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March 11, 2009

Mr. Harry Manolopoulos
Project Procurement Specialist
Bechtel Power Corporation
5275 Westview Drive
Frederick, Maryland 21703

Subject: **Revised Laboratory Testing Results, Rev 2**
Calvert Cliffs Nuclear Power Plant Unit 3
Bechtel Job No. 25237
Bechtel Purchase Order No. 25237-103-P0A-CY05-00001
MACTEC Project Number 6234-08-4783

Dear Mr. Manolopoulos:

MACTEC Engineering and Consulting, Inc. (MACTEC) has provided laboratory testing services for the above-referenced project. The testing includes geotechnical classification, index property, and strength testing of soil samples (jar samples and tube samples).

We have completed testing for the first and second assignments, as identified on assignment sheets provided by Bechtel. In addition, we have performed unconsolidated, undrained triaxial tests on remolded samples, the results of which are contained herein. The results of the laboratory testing are presented on the attached sheets for your review. These results have incorporated review comments from Bechtel. Included in this submittal are a summary sheet of the tests completed (with selected soil parameters from each test) and the supporting data sheets for grain size distribution tests, triaxial consolidation (CU and UU) tests, direct shear tests, and one-dimensional consolidation tests.

We have enjoyed assisting you on this phase of the project and look forward to continuing to serve as your geotechnical and laboratory testing consultant on the remainder of this project.

Very truly yours,
MACTEC ENGINEERING AND CONSULTING, INC.

Steven E. Kiser
Project Manager

Clay E. Sams
Senior Principal

MACTEC Engineering and Consulting, Inc.
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Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride (mg/kg)	Sulphate (mg/kg)					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Remolded	Test Type	Total f deg.	Total c psi	Effective f' deg.	Effective c' psi	Failure Criterion	Ccr	Ccc	eo	Pp' tsf
B-301A	Tube	61.05	UD-2b	SM	31.8	0.1	NV	NP	NP	NC			21.5	0.2	128.4	2.684					X		UU		5.69			DEV				
B-301A	Tube	62.0	UD-2b																		X		VS		16.9			MAX				
B-301A	Tube	61.7	UD-2a																										0.006	0.025	0.629	15.00
B-301A	Tube	199.3	UD-4b	CH	91.3	0.0	115	25	90				64.1	5.0	100.9	2.596					X		UU		34.44			DEV				
B-301A	Tube	199.3	UD-4b																		X		VS		28.8+			MAX				
B-301A	Tube	199.3	UD-4																			X	UU		10.07			DEV				
B-301A	Tube	200.0	UD-4a																										0.040	0.510	1.767	19.00
B-301A	Tube	219.25	UD-5b	SC	37.7	0.0	66	26	40				38.8	2.1	109.3	2.553					X		UU		13.68			DEV				
B-301A	Tube	219.25	UD-5b																		X		VS		28.8+			MAX				
B-301A	Tube	219.25	UD-5																			X	UU		9.17			DEV				
B-301A	Tube	220.00	UD-5a																										0.012	0.180	1.019	14.00
B-301A	Tube	239.25	UD-6b	CH	68.7	0.0	96	26	70				49.2	3.8	104.7	2.530					X		UU		51.32			DEV				
B-301A	Tube	239.25	UD-6b																		X		VS		28.8+			MAX				
B-301A	Tube	240.00	UD-6a																									DEV	0.035	0.290	1.278	15.00
B-301A	Tube	239.25	UD-6																			X	UU		19.10							
B-301A	Tube	259.25	UD-7b	CH	70.8	0.0	113	31	82				58.6	4.1	98.5	2.472					X		UU		32.78			DEV				
B-301A	Tube	259.25	UD-7b																		X		VS		28.8+			MAX				
B-301A	Tube	259.25	UD-7																			X	UU		113.19			DEV				
B-301A	Tube	260.00	UD-7a																										0.025	0.340	1.484	16.00
B-301A	Tube	269.25	UD-8b	CH	96.3	0.0	182	49	133				85.7	7.3	88.3	2.336					X		UU		57.64			DEV				
B-301A	Tube	269.25	UD-8b																		X		VS		28.8+			MAX				
B-301A	Tube	269.25	UD-8																			X	UU		19.24			DEV				
B-301A	Tube	270.00	UD-8a																										0.018	0.460	2.060	16.00
B-301A	Tube	279.3	UD-9b	CH	94.8	0.0	187	54	133				109.8	7.2	86.5	2.232					X		UU		52.92			DEV				
B-301A	Tube	279.3	UD-9b																		X		VS		28.8+			MAX				
B-301A	Tube	279.8	UD-9																		X		UU		66.46			DEV				
B-301A	Tube	279.8	UD-9																			X	UU		7.85			DEV				
B-301A	Tube	280.0	UD-9a																										0.030	0.370	2.443	15.00
B-301A	Tube	289.75	UD-10b	CH	69.8	0.0	115	30	85				57.4	3.6	99.8	2.476					X		UU		64.31			DEV				
B-301A	Tube	289.25	UD-10																		X		VS		28.8+			MAX				
B-301A	Tube	290.00	UD-10a																										0.025	0.340	1.461	16.00
B-301A	Tube	299.75	UD-11b	CH	93.1	0.0	135	35	100				94.2	5.0	92.9	2.400					X		UU		51.25			DEV				
B-301A	Tube	299.25	UD-11b																		X		VS		28.8+			MAX				
B-301A	Tube	299.75	UD-11																			X	UU		10.14			DEV				
B-301A	Tube	300.00	UD-11a																										0.025	0.590	2.332	20.00
B-301A	Tube	309.75	UD-12b	SC	30.0	1.5	56	17	39				24.6	1.6	125.6	2.741					X		UU		53.13			DEV				
B-301A	Tube	309.25	UD-12b																		X		VS		28.8+			MAX				
B-301A	Tube	310.00	UD-12a																										0.015	0.150	0.730	15.00

Prepared By ADW 3-1-05 Checked By JHH 3-11-05 Reviewed By CES 3-11-05

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
																								Total		Effective						
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride (mg/kg)	Sulphate (mg/kg)					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Remolded	Test Type	f deg.	c psi	f' deg.	c' psi	Failure Criterion	Ccr	Cce	eo	Pp' tsf
B-301A	Tube	319.7	UD-13b	SC	32.3	0.3	36	14	22				13.4	1.4	132.0	2.785					X		UU		31.67			DEV				
B-301A	Tube	319.2	UD-13b																		X		VS		11.5			MAX				
B-301A	Tube	320.0	UD-13a																										0.005	0.047	0.409	11.00
B-301A	Tube	329.75	UD-14b	SC	13.9	0.7	79	20	59				27.0	4.3	126.9	2.930	NC				X		UU		36.46			DEV				
B-301A	Tube	329.25	UD-14b																		X		VS		28.8+			MAX				
B-301A	Tube	330.00	UD-14a																										0.013	0.230	0.852	14.00
B-301A	Tube	339.7	UD-15b	SC	14.1	0.8	66	22	44				44.5	5.1	123.5	2.983	NC				X		UU		38.96			DEV				
B-301A	Tube	339.2	UD-15b																		X		VS		28.8+			MAX				
B-301A	Tube	339.7	UD-15																			X	UU		6.32			DEV				
B-301A	Tube	340.0	UD-15a																										0.040	0.410	1.421	16.00
B-344	Tube	183.3	UD-1b	SC	29.1	0.0	44	23	21							2.598					X		UU		12.50			DEV				
B-344	Tube	183.3	UD-1										30.6	1.9																		
B-344	Tube	182.3	UD-1																		X		VS		1.4			MAX				
B-344	Tube	183.5	UD-1a												116.8														0.008	0.125	0.799	12.00
B-344	Tube	205.8	UD-4	CH	51.0	0.0	CHANGED						47.2	2.7																		
B-344	Tube	205.8	UD-4b				81	25	56							2.475					X		UU		35.35			DEV				
B-344	Tube	206.0	UD-4a												105.8														0.018	0.230	1.044	13.00
B-344	Tube	204.1	UD-4																		X		VS		28.8+			MAX				
B-344	Tube	223.3	UD-6b	CH	84.3	0.0	119	31	88				65.5	4.7		2.392					X		UU		51.39			DEV				
B-344	Tube	222.2	UD-6																		X		VS		28.8+			MAX				
B-344	Tube	223.3	UD-6																			X	UU		18.75			DEV				
B-344	Tube	223.5	UD-6a												96.5														0.023	0.370	1.434	20.00
B-344	Tube	243.3	UD-8b	CH	95.6	0.0	176	50	126					6.2		2.284					X		UU		43.12			DEV				
B-344	Tube	241.75	UD-8																		X		VS		28.8+			MAX				
B-344	Tube	243.3	UD-8										91.3									X	UU		31.46			DEV				
B-344	Tube	243.5	UD-8a												86.8														0.030	0.420	2.079	15.00
B-771	Jar	0.0	S-1										7.2	0.8																		
B-771	Jar	2.5	S-2										11.3	0.3																		
B-771	Jar	5.0	S-3										14.2	0.6																		
B-771	Jar	7.5	S-4										18.4	0.5																		
B-771	Jar	10.0	S-5							5.1	15.0	315	20.7	0.1																		
B-771	Jar	13.5	S-6							7.8	79.9	1400	29.3	5.7																		
B-771	Jar	18.5	S-7							7.8	22.7	664	25.6	1.9																		
B-771	Jar	23.5	S-8							8.0	33.0	1590	37.4	0.5																		
B-771	Jar	28.5	S-9							8.1	5.5	1070	17.6	0.4																		
B-771	Tube	33.15	UD-1	SC	16.5	0.0																										
B-771	Tube	33.15	UD-1c				36	23	13					1.4																		

Prepared By [illegible] Checked By [illegible] Reviewed By CEB 3-11-08

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Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
																							Test Type	Total		Effective		Failure Criterion				
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride (mg/kg)	Sulphate (mg/kg)					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Remolded		f deg.	c psi	f' deg.	c' psi		Cεr	Cεc	εo	Pp' tsf
B-771	Tube	32.9	UD-1										28.5			2.603					X		DS			29.8	3.96	DEV				
B-771	Tube	31.75	UD-1																		X		VS		17.9			MAX				
B-771	Tube	33.5	UD-1a												111.8														0.008	0.117	0.867	11.00
B-771	Jar	33.5	S-10							7.7	12.0	2130	36.7	0.7																		
B-771	Jar	38.5	S-11							7.6	3.7	3100	57.7	1.2																		
B-771	Tube	43.3	UD-2	SC	31.8	0.0																X	UU		12.22			DEV				
B-771	Tube	43.3	UD-2e				59	18	41				33.0	2.2							X		UU		26.94			DEV				
B-771	Tube	42.55	UD-2d													2.610					X		DS			38.7	2.01	MAX				
B-771	Tube	41.5	UD-2																		X		VS		3.6			MAX				
B-771	Tube	43.5	UD-2a												110.9														0.023	0.280	1.019	17.00
B-771	Jar	43.5	S-12							8.0	24.9	1890	40.1	1.0																		
B-771	Jar	48.5	S-13							7.5	9.4	1400	30.3	1.0																		
B-771	Tube	52.9	UD-3e	SC	35.4	4.1	52	19	33					1.8																		
B-771	Tube	52.9	UD-3b										27.8																			
B-771	Tube	53.3	UD-3													2.654					X		CU	18.7	19.0	35.0	12.1	DEV,PSR				
B-771	Tube	51.7	UD-3																		X		VS		5.1			MAX				
B-771	Tube	53.5	UD-3a												118.2														0.008	0.150	0.804	15.20
B-771	Jar	53.5	S-14							7.8	2.5	4030	40.6	1.5																		
B-771	Jar	58.5	S-15							7.7	4.4	3770	62.8	2.4																		
B-771	Tube	63.3	UD-4	CH	57.6	0.0	CHANGED																									
B-771	Tube	63.3	UD-4b				64	21	43					3.0																		
B-771	Tube	63.05	UD-4b										43.9			2.596					X		UU		29.79			DEV				
B-771	Tube	62.55	UD-4																		X		VS		28.8+			MAX				
B-771	Tube	63.05	UD-4																			X	UU		18.96			DEV				
B-771	Tube	63.5	UD-4a												111.6														0.015	0.190	0.969	12.50
B-771	Jar	63.5	S-16							7.9	2.3	2360	40.8	1.4																		
B-771	Jar	68.5	S-17							7.8	2.3	3310	45.2	1.9																		
B-771	Tube	73.3	UD-5	SC	38.6	0.0																										
B-771	Tube	73.3	UD-5b				55	21	34				33.4	2.4		2.623					X		UU		33.54			DEV				
B-771	Tube	72.8	UD-5																		X		VS		28.8+			MAX				
B-771	Tube	73.3	UD-5																			X	UU		9.44			DEV				
B-771	Tube	73.5	UD-5a												114.1														0.013	0.170	0.897	11.00
B-771	Jar	73.5	S-18	SC	49.0	0.0	64	26	38				41.0																			
B-771	Jar	78.5	S-19	MH	79.4	0.0	122	74	48				71.2																			
B-771	Tube	81.5	UD-6b	CH	98.3	0.0	136	37	99				68.5	7.5		2.556					X		UU		45.42			DEV				
B-771	Tube	82.75	UD-6																		X		VS		26.5			MAX				
B-771	Tube	83.25	UD-6a												96.0														0.045	0.610	1.841	21.00
B-771	Jar	83.5	S-20	MH	62.9	0.0	119	65	54				73.9																			

Prepared By [illegible] 3-11-09 Checked By [illegible] 3-11-09 Reviewed By CES 3-11-08

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LABORATORY TEST SUMMARY

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
																								Total		Effective						
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride (mg/kg)	Sulphate (mg/kg)					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Remolded	Test Type	f deg.	c psi	f' deg.	c' psi	Failure Criterion	Ccr	Ccc	eo	Pp' tsf
B-771	Jar	88.5	S-21	MH	65.4	0.0	96	54	42				63.6																			
B-771	Tube	93.3	UD-7b	CH	78.0	0.0	140	32	108					9.3																		
B-771	Tube	91.5	UD-7b										68.6			2.653					X		UU		38.61			DEV				
B-771	Tube	92.55	UD-7																		X		VS		25.4			MAX				
B-771	Tube	91.7	UD-7																			X	UU		20.83			DEV				
B-771	Tube	93.5	UD-7a												93.6														0.055	0.580	1.949	18.00
B-771	Jar	93.5	S-22	MH	53.9	0.0	110	71	39				67.3																			
B-771	Jar	98.5	S-23	MH	74.7	0.0	92	52	40				48.7																			
B-773	Jar	0.0	S-1										12.8																			
B-773	Jar	2.5	S-2	SM	31.0	0.0	NV	NP	NP	NC			12.4																			
B-773	Jar	5.0	S-3				NV	NP	NP				21.1																			
B-773	Jar	7.5	S-4	SM	23.0	0.0	NV	NP	NP				19.1																			
B-773	Jar	10.0	S-5				NV	NP	NP				34.4																			
B-773	Jar	12.5	S-6				NV	NP	NP				15.4																			
B-773	Jar	15.0	S-7							8.1	21.9	869	22.4																			
B-773	Jar	20.0	S-8	SM	35.9	0.0	NV	NP	NP				29.7	0.6																		
B-773	Jar	25.0	S-9							7.6	307	1720	41.0																			
B-773	Jar	30.0	S-10				NV	NP	NP				37.9	1.2																		
B-773	Jar	35.0	S-11							7.3	52.1	2650	55.8																			
B-773	Jar	40.0	S-12				45	24	21				40.8	1.4																		
B-773	Jar	45.0	S-13							7.9	15.5	1430	35.8																			
B-773	Jar	50.0	S-14				65	33	32				44.3	1.6																		
B-773	Jar	55.0	S-15				80	44	36				46.4																			
B-773	Jar	60.0	S-16				66	37	29				47.3	1.7																		
B-773	Jar	65.0	S-17				64	27	37				41.6																			
B-773	Jar	70.0	S-18	SM	45.0	0.0	58	31	27				38.3																			
B-773	Jar	75.0	S-19				103	45	58				67.5	3.4																		
B-773	Jar	80.0	S-20				132	53	79				77.2																			
B-773	Jar	85.0	S-21				123	57	66				69.5																			
B-773	Jar	90.0	S-22				129	50	79				84.1	3.3																		
B-773	Jar	95.0	S-23	SC	45.6	0.0	73	32	41				41.6																			
B-773	Jar	100.0	S-24	MH	59.3	0.0	97	58	39				54.2	3.2																		
B-773	Jar	105.0	S-25				109	59	50				59.1																			
B-773	Jar	110.0	S-26				128	76	52				78.5																			
B-773	Jar	115.0	S-27	SP-SM	11.0	0.0	NV	NP	NP				35.5																			
B-773	Jar	120.0	S-28	SM	28.2	0.0	49	34	15				42.4																			
B-773	Jar	125.0	S-29				60	35	25				45.3																			
B-773	Jar	130.0	S-30				69	36	33				46.7	1.5																		

Prepared By DAK 3-11-09 Checked By JJA 3-11-09 Reviewed By CES 3-11-09

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LABORATORY TEST SUMMARY

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride (mg/kg)	Sulphate (mg/kg)					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Remolded	Test Type	Total f deg.	Total c psi	Effective f' deg.	Effective c' psi	Failure Crieterion	Ccr	Ccc	eo	Pp' tsf
B-773	Jar	135.0	S-31				73	42	31				49.4																			
B-773	Jar	140.0	S-32				91	50	41				58.8																			
B-773	Jar	145.0	S-33	MH	55.7	0.0	97	55	42				56.0																			
B-773	Jar	148.5	S-34	MH	68.6	0.0	112	63	49				66.8	2.2																		
B-773 A	Tube	24.15	UD-2d	SC	31.4	0.1							31.4																			
B-773 A	Tube	24.0	UD-2d				42	20	22					1.2		2.640					X		VS		19.0			MAX				
B-773 A	Tube	24.15	UD-2												119.6																	
B-773A	Tube	24.90	UD-2c																		X		DS			28.2	3.19	MAX				
B-773 A	Tube	84.65	UD-8e	CH	89.9	0.0	143	33	110				70.7	4.9	96.8	2.592																
B-773 A	Tube	84.65	UD-8b																		X		CU	0.9	69.6	(note 2)	12.2	DEV,PSR				
B-773 A	Tube	85.00	UD-8a																										0.045	0.510	1.782	19.00
B-773 A	Tube	92.85	UD-9d	CH	74.1	0.0	116	26	90				54.0	4.6		2.661																
B-773 A	Tube	92.85	UD-9												109.2																	
B-773 A	Tube	94.90	UD-9c																		X		DS			32.6	0.00	MAX				
B-773A	Tube	103.6	UD-10a	CH	79.9	0.0	110	25	85																							
B-773A	Tube	103.4	UD-10a										22.4	4.6		2.633																
B-773A	Tube	103.4	UD-10												104.9																	
B-773 A	Tube	114.75	UD-11e	SC	24.3	0.0	43	22	21					1.7		2.610																
B-773 A	Tube	113.55	UD-11e										32.1		118.4						X		VS		28.8+			MAX				
B-773A	Tube	115.0	UD-11a																										0.018	0.190	0.882	15.00
B-773 A	Tube	114.75	UD-11b																		X		CU	16.0	21.7	37.3	0.0	DEV,PSR				
B-773 A	Tube	124.7	UD-12e	SC	34.4	0.0	59	26	33					2.0		2.569																
B-773 A	Tube	123.5	UD-12e										40.0		112.5						X		VS		28.8+			MAX				
B-773A	Tube	124.7	UD-12																		X		CU	0.0	53.3	19.4	25.2	DEV,PSR				
B-773A	Tube	125.0	UD-12a																										0.012	0.160	1.079	10.00
B-774	Jar	0.0	S-1		15.4	24.0							20.4																			
B-774	Jar	10.0	S-5	SC	28.6	0.0	24	14	10				17.9																			
B-774	Tube	13.2	UD-1	SC	34.1	0.5									126.8	2.657																
B-774	Tube	13.2	UD-1d				22	12	10					1.8																		
B-774	Tube	13.2	UD-1a										17.6								X		CU	ND	ND	38.0	0	DEV,PSR				
B-774	Jar	13.1	S-6	SM	17.9	0.0	NV	NP	NP				15.6																			
B-774	Jar	15.0	S-7	SM	15.9	30.7	NV	NP	NP				18.7																			
B-774	Tube	18.25	UD-2e	SP-SM	8.4	28.1	20	19	1																							
B-774	Tube	17.30	UD-2																		X		VS		6.9			MAX				
B-774	Tube	16.50	UD-2e											1.0																		
B-774	Tube	18.50	UD-2a										22.1		123.4	2.668													0.005	0.088	0.635	16.00
B-774	Jar	18.5	S-8	SM	15.4	5.9	NV	NP	NP				26.7																			
B-774	Jar	20.0	S-9				28	23	5				34.6																			

Prepared By DAF 3-11-09 Checked By SHA 3-11-09 Reviewed By CES 3-11-09

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY

Boring No.	Sample Type	Top of Sample Depth (ft)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
																								Total		Effective						
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride (mg/kg)	Sulphate (mg/kg)					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Remolded	Test Type	f deg.	c psi	f' deg.	c' psi	Failure Criterion	Ccr	Crc	eo	Pp' tsf
B-774	Tube	23.5	UD-3	SC	31.1	0.2																										
B-774	Tube	23.5	UD-3d				30	19	11					1.2																		
B-774	Tube	23.2	UD-3a										23.3		118.2	2.651					X		CU	13.0	27.1	35.8	5.0	DEV,PSR				
B-774	Tube	21.6	UD-3																		X		VS		16.6			MAX				
B-774	Jar	23.5	S-10	SM	30.1	0.0	NV	NP	NP	NC			22.8																			
B-774	Jar	25.0	S-11	SC-SM	37.9	0.0	30	23	7				34.7																			
B-774	Jar	27.5	S-12	SC	46.5	0.0	40	22	18				44.3																			
B-774	Jar	30.0	S-13				36	21	15				34.5																			
B-774	Tube	32.65	UD-4	SC	20.3	0.0																										
B-774	Tube	32.65	UD-4e				42	22	20				31.2	1.4							X		UU		26.74			DEV				
B-774	Tube	32.75	UD-4d													2.604					X		DS			28.3	5.35	MAX				
B-774	Tube	33.5	UD-4a												116.0														0.010	0.145	0.816	21.00
B-774	Tube	33.25	UD-4																		X		VS		26.3			MAX				
B-774	Jar	33.5	S-14				30	25	5				37.4																			
B-774	Jar	35.0	S-15				37	24	13				37.6																			
B-774	Jar	37.5	S-16	MH	59.4	0.0	82	51	31				59.4																			
B-774	Jar	40.0	S-17				75	31	44				46.4																			
B-774	Tube	43.25	UD-5	SC	31.0	0.0									112.0																	
B-774	Tube	43.25	UD-5e				56	19	37					2.8							X		UU		33.61			DEV				
B-774	Tube	41.50	UD-5e										38.2																			
B-774	Tube	42.45	UD-5													2.607					X		DS			31.7	6.32	MAX				
B-774	Tube	43.5	UD-5a																										0.015	0.195	0.980	13.00
B-774	Tube	42.35	UD-5																		X		VS		28.1			MAX				
B-774	Jar	43.5	S-18				46	23	23				45.7																			
B-774	Jar	45.0	S-19				57	22	35				47.1																			
B-774	Jar	47.5	S-20				NV	NP	NP				31.9																			
B-774	Jar	50.0	S-21	SM	15.8	2.9	NV	NP	NP				34.3																			
B-774	Tube	53.2	UD-6e	CH	53.0	0.0	63	20	43					3.5							X		UU		29.10			DEV				
B-774	Tube	51.5	UD-6e										39.2																			
B-774	Tube	52.70	UD-6													2.645					X		DS			33.0	5.56	MAX				
B-774	Tube	53.5	UD-6a												112.5														0.013	0.245	0.981	14.00
B-774	Tube	52.3	UD-6																		X		VS		24.4			MAX				
B-774	Tube	53.2	UD-6																			X	UU		101.32			DEV				
B-774	Tube	83.2	UD-7e	CH	96.3	0.0	136	38	98				68.9	7.3		2.553					X		UU		36.25			DEV				
B-774	Tube	81.8	UD-7																		X		VS		1.2			MAX				
B-774	Tube	83.2	UD-7																			X	UU		14.03			DEV				
B-774	Tube	83.5	UD-7a												94.7														0.050	0.530	1.769	17.00
B-774	Tube	102.7	UD-8e	CH	88.4	0.0	94	24	70				46.0	5.1		2.564					X		UU		57.78			DEV				

Prepared By [illegible] 5-11-09 Checked By [illegible] 5-11-09 Reviewed By CES 5-11-09

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
																								Total		Effective						
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride (mg/kg)	Sulphate (mg/kg)					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Remolded	Test Type	f' deg.	c psi	f' deg.	c' psi	Failure Crieterion	Ccr	Cce	eo	Pp' tsf
B-774	Tube	102.3	UD-8																		X		VS		28.6			MAX				
B-774	Tube	102.05	UD-8																			X	UU		17.92			DEV				
B-774	Tube	103.5	UD-8a												101.5														0.027	0.360	1.316	14.00
B-774	Tube	113.5	UD-9d	CH	69.8	0.0	131	29	102					6.6																		
B-774	Tube	111.65	UD-9d										94.5																			
B-774	Tube	112.0	UD-9																		X		VS		9.3			MAX				
B-774	Tube	123.2	UD-10	SC	21.5	0.0																										
B-774	Tube	123.2	UD-10e				42	25	17				33.9	1.3							X		UU		13.33			DEV				
B-774	Tube	122.4	UD-10													2.608					X		DS			27.6	3.12	MAX				
B-774	Tube	123.5	UD-10a												113.5														0.010	0.140	0.906	22.50
B-774	Tube	122.3	UD-10																		X		VS		3.1			MAX				
B-774	Tube	133.5	UD-11	SC	41.9	0.0																										
B-774	Tube	133.5	UD-11d				70	24	46					3.1																		
B-774	Tube	133.2	UD-11d										36.3																			
B-774	Tube	143.2	UD-12e	CH	52.0	0.0	90	24	66				50.0	3.1							X		UU		40.21			DEV				
B-774	Tube	142.7	UD-12													2.474					X		DS			24.4	14.65	MAX				
B-774	Tube	143.5	UD-12a												103.9														0.015	0.297	1.146	14.50
B-774	Tube	142.3	UD-12																		X		VS		26.4			MAX				
B-774	Tube	143.2	UD-12																			X	UU		8.26			DEV				
B-775	Jar	0.0	S-1		11.8	40.3							4.3																			
B-775	Jar	2.5	S-2				27	16	11				13.8																			
B-775	Jar	5.0	S-3		16.5	8.1							7.9																			
B-775	Jar	7.5	S-4		24.9	0.0							17.1																			
B-775	Jar	10.0	S-5										19.6																			
B-775	Jar	12.5	S-6		6.7	18.7							19.2																			
B-775	Jar	15.0	S-7		44.2	7.2				8.6	10.9	203	19.9																			
B-775	Jar	17.5	S-8	SC	16.7	9.1	27	17	10				31.0																			
B-775	Jar	20.0	S-9							8.0	20.5	649	29.0																			
B-775	Jar	22.5	S-10				NV	NP	NP				33.2																			
B-775	Jar	25.0	S-11							8.1	89.2	1260	29.1																			
B-775	Jar	27.5	S-12	SC	33.8	0.0	34	23	11				36.2																			
B-775	Jar	30.0	S-13							7.9	37.7	1300	24.6																			
B-775	Jar	32.5	S-14		12.9	1.8							41.4																			
B-775	Jar	35.0	S-15							7.3	26.2	2370	41.2																			
B-775	Jar	37.5	S-16		26.6	0.0							39.9																			
B-775	Jar	40.0	S-17							7.3	6.5	6240	59.9																			
B-775	Jar	42.5	S-18		39.6	0.0							43.9																			
B-775	Jar	45.0	S-19										39.1																			

Prepared By AK 3-1-09 Checked By JA 3-1-09 Reviewed By CES 3-12-09

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
																								Total		Effective						
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride (mg/kg)	Sulphate (mg/kg)					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Remolded	Test Type	f' deg.	c psi	f' deg.	c' psi	Failure Criterion	Cεr	Cεc	eo	Pp' tsf
B-775	Jar	47.5	S-20										42.3																			
B-775	Jar	50.0	S-21	SC	23.4	0.0	42	25	17				34.5																			
B-775	Jar	52.5	S-22										31.0																			
B-775	Jar	55.0	S-23										34.8																			
B-775	Jar	57.5	S-24										44.0																			
B-775	Jar	60.0	S-25				64	28	36				46.7																			
B-775	Jar	62.5	S-26				84	35	49				58.5																			
B-775	Jar	65.0	S-27				44	25	19				44.2																			
B-775	Jar	67.5	S-28										39.6																			
B-775	Jar	70.0	S-29										40.9																			
B-775	Jar	72.5	S-30										42.2																			
B-775	Jar	75.0	S-31		45.0	0.0							49.8																			
B-775	Jar	77.5	S-32				90	38	52				66.2																			
B-775	Jar	80.0	S-33										74.0																			
B-775	Jar	82.5	S-34										72.8																			
B-775	Jar	85.0	S-35				118	48	70				75.8																			
B-775	Jar	87.5	S-36										66.8																			
B-775	Jar	90.0	S-37										63.9																			
B-775	Jar	92.5	S-38				110	50	60				67.1																			
B-775	Jar	95.0	S-39										76.1																			
B-775	Jar	98.5	S-40				54	24	30				41.5																			
B-778	Jar	5.0	S-3		49.9	0.0							13.0																			
B-778	Jar	8.5	S-4		26.6	0.0							5.9																			
B-778	Jar	10.0	S-5		26.9	0.0							6.1																			
B-778	Tube	12.05	UD-2d	SC	20.7	0.0	27	14	13				23.2																			
B-778	Tube	12.08	UD-2d													2.693																
B-778	Tube	12.05	UD-2												118.2																	
B-778	Tube	13.5	UD-2c																		X		DS			28.6	2.29	MAX				
B-778	Jar	13.5	S-6		33.0	0.0							23.5																			
B-778	Jar	18.5	S-7		7.5	0.0							3.9																			
B-778	Jar	25.5	S-8		39.3	0.0							18.4																			
B-778	Jar	28.5	S-9		41.7	0.0							16.5																			
B-778	Tube	33.15	UD-6d	SM	26.3	0.0	NV	NP	NP				15.1			2.677																
B-778	Tube	33.15	UD-6												124.6																	
B-778	Tube	33.3	UD-6b																		X		DS			29.1	0.76	MAX				
B-778	Jar	35.5	S-10										21.9																			
B-778	Jar	38.5	S-11A				36	19	17	4.8	12.4	69.2	29.5																			
B-778	Jar	38.5	S-11B				38	19	19	3.8	6.6	1020	31.3																			

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Prepared By [illegible] Checked By [illegible] 5-4-09 Reviewed By CES 5-11-09

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
																								Total		Effective						
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride (mg/kg)	Sulphate (mg/kg)					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Remolded	Test Type	f deg.	c psi	f' deg.	c' psi	Failure Criterion	Cεr	Cεc	eo	Pp' tsf
B-778	Tube	41.3	UD-7d	SC	43.4	0.0	39	15	24						120.7	2.709					X		UU		10.90			DEV				
B-778	Tube	43.3	UD-7c										26.6								X		DS			22.4	4.31	MAX				
B-778	Jar	43.5	S-12	SM	21.6	0.0	NV	NP	NP				33.8																			
B-778	Jar	48.5	S-13	CH	94.2	0.0	63	30	33				36.9																			
B-778	Tube	54.35	UD-8d	ML	53.2	1.4	NV	NP	NP						129.5	2.762					X		UU		54.51			DEV				
B-778	Tube	52.85	UD-8f										32.3								X		DS			25.6	3.68	MAX				
B-778	Tube	64.35	UD-9d	CH	95.9	0.0	50	17	33				23.7		114.8	2.748					X		UU		27.85			DEV				
B-778	Jar	63.5	S-16		24.8	30.0							21.5																			
B-778	Jar	68.5	S-17	CH	51.2	0.0	54	22	32				37.1																			
B-778	Tube	71.35	UD-10d	CH	85.6	0.0	66	18	48						113.5	2.753					X		UU		18.75			DEV				
B-778	Tube	72.7	UD-10c										48.2								X		DS			16.4	14.79	MAX				
B-778	Tube	71.35	UD-10																			X	UU		12.71			DEV				
B-778	Tube	81.3	UD-11d	CL	60.8	0.0	46	20	26						119.7	2.719					X		UU		23.13			DEV				
B-778	Tube	83.8	UD-11c										28.1								X		DS			25.5	4.38	MAX				
B-778	Tube	81.3	UD-11																			X	UU		20.42			DEV				
B-778	Jar	88.5	S-21		14.5	6.0							22.0																			
B-778	Jar	95.5	S-22		13.8	9.2							21.9																			
B-778	Jar	98.5	S-23		13.7	7.1							21.0																			
B-778	Tube	103.4	UD-14d	SC	12.1	0.0	28	20	8						121.7	2.660					X		UU		17.64			DEV				
B-778	Tube	102.9	UD-14c										25.1								X		DS			28.1	5.76	MAX				
B-778	Jar	108.5	S-25		16.1	0.0							31.8																			
B-778	Jar	118.5	S-27		28.1	10.1							21.1																			
B-778	Jar	120.0	S-28		21.3	11.5							23.5																			
B-779	Jar	5.0	S-3		12.4	0.0							3.6																			
B-779	Tube	7.05	UD-1d	SM	46.4	0.0	NV	NP	NP				9.5			2.671																
B-779	Tube	7.05	UD-1												101.0																	
B-779	Tube	12.05	UD-2d	SM	22.4	0.0	NV	NP	NP																							
B-779	Tube	12.0	UD-2d										17.0			2.674																
B-779	Tube	12.0	UD-2												127.9																	
B-779	Tube	13.5	UD-2																		X		CU	38.3	7.0	32.2	1.2	DEV,PSR				
B-779	Jar	13.5	S-6		37.5	1.7							10.0																			
B-779	Jar	18.5	S-7		27.5	0.0							8.7																			
B-779	Tube	23.4	UD-3d	SM	18.8	0.0	NV	NP	NP						120.8	2.664					X		UU		2.36			DEV				
B-779	Tube	22.9	UD-3c										24.5								X		DS			28.7	2.22	MAX				
B-779	Jar	23.5	S-8	SC	43.4	0.0	32	18	14				19.1																			
B-779	Tube	33.45	UD-4d	SC	32.4	0.0	32	19	13						121.4	2.682					X		UU		15.42			DEV				
B-779	Tube	31.35	UD-4c										26.7								X		DS			24.5	3.61	MAX				
B-779	Jar	33.5	S-10				58	30	28				38.0																			

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Prepared By [illegible] 3-1-09 Checked By [illegible] 3-1-09 Reviewed By CEF 3-11-09

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
																								Total		Effective						
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride (mg/kg)	Sulphate (mg/kg)					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Remolded	Test Type	f deg.	c psi	f' deg.	c' psi	Failure Criterion	Cεr	Cεc	eo	Pp' tsf
B-779	Tube	42.3	UD-5d	CH	87.8	0.0	69	19	50						115.7	2.761					X		UU		14.38			DEV				
B-779	Tube	43.5	UD-5										22.7								X		CU	3.7	38.6	35.6	5.1	DEV,PSR				
B-779	Tube	53.5	UD-7d	SC	43.1	0.0	40	20	20				30.1		118.4	2.712																
B-779	Tube	52.4	UD-7d																		X		UU		20.35			DEV				
B-779	Jar	58.5	S-15		65.2	0.0							40.1																			
B-779	Tube	60.18	UD-8d	CH	88.2	0.0	68	19	49						111.0	2.734					X		UU		22.99			DEV				
B-779	Tube	61.38	UD-8										42.3								X		CU	9.4	20.8	25.6	13.2	DEV,PSR				
B-779	Tube	61.38	UD-8																			X	UU		2.15			DEV				
B-779	Jar	68.5	S-17		72.5	0.0							39.2																			
B-779	Tube	70.18	UD-9d	CH	63.6	0.0	51	20	31				34.2		115.2	2.702					X		UU		10.42			DEV				
B-779	Tube	72.98	UD-9																		X		CU	3.1	52.3	36.6	12.6	DEV,PSR				
B-779	Tube	73.38	UD-9																			X	UU		10.63			DEV				
B-779	Jar	73.5	S-18		22.2	0.0							36.7																			
B-779	Tube	82.7	UD-10d	SC-SM	15.1	4.1	26	19	7				23.0			2.670																
B-779	Tube	82.7	UD-10												126.7																	
B-779	Tube	83.4	UD-10c																		X		DS			30.5	2.85	MAX				
B-779	Jar	83.5	S-20		14.0	0.0							22.4																			
B-779	Tube	98.44	UD-11d	SC	16.0	0.0	32	20	12							2.659																
B-779	Tube	98.40	UD-11d												121.3						X		UU		7.22			DEV				
B-779	Tube	97.9	UD-11c										27.0								X		DS			30.0	0.00	MAX				
B-779	Jar	98.5	S-23										34.6																			
B-779	Tube	101.08	UD-12d	SC	23.8	0.9	39	17	22							2.653																
B-779	Tube	100.28	UD-12d										28.3		118.6																	
B-781	Jar	0.0	S-1		10.4	33.2							9.9																			
B-781	Jar	2.5	S-2										6.6																			
B-781	Jar	5.0	S-3	SC	39.5	0.0	24	15	9				13.8																			
B-781	Jar	7.5	S-4										15.6																			
B-781	Jar	10.0	S-5										16.5	0.9																		
B-781	Jar	13.5	S-6				NV	NP	NP				25.1																			
B-781	Jar	18.5	S-7		9.6	5.0							26.3																			
B-781	Jar	23.5	S-8	SM	25.4	2.9	NV	NP	NP				27.0																			
B-781	Jar	28.5	S-9	SC-SM	35.7	10.7	28	22	6				22.7																			
B-781	Jar	38.5	S-11				83	36	47				58.5																			
B-781	Jar	43.5	S-12				46	23	23				40.6																			
B-781	Jar	48.5	S-13				NV	NP	NP				36.9																			
B-782	Jar	0.0	S-1		14.5	9.7							7.4																			
B-782	Jar	2.5	S-2		38.0	0.0							13.8																			
B-782	Jar	5.0	S-3							8.3	4.0	73.2	4.3																			

