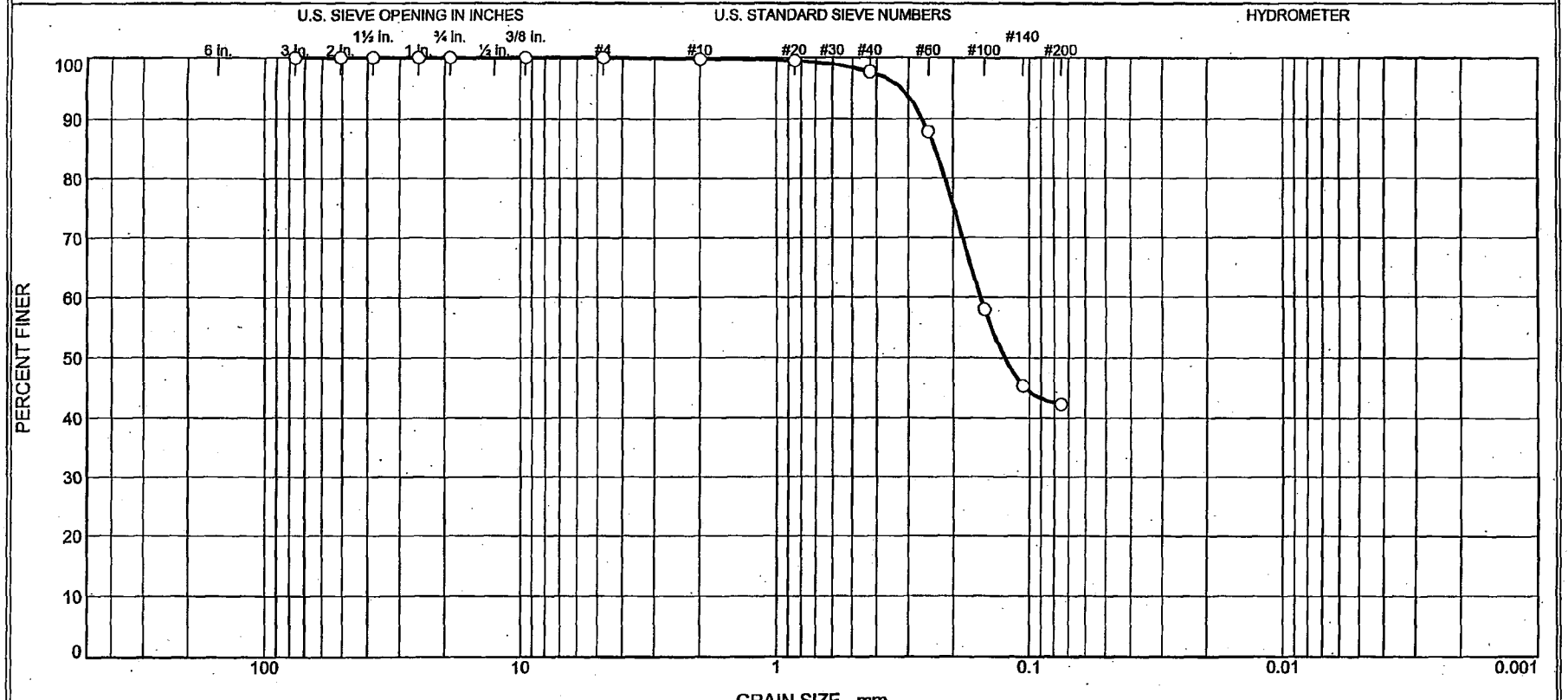
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	2.6	88.7	91.4			8.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0938	0.1447	0.1698	0.2060	0.2623	0.2884	0.3469	0.3648	0.3854	0.4106

Fineness Modulus	C_u	C_c
1.21	3.07	1.57

MAK 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.3	2.0	55.4	42.3	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 432	STP-092 (SS-23)	88.5'-90.0'	11/14/2006	SM	Silty Sand	21.6		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 432
Depth: 88.5'-90.0'
Sample Number: STP-092 (SS-23)
Material Description: Silty Sand
Date: 11/14/2006
Natural Moisture: 21.6
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 65.74
Tare Wt. = 0.00
Minus #200 from wash = 42.3%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
288.30	174.40	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.32	99.7
			#20	0.68	99.4
			#40	2.66	97.7
			#60	13.79	87.9
			#100	47.88	58.0
			#140	62.20	45.4
			#200	65.74	42.3

Percentage Components

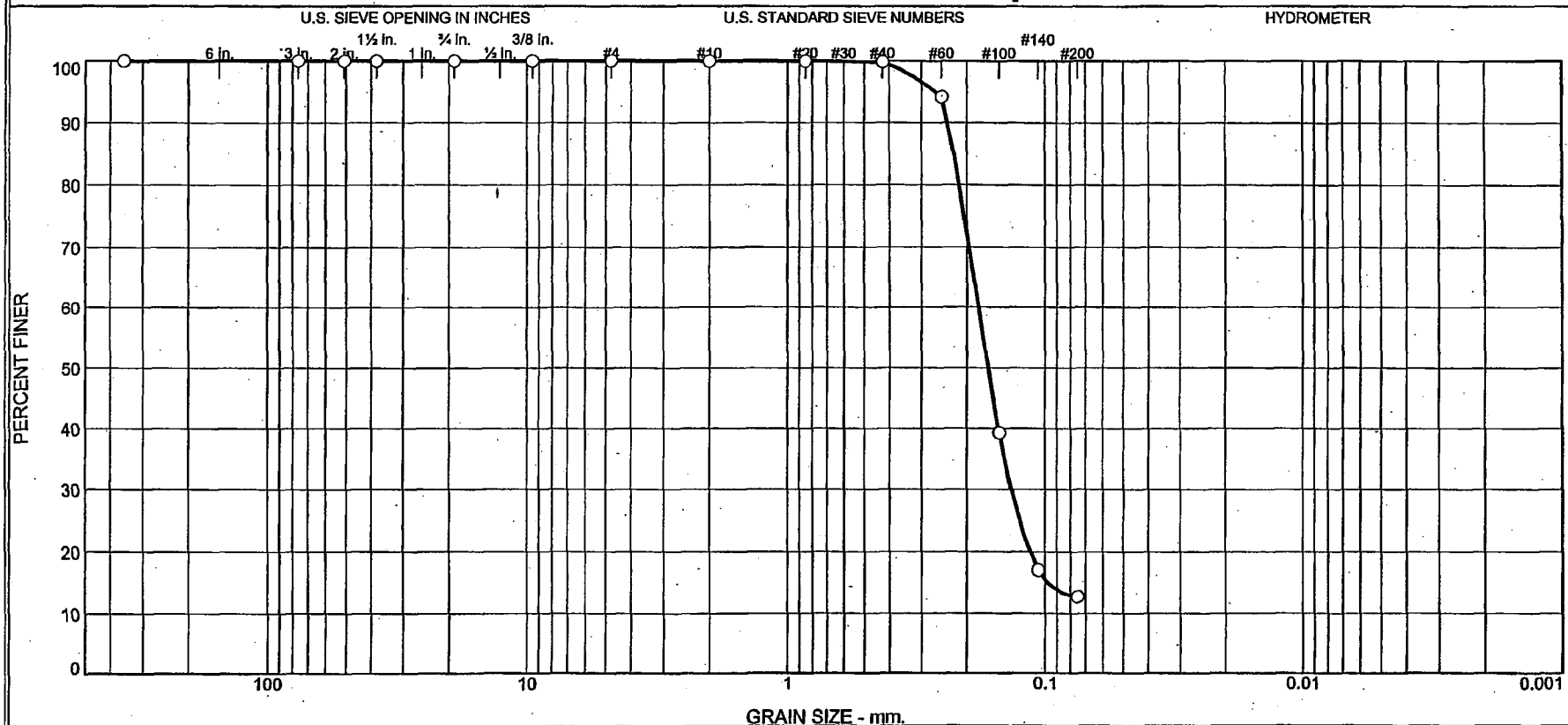
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.3	2.0	55.4	57.7			42.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1253	0.1557	0.2150	0.2352	0.2635	0.3189

Fineness Modulus
0.50

MM 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.2	87.1	12.7	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 432	STP-093	98.5'-100'	11/14/2006	SM	Silty Sand	22.8		
		(SS-25)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1

MAT 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 432
Depth: 98.5'-100'
Sample Number: STP-093 (SS-25)
Material Description: Silty Sand
Date: 11/14/2006
Natural Moisture: 22.8
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 87.09
Tare Wt. = 0.00
Minus #200 from wash = 12.7%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
275.80	176.00	0.00	14	0.00	100.0
			3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.04	100.0
			#20	0.07	99.9
			#40	0.20	99.8
			#60	5.81	94.2
			#100	60.64	39.2
			#140	82.76	17.1
			#200	87.09	12.7

Fractional Components

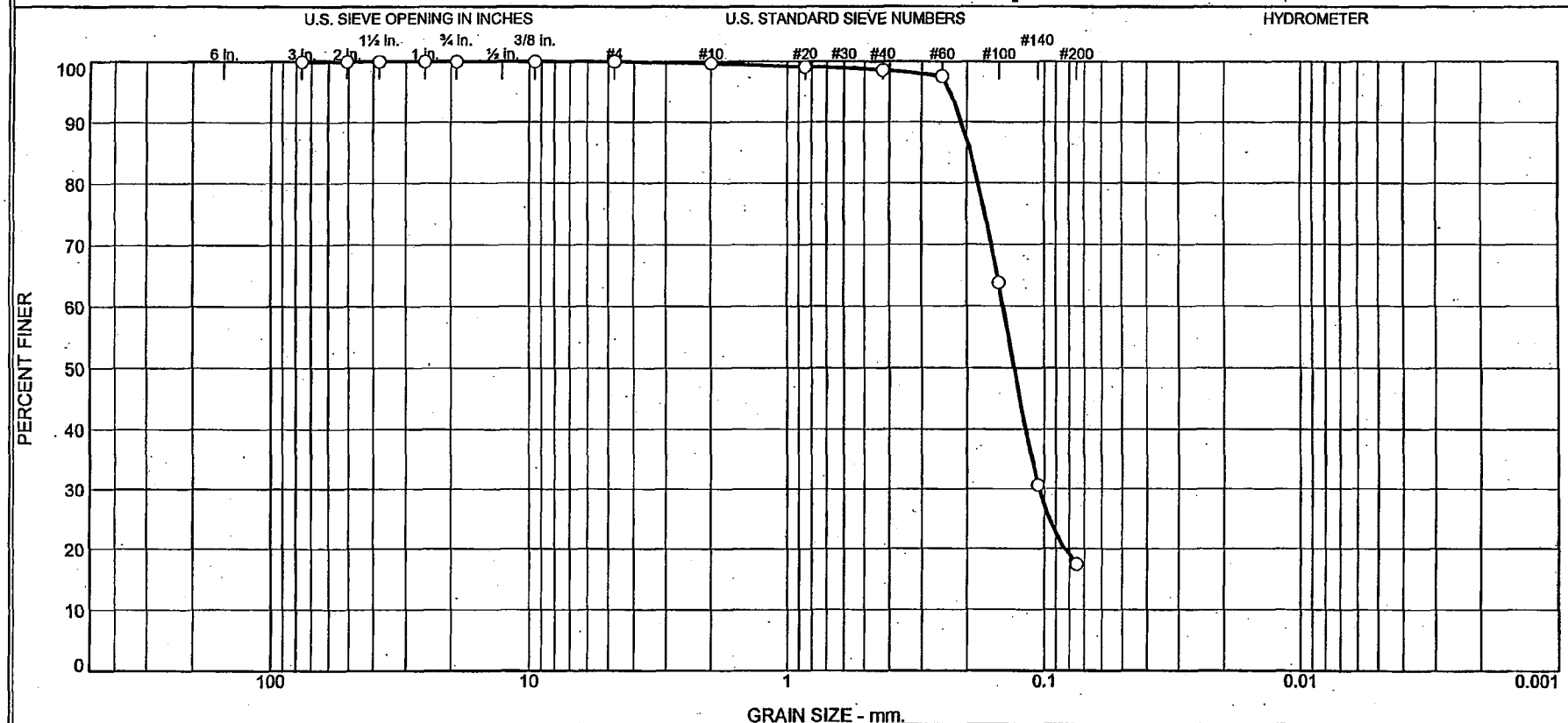
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	87.1	87.3			12.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0977	0.1144	0.1350	0.1656	0.1801	0.2136	0.2241	0.2367	0.2644

Fineness Modulus
0.64

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.3	1.1	81.1	17.5	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 432	STP-096	148.5'-150'	11/14/2006	SM	Silty Sand	19.8		
		(SS-30)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:ST
ASTM D6913-04e1

MH 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 432
Depth: 148.5'-150'
Sample Number: STP-096 (SS-30)
Material Description: Silty Sand
Date: 11/14/2006
Natural Moisture: 19.8
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:ST
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 67.77
Tare Wt. = 0.00
Minus #200 from wash = 17.5%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
257.50	175.40	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.25	99.7
			#20	0.77	99.1
			#40	1.18	98.6
			#60	1.99	97.6
			#100	29.75	63.8
			#140	56.92	30.7
			#200	67.77	17.5

Fractional Components

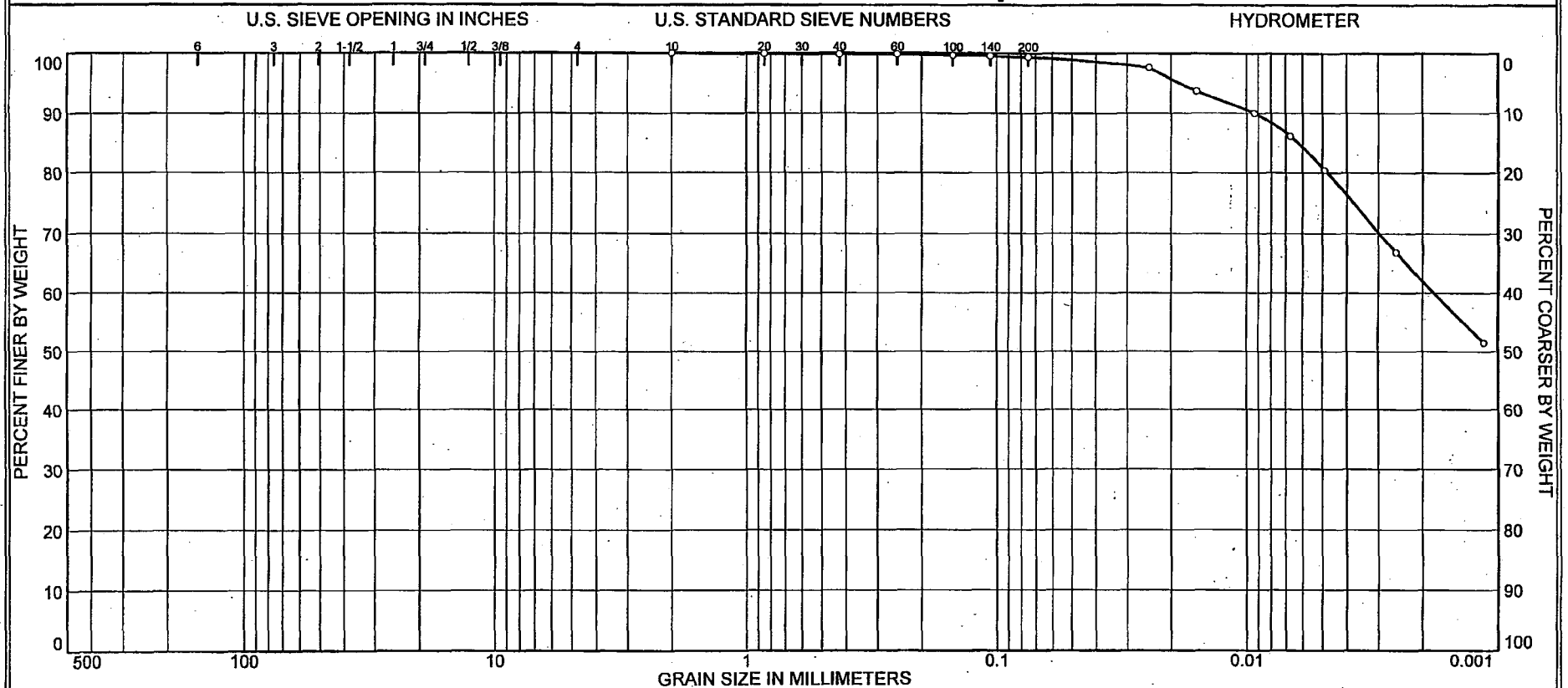
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.3	1.1	81.1	82.5			17.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0834	0.1050	0.1312	0.1445	0.1803	0.1932	0.2094	0.2321

Fineness Modulus
0.40

NM 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	0.2	0.4	18.6	80.8

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-902	UD-2	15' to 17'	3-16-07	CH	Fat clay	24.3	59	20

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: MH KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-902
Sample No.: UD-2
Elev. or Depth: 15' to 17' **Sample Length(in./cm.):**
Location: B-902
Description: Fat clay
Date: 3-16-07 **Natural Moisture:** 24.3
Liquid Limit: 59 **Plastic Limit:** 20 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	118.80
Tare =	0.00
Dry sample weight =	118.80

Sample split on number 10 sieve
Split sample data:
Sample and tare = 51.26 **Tare =** .00 **Sample weight =** 51.26
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.04	99.9
# 40	0.09	99.8
# 60	0.12	99.8
# 100	0.16	99.7
# 140	0.22	99.6
# 200	0.29	99.4

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 52.71
Hygroscopic moisture correction:
Moist weight & tare = 25.30
Dry weight & tare = 24.90
Tare = 10.70
Hygroscopic moisture= 2.8 %
Calculated biased weight= 51.27
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.725
Specific gravity correction factor= 0.984

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

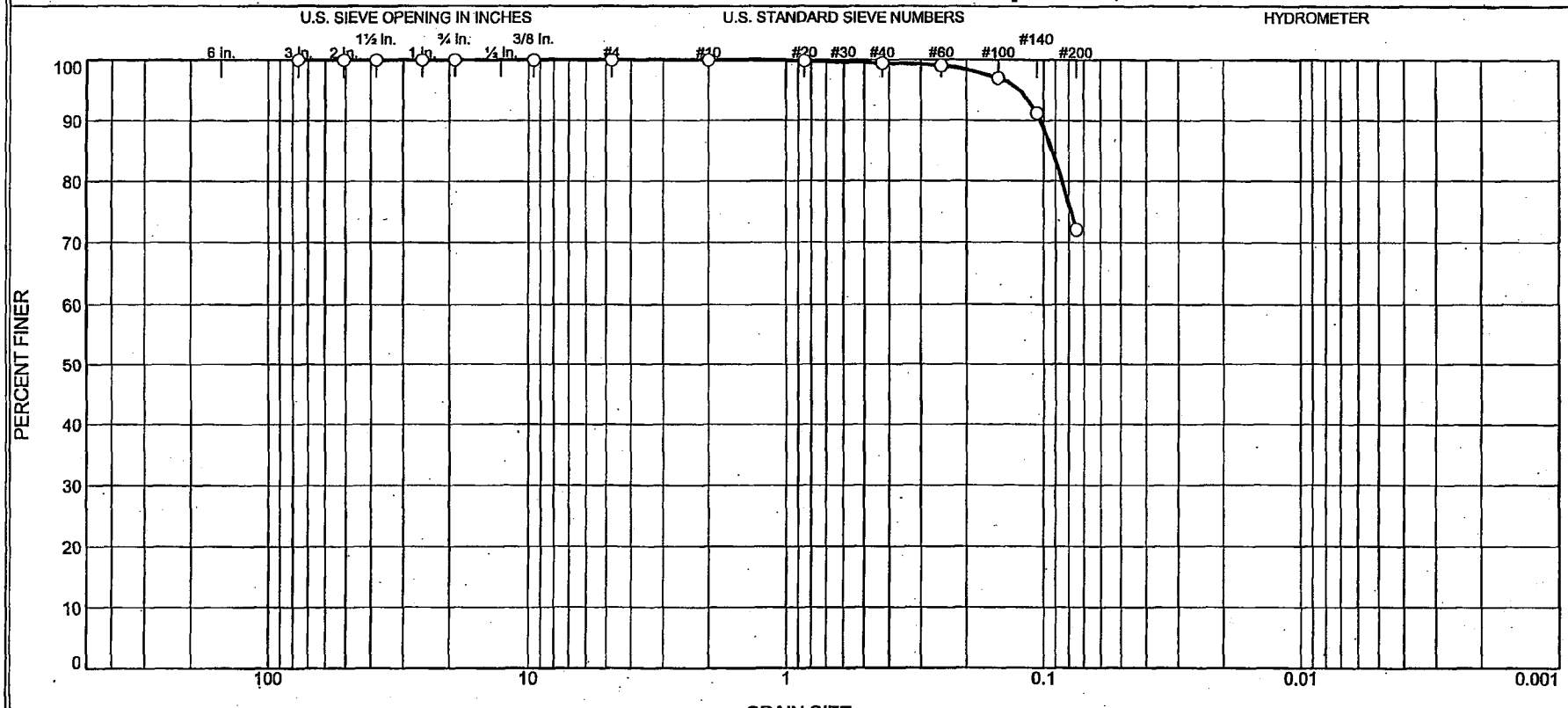
Elapsed ime, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.00	23.4	54.0	50.9	0.0128	55.0	7.3	0.0244	97.7
5.00	23.4	52.0	48.9	0.0128	53.0	7.6	0.0158	93.8
15.00	23.4	50.0	46.9	0.0128	51.0	7.9	0.0093	90.0
30.00	23.4	48.0	44.9	0.0128	49.0	8.3	0.0067	86.1
60.00	23.4	45.0	41.9	0.0128	46.0	8.8	0.0049	80.4
250.00	23.1	38.0	34.8	0.0128	39.0	9.9	0.0026	66.8
1440.00	23.2	30.0	26.8	0.0128	31.0	11.2	0.0011	51.5

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 0.6 (**% coarse =** **% medium** = 0.2 **% fine** = 0.4)
% SILT = 18.6 **% CLAY** = 80.8

D_{85}= 0.01 D_{60}= 0.00

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.6	27.4	72.0	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring 902	STP-180	18.5'-20.0'	12/12/2006	ML	Silt with Sand	26.8	NV	NP
		(SS-9)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

○ Tested By:TH Reviewed By:RF

ASTM D6913-04e1

MA 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 902
Depth: 18.5'-20.0' **Sample Number:** STP-180 (SS-9)
Material Description: Silt with Sand
Date: 12/12/2006 **Natural Moisture:** 26.8
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** ML
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 20.90
Tare Wt. = 0.00
Minus #200 from wash = 72.0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
252.40	177.70	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.13	99.8
			#40	0.42	99.4
			#60	0.72	99.0
			#100	2.24	97.0
			#140	6.58	91.2
			#200	20.90	72.0

Fractional Components

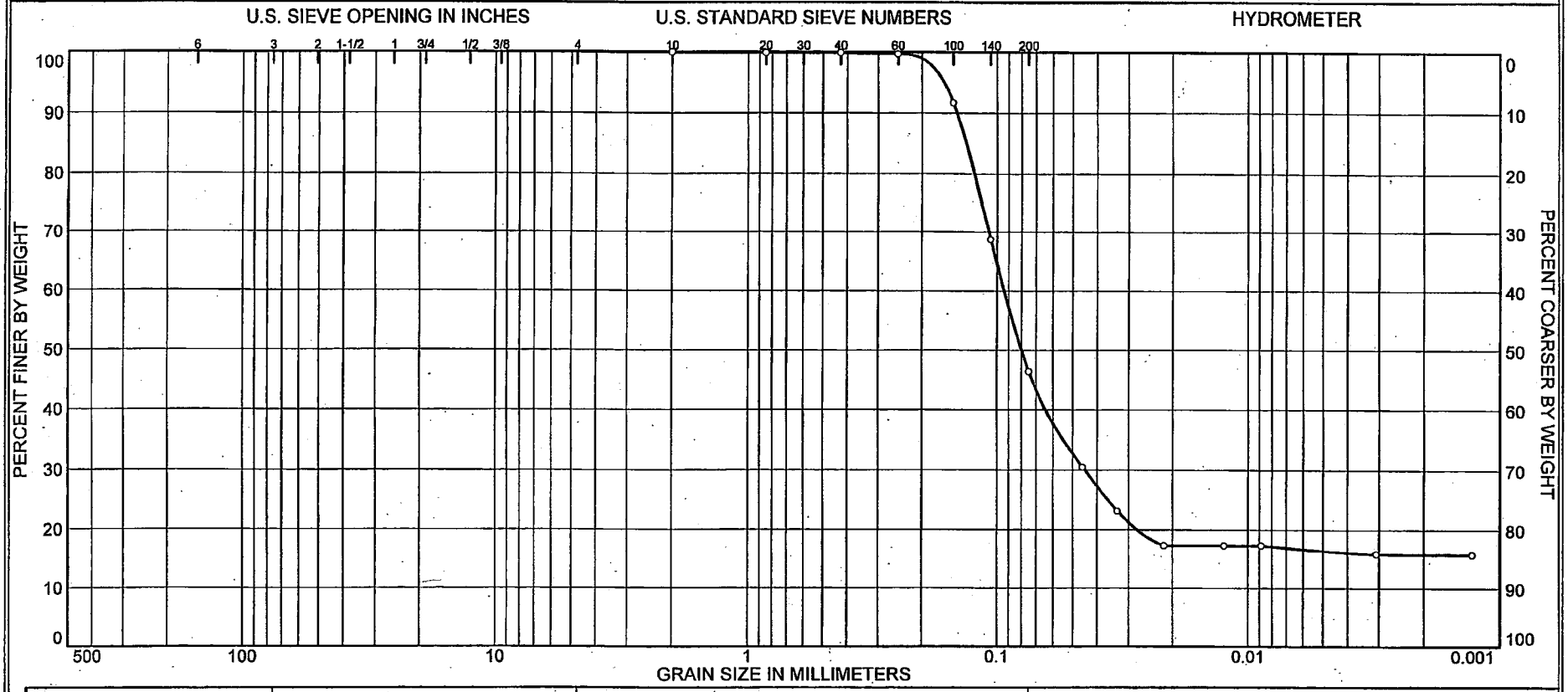
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.6	27.4	28.0			72.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0850	0.0927	0.1028	0.1229

Fineness Modulus
0.04

MAK 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	0.1	53.5	30.0	16.4

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-902	UD-3	23' to 25'	2-13-07	SM	Silty sand	24.8	NV	NP

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: SS KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-902
Sample No.: UD-3
Elev. or Depth: 23' to 25' **Sample Length(in./cm.):**
Location: B-902
Description: Silty sand
Date: 2-13-07 **Natural Moisture:** 24.8
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SM
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	103.49	0.00
Tare =	0.00	0.00
Dry sample weight =	103.49	0.00

Minus #200 from wash= 100.0 %
Sample split on number 10 **sieve**
Split sample data:
Sample and tare = 68.51 **Tare =** .00 **Sample weight =** 68.51
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.04	99.9
# 40	0.10	99.9
# 60	0.20	99.7
# 100	5.67	91.7
# 140	21.41	68.7
# 200	36.69	46.4

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 68.92
Hygroscopic moisture correction:
Moist weight & tare = 46.08
Dry weight & tare = 45.88
Tare = 10.89
Hygroscopic moisture= 0.6 %
Calculated biased weight= 68.53
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.652

Specific gravity correction factor= 1.000
Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

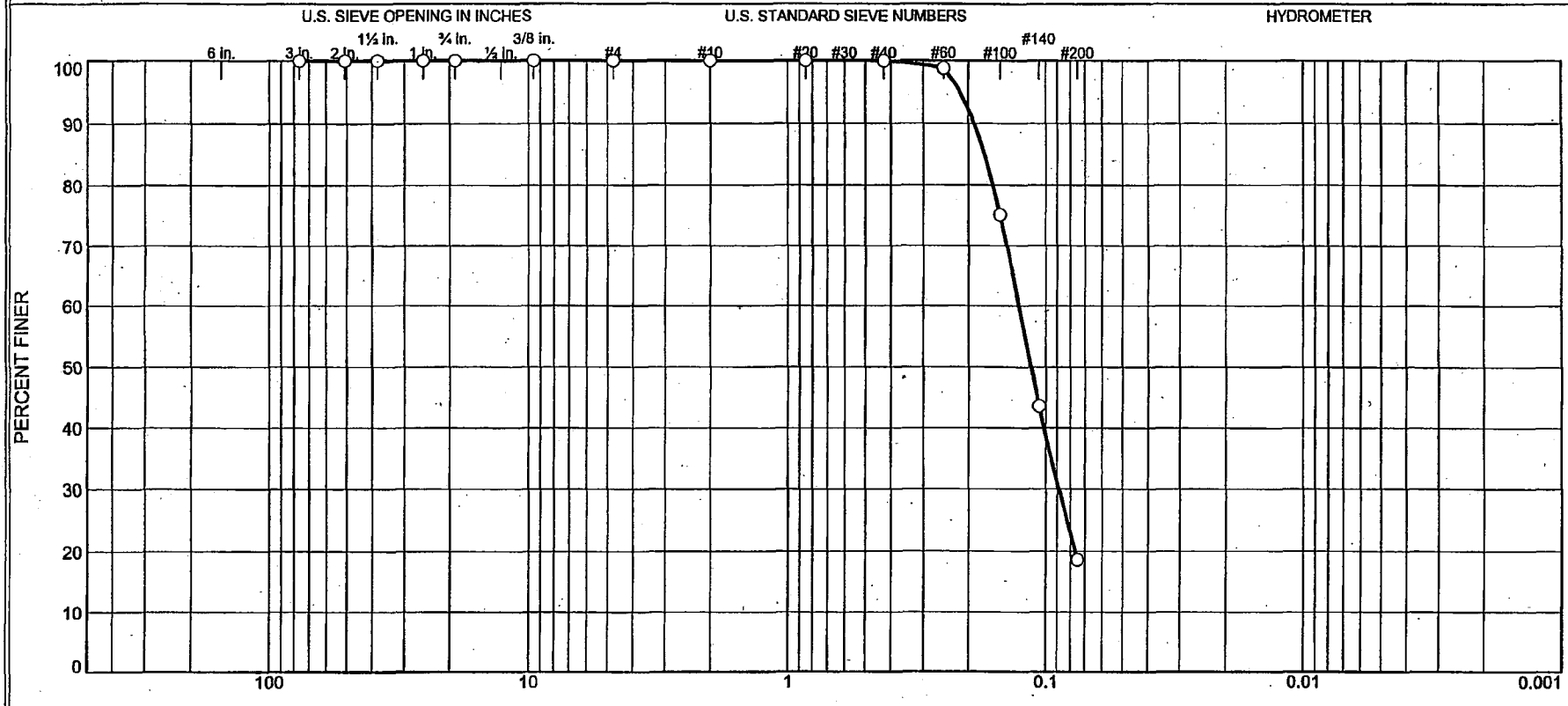
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.00	23.4	24.0	20.9	0.0131	25.0	12.2	0.0457	30.5
2.00	23.4	19.0	15.9	0.0131	20.0	13.0	0.0334	23.2
5.00	23.4	15.0	11.9	0.0131	16.0	13.7	0.0216	17.3
15.00	23.4	15.0	11.9	0.0131	16.0	13.7	0.0125	17.3
30.00	23.4	15.0	11.9	0.0131	16.0	13.7	0.0088	17.3
250.00	23.4	14.0	10.9	0.0131	15.0	13.8	0.0031	15.9
1440.00	23.1	14.0	10.8	0.0131	15.0	13.8	0.0013	15.8

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 53.6 (**% coarse =** **% medium =** 0.1 **% fine =** 53.5)
% SILT = 30.0 **% CLAY =** 16.4

D_{85}= 0.13 D_{60}= 0.09 D_{50}= 0.08
D_{30}= 0.04

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.0	81.4	18.6	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 902	STP-181	28.5'-30.0'	12/12/2006	SM	Silty Sand	24.0		
		(SS-10)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF

ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 902
Depth: 28.5'-30.0'
Sample Number: STP-181 (SS-10)
Material Description: Silty Sand
Date: 12/12/2006
Natural Moisture: 24.0
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 73.50
Tare Wt. = 0.00
Minus #200 from wash = 18.6%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
268.20	177.90	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.01	100.0
			#40	0.04	100.0
			#60	1.12	98.8
			#100	22.44	75.1
			#140	50.99	43.5
			#200	73.50	18.6

Percentage Composition

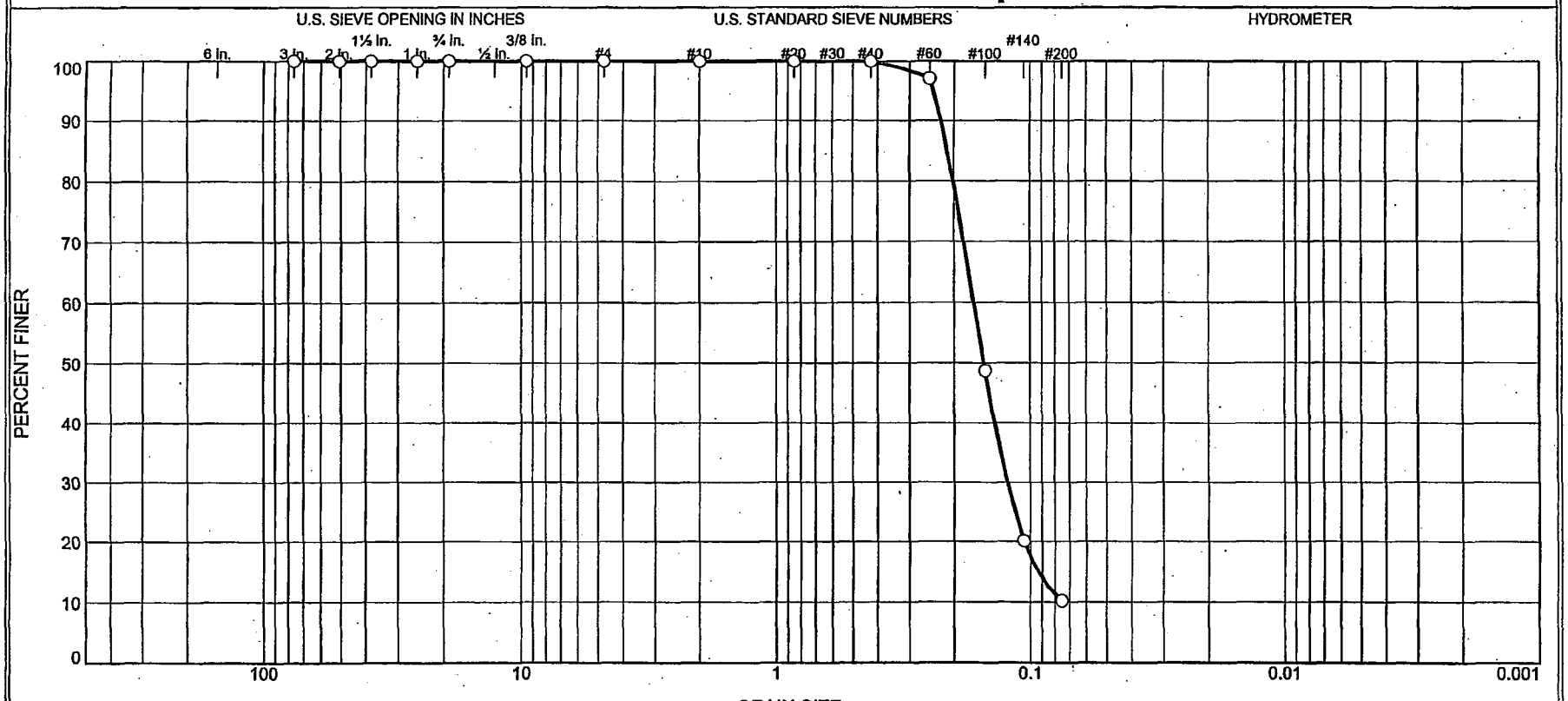
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	81.4	81.4			18.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0766	0.0890	0.1139	0.1266	0.1600	0.1727	0.1896	0.2148

Fineness Modulus
0.26

MAK 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.0	89.8	10.2	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring 902	STP-182 (SS-11)	33.5'-35.0'	12/12/2006	SP-SM	Poorly Graded Sand with Silt	22.5		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

○ Tested By:TH Reviewed By:RF
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 902
Depth: 33.5'-35.0'
Sample Number: STP-182 (SS-11)
Material Description: Poorly Graded Sand with Silt
Date: 12/12/2006
Natural Moisture: 22.5
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 74.34
Tare Wt. = 0.00
Minus #200 from wash = 10.2%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
259.00	176.20	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.00	100.0
			#40	0.04	100.0
			#60	2.44	97.1
			#100	42.53	48.6
			#140	66.15	20.1
			#200	74.34	10.2

Fractional Components

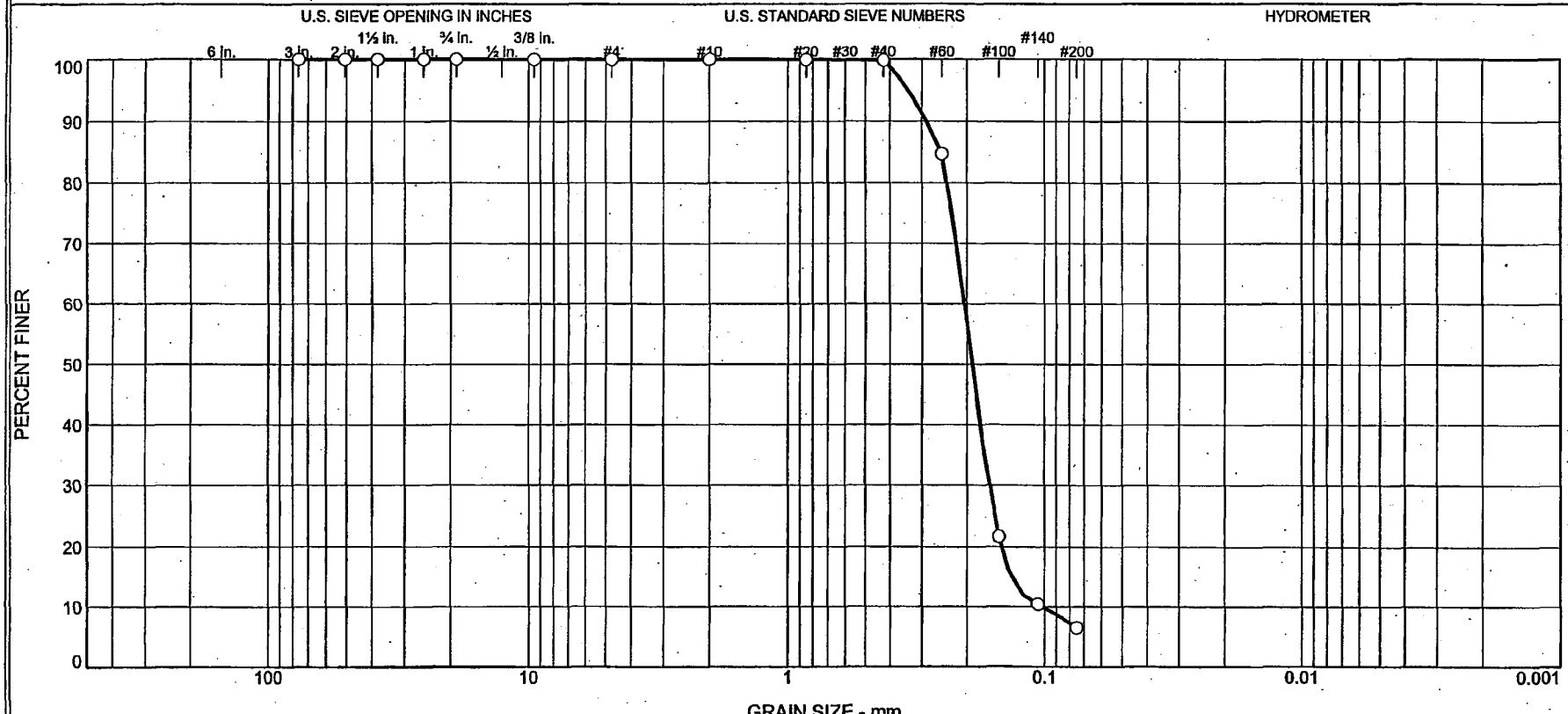
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	89.8	89.8			10.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0937	0.1058	0.1229	0.1520	0.1667	0.2011	0.2121	0.2249	0.2412

Fineness Modulus
0.53

MAA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.2	93.3	6.5	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 902	STP-183	38.5'-40.0'	12/12/2006	SP-SM	Poorly Graded Sand with Silt	22.5		
		(SS-12)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF

ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 902
Depth: 38.5'-40.0'
Sample Number: STP-183 (SS-12)
Material Description: Poorly Graded Sand with Silt
Date: 12/12/2006
Natural Moisture: 22.5
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 92.02
Tare Wt. = 0.00
Minus #200 from wash = 6.5%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
275.10	176.70	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.05	99.9
			#40	0.21	99.8
			#60	15.00	84.8
			#100	77.00	21.7
			#140	88.13	10.4
			#200	92.02	6.5

Fractional Components

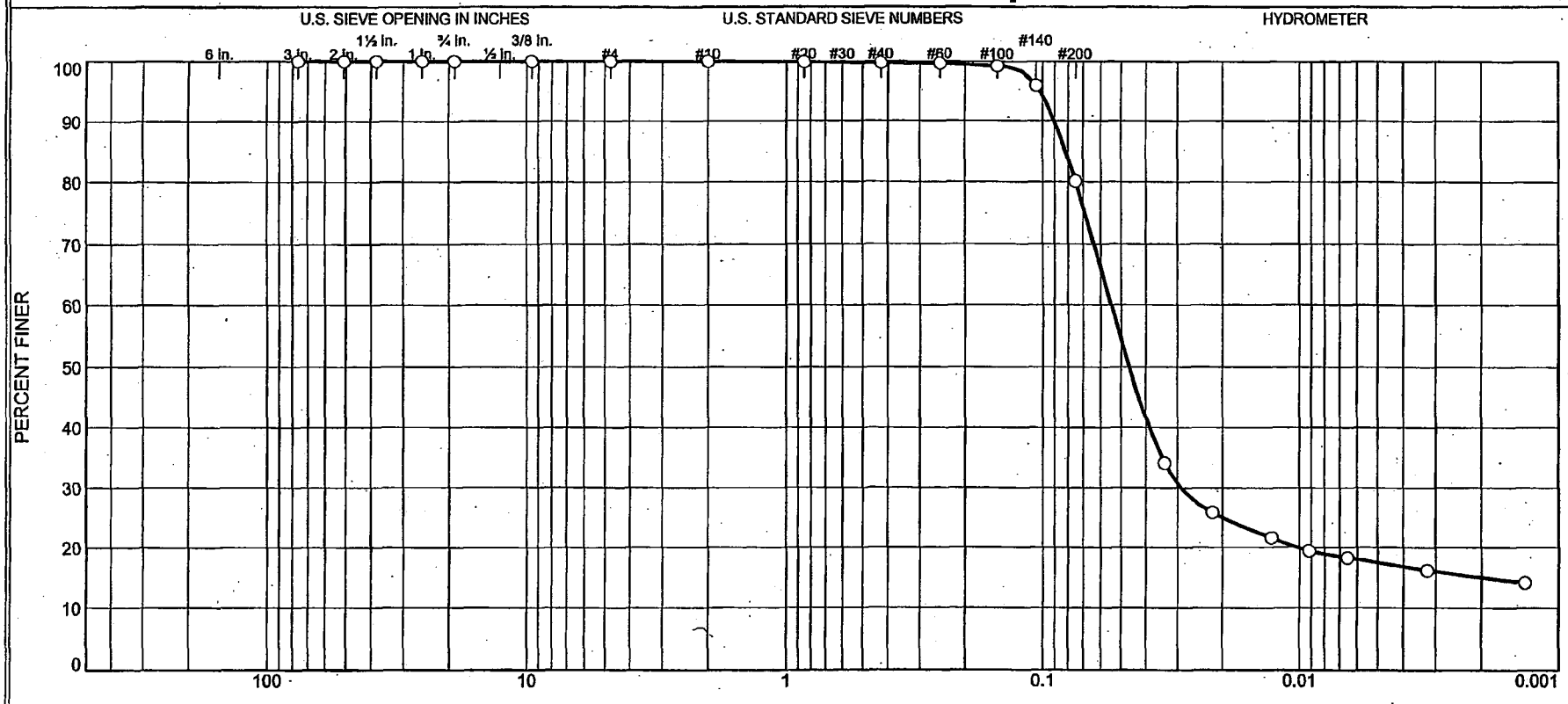
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	93.3	93.5			6.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1014	0.1341	0.1466	0.1631	0.1903	0.2044	0.2387	0.2515	0.2878	0.3395

Fineness Modulus	C_u	C_c
0.87	2.02	1.28

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.3	19.6	62.6	17.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 902	STP-185 (SS-16)	58.5'-60.0'	12/12/2006	ML	Silt with Sand	24.9	NV	NP

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH/DK Reviewed By:RF/ST
ASTM D6913-04e1 / ASTM D422-63(2002e1
Specific gravity was estimated

4-3-07 KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 902
Depth: 58.5'-60.0' **Sample Number:** STP-185 (SS-16)
Material Description: Silt with Sand
Date: 12/12/2006 **Natural Moisture:** 24.9
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** ML
Testing Remarks: Tested By:TH/DK Reviewed By:RF/ST
ASTM D6913-04e1 / ASTM D422-63(2002e1
Specific gravity was estimated

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 14.60
Tare Wt. = 0.00
Minus #200 from wash = 80.1%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
249.70	176.20	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.08	99.9
			#40	0.20	99.7
			#60	0.28	99.6
			#100	0.57	99.2
			#140	2.96	96.0
			#200	14.60	80.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.1
Hygroscopic moisture correction:
Moist weight and tare = 188.40
Dry weight and tare = 188.20
Tare weight = 177.10
Hygroscopic moisture = 1.8%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
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	21.4	22.5	16.8	0.0134	22.5	12.6	0.0337	34.1
5.00	21.2	18.5	12.7	0.0134	18.5	13.3	0.0219	25.8
15.00	20.8	16.5	10.6	0.0135	16.5	13.6	0.0129	21.6
30.00	20.4	15.5	9.5	0.0136	15.5	13.8	0.0092	19.4
60.00	20.1	15.0	9.0	0.0136	15.0	13.8	0.0065	18.2

DMA 4-3-07

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
250.00	20.0	14.0	8.0	0.0136	14.0	14.0	0.0032	16.2
1440.00	20.0	13.0	7.0	0.0136	13.0	14.2	0.0014	14.1

Fractional Composition

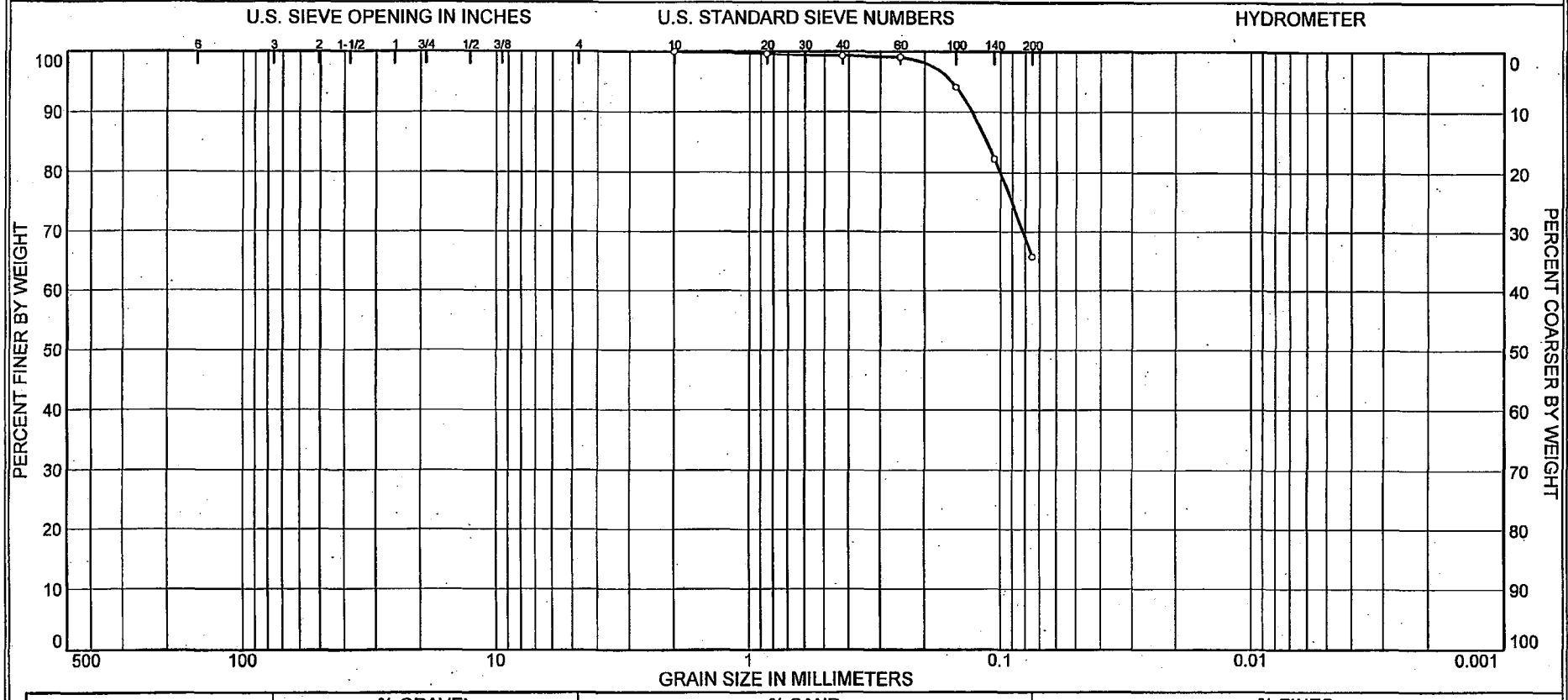
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.3	19.6	19.9	62.6	17.5	80.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0020	0.0102	0.0292	0.0466	0.0546	0.0748	0.0817	0.0901	0.1025

Fineness Modulus
0.01

MAK 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
O	0.0	0.0	0.0	0.0	0.7	33.6	65.7	

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
O	B-904	UD-3	28' to 30'	2-25-07	ML	Sandy silt	25.0	NV	NP

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

O Tested by: JA Reviewed by: MH
ASTM D6913-04e1 KAW 4/3/07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-904
Sample No.: UD-3
Elev. or Depth: 28' to 30' **Sample Length(in./cm.):**
Location: B-904
Description: Sandy silt
Date: 2-25-07 **Natural Moisture:** 25.0
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** ML
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	231.41
Tare =	91.11
Dry sample weight =	140.30

Tare for cumulative weight retained= .00

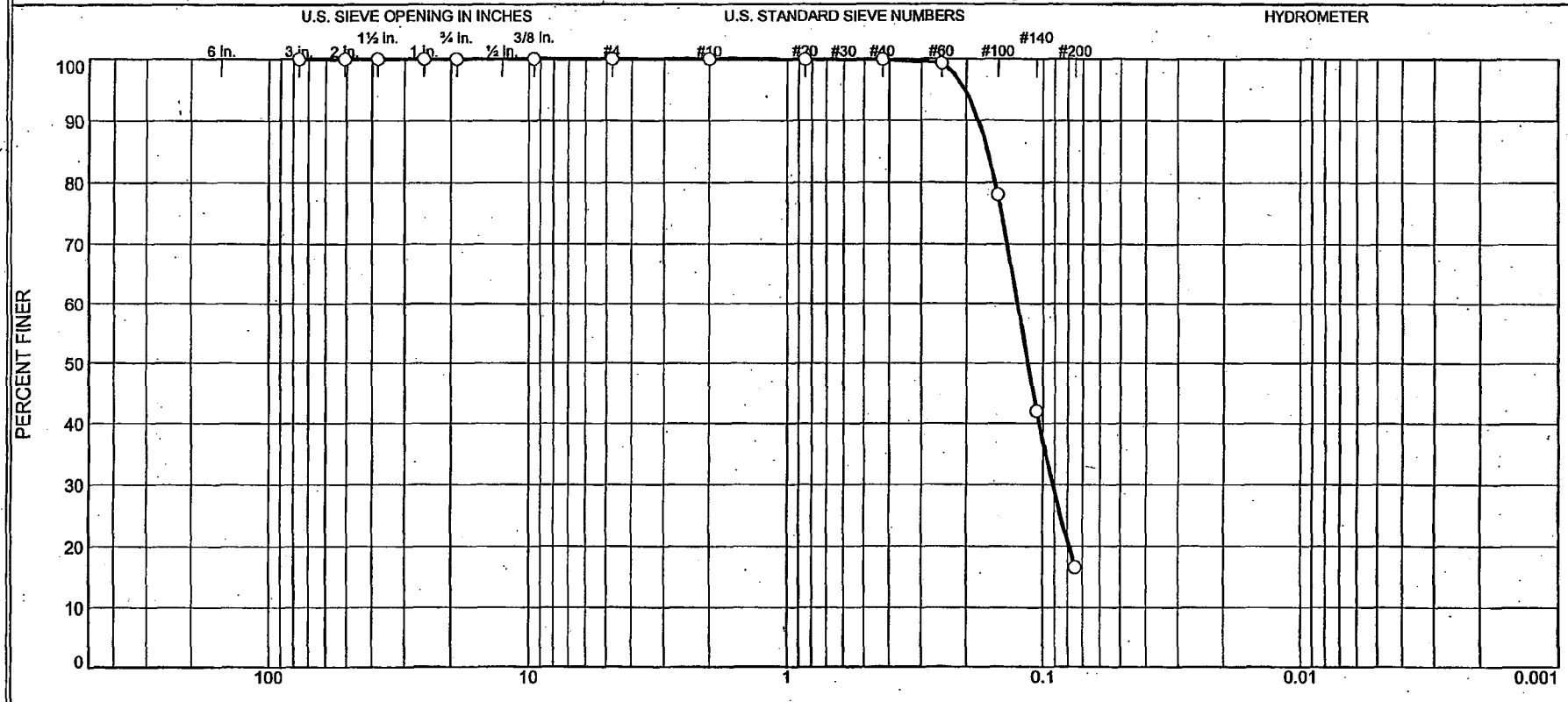
Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.62	99.6
# 40	0.99	99.3
# 60	1.27	99.1
# 100	8.08	94.2
# 140	24.98	82.2
# 200	48.16	65.7

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 34.3 (**% coarse =** **% medium** = 0.7 **% fine** = 33.6)
% FINES = 65.7

D_{85}= 0.11

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.1	83.3	16.6	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 904	STP-190	38.5'-40.0'	12/16/2006	SM	Silty Sand	22.4		
		(SS-11)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF

ASTM D6913-04e1

MA 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 904
Depth: 38.5'-40.0'
Sample Number: STP-190 (SS-11)
Material Description: Silty Sand
Date: 12/16/2006
Natural Moisture: 22.4
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 65.70
Tare Wt. = 0.00
Minus #200 from wash = 16.6%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
256.10	177.30	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.08	99.9
			#40	0.09	99.9
			#60	0.54	99.3
			#100	17.30	78.0
			#140	45.70	42.0
			#200	65.70	16.6

Fractional Components

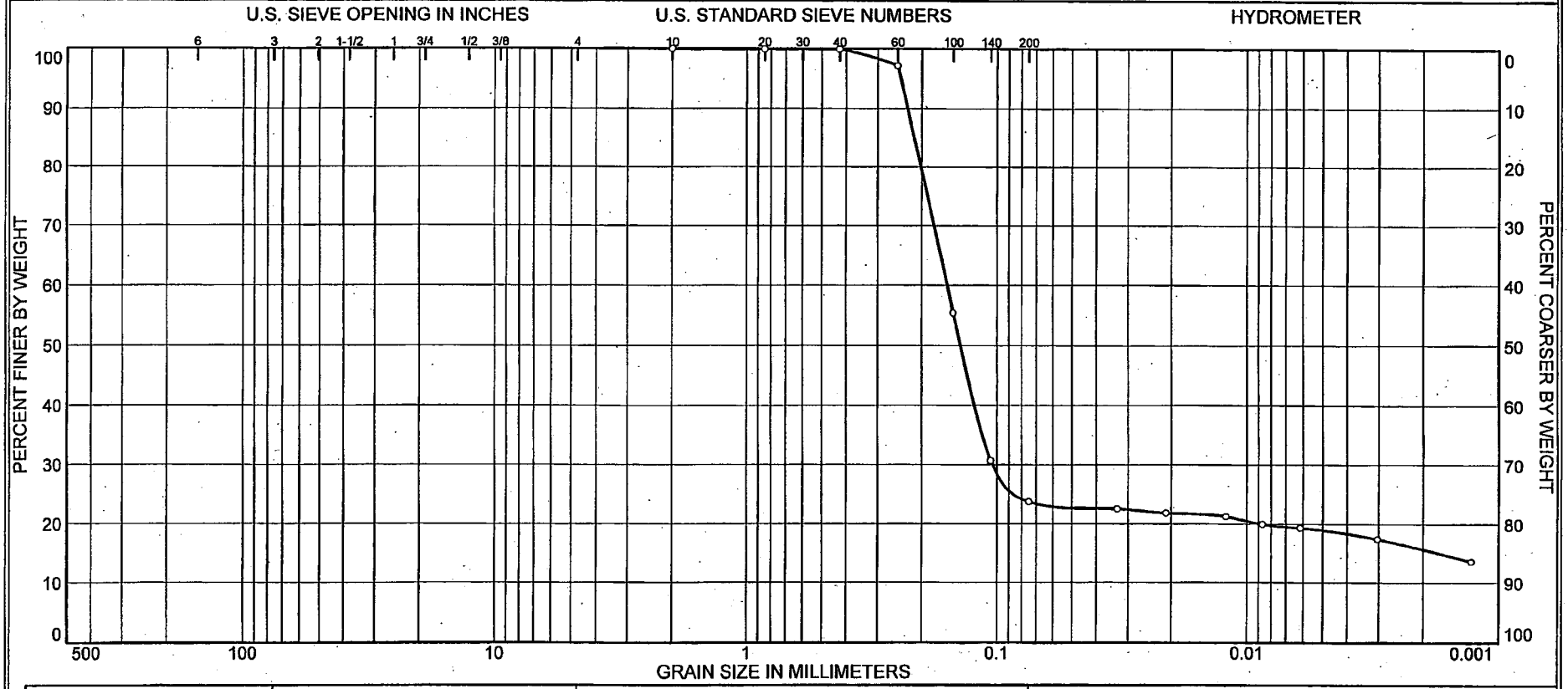
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	83.3	83.4			16.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0792	0.0918	0.1147	0.1257	0.1535	0.1642	0.1787	0.2018

Fineness Modulus
0.23

NMA 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	0.1	76.2	4.8	18.9

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-904	UD-4	53' to 55'	3-22-07	SC	Clayey sand	32.5	64	24

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: MH KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-904
Sample No.: UD-4
Elev. or Depth: 53' to 55' **Sample Length(in./cm.):**
Location: B-904
Description: Clayey sand
Date: 3-22-07 **Natural Moisture:** 32.5
Liquid Limit: 64 **Plastic Limit:** 24 **USCS Class.:** SC
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	129.11
Tare =	0.00
Dry sample weight =	129.11

Sample split on number 10 **sieve**
Split sample data:
Sample and tare = 79.10 **Tare =** .00 **Sample weight =** 79.10
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.05	99.9
# 40	0.09	99.9
# 60	2.24	97.2
# 100	35.27	55.4
# 140	54.79	30.7
# 200	60.36	23.7

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 79.71
Hygroscopic moisture correction:
Moist weight & tare = 25.92
Dry weight & tare = 25.81
Tare = 11.55
Hygroscopic moisture= 0.8 %
Calculated biased weight= 79.10
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.655
Specific gravity correction factor= 0.999

Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

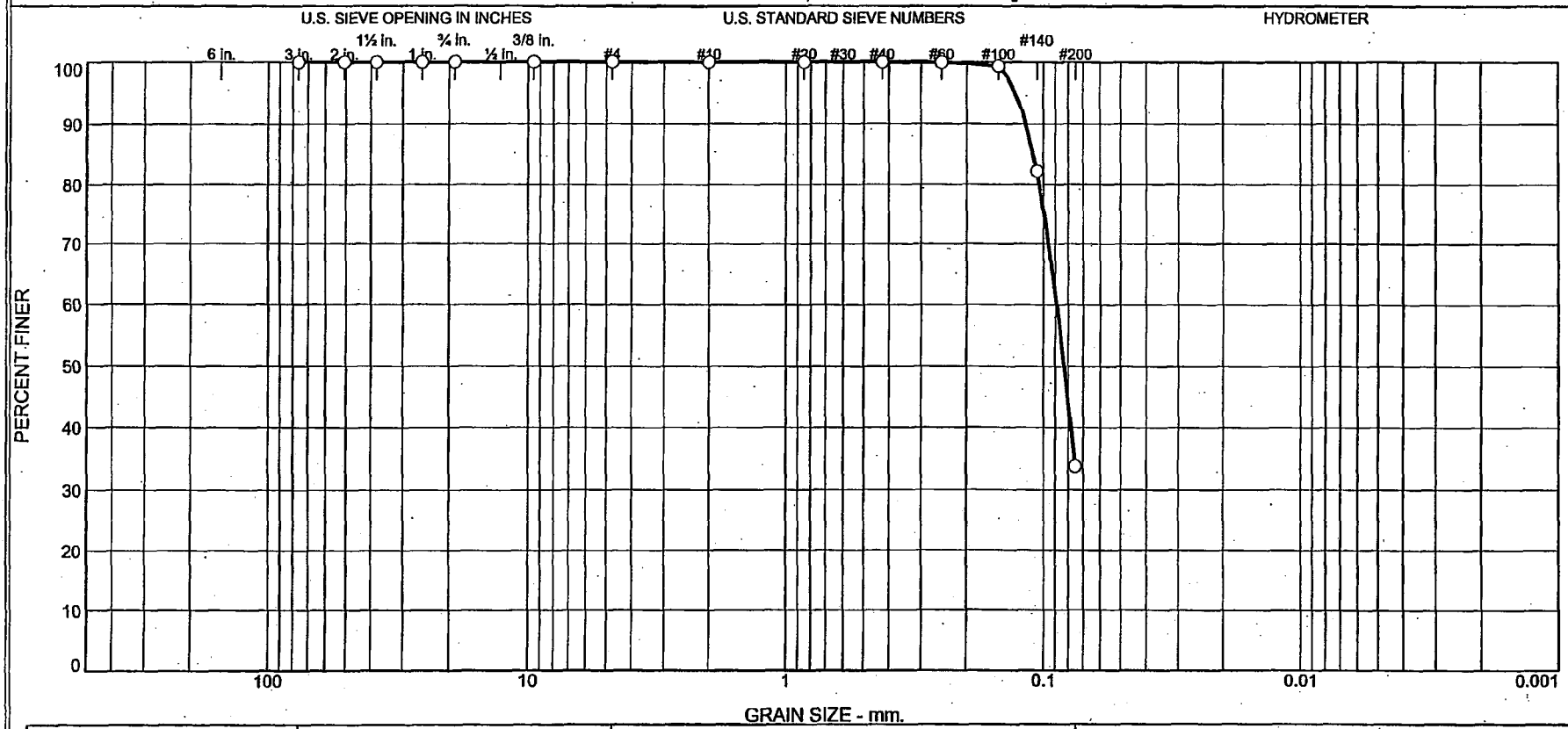
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.00	23.0	21.0	17.8	0.0131	22.0	12.7	0.0331	22.5
5.00	23.0	20.5	17.3	0.0131	21.5	12.8	0.0210	21.8
15.00	23.0	20.0	16.8	0.0131	21.0	12.9	0.0122	21.2
30.00	22.9	19.0	15.8	0.0131	20.0	13.0	0.0087	19.9
60.00	22.9	18.5	15.3	0.0131	19.5	13.1	0.0061	19.3
250.00	23.0	17.0	13.8	0.0131	18.0	13.3	0.0030	17.4
1440.00	23.0	14.0	10.8	0.0131	15.0	13.8	0.0013	13.6

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 76.3 **(% coarse =** **% medium =** 0.1 **% fine =** 76.2)
% SILT = 4.8 **% CLAY =** 18.9

D_{85}= 0.21 D_{60}= 0.16 D_{50}= 0.14
D_{30}= 0.10 D_{15}= 0.00

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.0	66.2	33.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 908	STP-196	23.5'-25.0'	12/15/2006	SM	Silty Sand	24.0		
		(SS-12)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF

ASTM D6913-04e1

MH 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 908
Depth: 23.5'-25.0'
Sample Number: STP-196 (SS-12)
Material Description: Silty Sand
Date: 12/15/2006
Natural Moisture: 24.0
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Analysis

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 51.97
Tare Wt. = 0.00
Minus #200 from wash = 33.8%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
256.80	178.30	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.00	100.0
			#40	0.00	100.0
			#60	0.05	99.9
			#100	0.52	99.3
			#140	13.95	82.2
			#200	51.97	33.8

Fractional Components

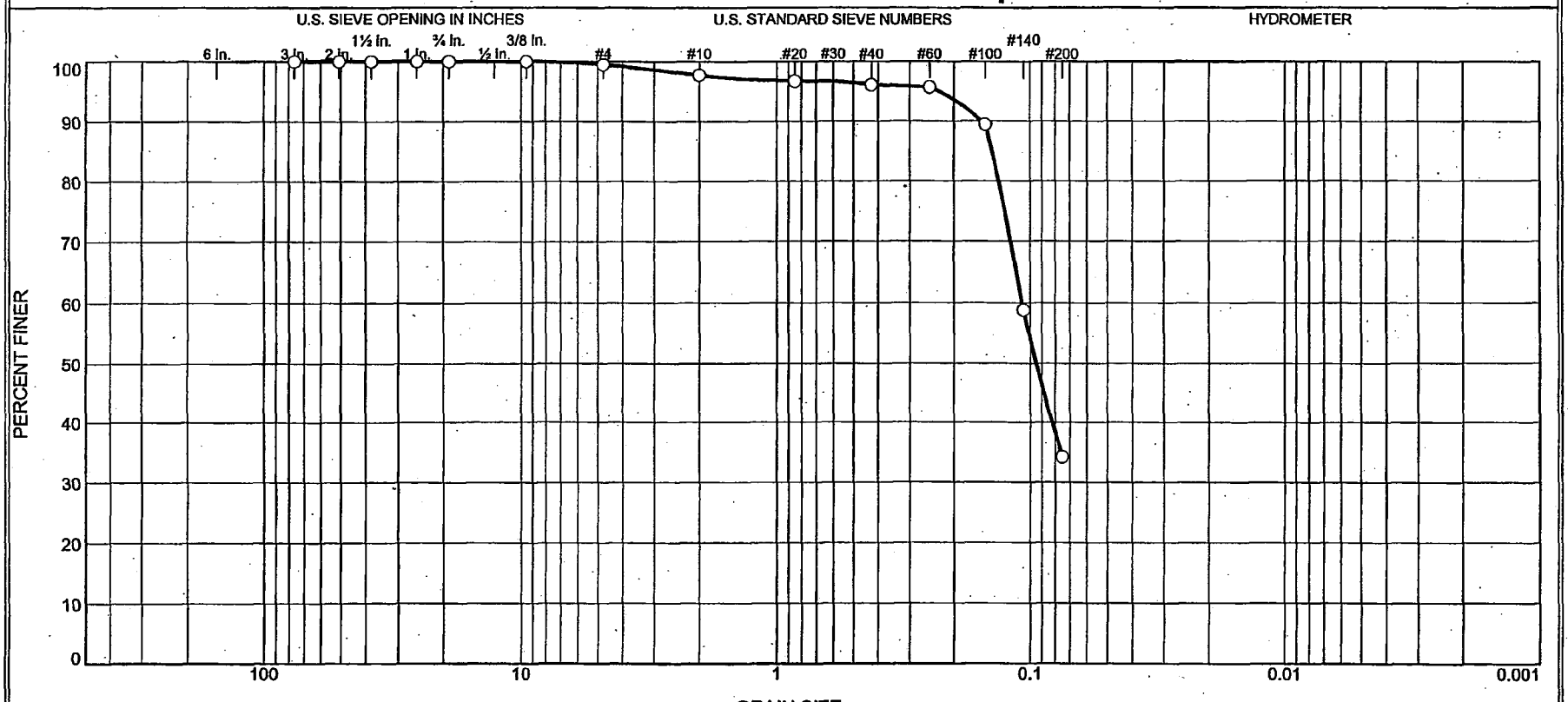
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	66.2	66.2			33.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0830	0.0887	0.1037	0.1092	0.1166	0.1281

Fineness Modulus
0.01

MM 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.6	1.8	1.5	61.8	34.3	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 908	STP-197	28.5'-30.0'	12/15/2006	SM	Silty Sand	24.3		
		(SS-13)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 908
Depth: 28.5'-30.0'
Sample Number: STP-197 (SS-13)
Material Description: Silty Sand
Date: 12/15/2006
Natural Moisture: 24.3
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 55.75
Tare Wt. = 0.00
Minus #200 from wash = 34.3%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
262.10	177.30	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	0.48	99.4
			#10	2.01	97.6
			#20	2.85	96.6
			#40	3.34	96.1
			#60	3.66	95.7
			#100	8.91	89.5
			#140	34.93	58.8
			#200	55.75	34.3

Fractional Components

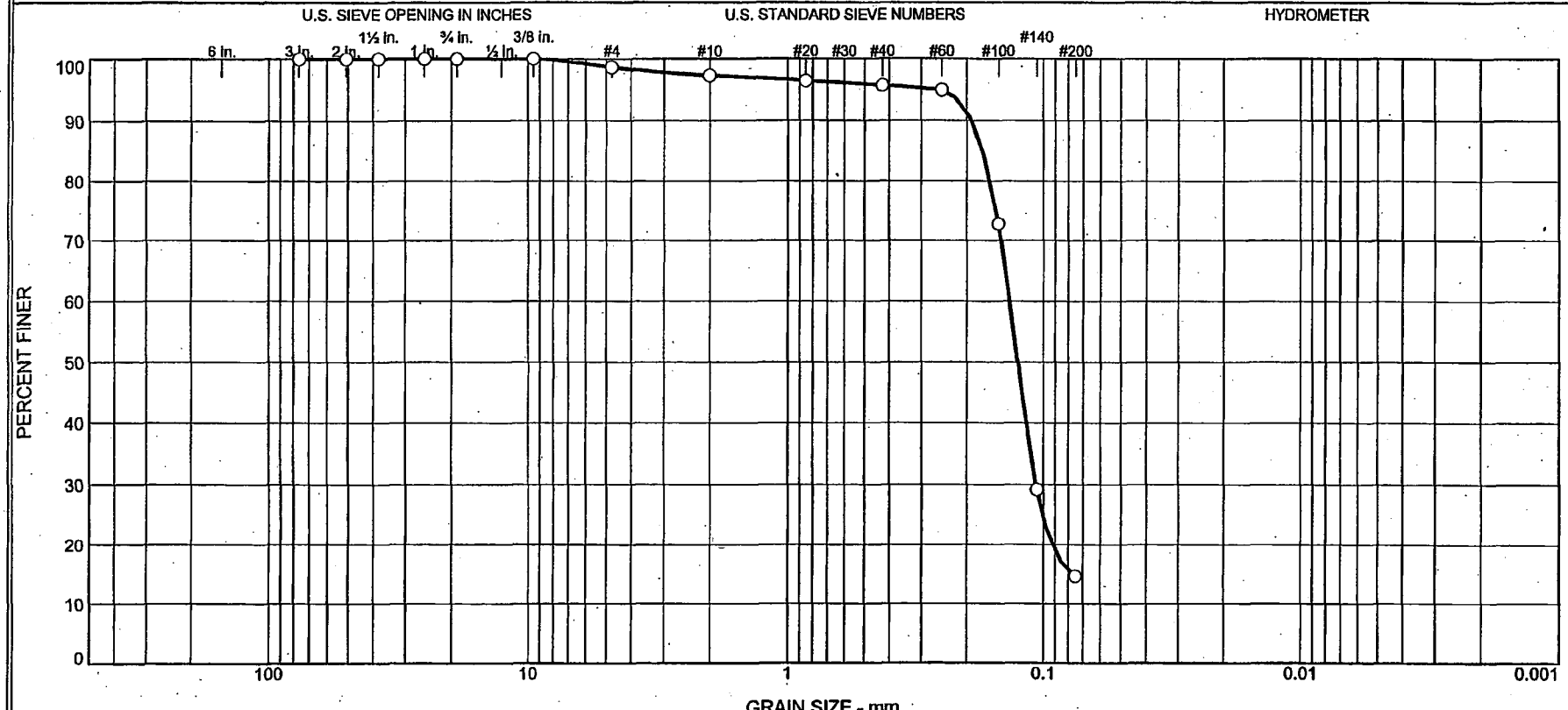
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.6	0.6	1.8	1.5	61.8	65.1			34.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0951	0.1074	0.1326	0.1407	0.1544	0.2283

Fineness Modulus
0.24

MAC 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	1.4	1.3	1.6	81.1	14.6	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 908	STP-198	33.5'-35.0'	12/15/2006	SM	Silty Sand	23.0		
		(SS-14)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF

ASTM D6913-04e1

MH 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 908
Depth: 33.5'-35.0'
Sample Number: STP-198 (SS-14)
Material Description: Silty Sand
Date: 12/15/2006
Natural Moisture: 23.0
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
260.20	177.80	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			.75	0.00	100.0
			.375	0.00	100.0
			#4	1.14	98.6
			#10	2.22	97.3
			#20	2.95	96.4
			#40	3.53	95.7
			#60	4.16	95.0
			#100	22.48	72.7
			#140	58.37	29.2
			#200	70.38	14.6

Fractional Components

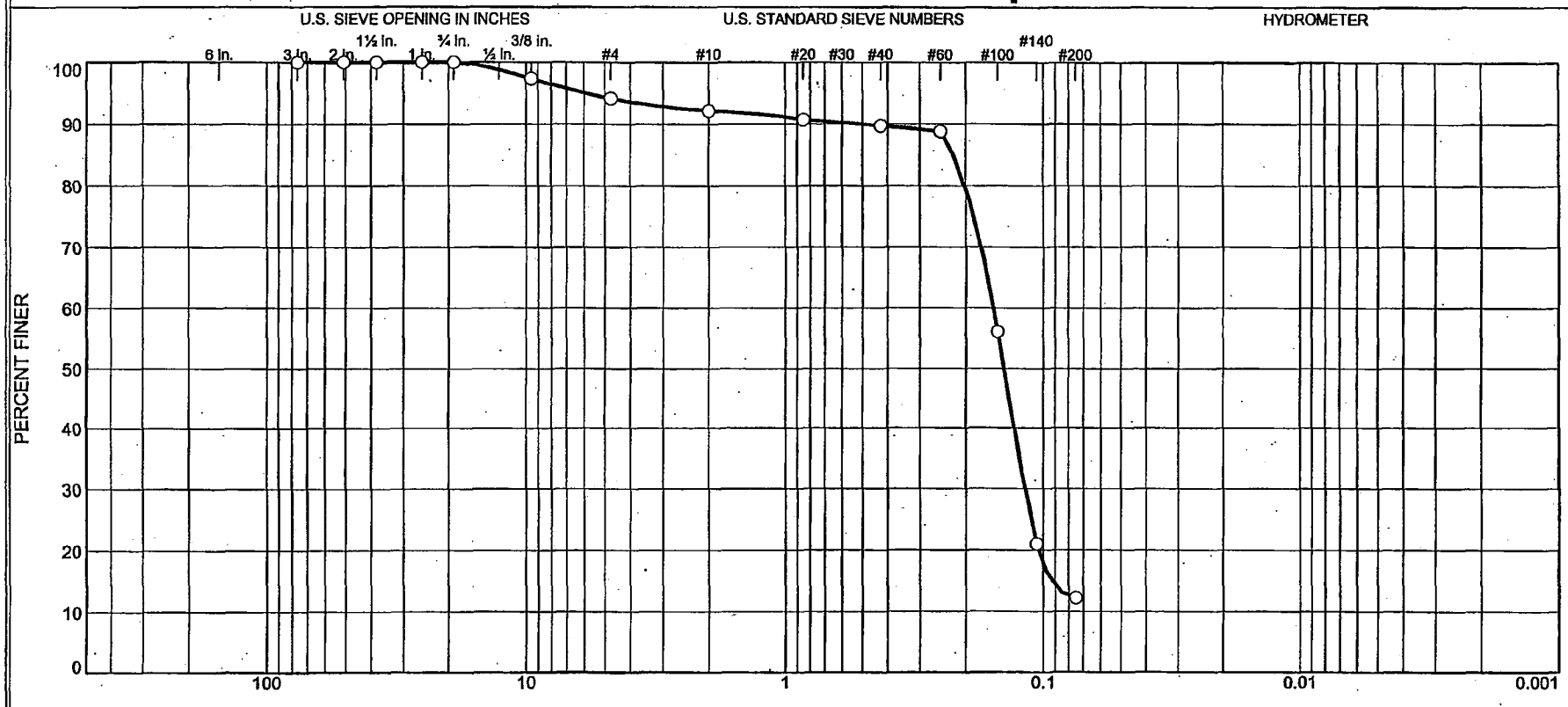
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.4	1.4	1.3	1.6	81.1	84.0			14.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0769	0.0926	0.1069	0.1258	0.1354	0.1619	0.1734	0.1917	0.2576

Fineness Modulus
0.43

NM 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	5.9	2.0	2.4	77.4	12.3	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 908	STP-199 (SS-15)	38.5'-40.0'	12/15/2006	SM	Silty Sand	20.2		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:Rf

ASTM D6913-04e1

MH 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 908
Depth: 38.5'-40.0'
Sample Number: STP-199 (SS-15)
Material Description: Silty Sand
Date: 12/15/2006
Natural Moisture: 20.2
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:Rf
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 239.72
Tare Wt. = 0.00
Minus #200 from wash = 12.3%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
444.90	171.70	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8"	7.42	97.3
			#4	16.12	94.1
			#10	21.58	92.1
			#20	25.61	90.6
			#40	28.11	89.7
			#60	30.52	88.8
			#100	119.78	56.2
			#140	215.65	21.1
			#200	239.72	12.3

Fractional Components

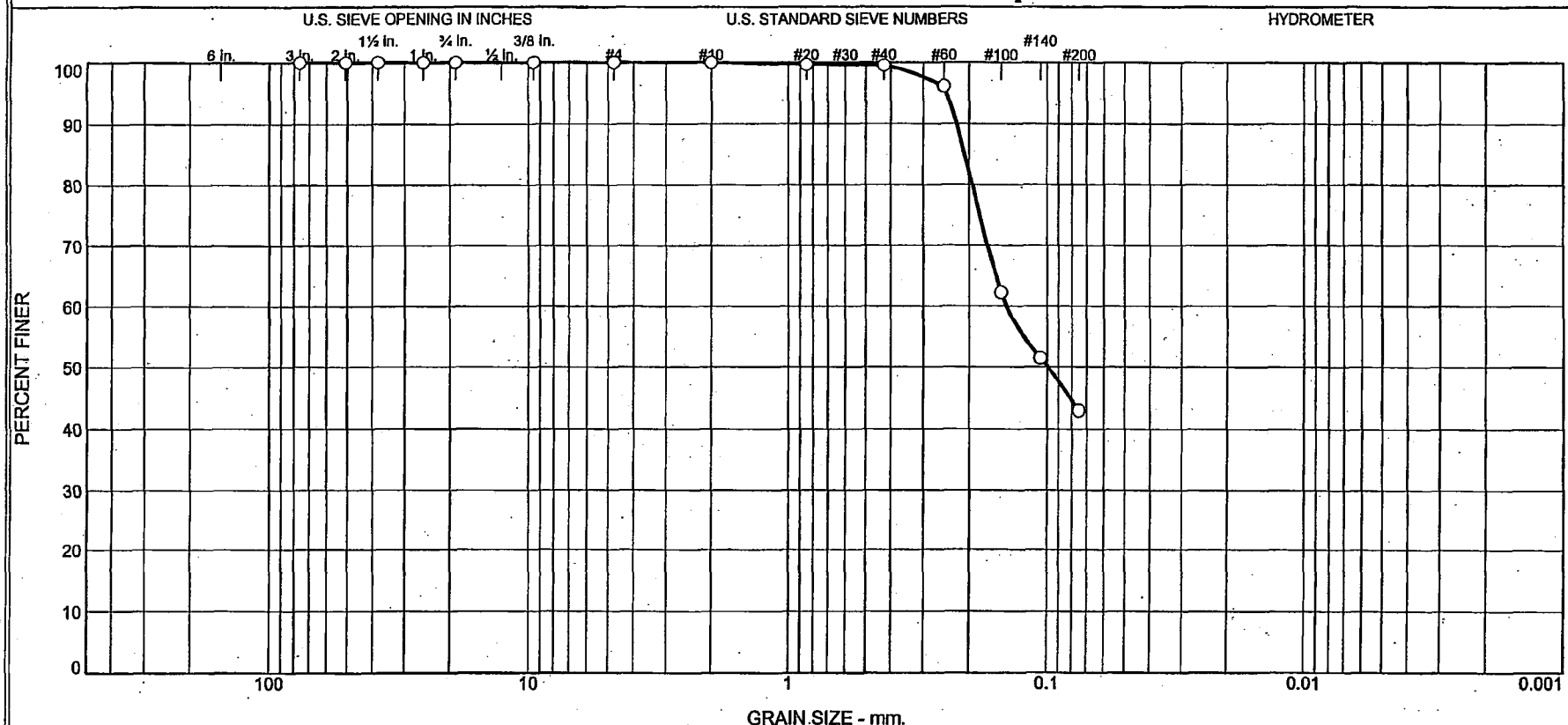
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.9	5.9	2.0	2.4	77.4	81.8			12.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0932	0.1043	0.1178	0.1417	0.1558	0.2017	0.2230	0.5182	5.9457

Fineness Modulus
0.89

MM 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.5	56.6	42.9	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring 908	STP-200	43.5'-45.0'	12/15/2006	SM	Silty Sand	22.4		
		(SS-16)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

○ Tested By:TH Reviewed By:RF

ASTM D6913-04e1

MH 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 908
Depth: 43.5'-45.0'
Sample Number: STP-200 (SS-16)
Material Description: Silty Sand
Date: 12/15/2006
Natural Moisture: 22.4
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
269.00	176.90	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			.75	0.00	100.0
			.375	0.00	100.0
			#4	0.00	100.0
			#10	0.02	100.0
			#20	0.34	99.6
			#40	0.45	99.5
			#60	3.56	96.1
			#100	34.79	62.2
			#140	44.70	51.5
			#200	52.56	42.9

Fractional Components

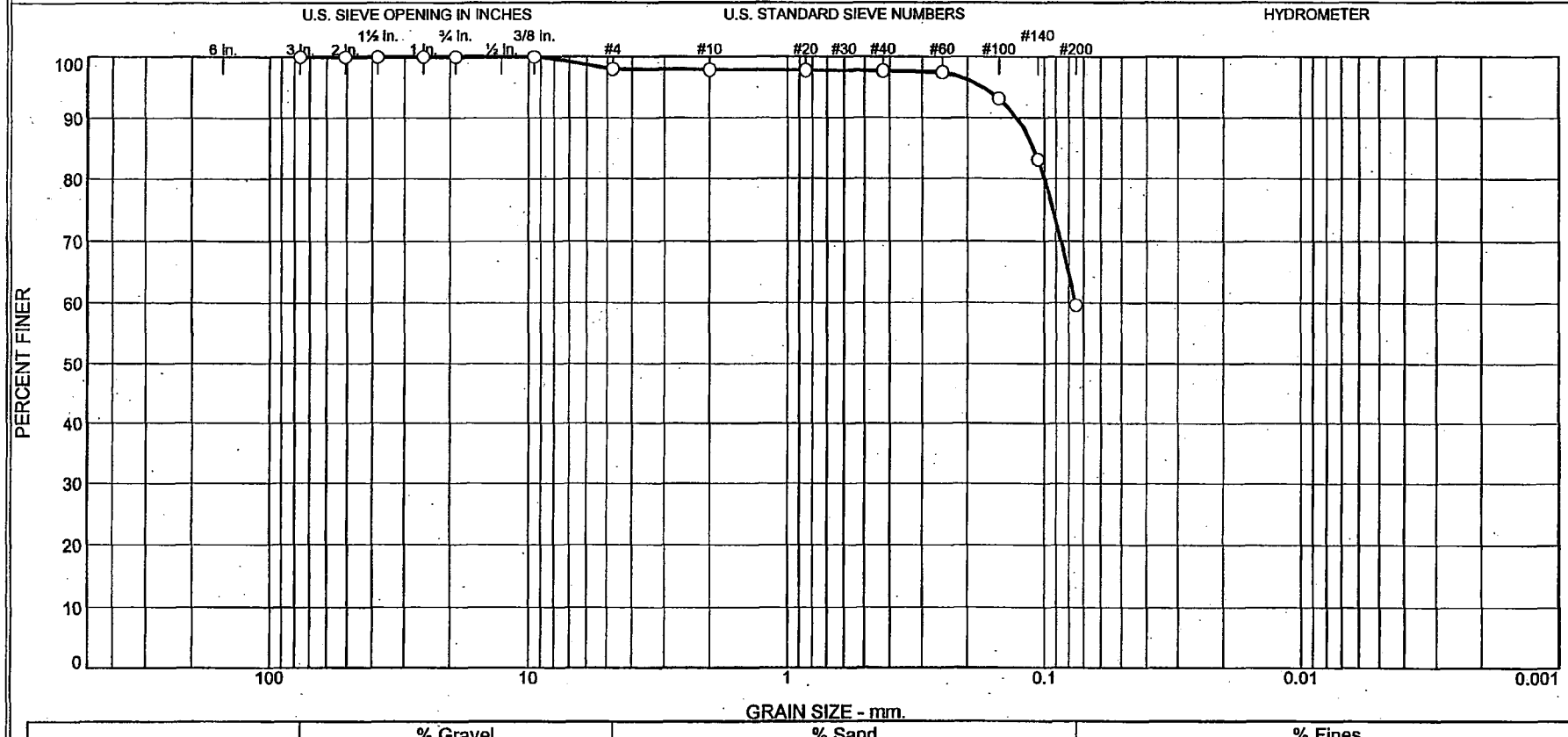
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.5	56.6	57.1			42.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0994	0.1432	0.1943	0.2079	0.2236	0.2440

Fineness Modulus
0.41

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	2.1	0.1	0.2	38.0	59.6	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 909	STP-210	28.5'-30.0'	12/13/2006	ML	Sandy Silt	26.0		
		(SS-13)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 909
Depth: 28.5'-30.0'
Sample Number: STP-210 (SS-13)
Material Description: Sandy Silt
Date: 12/13/2006
Natural Moisture: 26.0
USCS Class.: ML
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Analysis

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 35.56
Tare Wt. = 0.00
Minus #200 from wash = 59.6%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
265.80	177.70	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			3/4	0.00	100.0
			3/8	0.00	100.0
			#4	1.81	97.9
			#10	1.93	97.8
			#20	2.00	97.7
			#40	2.08	97.6
			#60	2.27	97.4
			#100	6.05	93.1
			#140	14.83	83.2
			#200	35.56	59.6

Fractional Components

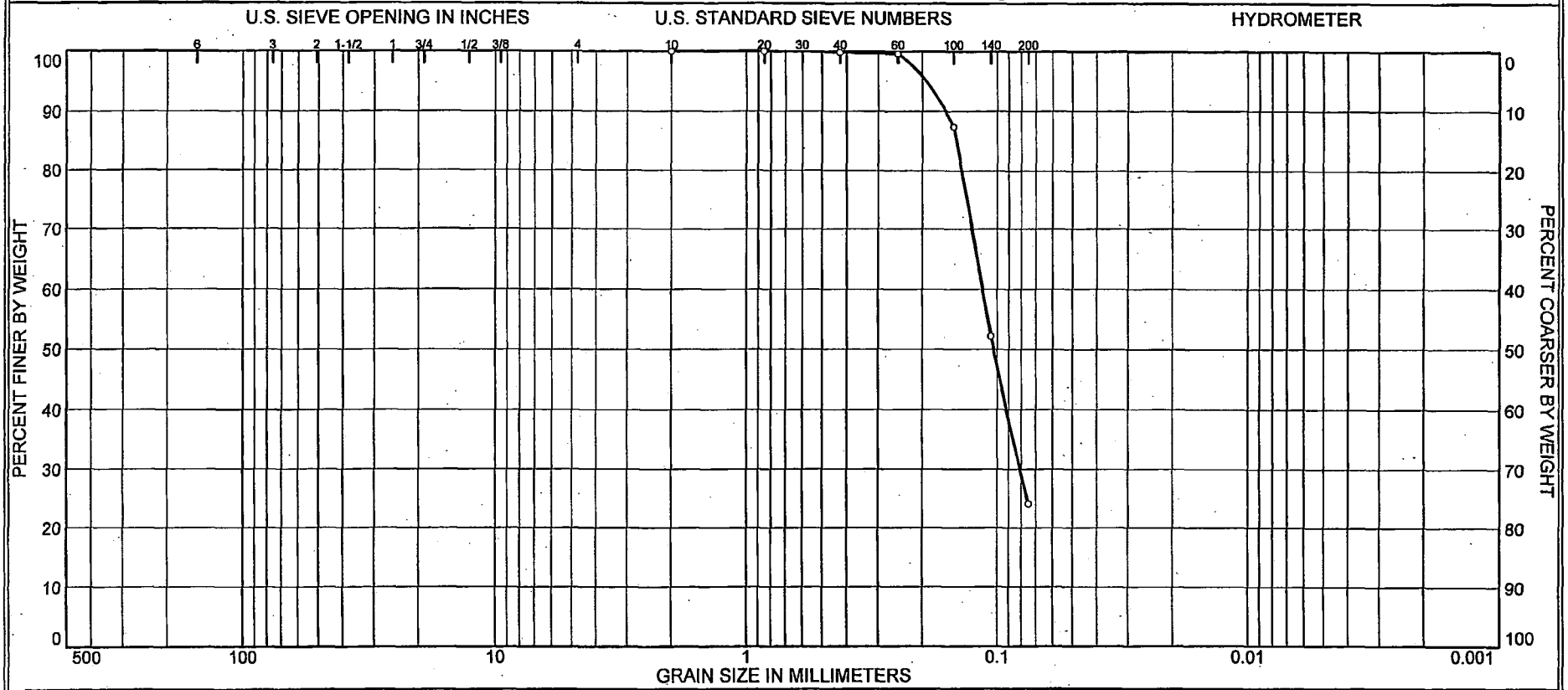
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.1	2.1	0.1	0.2	38.0	38.3			59.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0754	0.0999	0.1103	0.1279	0.1728

Fineness Modulus
0.18

MA 4-3-07

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	0.2	75.7	24.1	

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-909	UD-1	33' to 35'	2-13-07	SM	Silty Sand	23.8		

Client Bechtel Power Corporation
Project Bechtel/STP/COL
Project No. 5050-06-0496 Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: SS
ASTM D6913-04e1

SS 2/25/2007

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-909
Sample No.: UD-1
Elev. or Depth: 33' to 35' **Sample Length(in./cm.):**
Location: B-909
Description: Silty Sand
Date: 2-13-07 **Natural Moisture:** 23.8
Liquid Limit: **Plastic Limit:** **USCS Class.:** SM
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D6913-04e1

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	264.35	0.00
Tare =	107.14	0.00
Dry sample weight =	157.21	0.00

Minus #200 from wash= 100.0 %
Tare for cumulative weight retained= .00

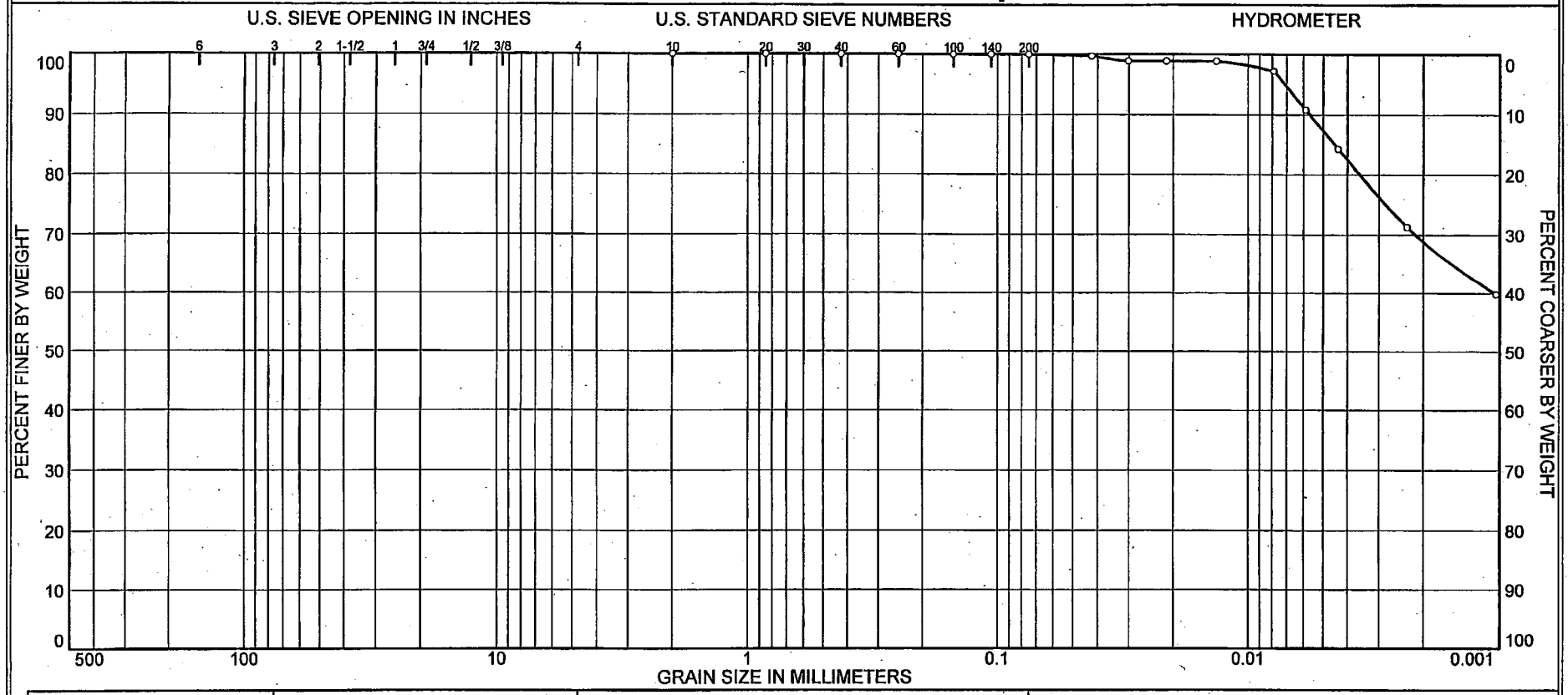
Sieve	Cumul. Wt. retained	Percent finer
10	0.00	100.0
# 20	0.07	100.0
# 40	0.32	99.8
# 60	0.65	99.6
# 100	19.74	87.4
# 140	75.18	52.2
# 200	119.33	24.1

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 75.9 **(% coarse =** **% medium =** 0.2 **% fine =** 75.7)
% FINES = 24.1

D_{85}= 0.15 D_{60}= 0.11 D_{50}= 0.10
D_{30}= 0.08

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	0.0	0.0	12.7	87.3

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-909	UD-2	43' to 45'	2-20-07	CH	Fat clay	25.0	62	24

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: SS KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-909
Sample No.: UD-2
Elev. or Depth: 43' to 45' **Sample Length(in./cm.):**
Location: B-909
Description: Fat clay
Date: 2-20-07 **Natural Moisture:** 25.0
Liquid Limit: 62 **Plastic Limit:** 24 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: SS
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	87.37
Tare =	0.00
Dry sample weight =	87.37

Sample split on number 10 sieve
Split sample data:
Sample and tare = 60.05 **Tare =** .00 **Sample weight =** 60.05
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.01	100.0
# 40	0.03	100.0
# 60	0.03	100.0
# 100	0.03	100.0
# 140	0.03	100.0
# 200	0.03	100.0

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 61.79
Hygroscopic moisture correction:
Moist weight & tare = 39.01
Dry weight & tare = 38.23
Tare = 11.00
Hygroscopic moisture= 2.9 %
Calculated biased weight= 60.07
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.760
Specific gravity correction factor= 0.976

Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

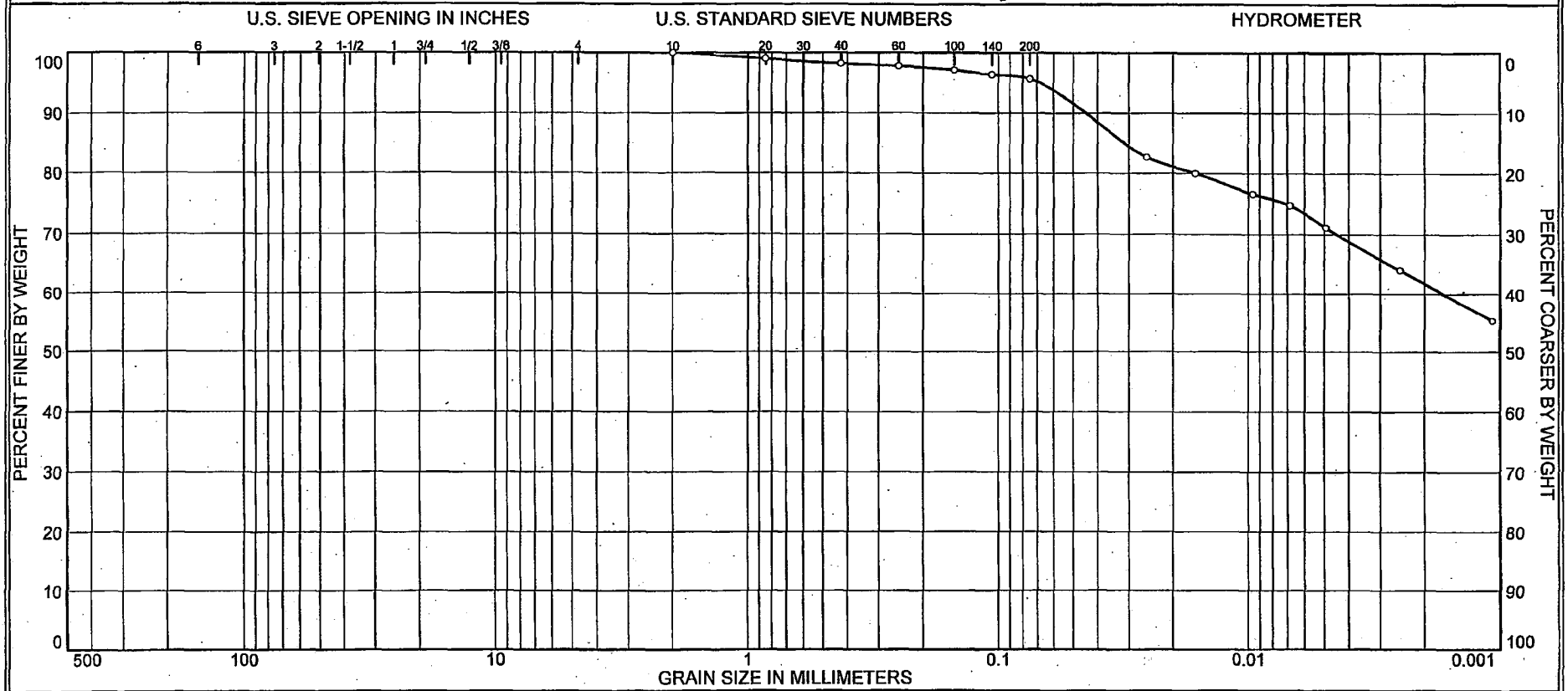
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
0.50	23.4	64.5	61.4	0.0127	65.5	5.6	0.0422	99.7
1.00	23.4	64.0	60.9	0.0127	65.0	5.6	0.0301	98.9
2.00	23.4	64.0	60.9	0.0127	65.0	5.6	0.0213	98.9
5.00	23.4	64.0	60.9	0.0127	65.0	5.6	0.0135	98.9
15.00	23.4	63.0	59.9	0.0127	64.0	5.8	0.0079	97.3
30.00	23.4	59.0	55.9	0.0127	60.0	6.5	0.0059	90.8
60.00	23.4	55.0	51.9	0.0127	56.0	7.1	0.0044	84.3
250.00	23.5	47.0	43.9	0.0127	48.0	8.4	0.0023	71.3
1440.00	23.1	40.0	36.8	0.0127	41.0	9.6	0.0010	59.8

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND =
% SILT = 12.7 **% CLAY =** 87.3

D_{85}= 0.00 D_{60}= 0.00

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	1.8	2.5	24.4	71.3

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-909	UD-4	53' to 55'	2-22-07	CH	Fat clay	30.0	66	26

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: MH KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-909
Sample No.: UD-4
Elev. or Depth: 53' to 55' **Sample Length(in./cm.):**
Location: B-909
Description: Fat clay
Date: 2-22-07 **Natural Moisture:** 30.0
Liquid Limit: 66 **Plastic Limit:** 26 **USCS Class.:** CH
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	93.11
Tare =	0.00
Dry sample weight =	93.11

Sample split on number 10 sieve
Split sample data:
Sample and tare = 54.55 **Tare =** .00 **Sample weight =** 54.55
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.55	99.0
# 40	0.96	98.2
# 60	1.21	97.8
# 100	1.56	97.1
# 140	1.95	96.4
# 200	2.36	95.7

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 57.39
Hygroscopic moisture correction:
Moist weight & tare = 51.21
Dry weight & tare = 49.22
Tare = 10.94
Hygroscopic moisture= 5.2 %
Calculated biased weight= 54.55
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.774
Specific gravity correction factor= 0.974

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

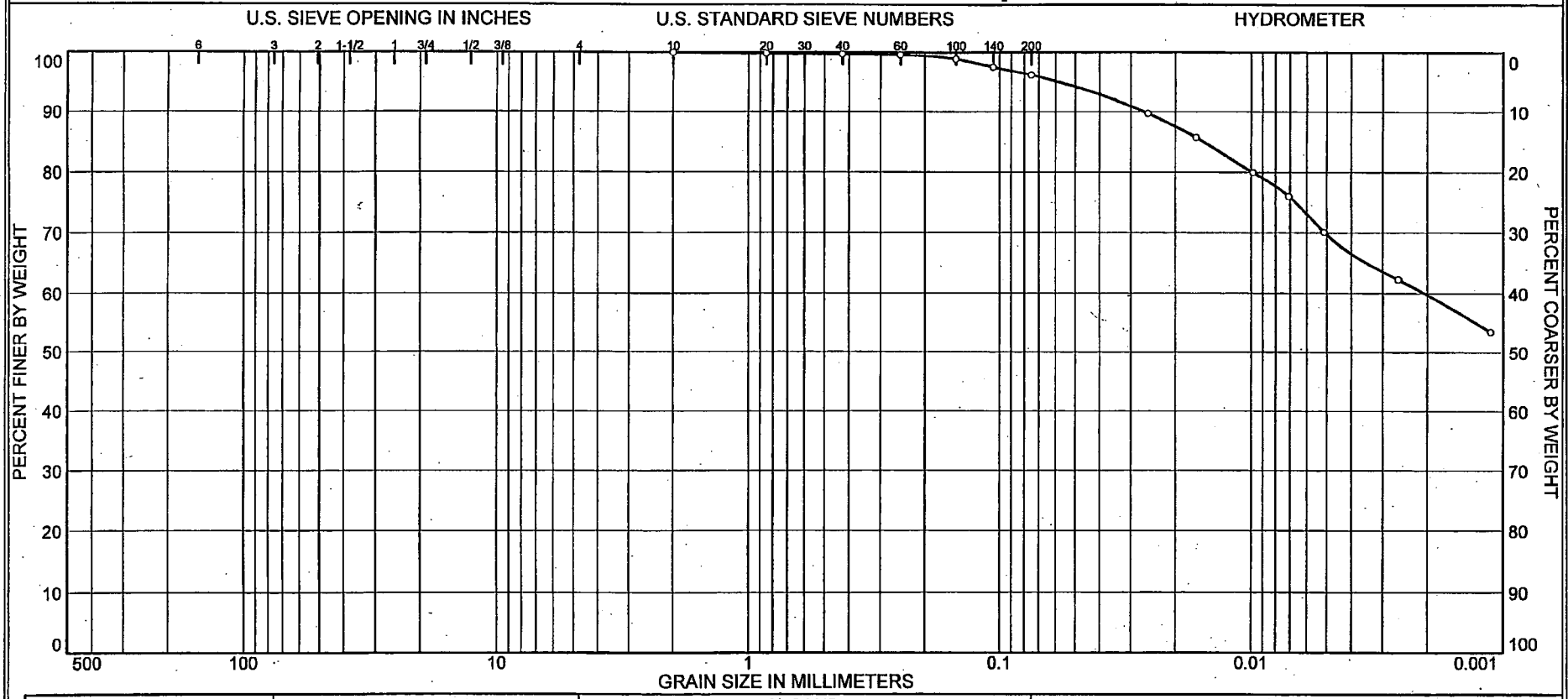
Elapsed ime, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.00	23.1	49.5	46.3	0.0127	50.5	8.0	0.0254	82.7
5.00	23.1	48.0	44.8	0.0127	49.0	8.3	0.0163	80.0
15.00	23.1	46.0	42.8	0.0127	47.0	8.6	0.0096	76.5
30.00	23.1	45.0	41.8	0.0127	46.0	8.8	0.0068	74.7
60.00	23.1	43.0	39.8	0.0127	44.0	9.1	0.0049	71.1
250.00	23.1	39.0	35.8	0.0127	40.0	9.7	0.0025	64.0
1440.00	23.9	34.0	31.0	0.0126	35.0	10.6	0.0011	55.3

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 4.3 **(% coarse =** **% medium =** 1.8 **% fine =** 2.5**)**
% SILT = 24.4 **% CLAY =** 71.3

D_{85}= 0.03 D_{60}= 0.00

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.0	0.3	3.5	26.5	69.7

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-909	UD-5	85' to 87'	2-24-07	CL	Lean clay	21.9	49	23

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 | Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: MH KAW 4/3/07
ASTM D422-63 (2002)e1
ASTM D6913-04e1

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-909
Sample No.: UD-5
Elev. or Depth: 85' to 87' **Sample Length(in./cm.):**
Location: B-909
Description: Lean clay
Date: 2-24-07 **Natural Moisture:** 21.9
Liquid Limit: 49 **Plastic Limit:** 23 **USCS Class.:** CL
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D422-63 (2002)e1
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	103.25
Tare =	0.00
Dry sample weight =	103.25

Sample split on number 10 sieve
Split sample data:
Sample and tare = 49.99 Tare = .00 Sample weight = 49.99
Cumulative weight retained tare= .00
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
# 10	0.00	100.0
# 20	0.10	99.8
# 40	0.15	99.7
# 60	0.22	99.6
# 100	0.57	98.9
# 140	1.18	97.6
# 200	1.91	96.2

Hydrometer Analysis Data

Separation sieve is #10
Percent -#10 based upon complete sample= 100.0
Weight of hydrometer sample: 51.44
Hygroscopic moisture correction:
Moist weight & tare = 50.36
Dry weight & tare = 49.24
Tare = 10.89
Hygroscopic moisture= 2.9 %
Calculated biased weight= 49.98
Table of composite correction values:

Temp, deg C:	14.0	24.0	40.2
Comp. corr:	-5.0	-3.0	0.0

Meniscus correction only= 1
Specific gravity of solids= 2.754
Specific gravity correction factor= 0.978

Hydrometer type: 152H

Effective depth L= 16.294964 - 0.164 x Rm

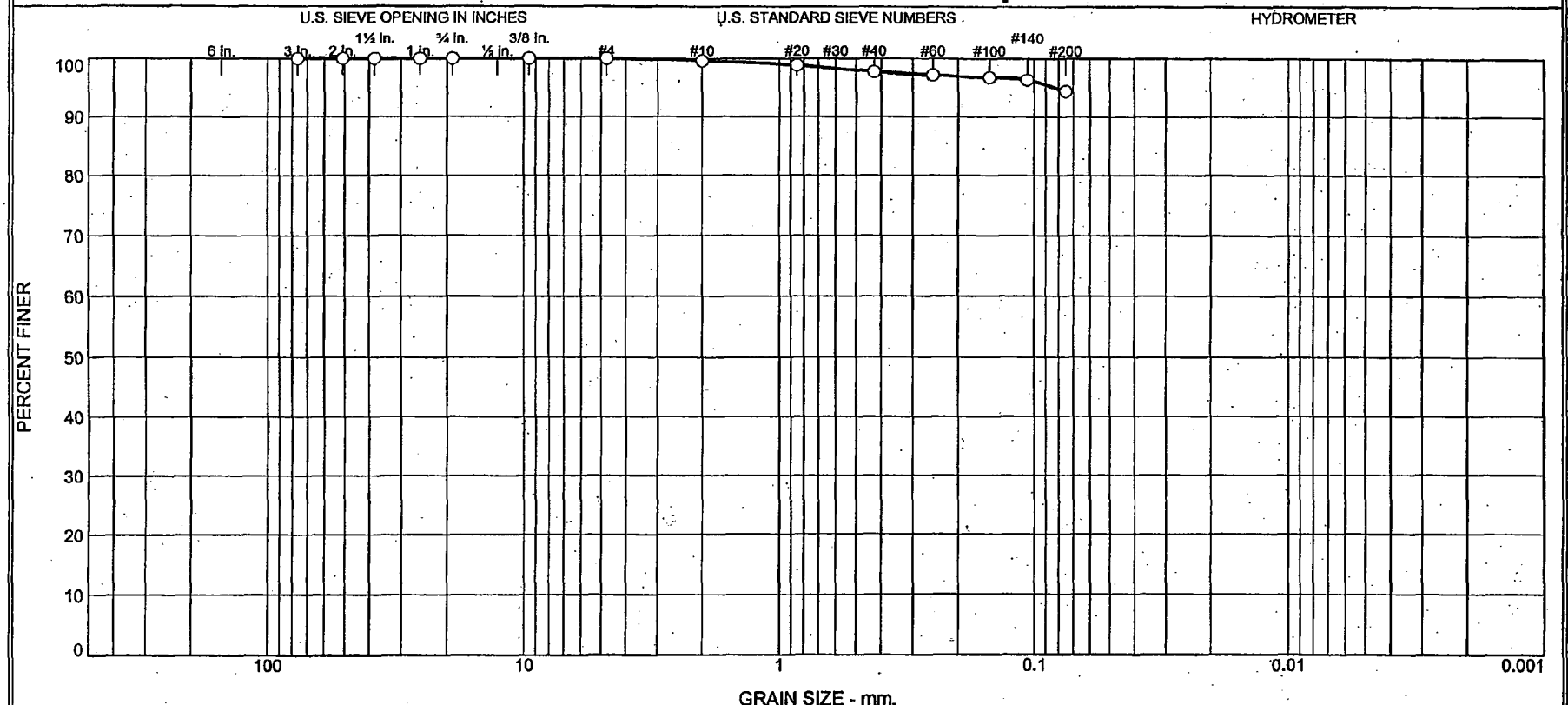
Elapsed me, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.00	23.1	49.0	45.8	0.0127	50.0	8.1	0.0256	89.7
5.00	23.1	47.0	43.8	0.0127	48.0	8.4	0.0165	85.7
15.00	23.1	44.0	40.8	0.0127	45.0	8.9	0.0098	79.9
30.00	23.1	42.0	38.8	0.0127	43.0	9.2	0.0071	76.0
60.00	23.1	39.0	35.8	0.0127	40.0	9.7	0.0051	70.1
250.00	23.1	35.0	31.8	0.0127	36.0	10.4	0.0026	62.3
1440.00	23.2	30.5	27.3	0.0127	31.5	11.1	0.0011	53.5

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 3.8 (**% coarse =** **% medium =** 0.3 **% fine =** 3.5)
% SILT = 26.5 **% CLAY =** 69.7

D_{85}= 0.02 D_{60}= 0.00

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.4	1.9	3.4	94.3	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 911	STP-311	23.5'-25.0'	12/14/2006	ML	Silt	28.4	NV	NP
		(SS-12)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested BY:TH Reviewed By:RF
ASTM D6913-04e1

NM 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

4/1/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 911
Depth: 23.5'-25.0' **Sample Number:** STP-311 (SS-12)
Material Description: Silt
Date: 12/14/2006 **Natural Moisture:** 28.4
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** ML
Testing Remarks: Tested BY:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
252.90	177.00	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			.75	0.00	100.0
			.375	0.00	100.0
			#4	0.00	100.0
			#10	0.30	99.6
			#20	0.91	98.8
			#40	1.72	97.7
			#60	2.15	97.2
			#100	2.45	96.8
			#140	2.78	96.3
			#200	4.29	94.3

Fractional Components

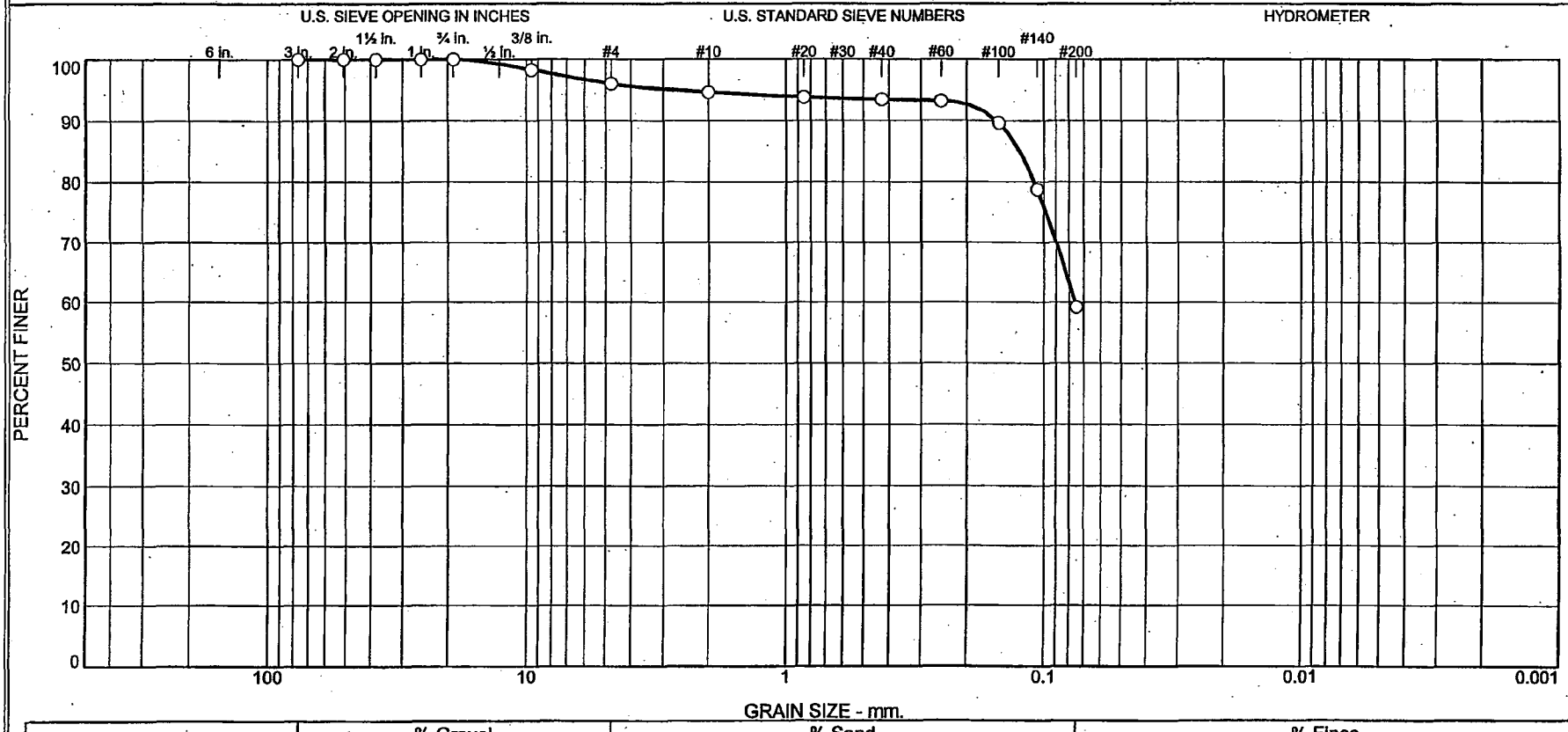
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.4	1.9	3.4	5.7			94.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
									0.0825

Fineness Modulus
0.09

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	4.0	1.4	1.2	34.2	59.2	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 912	STP-216	33.5'-35.0'	12/13/2006	ML	Sandy Silt	26.5		
		(SS-14)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 912
Depth: 33.5'-35.0'
Sample Number: STP-216 (SS-14)
Material Description: Sandy Silt
Date: 12/13/2006
Natural Moisture: 26.5
USCS Class.: ML
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 68.27
Tare Wt. = 0.00
Minus #200 from wash = 59.2%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
343.00	175.70	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8	2.89	98.3
			#4	6.67	96.0
			#10	9.05	94.6
			#20	10.43	93.8
			#40	11.10	93.4
			#60	11.51	93.1
			#100	17.39	89.6
			#140	35.54	78.8
			#200	68.27	59.2

Fractional Components

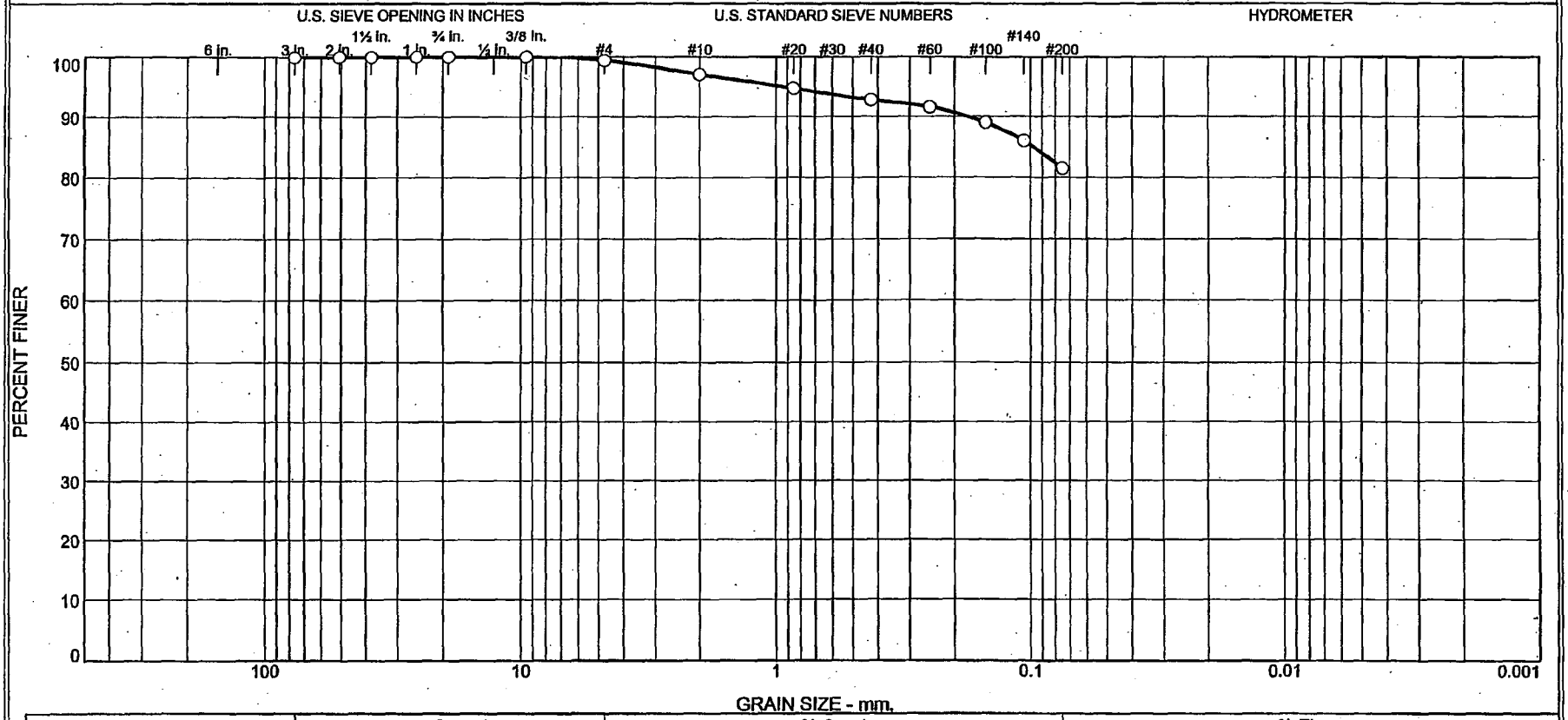
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	4.0	4.0	1.4	1.2	34.2	36.8			59.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0760	0.1090	0.1246	0.1534	2.7974

Fineness Modulus
0.41

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.6	2.4	4.2	11.3	81.5	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 912	STP-217 (SS-16)	43.5'-45.0'	12/13/2006	ML	Silt with Sand	18.8		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 912
Depth: 43.5'-45.0'
Sample Number: STP-217 (SS-16)
Material Description: Silt with Sand
Date: 12/13/2006
Natural Moisture: 18.8
USCS Class.: ML
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 14.96
Tare Wt. = 0.00
Minus #200 from wash = 81.5%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
258.00	177.30	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.52	99.4
			#10	2.39	97.0
			#20	4.30	94.7
			#40	5.85	92.8
			#60	6.78	91.6
			#100	8.88	89.0
			#140	11.30	86.0
			#200	14.96	81.5

Fractional Components

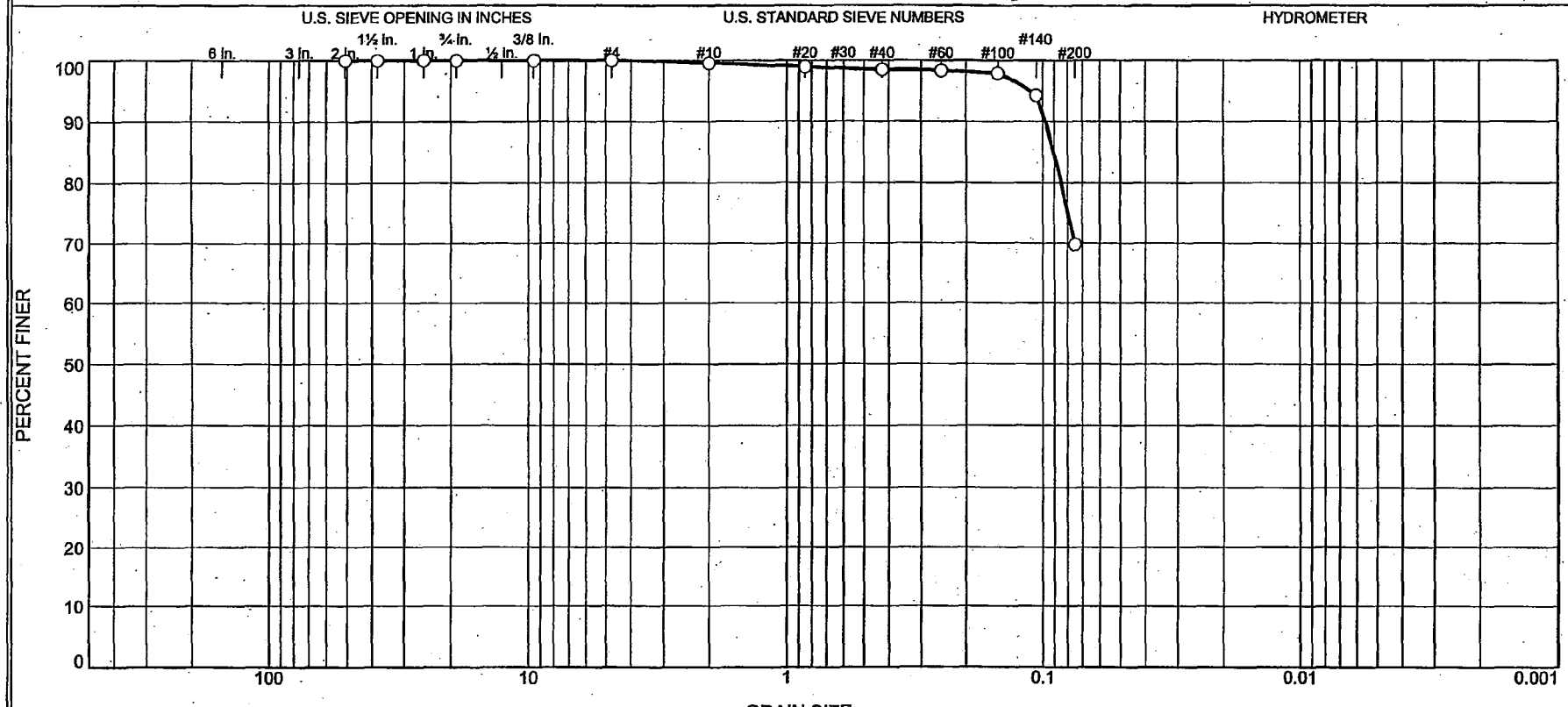
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.6	0.6	2.4	4.2	11.3	17.9			81.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
							0.0974	0.1758	0.9529

Fineness Modulus
0.33

MK 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.4	1.1	28.7	69.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 914	STP-234	23.5'-25.0'	12/12/2006	ML	Sandy Silt	26.9		
		(SS-12)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

MA 4-3-07

KAW 4/13/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 914
Depth: 23.5'-25.0'
Sample Number: STP-234 (SS-12)
Material Description: Sandy Silt
Date: 12/12/2006
Natural Moisture: 26.9
USCS Class.: ML
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 21.93
Tare Wt. = 0.00
Minus #200 from wash = 69.8%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
251.30	178.80	0.00	2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.00	100.0
			#10	0.32	99.6
			#20	0.79	98.9
			#40	1.10	98.5
			#60	1.23	98.3
			#100	1.55	97.9
			#140	4.18	94.2
			#200	21.93	69.8

Fractional Components

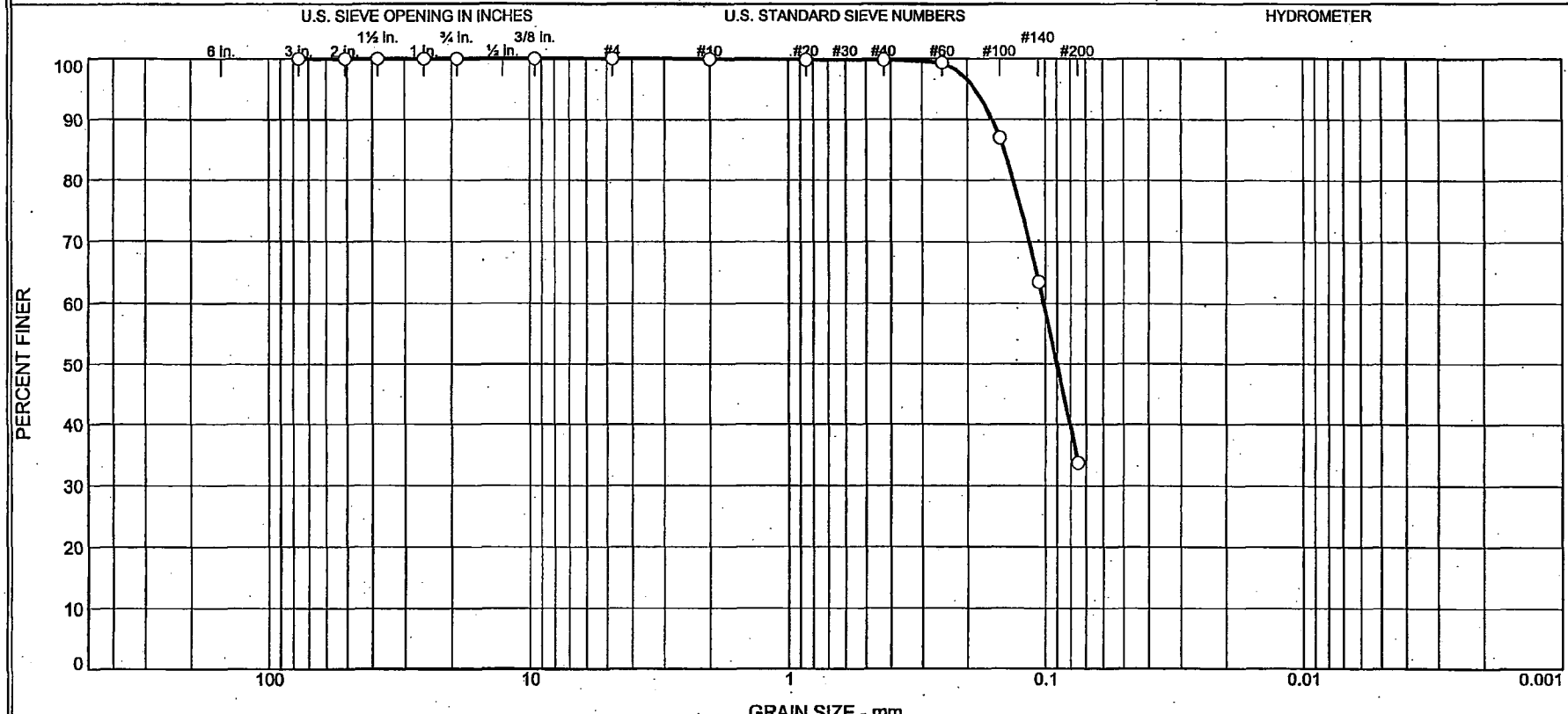
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.4	1.1	28.7	30.2			69.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0847	0.0904	0.0974	0.1121

Fineness Modulus
0.06

MW 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	0.1	66.1	33.7	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring 914	STP-235	28.5'-30.0'	12/12/2006	SM	Silty Sand	25.4		
		(SS-13)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

○ Tested By:TH Reviewed By:RF
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 914
Depth: 28.5'-30.0'
Sample Number: STP-235 (SS-13)
Material Description: Silty Sand
Date: 12/12/2006
Natural Moisture: 25.4
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 55.21
Tare Wt. = 0.00
Minus #200 from wash = 33.7%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
255.80	172.50	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.00	100.0
			#10	0.09	99.9
			#20	0.15	99.8
			#40	0.16	99.8
			#60	0.54	99.4
			#100	10.84	87.0
			#140	30.38	63.5
			#200	55.21	33.7

Fractional Components

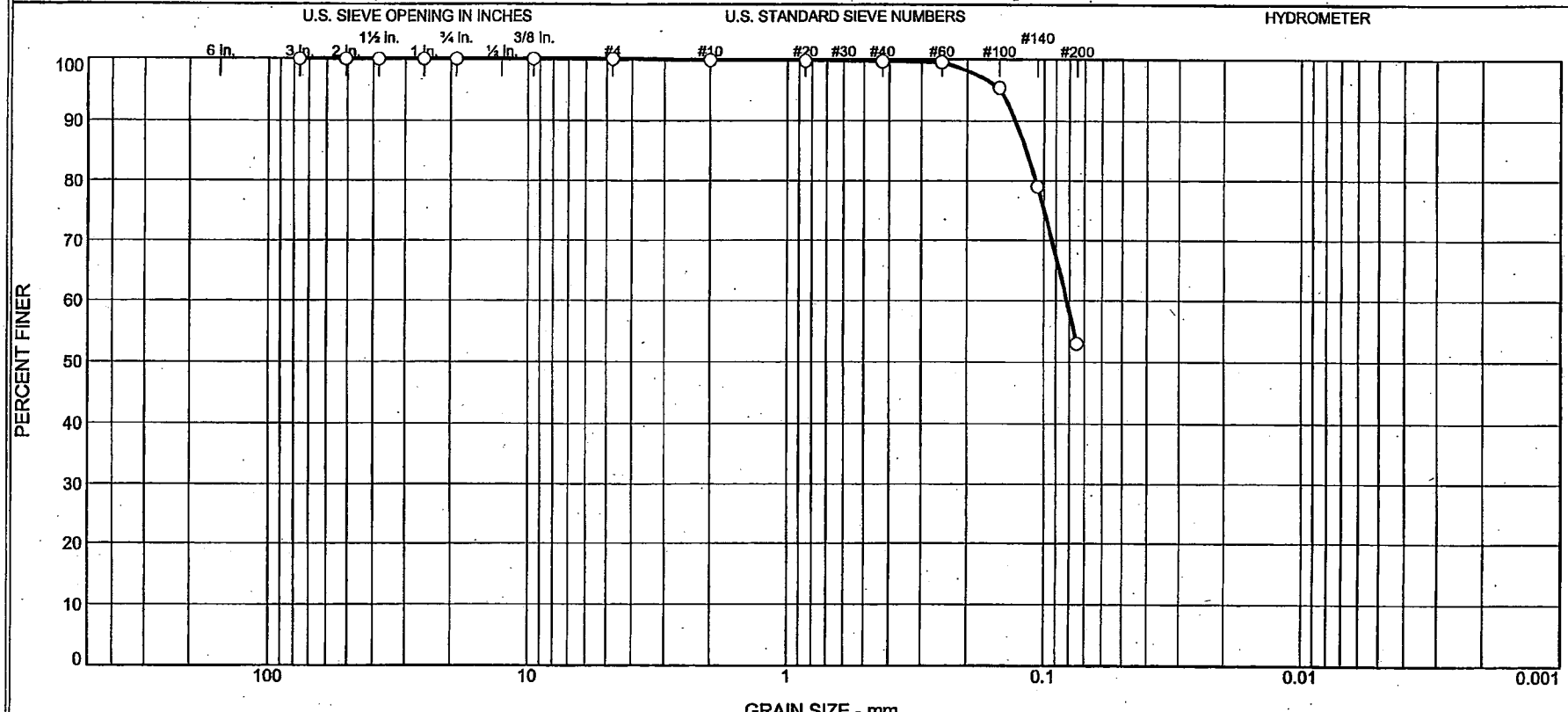
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.1	66.1	66.3			33.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0902	0.1015	0.1327	0.1444	0.1603	0.1864

Fineness Modulus
0.14

MAT 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.2	0.1	46.7	53.0	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 914	STP-236 (SS-14)	33.5'-35.0'	12/12/2006	ML	Sandy Silt	25.5		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 914
Depth: 33.5'-35.0'
Sample Number: STP-236 (SS-14)
Material Description: Sandy Silt
Date: 12/12/2006
Natural Moisture: 25.5
USCS Class.: ML
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 38.26
Tare Wt. = 0.00
Minus #200 from wash = 53.0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
257.50	176.10	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.00	100.0
			#10	0.15	99.8
			#20	0.21	99.7
			#40	0.28	99.7
			#60	0.38	99.5
			#100	3.78	95.4
			#140	17.08	79.0
			#200	38.26	53.0

Fractional Components

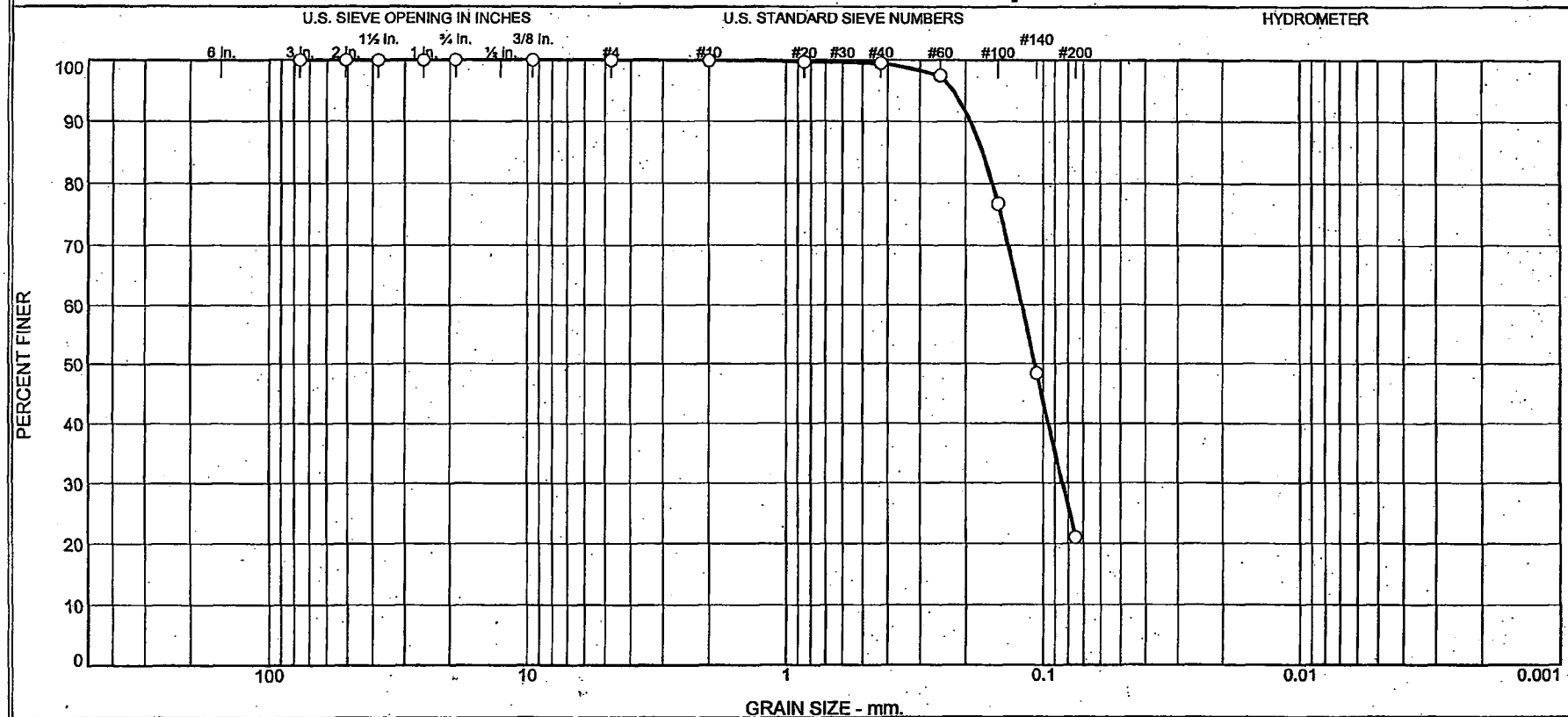
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.2	0.1	46.7	47.0			53.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0818	0.1076	0.1171	0.1295	0.1481

Fineness Modulus
0.06

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.1	0.4	78.5	21.0	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 914	STP-237	38.0'-40.0'	12/12/2006	SM	Silty Sand	25.0		
		(SS-15)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

RF 3/30/07

KAW 4/1/07

GRAIN SIZE DISTRIBUTION TEST DATA

3/30/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 914
Depth: 38.0'-40.0'
Sample Number: STP-237 (SS-15)
Material Description: Silty Sand
Date: 12/12/2006
Natural Moisture: 25.0
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF RF 3/30/07
ASTM D6913-04e1

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
255.60	177.20	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			.75	0.00	100.0
			.375	0.00	100.0
			#4	0.00	100.0
			#10	0.04	99.9
			#20	0.20	99.7
			#40	0.40	99.5
			#60	1.96	97.5
			#100	18.18	76.8
			#140	40.48	48.4
			#200	61.93	21.0

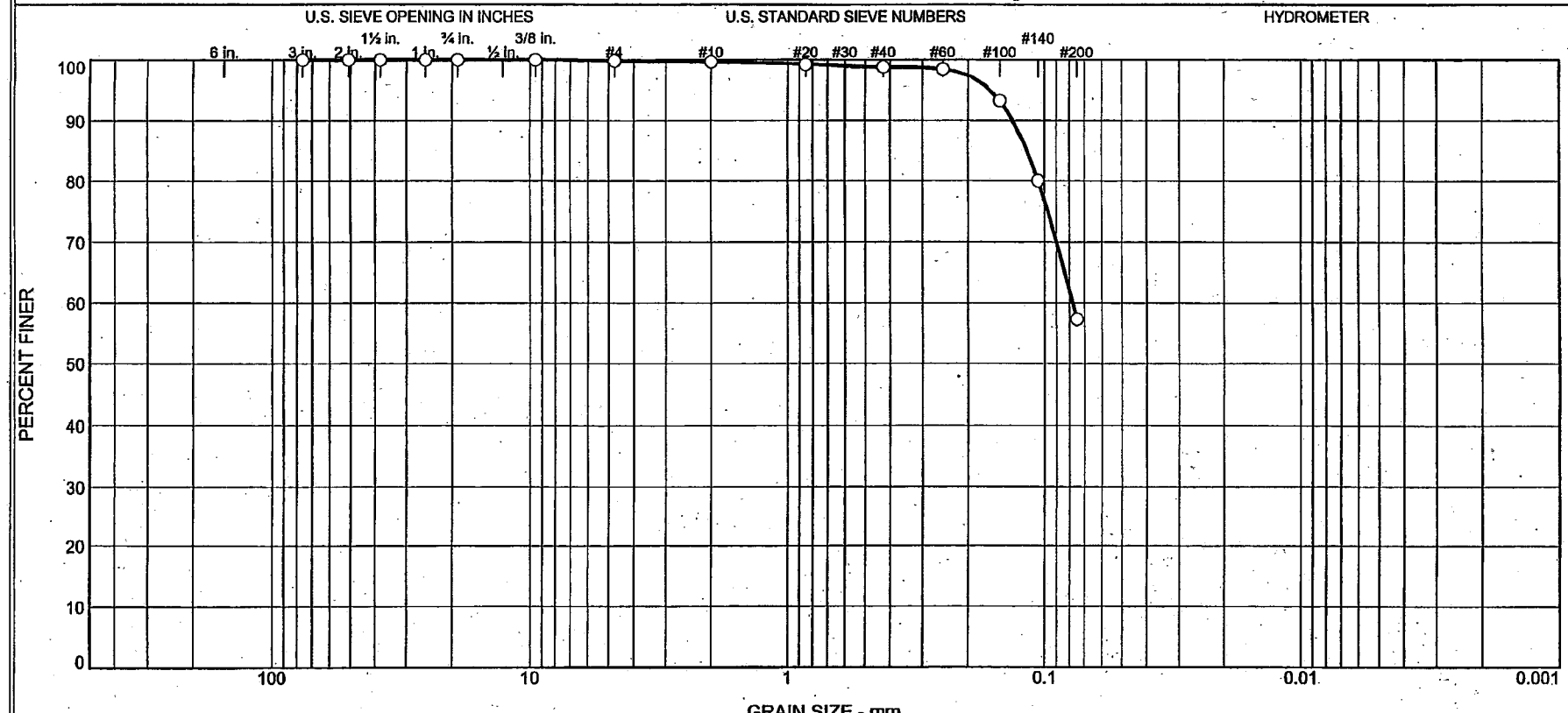
Textural Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.4	78.5	79.0			21.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0843	0.1081	0.1214	0.1574	0.1716	0.1911	0.2221

Fineness Modulus
0.25

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.2	0.2	0.8	41.5	57.3	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring 914	STP-242	63.5'-65.0'	12/12/2006	ML	Sandy Silt	22.9		
		(SS-20)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

○ Tested By:TH Reviewed By:RF

ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 914
Depth: 63.5'-65.0'
Sample Number: STP-242 (SS-20)
Material Description: Sandy Silt
Date: 12/12/2006
Natural Moisture: 22.9
USCS Class.: ML
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 34.77
Tare Wt. = 0.00
Minus #200 from wash = 57.3%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
256.70	175.30	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.15	99.8
			#10	0.31	99.6
			#20	0.63	99.2
			#40	0.99	98.8
			#60	1.27	98.4
			#100	5.51	93.2
			#140	16.25	80.0
			#200	34.77	57.3

Fractional Components

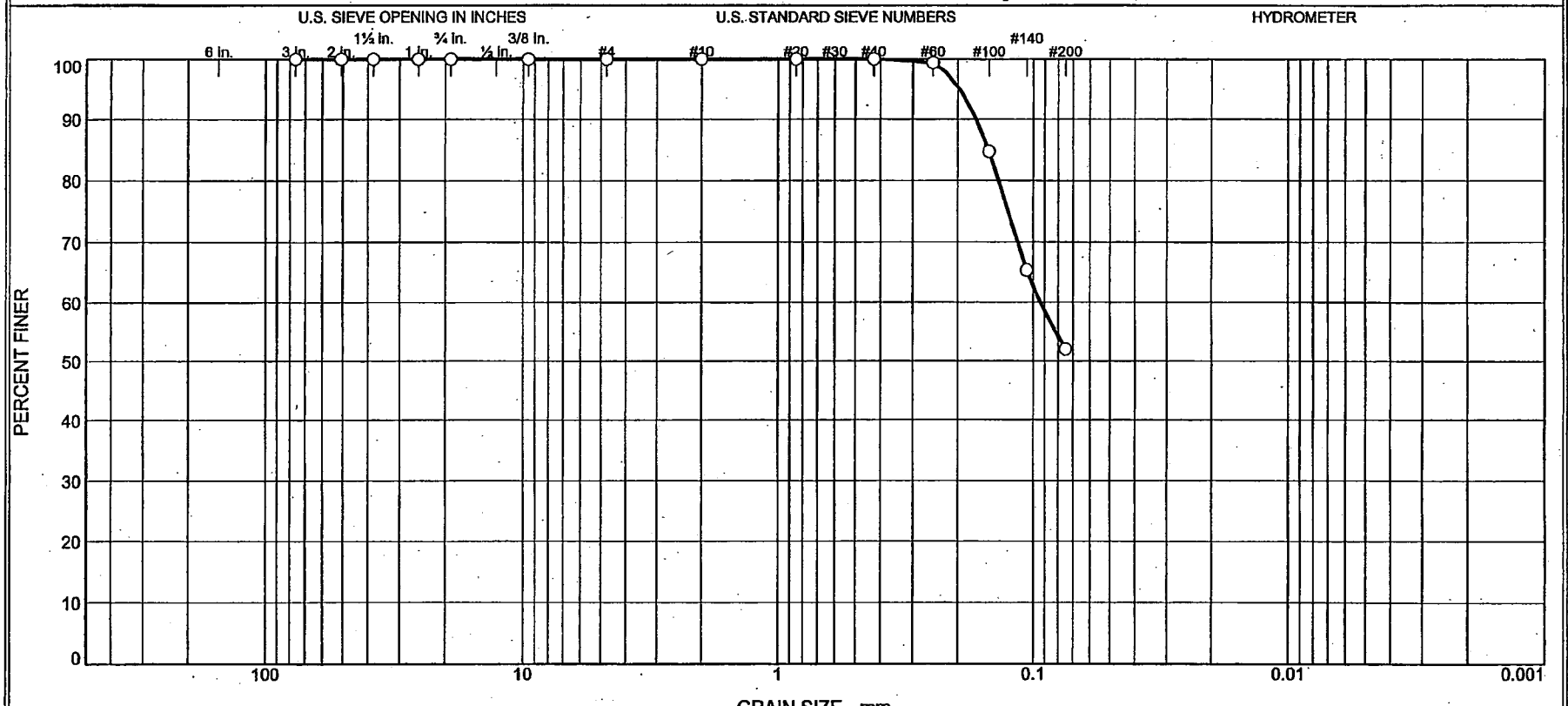
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.2	0.2	0.2	0.8	41.5	42.5			57.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0779	0.1059	0.1173	0.1337	0.1635

Fineness Modulus
0.10

4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.0	48.0	52.0	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring 914	STP-243	68.5'-70.0'	12/12/2006	ML	Sandy Silt	19.2		
		(SS-21)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

○ Tested By:TH Reviewed By:RF

ASTM D6913-04e1

MH 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 914
Depth: 68.5'-70.0'
Sample Number: STP-243 (SS-21)
Material Description: Sandy Silt
Date: 12/12/2006
Natural Moisture: 19.2
USCS Class.: ML
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 39.41
Tare Wt. = 0.00
Minus #200 from wash = 52.0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
256.50	174.40	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.00	100.0
			#40	0.02	100.0
			#60	0.51	99.4
			#100	12.58	84.7
			#140	28.38	65.4
			#200	39.41	52.0

Proportional Components

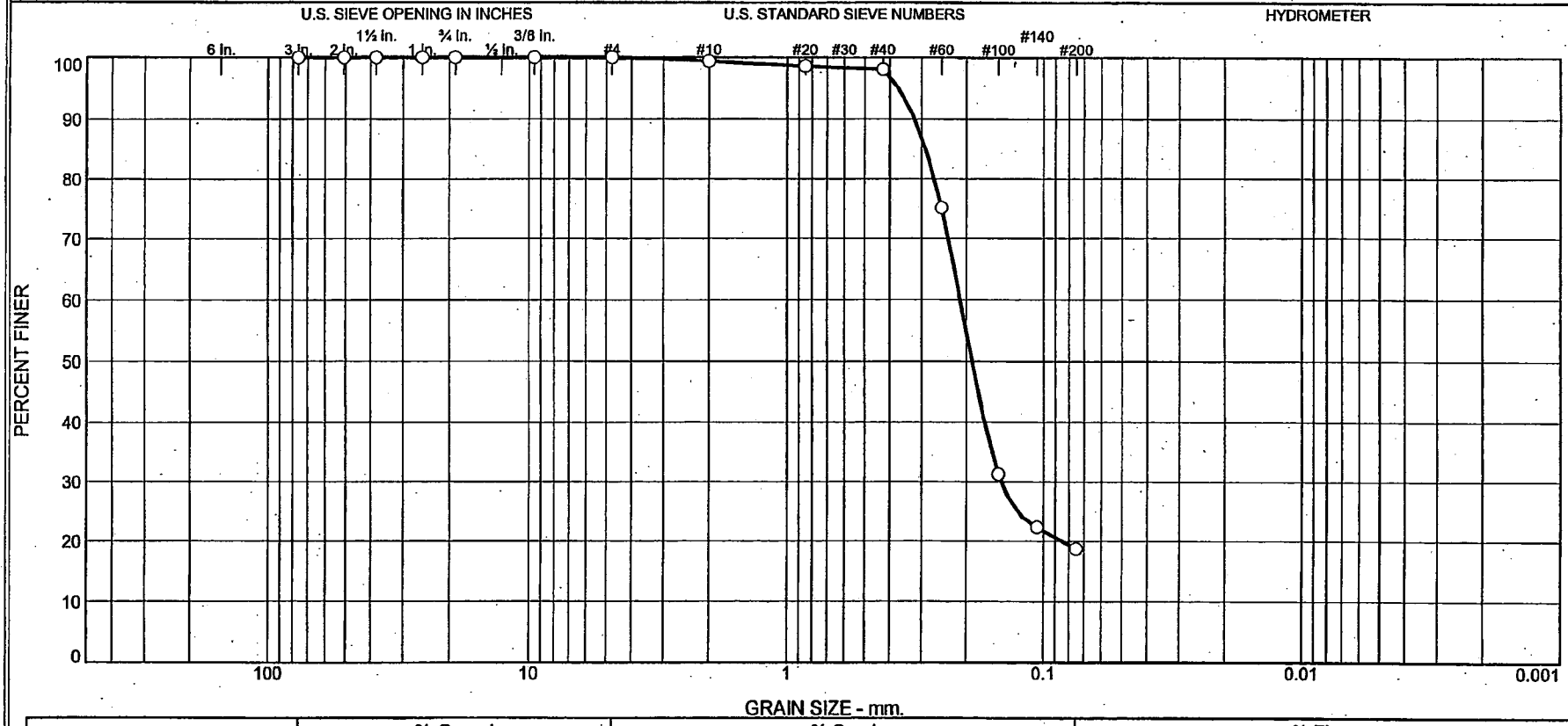
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	48.0	48.0			52.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0939	0.1374	0.1510	0.1691	0.1969

Fineness Modulus
0.16

NM 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.6	1.4	79.3	18.7	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 914	STP-244	73.5'-75.0'	12/12/2006	SM	Silty Sand	19.8		
		(SS-22)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 914
Depth: 73.5'-75.0'
Sample Number: STP-244 (SS-22)
Material Description: Silty Sand
Date: 12/12/2006
Natural Moisture: 19.8
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 70.61
Tare Wt. = 0.00
Minus #200 from wash = 18.7%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
264.00	177.10	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.00	100.0
			#10	0.53	99.4
			#20	1.25	98.6
			#40	1.71	98.0
			#60	21.61	75.1
			#100	59.69	31.3
			#140	67.53	22.3
			#200	70.61	18.7

Fractional Components

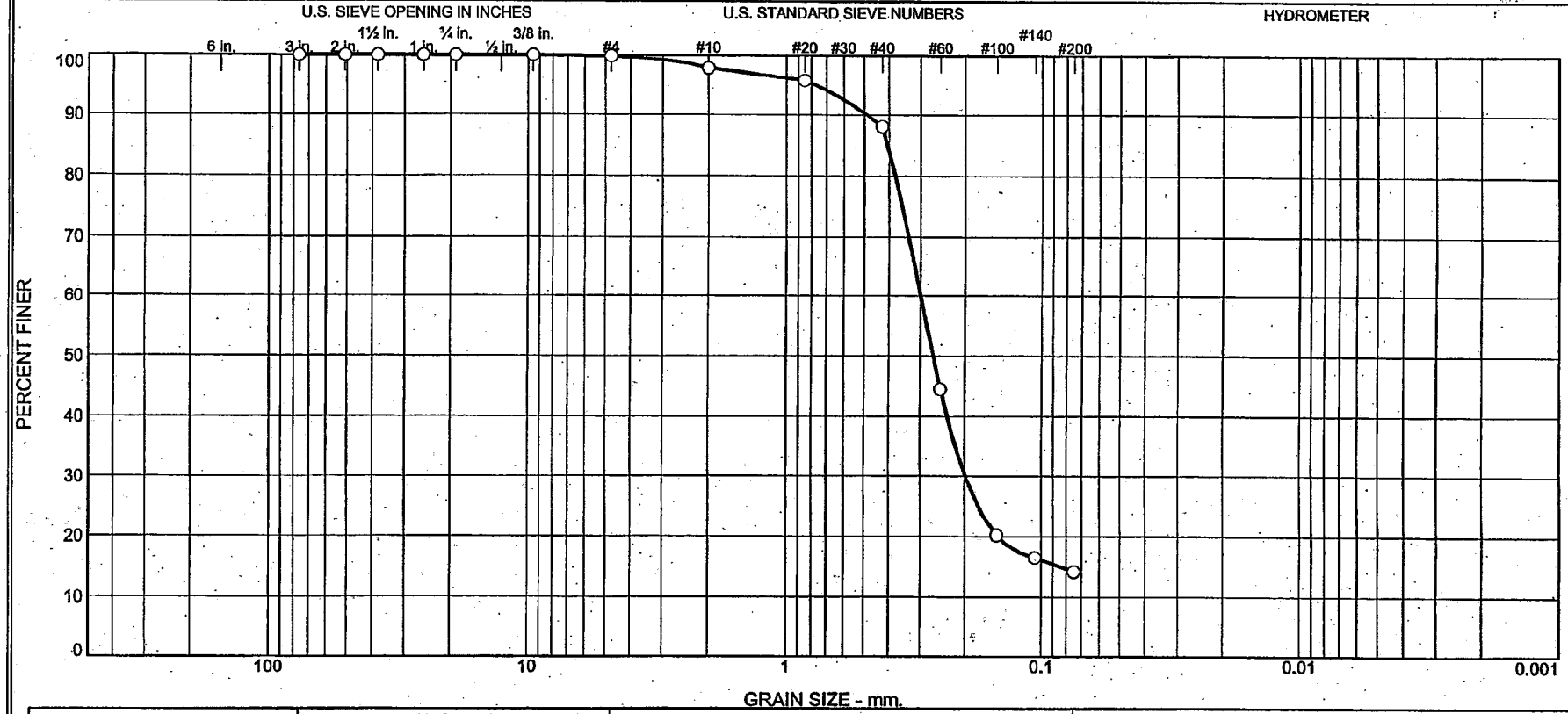
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.6	1.4	79.3	81.3			18.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0849	0.1463	0.1901	0.2111	0.2670	0.2893	0.3198	0.3685

Fineness Modulus
0.85

NM 4.3.07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.2	2.0	9.8	73.8	14.2	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 914	STP-245	78.5'-80.0'	12/12/2006	SM	Silty Sand	18.8		
		(SS-23)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

RF 3/30/07

KAW 4/1/07

GRAIN SIZE DISTRIBUTION TEST DATA

3/30/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 914
Depth: 78.5'-80.0'
Sample Number: STP-245 (SS-23)
Material Description: Silty Sand
Date: 12/12/2006
Natural Moisture: 18.8
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF RF 3/30/07
ASTM D6913-04e1

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
266.10	178.80	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			.75	0.00	100.0
			.375	0.00	100.0
			#4	0.18	99.8
			#10	1.92	97.8
			#20	3.73	95.7
			#40	10.45	88.0
			#60	48.42	44.5
			#100	69.66	20.2
			#140	72.91	16.5
			#200	74.94	14.2

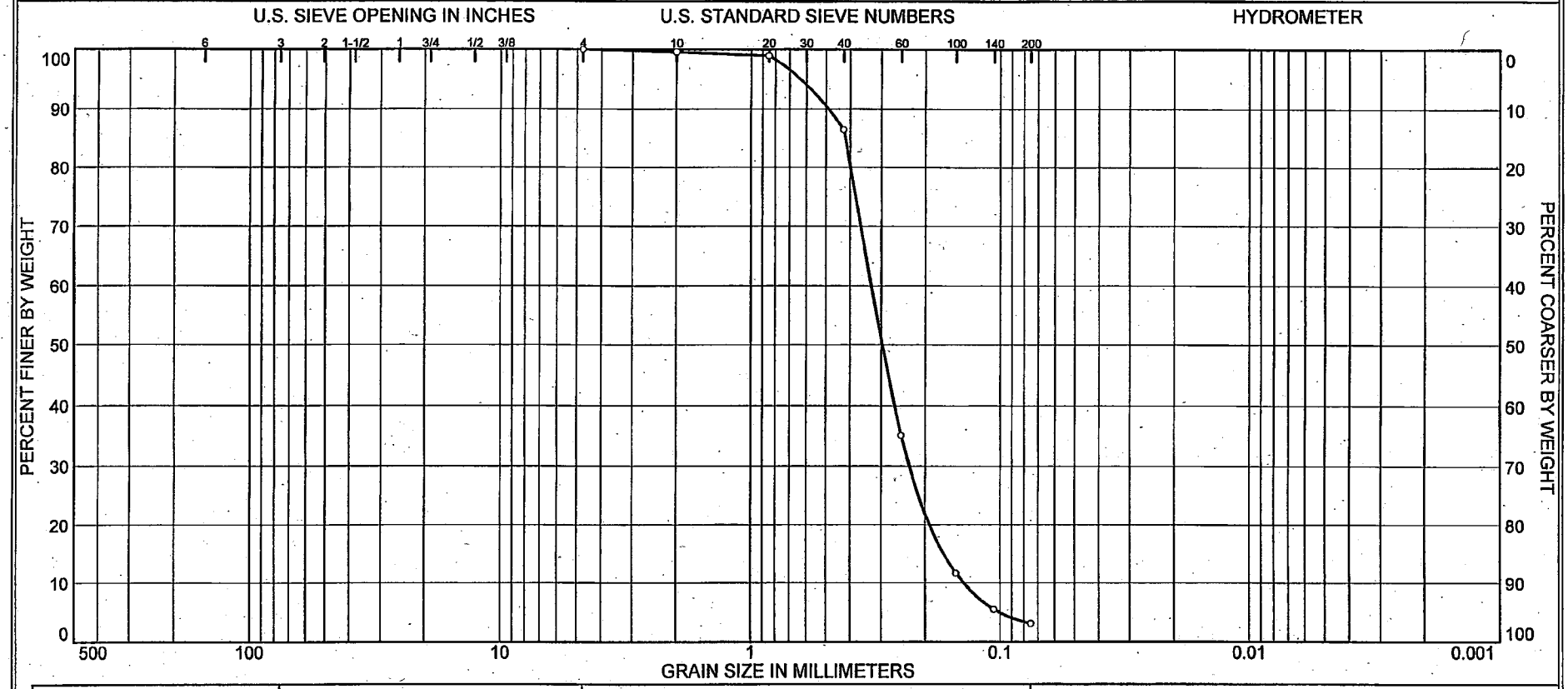
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.2	0.2	2.0	9.8	73.8	85.6			14.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0846	0.1485	0.1987	0.2673	0.2993	0.3771	0.4044	0.4882	0.7738

Fineness Modulus
1.32

Particle Size Distribution Report



	% COBBLES	% GRAVEL		% SAND			% FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	0.0	0.4	13.1	83.5	3.0	

	SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
○	B-918	SS-19	83.5' to 85'	3-15-07	SP	Poorly graded sand	19.3	NV	NP

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496 Figure

MACTEC, INC.

Charlotte, North Carolina

○ Tested by: JA Reviewed by: MH
ASTM D6913-04e1

KAW 4/3/07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496

Sample Data

Source: B-918
Sample No.: SS-19
Elev. or Depth: 83.5' to 85' **Sample Length(in./cm.):**
Location: B-918
Description: Poorly graded sand
Date: 3-15-07 **Natural Moisture:** 19.3
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SP
Testing Remarks: Tested by: JA Reviewed by: MH
ASTM D6913-04e1

Mechanical Analysis Data

	Initial
Dry sample and tare=	337.01
Tare =	111.62
Dry sample weight =	225.39

Tare for cumulative weight retained= .00

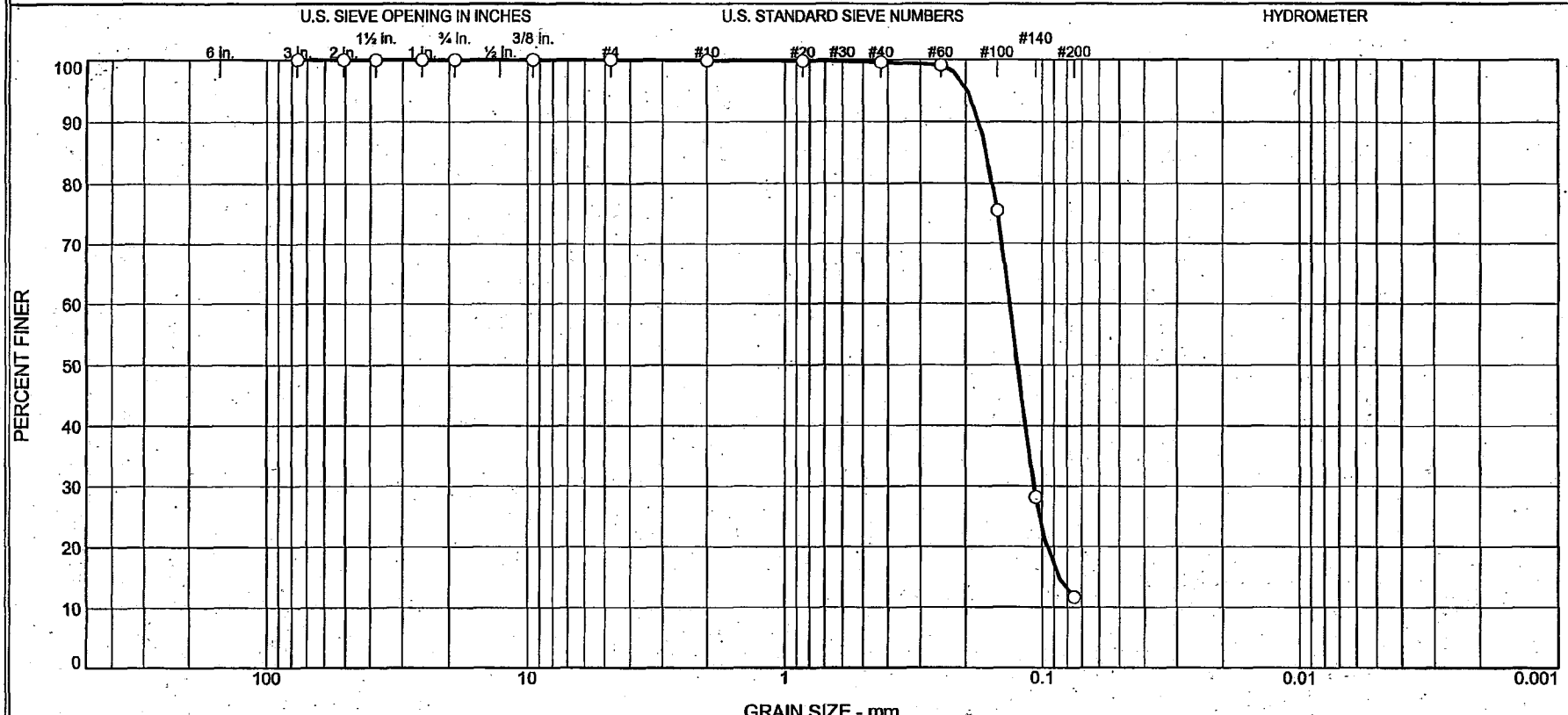
Sieve	Cumul. Wt. retained	Percent finer
# 4	0.00	100.0
# 10	1.00	99.6
# 20	2.22	99.0
40	30.54	86.5
# 60	146.31	35.1
# 100	199.14	11.6
# 140	213.14	5.4
# 200	218.60	3.0

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = **% GRAVEL =**
% SAND = 97.0 (**% coarse** = 0.4 **% medium** = 13.1 **% fine** = 83.5)
% FINES = 3.0

D_{85}= 0.42 D_{60}= 0.33 D_{50}= 0.30
D_{30}= 0.23 D_{15}= 0.17 D_{10}= 0.14
C_c= 1.164 C_u= 2.3523

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.1	0.3	87.8	11.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 919	STP-251	33.5'-35'	12/17/2006	SP-SM	Poorly Graded Sand with Silt	27.0		
		(SS-11)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

MA 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 919
Depth: 33.5'-35'
Sample Number: STP-251 (SS-11)
Material Description: Poorly Graded Sand with Silt
Date: 12/17/2006
Natural Moisture: 27.0
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Results

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 73.33
Tare Wt. = 0.00
Minus #200 from wash = 11.8%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
261.40	178.30	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.00	100.0
			#10	0.12	99.9
			#20	0.18	99.8
			#40	0.36	99.6
			#60	0.76	99.1
			#100	20.32	75.5
			#140	59.72	28.1
			#200	73.33	11.8

Percentage Components

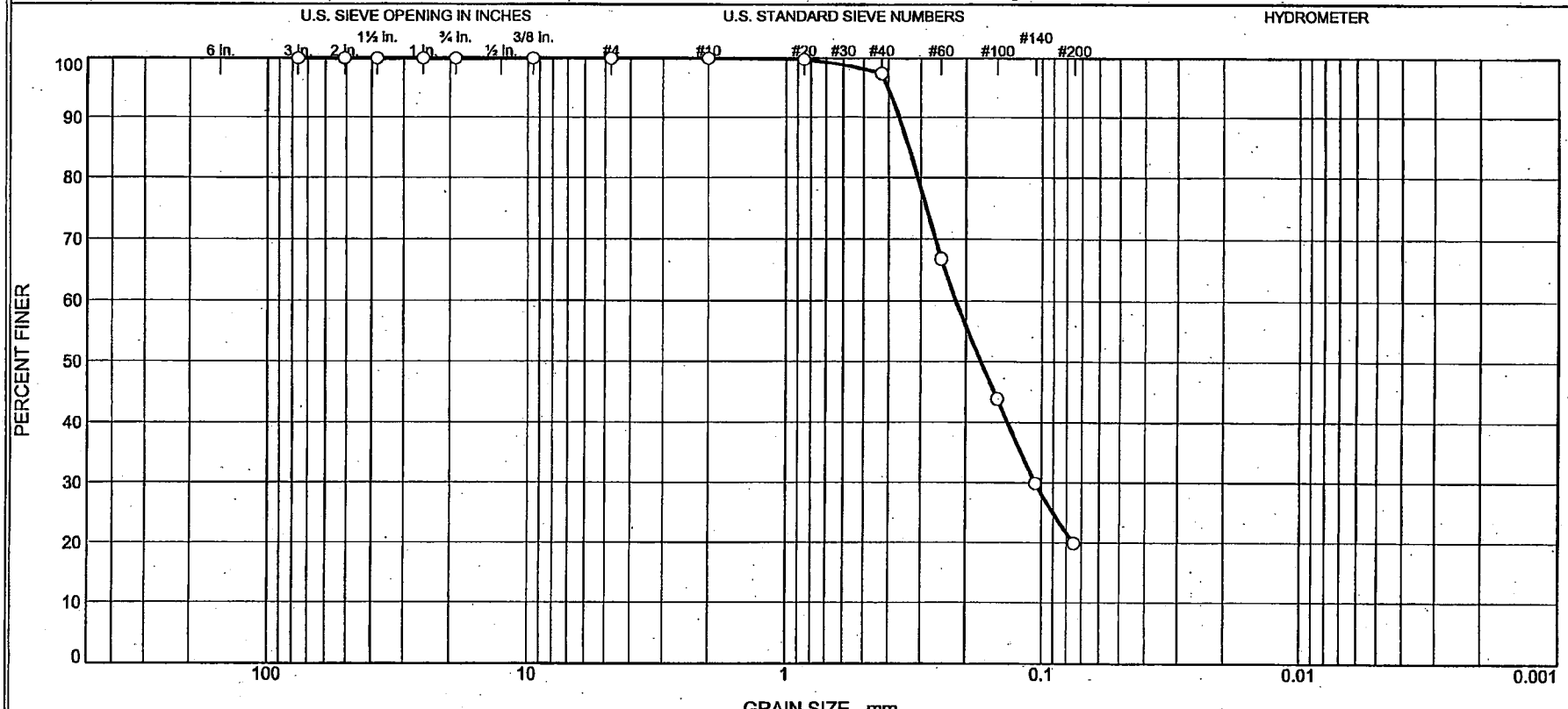
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.3	87.8	88.2			11.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0860	0.0959	0.1079	0.1251	0.1337	0.1562	0.1649	0.1768	0.1966

Fineness Modulus
0.26

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	2.6	77.5	19.9	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 919	STP-253	63.5'-65.0'	12/18/2006	SM	Silty Sand	18.9		
		(SS-16)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

MW 4-3-07 KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 919
Depth: 63.5'-65.0'
Sample Number: STP-253 (SS-16)
Material Description: Silty Sand
Date: 12/18/2006
Natural Moisture: 18.9
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 72.30
Tare Wt. = 0.00
Minus #200 from wash = 19.9%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
265.20	174.90	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.00	100.0
			#10	0.03	100.0
			#20	0.22	99.8
			#40	2.37	97.4
			#60	29.94	66.8
			#100	50.68	43.9
			#140	63.32	29.9
			#200	72.30	19.9

Fractional Components

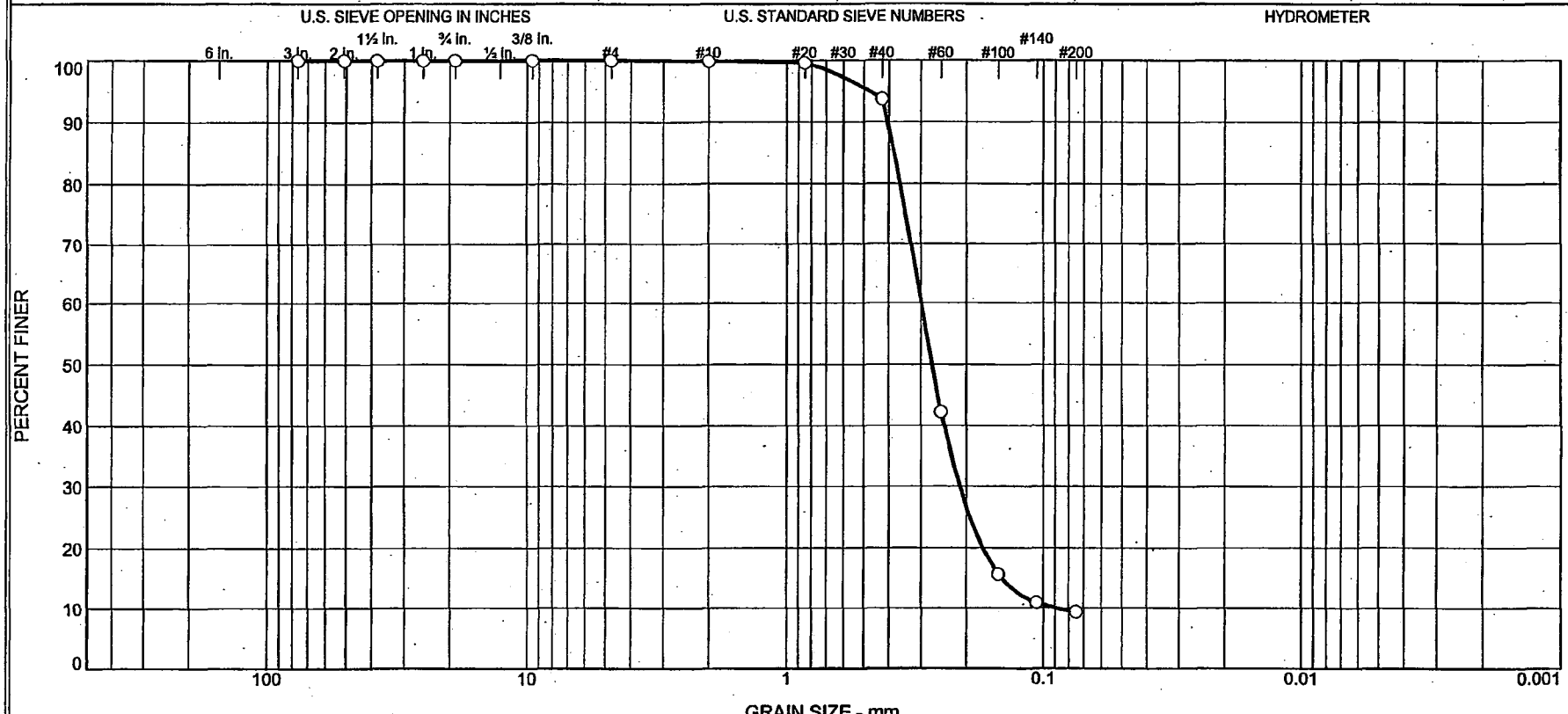
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.6	77.5	80.1			19.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0752	0.1064	0.1744	0.2194	0.3086	0.3340	0.3635	0.4010

Fineness Modulus
0.79

MW 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.2	6.0	84.5	9.3	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 919	STP-254 (SS-18)	73.5'-75.0'	12/18/2006	SP-SM	Poorly Graded Sand with Silt	19.4		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF

ASTM D6913-04e1

NA 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 919
Depth: 73.5'-75.0'
Sample Number: STP-254 (SS-18)
Material Description: Poorly Graded Sand with Silt
Date: 12/18/2006
Natural Moisture: 19.4
USCS Class.: SP-SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 76.42
Tare Wt. = 0.00
Minus #200 from wash = 9.3%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
261.10	176.80	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.00	100.0
			#10	0.13	99.8
			#20	0.38	99.5
			#40	5.26	93.8
			#60	48.70	42.2
			#100	71.03	15.7
			#140	75.08	10.9
			#200	76.42	9.3

Fractional Components

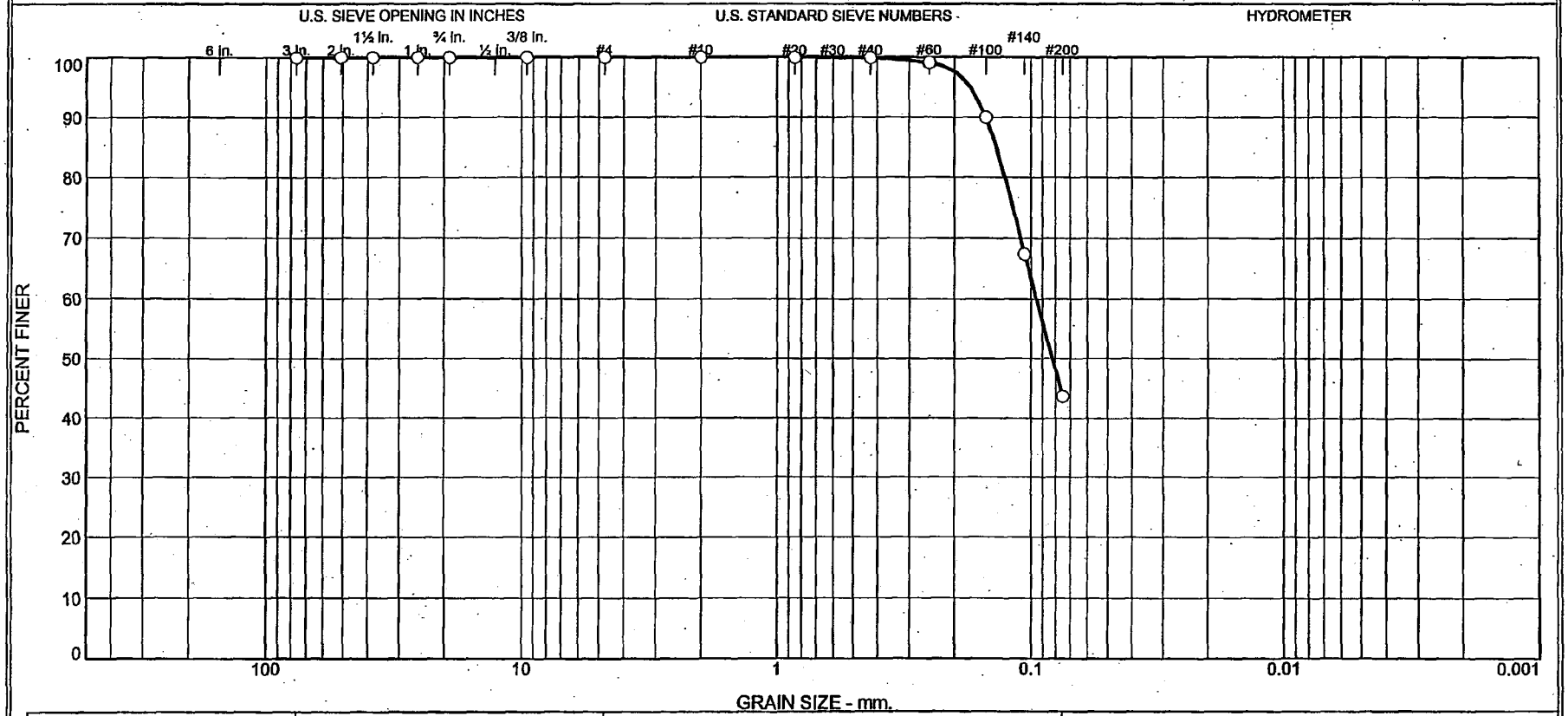
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.2	6.0	84.5	90.7			9.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0895	0.1451	0.1731	0.2125	0.2712	0.2983	0.3605	0.3802	0.4034	0.4740

Fineness Modulus	C_u	C_c
1.27	3.33	1.69

4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.1	56.2	43.7	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 919	STP-255 (SS-21)	93.5'-95.0'	12/18/2006	SM	Silty Sand	25.2		

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reviewed By:RF
ASTM D6913-04e1

mt 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 919
Depth: 93.5'-95.0'
Sample Number: STP-255 (SS-21)
Material Description: Silty Sand
Date: 12/18/2006
Natural Moisture: 25.2
USCS Class.: SM
Testing Remarks: Tested By:TH Reviewed By:RF
ASTM D6913-04e1

Sieve Results

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 43.97
Tare Wt. = 0.00
Minus #200 from wash = 43.7%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
254.00	175.90	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.00	100.0
			#40	0.06	99.9
			#60	0.72	99.1
			#100	7.83	90.0
			#140	25.45	67.4
			#200	43.97	43.7

Fractional Components

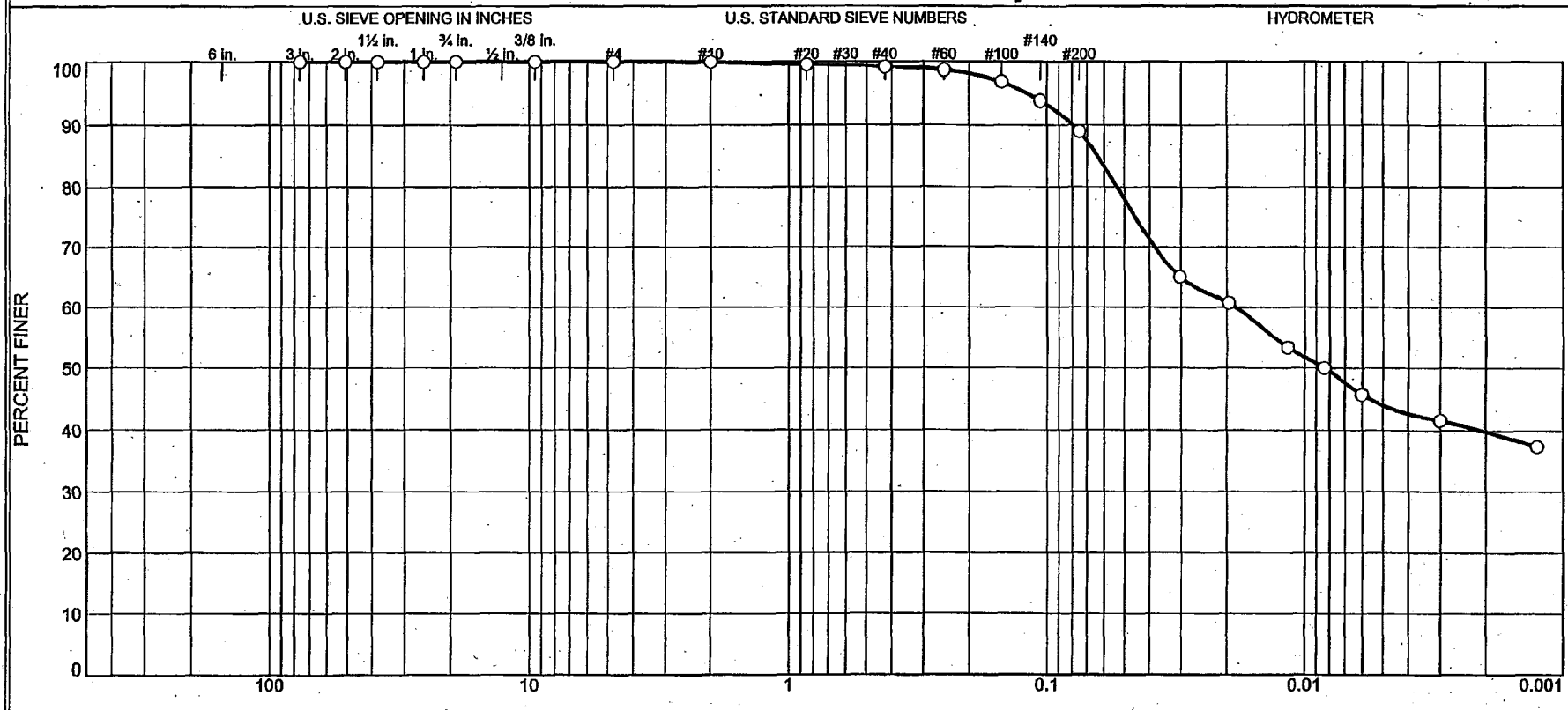
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	56.2	56.3			43.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0824	0.0954	0.1265	0.1368	0.1501	0.1723

Fineness Modulus
0.11

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.1	0.7	10.2	45.1	43.9

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 919	STP-265 (TP-1)	.5'-6.0'	2/17/07	CH	Fat Clay	20.2	50	17

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH/DK Reviewed By:RF/ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated

MA 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 919
Depth: .5'-6.0'
Sample Number: STP-265 (TP-1)
Material Description: Fat Clay
Date: 2/17/07
Natural Moisture: 20.2
Liquid Limit: 50
Plastic Limit: 17
USCS Class.: CH
Testing Remarks: Tested By:TH/DK Reviewed By:RF/ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 9.99
Tare Wt. = 0.00
Minus #200 from wash = 89.0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
266.00	175.40	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.00	100.0
			#10	0.07	99.9
			#20	0.43	99.5
			#40	0.74	99.2
			#60	1.21	98.7
			#100	2.87	96.8
			#140	5.63	93.8
			#200	9.99	89.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.9
Weight of hydrometer sample =50.5
Hygroscopic moisture correction:
Moist weight and tare = 189.40
Dry weight and tare = 188.80
Tare weight = 177.20
Hygroscopic moisture = 5.2%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
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	37.0	31.2	0.0134	37.0	10.2	0.0304	65.0
5.00	21.0	35.0	29.2	0.0135	35.0	10.6	0.0196	60.7
15.00	20.8	31.5	25.6	0.0135	31.5	11.1	0.0116	53.3
30.00	20.3	30.0	24.0	0.0136	30.0	11.4	0.0084	50.0
60.00	20.0	28.0	22.0	0.0136	28.0	11.7	0.0060	45.7

MK 4-3-07

Hydrometer Test (Detail Information)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
250.00	20.0	26.0	20.0	0.0136	26.0	12.0	0.0030	41.5
1440.00	20.0	24.0	18.0	0.0136	24.0	12.4	0.0013	37.4

Additional Comments

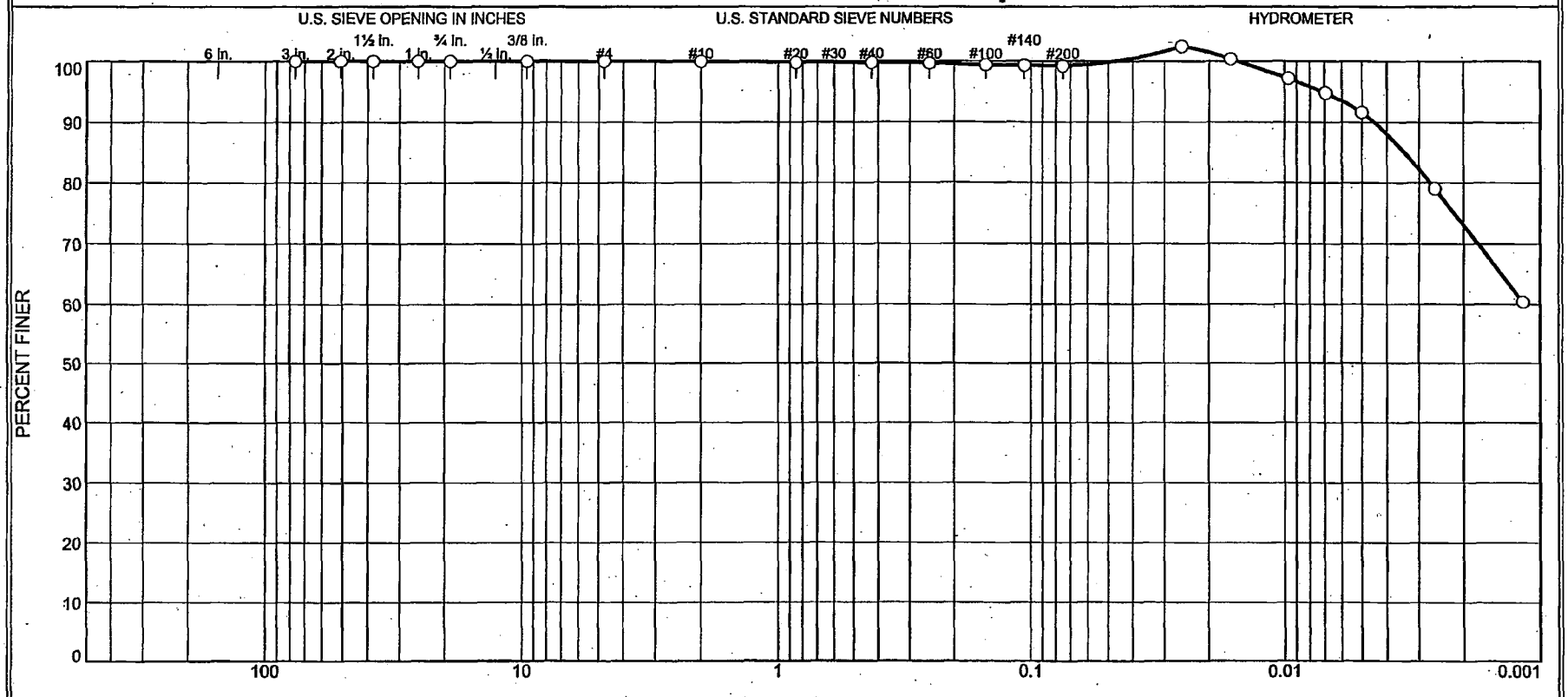
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.7	10.2	11.0	45.1	43.9	89.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0084	0.0184	0.0535	0.0635	0.0792	0.1198

Fineness Modulus
0.05

MM 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O		0.0	0.0	0.1	0.2	0.5	7.6	91.6

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 919	STP-266	6'-8.5'	12/19/2006	CH	Fat Clay	25.9	74	22
		(TP-2)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By: Reviewed By:
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated

MA 4-3-07 KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 919
Depth: 6'-8.5'
Sample Number: STP-266 (TP-2)
Material Description: Fat Clay
Date: 12/19/2006
Natural Moisture: 25.9
Liquid Limit: 74
Plastic Limit: 22
USCS Class.: CH
Testing Remarks: Tested By: Reviewed By:
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 0.62
Tare Wt. = 0.00
Minus #200 from wash = 99.2%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
259.40	179.30	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.00	100.0
			#10	0.06	99.9
			#20	0.18	99.8
			#40	0.21	99.7
			#60	0.29	99.6
			#100	0.50	99.4
			#140	0.55	99.3
			#200	0.62	99.2

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.9
Weight of hydrometer sample =50.3
Hygroscopic moisture correction:
Moist weight and tare = 188.20
Dry weight and tare = 187.60
Tare weight = 175.20
Hygroscopic moisture = 4.8%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
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	55.0	49.2	0.0135	55.0	7.3	0.0257	102.5
5.00	21.1	54.0	48.2	0.0135	54.0	7.4	0.0164	100.4
15.00	20.9	52.5	46.7	0.0135	52.5	7.7	0.0097	97.2
30.00	20.3	51.5	45.5	0.0136	51.5	7.8	0.0070	94.8
60.00	20.1	50.0	44.0	0.0136	50.0	8.1	0.0050	91.6

MAC 4-3-07

Hydrometer Test Data Continued

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
250.00	20.0	44.0	38.0	0.0136	44.0	9.1	0.0026	79.1
1440.00	20.1	35.0	29.0	0.0136	35.0	10.6	0.0012	60.4

Traditional Components

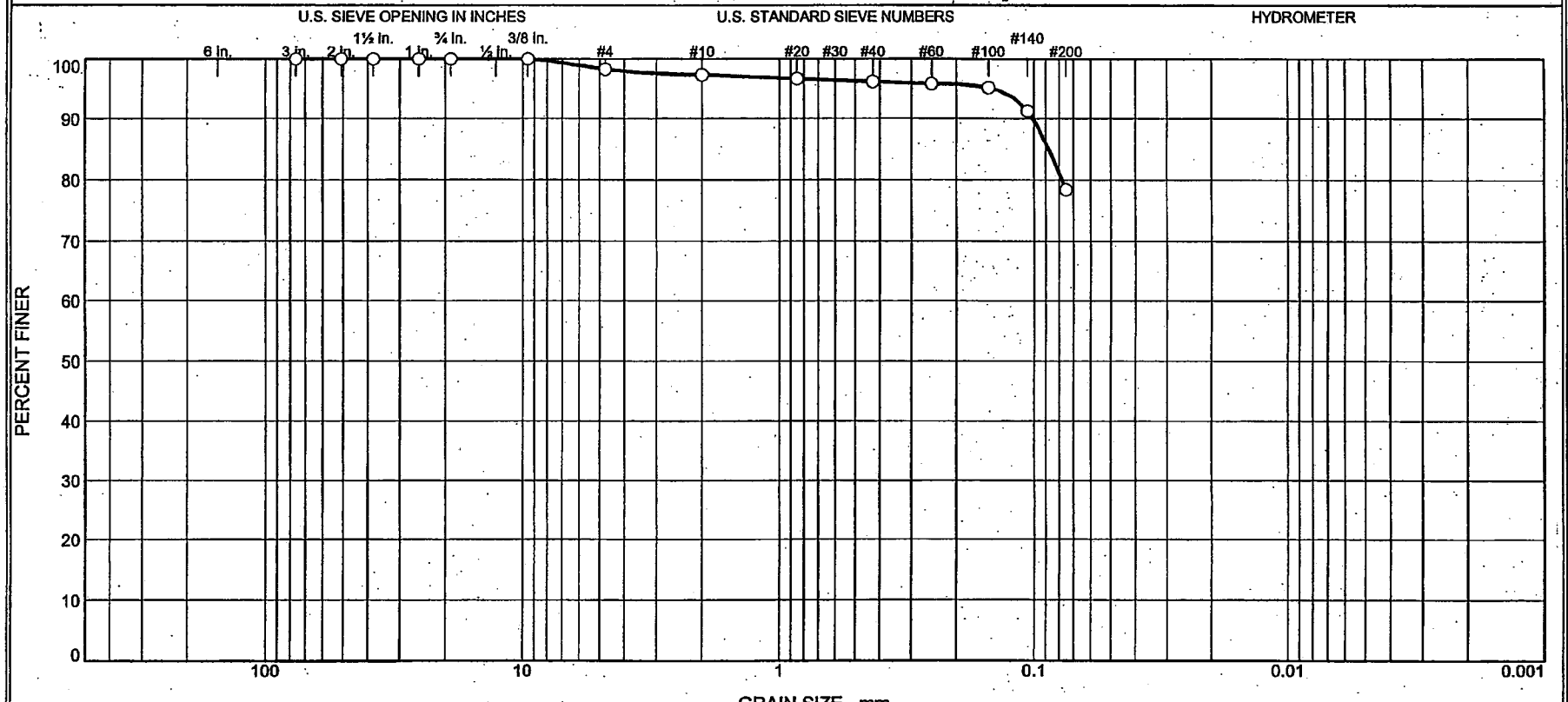
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
	0.0	0.0	0.0	0.1	0.2	0.5	0.8	7.6	91.6	99.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0027	0.0034	0.0045	0.0071

Fineness Modulus
0.01

NM
4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	1.7	1.0	1.1	17.8	78.4	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 927	STP-313 (SS-5)	6.0'-7.5'	12/15/2006	CL	Lean Clay with Sand	19.2	34	16

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH Reveiwed By:RF
ASTM D6913-04e1

MA 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

4/1/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 927
Depth: 6.0'-7.5' **Sample Number:** STP-313 (SS-5)
Material Description: Lean Clay with Sand
Date: 12/15/2006 **Natural Moisture:** 19.2
Liquid Limit: 34 **Plastic Limit:** 16 **USCS Class.:** CL
Testing Remarks: Tested By:TH Reveiwed By:RF
ASTM D6913-04e1

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
266.20	177.90	0.00	3	0.00	100.0
			2	0.00	100.0
			1.5	0.00	100.0
			1	0.00	100.0
			.75	0.00	100.0
			.375	0.00	100.0
			#4	1.54	98.3
			#10	2.36	97.3
			#20	2.91	96.7
			#40	3.33	96.2
			#60	3.64	95.9
			#100	4.21	95.2
			#140	7.74	91.2
			#200	19.10	78.4

Material Components

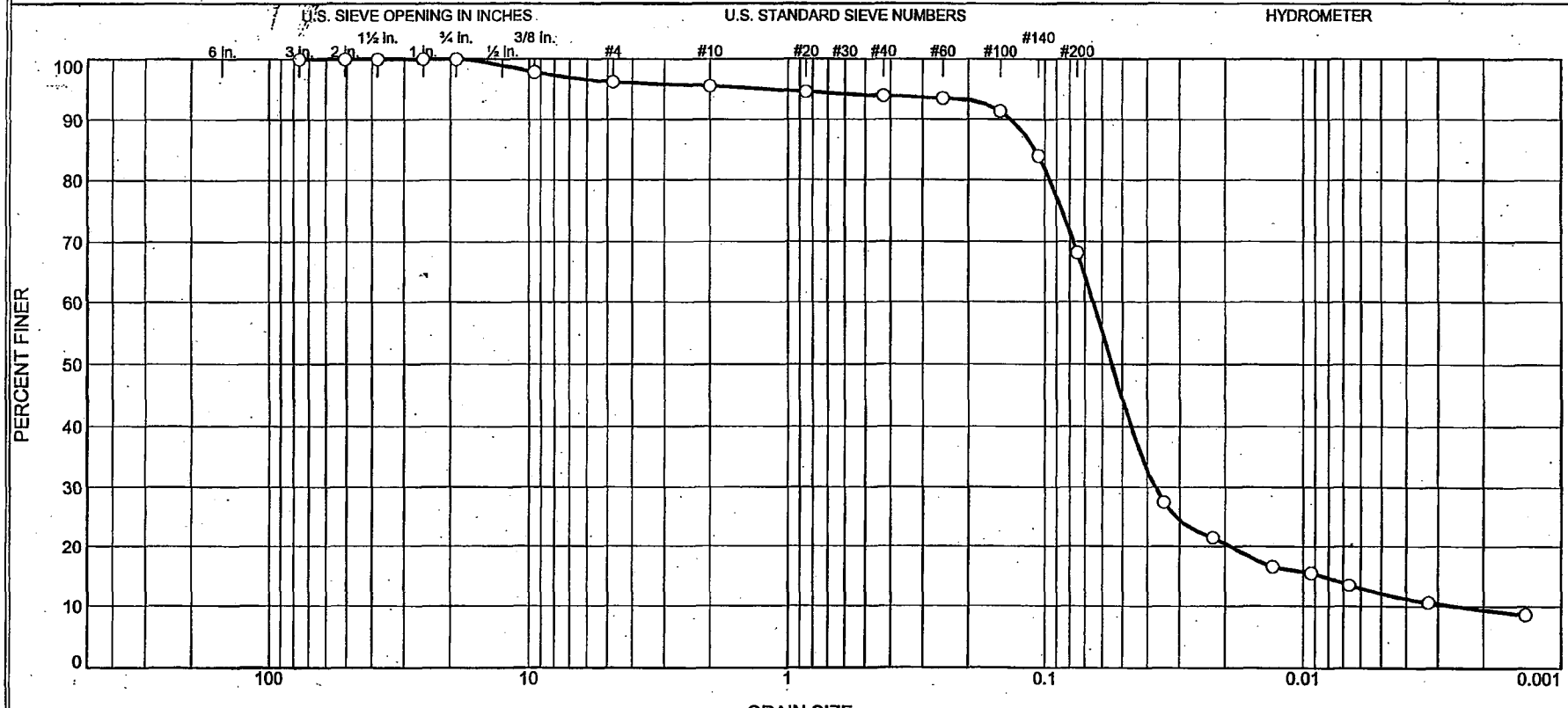
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.7	1.7	1.0	1.1	17.8	19.9			78.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0779	0.0878	0.1013	0.1418

Fineness Modulus
0.20

MAH 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	3.7	0.7	1.7	25.8	56.0	12.1

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 927	STP-257	10.5'-12.0'	12/15/2006	ML	Sandy Silt	22.3	NV	NP
		(SS-8)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH/DK Reviewed By:RF/ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated

MW 4-3-07 KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 927
Depth: 10.5'-12.0' **Sample Number:** STP-257 (SS-8)
Material Description: Sandy Silt
Date: 12/15/2006 **Natural Moisture:** 22.3
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** ML
Testing Remarks: Tested By:TH/DK Reviewed By:RF/ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 53.81
Tare Wt. = 0.00
Minus #200 from wash = 68.1%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
342.30	173.40	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	3.58	97.9
			#4	6.32	96.3
			#10	7.46	95.6
			#20	9.15	94.6
			#40	10.35	93.9
			#60	10.97	93.5
			#100	14.66	91.3
			#140	27.30	83.8
			#200	53.81	68.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 95.6
Weight of hydrometer sample =50.2
Hygroscopic moisture correction:
Moist weight and tare = 193.80
Dry weight and tare = 193.50
Tare weight = 179.40
Hygroscopic moisture = 2.1%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
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	20.7	20.0	14.1	0.0135	20.0	13.0	0.0345	27.4
5.00	20.4	17.0	11.0	0.0136	17.0	13.5	0.0223	21.5
15.00	20.3	14.5	8.5	0.0136	14.5	13.9	0.0131	16.6
30.00	20.1	14.0	8.0	0.0136	14.0	14.0	0.0093	15.5
60.00	20.0	13.0	7.0	0.0136	13.0	14.2	0.0066	13.5

4-3-07

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
250.00	20.0	11.5	5.5	0.0136	11.5	14.4	0.0033	10.6
1440.00	20.0	10.5	4.5	0.0136	10.5	14.6	0.0014	8.7

Percentage Composition

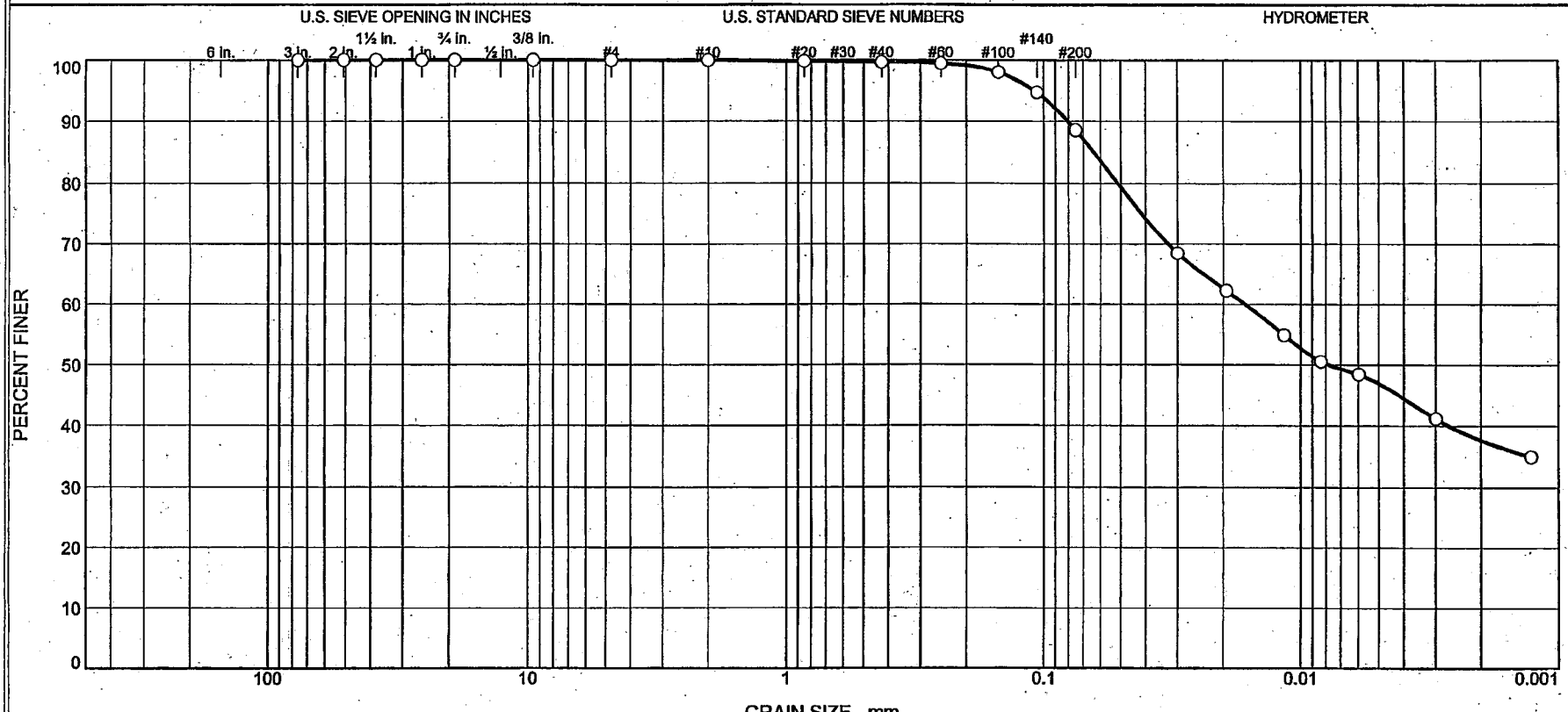
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	3.7	3.7	0.7	1.7	25.8	28.2	56.0	12.1	68.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0026	0.0084	0.0191	0.0373	0.0552	0.0652	0.0957	0.1099	0.1365	1.1812

Fineness Modulus	C_u	C_c
0.36	25.27	8.28

MAK 4-30-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	0.4	11.0	41.6	47.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 927	STP-267 (TP1)	0.5'-4.0'	12/19/2006	CL	Lean Clay	24.1	45	15

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH/DK Reviewed By:RF/ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated

NM
4-3-07 KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 927
Depth: 0.5'-4.0'
Sample Number: STP-267 (TP1)
Material Description: Lean Clay
Date: 12/19/2006
Natural Moisture: 24.1
Liquid Limit: 45
Plastic Limit: 15
USCS Class.: CL
Testing Remarks: Tested By:TH/DK Reviewed By:RF/ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 9.36
Tare Wt. = 0.00
Minus #200 from wash = 88.6%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
259.50	177.50	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#20	0.17	99.8
			#40	0.29	99.6
			#60	0.46	99.4
			#100	1.64	98.0
			#140	4.35	94.7
			#200	9.36	88.6

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.6
Hygroscopic moisture correction:
Moist weight and tare = 188.00
Dry weight and tare = 187.50
Tare weight = 176.00
Hygroscopic moisture = 4.3%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
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	39.0	33.2	0.0135	39.0	9.9	0.0299	68.5
5.00	21.1	36.0	30.2	0.0135	36.0	10.4	0.0194	62.3
15.00	20.8	32.5	26.6	0.0135	32.5	11.0	0.0116	54.9
30.00	20.2	30.5	24.5	0.0136	30.5	11.3	0.0084	50.5
60.00	20.1	29.5	23.5	0.0136	29.5	11.5	0.0060	48.4

MA 4/3/07

Hydrometer Analysis Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
250.00	20.0	26.0	20.0	0.0136	26.0	12.0	0.0030	41.2
1440.00	20.0	23.0	17.0	0.0136	23.0	12.5	0.0013	35.0

Classification Summary

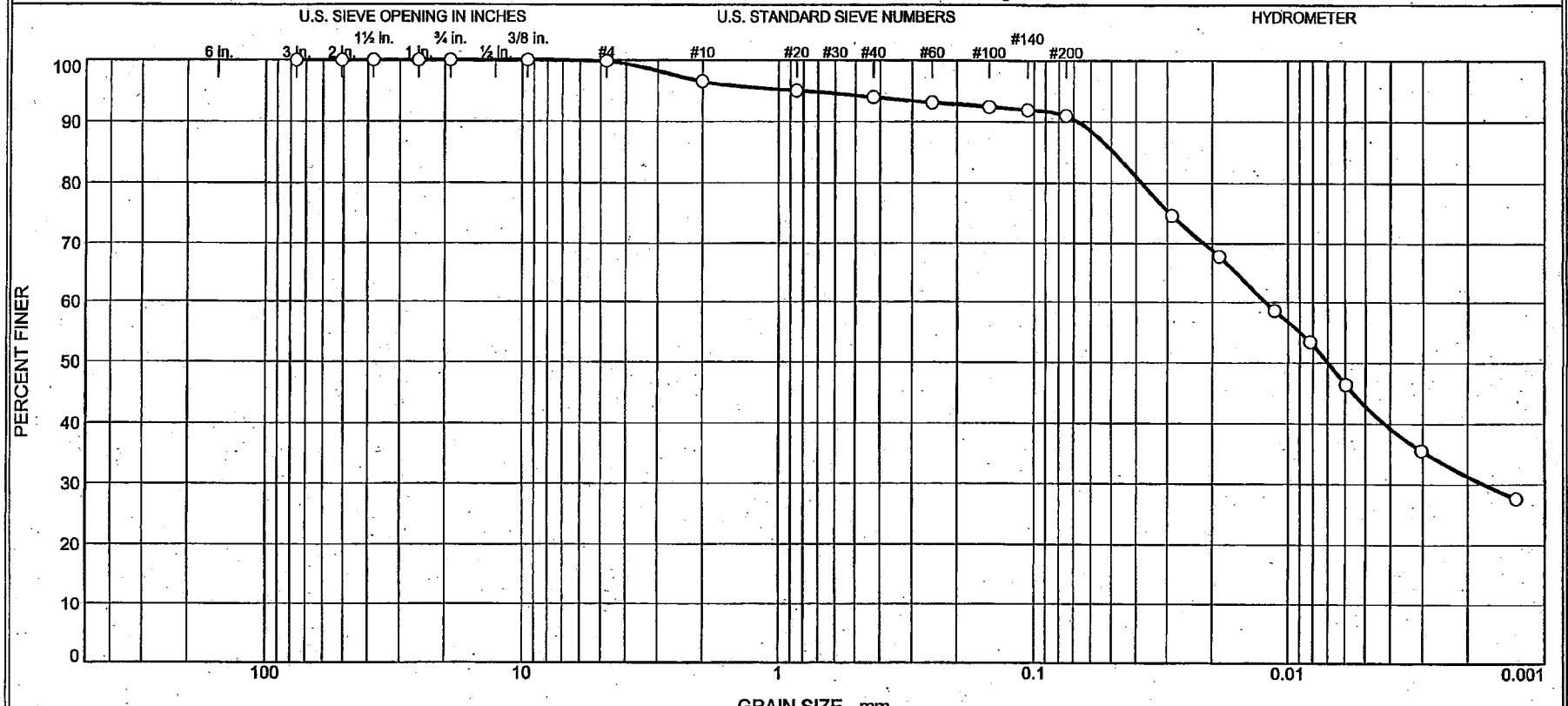
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.4	11.0	11.4	41.6	47.0	88.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0078	0.0164	0.0514	0.0637	0.0804	0.1084

Fineness Modulus
0.03

MA 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.2	3.3	2.5	3.0	48.1	42.9

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring 927	STP-268 (TP2)	5.5'-8.5'	12/19/2006	CL	Lean Clay	22.0	41	15

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH/DK Reviewed By:RF/ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity is estimated

MA 4-3-07 KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: Boring 927
Depth: 5.5'-8.5' **Sample Number:** STP-268 (TP2)
Material Description: Lean Clay
Date: 12/19/2006 **Natural Moisture:** 22.0
Liquid Limit: 41 **Plastic Limit:** 15 **USCS Class.:** CL
Testing Remarks: Tested By:TH/DK Reviewed By:RF/ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity is estimated

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 6.96
Tare Wt. = 0.00
Minus #200 from wash = 91.0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
253.10	175.80	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.13	99.8
			#10	2.69	96.5
			#20	3.86	95.0
			#40	4.66	94.0
			#60	5.34	93.1
			#100	5.85	92.4
			#140	6.27	91.9
			#200	6.96	91.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 96.5
Weight of hydrometer sample =50.4
Hygroscopic moisture correction:
Moist weight and tare = 188.70
Dry weight and tare = 188.30
Tare weight = 176.10
Hygroscopic moisture = 3.3%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
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	43.5	37.7	0.0134	43.5	9.2	0.0287	74.7
5.00	21.3	40.0	34.2	0.0134	40.0	9.7	0.0187	67.7
15.00	20.8	35.5	29.6	0.0135	35.5	10.5	0.0113	58.6
30.00	20.2	33.0	27.0	0.0136	33.0	10.9	0.0082	53.4
60.00	20.0	29.5	23.5	0.0136	29.5	11.5	0.0060	46.4

MAK 4-3-07

Hydrometer Test Data - Continued

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
250.00	20.0	24.0	18.0	0.0136	24.0	12.4	0.0030	35.5
1440.00	20.0	20.0	14.0	0.0136	20.0	13.0	0.0013	27.6

Fractions/Components

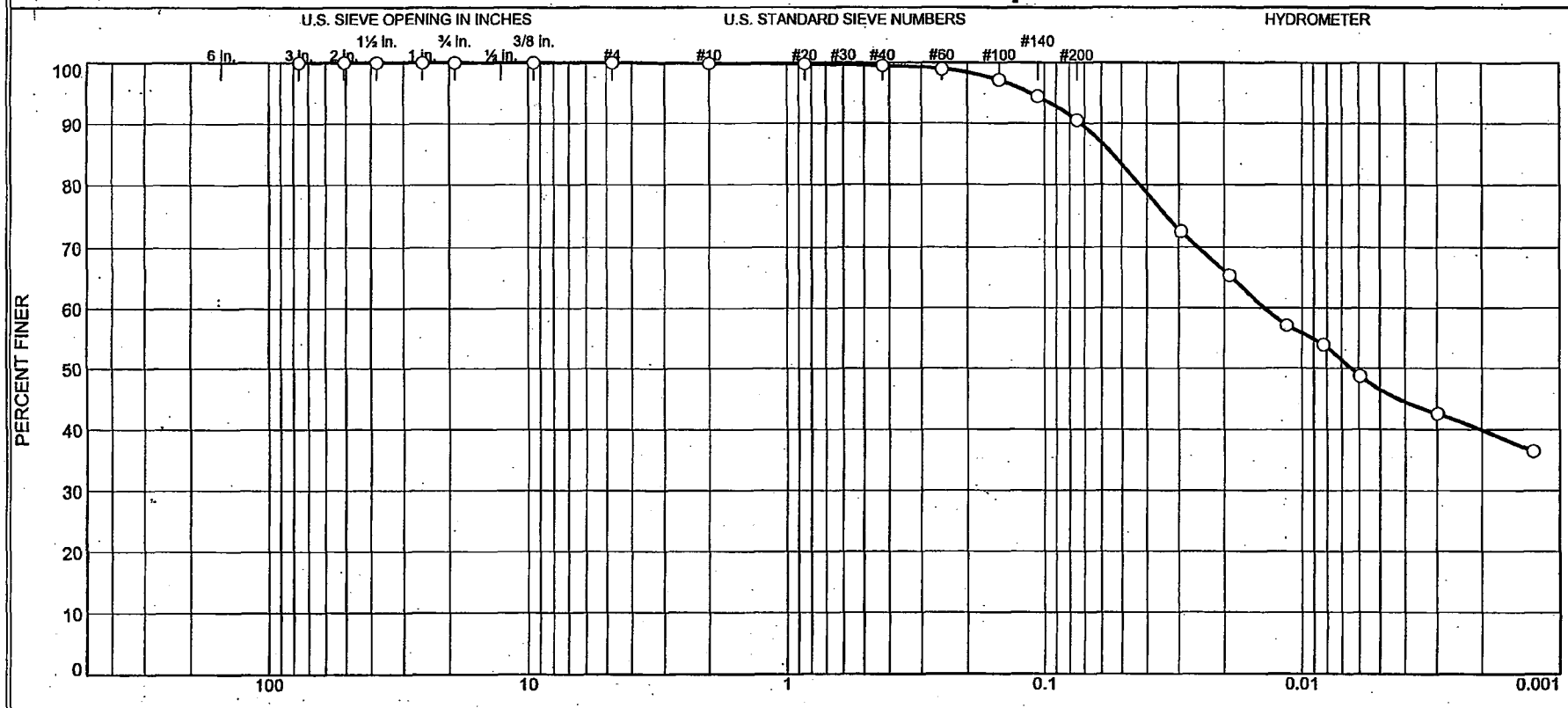
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.2	0.2	3.3	2.5	3.0	8.8	48.1	42.9	91.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0017	0.0070	0.0123	0.0378	0.0486	0.0672	0.8454

Fineness Modulus
0.27

MW 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.2	0.3	9.0	44.0	46.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	C 304	STP-261 (TP1)	3.0'-6.75'	12/18/2006	CH	Fat Clay	21.7	51	15

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:TH/DK Reviewed By:RF/ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated

MAT 4-3-07

ICAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: C 304
Depth: 3.0'-6.75' **Sample Number:** STP-261 (TP1)
Material Description: Fat Clay
Date: 12/18/2006 **Natural Moisture:** 21.7
Liquid Limit: 51 **Plastic Limit:** 15 **USCS Class.:** CH
Testing Remarks: Tested By:TH/DK Reviewed By:RF/ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 8.24
Tare Wt. = 0.00
Minus #200 from wash = 90.5%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
264.50	177.60	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.00	100.0
			#10	0.14	99.8
			#20	0.19	99.8
			#40	0.45	99.5
			#60	0.94	98.9
			#100	2.50	97.1
			#140	4.84	94.4
			#200	8.24	90.5

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.8
Weight of hydrometer sample =50.6
Hygroscopic moisture correction:
Moist weight and tare = 190.10
Dry weight and tare = 189.70
Tare weight = 176.40
Hygroscopic moisture = 3.0%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
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	41.5	35.7	0.0135	41.5	9.5	0.0293	72.6
5.00	21.1	38.0	32.2	0.0135	38.0	10.1	0.0191	65.4
15.00	20.6	34.0	28.1	0.0135	34.0	10.7	0.0114	57.1
30.00	20.1	32.5	26.5	0.0136	32.5	11.0	0.0082	53.8
60.00	20.0	30.0	24.0	0.0136	30.0	11.4	0.0059	48.7

MAT 4-3-07

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
250.00	20.0	27.0	21.0	0.0136	27.0	11.9	0.0030	42.6
1440.00	20.0	24.0	18.0	0.0136	24.0	12.4	0.0013	36.5

Sieve Analysis Results

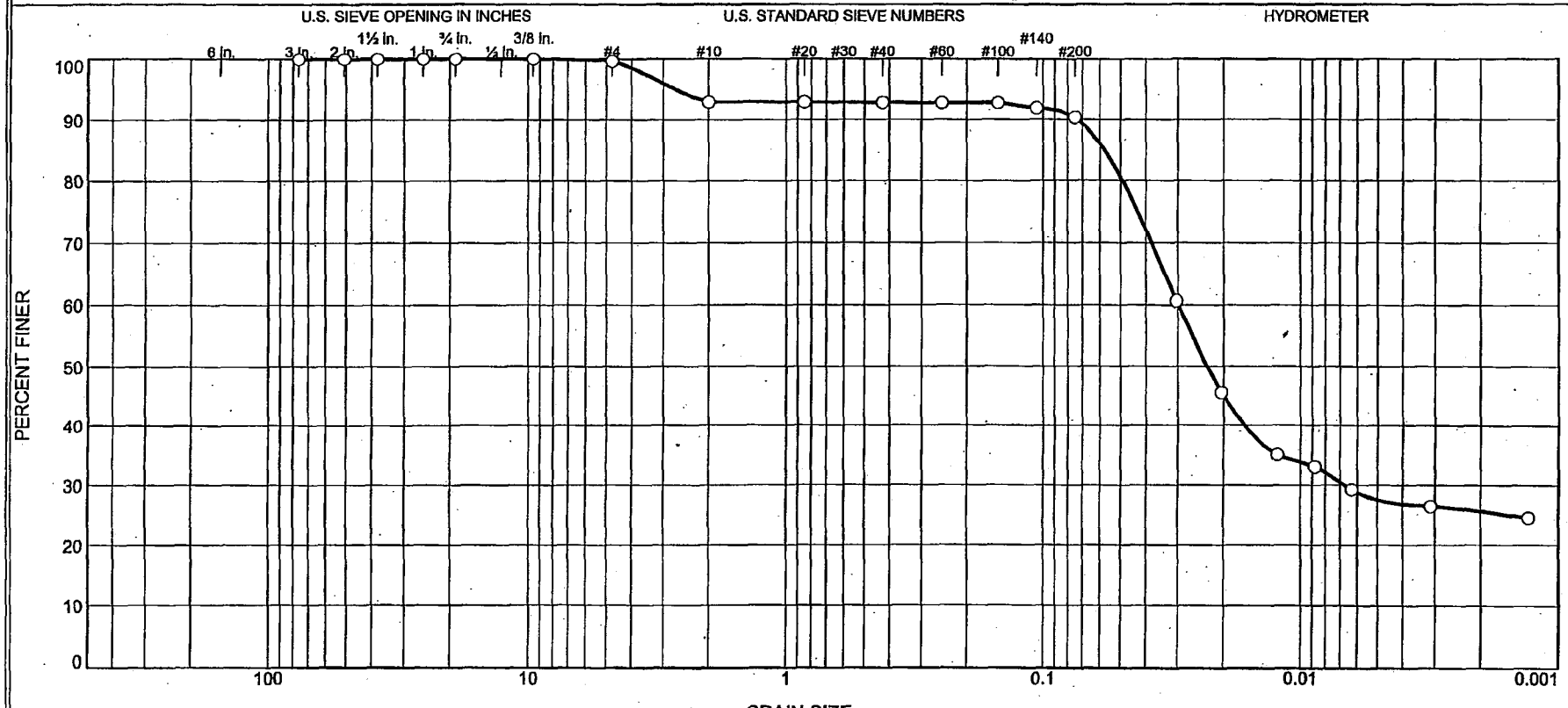
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.2	0.3	9.0	9.5	44.0	46.5	90.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0065	0.0140	0.0427	0.0545	0.0724	0.1129

Fineness Modulus
0.04

MAK 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.4	6.8	0.0	2.4	62.9	27.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	C 304	STP-262	6.57'-9.0'	12/18/2006	CL	Lean Clay	25.5	40	17
		(TP-2)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

○ Tested By:TH/DK Reviewed By:RF/ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated

MA 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: C 304
Depth: 6.57'-9.0' **Sample Number:** STP-262 (TP-2)
Material Description: Lean Clay
Date: 12/18/2006 **Natural Moisture:** 25.5
Liquid Limit: 40 **Plastic Limit:** 17 **USCS Class.:** CL
Testing Remarks: Tested By:TH/DK Reviewed By:RF/ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 7.44
Tare Wt. = 0.00
Minus #200 from wash = 90.4%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
255.00	177.90	0.00	3"	0.00	100.0			
			2"	0.00	100.0			
			1.5"	0.00	100.0			
			1"	0.00	100.0			
			3/4"	0.00	100.0			
			3/8"	0.00	100.0			
			#4	0.30	99.6			
			#10	5.52	92.8			
			#20	5.52	92.8			
			#40	5.58	92.8			
			#60	5.62	92.7			
			#100	5.62	92.7			
			#140	6.28	91.9			
			#200	7.44	90.4			

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 92.8
Weight of hydrometer sample =50.5
Hygroscopic moisture correction:
Moist weight and tare = 192.60
Dry weight and tare = 192.20
Tare weight = 177.90
Hygroscopic moisture = 2.8%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

4-3-07

Hydrometer Test Data (Calibrated)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.7	38.0	32.1	0.0135	38.0	10.1	0.0303	60.7
5.00	20.7	30.0	24.1	0.0135	30.0	11.4	0.0204	45.6
15.00	20.4	24.5	18.5	0.0136	24.5	12.3	0.0123	35.0
30.00	20.1	23.5	17.5	0.0136	23.5	12.4	0.0088	33.0
60.00	20.0	21.5	15.5	0.0136	21.5	12.8	0.0063	29.2
250.00	20.1	20.0	14.0	0.0136	20.0	13.0	0.0031	26.4
1440.00	20.0	19.0	13.0	0.0136	19.0	13.2	0.0013	24.5

Percentage Components

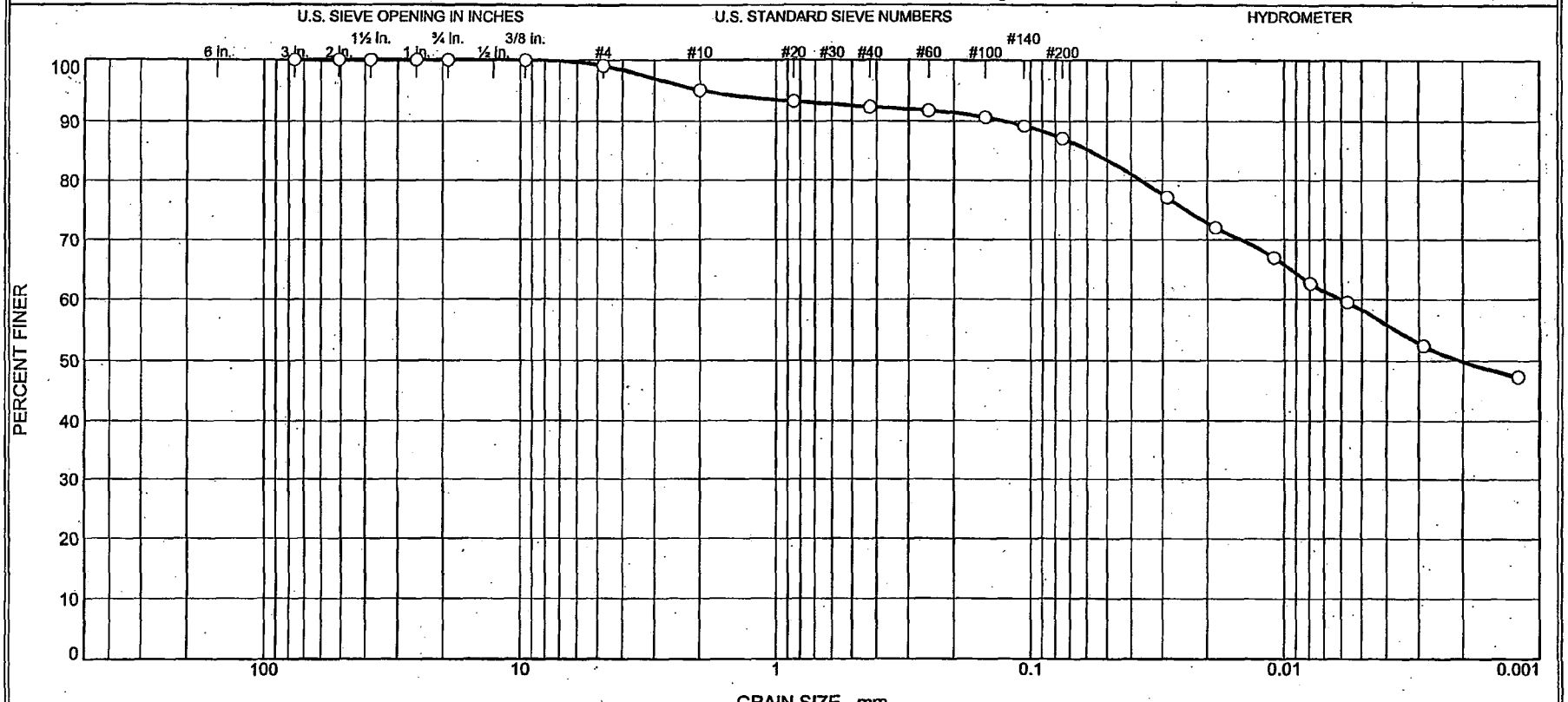
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.4	0.4	6.8	0.0	2.4	9.2	62.9	27.5	90.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0067	0.0232	0.0299	0.0492	0.0577	0.0730	2.6931

Fineness Modulus
0.35

MK 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.9	4.0	2.8	5.3	28.7	58.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	C 404	STP-263 (TP1)	2.25'-7.0'	12/18/2006	CH	Fat Clay	24.3	62	18

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

O Tested By:DK/TH Reviewed By:RF/ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated

MA 4-3-07

KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: C 404
Depth: 2.25'-7.0' **Sample Number:** STP-263 (TP1)
Material Description: Fat Clay
Date: 12/18/2006 **Natural Moisture:** 24.3
Liquid Limit: 62 **Plastic Limit:** 18 **USCS Class.:** CH
Testing Remarks: Tested By:DK/TH Reviewed By:RF/ST
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated
Material specification: ASTM D 6913-04e1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 9.94
Tare Wt. = 0.00
Minus #200 from wash = 87.0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
260.80	184.20	0.00	3"	0.00	100.0			
			2"	0.00	100.0			
			1.5"	0.00	100.0			
			1"	0.00	100.0			
			3/4"	0.00	100.0			
			3/8"	0.00	100.0			
			#4	0.72	99.1			
			#10	3.74	95.1			
			#20	5.16	93.3			
			#40	5.87	92.3			
			#60	6.32	91.7			
			#100	7.13	90.7			
			#140	8.30	89.2			
			#200	9.94	87.0			

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 95.1
Weight of hydrometer sample =50.4
Hygroscopic moisture correction:
Moist weight and tare = 188.20
Dry weight and tare = 187.40
Tare weight = 176.10
Hygroscopic moisture = 7.1%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

NA 4-3-07

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.0	44.0	38.2	0.0135	44.0	9.1	0.0287	77.1
5.00	20.9	41.5	35.7	0.0135	41.5	9.5	0.0186	72.1
15.00	21.0	39.0	33.2	0.0135	39.0	9.9	0.0109	67.0
30.00	20.2	37.0	31.0	0.0136	37.0	10.2	0.0079	62.7
60.00	20.0	35.5	29.5	0.0136	35.5	10.5	0.0057	59.5
250.00	20.0	32.0	26.0	0.0136	32.0	11.0	0.0029	52.5
1440.00	20.0	29.5	23.5	0.0136	29.5	11.5	0.0012	47.4

Fractional Components

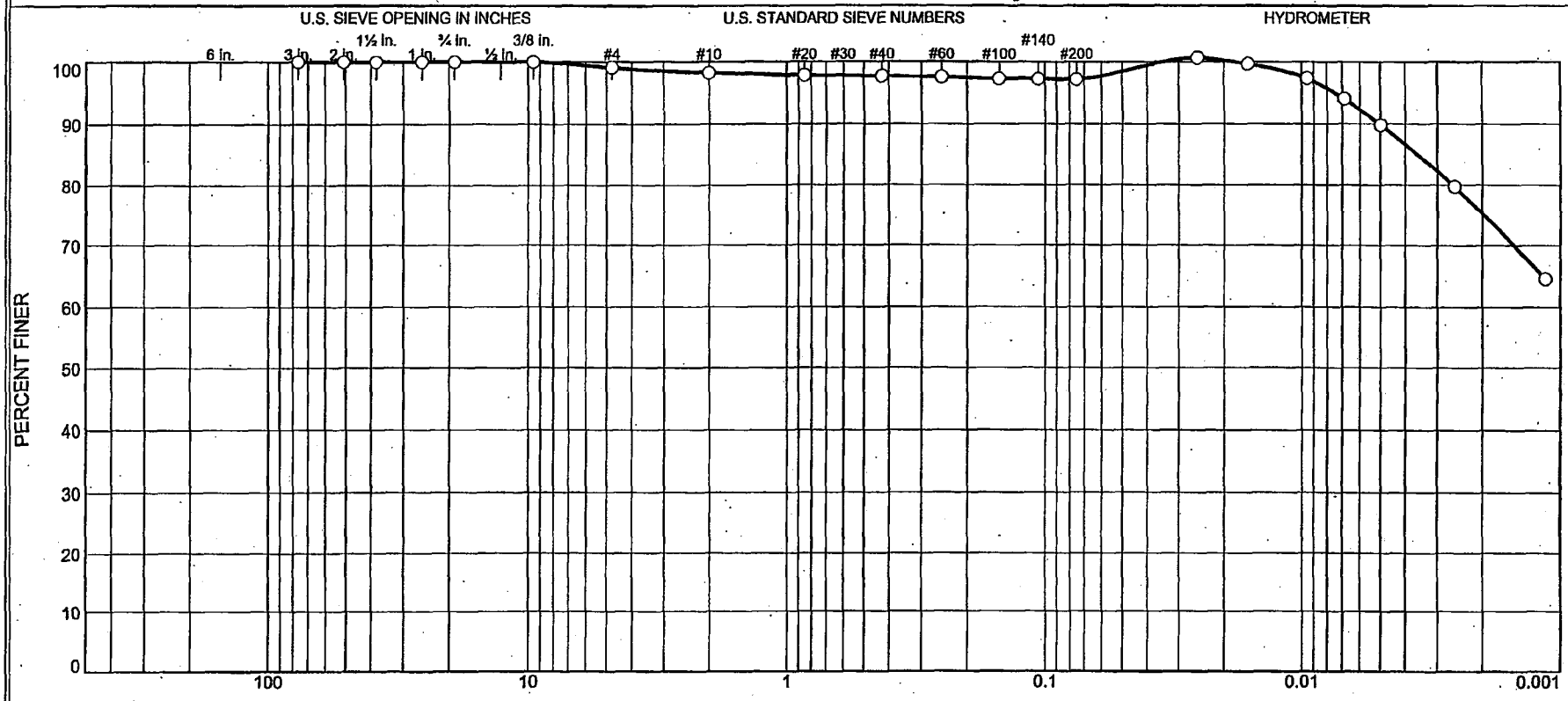
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.9	0.9	4.0	2.8	5.3	12.1	28.7	58.3	87.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0021	0.0060	0.0364	0.0587	0.1258	1.9389

Fineness Modulus
0.36

MW 4-3-07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○		0.0	1.0	0.8	0.6	0.5	7.2	89.9

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	C 404	STP-264	7.0'-9.0'	12/18/2006	CH	Fat Clay	28.4	77	21
		(TP2)							

Client Bechtel Power Corporation

Project Bechtel/STP/COL

Project No. 5050-06-0496

MACTEC

○ Tested By:TH/DK Reviewed By:RF
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated

4-3-07 KAW 4/3/07

GRAIN SIZE DISTRIBUTION TEST DATA

2/23/2007

Client: Bechtel Power Corporation
Project: Bechtel/STP/COL
Project Number: 5050-06-0496
Location: C 404
Depth: 7.0'-9.0' **Sample Number:** STP-264 (TP2)
Material Description: Fat Clay
Date: 12/18/2006 **Natural Moisture:** 28.4
Liquid Limit: 77 **Plastic Limit:** 21 **USCS Class.:** CH
Testing Remarks: Tested By:TH/DK Reviewed By:RF
ASTM D6913-04e1 / ASTM D422-63(2002)e1
Specific gravity was estimated

Sieve Analysis Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare** = 2.53
Tare Wt. = 0.00
Minus #200 from wash = 97.1%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
265.70	178.00	0.00	3"	0.00	100.0
			2"	0.00	100.0
			1.5"	0.00	100.0
			1"	0.00	100.0
			3/4"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.85	99.0
			#10	1.56	98.2
			#20	1.92	97.8
			#40	2.08	97.6
			#60	2.18	97.5
			#100	2.39	97.3
			#140	2.43	97.2
			#200	2.53	97.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 98.2
Weight of hydrometer sample =50.4
Hygroscopic moisture correction:
Moist weight and tare = 188.60
Dry weight and tare = 188.20
Tare weight = 177.30
Hygroscopic moisture = 3.7%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
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	55.5	49.8	0.0134	55.5	7.2	0.0254	100.6
5.00	21.6	55.0	49.3	0.0134	55.0	7.3	0.0161	99.6
15.00	20.9	54.0	48.2	0.0135	54.0	7.4	0.0095	97.3
30.00	20.4	52.5	46.5	0.0136	52.5	7.7	0.0069	94.0
60.00	20.0	50.5	44.5	0.0136	50.5	8.0	0.0050	89.8

MAK 4-3-07

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
250.00	20.0	45.5	39.5	0.0136	45.5	8.8	0.0026	79.7
1440.00	20.0	38.0	32.0	0.0136	38.0	10.1	0.0011	64.6

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
	0.0	1.0	1.0	0.8	0.6	0.5	1.9	7.2	89.9	97.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0026	0.0036	0.0051	0.0075

Fineness Modulus
0.12

NMA 4-3-07

MACTEC

SPECIFIC GRAVITY TEST

ASTM D854 - 06

Project No. 5050-06-0496
Project Name Bechtel/STP/COL

Tested By J. Alexander
Test Date 2/16/2007

Reviewed By MM
Review Date 2-26-07

Boring No.	Depth (ft)	Sample No.	Flask no.	Temperature (^{0}C)	Weight of Soil (grams)	Weight, WF (grams)	Weight, DS (grams)	Specific Gravity (at test temp.)	Temperature Coefficient Factor	Specific Gravity (at 20^{0}C)
B-405	113-115	UD-5	A	24.8	30.10	361.16	380.17	2.714	0.99889	**2.711**
B-314	113-115	UD-2	A	24.9	35.89	360.78	383.48	2.721	0.99887	**2.718**
B-404	98-100	UD-2	B	24.9	38.86	362.70	387.35	2.735	0.99887	**2.732**
B-404	131-133	UD-4	C	24.9	27.83	362.81	380.23	2.673	0.99887	**2.670**
B-404	161-163	UD-6	A	24.9	33.53	360.78	381.94	2.711	0.99887	**2.708**
B-904	83-85	UD-5	B	24.3	25.25	362.68	378.61	2.709	0.99902	**2.706**
B-909	93-95	UD-6	A	24.3	30.19	360.81	379.88	2.715	0.99902	**2.712**

WF = Water and Flask

DS = Deaired Sample, Water and Flask

MACTEC

SPECIFIC GRAVITY TEST

ASTM D854 - 06

Project No. 5050-06-0496
Project Name Bechtel/STP/COL

Tested By J. Alexander
Test Date 2/16/2007

Reviewed By MM
Review Date 2-26-07

Boring No.	Depth (ft)	Sample No.	Flask no.	Temperature (°C)	Weight of Soil (grams)	Weight, WF (grams)	Weight, DS (grams)	Specific Gravity (at test temp.)	Temperature Coefficient Factor	Specific Gravity (at 20°C)
B-305 DH	213-215	UD-11	A	23.8	29.09	361.14	379.51	2.714	0.99914	**2.712**
B-305 DH	138-140	UD-8	B	23.8	24.22	363.02	378.29	2.706	0.99914	**2.704**
B-303	63-65	UD-1	B	24.0	31.49	362.88	382.71	2.701	0.99909	**2.699**
B-303	88-90	UD-2	C	23.6	23.65	362.94	378.00	2.753	0.99919	**2.751**
B-319	128-130	UD-1	C	23.8	24.59	362.94	378.49	2.720	0.99914	**2.718**
B-319	173-175	UD-4	A	23.8	23.17	361.14	375.79	2.719	0.99914	**2.717**
B-319	188-190	UD-5	B	23.8	24.19	363.02	378.31	2.718	0.99914	**2.716**
B-333	8-10	UD-1	C	23.8	27.11	362.94	379.91	2.674	0.99914	**2.672**
B-333	18-20	UD-2	A	23.8	44.35	361.14	389.06	2.699	0.99914	**2.697**
B-338	28-30	UD-1	B	23.8	41.20	363.02	388.67	2.650	0.99914	**2.648**
B-338	48-50	UD-2	C	23.8	41.77	362.94	389.30	2.711	0.99914	**2.709**
B-421	53-55	UD-2	A	24.8	25.84	361.14	377.55	2.740	0.99889	**2.737**
B-421	83-85	UD-3	B	24.8	44.53	363.02	391.25	2.732	0.99889	**2.729**
B-419	118-120	UD-3	C	24.8	28.41	362.94	380.86	2.708	0.99889	**2.705**
B-419	138-140	UD-4	A	24.8	19.52	361.14	373.30	2.652	0.99889	**2.649**
B-419	158-160	UD-5	B	24.8	24.80	363.02	378.75	2.734	0.99889	**2.731**
B-419	178-180	UD-6	C	24.8	32.55	362.94	383.61	2.740	0.99889	**2.737**
B-419	198-200	UD-7	A	24.8	23.21	361.14	375.82	2.721	0.99889	**2.718**
B-306	88-90	UD-4	B	24.8	24.84	363.02	378.72	2.718	0.99889	**2.715**
B-306	118-120	UD-7	A	24.8	29.83	361.14	380.11	2.747	0.99889	**2.744**
B-314	183-185	UD-5A	C	24.8	28.45	362.94	381.04	2.749	0.99889	**2.746**
B-909	43-45	UD-2	B	24.8	27.24	363.02	380.40	2.763	0.99889	**2.760**
B-909	48-50	UD-3	C	24.8	30.15	362.94	381.74	2.656	0.99889	**2.653**
B-404	121-123	UD-3	A	24.8	27.39	361.14	378.64	2.769	0.99889	**2.766**
B-314	141-143	UD-4	B	24.8	32.91	362.88	383.80	2.745	0.99889	**2.742**

WF = Water and Flask

DS = Deaired Sample, Water and Flask

MACTEC

SPECIFIC GRAVITY TEST

ASTM D854 - 06

Project No. 5050-06-0496
Project Name Bechtel/STP/COL

Tested By J. Alexander
Test Date 2/16/2007

Reviewed By MAA
Review Date 2-26-07

Boring No.	Depth (ft)	Sample No.	Flask no.	Temperature (^{0}C)	Weight of Soil (grams)	Weight, WF (grams)	Weight, DS (grams)	Specific Gravity (at test temp.)	Temperature Coefficient Factor	Specific Gravity (at 20^{0}C)
B-305 DH	158-160	UD-9	A	23.8	30.73	361.14	380.51	2.705	0.99914	**2.703**
B-305 DH	228-230	UD-12	B	23.8	36.80	363.02	386.05	2.672	0.99914	**2.670**
B-305 DH	288-291	UD-14	C	23.8	30.38	362.94	382.14	2.717	0.99914	**2.715**
B-405	148-150	UD-7	A	23.8	34.31	361.14	382.54	2.658	0.99914	**2.656**
B-421	33.5-35.5	UD-1A	B	23.8	30.36	363.02	382.01	2.670	0.99914	**2.668**
B-409	68-70	UD-1	C	23.8	34.78	362.94	384.61	2.653	0.99914	**2.651**
B-306	98-100	UD-5	C	24.8	32.27	362.94	383.10	2.665	0.99889	**2.662**
B-314	83-85	UD-1	A	23.3	38.24	360.82	384.90	2.701	0.99926	**2.699**
B-902	23-25	UD-3	C	23.3	37.84	362.88	386.46	2.654	0.99926	**2.652**
B-909	33-35	UD-1	A	24.0	36.78	360.82	384.15	2.735	0.99909	**2.733**

WF = Water and Flask

DS = Deaired Sample, Water and Flask

MACTEC

SPECIFIC GRAVITY TEST

ASTM D854 - 06

Project No. 5050-06-0496
Project Name Bechtel/STP/COL

Tested By J. Alexander
Test Date 2/16/2007

Reviewed By NA
Review Date 3-5-07

Boring No.	Depth (ft)	Sample No.	Flask no.	Temperature (^{0}C)	Weight of Soil (grams)	Weight, WF (grams)	Weight, DS (grams)	Specific Gravity (at test temp.)	Temperature Coefficient Factor	Specific Gravity (at 20^{0}C)
B-405	113-115	UD-5	A	24.8	30.10	361.16	380.17	2.714	0.99889	**2.711**
B-314	113-115	UD-2	A	24.9	35.89	360.78	383.48	2.721	0.99887	**2.718**
B-404	98-100	UD-2	B	24.9	38.86	362.70	387.35	2.735	0.99887	**2.732**
B-404	131-133	UD-4	C	24.9	27.83	362.81	380.23	2.673	0.99887	**2.670**
B-404	161-163	UD-6	A	24.9	33.53	360.78	381.94	2.711	0.99887	**2.708**
B-904	83-85	UD-5	B	24.3	25.25	362.68	378.61	2.709	0.99902	**2.706**
B-909	93-95	UD-6	A	24.3	30.19	360.81	379.88	2.715	0.99902	**2.712**

KAW 3/29/07

WF = Water and Flask

DS = Deaired Sample, Water and Flask

MACTEC

SPECIFIC GRAVITY TEST

ASTM D854 - 06

Project No. 5050-06-0496
Project Name Bechtel/STP/COL

Tested By J. Alexander
Test Date 2/26/2007

Reviewed By MA
Review Date 3-15-07

Boring No.	Depth (ft)	Sample No.	Flask no.	Temperature (^{0}C)	Weight of Soil (grams)	Weight, WF (grams)	Weight, DS (grams)	Specific Gravity (at test temp.)	Temperature Coefficient Factor	Specific Gravity (at 20^{0}C)
B-303	168-170	UD-5	A	24.2	32.84	361.11	381.68	2.676	0.99904	**2.674**
B-332	3-5	UD-1	B	24.4	30.29	362.96	382.22	2.746	0.99899	**2.743**
B-409	188-190	UD-5	C	24.4	33.20	362.84	383.61	2.671	0.99899	**2.668**
B-419	78-80	UD-1	B	23.4	27.79	362.97	380.72	2.768	0.99924	**2.766**
B-419	98-100	UD-2	B	23.8	30.36	362.96	382.40	2.780	0.99914	**2.778**
B-306	63-65	UD-2	A	24.4	30.14	361.19	380.02	2.665	0.99899	**2.662**
B-904	28-30	UD-3	C	23.8	37.17	362.85	386.29	2.707	0.99914	**2.705**
B-909	53-55	UD-4	C	24.4	31.74	362.84	383.15	2.777	0.99899	**2.774**
B-305DH	53-55	UD-4	A	24.4	33.65	361.19	382.31	2.686	0.99899	**2.683**

KAW 3/29/07

WF = Water and Flask

DS = Deaired Sample, Water and Flask

MACTEC

SPECIFIC GRAVITY TEST

ASTM D854 - 06

Project No. 5050-06-0496
Project Name Bechtel/STP/COL

Tested By J. Alexander
Test Date 2/26/2007

Reviewed By MA
Review Date 3-15-07

Boring No.	Depth (ft)	Sample No.	Flask no.	Temperature (°C)	Weight of Soil (grams)	Weight, WF (grams)	Weight, DS (grams)	Specific Gravity (at test temp.)	Temperature Coefficient Factor	Specific Gravity (at 20°C)
B-305 DH	78-80	UD-5	A	24.4	43.86	361.19	388.48	2.647	0.99899	**2.644**
B-405 DH	193-195	UD-9	C	24.2	31.13	362.85	382.42	2.693	0.99904	**2.690**
B-405	318-320	UD-14	B	24.4	33.09	362.96	383.65	2.669	0.99899	**2.666**
B-405	343-345	UD-15	C	24.4	33.06	362.84	383.45	2.655	0.99899	**2.653**
B-405 DH	418-418.8	UD-18	C	23.4	30.53	362.85	382.04	2.692	0.99924	**2.690**
B-405	518-520	UD-22	A	24.2	35.19	361.11	383.17	2.680	0.99904	**2.678**
B-328	73-73.8	UD-4	A	24.2	31.14	361.11	380.64	2.682	0.99904	**2.680**
B-303	133-135	UD-4	B	24.4	33.46	362.96	383.97	2.688	0.99899	**2.685**
B-409	160-162	UD-4A	B	24.2	34.86	362.97	384.84	2.684	0.99904	**2.681**
B-909	85-87	UD-5	C	24.4	32.03	362.84	383.25	2.756	0.99899	**2.754**
B-919	23-25	UD-2	C	24.4	31.91	362.84	382.89	2.691	0.99899	**2.688**
B-305 DH	453.75-455.75	UD-21A	B	24.4	35.27	362.96	385.02	2.670	0.99899	**2.667**
B-343	70-72	UD-4A	A	24.2	30.01	361.11	380.34	2.784	0.99904	**2.781**
B-343	198-200	UD-8	B	24.2	31.37	362.96	382.83	2.728	0.99904	**2.725**
B-405	598-599	UD-25	A	24.4	30.50	361.19	380.37	2.694	0.99899	**2.692**
B-432	3-5	UD-1	B	24.4	30.96	362.96	382.64	2.745	0.99899	**2.742**
B-432	15-17	UD-2	A	24.4	31.09	361.19	380.78	2.703	0.99899	**2.701**
B-305 DH	3-5	UD-1	A	23.4	30.06	361.11	380.12	2.720	0.99924	**2.718**

KAW 3/29/07

WF = Water and Flask

DS = Deaired Sample, Water and Flask

MACTEC

SPECIFIC GRAVITY TEST

ASTM D854 - 06

Project No.: 5050-06-0496 Tested By: BK Test Data Reviewed By: RF

Project Name: Bechtel/STP/COL Test Date: 3-16-07 Test Data Review Date: 3/19/07

Boring No.	Depth (ft)	Sample No.	Lab No.	Flask no.	Temperature ~~(°C)~~ °F	Weight of Soil (grams)	Weight, CWF (grams)	Weight, DS (grams)	Specific Gravity (at test temp.)	Temperature Coefficient Factor	Specific Gravity (at 20.0°C)
							339.94 BK 3-19-07				
B919	8-10'	4D1	STP273	1613	71.8(22.1)	35.90	~~339.99~~	362.31	2.653	.99954	2.652
B343	113-115'	4D7	STP275	1615	71.9(22.2)	36.96	~~342.49~~	365.41	2.644	.99952	2.643
						BK 3-19-07	342.43				

CWF = Calibration Water and Flask DS = Deaired Sample, Water and Flask

Balance # 1643
" # 1079
Thermometer # 241161

KAN 3/23/07

Report Form Approved for Use for Bechtel/STP/COL Project by _____ Date _____

MACTEC

SPECIFIC GRAVITY TEST

ASTM D854 - 06

Project No. 5050-06-0496
Project Name Bechtel/STP/COL

Tested By J. Alexander
Test Date 3/18/2007

Reviewed By HA
Review Date 3-23-07

Boring No.	Depth (ft)	Sample No.	Flask no.	Temperature (^{0}C)	Weight of Soil (grams)	Weight, WF (grams)	Weight, DS (grams)	Specific Gravity (at test temp.)	Temperature Coefficient Factor	Specific Gravity (at 20^{0}C)
B-330	63-65	UD-3	B	23.9	32.76	362.95	383.45	2.672	0.99912	2.670
B-401*	88-90	UD-2	C	23.9	16.19	362.85	373.03	2.694	0.99912	2.691
B-401*	118-120	UD-3	A	23.9	19.22	361.13	373.17	2.677	0.99912	2.675

WF = Water and Flask

DS = Deaired Sample, Water and Flask

KAW 3/23/07

* Sample tested had a limited amount of material.