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Prepared By DAK 3-11-09 Checked By DHA 3-11-09 Reviewed By CES 3-11-09

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
																								Total		Effective						
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride (mg/kg)	Sulphate (mg/kg)					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Remolded	Test Type	f' deg.	c psi	f' deg.	c' psi	Failure Crieterion	Ccr	Cec	co	Pp' tsf
B-782	Jar	7.5	S-4							7.8	5.2	22.1	14.1																			
B-782	Jar	10.0	S-5							8.0	7.3	26.3	17.8																			
B-782	Jar	13.5	S-6							8.3	20.8	497	28.0																			
B-782	Jar	18.5	S-7							8.3	4.7	428	22.1																			
B-782	Jar	23.5	S-8							8.1	4.8	1360	34.9																			
B-782	Jar	28.5	S-9		29.6	0.0							36.0																			
B-782	Jar	33.5	S-10		36.5	1.4							35.2																			
B-782	Jar	38.5	S-11		23.4	0.0							40.3																			
B-782	Jar	43.5	S-12		41.5	0.0							43.4																			
B-782	Jar	47.3	S-13				45	23	22				51.2																			
B-782	Jar	50.0	S-14				NV	NP	NP				41.9																			
B-785	Jar	43.5	S-12	CH	97.5	0.0	66	31	35				35.9																			
B-785	Jar	48.5	S-13	CL	63.7	0.0	41	19	22				33.1																			
B-785	Jar	53.5	S-14		24.4	0.0							30.9																			
B-785	Jar	58.5	S-15		10.3	0.0							10.6																			
B-785	Jar	63.5	S-16		88.7	0.0							43.4																			
B-785	Jar	68.5	S-17				49	24	25				38.1																			
B-786	Jar	0.0	S-1		10.3	0.0							0.5																			
B-786	Jar	2.5	S-2		42.2	1.4							8.1																			
B-786	Jar	5.0	S-3		43.8	0.0							6.2																			
B-786	Jar	7.5	S-4		24.7	0.0							4.4																			
B-786	Jar	10.0	S-5	CH	96.3	0.0	68	32	36				28.7																			
B-786A	Jar	13.5	S-1		39.3	0.0							19.9																			
B-786A	Jar	18.5	S-2A		44.4	0.0							27.9																			
B-786A	Jar	19.3	S-2B		23.7	8.8							27.1																			
B-786A	Jar	23.5	S-3	SP	3.6	0.0							17.8																			
B-786A	Jar	28.5	S-4	CH	88.5	0.0	75	33	42				47.6																			
B-786A	Jar	33.5	S-5	CL	78.6	0.0	48	24	24				41.1																			
B-786A	Jar	38.5	S-6		34.7	0.0							34.6																			
B-787	Jar	0.0	S-1		29.4	0.0							14.5																			
B-787	Jar	2.5	S-2	SC	39.3	0.0	31	19	12				7.9																			
B-787	Jar	5.0	S-3		54.8	0.0							24.2																			
B-787	Jar	7.5	S-4		23.7	0.0							15.2																			
B-787	Jar	10.0	S-5		15.2	0.0							14.7																			
B-787	Jar	13.5	S-6A		15.6	0.0							13.4																			
B-787	Jar	13.5	S-6B		48.0	0.0							22.9																			
B-787	Jar	18.5	S-7	SP	3.8	0.0							24.1																			
B-789	Jar	0.0	S-1		77.5	0.0							28.2																			

Prepared By [illegible] 3-11-09 Checked By HA 3-11-09 Reviewed By CES 3-11-09

Project Name: Calvert Cliffs Nuclear Power Plant Unit 3

MACTEC Project Number: 6234-08-4783

Bechtel Project No. 25237

Bechtel Purchase Order No. 25237-103-P0A-CY05-00001

LABORATORY TEST SUMMARY

Boring No.	Sample Type	Top of Sample Depth (ft.)	Sample No.	USCS Sample Class. (D 2487)	Sieve Results (D 422)		Atterberg Limits (D 4318)			Chemical Tests			Natural Moisture Content (%) (D 2216)	Organic Content (%) (D 2974)	Moist Unit Weight (PCF)	Specific Gravity (D 854)	Moisture-Density Relationship (D 1557)		CBR Value (D 1883)		Specimen		Shear Strength						Consolidation (D 2435)			
																								Total		Effective						
					Percent Passing No. 200	Percent Retained No. 4	LL	PL	PI	pH	Chloride (mg/kg)	Sulphate (mg/kg)					Dry Unit Wt. (PCF)	Optium Moisture (%)	Dry	Soaked	Intact	Remolded	Test Type	f' deg.	c psi	f' deg.	c' psi	Failure Criterion	Cεr	Cεc	eo	Pp' tsf
B-789	Jar	2.5	S-2							5.0	1.7	40.7	29.1																			
B-789	Jar	5.0	S-3							4.8	2.7	36.2	26.6																			
B-789	Jar	7.5	S-4							4.5	3.3	39.2	34.3																			
B-789	Jar	10.0	S-5							2.8	ND	6180	27.3																			
B-789	Jar	12.5	S-6							3.2	1.7	5210	25.4																			
B-789	Jar	15.0	S-7							3.3	3.8	3870	31.1																			
B-789	Jar	18.5	S-8							3.4	7.4	5040	32.0																			
B-789	Jar	23.5	S-9							5.8	19.0	20.8	27.3																			
B-791	Jar	0.0	S-1		24.6	0.0							7.2																			
B-791	Jar	5.0	S-3		13.6	1.5							8.4																			
B-791	Jar	7.5	S-4	SP-SM	6.6	0.0	NV	NP	NP				4.9																			
B-791	Jar	10.0	S-5		10.7	1.4							5.9																			
B-791	Jar	12.5	S-6		6.5	0.0							5.4																			
B-791	Jar	15.0	S-7		6.8	0.0							15.7																			
B-791	Jar	19.0	S-8		32.9	0.0							23.1																			
B-791	Jar	23.5	S-9		21.5	10.3							14.7																			
B-791	Jar	28.5	S-10	CH	78.9	0.0	59	23	36				34.6																			
B-821	Jar	0.0	S-1		14.2	44.0							2.6																			
B-821	Jar	2.5	S-2		32.1	0.0							8.2																			
B-821	Jar	7.5	S-4		7.4	20.0							9.4																			
B-821	Jar	10.0	S-5	SM	18.0	0.0	NV	NP	NP				33.9																			
B-821	Jar	13.5	S-6		17.1	0.0							31.3																			
B-821	Jar	18.5	S-7				NV	NP	NP				20.2																			
B-821	Jar	23.5	S-8		14.6	0.0							29.1																			
B-822	Jar	0.0	S-1		15.1	0.0							9.4																			
B-822	Jar	2.5	S-2		42.3	0.0							11.7																			
B-822	Jar	5.0	S-3		90.7	0.0							25.8																			
B-822	Jar	7.5	S-4				53	21	32				23.1																			
B-822	Jar	10.0	S-5		68.3	0.0							34.8																			
B-822	Jar	13.5	S-6				45	22	23				39.2																			
B-822	Jar	18.5	S-7		30.4	7.0							18.6																			
B-822	Jar	23.5	S-8		14.0	7.1							29.9																			

Note (1) DEV = maximum deviator stress adopted as failure criteria for total strength in triaxial tests

PSR = principle stess ratio adopted as failure criteria for effective strength in triaxial tests

MAX = maximum shear stress adopted as failure criteria in direct shear and vane shear tests

Note (2) Value could not be determined during test

Note: Cohesion values determined by vane shear with a "+" after the value indicate the vane shear device reached the maximum torque prior to failing the sample

Note: For UD samples, testing agency added an identifying letter to the end of the Sample No. from that listed on the assignment sheet (For example, UD-2 as listed on assignment sheet may be noted as UD-2a, UD-2b, etc. for various tests)

Prepared By DAK 3-11-09 Checked By JHA 3-11-09 Reviewed By CEJ 3-11-09

Calvert Cliffs Nuclear Power Plant Unit 3
Bechtel Job No. 25237
Bechtel Purchase Order No. 25237-103-P0A-CY05-00001
MACTEC Project Number 6234-08-4783

Triaxial CIU-Bar (3pts) (Consolidated-Undrained Triaxial Compression ASTM D4767)

MACTEC

Calvert Cliffs Nuclear Power Plant Unit 3
Bechtel Project No. 25237
Bechtel Purchase Order No. 25237-103-P0A-CY05-00001
MACTEC Project No. 6234-08-4783

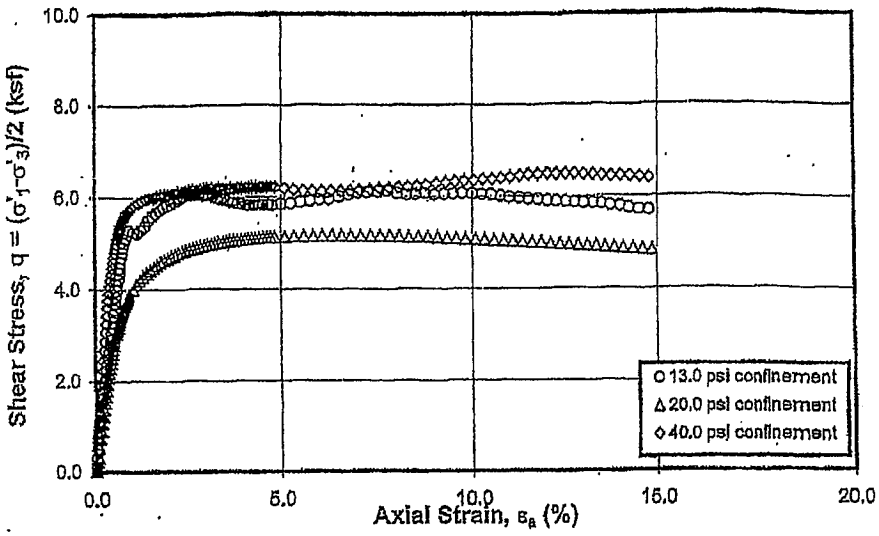
Notes for the Triaxial Test Report

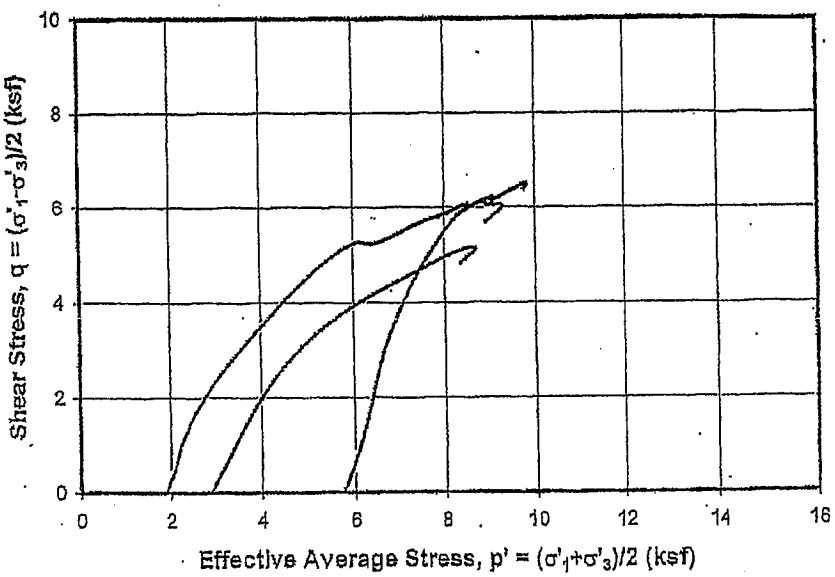
Note on Consolidated-Undrained Triaxial Test Results: For the total stress condition, failure was said to have occurred at maximum shear stress. For the effective stress condition, failure was said to have occurred at maximum obliquity. The measured σ_1, σ_3, and u values were used to compute p (calculated as $[(\sigma_1 + \sigma_3)/2]$) and q (calculated as $[(\sigma_1 - \sigma_3)/2]$) values for each triaxial test specimen. The p-q and p'-q graph for the sample were plotted, and a linear trend line was added which best fit each data set. This trend line (in p-q space) is known as the K_f- line, and has slope, α, and y-intercept, A, which corresponds to ϕ and c on a Mohr-Coulomb plot according to the following relationships:

$$\phi = \sin^{-1}(\tan\alpha)$$

$$c = \frac{A}{\cos\phi}$$

Thus, the ϕ and c values are computed for each UD sample. The Mohr-Coulomb plots show the Mohr's circle for each test specimen at the final stress condition. These circles may not represent the stress conditions at failure (maximum shear stress and maximum obliquity for the total and effective stress conditions, respectively), and therefore may not correspond to the Mohr-Coulomb failure envelope plotted with the ϕ and c parameters.

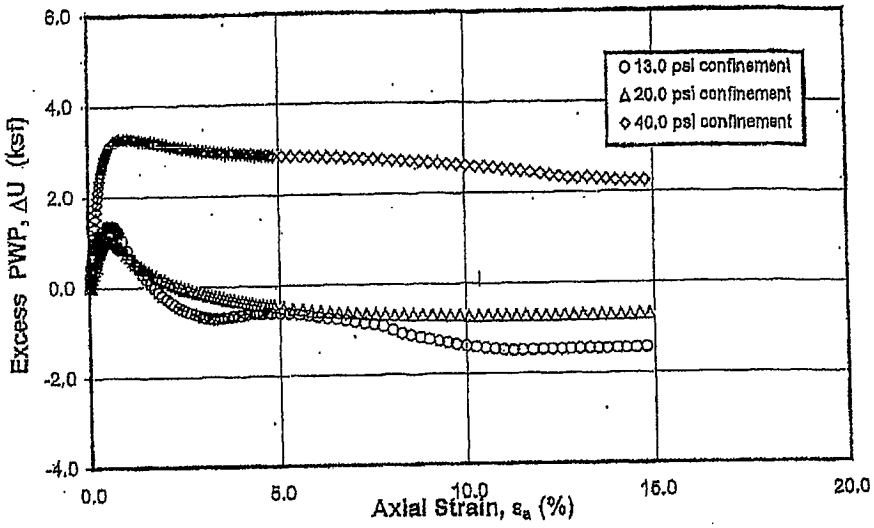


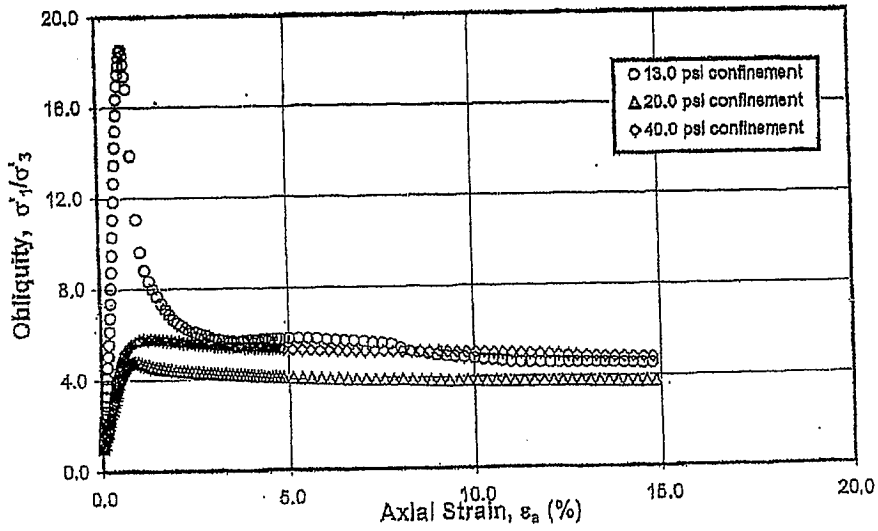


MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-3 - Depth: 53.30 ft
Boring B-771

Reviewed By: [illegible]

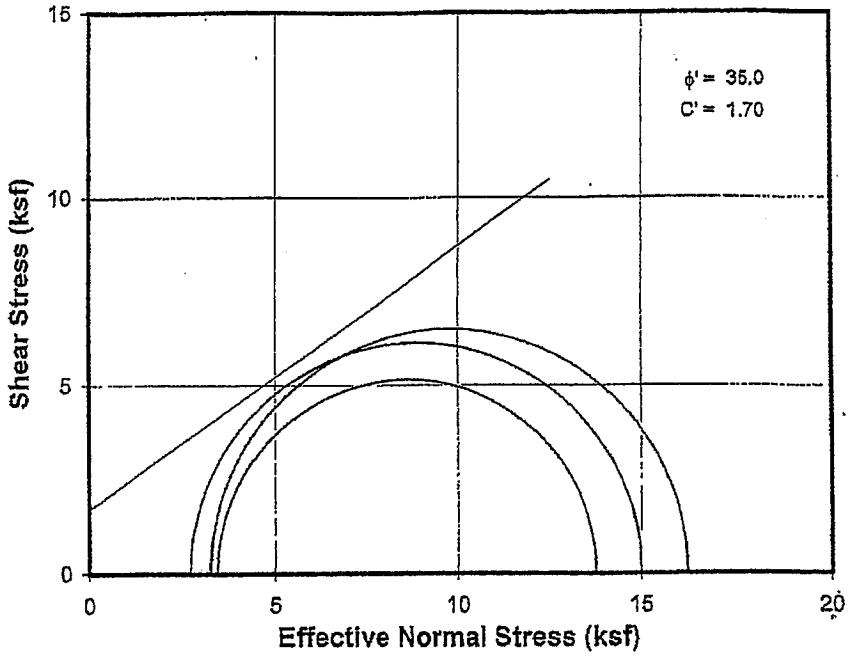
Report No. 0411-08-1707

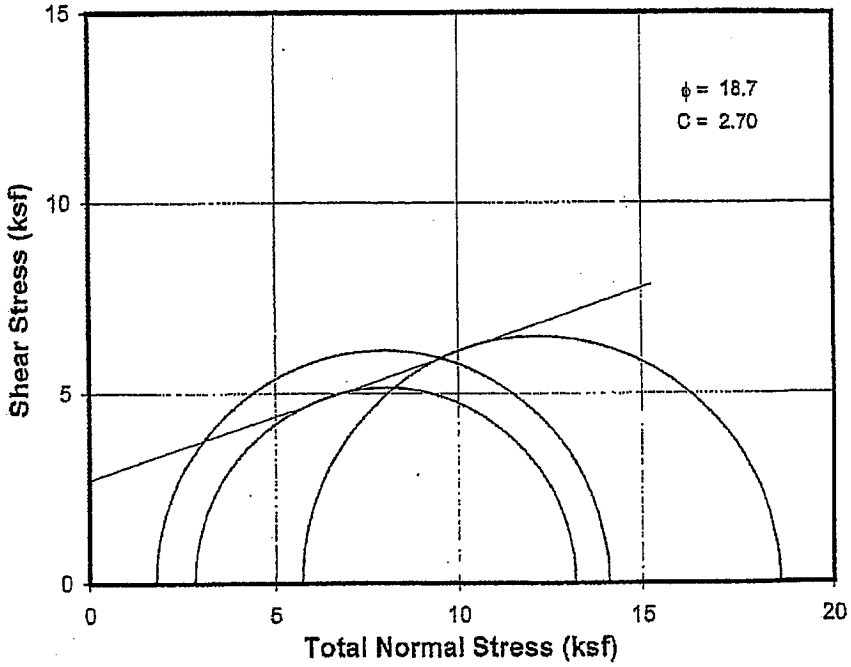




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-3 - Depth: 53.30 ft
Boring B-771

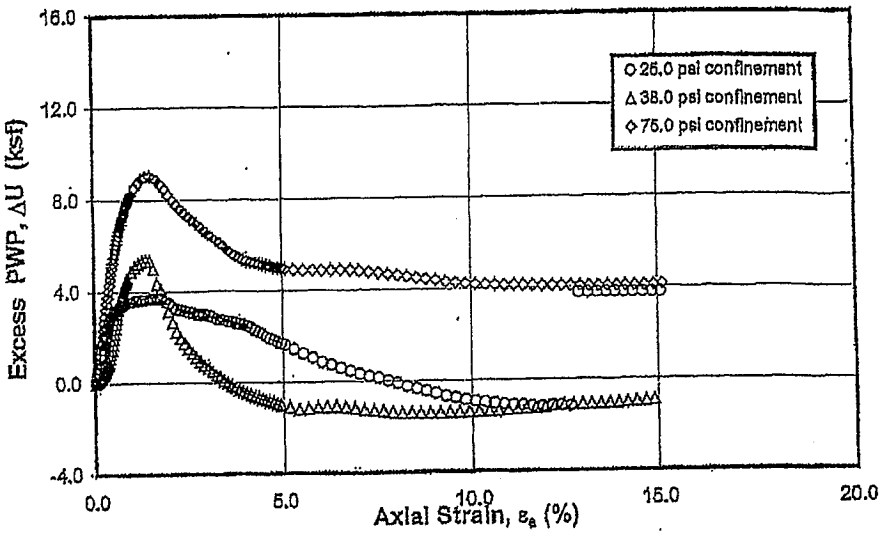
Reviewed By: [illegible]

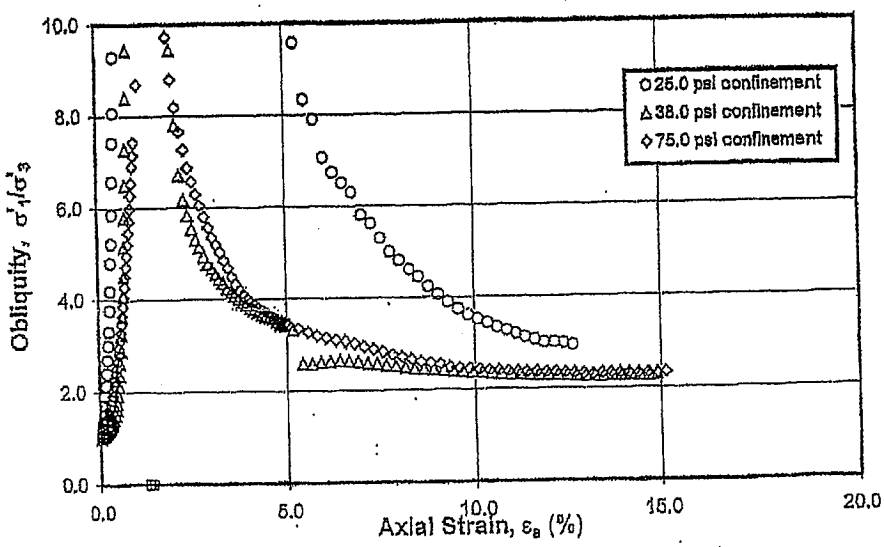




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-3 - Depth: 53.30 ft
Boring B-771

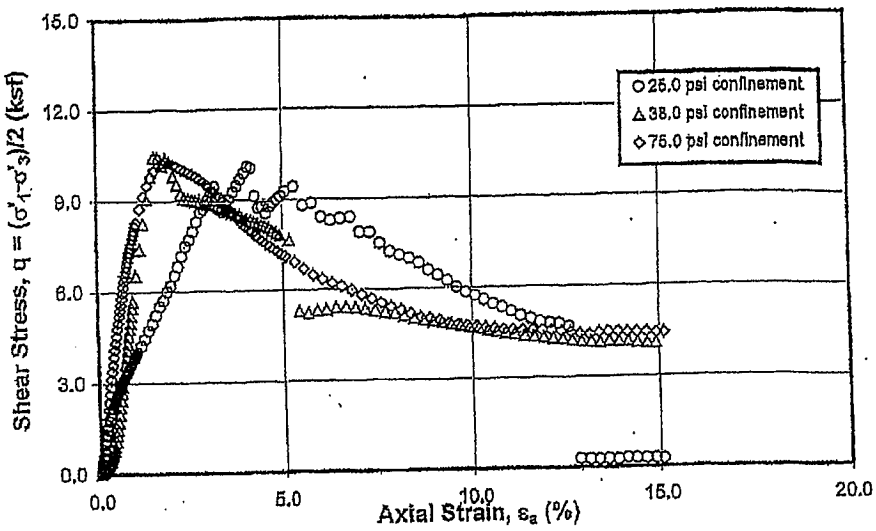
Reviewed By:

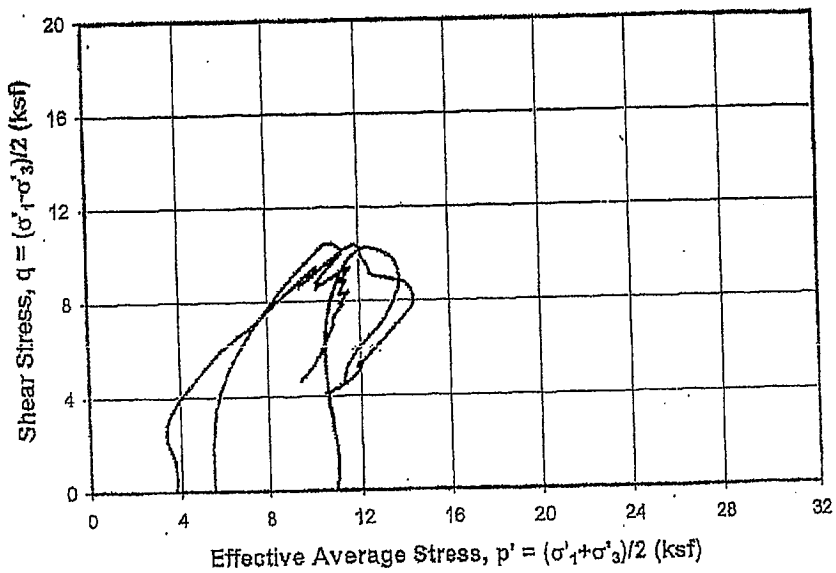




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-8b - Depth: 84.65 ft
Boring B-773A

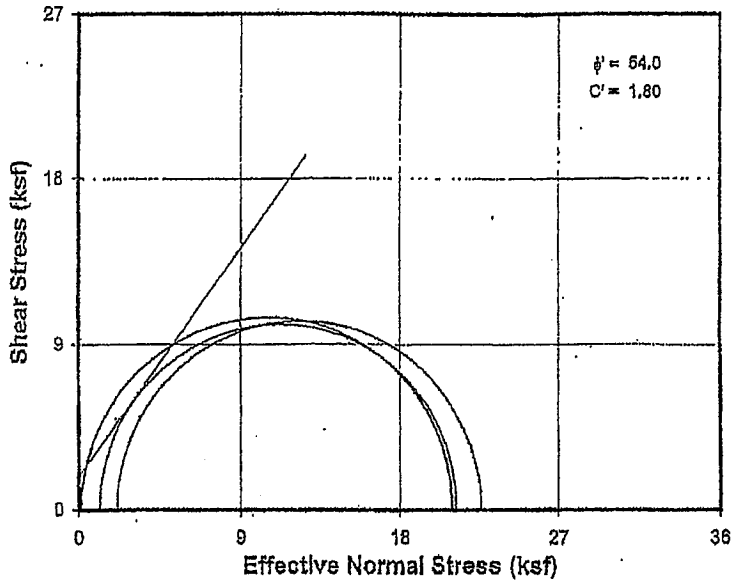
Reviewed By: MMM

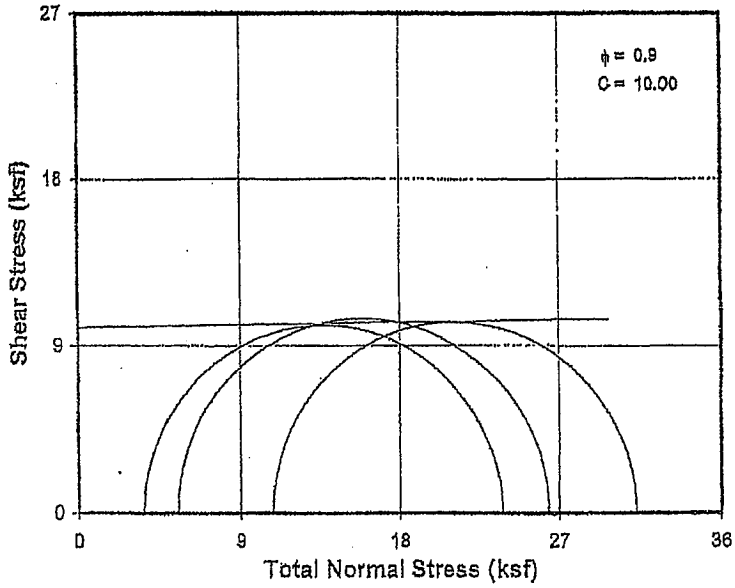




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-8b - Depth: 84.65 ft
Boring B-773A

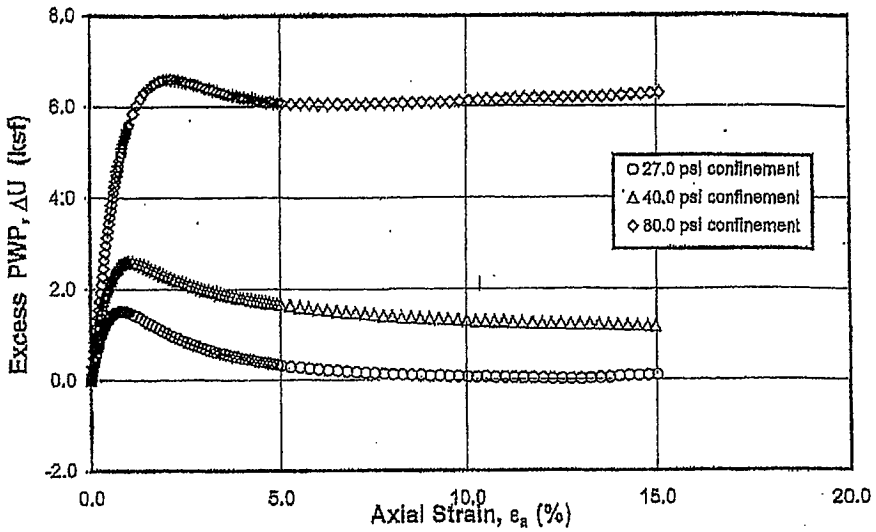
Reviewed By:

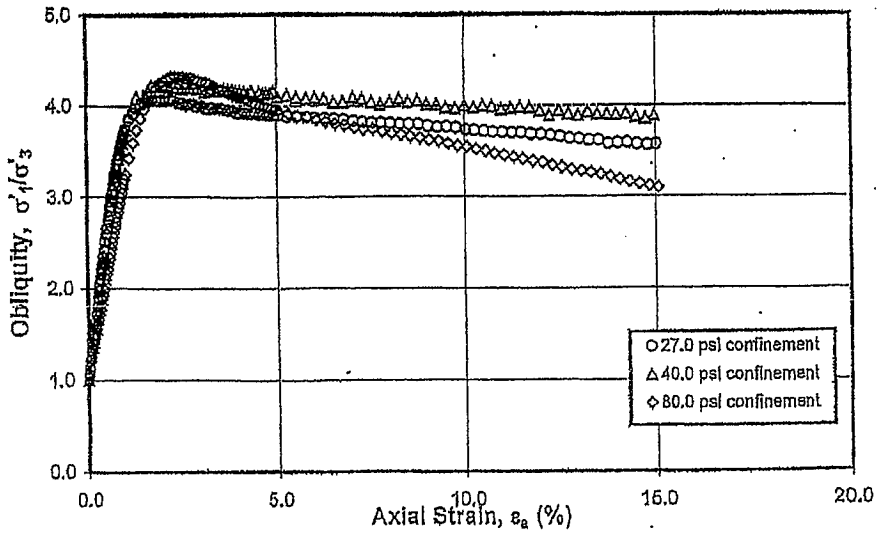




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-8b - Depth: 84.65 ft
Boring B-773A

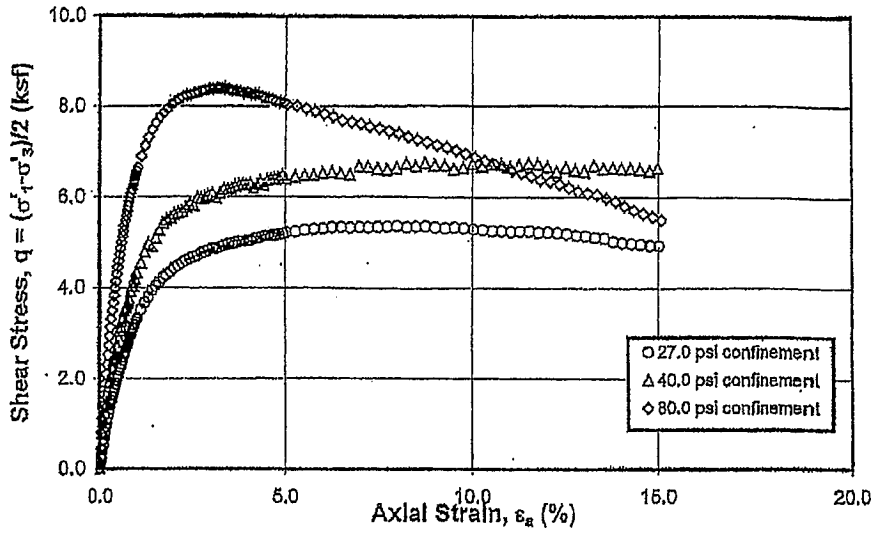
Reviewed By:

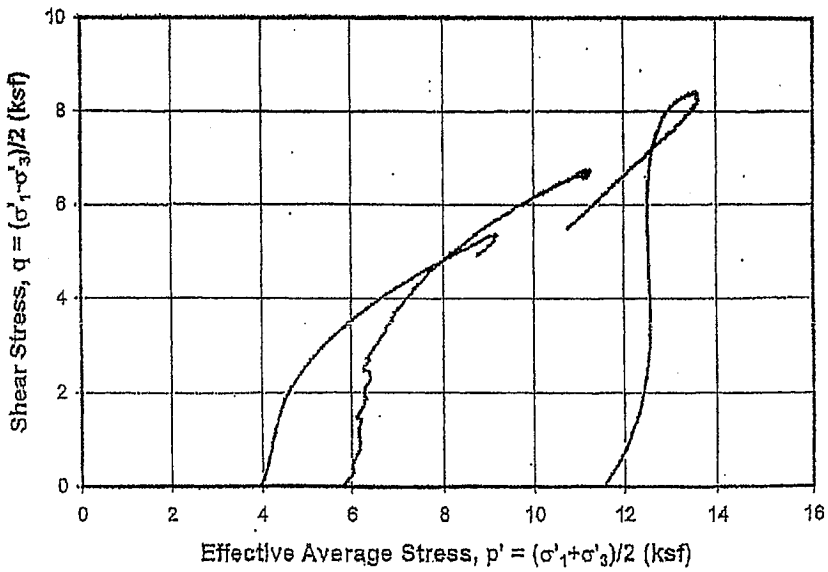




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-11b - Depth: 114.75 ft
Boring B-773A