MACTEC

SPECIFIC GRAVITY TEST

ASTM D854 - 06

Project No. 5050-06-0496
Project Name Bechtel/STP/COL

Tested By J. Alexander
Test Date 3/27/2007

Reviewed By MA
Review Date 3-27-07

Boring No.	Depth (ft)	Sample No.	Flask no.	Temperature (°C)	Weight of Soil (grams)	Weight, WF (grams)	Weight, DS (grams)	Specific Gravity (at test temp.)	Temperature Coefficient Factor	Specific Gravity (at 20°C)
B-401	153-154	UD-4	A	23.9	30.87	361.13	380.26	2.629	0.99912	2.627
B-404	141-143	UD-5A	A	24.6	31.92	361.12	381.08	2.669	0.99894	2.666
B-415	88-90	UD-1	B	24.6	31.40	362.93	382.92	2.752	0.99894	2.749
B-415	124-126	UD-3	C	24.6	32.56	362.93	383.48	2.711	0.99894	2.708
B-902	15-17	UD-2	A	24.5	35.95	360.87	383.64	2.728	0.99897	2.725
B-904	53-55	UD-4	B	24.3	36.65	362.61	385.47	2.658	0.99902	2.655
B-428-DH	113-115	UD-6	C	24.4	26.39	362.47	379.43	2.799	0.99899	2.796
B-314	191-193	UD-6	A	25.1	34.48	360.87	382.57	2.698	0.99881	2.695
B-919	83-85	UD-4	A	24.7	37.29	360.84	383.91	2.622	0.99892	2.620
B-305	316-318.5	UD-15A	B	24.6	34.19	362.61	384.17	2.707	0.99894	2.704

KAW 3/29/07

WF = Water and Flask

DS = Deaired Sample, Water and Flask

MACTEC

SPECIFIC GRAVITY TEST

ASTM D854 - 06

Project No.: 5050-06-0496 Tested By: BAL Test Data Reviewed By: HB

Project Name: Bechtel/STP/COL Test Date: 04/05/07 Test Data Review Date: 4/5/07

Boring No.	Depth (ft)	Sample No.	Lab No.	Flask no.	Temperature (°C)	Weight of Soil (grams)	Weight, CWF (grams)	Weight, DS (grams)	Specific Gravity (at test temp.)	Temperature Coefficient Factor	Specific Gravity (at 20.0°C)
B-319	143-145	UD-2	16917	2191	24.0	38.31	364.39	388.62	2.721	0.99909	2.718

CWF = Calibration Water and Flask DS = Deaired Sample, Water and Flask

COPY

Report Form Approved for Use for Bechtel/STP/COL Project by [signature] Date 1.9.07

SEVERN TRENT STL®

STL St. Louis
13715 Rider Trail North
Earth City, MO 63045

Tel: 314 298 8566 Fax: 314 298 8757
www.stl-inc.com

ANALYTICAL REPORT

STP COL

Lot #: F7A170123

Mike Sufnarski

MACTEC Engineering & Consultin
2801 Yorkmont Rd
Suite 100
Charlotte, NC 28208

SEVERN TRENT LABORATORIES, INC.

Terry Romanko
Project Manager

January 31, 2007

Case Narrative
LOT NUMBER: F7A170123

This report contains the analytical results for the 20 samples received under chain of custody by STL St. Louis on January 17, 2007. These samples are associated with your STP COL project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted on the following page.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by STL St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Anions (Chloride, Sulfate) (MCAWW 300.0A)

The anion matrix spike solution contains all routine anions. Spiking technique, sample preparation and method compliance is demonstrated by the remaining acceptable MS recoveries. Poor matrix spike recovery for Chloride in batch 7022170 is attributed to matrix interference.
The sample duplicate %RPD for Chloride in batch 7022170 is outside the established QC limits. Matrix interference is physically evident in the sample. Method performance is demonstrated by acceptable LCS recovery.
Affected Samples:
F7A170123 (1): SS-3
F7A170123 (2): SS-6
F7A170123 (3): SS-9
F7A170123 (4): SS-10
F7A170123 (5): SS-12
F7A170123 (6): SS-13
F7A170123 (7): SS-14
F7A170123 (8): SS-4
F7A170123 (9): SS-9
F7A170123 (10): SS-11
F7A170123 (11): SS-13
F7A170123 (12): SS-15
F7A170123 (13): SS-2
F7A170123 (14): SS-5
F7A170123 (15): SS-6
F7A170123 (16): SS-9
F7A170123 (17): SS-10
F7A170123 (18): SS-3
F7A170123 (19): SS-7

There were no nonconformances or observations noted with any other analysis on this lot.

METHODS SUMMARY

F7A170123

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Chloride	MCAWW 300.0A	MCAWW 300.0A
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD
Soil and Waste pH	SW846 9045C	SW846 DI-LEACHA
Sulfate	MCAWW 300.0A	MCAWW 300.0A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

F7A170123

WO #	SAMPLE#	CLIENT SAMPLE ID		SAMPLED DATE	SAMP TIME
JMXWF	001	SS-3	B-904	12/15/06	
JMXWG	002	SS-6	B-904	12/16/06	
JMXWJ	003	SS-9	B-904	12/16/06	
JMXWK	004	SS-10	B-904	12/16/06	
JMXWL	005	SS-12	B-904	12/16/06	
JMXWM	006	SS-13	B-904	12/16/06	
JMXWN	007	SS-14	B-909	12/13/06	
JMXWP	008	SS-4	B-912	12/13/06	
JMXWR	009	SS-9	B-912	12/17/06	
JMXWT	010	SS-11	B-912	12/13/06	
JMXWV	011	SS-13	B-912	12/13/06	
JMXWW	012	SS-15	B-912	12/13/06	
JMXWX	013	SS-2	B-919	12/17/06	
JMXW0	014	SS-5	B-919	12/17/06	
JMXW1	015	SS-6	B-919	12/17/06	
JMXW2	016	SS-9	B-919	12/13/06	
JMXW3	017	SS-10	B-919	12/17/06	
JMXW4	018	SS-3	B-927	12/16/06	
JMXW5	019	SS-7	B-927	12/15/06	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-3 B-904

General Chemistry

Lot-Sample #...: F7A170123-001 Work Order #...: JMXWF Matrix.....: SOLID
Date Sampled...: 12/15/06 Date Received..: 01/17/07
% Moisture.....: 19

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.3	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	92.6 J	24.6	mg/kg	MCAWW 300.0A	01/22/07	7022170
		Dilution Factor: 10		Analysis Time..: 08:27		
Percent Moisture	18.6	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	232	6.1	mg/kg	MCAWW 300.0A	01/22/07	7022171
		Dilution Factor: 1		Analysis Time..: 08:10		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-6 B-904

General Chemistry

Lot-Sample #...: F7A170123-002 Work Order #...: JMXWG Matrix.....: SOLID
Date Sampled...: 12/16/06 Date Received..: 01/17/07
% Moisture.....: 19

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.5	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	189 J	24.7	mg/kg	MCAWW 300.0A	01/22/07	7022170
		Dilution Factor: 10		Analysis Time..: 09:20		
Percent Moisture	19.0	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	36.0	6.2	mg/kg	MCAWW 300.0A	01/22/07	7022171
		Dilution Factor: 1		Analysis Time..: 09:02		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-9 B-904

General Chemistry

Lot-Sample #...: F7A170123-003 Work Order #...: JMXWJ Matrix.....: SOLID
Date Sampled...: 12/16/06 Date Received..: 01/17/07
% Moisture.....: 26

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.7	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	124 J	27.1	mg/kg	MCAWW 300.0A	01/22/07	7022170
		Dilution Factor: 10		Analysis Time..: 10:29		
Percent Moisture	26.1	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	12.3	6.8	mg/kg	MCAWW 300.0A	01/22/07	7022171
		Dilution Factor: 1		Analysis Time..: 10:12		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-10 B-904

General Chemistry

Lot-Sample #...: F7A170123-004 Work Order #...: JMXWK Matrix.....: SOLID
Date Sampled...: 12/16/06 Date Received..: 01/17/07
% Moisture.....: 28

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.8	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	108 J	27.9	mg/kg	MCAWW 300.0A	01/22/07	7022170
		Dilution Factor: 10		Analysis Time..: 11:04		
Percent Moisture	28.4	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	23.2	7.0	mg/kg	MCAWW 300.0A	01/22/07	7022171
		Dilution Factor: 1		Analysis Time..: 10:47		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-12 B-904

General Chemistry

Lot-Sample #...: F7A170123-005 Work Order #...: JMXWL Matrix.....: SOLID
Date Sampled...: 12/16/06 Date Received..: 01/17/07
% Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.7	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	33.4 J	2.6	mg/kg	MCAWW 300.0A	01/22/07	7022170
		Dilution Factor: 1		Analysis Time..: 11:22		
Percent Moisture	21.7	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	6.7	6.4	mg/kg	MCAWW 300.0A	01/22/07	7022171
		Dilution Factor: 1		Analysis Time..: 11:22		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-13 B-904

General Chemistry

Lot-Sample #...: F7A170123-006 Work Order #...: JMXWM Matrix.....: SOLID
Date Sampled...: 12/16/06 Date Received..: 01/17/07
% Moisture.....: 28

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.5	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	66.9 J	2.8	mg/kg	MCAWW 300.0A	01/22/07	7022170
		Dilution Factor: 1		Analysis Time..: 11:39		
Percent Moisture	28.4	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	143	7.0	mg/kg	MCAWW 300.0A	01/22/07	7022171
		Dilution Factor: 1		Analysis Time..: 11:39		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-14 B-909

General Chemistry

Lot-Sample #...: F7A170123-007 Work Order #...: JMXWN Matrix.....: SOLID
Date Sampled...: 12/13/06 Date Received..: 01/17/07
% Moisture.....: 23

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.9	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	96.3 J	25.9	mg/kg	MCAWW 300.0A	01/22/07	7022170
		Dilution Factor: 10		Analysis Time..: 04:06		
Percent Moisture	22.7	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	10.2	6.5	mg/kg	MCAWW 300.0A	01/22/07	7022171
		Dilution Factor: 1		Analysis Time..: 03:14		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-4 B-912

General Chemistry

Lot-Sample #...: F7A170123-008 Work Order #...: JMXWP Matrix.....: SOLID
Date Sampled...: 12/13/06 Date Received..: 01/17/07
% Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.5	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	258 J	24.5	mg/kg	MCAWW 300.0A	01/22/07	7022170
		Dilution Factor: 10		Analysis Time..: 05:16		
Percent Moisture	18.3	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	141	6.1	mg/kg	MCAWW 300.0A	01/22/07	7022171
		Dilution Factor: 1		Analysis Time..: 04:58		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-9 B-912

General Chemistry

Lot-Sample #...: F7A170123-009 Work Order #...: JMXWR Matrix.....: SOLID
Date Sampled...: 12/17/06 Date Received..: 01/17/07
% Moisture.....: 21

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.6	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	46.9 J	2.5	mg/kg	MCAWW 300.0A	01/22-01/23/07	7022170
		Dilution Factor: 1		Analysis Time..: 12:49		
Percent Moisture	21.3	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	6.1 B	6.4	mg/kg	MCAWW 300.0A	01/22-01/23/07	7022171
		Dilution Factor: 1		Analysis Time..: 12:49		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

B Estimated result. Result is less than RL.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-11 B-912

General Chemistry

Lot-Sample #...: F7A170123-010 Work Order #...: JMXWT Matrix.....: SOLID
Date Sampled...: 12/13/06 Date Received..: 01/17/07
% Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.4	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	119 J	23.8	mg/kg	MCAWW 300.0A	01/22/07	7022170
		Dilution Factor: 10		Analysis Time..: 05:51		
Percent Moisture	16.0	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	25.9	6.0	mg/kg	MCAWW 300.0A	01/22/07	7022171
		Dilution Factor: 1		Analysis Time..: 05:33		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-13 B-912

General Chemistry

Lot-Sample #...: F7A170123-011 Work Order #...: JMXWV Matrix.....: SOLID
Date Sampled...: 12/13/06 Date Received..: 01/17/07
% Moisture.....: 23

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.6	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	90.1 J	26.0	mg/kg	MCAWW 300.0A	01/22-01/23/07	7022170
		Dilution Factor: 10		Analysis Time..: 07:50		
Percent Moisture	22.9	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	13.5	6.5	mg/kg	MCAWW 300.0A	01/22/07	7022171
		Dilution Factor: 1		Analysis Time..: 06:43		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-15 B-912

General Chemistry

Lot-Sample #...: F7A170123-012 Work Order #...: JMXWW Matrix.....: SOLID
Date Sampled...: 12/13/06 Date Received..: 01/17/07
% Moisture.....: 23

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	9.0	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	92.1 J	26.1	mg/kg	MCAWW 300.0A	01/22/07	7022170
		Dilution Factor: 10		Analysis Time..: 07:18		
Percent Moisture	23.4	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	9.8	6.5	mg/kg	MCAWW 300.0A	01/22/07	7022171
		Dilution Factor: 1		Analysis Time..: 07:00		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-2 B-919

General Chemistry

Lot-Sample #...: F7A170123-013 Work Order #...: JMXWX Matrix.....: SOLID
Date Sampled...: 12/17/06 Date Received..: 01/17/07
% Moisture.....: 20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.0	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	26.1 J	2.5	mg/kg	MCAWW 300.0A	01/22-01/23/07	7022170
		Dilution Factor: 1		Analysis Time..: 01:41		
Percent Moisture	20.1	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	22.8	6.3	mg/kg	MCAWW 300.0A	01/22-01/23/07	7022171
		Dilution Factor: 1		Analysis Time..: 01:41		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-5 B-919

General Chemistry

Lot-Sample #...: F7A170123-014 Work Order #...: JMXW0 Matrix.....: SOLID
Date Sampled...: 12/17/06 Date Received..: 01/17/07
% Moisture.....: 20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.0	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	1130 J	126	mg/kg	MCAWW 300.0A	01/22-01/23/07	7022170
		Dilution Factor: 50		Analysis Time..: 02:16		
Percent Moisture	20.4	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	311	62.8	mg/kg	MCAWW 300.0A	01/22-01/23/07	7022171
		Dilution Factor: 10		Analysis Time..: 01:58		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-6 B-919

General Chemistry

Lot-Sample #...: F7A170123-015 Work Order #...: JMXW1 Matrix.....: SOLID
Date Sampled...: 12/17/06 Date Received..: 01/17/07
% Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.3	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	253 J	25.7	mg/kg	MCAWW 300.0A	01/22-01/23/07	7022170
		Dilution Factor: 10		Analysis Time..: 02:51		
Percent Moisture	22.1	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	39.1	6.4	mg/kg	MCAWW 300.0A	01/22-01/23/07	7022171
		Dilution Factor: 1		Analysis Time..: 02:33		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-9 B-919

General Chemistry

Lot-Sample #...: F7A170123-016 Work Order #...: JMXW2 Matrix.....: SOLID
Date Sampled...: 12/13/06 Date Received..: 01/17/07
% Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.5	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	191 J	24.1	mg/kg	MCAWW 300.0A	01/22/07	7022170
		Dilution Factor: 10		Analysis Time..: 07:53		
Percent Moisture	17.1	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	74.4	6.0	mg/kg	MCAWW 300.0A	01/22/07	7022171
		Dilution Factor: 1		Analysis Time..: 07:35		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-10 B-919

General Chemistry

Lot-Sample #...: F7A170123-017 Work Order #...: JMXW3 Matrix.....: SOLID
Date Sampled...: 12/17/06 Date Received..: 01/17/07
% Moisture.....: 20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.7	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	98.7 J	24.9	mg/kg	MCAWW 300.0A	01/22-01/23/07	7022170
		Dilution Factor: 10		Analysis Time..: 03:25		
Percent Moisture	19.7	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	10.5	6.2	mg/kg	MCAWW 300.0A	01/22-01/23/07	7022171
		Dilution Factor: 1		Analysis Time..: 03:08		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-3 B-927

General Chemistry

Lot-Sample #...: F7A170123-018 Work Order #...: JMXW4 Matrix.....: SOLID
Date Sampled...: 12/16/06 Date Received..: 01/17/07
% Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.4	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	244 J	24.5	mg/kg	MCAWW 300.0A	01/22-01/23/07	7022170
		Dilution Factor: 10		Analysis Time..: 12:31		
Percent Moisture	18.3	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	165	6.1	mg/kg	MCAWW 300.0A	01/22-01/23/07	7022171
		Dilution Factor: 1		Analysis Time..: 12:14		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: SS-7 B-927

General Chemistry

Lot-Sample #...: F7A170123-019 Work Order #...: JMXW5 Matrix.....: SOLID
Date Sampled...: 12/15/06 Date Received..: 01/17/07
% Moisture.....: 19

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.5	0.10	No Units	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	6.5 J	2.5	mg/kg	MCAWW 300.0A	01/22/07	7022170
		Dilution Factor: 1		Analysis Time..: 08:45		
Percent Moisture	19.3	0.10	%	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	9.3	6.2	mg/kg	MCAWW 300.0A	01/22/07	7022171
		Dilution Factor: 1		Analysis Time..: 08:45		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F7A170123 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		Work Order #: JM7HF1AA		MB Lot-Sample #:	F7A220000-170	
	0.44 B	2.0	mg/kg	MCAWW 300.0A	01/22/07	7022170
		Dilution Factor: 1				
		Analysis Time..: 09:34				
Sulfate		Work Order #: JM7HG1AA		MB Lot-Sample #:	F7A220000-171	
	ND	5.0	mg/kg	MCAWW 300.0A	01/22/07	7022171
		Dilution Factor: 1				
		Analysis Time..: 09:34				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: F7A170123 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		WO#:JM7HF1AC-LCS/JM7HF1AD-LCSD				LCS Lot-Sample#: F7A220000-170	
	94	(90 - 110)			MCAWW 300.0A	01/22/07	7022170
	95	(90 - 110)	1.0	(0-20)	MCAWW 300.0A	01/22/07	7022170
		Dilution Factor: 1			Analysis Time..: 09:13		
Sulfate		WO#:JM7HG1AC-LCS/JM7HG1AD-LCSD				LCS Lot-Sample#: F7A220000-171	
	93	(90 - 110)			MCAWW 300.0A	01/22/07	7022171
	93	(90 - 110)	0.34	(0-20)	MCAWW 300.0A	01/22/07	7022171
		Dilution Factor: 1			Analysis Time..: 09:13		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F7A170123 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)		Work Order #: JM7F21AA	LCS Lot-Sample#: F7A230000-069		
	100	(99 - 101)	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1	Analysis Time..: 00:00		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F7A170123 **Matrix.....:** SOLID
Date Sampled...: 12/13/06 **Date Received..:** 01/17/07

Percnt Moisture: 0.0

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		Work Order #...: JMXWN1AF		MS Lot-Sample #: F7A170123-007	
	80 N	(90 - 110)	MCAWW 300.0A	01/22/07	7022170
		Dilution Factor: 10	Analysis Time..: 04:06		
Sulfate		Work Order #...: JMXWN1AH		MS Lot-Sample #: F7A170123-007	
	90	(90 - 110)	MCAWW 300.0A	01/22/07	7022171
		Dilution Factor: 1	Analysis Time..: 03:14		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F7A170123 **Work Order #...:** JMXW5-SMP JMXW5-DUP **Matrix.....:** SOLID

Date Sampled...: 12/15/06 **Date Received..:** 01/17/07

% Moisture.....: 19

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture						SD Lot-Sample #:	F7A170123-019	
	19.3	20.0	%	3.2	(0-30)	MCAWW 160.3 MOD	01/19-01/20/07	7019132
		Dilution Factor: 1				Analysis Time..: 00:00		
pH (solid)						SD Lot-Sample #:	F7A170123-019	
	8.5	8.6	No Units	1.7	(0-20)	SW846 9045C	01/23/07	7023069
		Dilution Factor: 1				Analysis Time..: 00:00		

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F7A170123 Work Order #...: JMXWN-SMP Matrix.....: SOLID
JMXWN-DUP
Date Sampled...: 12/13/06 Date Received..: 01/17/07
% Moisture.....: 23

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride						SD Lot-Sample #:	F7A170123-007	
	96.3 J	54.9	mg/kg	55	(0-20)	MCAWW 300.0A	01/22/07	7022170
			Dilution Factor: 10			Analysis Time..: 04:06		
Sulfate						SD Lot-Sample #:	F7A170123-007	
	10.2	8.8	mg/kg	15	(0-20)	MCAWW 300.0A	01/22/07	7022171
			Dilution Factor: 1			Analysis Time..: 03:14		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

LOT# F7A170123

STL ST. LOUIS

CUR 5724

MACTEC

LABORATORY ASSIGNMENT SHEET / CHAIN OF CUSTODY RECORD

MACTEC PROJECT NUMBER: 5050-06-0498

LABORATORY RECIEVING ID: SEVERN TRENT - ST. LOUIS

DATE: January 11, 2007
PREPARED BY (NAME / COMPANY): Lori Johnson/MACTEC
LAB MANAGER: Contact - John Powell
MACTEC PROJECT MANAGER: Michael D. Sufnarski

JOB NAME: South Texas COL Project

CLIENT CONTACT: Michael D. Sufnarski
CLIENT PHONE: Office: 704-357-5633 Mobile: 704.309.0624
CLIENT FAX: 704-357-8636
RETAIN SAMPLES UNTIL: Contact M. Sufnarski before disposal

DATE REPORT REQUIRED (Lab Mgr initials required)
ACTUAL DATE OF REPORT (Lab Mgr initials required)

NOTE: LIST QUANTITY OF EACH TEST FOR EACH SAMPLE BELOW

SAMPLE NUMBER	Boring No.	Sample Number	Sample Depth Top (ft)	Sample Depth Bottom (ft)	Sample Type	Field Classification (USCS)	pH (EPA Method SW-846 9045)	CHLORIDE/SULFATE (EPA Method SW-846 9056/9035/300.0)								EFFECTIVE OVERBURDEN STRESS (psf)	ESTIMATED K_o	REMARKS
1	B-904	SS-3	3	4.5	jar	CH	X	X			500G							
2	B-904	SS-6	10.5	12	jar	CH	X	X			250G							
3	B-904	SS-8	23.5	25	jar	SM	X	X										
4	B-904	SS-10	33.5	35	jar	SM	X	X										
5	B-904	SS-12	43.5	45	jar	SM	X	X	Rec'd on SSR a & b. SN 01.17.07									
6	B-904	SS-13	48.5	50	jar	CH	X	X										
7	B-909	SS-14	38.5	40	jar	SM	X	X										
8	B-912	SS-4	4.5	6	jar	CH	X	X										
9	B-912	SS-9	12	13.5	jar	CH	X	X										
10	B-912	SS-11	18.5	20	jar	CH	X	X										
11	B-912	SS-13	28.5	30	jar	MH	X	X										
12	B-912	SS-15	38.5	40	jar	SM	X	X										
	TOTAL NUMBER OF TESTS						12	12										

12/15 16 13 17 13

SN 01.12.07

Special Instructions:

DATE / TIME RELINQUISHED FROM SITE: 1-12-07 10:30
RELINQUISHED BY (SIGNATURE OF SITE PERSONNEL)
RELINQUISHED TO (SIGNATURE OF CARRIER)
SN 01.17.07

DATE / TIME RELINQUISHED TO
RELINQUISHED BY (SIGNATURE OF CARRIER)
RECEIVED BY (LABORATORY): STL-SL 01.18.07 0915.

DATE / TIME RELINQUISHED TO
RELINQUISHED BY
RECEIVED BY

DATE / TIME RELINQUISHED TO
RELINQUISHED BY
RECEIVED BY

LOT# F7A170123

STL ST. LOUIS

MACTEC

LABORATORY ASSIGNMENT SHEET / CHAIN OF CUSTODY RECORD

MACTEC PROJECT NUMBER: 5050-06-0106

Page 1 of 2

LABORATORY RECIEVING ID: SEVERN TRENT - ST. LOUIS

DATE: January 11, 2007
PREPARED BY (NAME / COMPANY): Lori Johnson/MACTEC
LAB MANAGER: John Powell - contact
MACTEC PROJECT MANAGER: Michael D. Sufnarski

JOB NAME: South Texas OOL Project

CLIENT CONTACT: Michael D. Sufnarski
CLIENT PHONE: Office: 704-357-5633 Mobile: 704.309.0624
CLIENT FAX: 704-357-8838
RETAIN SAMPLES UNTIL: Contact M. Sufnarski before disposal

DATE REPORT REQUIRED (Lab Mgr initials required)
ACTUAL DATE OF REPORT (Lab Mgr initials required)

NOTE: LIST QUANTITY OF EACH TEST FOR EACH SAMPLE BELOW

SAMPLE NUMBER	Boring No.	Sample Number	Sample Depth Top (ft)	Sample Depth Bottom (ft)	Sample Type	Field Classification (USCS)	pH (EPA Method SW-846 9040)	CHLORIDE/SULFATE (EPA Method SW-846 9056/9056/300.0)								EFFECTIVE OVERBURDEN STRESS (psf)	ESTIMATED K_o	REMARKS
12/17 13	B-918	SS-2	1.5	3	Jar	CH	X	X				250G						
14	B-918	SS-5	6	7.5	Jar	CH	X	X										
15	B-918	SS-6	10.5	12	Jar	CH	X	X					SW 01.17.07					
13	B-919	SS-9	18.5	20	Jar	CH	X	X										
17	B-918	SS-10	28.5	30	Jar	SM	X	X										
16	B-927	SS-3	3	4.5	Jar	CH	X	X										
15	B-927	SS-7	9	10.5	Jar	MH	X	X				250G						
SW 01.17.07 20																		
21																		
22																		
23																		
TOTAL NUMBER OF TESTS							19	19										

Special Instructions:

DATE / TIME RELINQUISHED FROM SITE: 1.16.07 10:30
RELINQUISHED BY (SIGNATURE OF SITE PERSONNEL)
RELINQUISHED TO (SIGNATURE OF CARRIER): FedEx

DATE / TIME RELINQUISHED TO:
RELINQUISHED BY (SIGNATURE OF CARRIER)
RECEIVED BY (LABORATORY)

DATE / TIME RELINQUISHED TO:
RELINQUISHED BY
RECEIVED BY: STL STL 01.17.07 0915

DATE / TIME RELINQUISHED TO:
RELINQUISHED BY
RECEIVED BY

Romanko, Terry

From: White, Kathryn [KAWHITE@mactec.com]
Sent: Thursday, January 18, 2007 3:45 PM
To: Romanko, Terry
Subject: Laboratory Assigment Question

Please perform test on jar 12B. (Boring B-904)

Thanks, Kathryn

Kathryn A. White, P.E.
Principal Geotechnical Engineer
Tulsa Office Manager
Chief Engineer - Oklahoma and Texas

MACTEC Engineering and Consulting, Inc.
1540 N. 107th East Avenue
Tulsa, Oklahoma 74116
Phone: (918) 834-4700
Fax: (918) 835-2545
Mobile: (918) 855-8557

STL St. Louis

Lot#(s): F7A170123

- 5724 -

Condition Upon Receipt Form

Client: Mactec
Quote No:
COC/RFA No: 5050-06-0496
Initiated By: SV
Date: 01.17.07
Time: 0915

Shipping Information

Shipper Name: FedX
Shipping # (s):*
1. 8595 9020 5160
2.
3.
4.
5.
6.
7.
8.
9.
10.

Multiple Packages Y (N) N/A
Sample Temperature (s):**
1. ambient
2.
3.
4.
5.
6.
7.
8.
9.
10.

*Numbered shipping lines correspond to Numbered Sample Temp lines

**Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid or Rad tests- Liquid or Solids

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	Y (N)[1]	Was sample received broken?	8.	(Y) N	Sample received with Chain of Custody?
2.	Y N (N/A)	Was sample received with proper pH[1]? (If not, make note below)	9.	Y (N)	Chain of Custody matches sample ID's on container(s)?
3.	Y N	If N/A-Was pH taken by original STL Lab?	10.	Y (N)	Are there custody seals present on cooler?
4.	(Y) N	Sample received in proper containers?	11.	Y N (N/A)	Do custody seals on cooler appear to be tampered with?
5.	(Y) N	Sample volume sufficient for analysis?	12.	Y (N)	Are there custody seals present on bottles?
6.	Y N (N/A)	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)	13.	Y N (N/A)	Do custody seals on bottles appear to be tampered with?
7.	(Y) N	Were contents of the cooler frisked after opening	14.	Y N	Was Internal COC/Workshare received?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX and soils.

Notes: No ~~chains~~ collection date on C-o-C's.
SV 01.17.07

SS-12 is on C-o-C but recv'd 12 aab.

Per T. Romakko - logged sample jar SS-12B
archived sample jar SS-12A

Corrective Action:
- ☐ Client Contact Name: Informed by:
- ☐ Sample(s) processed "as is"
- ☐ Sample(s) on hold until: If released, notify:

Project Management Review: Date: 1/22/06

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

ADMIN-0004, REVISED 03/01/06\Slsvr01\QA\FORMS\ST-LOUIS\ADMIN\Admin004030106.doc

SEVERN TRENT STL®

STL St. Louis
13715 Rider Trail North
Earth City, MO 63045

Tel: 314 298 8566 Fax: 314 298 8757
www.stl-inc.com

ANALYTICAL REPORT

PROJECT NO. 5050-06-0496

STP COL

Lot #: F6L300115

Mike Sufnarski

MACTEC Engineering & Consultin
2801 Yorkmont Rd
Suite 100
Charlotte, NC 28208

SEVERN TRENT LABORATORIES, INC.

Terry Romanko
Project Manager

January 12, 2007

Case Narrative
LOT NUMBER: F6L300115

This report contains the analytical results for the 41 samples received under chain of custody by STL St. Louis on December 30, 2006. These samples are associated with your STP COL project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted on the following page.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by STL St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Anions (Chloride, Sulfate) (MCAWW 300.0)

The anion matrix spike solution contains all routine anions. Spiking technique, sample preparation and method compliance is demonstrated by the remaining acceptable MS recoveries. Poor matrix spike recovery for Sulfate in batch 7010201 and Chloride in batch 7011155 is attributed to matrix interference.
Affected Samples:

F6L300115 (7): SS-24
F6L300115 (9): SS-2
F6L300115 (10): SS-6
F6L300115 (11): SS-11
F6L300115 (12): SS-24
F6L300115 (18): SS-20
F6L300115 (19): SS-2
F6L300115 (20): SS-4
F6L300115 (21): SS-7
F6L300115 (22): SS-9
F6L300115 (23): SS-11
F6L300115 (26): SS-20
F6L300115 (31): SS-21
F6L300115 (32): SS-2
F6L300115 (33): SS-6
F6L300115 (34): SS-9
F6L300115 (35): SS-11
F6L300115 (36): SS-15
F6L300115 (37): SS-19
F6L300115 (38): SS-21

There were no nonconformances or observations noted with any other analysis on this lot.

METHODS SUMMARY

F6L300115

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Chloride	MCAWW 300.0A	MCAWW 300.0A
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD
Soil and Waste pH	SW846 9045C	SW846 DI-LEACHA
Sulfate	MCAWW 300.0A	MCAWW 300.0A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

F6L300115

WO #	SAMPLE#	CLIENT SAMPLE ID		SAMPLED DATE	SAMP TIME
JL91E	001	SS-3	B-309	11/13/06	
JL91F	002	SS-7	B-309	11/13/06	
JL91G	003	SS-12	B-309	11/13/06	
JL91H	004	SS-14	B-309	11/13/06	
JL91J	005	SS-19	B-309	11/13/06	
JL91K	006	SS-21	B-309	11/13/06	
JL91L	007	SS-24	B-309	11/13/06	
JL91M	008	SS-26	B-309	11/14/06	
JL91N	009	SS-2	B-328	10/25/06	
JL91P	010	SS-6	B-328	10/25/06	
JL91Q	011	SS-11	B-328	11/04/06	
JL91R	012	SS-24	B-344	11/15/06	
JL91T	013	SS-4	B-405	10/18/06	
JL91V	014	SS-9	B-405	10/18/06	
JL91W	015	SS-12	B-405	10/19/06	
JL91X	016	SS-16	B-405	10/19/06	
JL910	017	SS-18	B-405	10/19/06	
JL911	018	SS-20	B-405	10/19/06	
JL912	019	SS-2	B-432	11/08/06	
JL913	020	SS-4	B-432	11/08/06	
JL914	021	SS-7	B-432	11/08/06	
JL915	022	SS-9	B-432	11/08/06	
JL916	023	SS-11	B-432	11/08/06	
JL917	024	SS-2	B-305	12/14/06	
JL918	025	SS-3	B-305	12/14/06	
JL919	026	SS-20	B-305	11/20/06	
JL92A	027	SS-2	B-421	11/27/06	
JL92C	028	SS-6	B-421	11/27/06	
JL92D	029	SS-14	B-421	11/27/06	
JL92E	030	SS-18	B-421	11/28/06	
JL92F	031	SS-21	B-421	11/28/06	
JL92G	032	SS-2	B-419	12/01/06	
JL92H	033	SS-6	B-419	12/01/06	
JL92J	034	SS-9	B-419	12/01/06	
JL92K	035	SS-11	B-419	12/01/06	
JL92L	036	SS-15	B-419	12/01/06	

(Continued on next page)

SAMPLE SUMMARY

F6L300115

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
JL92M	037	SS-19 B-419	12/01/06	
JL92N	038	SS-21 B-419	12/01/06	
JL92P	039	SS-23 B-419	12/02/06	
JL92Q	040	SS-4 B-427	11/29/06	
JL92R	041	SS-8 B-427	11/29/06	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-3 B-309

General Chemistry

Lot-Sample #...: F6L300115-001 **Work Order #...:** JL91E **Matrix.....:** SOLID
Date Sampled...: 11/13/06 **Date Received..:** 12/30/06
% Moisture.....: 20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	7.8	0.10	No Units	SW846 9045C	01/02-01/03/07	7002081
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	20.2	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002075
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-7 B-309

General Chemistry

Lot-Sample #...: F6L300115-002 **Work Order #...:** JL91F **Matrix.....:** SOLID
Date Sampled...: 11/13/06 **Date Received..:** 12/30/06
% Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.4	0.10	No Units	SW846 9045C	01/02-01/03/07	7002081
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	21.8	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002075
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-12 B-309

General Chemistry

Lot-Sample #...: F6L300115-003 **Work Order #...:** JL91G **Matrix.....:** SOLID
Date Sampled...: 11/13/06 **Date Received..:** 12/30/06
% Moisture.....: 21

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	**8.7**	**0.10**	**No Units**	**SW846 9045C**	**01/02-01/03/07**	**7002081**
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	**20.6**	**0.10**	**%**	**MCAWW 160.3 MOD**	**01/02-01/03/07**	**7002075**
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-14 B-309

General Chemistry

Lot-Sample #...: F6L300115-004 Work Order #...: JL91H Matrix.....: SOLID
Date Sampled...: 11/13/06 Date Received..: 12/30/06
% Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.7	0.10	No Units	SW846 9045C	01/02-01/03/07	7002081
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	22.5	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002075
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-19 B-309

General Chemistry

Lot-Sample #...: F6L300115-005 Work Order #...: JL91J Matrix.....: SOLID
Date Sampled...: 11/13/06 Date Received..: 12/30/06
% Moisture.....: 20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.6	0.10	No Units	SW846 9045C	01/02-01/03/07	7002081
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	19.9	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002075
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-21 B-309

General Chemistry

Lot-Sample #...: F6L300115-006 Work Order #...: JL91K Matrix.....: SOLID
Date Sampled...: 11/13/06 Date Received..: 12/30/06
% Moisture.....: 19

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.9	0.10	No Units	SW846 9045C	01/02-01/03/07	7002081
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	19.1	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002075
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-24 B-309

General Chemistry

Lot-Sample #...: F6L300115-007 Work Order #...: JL91L Matrix.....: SOLID
Date Sampled...: 11/13/06 Date Received..: 12/30/06
% Moisture.....: 19

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.8	0.10	No Units	SW846 9045C	01/02-01/03/07	7002081
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	46.6 J	2.5	mg/kg	MCAWW 300.0A	01/10/07	7010200
		Dilution Factor: 1		Analysis Time..: 09:39		
Percent Moisture	19.2	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002075
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	31.8	6.2	mg/kg	MCAWW 300.0A	01/10/07	7010201
		Dilution Factor: 1		Analysis Time..: 09:39		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-26 B-309

General Chemistry

Lot-Sample #...: F6L300115-008 Work Order #...: JL91M Matrix.....: SOLID
Date Sampled...: 11/14/06 Date Received..: 12/30/06
% Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.8	0.10	No Units	SW846 9045C	01/02-01/03/07	7002081
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	21.6	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002075
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-2 B-328

General Chemistry

Lot-Sample #...: F6L300115-009 Work Order #...: JL91N Matrix.....: SOLID
Date Sampled...: 10/25/06 Date Received..: 12/30/06
% Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.6	0.10	No Units	SW846 9045C	01/02-01/03/07	7002081
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	35.9 J	2.4	mg/kg	MCAWW 300.0A	01/10/07	7010200
		Dilution Factor: 1		Analysis Time..: 02:41		
Percent Moisture	17.5	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002075
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	34.7	6.1	mg/kg	MCAWW 300.0A	01/10/07	7010201
		Dilution Factor: 1		Analysis Time..: 02:41		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-6 B-328

General Chemistry

Lot-Sample #...: F6L300115-010 Work Order #...: JL91P Matrix.....: SOLID
Date Sampled...: 10/25/06 Date Received..: 12/30/06
% Moisture.....: 20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	7.7	0.10	No Units	SW846 9045C	01/02-01/03/07	7002081
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	94.0 J	24.9	mg/kg	MCAWW 300.0A	01/10/07	7010200
		Dilution Factor: 10		Analysis Time..: 04:08		
Percent Moisture	19.7	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002075
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	71.1	6.2	mg/kg	MCAWW 300.0A	01/10/07	7010201
		Dilution Factor: 1		Analysis Time..: 03:16		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-11 B-328

General Chemistry

Lot-Sample #...: F6L300115-011 Work Order #...: JL91Q Matrix.....: SOLID
Date Sampled...: 11/04/06 Date Received..: 12/30/06
% Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.5	0.10	No Units	SW846 9045C	01/02-01/03/07	7002081
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	92.2 J	24.5	mg/kg	MCAWW 300.0A	01/10/07	7010200
		Dilution Factor: 10		Analysis Time..: 05:17		
Percent Moisture	18.4	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002075
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	35.5	6.1	mg/kg	MCAWW 300.0A	01/10/07	7010201
		Dilution Factor: 1		Analysis Time..: 05:00		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-24 B-344

General Chemistry

Lot-Sample #...: F6L300115-012 **Work Order #...:** JL91R **Matrix.....:** SOLID
Date Sampled...: 11/15/06 **Date Received..:** 12/30/06
% Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.9	0.10	No Units	SW846 9045C	01/02-01/03/07	7002081
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	32.8 J	2.4	mg/kg	MCAWW 300.0A	01/10/07	7010200
		Dilution Factor: 1		Analysis Time..: 10:14		
Percent Moisture	15.8	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002075
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	27.8	5.9	mg/kg	MCAWW 300.0A	01/10/07	7010201
		Dilution Factor: 1		Analysis Time..: 10:14		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-4 B-405

General Chemistry

Lot-Sample #...: F6L300115-013 **Work Order #...:** JL91T **Matrix.....:** SOLID
Date Sampled...: 10/18/06 **Date Received..:** 12/30/06
% Moisture.....: 21

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	**8.5**	**0.10**	**No Units**	**SW846 9045C**	**01/02-01/03/07**	**7002081**
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	**21.2**	**0.10**	**%**	**MCAWW 160.3 MOD**	**01/02-01/03/07**	**7002075**
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-9 B-405

General Chemistry

Lot-Sample #...: F6L300115-014 **Work Order #...:** JL91V **Matrix.....:** SOLID
Date Sampled...: 10/18/06 **Date Received..:** 12/30/06
% Moisture.....: 19

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	**8.4**	**0.10**	**No Units**	**SW846 9045C**	**01/02-01/03/07**	**7002081**
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	**19.4**	**0.10**	**%**	**MCAWW 160.3 MOD**	**01/02-01/03/07**	**7002075**
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-12 B-405

General Chemistry

Lot-Sample #...: F6L300115-015 **Work Order #...:** JL91W **Matrix.....:** SOLID
Date Sampled...: 10/19/06 **Date Received..:** 12/30/06
% Moisture.....: 25

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.1	0.10	No Units	SW846 9045C	01/02-01/03/07	7002081
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	24.5	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002075
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-16 B-405

General Chemistry

Lot-Sample #...: F6L300115-016 **Work Order #...:** JL91X **Matrix.....:** SOLID
Date Sampled...: 10/19/06 **Date Received..:** 12/30/06
% Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	**8.6**	**0.10**	**No Units**	**SW846 9045C**	**01/02-01/03/07**	**7002081**
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	**22.3**	**0.10**	**%**	**MCAWW 160.3 MOD**	**01/02-01/03/07**	**7002075**
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-18 B-405

General Chemistry

Lot-Sample #...: F6L300115-017 **Work Order #...:** JL910 **Matrix.....:** SOLID
Date Sampled...: 10/19/06 **Date Received..:** 12/30/06
% Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	**8.7**	**0.10**	**No Units**	**SW846 9045C**	**01/02-01/03/07**	**7002081**
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	**17.5**	**0.10**	**%**	**MCAWW 160.3 MOD**	**01/02-01/03/07**	**7002075**
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-20 B-405

General Chemistry

Lot-Sample #...: F6L300115-018 Work Order #...: JL911 Matrix.....: SOLID
Date Sampled...: 10/19/06 Date Received..: 12/30/06
% Moisture.....: 19

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.5	0.10	No Units	SW846 9045C	01/02-01/03/07	7002081
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	33.5 J	2.5	mg/kg	MCAWW 300.0A	01/10/07	7010200
		Dilution Factor: 1		Analysis Time..: 01:31		
Percent Moisture	19.5	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002075
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	44.6	6.2	mg/kg	MCAWW 300.0A	01/10/07	7010201
		Dilution Factor: 1		Analysis Time..: 01:31		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-2 B-432

General Chemistry

Lot-Sample #...: F6L300115-019 **Work Order #...:** JL912 **Matrix.....:** SOLID
Date Sampled...: 11/08/06 **Date Received..:** 12/30/06
% Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.4	0.10	No Units	SW846 9045C	01/02-01/03/07	7002081
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	220 J	25.8	mg/kg	MCAWW 300.0A	01/10/07	7010200
		Dilution Factor: 10		Analysis Time..: 06:27		
Percent Moisture	22.4	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002075
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	78.3	6.4	mg/kg	MCAWW 300.0A	01/10/07	7010201
		Dilution Factor: 1		Analysis Time..: 06:10		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-4 B-432

General Chemistry

Lot-Sample #...: F6L300115-020 **Work Order #...:** JL913 **Matrix.....:** SOLID
Date Sampled...: 11/08/06 **Date Received..:** 12/30/06
% Moisture.....: 21

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	7.8	0.10	No Units	SW846 9045C	01/02-01/03/07	7002081
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	1230 J	126	mg/kg	MCAWW 300.0A	01/10-01/11/07	7010200
		Dilution Factor: 50		Analysis Time..: 07:44		
Percent Moisture	20.6	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002075
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	622	63.0	mg/kg	MCAWW 300.0A	01/10/07	7010201
		Dilution Factor: 10		Analysis Time..: 07:02		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-7 B-432

General Chemistry

Lot-Sample #...: F6L300115-021 Work Order #...: JL914 Matrix.....: SOLID
Date Sampled...: 11/08/06 Date Received..: 12/30/06
% Moisture.....: 20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.7	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	168 J	25.0	mg/kg	MCAWW 300.0A	01/10/07	7010200
		Dilution Factor: 10		Analysis Time..: 07:37		
Percent Moisture	20.0	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	32.4	6.2	mg/kg	MCAWW 300.0A	01/10/07	7010201
		Dilution Factor: 1		Analysis Time..: 07:19		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-9 B-432

General Chemistry

Lot-Sample #...: F6L300115-022 Work Order #...: JL915 Matrix.....: SOLID
Date Sampled...: 11/08/06 Date Received..: 12/30/06
% Moisture.....: 24

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.9	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	82.4 J	26.4	mg/kg	MCAWW 300.0A	01/10/07	7010200
		Dilution Factor: 10		Analysis Time..: 08:12		
Percent Moisture	24.3	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	20.0	6.6	mg/kg	MCAWW 300.0A	01/10/07	7010201
		Dilution Factor: 1		Analysis Time..: 07:54		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-11 B-432

General Chemistry

Lot-Sample #...: F6L300115-023 Work Order #...: JL916 Matrix.....: SOLID
Date Sampled...: 11/08/06 Date Received..: 12/30/06
% Moisture.....: 24

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.9	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	99.4 J	26.3	mg/kg	MCAWW 300.0A	01/10/07	7010200
		Dilution Factor: 10		Analysis Time..: 08:47		
Percent Moisture	24.0	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	13.2	6.6	mg/kg	MCAWW 300.0A	01/10/07	7010201
		Dilution Factor: 1		Analysis Time..: 08:29		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-2 B-305

General Chemistry

Lot-Sample #...: F6L300115-024 Work Order #...: JL917 Matrix.....: SOLID
Date Sampled...: 12/14/06 Date Received..: 12/30/06
% Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	9.2	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	22.4	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-3 B-305

General Chemistry

Lot-Sample #...: F6L300115-025 **Work Order #...:** JL918 **Matrix.....:** SOLID
Date Sampled...: 12/14/06 **Date Received..:** 12/30/06
% Moisture.....: 23

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	**9.0**	**0.10**	**No Units**	**SW846 9045C**	**01/02-01/03/07**	**7002083**
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	**23.5**	**0.10**	**%**	**MCAWW 160.3 MOD**	**01/02-01/03/07**	**7002077**
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-20 B-305

General Chemistry

Lot-Sample #...: F6L300115-026 Work Order #...: JL919 Matrix.....: SOLID
Date Sampled...: 11/20/06 Date Received..: 12/30/06
% Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.9	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	20.6 J	2.4	mg/kg	MCAWW 300.0A	01/10/07	7010200
		Dilution Factor: 1		Analysis Time..: 10:48		
Percent Moisture	16.3	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	14.5	6.0	mg/kg	MCAWW 300.0A	01/10/07	7010201
		Dilution Factor: 1		Analysis Time..: 10:48		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-2 B-421

General Chemistry

Lot-Sample #...: F6L300115-027 Work Order #...: JL92A Matrix.....: SOLID
Date Sampled...: 11/27/06 Date Received..: 12/30/06
% Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.9	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	18.4	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-6 B-421

General Chemistry

Lot-Sample #...: F6L300115-028 **Work Order #...:** JL92C **Matrix.....:** SOLID
Date Sampled...: 11/27/06 **Date Received..:** 12/30/06
% Moisture.....: 19

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	**8.4**	**0.10**	**No Units**	**SW846 9045C**	**01/02-01/03/07**	**7002083**
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	**19.5**	**0.10**	**%**	**MCAWW 160.3 MOD**	**01/02-01/03/07**	**7002077**
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-14 B-421

General Chemistry

Lot-Sample #...: F6L300115-029 Work Order #...: JL92D Matrix.....: SOLID
Date Sampled...: 11/27/06 Date Received..: 12/30/06
% Moisture.....: 20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.1	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	19.9	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-18 B-421

General Chemistry

Lot-Sample #...: F6L300115-030 Work Order #...: JL92E Matrix.....: SOLID
Date Sampled...: 11/28/06 Date Received..: 12/30/06
% Moisture.....: 16

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.5	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	16.4	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-21 B-421

General Chemistry

Lot-Sample #...: F6L300115-031 Work Order #...: JL92F Matrix.....: SOLID
Date Sampled...: 11/28/06 Date Received..: 12/30/06
% Moisture.....: 19

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.3	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	25.8 J	2.5	mg/kg	MCAWW 300.0A	01/10/07	7010200
		Dilution Factor: 1		Analysis Time..: 11:23		
Percent Moisture	19.3	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	18.1	6.2	mg/kg	MCAWW 300.0A	01/10/07	7010201
		Dilution Factor: 1		Analysis Time..: 11:23		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-2 B-419

General Chemistry

Lot-Sample #...: F6L300115-032 Work Order #...: JL92G Matrix.....: SOLID
Date Sampled...: 12/01/06 Date Received..: 12/30/06
% Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.4	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	98.9 J	24.3	mg/kg	MCAWW 300.0A	01/10-01/11/07	7010200
		Dilution Factor: 10		Analysis Time..: 12:16		
Percent Moisture	17.7	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	82.8	6.1	mg/kg	MCAWW 300.0A	01/10/07	7010201
		Dilution Factor: 1		Analysis Time..: 11:58		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-6 B-419

General Chemistry

Lot-Sample #...: F6L300115-033 Work Order #...: JL92H Matrix.....: SOLID
Date Sampled...: 12/01/06 Date Received..: 12/30/06
% Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.2	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	513 J	25.6	mg/kg	MCAWW 300.0A	01/10-01/11/07	7010200
		Dilution Factor: 10		Analysis Time..: 01:25		
Percent Moisture	21.8	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	380	64.0	mg/kg	MCAWW 300.0A	01/10-01/11/07	7010201
		Dilution Factor: 10		Analysis Time..: 01:25		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-9 B-419

General Chemistry

Lot-Sample #...: F6L300115-034 Work Order #...: JL92J Matrix.....: SOLID
Date Sampled...: 12/01/06 Date Received..: 12/30/06
% Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.6	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	184 J	24.2	mg/kg	MCAWW 300.0A	01/10-01/11/07	7010200
		Dilution Factor: 10		Analysis Time..: 02:00		
Percent Moisture	17.3	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	45.1	6.0	mg/kg	MCAWW 300.0A	01/10-01/11/07	7010201
		Dilution Factor: 1		Analysis Time..: 01:43		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-11 B-419

General Chemistry

Lot-Sample #...: F6L300115-035 Work Order #...: JL92K Matrix.....: SOLID
Date Sampled...: 12/01/06 Date Received..: 12/30/06
% Moisture.....: 20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.7	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	84.2 J	25.2	mg/kg	MCAWW 300.0A	01/10-01/11/07	7010200
		Dilution Factor: 10		Analysis Time..: 02:35		
Percent Moisture	20.5	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	17.6	6.3	mg/kg	MCAWW 300.0A	01/10-01/11/07	7010201
		Dilution Factor: 1		Analysis Time..: 02:17		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-15 B-419

General Chemistry

Lot-Sample #...: F6L300115-036 Work Order #...: JL92L Matrix.....: SOLID
Date Sampled...: 12/01/06 Date Received..: 12/30/06
% Moisture.....: 19

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	9.0	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	63.8 J	24.8	mg/kg	MCAWW 300.0A	01/10-01/11/07	7010200
		Dilution Factor: 10		Analysis Time..: 03:10		
Percent Moisture	19.4	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	11.0	6.2	mg/kg	MCAWW 300.0A	01/10-01/11/07	7010201
		Dilution Factor: 1		Analysis Time..: 02:52		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-19 B-419

General Chemistry

Lot-Sample #...: F6L300115-037 **Work Order #...:** JL92M **Matrix.....:** SOLID
Date Sampled...: 12/01/06 **Date Received..:** 12/30/06
% Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	9.0	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	55.3 J	2.4	mg/kg	MCAWW 300.0A	01/10-01/11/07	7010200
		Dilution Factor: 1		Analysis Time..: 03:27		
Percent Moisture	17.4	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	10.2	6.1	mg/kg	MCAWW 300.0A	01/10-01/11/07	7010201
		Dilution Factor: 1		Analysis Time..: 03:27		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-21 B-419

General Chemistry

Lot-Sample #...: F6L300115-038 Work Order #...: JL92N Matrix.....: SOLID
Date Sampled...: 12/01/06 Date Received..: 12/30/06
% Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.4	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	42.1 J	2.4	mg/kg	MCAWW 300.0A	01/10-01/11/07	7010200
		Dilution Factor: 1		Analysis Time..: 04:37		
Percent Moisture	16.9	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	11.6	6.0	mg/kg	MCAWW 300.0A	01/10-01/11/07	7010201
		Dilution Factor: 1		Analysis Time..: 04:37		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-23 B-419

General Chemistry

Lot-Sample #...: F6L300115-039 Work Order #...: JL92P Matrix.....: SOLID
Date Sampled...: 12/02/06 Date Received..: 12/30/06
% Moisture.....: 21

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	8.6	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Chloride	40.0 J	2.5	mg/kg	MCAWW 300.0A	01/10-01/11/07	7010202
		Dilution Factor: 1		Analysis Time..: 05:12		
Percent Moisture	21.5	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	47.8	6.4	mg/kg	MCAWW 300.0A	01/10-01/11/07	7010203
		Dilution Factor: 1		Analysis Time..: 05:12		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-4 B-427

General Chemistry

Lot-Sample #...: F6L300115-040 **Work Order #...:** JL92Q **Matrix.....:** SOLID
Date Sampled...: 11/29/06 **Date Received..:** 12/30/06
% Moisture.....: 18

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	7.7	0.10	No Units	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	18.5	0.10	%	MCAWW 160.3 MOD	01/02-01/03/07	7002077
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering & Consulting Inc

Client Sample ID: SS-8 B-427

General Chemistry

Lot-Sample #...: F6L300115-041 **Work Order #...:** JL92R **Matrix.....:** SOLID
Date Sampled...: 11/29/06 **Date Received..:** 12/30/06
% Moisture.....: 20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)	**8.1**	**0.10**	**No Units**	**SW846 9045C**	**01/02-01/03/07**	**7002084**
		Dilution Factor: 1		Analysis Time..: 00:00		
Percent Moisture	**19.6**	**0.10**	**%**	**MCAWW 160.3 MOD**	**01/02-01/03/07**	**7002079**
		Dilution Factor: 1		Analysis Time..: 00:00		

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F6L300115 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		Work Order #: JMNLD1AA		MB Lot-Sample #:	F7A100000-200	
	0.33 B	2.0	mg/kg	MCAWW 300.0A	01/10/07	7010200
		Dilution Factor: 1				
		Analysis Time..: 09:49				
Chloride		Work Order #: JMNLF1AA		MB Lot-Sample #:	F7A100000-202	
	0.33 B	2.0	mg/kg	MCAWW 300.0A	01/10/07	7010202
		Dilution Factor: 1				
		Analysis Time..: 09:49				
Sulfate		Work Order #: JMNLE1AA		MB Lot-Sample #:	F7A100000-201	
	ND	5.0	mg/kg	MCAWW 300.0A	01/10/07	7010201
		Dilution Factor: 1				
		Analysis Time..: 09:49				
Sulfate		Work Order #: JMNLG1AA		MB Lot-Sample #:	F7A100000-203	
	ND	5.0	mg/kg	MCAWW 300.0A	01/10/07	7010203
		Dilution Factor: 1				
		Analysis Time..: 09:49				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: F6L300115 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		WO#:JMNLD1AC-LCS/JMNLD1AD-LCSD				LCS Lot-Sample#: F7A100000-200	
	96	(90 - 110)			MCAWW 300.0A	01/10/07	7010200
	97	(90 - 110)	1.2	(0-20)	MCAWW 300.0A	01/10/07	7010200
		Dilution Factor: 1			Analysis Time..: 09:32		
Chloride		WO#:JMNLF1AC-LCS/JMNLF1AD-LCSD				LCS Lot-Sample#: F7A100000-202	
	96	(90 - 110)			MCAWW 300.0A	01/10/07	7010202
	97	(90 - 110)	1.2	(0-20)	MCAWW 300.0A	01/10/07	7010202
		Dilution Factor: 1			Analysis Time..: 09:32		
Sulfate		WO#:JMNLE1AC-LCS/JMNLE1AD-LCSD				LCS Lot-Sample#: F7A100000-201	
	92	(90 - 110)			MCAWW 300.0A	01/10/07	7010201
	92	(90 - 110)	0.19	(0-20)	MCAWW 300.0A	01/10/07	7010201
		Dilution Factor: 1			Analysis Time..: 09:32		
Sulfate		WO#:JMNLG1AC-LCS/JMNLG1AD-LCSD				LCS Lot-Sample#: F7A100000-203	
	92	(90 - 110)			MCAWW 300.0A	01/10/07	7010203
	92	(90 - 110)	0.19	(0-20)	MCAWW 300.0A	01/10/07	7010203
		Dilution Factor: 1			Analysis Time..: 09:32		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F6L300115 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)		Work Order #: JMCFA1AA	LCS Lot-Sample#: F7A020000-081		
	100	(99 - 101)	SW846 9045C	01/02-01/03/07	7002081
		Dilution Factor: 1	Analysis Time..: 00:00		
pH (solid)		Work Order #: JMCFE1AA	LCS Lot-Sample#: F7A020000-083		
	100	(99 - 101)	SW846 9045C	01/02-01/03/07	7002083
		Dilution Factor: 1	Analysis Time..: 00:00		
pH (solid)		Work Order #: JMCFG1AA	LCS Lot-Sample#: F7A020000-084		
	100	(99 - 101)	SW846 9045C	01/02-01/03/07	7002084
		Dilution Factor: 1	Analysis Time..: 00:00		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F6L300115 **Matrix.....:** SOLID
Date Sampled...: 10/25/06 **Date Received..:** 12/30/06

Percnt Moisture: 3.3

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	99	Work Order #...: JL91P1AF (90 - 110)	MCAWW 300.0A	MS Lot-Sample #: F6L300115-010 01/10/07	7010200
		Dilution Factor: 10	Analysis Time..: 04:08		
Chloride	104	Work Order #...: JL92P1AF (90 - 110)	MCAWW 300.0A	MS Lot-Sample #: F6L300115-039 01/10-01/11/07	7010202
		Dilution Factor: 1	Analysis Time..: 05:12		
Sulfate	62 N	Work Order #...: JL91P1AH (90 - 110)	MCAWW 300.0A	MS Lot-Sample #: F6L300115-010 01/10/07	7010201
		Dilution Factor: 1	Analysis Time..: 03:16		
Sulfate	92	Work Order #...: JL92P1AH (90 - 110)	MCAWW 300.0A	MS Lot-Sample #: F6L300115-039 01/10-01/11/07	7010203
		Dilution Factor: 1	Analysis Time..: 05:12		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

N Spiked analyte recovery is outside stated control limits.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F6L300115 **Work Order #...:** JL913-SMP JL913-DUP **Matrix.....:** SOLID

Date Sampled...: 11/08/06 **Date Received..:** 12/30/06

% Moisture.....: 21

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture						SD Lot-Sample #:	F6L300115-020	
	20.6	22.8	%	10	(0-30)	MCAWW 160.3 MOD	01/02-01/03/07	7002075

Dilution Factor: 1 Analysis Time..: 00:00

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F6L300115 **Work Order #...:** JL92Q-SMP JL92Q-DUP **Matrix.....:** SOLID

Date Sampled...: 11/29/06 **Date Received..:** 12/30/06

% Moisture.....: 18

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture						SD Lot-Sample #:	F6L300115-040	
	18.5	18.8	%	1.7	(0-30)	MCAWW 160.3 MOD	01/02-01/03/07	7002077

Dilution Factor: 1 Analysis Time..: 00:00

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F6L300115 **Work Order #...:** JL8EV-SMP JL8EV-DUP **Matrix.....:** SOLID

Date Sampled...: 12/27/06 09:30 **Date Received..:** 12/28/06

% Moisture.....: 3.3

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture						SD Lot-Sample #:	F6L280264-001	
	3.3	3.1	%	5.4	(0-30)	MCAWW 160.3 MOD	01/02-01/03/07	7002079

Dilution Factor: 1 Analysis Time..: 00:00

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F6L300115 **Work Order #...:** JL91E-SMP JL91E-DUP **Matrix.....:** SOLID

Date Sampled...: 11/13/06 **Date Received..:** 12/30/06

% Moisture.....: 20

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)						SD Lot-Sample #:	F6L300115-001	
	7.8	8.0	No Units	3.7	(0-20)	SW846 9045C	01/02-01/03/07	7002081

Dilution Factor: 1 Analysis Time..: 00:00

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F6L300115 **Work Order #...:** JL914-SMP JL914-DUP **Matrix.....:** SOLID

Date Sampled...: 11/08/06 **Date Received..:** 12/30/06

% Moisture.....: 20

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)						SD Lot-Sample #:	F6L300115-021	
	8.7	8.9	No Units	2.1	(0-20)	SW846 9045C	01/02-01/03/07	7002083

Dilution Factor: 1 Analysis Time..: 00:00

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F6L300115 **Work Order #...:** JL92R-SMP JL92R-DUP **Matrix.....:** SOLID

Date Sampled...: 11/29/06 **Date Received..:** 12/30/06

% Moisture.....: 20

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)						SD Lot-Sample #:	F6L300115-041	
	8.1	8.2	No Units	0.74	(0-20)	SW846 9045C	01/02-01/03/07	7002084

Dilution Factor: 1 Analysis Time..: 00:00

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F6L300115 **Work Order #...:** JL91P-SMP JL91P-DUP **Matrix.....:** SOLID

Date Sampled...: 10/25/06 **Date Received..:** 12/30/06

% Moisture.....: 20

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride						SD Lot-Sample #:	F6L300115-010	
	94.0 J	91.0	mg/kg	3.2	(0-20)	MCAWW 300.0A	01/10/07	7010200
			Dilution Factor: 10			Analysis Time..: 04:08		
Sulfate						SD Lot-Sample #:	F6L300115-010	
	71.1	70.3	mg/kg	1.2	(0-20)	MCAWW 300.0A	01/10/07	7010201
			Dilution Factor: 1			Analysis Time..: 03:16		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F6L300115 **Work Order #...:** JL92P-SMP JL92P-DUP **Matrix.....:** SOLID

Date Sampled...: 12/02/06 **Date Received..:** 12/30/06

% Moisture.....: 21

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride						SD Lot-Sample #:	F6L300115-039	
	40.0 J	39.9	mg/kg	0.25	(0-20)	MCAWW 300.0A	01/10-01/11/07	7010202
			Dilution Factor: 1			Analysis Time..: 05:12		
Sulfate						SD Lot-Sample #:	F6L300115-039	
	47.8	47.4	mg/kg	0.83	(0-20)	MCAWW 300.0A	01/10-01/11/07	7010203
			Dilution Factor: 1			Analysis Time..: 05:12		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC

LABORATORY ASSIGNMENT SHEET / CHAIN OF CUSTODY RECORD

MACTEC PROJECT NUMBER: 5050-06-0486

LABORATORY RECIEVING ID: SEVERN TRENT - ST. LOUIS

DATE: December 29, 2006
PREPARED BY (NAME / COMPANY): Lori Johnson/MACTEC
LAB MANAGER:
MACTEC PROJECT MANAGER: Michael D. Sufinarski

JOB NAME: South Texas COL Project

CLIENT CONTACT: Michael D. Sufinarski
CLIENT PHONE: Office: 361.972.4655 Mobile: 704.309.0624
CLIENT FAX: 361.972.4657
RETAIN SAMPLES UNTIL: Contact M. Sufinarski before disposal

DATE REPORT REQUIRED (Lab Mgr Initials required):
ACTUAL DATE OF REPORT (Lab Mgr Initials required):

NOTE: LIST QUANTITY OF EACH TEST FOR EACH SAMPLE BELOW

SAMPLE NUMBER	Boring No.	Sample Number	Sample Depth Top (ft)	Sample Depth Bottom (ft)	Sample Type	Field Classification (USCS)	pH (EPA Method SW-846 9045)	CHLORIDE/SULFATE (EPA Method SW-846 9056/9050/300.0)								EFFECTIVE OVERBURDEN STRESS (psf)	ESTIMATED K₀	REMARKS
1	B-309	SS-3	3	4.5	Jar	CH	X											
2	B-309	SS-7	9	10.5	Jar	CL	X											
3	B-309	SS-12	23.5	25	Jar	SP	X											
4	B-309	SS-14	33.5	35	Jar	SP	X											
5	B-309	SS-19	58.5	60	Jar	CL	X											
6	B-309	SS-21	68.5	70	Jar	SP	X											
7	B-309	SS-24	83.5	85	Jar	SP	X	X										
8	B-309	SS-26	93.5	95	Jar	SP	X											
9	B-328	SS-2	1.5	3	Jar	CH	X	X										
10	B-328	SS-6	7.5	9	Jar	CH	X	X										
11	B-328	SS-11	28.5	30	Jar	SM	X	X										
12	B-344	SS-24	83.5	85	Jar	SP	X	X										
TOTAL NUMBER OF TESTS							12	5										

Special Instructions:

DATE / TIME RELINQUISHED FROM SITE: 12/29/06 3:00 pm
RELINQUISHED BY (SIGNATURE OF SITE PERSONNEL):
RELINQUISHED TO (SIGNATURE OF CARRIER): FED EX

DATE / TIME RELINQUISHED TO:
RELINQUISHED BY (SIGNATURE OF CARRIER):
RECEIVED BY (LABORATORY): 12/30/06 0820

DATE / TIME RELINQUISHED TO:
RELINQUISHED BY:
RECEIVED BY:

DATE / TIME RELINQUISHED TO:
RELINQUISHED BY:
RECEIVED BY:

MACTEC

LABORATORY ASSIGNMENT SHEET / CHAIN OF CUSTODY RECORD

MACTEC PROJECT NUMBER: 6050-06-0496

LABORATORY RECIEVING ID: SEVERN TRENT - ST. LOUIS

DATE: December 29, 2006
PREPARED BY (NAME / COMPANY): Lori Johnson/MACTEC
LAB MANAGER:
MACTEC PROJECT MANAGER: Michael D. Bufnerski

JOB NAME: South Texas COL Project
CLIENT CONTACT: Michael D. Bufnerski
CLIENT PHONE: Office: 361.972.4655 Mobile: 704.309.0624
CLIENT FAX: 361.972.4667
RETAIN SAMPLES UNTIL:

DATE REPORT REQUIRED (Lab Mgr initials required):
ACTUAL DATE OF REPORT (Lab Mgr initials required):

NOTE: LIST QUANTITY OF EACH TEST FOR EACH SAMPLE BELOW

SAMPLE NUMBER	Boring No.	Sample Number	Sample Depth Top (ft)	Sample Depth Bottom (ft)	Sample Type	Field Classification (USCS)	pH (EPA Method SW-846 9045)	CHLORIDES/SULFATE (EPA Method SW-846 9056/9056/300.0)								EFFECTIVE OVERBURDEN STRESS (psf)	ESTIMATED K_o	REMARKS
13	B-405	SS-4	4.5	6	jar	CH	X											
14	B-405	SS-9	18.5	20	jar	CH-ML	X											
15	B-405	SS-12	38.5	40	jar	SP-SM	X											
16	B-405	SS-16	58.5	60	jar	CL	X											
17	B-405	SS-18	73.5	75	jar	SP-SM	X											
18	B-405	SS-20	88.5	90	jar	CH	X	X										
19	B-432	SS-2	1.5	3	jar	CH	X	X										
20	B-432	SS-4	6.5	8	jar	CH	X	X										
21	B-432	SS-7	11	12.5	jar	CH	X	X										
22	B-432	SS-9	18.5	20	jar	CH	X	X										
23	B-432	SS-11	28.5	30	jar	SM	X	X										
TOTAL NUMBER OF TESTS							23	11										

Special Instructions:

DATE / TIME RELINQUISHED FROM SITE: 12/29/06 3:00pm
RELINQUISHED BY (SIGNATURE OF SITE PERSONNEL):
RELINQUISHED TO (SIGNATURE OF CARRIER): FED EX

DATE / TIME RELINQUISHED TO:
RELINQUISHED BY (SIGNATURE OF CARRIER):
RECEIVED BY (LABORATORY): 12/30/06 0820

DATE / TIME RELINQUISHED TO:
RELINQUISHED BY:
RECEIVED BY:

DATE / TIME RELINQUISHED TO:
RELINQUISHED BY:
RECEIVED BY:

MACTEC

LABORATORY ASSIGNMENT SHEET / CHAIN OF CUSTODY RECORD

MACTEC PROJECT NUMBER: 5050-06-0496

LABORATORY RECIEVING ID: SEVERN TRENT - ST. LOUIS

DATE: December 29, 2006
PREPARED BY (NAME / COMPANY): Lorri Johnson/MACTEC
LAB MANAGER:
MACTEC PROJECT MANAGER: Michael D. Bufnarski

JOB NAME: South Texas COL Project
CLIENT CONTACT: Michael D. Bufnarski
CLIENT PHONE: Office: 361.972.4655 Mobile: 704.309.0924
CLIENT FAX: 361.972.4657
RETAIN SAMPLES UNTIL:

DATE REPORT REQUIRED (Lab Mgr Initials required):
ACTUAL DATE OF REPORT (Lab Mgr Initials required):

NOTE: LIST QUANTITY OF EACH TEST FOR EACH SAMPLE BELOW

SAMPLE NUMBER	Boring No.	Sample Number	Sample Depth Top (ft)	Sample Depth Bottom (ft)	Sample Type	Field Classification (USCS)	pH (EPA Method SW-846 9045)	CHLORIDES/SULFATE (EPA Method SW-846 9056/9056/300.0)								EFFECTIVE OVERBURDEN STRESS (psf)	ESTIMATED K_o	REMARKS
24	B-305	SS-2	1.5	3	Jar	CH	X											
25	B-305	SS-3	6	7.5	Jar	CH	X											
26	B-305	SS-20	63.5	65	Jar	CH	X	X										
27	B-421	SS-2	1.5	3	Jar	CH	X											
28	B-421	SS-6	7.5	9	Jar	CH	X											
29	B-421	SS-14	38.5	40	Jar	SM	X											
30	B-421	SS-18	63.5	65	Jar	ML	X											
31	B-421	SS-21	78.5	80	Jar	CH	X	X										
32	B-419	SS-2	1.5	3	Jar	CH	X	X										
33	B-419	SS-6	7.5	9	Jar	CH	X	X										
34	B-419	SS-9	12	13.5	Jar	CH	X	X										
35	B-419	SS-11	18.5	20	Jar	CH	X	X										
TOTAL NUMBER OF TESTS							35	17										

Special Instructions:

DATE / TIME RELINQUISHED FROM SITE: 12/29/06 3:00 pm
RELINQUISHED BY (SIGNATURE OF SITE PERSONNEL):
RELINQUISHED TO (SIGNATURE OF CARRIER): FED-EX

DATE / TIME RELINQUISHED TO:
RELINQUISHED BY (SIGNATURE OF CARRIER):
RECEIVED BY (LABORATORY): 12/30/06 0820

DATE / TIME RELINQUISHED TO:
RELINQUISHED BY:
RECEIVED BY:

DATE / TIME RELINQUISHED TO:
RELINQUISHED BY:
RECEIVED BY:

MACTEC

LABORATORY ASSIGNMENT SHEET / CHAIN OF CUSTODY RECORD

MACTEC PROJECT NUMBER: 5050-06-0496

LABORATORY RECIEVING ID: SEVERN TRENT - ST. LOUIS

DATE: December 29, 2006
PREPARED BY (NAME / COMPANY): Lorri Johnson/MACTEC
LAB MANAGER
MACTEC PROJECT MANAGER: Michael D. Sufnarski

JOB NAME: South Texas COL Project
CLIENT CONTACT: Michael D. Sufnarski
CLIENT PHONE: Office: 361.972.4655 Mobile: 704.309.0624
CLIENT FAX: 361.972.4657
RETAIN SAMPLES UNTIL: Contact M. Sufnarski before disposal

DATE REPORT REQUIRED (Lab Mgr Initials required)
ACTUAL DATE OF REPORT (Lab Mgr Initials required)

NOTE: LIST QUANTITY OF EACH TEST FOR EACH SAMPLE BELOW

SAMPLE NUMBER	Boring No.	Sample Number	Sample Depth Top (ft)	Sample Depth Bottom (ft)	Sample Type	Field Classification (USCS)	pH (EPA Method SW-846 9045)	CHLORIDE/SULFATE (EPA Method SW-846 9056/9035/9030.0)								EFFECTIVE OVERBURDEN STRESS (psf)	ESTIMATED K_o	REMARKS
36	B-419	SS-15	38.5	40	Jar	SM	X	X										
37	B-419	SS-19	58.5	60	Jar	CH	X	X										
38	B-419	SS-21	68.5	70	Jar	SM	X	X										
39	B-419	SS-23	83.5	85	Jar	CH	X	X										
40	B-427	SS-4	4.5	6	Jar	CH	X											
41	B-427	SS-8	105	12	Jar	CH	X											
TOTAL NUMBER OF TESTS							41	21										

Special Instructions:

DATE / TIME RELINQUISHED FROM SITE: 12/29/06 3:00pm
RELINQUISHED BY (SIGNATURE OF SITE PERSONNEL):
RELINQUISHED TO (SIGNATURE OF CARRIER): FED EX

DATE / TIME RELINQUISHED TO:
RELINQUISHED BY (SIGNATURE OF CARRIER):
RECEIVED BY (LABORATORY): 12/30/06 0800

DATE / TIME RELINQUISHED TO:
RELINQUISHED BY:
RECEIVED BY:

DATE / TIME RELINQUISHED TO:
RELINQUISHED BY:
RECEIVED BY:

D & L St. Louis

Lot#(s): F6L300115

- 5710 -

Condition Upon Receipt Form

Client: Mactec
Quote No: 73614
COC/RFA No: 5050-06-0486
Initiated By: BD
Date: 12/30/06
Time: 0820

Shipping Information

Shipper Name: FE
Shipping # (s):*
1. 8598 1984 7118
2.
3.
4.
5.
6.
7.
8.
9.
10.

Multiple Packages Y (N) N/A
Sample Temperature (s):**
1. ambient
2.
3.
4.
5.
6.
7.
8.
9.
10.

*Numbered shipping lines correspond to Numbered Sample Temp lines

**Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid or Rad tests- Liquid or Solids

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	Y (N)	Was sample received broken?	8.	(Y) N	Sample received with Chain of Custody?
2.	Y N (N/A)	Was sample received with proper pH[1] ? (If not, make note below)	9.	(Y) N	Chain of Custody matches sample ID's on container(s)?
3.	Y N	If N/A-Was pH taken by original STL Lab?	10.	(Y) N	Are there custody seals present on cooler?
4.	(Y) N	Sample received in proper containers?	11.	Y (N) N/A	Do custody seals on cooler appear to be tampered with?
5.	(Y) N	Sample volume sufficient for analysis?	12.	Y (N)	Are there custody seals present on bottles?
6.	Y N (N/A)	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)	13.	Y N (N/A)	Do custody seals on bottles appear to be tampered with?
7.	(Y) N	Were contents of the cooler frisked after opening	14.	Y N	Was Internal COC/Worksheet received?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX and soils.

Notes: Samples received out of temp.

Dates not noted on COCs; dates reported from sample's containers
LEC
01-03-07

Corrective Action:
- ☐ Client Contact Name: Informed by:
- ☐ Sample(s) processed "as is"
- ☐ Sample(s) on hold until: If released, notify:

Project Management Review: Date: 01-03-07

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

ADMIN-0004, REVISED 03/01/06\\Stlsvr01\QA\FORMS\ST-LOUIS\ADMIN\Admin004030106.doc

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-305 DH
Sample Type/No.: UD-9
Depth: 158-160 Ft
Normal Stress: 25.0 psi

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS.
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial MC: 16.4 %
Final MC: 29.6 %
Sample Mass 125.34 g
Measured Specific Gravity: 2.703
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0022 in
Sample Loading Rate: 0.003 in/min

Initial Saturation: 49.6 %
Initial Dry Unit Weight: 89.1 pcf
Initial Wet Unit Weight: 103.7 pcf
Initial Void Ratio: 0.894
Final Saturation: 124.9 %
Final Dry Unit Weight: 102.8 pcf
Final Wet Unit Weight: 133.3 pcf
Final Void Ratio: 0.640
Total Displacement: 0.250 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.1166	0	0.00	0.00	0.00	0.114
0.005	4.896	2.0	0.1165	122	36.44	7.42	7.44	0.114
0.010	4.884	4.0	0.1165	139	41.52	8.46	8.50	0.114
0.015	4.871	6.0	0.1171	158	47.19	9.61	9.69	0.115
0.020	4.859	8.0	0.1181	171	51.08	10.41	10.51	0.116
0.030	4.834	12.0	0.1197	195	58.25	11.87	12.05	0.118
0.040	4.809	16.0	0.1210	203	60.64	12.35	12.61	0.119
0.050	4.784	20.0	0.1221	213	63.62	12.96	13.30	0.120
0.060	4.759	24.0	0.1234	216	64.52	13.14	13.56	0.121
0.070	4.735	28.0	0.1239	217	64.82	13.20	13.69	0.122
0.080	4.710	32.0	0.1250	216	64.52	13.14	13.70	0.123
0.090	4.685	36.0	0.1262	215	64.22	13.08	13.71	0.124
0.100	4.660	40.0	0.1266	215	64.22	13.08	13.78	0.124
0.110	4.635	44.0	0.1266	215	64.22	13.08	13.86	0.124
0.120	4.610	48.0	0.1268	215	64.22	13.08	13.93	0.125
0.130	4.585	52.0	0.1270	215	64.22	13.08	14.01	0.125
0.140	4.560	56.0	0.1272	214	63.92	13.02	14.02	0.125
0.150	4.535	60.0	0.1273	213	63.62	12.96	14.03	0.125
0.155	4.523	62.0	0.1273	187	55.86	11.38	12.35	0.125
0.160	4.510	64.0	0.1273	187	55.86	11.38	12.38	0.125
0.170	4.486	68.0	0.1275	187	55.86	11.38	12.45	0.125
0.180	4.461	72.0	0.1275	187	55.86	11.38	12.52	0.125
0.190	4.436	76.0	0.1275	187	55.86	11.38	12.59	0.125
0.200	4.411	80.0	0.1275	187	55.86	11.38	12.66	0.125
0.210	4.386	84.0	0.1275	187	55.86	11.38	12.74	0.125
0.220	4.361	88.0	0.1277	187	55.86	11.38	12.81	0.126
0.230	4.336	92.0	0.1277	187	55.86	11.38	12.88	0.126
0.240	4.311	96.0	0.1277	187	55.86	11.38	12.96	0.126
0.250	4.286	100.0	0.1278	187	55.86	11.38	13.03	0.126

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 13.20 14.03 psi
% Relative Lateral Displacement at Max Shear : 28 60 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0986
0.25	0.50	0.099
0.5	0.71	0.0994
1	1.00	0.0999
2	1.41	0.1006
4	2.00	0.1015
8	2.83	0.1034
16	4.00	0.1058
30	5.48	0.1104
60	7.75	0.1132
120	10.95	0.115
840	28.98	0.1166

t(50) = 12.5 min
50*t(50) = 623 min
d(r) = 0.0003 in/min

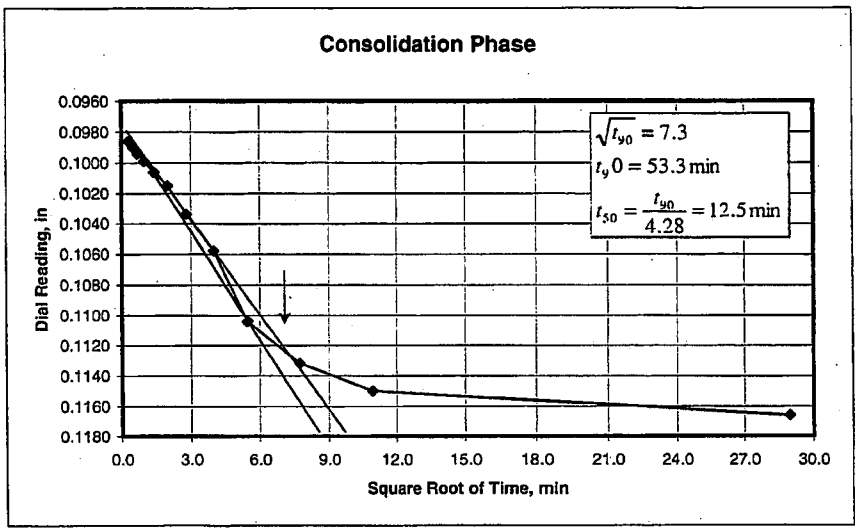
Sample Description	
Fat clay	
USCS	CH
Gravel (%)	0.0
Sand (%)	9.2
Fines (%)	90.8
Silt (%)	25.7
Clay (%)	65.1
LL	56
PI	36
Undisturbed	■
Remolded	
Inundated?	Yes

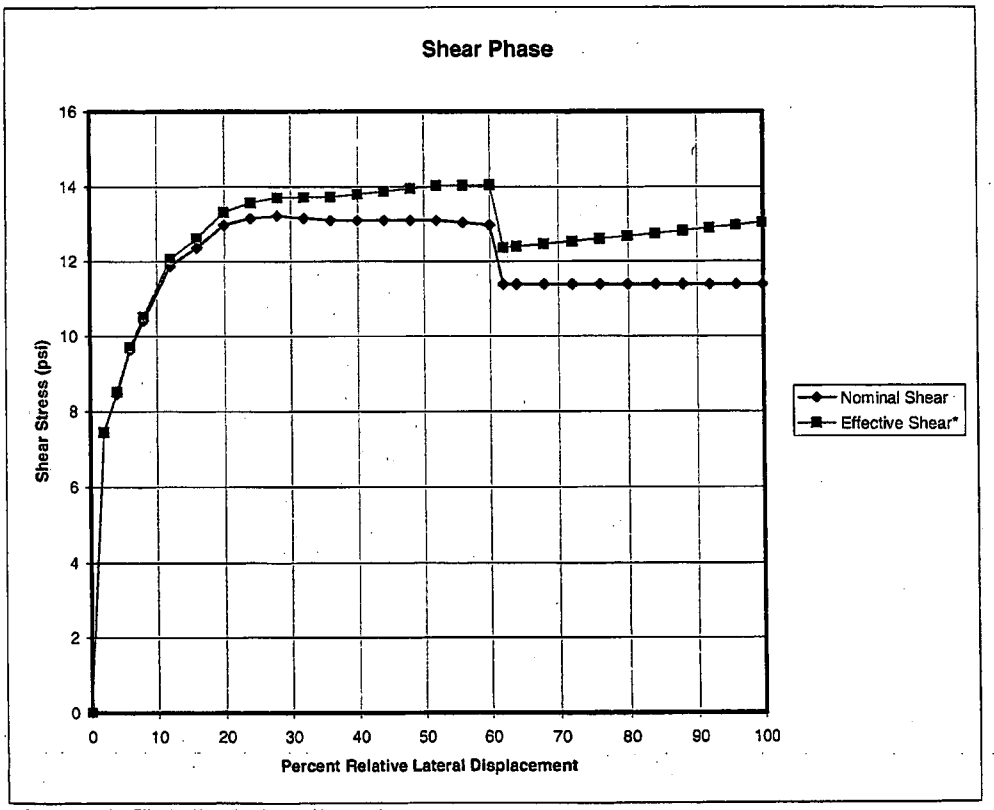
Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-305 DH
Sample Type/No.: UD-9

Depth: 158-160 Ft
Normal Stress: 25.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-305 DH
Sample Type/No.: UD-9
Depth: 158-160 Ft
Normal Stress: 50.0 psi

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS.
Prepared Date: 9/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial MC: 16.4 %
Final MC: 28.1 %
Sample Mass 147.25 g
Measured Specific Gravity: 2.703
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0027 in
Sample Loading Rate: 0.003 in/min

Initial Saturation: 72.4 %
Initial Dry Unit Weight: 104.6 pcf
Initial Wet Unit Weight: 121.8 pcf
Initial Void Ratio: 0.612
Final Saturation: 200.5 %
Final Dry Unit Weight: 122.3 pcf
Final Wet Unit Weight: 156.7 pcf
Final Void Ratio: 0.379
Total Displacement: 0.175 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.1297	0	0.00	0.00	0.00	0.127
0.010	4.884	5.7	0.1322	252	75.27	15.33	15.41	0.130
0.015	4.871	8.6	0.1334	297	88.71	18.07	18.21	0.131
0.020	4.859	11.4	0.1342	325	97.08	19.78	19.98	0.132
0.025	4.847	14.3	0.1350	347	103.65	21.12	21.39	0.132
0.030	4.834	17.1	0.1353	360	107.53	21.91	22.24	0.133
0.040	4.809	22.9	0.1360	380	113.51	23.12	23.60	0.133
0.050	4.784	28.6	0.1366	389	116.19	23.67	24.29	0.134
0.060	4.759	34.3	0.1369	391	116.79	23.79	24.54	0.134
0.065	4.747	37.1	0.1370	391	116.79	23.79	24.60	0.134
0.070	4.735	40.0	0.1374	389	116.19	23.67	24.54	0.135
0.075	4.722	42.9	0.1374	389	116.19	23.67	24.61	0.135
0.080	4.710	45.7	0.1375	389	116.19	23.67	24.67	0.135
0.085	4.697	48.6	0.1375	388	115.90	23.61	24.67	0.135
0.090	4.685	51.4	0.1376	388	115.75	23.58	24.71	0.135
0.095	4.672	54.3	0.1376	387	115.60	23.55	24.74	0.135
0.100	4.660	57.1	0.1377	375	112.01	22.82	24.04	0.135
0.105	4.647	60.0	0.1377	371	110.67	22.55	23.81	0.135
0.110	4.635	62.9	0.1378	368	109.92	22.39	23.72	0.135
0.115	4.623	65.7	0.1378	364	108.73	22.15	23.52	0.135
0.120	4.610	68.6	0.1378	360	107.53	21.91	23.33	0.135
0.127	4.593	72.6	0.1380	356	106.34	21.66	23.15	0.135
0.130	4.585	74.3	0.1381	354	105.74	21.54	23.06	0.135
0.135	4.573	77.1	0.1382	350	104.55	21.30	22.86	0.136
0.140	4.560	80.0	0.1382	347	103.65	21.12	22.73	0.136
0.150	4.535	85.7	0.1383	342	102.16	20.81	22.52	0.136
0.155	4.523	88.6	0.1384	339	101.26	20.63	22.39	0.136
0.160	4.510	91.4	0.1385	337	100.66	20.51	22.32	0.136
0.168	4.491	96.0	0.1385	332	99.17	20.20	22.08	0.136
0.170	4.486	97.1	0.1385	331	98.87	20.14	22.04	0.136
0.175	4.473	100.0	0.1385	329	98.27	20.02	21.97	0.136

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 23.79 24.74 psi
% Relative Lateral Displacement at Max Shear : 34.3 54.3 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.12
0.25	0.50	0.1207
0.5	0.71	0.1214
1	1.00	0.1224
2	1.41	0.1238
4	2.00	0.125
8	2.83	0.1263
16	4.00	0.1274
30	5.48	0.1284
60	7.75	0.1294
90	9.49	0.1297
240	15.49	

t(50) = 0.9 min
50*t(50) = 46.7 min
d(r) = 0.004 in/min

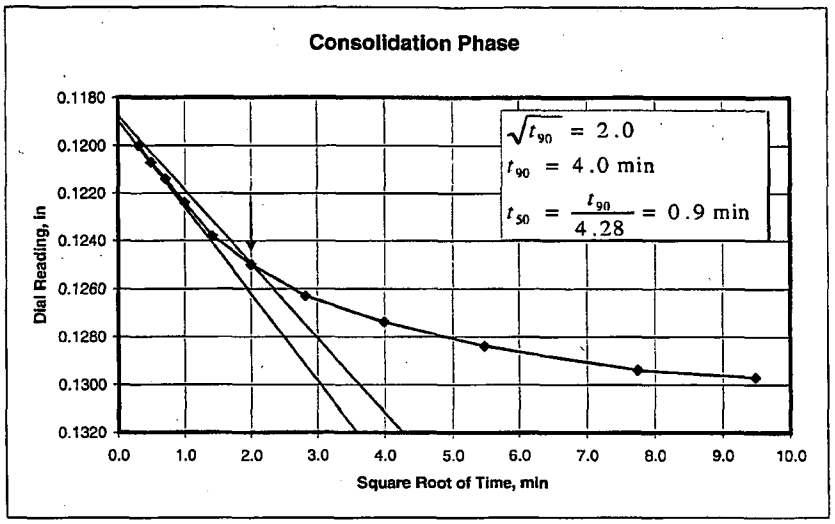
Sample Description	
Fat clay	
USCS	CH
Gravel (%)	0.0
Sand (%)	9.2
Fines (%)	90.8
Silt (%)	25.7
Clay (%)	65.1
LL	56
PI	36
Undisturbed	■
Remolded	
Inundated?	Yes

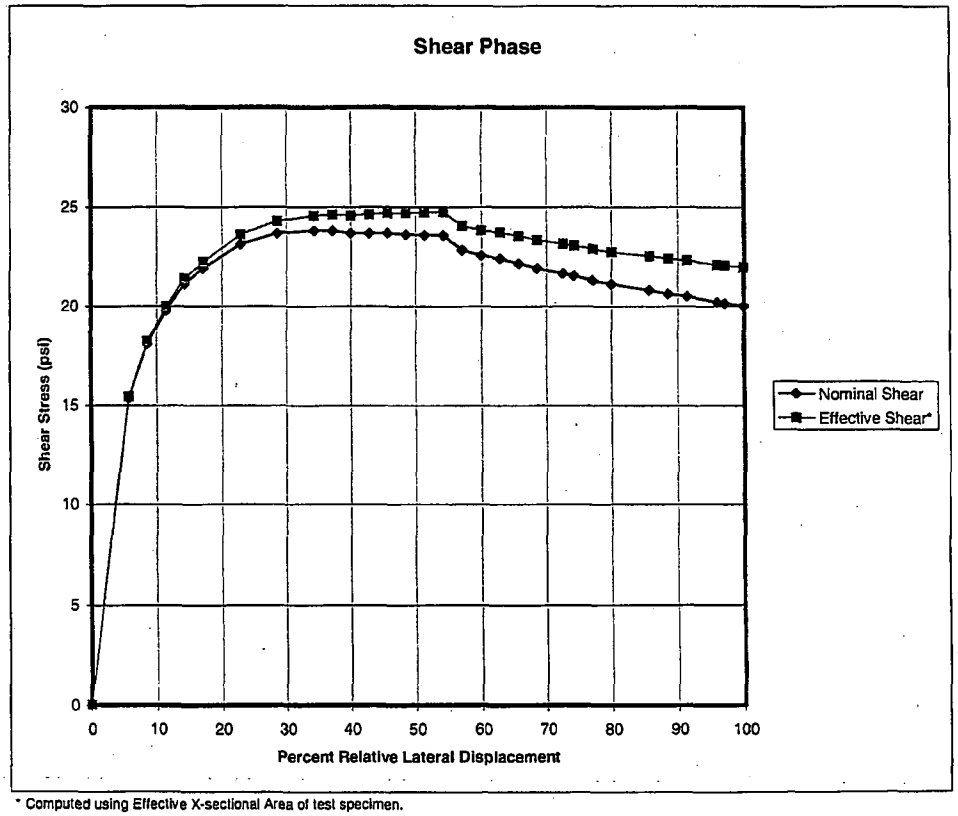
Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-305 DH
Sample Type/No.: UD-9

Depth: 158-160 Ft
Normal Stress: 50.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-305 DH
Sample Type/No.: UD-9
Depth: 158-160 Ft
Normal Stress: 100.0 psi

Initial MC: 16.4 %
Final MC: 28.3 %
Sample Mass 145.64 g
Measured Specific Gravity: 2.703
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0032 in
Sample Loading Rate: 0.003 in/min

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial Saturation: 70.4 %
Initial Dry Unit Weight: 103.5 pcf
Initial Wet Unit Weight: 120.4 pcf
Initial Void Ratio: 0.630
Final Saturation: 231.1 %
Final Dry Unit Weight: 126.7 pcf
Final Wet Unit Weight: 162.6 pcf
Final Void Ratio: 0.331
Total Displacement: 0.120 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.1698	0	0.00	0.00	0.00	0.167
0.005	4.896	4.2	0.1710	371	110.82	22.58	22.63	0.168
0.010	4.884	8.3	0.1718	478	142.78	29.09	29.23	0.169
0.015	4.871	12.5	0.1721	527	157.41	32.07	32.31	0.169
0.020	4.859	16.7	0.1727	570	170.26	34.68	35.04	0.170
0.025	4.847	20.8	0.1730	602	179.82	36.63	37.10	0.170
0.030	4.834	25.0	0.1734	618	184.60	37.61	38.19	0.170
0.035	4.822	29.2	0.1737	620	185.19	37.73	38.41	0.171
0.040	4.809	33.3	0.1737	611	182.51	37.18	37.95	0.171
0.045	4.797	37.5	0.1739	598	178.62	36.39	37.24	0.171
0.050	4.784	41.7	0.1742	588	175.64	35.78	36.71	0.171
0.060	4.759	50.0	0.1743	555	165.78	33.77	34.83	0.171
0.070	4.735	58.3	0.1745	532	158.91	32.37	33.56	0.171
0.080	4.710	66.7	0.1746	517	154.43	31.46	32.79	0.171
0.090	4.685	75.0	0.1750	508	151.74	30.91	32.39	0.172
0.100	4.660	83.3	0.1751	498	148.75	30.30	31.92	0.172
0.110	4.635	91.7	0.1752	490	146.36	29.82	31.58	0.172
0.120	4.610	100.0	0.1753	489	146.06	29.76	31.68	0.172

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 37.73 38.41 psi
% Relative Lateral Displacement at Max Shear : 29.2 29.2 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.1585
0.25	0.50	0.1592
0.5	0.71	0.1599
1	1.00	0.1604
2	1.41	0.161
4	2.00	0.1619
8	2.83	0.1632
16	4.00	0.164
30	5.48	0.165
60	7.75	0.1668
120	10.95	0.1686
360	18.97	0.1694
1260	35.50	0.1698

t(50) = 3.4 min
50*t(50) = 169 min
d(r) = 0.001 in/min

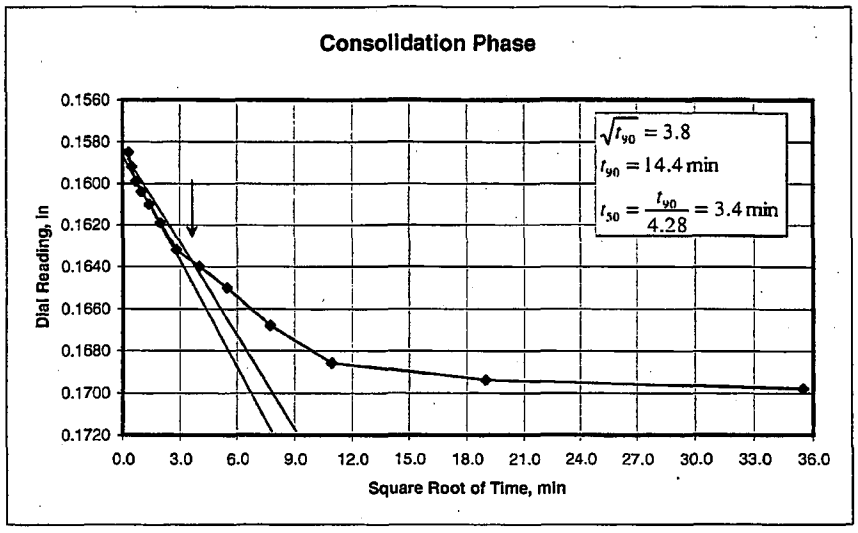
Sample Description	
Fat clay	
USCS	CH
Gravel (%)	0.0
Sand (%)	9.2
Fines (%)	90.8
Silt (%)	25.7
Clay (%)	65.1
LL	56
PI	36
Undisturbed	■
Remolded	
Inundated?	Yes

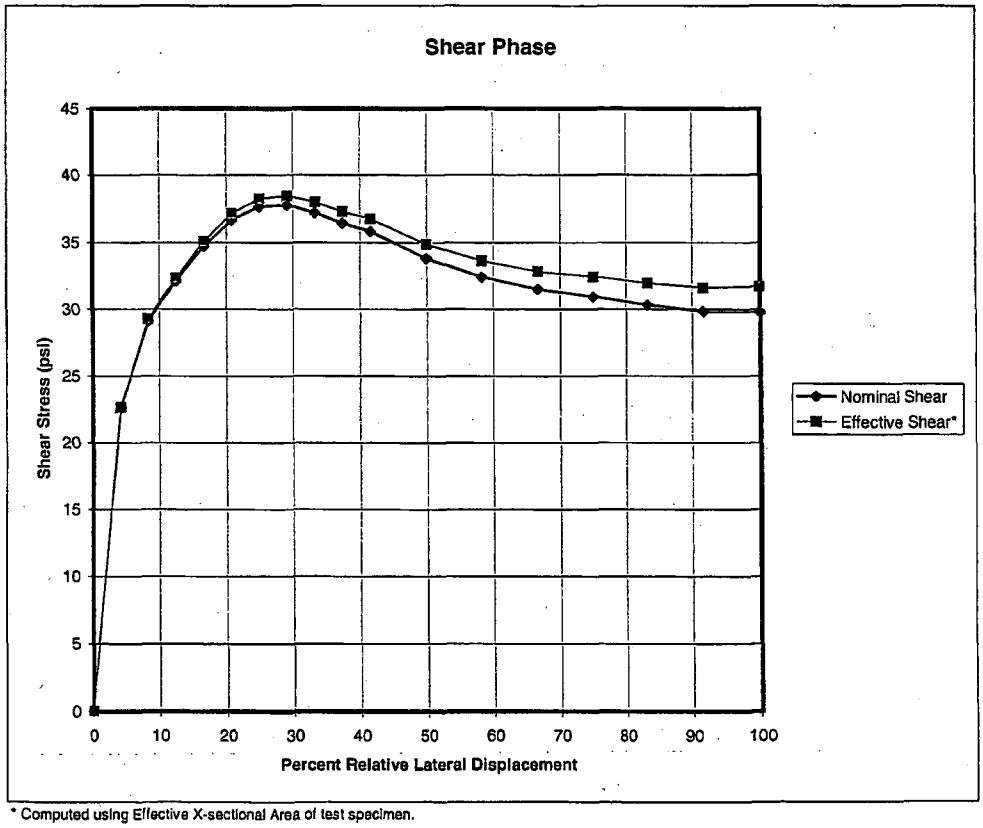
Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-305 DH
Sample Type/No.: UD-9

Depth: 158-160 Ft
Normal Stress: 100.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-305DH
Sample Type/No.: UD-12
Depth: 228-230 Ft
Normal Stress: 25.0 psi

Initial MC: 21.5 %
Final MC: 24.1 %
Sample Mass 153.40 g
Measured Specific Gravity: 2.670
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0022 in
Sample Loading Rate: 0.04 in/min

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS.
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/8/07
KAW 4/4/07

Initial Saturation: 96.4 %
Initial Dry Unit Weight: 104.4 pcf
Initial Wet Unit Weight: 126.9 pcf
Initial Void Ratio: 0.596
Final Saturation: 130.1 %
Final Dry Unit Weight: 111.5 pcf
Final Wet Unit Weight: 138.3 pcf
Final Void Ratio: 0.495
Total Displacement: 0.400 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0433	0	0.00	0.00	0.00	0.041
0.010	4.884	2.5	0.0460	105	31.36	6.39	6.42	0.044
0.020	4.859	5.0	0.0485	134	40.03	8.15	8.24	0.046
0.030	4.834	7.5	0.0490	167	49.88	10.16	10.32	0.047
0.040	4.809	10.0	0.0495	184	54.96	11.20	11.43	0.047
0.050	4.784	12.5	0.0494	198	59.14	12.05	12.36	0.047
0.060	4.759	15.0	0.0494	201	60.04	12.23	12.61	0.047
0.070	4.735	17.5	0.0493	209	62.43	12.72	13.19	0.047
0.080	4.710	20.0	0.0490	218	65.12	13.27	13.83	0.047
0.090	4.685	22.5	0.0484	221	66.01	13.45	14.09	0.046
0.100	4.660	25.0	0.0480	224	66.91	13.63	14.36	0.046
0.110	4.635	27.5	0.0476	224	66.91	13.63	14.44	0.045
0.120	4.610	30.0	0.0474	225	67.21	13.69	14.58	0.045
0.130	4.585	32.5	0.0471	226	67.51	13.75	14.72	0.045
0.140	4.560	35.0	0.0469	227	67.80	13.81	14.87	0.045
0.150	4.535	37.5	0.0469	229	68.40	13.93	15.08	0.045
0.200	4.411	50.0	0.0480	228	68.10	13.87	15.44	0.046
0.250	4.286	62.5	0.0513	226	67.51	13.75	15.75	0.049
0.300	4.162	75.0	0.0553	210	62.73	12.78	15.07	0.053
0.350	4.038	87.5	0.0593	201	60.04	12.23	14.87	0.057
0.400	3.913	100.0	0.0616	189	56.45	11.50	14.43	0.059

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 13.93 15.75 psi
% Relative Lateral Displacement at Max Shear : 37.5 62.5 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0418
0.25	0.50	0.0421
0.5	0.71	0.0424
1	1.00	0.0426
2	1.41	0.0428
4	2.00	0.0431
8	2.83	0.0433
16	4.00	0.0433
30	5.48	0.0433
60	7.75	0.0433
120	10.95	
240	15.49	

t(50) = 0.15 min
50*t(50) = 7.5 min
d(r) = 0.03 in/min

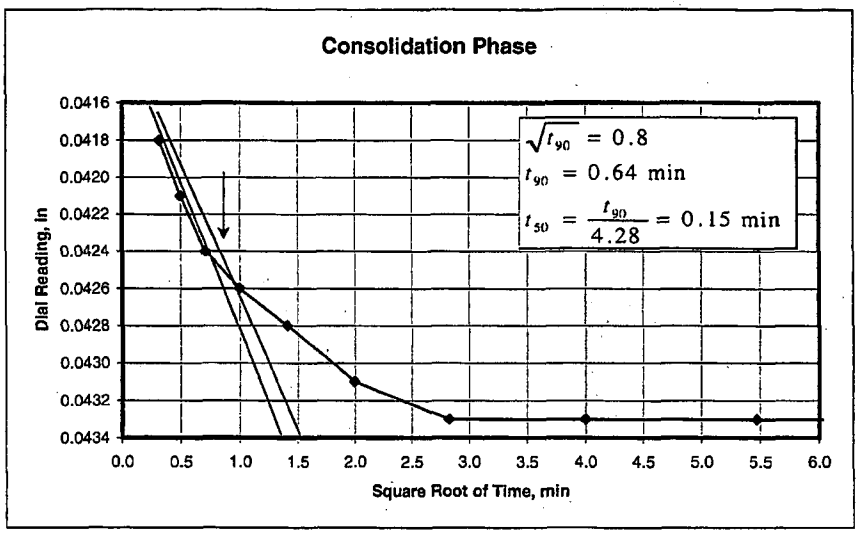
Sample Description	
Silty sand	
USCS	SM
Gravel (%)	0.0
Sand (%)	73.0
Fines (%)	27.0
Silt (%)	24.4
Clay (%)	2.6
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

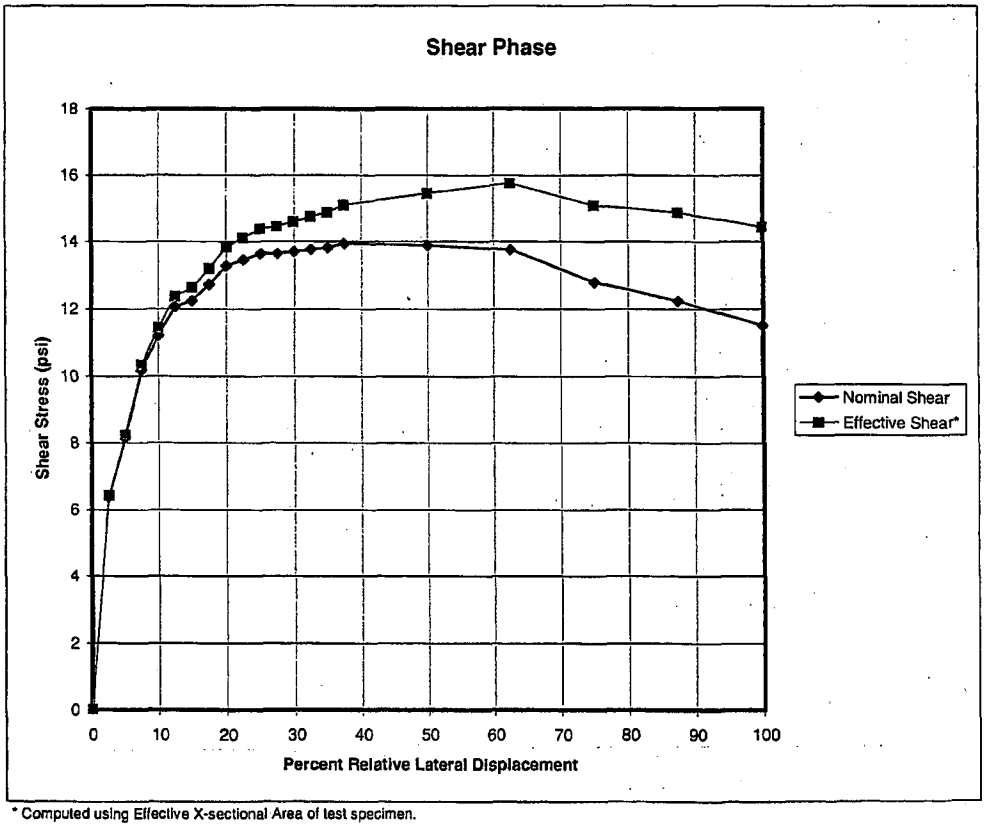
Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-305DH
Sample Type/No.: UD-12

Depth: 228-230 Ft
Normal Stress: 25.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-305DH
Sample Type/No.: UD-12
Depth: 228-230 Ft
Normal Stress: 50.0 psi

Initial MC: 21.5 %
Final MC: 22.5 %
Sample Mass 152.94 g
Measured Specific Gravity: 2.670
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0027 in
Sample Loading Rate: 0.04 in/min

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial Saturation: 95.6 %
Initial Dry Unit Weight: 104.1 pcf
Initial Wet Unit Weight: 126.5 pcf
Initial Void Ratio: 0.600
Final Saturation: 136.9 %
Final Dry Unit Weight: 115.8 pcf
Final Wet Unit Weight: 141.8 pcf
Final Void Ratio: 0.439
Total Displacement: 0.500 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0807	0	0.00	0.00	0.00	0.078
0.010	4.884	2.0	0.0839	208	62.13	12.66	12.72	0.081
0.020	4.859	4.0	0.0855	265	79.16	16.13	16.29	0.083
0.030	4.834	6.0	0.0869	312	93.19	18.99	19.28	0.084
0.040	4.809	8.0	0.0879	350	104.55	21.30	21.74	0.085
0.050	4.784	10.0	0.0885	379	113.21	23.06	23.66	0.086
0.060	4.759	12.0	0.0886	385	115.00	23.43	24.16	0.086
0.070	4.735	14.0	0.0886	415	123.96	25.25	26.18	0.086
0.080	4.710	16.0	0.0887	433	129.34	26.35	27.46	0.086
0.090	4.685	18.0	0.0887	446	133.22	27.14	28.44	0.086
0.100	4.660	20.0	0.0874	458	136.80	27.87	29.36	0.085
0.150	4.535	30.0	0.0871	478	142.78	29.09	31.48	0.084
0.200	4.411	40.0	0.0890	469	140.09	28.54	31.76	0.086
0.250	4.286	50.0	0.0907	468	139.79	28.48	32.61	0.088
0.300	4.162	60.0	0.0942	470	140.39	28.60	33.73	0.092
0.350	4.038	70.0	0.0951	468	139.79	28.48	34.62	0.092
0.400	3.913	80.0	0.0961	468	139.79	28.48	35.72	0.093
0.450	3.789	90.0	0.0969	468	139.79	28.48	36.90	0.094
0.500	3.664	100.0	0.0974	468	139.79	28.48	38.15	0.095

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 29.09 38.15 psi
% Relative Lateral Displacement at Max Shear : 30 100 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0651
0.25	0.50	0.0681
0.5	0.71	0.0694
1	1.00	0.0706
2	1.41	0.0729
4	2.00	0.0756
8	2.83	0.0776
16	4.00	0.0787
30	5.48	0.0792
60	7.75	0.0795
960	30.98	0.0807

t(50) = 0.11 min
50*t(50) = 5.7 min
d(r) = 0.035 in/min

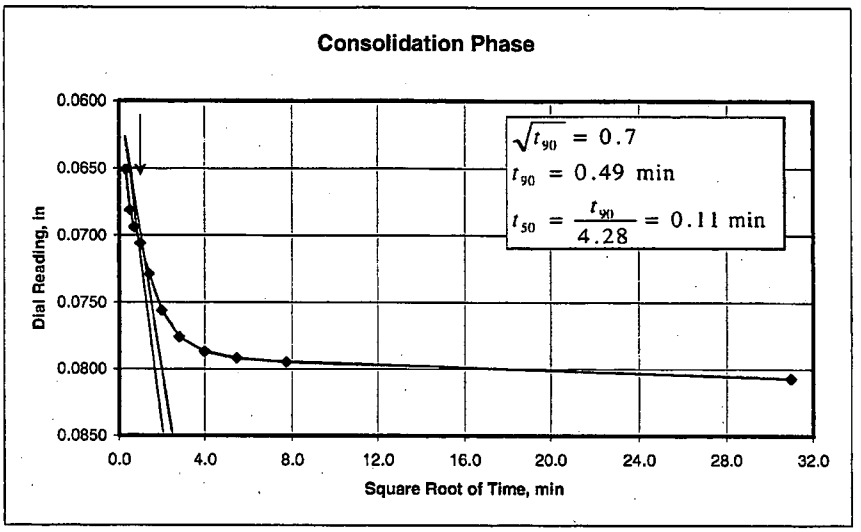
Sample Description	
Silty sand	
USCS	SM
Gravel (%)	0.0
Sand (%)	73.0
Fines (%)	27.0
Silt (%)	24.4
Clay (%)	2.6
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

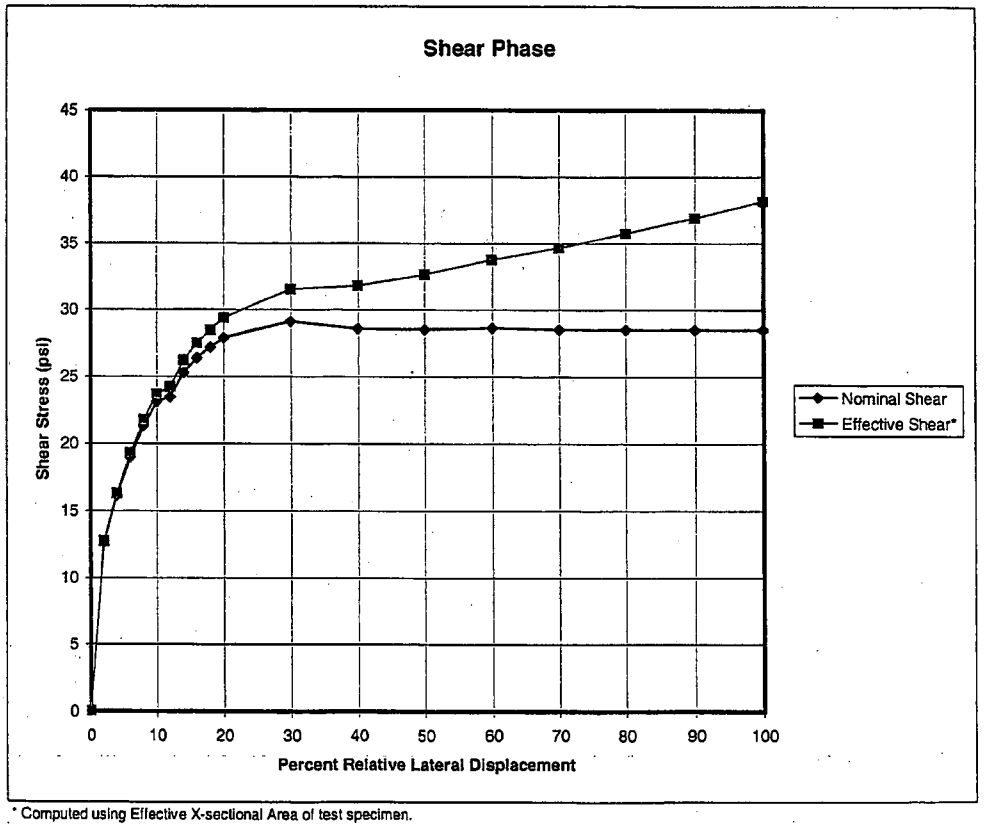
Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-305DH
Sample Type/No.: UD-12

Depth: 228-230 Ft
Normal Stress: 50.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-305DH
Sample Type/No.: UD-12
Depth: 228-230 Ft
Normal Stress: 100.0 psi

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial MC: 21.5 %
Final MC: 24.0 %
Sample Mass 156.94 g
Measured Specific Gravity: 2.670
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0032 in
Sample Loading Rate: 0.01 in/min

Initial Saturation: 102.6 %
Initial Dry Unit Weight: 106.8 pcf
Initial Wet Unit Weight: 129.8 pcf
Initial Void Ratio: 0.560
Final Saturation: 160.8 %
Final Dry Unit Weight: 119.1 pcf
Final Wet Unit Weight: 147.7 pcf
Final Void Ratio: 0.399
Total Displacement: 0.300 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0461	0	0.00	0.00	0.00	0.043
0.005	4.896	1.7	0.0491	170	50.78	10.34	10.37	0.046
0.010	4.884	3.3	0.0507	270	80.65	16.43	16.51	0.048
0.020	4.859	6.7	0.0538	395	117.99	24.04	24.28	0.051
0.030	4.834	10.0	0.0553	506	151.14	30.79	31.27	0.052
0.040	4.809	13.3	0.0566	573	171.16	34.87	35.59	0.053
0.060	4.759	20.0	0.0577	648	193.56	39.43	40.67	0.055
0.070	4.735	23.3	0.0585	700	209.09	42.60	44.16	0.055
0.080	4.710	26.7	0.0595	735	219.54	44.73	46.62	0.056
0.090	4.685	30.0	0.0602	752	224.62	45.76	47.95	0.057
0.100	4.660	33.3	0.0609	770	230.00	46.86	49.36	0.058
0.130	4.585	43.3	0.0636	780	232.99	47.46	50.81	0.060
0.150	4.535	50.0	0.0661	774	231.19	47.10	50.98	0.063
0.200	4.411	66.7	0.0746	744	222.23	45.27	50.38	0.071
0.250	4.286	83.3	0.0861	687	205.21	41.80	47.87	0.083
0.300	4.162	100.0	0.1001	648	193.56	39.43	46.51	0.097

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 47.46 50.98 psi
% Relative Lateral Displacement at Max Shear : 43.3 50 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0456
0.25	0.50	0.0457
0.5	0.71	0.0458
1	1.00	0.0459
2	1.41	0.046
4	2.00	0.046
8	2.83	0.046
16	4.00	0.046
30	5.48	0.0461
60	7.75	0.0461
120	10.95	0.0461
240	15.49	

t(50) = 0.28 min
50*t(50) = 14.1 min
d(r) = 0.01 in/min

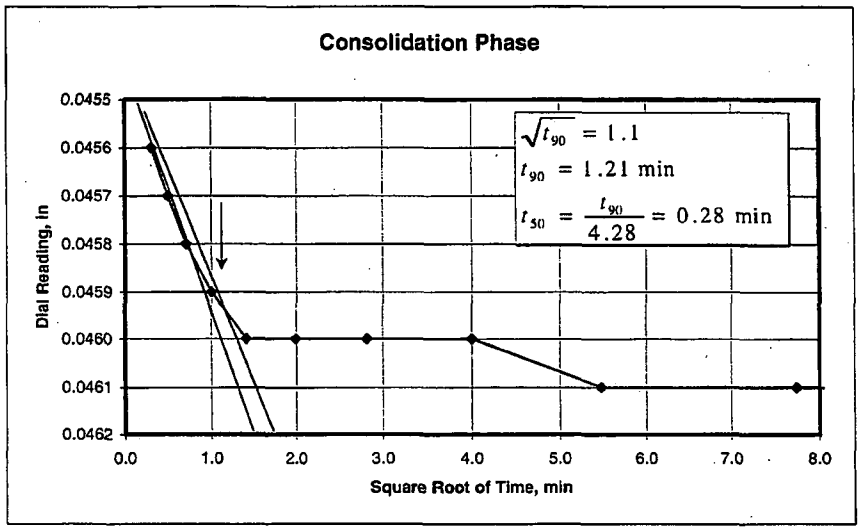
Sample Description	
Silty sand	
USCS	SM
Gravel (%)	0.0
Sand (%)	73.0
Fines (%)	27.0
Silt (%)	24.4
Clay (%)	2.6
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

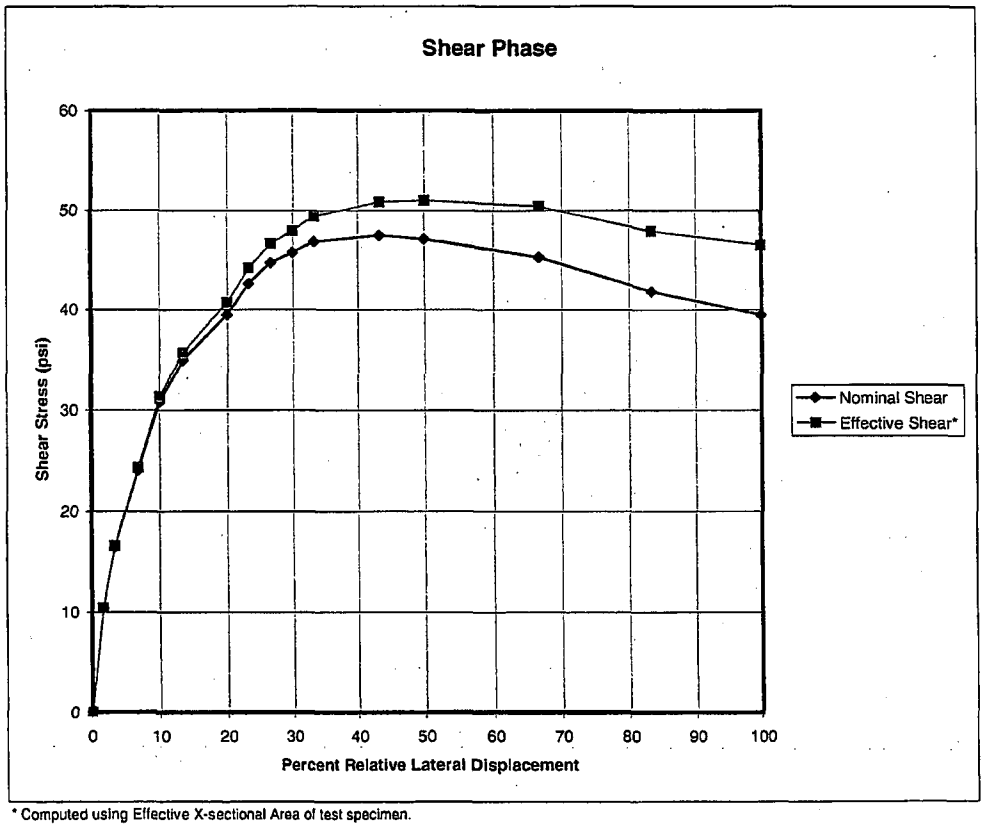
Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-305DH
Sample Type/No.: UD-12

Depth: 228-230 Ft
Normal Stress: 100.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-305DH
Sample Type/No.: UD-14
Depth: 288-291 Ft
Normal Stress: 25.0 psi

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial MC: 35.1 %
Final MC: 35.6 %
Sample Mass 141.60 g
Measured Specific Gravity: 2.715
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0022 in
Sample Loading Rate: 0.01 in/min

Initial Saturation: 99.8 %
Initial Dry Unit Weight: 86.7 pcf
Initial Wet Unit Weight: 117.1 pcf
Initial Void Ratio: 0.955
Final Saturation: 109.7 %
Final Dry Unit Weight: 90.1 pcf
Final Wet Unit Weight: 122.1 pcf
Final Void Ratio: 0.881
Total Displacement: 0.230 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0344	0	0.00	0.00	0.00	0.032
0.005	4.896	2.2	0.0348	90	26.88	5.48	5.49	0.033
0.010	4.884	4.3	0.0351	116	34.65	7.06	7.09	0.033
0.015	4.871	6.5	0.0353	133	39.73	8.09	8.16	0.033
0.020	4.859	8.7	0.0356	148	44.21	9.01	9.10	0.033
0.025	4.847	10.9	0.0360	157	46.90	9.55	9.68	0.034
0.030	4.834	13.0	0.0361	166	49.58	10.10	10.26	0.034
0.035	4.822	15.2	0.0363	172	51.38	10.47	10.66	0.034
0.040	4.809	17.4	0.0365	176	52.57	10.71	10.93	0.034
0.045	4.797	19.6	0.0367	178	53.17	10.83	11.08	0.035
0.050	4.784	21.7	0.0368	178	53.17	10.83	11.11	0.035
0.060	4.759	26.1	0.0369	178	53.17	10.83	11.17	0.035
0.070	4.735	30.4	0.0370	178	53.17	10.83	11.23	0.035
0.080	4.710	34.8	0.0374	178	53.17	10.83	11.29	0.035
0.090	4.685	39.1	0.0375	178	53.17	10.83	11.35	0.035
0.100	4.660	43.5	0.0376	178	53.17	10.83	11.41	0.035
0.150	4.535	65.2	0.0379	174	51.97	10.59	11.46	0.036
0.155	4.523	67.4	0.0380	148	44.21	9.01	9.77	0.036
0.200	4.411	87.0	0.0377	148	44.21	9.01	10.02	0.036
0.230	4.336	100.0	0.0376	148	44.21	9.01	10.19	0.035

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 10.83 11.46 psi
% Relative Lateral Displacement at Max Shear : 19.6 65.2 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0332
0.25	0.50	0.0333
0.5	0.71	0.0334
1	1.00	0.0335
2	1.41	0.0336
4	2.00	0.0337
8	2.83	0.0338
16	4.00	0.034
30	5.48	0.0342
60	7.75	0.0343
120	10.95	0.0344
240	15.49	

t(50) = 0.46 min
50*t(50) = 22.9 min
d(r) = 0.009 in/min

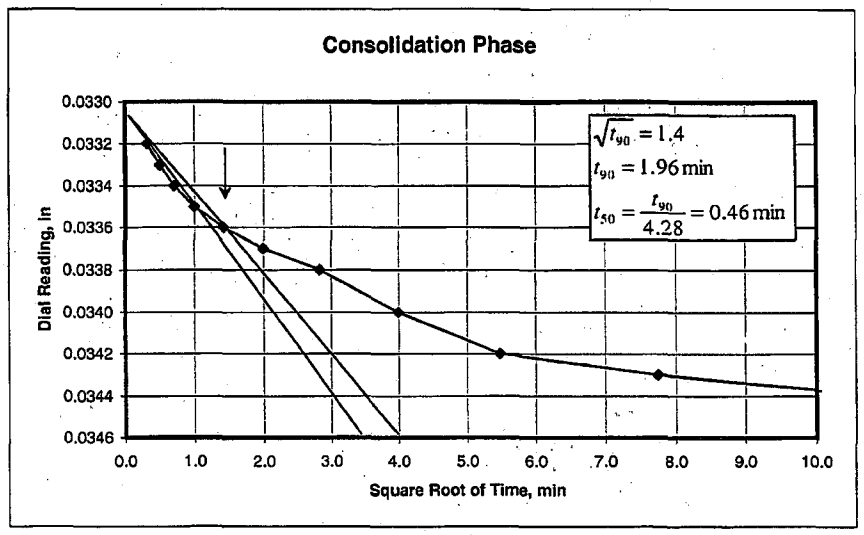
Sample Description	
Fat clay	
USCS	CH
Gravel (%)	0.0
Sand (%)	9.2
Fines (%)	90.8
Silt (%)	8.8
Clay (%)	82.0
LL	84
PI	58
Undisturbed	■
Remolded	
Inundated?	Yes

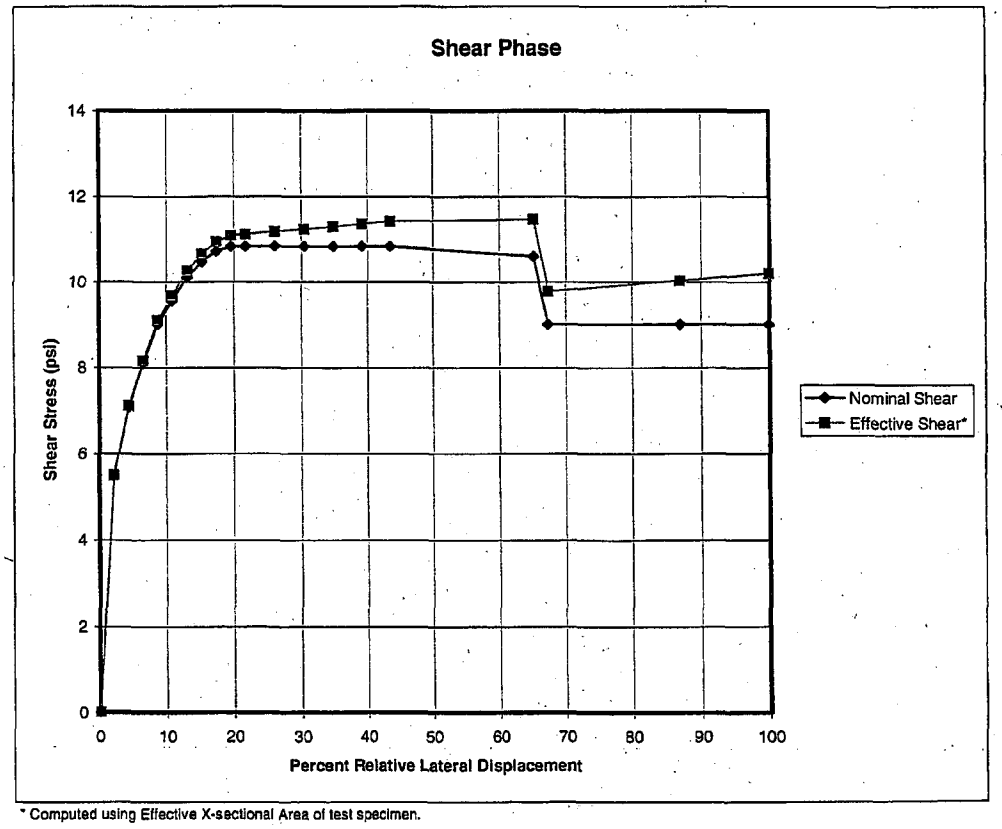
Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-305DH
Sample Type/No.: UD-14

Depth: 288-291 Ft
Normal Stress: 25.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-305DH
Sample Type/No.: UD-14
Depth: 288-291 Ft
Normal Stress: 50.0 psi

Initial MC: 35.1 %
Final MC: 35.1 %
Sample Mass 141.02 g
Measured Specific Gravity: 2.715
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0027 in
Sample Loading Rate: 0.01 in/min

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial Saturation: 99.0 %
Initial Dry Unit Weight: 86.3 pcf
Initial Wet Unit Weight: 116.6 pcf
Initial Void Ratio: 0.963
Final Saturation: 117.9 %
Final Dry Unit Weight: 93.7 pcf
Final Wet Unit Weight: 126.6 pcf
Final Void Ratio: 0.809
Total Displacement: 0.500 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0500	0	0.00	0.00	0.00	0.047
0.005	4.896	1.0	0.0512	73	21.81	4.44	4.45	0.049
0.010	4.884	2.0	0.0519	100	29.87	6.09	6.12	0.049
0.015	4.871	3.0	0.0525	118	35.25	7.18	7.24	0.050
0.020	4.859	4.0	0.0531	131	39.13	7.97	8.05	0.050
0.025	4.847	5.0	0.0537	141	42.12	8.58	8.69	0.051
0.030	4.834	6.0	0.0541	149	44.51	9.07	9.21	0.051
0.035	4.822	7.0	0.0546	154	46.00	9.37	9.54	0.052
0.040	4.809	8.0	0.0553	158	47.19	9.61	9.81	0.053
0.045	4.797	9.0	0.0555	160	47.79	9.74	9.96	0.053
0.050	4.784	10.0	0.0561	162	48.39	9.86	10.11	0.053
0.055	4.772	11.0	0.0564	163	48.69	9.92	10.20	0.054
0.060	4.759	12.0	0.0569	164	48.99	9.98	10.29	0.054
0.065	4.747	13.0	0.0571	164	48.99	9.98	10.32	0.054
0.070	4.735	14.0	0.0575	164	48.99	9.98	10.35	0.055
0.080	4.710	16.0	0.0580	164	48.99	9.98	10.40	0.055
0.090	4.685	18.0	0.0587	162	48.39	9.86	10.33	0.056
0.100	4.660	20.0	0.0593	162	48.39	9.86	10.38	0.057
0.120	4.610	24.0	0.0603	160	47.79	9.74	10.37	0.058
0.150	4.535	30.0	0.0618	157	46.90	9.55	10.34	0.059
0.200	4.411	40.0	0.0635	149	44.51	9.07	10.09	0.061
0.250	4.286	50.0	0.0654	145	43.31	8.82	10.10	0.063
0.300	4.162	60.0	0.0669	142	42.42	8.64	10.19	0.064
0.350	4.038	70.0	0.0691	139	41.52	8.46	10.28	0.066
0.400	3.913	80.0	0.0712	137	40.92	8.34	10.46	0.069
0.450	3.789	90.0	0.0737	136	40.62	8.28	10.72	0.071
0.500	3.664	100.0	0.0763	131	39.13	7.97	10.68	0.074

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 9.98 10.72 psi
% Relative Lateral Displacement at Max Shear : 12 90 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0373
0.25	0.50	0.0379
0.5	0.71	0.0383
1	1.00	0.0387
2	1.41	0.0401
4	2.00	0.0409
8	2.83	0.0422
16	4.00	0.0436
30	5.48	0.0455
60	7.75	0.0483
90	9.49	0.0491
120	10.95	0.05

t(50) = 0.93 min
50*t(50) = 46.7 min
d(r) = 0.004 in/min

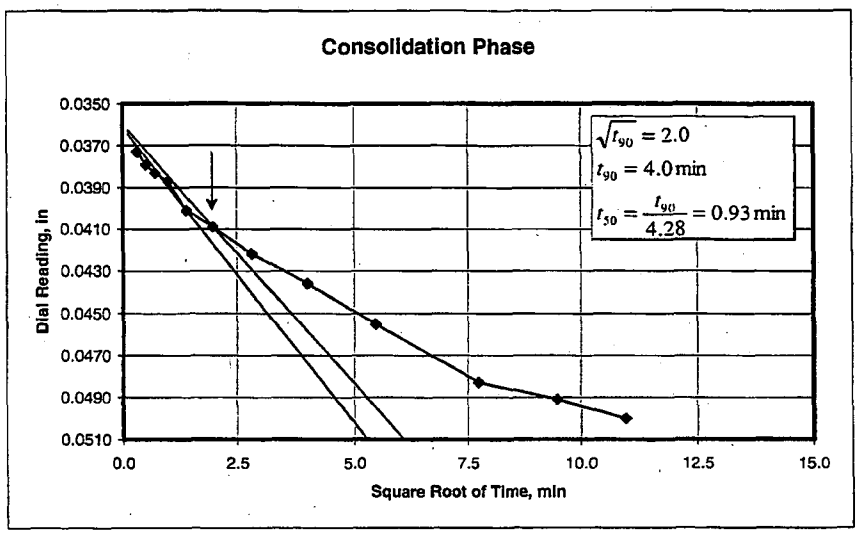
Sample Description	
Fat clay	
USCS	CH
Gravel (%)	0.0
Sand (%)	9.2
Fines (%)	90.8
Silt (%)	8.8
Clay (%)	82.0
LL	84
PI	58
Undisturbed	■
Remolded	
Inundated?	Yes

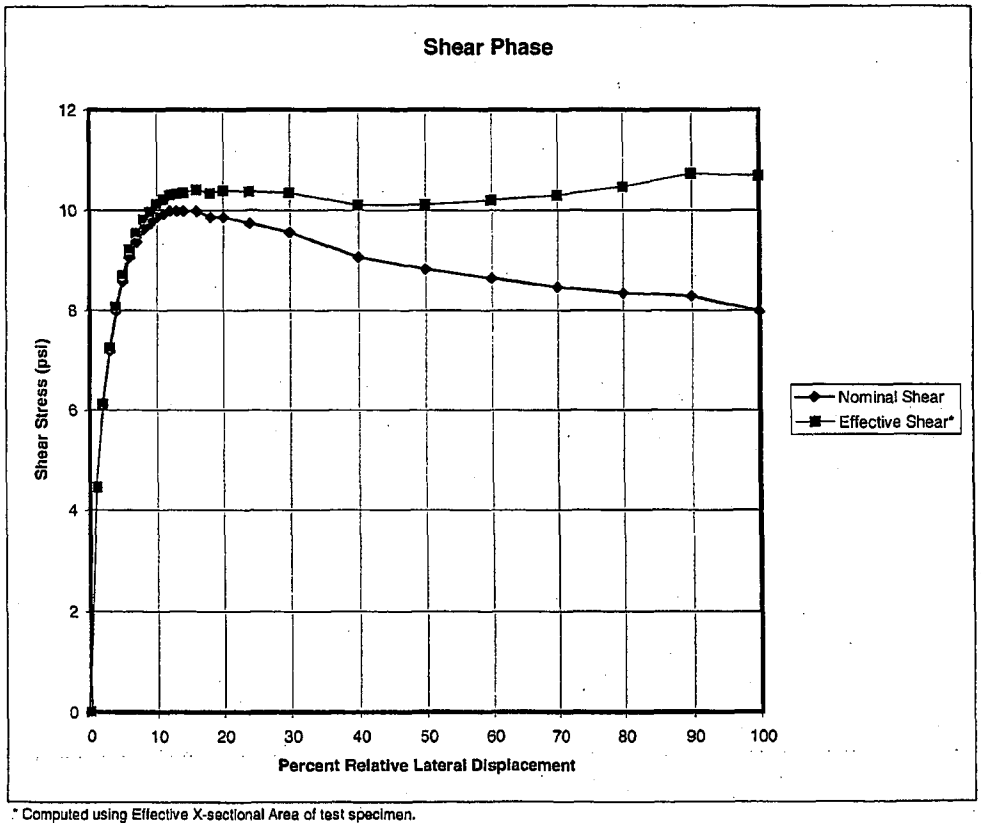
Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-305DH
Sample Type/No.: UD-14

Depth: 288-291 Ft
Normal Stress: 50.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.:	B-305DH		Test By:	JA	
Sample Type/No.:	UD-14		Test Date:	2/15/2007	
Depth:	288-291 Ft		Prepared By:	JBS.	
Normal Stress:	100.0	psi	Prepared Date:	4/4/2007	
			Reviewed By:	KAW	
Initial MC:	35.1	%	Review Date:	4/4/07	
Final MC:	n/a	%			
Sample Mass	140.88	g			
Measured Specific Gravity:	2.715				
Sample Diameter:	2.500	in	Initial Saturation:	98.8	%
Sample Area:	4.909	in^2	Initial Dry Unit Weight:	86.2	pcf
Initial Sample Height:	0.938	in	Initial Wet Unit Weight:	116.5	pcf
Initial Sample Volume:	75.453	cc	Initial Void Ratio:	0.964	
			Final Saturation:	n/a	%
			Final Dry Unit Weight:	n/a	pcf
Proving Ring Load Factor:	0.2987		Final Wet Unit Weight:	n/a	pcf
Stone Correction:	0.0032	in	Final Void Ratio:	n/a	
Sample Loading Rate:	n/a	in/min	Total Displacement:	n/a	in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)

The test specimen failed upon application of the 100-psi consolidating stress. A large portion of the sample was extruded from the direct shear box between the top and bottom portions of the box. Consequently, the test was abandoned.

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 0.00 0.00 psi
% Relative Lateral Displacement at Max Shear : n/a n/a %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	n/a
0.25	0.50	
0.5	0.71	
1	1.00	
2	1.41	
4	2.00	
8	2.83	
16	4.00	
30	5.48	
60	7.75	
120	10.95	
240	15.49	

t(50) = n/a min
50*t(50) = n/a min
d(r) = n/a in/min

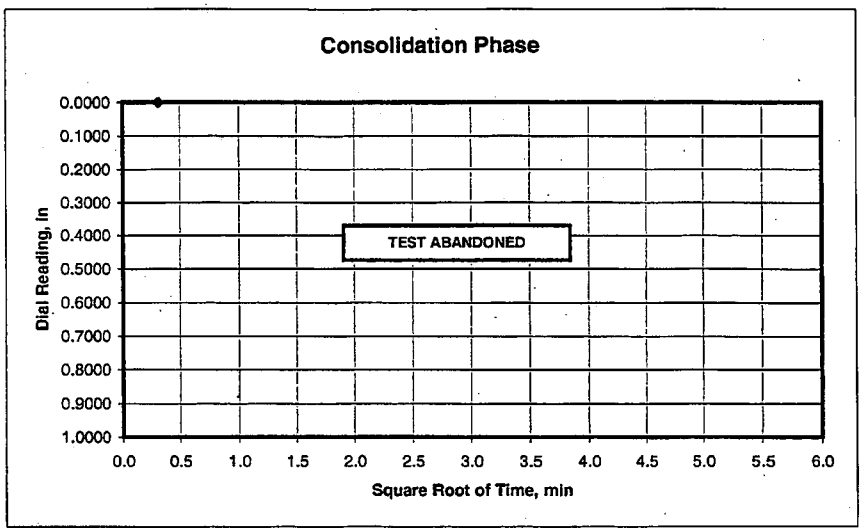
Sample Description	
Fat clay	
USCS	CH
Gravel (%)	0.0
Sand (%)	9.2
Fines (%)	90.8
Silt (%)	8.8
Clay (%)	82.0
LL	84
PI	58
Undisturbed	■
Remolded	
Inundated?	Yes

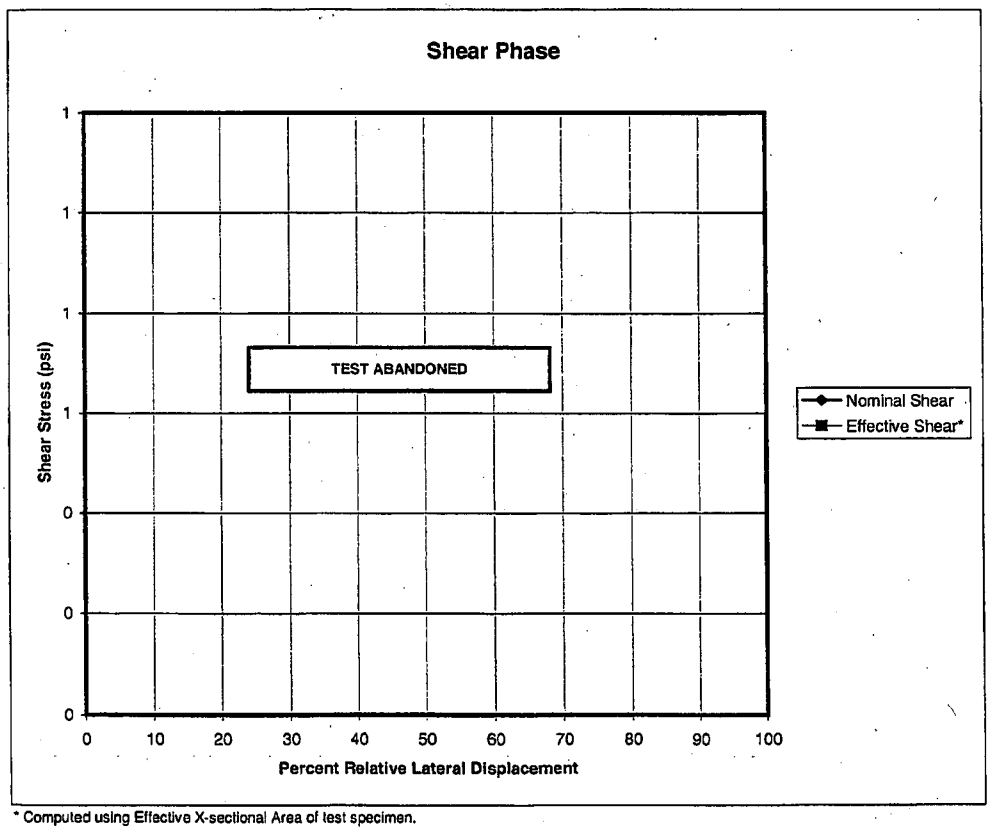
Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-305DH
Sample Type/No.: UD-14

Depth: 288-291 Ft
Normal Stress: 100.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-306
Sample Type/No.: UD-5
Depth: 98-100 Ft
Normal Stress: 20.0 psi

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS.
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial MC: 24.4 %
Final MC: 25.0 %
Sample Mass 147.10 g
Measured Specific Gravity: 2.662
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0014 in
Sample Loading Rate: 0.02 in/min

Initial Saturation: 93.0 %
Initial Dry Unit Weight: 97.8 pcf
Initial Wet Unit Weight: 121.7 pcf
Initial Void Ratio: 0.699
Final Saturation: 95.5 %
Final Dry Unit Weight: 97.9 pcf
Final Wet Unit Weight: 122.3 pcf
Final Void Ratio: 0.697
Total Displacement: 0.200 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0055	0	0.00	0.00	0.00	0.004
0.005	4.896	2.5	0.0073	73	21.81	4.44	4.45	0.006
0.010	4.884	5.0	0.0080	109	32.56	6.63	6.67	0.007
0.015	4.871	7.5	0.0081	132	39.43	8.03	8.09	0.007
0.020	4.859	10.0	0.0082	146	43.61	8.88	8.98	0.007
0.025	4.847	12.5	0.0082	157	46.90	9.55	9.68	0.007
0.030	4.834	15.0	0.0081	167	49.88	10.16	10.32	0.007
0.035	4.822	17.5	0.0080	178	53.17	10.83	11.03	0.007
0.040	4.809	20.0	0.0078	181	54.06	11.01	11.24	0.006
0.045	4.797	22.5	0.0073	185	55.26	11.26	11.52	0.006
0.050	4.784	25.0	0.0070	189	56.45	11.50	11.80	0.006
0.055	4.772	27.5	0.0065	190	56.75	11.56	11.89	0.005
0.060	4.759	30.0	0.0062	192	57.35	11.68	12.05	0.005
0.065	4.747	32.5	0.0057	195	58.25	11.87	12.27	0.004
0.070	4.735	35.0	0.0054	197	58.84	11.99	12.43	0.004
0.075	4.722	37.5	0.0048	197	58.84	11.99	12.46	0.003
0.080	4.710	40.0	0.0046	198	59.14	12.05	12.56	0.003
0.085	4.697	42.5	0.0048	198	59.14	12.05	12.59	0.003
0.090	4.685	45.0	0.0038	198	59.14	12.05	12.62	0.002
0.100	4.660	50.0	0.0031	198	59.14	12.05	12.69	0.002
0.110	4.635	55.0	0.0022	197	58.84	11.99	12.70	0.001
0.120	4.610	60.0	0.0015	196	58.55	11.93	12.70	0.000
0.130	4.585	65.0	0.0011	185	55.26	11.26	12.05	0.000
0.140	4.560	70.0	0.0008	180	53.77	10.95	11.79	-0.001
0.150	4.535	75.0	0.0008	175	52.27	10.65	11.53	-0.001
0.200	4.411	100.0	0.0022	150	44.81	9.13	10.16	0.001

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 12.05 12.70 psi
% Relative Lateral Displacement at Max Shear : 40 55 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0055
0.25	0.50	0.0055
0.5	0.71	0.0055
1	1.00	0.0055
2	1.41	0.0055
4	2.00	0.0055
8	2.83	0.0055
16	4.00	0.0055
30	5.48	0.0055
60	7.75	
120	10.95	
240	15.49	

t(50) = n/a min
50*t(50) = n/a min
d(r) = n/a in/min

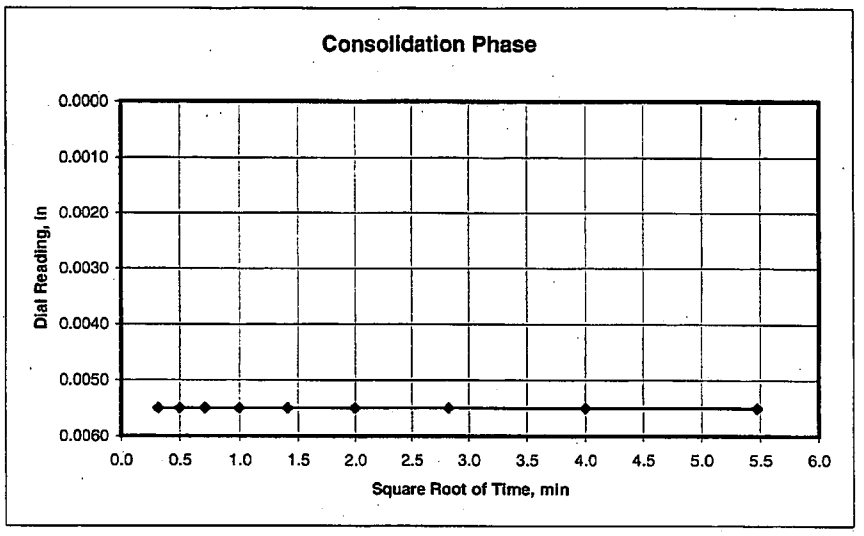
Sample Description	
Poorly Graded Sand with Silt	
USCS	SP-SM
Gravel (%)	0.0
Sand (%)	94.0
Fines (%)	6.0
Silt (%)	2.3
Clay (%)	3.7
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

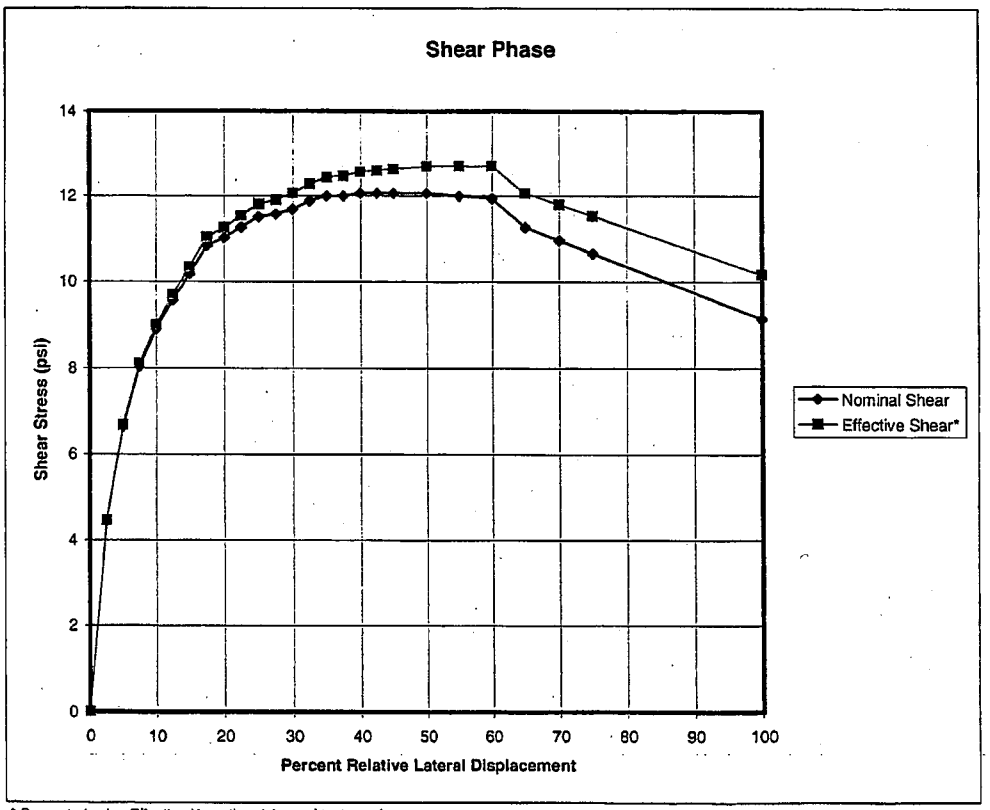
Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-306
Sample Type/No.: UD-5

Depth: 98-100 Ft
Normal Stress: 20.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-306
Sample Type/No.: UD-5
Depth: 98-100 Ft
Normal Stress: 40.0 psi

Initial MC: 24.4 %
Final MC: 24.9 %
Sample Mass 146.08 g
Measured Specific Gravity: 2.662
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0025 in
Sample Loading Rate: 0.02 in/min

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS.
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial Saturation: 91.4 %
Initial Dry Unit Weight: 97.1 pcf
Initial Wet Unit Weight: 120.8 pcf
Initial Void Ratio: 0.710
Final Saturation: 100.7 %
Final Dry Unit Weight: 100.2 pcf
Final Wet Unit Weight: 125.1 pcf
Final Void Ratio: 0.658
Total Displacement: 0.220 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0202	0	0.00	0.00	0.00	0.018
0.005	4.896	2.3	0.0231	96	28.68	5.84	5.86	0.021
0.010	4.884	4.5	0.0241	148	44.21	9.01	9.05	0.022
0.015	4.871	6.8	0.0249	191	57.05	11.62	11.71	0.022
0.020	4.859	9.1	0.0257	225	67.21	13.69	13.83	0.023
0.025	4.847	11.4	0.0259	246	73.48	14.97	15.16	0.023
0.030	4.834	13.6	0.0262	265	79.16	16.13	16.37	0.024
0.036	4.820	16.3	0.0264	274	81.84	16.67	16.98	0.024
0.040	4.809	18.2	0.0265	281	83.93	17.10	17.45	0.024
0.045	4.797	20.5	0.0265	294	87.82	17.89	18.31	0.024
0.050	4.784	22.7	0.0267	299	89.31	18.19	18.67	0.024
0.060	4.759	27.3	0.0272	314	93.79	19.11	19.71	0.025
0.070	4.735	31.8	0.0269	325	97.08	19.78	20.50	0.024
0.080	4.710	36.4	0.0265	334	99.77	20.32	21.18	0.024
0.090	4.685	40.9	0.0260	339	101.26	20.63	21.61	0.024
0.100	4.660	45.5	0.0257	343	102.45	20.87	21.99	0.023
0.110	4.635	50.0	0.0254	344	102.75	20.93	22.17	0.023
0.120	4.610	54.5	0.0250	343	102.45	20.87	22.22	0.023
0.140	4.560	63.6	0.0249	337	100.66	20.51	22.07	0.022
0.160	4.510	72.7	0.0256	317	94.69	19.29	20.99	0.023
0.180	4.461	81.8	0.0273	304	90.80	18.50	20.36	0.025
0.200	4.411	90.9	0.0293	301	89.91	18.32	20.38	0.027
0.220	4.361	100.0	0.0312	286	85.43	17.40	19.59	0.029

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 20.93 22.22 psi
% Relative Lateral Displacement at Max Shear : 50 54.5 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.02
0.25	0.50	0.0201
0.5	0.71	0.0202
1	1.00	0.0202
2	1.41	0.0202
4	2.00	0.0202
8	2.83	0.0202
16	4.00	0.0202
30	5.48	
60	7.75	
120	10.95	
240	15.49	

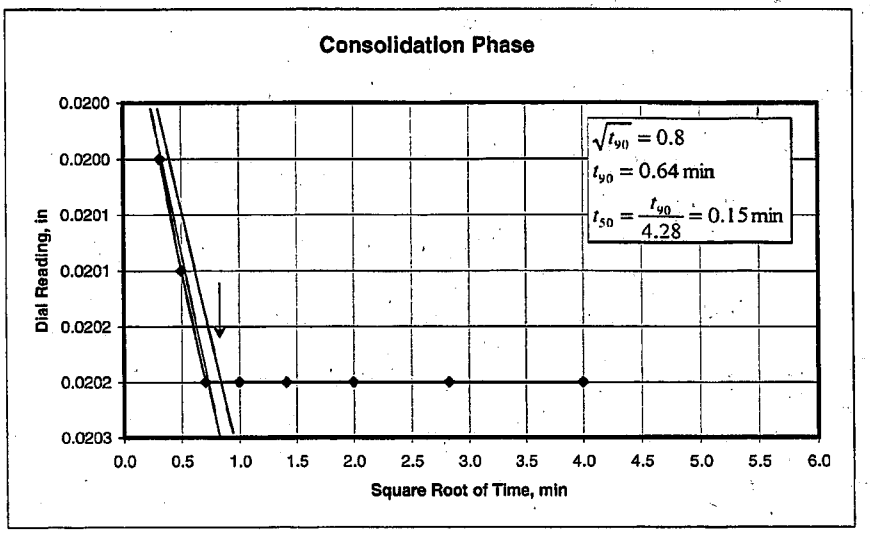
t(50) = 0.15 min
50*t(50) = 7.5 min
d(r) = 0.03 in/min

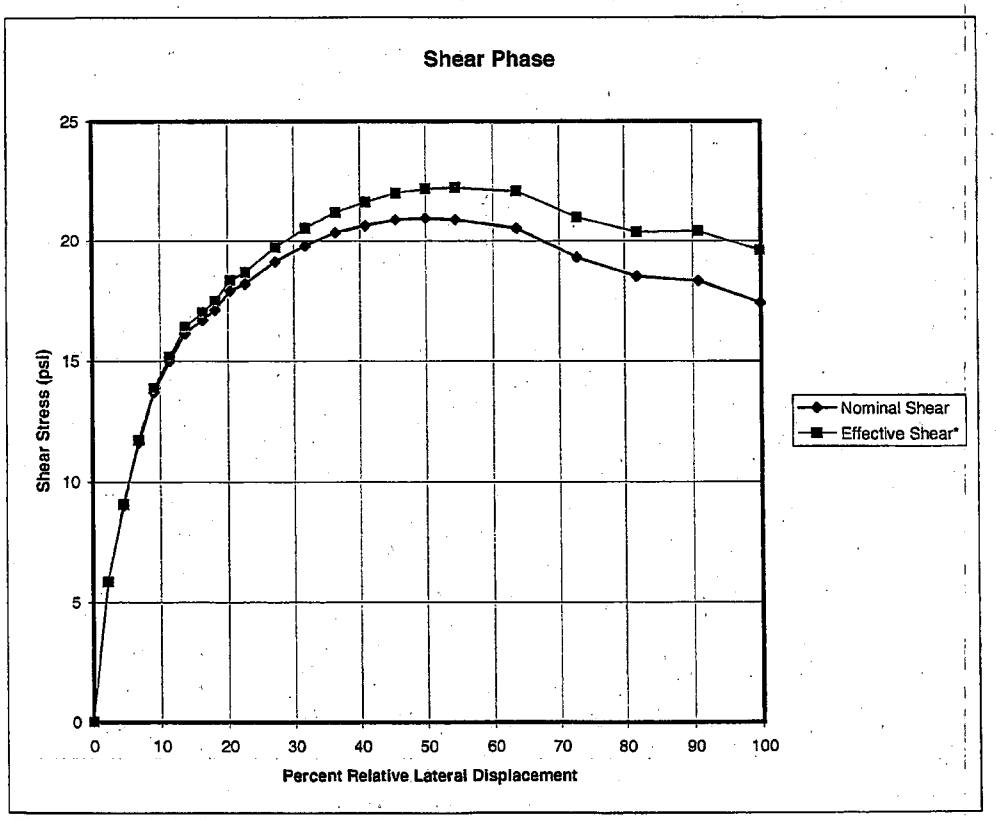
Sample Description	
Poorly Graded Sand with Silt	
USCS	SP-SM
Gravel (%)	0.0
Sand (%)	94.0
Fines (%)	6.0
Silt (%)	2.3
Clay (%)	3.7
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-306 | Depth: 98-100 Ft
Sample Type/No.: UD-5 | Normal Stress: 40.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-306
Sample Type/No.: UD-5
Depth: 98-100 Ft
Normal Stress: 80.0 psi

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial MC: 24.4 %
Final MC: 24.3 %
Sample Mass 152.04 g
Measured Specific Gravity: 2.662
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0030 in
Sample Loading Rate: 0.03 in/min

Initial Saturation: 101.0 %
Initial Dry Unit Weight: 101.1 pcf
Initial Wet Unit Weight: 125.7 pcf
Initial Void Ratio: 0.643
Final Saturation: 108.5 %
Final Dry Unit Weight: 104.0 pcf
Final Wet Unit Weight: 129.3 pcf
Final Void Ratio: 0.596
Total Displacement: 0.220 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0227	0	0.00	0.00	0.00	0.020
0.005	4.896	2.3	0.0251	195	58.25	11.87	11.90	0.022
0.010	4.884	4.5	0.0263	290	86.62	17.65	17.74	0.023
0.015	4.871	6.8	0.0272	358	106.93	21.78	21.95	0.024
0.020	4.859	9.1	0.0280	415	123.96	25.25	25.51	0.025
0.025	4.847	11.4	0.0284	468	139.79	28.48	28.84	0.025
0.030	4.834	13.6	0.0289	512	152.93	31.16	31.64	0.026
0.035	4.822	15.9	0.0291	552	164.88	33.59	34.20	0.026
0.040	4.809	18.2	0.0296	585	174.74	35.60	36.33	0.027
0.045	4.797	20.5	0.0297	612	182.80	37.24	38.11	0.027
0.050	4.784	22.7	0.0297	638	190.57	38.82	39.83	0.027
0.055	4.772	25.0	0.0297	667	199.23	40.59	41.75	0.027
0.060	4.759	27.3	0.0297	687	205.21	41.80	43.12	0.027
0.065	4.747	29.5	0.0297	704	210.28	42.84	44.30	0.027
0.070	4.735	31.8	0.0296	718	214.47	43.69	45.30	0.027
0.075	4.722	34.1	0.0292	732	218.65	44.54	46.30	0.026
0.080	4.710	36.4	0.0290	742	221.64	45.15	47.06	0.026
0.090	4.685	40.9	0.0286	758	226.41	46.12	48.33	0.026
0.100	4.660	45.5	0.0281	766	228.80	46.61	49.10	0.025
0.120	4.610	54.5	0.0273	755	225.52	45.94	48.92	0.024
0.150	4.535	68.2	0.0264	712	212.67	43.33	46.89	0.023
0.180	4.461	81.8	0.0273	665	198.64	40.47	44.53	0.024
0.200	4.411	90.9	0.0283	638	190.57	38.82	43.20	0.025
0.220	4.361	100.0	0.0298	616	184.00	37.48	42.19	0.027

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 46.61 49.10 psi
% Relative Lateral Displacement at Max Shear : 45.5 45.5 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0219
0.25	0.50	0.0225
0.5	0.71	0.0226
1	1.00	0.0226
2	1.41	0.0226
4	2.00	0.0227
8	2.83	0.0227
16	4.00	0.0227
30	5.48	0.0227
60	7.75	
120	10.95	
240	15.49	

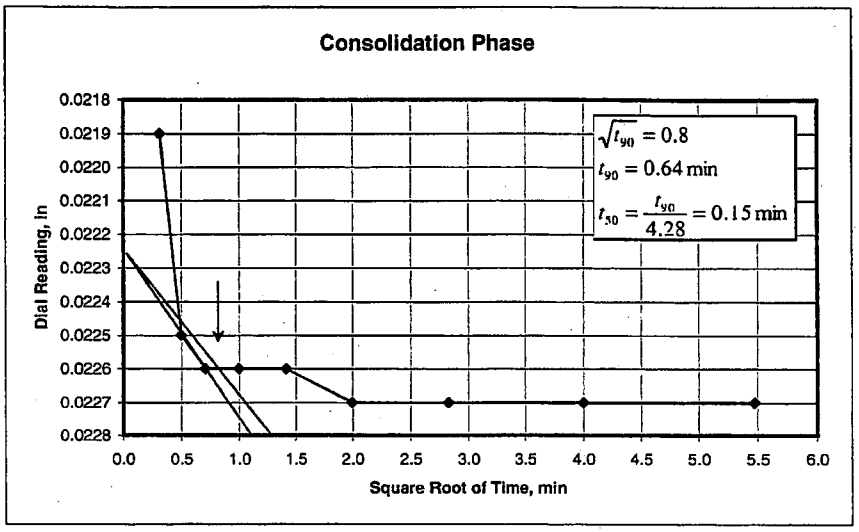
t(50) = 0.15 min
50*t(50) = 7.5 min
d(r) = 0.03 in/min

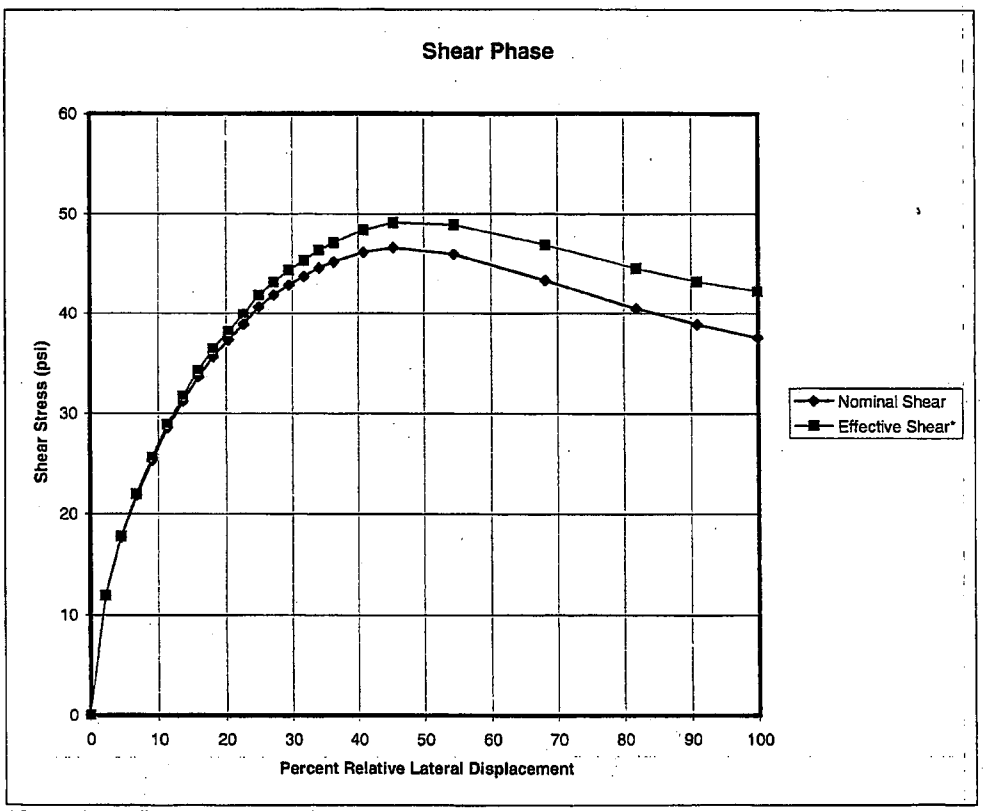
Sample Description	
Poorly Graded Sand with Silt	
USCS	SP-SM
Gravel (%)	0.0
Sand (%)	94.0
Fines (%)	6.0
Silt (%)	2.3
Clay (%)	3.7
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-306 | Depth: 98-100 Ft
Sample Type/No.: UD-5 | Normal Stress: 80.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-314
Sample Type/No.: UD-1
Depth: 83-85 Ft
Normal Stress: 20.0 psi

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS.
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial MC: 20.9 %
Final MC: 25.5 %
Sample Mass 148.39 g
Measured Specific Gravity: 2.699
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0014 in
Sample Loading Rate: 0.03 in/min

Initial Saturation: 85.6 %
Initial Dry Unit Weight: 101.5 pcf
Initial Wet Unit Weight: 122.7 pcf
Initial Void Ratio: 0.659
Final Saturation: 110.6 %
Final Dry Unit Weight: 103.8 pcf
Final Wet Unit Weight: 130.3 pcf
Final Void Ratio: 0.622
Total Displacement: 0.200 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0219	0	0.00	0.00	0.00	0.021
0.005	4.896	2.5	0.0245	65	19.42	3.96	3.97	0.023
0.010	4.884	5.0	0.0262	80	23.90	4.87	4.89	0.025
0.015	4.871	7.5	0.0270	98	29.27	5.96	6.01	0.026
0.020	4.859	10.0	0.0276	120	35.84	7.30	7.38	0.026
0.025	4.847	12.5	0.0276	135	40.32	8.21	8.32	0.026
0.030	4.834	15.0	0.0276	153	45.70	9.31	9.45	0.026
0.035	4.822	17.5	0.0276	167	49.88	10.16	10.35	0.026
0.040	4.809	20.0	0.0272	178	53.17	10.83	11.06	0.026
0.045	4.797	22.5	0.0690	185	55.26	11.26	11.52	0.068
0.050	4.784	25.0	0.0263	193	57.65	11.74	12.05	0.025
0.060	4.759	30.0	0.0253	204	60.93	12.41	12.80	0.024
0.070	4.735	35.0	0.0296	207	61.83	12.60	13.06	0.028
0.080	4.710	40.0	0.0287	212	63.32	12.90	13.45	0.027
0.090	4.685	45.0	0.0276	215	64.22	13.08	13.71	0.026
0.100	4.660	50.0	0.0261	215	64.22	13.08	13.78	0.025
0.150	4.535	75.0	0.0214	187	55.86	11.38	12.32	0.020
0.200	4.411	100.0	0.0222	174	51.97	10.59	11.78	0.021

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 13.08 13.78 psi
% Relative Lateral Displacement at Max Shear : 45 50 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0215
0.25	0.50	0.0217
0.5	0.71	0.0219
1	1.00	0.0219
2	1.41	0.0219
4	2.00	0.0219
8	2.83	0.0219
16	4.00	
30	5.48	
60	7.75	
120	10.95	
240	15.49	

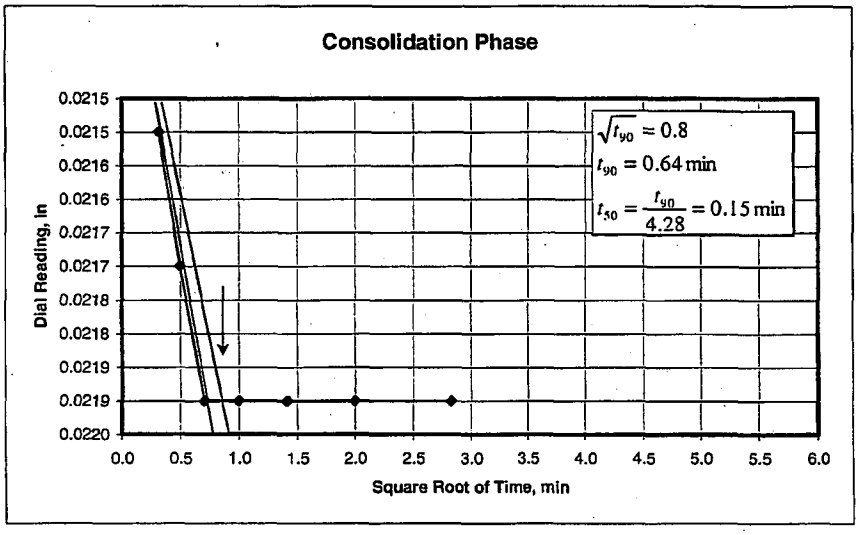
t(50) = 0.15 min
50*t(50) = 7.5 min
d(r) = 0.03 in/min

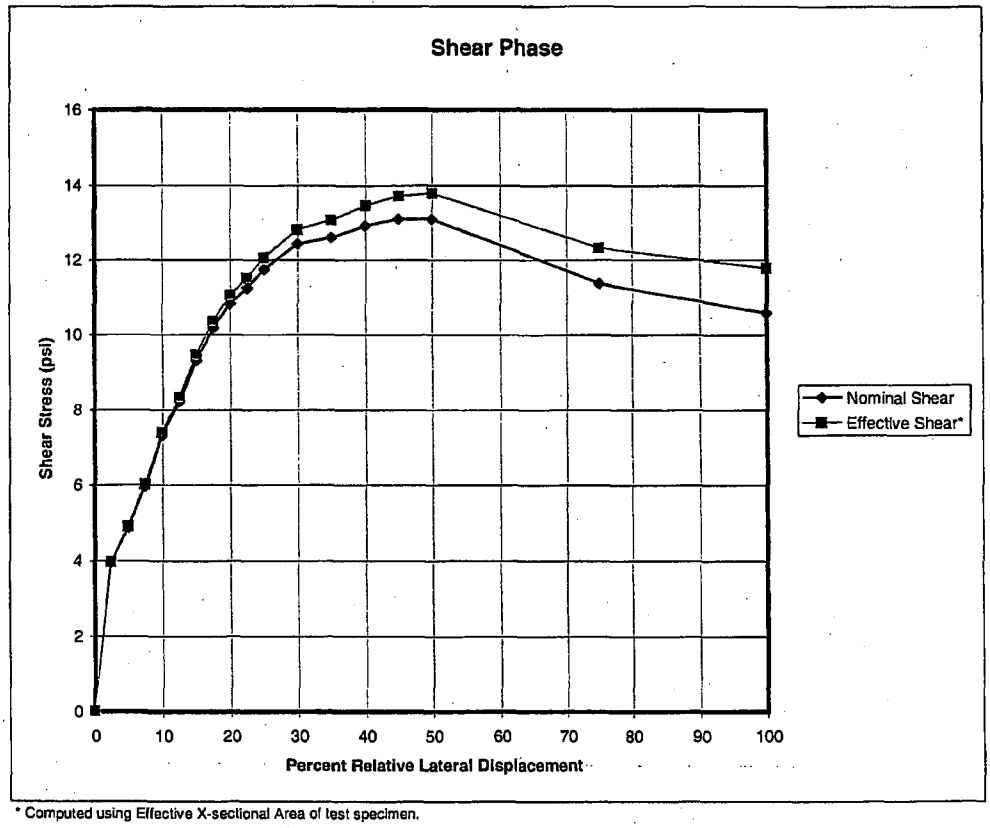
Sample Description	
Poorly Graded Sand	
USCS	SP
Gravel (%)	0.0
Sand (%)	95.6
Fines (%)	4.4
Silt (%)	1.6
Clay (%)	2.8
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-314 Depth: 83-85 Ft
Sample Type/No.: UD-1 Normal Stress: 20.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.:	B-314		Test By:	JA	
Sample Type/No.:	UD-1		Test Date:	2/15/2007	
Depth:	83-85 Ft		Prepared By:	JRS	
Normal Stress:	40.0	psi	Prepared Date:	4/4/2007	
			Reviewed By:	KAW	
Initial MC:	20.9	%	Review Date:	4/4/07	
Final MC:	24.8	%			
Sample Mass	148.49	g			
Measured Specific Gravity:	2.699		Initial Saturation:	85.7	%
Sample Diameter:	2.500	in	Initial Dry Unit Weight:	101.6	pcf
Sample Area:	4.909	in^2	Initial Wet Unit Weight:	122.8	pcf
Initial Sample Height:	0.938	in	Initial Void Ratio:	0.658	
Initial Sample Volume:	75.453	cc	Final Saturation:	111.3	%
			Final Dry Unit Weight:	105.2	pcf
Proving Ring Load Factor:	0.2987		Final Wet Unit Weight:	131.3	pcf
Stone Correction:	0.0025	in	Final Void Ratio:	0.601	
Sample Loading Rate:	0.03	in/min	Total Displacement:	0.500	in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0234	0	0.00	0.00	0.00	0.021
0.005	4.896	1.0	0.0255	168	50.18	10.22	10.25	0.023
0.010	4.884	2.0	0.0265	223	66.61	13.57	13.64	0.024
0.015	4.871	3.0	0.0270	264	78.86	16.06	16.19	0.025
0.020	4.859	4.0	0.0275	298	89.01	18.13	18.32	0.025
0.025	4.847	5.0	0.0278	327	97.67	19.90	20.15	0.025
0.030	4.834	6.0	0.0282	357	106.64	21.72	22.06	0.026
0.035	4.822	7.0	0.0282	372	111.12	22.64	23.05	0.026
0.040	4.809	8.0	0.0282	380	113.51	23.12	23.60	0.026
0.045	4.797	9.0	0.0281	397	118.58	24.16	24.72	0.026
0.050	4.784	10.0	0.0275	410	122.47	24.95	25.60	0.025
0.055	4.772	11.0	0.0268	420	125.45	25.56	26.29	0.024
0.060	4.759	12.0	0.0264	425	126.95	25.86	26.67	0.024
0.065	4.747	13.0	0.0256	428	127.84	26.04	26.93	0.023
0.070	4.735	14.0	0.0248	431	128.74	26.23	27.19	0.022
0.075	4.722	15.0	0.0242	431	128.74	26.23	27.26	0.022
0.080	4.710	16.0	0.0233	428	127.84	26.04	27.15	0.021
0.085	4.697	17.0	0.0230	428	127.84	26.04	27.22	0.021
0.090	4.685	18.0	0.0226	427	127.54	25.98	27.23	0.020
0.095	4.672	19.0	0.0222	417	124.56	25.37	26.66	0.020
0.100	4.660	20.0	0.0217	410	122.47	24.95	26.28	0.019
0.150	4.535	30.0	0.0221	365	109.03	22.21	24.04	0.020
0.200	4.411	40.0	0.0249	382	114.10	23.24	25.87	0.022
0.250	4.286	50.0	0.0264	399	119.18	24.28	27.80	0.024
0.300	4.162	60.0	0.0281	416	124.26	25.31	29.86	0.026
0.350	4.038	70.0	0.0298	407	121.57	24.77	30.11	0.027
0.400	3.913	80.0	0.0314	407	121.57	24.77	31.07	0.029
0.450	3.789	90.0	0.0330	407	121.57	24.77	32.09	0.031
0.500	3.664	100.0	0.0346	407	121.57	24.77	33.18	0.032

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 26.23 33.18 psi
% Relative Lateral Displacement at Max Shear : 14 100 %

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

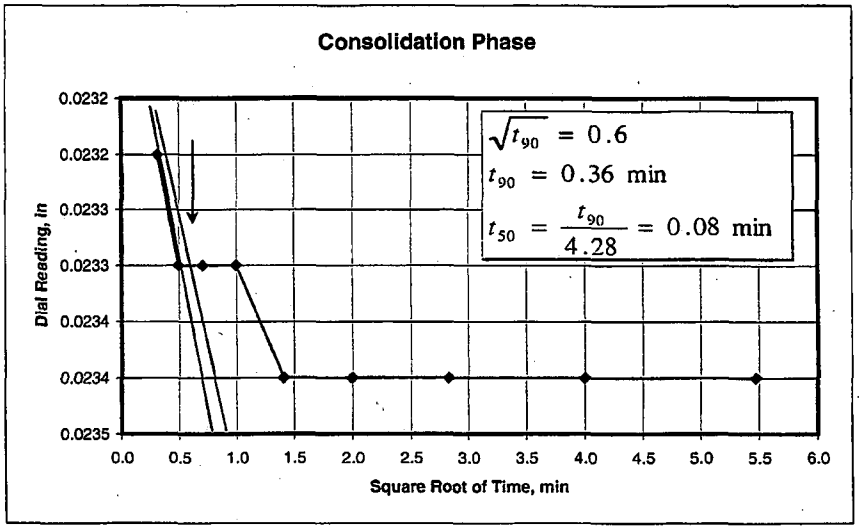
Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0232
0.25	0.50	0.0233
0.5	0.71	0.0233
1	1.00	0.0233
2	1.41	0.0234
4	2.00	0.0234
8	2.83	0.0234
16	4.00	0.0234
30	5.48	0.0234
60	7.75	
120	10.95	
240	15.49	

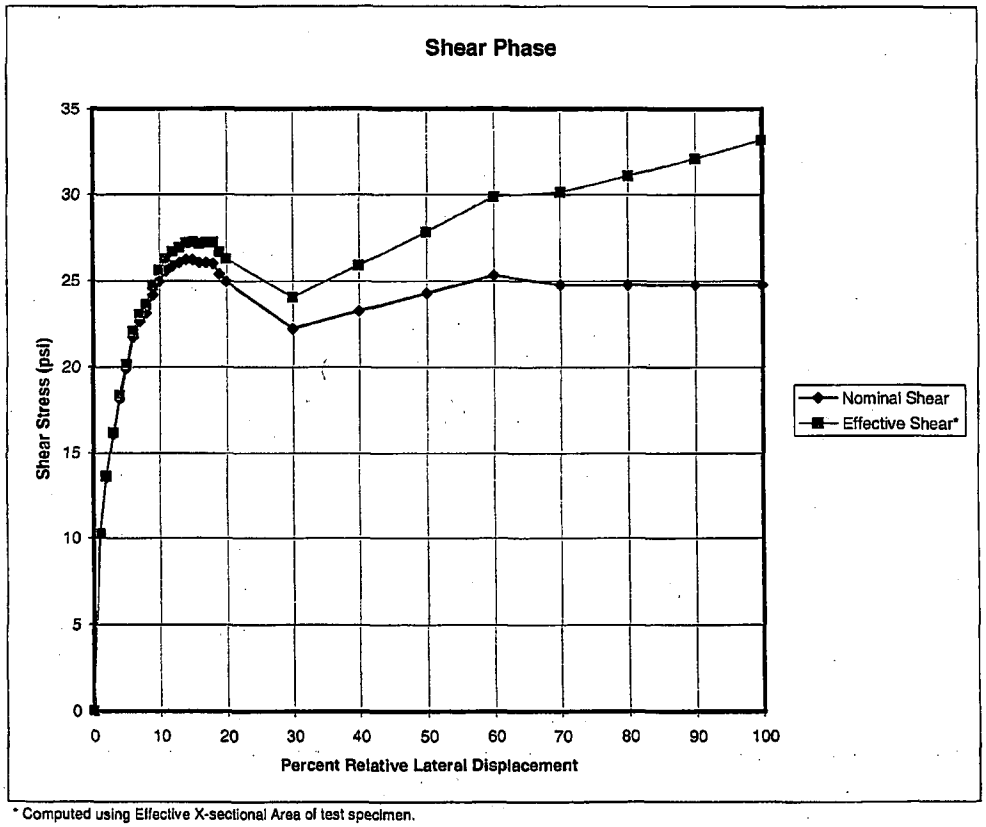
t(50) = 0.08 min
50*t(50) = 4.2 min
d(r) = 0.05 in/min

Sample Description	
Poorly Graded Sand	
USCS	SP
Gravel (%)	0.0
Sand (%)	95.6
Fines (%)	4.4
Silt (%)	1.6
Clay (%)	2.8
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-314 Depth: 83-85 Ft
Sample Type/No.: UD-1 Normal Stress: 40.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.:	B-314		Test By:	JA	
Sample Type/No.:	UD-1		Test Date:	2/15/2007	
Depth:	83-85 Ft		Prepared By:	JRS	
Normal Stress:	80.0	psi	Prepared Date:	4/4/2007	
			Reviewed By:	KAW	
Initial MC:	20.9	%	Review Date:	4/4/07	
Final MC:	23.6	%			
Sample Mass	149.06	g			
Measured Specific Gravity:	2.699		Initial Saturation:	86.6	%
Sample Diameter:	2.500	in	Initial Dry Unit Weight:	102.0	pcf
Sample Area:	4.909	in^2	Initial Wet Unit Weight:	123.3	pcf
Initial Sample Height:	0.938	in	Initial Void Ratio:	0.652	
Initial Sample Volume:	75.453	cc	Final Saturation:	103.5	%
			Final Dry Unit Weight:	104.3	pcf
Proving Ring Load Factor:	0.2987		Final Wet Unit Weight:	128.9	pcf
Stone Correction:	0.0030	in	Final Void Ratio:	0.615	
Sample Loading Rate:	0.03	in/min	Total Displacement:	0.300	in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0202	0	0.00	0.00	0.00	0.017
0.005	4.896	1.7	0.0221	296	88.42	18.01	18.06	0.019
0.010	4.884	3.3	0.0234	388	115.90	23.61	23.73	0.020
0.015	4.871	5.0	0.0243	435	129.93	26.47	26.67	0.021
0.020	4.859	6.7	0.0246	490	146.36	29.82	30.12	0.022
0.025	4.847	8.3	0.0253	567	169.36	34.50	34.95	0.022
0.030	4.834	10.0	0.0259	635	189.67	38.64	39.24	0.023
0.035	4.822	11.7	0.0261	684	204.31	41.62	42.37	0.023
0.040	4.809	13.3	0.0262	723	215.96	44.00	44.91	0.023
0.045	4.797	15.0	0.0263	755	225.52	45.94	47.02	0.023
0.050	4.784	16.7	0.0264	780	232.99	47.46	48.70	0.023
0.055	4.772	18.3	0.0262	799	238.66	48.62	50.01	0.023
0.060	4.759	20.0	0.0260	810	241.95	49.29	50.84	0.023
0.065	4.747	21.7	0.0257	813	242.84	49.47	51.16	0.023
0.070	4.735	23.3	0.0240	825	246.43	50.20	52.05	0.021
0.075	4.722	25.0	0.0251	827	247.02	50.32	52.31	0.022
0.080	4.710	26.7	0.0245	825	246.43	50.20	52.32	0.022
0.085	4.697	28.3	0.0243	827	247.02	50.32	52.59	0.021
0.090	4.685	30.0	0.0237	820	244.93	49.90	52.28	0.021
0.100	4.660	33.3	0.0235	808	241.35	49.17	51.79	0.021
0.150	4.535	50.0	0.0222	759	226.71	46.19	49.99	0.019
0.200	4.411	66.7	0.0229	740	221.04	45.03	50.11	0.020
0.250	4.286	83.3	0.0232	707	211.18	43.02	49.27	0.020
0.300	4.162	100.0	0.0236	677	202.22	41.20	48.59	0.021

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress :	50.32	52.59	psi
% Relative Lateral Displacement at Max Shear :	28.3	28.3	%

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0199
0.25	0.50	0.0199
0.5	0.71	0.0199
1	1.00	0.02
2	1.41	0.02
4	2.00	0.0201
8	2.83	0.0202
16	4.00	0.0202
30	5.48	0.0202
60	7.75	
120	10.95	
240	15.49	

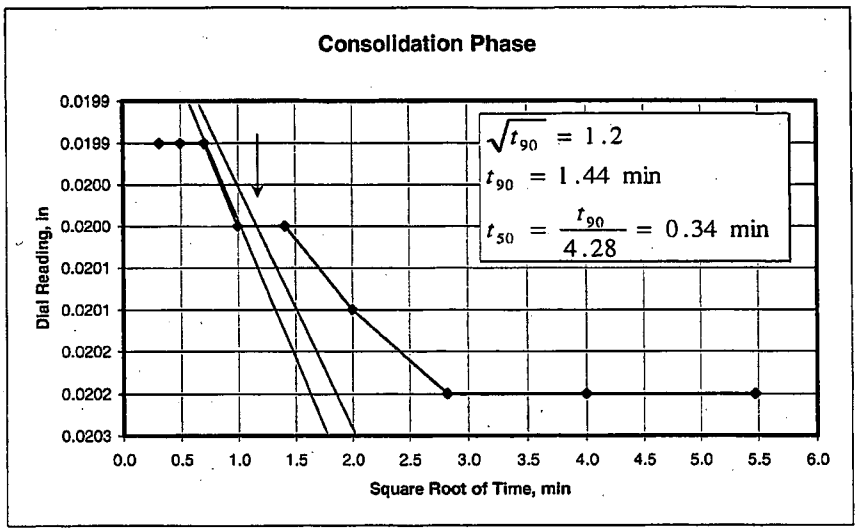
t(50) =	0.34	min
50*t(50) =	16.8	min
d(r) =	0.01	in/min

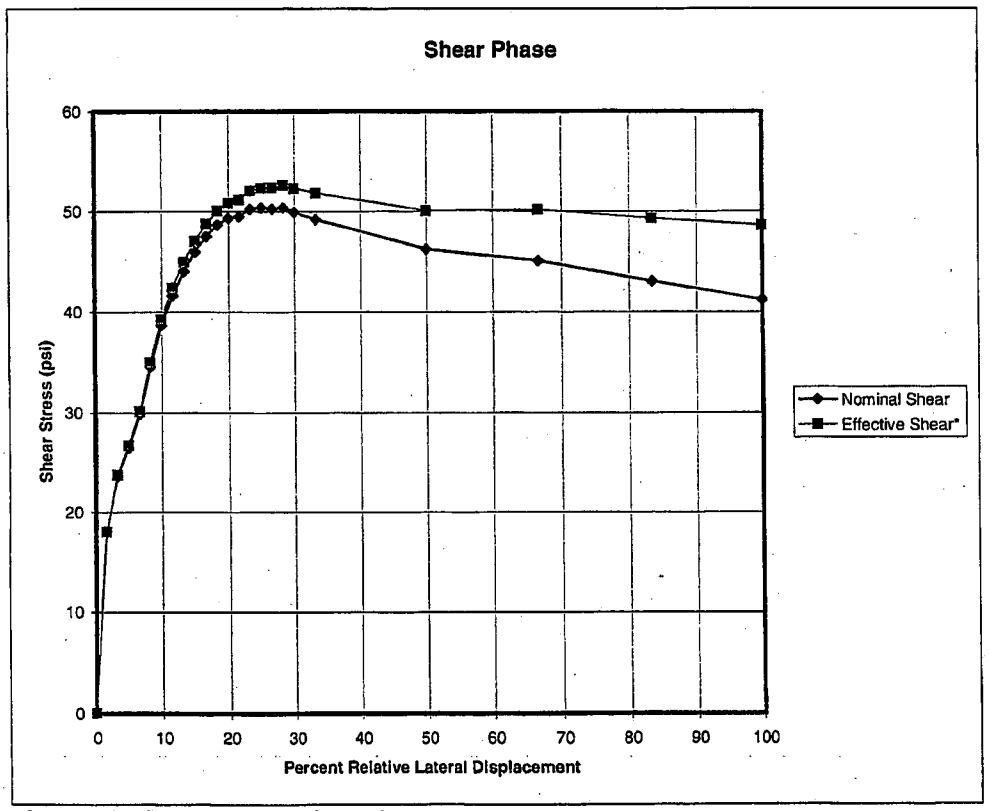
Sample Description	
Poorly Graded Sand	
USCS	SP
Gravel (%)	0.0
Sand (%)	95.6
Fines (%)	4.4
Silt (%)	1.6
Clay (%)	2.8
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-314 | Depth: 83-85 Ft
Sample Type/No.: UD-1 | Normal Stress: 80.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-405
Sample Type/No.: UD-7
Depth: 148-150 Ft.
Normal Stress: 25.0 psi

Initial MC: 24.0 %
Final MC: 28.0 %
Sample Mass 147.08 g
Measured Specific Gravity: 2.656
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0022 in
Sample Loading Rate: 0.01 in/min

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial Saturation: 92.4 %
Initial Dry Unit Weight: 98.1 pcf
Initial Wet Unit Weight: 121.6 pcf
Initial Void Ratio: 0.690
Final Saturation: 108.1 %
Final Dry Unit Weight: 98.2 pcf
Final Wet Unit Weight: 125.7 pcf
Final Void Ratio: 0.688
Total Displacement: 0.530 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0250	0	0.00	0.00	0.00	0.023
0.005	4.896	0.9	0.0243	60	17.92	3.65	3.66	0.022
0.010	4.884	1.9	0.0234	93	27.78	5.66	5.69	0.021
0.015	4.871	2.8	0.0227	115	34.35	7.00	7.05	0.021
0.020	4.859	3.8	0.0223	118	35.25	7.18	7.25	0.020
0.025	4.847	4.7	0.0220	121	36.14	7.36	7.46	0.020
0.030	4.834	5.7	0.0218	131	39.13	7.97	8.09	0.020
0.035	4.822	6.6	0.0215	146	43.61	8.88	9.04	0.019
0.040	4.809	7.5	0.0212	160	47.79	9.74	9.94	0.019
0.045	4.797	8.5	0.0211	170	50.78	10.34	10.59	0.019
0.050	4.784	9.4	0.0211	180	53.77	10.95	11.24	0.019
0.060	4.759	11.3	0.0211	196	58.55	11.93	12.30	0.019
0.070	4.735	13.2	0.0215	207	61.83	12.60	13.06	0.019
0.080	4.710	15.1	0.0219	213	63.62	12.96	13.51	0.020
0.090	4.685	17.0	0.0222	217	64.82	13.20	13.84	0.020
0.100	4.660	18.9	0.0227	219	65.42	13.33	14.04	0.021
0.150	4.535	28.3	0.0242	224	66.91	13.63	14.75	0.022
0.200	4.411	37.7	0.0236	237	70.79	14.42	16.05	0.021
0.250	4.286	47.2	0.0227	245	73.18	14.91	17.07	0.021
0.300	4.162	56.6	0.0225	249	74.38	15.15	17.87	0.020
0.350	4.038	66.0	0.0215	250	74.68	15.21	18.49	0.019
0.400	3.913	75.5	0.0195	251	74.97	15.27	19.16	0.017
0.450	3.789	84.9	0.0161	251	74.97	15.27	19.79	0.014
0.500	3.664	94.3	0.0065	216	64.52	13.14	17.61	0.004
0.530	3.590	100.0	0.0032	189	56.45	11.50	15.73	0.001

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 15.27 19.79 psi
% Relative Lateral Displacement at Max Shear : 75.5 84.9 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.024
0.25	0.50	0.0242
0.5	0.71	0.0244
1	1.00	0.0246
2	1.41	0.0247
4	2.00	0.0248
8	2.83	0.0249
16	4.00	0.025
30	5.48	0.025
60	7.75	
120	10.95	
240	15.49	

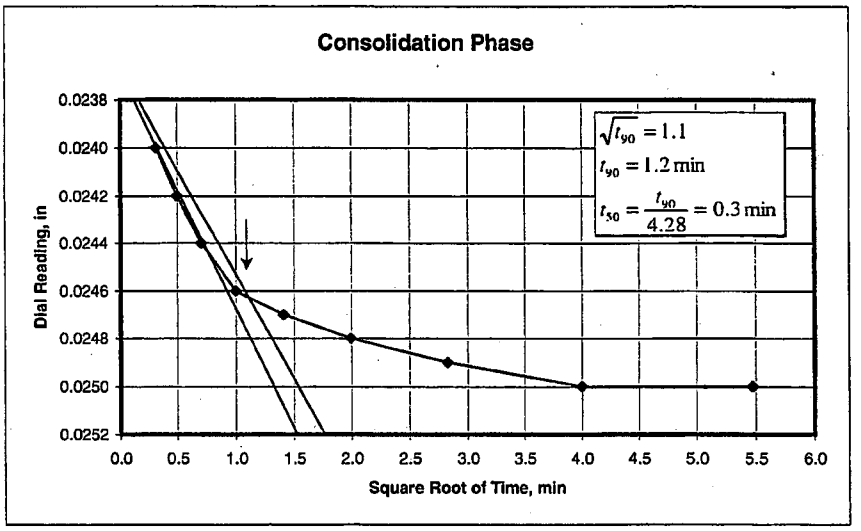
t(50) = 0.3 min
50*t(50) = 14.1 min
d(r) = 0.014 in/min

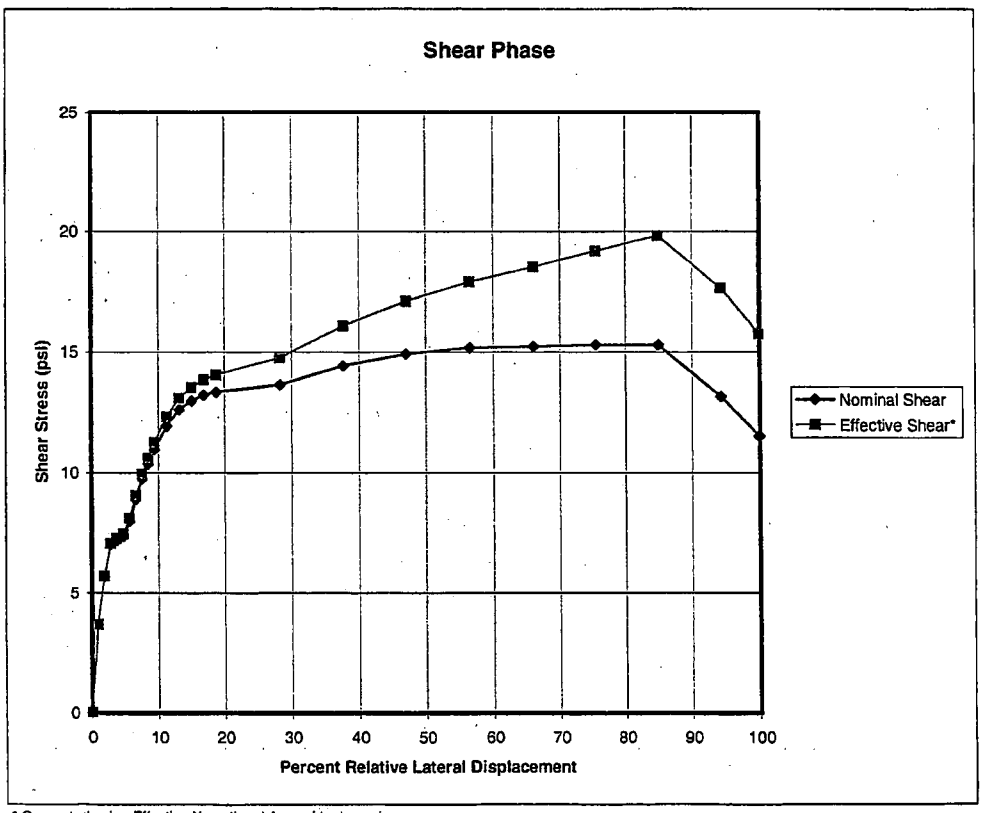
Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Sample Description	
Silty sand	
USCS	SM
Gravel (%)	0.0
Sand (%)	82.3
Fines (%)	17.7
Silt (%)	17.7
Clay (%)	0.0
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-405 Depth: 148-150 Ft.
Sample Type/No.: UD-7 Normal Stress: 25.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.:	B-405		Test By:	JA	
Sample Type/No.:	UD-7		Test Date:	2/15/2007	
Depth:	148-150 Ft.		Prepared By:	JRS.	
Normal Stress:	50.0	psi	Prepared Date:	4/4/2007	
			Reviewed By:	KAW	
Initial MC:	24.0	%	Review Date:	4/4/07	
Final MC:	27.9	%			
Sample Mass	145.83	g			
Measured Specific Gravity:	2.656		Initial Saturation:	90.5	%
Sample Diameter:	2.500	in	Initial Dry Unit Weight:	97.3	pcf
Sample Area:	4.909	in^2	Initial Wet Unit Weight:	120.6	pcf
Initial Sample Height:	0.938	in	Initial Void Ratio:	0.704	
Initial Sample Volume:	75.453	cc	Final Saturation:	139.8	%
			Final Dry Unit Weight:	108.3	pcf
Proving Ring Load Factor:	0.2987		Final Wet Unit Weight:	138.5	pcf
Stone Correction:	0.0032	in	Final Void Ratio:	0.530	
Sample Loading Rate:	0.01	in/min	Total Displacement:	0.320	in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0878	0	0.00	0.00	0.00	0.085
0.005	4.896	1.6	0.0879	111	33.16	6.75	6.77	0.085
0.010	4.884	3.1	0.0887	167	49.88	10.16	10.21	0.086
0.015	4.871	4.7	0.0898	205	61.23	12.47	12.57	0.087
0.020	4.859	6.3	0.0901	236	70.49	14.36	14.51	0.087
0.025	4.847	7.8	0.0904	267	79.75	16.25	16.46	0.087
0.030	4.834	9.4	0.0908	288	86.03	17.52	17.80	0.088
0.035	4.822	10.9	0.0910	307	91.70	18.68	19.02	0.088
0.040	4.809	12.5	0.0911	323	96.48	19.65	20.06	0.088
0.045	4.797	14.1	0.0912	338	100.96	20.57	21.05	0.088
0.050	4.784	15.6	0.0912	351	104.84	21.36	21.91	0.088
0.060	4.759	18.8	0.0913	372	111.12	22.64	23.35	0.088
0.070	4.735	21.9	0.0913	388	115.90	23.61	24.48	0.088
0.080	4.710	25.0	0.0912	397	118.58	24.16	25.18	0.088
0.090	4.685	28.1	0.0911	407	121.57	24.77	25.95	0.088
0.100	4.660	31.3	0.0909	415	123.96	25.25	26.60	0.088
0.130	4.585	40.6	0.0909	425	126.95	25.86	27.69	0.088
0.150	4.535	46.9	0.0909	428	127.84	26.04	28.19	0.088
0.170	4.486	53.1	0.0912	426	127.25	25.92	28.37	0.088
0.200	4.411	62.5	0.0920	432	129.04	26.29	29.25	0.089
0.225	4.349	70.3	0.0941	439	131.13	26.71	30.15	0.091
0.250	4.286	78.1	0.0951	432	129.04	26.29	30.10	0.092
0.300	4.162	93.8	0.0976	435	129.93	26.47	31.22	0.094
0.320	4.112	100.0	0.0989	434	129.64	26.41	31.52	0.096

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 26.71 31.52 psi
% Relative Lateral Displacement at Max Shear : 70.3 100 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.085
0.25	0.50	0.086
0.5	0.71	0.0869
1	1.00	0.0875
2	1.41	0.0877
4	2.00	0.0878
8	2.83	0.0878
16	4.00	0.0878
30	5.48	0.0878
60	7.75	
120	10.95	
240	15.49	

t(50) = 0.2 min
50*t(50) = 9.5 min
d(r) = 0.02 in/min

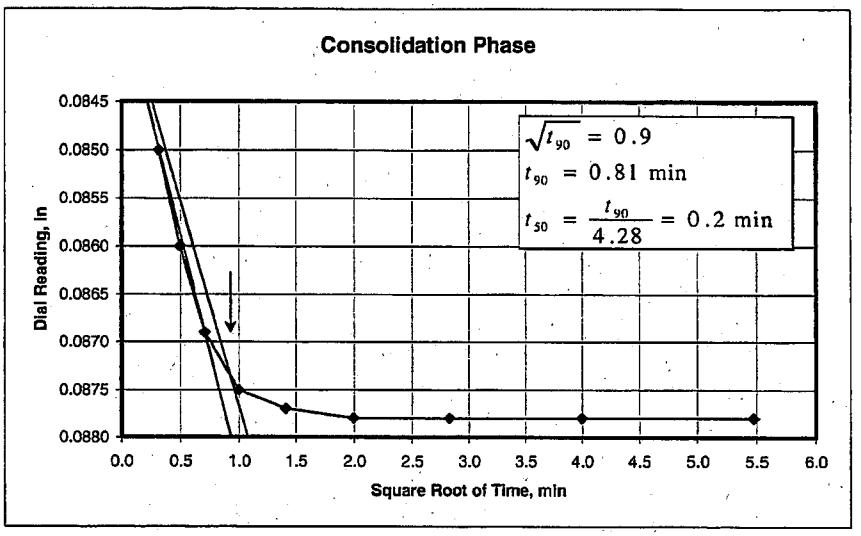
Sample Description	
Silty sand	
USCS	SM
Gravel (%)	0.0
Sand (%)	82.3
Fines (%)	17.7
Silt (%)	17.7
Clay (%)	0.0
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

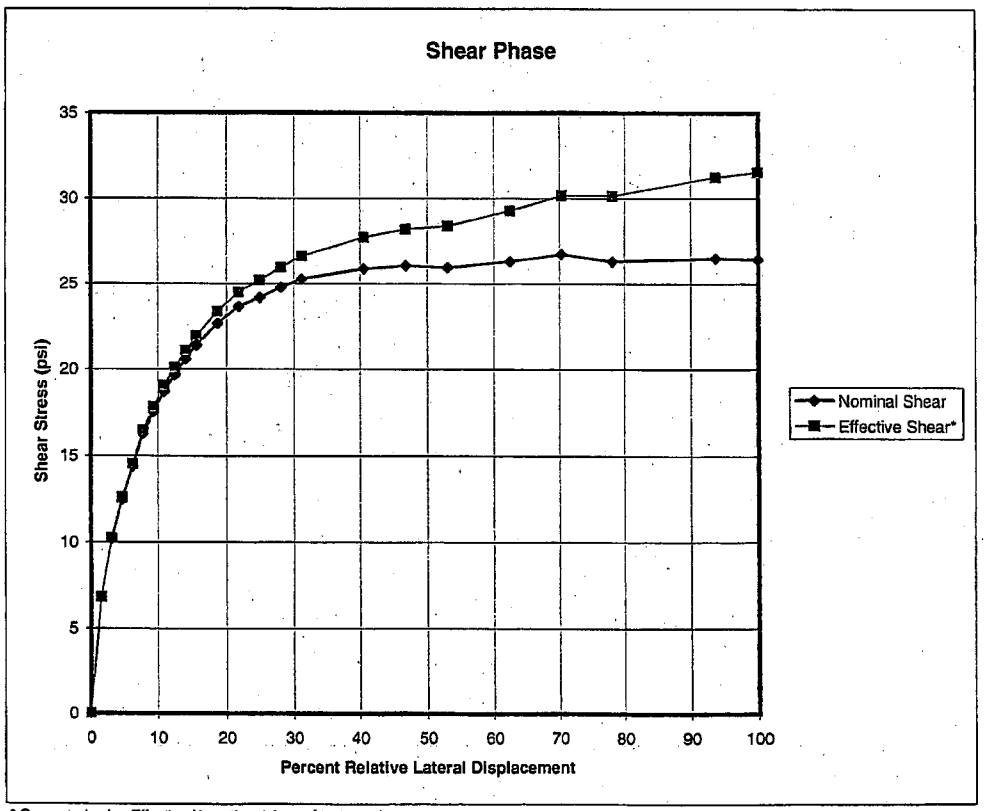
Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-405
Sample Type/No.: UD-7

Depth: 148-150 Ft.
Normal Stress: 100.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-405
Sample Type/No.: UD-7
Depth: 148-150 Ft.
Normal Stress: 100.0 psi

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS.
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial MC: 24.0 %
Final MC: 27.9 %
Sample Mass 145.83 g
Measured Specific Gravity: 2.656
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0032 in
Sample Loading Rate: 0.01 in/min

Initial Saturation: 90.5 %
Initial Dry Unit Weight: 97.3 pcf
Initial Wet Unit Weight: 120.6 pcf
Initial Void Ratio: 0.704
Final Saturation: 132.8 %
Final Dry Unit Weight: 106.4 pcf
Final Wet Unit Weight: 136.0 pcf
Final Void Ratio: 0.558
Total Displacement: 0.300 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0746	0	0.00	0.00	0.00	0.071
0.005	4.896	1.7	0.0757	280	83.64	17.04	17.08	0.073
0.010	4.884	3.3	0.0766	397	118.58	24.16	24.28	0.073
0.015	4.871	5.0	0.0772	472	140.99	28.72	28.94	0.074
0.020	4.859	6.7	0.0779	536	160.10	32.62	32.95	0.075
0.030	4.834	10.0	0.0788	623	186.09	37.91	38.50	0.076
0.040	4.809	13.3	0.0794	687	205.21	41.80	42.67	0.076
0.050	4.784	16.7	0.0800	743	221.93	45.21	46.39	0.077
0.060	4.759	20.0	0.0803	792	236.57	48.19	49.71	0.077
0.070	4.735	23.3	0.0804	826	246.73	50.26	52.11	0.077
0.080	4.710	26.7	0.0809	848	253.30	51.60	53.78	0.078
0.090	4.685	30.0	0.0809	862	257.48	52.45	54.96	0.078
0.100	4.660	33.3	0.0809	878	262.26	53.43	56.28	0.078
0.110	4.635	36.7	0.0809	893	266.74	54.34	57.55	0.078
0.120	4.610	40.0	0.0809	900	268.83	54.77	58.31	0.078
0.130	4.585	43.3	0.0810	918	274.21	55.86	59.80	0.078
0.140	4.560	46.7	0.0810	932	278.39	56.71	61.05	0.078
0.150	4.535	50.0	0.0810	937	279.88	57.02	61.71	0.078
0.160	4.510	53.3	0.0810	941	281.08	57.26	62.32	0.078
0.170	4.486	56.7	0.0811	946	282.57	57.56	62.99	0.078
0.180	4.461	60.0	0.0813	944	281.97	57.44	63.21	0.078
0.190	4.436	63.3	0.0815	942	281.38	57.32	63.43	0.078
0.200	4.411	66.7	0.0815	941	281.08	57.26	63.72	0.078
0.210	4.386	70.0	0.0818	936	279.58	56.96	63.74	0.079
0.250	4.286	83.3	0.0828	955	285.26	58.11	66.55	0.080
0.300	4.162	100.0	0.0835	965	288.25	58.72	69.26	0.080

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 58.72 69.26 psi
% Relative Lateral Displacement at Max Shear : 100 100 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0722
0.25	0.50	0.073
0.5	0.71	0.0738
1	1.00	0.0743
2	1.41	0.0745
4	2.00	0.0746
8	2.83	0.0746
16	4.00	0.0746
30	5.48	0.0746
60	7.75	
120	10.95	
240	15.49	

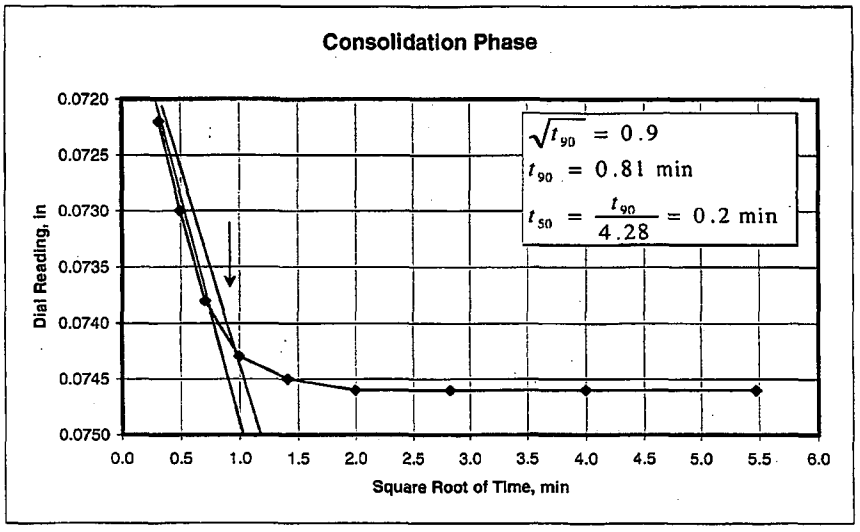
t(50) = 0.2 min
50*t(50) = 9.5 min
d(r) = 0.02 in/min

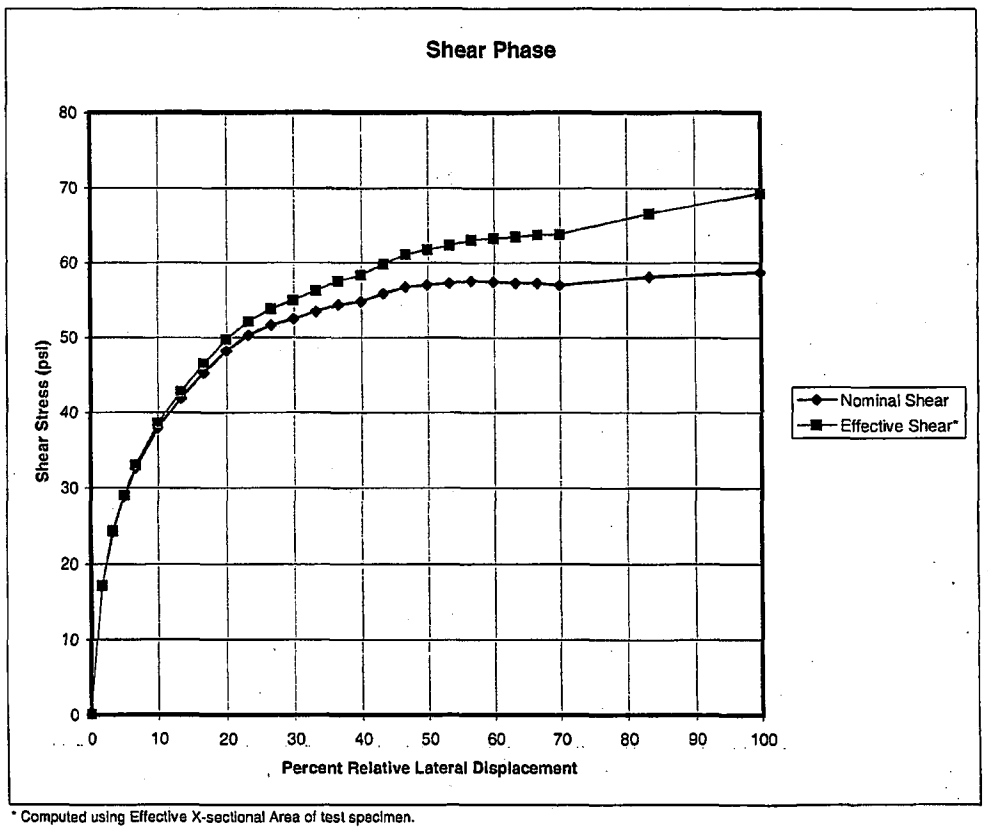
Sample Description	
Silty sand	
USCS	SM
Gravel (%)	0.0
Sand (%)	82.3
Fines (%)	17.7
Silt (%)	17.7
Clay (%)	0.0
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-405 | Depth: 148-150 Ft.
Sample Type/No.: UD-7 | Normal Stress: 100.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-409
Sample Type/No.: UD-1
Depth: 68-70 Ft
Normal Stress: 15.0 psi

Initial MC: 18.9 %
Final MC: 27.0 %
Sample Mass 148.02 g
Measured Specific Gravity: 2.651
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0016 in
Sample Loading Rate: 0.02 in/min

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial Saturation: 82.6 %
Initial Dry Unit Weight: 103.0 pcf
Initial Wet Unit Weight: 122.4 pcf
Initial Void Ratio: 0.607
Final Saturation: 122.6 %
Final Dry Unit Weight: 104.4 pcf
Final Wet Unit Weight: 132.6 pcf
Final Void Ratio: 0.584
Total Displacement: 0.250 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0184	0	0.00	0.00	0.00	0.017
0.005	4.896	2.0	0.0216	55	16.43	3.35	3.36	0.020
0.010	4.884	4.0	0.0224	78	23.30	4.75	4.77	0.021
0.015	4.871	6.0	0.0227	94	28.08	5.72	5.76	0.021
0.020	4.859	8.0	0.0232	106	31.66	6.45	6.52	0.022
0.025	4.847	10.0	0.0233	117	34.95	7.12	7.21	0.022
0.030	4.834	12.0	0.0233	126	37.64	7.67	7.79	0.022
0.035	4.822	14.0	0.0233	130	38.83	7.91	8.05	0.022
0.040	4.809	16.0	0.0232	136	40.62	8.28	8.45	0.022
0.045	4.797	18.0	0.0230	139	41.52	8.46	8.66	0.021
0.050	4.784	20.0	0.0228	141	42.12	8.58	8.80	0.021
0.060	4.759	24.0	0.0220	148	44.21	9.01	9.29	0.020
0.070	4.735	28.0	0.0211	151	45.10	9.19	9.53	0.020
0.080	4.710	32.0	0.0201	153	45.70	9.31	9.70	0.019
0.090	4.685	36.0	0.0190	153	45.70	9.31	9.76	0.017
0.100	4.660	40.0	0.0180	153	45.70	9.31	9.81	0.016
0.150	4.535	60.0	0.0154	145	43.31	8.82	9.55	0.014
0.200	4.411	80.0	0.0154	144	43.01	8.76	9.75	0.014
0.250	4.286	100.0	0.0150	138	41.22	8.40	9.62	0.013

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 9.31 9.81 psi
% Relative Lateral Displacement at Max Shear : 32 40 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.018
0.25	0.50	0.0184
0.5	0.71	0.0184
1	1.00	0.0184
2	1.41	0.0184
4	2.00	0.0184
8	2.83	0.0184
16	4.00	
30	5.48	
60	7.75	
120	10.95	
240	15.49	

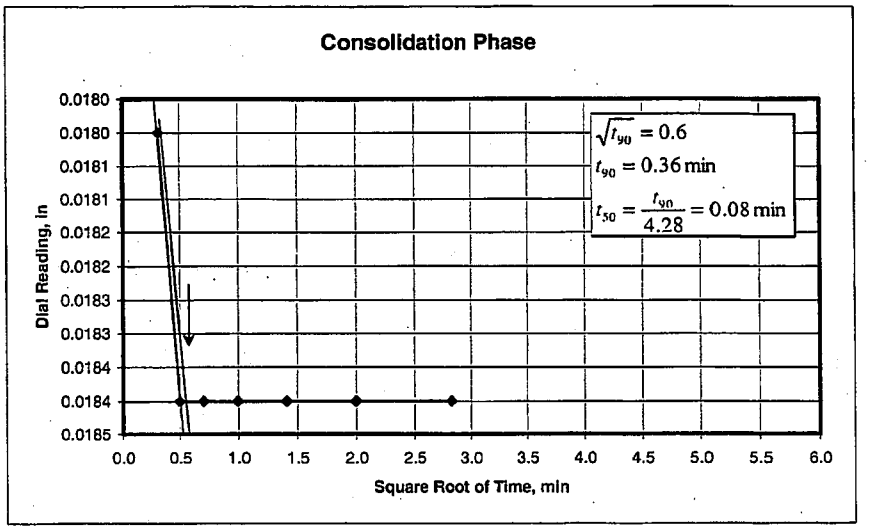
t(50) = 0.08 min
50*t(50) = 4.2 min
d(r) = 0.05 in/min

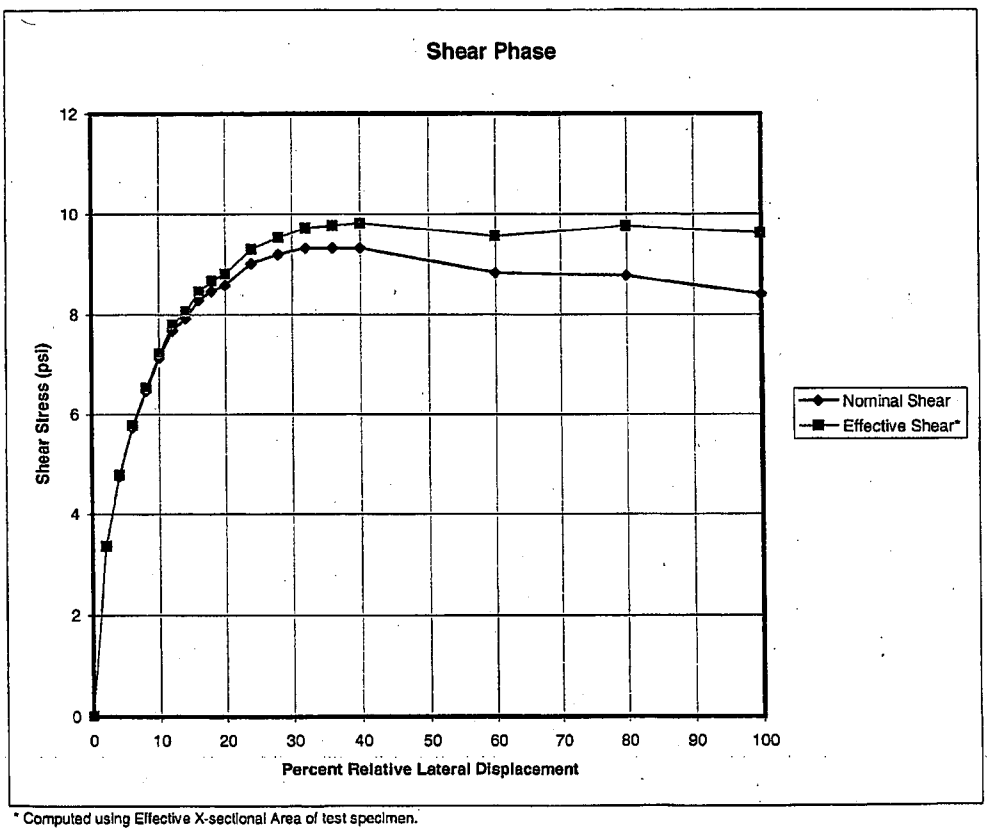
Sample Description	
Silty sand	
USCS	SM
Gravel (%)	0.0
Sand (%)	85.4
Fines (%)	14.6
Silt (%)	2.6
Clay (%)	12.0
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-409 Depth: 68-70 Ft
Sample Type/No.: UD-1 Normal Stress: 15.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.:	B-409		Test By:	JA	
Sample Type/No.:	UD-1		Test Date:	2/15/2007	
Depth:	68-70 Ft		Prepared By:	JRS	
Normal Stress:	35.0	psi	Prepared Date:	4/4/2007	
			Reviewed By:	KAW	
Initial MC:	18.9	%	Review Date:	4/4/07	
Final MC:	25.0	%			
Sample Mass	144.45	g			
Measured Specific Gravity:	2.651		Initial Saturation:	77.5	%
Sample Diameter:	2.500	in	Initial Dry Unit Weight:	100.5	pcf
Sample Area:	4.909	in^2	Initial Wet Unit Weight:	119.5	pcf
Initial Sample Height:	0.938	in	Initial Void Ratio:	0.646	
Initial Sample Volume:	75.453	cc	Final Saturation:	117.7	%
			Final Dry Unit Weight:	105.8	pcf
Proving Ring Load Factor:	0.2987		Final Wet Unit Weight:	132.3	pcf
Stone Correction:	0.0024	in	Final Void Ratio:	0.563	
Sample Loading Rate:	0.02	in/min	Total Displacement:	0.500	in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0530	0	0.00	0.00	0.00	0.051
0.005	4.896	1.0	0.0535	113	33.75	6.88	6.89	0.051
0.010	4.884	2.0	0.0538	155	46.30	9.43	9.48	0.051
0.015	4.871	3.0	0.0540	192	57.35	11.68	11.77	0.052
0.020	4.859	4.0	0.0542	218	65.12	13.27	13.40	0.052
0.025	4.847	5.0	0.0542	236	70.49	14.36	14.55	0.052
0.030	4.834	6.0	0.0540	253	75.57	15.40	15.63	0.052
0.035	4.822	7.0	0.0537	269	80.35	16.37	16.66	0.051
0.040	4.809	8.0	0.0534	283	84.53	17.22	17.58	0.051
0.045	4.797	9.0	0.0531	290	86.62	17.65	18.06	0.051
0.050	4.784	10.0	0.0529	296	88.42	18.01	18.48	0.051
0.060	4.759	12.0	0.0520	305	91.10	18.56	19.14	0.050
0.070	4.735	14.0	0.0512	310	92.60	18.86	19.56	0.049
0.080	4.710	16.0	0.0505	313	93.49	19.05	19.85	0.048
0.090	4.685	18.0	0.0502	314	93.79	19.11	20.02	0.048
0.100	4.660	20.0	0.0497	316	94.39	19.23	20.26	0.047
0.150	4.535	30.0	0.0490	310	92.60	18.86	20.42	0.047
0.200	4.411	40.0	0.0490	309	92.30	18.80	20.92	0.047
0.250	4.286	50.0	0.0491	308	92.00	18.74	21.46	0.047
0.300	4.162	60.0	0.0491	309	92.30	18.80	22.18	0.047
0.350	4.038	70.0	0.0494	307	91.70	18.68	22.71	0.047
0.400	3.913	80.0	0.0495	305	91.10	18.56	23.28	0.047
0.450	3.789	90.0	0.0497	302	90.21	18.38	23.81	0.047
0.500	3.664	100.0	0.0499	301	89.91	18.32	24.54	0.048

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 19.23 24.54 psi
% Relative Lateral Displacement at Max Shear : 20 100 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.227
0.25	0.50	0.528
0.5	0.71	0.529
1	1.00	0.53
2	1.41	0.53
4	2.00	0.53
8	2.83	0.53
16	4.00	0.53
30	5.48	
60	7.75	
120	10.95	
240	15.49	

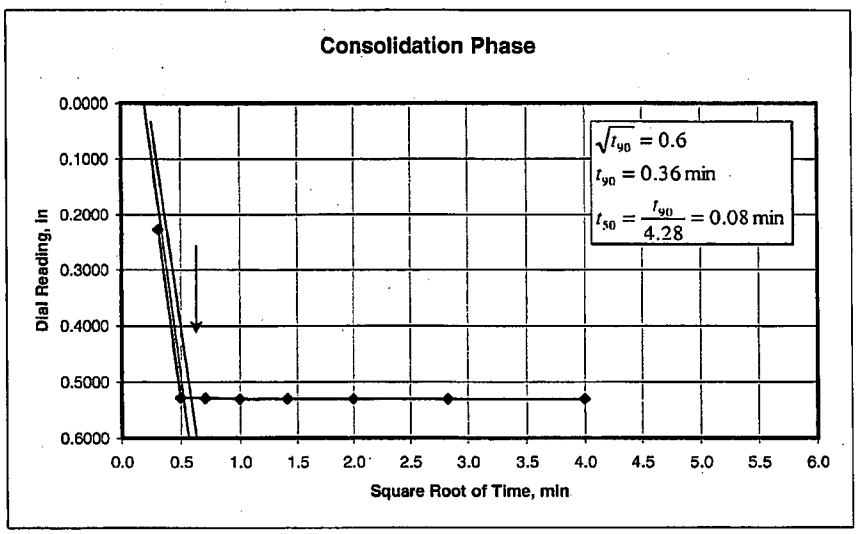
t(50) = 0.08 min
50*t(50) = 4.2 min
d(r) = 0.05 in/min

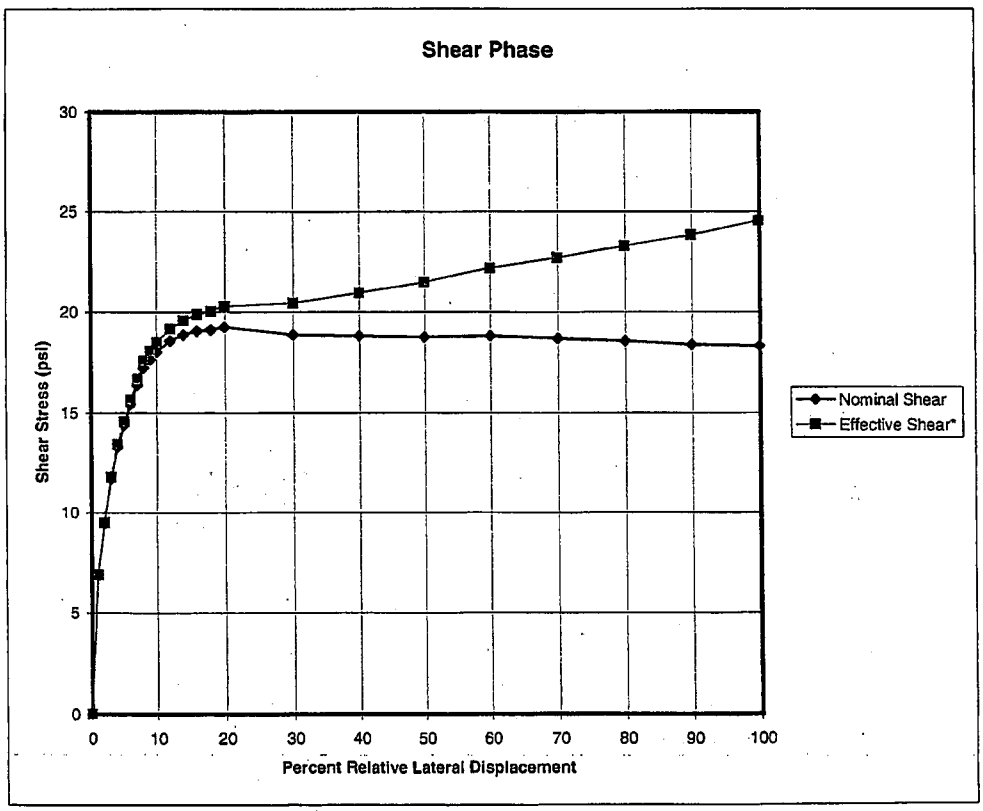
Sample Description	
Silty sand	
USCS	SM
Gravel (%)	0.0
Sand (%)	85.4
Fines (%)	14.6
Silt (%)	2.6
Clay (%)	12.0
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-409 Depth: 68-70 Ft
Sample Type/No.: UD-1 Normal Stress: 35.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.:	B-409		Test By:	JA
Sample Type/No.:	UD-1		Test Date:	2/15/2007
Depth:	68-70 Ft		Prepared By:	JBS
Normal Stress:	70.0	psi	Prepared Date:	4/4/2007
			Reviewed By:	KAW
Initial MC:	18.9	%	Review Date:	4/4/07
Final MC:	23.9	%		
Sample Mass	139.34	g		
Measured Specific Gravity:	2.651		Initial Saturation:	70.9 %
Sample Diameter:	2.500	in	Initial Dry Unit Weight:	96.9 pcf
Sample Area:	4.909	in^2	Initial Wet Unit Weight:	115.2 pcf
Initial Sample Height:	0.938	in	Initial Void Ratio:	0.707
Initial Sample Volume:	75.453	cc	Final Saturation:	101.8 %
			Final Dry Unit Weight:	102.0 pcf
Proving Ring Load Factor:	0.2987		Final Wet Unit Weight:	126.3 pcf
Stone Correction:	0.0029	in	Final Void Ratio:	0.622
Sample Loading Rate:	0.02	in/min	Total Displacement:	0.210 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0443	0	0.00	0.00	0.00	0.041
0.005	4.896	2.4	0.0456	150	44.81	9.13	9.15	0.043
0.010	4.884	4.8	0.0466	250	74.68	15.21	15.29	0.044
0.015	4.871	7.1	0.0474	320	95.58	19.47	19.62	0.045
0.020	4.859	9.5	0.0482	391	116.79	23.79	24.04	0.045
0.025	4.847	11.9	0.0484	440	131.43	26.77	27.12	0.046
0.030	4.834	14.3	0.0487	474	141.58	28.84	29.29	0.046
0.035	4.822	16.7	0.0490	508	151.74	30.91	31.47	0.046
0.040	4.809	19.0	0.0492	534	159.51	32.49	33.17	0.046
0.045	4.797	21.4	0.0493	560	167.27	34.08	34.87	0.046
0.050	4.784	23.8	0.0493	585	174.74	35.60	36.52	0.046
0.060	4.759	28.6	0.0493	617	184.30	37.54	38.72	0.046
0.070	4.735	33.3	0.0493	642	191.77	39.07	40.50	0.046
0.080	4.710	38.1	0.0491	658	196.54	40.04	41.73	0.046
0.090	4.685	42.9	0.0489	671	200.43	40.83	42.78	0.046
0.100	4.660	47.6	0.0483	673	201.03	40.95	43.14	0.045
0.110	4.635	52.4	0.0481	668	199.53	40.65	43.05	0.045
0.120	4.610	57.1	0.0479	660	197.14	40.16	42.76	0.045
0.130	4.585	61.9	0.0478	648	193.56	39.43	42.21	0.045
0.140	4.560	66.7	0.0479	639	190.87	38.88	41.85	0.045
0.150	4.535	71.4	0.0481	635	189.67	38.64	41.82	0.045
0.160	4.510	76.2	0.0483	634	189.38	38.58	41.99	0.045
0.170	4.486	81.0	0.0486	642	191.77	39.07	42.75	0.046
0.180	4.461	85.7	0.0490	646	192.96	39.31	43.26	0.046
0.190	4.436	90.5	0.0492	652	194.75	39.67	43.90	0.046
0.200	4.411	95.2	0.0493	655	195.65	39.86	44.36	0.046
0.210	4.386	100.0	0.0494	654	195.35	39.80	44.54	0.047
0.250	4.286	119.0	0.0500	655	195.65	39.86	45.64	0.047
0.300	4.162	142.9	0.0509	645	192.66	39.25	46.29	0.048
0.350	4.038	166.7	0.0519	641	191.47	39.01	47.42	0.049
0.400	3.913	190.5	0.0529	640	191.17	38.94	48.85	0.050
0.450	3.789	214.3	0.0543	638	190.57	38.82	50.30	0.051
0.550	3.540	261.9	0.0699	615	183.70	37.42	51.90	0.067

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 40.95 51.90 psi
% Relative Lateral Displacement at Max Shear : 47.6 100 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0432
0.25	0.50	0.0438
0.5	0.71	0.0442
1	1.00	0.0443
2	1.41	0.0443
4	2.00	0.0443
8	2.83	0.0443
16	4.00	0.0443
30	5.48	
60	7.75	
120	10.95	
240	15.49	

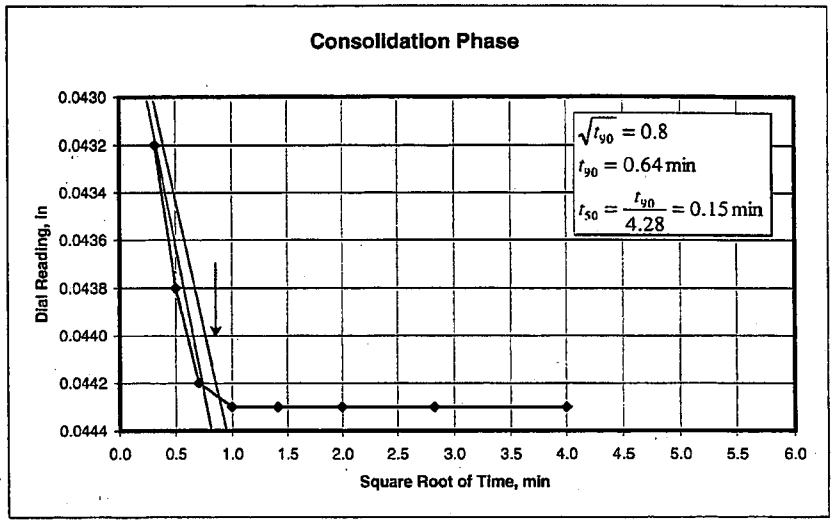
t(50) = 0.15 min
50*t(50) = 7.5 min
d(r) = 0.03 in/min