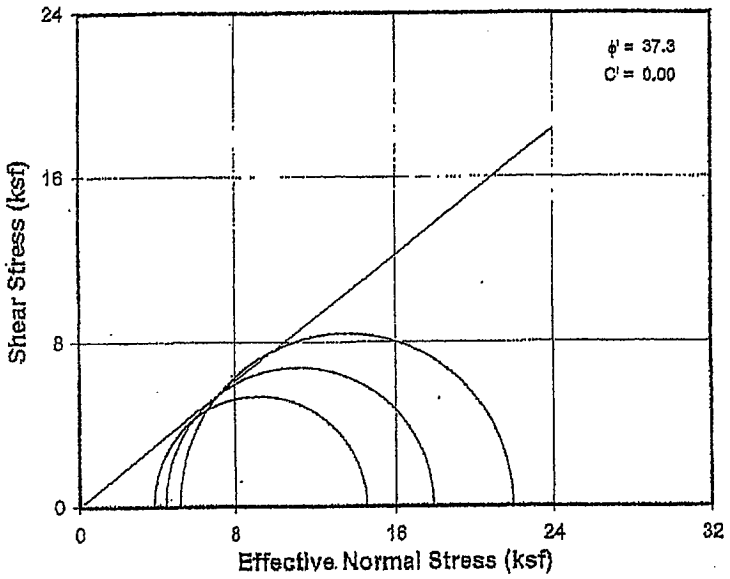
Reviewed By: MMM

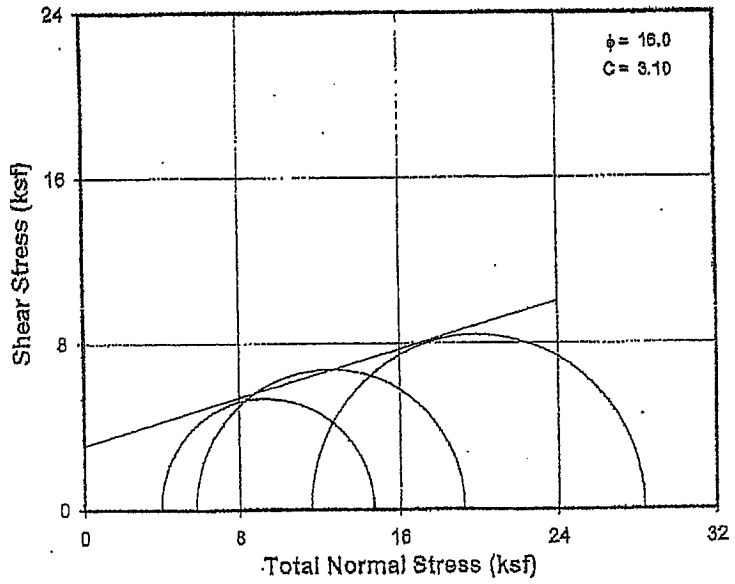




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-11b - Depth: 114.75 ft
Boring B-773A

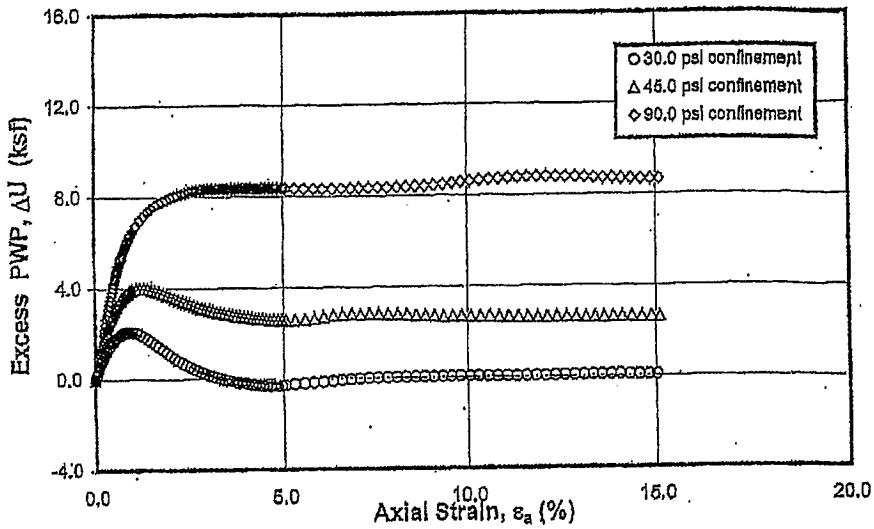
Reviewed By: [illegible]

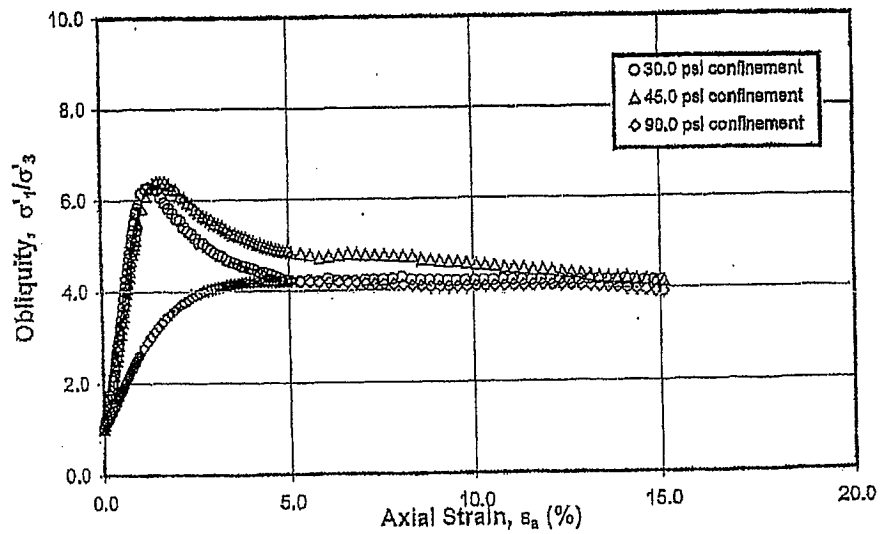




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-11b - Depth: 114.75 ft
Boring B-773A

Reviewed By:

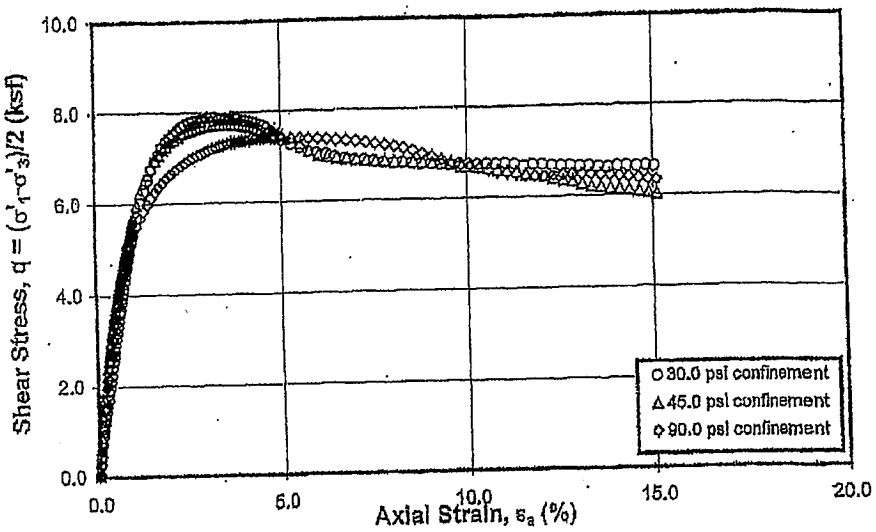


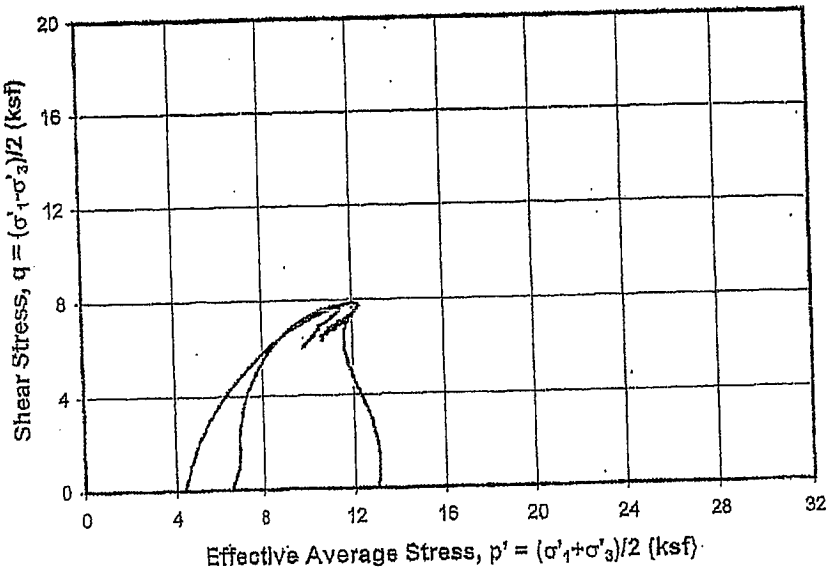


MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-12 - Depth: 124.70 ft
Boring B-773A

Reviewed By: YLYM

Report No. 0411-08-1707

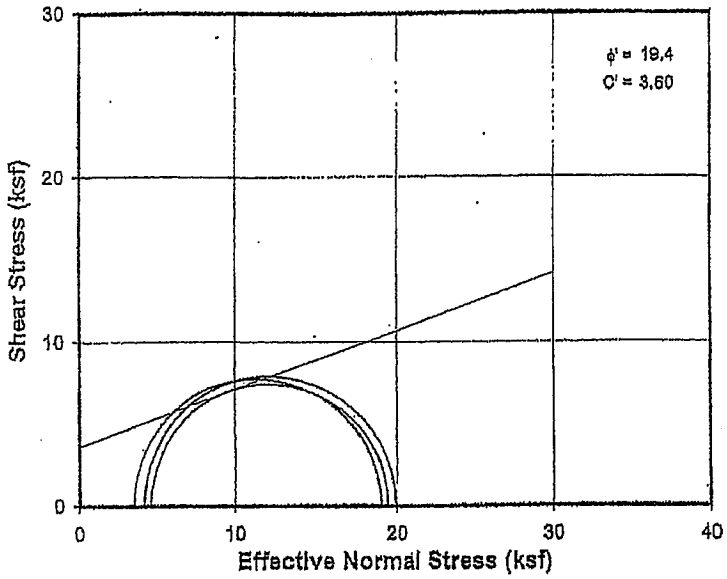


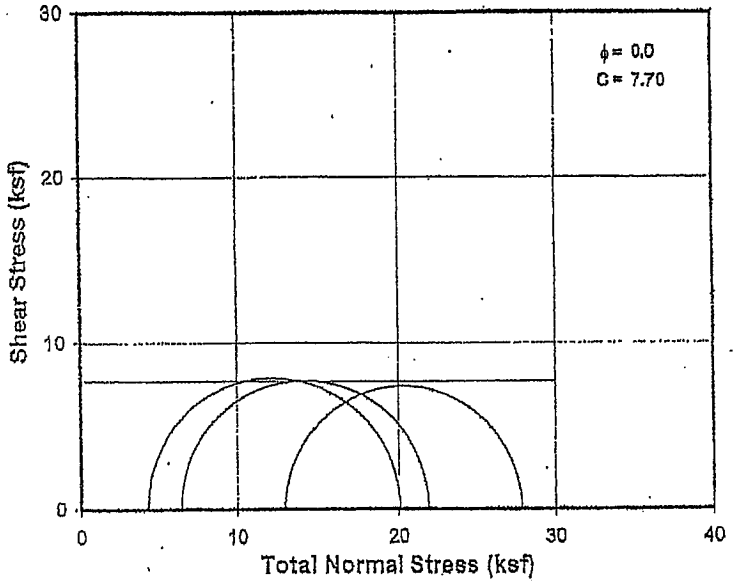


MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-12 - Depth: 124.70 ft
Boring B-773A

Reviewed By:

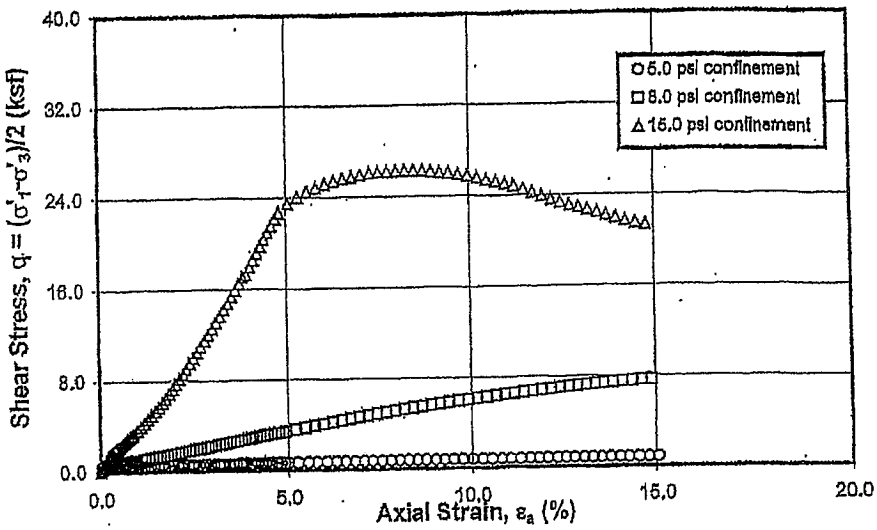
Report No. 0411-08-1707

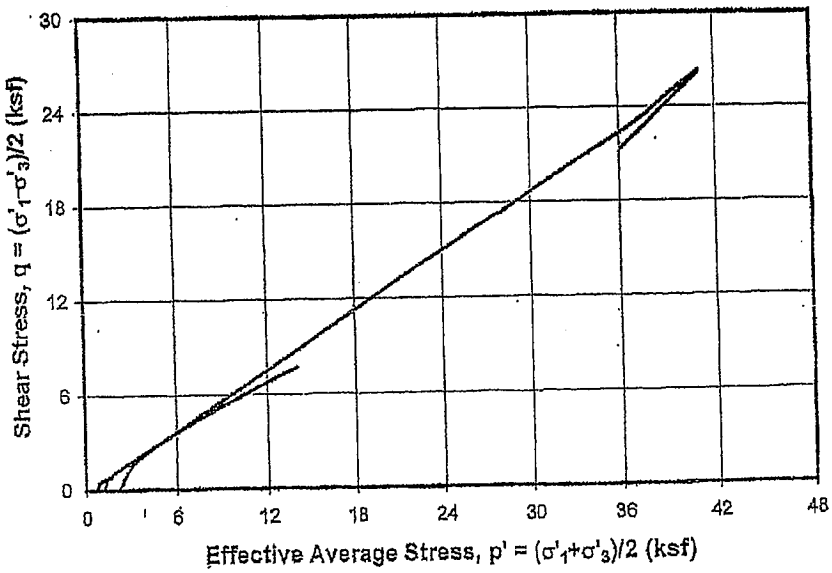




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-12 - Depth: 124.70 ft
Boring B-773A

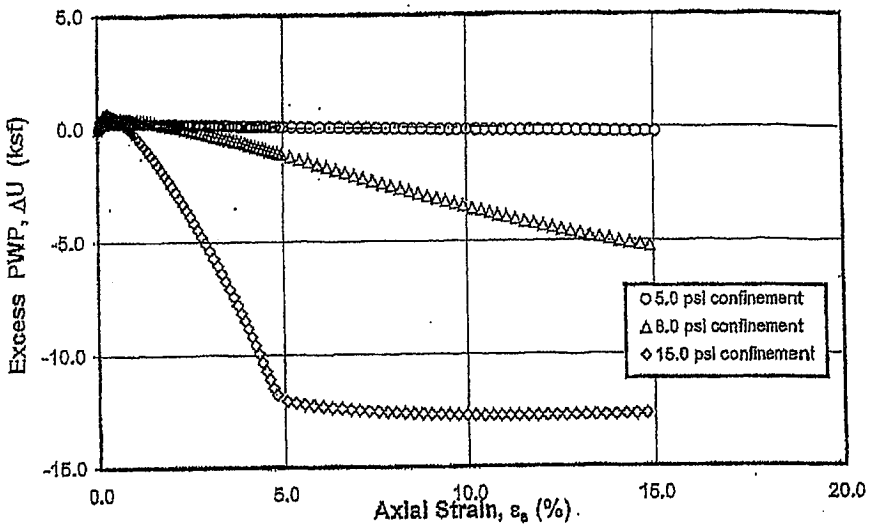
Reviewed By:

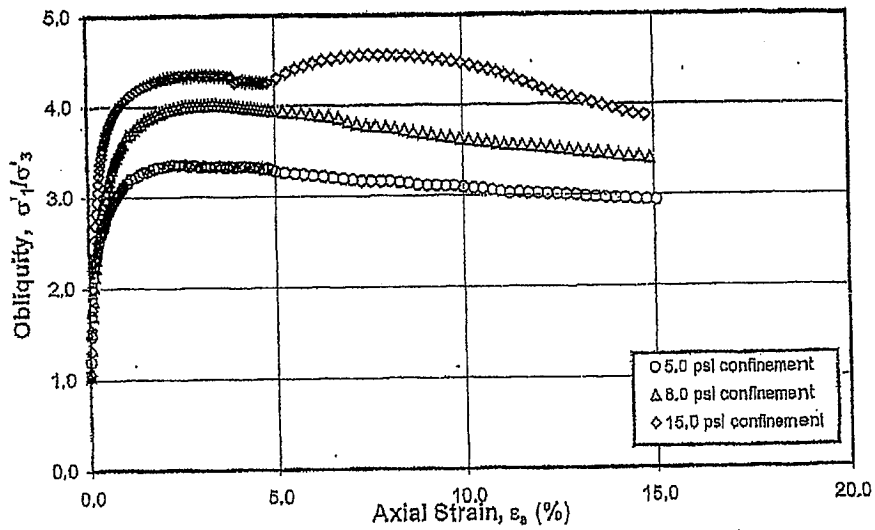




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-1a - Depth: 13.20 ft
Boring B-774

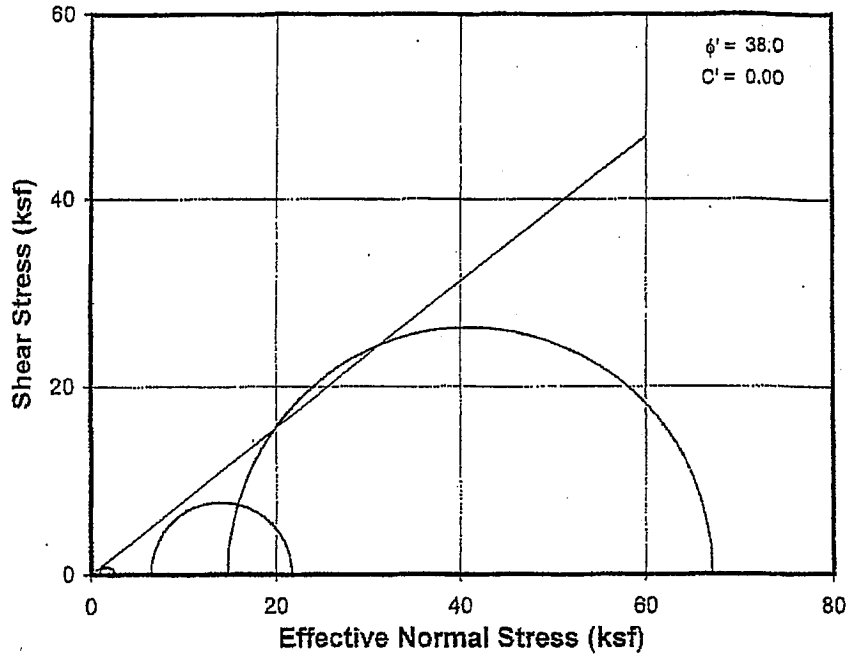
Reviewed By: [illegible]

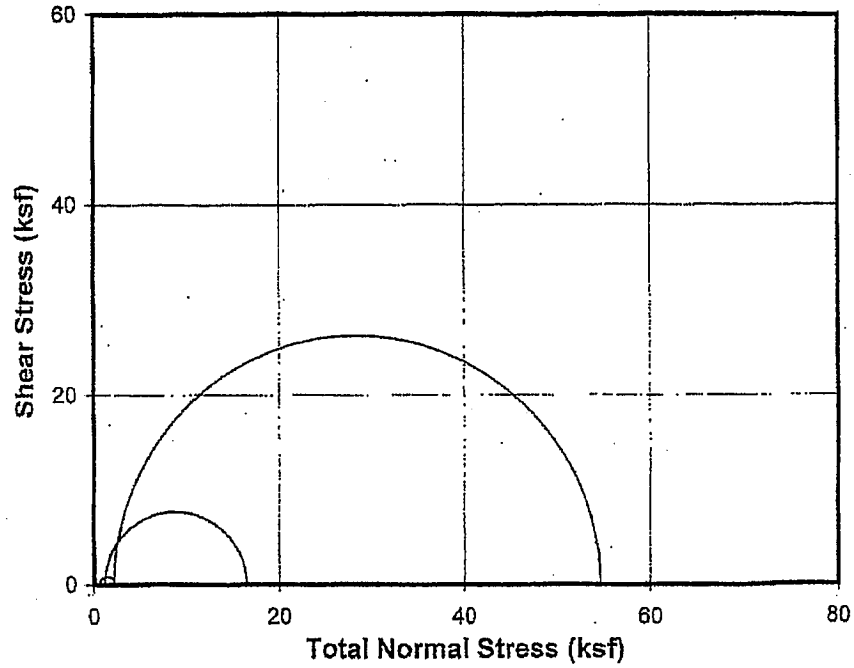




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-1a - Depth: 13.20 ft
Boring B-774

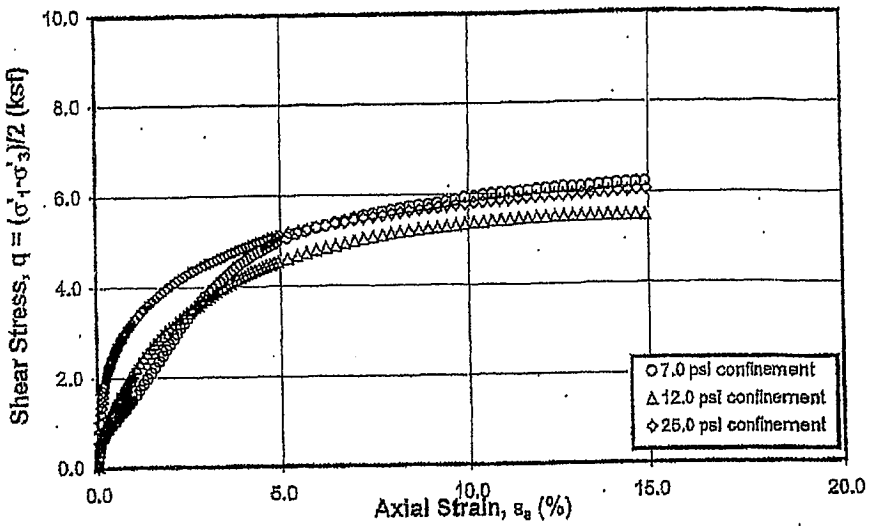
Reviewed By: [illegible]

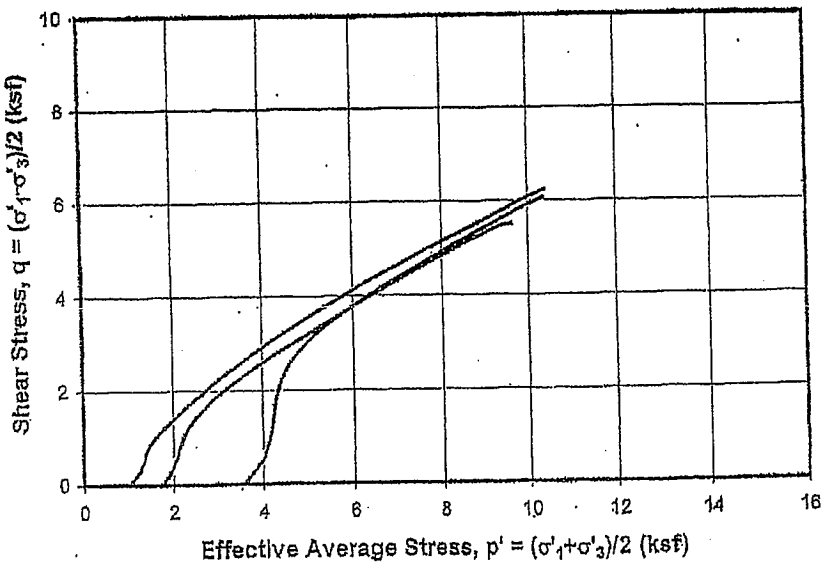




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-1a - Depth: 13.20 ft
Boring B-774

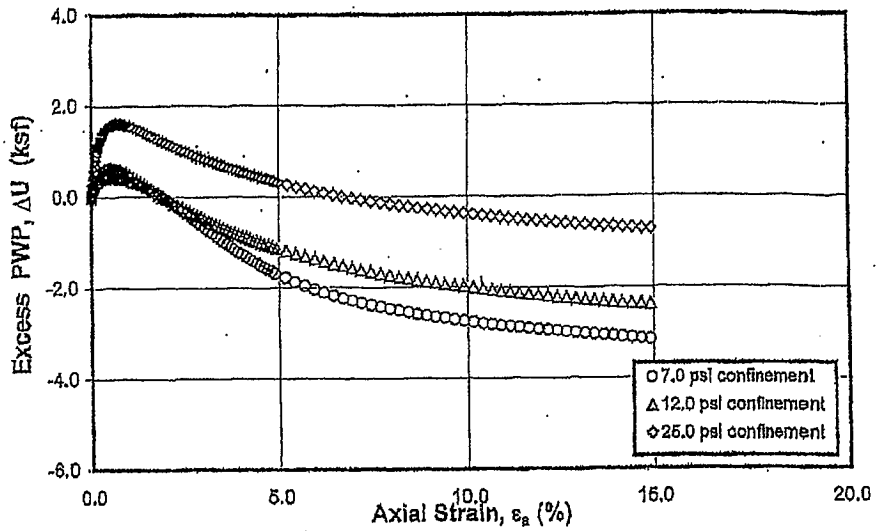
Reviewed By:

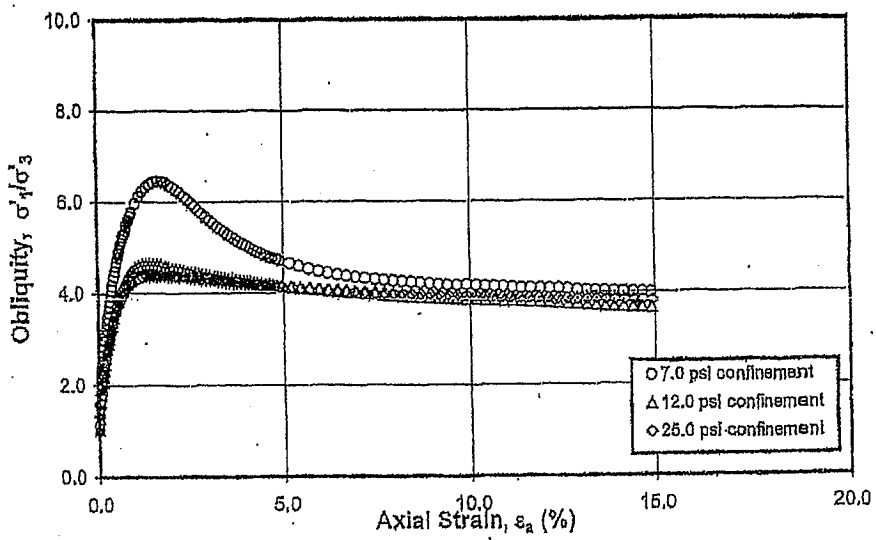




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-3a - Depth: 23.20 ft
Boring B-774

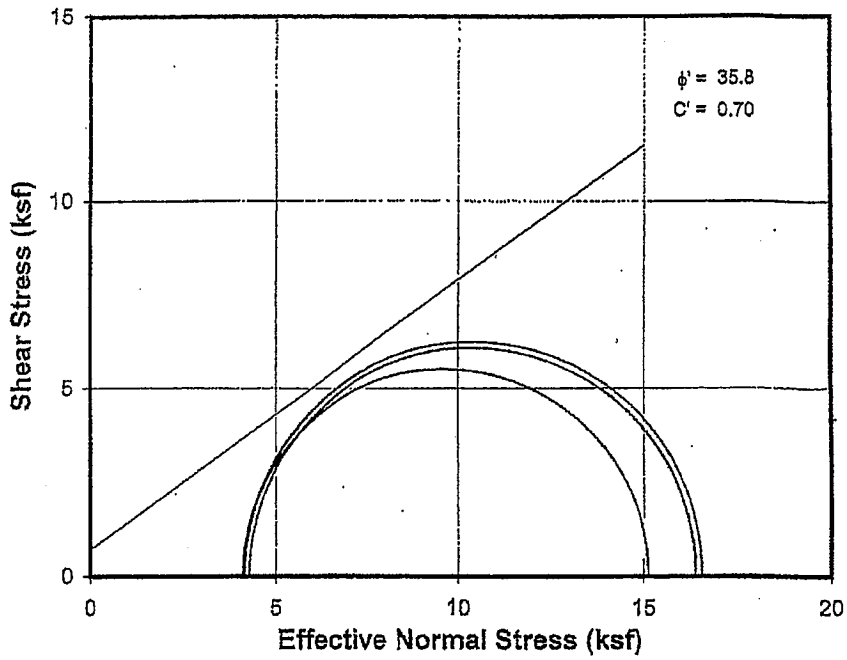
Reviewed By: MKD

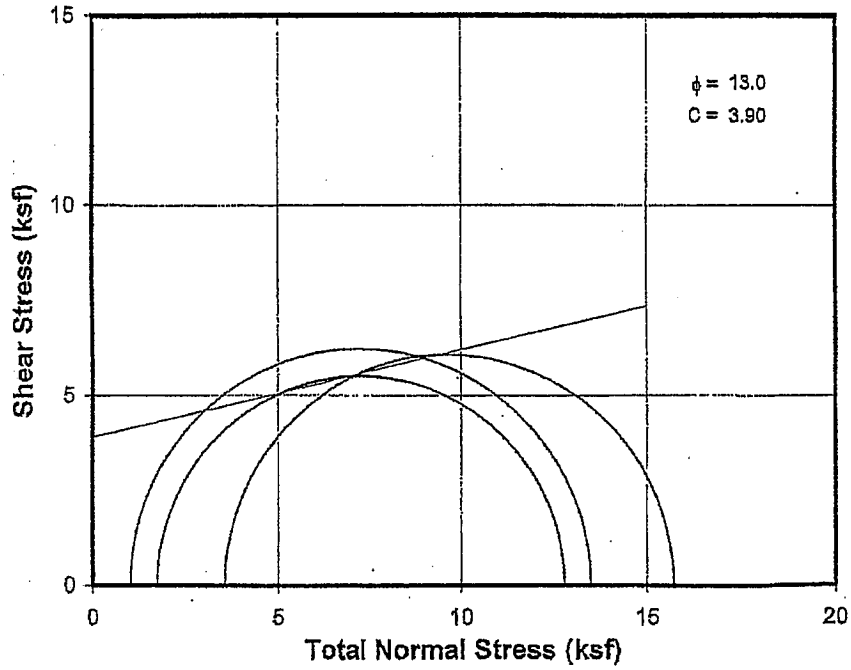




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-3a - Depth: 23.20 ft
Boring B-774

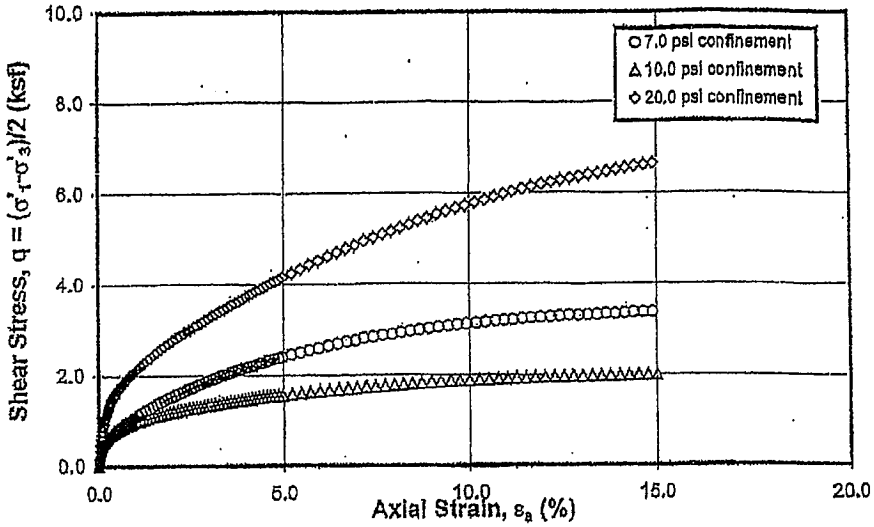
Reviewed By: 10/7/10

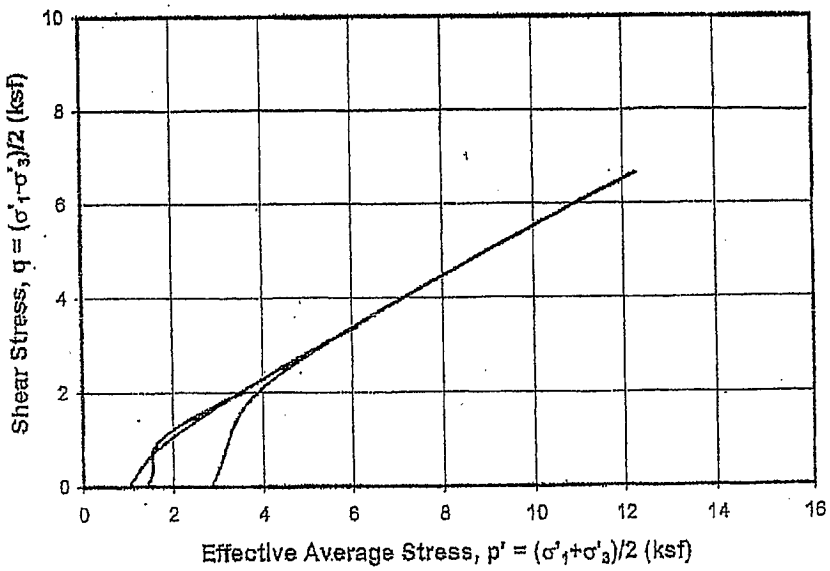




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-3a - Depth: 23.20 ft
Boring B-774

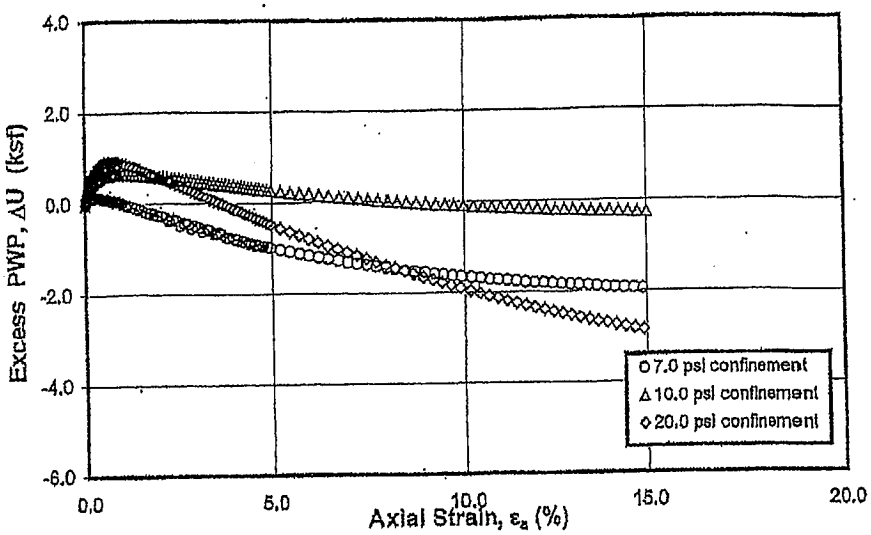
Reviewed By:

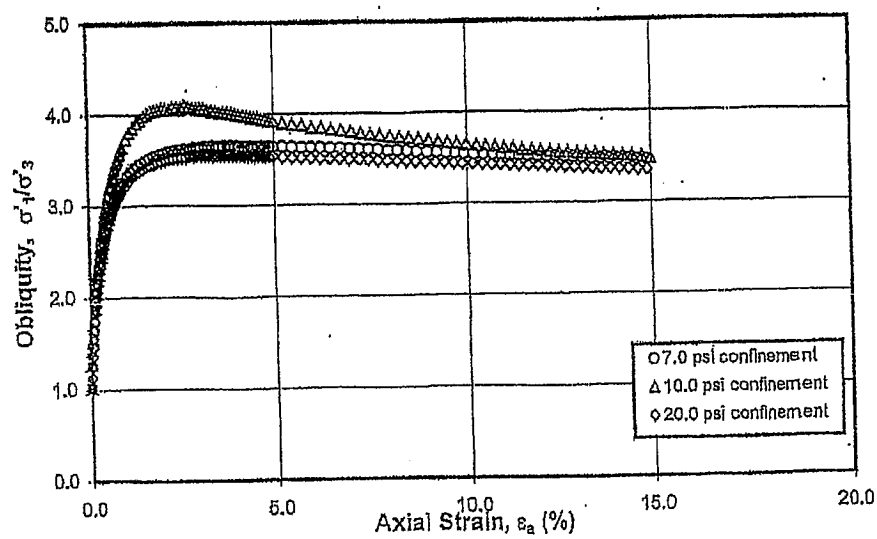




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-2 - Depth: 13.50 ft
Boring B-779

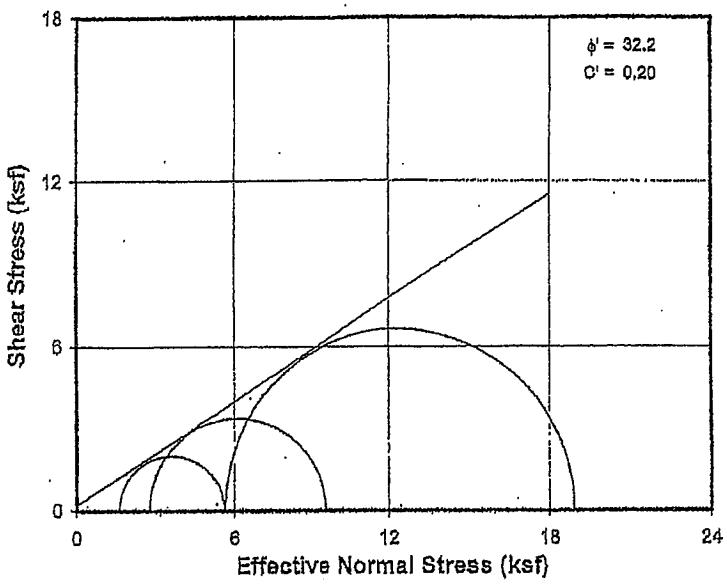
Reviewed By: WHD

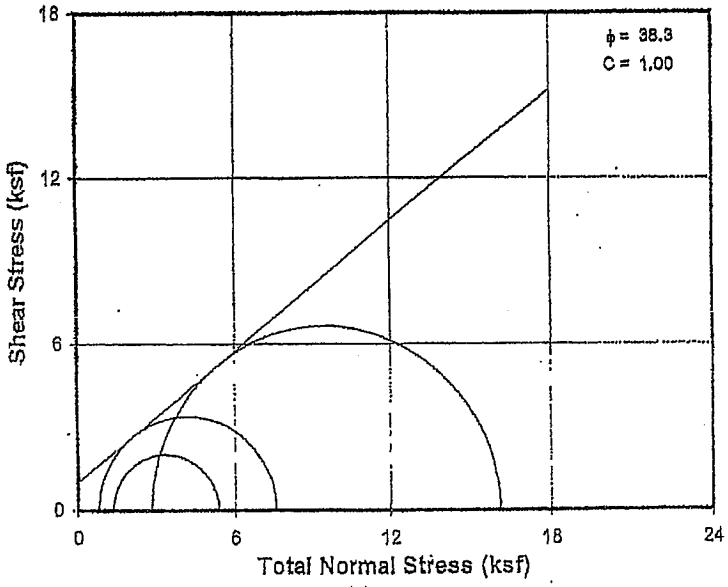




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-2 - Depth: 13.50 ft
Boring B-779

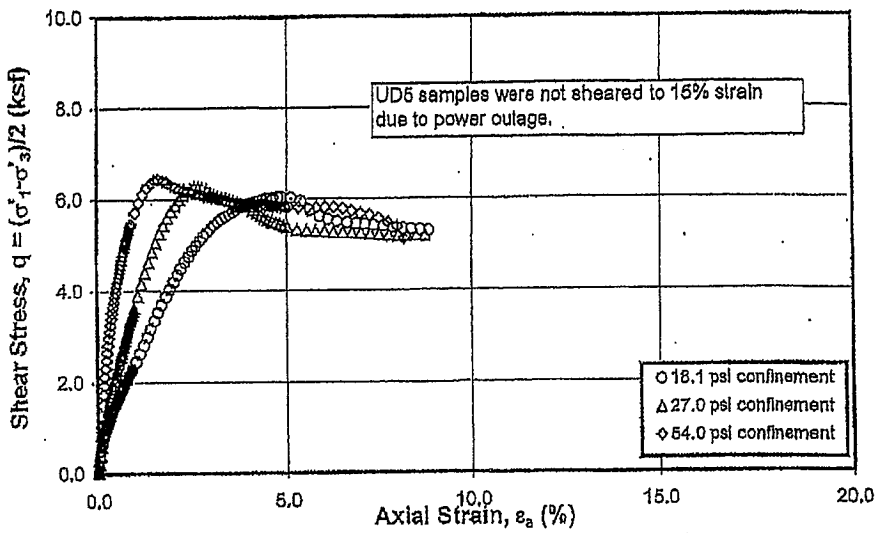
Reviewed By: WAD

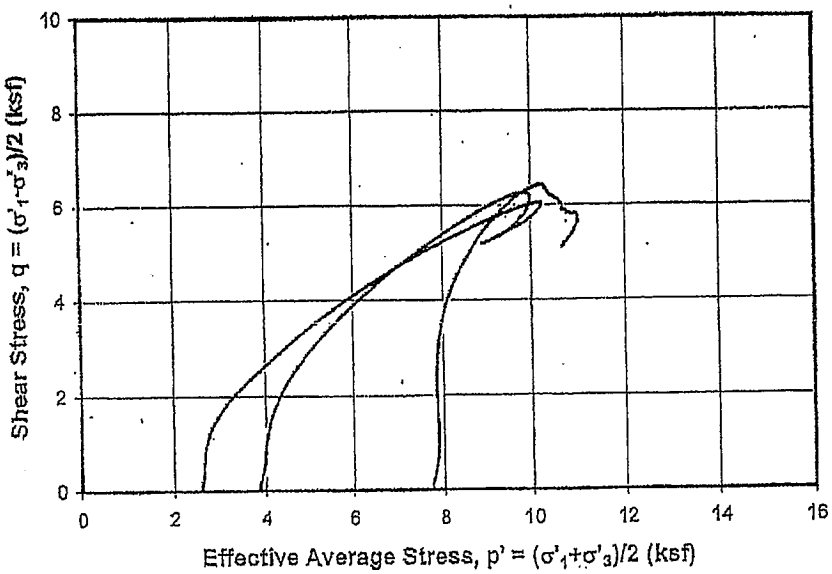




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-2 - Depth: 13.50 ft
Boring B-779

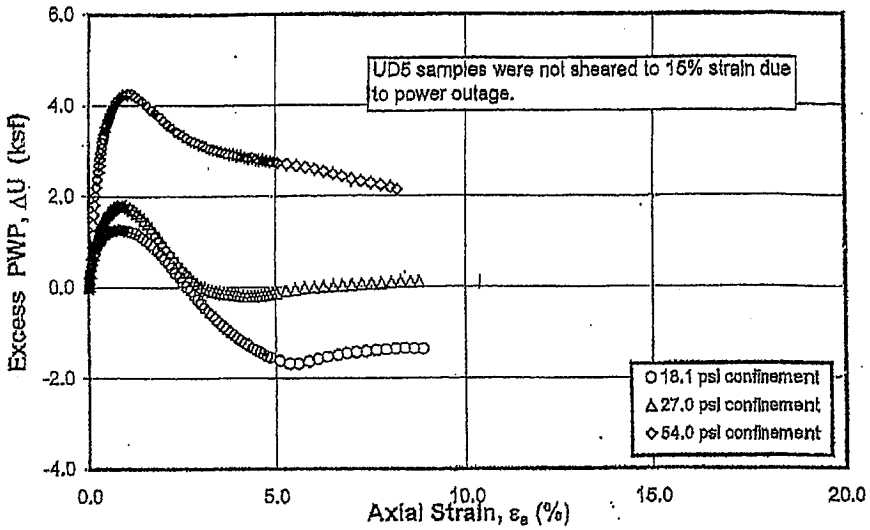
Reviewed By:

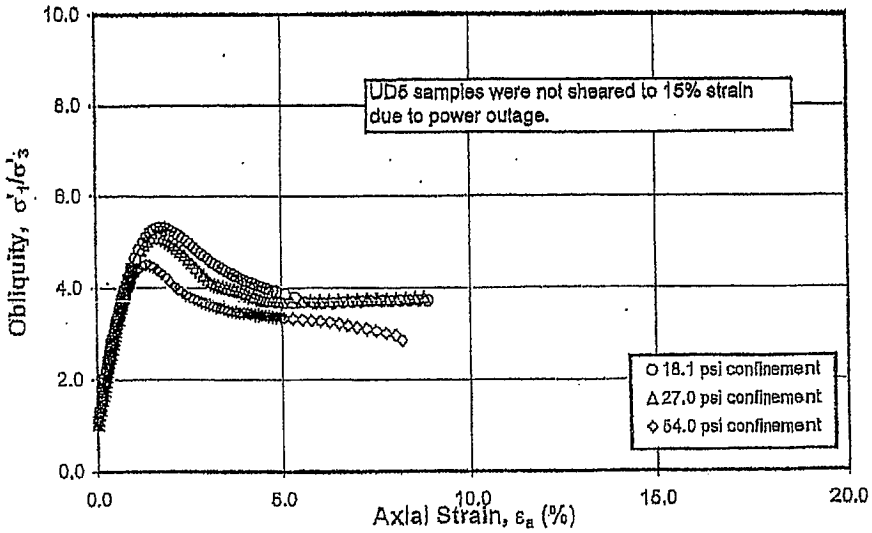




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-5 - Depth: 43.50 ft
Boring B-779

Reviewed By:

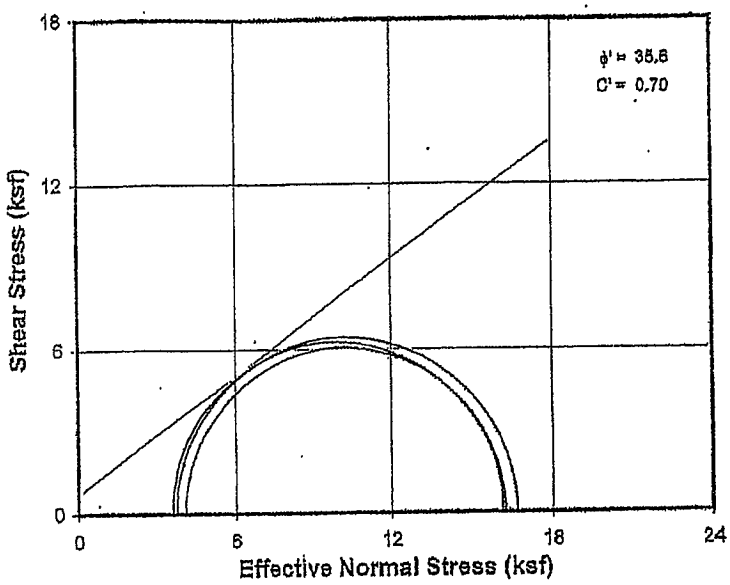


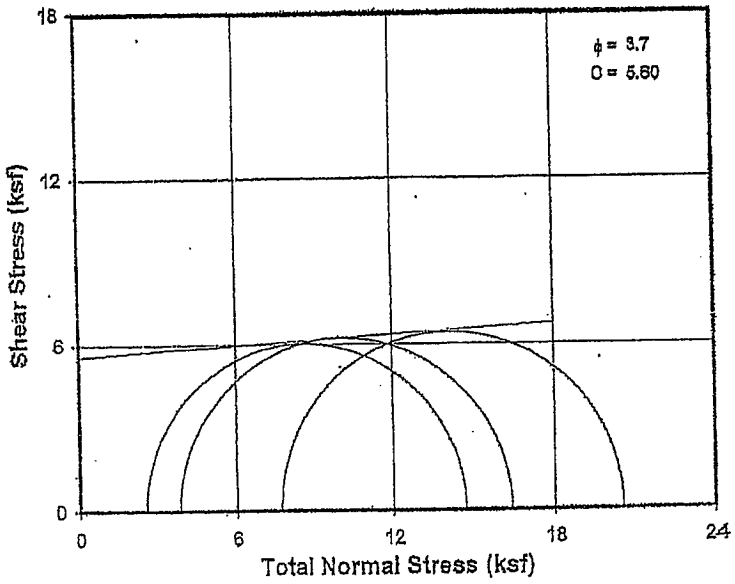


MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-5 - Depth: 43.50 ft
Boring B-779

Reviewed By:

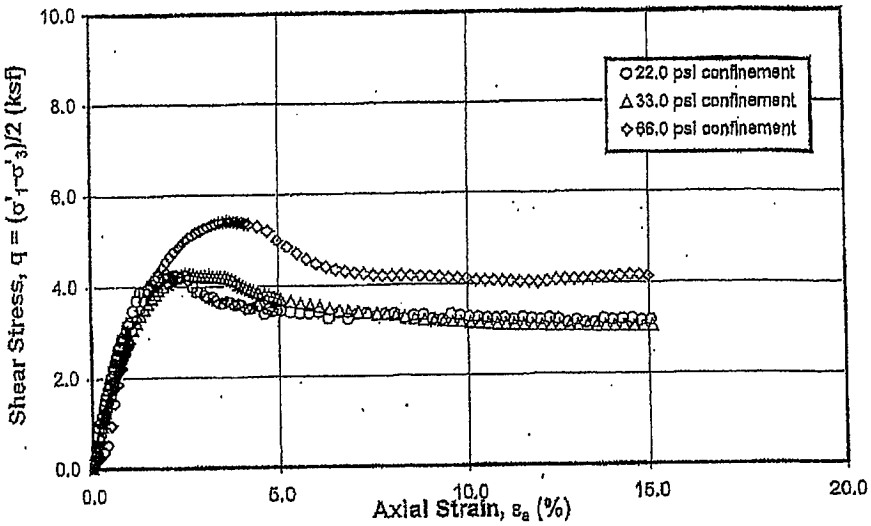
Report No. 0411-08-1707

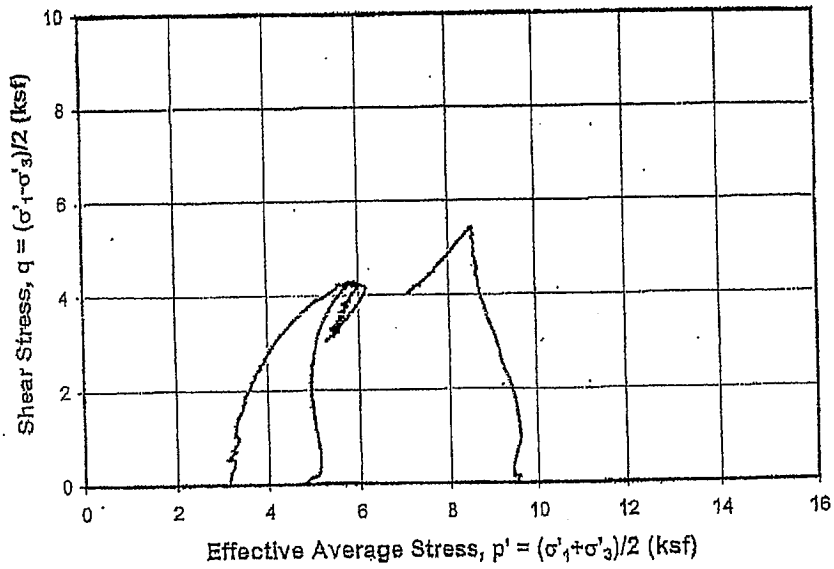




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-5 - Depth: 43.50 ft
Boring B-779

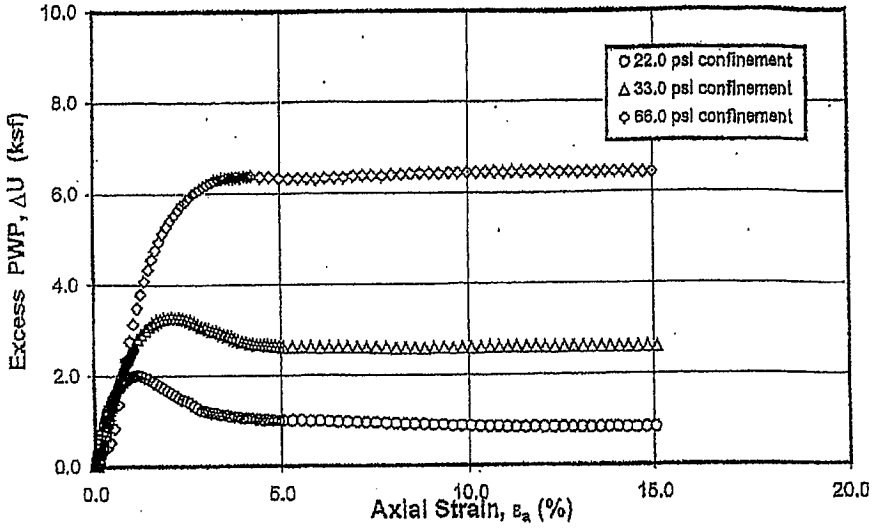
Reviewed By:

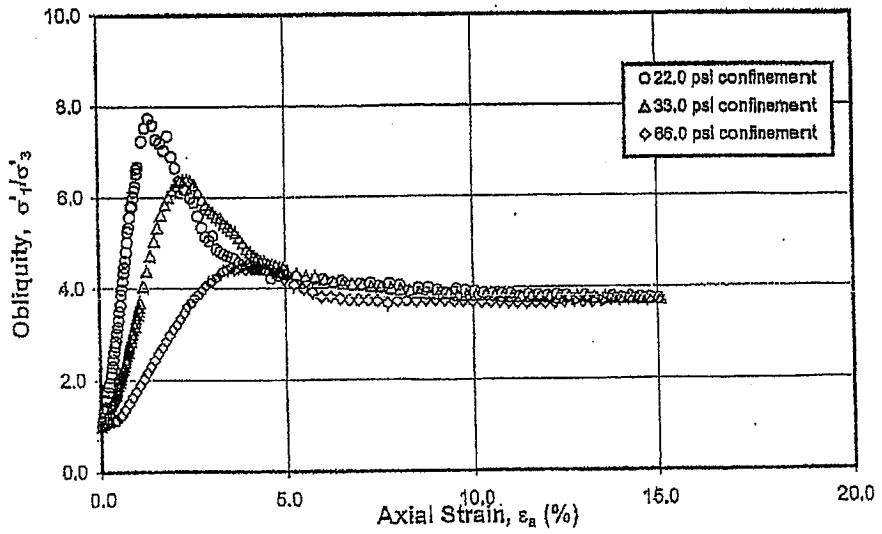




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-8 - Depth: 61.38 ft
Boring B-779

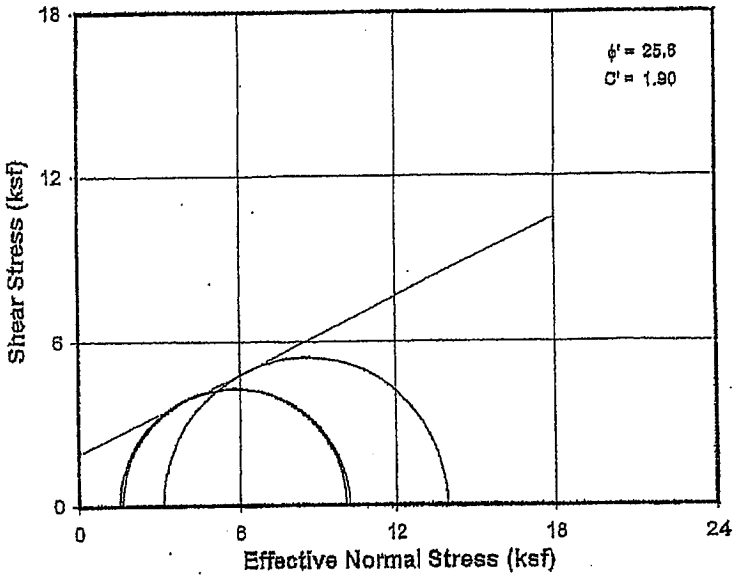
Reviewed By: [illegible]

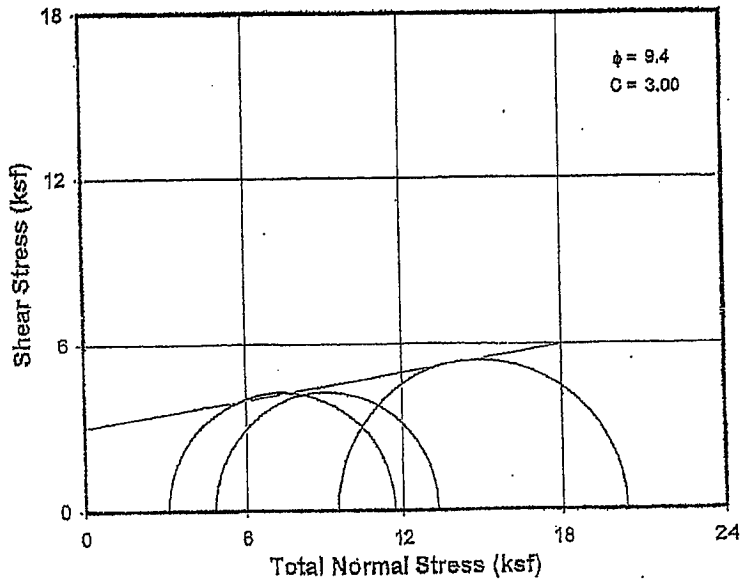




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD-8 - Depth: 61.38 ft
Boring B-779

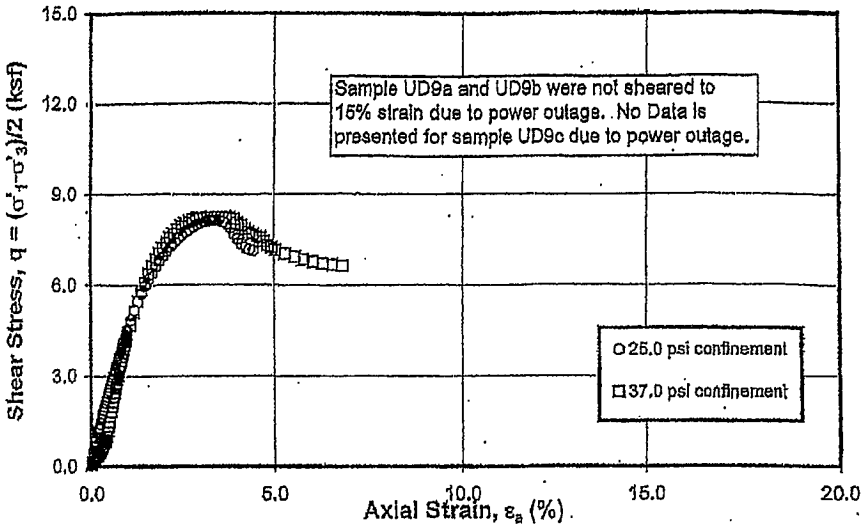
Reviewed By: [illegible]

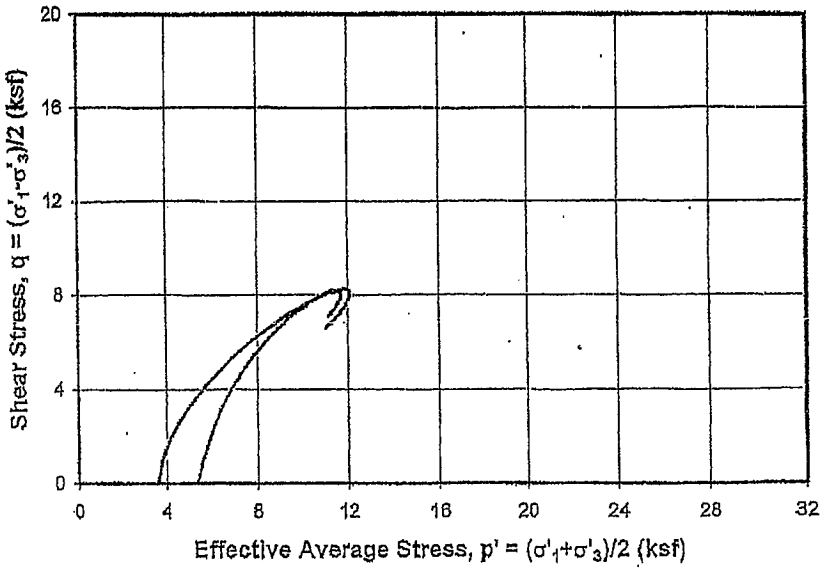




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated- Mohr's Circles
Sample: UD-8 - Depth: 61.38 ft
Boring B-779

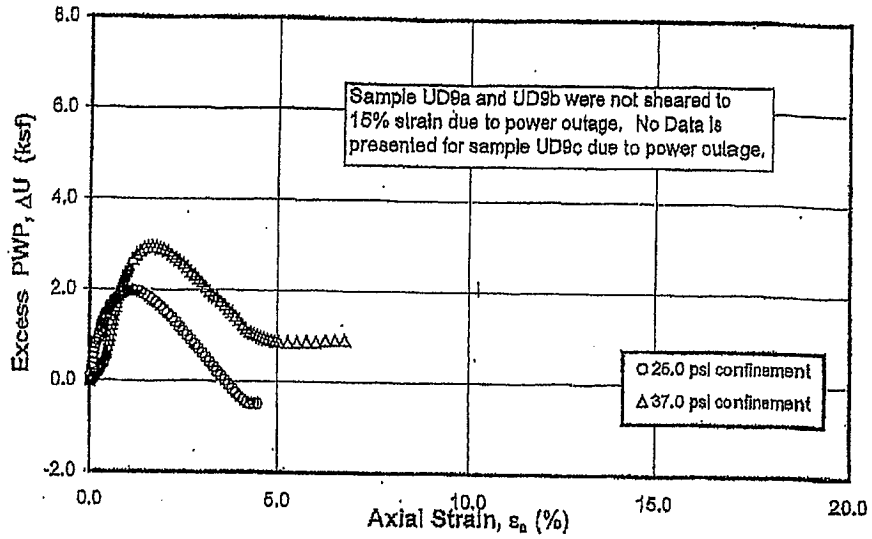
Reviewed By:

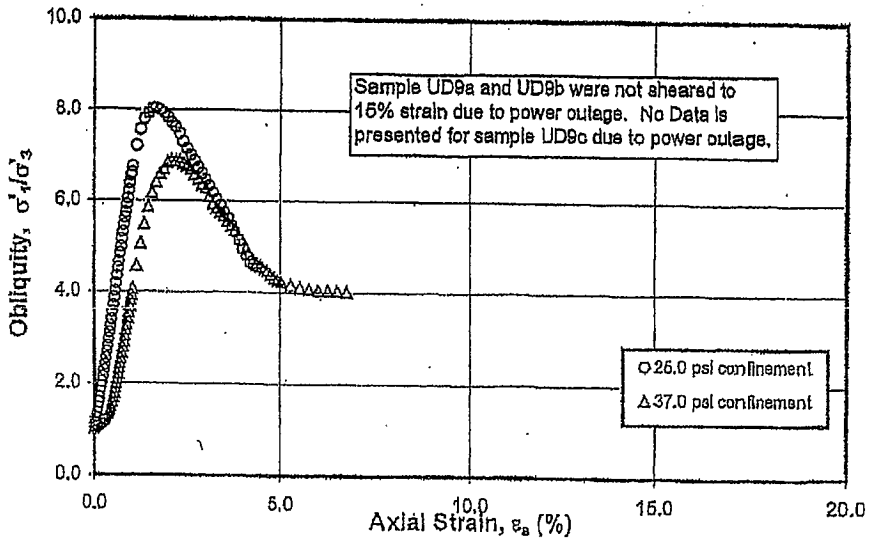




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD9 - Depth: 72.98 ft
Boring B-779

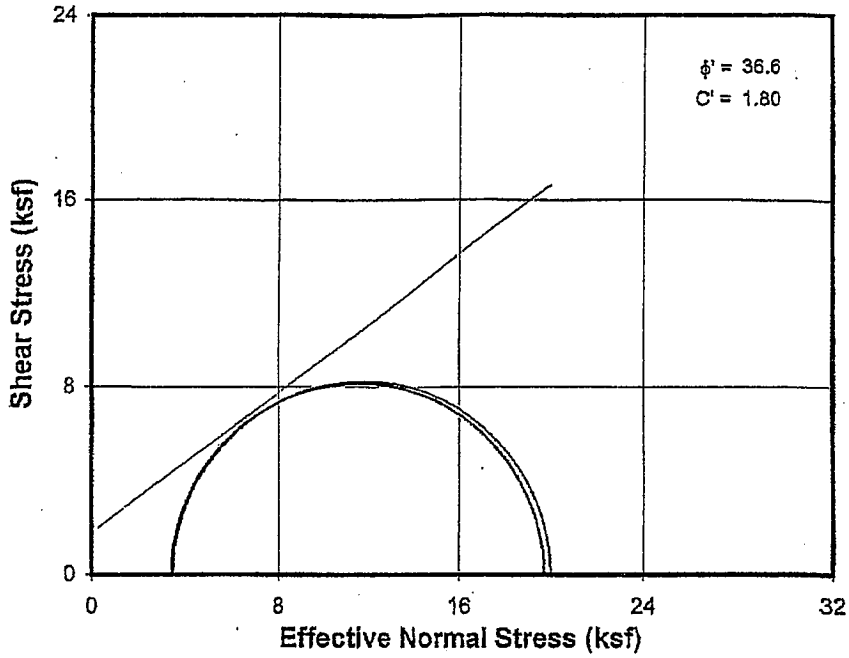
Reviewed By: [illegible]

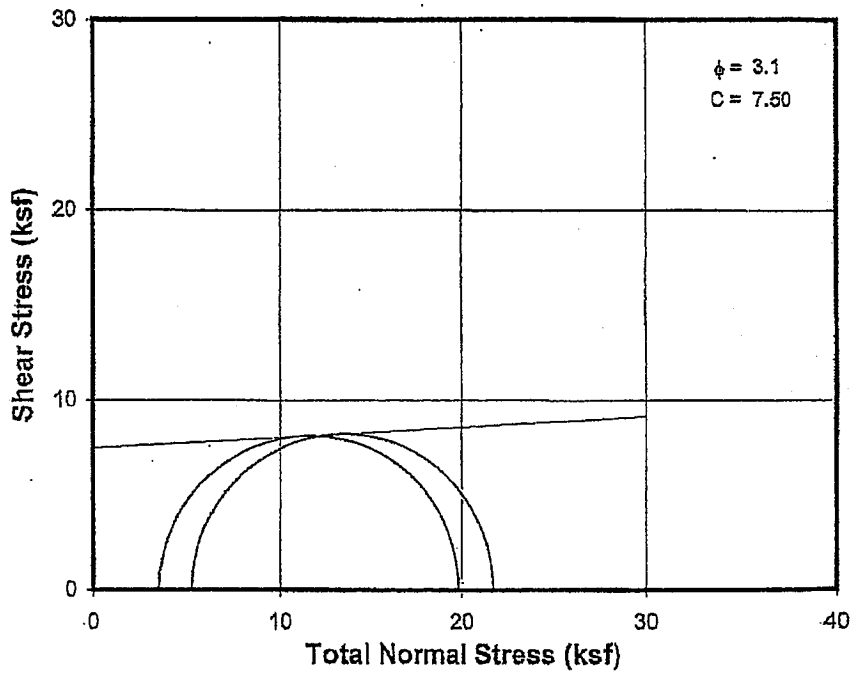




MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST
Isotropically Consolidated
Sample: UD9 - Depth: 72.98 ft
Boring B-779

Reviewed By: [illegible]





MULTI STAGE UNDRAINED TRIAXIAL COMPRESSION TEST

Isotropically Consolidated- Mohr's Circles

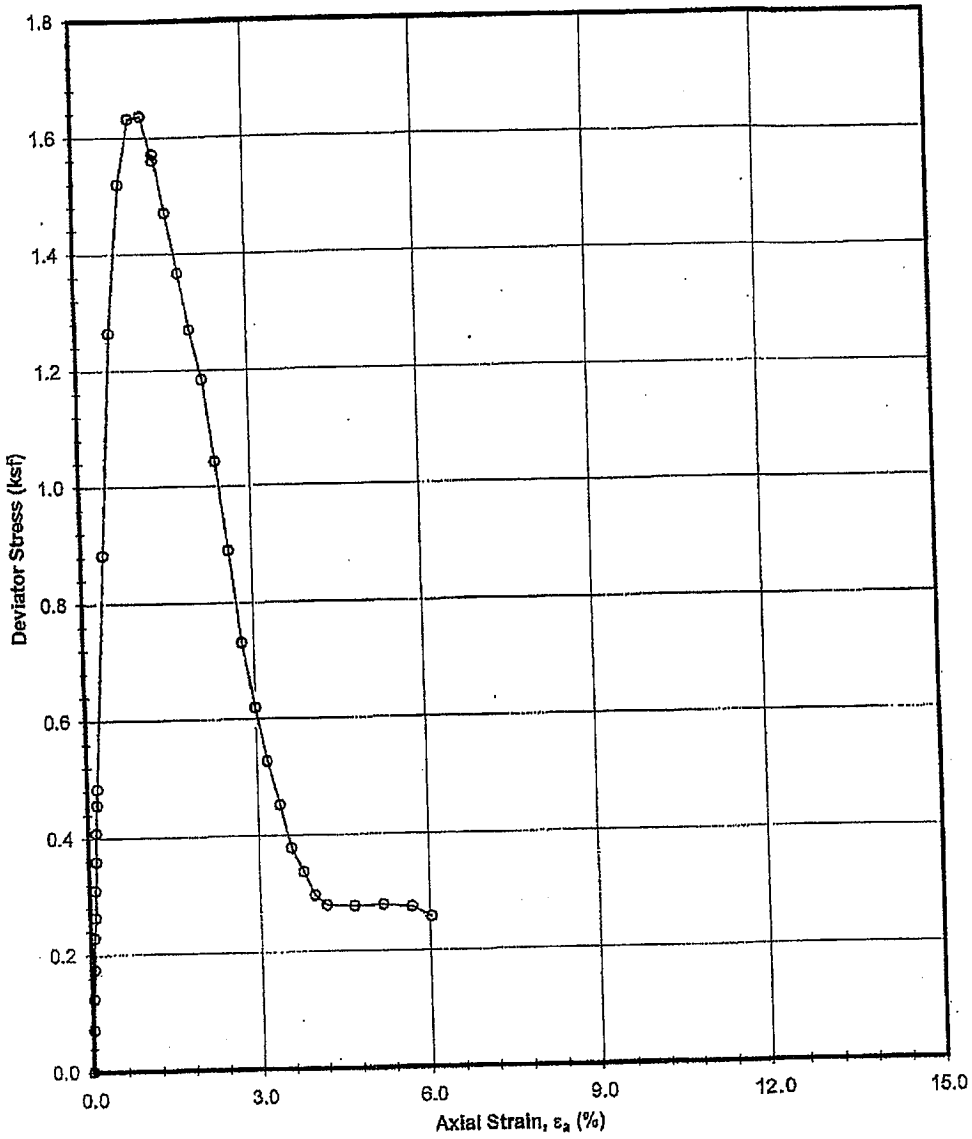
Sample: UD9 - Depth: 72.98 ft

Boring B-779

Reviewed By:

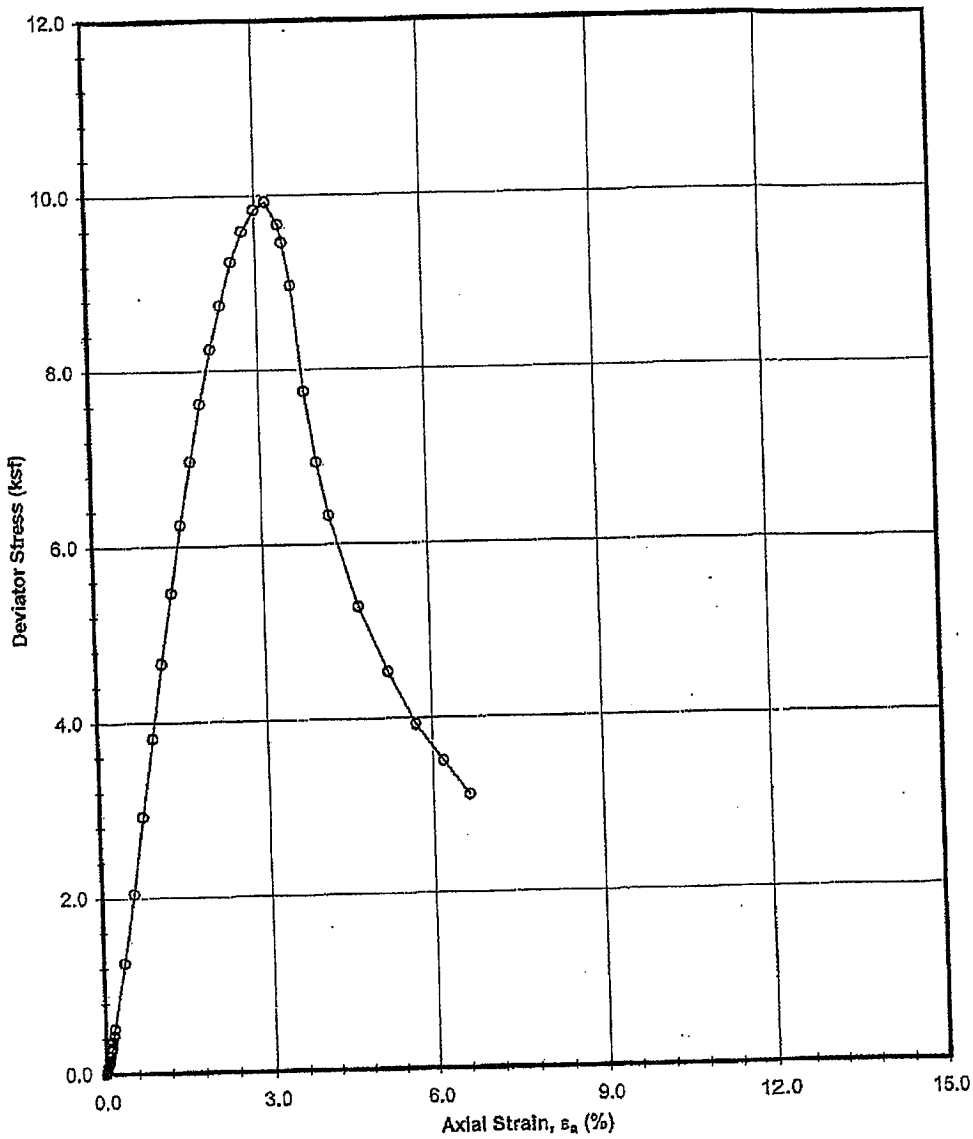
Calvert Cliffs Nuclear Power Plant Unit 3
Bechtel Job No. 25237
Bechtel Purchase Order No. 25237-103-P0A-CY05-00001
MACTEC Project Number 6234-08-4783

Triaxial UU (Unconsolidated-Undrained Triaxial Compression ASTM D2850)



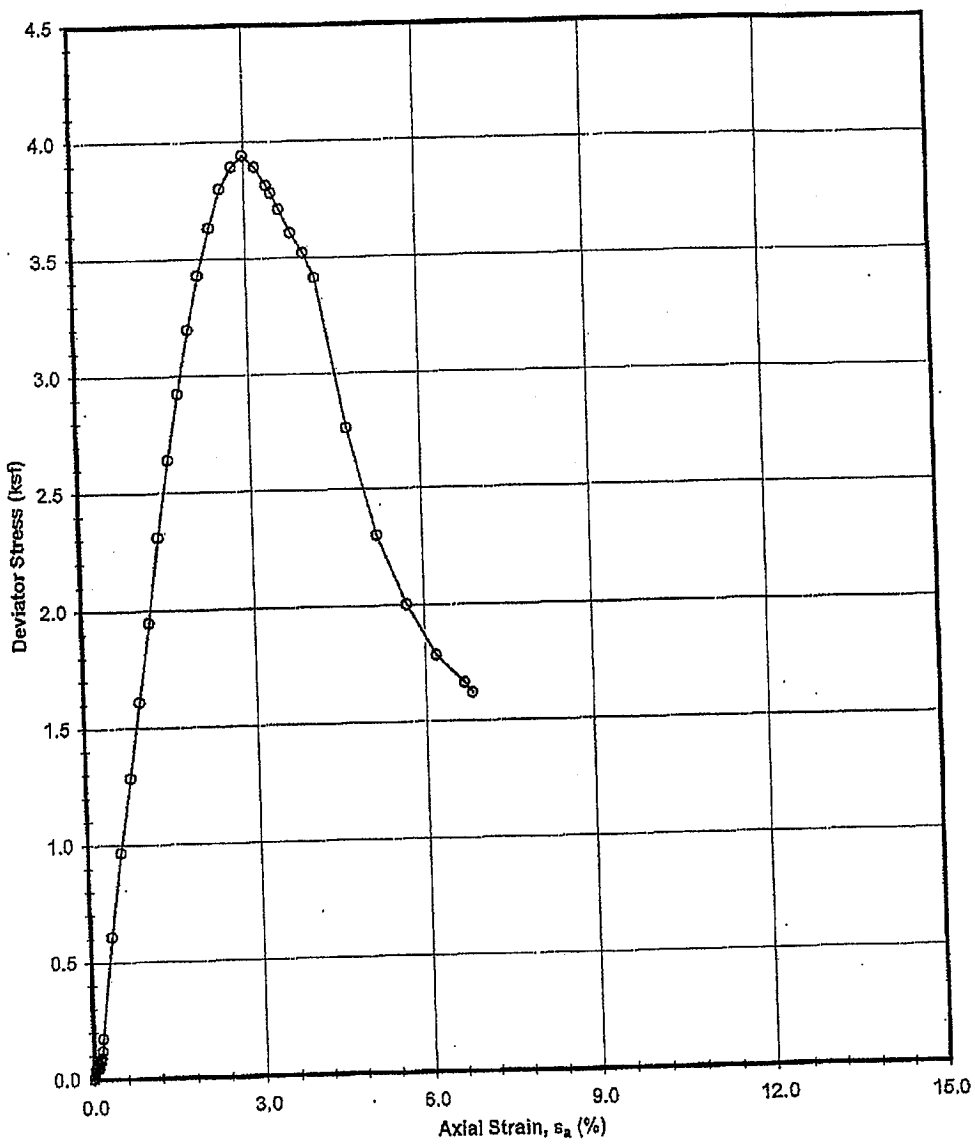
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-2b, Depth 61.05 ft, Confining Pressure = 21 psi



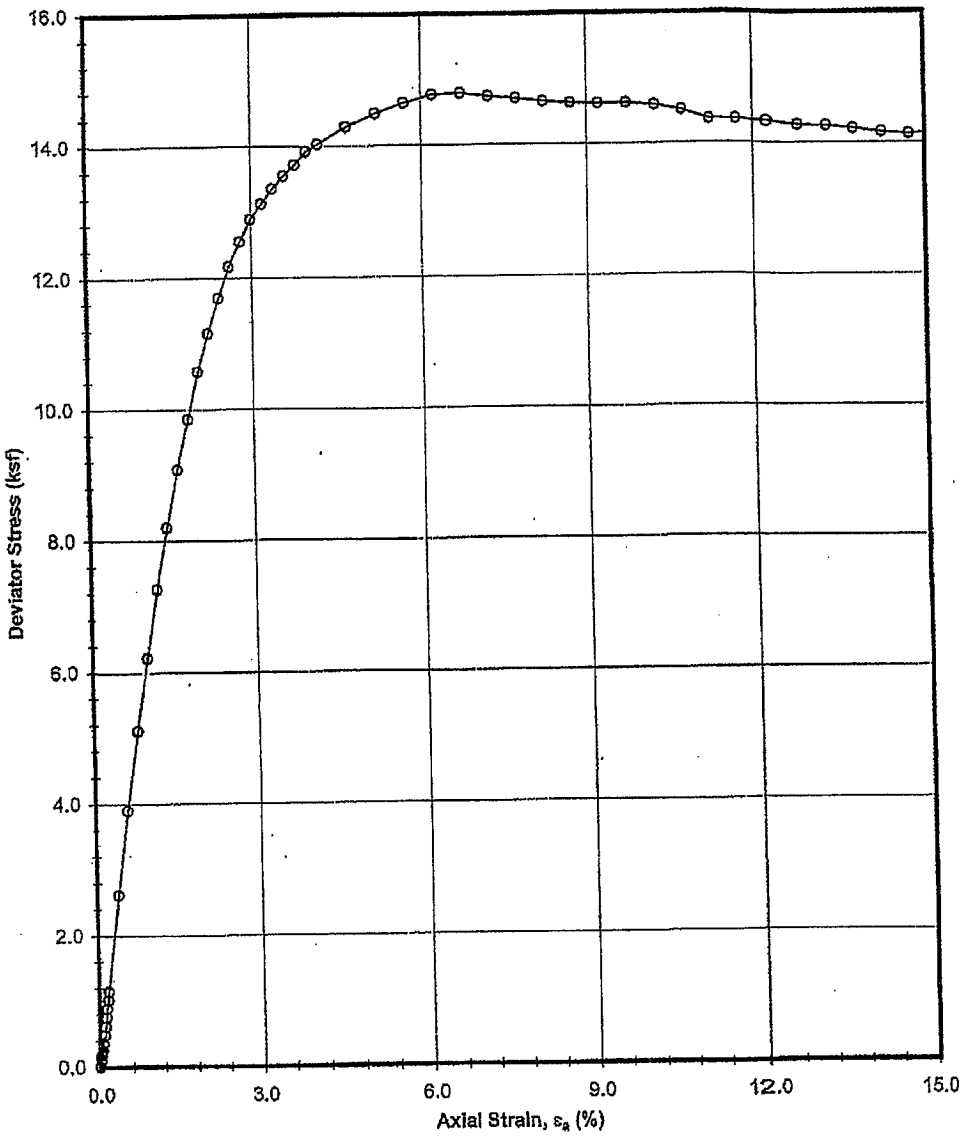
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-4b, Depth 199.30 ft, Confining Pressure = 54 psi



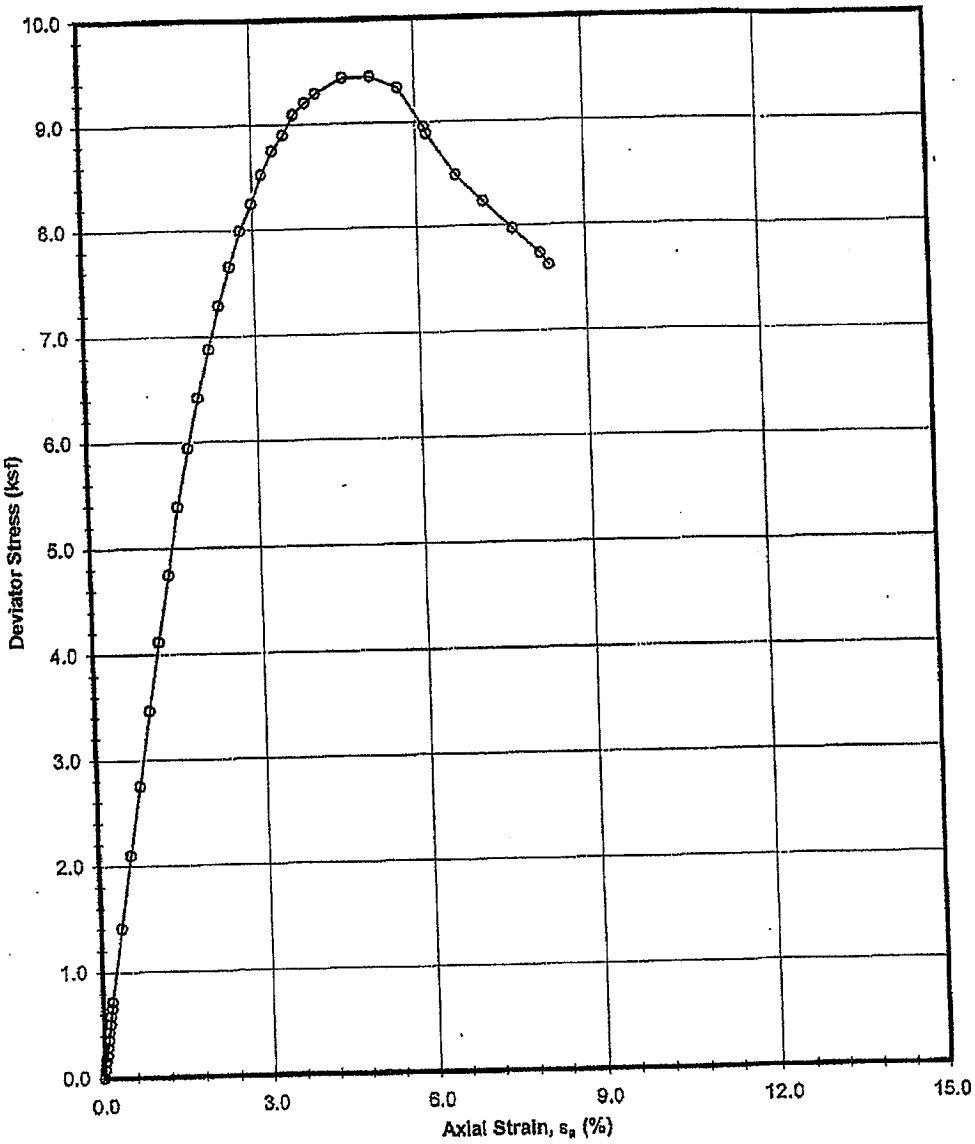
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-5b, Depth 219.25 ft, Confining Pressure = 58 psi



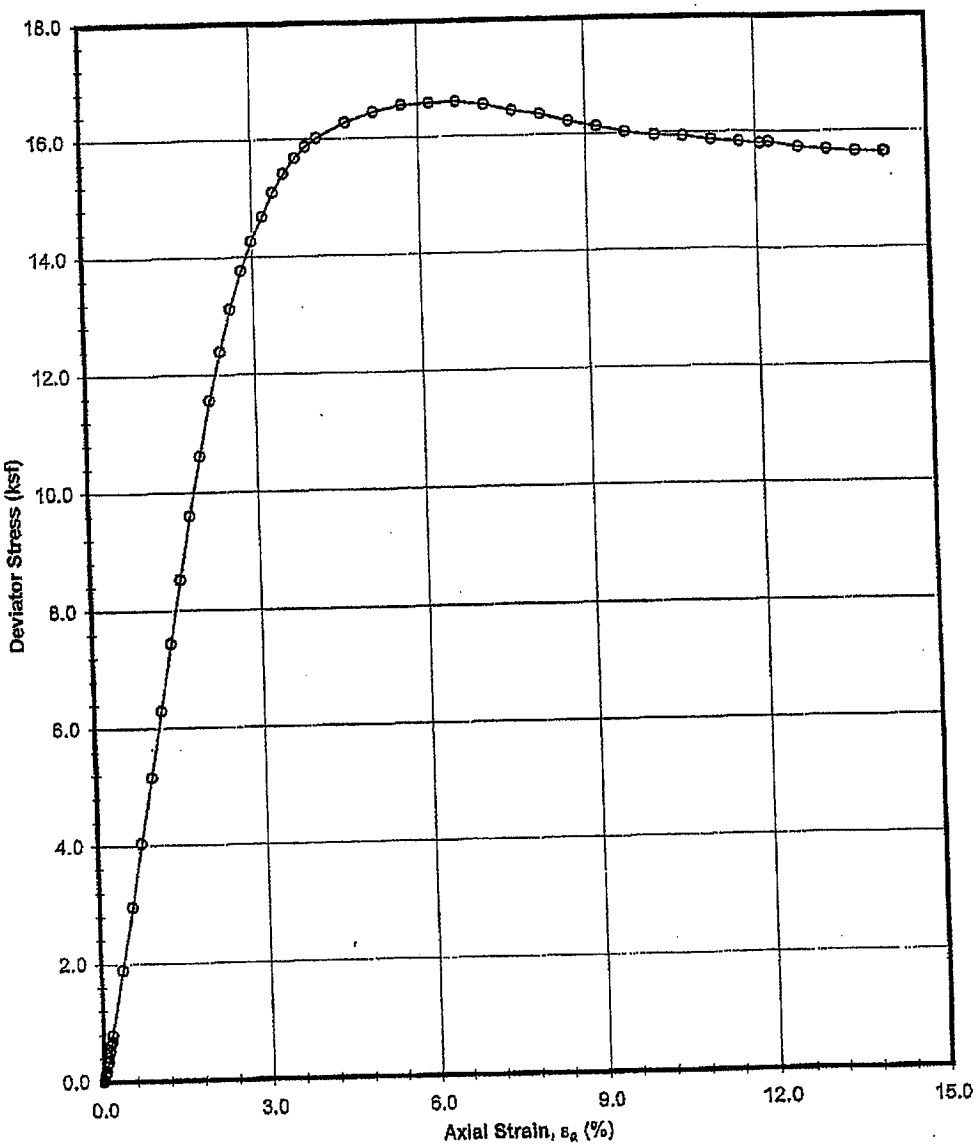
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD_6b, Depth 239.25 ft, Confining Pressure = 63 psi



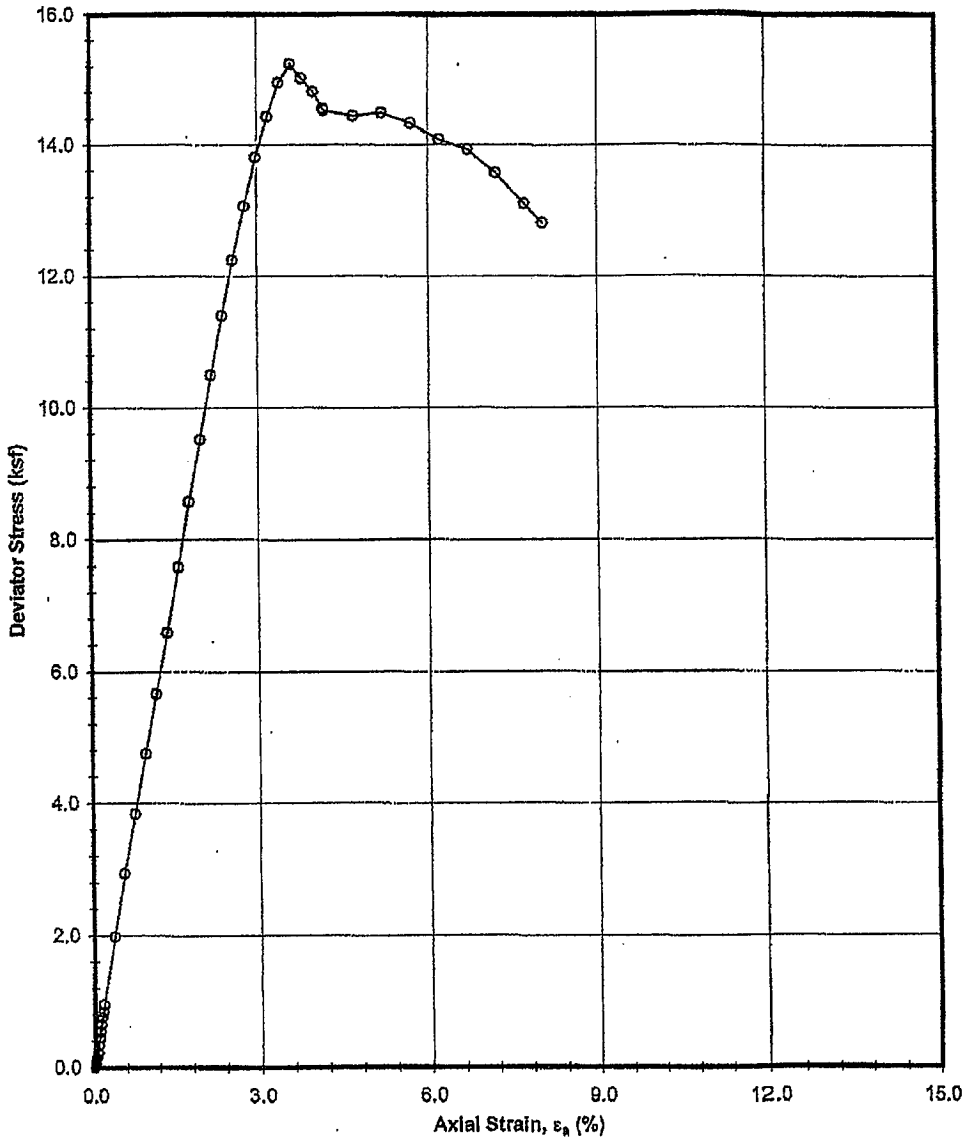
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-7b, Depth 259.25 ft, Confining Pressure = 67 psi



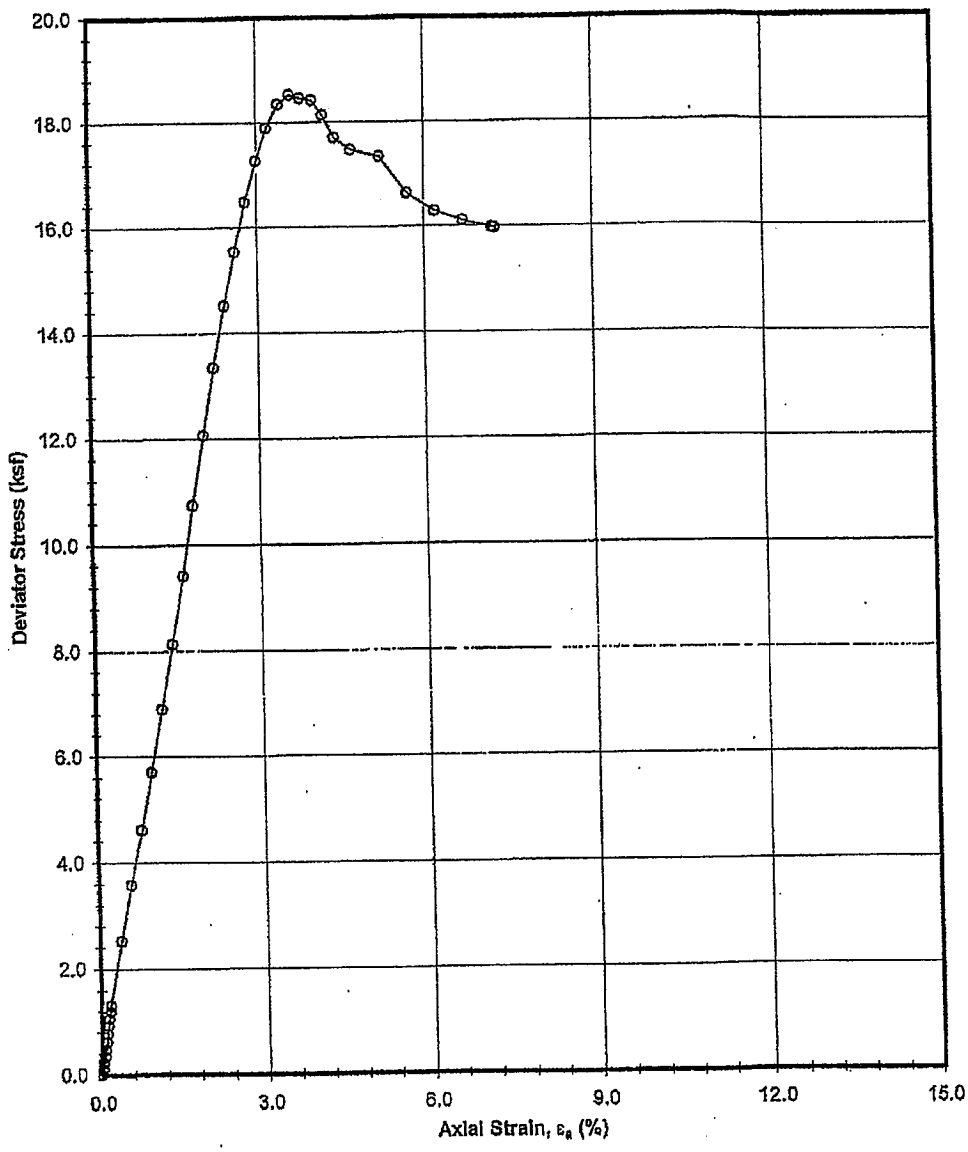
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-8b, Depth 269.25 ft, Confining Pressure = 70 psi



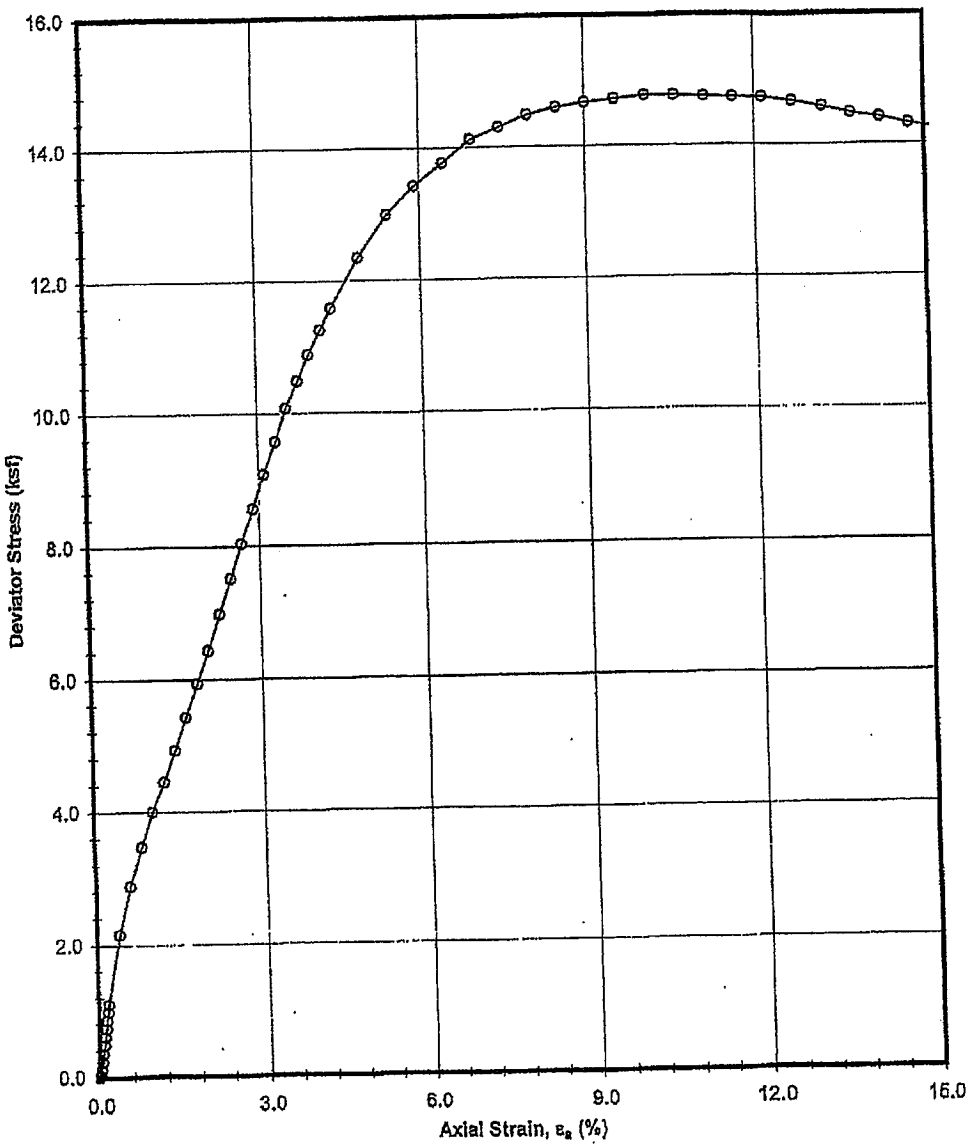
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-9b, Depth 279.30 ft, Confining Pressure = 72 psi



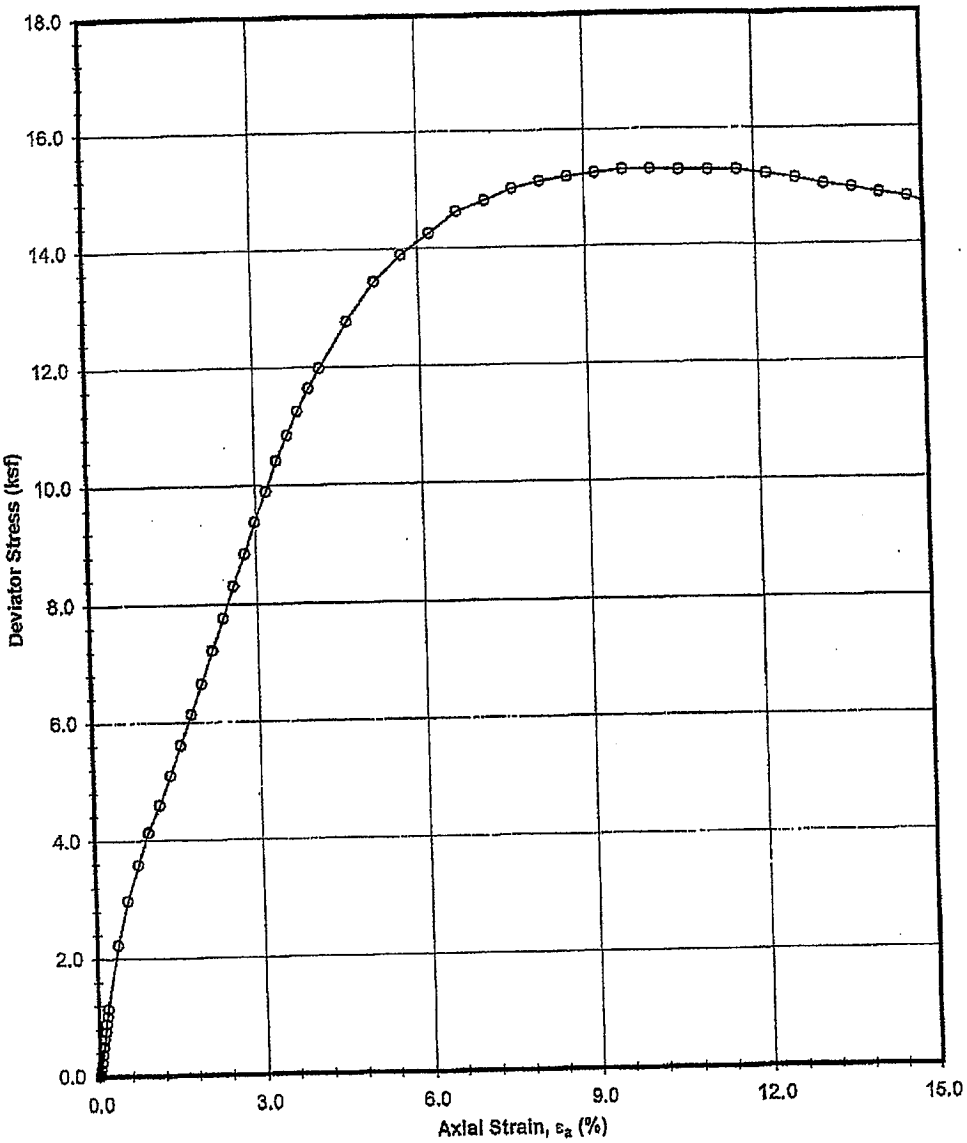
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-10b, Depth 289.75 ft, Confining Pressure = 74 psi



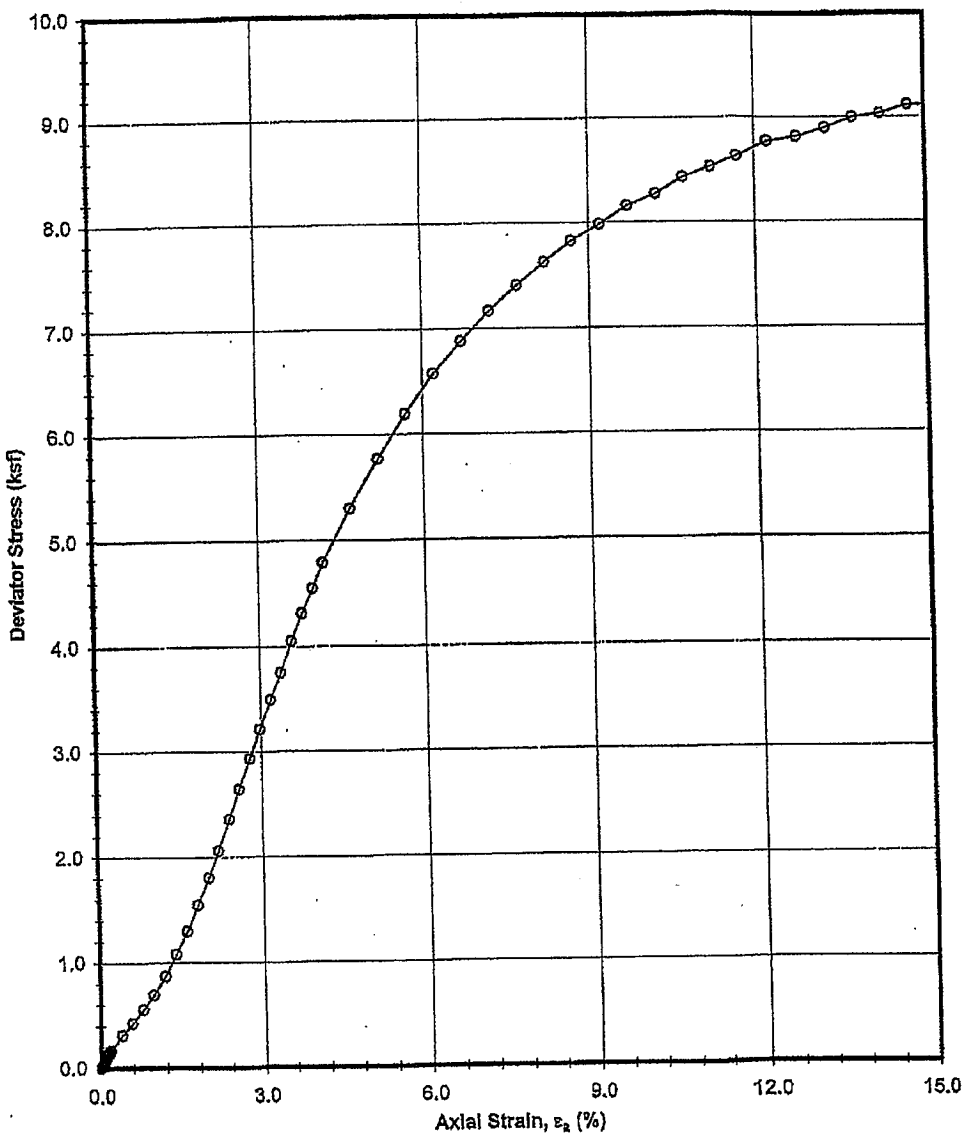
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-11b, Depth 299.75 ft, Confining Pressure = 77 psi



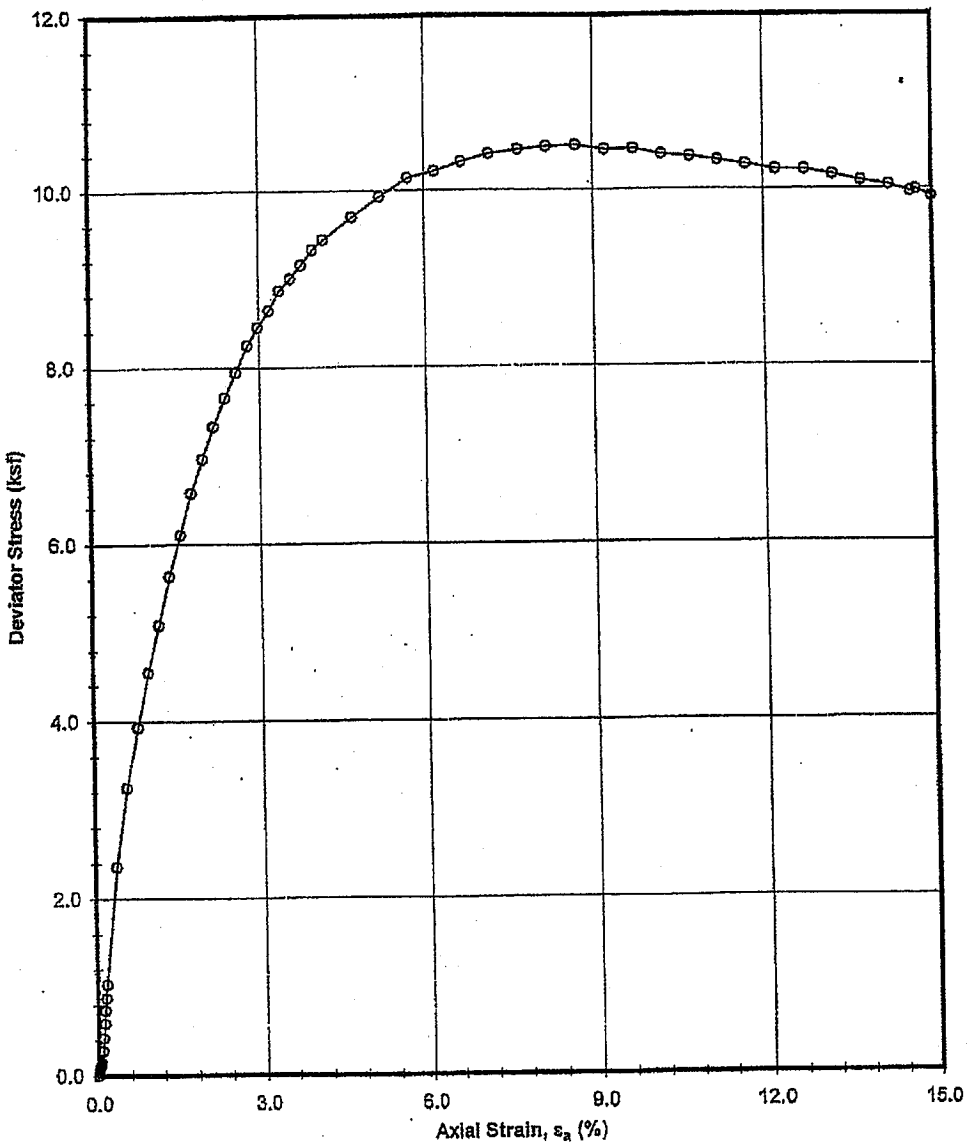
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-12b, Depth 309.75 ft, Confining Pressure = 79 psi