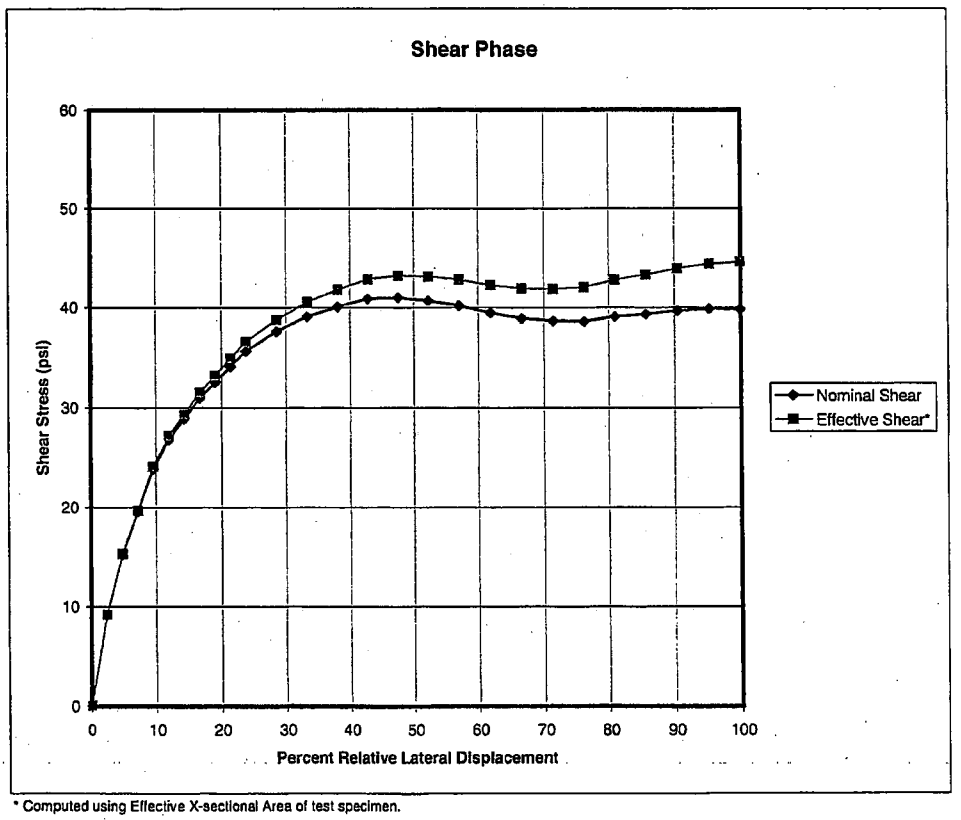
Sample Description	
Silty sand	
USCS	SM
Gravel (%)	0.0
Sand (%)	85.4
Fines (%)	14.6
Silt (%)	2.6
Clay (%)	12.0
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-409 Depth: 68-70 Ft
Sample Type/No.: UD-1 Normal Stress: 70.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-421
Sample Type/No.: UD-1A
Depth: 33.5 - 35.5
Normal Stress: 10.0 psi

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS.
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial MC: 23.0 %
Final MC: 29.4 %
Sample Mass 144.52 g
Measured Specific Gravity: 2.668
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0012 in
Sample Loading Rate: 0.03 in/min

Initial Saturation: 86.0 %
Initial Dry Unit Weight: 97.2 pcf
Initial Wet Unit Weight: 119.5 pcf
Initial Void Ratio: 0.713
Final Saturation: 127.7 %
Final Dry Unit Weight: 103.1 pcf
Final Wet Unit Weight: 133.5 pcf
Final Void Ratio: 0.614
Total Displacement: 0.500 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0216	0	0.00	0.00	0.00	0.020
0.005	4.896	1.0	0.0242	36	10.75	2.19	2.20	0.023
0.010	4.884	2.0	0.0252	47	14.04	2.86	2.87	0.024
0.015	4.871	3.0	0.0257	58	17.32	3.53	3.56	0.025
0.020	4.859	4.0	0.0261	68	20.31	4.14	4.18	0.025
0.025	4.847	5.0	0.0263	75	22.40	4.56	4.62	0.025
0.030	4.834	6.0	0.0263	82	24.49	4.99	5.07	0.025
0.035	4.822	7.0	0.0264	89	26.58	5.42	5.51	0.025
0.040	4.809	8.0	0.0262	92	27.48	5.60	5.71	0.025
0.045	4.797	9.0	0.0255	97	28.97	5.90	6.04	0.024
0.050	4.784	10.0	0.0256	98	29.27	5.96	6.12	0.024
0.060	4.759	12.0	0.0249	101	30.17	6.15	6.34	0.024
0.070	4.735	14.0	0.0239	105	31.36	6.39	6.62	0.023
0.080	4.710	16.0	0.0228	106	31.66	6.45	6.72	0.022
0.090	4.685	18.0	0.0218	106	31.66	6.45	6.76	0.021
0.100	4.660	20.0	0.0208	106	31.66	6.45	6.79	0.020
0.110	4.635	22.0	0.0200	106	31.66	6.45	6.83	0.019
0.120	4.610	24.0	0.0199	106	31.66	6.45	6.87	0.019
0.130	4.585	26.0	0.0198	106	31.66	6.45	6.91	0.019
0.140	4.560	28.0	0.0198	106	31.66	6.45	6.94	0.019
0.150	4.535	30.0	0.0198	106	31.66	6.45	6.98	0.019
0.160	4.510	32.0	0.0200	106	31.66	6.45	7.02	0.019
0.170	4.486	34.0	0.0202	105	31.36	6.39	6.99	0.019
0.180	4.461	36.0	0.0207	104	31.06	6.33	6.96	0.020
0.190	4.436	38.0	0.0209	98	29.27	5.96	6.60	0.020
0.200	4.411	40.0	0.0213	98	29.27	5.96	6.64	0.020
0.250	4.286	50.0	0.0224	99	29.57	6.02	6.90	0.021
0.300	4.162	60.0	0.0247	100	29.87	6.09	7.18	0.024
0.350	4.038	70.0	0.0255	100	29.87	6.09	7.40	0.024
0.400	3.913	80.0	0.0295	100	29.87	6.09	7.63	0.028
0.450	3.789	90.0	0.0386	100	29.87	6.09	7.88	0.037
0.500	3.664	100.0	0.0555	100	29.87	6.09	8.15	0.054

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 6.45 8.15 psi
% Relative Lateral Displacement at Max Shear : 16 100 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0213
0.25	0.50	0.0215
0.5	0.71	0.0215
1	1.00	0.0215
2	1.41	0.0216
4	2.00	0.0216
8	2.83	0.0216
16	4.00	0.0216
30	5.48	
60	7.75	
120	10.95	
240	15.49	

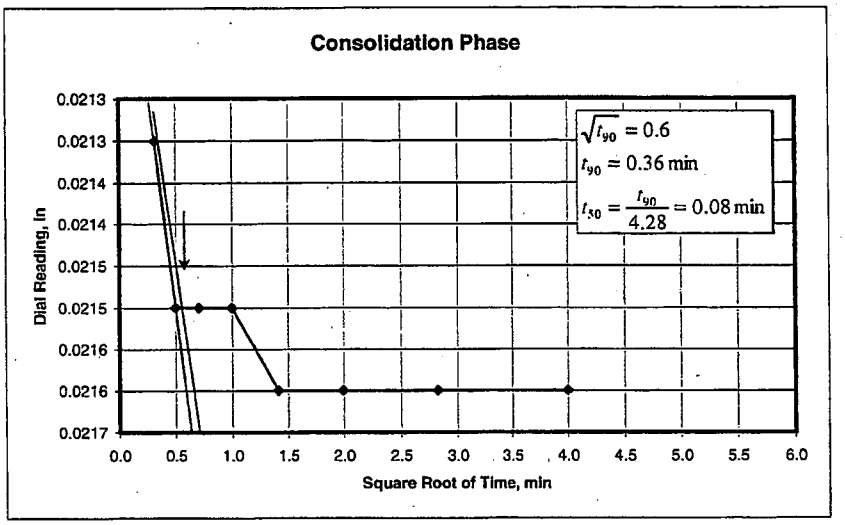
t(50) = 0.08 min
50*t(50) = 4.21 min
d(r) = 0.05 in/min

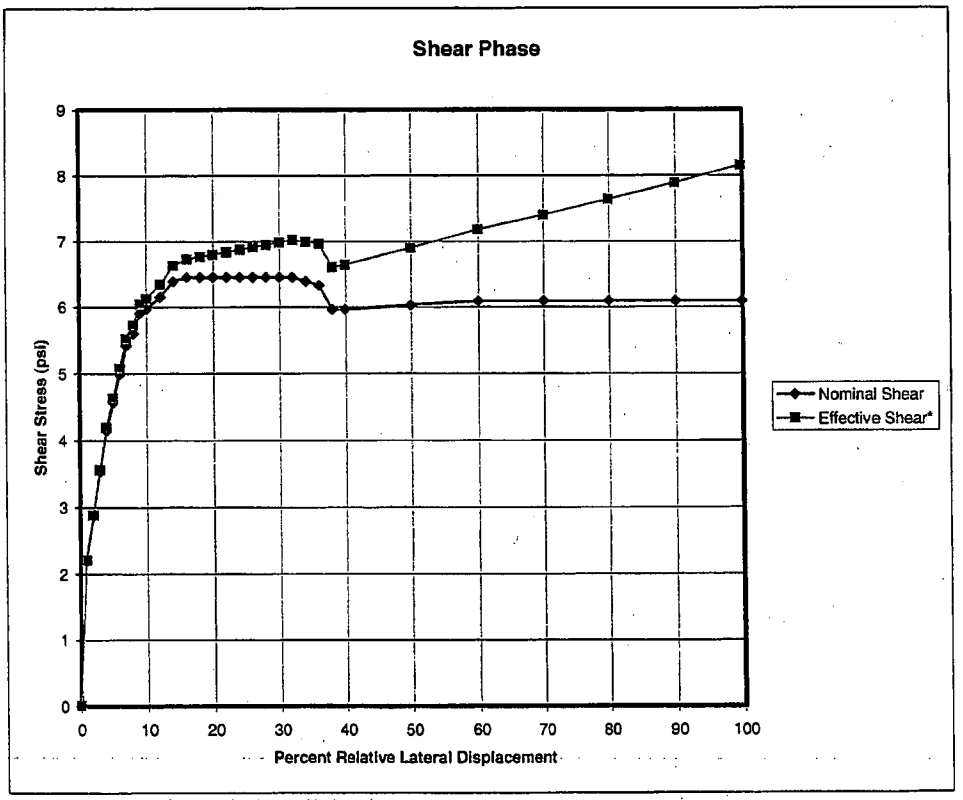
Sample Description	
Poorly Graded Sand with Silt	
USCS	SP-SM
Gravel (%)	0.0
Sand (%)	94.5
Fines (%)	5.5
Silt (%)	5.5
Clay (%)	0.0
LL	n/a
PI	n/a
Undisturbed	■
Remolded	
Inundated?	Yes

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-421 Depth: 33.5 - 35.5
Sample Type/No.: UD-1A Normal Stress: 10.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-421
Sample Type/No.: UD-1A
Depth: 33.5 - 35.5
Normal Stress: 20.0 psi

Initial MC: 23.0 %
Final MC: 31.3 %
Sample Mass 140.84 g
Measured Specific Gravity: 2.668
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0019 in
Sample Loading Rate: 0.03 in/min

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial Saturation: 80.9 %
Initial Dry Unit Weight: 94.7 pcf
Initial Wet Unit Weight: 116.5 pcf
Initial Void Ratio: 0.758
Final Saturation: 119.7 %
Final Dry Unit Weight: 98.1 pcf
Final Wet Unit Weight: 128.8 pcf
Final Void Ratio: 0.698
Total Displacement: 0.500 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0270	0	0.00	0.00	0.00	0.025
0.005	4.896	1.0	0.0295	57	17.03	3.47	3.48	0.028
0.010	4.884	2.0	0.0309	80	23.90	4.87	4.89	0.029
0.015	4.871	3.0	0.0380	98	29.27	5.96	6.01	0.036
0.020	4.859	4.0	0.0322	111	33.16	6.75	6.82	0.030
0.025	4.847	5.0	0.0327	124	37.04	7.55	7.64	0.031
0.030	4.834	6.0	0.0330	136	40.62	8.28	8.40	0.031
0.035	4.822	7.0	0.0331	146	43.61	8.88	9.04	0.031
0.040	4.809	8.0	0.0333	155	46.30	9.43	9.63	0.031
0.045	4.797	9.0	0.0333	162	48.39	9.86	10.09	0.031
0.050	4.784	10.0	0.0333	169	50.48	10.28	10.55	0.031
0.055	4.772	11.0	0.0330	175	52.27	10.65	10.95	0.031
0.060	4.759	12.0	0.0326	182	54.36	11.07	11.42	0.031
0.070	4.735	14.0	0.0320	187	55.86	11.38	11.80	0.030
0.080	4.710	16.0	0.0311	191	57.05	11.62	12.11	0.029
0.090	4.685	18.0	0.0303	195	58.25	11.87	12.43	0.028
0.100	4.660	20.0	0.0294	198	59.14	12.05	12.69	0.028
0.110	4.635	22.0	0.0288	199	59.44	12.11	12.82	0.027
0.140	4.560	28.0	0.0272	202	60.34	12.29	13.23	0.025
0.150	4.535	30.0	0.0264	200	59.74	12.17	13.17	0.025
0.170	4.486	34.0	0.0257	199	59.44	12.11	13.25	0.024
0.200	4.411	40.0	0.0261	199	59.44	12.11	13.48	0.024
0.250	4.286	50.0	0.0270	199	59.44	12.11	13.87	0.025
0.300	4.162	60.0	0.0278	199	59.44	12.11	14.28	0.026
0.350	4.038	70.0	0.0286	199	59.44	12.11	14.72	0.027
0.400	3.913	80.0	0.0290	199	59.44	12.11	15.19	0.027
0.450	3.789	90.0	0.0299	197	58.84	11.99	15.53	0.028
0.500	3.664	100.0	0.0342	183	54.66	11.14	14.92	0.032

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 12.29 15.53 psi
% Relative Lateral Displacement at Max Shear : 28 90 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0259
0.25	0.50	0.0266
0.5	0.71	0.0269
1	1.00	0.027
2	1.41	0.027
4	2.00	0.027
8	2.83	0.027
16	4.00	0.027
30	5.48	
60	7.75	
120	10.95	
240	15.49	

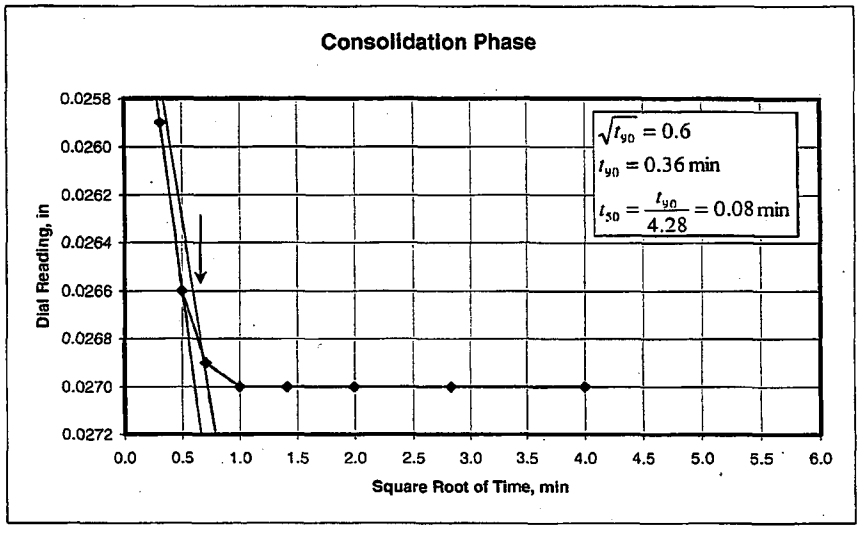
t(50) = 0.08 min
50*t(50) = 4.21 min
d(r) = 0.05 in/min

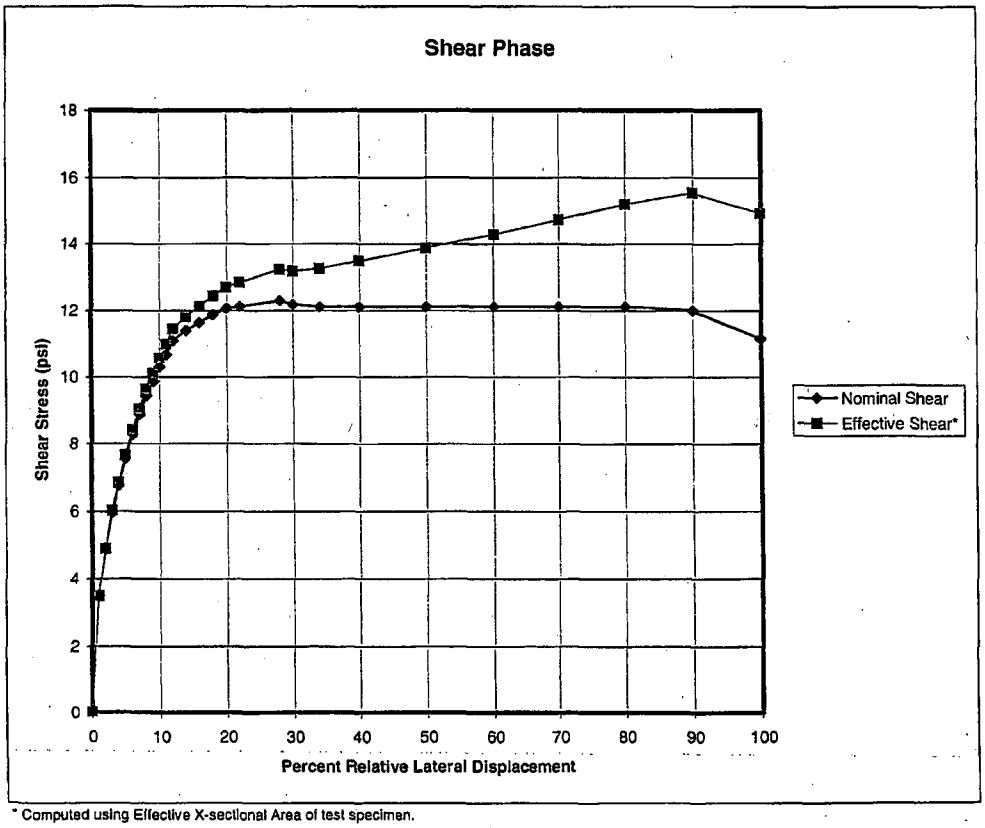
Sample Description	
Poorly Graded Sand with Silt	
USCS	SP-SM
Gravel (%)	0.0
Sand (%)	94.5
Fines (%)	5.5
Silt (%)	5.5
Clay (%)	0.0
LL	n/a
PI	n/a
Undisturbed	■
Remolded	
Inundated?	Yes

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-421 | Depth: 33.5 - 35.5
Sample Type/No.: UD-1A | Normal Stress: 20.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-421
Sample Type/No.: UD-1A
Depth: 33.5 - 35.5
Normal Stress: 40.0 psi

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial MC: 23.0 %
Final MC: 27.6 %
Sample Mass 145.84 g
Measured Specific Gravity: 2.668
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0025 in
Sample Loading Rate: 0.03 in/min

Initial Saturation: 87.9 %
Initial Dry Unit Weight: 98.1 pcf
Initial Wet Unit Weight: 120.6 pcf
Initial Void Ratio: 0.698
Final Saturation: 114.7 %
Final Dry Unit Weight: 101.4 pcf
Final Wet Unit Weight: 129.4 pcf
Final Void Ratio: 0.642
Total Displacement: 0.200 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0288	0	0.00	0.00	0.00	0.026
0.005	4.896	2.5	0.0321	119	35.55	7.24	7.26	0.030
0.010	4.884	5.0	0.0335	169	50.48	10.28	10.34	0.031
0.015	4.871	7.5	0.0343	200	59.74	12.17	12.26	0.032
0.020	4.859	10.0	0.0351	234	69.90	14.24	14.38	0.033
0.025	4.847	12.5	0.0355	261	77.96	15.88	16.09	0.033
0.030	4.834	15.0	0.0360	284	84.83	17.28	17.55	0.034
0.035	4.822	17.5	0.0361	296	88.42	18.01	18.34	0.034
0.040	4.809	20.0	0.0363	298	89.01	18.13	18.51	0.034
0.045	4.797	22.5	0.0364	328	97.97	19.96	20.43	0.034
0.050	4.784	25.0	0.0363	344	102.75	20.93	21.48	0.034
0.055	4.772	27.5	0.0362	359	107.23	21.85	22.47	0.034
0.060	4.759	30.0	0.0361	371	110.82	22.58	23.28	0.034
0.065	4.747	32.5	0.0357	387	115.60	23.55	24.35	0.033
0.070	4.735	35.0	0.0353	395	117.99	24.04	24.92	0.033
0.075	4.722	37.5	0.0350	400	119.48	24.34	25.30	0.033
0.080	4.710	40.0	0.0346	404	120.67	24.58	25.62	0.032
0.085	4.697	42.5	0.0343	407	121.57	24.77	25.88	0.032
0.090	4.685	45.0	0.0337	408	121.87	24.83	26.01	0.031
0.095	4.672	47.5	0.0335	410	122.47	24.95	26.21	0.031
0.100	4.660	50.0	0.0330	412	123.06	25.07	26.41	0.031
0.110	4.635	55.0	0.0325	411	122.77	25.01	26.49	0.030
0.120	4.610	60.0	0.0319	407	121.57	24.77	26.37	0.029
0.130	4.585	65.0	0.0314	401	119.78	24.40	26.12	0.029
0.140	4.560	70.0	0.0311	395	117.99	24.04	25.87	0.029
0.150	4.535	75.0	0.0310	387	115.60	23.55	25.49	0.029
0.160	4.510	80.0	0.0311	384	114.70	23.37	25.43	0.029
0.170	4.486	85.0	0.0313	357	106.64	21.72	23.77	0.029
0.180	4.461	90.0	0.0319	346	103.35	21.05	23.17	0.029
0.190	4.436	95.0	0.0327	337	100.66	20.51	22.69	0.030
0.200	4.411	100.0	0.0332	331	98.87	20.14	22.41	0.031

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 25.07 26.49 psi
% Relative Lateral Displacement at Max Shear : 50 95 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0286
0.25	0.50	0.0288
0.5	0.71	0.0288
1	1.00	0.0288
2	1.41	0.0288
4	2.00	0.0288
8	2.83	0.0288
16	4.00	
30	5.48	
60	7.75	
120	10.95	
240	15.49	

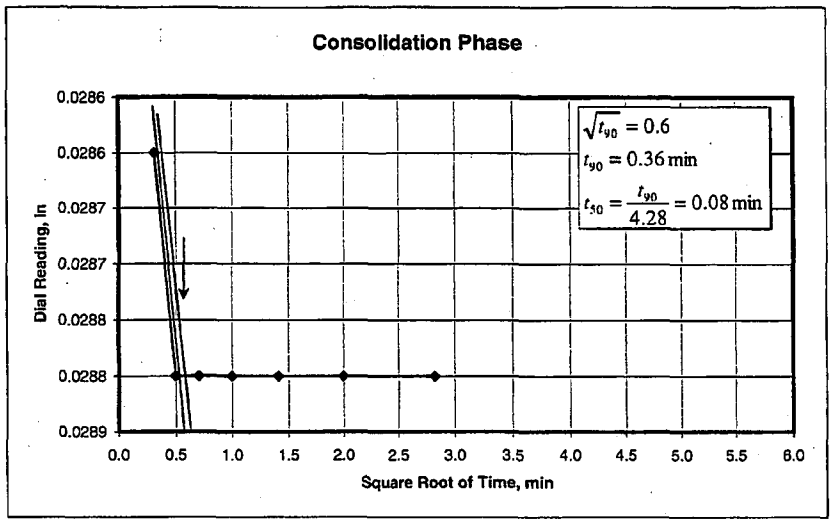
t(50) = 0.08 min
50*t(50) = 4.21 min
d(r) = 0.05 in/min

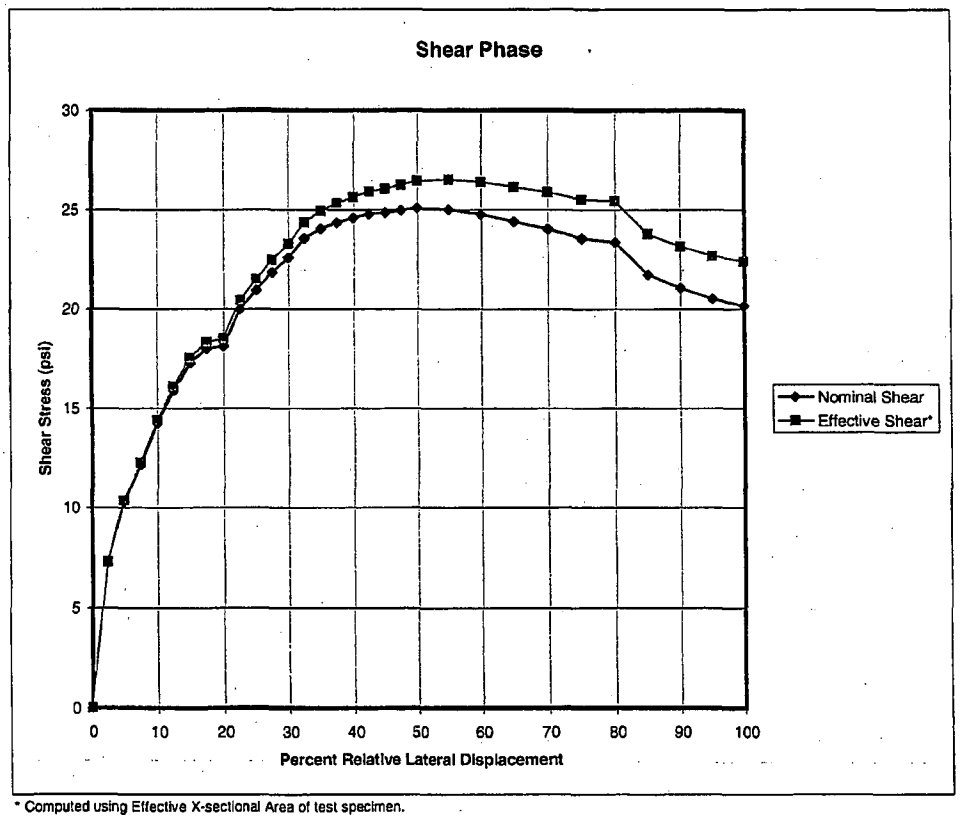
Sample Description	
Poorly Graded Sand with Silt	
USCS	SP-SM
Gravel (%)	0.0
Sand (%)	94.5
Fines (%)	5.5
Silt (%)	5.5
Clay (%)	0.0
LL	n/a
PI	n/a
Undisturbed	■
Remolded	
Inundated?	Yes

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-421 | Depth: 33.5 - 35.5
Sample Type/No.: UD-1A | Normal Stress: 40.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.:	B-902		Test By:	JA	
Sample Type/No.:	UD-3		Test Date:	2/15/2007	
Depth:	23-25 Ft		Prepared By:	JRS.	
Normal Stress:	10.0	psi	Prepared Date:	4/4/2007	
			Reviewed By:	KAW	
Initial MC:	24.9	%	Review Date:	4/4/07	
Final MC:	26.2	%			
Sample Mass	148.76	g			
Measured Specific Gravity:	2.652		Initial Saturation:	97.1	%
Sample Diameter:	2.500	in	Initial Dry Unit Weight:	98.5	pcf
Sample Area:	4.909	in^2	Initial Wet Unit Weight:	123.0	pcf
Initial Sample Height:	0.938	in	Initial Void Ratio:	0.680	
Initial Sample Volume:	75.453	cc	Final Saturation:	110.5	%
			Final Dry Unit Weight:	101.6	pcf
Proving Ring Load Factor:	0.2987		Final Wet Unit Weight:	128.2	pcf
Stone Correction:	0.0012	in	Final Void Ratio:	0.629	
Sample Loading Rate:	0.03	in/min	Total Displacement:	0.250	in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0222	0	0.00	0.00	0.00	0.021
0.005	4.896	2.0	0.0243	32	9.56	1.95	1.95	0.023
0.010	4.884	4.0	0.0254	46	13.74	2.80	2.81	0.024
0.015	4.871	6.0	0.0262	58	17.32	3.53	3.56	0.025
0.020	4.859	8.0	0.0266	66	19.71	4.02	4.06	0.025
0.025	4.847	10.0	0.0268	68	20.31	4.14	4.19	0.026
0.030	4.834	12.0	0.0269	77	23.00	4.69	4.76	0.026
0.035	4.822	14.0	0.0270	84	25.09	5.11	5.20	0.026
0.040	4.809	16.0	0.0270	90	26.88	5.48	5.59	0.026
0.045	4.797	18.0	0.0269	97	28.97	5.90	6.04	0.026
0.050	4.784	20.0	0.0266	101	30.17	6.15	6.31	0.025
0.060	4.759	24.0	0.0257	108	32.26	6.57	6.78	0.025
0.070	4.735	28.0	0.0248	110	32.86	6.69	6.94	0.024
0.080	4.710	32.0	0.0239	111	33.16	6.75	7.04	0.023
0.090	4.685	36.0	0.0233	111	33.16	6.75	7.08	0.022
0.100	4.660	40.0	0.0228	111	33.16	6.75	7.12	0.022
0.150	4.535	60.0	0.0262	105	31.36	6.39	6.92	0.025
0.200	4.411	80.0	0.0295	101	30.17	6.15	6.84	0.028
0.250	4.286	100.0	0.0298	95	28.38	5.78	6.62	0.029

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress :	6.75	7.12	psi
% Relative Lateral Displacement at Max Shear :	32	40	%

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0214
0.25	0.50	0.022
0.5	0.71	0.0222
1	1.00	0.0222
2	1.41	0.0222
4	2.00	0.0222
8	2.83	
16	4.00	
30	5.48	
60	7.75	
120	10.95	
240	15.49	

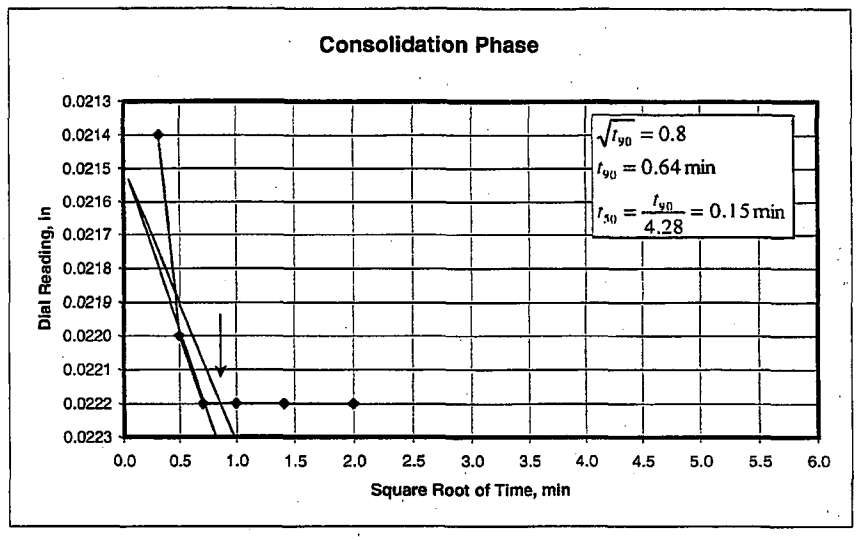
t(50) =	0.15	min
50*t(50) =	7.5	min
d(r) =	0.03	in/min

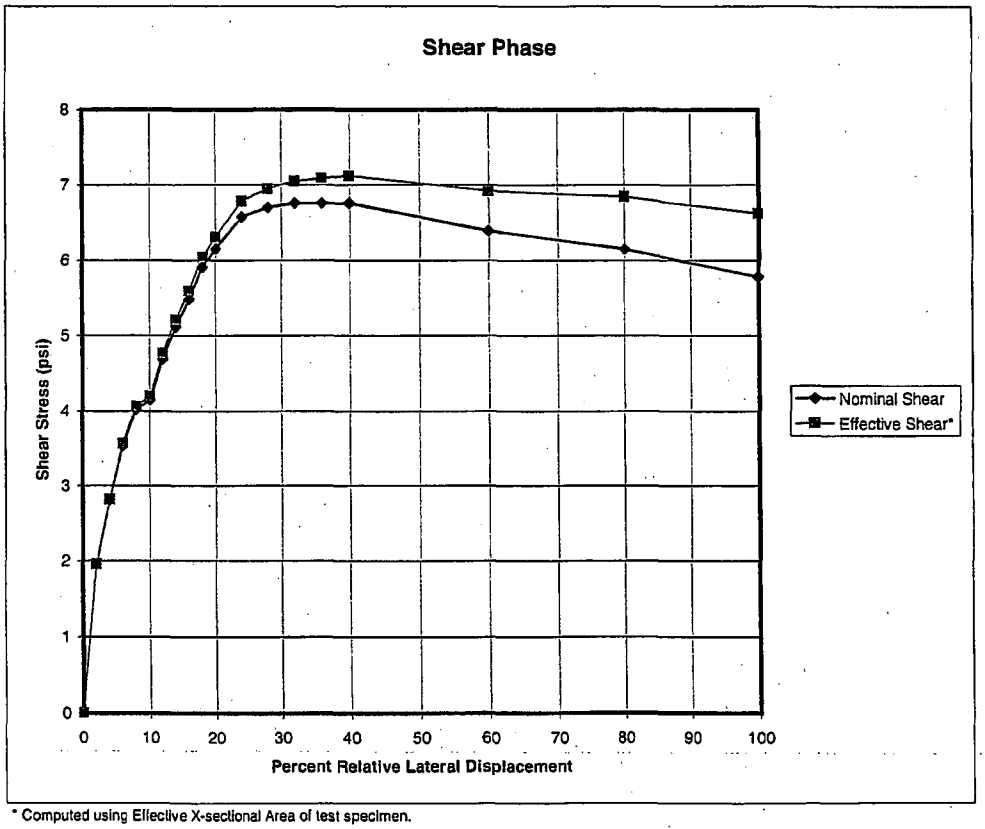
Sample Description	
Silty sand	
USCS	SM
Gravel (%)	0.0
Sand (%)	53.6
Fines (%)	46.4
Silt (%)	30.0
Clay (%)	16.4
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-902 Depth: 23-25 Ft
Sample Type/No.: UD-3 Normal Stress: 10.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-902
Sample Type/No.: UD-3
Depth: 23-25 Ft
Normal Stress: 15.0 psi

Test By: JA
Test Date: 2/15/2007
Prepared By: JBS
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial MC: 24.9 %
Final MC: 25.1 %
Sample Mass 151.12 g
Measured Specific Gravity: 2.652
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0016 in
Sample Loading Rate: 0.03 in/min

Initial Saturation: 101.0 %
Initial Dry Unit Weight: 100.1 pcf
Initial Wet Unit Weight: 125.0 pcf
Initial Void Ratio: 0.654
Final Saturation: 107.4 %
Final Dry Unit Weight: 102.2 pcf
Final Wet Unit Weight: 127.8 pcf
Final Void Ratio: 0.620
Total Displacement: 0.300 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0169	0	0.00	0.00	0.00	0.015
0.005	4.896	1.7	0.0184	45	13.44	2.74	2.75	0.017
0.010	4.884	3.3	0.0192	57	17.03	3.47	3.49	0.018
0.015	4.871	5.0	0.0199	70	20.91	4.26	4.29	0.018
0.020	4.859	6.7	0.0206	80	23.90	4.87	4.92	0.019
0.025	4.847	8.3	0.0209	88	26.29	5.35	5.42	0.019
0.030	4.834	10.0	0.0213	97	28.97	5.90	5.99	0.020
0.035	4.822	11.7	0.0214	102	30.47	6.21	6.32	0.020
0.040	4.809	13.3	0.0215	107	31.96	6.51	6.65	0.020
0.050	4.784	16.7	0.0216	116	34.65	7.06	7.24	0.020
0.060	4.759	20.0	0.0216	127	37.93	7.73	7.97	0.020
0.070	4.735	23.3	0.0215	133	39.73	8.09	8.39	0.020
0.080	4.710	26.7	0.0209	140	41.82	8.52	8.88	0.019
0.090	4.685	30.0	0.0205	145	43.31	8.82	9.25	0.019
0.100	4.660	33.3	0.0199	147	43.91	8.95	9.42	0.018
0.150	4.535	50.0	0.0190	154	46.00	9.37	10.14	0.017
0.200	4.411	66.7	0.0191	150	44.81	9.13	10.16	0.018
0.250	4.286	83.3	0.0199	149	44.51	9.07	10.38	0.018
0.300	4.162	100.0	0.0210	148	44.21	9.01	10.62	0.019

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 9.37 10.62 psi
% Relative Lateral Displacement at Max Shear : 50 100 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0166
0.25	0.50	0.0168
0.5	0.71	0.0169
1	1.00	0.0169
2	1.41	0.0169
4	2.00	0.0169
8	2.83	0.0169
16	4.00	
30	5.48	
60	7.75	
120	10.95	
240	15.49	

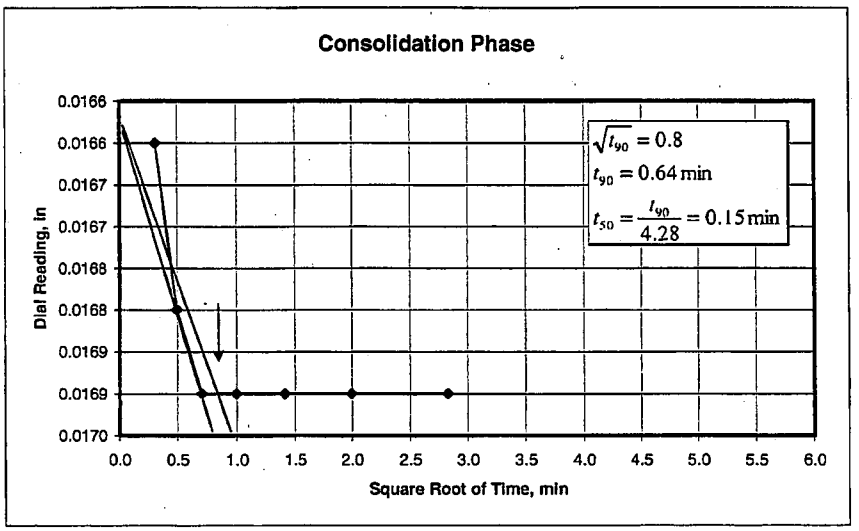
t(50) = 0.15 min
50*t(50) = 7.5 min
d(r) = 0.03 in/min

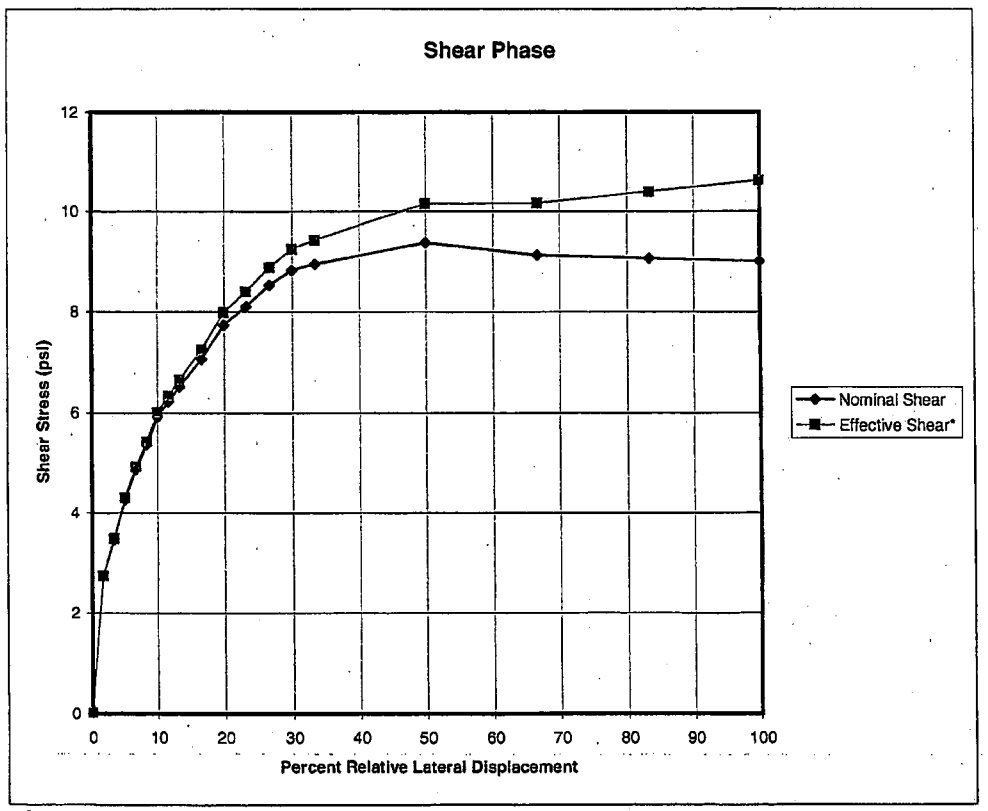
Sample Description	
Silty sand	
USCS	SM
Gravel (%)	0.0
Sand (%)	53.6
Fines (%)	46.4
Silt (%)	30.0
Clay (%)	16.4
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-902 Depth: 23-25 Ft
Sample Type/No.: UD-3 Normal Stress: 15.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.:	B-902		Test By:	JA
Sample Type/No.:	UD-3		Test Date:	2/15/2007
Depth:	23-25 Ft		Prepared By:	JRS.
Normal Stress:	30.0	psi	Prepared Date:	4/4/2007
			Reviewed By:	KAW
Initial MC:	24.9	%	Review Date:	4/4/07
Final MC:	24.8	%		
Sample Mass	153.21	g		
Measured Specific Gravity:	2.652		Initial Saturation:	104.6 %
Sample Diameter:	2.500	in	Initial Dry Unit Weight:	101.4 pcf
Sample Area:	4.909	in^2	Initial Wet Unit Weight:	126.7 pcf
Initial Sample Height:	0.938	in	Initial Void Ratio:	0.631
Initial Sample Volume:	75.453	cc	Final Saturation:	114.0 %
			Final Dry Unit Weight:	104.9 pcf
Proving Ring Load Factor:	0.2987		Final Wet Unit Weight:	131.0 pcf
Stone Correction:	0.0023	in	Final Void Ratio:	0.577
Sample Loading Rate:	0.03	in/min	Total Displacement:	0.400 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0272	0	0.00	0.00	0.00	0.025
0.005	4.896	1.3	0.0305	80	23.90	4.87	4.88	0.028
0.010	4.884	2.5	0.0315	109	32.56	6.63	6.67	0.029
0.015	4.871	3.8	0.0325	132	39.43	8.03	8.09	0.030
0.020	4.859	5.0	0.0329	144	43.01	8.76	8.85	0.031
0.025	4.847	6.3	0.0336	167	49.88	10.16	10.29	0.031
0.030	4.834	7.5	0.0338	185	55.26	11.26	11.43	0.032
0.035	4.822	8.8	0.0340	204	60.93	12.41	12.64	0.032
0.040	4.809	10.0	0.0344	217	64.82	13.20	13.48	0.032
0.045	4.797	11.3	0.0345	230	68.70	14.00	14.32	0.032
0.050	4.784	12.5	0.0346	242	72.29	14.73	15.11	0.032
0.055	4.772	13.8	0.0346	252	75.27	15.33	15.77	0.032
0.060	4.759	15.0	0.0346	262	78.26	15.94	16.44	0.032
0.065	4.747	16.3	0.0346	269	80.35	16.37	16.93	0.032
0.070	4.735	17.5	0.0345	275	82.14	16.73	17.35	0.032
0.075	4.722	18.8	0.0344	281	83.93	17.10	17.78	0.032
0.080	4.710	20.0	0.0342	288	86.03	17.52	18.27	0.032
0.090	4.685	22.5	0.0336	293	87.52	17.83	18.68	0.031
0.100	4.660	25.0	0.0333	300	89.61	18.26	19.23	0.031
0.150	4.535	37.5	0.0315	309	92.30	18.80	20.35	0.029
0.200	4.411	50.0	0.0311	279	83.34	16.98	18.89	0.029
0.250	4.286	62.5	0.0327	290	86.62	17.65	20.21	0.030
0.300	4.162	75.0	0.0328	285	85.13	17.34	20.45	0.031
0.350	4.038	87.5	0.0329	280	83.64	17.04	20.71	0.031
0.400	3.913	100.0	0.0335	271	80.95	16.49	20.69	0.031

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 18.80 20.71 psi
% Relative Lateral Displacement at Max Shear : 37.5 87.5 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0267
0.25	0.50	0.0271
0.5	0.71	0.0272
1	1.00	0.0272
2	1.41	0.0272
4	2.00	0.0272
8	2.83	0.0272
16	4.00	0.0272
30	5.48	
60	7.75	
120	10.95	
240	15.49	

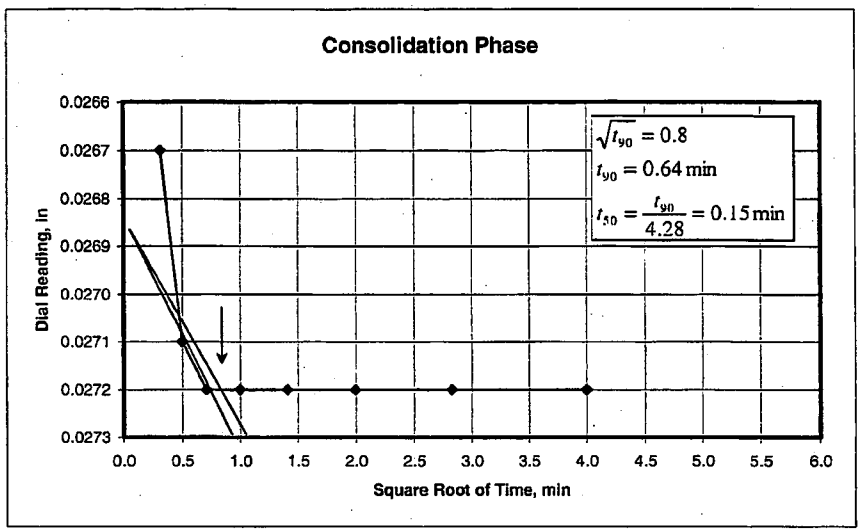
t(50) = 0.15 min
50*t(50) = 7.5 min
d(r) = 0.03 in/min

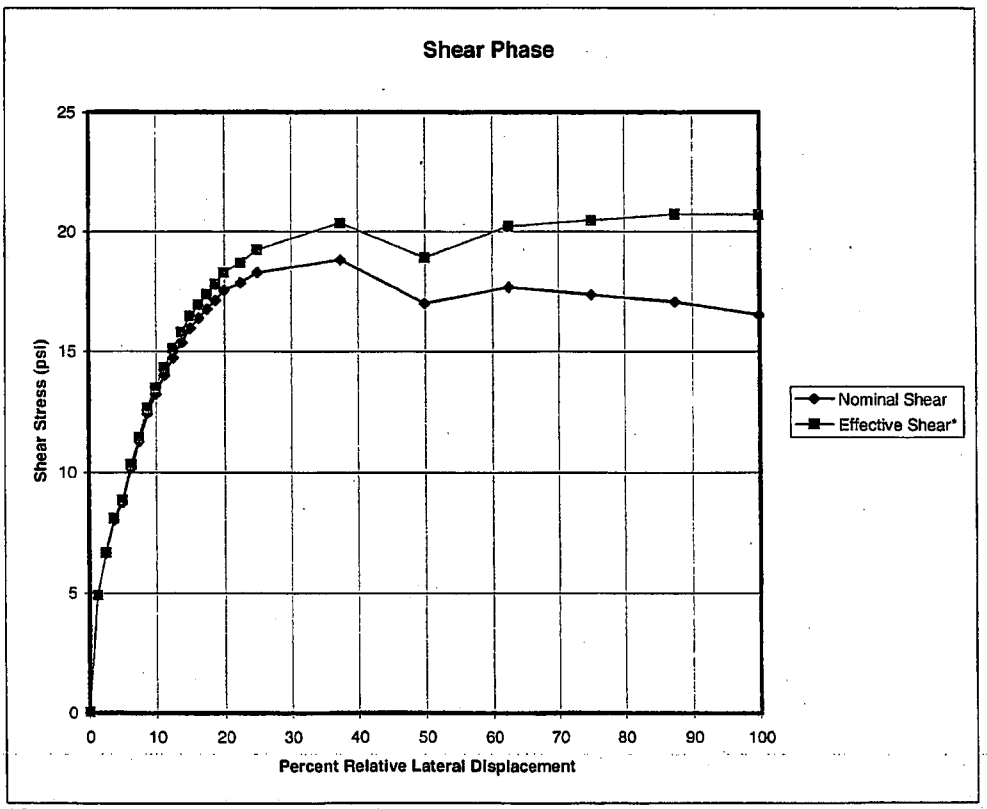
Sample Description	
Silty sand	
USCS	SM
Gravel (%)	0.0
Sand (%)	53.6
Fines (%)	46.4
Silt (%)	30.0
Clay (%)	16.4
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-902 Depth: 23-25 Ft
Sample Type/No.: UD-3 Normal Stress: 30.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-909
Sample Type/No.: UD-1
Depth: 33-35 Ft
Normal Stress: 10.0 psi

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/18/07

Initial MC: 22.6 %
Final MC: 28.7 %
Sample Mass 145.36 g
Measured Specific Gravity: 2.733
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0002 in
Sample Loading Rate: 0.03 in/min

Initial Saturation: 83.6 %
Initial Dry Unit Weight: 98.1 pcf
Initial Wet Unit Weight: 120.2 pcf
Initial Void Ratio: 0.739
Final Saturation: 116.9 %
Final Dry Unit Weight: 102.1 pcf
Final Wet Unit Weight: 131.4 pcf
Final Void Ratio: 0.671
Total Displacement: 0.500 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0108	0	0.00	0.00	0.00	0.011
0.005	4.896	1.0	0.0142	32	9.56	1.95	1.95	0.014
0.010	4.884	2.0	0.0152	45	13.44	2.74	2.75	0.015
0.015	4.871	3.0	0.0158	55	16.43	3.35	3.37	0.016
0.020	4.859	4.0	0.0162	64	19.12	3.89	3.93	0.016
0.025	4.847	5.0	0.0165	70	20.91	4.26	4.31	0.016
0.030	4.834	6.0	0.0165	75	22.40	4.56	4.63	0.016
0.035	4.822	7.0	0.0165	79	23.60	4.81	4.89	0.016
0.040	4.809	8.0	0.0165	81	24.19	4.93	5.03	0.016
0.045	4.797	9.0	0.0165	83	24.79	5.05	5.17	0.016
0.050	4.784	10.0	0.0164	86	25.69	5.23	5.37	0.016
0.055	4.772	11.0	0.0160	87	25.99	5.29	5.45	0.016
0.060	4.759	12.0	0.0154	89	26.58	5.42	5.59	0.015
0.070	4.735	14.0	0.0151	92	27.48	5.60	5.80	0.015
0.080	4.710	16.0	0.0146	94	28.08	5.72	5.96	0.014
0.090	4.685	18.0	0.0141	94	28.08	5.72	5.99	0.014
0.100	4.660	20.0	0.0136	94	28.08	5.72	6.03	0.013
0.150	4.535	30.0	0.0144	94	28.08	5.72	6.19	0.014
0.200	4.411	40.0	0.0157	95	28.38	5.78	6.43	0.016
0.250	4.286	50.0	0.0176	96	28.68	5.84	6.69	0.017
0.300	4.162	60.0	0.0193	96	28.68	5.84	6.89	0.019
0.350	4.038	70.0	0.0212	96	28.68	5.84	7.10	0.021
0.400	3.913	80.0	0.0247	96	28.68	5.84	7.33	0.025
0.450	3.789	90.0	0.0281	96	28.68	5.84	7.57	0.028
0.500	3.664	100.0	0.0371	95	28.38	5.78	7.74	0.037

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 5.84 7.74 psi
% Relative Lateral Displacement at Max Shear : 50 100 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0104
0.25	0.50	0.0108
0.5	0.71	0.0108
1	1.00	0.0108
2	1.41	0.0108
4	2.00	0.0108
8	2.83	0.0108
16	4.00	0.0108
30	5.48	
60	7.75	
120	10.95	
240	15.49	

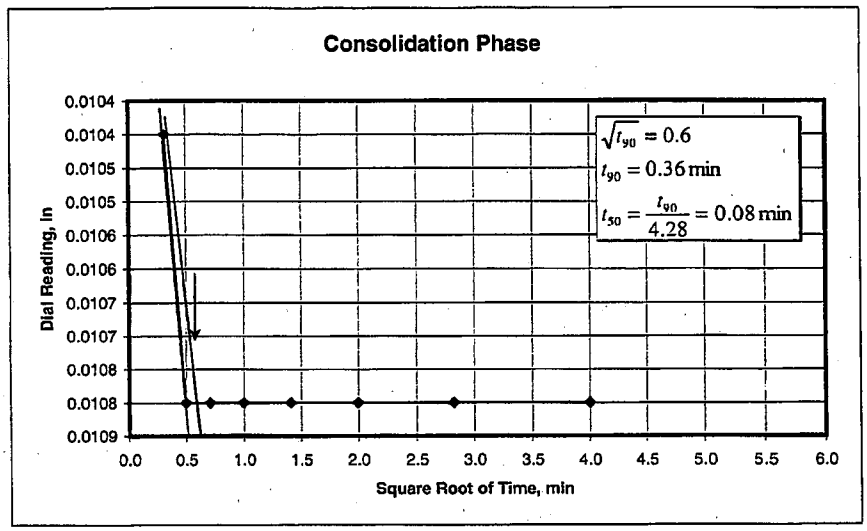
t(50) = 0.08 min
50*t(50) = 4.2 min
d(r) = 0.05 in/min

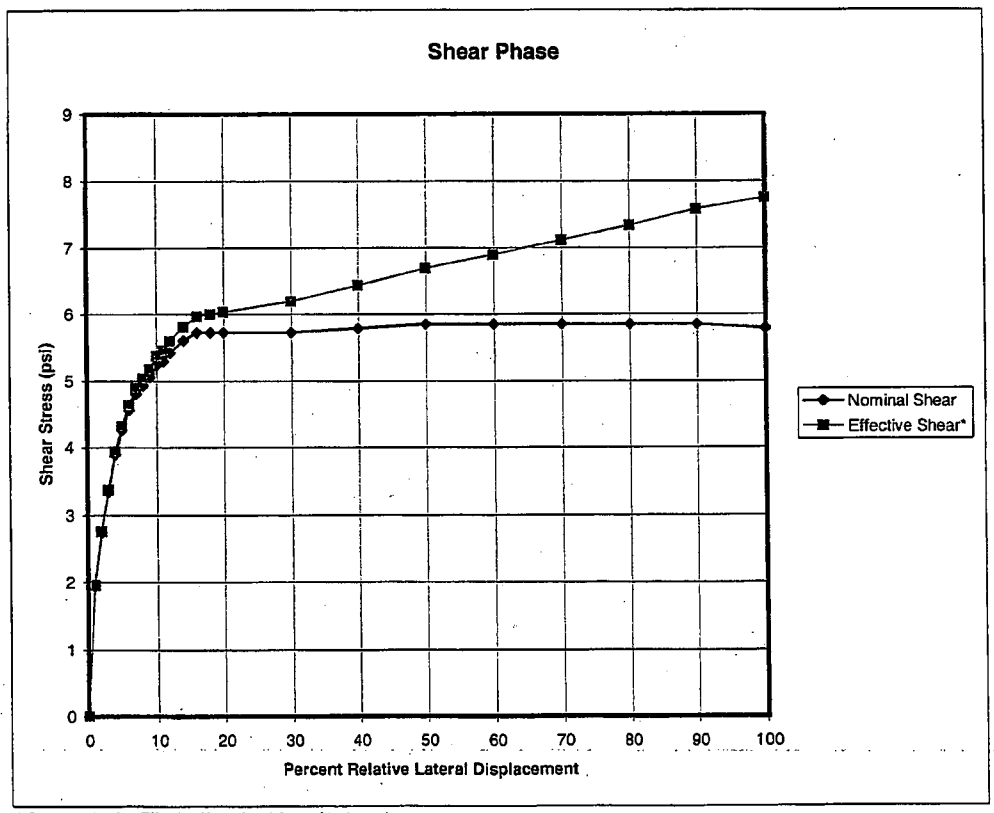
Sample Description	
Silty sand	
USCS	SM
Gravel (%)	0.0
Sand (%)	75.9
Fines (%)	24.1
Silt (%)	24.1
Clay (%)	0.0
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-909 Depth: 33-35 Ft
Sample Type/No.: UD-1 Normal Stress: 10.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-909
Sample Type/No.: UD-1
Depth: 33-35 Ft
Normal Stress: 20.0 psi

Initial MC: 22.6 %
Final MC: 26.3 %
Sample Mass 148.27 g
Measured Specific Gravity: 2.733
Sample Diameter: 2.500 in
Sample Area: 4.909 in^2
Initial Sample Height: 0.938 in
Initial Sample Volume: 75.453 cc

Proving Ring Load Factor: 0.2987
Stone Correction: 0.0014 in
Sample Loading Rate: 0.02 in/min

Test By: JA
Test Date: 2/15/2007
Prepared By: JRS
Prepared Date: 4/4/2007
Reviewed By: KAW
Review Date: 4/4/07

Initial Saturation: 87.6 %
Initial Dry Unit Weight: 100.0 pcf
Initial Wet Unit Weight: 122.6 pcf
Initial Void Ratio: 0.705
Final Saturation: 113.5 %
Final Dry Unit Weight: 104.4 pcf
Final Wet Unit Weight: 131.9 pcf
Final Void Ratio: 0.633
Total Displacement: 0.500 in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0360	0	0.00	0.00	0.00	0.035
0.005	4.896	1.0	0.0384	73	21.81	4.44	4.45	0.037
0.010	4.884	2.0	0.0387	97	28.97	5.90	5.93	0.037
0.015	4.871	3.0	0.0394	113	33.75	6.88	6.93	0.038
0.020	4.859	4.0	0.0400	128	38.23	7.79	7.87	0.039
0.025	4.847	5.0	0.0403	147	43.91	8.95	9.06	0.039
0.030	4.834	6.0	0.0407	163	48.69	9.92	10.07	0.039
0.035	4.822	7.0	0.0408	175	52.27	10.65	10.84	0.039
0.040	4.809	8.0	0.0408	185	55.26	11.26	11.49	0.039
0.045	4.797	9.0	0.0409	195	58.25	11.87	12.14	0.040
0.050	4.784	10.0	0.0409	201	60.04	12.23	12.55	0.040
0.055	4.772	11.0	0.0409	206	61.53	12.54	12.89	0.040
0.060	4.759	12.0	0.0405	210	62.73	12.78	13.18	0.039
0.070	4.735	14.0	0.0400	212	63.32	12.90	13.38	0.039
0.080	4.710	16.0	0.0395	206	61.53	12.54	13.07	0.038
0.090	4.685	18.0	0.0395	201	60.04	12.23	12.82	0.038
0.100	4.660	20.0	0.0392	201	60.04	12.23	12.88	0.038
0.150	4.535	30.0	0.0393	208	62.13	12.66	13.70	0.038
0.200	4.411	40.0	0.0393	210	62.73	12.78	14.22	0.038
0.250	4.286	50.0	0.0394	210	62.73	12.78	14.63	0.038
0.300	4.162	60.0	0.0400	209	62.43	12.72	15.00	0.039
0.350	4.038	70.0	0.0411	209	62.43	12.72	15.46	0.040
0.400	3.913	80.0	0.0411	208	62.13	12.66	15.88	0.040
0.450	3.789	90.0	0.0409	208	62.13	12.66	16.40	0.040
0.500	3.664	100.0	0.0409	208	62.13	12.66	16.96	0.040

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress : 12.90 16.96 psi
% Relative Lateral Displacement at Max Shear : 14 100 %

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0354
0.25	0.50	0.0356
0.5	0.71	0.0358
1	1.00	0.0359
2	1.41	0.036
4	2.00	0.036
8	2.83	
16	4.00	
30	5.48	
60	7.75	
120	10.95	
240	15.49	

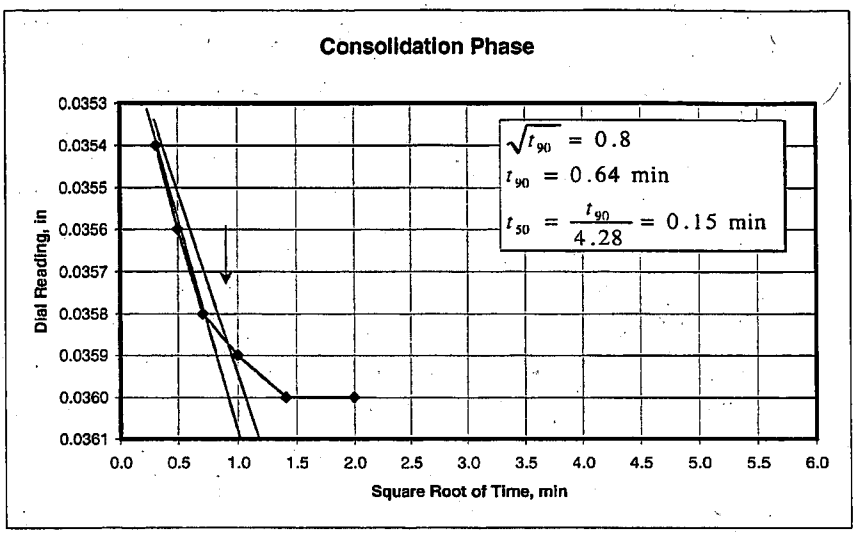
t(50) = 0.15 min
50*t(50) = 7.5 min
d(r) = 0.03 in/min

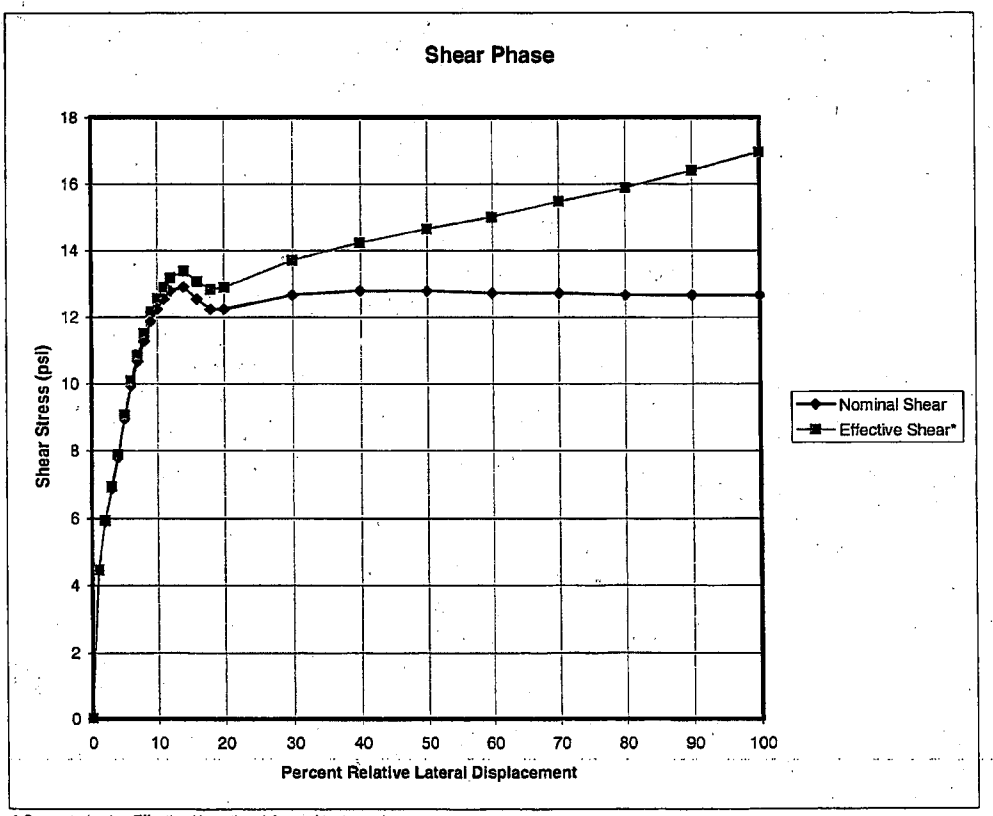
Sample Description	
Silty sand	
USCS	SM
Gravel (%)	0.0
Sand (%)	75.9
Fines (%)	24.1
Silt (%)	24.1
Clay (%)	0.0
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-909 Depth: 33-35 Ft
Sample Type/No.: UD-1 Normal Stress: 20.0 psi





* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

Direct Shear Test - ASTM D3080 - 04

MACTEC Engineering & Consulting, Inc.
2801 Yorkmont Road, Suite 100
Charlotte, NC 28208

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.:	B-909		Test By:	JA	
Sample Type/No.:	UD-1		Test Date:	2/15/2007	
Depth:	33-35 Ft		Prepared By:	JB	
Normal Stress:	40.0	psi	Prepared Date:	4/4/2007	
			Reviewed By:	KAW	
Initial MC:	22.6	%	Review Date:	4/4/07	
Final MC:	27.4	%			
Sample Mass	150.75	g			
Measured Specific Gravity:	2.733		Initial Saturation:	91.2	%
Sample Diameter:	2.500	in	Initial Dry Unit Weight:	101.7	pcf
Sample Area:	4.909	in^2	Initial Wet Unit Weight:	124.7	pcf
Initial Sample Height:	0.938	in	Initial Void Ratio:	0.677	
Initial Sample Volume:	75.453	cc	Final Saturation:	126.7	%
			Final Dry Unit Weight:	107.2	pcf
Proving Ring Load Factor:	0.2987		Final Wet Unit Weight:	136.6	pcf
Stone Correction:	0.0025	in	Final Void Ratio:	0.591	
Sample Loading Rate:	0.02	in/min	Total Displacement:	0.400	in

Shear Test Data

Horizontal Defl. (in)	Effective X-sectional Area (in^2)	% Relative Lateral Disp.	Vertical Defl. (in)	Proving Ring (div.)	Shear Force (lbs.)	Nominal Shear Stress (psi)	Shear Stress* (psi)	Change in Thickness (in)
0.000	4.909	0.0	0.0334	0	0.00	0.00	0.00	0.031
0.005	4.896	1.3	0.0368	97	28.97	5.90	5.92	0.034
0.010	4.884	2.5	0.0383	137	40.92	8.34	8.38	0.036
0.015	4.871	3.8	0.0394	165	49.29	10.04	10.12	0.037
0.020	4.859	5.0	0.0401	178	53.17	10.83	10.94	0.038
0.025	4.847	6.3	0.0407	192	57.35	11.68	11.83	0.038
0.030	4.834	7.5	0.0414	201	60.04	12.23	12.42	0.039
0.035	4.822	8.8	0.0416	211	63.03	12.84	13.07	0.039
0.040	4.809	10.0	0.0419	228	68.10	13.87	14.16	0.039
0.045	4.797	11.3	0.0423	244	72.88	14.85	15.19	0.040
0.050	4.784	12.5	0.0423	276	82.44	16.79	17.23	0.040
0.055	4.772	13.8	0.0421	296	88.42	18.01	18.53	0.040
0.060	4.759	15.0	0.0418	310	92.60	18.86	19.46	0.039
0.070	4.735	17.5	0.0414	328	97.97	19.96	20.69	0.039
0.080	4.710	20.0	0.0407	349	104.25	21.24	22.13	0.038
0.090	4.685	22.5	0.0400	360	107.53	21.91	22.95	0.038
0.100	4.660	25.0	0.0395	359	107.23	21.85	23.01	0.037
0.110	4.635	27.5	0.0392	360	107.53	21.91	23.20	0.037
0.150	4.535	37.5	0.0401	378	112.91	23.00	24.90	0.038
0.200	4.411	50.0	0.0406	392	117.09	23.85	26.55	0.038
0.250	4.286	62.5	0.0440	382	114.10	23.24	26.62	0.042
0.300	4.162	75.0	0.0480	364	108.73	22.15	26.12	0.046
0.350	4.038	87.5	0.0498	360	107.53	21.91	26.63	0.047
0.400	3.913	100.0	0.0507	355	106.04	21.60	27.10	0.048

* Computed using Effective X-sectional Area of test specimen.

Max Shear Stress :	23.85	27.10	psi
% Relative Lateral Displacement at Max Shear :	50	100	%

Consolidation Phase		
Elapsed Time	Sqrt of Time	Dial Reading
0.1	0.32	0.0322
0.25	0.50	0.0324
0.5	0.71	0.0326
1	1.00	0.0327
2	1.41	0.0328
4	2.00	0.0329
8	2.83	0.033
16	4.00	0.0331
30	5.48	0.0332
60	7.75	0.0333
120	10.95	0.0334
240	15.49	

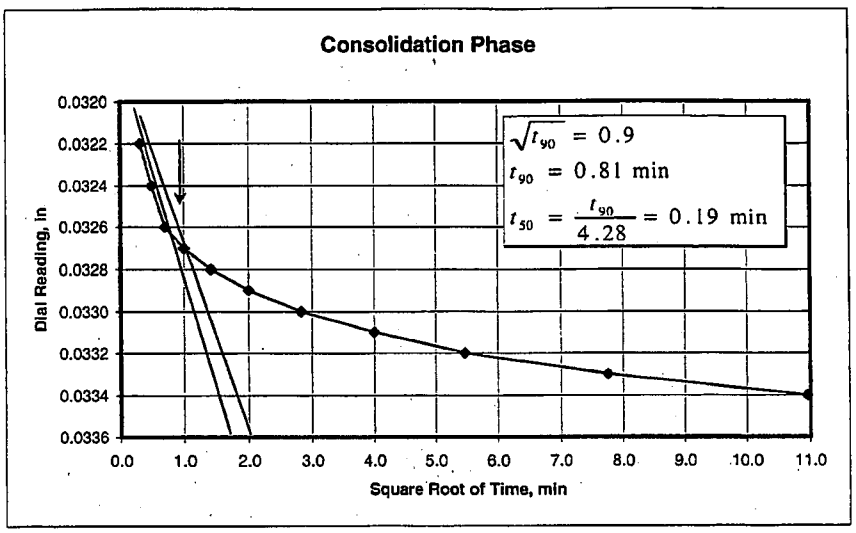
t(50) =	0.19	min
50*t(50) =	9.5	min
d(r) =	0.02	in/min

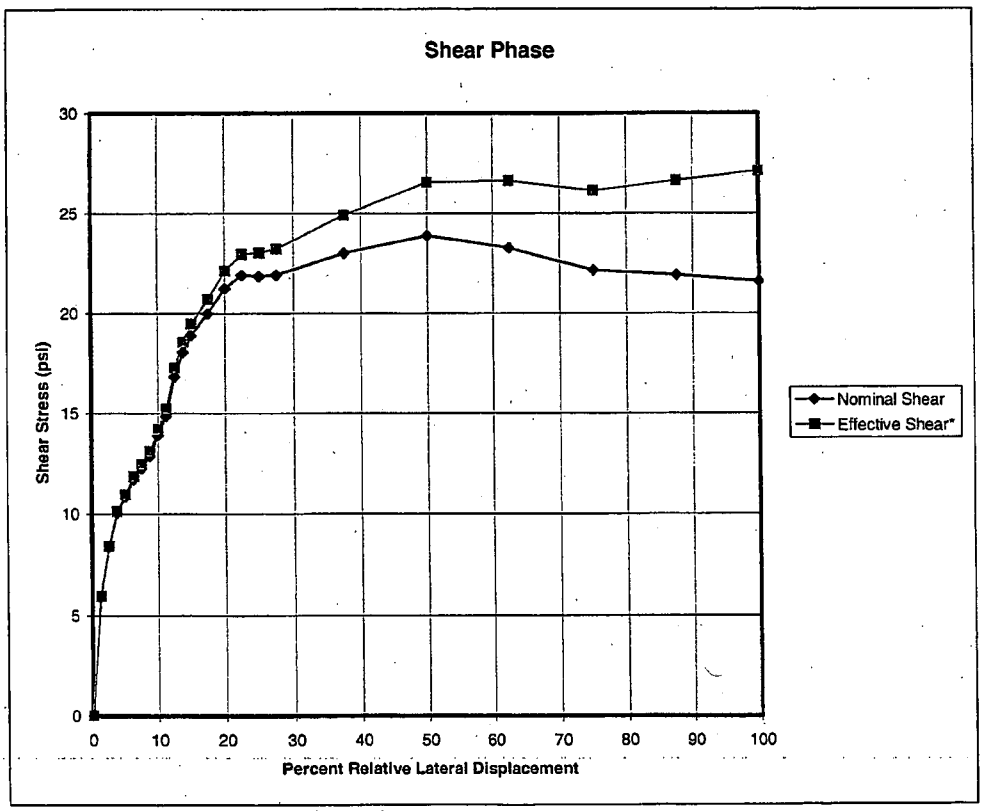
Sample Description	
Silty sand	
USCS	SM
Gravel (%)	0.0
Sand (%)	75.9
Fines (%)	24.1
Silt (%)	24.1
Clay (%)	0.0
LL	NV
PI	NP
Undisturbed	■
Remolded	
Inundated?	Yes

Equipment Used	
Drying Oven - SLDO-1	Proving Ring - SN: 10190
4kg Scale - SN: 1512	Horizontal Displacement Indicator - SN: 025969
16kg Scale - SN: 380645	Vertical Displacement Indicator - SN: 943439720
150lb Scale - SN: 548966	Stopwatch - SN: 625
Caliper - SN: 02105539	SoilTest® Direct Shear Apparatus - SN: 622

Project Name: Bechtel / STP / COL
Project Number: 5050-06-0496

Boring No.: B-909 | Depth: 33-35 Ft
Sample Type/No.: UD-1 | Normal Stress: 40.0 psi

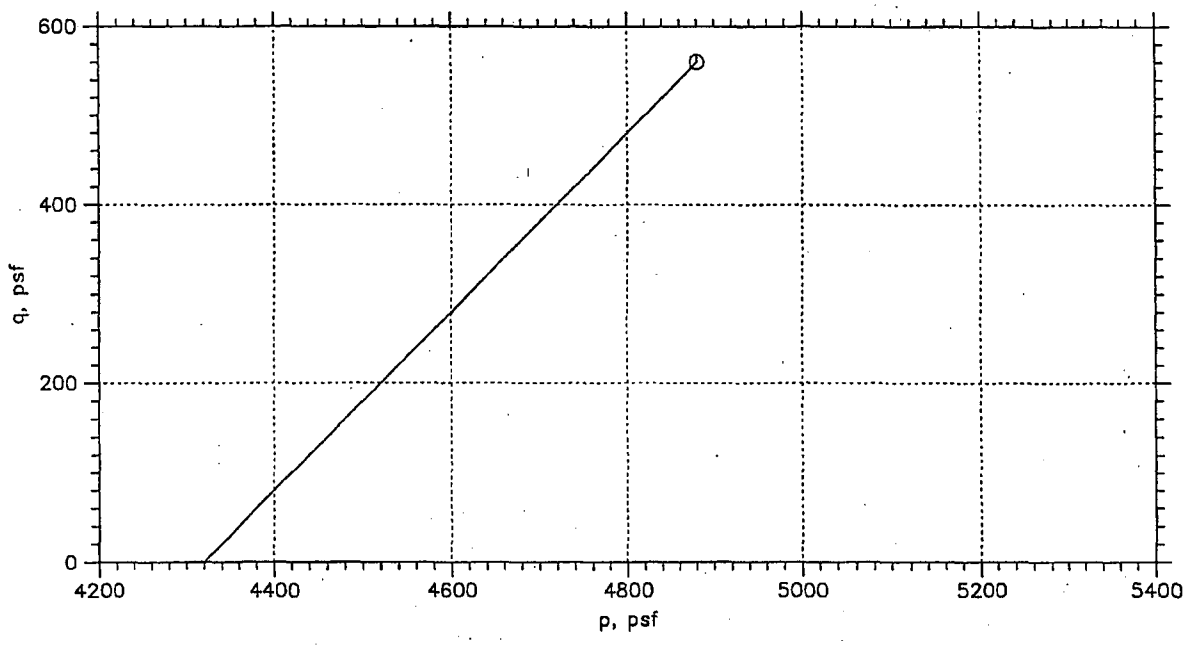


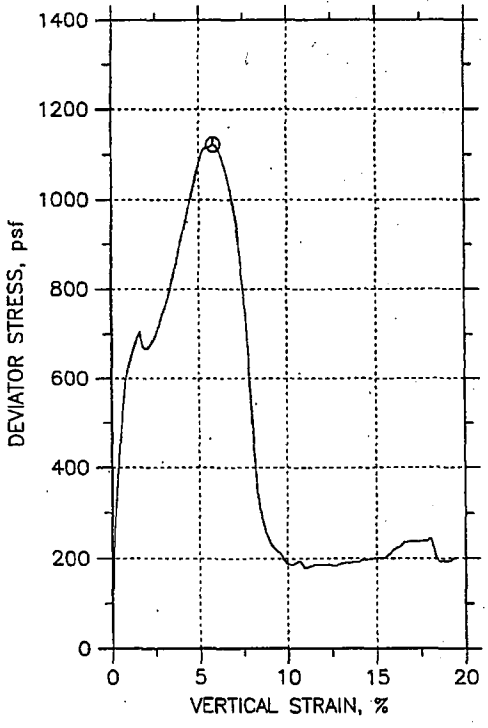


* Computed using Effective X-sectional Area of test specimen.

Remarks
* Effective X-sectional area of the test specimen was computed to account for the reduction in area of the shear plane during testing.

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-1			
Test No.	6911			
Depth	63-65ft			
Tested by	BM			
Test Date	2/12/07			
Checked by	HJ			
Check Date	2/25/07			
Diameter, in	2.743			
Height, in	5.6			
Water Content, %	25.5			
Dry Density, pcf	102.4			
Saturation, %	106.7			
Void Ratio	0.646			
Confining Stress, psf	4320			
Undrained Strength, psf	560.8			
Max. Dev. Stress, psf	1122			
Strain at Failure, %	5.85			
Strain Rate, %/min	1			
Measured Specific Gravity	2.7	2/25/07		
Liquid Limit	~~NP~~ NV			
Plastic Limit	NP			
Plasticity Index	NP			

MACTEC

Project: Bechtel/STP/COL

Location: B-303 UD-1

Project No.: 5050060496

Boring No.: B-303

Sample Type: Undisturbed

Description: Silty Sand (SM)

Remarks:

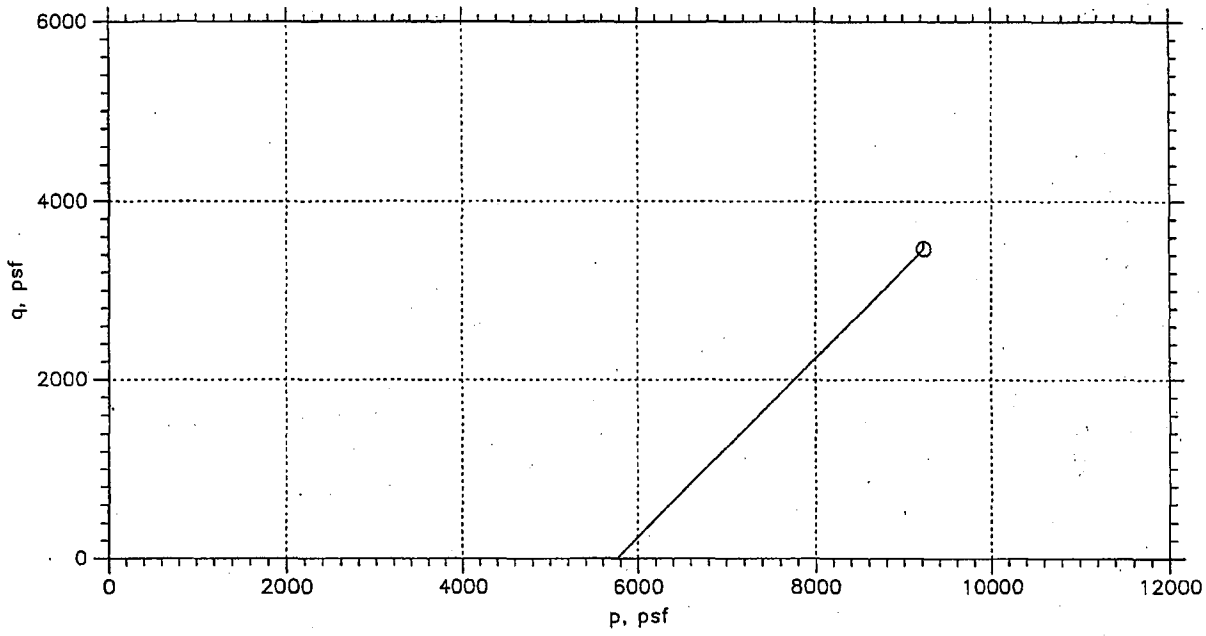
Phase calculations based on start and end of test.

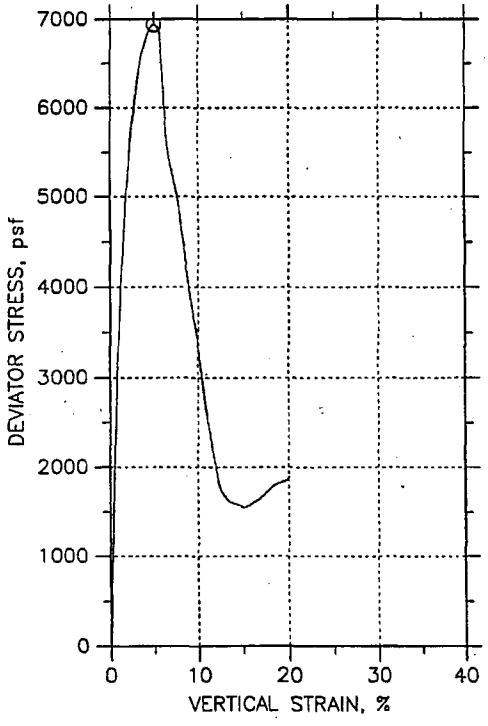
2/25/07

KAW 4/3/07

Sun, 25-FEB-2007 11:49:13

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-2			
Test No.	6912			
Depth	88-90ft.			
Tested by	BM/VG			
Test Date	2/12/07			
Checked by	HJ			
Check Date	2/23/07			
Diameter, in	2.859			
Height, in	5.6			
Water Content, %	24.7			
Dry Density, pcf	107.2			
Saturation, %	113.0			
Void Ratio	0.602			
Confining Stress, psf	5760			
Undrained Strength, psf	3469			
Max. Dev. Stress, psf	6939			
Strain at Failure, %	5.01			
Strain Rate, %/min	1			
Measured Specific Gravity	2.75			
Liquid Limit	57			
Plastic Limit	18			
Plasticity Index	39			

MACTEC

Project: Bechtel/STP/COL

Location: B-303 UD-2

Project No.: 5050060496

Boring No.: B-303

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

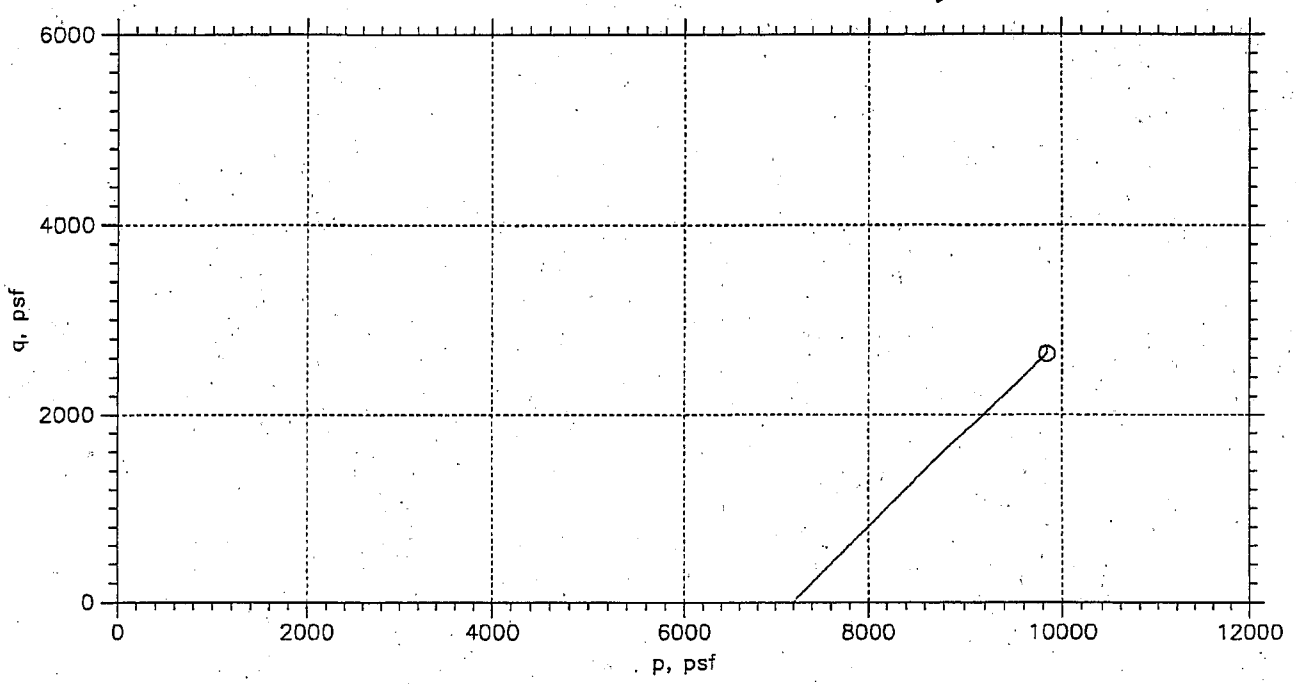
Phase calculations based on start and end of test.

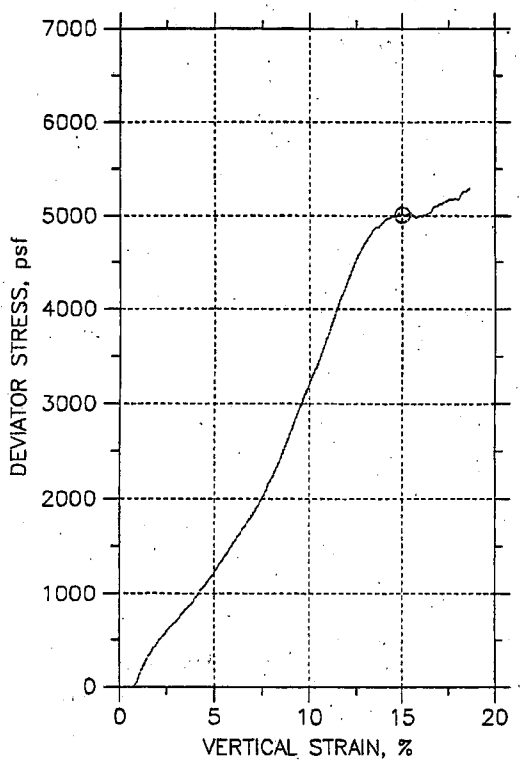
2/23/07

KAW 4/3/07

Fri, 23-FEB-2007 10:12:13

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-3			
Test No.	6913			
Depth	108-110'			
Tested by	BM			
Test Date	2/15/07			
Checked by	HJ			
Check Date	4/4/07			
Diameter, in	2.883			
Height, in	6.023			
Water Content, %	15.1			
Dry Density, pcf	120.			
Saturation, %	100.5			
Void Ratio	0.404			
Confining Stress, psf	7200			
Undrained Strength, psf	2504			
Max. Dev. Stress, psf	5008			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Estimated Specific Gravity	2.7			
Liquid Limit	---			
Plastic Limit	---			
Plasticity Index	---			

MACTEC

Project: Bechtel/STP/COL

Location: B-303 UD-3

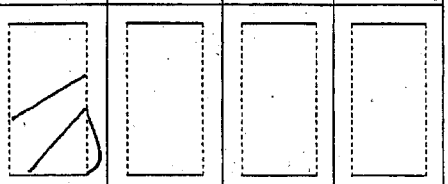
Project No.: 5050060496

Boring No.: B-303

Sample Type: Undisturbed

Description: Silty Sand (SM)

Remarks:



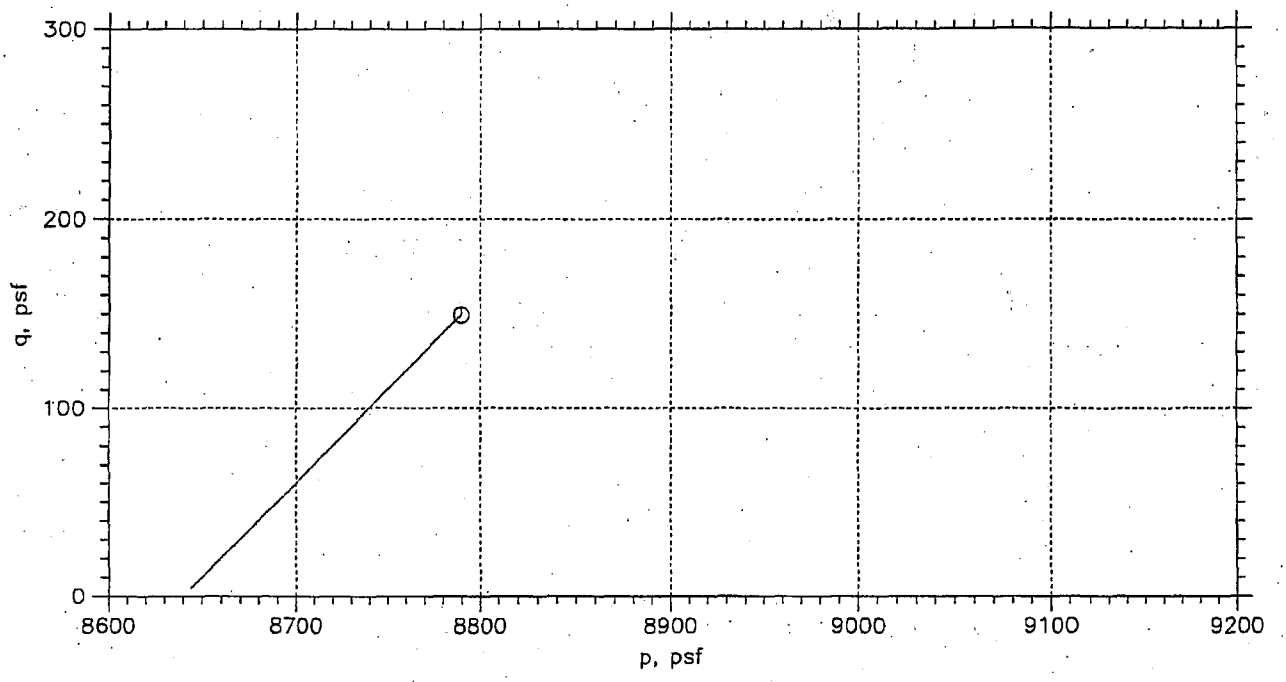
HJ 4/4/07

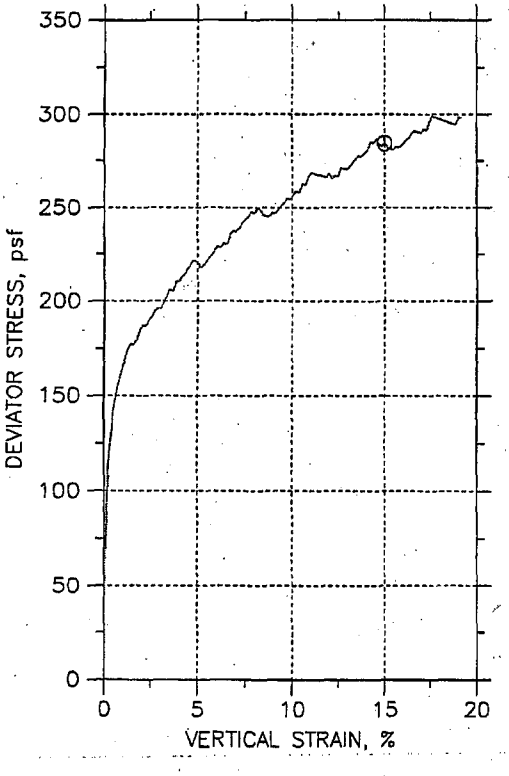
KAW 4/4/07

Phase calculations based on start and end of test.

Wed, 04-APR-2007 14:07:10

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-4			
Test No.	6914			
Depth	133-135'			
Tested by	BM			
Test Date	2/10/07			
Checked by	HJ			
Check Date	4/4/07			
Diameter, in	2.866			
Height, in	5.6			
Water Content, %	29.5			
Dry Density, pcf	93.67			
Saturation, %	100.2			
Void Ratio	0.793			
Confining Stress, psf	8640			
Undrained Strength, psf	142.2			
Max. Dev. Stress, psf	284.4			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.69			
Liquid Limit	65			
Plastic Limit	26			
Plasticity Index	39			

MACTEC

Project: Bechtel/STP/COL

Location: B-303 UD-4

Project No.: 5050060496

Boring No.: B-303

Sample Type: Undisturbed

Description: Fat Clay with Sand (CH)

Remarks:

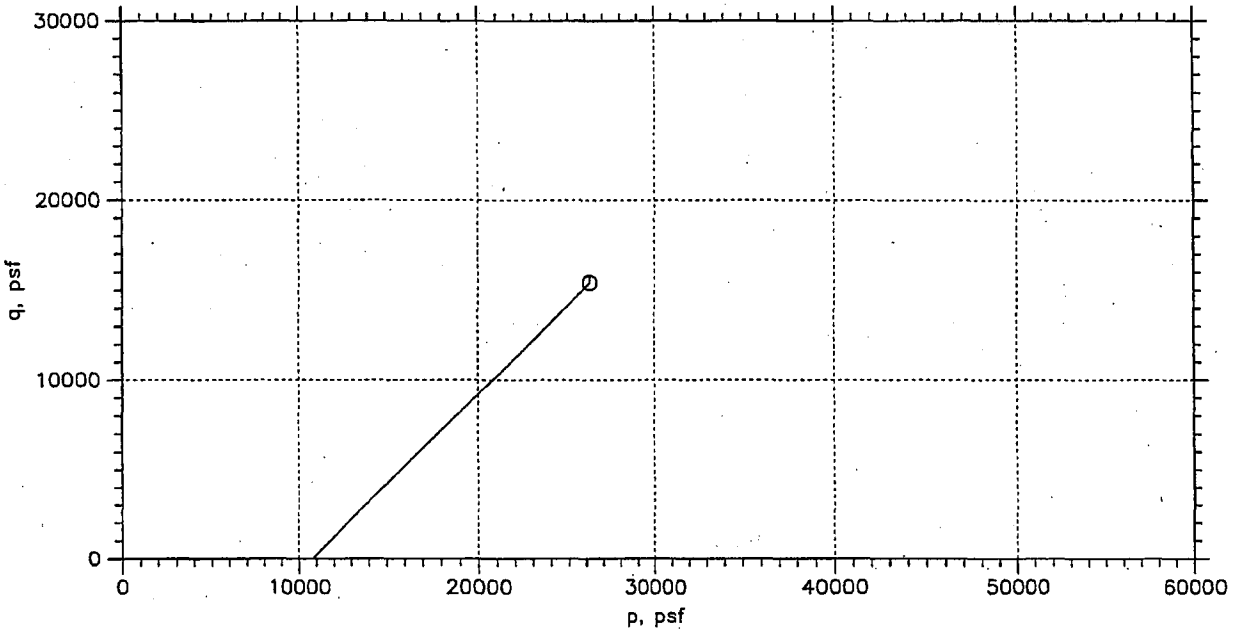
Phase calculations based on start and end of test.

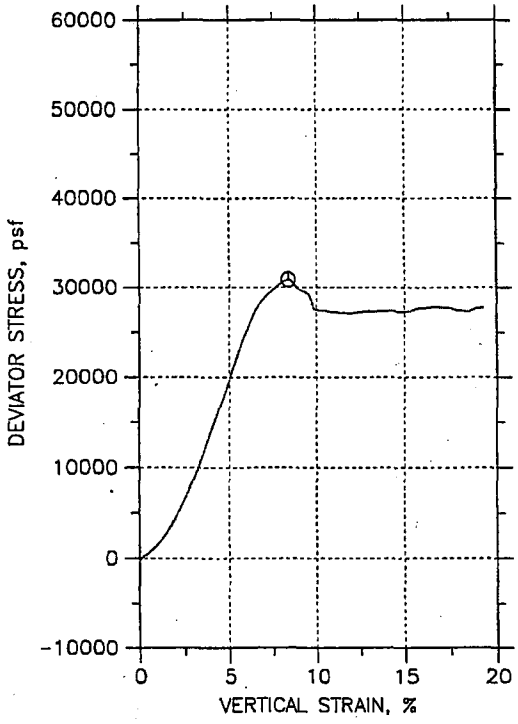
HJ 4/4/07

KAW 4/4/07

Wed, 04-APR-2007 14:08:38

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-5			
Test No.	6915			
Depth	168-170'			
Tested by	BM			
Test Date	2/10/07			
Checked by	HJ			
Check Date	HJ			
Diameter, in	2.871			
Height, in	5.6			
Water Content, %	32.0			
Dry Density, pcf	96.4			
Saturation, %	117.3			
Void Ratio	0.729			
Confining Stress, psf	1.08e+004			
Undrained Strength, psf	1.543e+004			
Max. Dev. Stress, psf	3.085e+004			
Strain at Failure, %	8.4			
Strain Rate, %/min	1			
Measured Specific Gravity	2.67			
Liquid Limit	NP			
Plastic Limit	NP			
Plasticity Index	NP			

MACTEC

Project: Bechtel/STP/COL

Location: B-303 UD-5

Project No.: 5050060496

Boring No.: B-303

Sample Type: Undisturbed

Description: Silty Sand (SM)

Remarks:

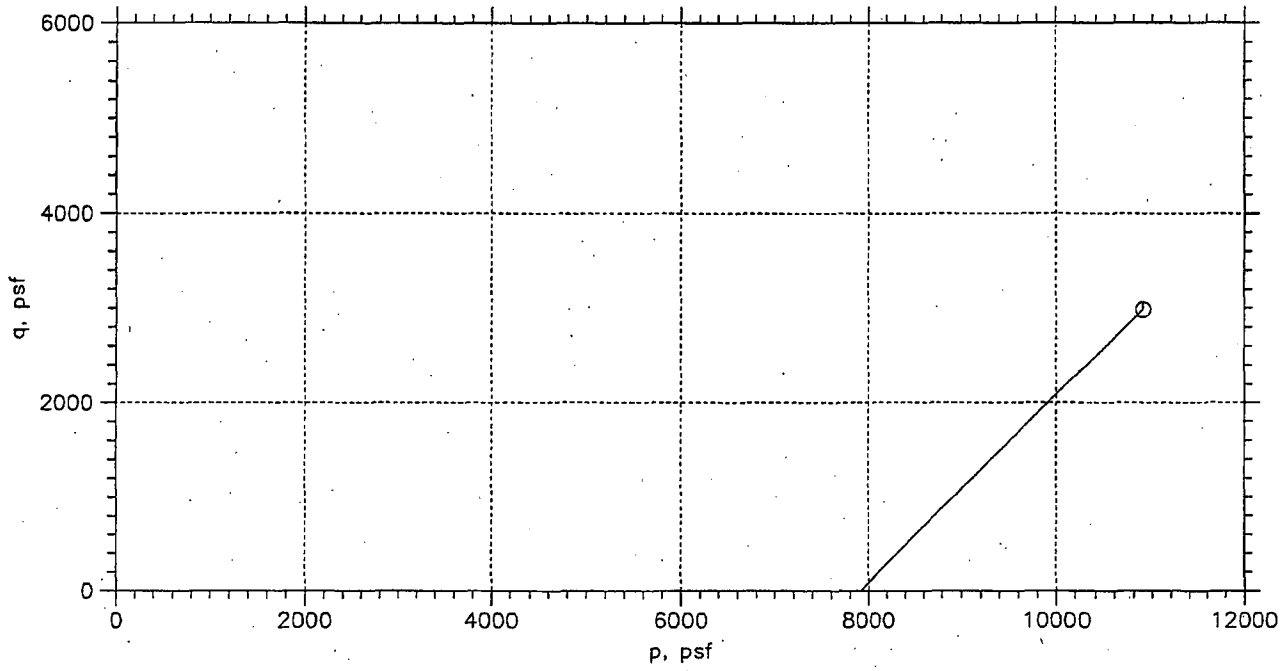
Phase calculations based on start and end of test.

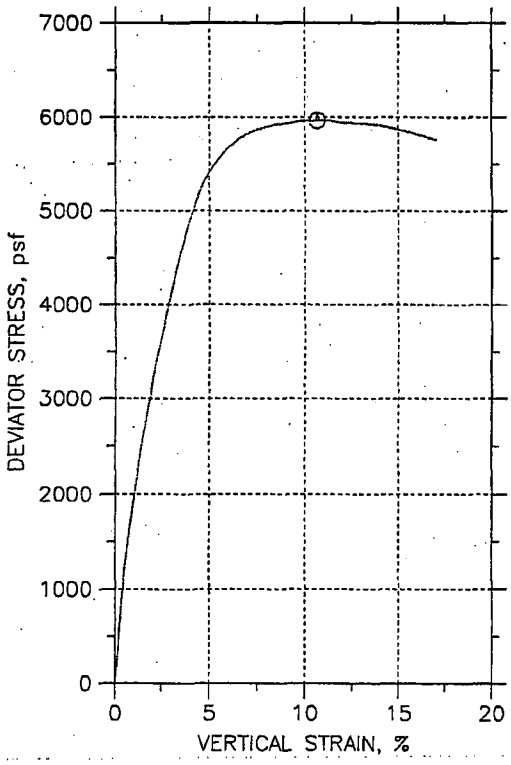
Tue, 03-APR-2007 18:07:07

4/3/07

KAW 4/3/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-7			
Test No.	6919			
Depth	123-125'			
Tested by	BM			
Test Date	2/14/07			
Checked by	HJ			
Check Date	4/4/07			
Diameter, in	2.824			
Height, in	5.6			
Water Content, %	20.1			
Dry Density, pcf	106.9			
Saturation, %	94.1			
Void Ratio	0.577			
Confining Stress, psf	7920			
Undrained Strength, psf	2984			
Max. Dev. Stress, psf	5967			
Strain at Failure, %	10.7			
Strain Rate, %/min	1			
Estimated Specific Gravity	2.7			
Liquid Limit	---			
Plastic Limit	---			
Plasticity Index	---			

MACTEC

Project: Bechtel/STP/COL

Location: B-305-DH UD-7

Project No.: 5050060496

Boring No.: B-305-DH

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

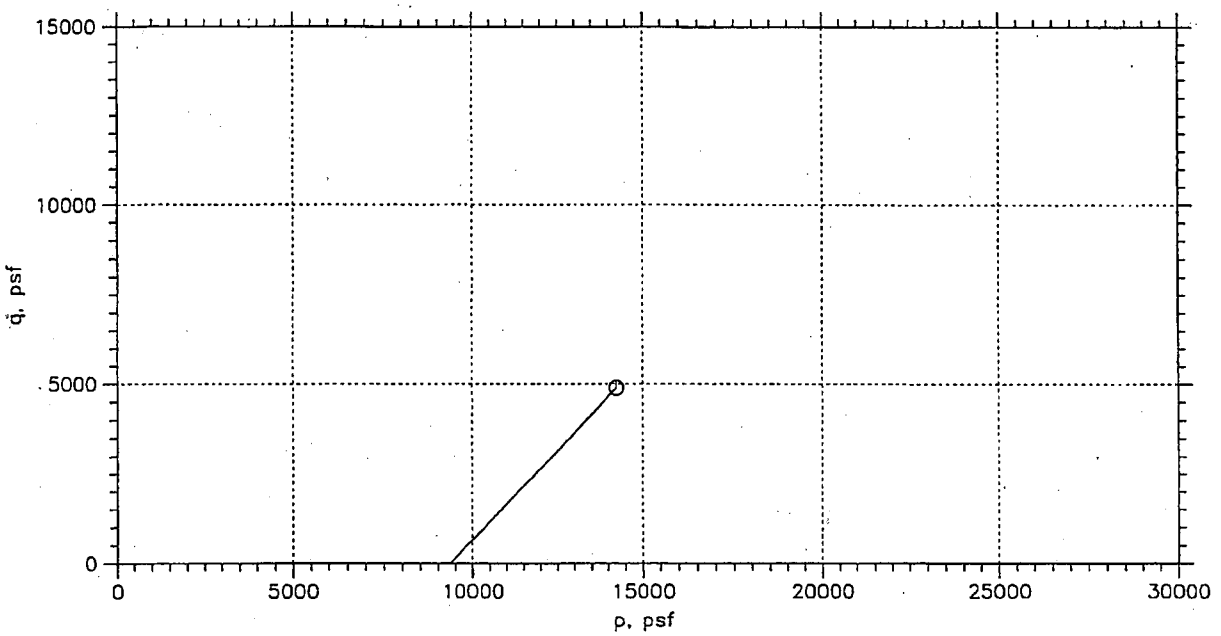
HJ 4/4/07

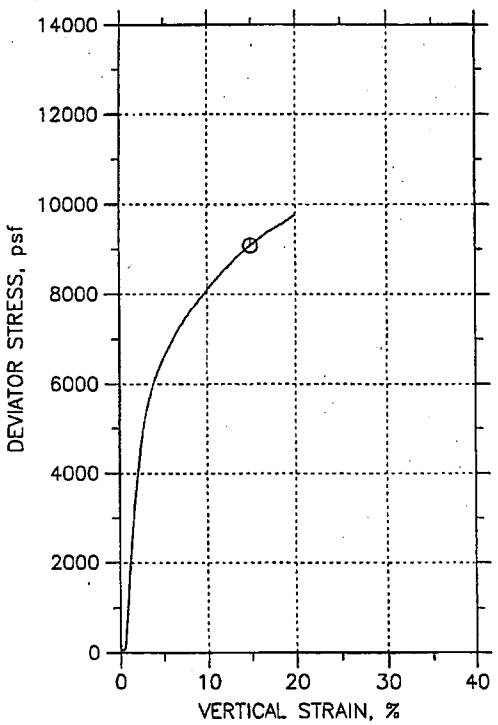
KAW 4/4/07

Phase calculations based on start and end of test.

Wed, 04-APR-2007 14:09:23

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⦶			
Sample No.	UD-8			
Test No.	6909			
Depth	138-140ft			
Tested by	BM			
Test Date	2/13/07			
Checked by	HJ			
Check Date	2/23/07			
Diameter, in	2.874			
Height, in	5.6			
Water Content, %	18.1			
Dry Density, pcf	109.7			
Saturation, %	90.8			
Void Ratio	0.539			
Confining Stress, psf	9360			
Undrained Strength, psf	4543			
Max. Dev. Stress, psf	9085			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.7			
Liquid Limit	32			
Plastic Limit	14			
Plasticity Index	18			

MACTEC

Project: Bechtel/STP/COL

Location: B-305-DH UD-8

Project No.: 5050060496

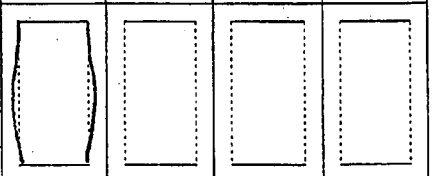
Boring No.: B-305-DH

Sample Type: Undisturbed

Description: Lean Clay with Sand (CL)

Remarks:

Phase calculations based on start and end of test.

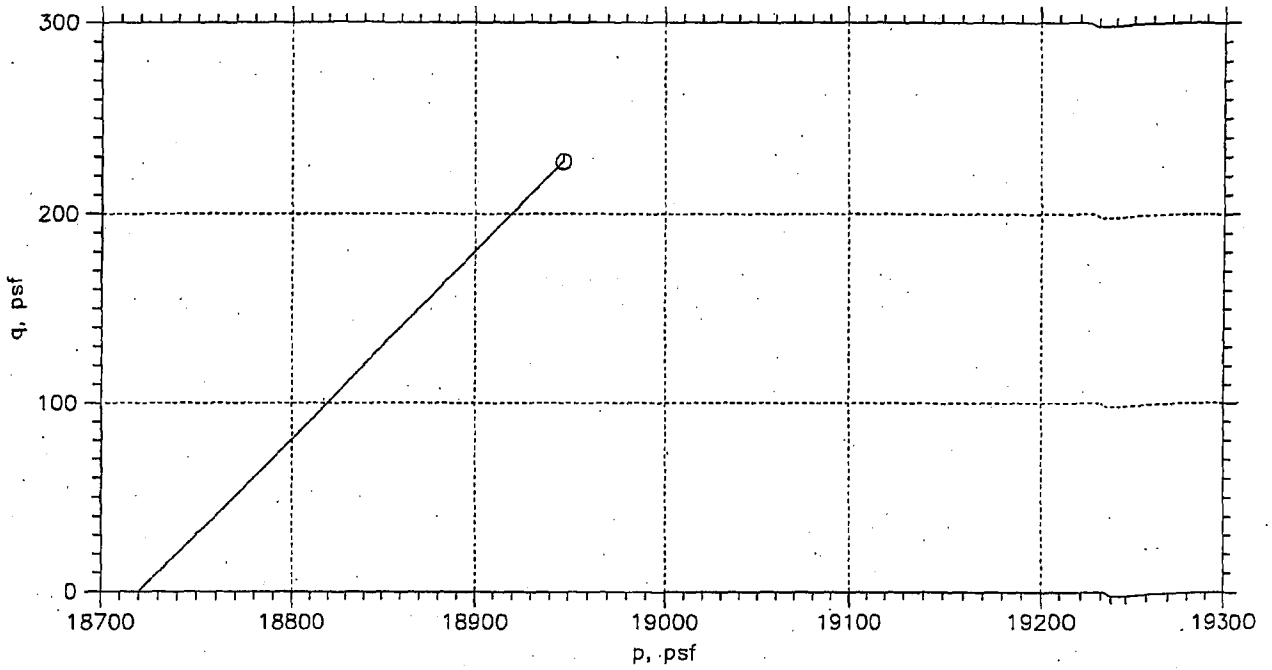


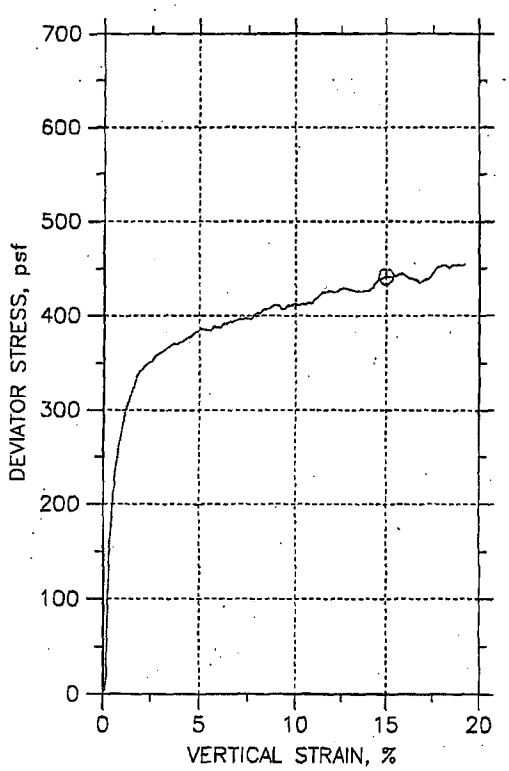
JR 2/23/07

KAW 4/3/07

Fri, 23-FEB-2007 10:05:00

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-14			
Test No.	6921			
Depth	288-291ft			
Tested by	BM			
Test Date	2/15/07			
Checked by	HJ			
Check Date	4/4/07			
Diameter, in	2.833			
Height, in	5.6			
Water Content, %	40.2			
Dry Density, pcf	77.43			
Saturation, %	91.6			
Void Ratio	1.19			
Confining Stress, psf	1.872e+004			
Undrained Strength, psf	220.8			
Max. Dev. Stress, psf	441.5			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.72			
Liquid Limit	84			
Plastic Limit	26			
Plasticity Index	58			

MACTEC

Project: Bechtel/STP/COL

Location: B-305-DH UD-14

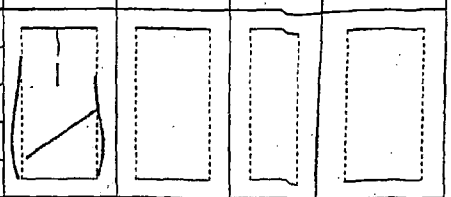
Project No.: 5050060496

Boring No.: B-305-DH

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:



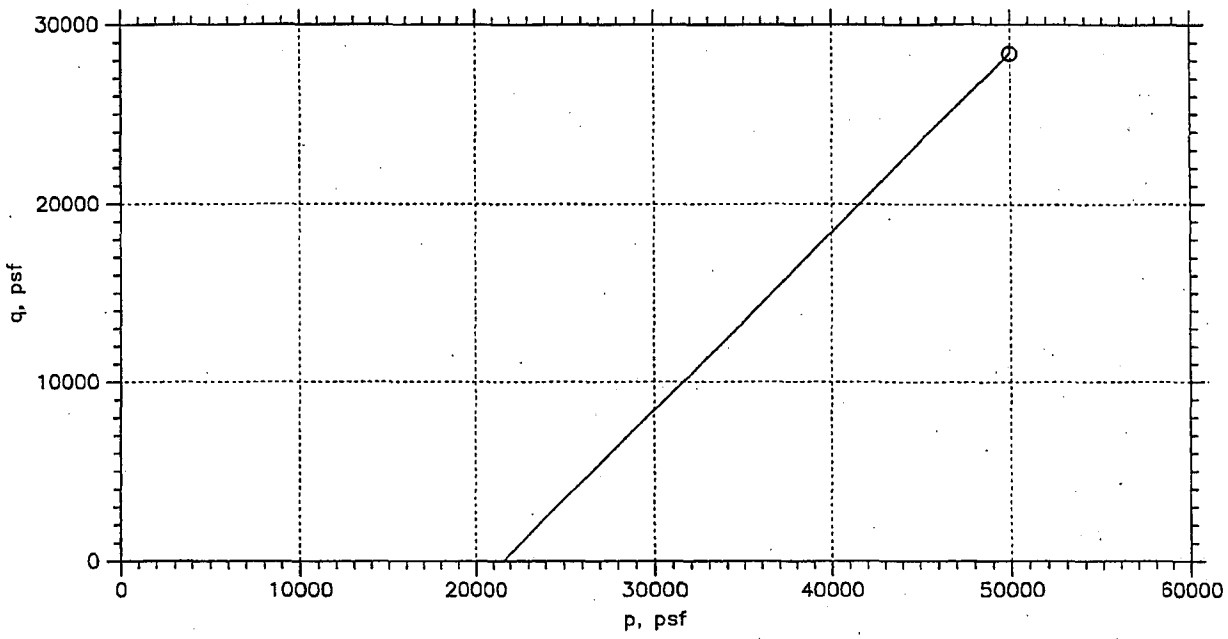
HJ 4/04/07

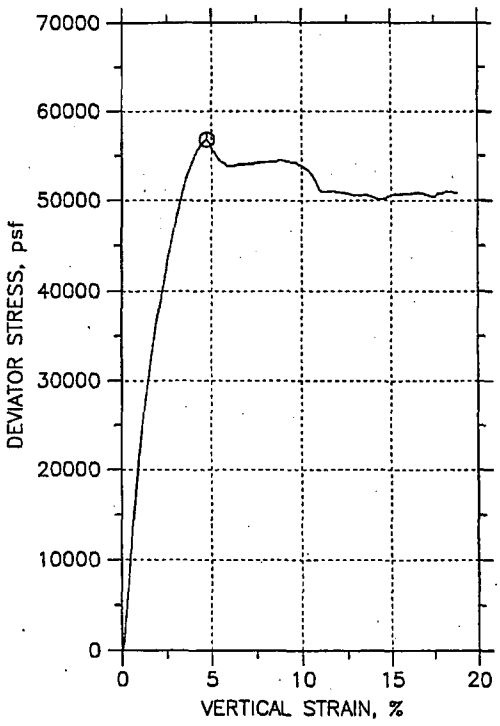
Phase calculations based on start and end of test.

Wed, 04-APR-2007 14:10:17

KH 4/4/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-21A			
Test No.	6989			
Depth	453.-455.5'			
Tested by	BM			
Test Date	2/15/07			
Checked by	HJ			
Check Date	3/26/07			
Diameter, in	2.839			
Height, in	5.6			
Water Content, %	22.0			
Dry Density, pcf	103.1			
Saturation, %	95.3			
Void Ratio	0.616			
Confining Stress, psf	2.16e+004			
Undrained Strength, psf	2.839e+004			
Max. Dev. Stress, psf	5.677e+004			
Strain at Failure, %	4.76			
Strain Rate, %/min	1			
Measured Specific Gravity	2.67			
Liquid Limit	~~NP~~ NV JFL 3/26/07			
Plastic Limit	NP			
Plasticity Index	NP			

MACTEC

Project: Bechtel/STP/COL

Location: B-305-DH UD-21A

Project No.: 5050060496

Boring No.: B-305-DH

Sample Type: Undisturbed

Description: Poorly Graded Sand with Silt (SP-SM)

Remarks:

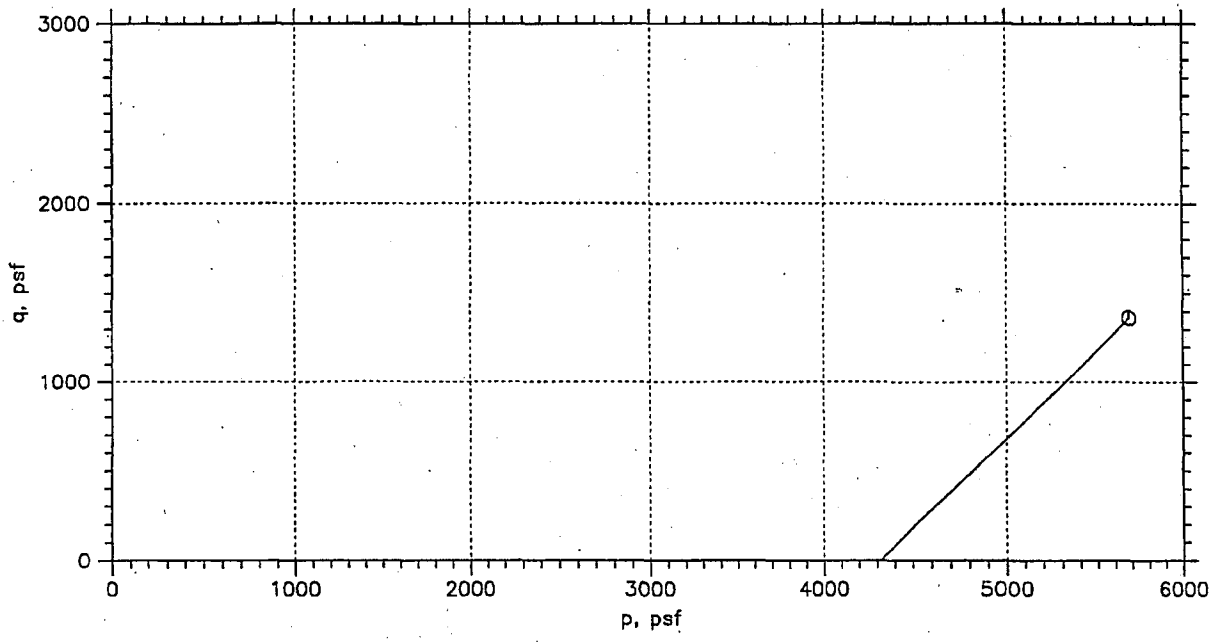
Phase calculations based on start and end of test.

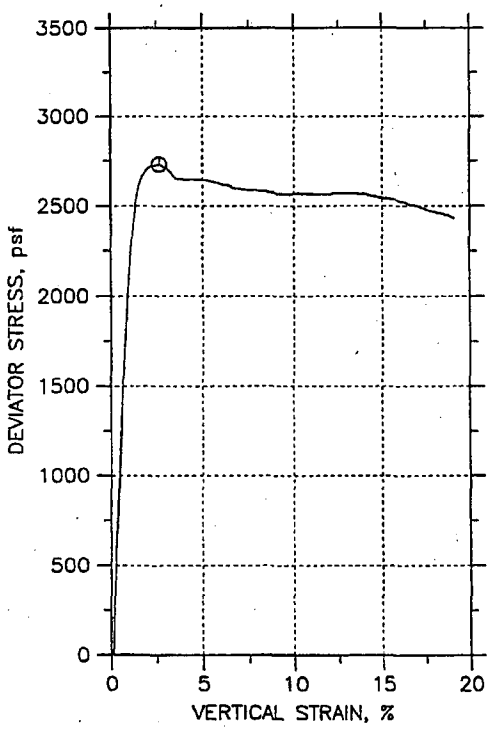
JFL 3/26/07

KAW 3/29/07

Mon, 26-MAR-2007 10:15:28

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-2			
Test No.	6956			
Depth	63-65'			
Tested by	BM			
Test Date	2/10/07			
Checked by	HJ			
Check Date	3/26/07			
Diameter, in	2.827			
Height, in	5.6			
Water Content, %	25.6			
Dry Density, pcf	96.36			
Saturation, %	94.2			
Void Ratio	0.723			
Confining Stress, psf	4320			
Undrained Strength, psf	1365			
Max. Dev. Stress, psf	2730			
Strain at Failure, %	2.66			
Strain Rate, %/min	1			
Measured Specific Gravity	2.66			
Liquid Limit	20			
Plastic Limit	18			
Plasticity Index	2			

MACTEC

Project: Bechtel/STP/COL

Location: B-306 UD-2

Project No.: 5050060496

Boring No.: B-306

Sample Type: Undisturbed

Description: Silty Sand (SM)

Remarks:

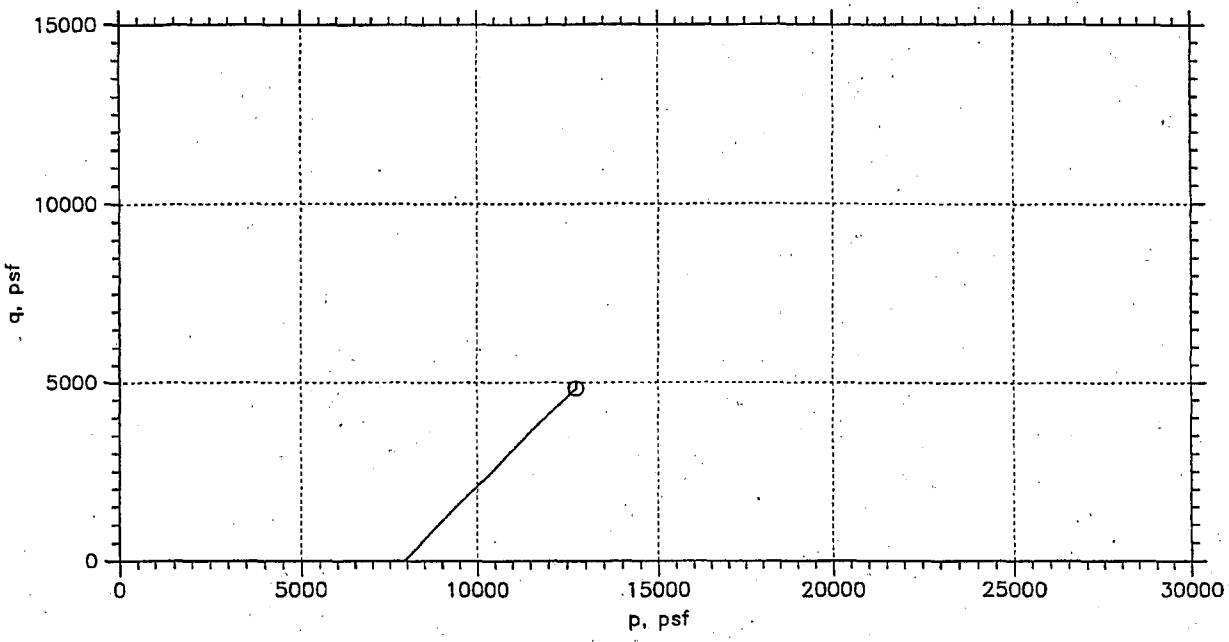
Phase calculations based on start and end of test.

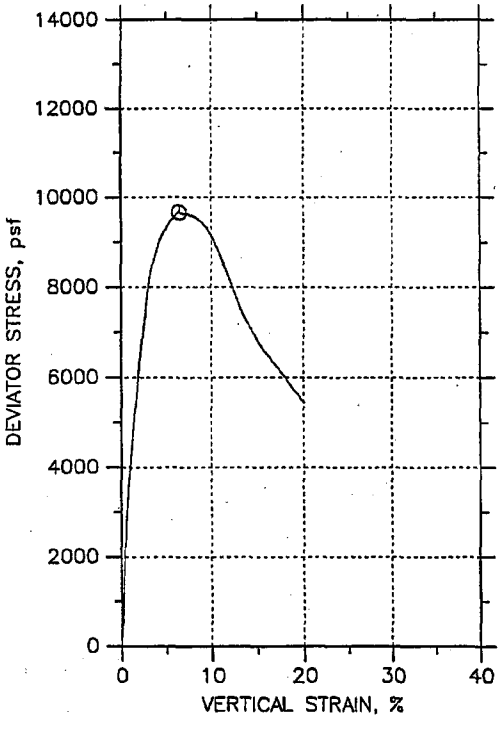
Mon, 26-MAR-2007 09:45:22

3/26/07

KAW 3/29/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-2			
Test No.	6959			
Depth	113-115'			
Tested by	BM/VG			
Test Date	2/12/07			
Checked by	HJ			
Check Date	~~3/26/07~~	3/26/07		
Diameter, in	2.875			
Height, in	5.6			
Water Content, %	20.0			
Dry Density, pcf	106.6			
Saturation, %	91.8			
Void Ratio	0.593			
Confining Stress, psf	7920			
Undrained Strength, psf	4831			
Max. Dev. Stress, psf	9663			
Strain at Failure, %	6.41			
Strain Rate, %/min	1			
Measured Specific Gravity	2.72			
Liquid Limit	38			
Plastic Limit	25			
Plasticity Index	13			

MACTEC

Project: Bechtel/STP/COL

Location: B-314 UD-2

Project No.: 5050060496

Boring No.: B-314

Sample Type: Undisturbed

Description: Lean Clay (CL)

Remarks:

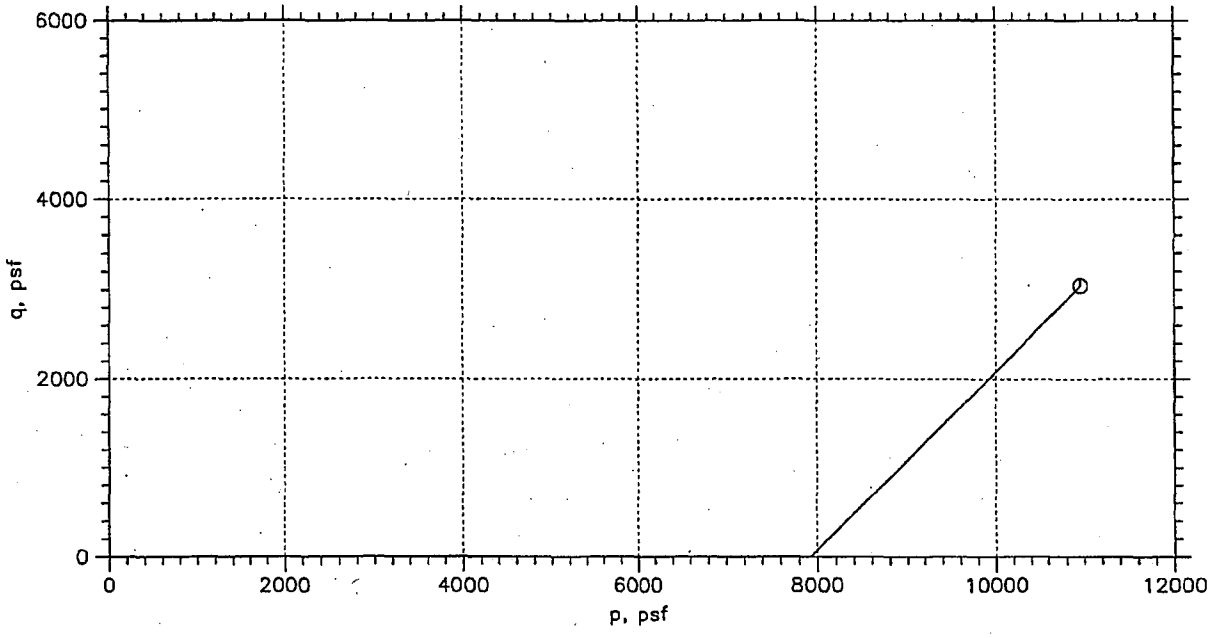
Phase calculations based on start and end of test.

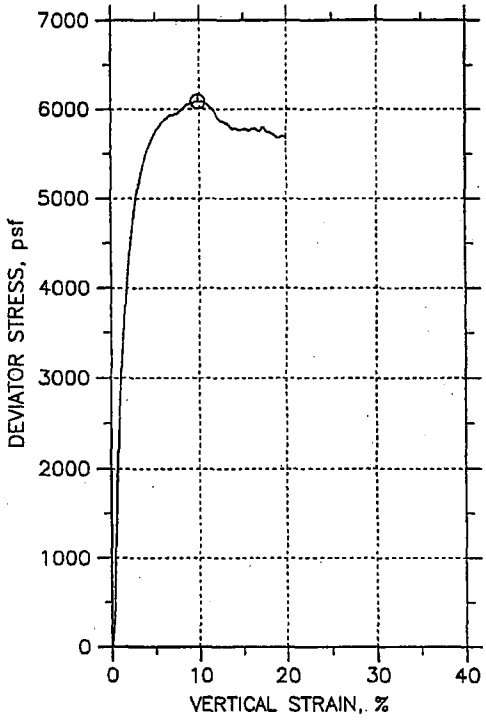
~~3/23/07~~ 3/26/07

Mon, 26-MAR-2007 09:43:35

KAW 3/29/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-3			
Test No.	6960			
Depth	121-123'			
Tested by	BM/VG			
Test Date	2/12/07			
Checked by	HJ			
Check Date	4/2/07			
Diameter, in	2.862			
Height, in	5.6			
Water Content, %	19.5			
Dry Density, pcf	109.1			
Saturation, %	96.8			
Void Ratio	0.544			
Confining Stress, psf	7920			
Undrained Strength, psf	3042			
Max. Dev. Stress, psf	6084			
Strain at Failure, %	9.85			
Strain Rate, %/min	1			
Estimated Specific Gravity	2.7			
Liquid Limit	---			
Plastic Limit	---			
Plasticity Index	---			

MACTEC

Project: Bechtel/STP/COL

Location: B-314 UD-3

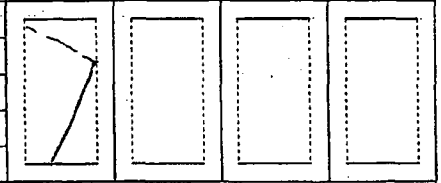
Project No.: 5050060496

Boring No.: B-314

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:



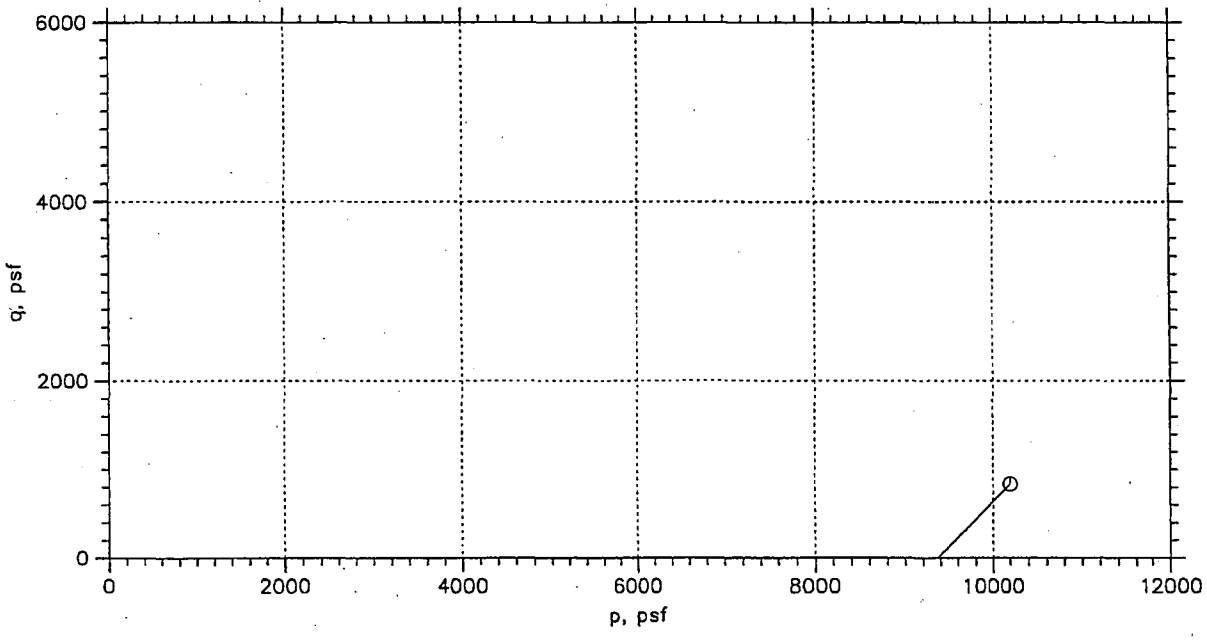
HJ 4/2/07

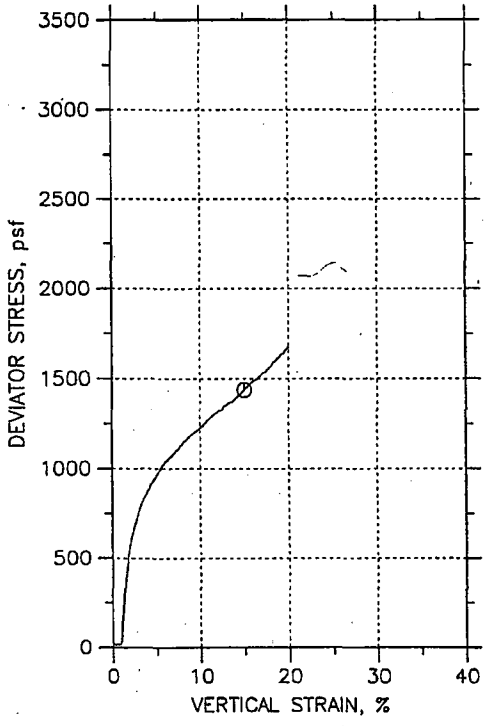
Phase calculations based on start and end of test.

KAW 4/3/07

Mon, 02-APR-2007 09:09:02

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-4			
Test No.	6961			
Depth	141-143ft			
Tested by	BM			
Test Date	2/19/07			
Checked by	HJ			
Check Date	2/23/07			
Diameter, in	2.814			
Height, in	5.6			
Water Content, %	24.2			
Dry Density, pcf	96.88			
Saturation, %	86.5			
Void Ratio	0.767			
Confining Stress, psf	9360			
Undrained Strength, psf	718			
Max. Dev. Stress, psf	1436			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.74			
Liquid Limit	46			
Plastic Limit	15			
Plasticity Index	31			

MACTEC

Project: Bechtel/STP/COL

Location: B-314 UD-4

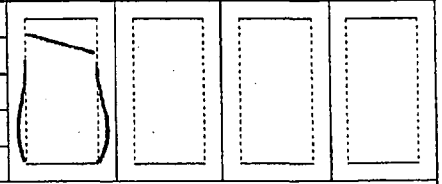
Project No.: 5050060496

Boring No.: B-314

Sample Type: Undisturbed

Description: Lean Clay (CL)

Remarks:



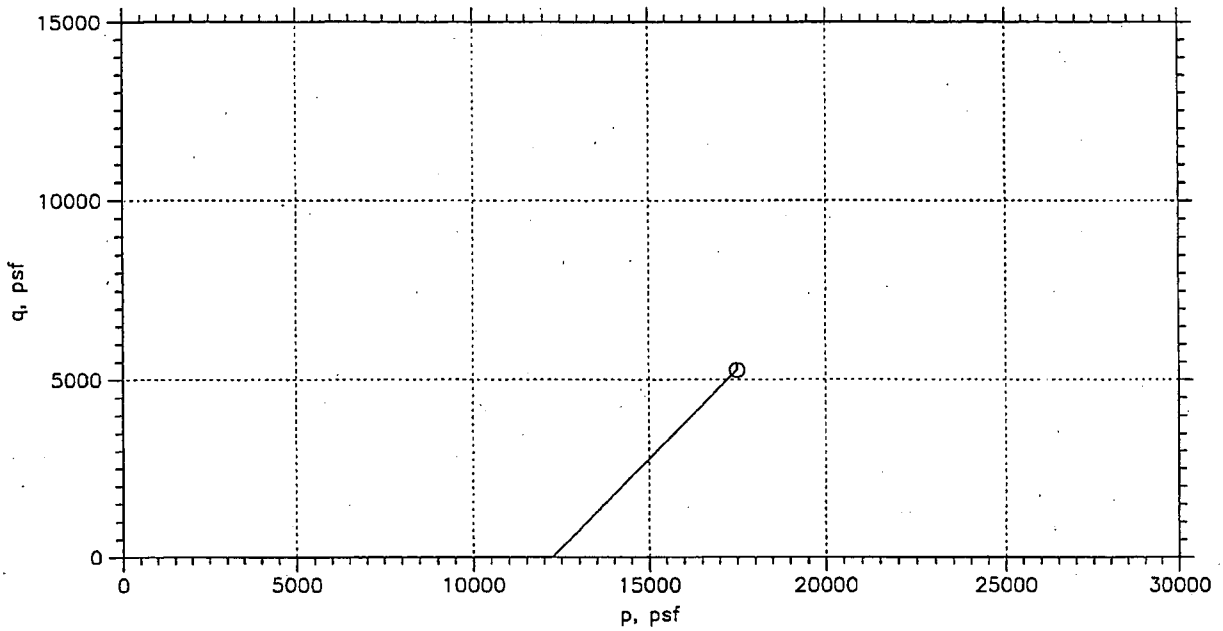
Phase calculations based on start and end of test.

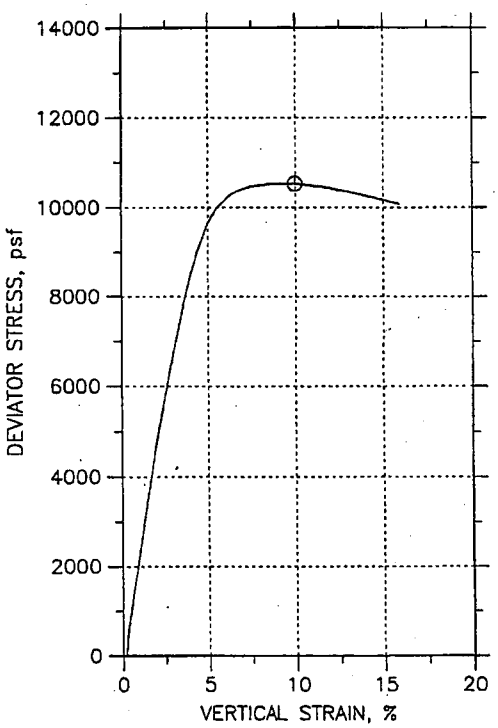
Fri, 23-FEB-2007 15:28:29

2/23/07

KAW 4/3/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⦶			
Sample No.	UD-5A			
Test No.	6962			
Depth	183-185ft			
Tested by	BM			
Test Date	2/19/07			
Checked by	HJ			
Check Date	2/23/07			
Diameter, in	2.814			
Height, in	5.6			
Water Content, %	20.3			
Dry Density, pcf	101.8			
Saturation, %	81.7			
Void Ratio	0.684			
Confining Stress, psf	1.224e+004			
Undrained Strength, psf	5265			
Max. Dev. Stress, psf	1.053e+004			
Strain at Failure, %	9.99			
Strain Rate, %/min	1			
Measured Specific Gravity	2.75			
Liquid Limit	72			
Plastic Limit	24			
Plasticity Index	48			

MACTEC

Project: Bechtel/STP/COL

Location: B-314 UD-5A

Project No.: 5050060496

Boring No.: B-314

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

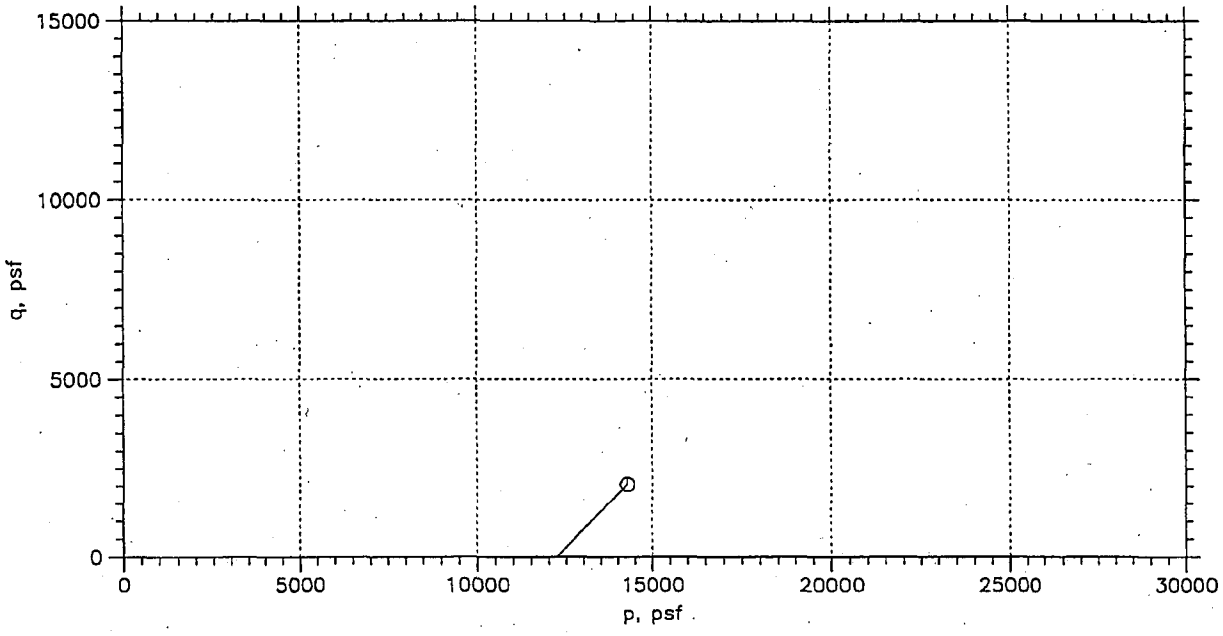
Phase calculations based on start and end of test.

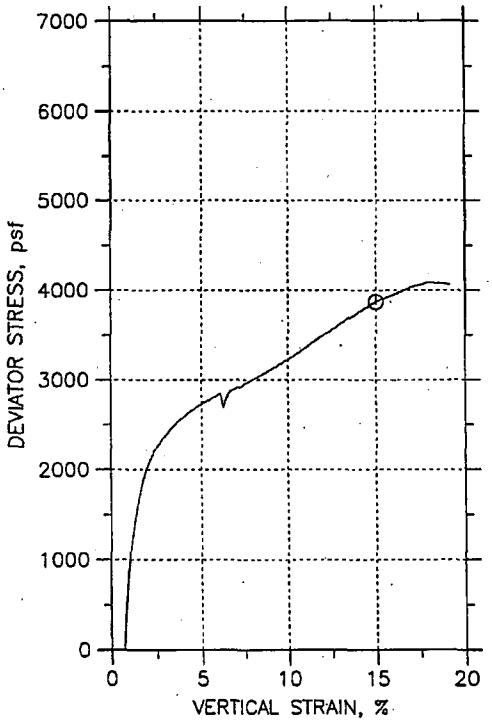
Fri, 23-FEB-2007 15:31:05

2/23/07

KAW 4/3/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850

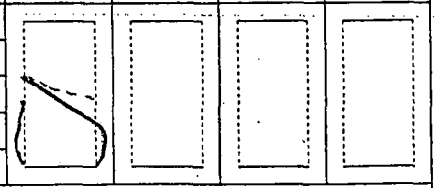




Symbol	⊙			
Sample No.	UD-6			
Test No.	6963			
Depth	191-193ft			
Tested by	BM			
Test Date	2/19/07			
Checked by	HJ			
Check Date	3/3/07			
Diameter, in	2.835			
Height, in	5.2			
Water Content, %	26.5			
Dry Density, pcf	93.99			
Saturation, %	90.2			
Void Ratio	0.793			
Confining Stress, psf	1.224e+004			
Undrained Strength, psf	1933			
Max. Dev. Stress, psf	3866			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.7			
Liquid Limit	64			
Plastic Limit	24			
Plasticity Index	40			

MACTEC

Project: Bechtel/STP/COL
Location: B-314 UD-6
Project No.: 5050060496
Boring No.: B-314
Sample Type: Undisturbed
Description: Fat Clay (CH)
Remarks:



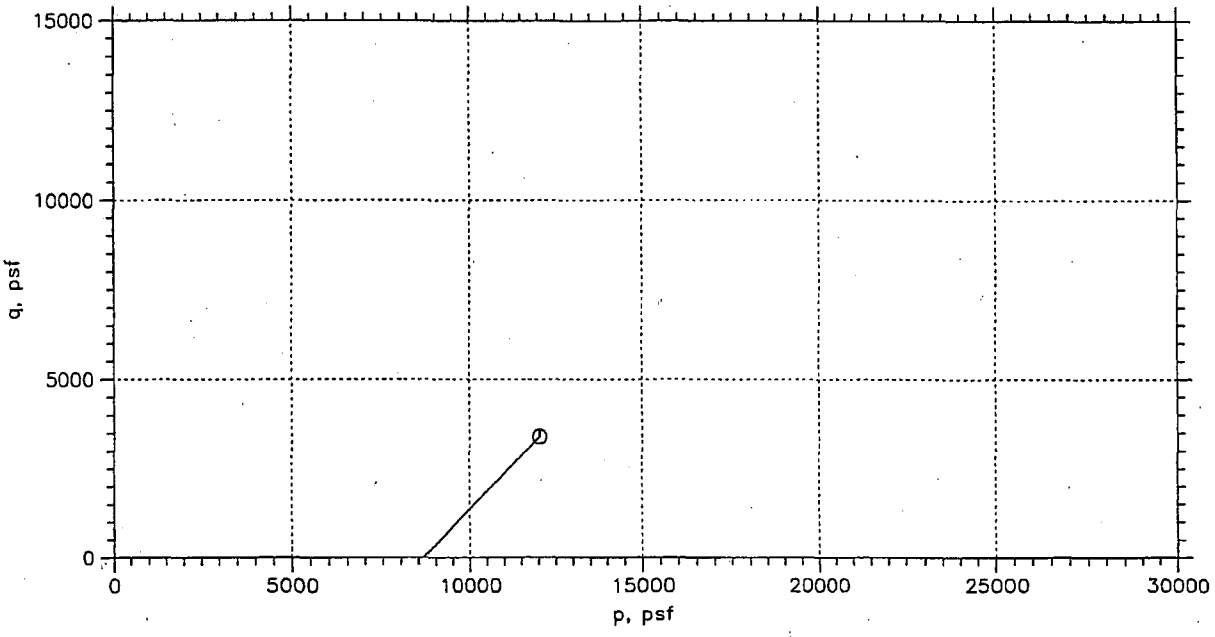
3/31/07

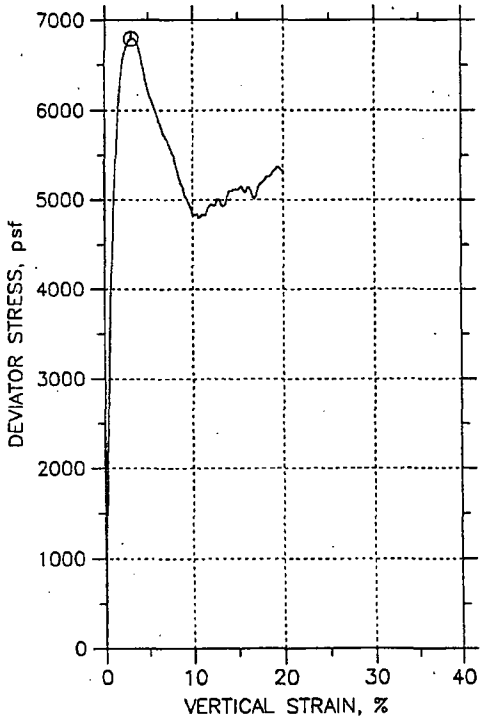
Phase calculations based on start and end of test.

Fri, 30-MAR-2007 13:56:11

KAW 4/1/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-1			
Test No.	6916			
Depth	128-130ft			
Tested by	BM			
Test Date	2/13/07			
Checked by	HJ			
Check Date	2/23/07			
Diameter, in	2.854			
Height, in	5.6			
Water Content, %	21.0			
Dry Density, pcf	103.5			
Saturation, %	89.1			
Void Ratio	0.64			
Confining Stress, psf	8640			
Undrained Strength, psf	3394			
Max. Dev. Stress, psf	6787			
Strain at Failure, %	3.07			
Strain Rate, %/min	1			
Measured Specific Gravity	2.72			
Liquid Limit	70			
Plastic Limit	25			
Plasticity Index	45			

MACTEC

Project: Bechtel/STP/COL
Location: B-319 UD-1
Project No.: 5050060496
Boring No.: B-319
Sample Type: Undisturbed
Description: Fat Clay (CH)
Remarks:

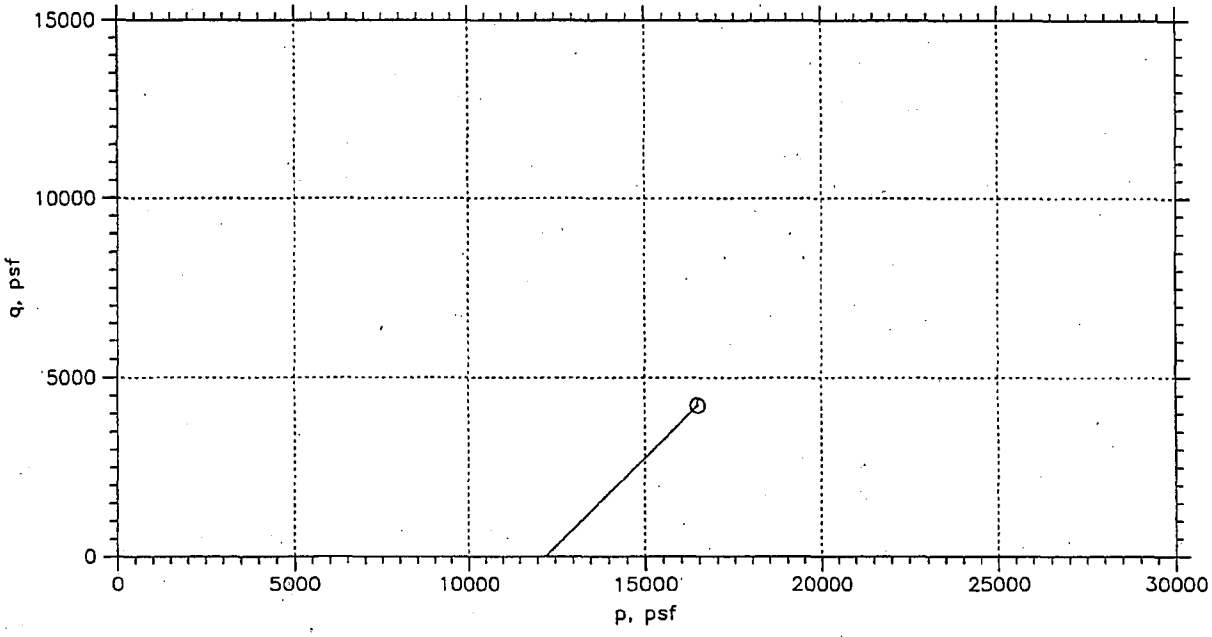
Phase calculations based on start and end of test.

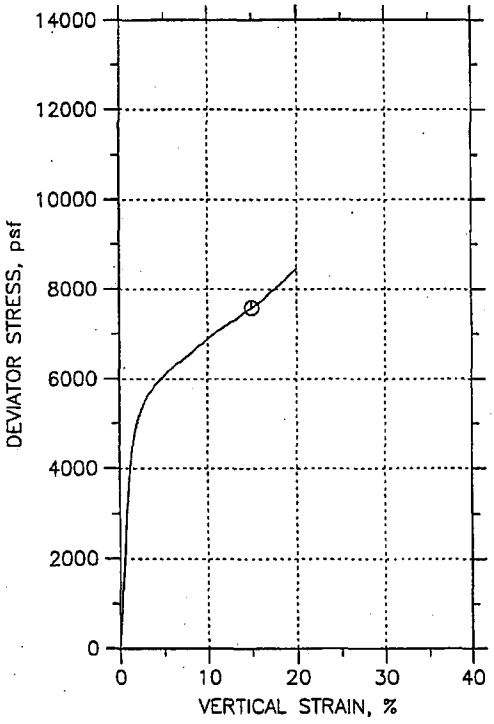
Fri, 23-FEB-2007 10:14:10

2/23/07

KAW 4/3/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-5			
Test No.	6896			
Depth	188-190ft			
Tested by	BM			
Test Date	2/19/07			
Checked by	HJ			
Check Date	2/23/07			
Diameter, in	2.866			
Height, in	5.6			
Water Content, %	23.9			
Dry Density, pcf	99.55			
Saturation, %	91.9			
Void Ratio	0.706			
Confining Stress, psf	1.224e+004			
Undrained Strength, psf	3788			
Max. Dev. Stress, psf	7576			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.72			
Liquid Limit	62			
Plastic Limit	21			
Plasticity Index	41			

MACTEC

Project: Bechtel/STP/COL
Location: B-319 UD-5
Project No.: 5050060496
Boring No.: B-319
Sample Type: Undisturbed
Description: Fat Clay (CH)
Remarks:

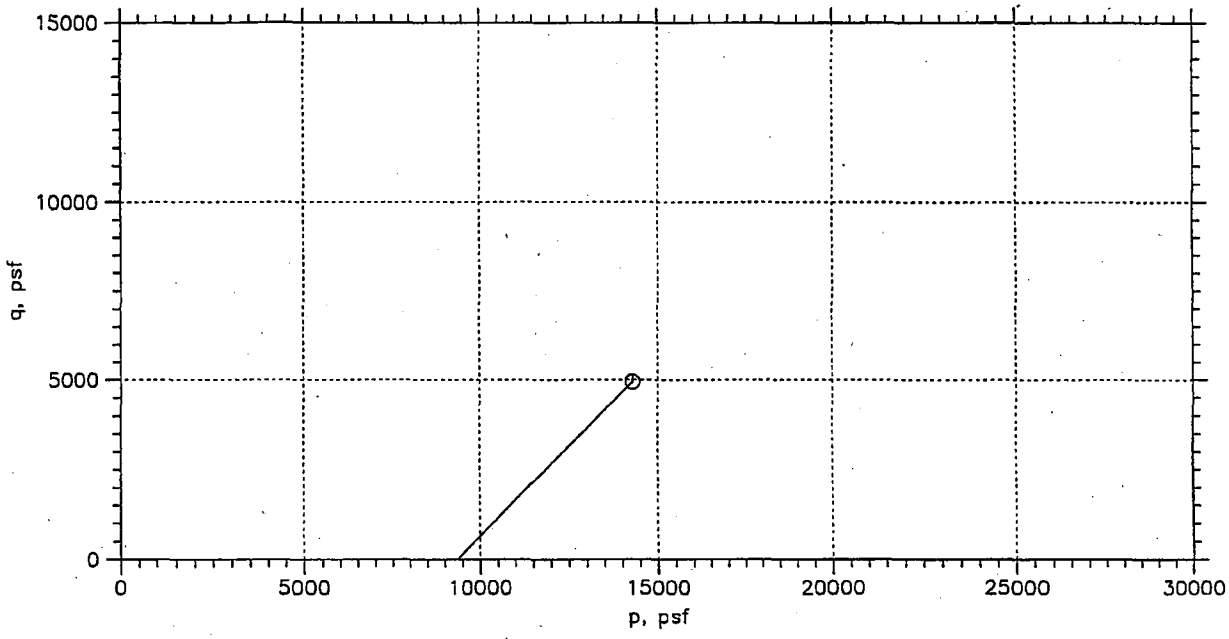
Phase calculations based on start and end of test.

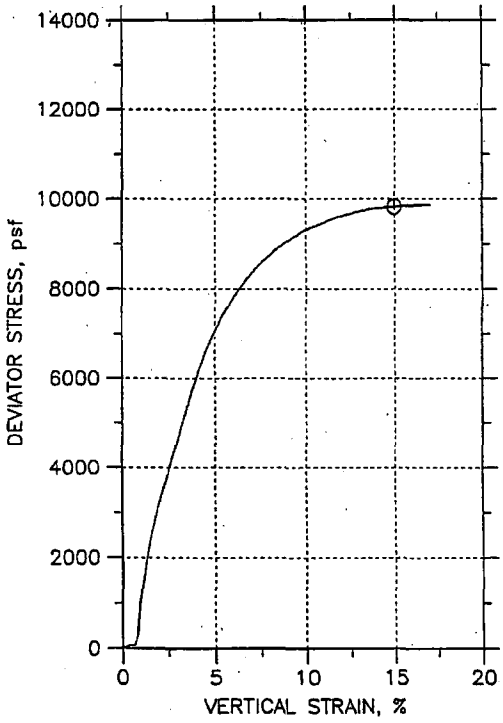
Fri, 23-FEB-2007 10:17:22

2/23/07

KAW 4/1/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850

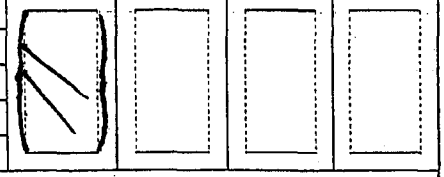




Symbol	⊙			
Sample No.	UD-3			
Test No.	7095			
Depth	138-140'			
Tested by	BM			
Test Date	3/02/07			
Checked by	HJ			
Check Date	3/26/07			
Diameter, in	2.805			
Height, in	5.6			
Water Content, %	20.0			
Dry Density, pcf	106.2			
Saturation, %	91.9			
Void Ratio	0.587			
Confining Stress, psf	9360			
Undrained Strength, psf	4913			
Max. Dev. Stress, psf	9825			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Estimated Specific Gravity	2.7			
Liquid Limit	46			
Plastic Limit	21			
Plasticity Index	25			

MACTEC

Project: Bechtel/STP/COL
Location: B-321 UD-3
Project No.: 5050060496
Boring No.: B-321
Sample Type: Undisturbed
Description: Lean Clay (CL)
Remarks:



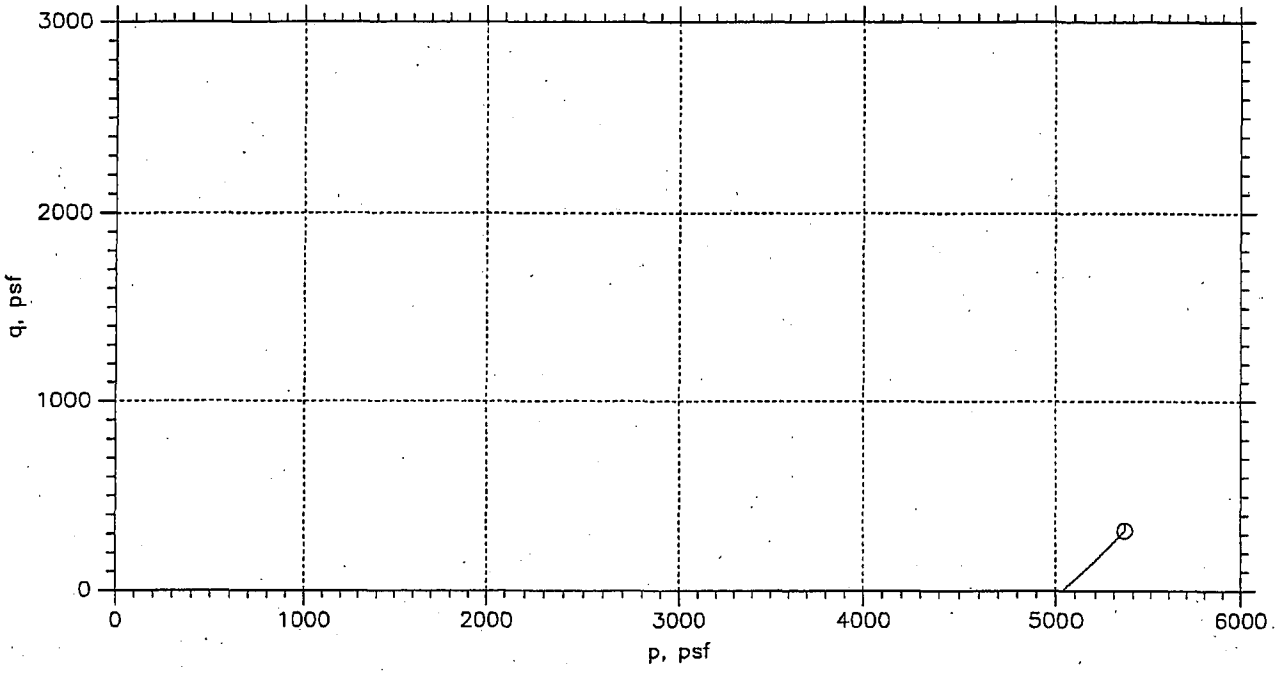
3/26/07

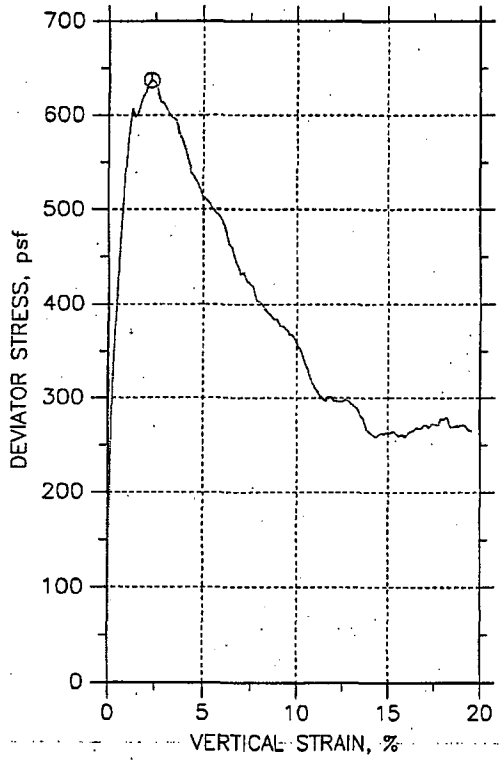
Phase calculations based on start and end of test.

Mon, 26-MAR-2007 10:17:56

KAW 3/29/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⦶			
Sample No.	UD-4			
Test No.	6930			
Depth	73-73.8'			
Tested by	BM			
Test Date	2/12/07			
Checked by	HJ			
Check Date	4/4/07			
Diameter, in	2.827			
Height, in	4.767			
Water Content, %	25.8			
Dry Density, pcf	94.53			
Saturation, %	89.9			
Void Ratio	0.77			
Confining Stress, psf	5040			
Undrained Strength, psf	318.5			
Max. Dev. Stress, psf	636.9			
Strain at Failure, %	2.27			
Strain Rate, %/min	1			
Measured Specific Gravity	2.68			
Liquid Limit	---			
Plastic Limit	---			
Plasticity Index	---			

MACTEC

Project: Bechtel/STP/COL

Location: B-328 UD-4

Project No.: 5050060496

Boring No.: B-328

Sample Type: Undisturbed

Description: Silty Sand (SM)

Remarks:

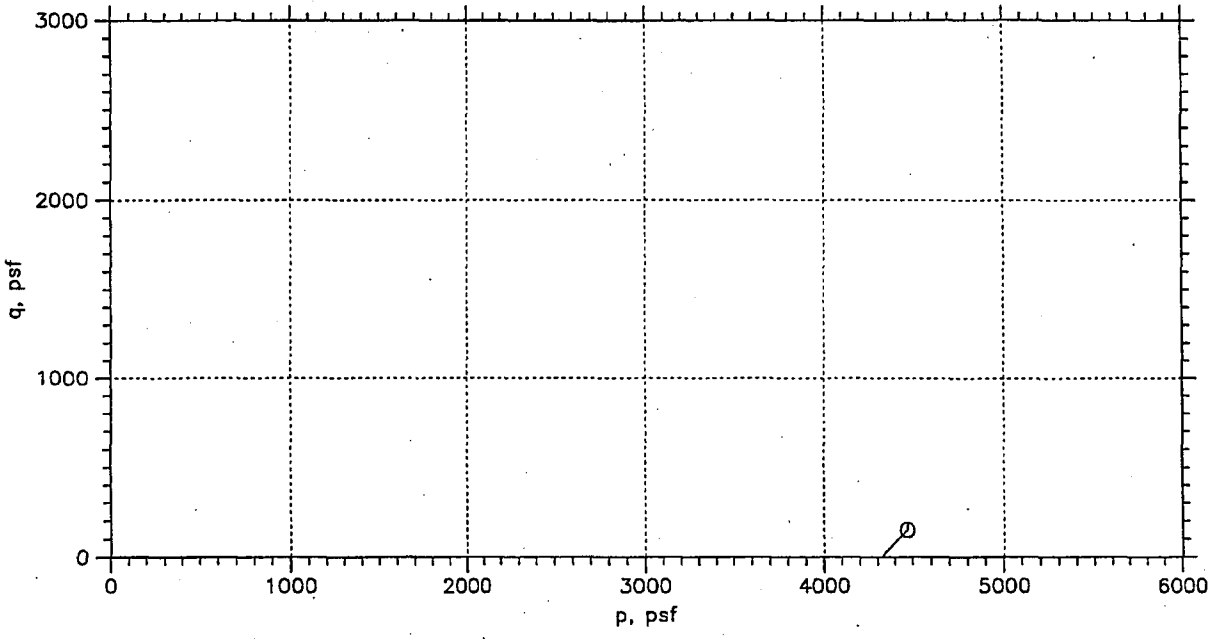
HJ 4/4/07

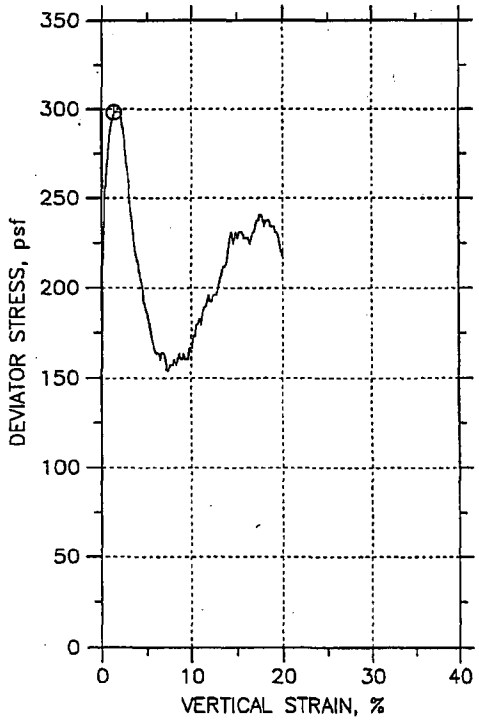
Phase calculations based on start and end of test.

KAW 4/4/07

Wed, 04-APR-2007 14:54:18

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-3			
Test No.	7104			
Depth	63-65'			
Tested by	BM			
Test Date	3/5/07			
Checked by	HJ			
Check Date	3/26/07			
Diameter, in	2.775			
Height, in	5.6			
Water Content, %	25.2			
Dry Density, pcf	96.23			
Saturation, %	91.9			
Void Ratio	0.732			
Confining Stress, psf	4320			
Undrained Strength, psf	149			
Max. Dev. Stress, psf	298.1			
Strain at Failure, %	1.34			
Strain Rate, %/min	1			
Measured Specific Gravity	2.67			
Liquid Limit	~~NP~~ NV			
Plastic Limit	NP			
Plasticity Index	NP			

MACTEC

Project: Bechtel/STP/COL

Location: B-330 UD-3

Project No.: 5050060496

Boring No.: B-330

Sample Type: Undisturbed

Description: Poorly Graded Sand with Silt (SP-SM)

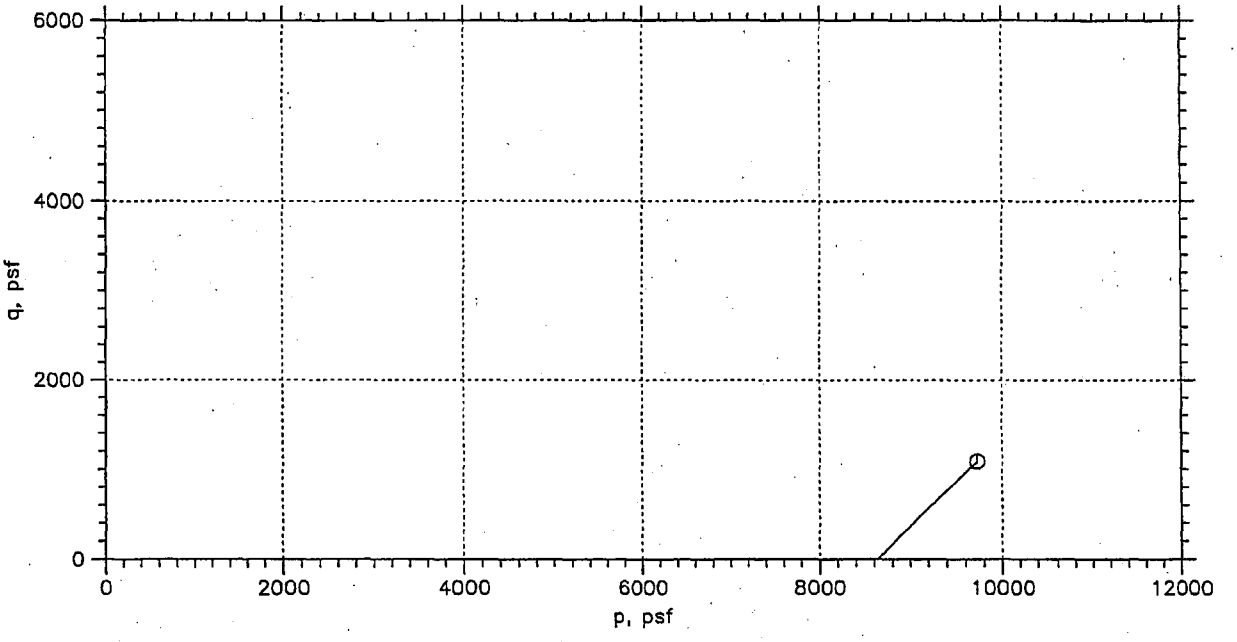
Remarks:

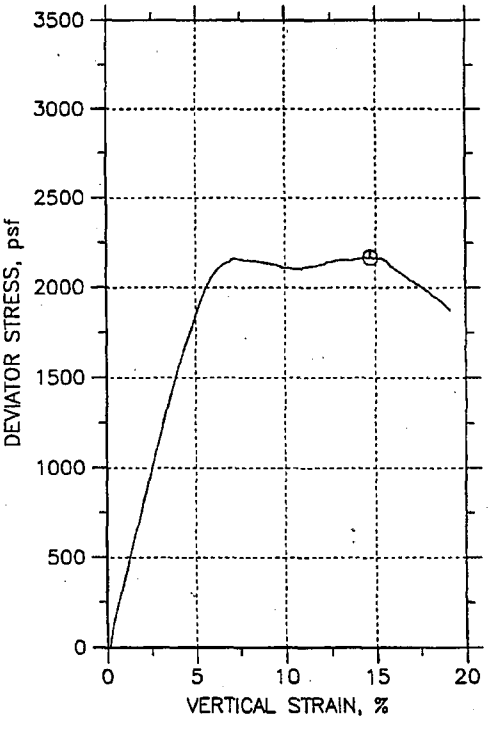
Phase calculations based on start and end of test.

Mon, 26-MAR-2007 10:25:06

KAW 3/29/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊖			
Sample No.	UD-4B			
Test No.	7187			
Depth	123-125'			
Tested by	BM			
Test Date	3/5/07			
Checked by	HJ			
Check Date	HJ			
Diameter, in	2.826			
Height, in	5.6			
Water Content, %	19.5			
Dry Density, pcf	107.7			
Saturation, %	93.1			
Void Ratio	0.565			
Confining Stress, psf	8640			
Undrained Strength, psf	1084			
Max. Dev. Stress, psf	2168			
Strain at Failure, %	14.7			
Strain Rate, %/min	1			
Estimated Specific Gravity	2.7			
Liquid Limit	---			
Plastic Limit	---			
Plasticity Index	---			

MACTEC

Project: Bechtel/STP/COL

Location: B-330 UD-4B

Project No.: 5050060496

Boring No.: B-330

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

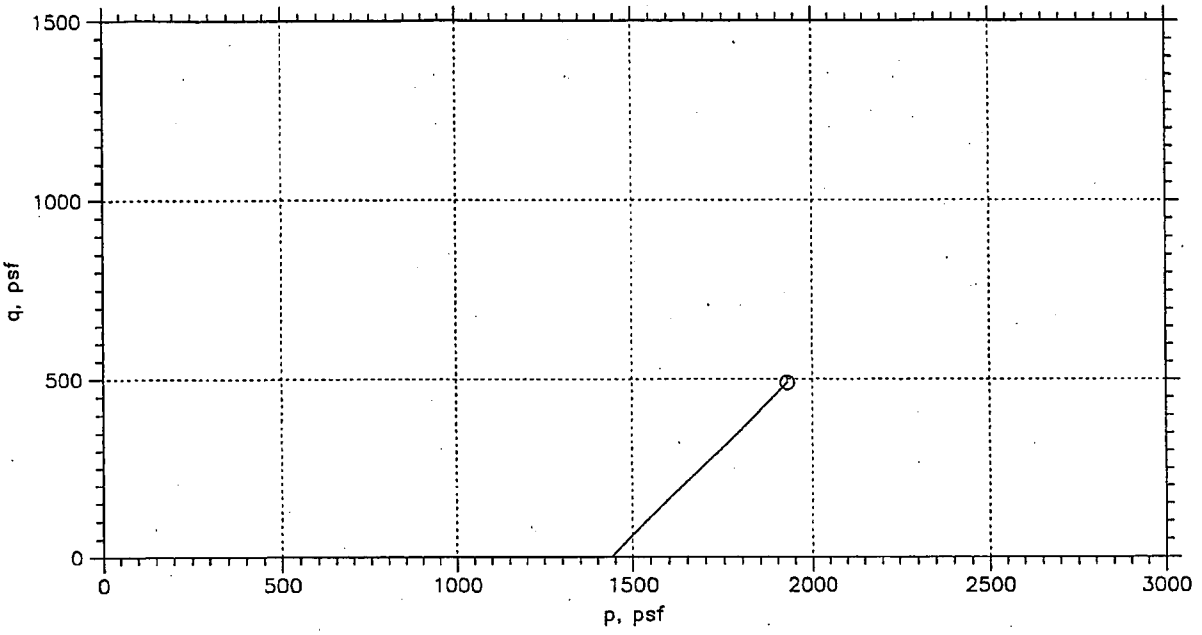
Phase calculations based on start and end of test.

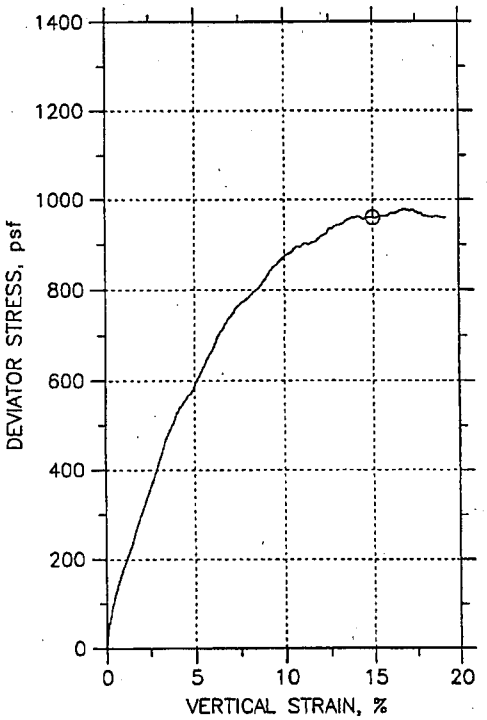
Tue, 03-APR-2007 18:04:27

4/3/07

KAW 4/3/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-2			
Test No.	6900			
Depth	18-20ft			
Tested by	BM			
Test Date	2/13/07			
Checked by	HJ			
Check Date	2/23/07			
Diameter, in	2.853			
Height, in	5.6			
Water Content, %	23.0			
Dry Density, pcf	91.71			
Saturation, %	74.1			
Void Ratio	0.836			
Confining Stress, psf	1440			
Undrained Strength, psf	479.7			
Max. Dev. Stress, psf	959.4			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.7			
Liquid Limit	30			
Plastic Limit	19			
Plasticity Index	11			

MACTEC

Project: Bechtel/STP/COL

Location: B-333 UD-2

Project No.: 5050060496

Boring No.: B-333

Sample Type: Undisturbed

Description: Lean Clay (CL)

Remarks:

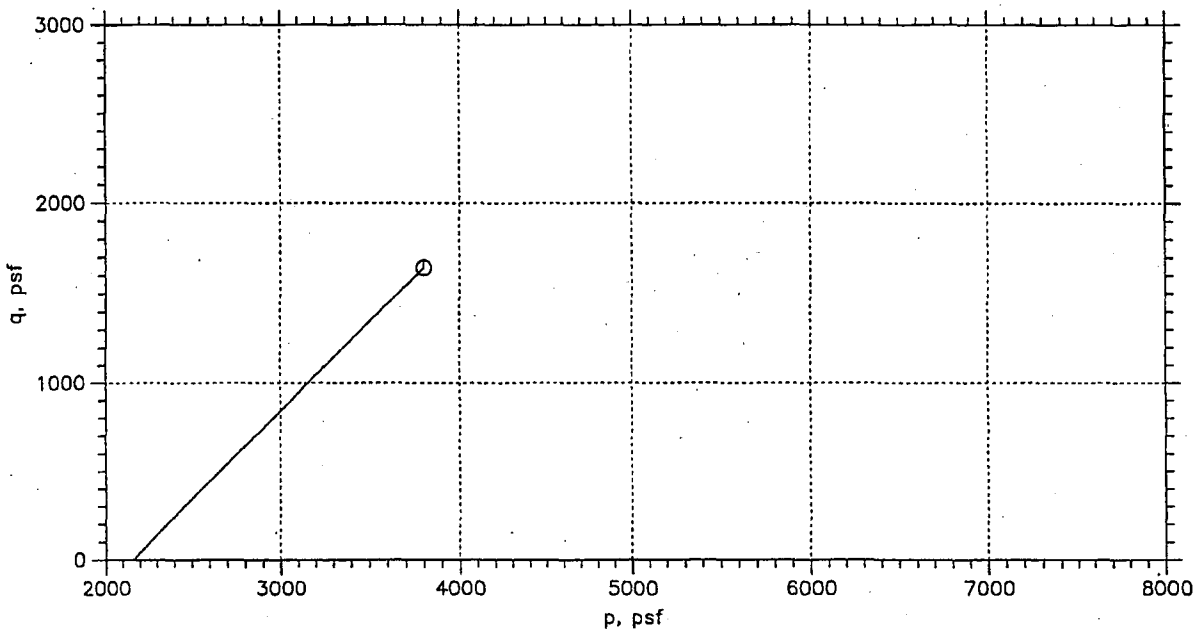
2/23/07

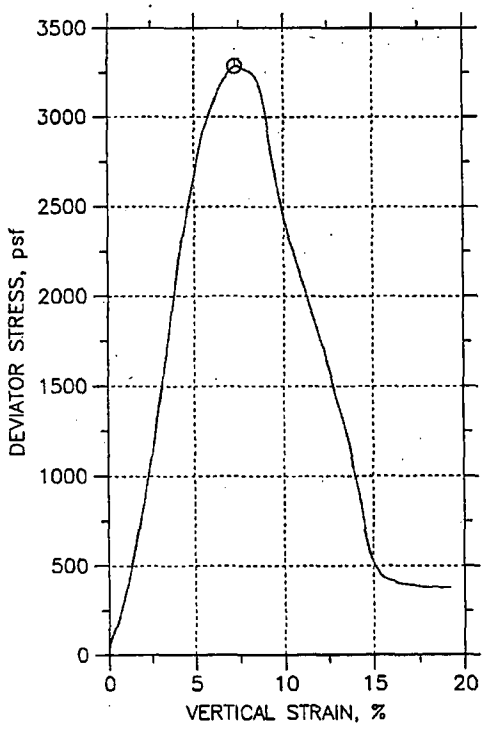
Phase calculations based on start and end of test.

Fri, 23-FEB-2007 14:19:10

KAW 4/3/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊘			
Sample No:	UD-1			
Test No.	6901			
Depth	28-30ft			
Tested by	BM			
Test Date	2/13/07			
Checked by	HJ			
Check Date	2/25/07			
Diameter, in	2.782			
Height, in	5.6			
Water Content, %	24.1			
Dry Density, pcf	101.8			
Saturation, %	102.1			
Void Ratio	0.625			
Confining Stress, psf	2160			
Undrained Strength, psf	1643			
Max. Dev. Stress, psf	3286			
Strain at Failure, %	7.33			
Strain Rate, %/min	1			
Measured Specific Gravity	2.65	2/25/07		
Liquid Limit	~~NP~~ NV			
Plastic Limit	NP			
Plasticity Index	NP			

MACTEC

Project: Bechtel/STP/COL

Location: B-338 UD-1

Project No.: 5050060496

Boring No.: B-338

Sample Type: Undisturbed

Description: Silty Sand (SM)

Remarks:

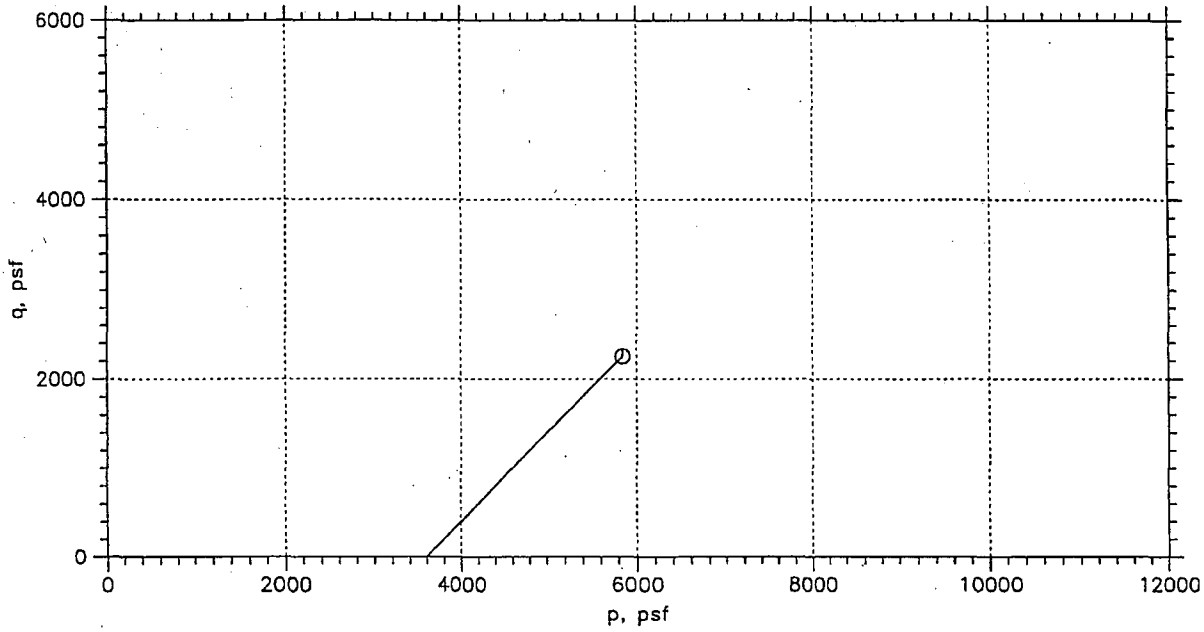
Phase calculations based on start and end of test.

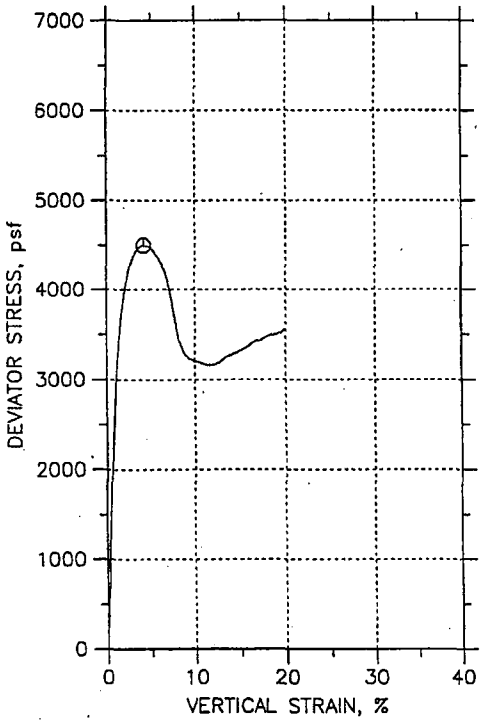
2/25/07

KAW 4/3/07

Sun, 25-FEB-2007 11:50:25

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-2			
Test No.	6902			
Depth	48-50ft			
Tested by	BM			
Test Date	2/13/07			
Checked by	HJ			
Check Date	2/23/07			
Diameter, in	2.841			
Height, in	5.6			
Water Content, %	26.1			
Dry Density, pcf	96.57			
Saturation, %	93.9			
Void Ratio	0.752			
Confining Stress, psf	3600			
Undrained Strength, psf	2248			
Max. Dev. Stress, psf	4495			
Strain at Failure, %	4.22			
Strain Rate, %/min	1			
Measured Specific Gravity	2.71			
Liquid Limit	44			
Plastic Limit	18			
Plasticity Index	26			

MACTEC

Project: Bechtel/STP/COL
Location: B-338 UD-2
Project No.: 5050060496
Boring No.: B-338
Sample Type: Undisturbed
Description: Lean Clay (CL)
Remarks:

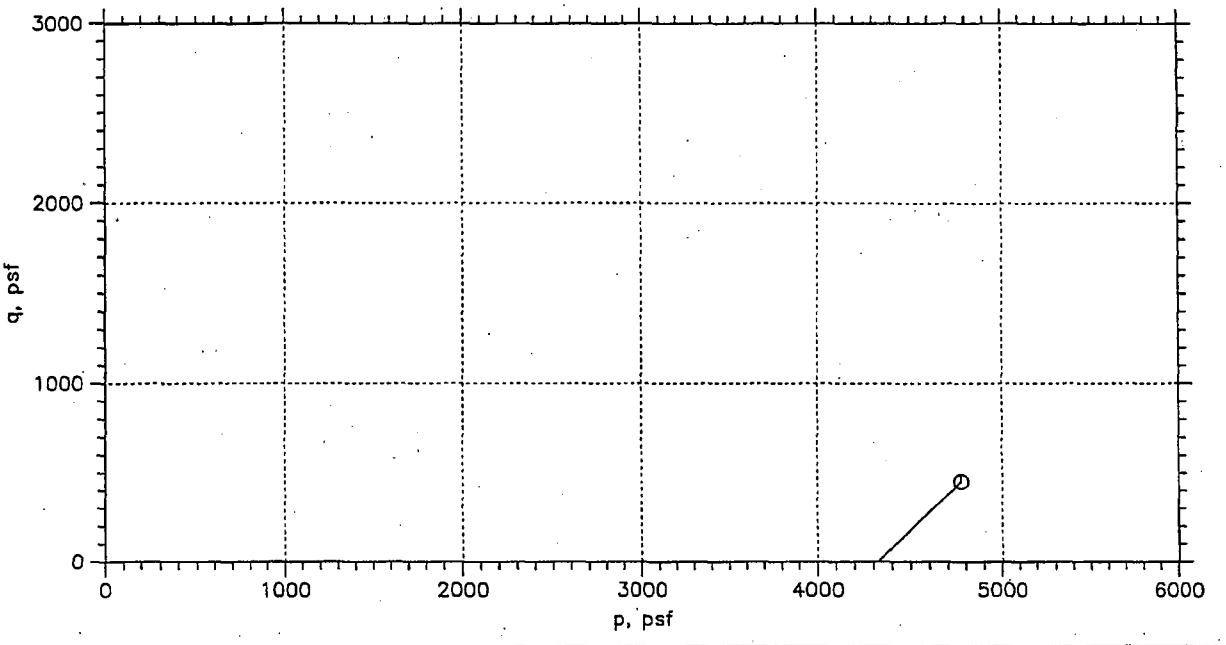
Phase calculations based on start and end of test.

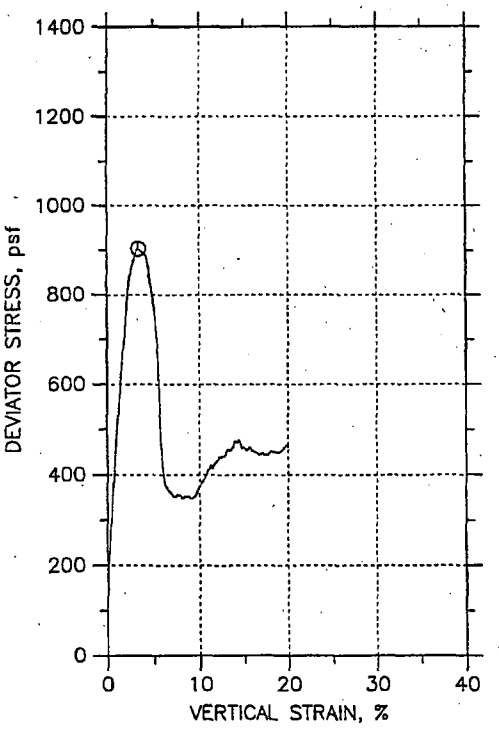
Fri, 23-FEB-2007 10:34:09

2/23/07

KAN 4/3/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-3			
Test No.	7188			
Depth	58-60'			
Tested by	BM			
Test Date	3/02/07			
Checked by	HJ			
Check Date	HJ			
Diameter, in	2.844			
Height, in	5.6			
Water Content, %	18.4			
Dry Density, pcf	106.9			
Saturation, %	86.3			
Void Ratio	0.576			
Confining Stress, psf	4320			
Undrained Strength, psf	451.6			
Max. Dev. Stress, psf	903.2			
Strain at Failure, %	3.46			
Strain Rate, %/min	1			
Estimated Specific Gravity	2.7			
Liquid Limit	---			
Plastic Limit	---			
Plasticity Index	---			

MACTEC

Project: Bechtel/STP/COL
Location: B-343 UD-3
Project No.: 5050060496
Boring No.: B-343
Sample Type: Undisturbed
Description: Silty Sand (SM)
Remarks:

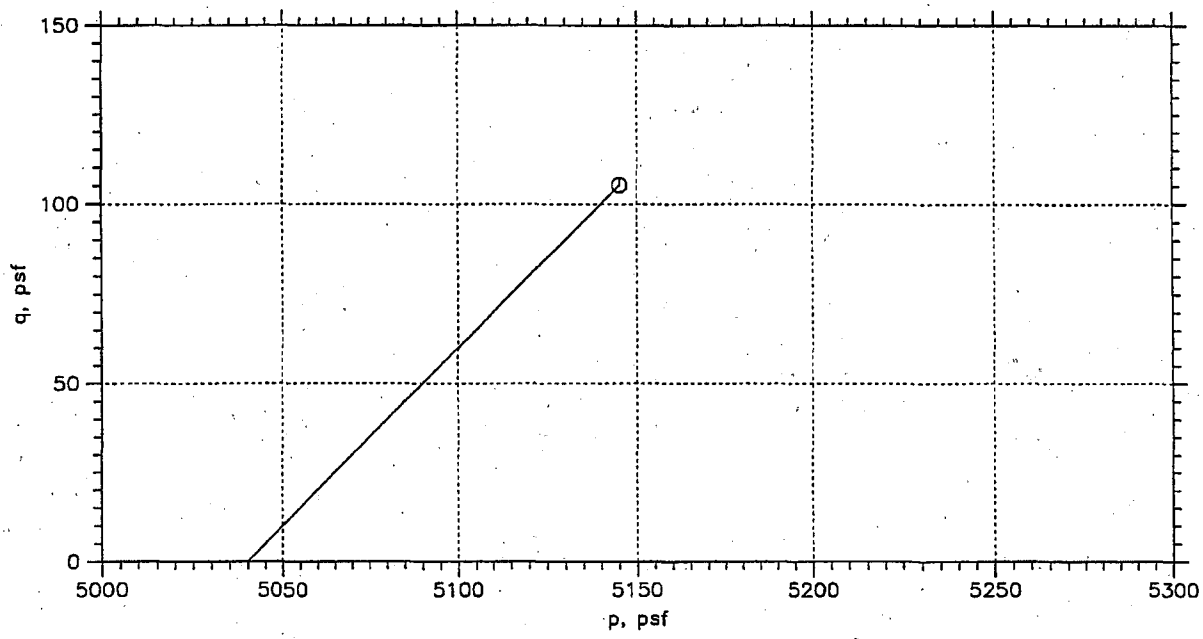
Phase calculations based on start and end of test.

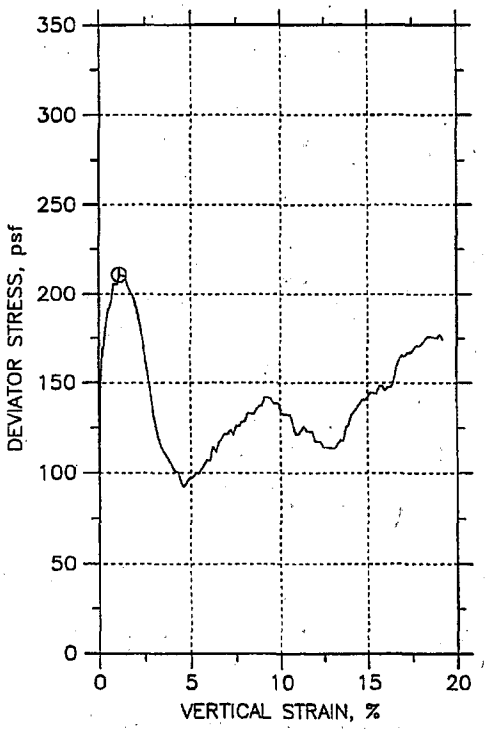
Tue, 03-APR-2007 18:03:32

JRP 4/3/07

KAW 4/3/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-4A			
Test No.	6990			
Depth	70-72'			
Tested by	BM			
Test Date	3/5/07			
Checked by	HJ			
Check Date	3/26/07			
Diameter, in	2.832			
Height, in	5.6			
Water Content, %	23.6			
Dry Density, pcf	100.4			
Saturation, %	90.1			
Void Ratio	0.729			
Confining Stress, psf	5040			
Undrained Strength, psf	105.3			
Max. Dev. Stress, psf	210.6			
Strain at Failure, %	1.12			
Strain Rate, %/min	1			
Measured Specific Gravity	2.78			
Liquid Limit	---			
Plastic Limit	---			
Plasticity Index	---			

MACTEC

Project: Bechtel/STP/COL
Location: B-343 UD-4A
Project No.: 5050060496
Boring No.: B-343
Sample Type: Undisturbed
Description: Fat Clay (CH)
Remarks:

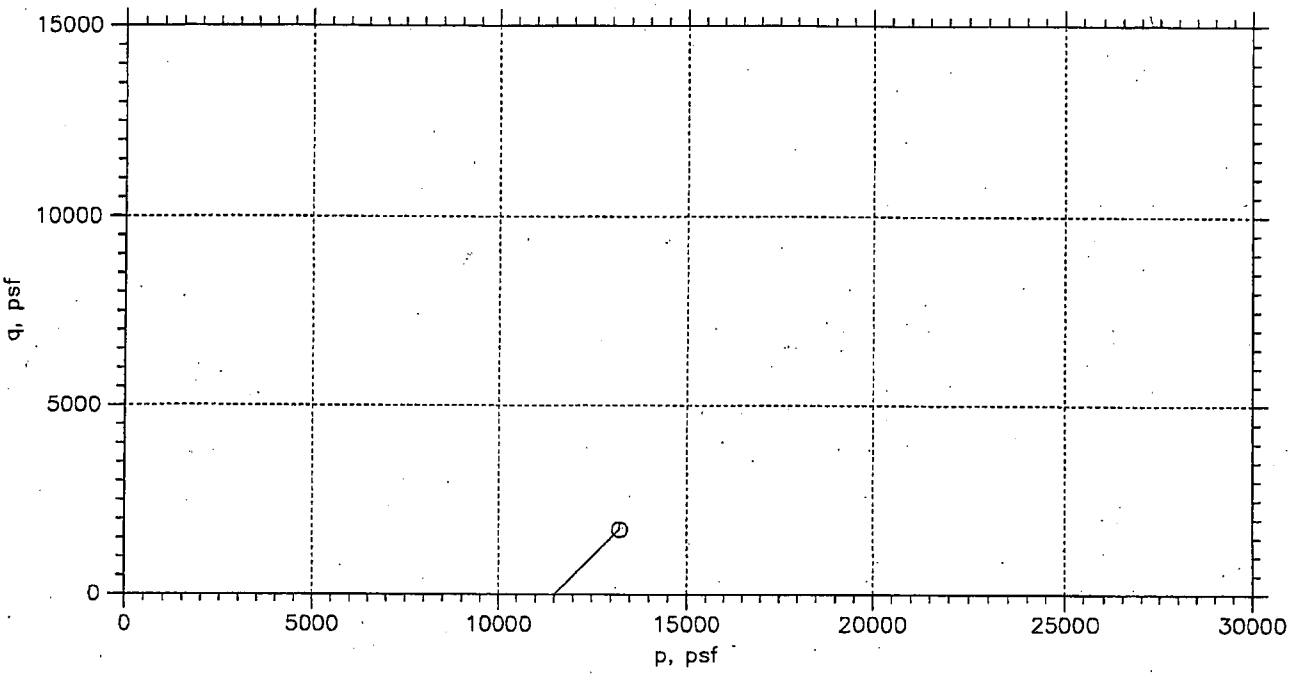
Phase calculations based on start and end of test.

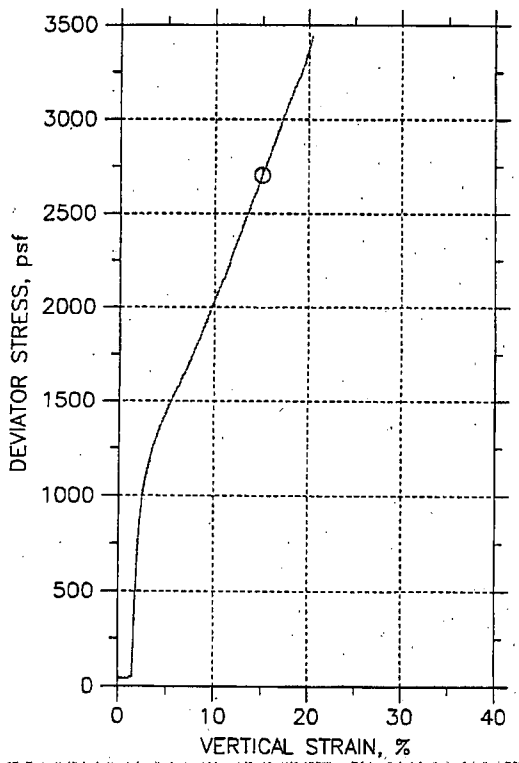
Mon, 26-MAR-2007 10:27:43

JHJ 3/26/07

KAW 3/29/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-7			
Test No.	6991			
Depth	173-175'			
Tested by	BM			
Test Date	2/15/07			
Checked by	HJ			
Check Date	4/4/07			
Diameter, in	2.847			
Height, in	5.479			
Water Content, %	18.1			
Dry Density, pcf	107.			
Saturation, %	88.5			
Void Ratio	0.541			
Confining Stress, psf	1.152e+004			
Undrained Strength, psf	1352			
Max. Dev. Stress, psf	2703			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.64			
Liquid Limit	31			
Plastic Limit	14			
Plasticity Index	17			

MACTEC

Project: Bechtel/STP/COL

Location: B-343 UD-7

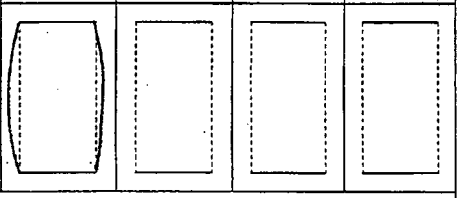
Project No.: 5050060496

Boring No.: B-343

Sample Type: Undisturbed

Description: Lean Clay (CL)

Remarks:



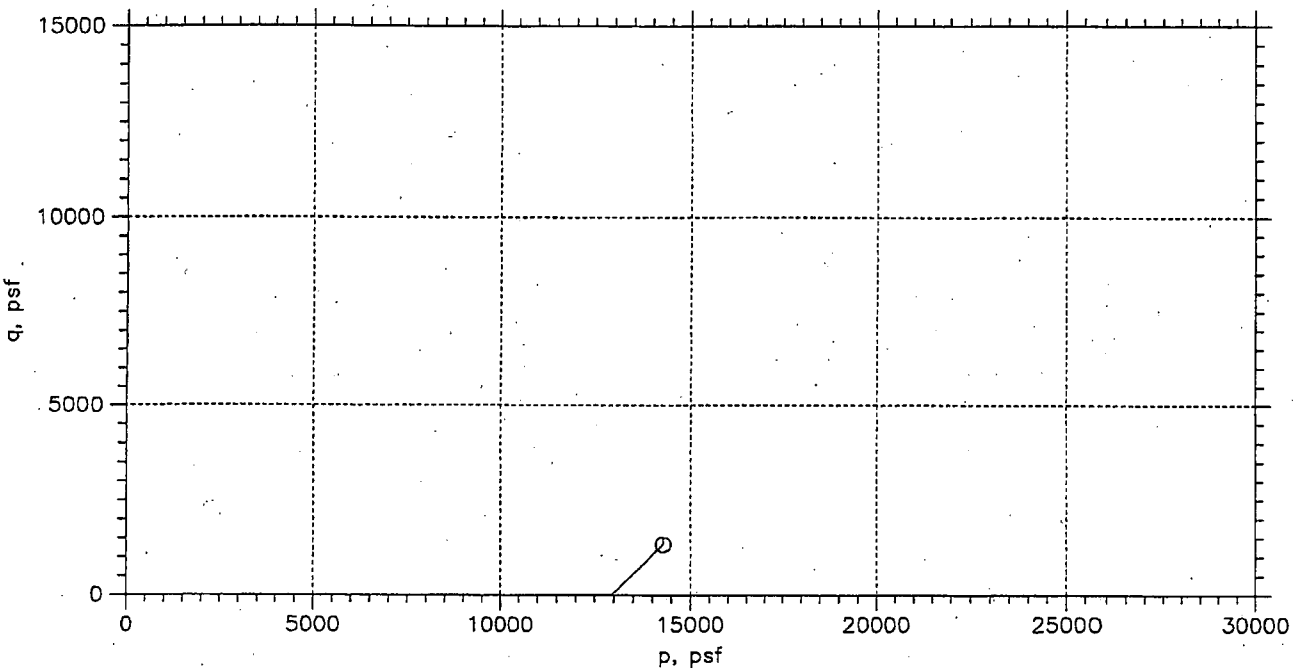
4/4/07

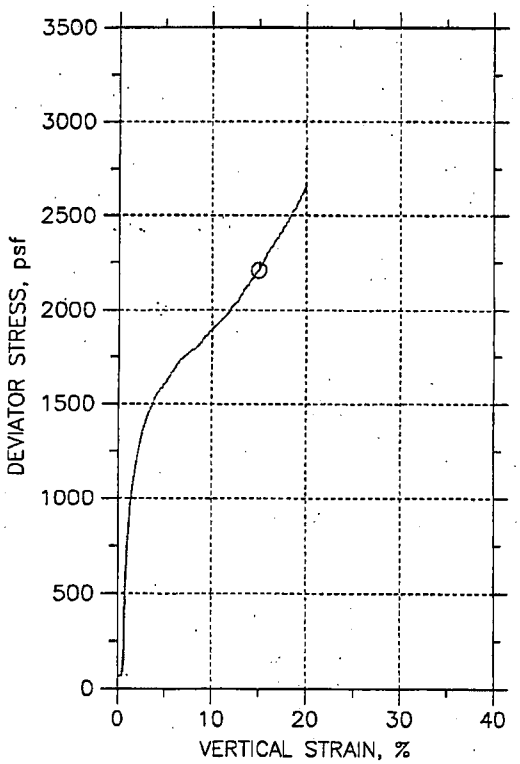
Phase calculations based on start and end of test.

Wed, 04-APR-2007 14:21:03

KAW 4/4/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-8			
Test No.	6992			
Depth	198-200'			
Tested by	BM			
Test Date	3/5/07			
Checked by	HJ			
Check Date	4/4/07			
Diameter, in	2.85			
Height, in	5.6			
Water Content, %	22.1			
Dry Density, pcf	100.4			
Saturation, %	86.7			
Void Ratio	0.698			
Confining Stress, psf	1.296e+004			
Undrained Strength, psf	1105			
Max. Dev. Stress, psf	2209			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.73			
Liquid Limit	---			
Plastic Limit	---			
Plasticity Index	---			

MACTEC

Project: Bechtel/STP/COL

Location: B-343 UD-8

Project No.: 5050060496

Boring No.: B-343

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

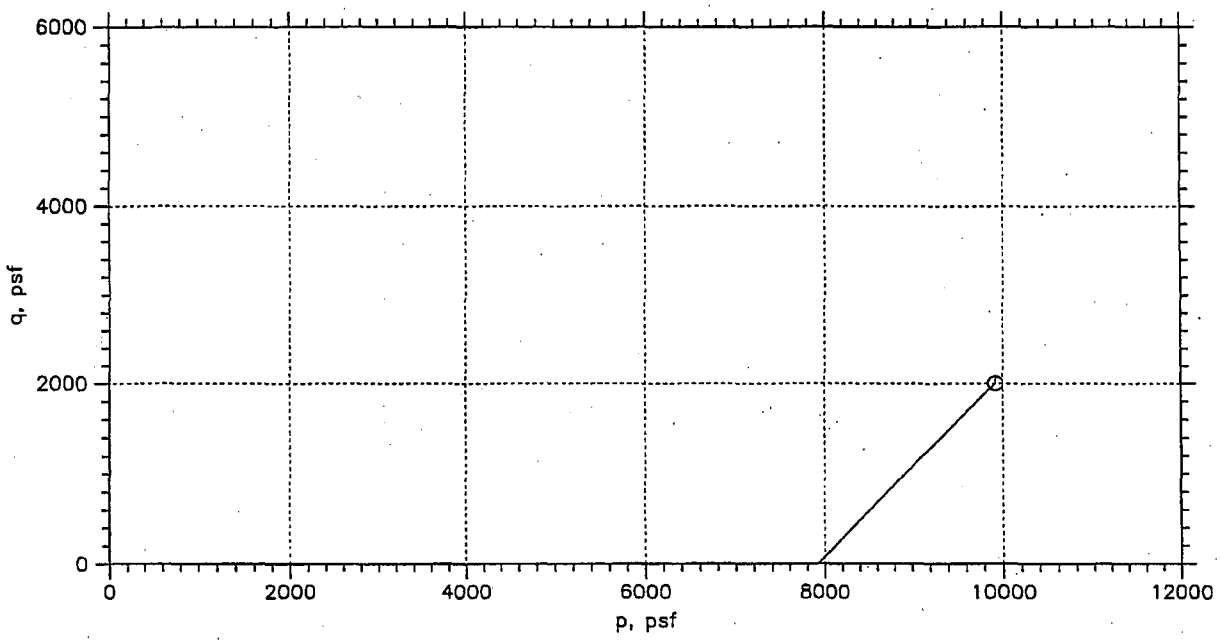
HJ 4/4/07

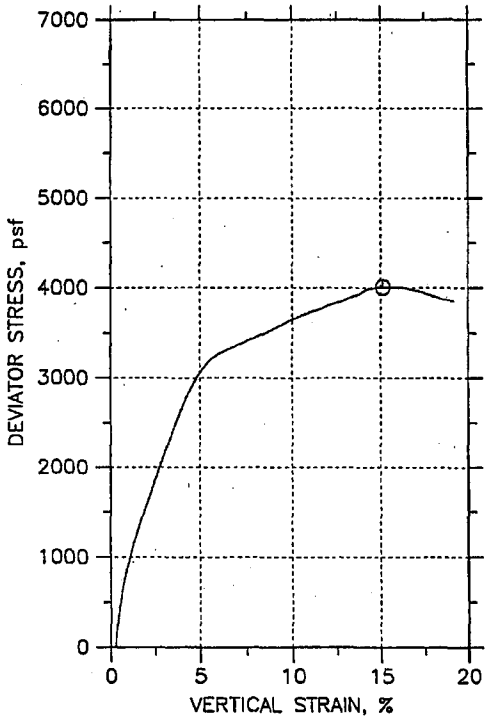
KAW 4/4/07

Phase calculations based on start and end of test.

Wed, 04-APR-2007 14:21:58

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-3			
Test No:	7098			
Depth	118-120'			
Tested by	BM			
Test Date	3/5/07			
Checked by	HJ			
Check Date	3/26/07			
Diameter, in	2.813			
Height, in	5.6			
Water Content, %	19.8			
Dry Density, pcf	106.3			
Saturation, %	92.5			
Void Ratio	0.575			
Confining Stress, psf	7920			
Undrained Strength, psf	2003			
Max. Dev. Stress, psf	4006			
Strain at Failure, %	15.1			
Strain Rate, %/min	1			
Measured Specific Gravity	2.68			
Liquid Limit	47			
Plastic Limit	22			
Plasticity Index	25			

MACTEC

Project: Bechtel/STP/COL

Location: B-401 UD-3

Project No.: 5050060496

Boring No.: B-401

Sample Type: Undisturbed

Description: Lean Clay (CL)

Remarks:

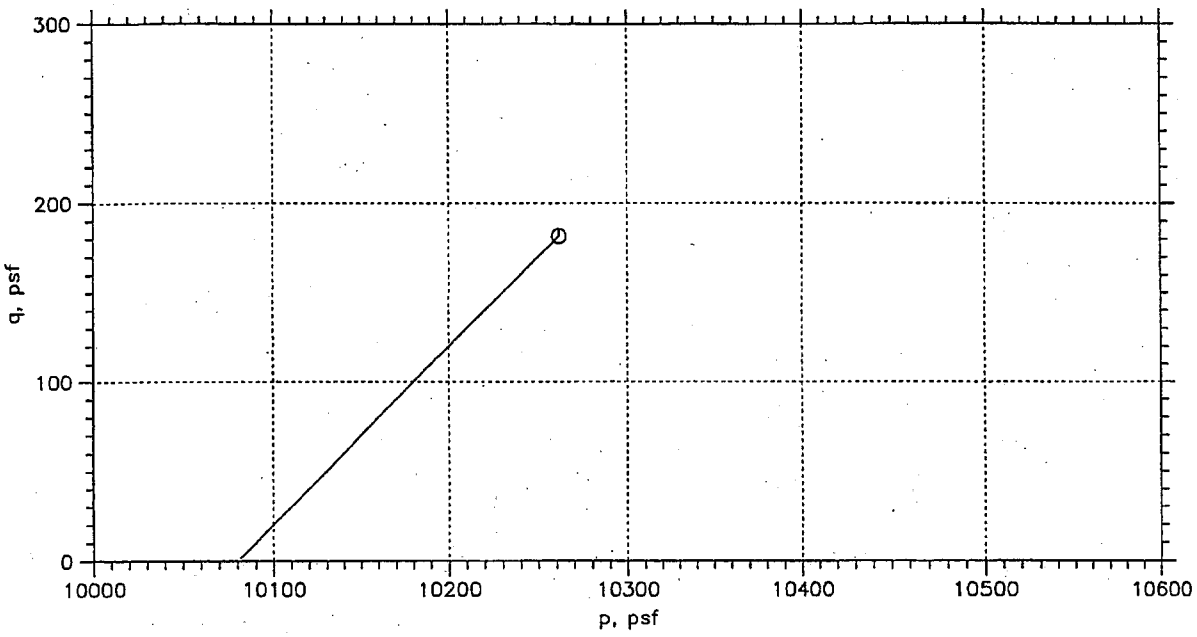
Phase calculations based on start and end of test.

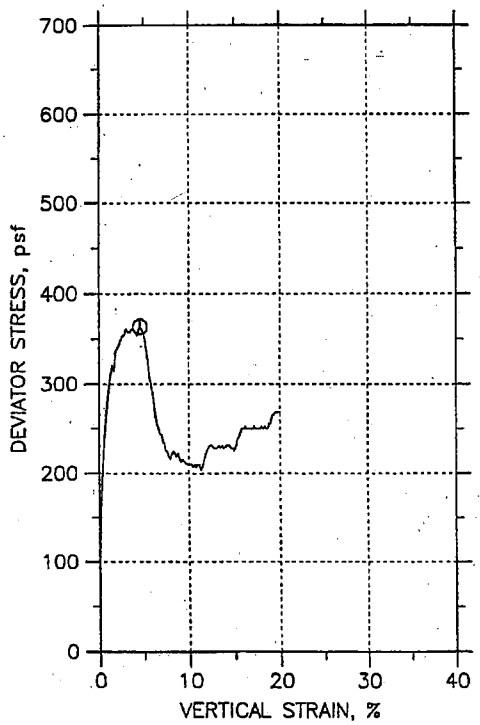
JFF 3/26/07

KAW 3/29/07

Mon, 26-MAR-2007 10:38:11

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-4			
Test No.	7092			
Depth	153-154'			
Tested by	BM			
Test Date	3/5/07			
Checked by	HJ			
Check Date	3/3/07			
Diameter, in	2.831			
Height, in	5.6			
Water Content, %	24.6			
Dry Density, pcf	99.82			
Saturation, %	100.4			
Void Ratio	0.645			
Confining Stress, psf	1.008e+004			
Undrained Strength, psf	181.7			
Max. Dev. Stress, psf	363.4			
Strain at Failure, %	4.62			
Strain Rate, %/min	1			
Measured Specific Gravity	2.63			
Liquid Limit	~~NP~~ NV	KAW 4/1/07		
Plastic Limit	NP			
Plasticity Index	NP			

MACTEC

Project: Bechtel/STP/COL

Location: B-401 UD-4

Project No.: 5050060496

Boring No.: B-401

Sample Type: Undisturbed

Description: Silty Sand (SM)

Remarks:

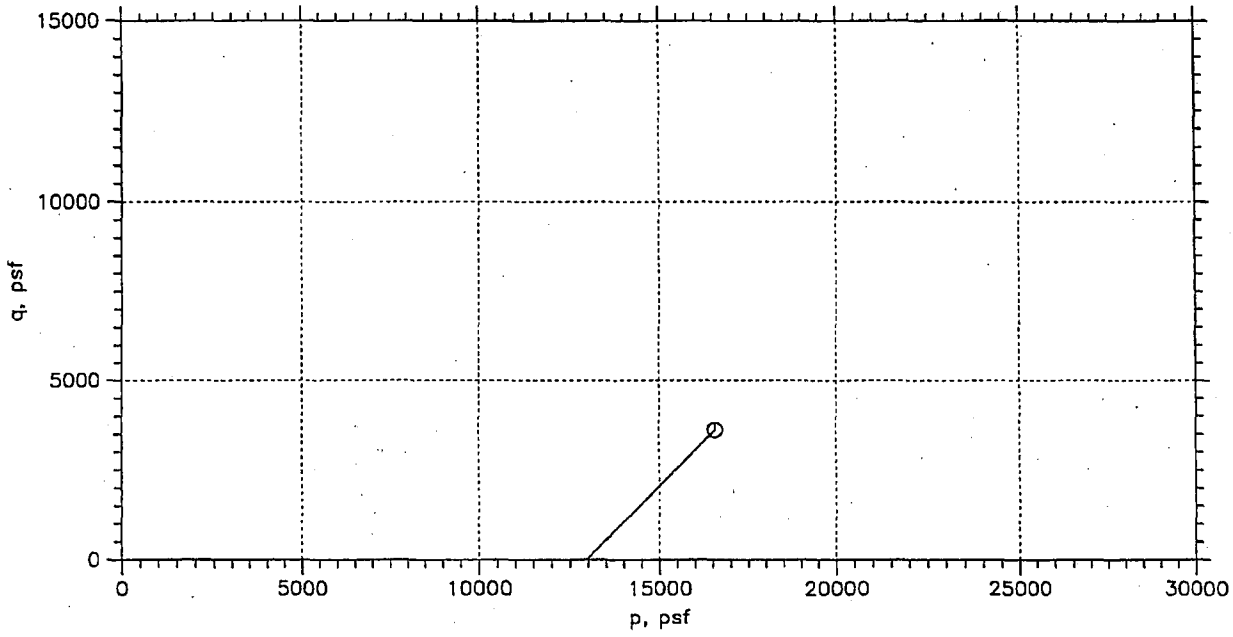
Phase calculations based on start and end of test.

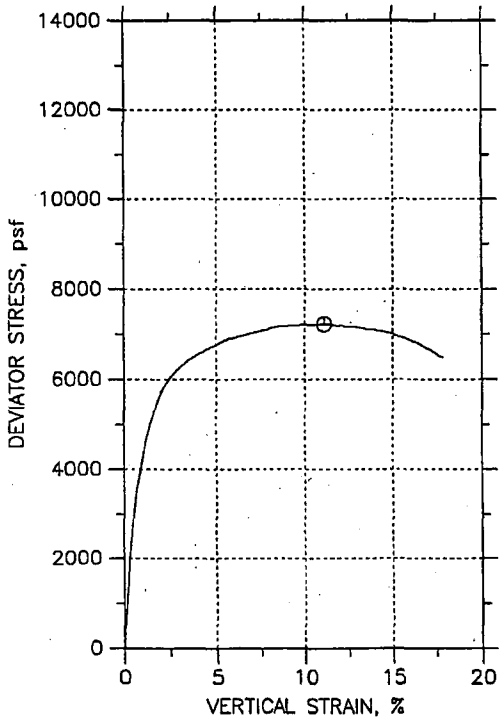
Fri, 30-MAR-2007 13:32:30

3/3/07

KAW 4/1/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-5A			
Test No.	7184			
Depth	184-186'			
Tested by	BM			
Test Date	3/5/07			
Checked by	HJ			
Check Date	HJ			
Diameter, in	2.818			
Height, in	6			
Water Content, %	24.1			
Dry Density, pcf	100.9			
Saturation, %	96.7			
Void Ratio	0.671			
Confining Stress, psf	1.296e+004			
Undrained Strength, psf	3610			
Max. Dev. Stress, psf	7220			
Strain at Failure, %	11.1			
Strain Rate, %/min	1			
Estimated Specific Gravity	2.7			
Liquid Limit	---			
Plastic Limit	---			
Plasticity Index	---			

MACTEC

Project: Bechtel/STP/COL
Location: B-401 UD-5A
Project No.: 5050060496
Boring No.: B-401
Sample Type: Undisturbed
Description: Fat Clay (CH)
Remarks:

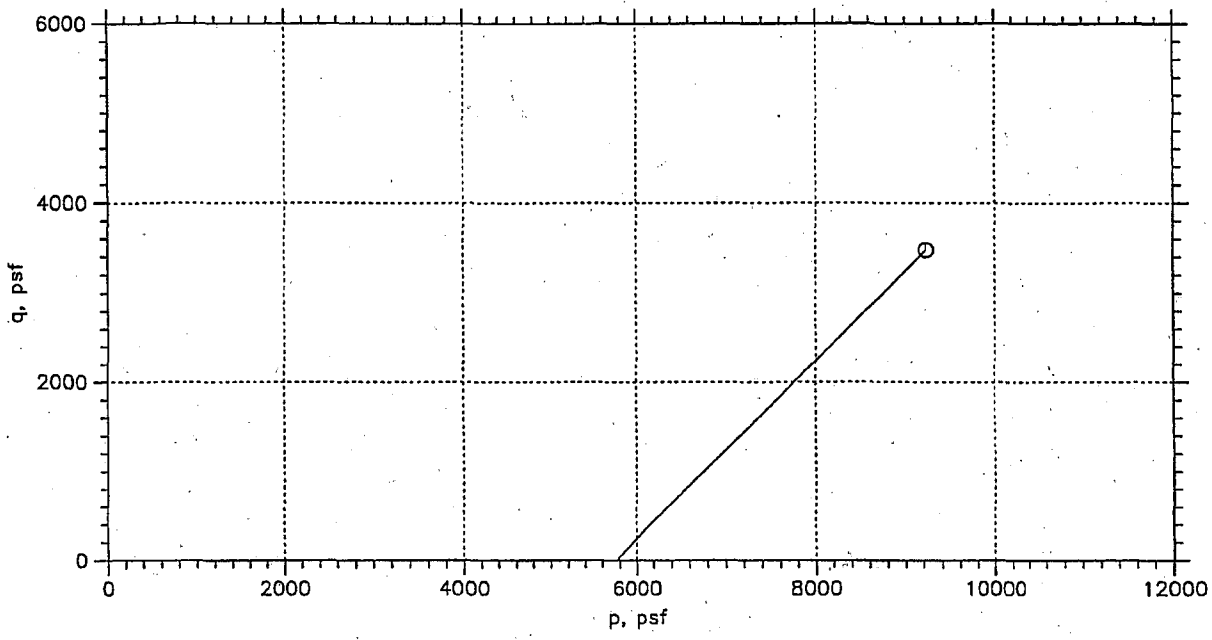
Phase calculations based on start and end of test.

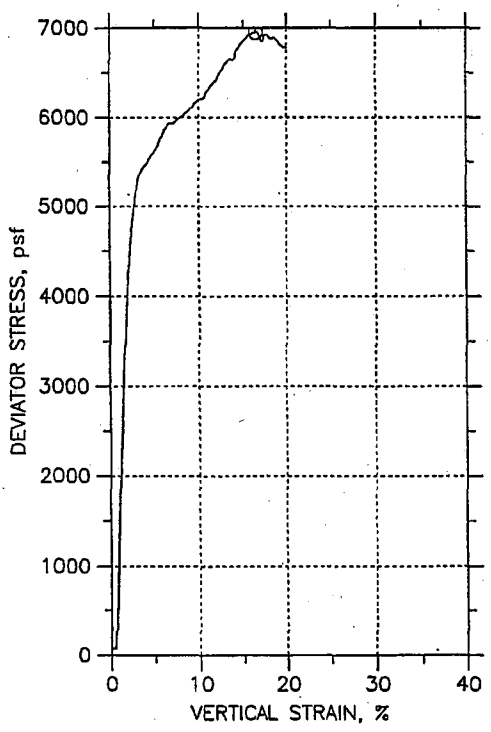
Tue, 03-APR-2007 18:00:08

JBF 4/3/07

KAW 4/3/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-1			
Test No.	6964			
Depth	88-90'			
Tested by	BM/VG			
Test Date	2/12/07			
Checked by	HJ			
Check Date	4/2/07			
Diameter, in	2.839			
Height, in	5.6			
Water Content, %	21.0			
Dry Density, pcf	104.			
Saturation, %	91.5			
Void Ratio	0.62			
Confining Stress, psf	5760			
Undrained Strength, psf	3476			
Max. Dev. Stress, psf	6951			
Strain at Failure, %	16.5			
Strain Rate, %/min	1			
Estimated Specific Gravity	2.7			
Liquid Limit	---			
Plastic Limit	---			
Plasticity Index	---			

MACTEC

Project: Bechtel/STP/COL
Location: B-404 UD-1
Project No.: 5050060496
Boring No.: B-404
Sample Type: Undisturbed
Description: Fat Clay (CH)
Remarks:

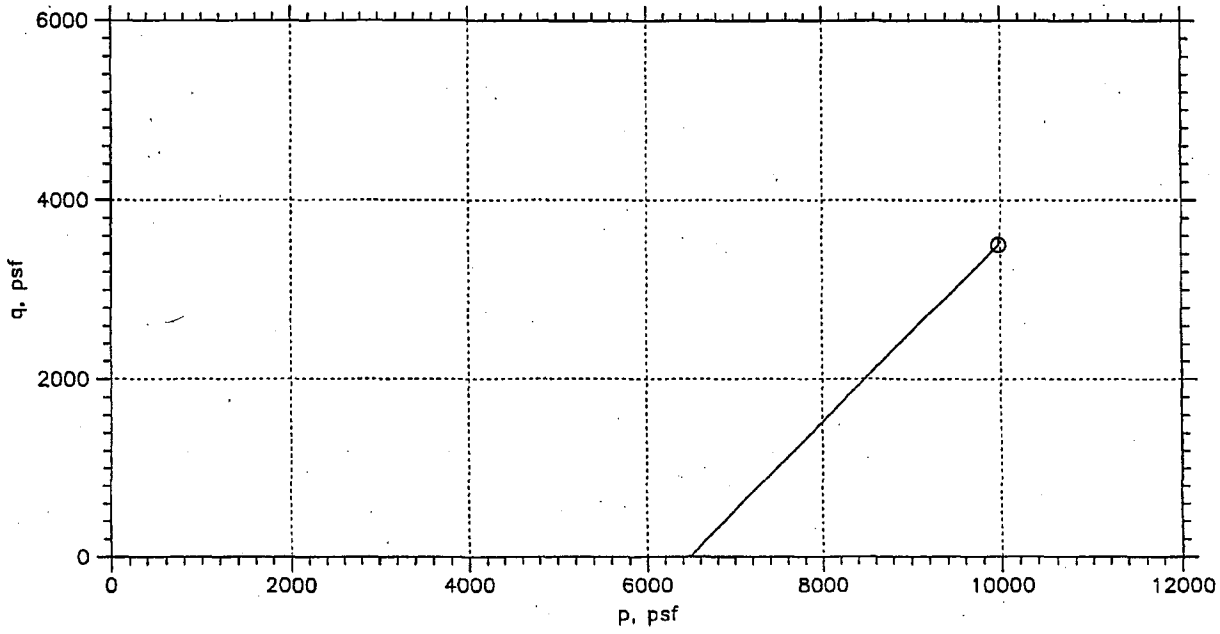
HJ 4/2/07

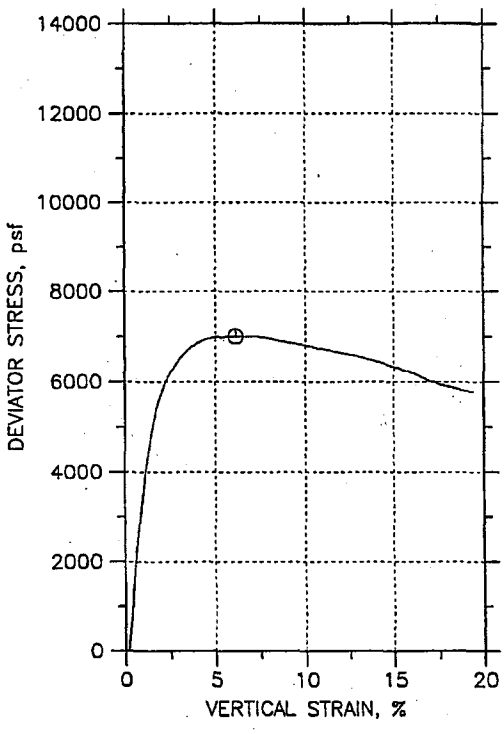
Phase calculations based on start and end of test.

KAW 4/3/07

Mon, 02-APR-2007 09:09:50

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊖			
Sample No.	UD-2			
Test No.	6965			
Depth	98-100'			
Tested by	BM/VG			
Test Date	2/12/07			
Checked by	HJ			
Check Date	3/26/07			
Diameter, in	2.854			
Height, in	5.6			
Water Content, %	25.3			
Dry Density, pcf	98.91			
Saturation, %	95.7			
Void Ratio	0.723			
Confining Stress, psf	6480			
Undrained Strength, psf	3500			
Max. Dev. Stress, psf	7000			
Strain at Failure, %	6.12			
Strain Rate, %/min	1			
Measured Specific Gravity	2.73			
Liquid Limit	50			
Plastic Limit	20			
Plasticity Index	30			

MACTEC

Project: Bechtel/STP/COL
Location: B-404 UD-2
Project No.: 5050060496
Boring No.: B-404
Sample Type: Undisturbed
Description: Fat Clay (CH)
Remarks:

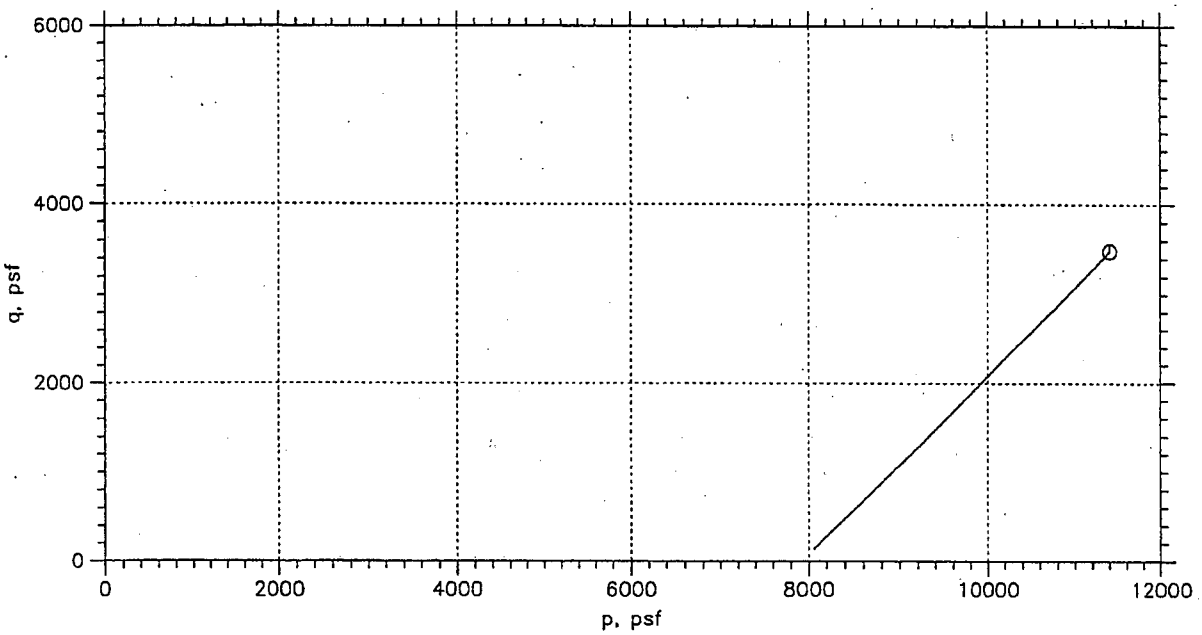
Phase calculations based on start and end of test.

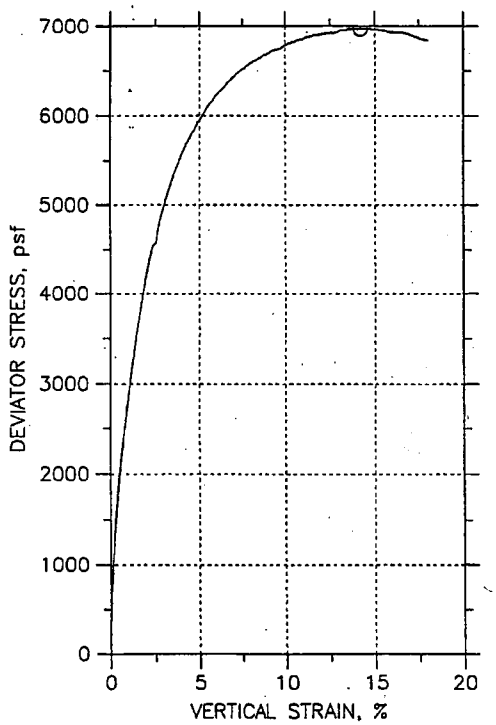
JHR 3/26/07

KAW 3/29/07

Mon, 26-MAR-2007 09:57:21

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⦶			
Sample No.	UD-3			
Test No.	6966			
Depth	121-123ft			
Tested by	BM			
Test Date	2/09/07			
Checked by	HJ			
Check Date	2/23/07			
Diameter, in	2.872			
Height, in	5.6			
Water Content, %	23.4			
Dry Density, pcf	102.2			
Saturation, %	94.0			
Void Ratio	0.689			
Confining Stress, psf	7920			
Undrained Strength, psf	3485			
Max. Dev. Stress, psf	6970			
Strain at Failure, %	14.2			
Strain Rate, %/min	1			
Measured Specific Gravity	2.77			
Liquid Limit	62			
Plastic Limit	23			
Plasticity Index	39			

MACTEC

Project: Bechtel/STP/COL

Location: B-404 UD-3

Project No.: 5050060496

Boring No.: B-404

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

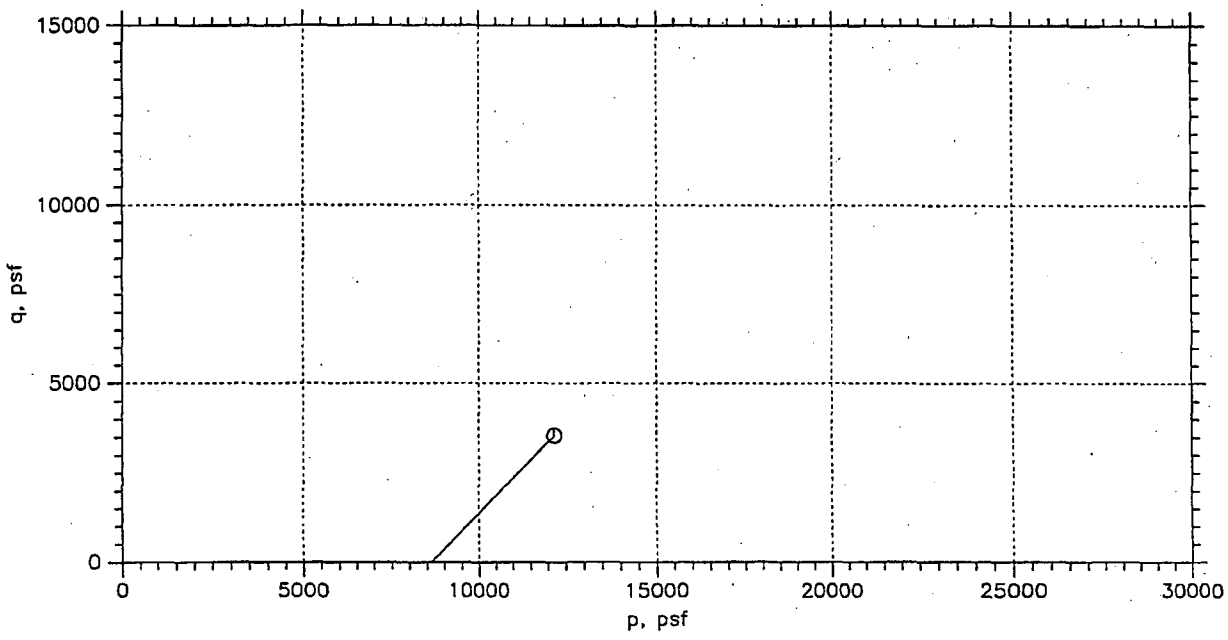
Phase calculations based on start and end of test.

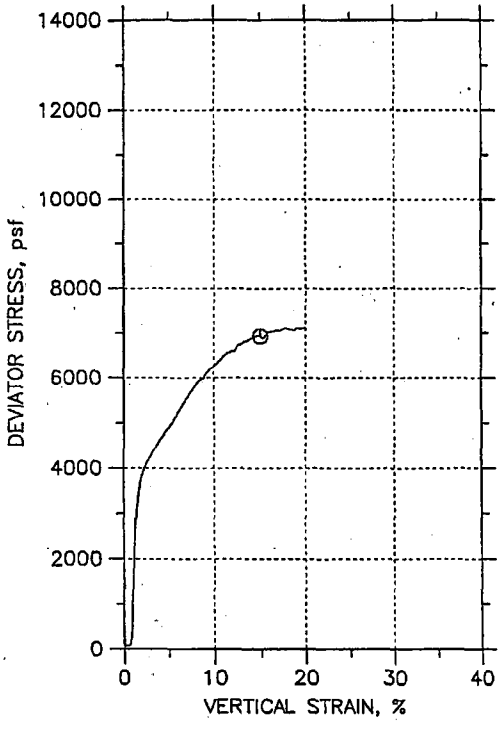
Fri, 23-FEB-2007 15:49:26

2/23/07

KAW 4/3/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⦶			
Sample No.	UD-4			
Test No.	6967			
Depth	131-133'			
Tested by	BM/VG			
Test Date	2/12/07			
Checked by	HJ			
Check Date	3/26/07			
Diameter, in	2.868			
Height, in	5.6			
Water Content, %	20.8			
Dry Density, pcf	102.9			
Saturation, %	89.6			
Void Ratio	0.62			
Confining Stress, psf	8640			
Undrained Strength, psf	3461			
Max. Dev. Stress, psf	6922			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.67			
Liquid Limit	52			
Plastic Limit	22			
Plasticity Index	30			

MACTEC

Project: Bechtel/STP/COL
Location: B-404 UD-4
Project No.: 5050060496
Boring No.: B-404
Sample Type: Undisturbed
Description: Fat Clay (CH)
Remarks:

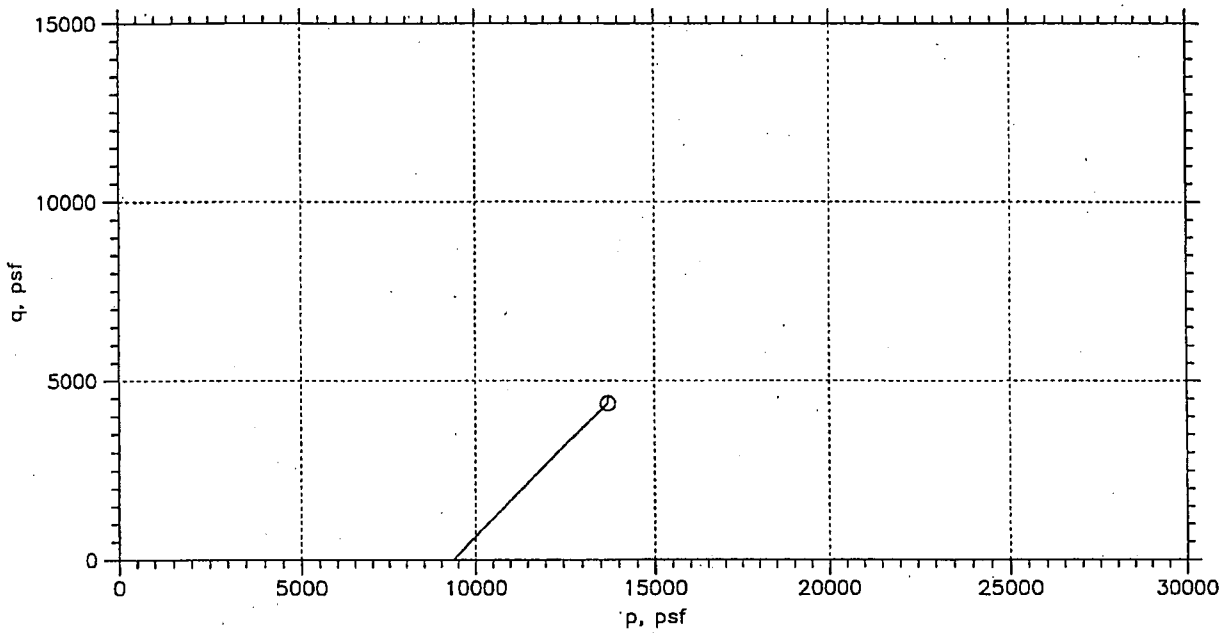
Phase calculations based on start and end of test.