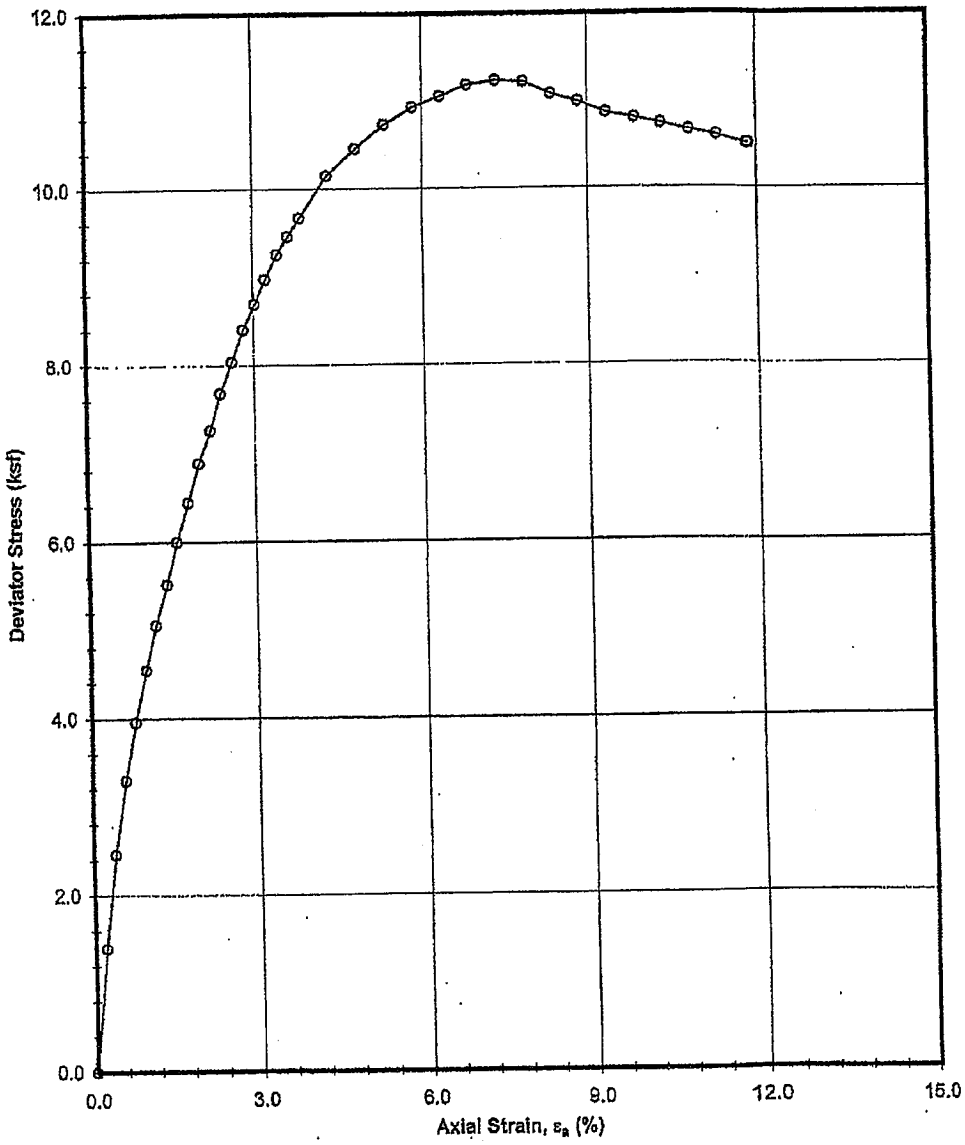
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-13b, Depth 319.70 ft, Confining Pressure = 81 psi



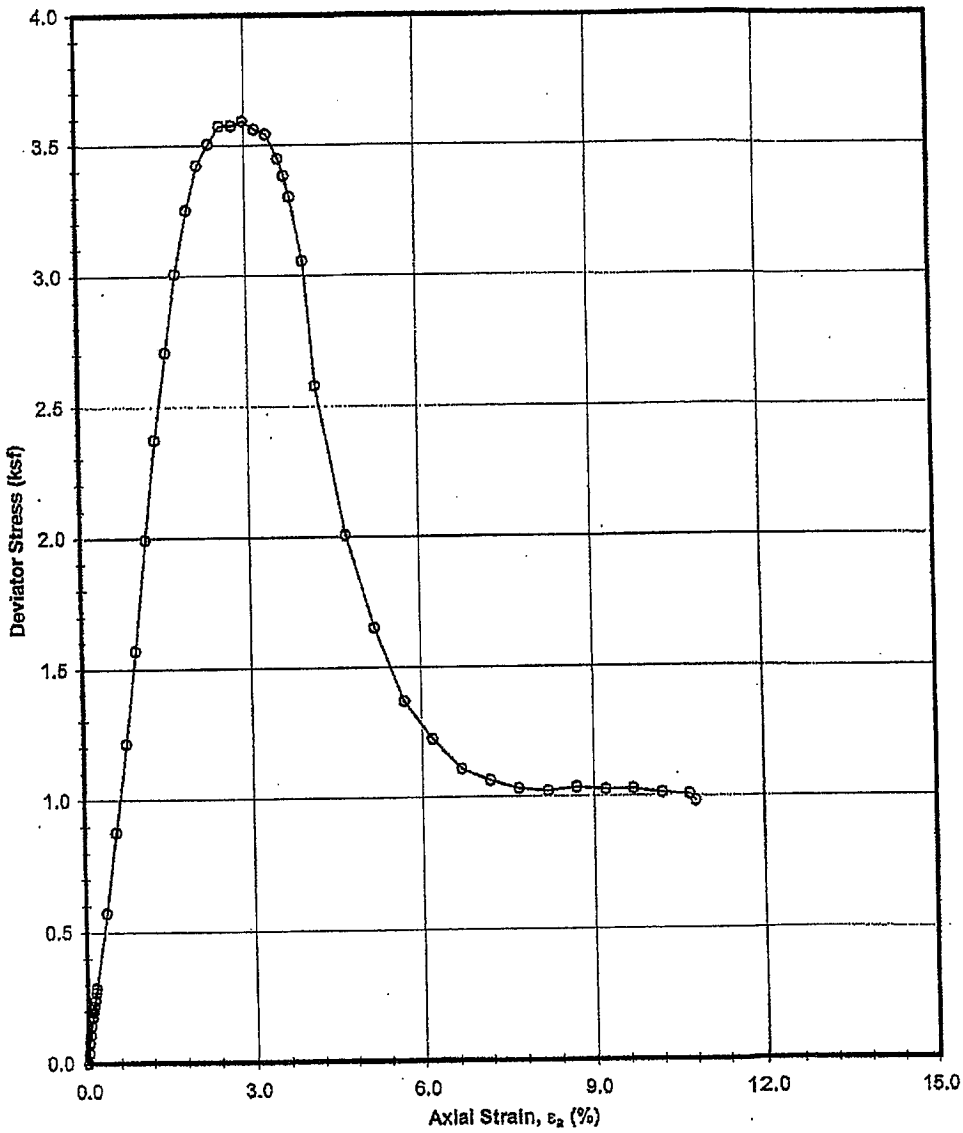
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD_14b, Depth 329.75 ft, Confining Pressure = 84 psi



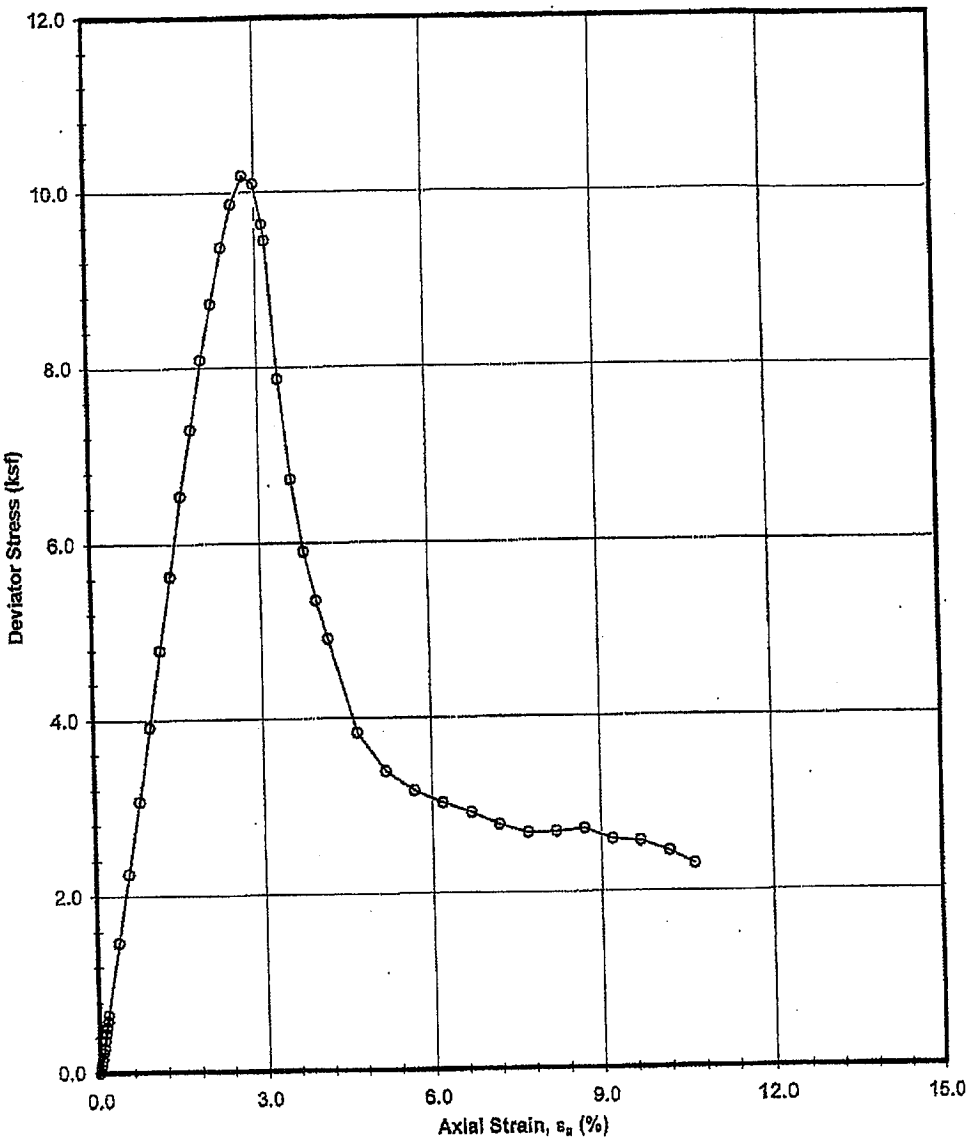
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD_15b, Depth 339.70 ft, Confining Pressure = 87 psi



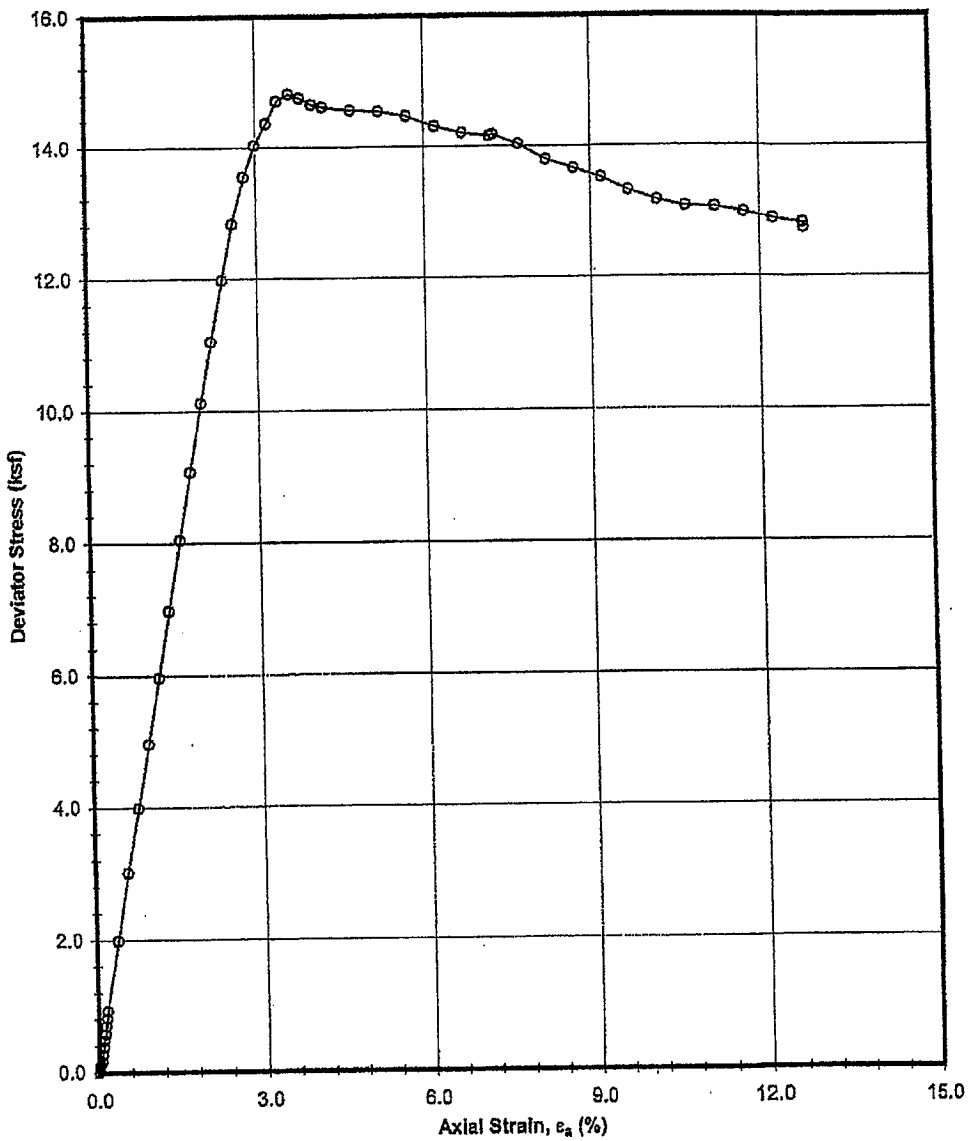
Unconsolidated-Undrained Triaxial Compression Test

Boring B-344, Sample UD_1b, Depth 183.30 ft, Confining Pressure = 45 psi



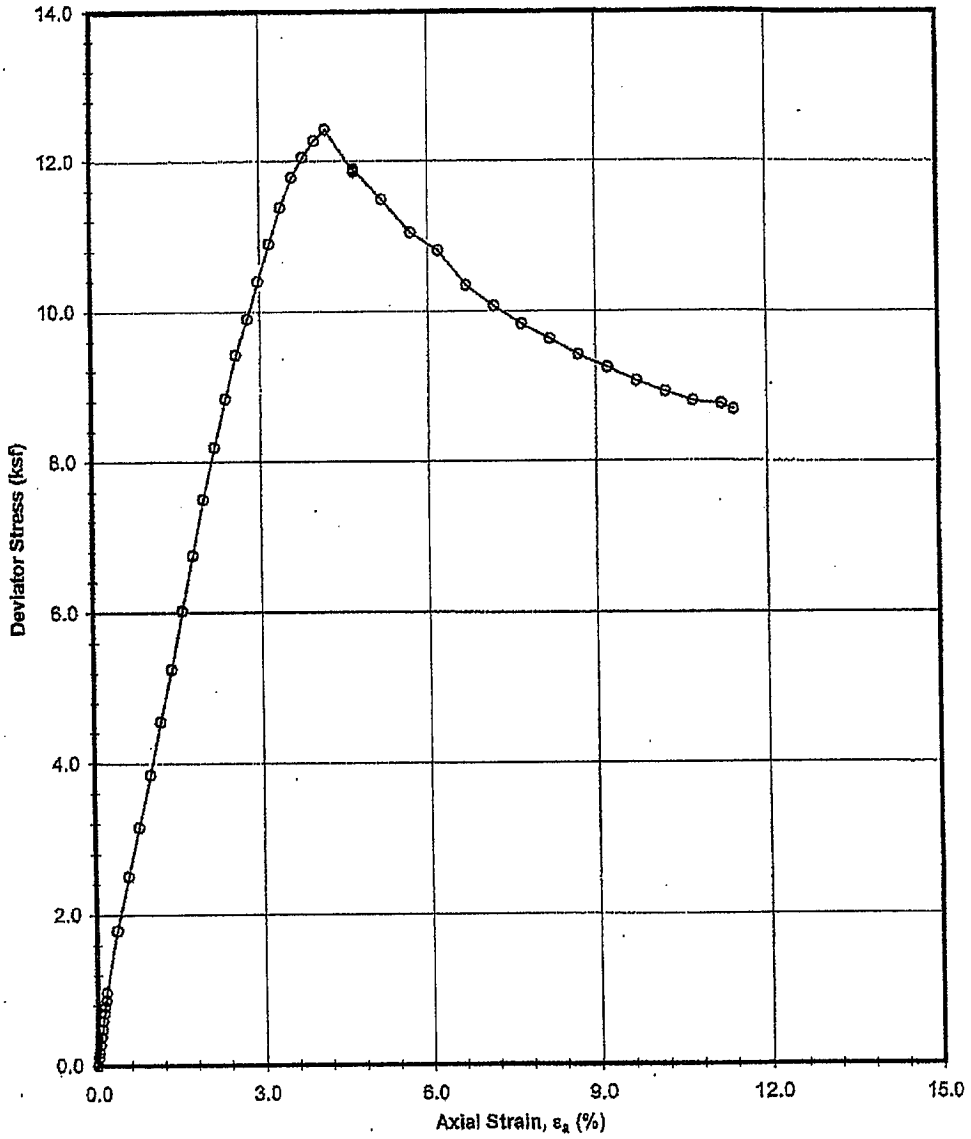
Unconsolidated-Undrained Triaxial Compression Test

Boring B-344, Sample UD_4b, Depth 205.80 ft, Confining Pressure = 50 psi



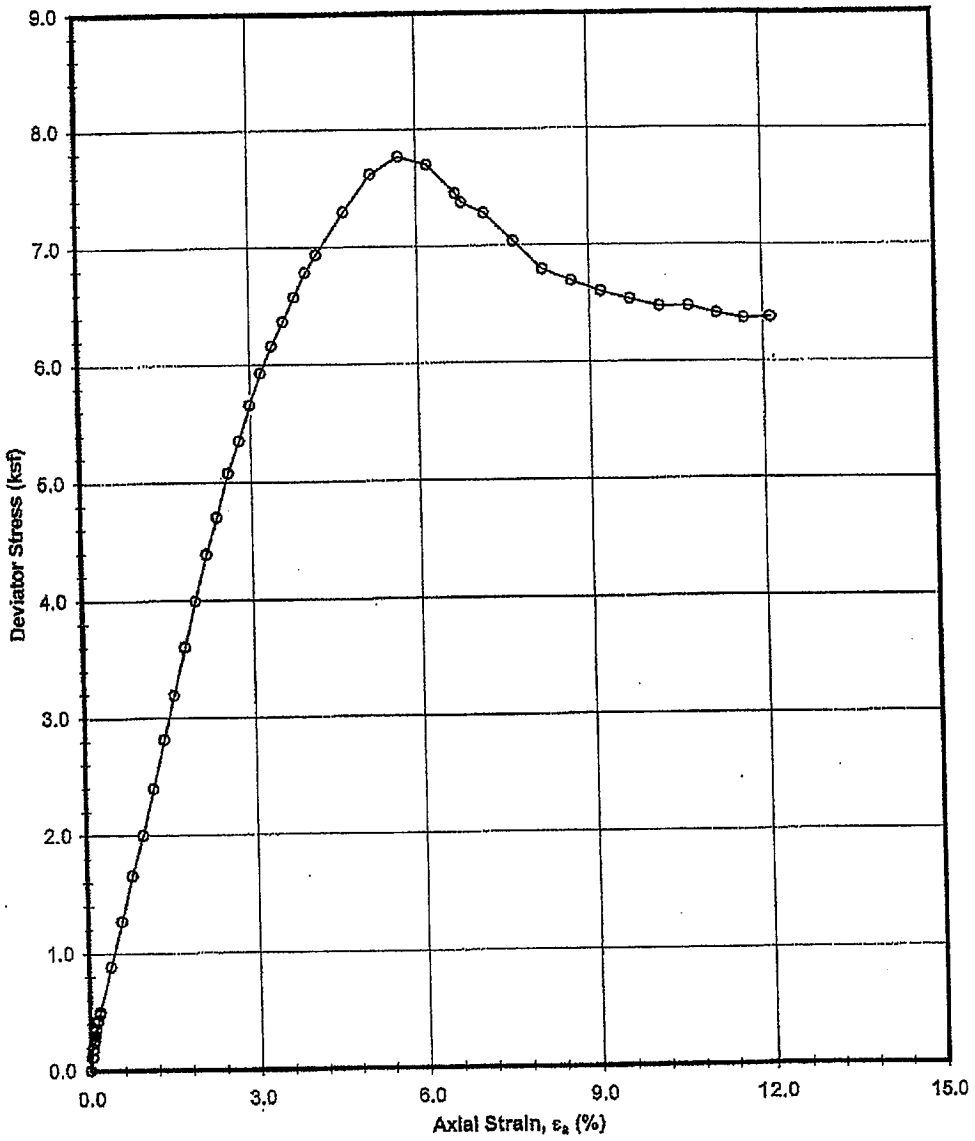
Unconsolidated-Undrained Triaxial Compression Test

Boring B-344, Sample UD_6b, Depth 223.30 ft, Confining Pressure = 55 psi



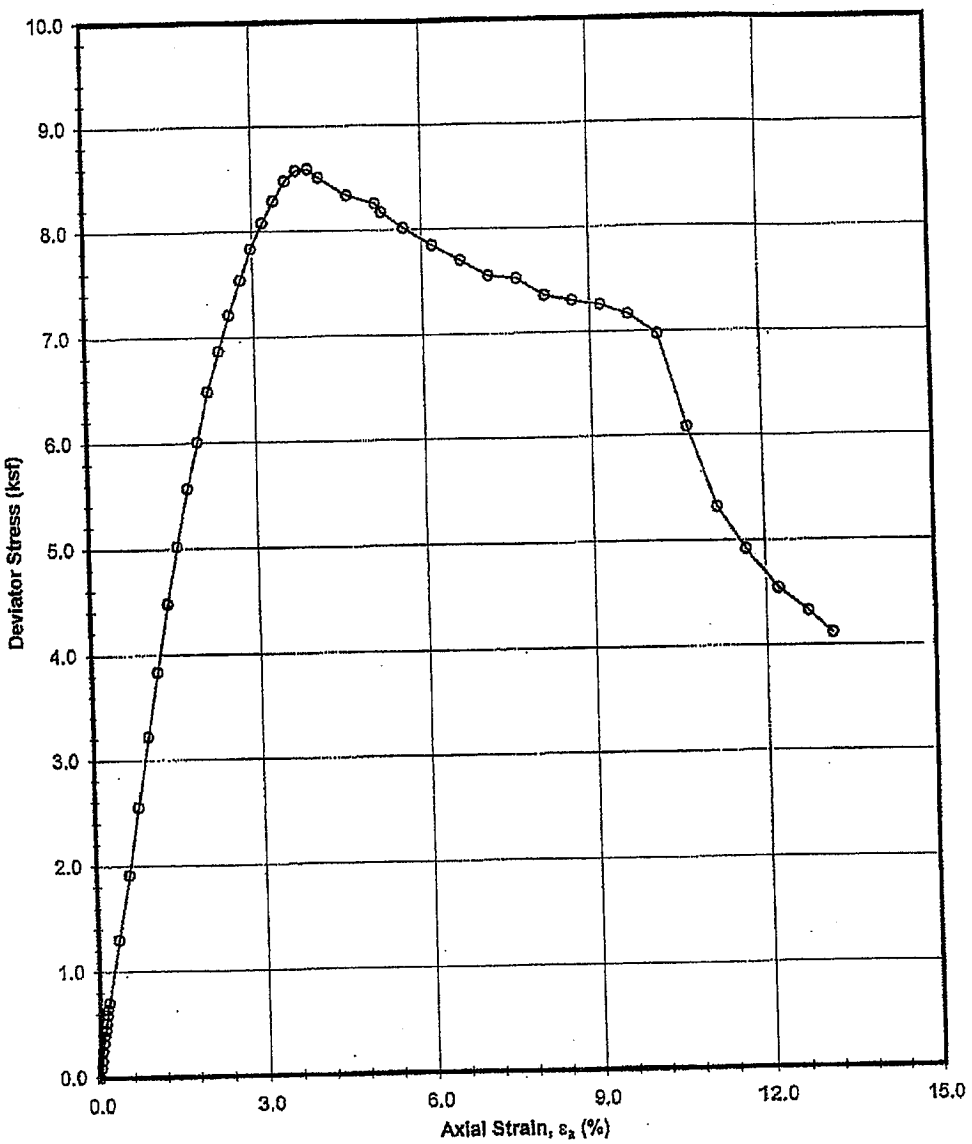
Unconsolidated-Undrained Triaxial Compression Test

Boring B-344, Sample UD_8b, Depth 243.30 ft, Confining Pressure = 60 psi



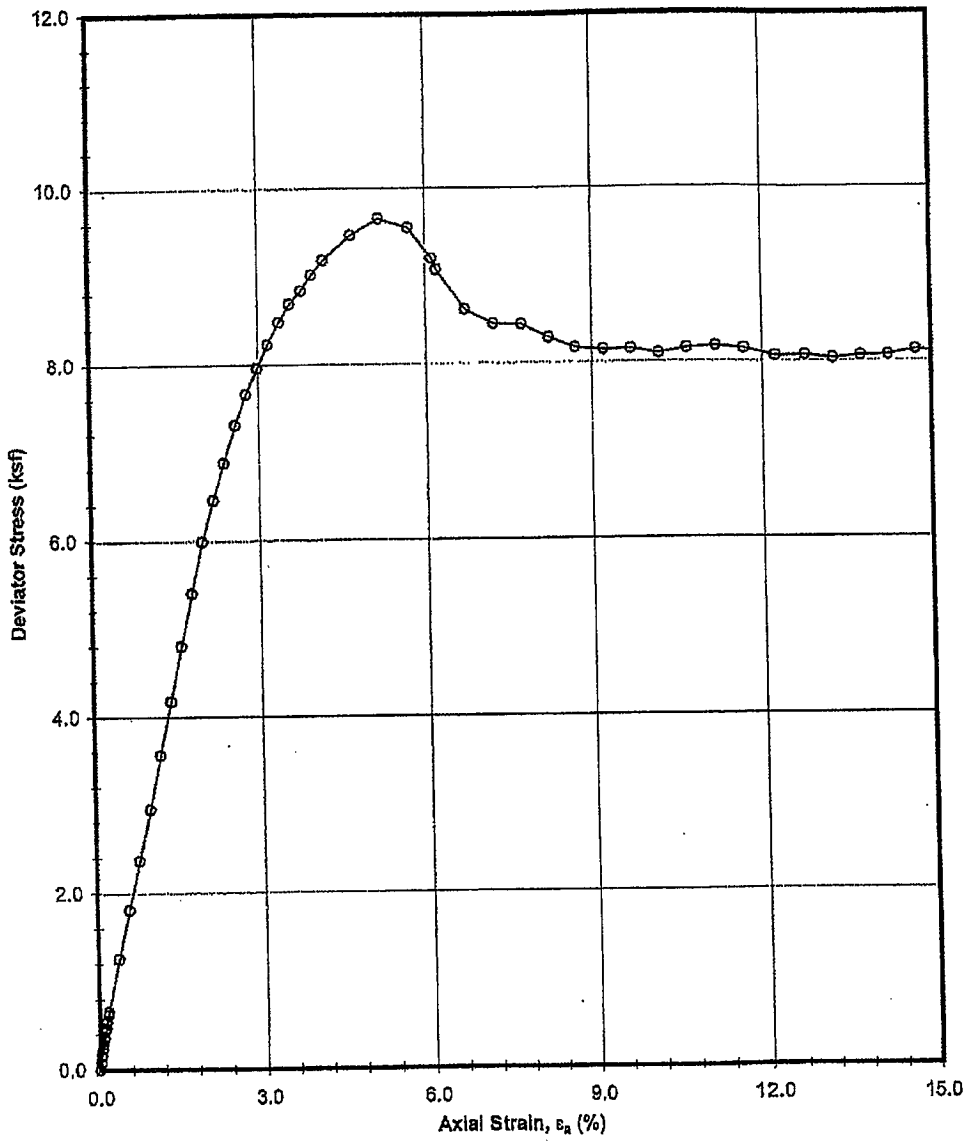
Unconsolidated-Undrained Triaxial Compression Test

Boring B-771, Sample UD_2e, Depth 43.30 ft, Confining Pressure = 11 psi



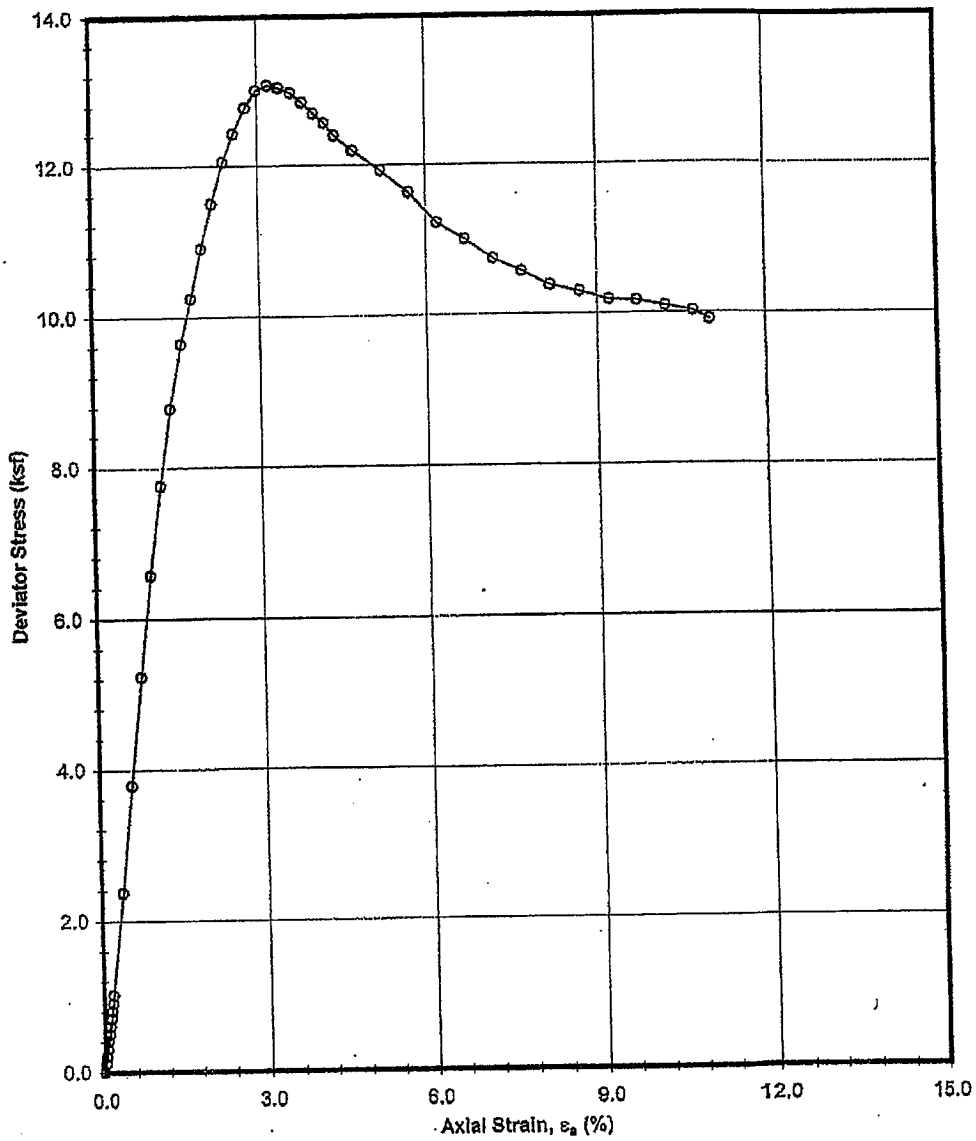
Unconsolidated-Undrained Triaxial Compression Test

Boring B-771, Sample UD_4b, Depth 63.05 ft, Confining Pressure = 15 psi



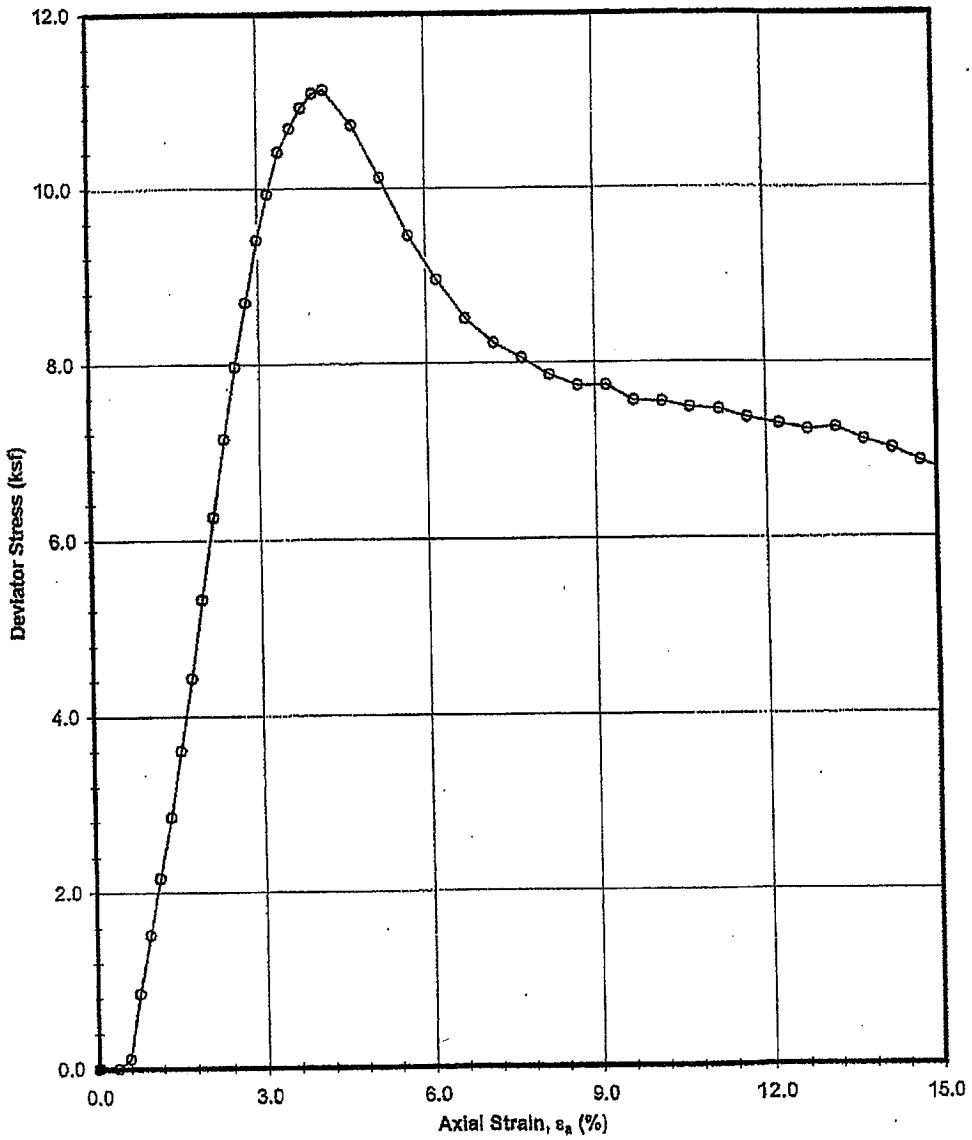
Unconsolidated-Undrained Triaxial Compression Test

Boring B-771, Sample UD_5b, Depth 73.30 ft, Confining Pressure = 17 psi



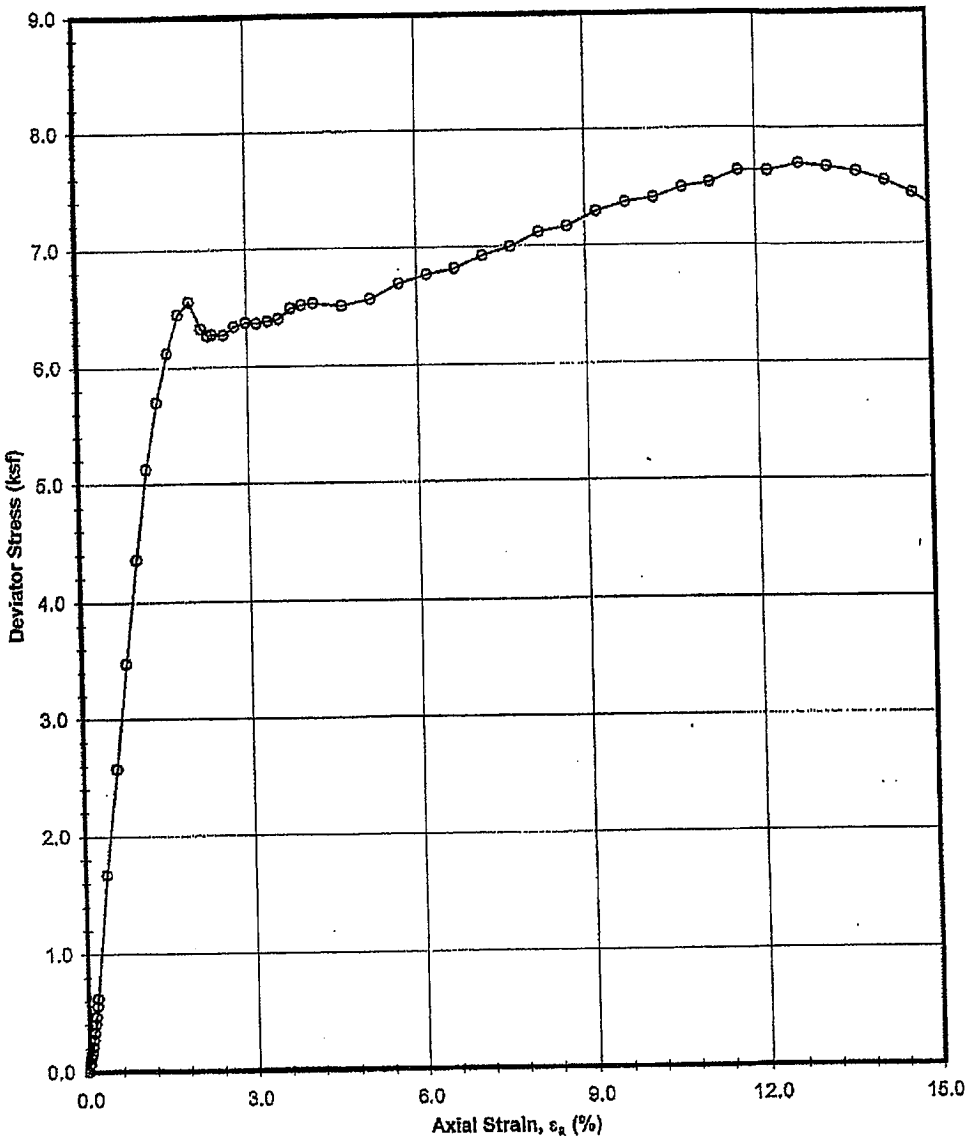
Unconsolidated-Undrained Triaxial Compression Test

Boring B-771, Sample UD_6b, Depth 81.5 ft, Confining Pressure = 20 psi



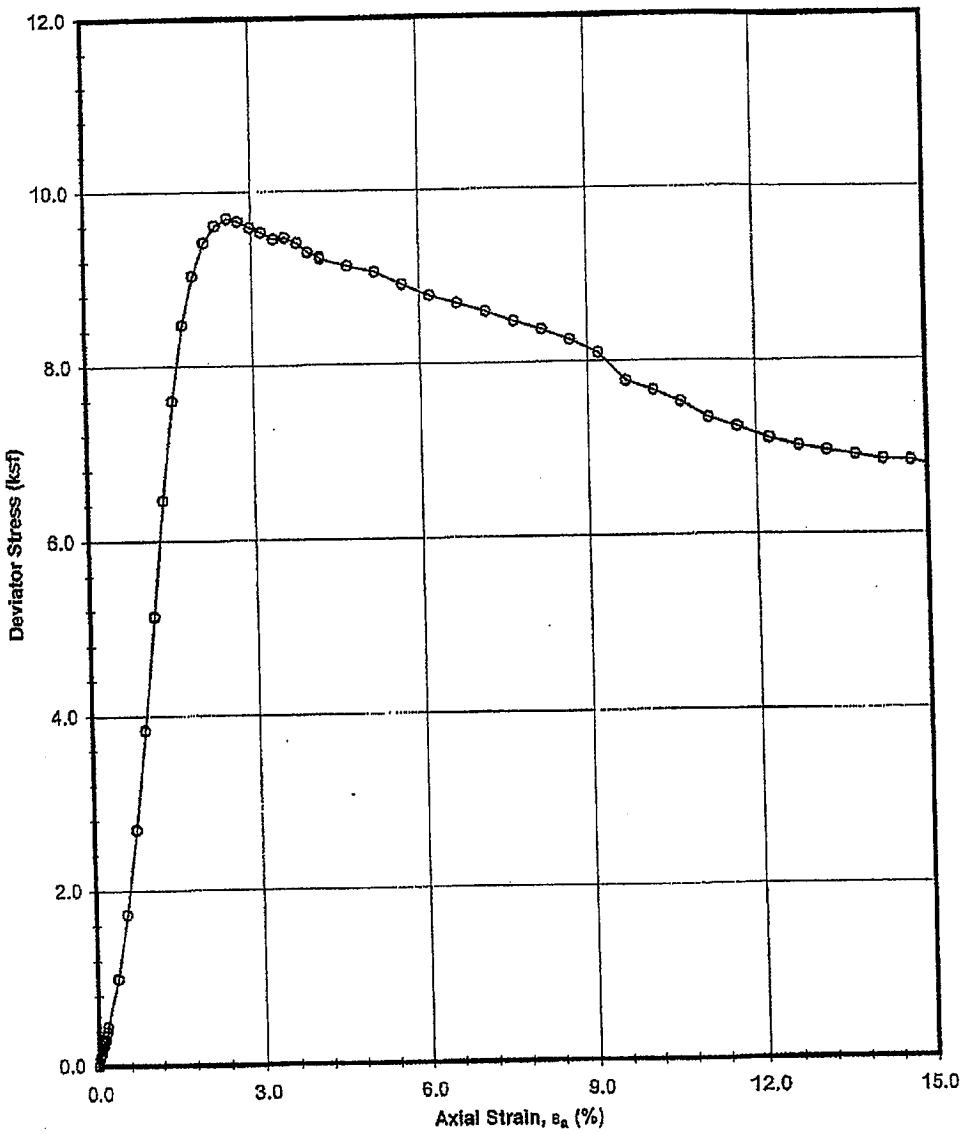
Unconsolidated-Undrained Triaxial Compression Test

Boring B-771, Sample UD_7b, Depth 91.5 ft, Confining Pressure = 22 psi



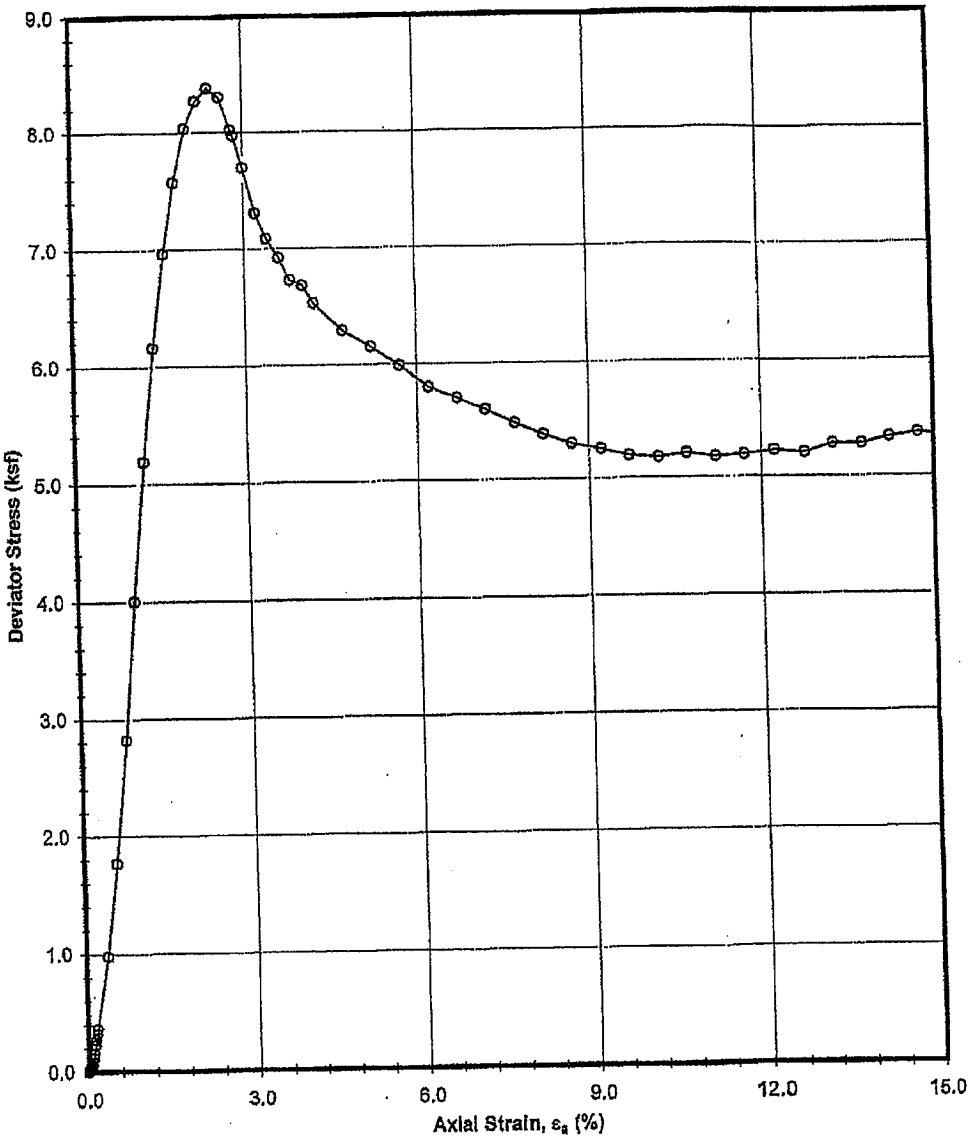
Unconsolidated-Undrained Triaxial Compression Test

Boring B-774, Sample UD_4e, Depth 32.65 ft, Confining Pressure = 8 psi



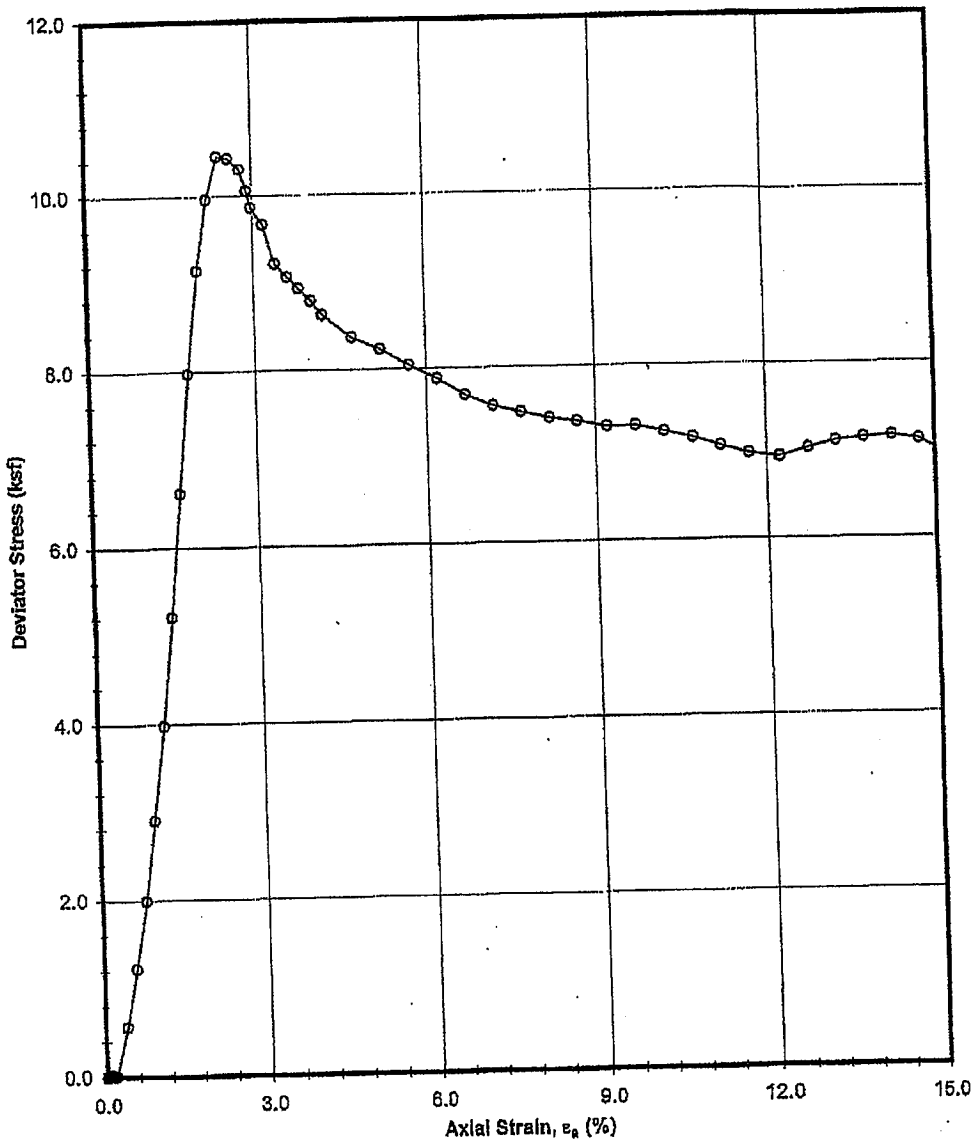
Unconsolidated-Undrained Triaxial Compression Test

Boring B-774, Sample UD_5e, Depth 43.25 ft, Confining Pressure = 10 psi



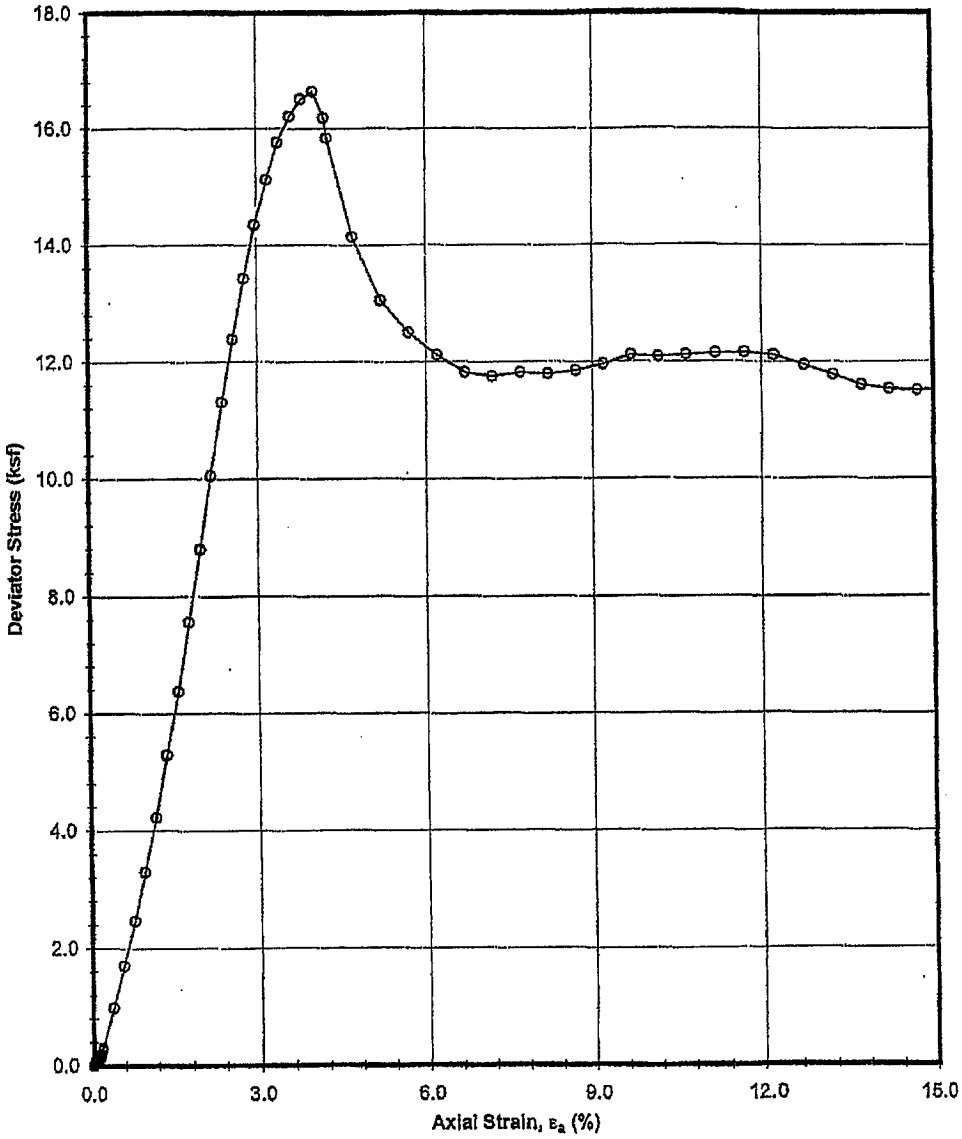
Unconsolidated-Undrained Triaxial Compression Test

Boring B-774, Sample UD_6e, Depth 53.20 ft, Confining Pressure = 13 psi



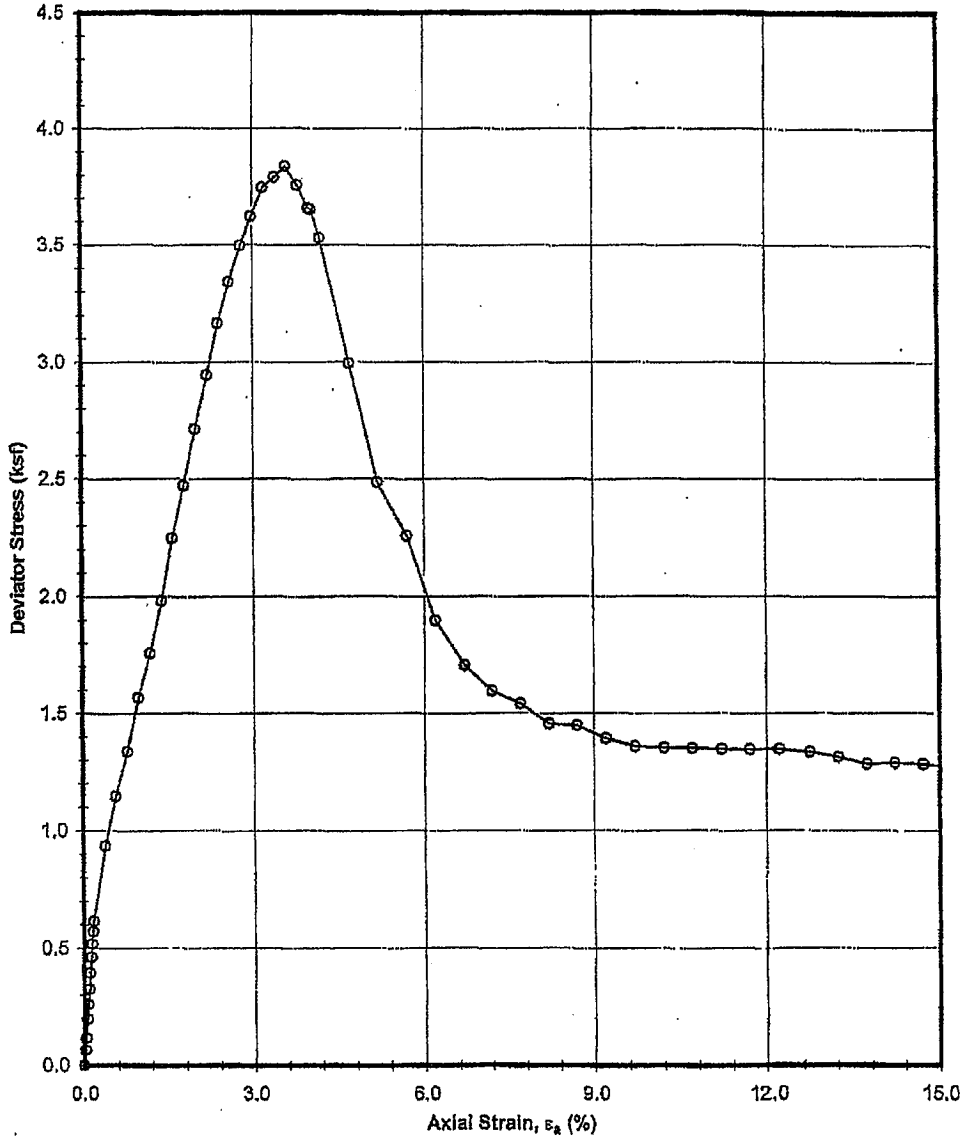
Unconsolidated-Undrained Triaxial Compression Test

Boring B-774, Sample UD_7e, Depth 83.20 ft, Confining Pressure = 20 psi



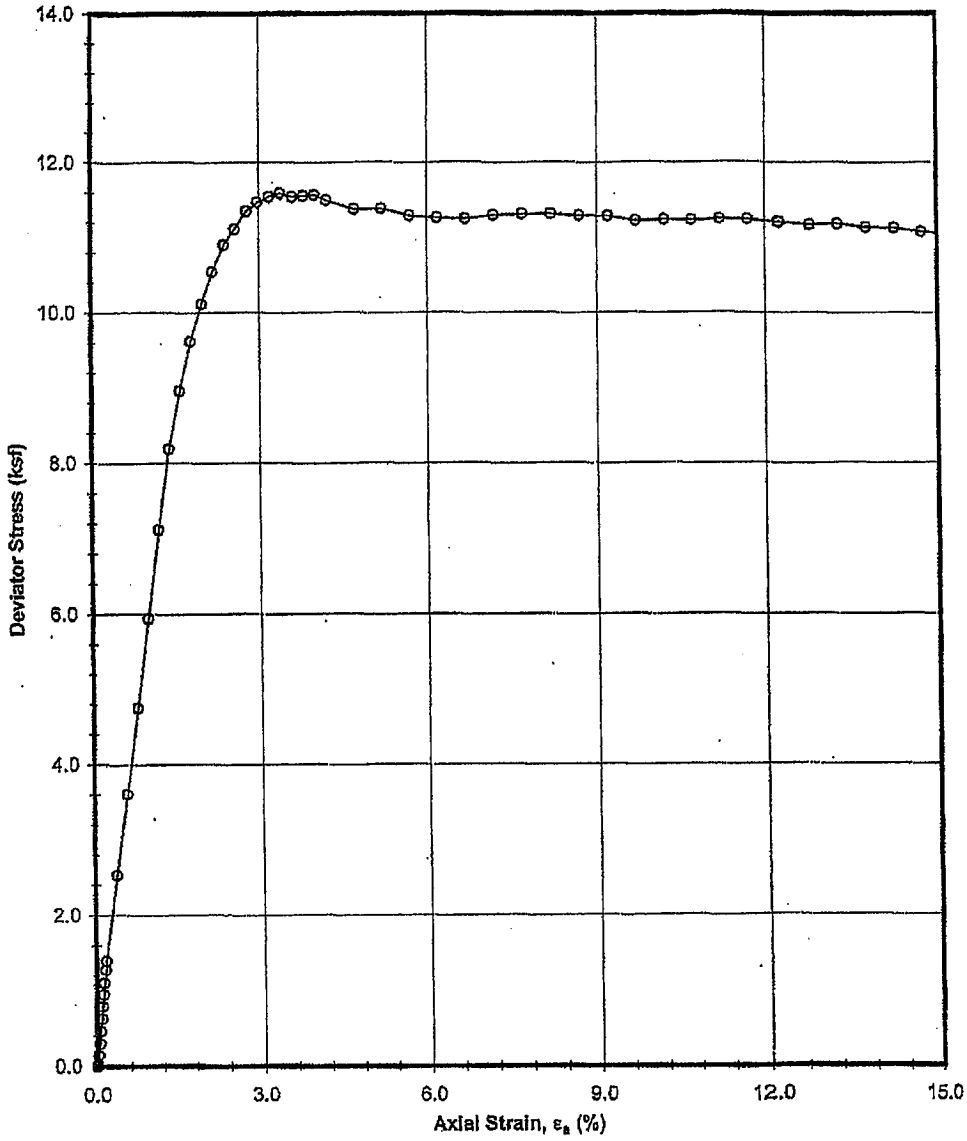
Unconsolidated-Undrained Triaxial Compression Test

Boring B-774, Sample UD_8e, Depth 102.70 ft, Confining Pressure = 25 psi



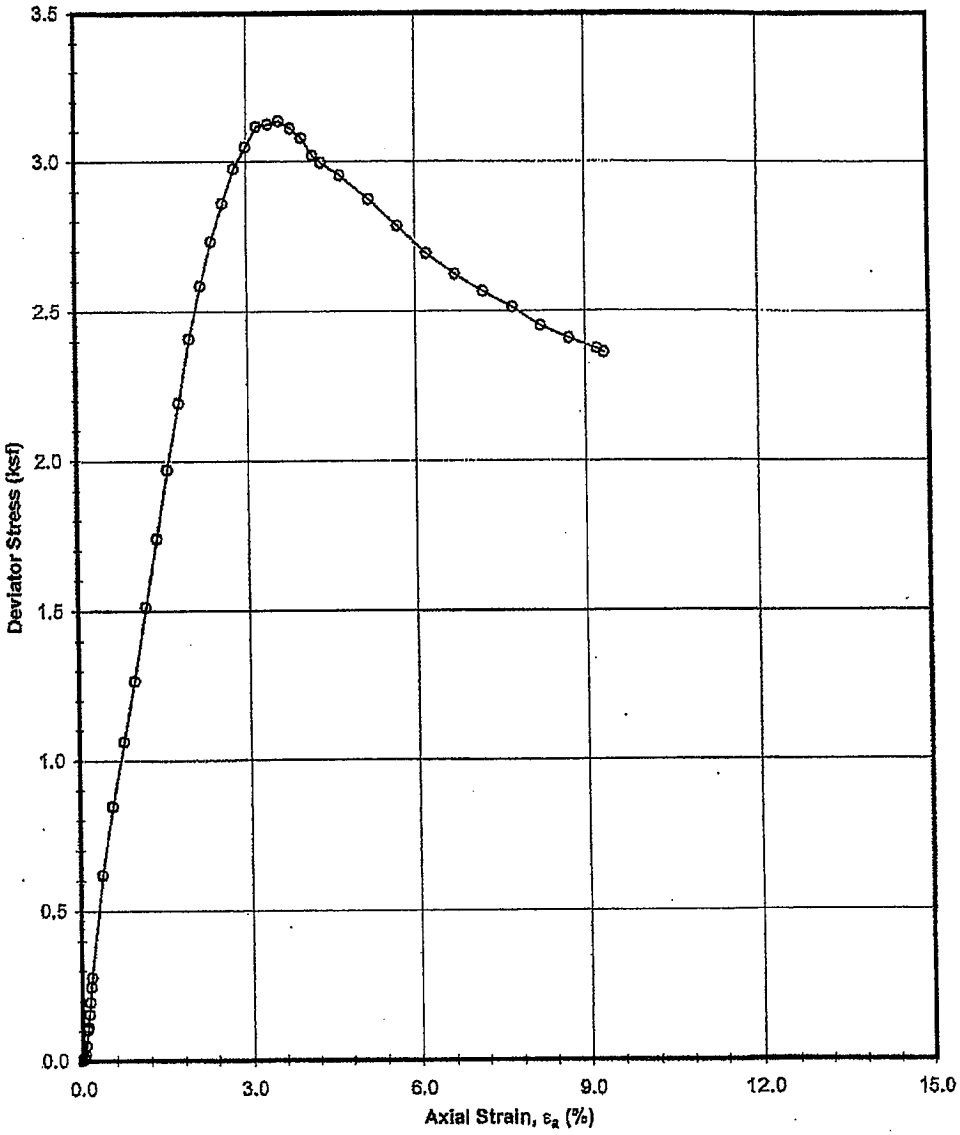
Unconsolidated-Undrained Triaxial Compression Test

Boring B-774, Sample UD_10e, Depth 123.20 ft, Confining Pressure = 28 psi



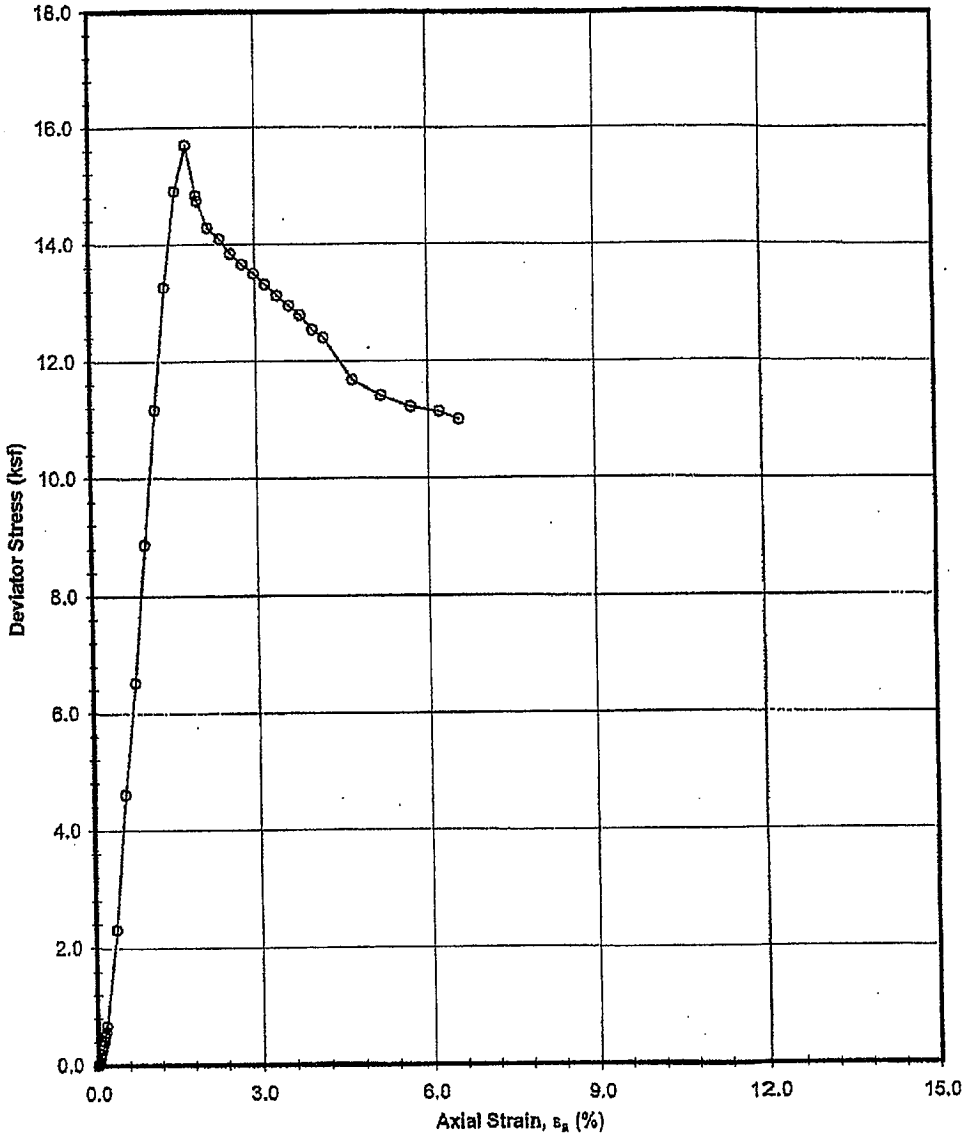
Unconsolidated-Undrained Triaxial Compression Test

Boring B-774, Sample UD_12e, Depth 143.20 ft, Confining Pressure = 33 psi



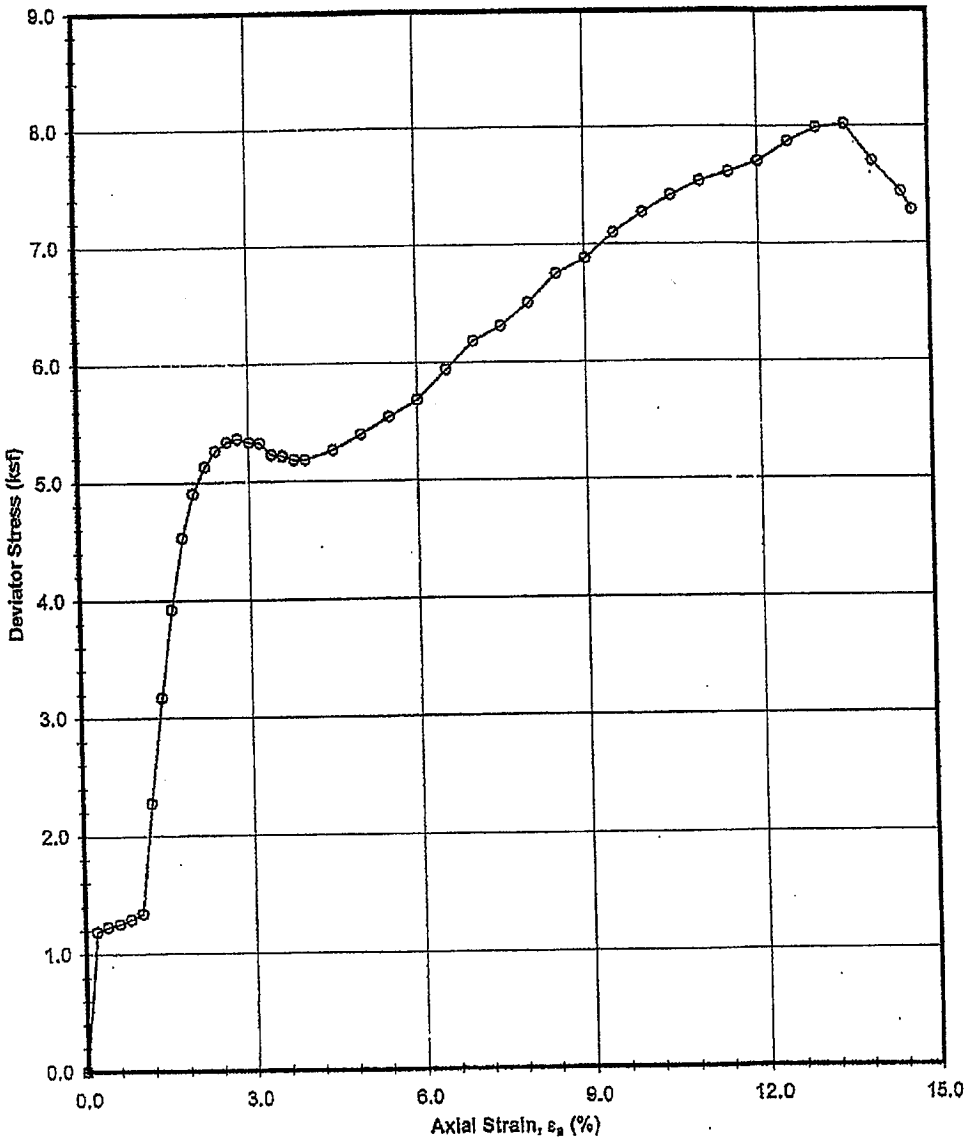
Unconsolidated-Undrained Triaxial Compression Test