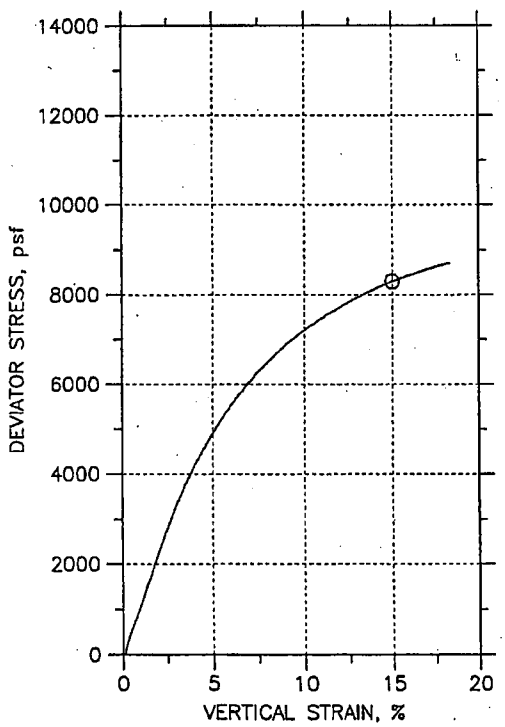
3/26/07

KAW 3/29/07

Mon, 26-MAR-2007 09:59:10

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-5			
Test No.	6968			
Depth	141-143'			
Tested by	BM			
Test Date	3/5/07			
Checked by	HJ			
Check Date	4/2/07			
Diameter, in	2.859			
Height, in	5.6			
Water Content, %	18.0			
Dry Density, pcf	109.3			
Saturation, %	91.7			
Void Ratio	0.525			
Confining Stress, psf	9360			
Undrained Strength, psf	4149			
Max. Dev. Stress, psf	8298			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.67			
Liquid Limit	30			
Plastic Limit	18			
Plasticity Index	12			

MACTEC

Project: Bechtel/STP/COL

Location: B-404 UD-5

Project No.: 5050060496

Boring No.: B-404

Sample Type: Undisturbed

Description: Sandy Lean Clay (CL)

Remarks:

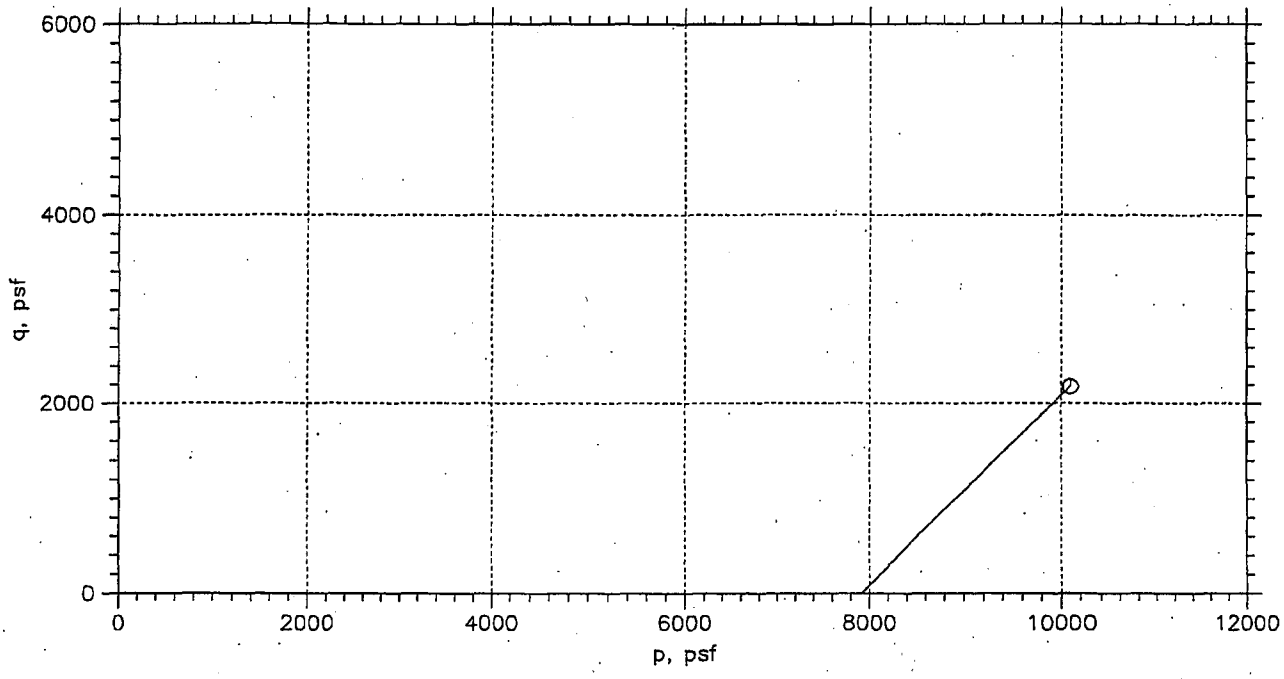
HJ 4/2/07

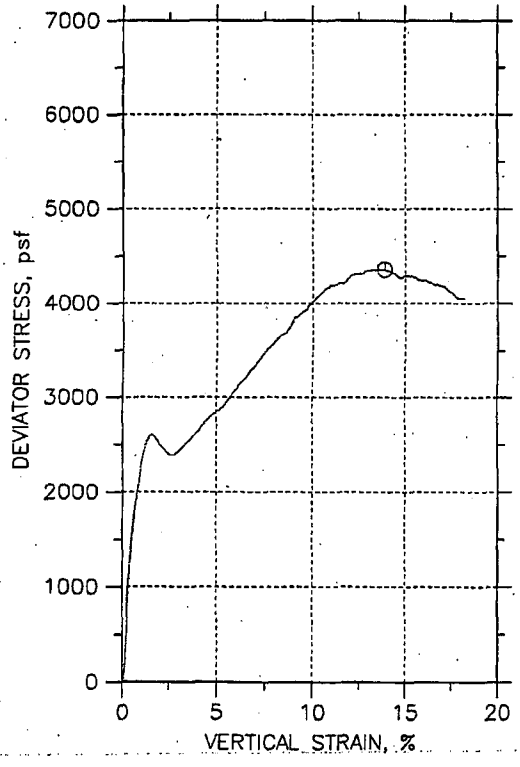
Phase calculations based on start and end of test.

KAW 4/13/07

Mon, 02-APR-2007 08:24:06

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊘			
Sample No.	UD-5			
Test No.	6922			
Depth	113-115'			
Tested by	BM			
Test Date	2/10/07			
Checked by	HJ			
Check Date	4/4/07			
Diameter, in	2.846			
Height, in	5.6			
Water Content, %	25.8			
Dry Density, pcf	97.5			
Saturation, %	95.3			
Void Ratio	0.735			
Confining Stress, psf	7920			
Undrained Strength, psf	2180			
Max. Dev. Stress, psf	4360			
Strain at Failure, %	13.9			
Strain Rate, %/min	1			
Measured Specific Gravity	2.71			
Liquid Limit	73			
Plastic Limit	23			
Plasticity Index	50			

MACTEC

Project: Bechtel/STP/COL

Location: B-405 UD-5

Project No.: 5050060496

Boring No.: B-405

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

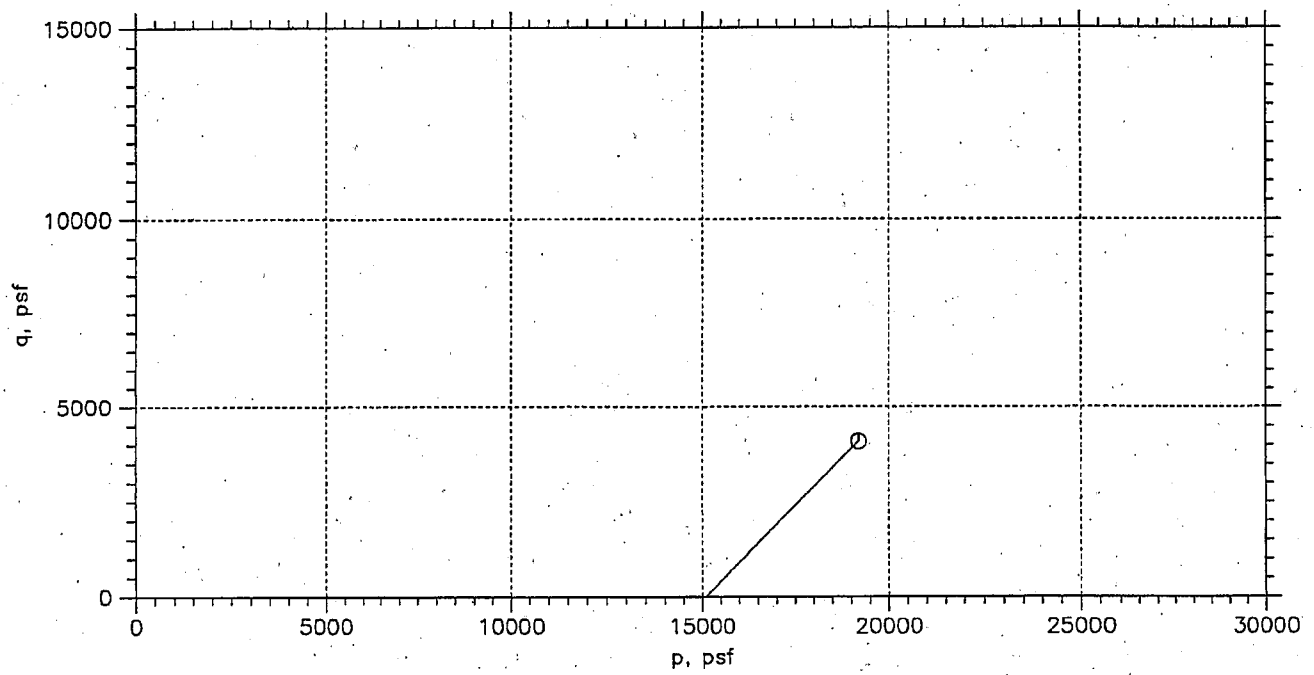
HJ 4/4/07

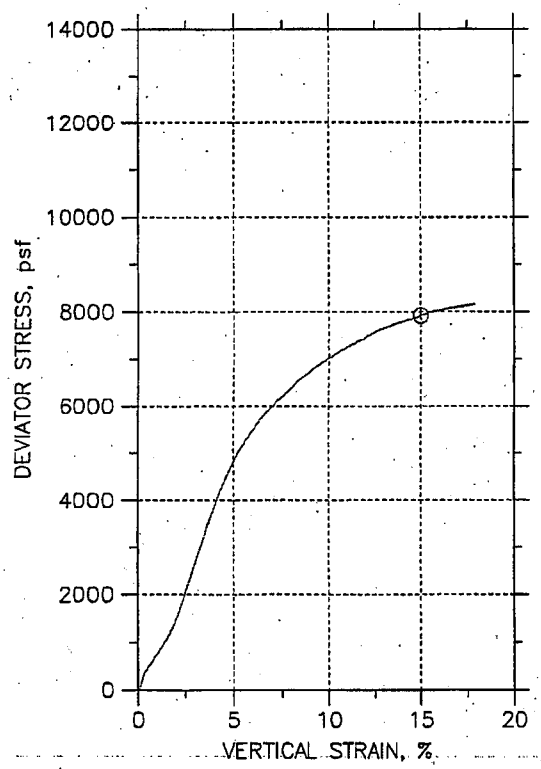
Phase calculations based on start and end of test.

KAW 4/4/07

Wed, 04-APR-2007 14:22:58

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	①			
Sample No.	UD-11			
Test No.	6993			
Depth	233-235'			
Tested by	BM			
Test Date	2/15/07			
Checked by	HJ			
Check Date	4/4/07			
Diameter, in	2.862			
Height, in	5.6			
Water Content, %	15.4			
Dry Density, pcf	113.4			
Saturation, %	85.6			
Void Ratio	0.487			
Confining Stress, psf	1.512e+004			
Undrained Strength, psf	3958			
Max. Dev. Stress, psf	7916			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Estimated Specific Gravity	2.7			
Liquid Limit	---			
Plastic Limit	---			
Plasticity Index	---			

MACTEC

Project: Bechtel/STP/COL

Location: B-405 UD-11

Project No.: 5050060496

Boring No.: B-405

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

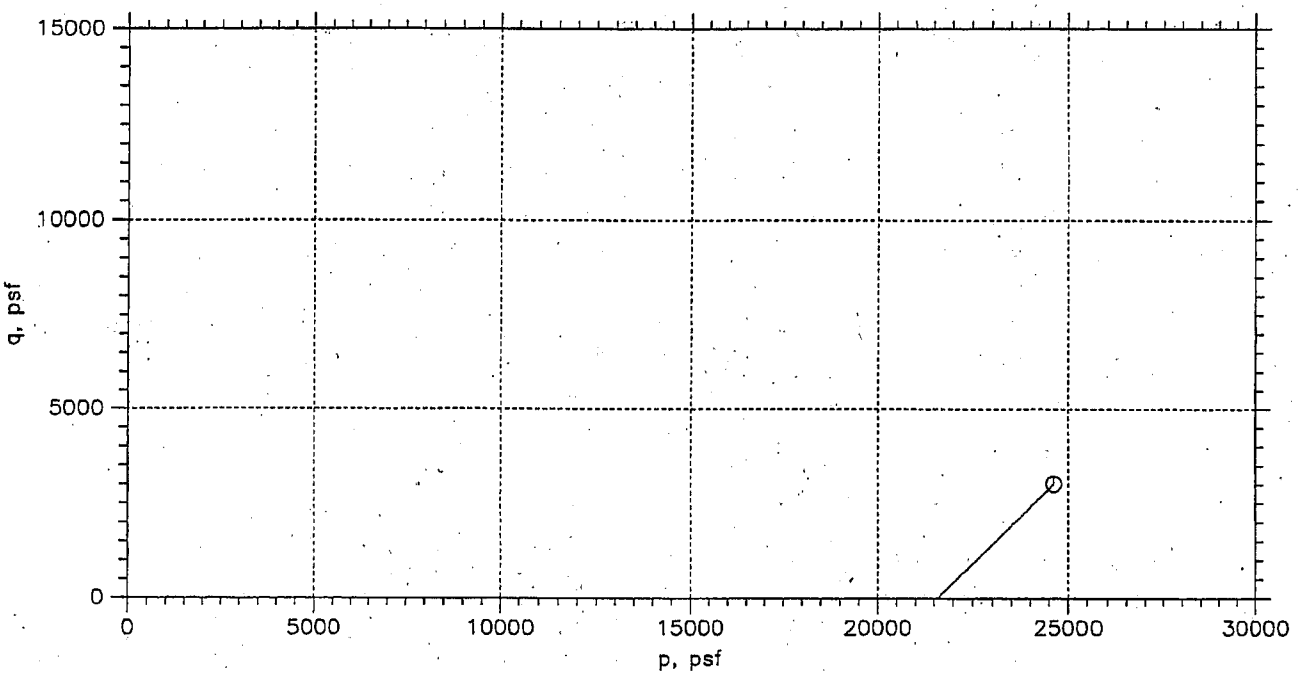
HJ 4/4/07

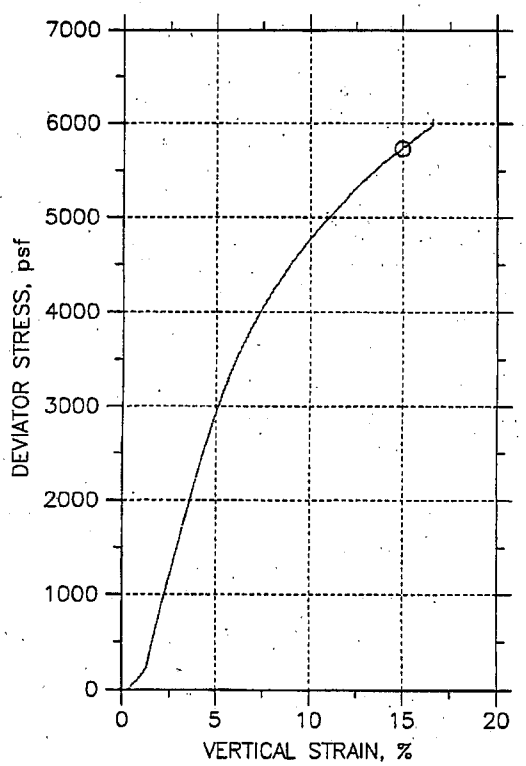
KAW 4/4/07

Phase calculations based on start and end of test.

Wed, 04-APR-2007 14:24:08

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-15			
Test No.	6925			
Depth	318-320'			
Tested by	BM			
Test Date	2/15/07			
Checked by	HJ			
Check Date	4/4/07			
Diameter, in	2.856			
Height, in	4.767			
Water Content, %	20.9			
Dry Density, pcf	107.7			
Saturation, %	103.3			
Void Ratio	0.536			
Confining Stress, psf	2.16e+004			
Undrained Strength, psf	2865			
Max. Dev. Stress, psf	5731			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.65			
Liquid Limit	NP			
Plastic Limit	NP			
Plasticity Index	NP			

MACTEC

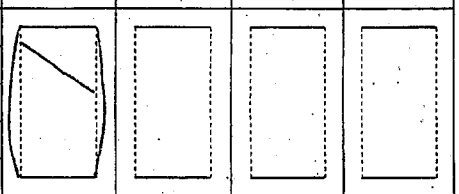
Project: Bechtel/STP/COL

Location: B-405 UD-15

Project No.: 5050060496

Boring No.: B-405

Sample Type: Undisturbed



Description: Poorly Graded Sand (SP)

Remarks:

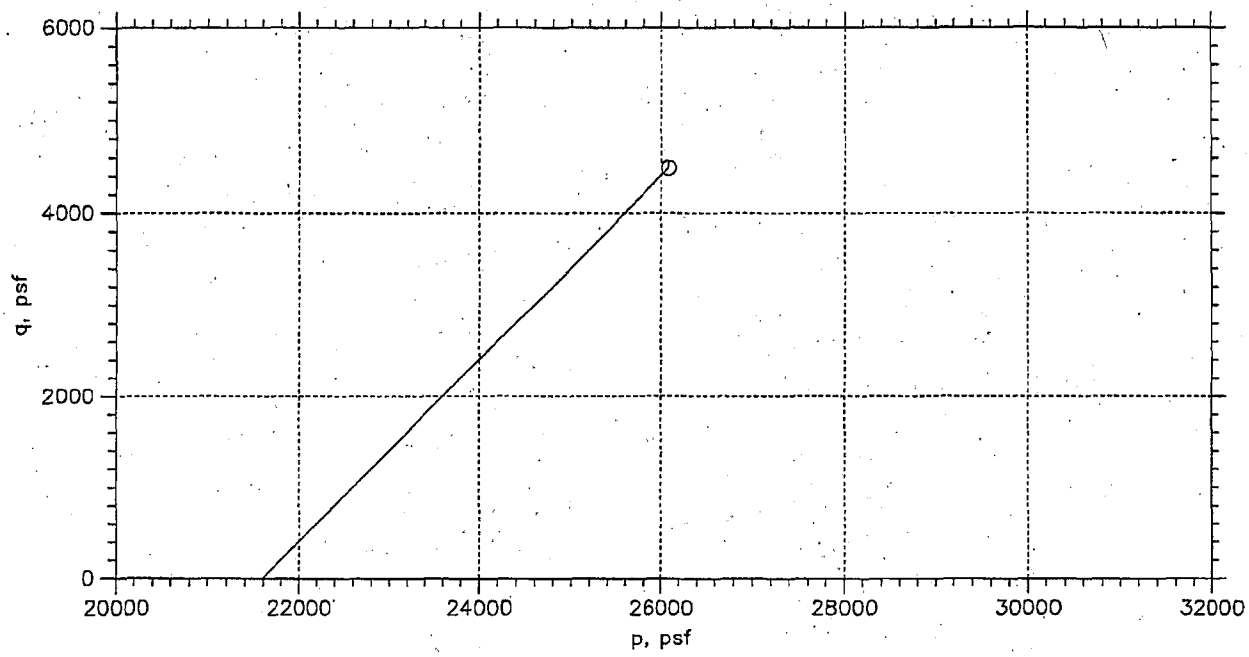
Phase calculations based on start and end of test.

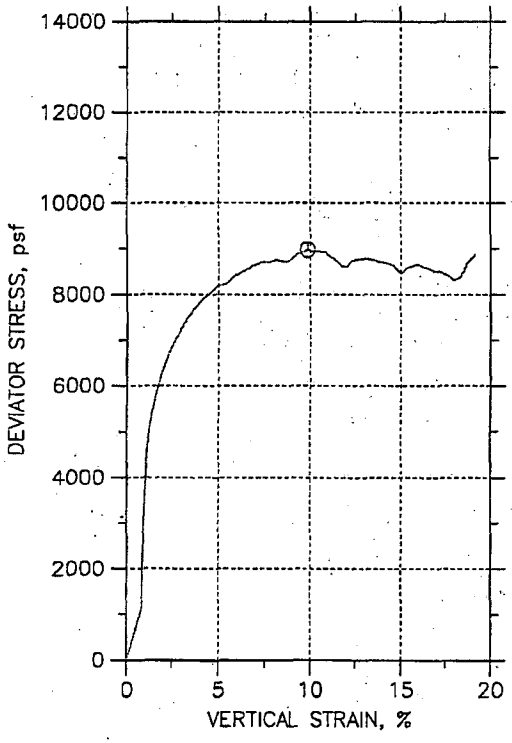
4/4/07

KAW 4/4/07

Wed, 04-APR-2007 14:25:37

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-20			
Test No.	6927			
Depth	458.-460'			
Tested by	BM			
Test Date	2/15/07			
Checked by	HJ			
Check Date	4/4/04			
Diameter, in	2.849			
Height, in	5.6			
Water Content, %	17.6			
Dry Density, pcf	106.2			
Saturation, %	80.7			
Void Ratio	0.587			
Confining Stress, psf	2.16e+004			
Undrained Strength, psf	4487			
Max. Dev. Stress, psf	8974			
Strain at Failure, %	9.86			
Strain Rate, %/min	1			
Estimated Specific Gravity	2.7			
Liquid Limit	---			
Plastic Limit	---			
Plasticity Index	---			

MACTEC

Project: Bechtel/STP/COL

Location: B-405-DH UD-20

Project No.: 5050060496

Boring No.: B-405-DH

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

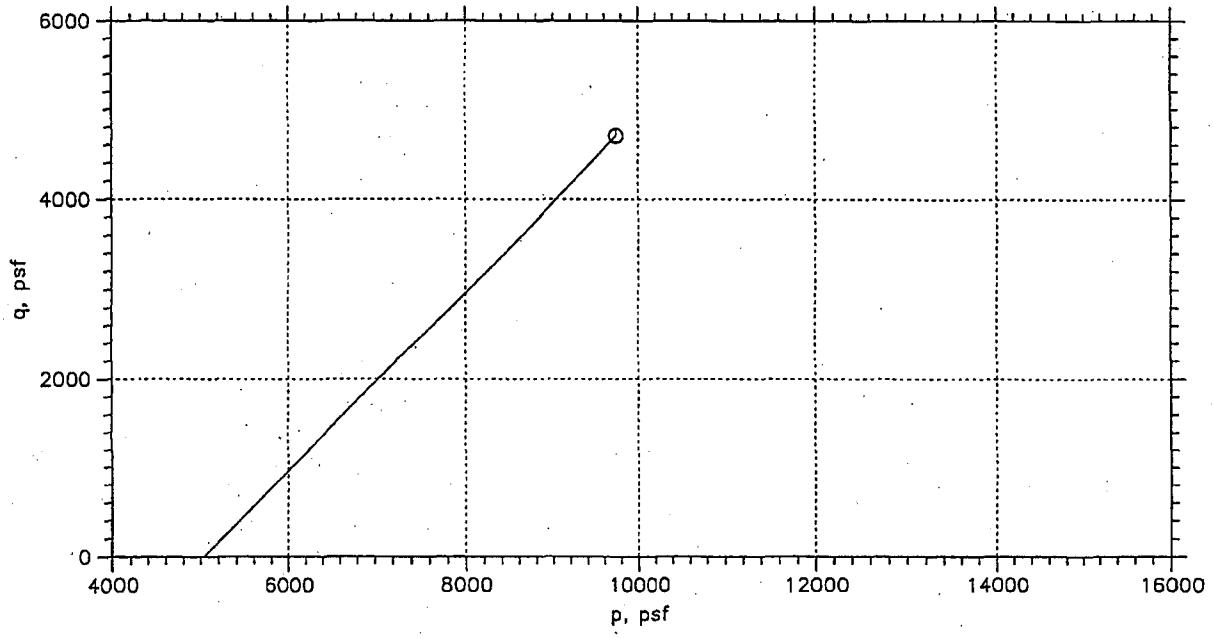
Phase calculations based on start and end of test.

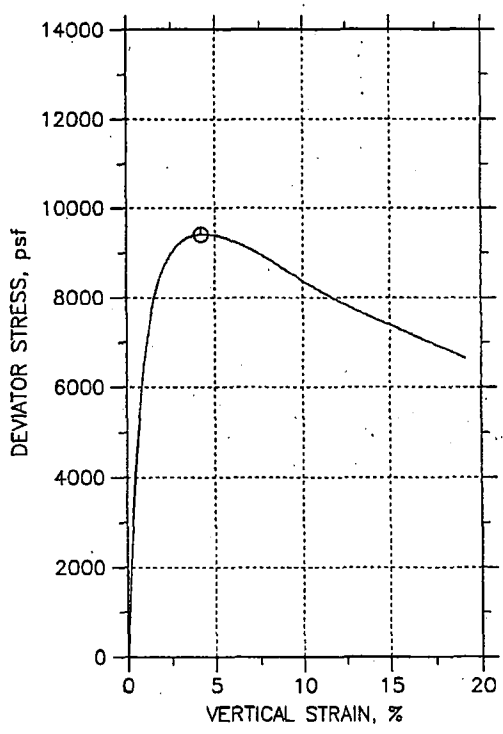
Wed, 04-APR-2007 17:37:26

JGL 4/4/07

KAW 4/4/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-1			
Test No.	6905			
Depth	68-70ft			
Tested by	BM			
Test Date	2/19/07			
Checked by	HJ			
Check Date	2/25/07			
Diameter, in	2.856			
Height, in	5.6			
Water Content, %	14.9			
Dry Density, pcf	90.92			
Saturation, %	48.1			
Void Ratio	0.82			
Confining Stress, psf	5040			
Undrained Strength, psf	4700			
Max. Dev. Stress, psf	9401			
Strain at Failure, %	4.23			
Strain Rate, %/min	1			
Measured Specific Gravity	2.65			
Liquid Limit	~~NP~~ 2/25/07 NV			
Plastic Limit	NP			
Plasticity Index	NP			

MACTEC

Project: Bechtel/STP/COL
Location: B-409 UD-1
Project No.: 5050060496
Boring No.: B-409
Sample Type: Undisturbed
Description: Silty Sand (SM)
Remarks:

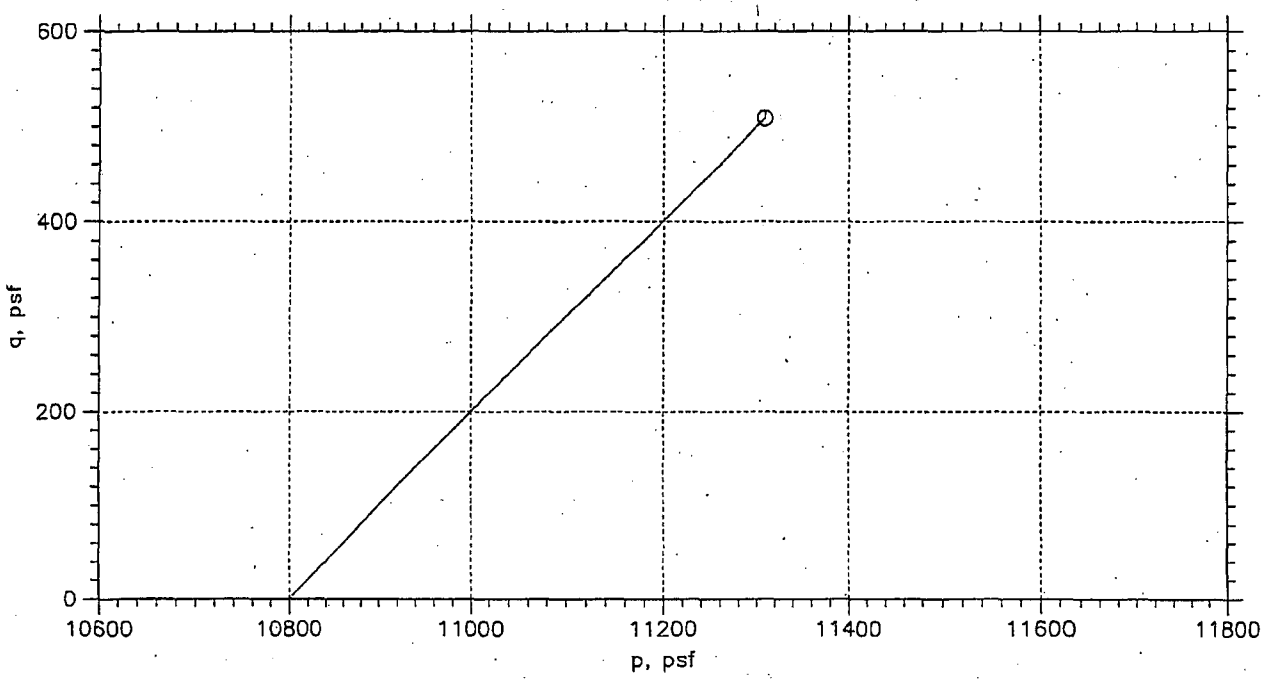
2/25/07

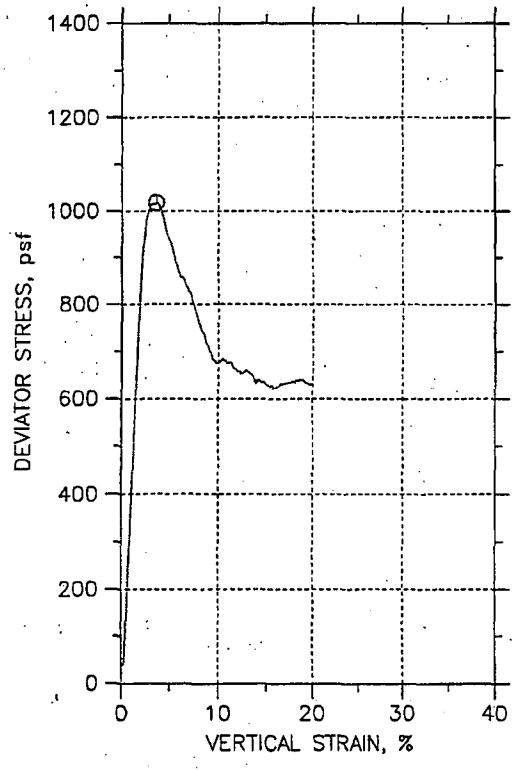
Phase calculations based on start and end of test.

Sun, 25-FEB-2007 11:45:23

KAW 4/1/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-4A			
Test No.	6934			
Depth	160-162'			
Tested by	BM			
Test Date	2/15/07			
Checked by	HJ			
Check Date	4/4/07			
Diameter, in	2.854			
Height, in	5.6			
Water Content, %	19.6			
Dry Density, pcf	103.3			
Saturation, %	84.5			
Void Ratio	0.62			
Confining Stress, psf	1.08e+004			
Undrained Strength, psf	509.1			
Max. Dev. Stress, psf	1018			
Strain at Failure, %	3.62			
Strain Rate, %/min	1			
Measured Specific Gravity	2.68			
Liquid Limit	62			
Plastic Limit	27			
Plasticity Index	35			

MACTEC

Project: Bechtel/STP/COL

Location: B-409 UD-4A

Project No.: 5050060496

Boring No.: B-409

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

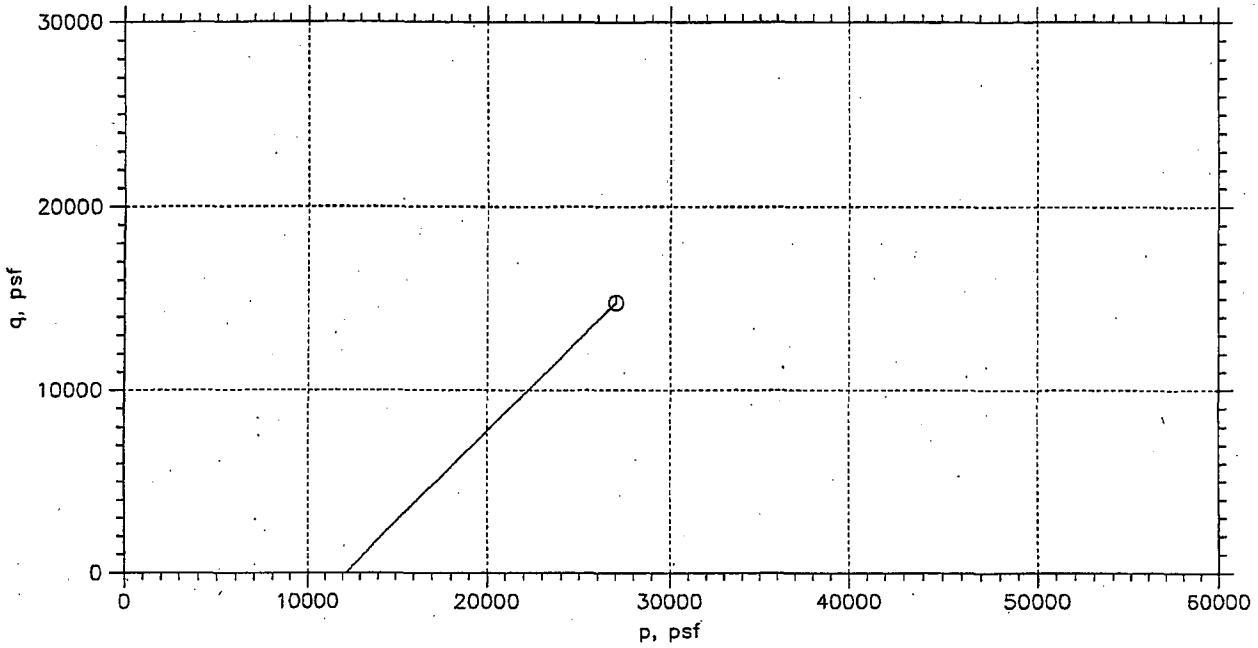
HJ 4/4/07

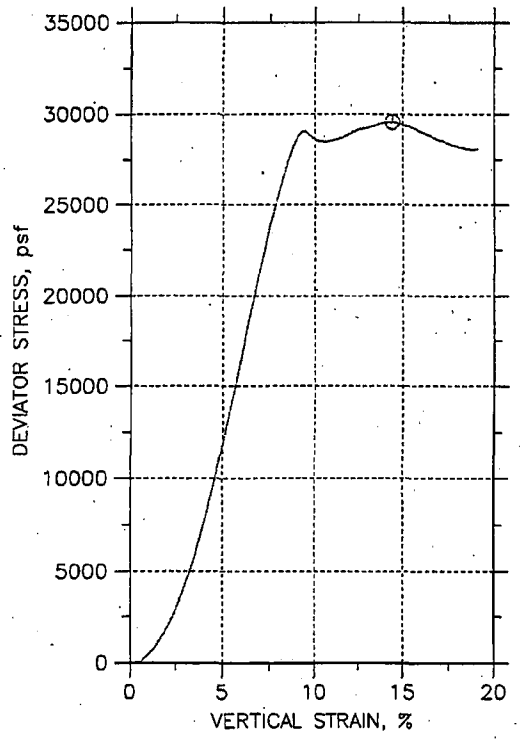
Phase calculations based on start and end of test.

KAW 4/4/07

Wed, 04-APR-2007 14:29:07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-5			
Test No.	6935			
Depth	188-190'			
Tested by	BM/VG			
Test Date	2/12/07			
Checked by	HJ			
Check Date	4/4/07			
Diameter, in	2.855			
Height, in	4.853			
Water Content, %	26.1			
Dry Density, pcf	101.5			
Saturation, %	108.4			
Void Ratio	0.642			
Confining Stress, psf	1.224e+004			
Undrained Strength, psf	1.478e+004			
Max. Dev. Stress, psf	2.956e+004			
Strain at Failure, %	14.4			
Strain Rate, %/min	1			
Measured Specific Gravity	2.67			
Liquid Limit	~~NP~~ NV KAW 4/4/07			
Plastic Limit	NP			
Plasticity Index	NP			

MACTEC

Project: Bechtel/STP/COL

Location: B-409 UD-5

Project No.: 5050060496

Boring No.: B-409

Sample Type: Undisturbed

Description: Poorly Graded Sand with Silt (SP-SM)

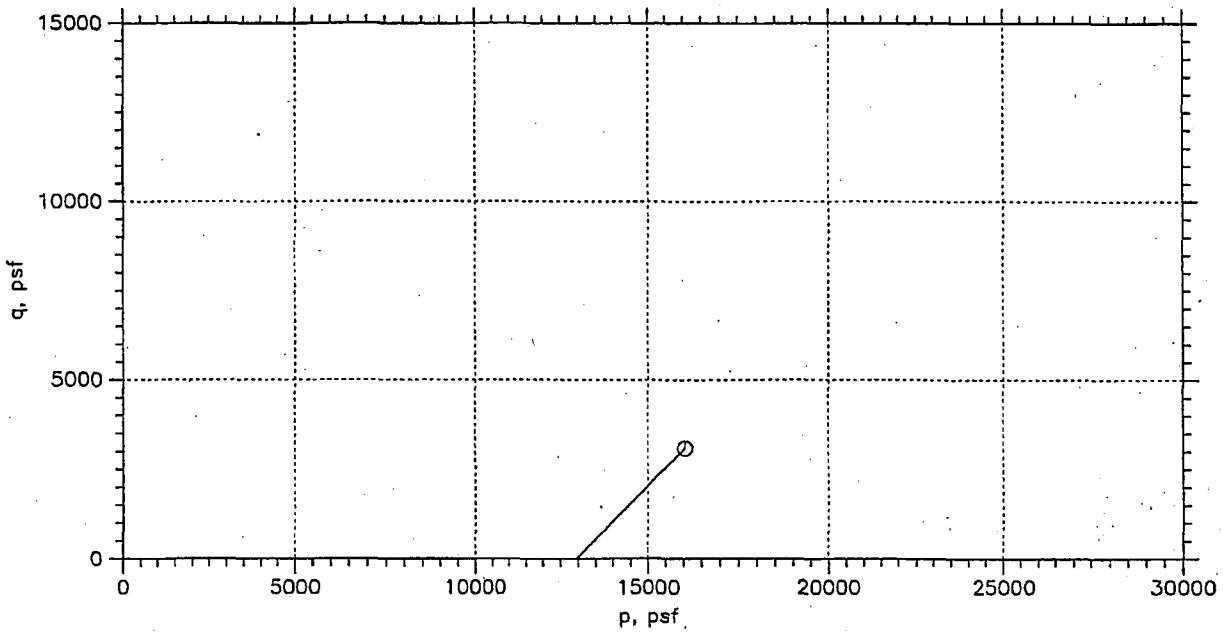
Remarks: 4/4/07

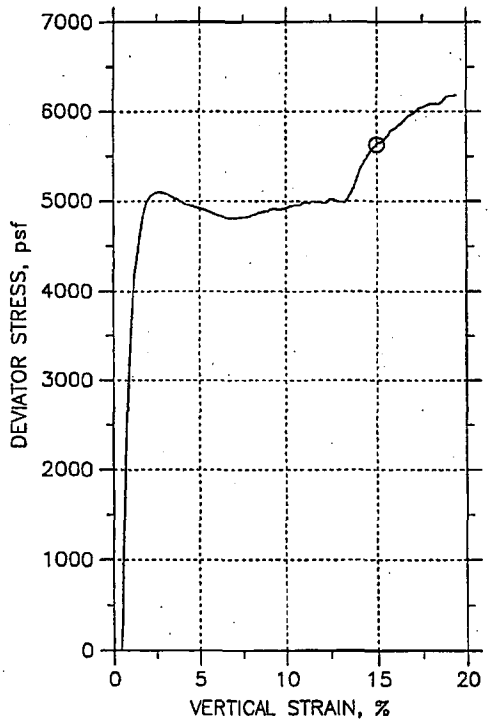
Phase calculations based on start and end of test.

KAW 4/4/07

Wed, 04-APR-2007 14:30:36

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-6			
Test No.	6936			
Depth	198-200'			
Tested by	BM/VG			
Test Date	2/12/07			
Checked by	HJ			
Check Date	4/12/07			
Diameter, in	2.856			
Height, in	5.6			
Water Content, %	25.3			
Dry Density, pcf	96.93			
Saturation, %	92.3			
Void Ratio	0.739			
Confining Stress, psf	1.296e+004			
Undrained Strength, psf	2815			
Max. Dev. Stress, psf	5629			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Estimated Specific Gravity	2.7			
Liquid Limit	---			
Plastic Limit	---			
Plasticity Index	---			

MACTEC

Project: Bechtel/STP/COL
Location: B-409 UD-6
Project No.: 5050060496
Boring No.: B-409
Sample Type: Undisturbed
Description: Fat Clay (CH)
Remarks:

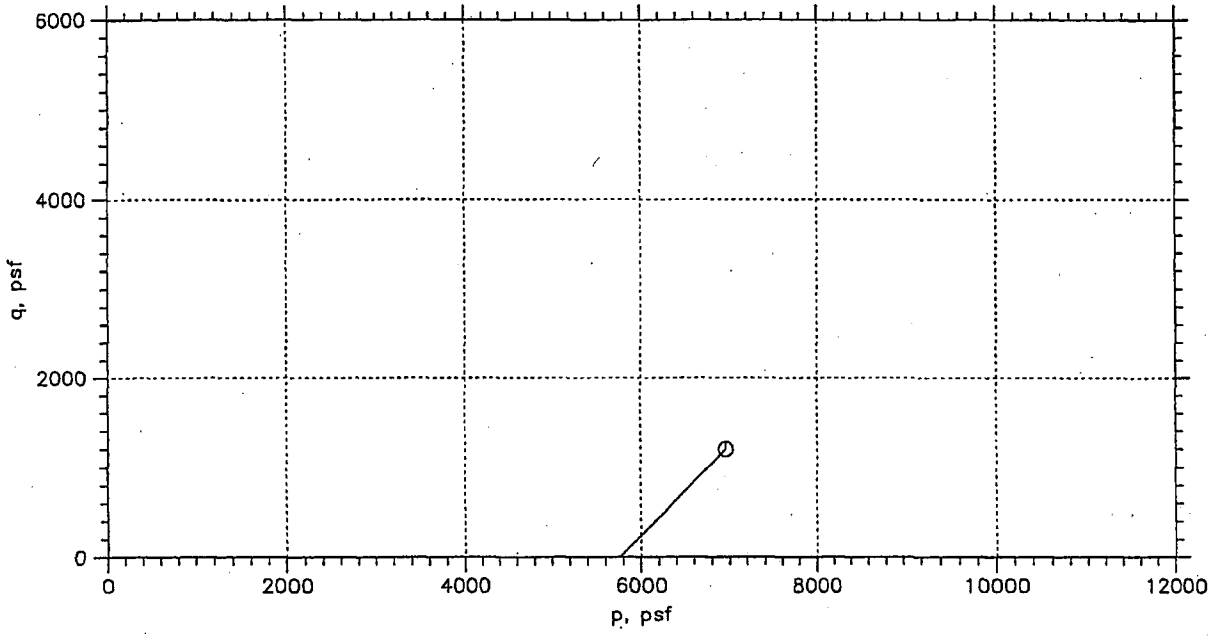
HJ 4/12/07

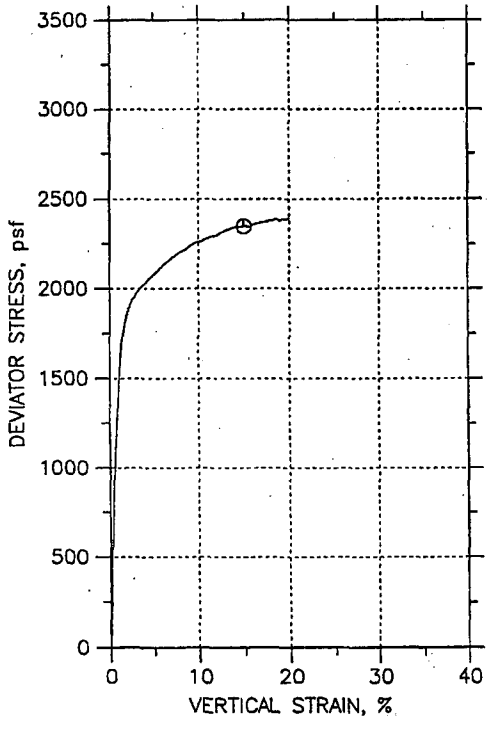
Phase calculations based on start and end of test.

KAN 4/12/07

Mon, 02-APR-2007 09:11:26

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-1			
Test No.	7185			
Depth	88-100'			
Tested by	BM			
Test Date	3/5/07			
Checked by	HJ			
Check Date	3/31/07			
Diameter, in	2.805			
Height, in	5.6			
Water Content, %	23.9			
Dry Density, pcf	99.92			
Saturation, %	91.7			
Void Ratio	0.718			
Confining Stress, psf	5760			
Undrained Strength, psf	1173			
Max. Dev. Stress, psf	2346			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.75			
Liquid Limit	61			
Plastic Limit	17			
Plasticity Index	44			

MACTEC

Project: Bechtel/STP/COL

Location: B-415 UD-1

Project No.: 5050060496

Boring No.: B-415

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

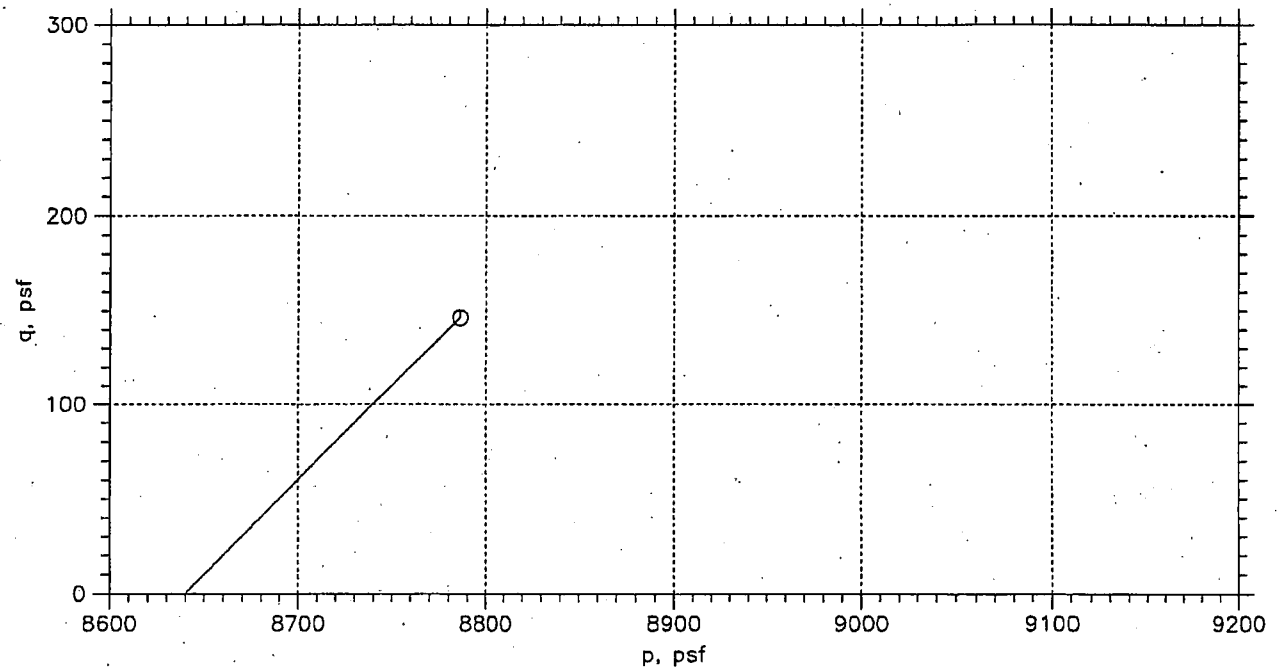
Phase calculations based on start and end of test.

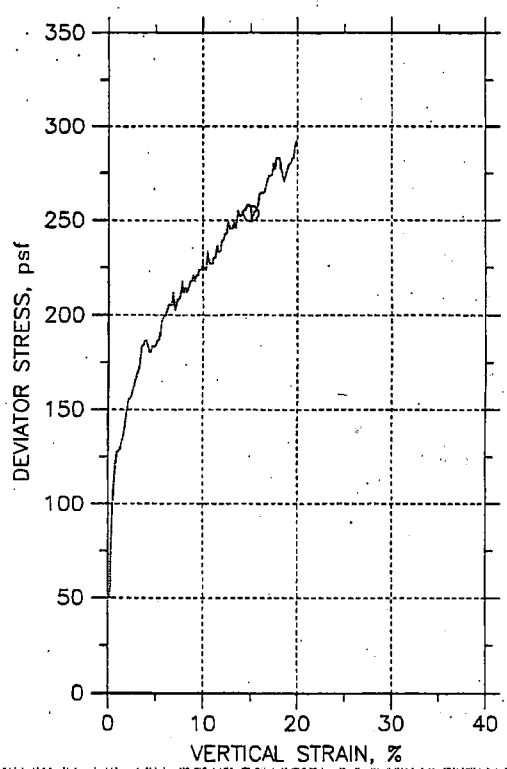
Fri, 30-MAR-2007 13:44:22

Johnne 3/31/07

KAW 4/2/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-3			
Test No.	7024			
Depth	124-126'			
Tested by	BM			
Test Date	3/5/07			
Checked by	HJ			
Check Date	4/4/07			
Diameter, in	2.817			
Height, in	5.6			
Water Content, %	34.0			
Dry Density, pcf	84.97			
Saturation, %	93.0			
Void Ratio	0.991			
Confining Stress, psf	8640			
Undrained Strength, psf	126.8			
Max. Dev. Stress, psf	253.6			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.71			
Liquid Limit	51			
Plastic Limit	16			
Plasticity Index	35			

MACTEC

Project: Bechtel/STP/COL

Location: B-415 UD-3

Project No.: 5050060496

Boring No.: B-415

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

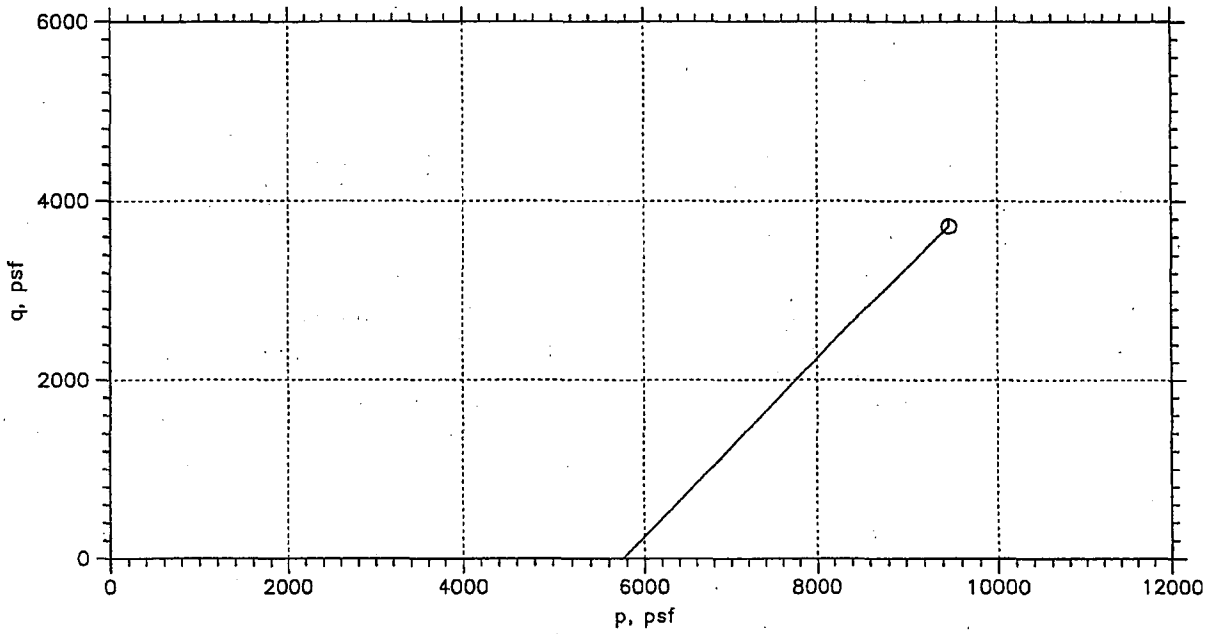
HJ 4/4/07

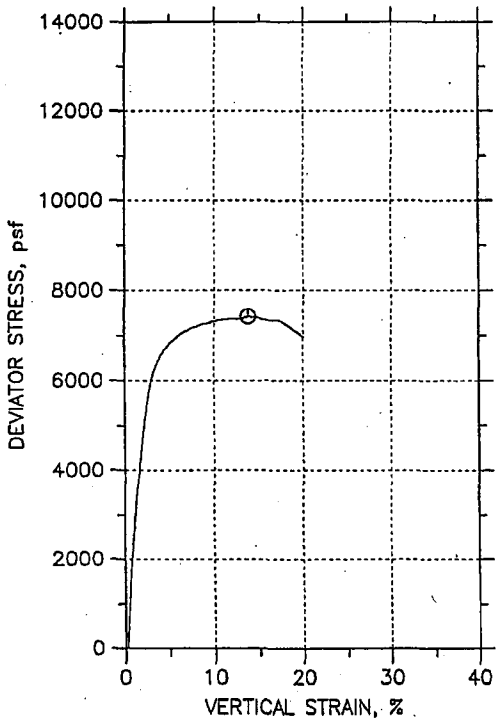
Phase calculations based on start and end of test.

KAW 4/4/07

Wed, 04-APR-2007 14:31:36

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-1			
Test No.	6937			
Depth	78-80'			
Tested by	BM			
Test Date	2/14/07			
Checked by	HJ			
Check Date	3/31/07			
Diameter, in	2.84			
Height, in	5.6			
Water Content, %	21.3			
Dry Density, pcf	105.4			
Saturation, %	92.2			
Void Ratio	0.641			
Confining Stress, psf	5760			
Undrained Strength, psf	3713			
Max. Dev. Stress, psf	7427			
Strain at Failure, %	13.8			
Strain Rate, %/min	1			
Measured Specific Gravity	2.77			
Liquid Limit	47			
Plastic Limit	24			
Plasticity Index	23			

MACTEC

Project: Bechtel/STP/COL

Location: B-419-DH UD-1

Project No.: 5050060496

Boring No.: B-419-DH

Sample Type: Undisturbed

Description: Lean Clay (CL)

Remarks:

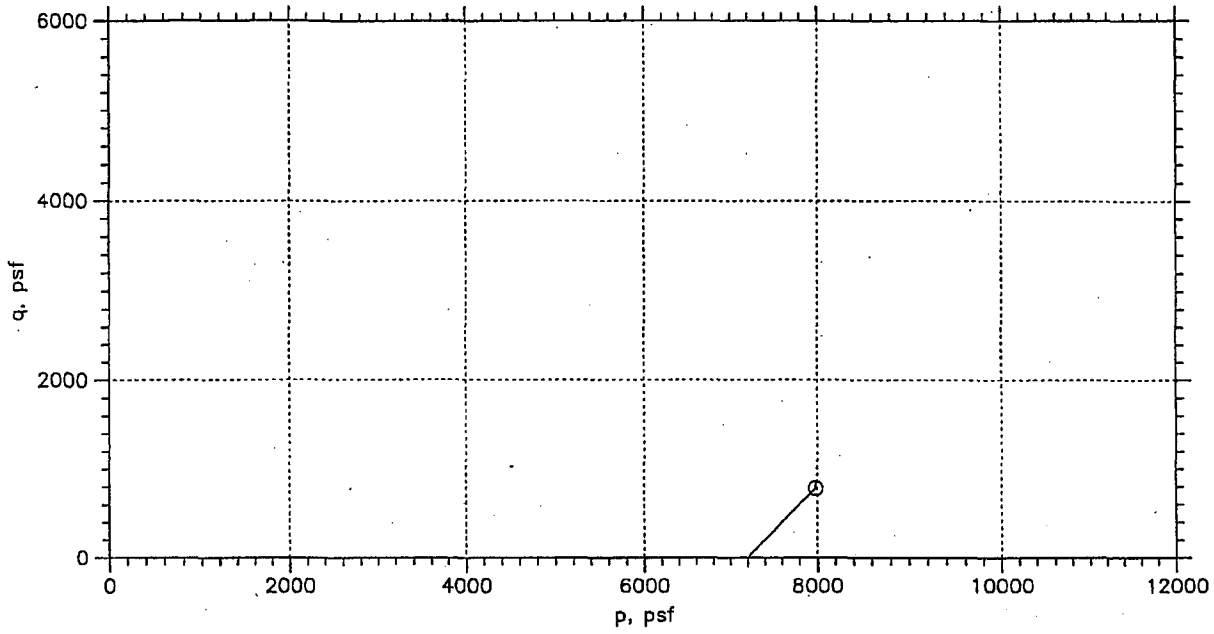
HJ 3/31/07

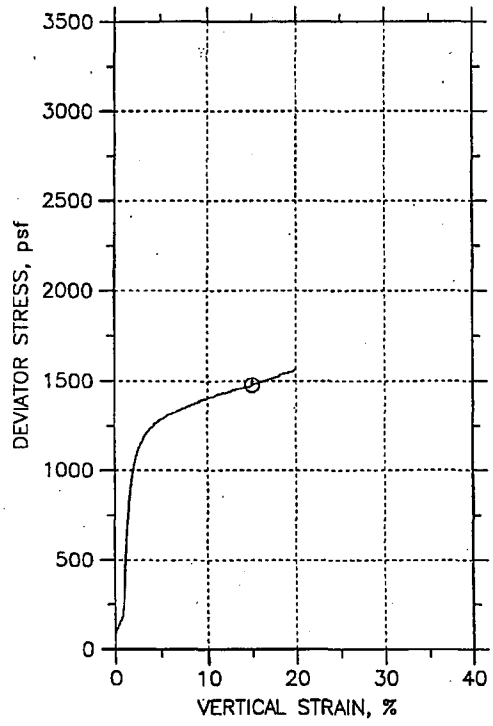
Phase calculations based on start and end of test.

Sat, 31-MAR-2007 13:21:14

KAW 4/1/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-2			
Test No.	6938			
Depth	98-100'			
Tested by	BM			
Test Date	2/15/07			
Checked by	HJ			
Check Date	3/31/07			
Diameter, in	2.825			
Height, in	5.6			
Water Content, %	27.0			
Dry Density, pcf	94.12			
Saturation, %	88.9			
Void Ratio	0.844			
Confining Stress, psf	7200			
Undrained Strength, psf	738.2			
Max. Dev. Stress, psf	1476			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.78			
Liquid Limit	61			
Plastic Limit	24			
Plasticity Index	37			

MACTEC

Project: Bechtel/STP/COL

Location: B-419-DH UD-2

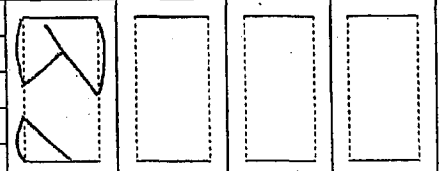
Project No.: 5050060496

Boring No.: B-419-DH

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:



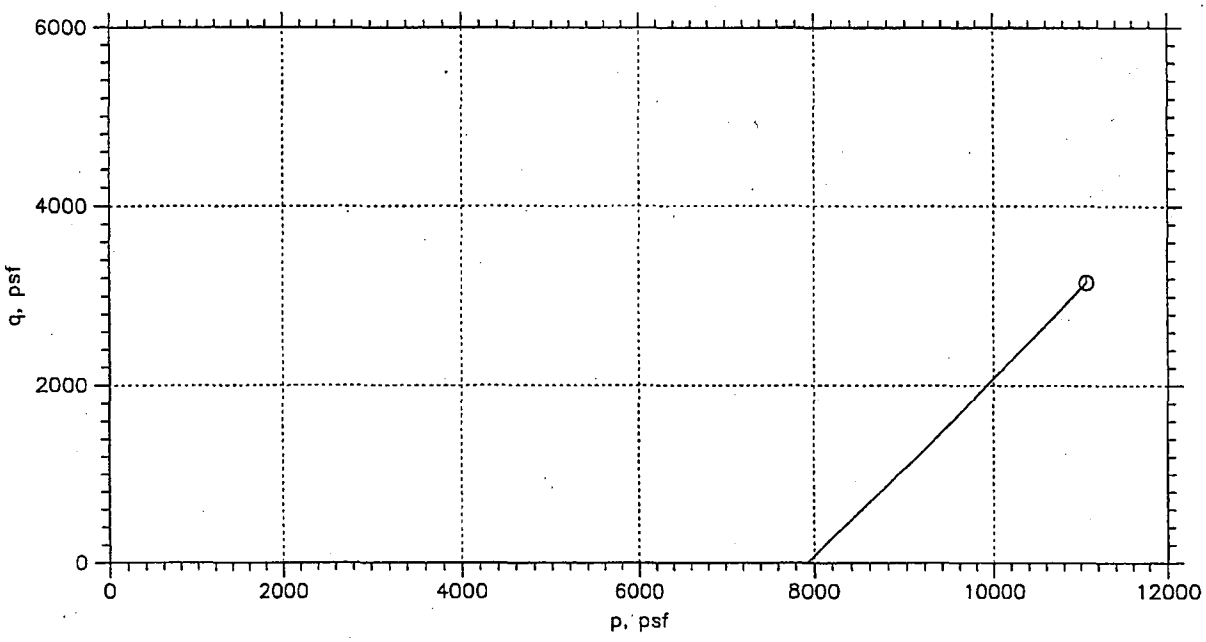
3/31/07

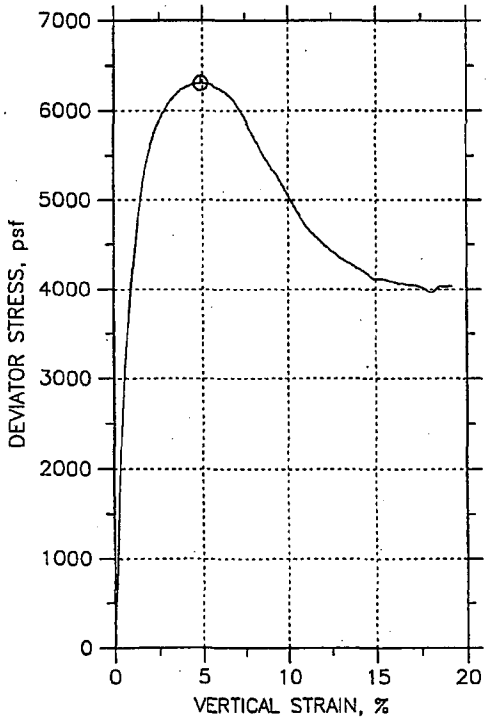
Phase calculations based on start and end of test.

Sat, 31-MAR-2007 13:20:09

KAW 4/1/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-3			
Test No.	6939			
Depth	118-120ft			
Tested by	BM			
Test Date	2/14/07			
Checked by	HJ			
Check Date	2/23/07			
Diameter, in	2.833			
Height, in	5.6			
Water Content, %	19.3			
Dry Density, pcf	108.5			
Saturation, %	93.8			
Void Ratio	0.557			
Confining Stress, psf	7920			
Undrained Strength, psf	3152			
Max. Dev. Stress, psf	6305			
Strain at Failure, %	4.9			
Strain Rate, %/min	1			
Measured Specific Gravity	2.71			
Liquid Limit	56			
Plastic Limit	17			
Plasticity Index	39			

MACTEC

Project: Bechtel/STP/COL

Location: B-419 UD-3

Project No.: 5050060496

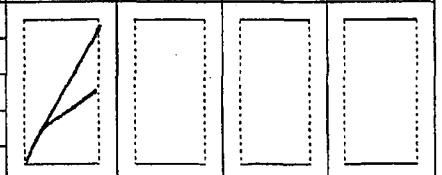
Boring No.: B-419

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

Phase calculations based on start and end of test.

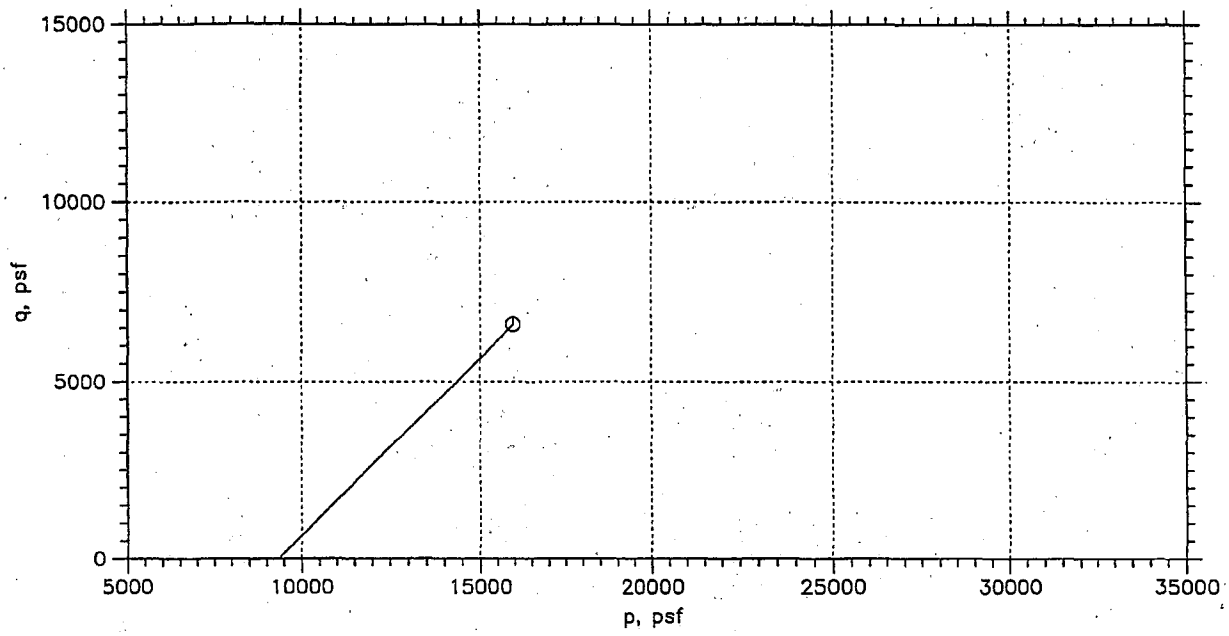


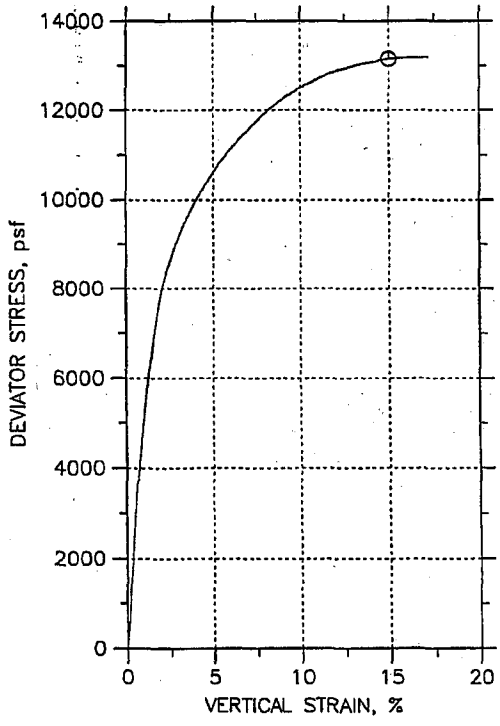
JHH 2/23/07

KAW 4/3/07

Fri, 23-FEB-2007 15:08:17

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-4			
Test No.	6940			
Depth	138-140ft			
Tested by	BM			
Test Date	2/09/07			
Checked by	HJ			
Check Date	2/25/07			
Diameter, in	2.812			
Height, in	5.6			
Water Content, %	14.9			
Dry Density, pcf	111.5			
Saturation, %	81.5			
Void Ratio	0.484			
Confining Stress, psf	9360			
Undrained Strength, psf	6579			
Max. Dev. Stress, psf	1.316e+004			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.65			
Liquid Limit	40			
Plastic Limit	15			
Plasticity Index	25			

MACTEC

Project: Bechtel/STP/COL

Location: B-419 UD-4

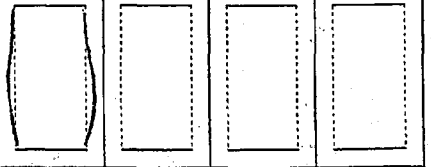
Project No.: 5050060496

Boring No.: B-419

Sample Type: Undisturbed

Description: Lean Clay with Sand (CL)

Remarks:



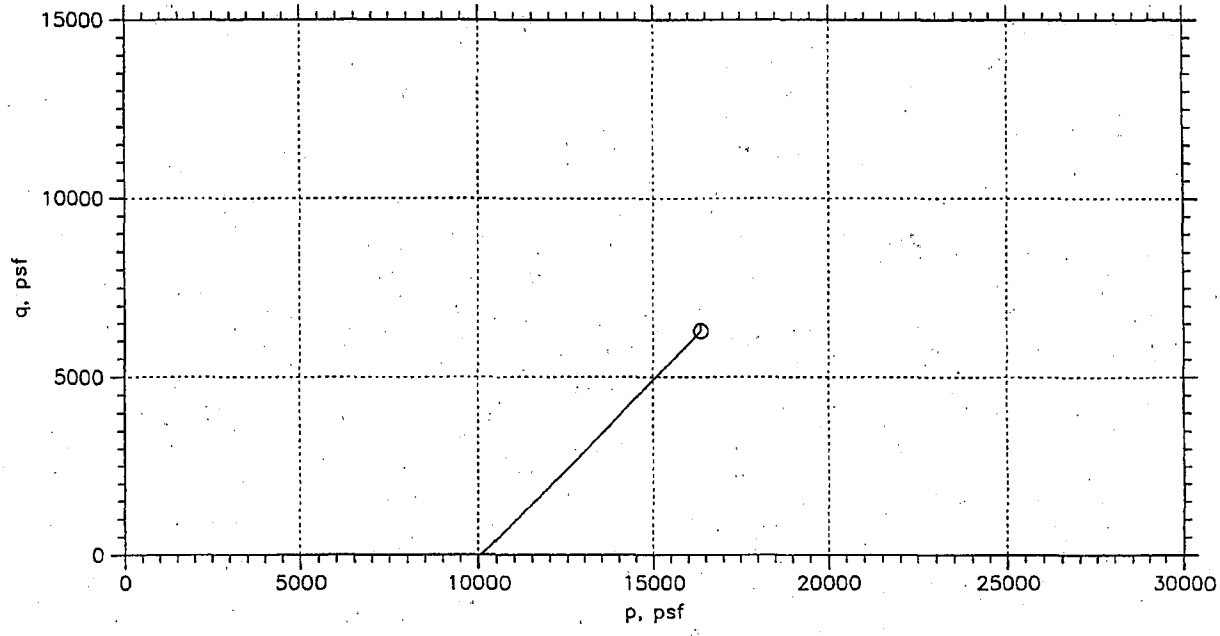
JHL 2/25/07

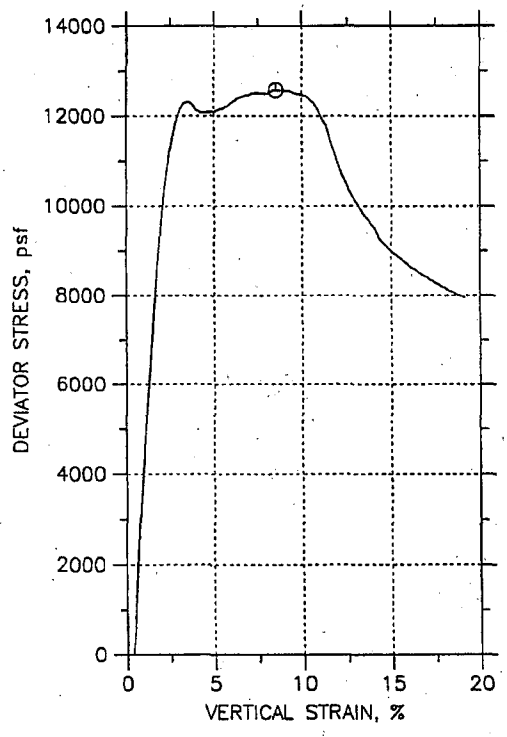
Phase calculations based on start and end of test.

Sun, 25-FEB-2007 11:52:48

KAW 4/3/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⦶			
Sample No.	UD-5			
Test No.	6941			
Depth	158-160ft			
Tested by	BM			
Test Date	2/09/07			
Checked by	HJ			
Check Date	2/23/07			
Diameter, in	2.835			
Height, in	5.88			
Water Content, %	19.3			
Dry Density, pcf	108.7			
Saturation, %	92.5			
Void Ratio	0.569			
Confining Stress, psf	1.008e+004			
Undrained Strength, psf	6285			
Max. Dev. Stress, psf	1.257e+004			
Strain at Failure, %	8.55			
Strain Rate, %/min	1			
Measured Specific Gravity	2.73			
Liquid Limit	47			
Plastic Limit	17			
Plasticity Index	30			

MACTEC

Project: Bechtel/STP/COL

Location: B-419 UD-5

Project No.: 5050060496

Boring No.: B-419

Sample Type: Undisturbed

Description: Lean Clay (CL)

Remarks:

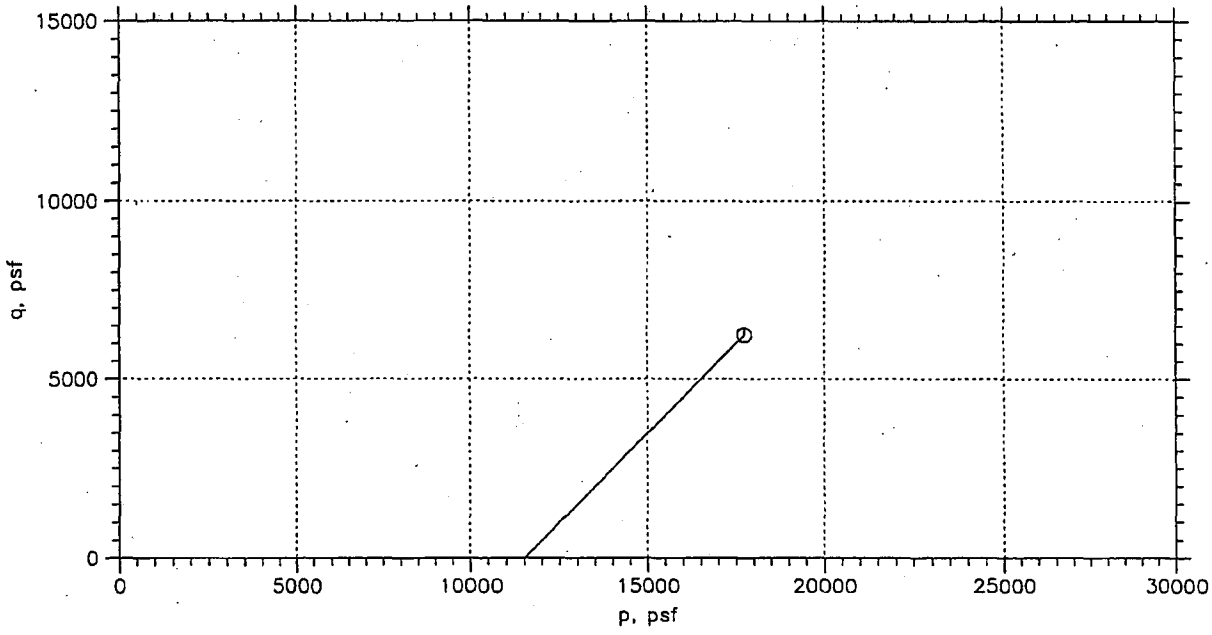
Phase calculations based on start and end of test.

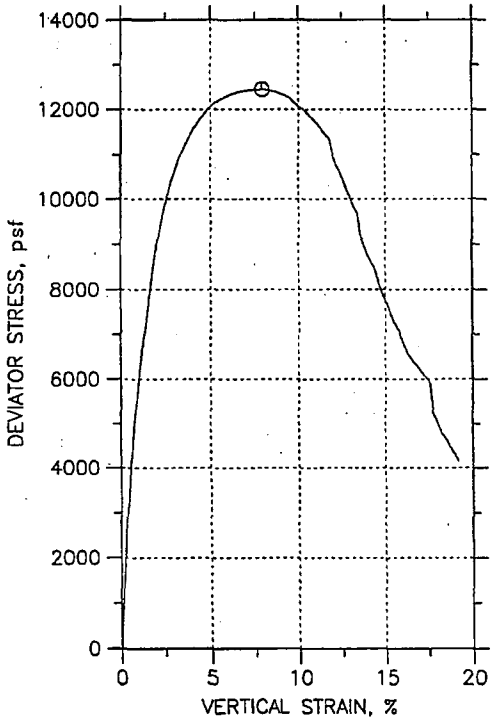
Fri, 23-FEB-2007 15:19:20

2/23/07

KAW 4/13/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-6			
Test No.	6942			
Depth	178-180ft			
Tested by	BM			
Test Date	2/10/07			
Checked by	HJ			
Check Date	2/23/07			
Diameter, in	2.82			
Height, in	5.6			
Water Content, %	20.6			
Dry Density, pcf	109.			
Saturation, %	99.4			
Void Ratio	0.567			
Confining Stress, psf	1.152e+004			
Undrained Strength, psf	6226			
Max. Dev. Stress, psf	1.245e+004			
Strain at Failure, %	7.93			
Strain Rate, %/min	1			
Measured Specific Gravity	2.74			
Liquid Limit	53			
Plastic Limit	20			
Plasticity Index	33			

MACTEC

Project: Bechtel/STP/COL

Location: B-419 UD-6

Project No.: 5050060496

Boring No.: B-419

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

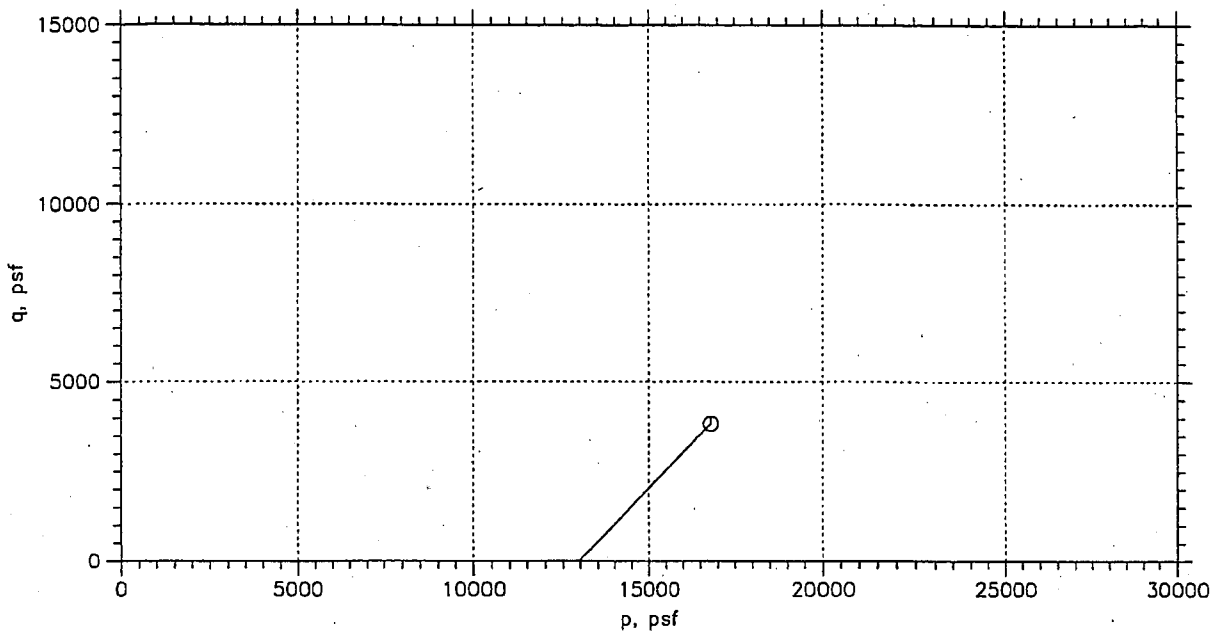
Phase calculations based on start and end of test.

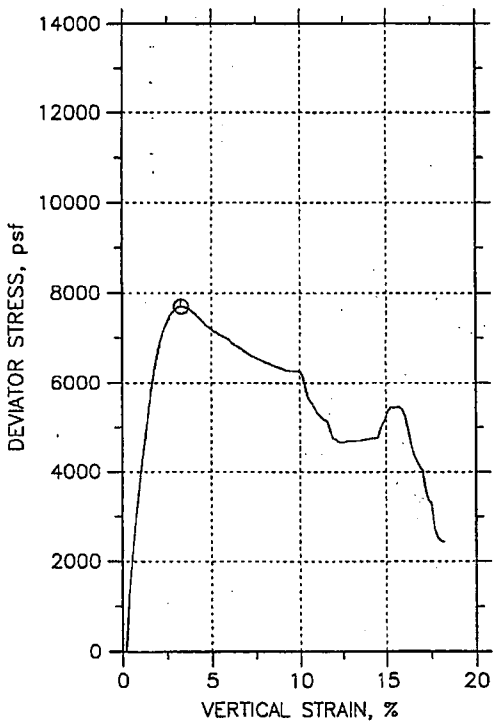
2/23/07

KAW 4/3/07

Fri, 23-FEB-2007 15:22:23

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-7			
Test No.	6943			
Depth	198-200ft			
Tested by	BM			
Test Date	2/09/07			
Checked by	HJ			
Check Date	2/23/07			
Diameter, in	2.827			
Height, in	5.6			
Water Content, %	27.5			
Dry Density, pcf	91.57			
Saturation, %	87.5			
Void Ratio	0.853			
Confining Stress, psf	1.296e+004			
Undrained Strength, psf	3847			
Max. Dev. Stress, psf	7695			
Strain at Failure, %	3.31			
Strain Rate, %/min	1			
Measured Specific Gravity	2.72			
Liquid Limit	56			
Plastic Limit	20			
Plasticity Index	36			

MACTEC

Project: Bechtel/STP/COL

Location: B-419 UD-7

Project No.: 5050060496

Boring No.: B-419

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

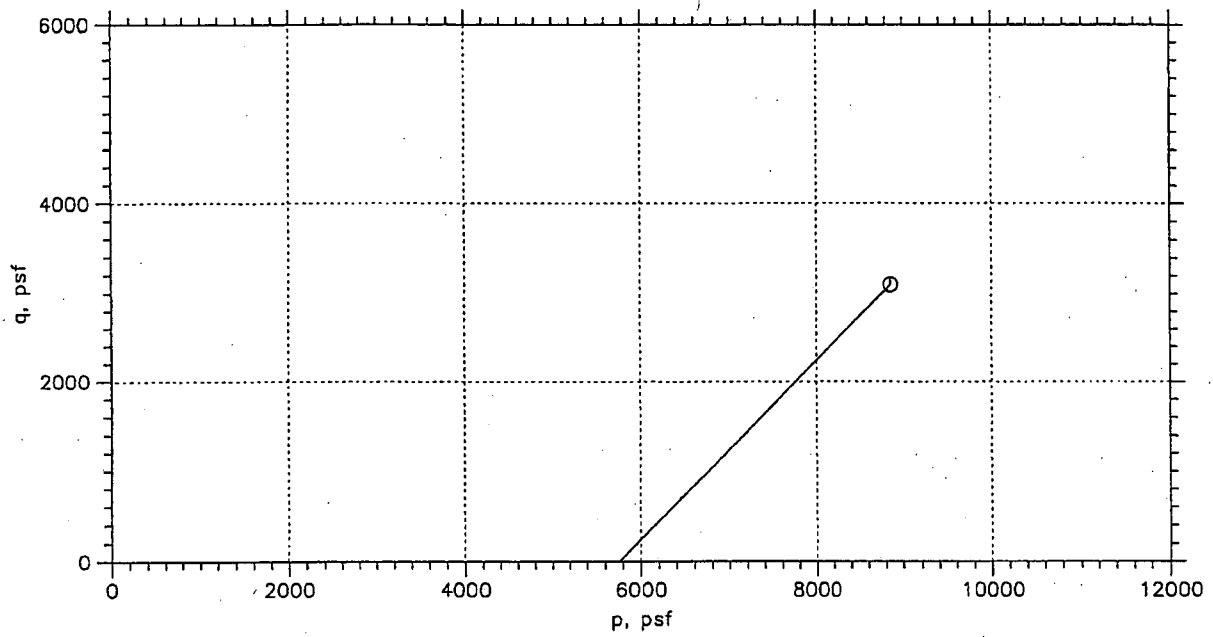
Phase calculations based on start and end of test.

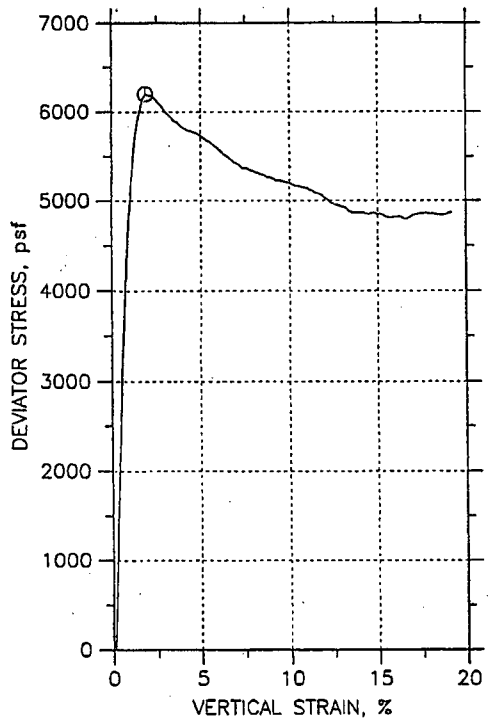
2/23/07

KAW 4/3/07

Fri, 23-FEB-2007 15:26:50

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⦶			
Sample No.	UD-3			
Test No.	6904			
Depth	83-85ft			
Tested by	BM			
Test Date	2/13/07			
Checked by	HJ			
Check Date	2/23/07			
Diameter, in	2.878			
Height, in	5.6			
Water Content, %	21.2			
Dry Density, pcf	104.8			
Saturation, %	92.3			
Void Ratio	0.625			
Confining Stress, psf	5760			
Undrained Strength, psf	3099			
Max. Dev. Stress, psf	6199			
Strain at Failure, %	1.88			
Strain Rate, %/min	1			
Measured Specific Gravity	2.73			
Liquid Limit	56			
Plastic Limit	20			
Plasticity Index	36			

MACTEC

Project: Bechtel/STP/COL
Location: B-421 UD-3
Project No.: 5050060496
Boring No.: B-421
Sample Type: Undisturbed
Description: Fat Clay (CH)
Remarks:

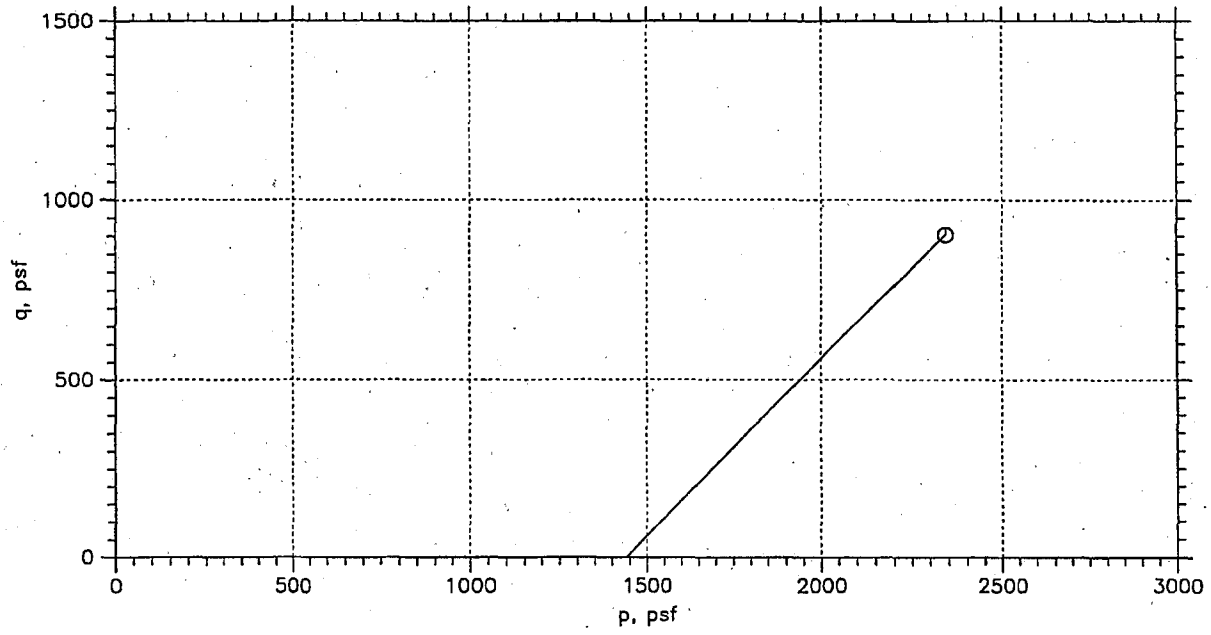
Phase calculations based on start and end of test.

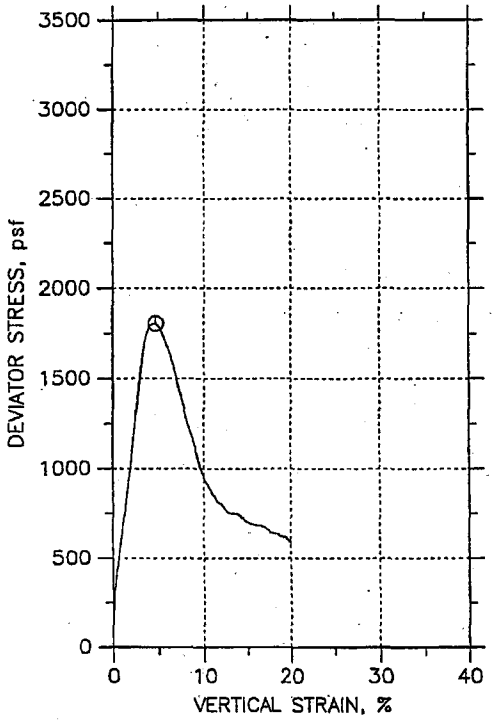
Fri, 23-FEB-2007 10:35:56

2/23/07

KAW 4/3/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-2			
Test No.	6971			
Depth	15-17'			
Tested by	BM			
Test Date	3/02/07			
Checked by	HJ			
Check Date	3/31/07			
Diameter, in	2.866			
Height, in	5.6			
Water Content, %	24.3			
Dry Density, pcf	100.2			
Saturation, %	94.5			
Void Ratio	0.701			
Confining Stress, psf	1440			
Undrained Strength, psf	902.9			
Max. Dev. Stress, psf	1806			
Strain at Failure, %	4.8			
Strain Rate, %/min	1			
Measured Specific Gravity	2.73			
Liquid Limit	59			
Plastic Limit	20			
Plasticity Index	39			

MACTEC

Project: Bechtel/STP/COL

Location: B-902 UD-2

Project No.: 5050060496

Boring No.: B-902

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

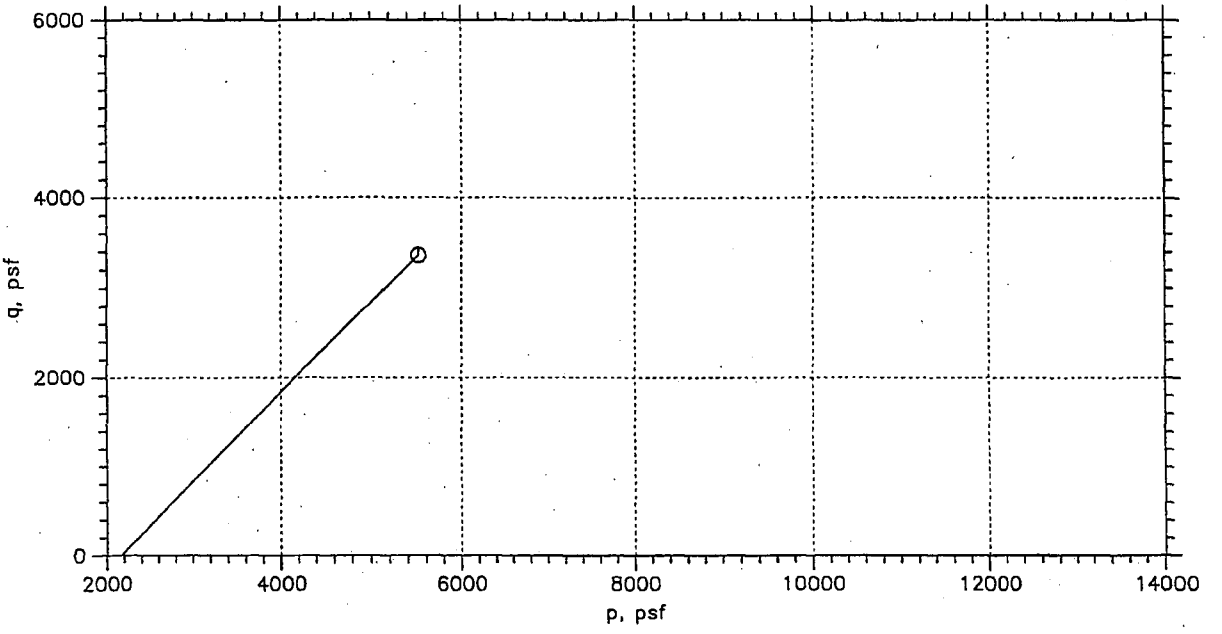
Phase calculations based on start and end of test.

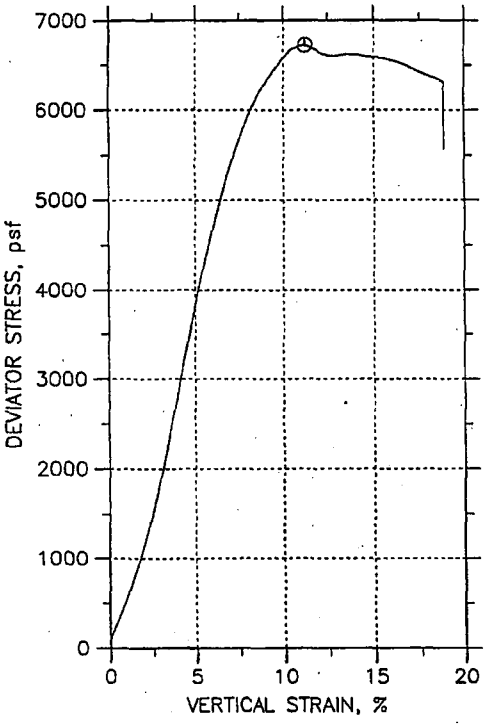
J Lure 3/31/07

KAW 4/1/07

Fri, 30-MAR-2007 13:31:00

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-3			
Test No.	6972			
Depth	23-25ft			
Tested by	BM			
Test Date	2/13/07			
Checked by	HJ			
Check Date	2/25/07			
Diameter, in	2.821			
Height, in	5.6			
Water Content, %	24.8			
Dry Density, pcf	95.86			
Saturation, %	90.4			
Void Ratio	0.727			
Confining Stress, psf	2160			
Undrained Strength, psf	3360			
Max. Dev. Stress, psf	6721			
Strain at Failure, %	11.2			
Strain Rate, %/min	1			
Measured Specific Gravity	2.65			
Liquid Limit	~~NP~~ 2/25/07	NV		
Plastic Limit	NP			
Plasticity Index	NP			

MACTEC

Project: Bechtel/STP/COL

Location: B-902 UD-3

Project No.: 5050060496

Boring No.: B-902

Sample Type: Undisturbed

Description: Silty Sand (SM)

Remarks:

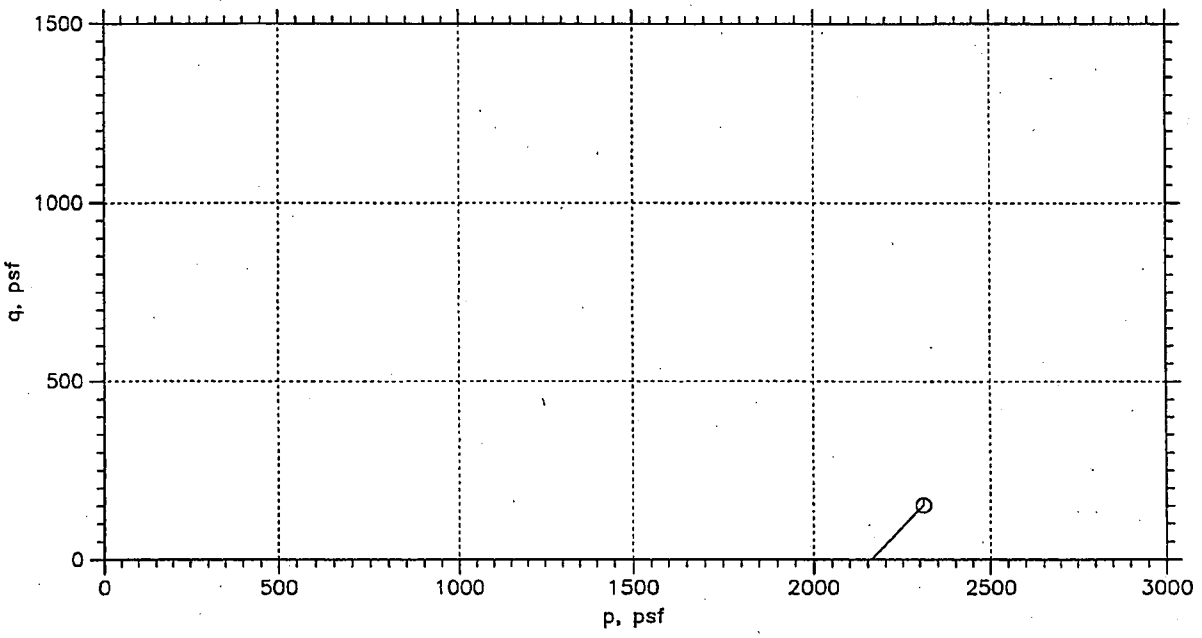
Phase calculations based on start and end of test.

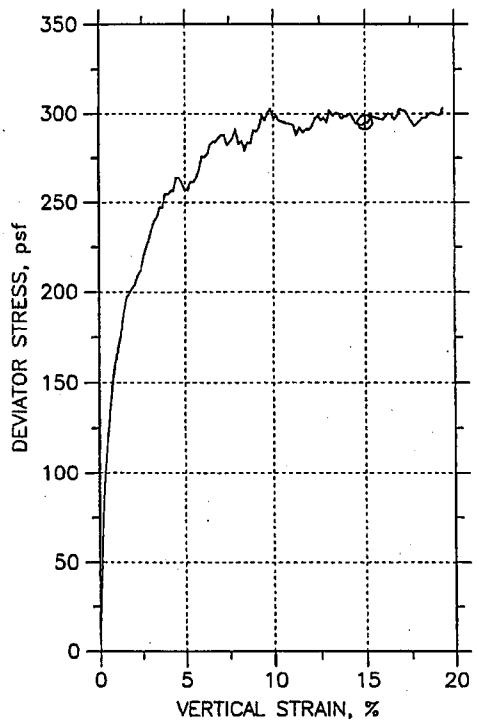
2/25/07

KAW 4/3/07

Sun, 25-FEB-2007 11:46:29

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊘			
Sample No.	UD-3			
Test No.	6975			
Depth	28-30'			
Tested by	BM			
Test Date	2/15/07			
Checked by	HJ			
Check Date				
Diameter, in	2.836			
Height, in	5.6			
Water Content, %	25.0			
Dry Density, pcf	93.67			
Saturation, %	84.1			
Void Ratio	0.806			
Confining Stress, psf	2160			
Undrained Strength, psf	147.5			
Max. Dev. Stress, psf	295			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.71			
Liquid Limit	~~NP~~ NV JJ 3/26/07			
Plastic Limit	NP			
Plasticity Index	NP			

MACTEC

Project: Bechtel/STP/COL

Location: B-904 UD-3

Project No.: 5050060496

Boring No.: B-904

Sample Type: Undisturbed

Description: Sandy Silt (ML)

Remarks:

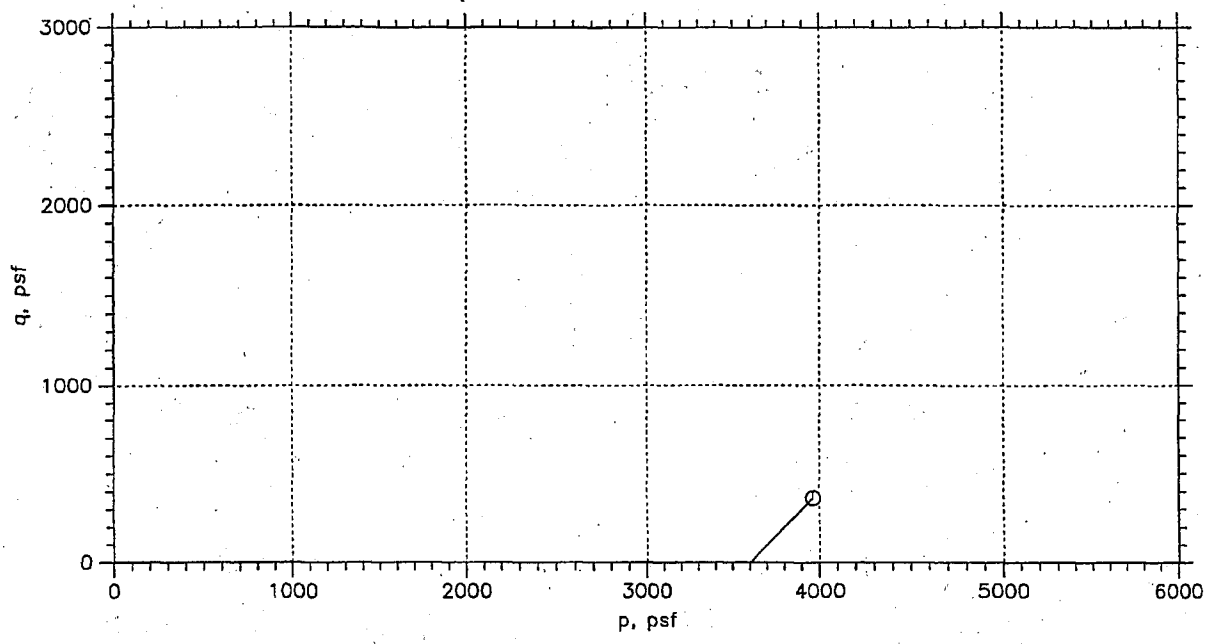
Phase calculations based on start and end of test.

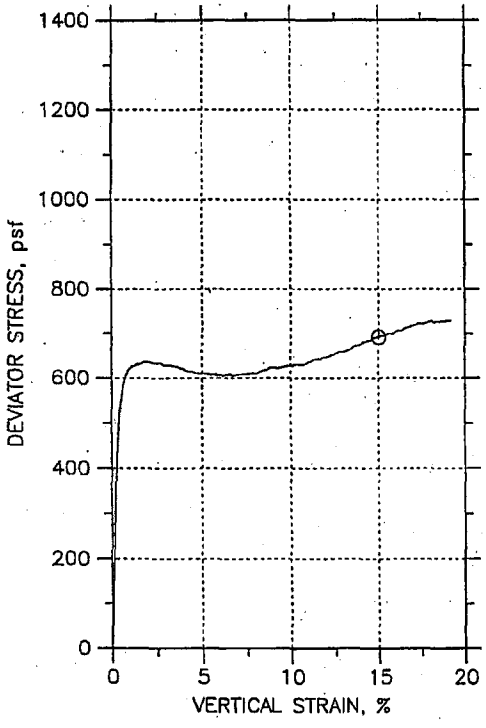
JJ 3/26/07

KAW 4/3/07

Mon, 26-MAR-2007 10:00:25

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-4			
Test No.	6976			
Depth	53-55'			
Tested by	BM			
Test Date	3/02/07			
Checked by	HJ			
Check Date	3/3/07			
Diameter, in	2.873			
Height, in	5.6			
Water Content, %	32.5			
Dry Density, pcf	87.38			
Saturation, %	96.0			
Void Ratio	0.9			
Confining Stress, psf	3600			
Undrained Strength, psf	345.8			
Max. Dev. Stress, psf	691.5			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.66			
Liquid Limit	62			
Plastic Limit	21			
Plasticity Index	41			

MACTEC

Project: Bechtel/STP/COL

Location: B-904 UD-4

Project No.: 5050060496

Boring No.: B-904

Sample Type: Undisturbed

Description: Clayey Sand (SC)

Remarks:

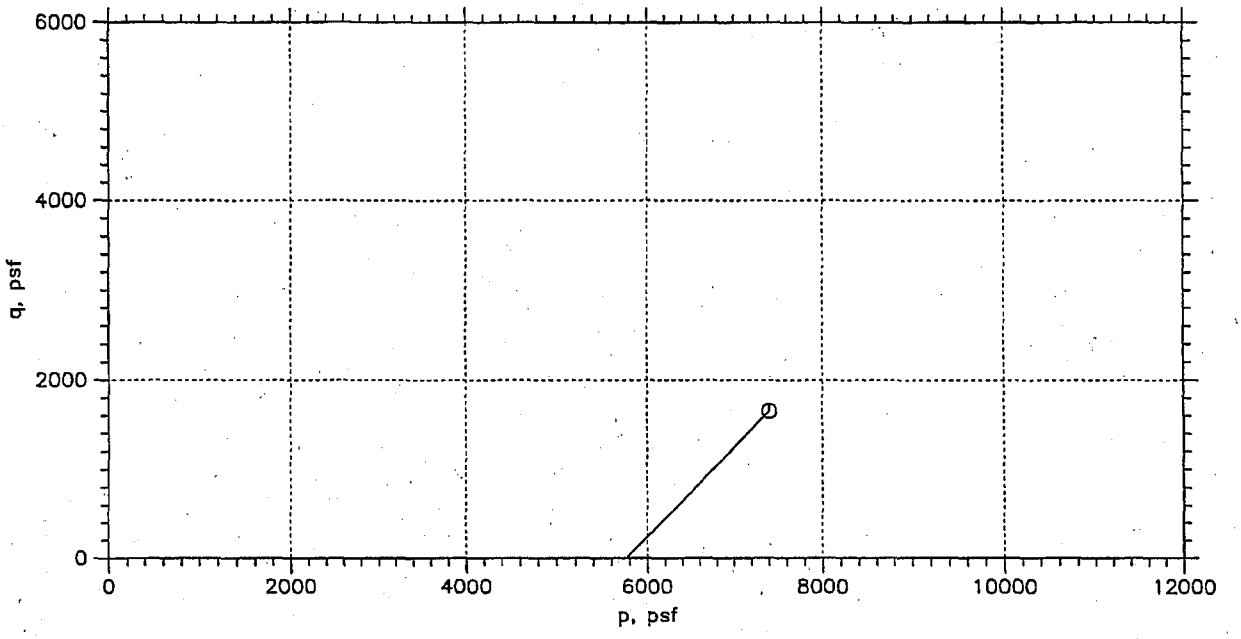
HJ 3/3/07

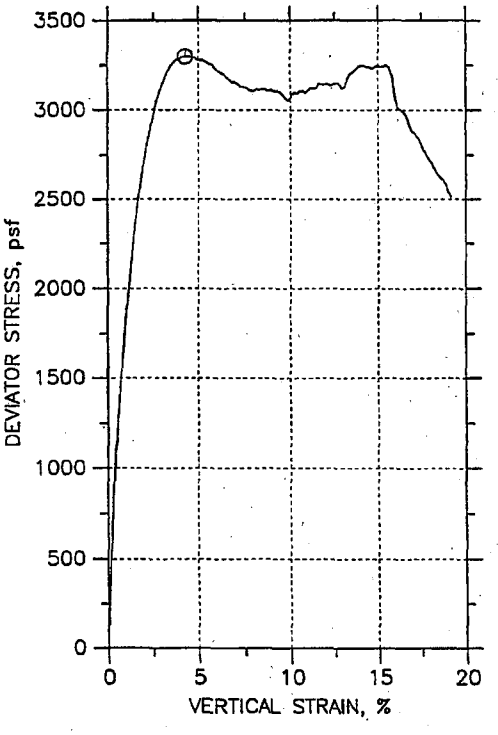
Phase calculations based on start and end of test.

Fri, 30-MAR-2007 13:46:47

KAW 4/1/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-5			
Test No.	6977			
Depth	83-85'			
Tested by	BM			
Test Date	2/13/07			
Checked by	HJ			
Check Date	3/26/07			
Diameter, in	2.837			
Height, in	5.6			
Water Content, %	24.0			
Dry Density, pcf	98.62			
Saturation, %	90.8			
Void Ratio	0.716			
Confining Stress, psf	5760			
Undrained Strength, psf	1649			
Max. Dev. Stress, psf	3298			
Strain at Failure, %	4.28			
Strain Rate, %/min	1			
Measured Specific Gravity	2.71			
Liquid Limit	62			
Plastic Limit	21			
Plasticity Index	41			

MACTEC

Project: Bechtel/STP/COL

Location: B-904 UD-5

Project No.: 5050060496

Boring No.: B-904

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

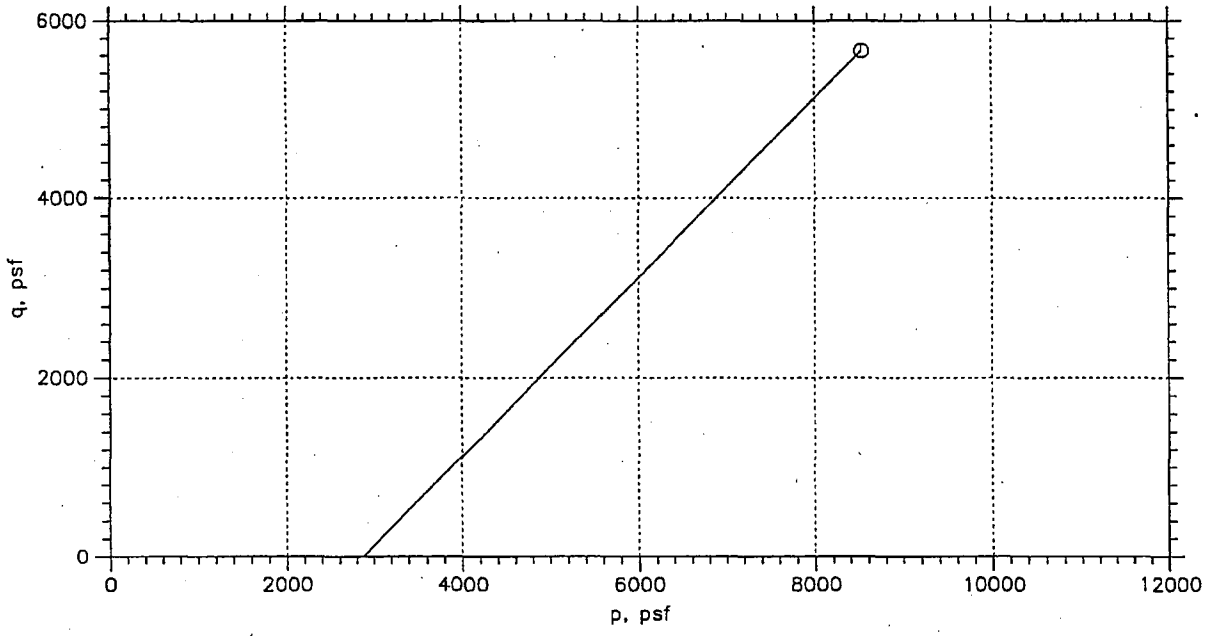
Phase calculations based on start and end of test.

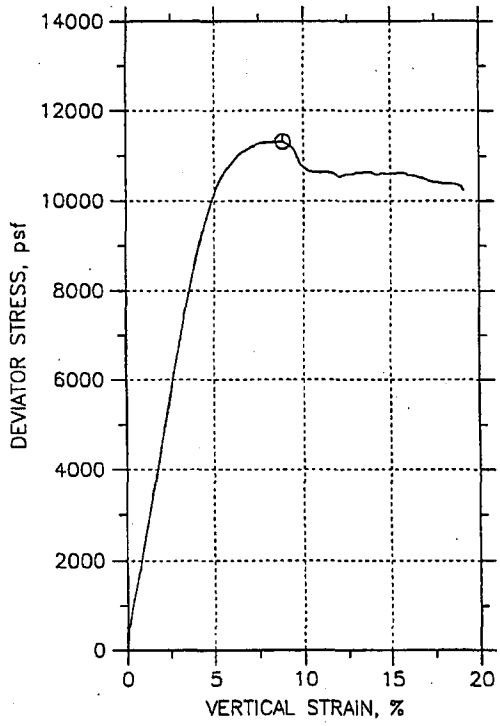
JRL 3/26/07

KAW 3/29/07

Mon, 26-MAR-2007 10:43:57

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-1			
Test No.	6978			
Depth	33-35'			
Tested by	BM			
Test Date	2/13/07			
Checked by	HJ			
Check Date	2/23/07			
Diameter, in	2.779			
Height, in	5.6			
Water Content, %	23.8			
Dry Density, pcf	101.6			
Saturation, %	95.7			
Void Ratio	0.679			
Confining Stress, psf	2880			
Undrained Strength, psf	5659			
Max. Dev. Stress, psf	1.132e+004			
Strain at Failure, %	8.88			
Strain Rate, %/min	1			
Measured Specific Gravity	2.73			
Liquid Limit	---			
Plastic Limit	---			
Plasticity Index	---			

MACTEC

Project: Bechtel/STP/COL
Location: B-909 UD-1
Project No.: 5050060496
Boring No.: B-909
Sample Type: Undisturbed
Description: Silty Sand (SM)
Remarks:

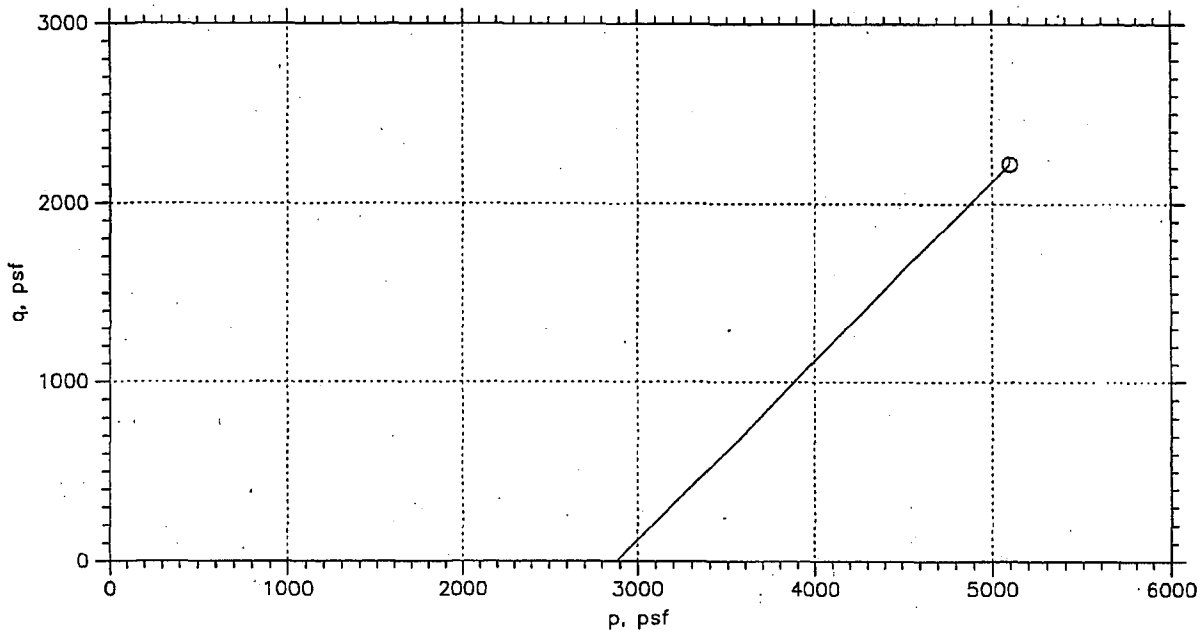
Phase calculations based on start and end of test.

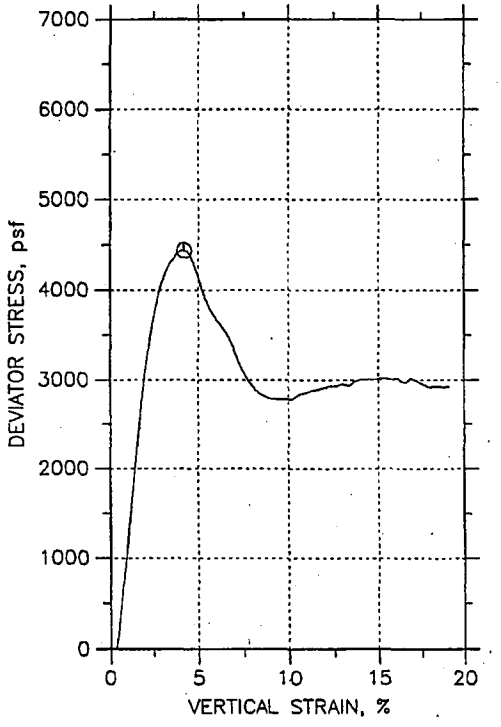
J. Lane 2/23/07

KAW 4/3/07

Fri, 23-FEB-2007 16:53:03

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-2			
Test No.	6979			
Depth	43-45'			
Tested by	BM/VG			
Test Date	2/12/07			
Checked by	HJ			
Check Date	2/23/07			
Diameter, in	2.861			
Height, in	5.475			
Water Content, %	25.0			
Dry Density, pcf	96.54			
Saturation, %	88.0			
Void Ratio	0.785			
Confining Stress, psf	2880			
Undrained Strength, psf	2219			
Max. Dev. Stress, psf	4437			
Strain at Failure, %	4.26			
Strain Rate, %/min	1			
Measured Specific Gravity	2.76			
Liquid Limit	62			
Plastic Limit	24			
Plasticity Index	38			

MACTEC

Project: Bechtel/STP/COL

Location: B-909 UD-2

Project No.: 5050060496

Boring No.: B-909

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

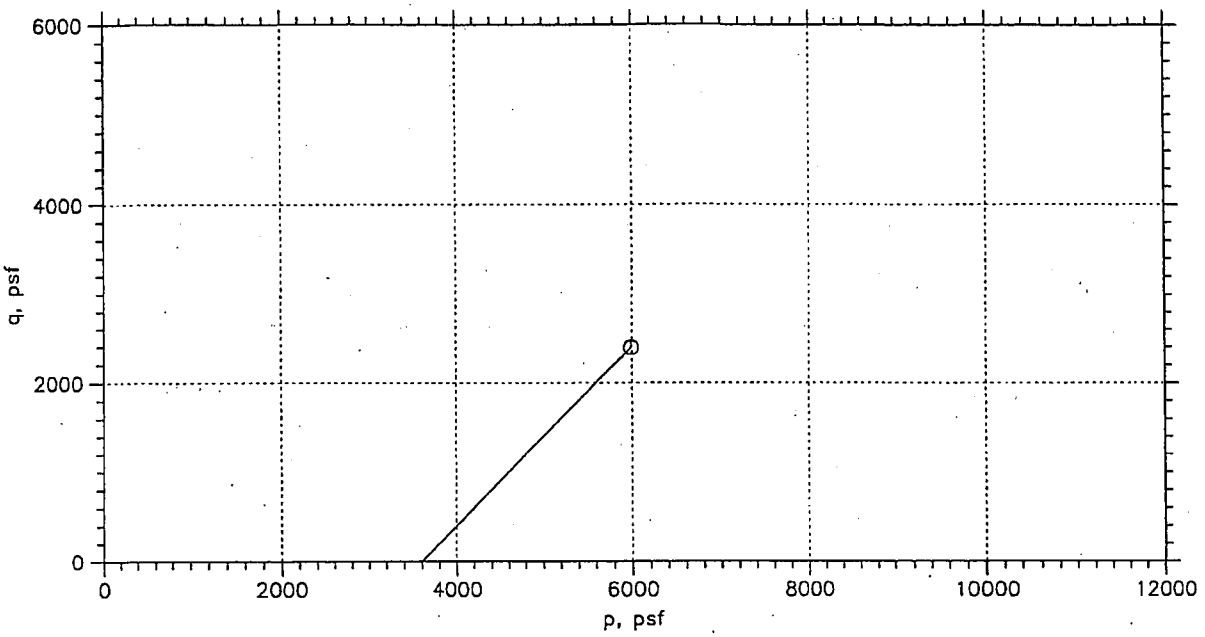
Phase calculations based on start and end of test.

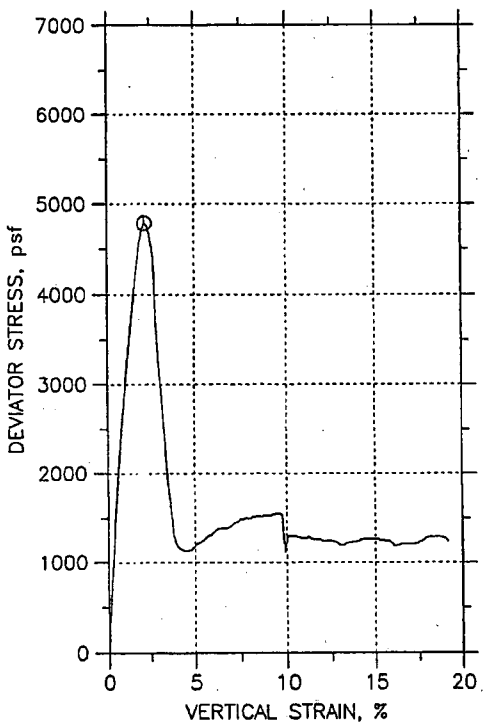
Fri, 23-FEB-2007 16:55:46

2/23/07

KAW 4/3/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-3			
Test No.	6980			
Depth	48-50'			
Tested by	BM/VG			
Test Date	2/12/07			
Checked by	HJ			
Check Date	2/23/07			
Diameter, in	2.874			
Height, in	5.6			
Water Content, %	30.6			
Dry Density, pcf	88.61			
Saturation, %	93.3			
Void Ratio	0.869			
Confining Stress, psf	3600			
Undrained Strength, psf	2392			
Max. Dev. Stress, psf	4784			
Strain at Failure, %	2.2			
Strain Rate, %/min	1			
Measured Specific Gravity	2.65			
Liquid Limit	74			
Plastic Limit	21			
Plasticity Index	53			

MACTEC

Project: Bechtel/STP/COL
Location: B-909 UD-3
Project No.: 5050060496
Boring No.: B-909
Sample Type: Undisturbed
Description: Fat Clay (CH)
Remarks:

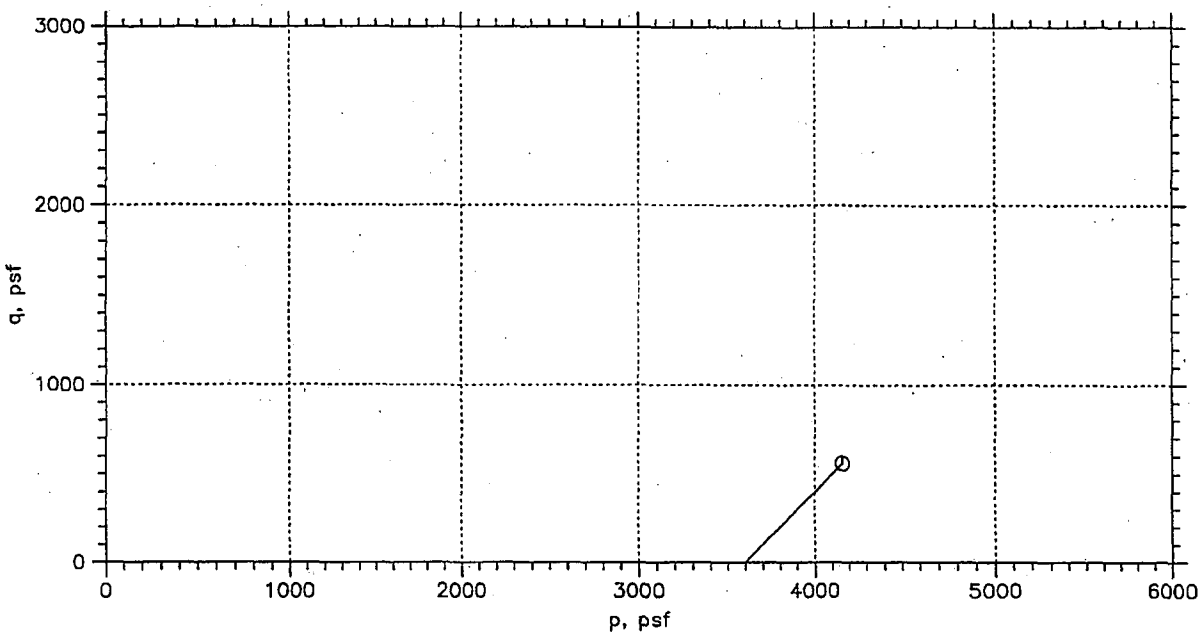
2/23/07

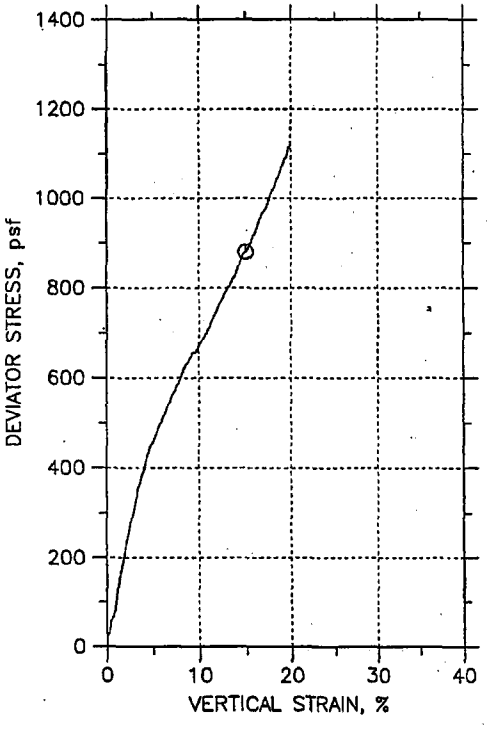
Phase calculations based on start and end of test.

Fri, 23-FEB-2007 17:17:02

KAW 4/3/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-4			
Test No.	6981			
Depth	53-54'			
Tested by	BM			
Test Date	2/15/07			
Checked by	HJ			
Check Date	3/26/07			
Diameter, in	2.851			
Height, in	5.6			
Water Content, %	30.0			
Dry Density, pcf	85.2			
Saturation, %	80.8			
Void Ratio	1.03			
Confining Stress, psf	3600			
Undrained Strength, psf	439.6			
Max. Dev. Stress, psf	879.3			
Strain at Failure, %	15			
Strain Rate, %/min	1			
Measured Specific Gravity	2.77			
Liquid Limit	66			
Plastic Limit	26			
Plasticity Index	40			

MACTEC

Project: Bechtel/STP/COL
Location: B-909 UD-4
Project No.: 5050060496
Boring No.: B-909
Sample Type: Undistrubed
Description: Fat Clay (CH)
Remarks:

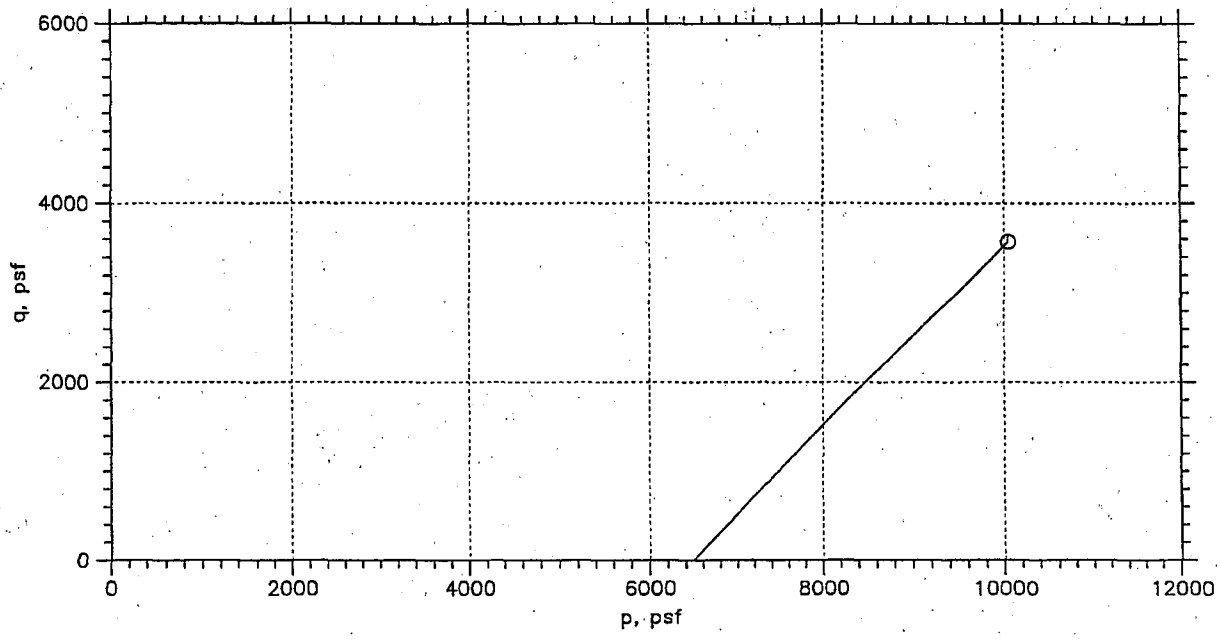
Phase calculations based on start and end of test.

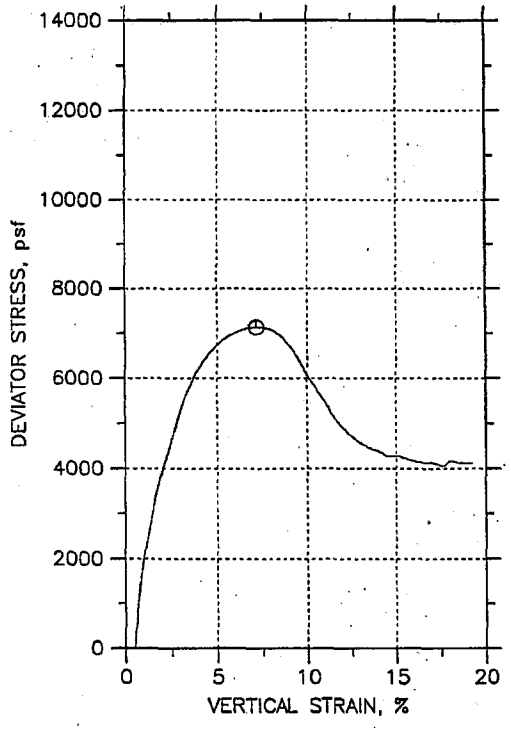
Mon, 26-MAR-2007 10:02:53

3/26/07

KAW 4/2/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊕			
Sample No.	UD-6			
Test No.	6983			
Depth	93-95'			
Tested by	BM			
Test Date	2/13/07			
Checked by	HJ			
Check Date	3/26/07			
Diameter, in	2.833			
Height, in	5.6			
Water Content, %	17.9			
Dry Density, pcf	109.7			
Saturation, %	89.7			
Void Ratio	0.542			
Confining Stress, psf	6480			
Undrained Strength, psf	3567			
Max. Dev. Stress, psf	7134			
Strain at Failure, %	7.16			
Strain Rate, %/min	1			
Measured Specific Gravity	2.71			
Liquid Limit	55			
Plastic Limit	21			
Plasticity Index	34			

MACTEC

Project: Bechtel/STP/COL

Location: B-909 UD-6

Project No.: 5050060496

Boring No.: B-909

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

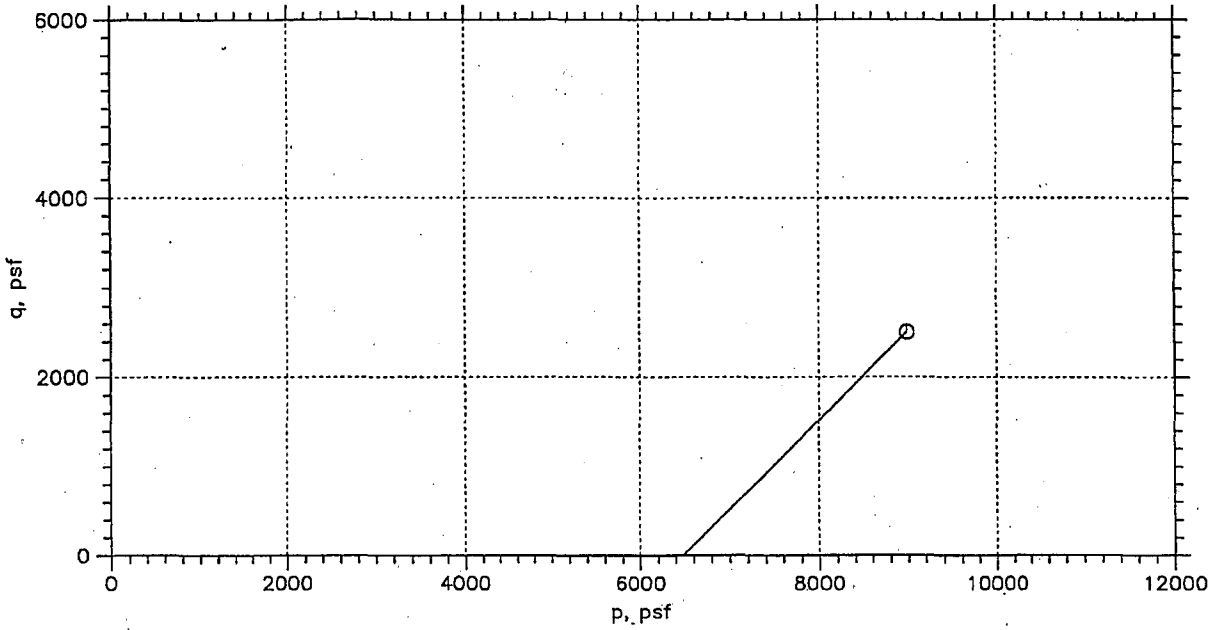
Phase calculations based on start and end of test.

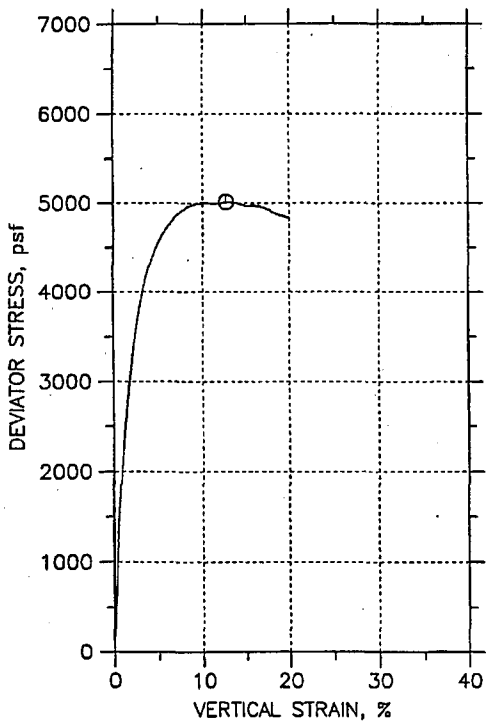
JHH 3/26/07

KAW 3/29/07

Mon, 26-MAR-2007 10:04:06

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊖			
Sample No.	UD-7			
Test No.	6984			
Depth	98-100'			
Tested by	BM			
Test Date	2/13/07			
Checked by	HJ			
Check Date	4/2/07			
Diameter, in	2.84			
Height, in	5.6			
Water Content, %	21.5			
Dry Density, pcf	99.67			
Saturation, %	84.1			
Void Ratio	0.691			
Confining Stress, psf	6480			
Undrained Strength, psf	2506			
Max. Dev. Stress, psf	5012			
Strain at Failure, %	12.7			
Strain Rate, %/min	1			
Estimated Specific Gravity	2.7			
Liquid Limit	---			
Plastic Limit	---			
Plasticity Index	---			

MAC TEC

Project: Bechtel/STP/COL

Location: B-909 UD-7

Project No.: 5050060496

Boring No.: B-909

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

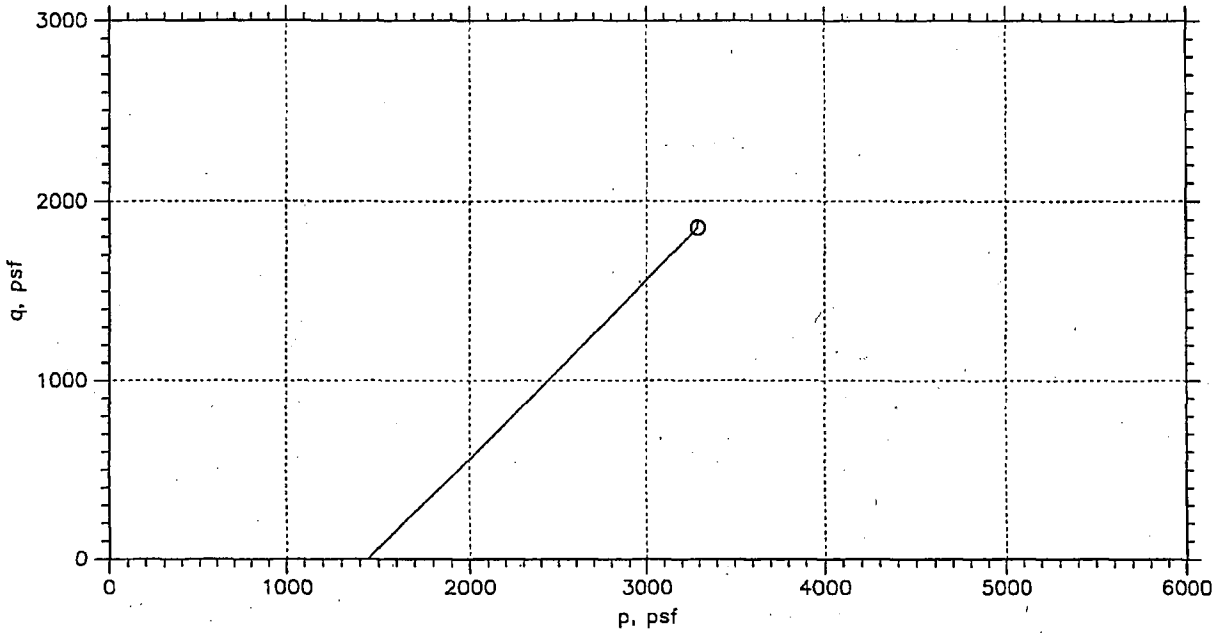
HJ 4/2/07

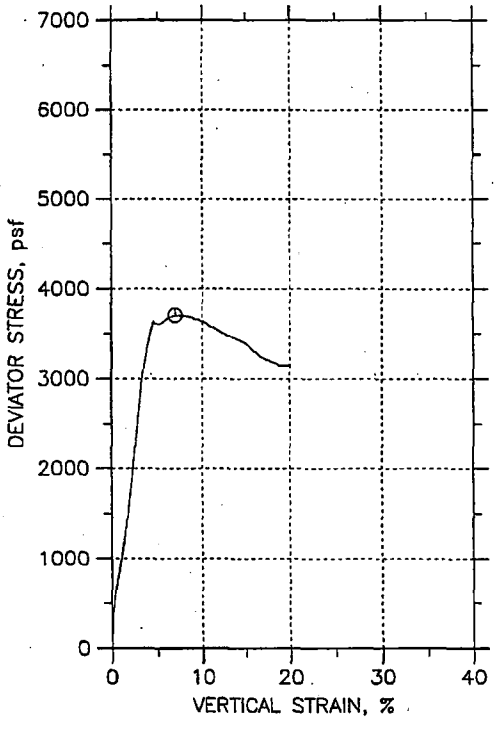
Phase calculations based on start and end of test.

Mon, 02-APR-2007 09:10:41

KAW 4/2/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-2			
Test No.	7329			
Depth	18-20'			
Tested by	BM			
Test Date	3/22/07			
Checked by	HJ			
Check Date	HJ			
Diameter, in	2.859			
Height, in	5.6			
Water Content, %	23.8			
Dry Density, pcf	100.2			
Saturation, %	94.2			
Void Ratio	0.682			
Confining Stress, psf	1440			
Undrained Strength, psf	1852			
Max. Dev. Stress, psf	3705			
Strain at Failure, %	7			
Strain Rate, %/min	1			
Estimated Specific Gravity	2.7			
Liquid Limit	46			
Plastic Limit	20			
Plasticity Index	26			

MACTEC

Project: Bechtel/STP/COL
Location: B-918 UD-2
Project No.: 5050060496
Boring No.: B-918
Sample Type: Undisturbed
Description: Lean Clay (CL)
Remarks:

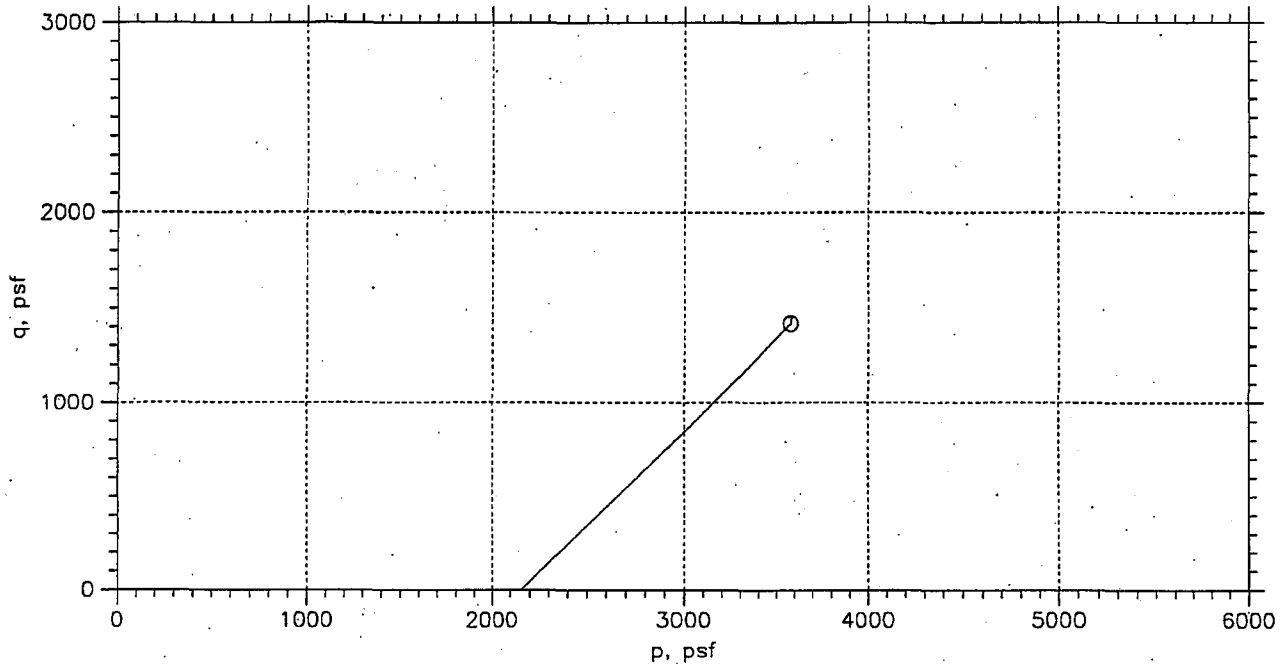
Phase calculations based on start and end of test.

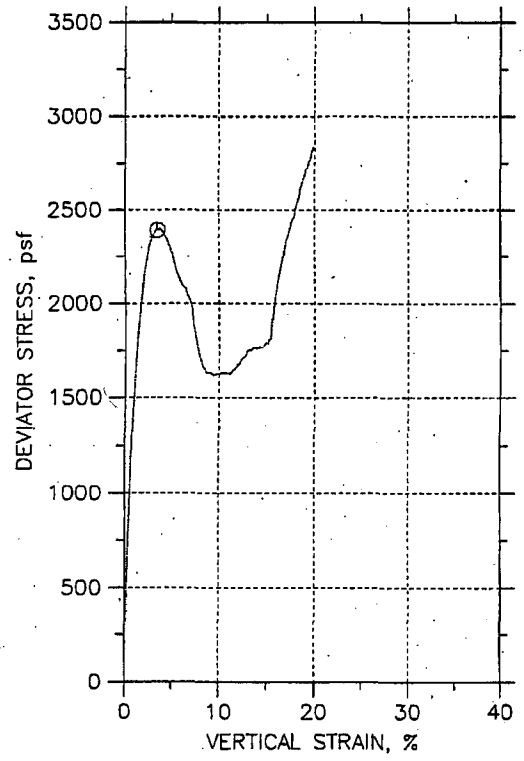
Tue, 03-APR-2007 18:19:14

4/3/07

KAW 4/3/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊘			
Sample No.	UD-1			
Test No.	6985			
Depth	8-10'			
Tested by	BM			
Test Date	2/13/07			
Checked by	HJ			
Check Date	4/4/07			
Diameter, in	2.755			
Height, in	5.6			
Water Content, %	23.6			
Dry Density, pcf	101.			
Saturation, %	98.2			
Void Ratio	0.637			
Confining Stress, psf	2160			
Undrained Strength, psf	1195			
Max. Dev. Stress, psf	2390			
Strain at Failure, %	3.5			
Strain Rate, %/min	1			
Measured Specific Gravity	2.65			
Liquid Limit	68			
Plastic Limit	47			
Plasticity Index	21			

MACTEC

Project: Bechtel/STP/COL

Location: B-919 UD-1

Project No.: 5050060496

Boring No.: B-919

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

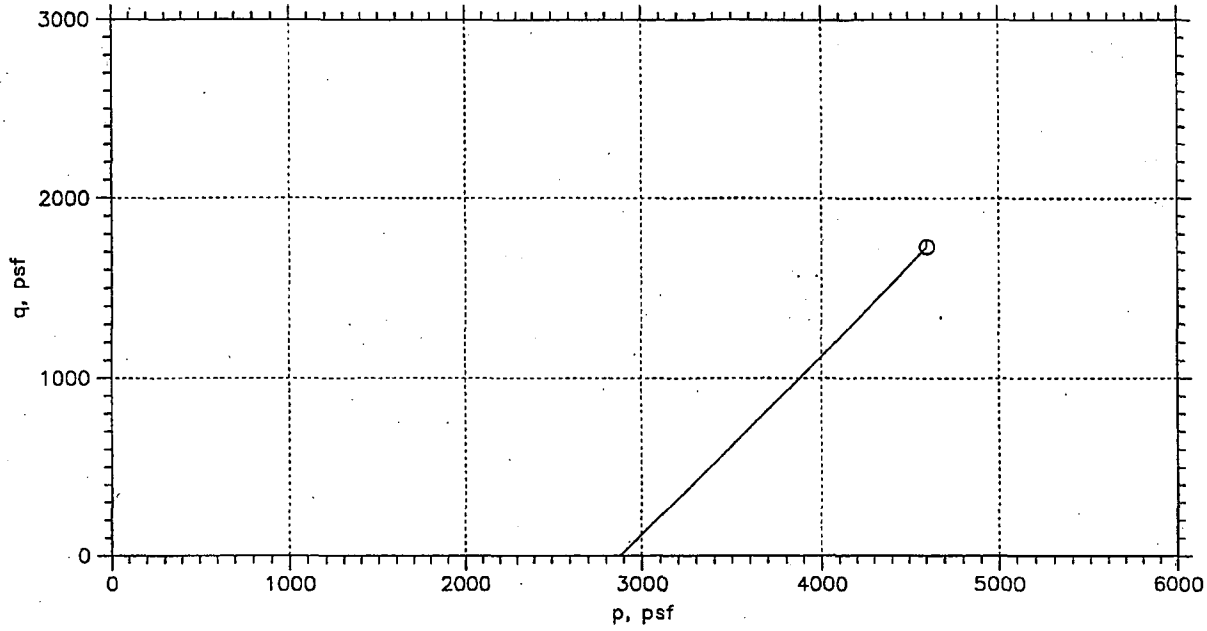
HJ 4/4/07

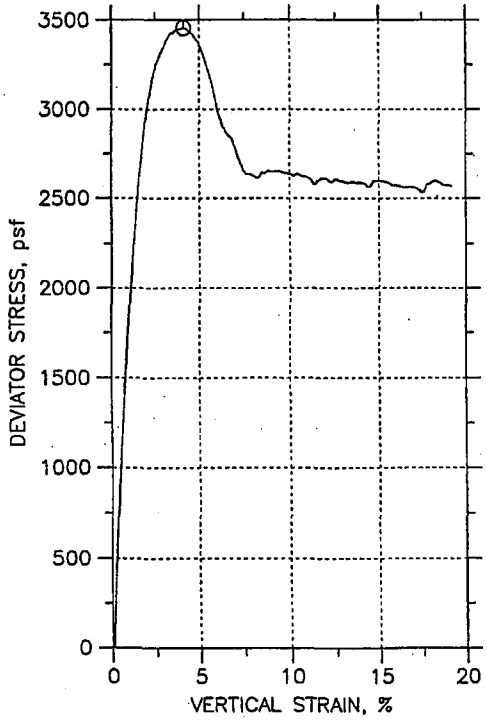
Phase calculations based on start and end of test.

Wed, 04-APR-2007 14:32:22

KAW 4/4/07

UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850





Symbol	⊙			
Sample No.	UD-3			
Test No.	6987			
Depth	43-45'			
Tested by	BM			
Test Date	2/13/07			
Checked by	HJ			
Check Date	HJ 4/2/07			
Diameter, in	2.85			
Height, in	5.6			
Water Content, %	26.5			
Dry Density, pcf	94.48			
Saturation, %	91.2			
Void Ratio	0.784			
Confining Stress, psf	2880			
Undrained Strength, psf	1728			
Max. Dev. Stress, psf	3456			
Strain at Failure, %	4.14			
Strain Rate, %/min	1			
Estimated Specific Gravity	2.7			
Liquid Limit	66			
Plastic Limit	24			
Plasticity Index	42			

MACTEC

Project: Bechtel/STP/COL

Location: B-919 UD-3

Project No.: 5050060496

Boring No.: B-919

Sample Type: Undisturbed

Description: Fat Clay (CH)

Remarks:

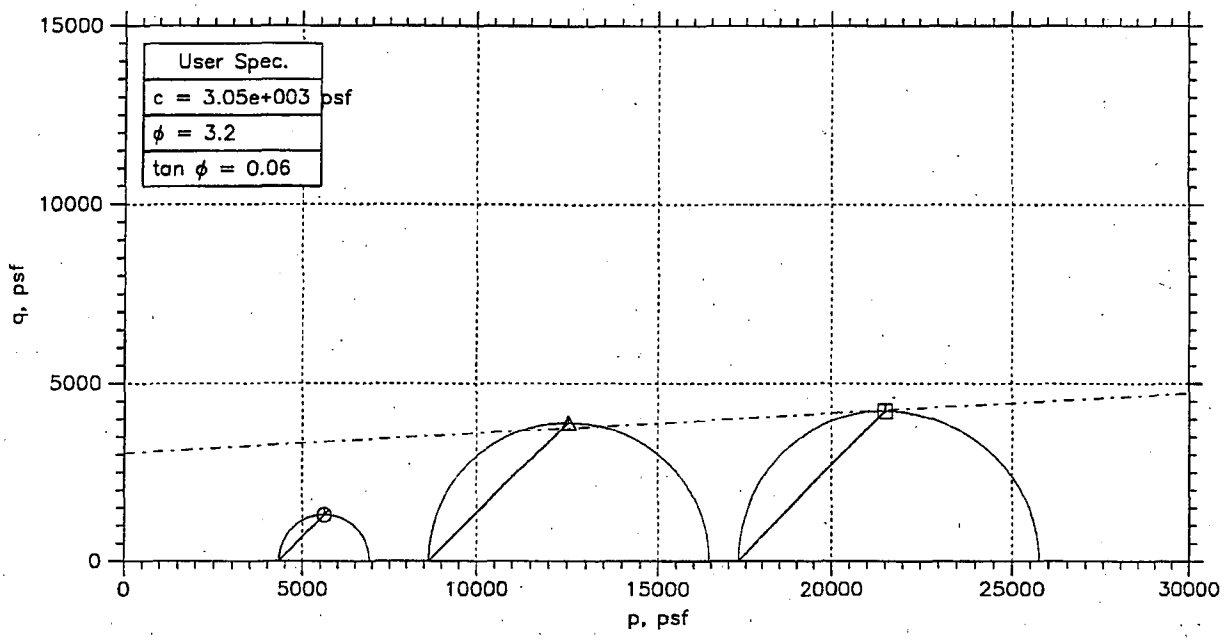
HJ 4/2/07

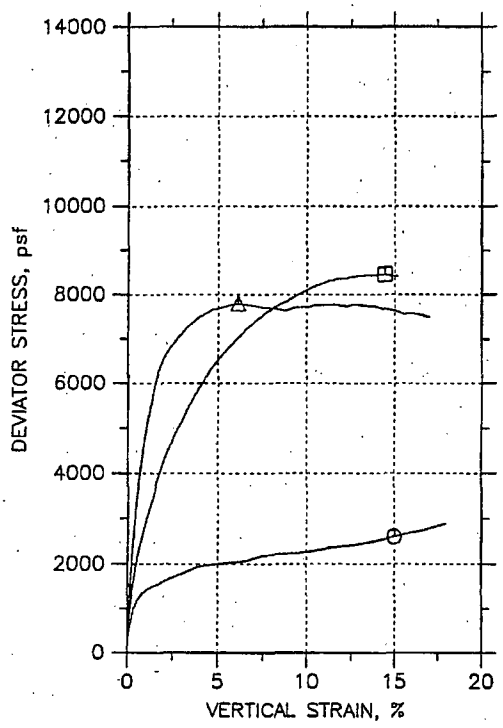
Phase calculations based on start and end of test.

KAW 4/2/07

Mon, 02-APR-2007 08:23:17

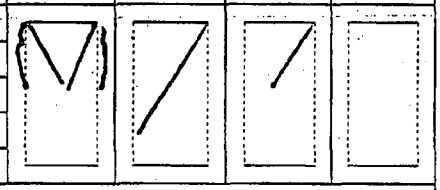
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊙	△	⊡	
Sample No.		UD-4	UD-4	UD-4	
Test No.		6914.1	6914.2	6914.3	
Depth		133-135'	133-135'	133-135'	
Initial	Diameter, in	2.88	2.847	2.848	
	Height, in	5.6	5.6	5.6	
	Water Content, %	19.9	18.0	18.3	
	Dry Density, pcf	108.4	111.5	111.4	
	Saturation, %	97.5	95.9	96.8	
	Void Ratio	0.55	0.506	0.508	
Before Shear	Water Content, %	20.7	18.9	18.9	
	Dry Density, pcf	107.9	111.3	111.3	
	Saturation*, %	100.0	100.0	100.0	
	Void Ratio	0.557	0.509	0.509	
	Back Press., psf	14540	12960	5618	
Ver. Eff. Cons. Stress, psf		4320	8639	17280	
Shear Strength, psf		1297	3897	4225	
Strain at Failure, %		15	6.11	14.4	
Strain Rate, %/min		0.1	0.1	0.1	
B-Value		0.97	0.98	0.95	
Measured Specific Gravity		2.69	2.69	2.69	
Liquid Limit		65	65	65	
Plastic Limit		26	26	26	

Project: Bechtel/STP/COL
Location: B-303 UD-4
Project No.: 5050060496
Boring No.: B-303
Sample Type: Undisturbed
Description: Fat Clay with Sand (CH)
Remarks:



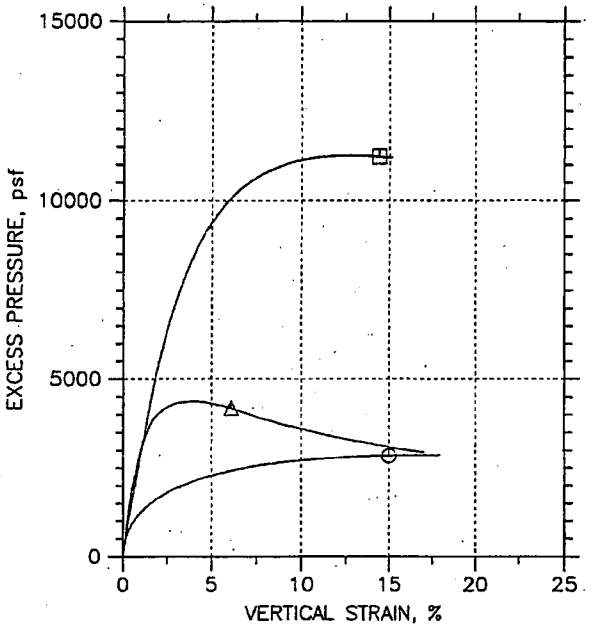
3/26/07

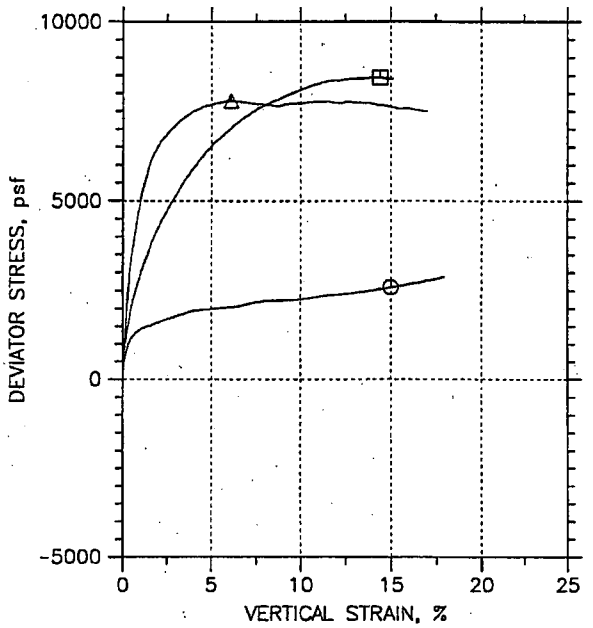
Mon, 26-MAR-2007 14:21:14

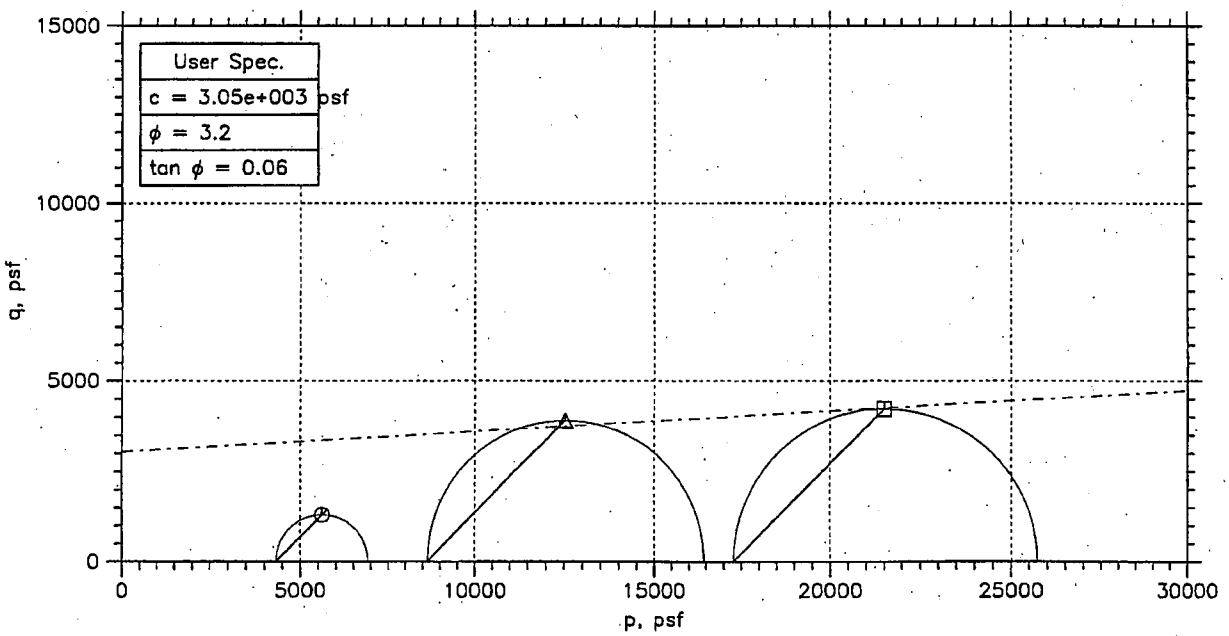
Phase calculations based on start and end of test.
* Saturation is set to 100% for phase calculations.

KAW 3/29/07

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





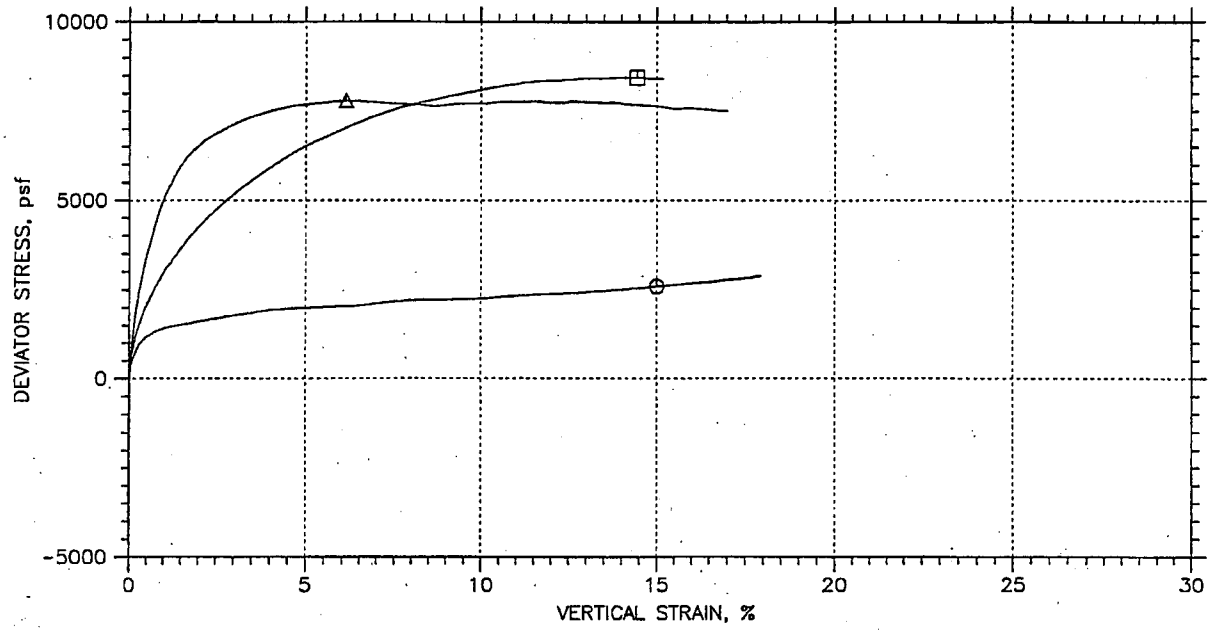


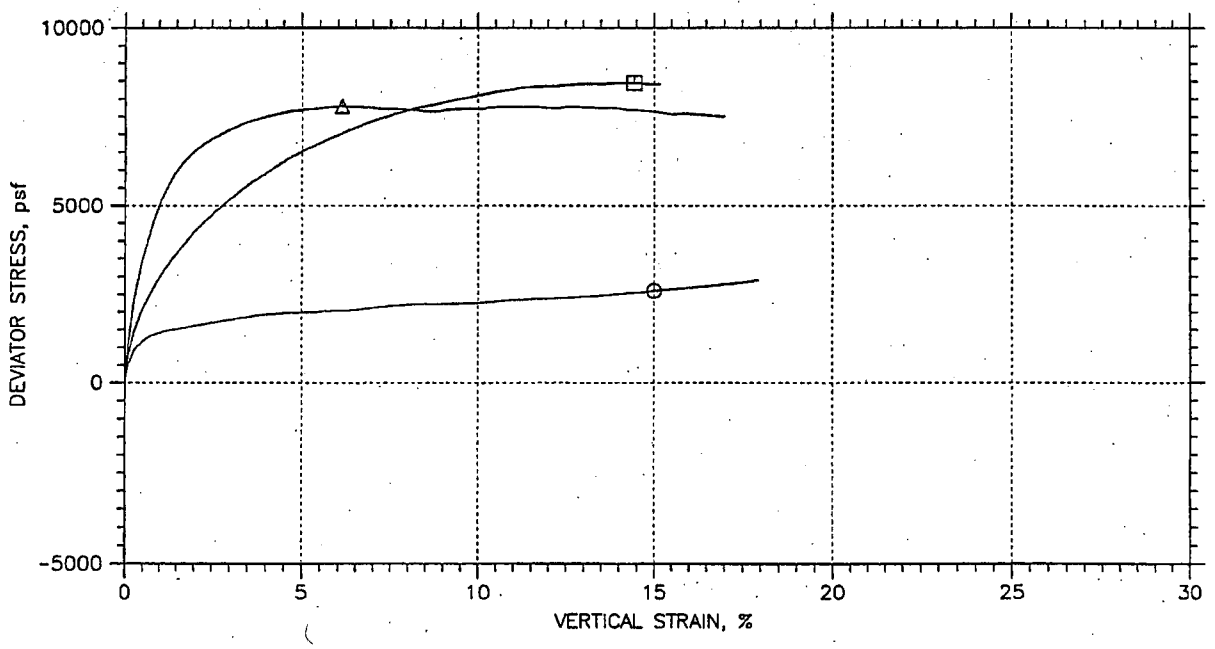
	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	UD-4	6914.1	133-135'	HJ	1/19/07	JL	3/26/07	6914.1_90.dat
△	UD-4	6914.2	133-135'	HJ	1/19/07	JL		6914.2_96.dat
⊡	UD-4	6914.3	133-135'	HJ	1/19/07	JL		6914.3_93.dat

Project: Bechtel/STP/COL	Location: B-303 UD-4	Project No.: 5050060496
Boring No.: B-303	Sample Type: Undisturbed	
Description: Fat Clay with Sand (CH)		
Remarks:		

Mon, 26-MAR-2007 14:21:14

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



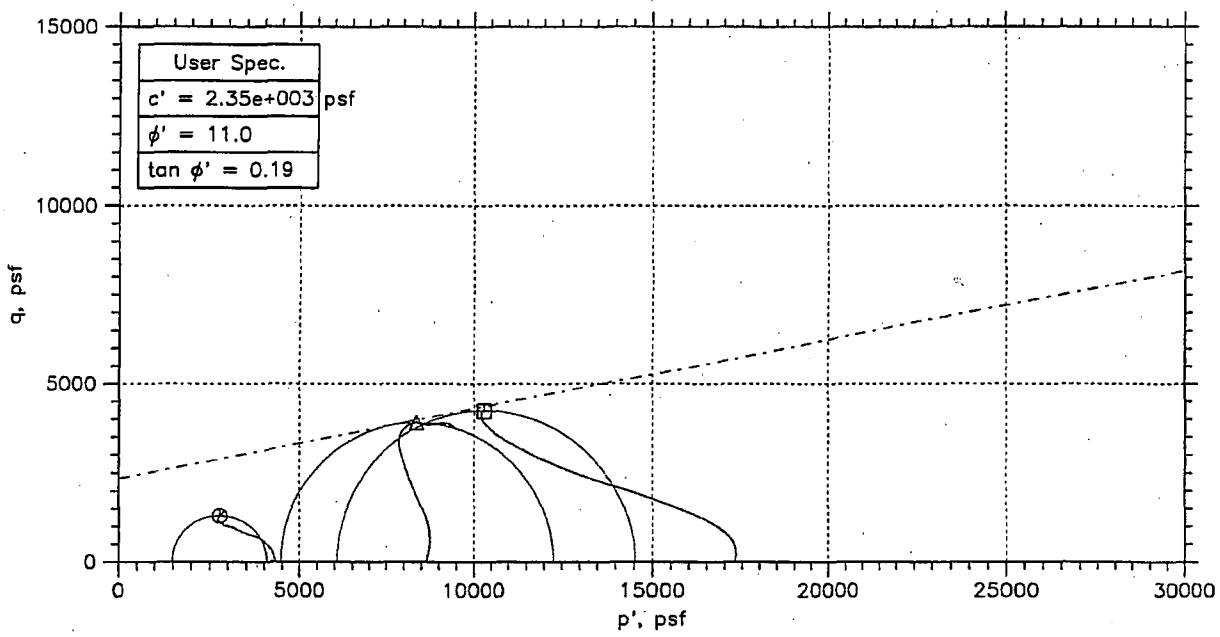


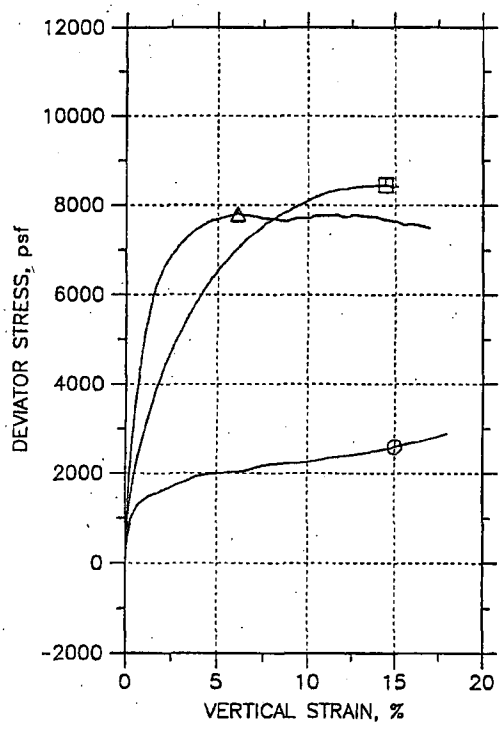
	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	UD-4	6914.1	133-135'	HJ	1/19/07	JL	3/26/07	6914.1_90.dat
△	UD-4	6914.2	133-135'	HJ	1/19/07	JL		6914.2_96.dat
⊡	UD-4	6914.3	133-135'	HJ	1/19/07	JL		6914.3_93.dat

Project: Bechtel/STP/COL	Location: B-303 UD-4	Project No.: 5050060496
Boring No.: B-303	Sample Type: Undisturbed	
Description: Fat Clay with Sand (CH)		
Remarks:		

Mon, 26-MAR-2007 14:21:14

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





		Symbol	⊙	△	⊡	
		Sample No.	UD-4	UD-4	UD-4	
		Test No.	6914.1	6914.2	6914.3	
		Depth	133-135'	133-135'	133-135'	
Initial		Diameter, in	2.88	2.847	2.848	
Initial		Height, in	5.6	5.6	5.6	
Initial		Water Content, %	19.9	18.0	18.3	
Initial		Dry Density, pcf	108.4	111.5	111.4	
Initial		Saturation, %	97.5	95.9	96.8	
Initial		Void Ratio	0.55	0.506	0.508	
Before Shear		Water Content, %	20.7	18.9	18.9	
Before Shear		Dry Density, pcf	107.9	111.3	111.3	
Before Shear		Saturation*, %	100.0	100.0	100.0	
Before Shear		Void Ratio	0.557	0.509	0.509	
Before Shear		Back Press., psf	14540	12960	5618	
		Ver. Eff. Cons. Stress, psf	4320	8639	17280	
		Shear Strength, psf	1297	3897	4225	
		Strain at Failure, %	15	6.11	14.4	
		Strain Rate, %/min	0.1	0.1	0.1	
		B-Value	0.97	0.98	0.95	
		Measured Specific Gravity	2.69	2.69	2.69	
		Liquid Limit	65	65	65	
		Plastic Limit	26	26	26	

Project: Bechtel/STP/COL

Location: B-303 UD-4

Project No.: 5050060496

Boring No.: B-303

Sample Type: Undisturbed

Description: Fat Clay with Sand (CH)

Remarks:

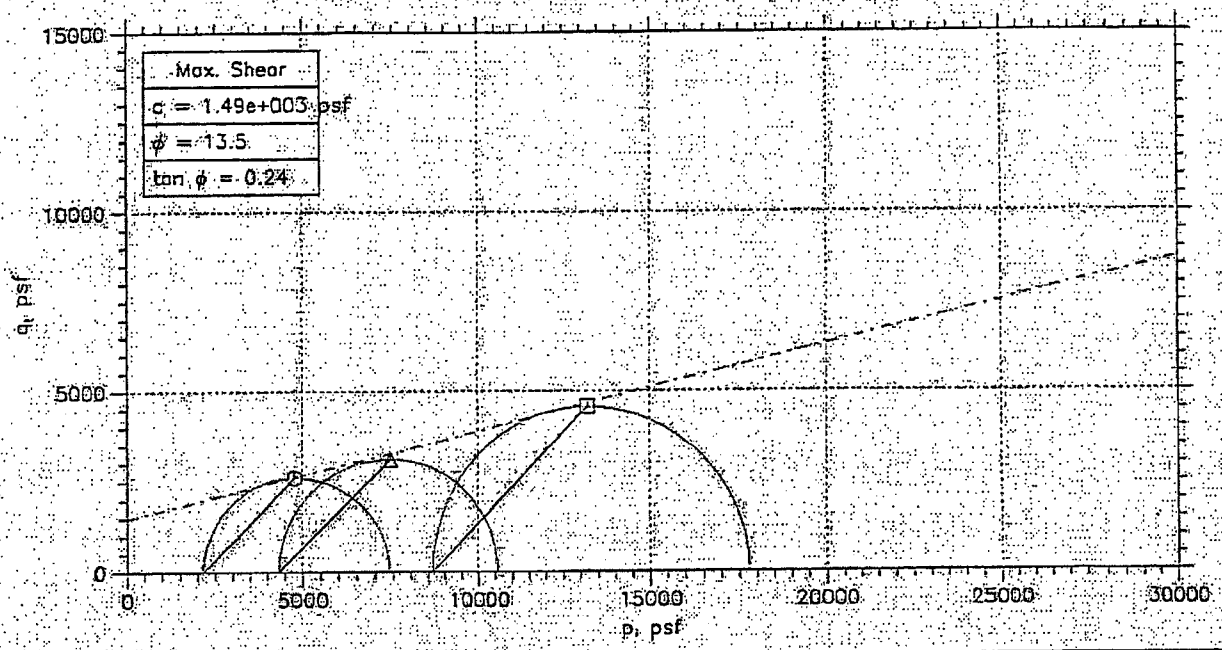
JTH 3/26/07

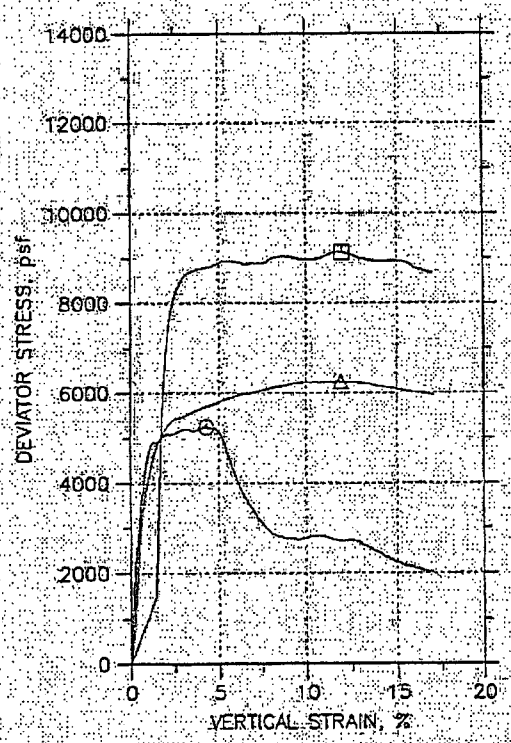
Mon, 26-MAR-2007 13:16:02

Phase calculations based on start and end of test.

* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767

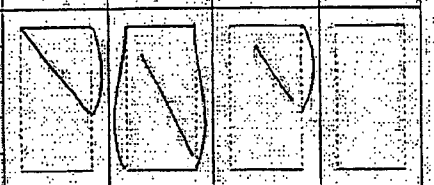




Symbol		⊙	△	⊡	
Sample No.		UD-2	UD-2	UD-2	
Test No.		6956.1	6956.2	6956.3	
Depth		63-65'	63-65'	63-65'	
Initial	Diameter, in	2.85	2.869	2.85	
	Height, in	6	6	6	
	Water Content, %	22.9	20.8	22.0	
	Dry Density, pcf	103.8	104.5	104.2	
	Saturation, %	101.7	94.0	98.6	
	Void Ratio	0.6	0.589	0.594	
Before Shear	Water Content, %	23.2	20.7	21.0	
	Dry Density, pcf	102.6	107.1	106.5	
	Saturation*, %	100.0	100.0	100.0	
	Void Ratio	0.618	0.551	0.559	
	Back Press., psf	14690	6892	9638	
Ver. Eff. Cons. Stress, psf		2160	4320	8638	
Shear Strength, psf		2619	3121	4565	
Strain at Failure, %		4.28	11.9	12	
Strain Rate, %/min		0.1	0.1	0.1	
B-Value		0.97	0.95	0.96	
Measured Specific Gravity		2.66	2.66	2.66	
Liquid Limit		20	20	20	
Plastic Limit		18	18	18	

MACTEC

Project: Bechtel/STP/COL
Location: B-306 UD-2
Project No.: 5050060496
Boring No.: B-306
Sample Type: Undisturbed
Description: Silty Sand (SM)
Remarks:



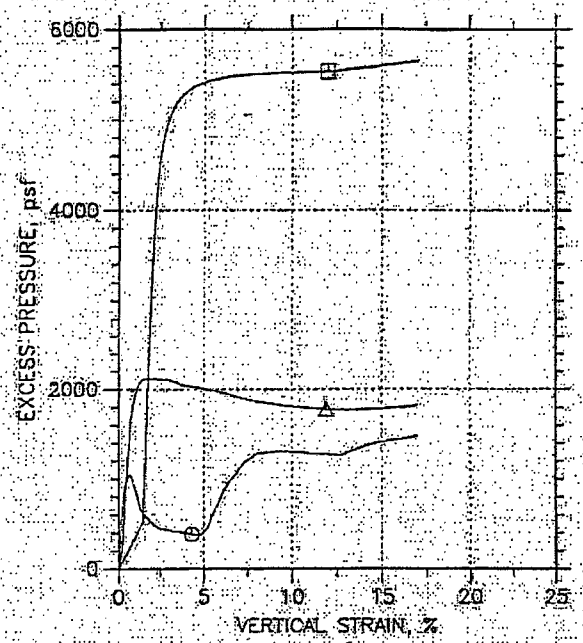
JPL 4/6/07

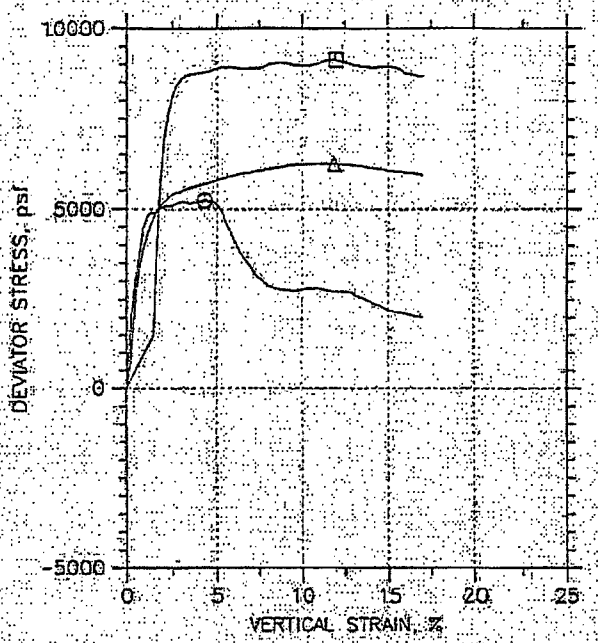
KAW 4/5/07

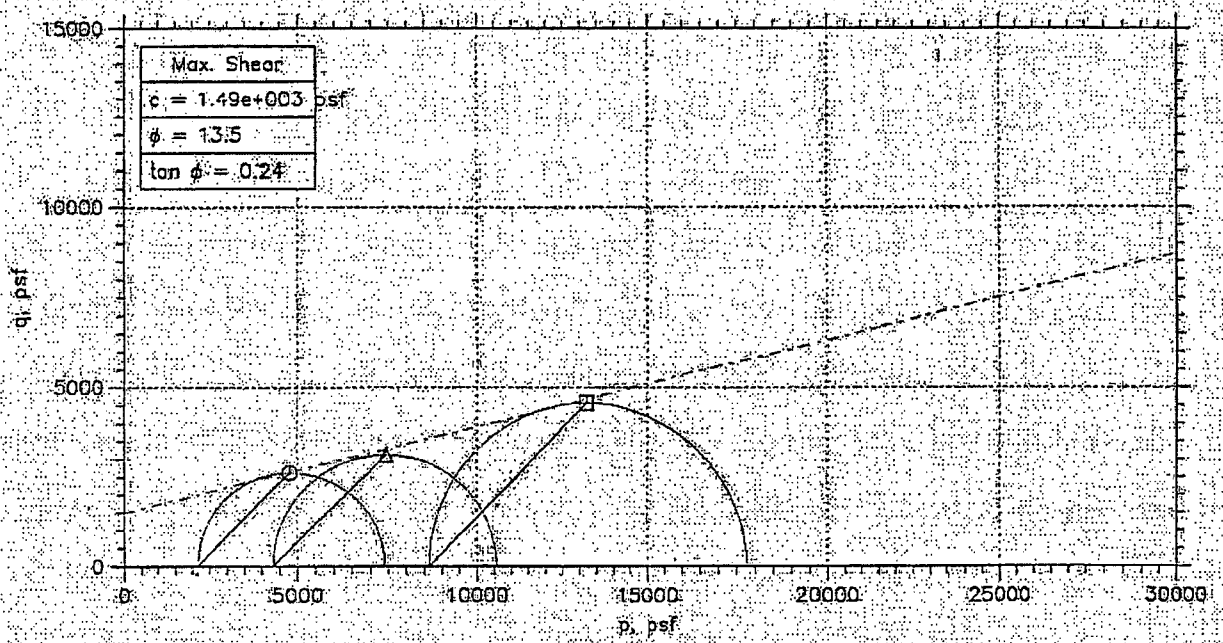
Phase calculations based on start and end of test.
* Saturation is set to 100% for phase calculations.

Thu, 05-APR-2007 10:05:38

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







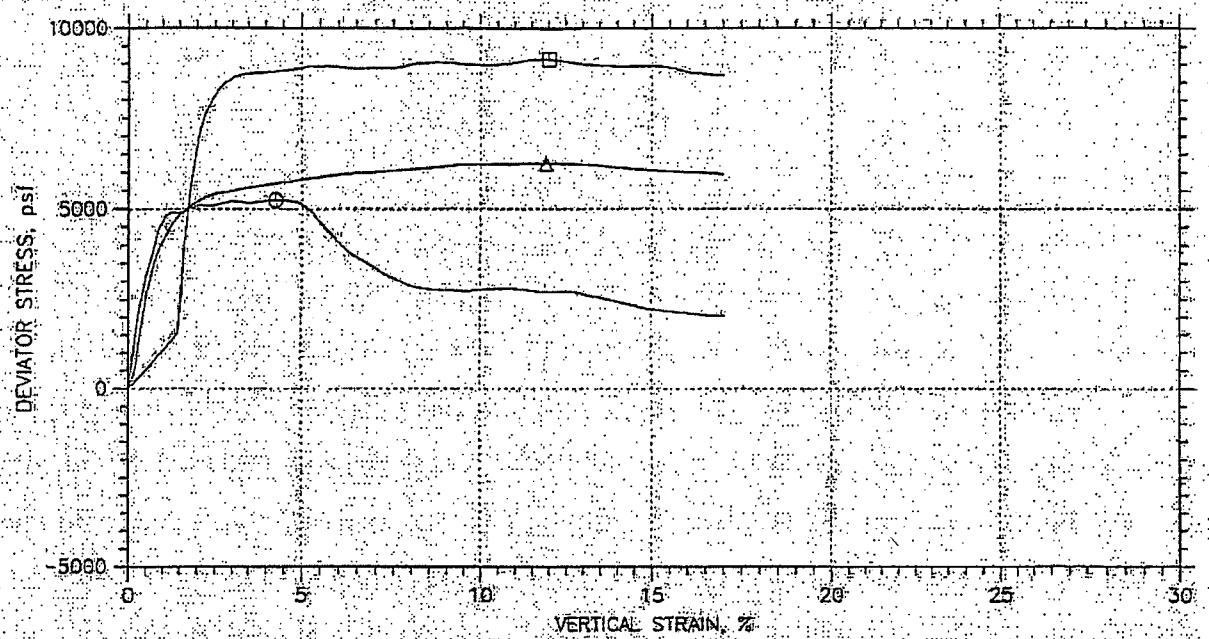
	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	UD-2	6956.1	63-65'	HJ	1/25/07	JL JFL	4/5/07	6956.1_71.dat
△	UD-2	6956.2	63-65'	HJ	1/25/07	JL JFL	4/5/07	6956.2_71.dat
⊡	UD-2	6956.3	63-65'	HJ	1/25/07	JL JFL	4/5/07	6956.3a_65.dat

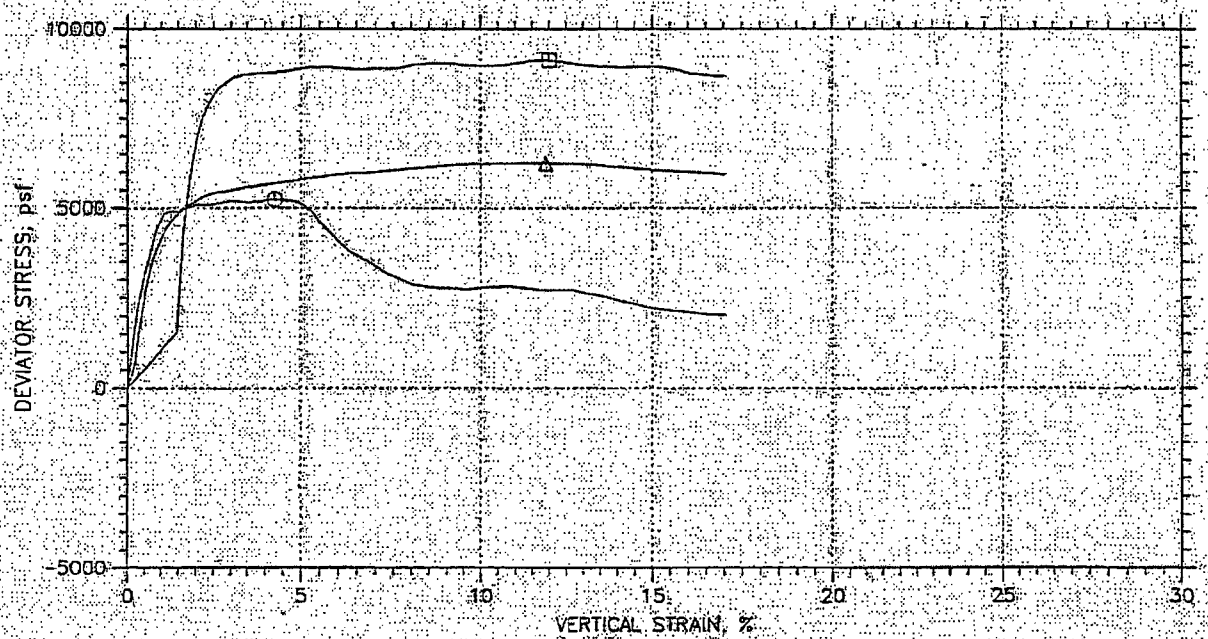
MACTEC

Project: Bechtel/STP/COL	Location: B-306 UD-2	Project No.: 5050060496
Boring No.: B-306	Sample Type: Undisturbed	
Description: Silty Sand (SM)		
Remarks:		

Thu, 05-APR-2007 10:05:38

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





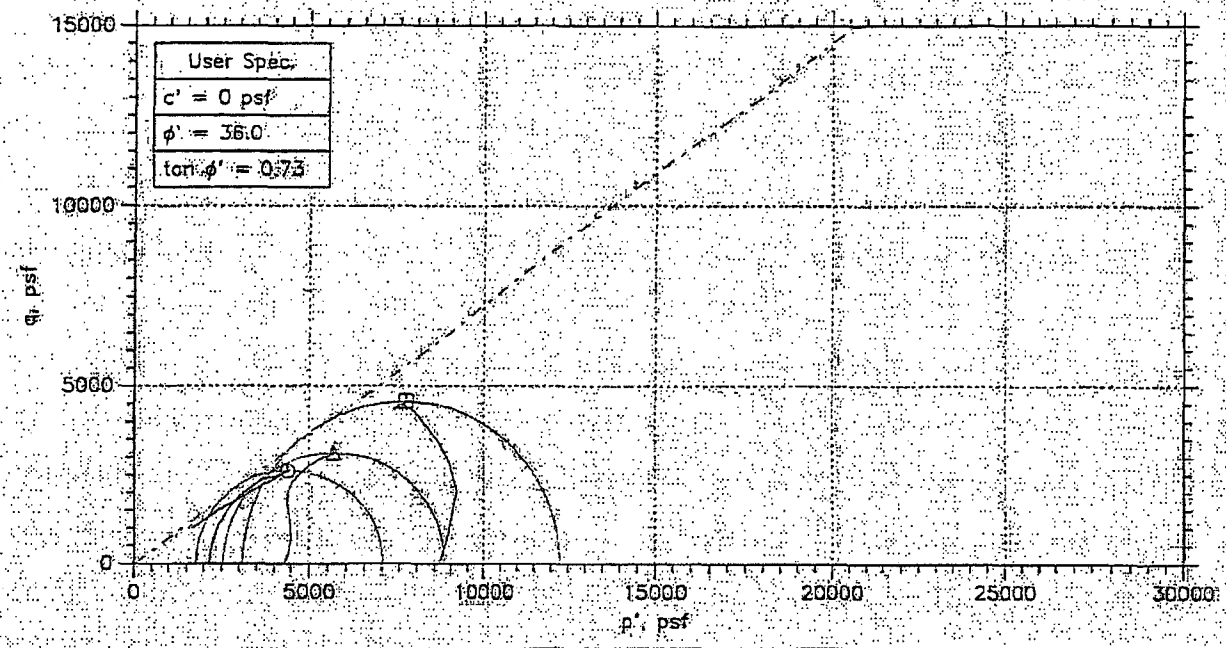
	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	UD-2	6956.1	63-65'	HJ	1/25/07	JL JL	4/5/07	6956.1_71.dat
△	UD-2	6956.2	63-65'	HJ	1/25/07	JL JL	4/5/07	6956.2_71.dat
⊡	UD-2	6956.3	63-65'	HJ	1/25/07	JL JL	4/5/07	6956.3a_65.dat

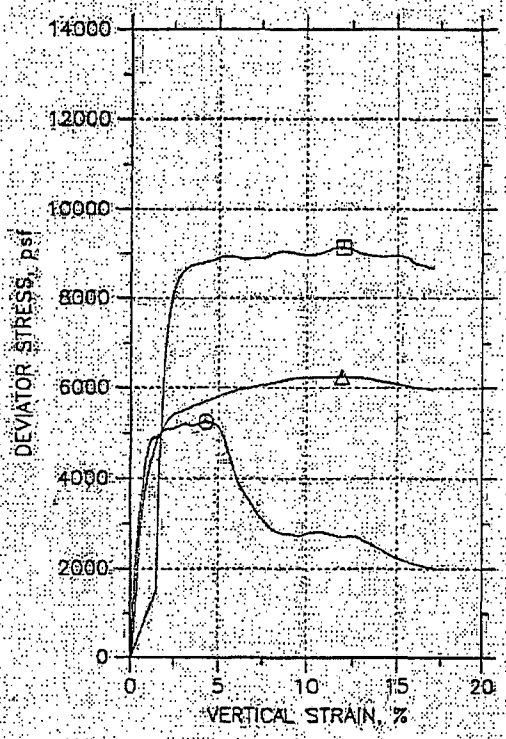
MACTEC

Project: Bechtel/STP/COL	Location: B-306 UD-2	Project No.: 5050060496
Boring No.: B-306	Sample Type: Undisturbed	
Description: Silty Sand (SM)		
Remarks:		

Thu, 05-APR-2007 10:05:38

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊙	△	⊡	
Sample No.		UD-2	UD-2	UD-2	
Test No.		6956.1	6956.2	6956.3	
Depth		63-65'	63-65'	63-65'	
Initial	Diameter, in	2.85	2.869	2.85	
	Height, in	6	6	6	
	Water Content, %	22.9	20.8	22.0	
	Dry Density, pcf	103.8	104.5	104.2	
	Saturation, %	101.7	94.0	98.6	
	Void Ratio	0.6	0.589	0.594	
Before Shear	Water Content, %	23.2	20.7	21.0	
	Dry Density, pcf	102.6	107.1	106.5	
	Saturation*, %	100.0	100.0	100.0	
	Void Ratio	0.618	0.551	0.559	
	Back Press., psf	14690	6892	9638	
Ver. Eff. Cons. Stress, psf		2160	4320	8638	
Shear Strength, psf		2619	3121	4565	
Strain at Failure, %		4.28	11.9	12	
Strain Rate, %/min		0.1	0.1	0.1	
B-Value		0.97	0.95	0.96	
Measured Specific Gravity		2.66	2.66	2.66	
Liquid Limit		20	20	20	
Plastic Limit		18	18	18	

MACTEC

Project: Bechtel/STP/COL

Location: B-306 UD-2

Project No.: 5050060496

Boring No.: B-306

Sample Type: Undisturbed

Description: Silty Sand (SM)

Remarks:

Phase calculations based on start and end of test.

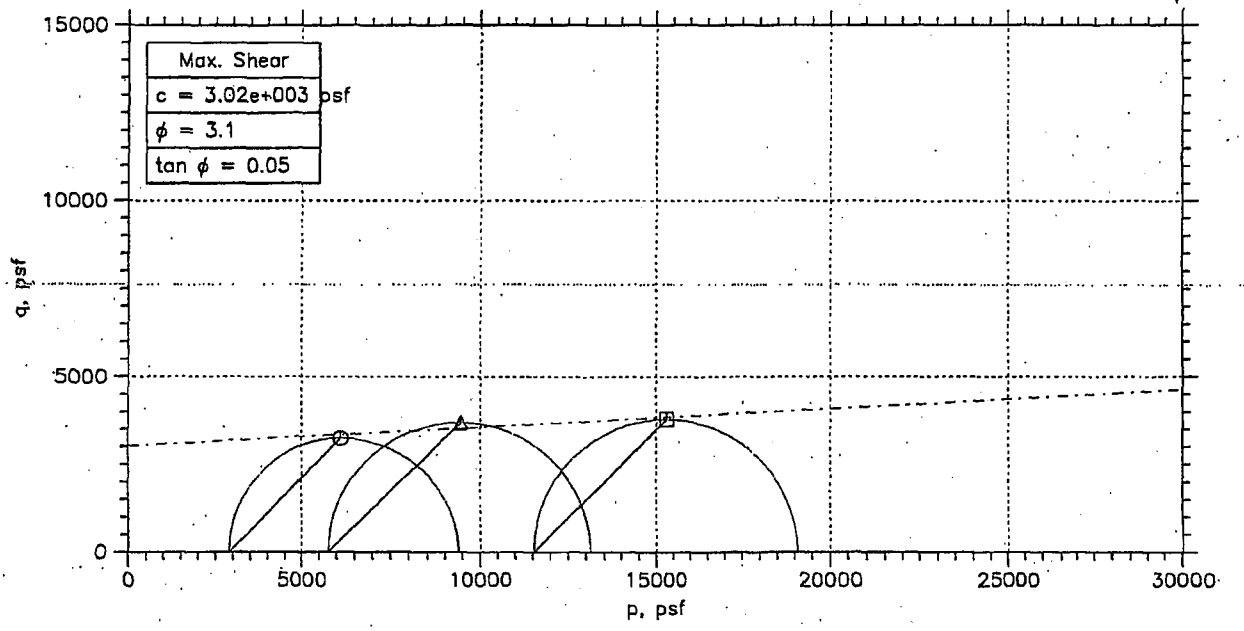
* Saturation is set to 100% for phase calculations.

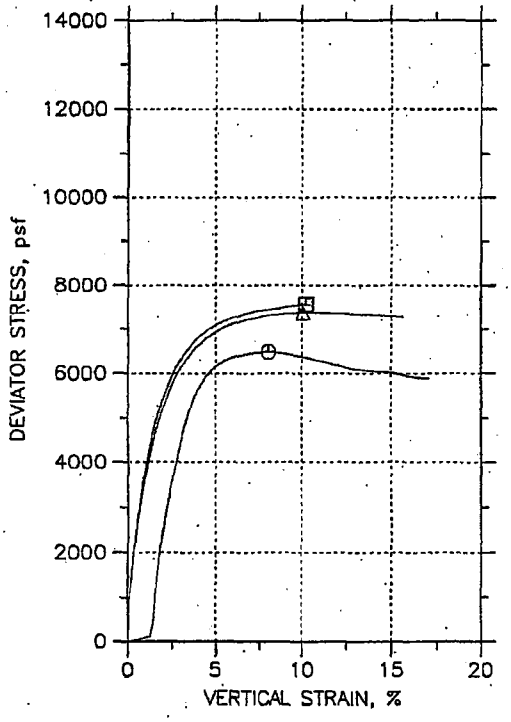
JRL 4/5/07

KAW 4/5/07

Thu, 05-APR-2007 10:07:24

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊙	△	⊡	
Sample No.		UD-4	UD-4	UD-4	
Test No.		6957.1	6957.2	6957.3	
Depth		88-90'	88-90'	88-90'	
Initial	Diameter, in	2.861	2.852	2.843	
	Height, in	6	6	6	
	Water Content, %	21.6	22.5	23.7	
	Dry Density, pcf	104.1	101.7	102.2	
	Saturation, %	93.0	91.4	97.4	
	Void Ratio	0.632	0.669	0.661	
Before Shear	Water Content, %	22.5	22.9	23.4	
	Dry Density, pcf	105.4	104.6	103.7	
	Saturation*, %	100.0	100.0	100.0	
	Void Ratio	0.612	0.624	0.637	
	Back Press., psf	16260	15550	8209	
Ver. Eff. Cons. Stress, psf		2880	5758	11520	
Shear Strength, psf		3238	3685	3777	
Strain at Failure, %		8.02	10.1	10.3	
Strain Rate, %/min		0.1	0.1	0.1	
B-Value		0.96	0.96	0.96	
Measured Specific Gravity		2.72	2.72	2.72	
Liquid Limit		57	57	57	
Plastic Limit		19	19	19	

MACTEC

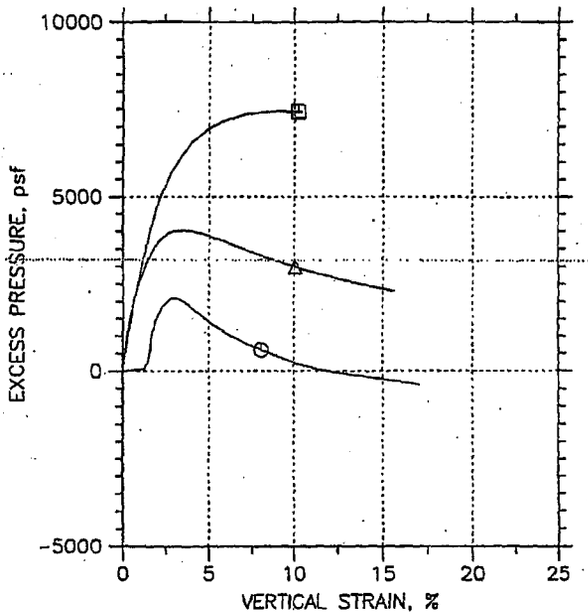
Project: Bechtel/STP/COL
Location: B306 UD-4
Project No.: 5050060496
Boring No.: B306
Sample Type: Undisturbed
Description: Fat Clay (CH)
Remarks:

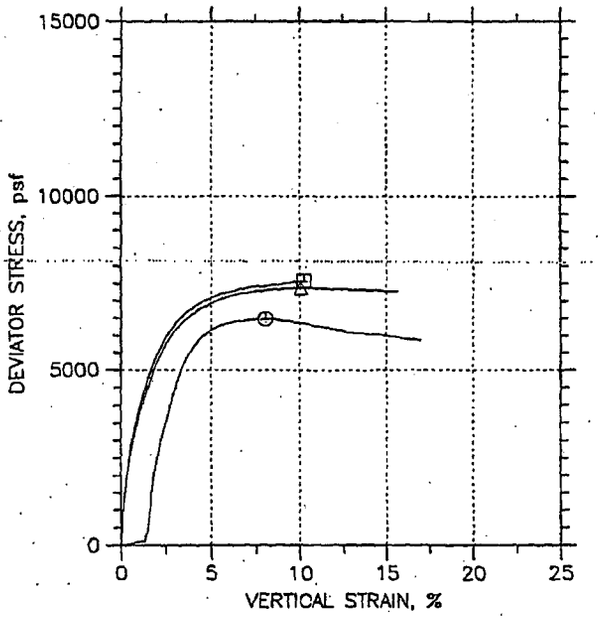
JW 6/14/07
KAW 6/19/07

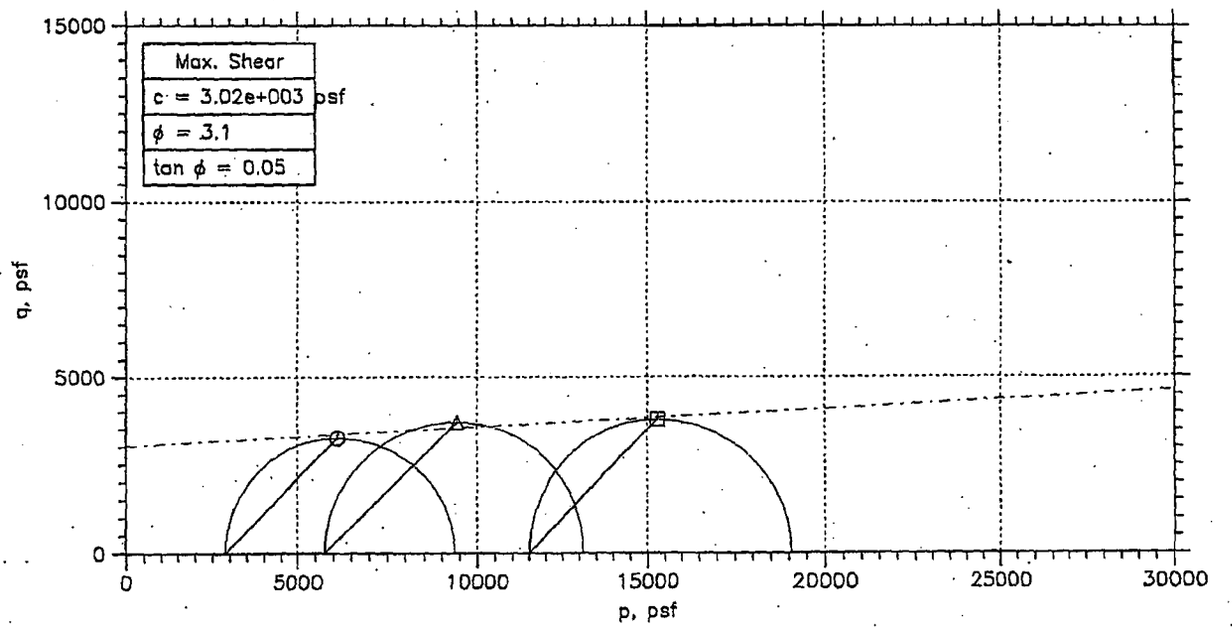
Wed, 30-MAY-2007 15:34:50

Phase calculations based on start and end of test.
* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







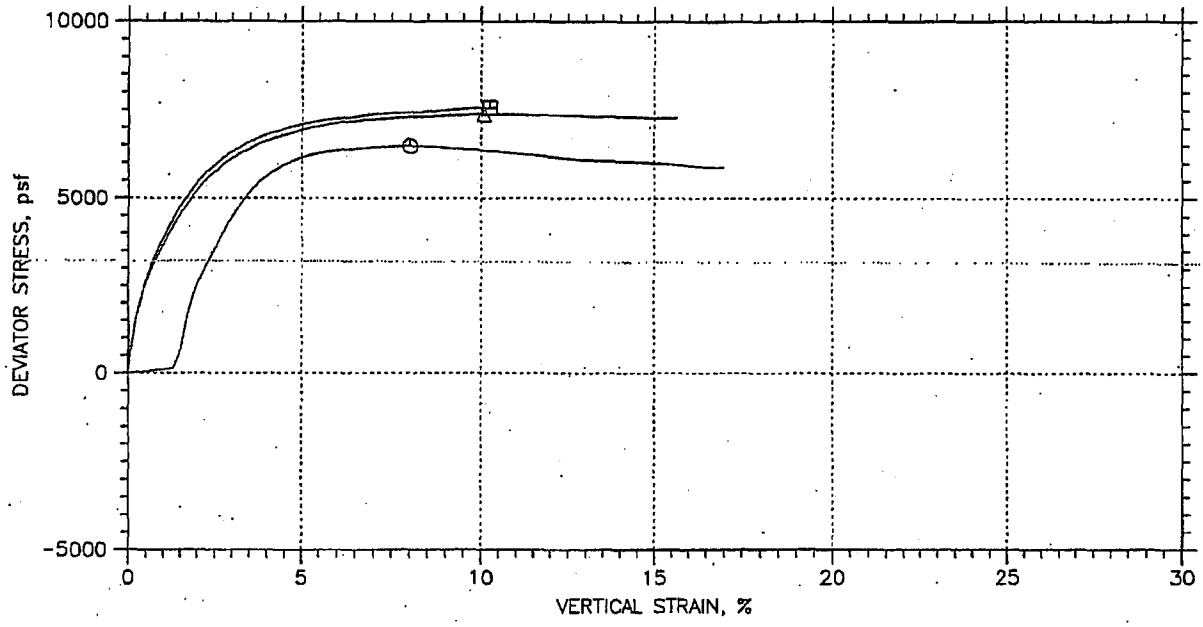
	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	UD-4	6957.1	88-90'	HJ	1/27/07	JL	JW 6/14/07	6957.1a_65.dat
△	UD-4	6957.2	88-90'	HJ	1/27/07	JL	JW 6/14/07	6957.2_82 moved_5-30-07.dat
⊡	UD-4	6957.3	88-90'	HJ	1/27/07	JL	JW 6/14/07	6957.3a_71 Retest.dat

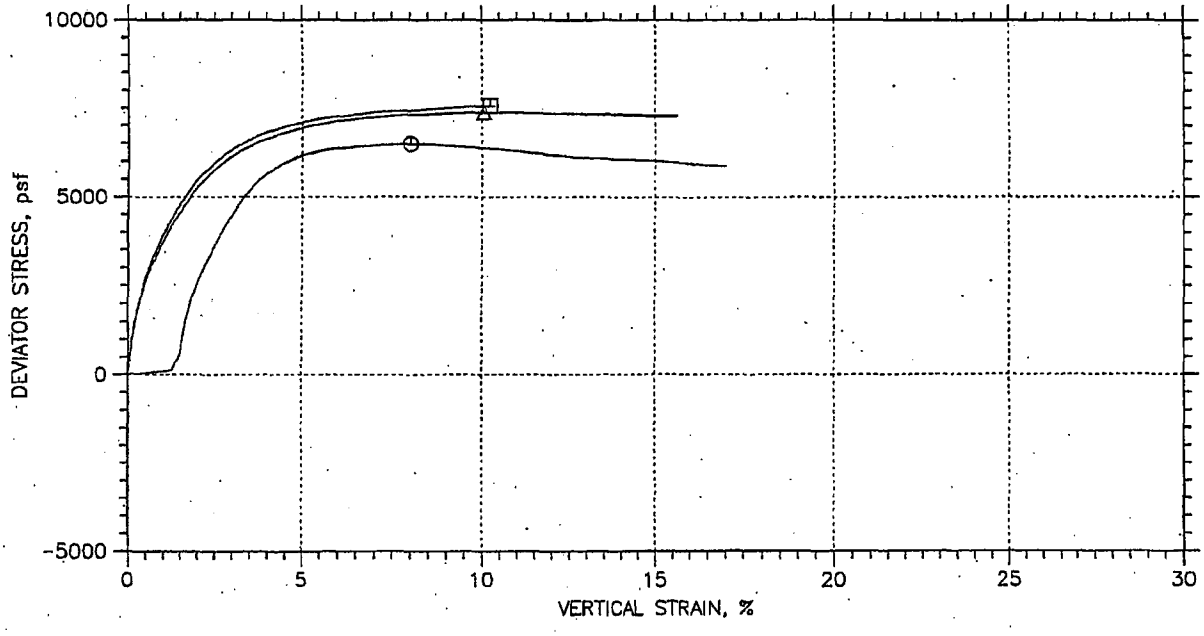
MACTEC

Project: Bechtel/STP/COL	Location: B306 UD-4	Project No.: 5050060496
Boring No.: B306	Sample Type: Undisturbed	
Description: Fat Clay (CH)		
Remarks:		

Wed, 30-MAY-2007 15:34:50

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





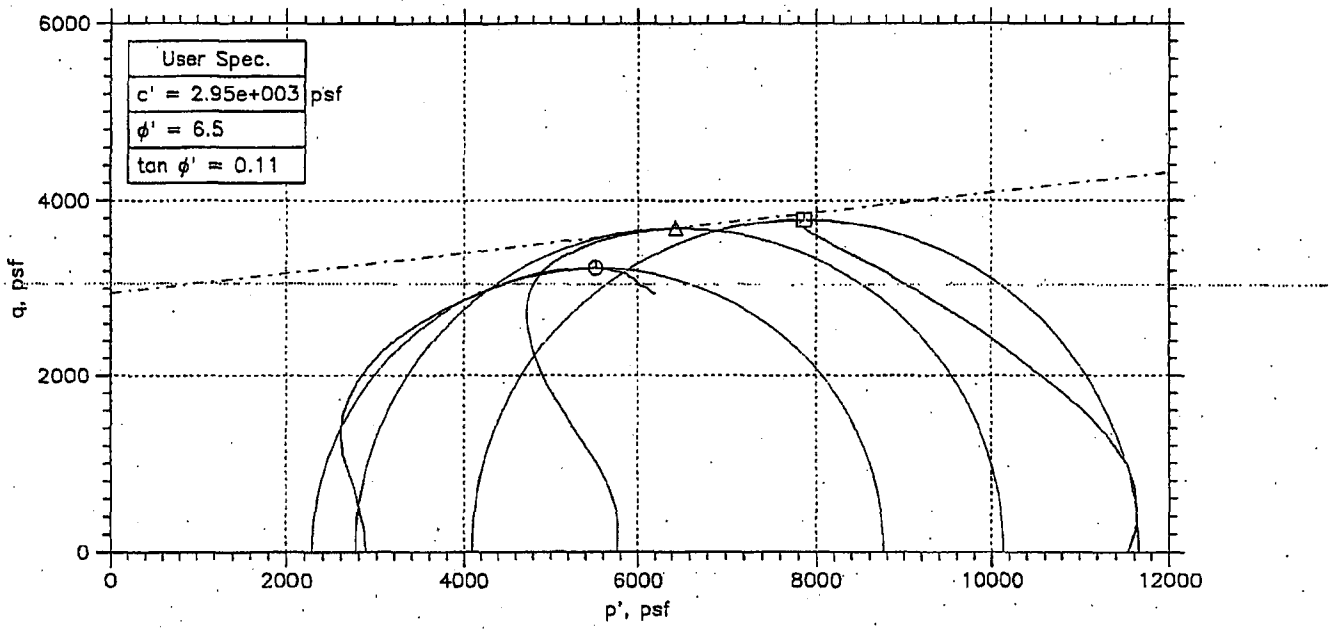
	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	UD-4	6957.1	88-90'	HJ	1/27/07	JL	JW 6/14/07	6957.1a_65.dat
△	UD-4	6957.2	88-90'	HJ	1/27/07	JL	JW 6/14/07	6957.2_82 moved_5-30-07.dat
□	UD-4	6957.3	88-90'	HJ	1/27/07	JL	JW 6/14/07	6957.3a_71 Retest.dat

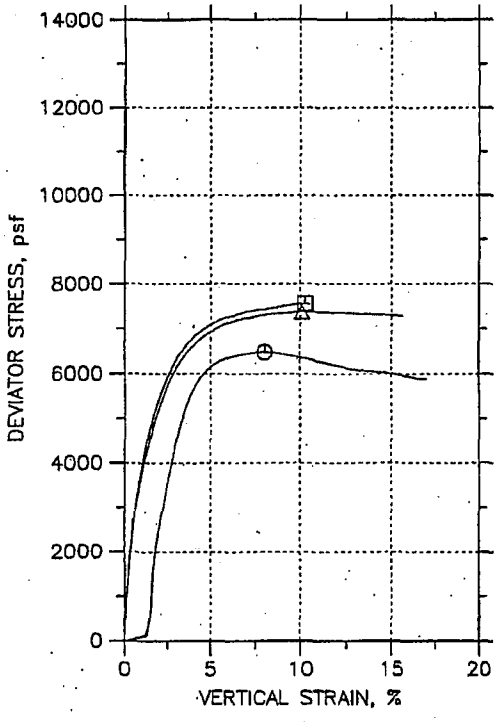
MACTEC

Project: Bechtel/STP/COL	Location: B306 UD-4	Project No.: 5050060496
Boring No.: B306	Sample Type: Undisturbed	
Description: Fat Clay (CH)		
Remarks:		

Wed, 30-MAY-2007 15:34:51

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊕	△	⊡	
Sample No.		UD-4	UD-4	UD-4	
Test No.		6957.1	6957.2	6957.3	
Depth		88-90'	88-90'	88-90'	
Initial	Diameter, in	2.861	2.852	2.843	
	Height, in	6	6	6	
	Water Content, %	21.6	22.5	23.7	
	Dry Density, pcf	104.1	101.7	102.2	
	Saturation, %	93.0	91.4	97.4	
	Void Ratio	0.632	0.669	0.661	
Before Shear	Water Content, %	22.5	22.9	23.4	
	Dry Density, pcf	105.4	104.6	103.7	
	Saturation*, %	100.0	100.0	100.0	
	Void Ratio	0.612	0.624	0.637	
	Back Press., psf	16260	15550	8209	
Ver. Eff. Cons. Stress, psf		2880	5758	11520	
Shear Strength, psf		3238	3685	3777	
Strain at Failure, %		8.02	10.1	10.3	
Strain Rate, %/min		0.1	0.1	0.1	
B-Value		0.96	0.96	0.96	
Measured Specific Gravity		2.72	2.72	2.72	
Liquid Limit		57	57	57	
Plastic Limit		19	19	19	

MACTEC

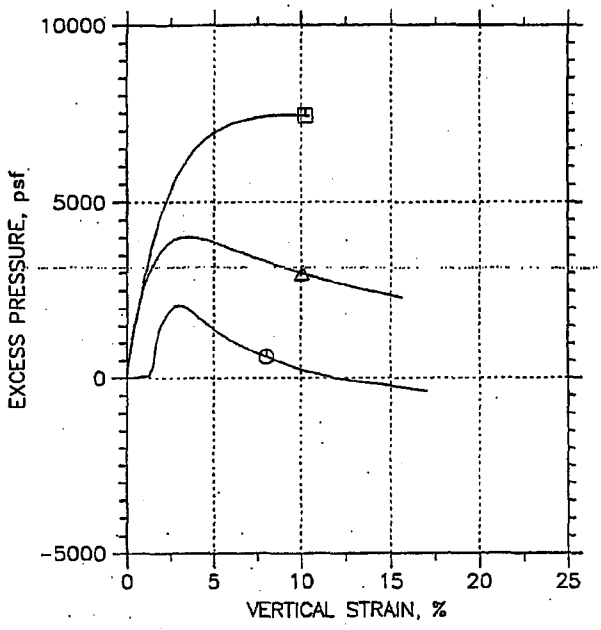
Project: Bechtel/STP/COL
Location: B306 UD-4
Project No.: 5050060496
Boring No.: B306
Sample Type: Undisturbed
Description: Fat Clay (CH)
Remarks:

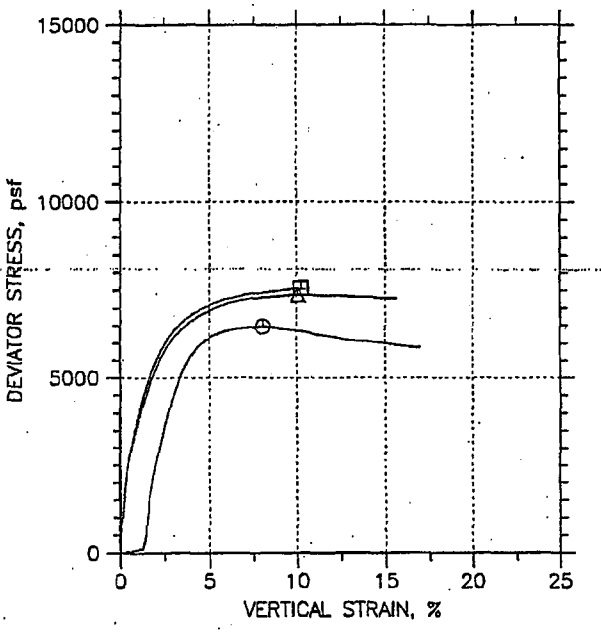
JW 6/14/07
KAW 6/19/07

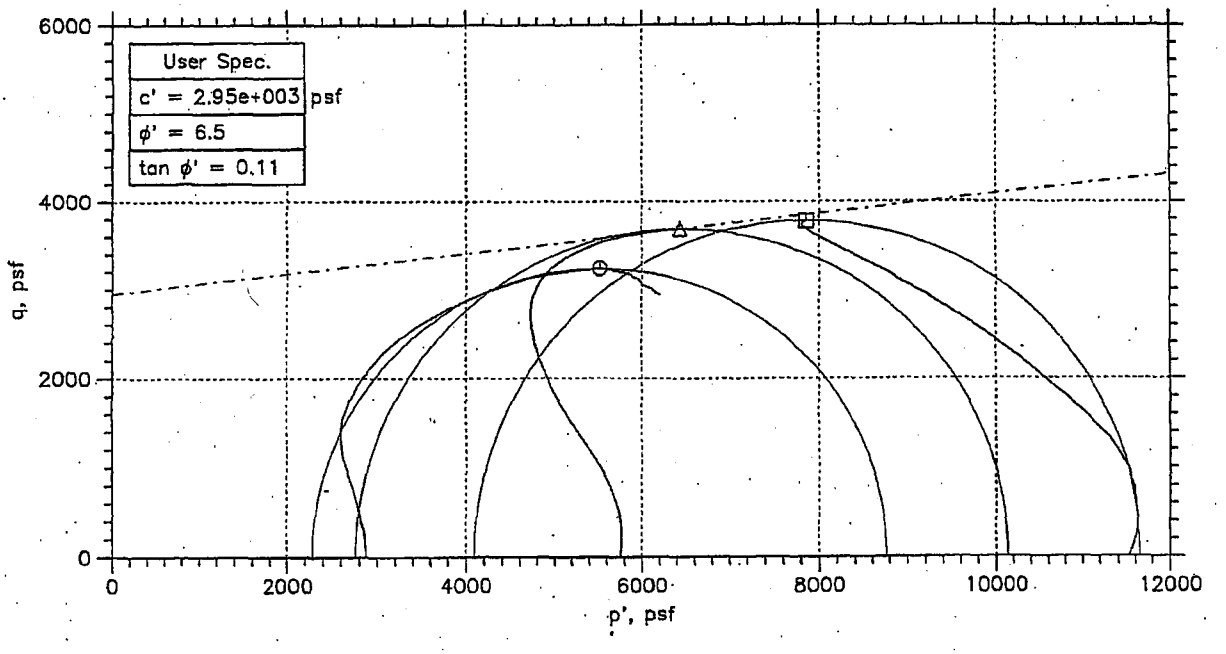
Thu, 31-MAY-2007 11:11:05

Phase calculations based on start and end of test.
* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







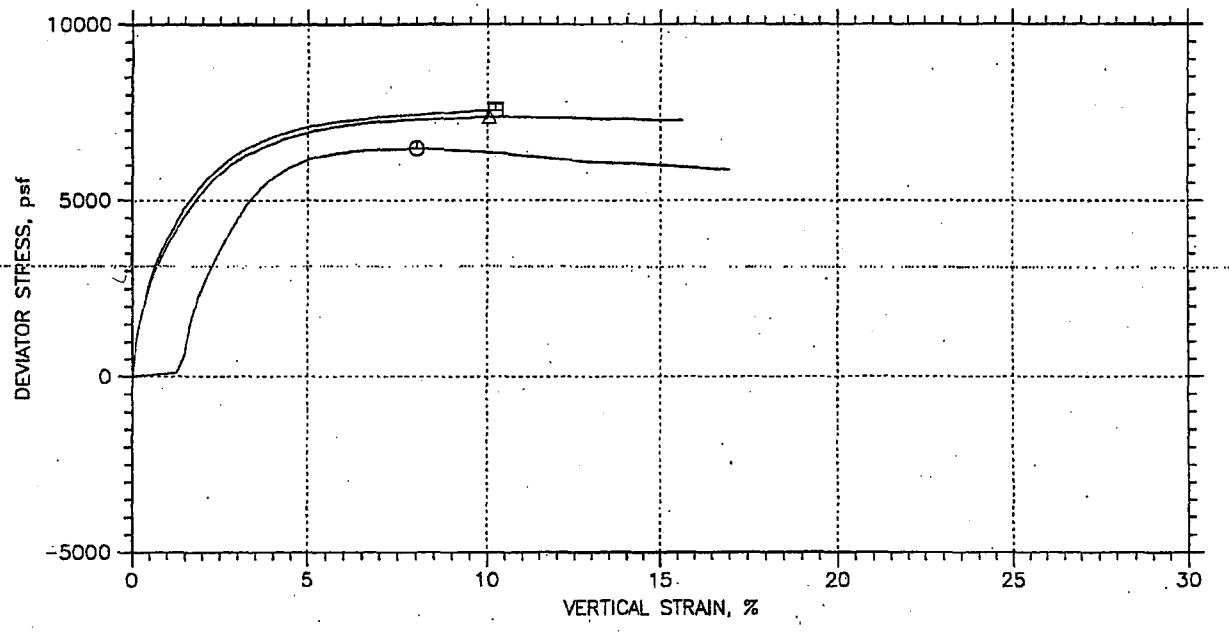
	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	UD-4	6957.1	88-90'	HJ	1/27/07	JL	JW 6/14/07	6957.1a_65.dat
△	UD-4	6957.2	88-90'	HJ	1/27/07	JL	JW 6/14/07	6957.2_82 moved_5-30-07.dat
⊡	UD-4	6957.3	88-90'	HJ	1/27/07	JL	JW 6/14/07	6957.3a_71 Retest.dat

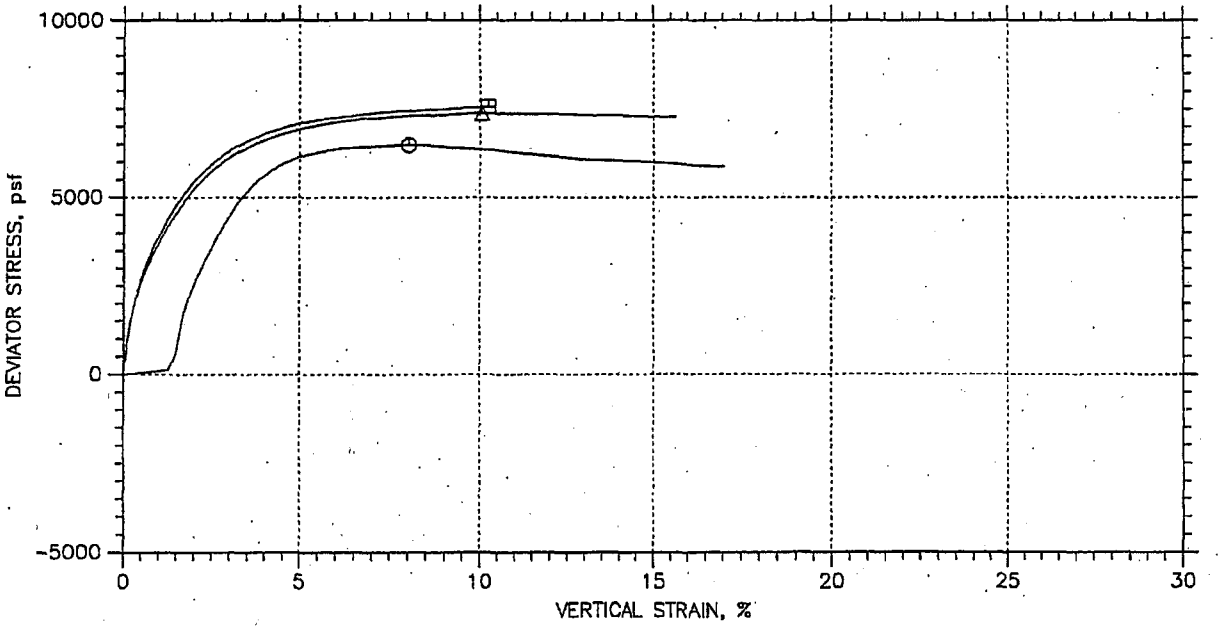
MACTEC

Project: Bechtel/STP/COL	Location: B306 UD-4	Project No.: 5050060496
Boring No.: B306	Sample Type: Undisturbed	
Description: Fat Clay (CH)		
Remarks:		

Thu, 31-MAY-2007 11:11:06

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





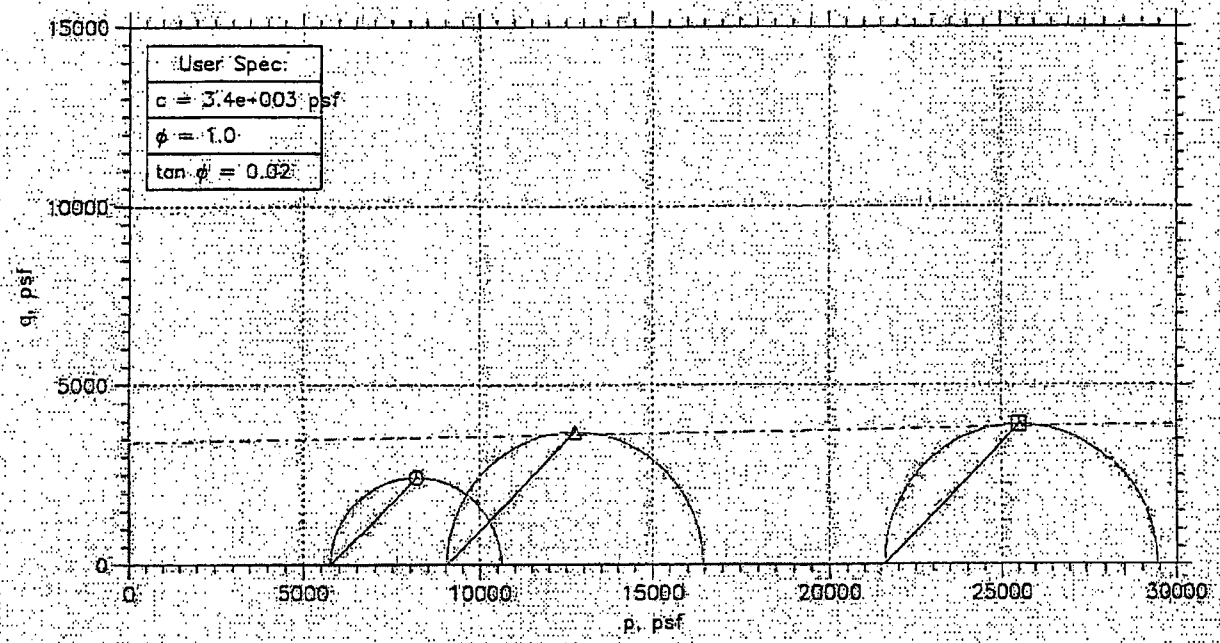
	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	UD-4	6957.1	88-90'	HJ	1/27/07	JL	JW 6/14/07	6957.1a_65.dat
△	UD-4	6957.2	88-90'	HJ	1/27/07	JL	JW 6/14/07	6957.2_82 moved_5-30-07.dat
⊡	UD-4	6957.3	88-90'	HJ	1/27/07	JL	JW 6/14/07	6957.3a_7.1_Retest.dat

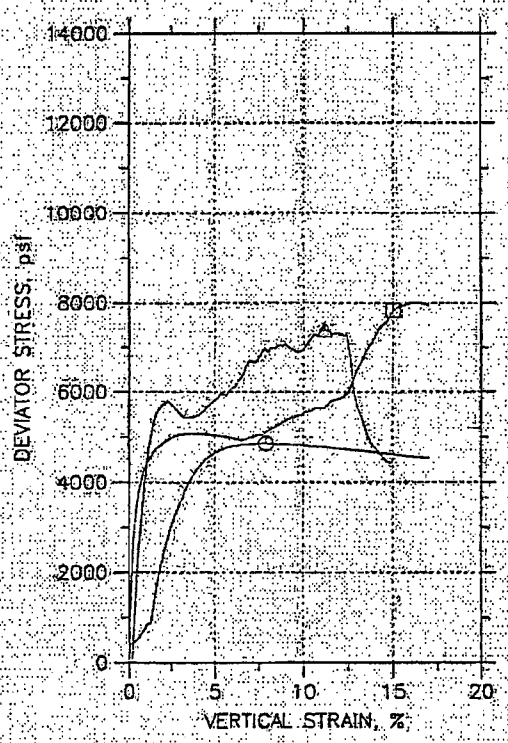
MACTEC

Project: Bechtel/STP/COL	Location: B306 UD-4	Project No.: 5050060496
Boring No.: B306	Sample Type: Undisturbed	
Description: Fat Clay (CH)		
Remarks:		

Thu, 31-MAY-2007 11:11:06

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊙	△	⊡	
Sample No.		UD-3	UD-3	UD-3	
Test No.		7101.1	7101.2	7101.3	
Depth		188-190'	188-190'	188-190'	
Initial	Diameter, in	2.849	2.87	2.86	
	Height, in	5.6	5.6	5.6	
	Water Content, %	22.3	22.9	20.4	
	Dry Density, pcf	101.2	99.76	107.4	
	Saturation, %	90.4	89.7	96.8	
	Void Ratio	0.665	0.69	0.569	
Before Shear	Water Content, %	23.9	25.8	20.6	
	Dry Density, pcf	102.4	99.38	108.3	
	Saturation*, %	100.0	100.0	100.0	
	Void Ratio	0.646	0.696	0.556	
	Back Press., psf	12820	8784	6046	
Ver. Eff. Cons. Stress, psf		5759	11520	21600	
Shear Strength, psf		2427	3698	3911	
Strain at Failure, %		7.9	11.2	15	
Strain Rate, %/min		0.1	0.1	0.1	
B-Value		0.96	0.96	0.98	
Estimated Specific Gravity		2.7	2.7	2.7	
Liquid Limit		49	49	49	
Plastic Limit		19	19	19	

MACTEC

Project: Bechtel/STP/COL

Location: B-307 UD-3

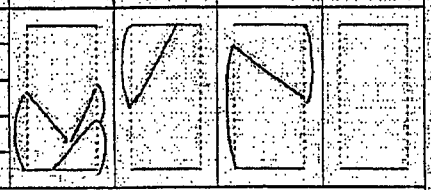
Project No.: 5050060496

Boring No.: B-307

Sample Type: Undisturbed

Description: Lean Clay (CH)

Remarks:



JFC 4/5/07

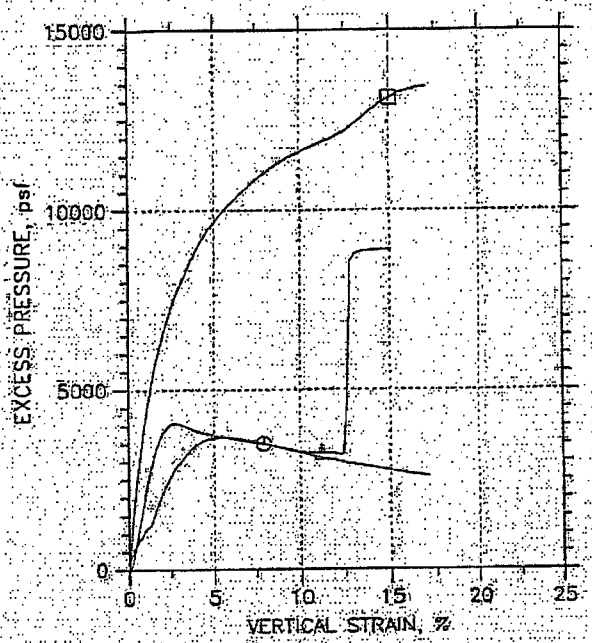
KAW 4/5/07

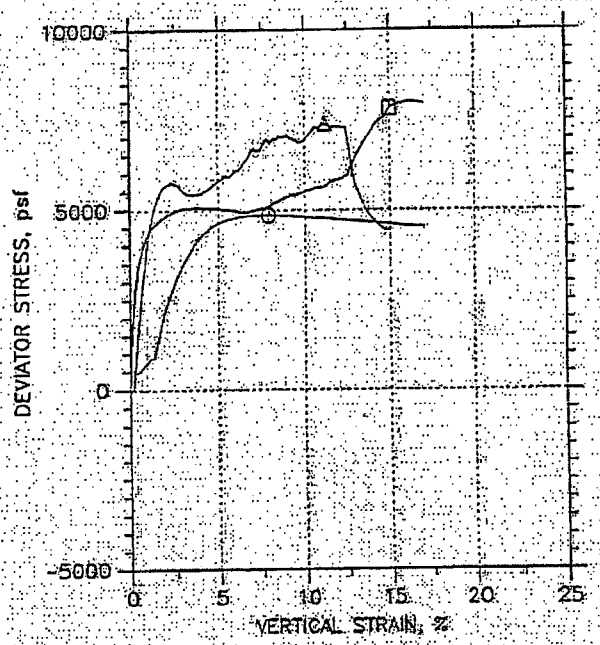
Phase calculations based on start of test.

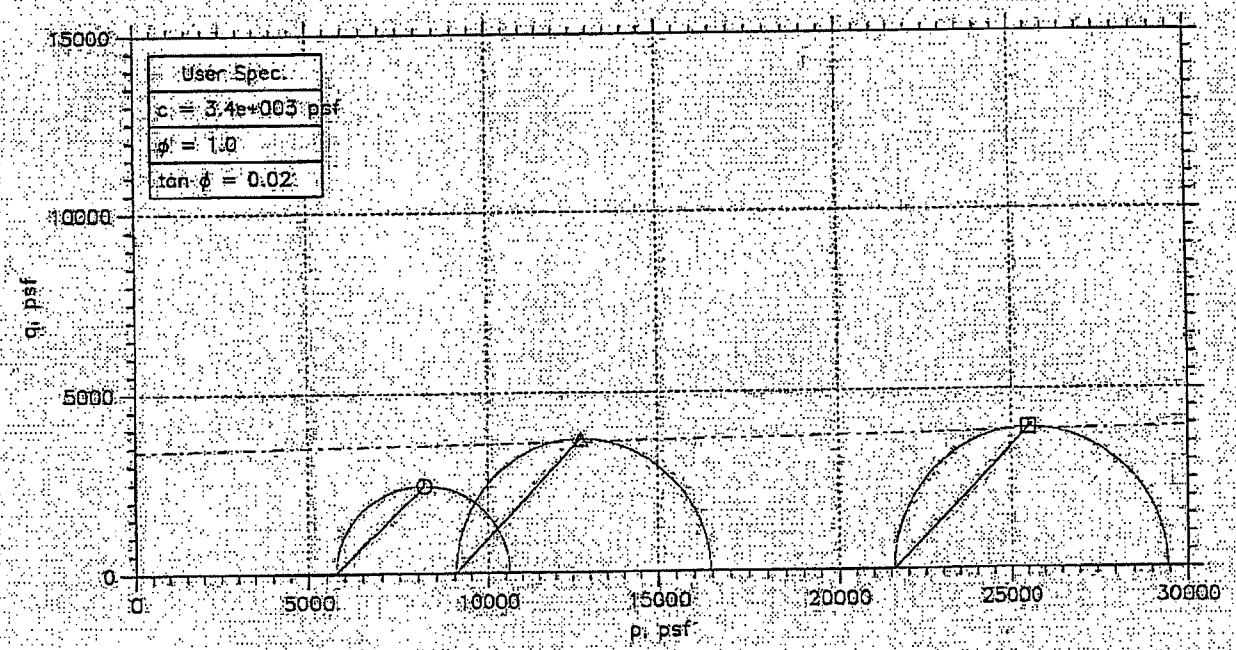
* Saturation is set to 100% for phase calculations.

Thu, 05-APR-2007 10:09:34

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	UD-3	7101.1	188-190'	HJ	3/17/07	JL JL	4/5/07	7101.1_90.dat
△	UD-3	7101.2	188-190'	HJ	3/17/07	JL JL	4/5/07	7101.2a_93.dat
⊡	UD-3	7101.3	188-190'	HJ	3/17/07	JL JL	4/5/07	7101.3_96.dat

MACTEC

Project: Bechtel/STP/COL	Location: B-307 UD-3	Project No.: 5050060496
Boring No.: B-307	Sample Type: Undisturbed	
Description: Lean Clay (CH)		
Remarks:		

Thu, 05-APR-2007 10:09:34