Boring B-778, Sample UD-7d, Depth 41.3 ft, Confining Pressure = 22 psi



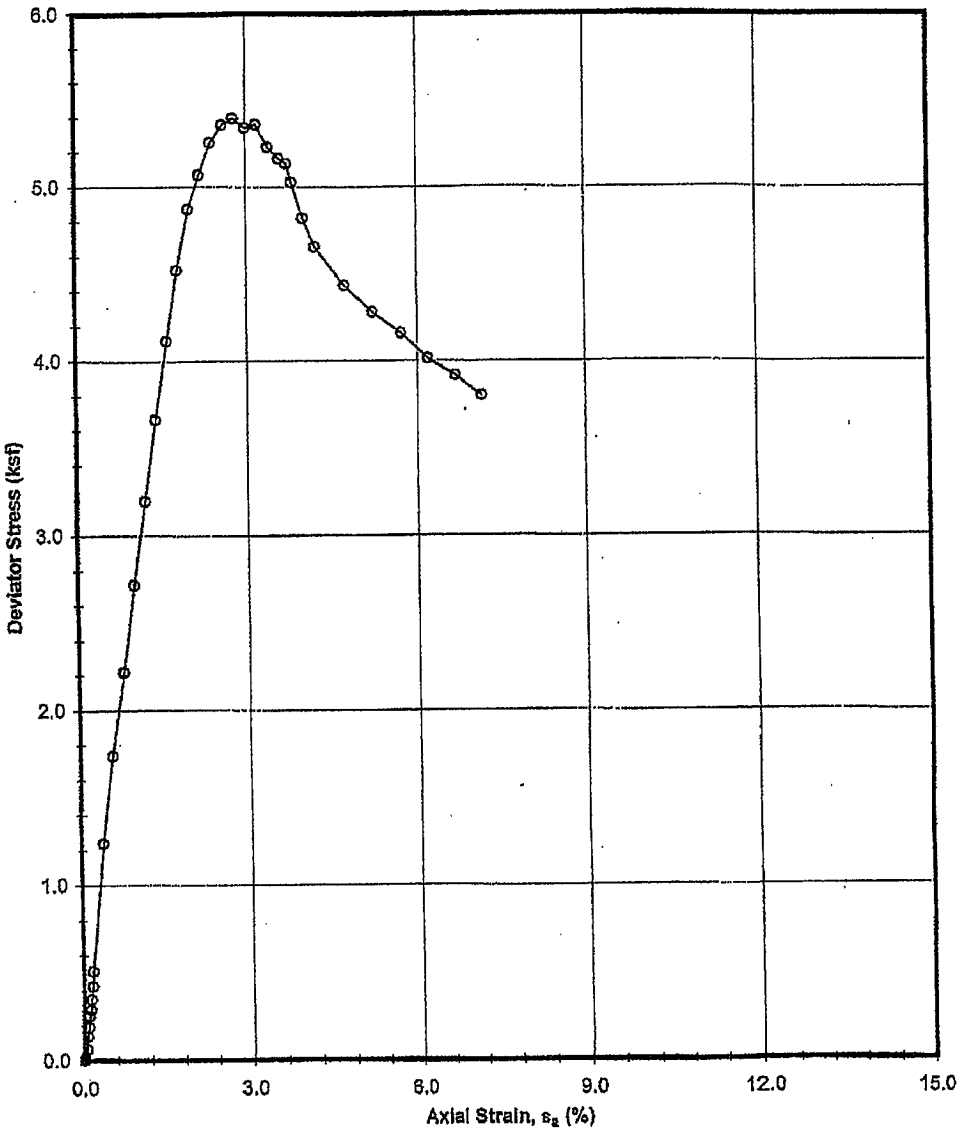
Unconsolidated-Undrained Triaxial Compression Test

Boring B-778, Sample UD_8d, Depth 54.35 ft, Confining Pressure = 24 psi



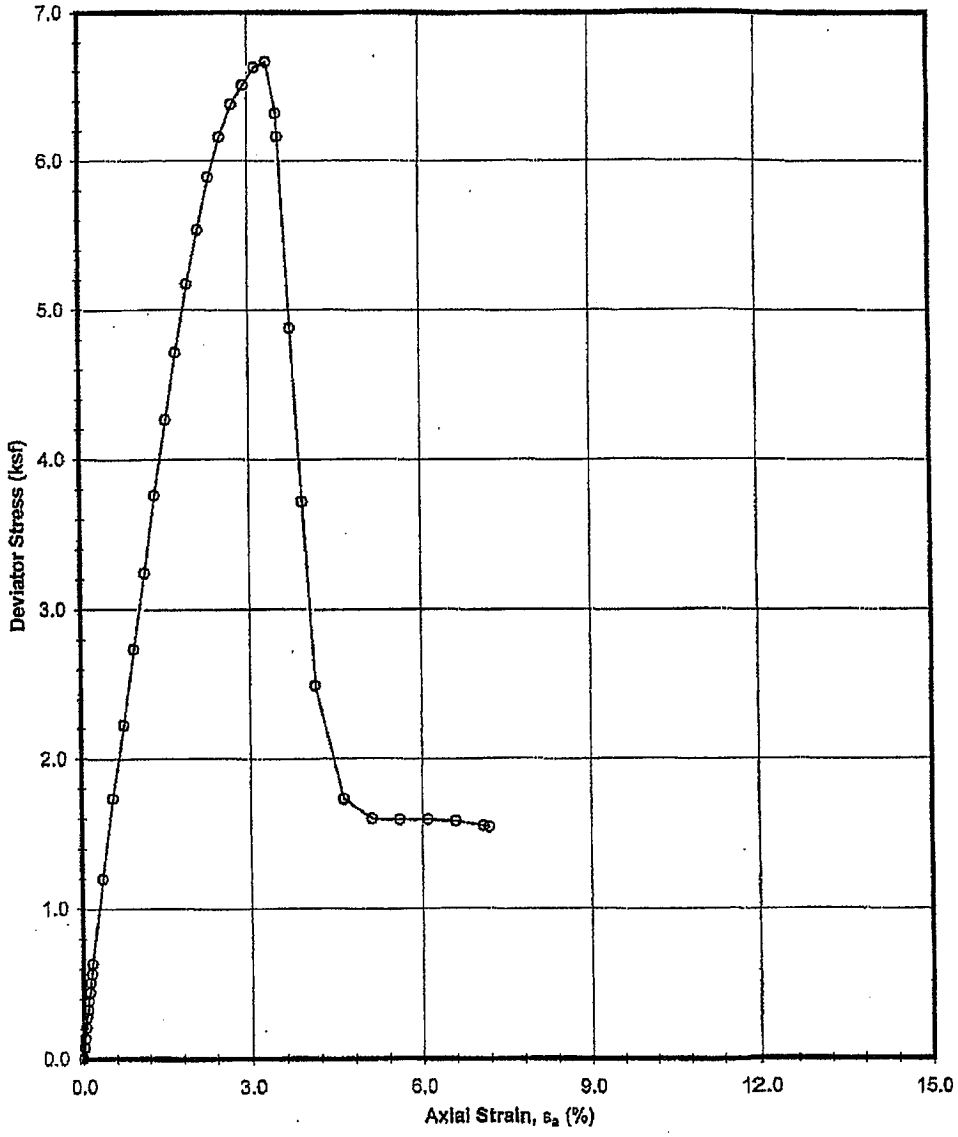
Unconsolidated-Undrained Triaxial Compression Test

Boring B-778, Sample UD_9d, Depth 64.35 ft, Confining Pressure = 26 psi



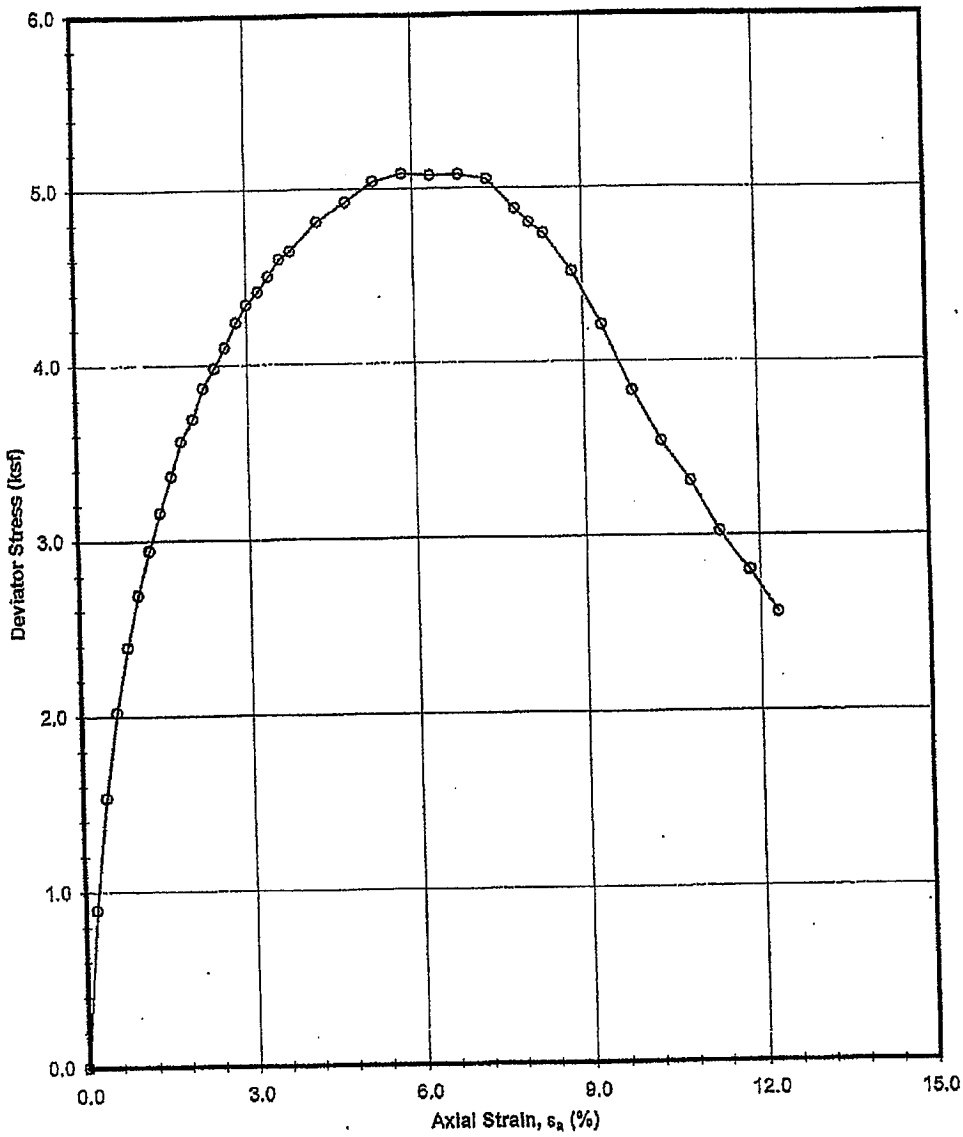
Unconsolidated-Undrained Triaxial Compression Test

Boring B-778, Sample UD_10d, Depth 71.35 ft, Confining Pressure = 30 psi



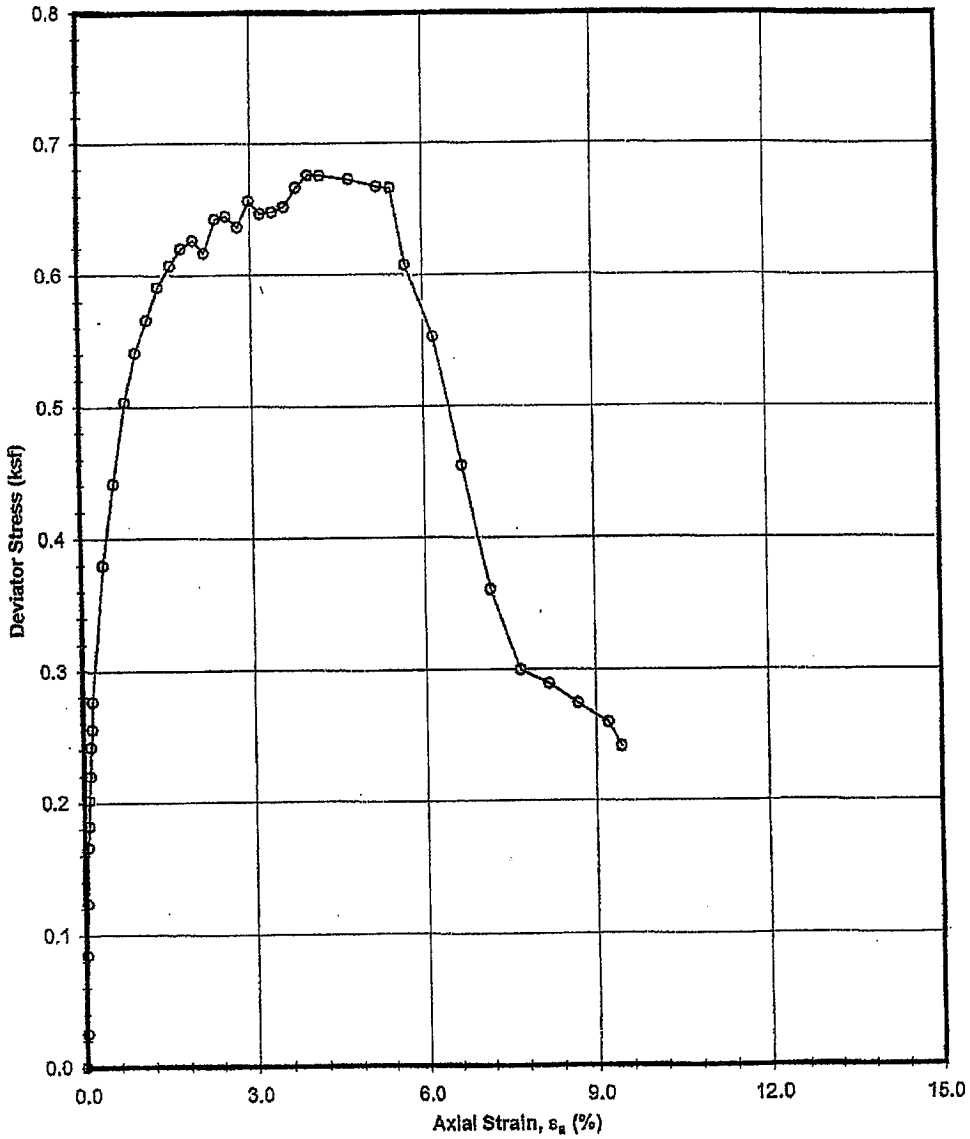
Unconsolidated-Undrained Triaxial Compression Test

Boring B-778, Sample UD-11d, Depth 81.30 ft, Confining Pressure = 35 psi



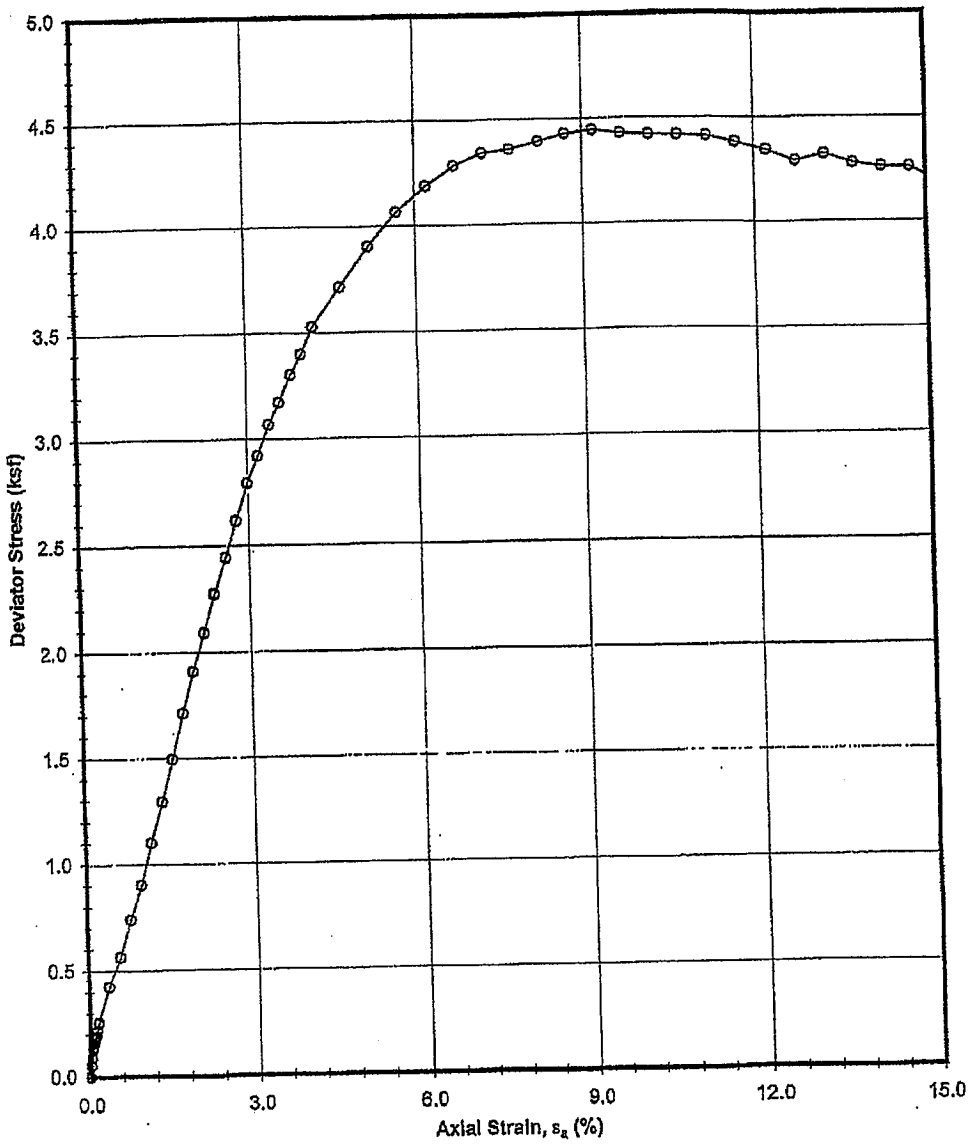
Unconsolidated-Undrained Triaxial Compression Test

Boring B-778, Sample UD_14d, Depth 103.40 ft, Confining Pressure = 37 psi



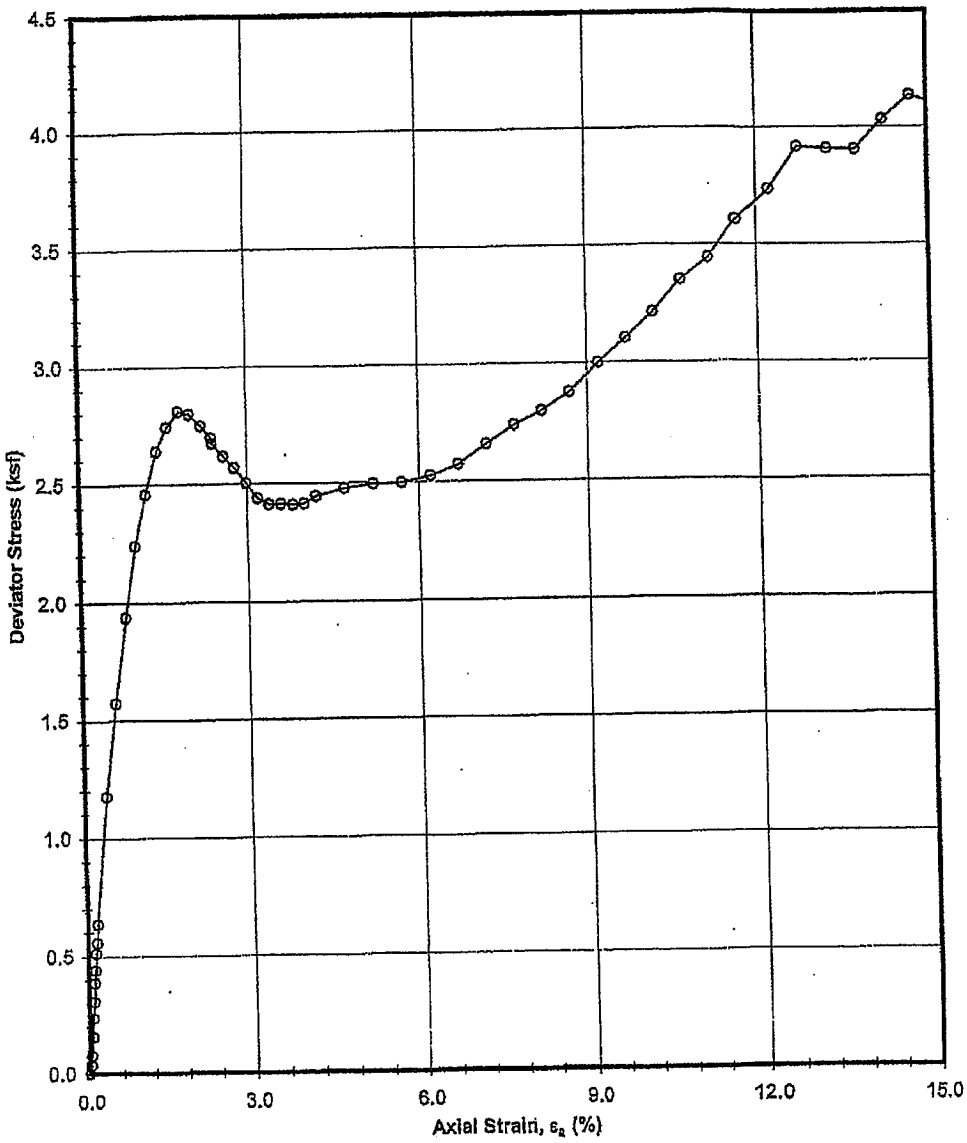
Unconsolidated-Undrained Triaxial Compression Test

Boring B-779, Sample UD_3d, Depth 23.40 ft, Confining Pressure = 12 psi



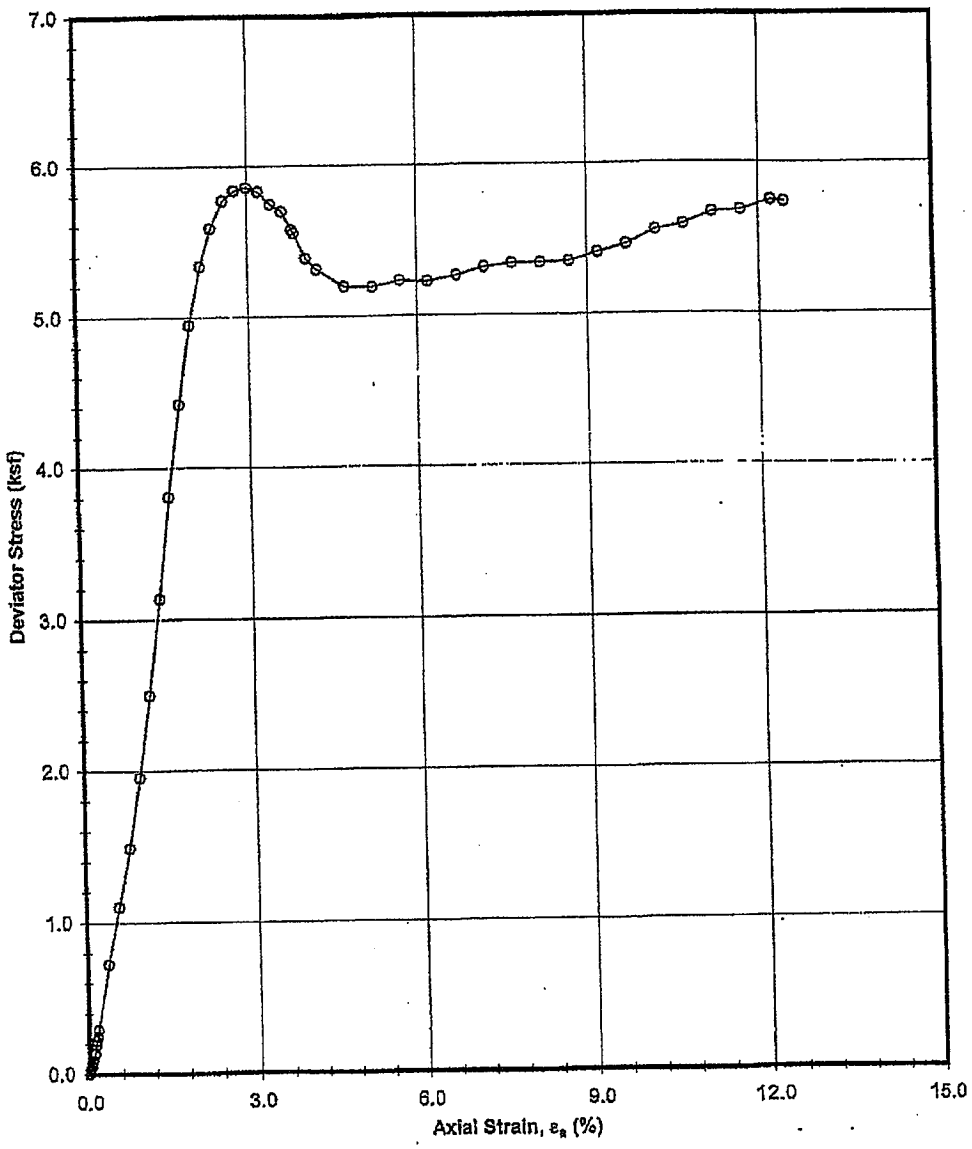
Unconsolidated-Undrained Triaxial Compression Test

Boring B-779, Sample UD_4d, Depth 33.45 ft, Confining Pressure = 15 psi



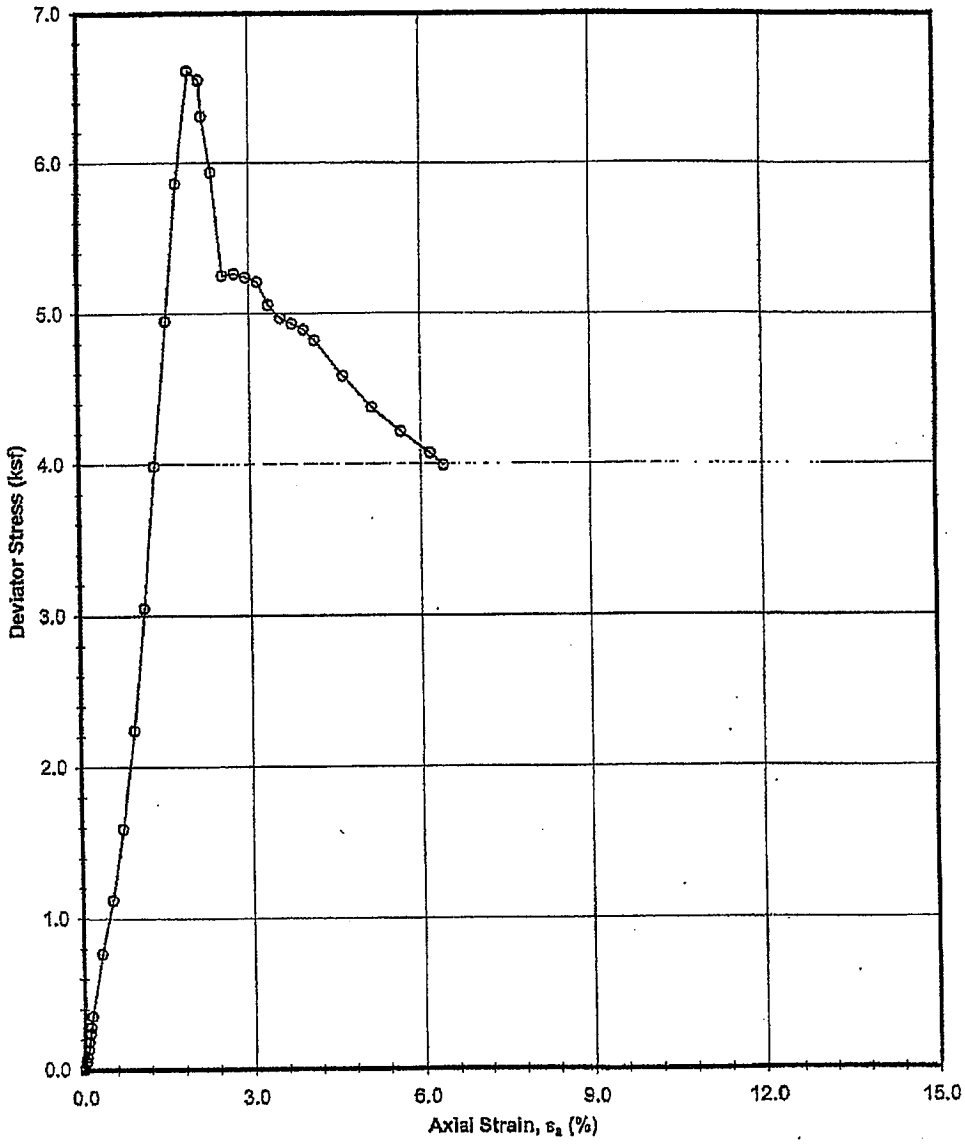
Unconsolidated-Undrained Triaxial Compression Test

Boring B-779, Sample UD_5d, Depth 42.30 ft, Confining Pressure = 18 psi



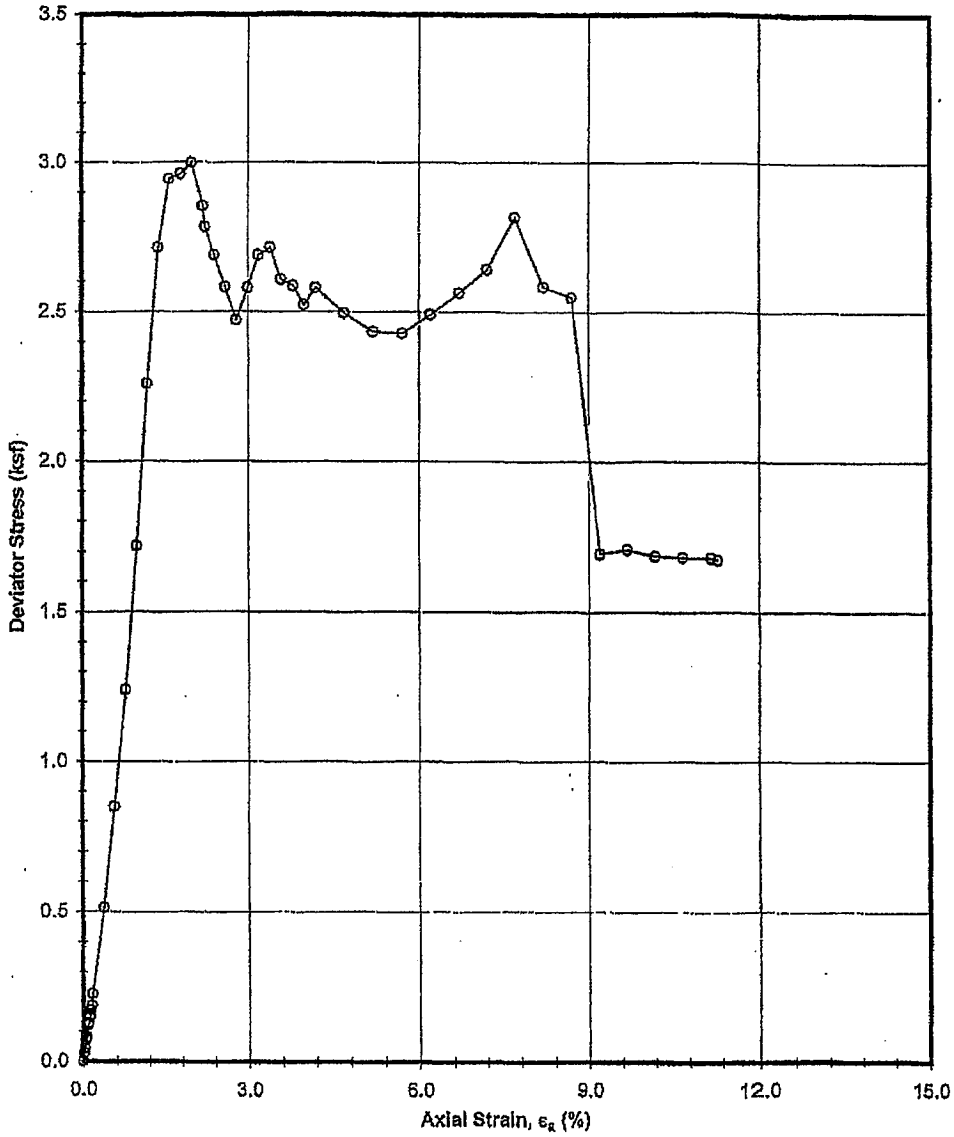
Unconsolidated-Undrained Triaxial Compression Test

Boring B-779, Sample UD_7d, Depth 52.40 ft, Confining Pressure = 20 psi



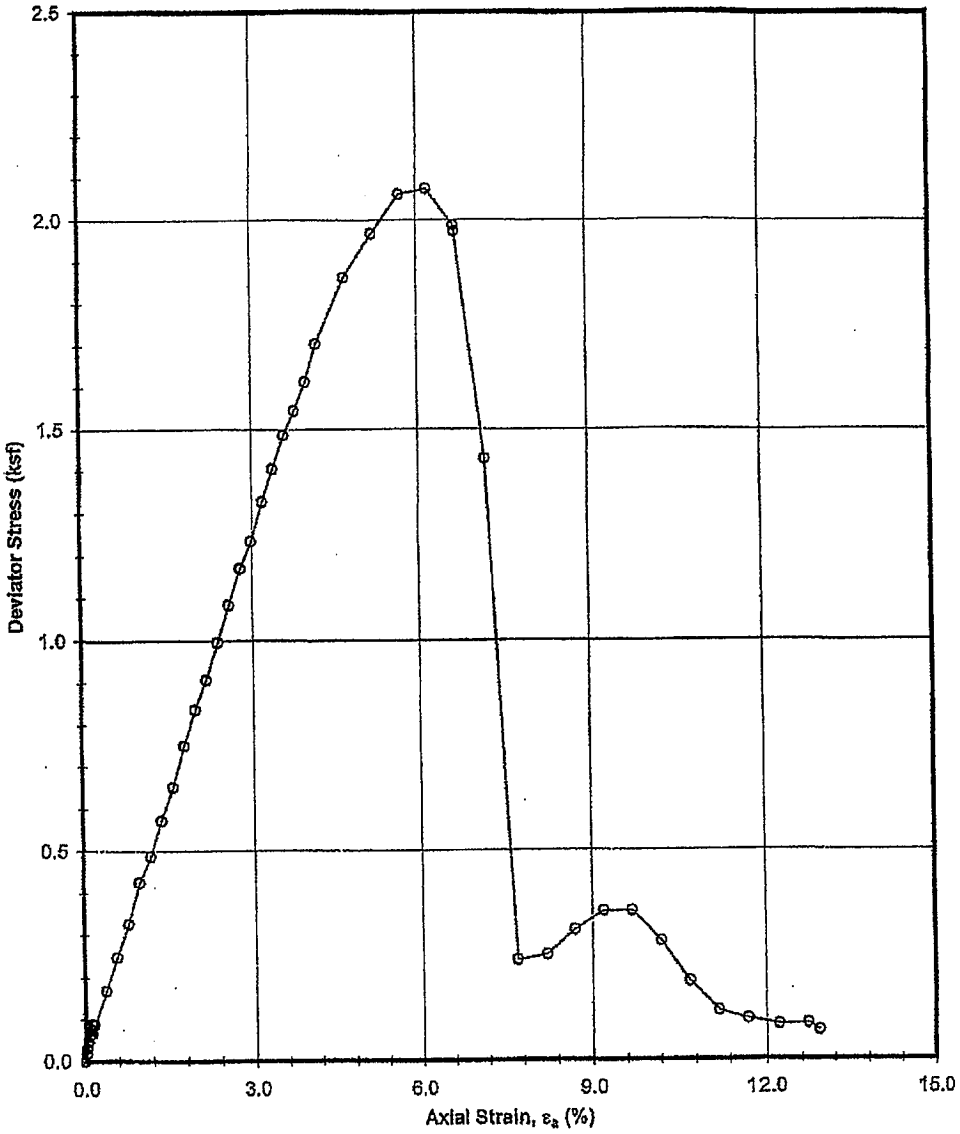
Unconsolidated-Undrained Triaxial Compression Test

Boring B-779, Sample UD-8d; Depth 60.18 ft, Confining Pressure = 22 psi



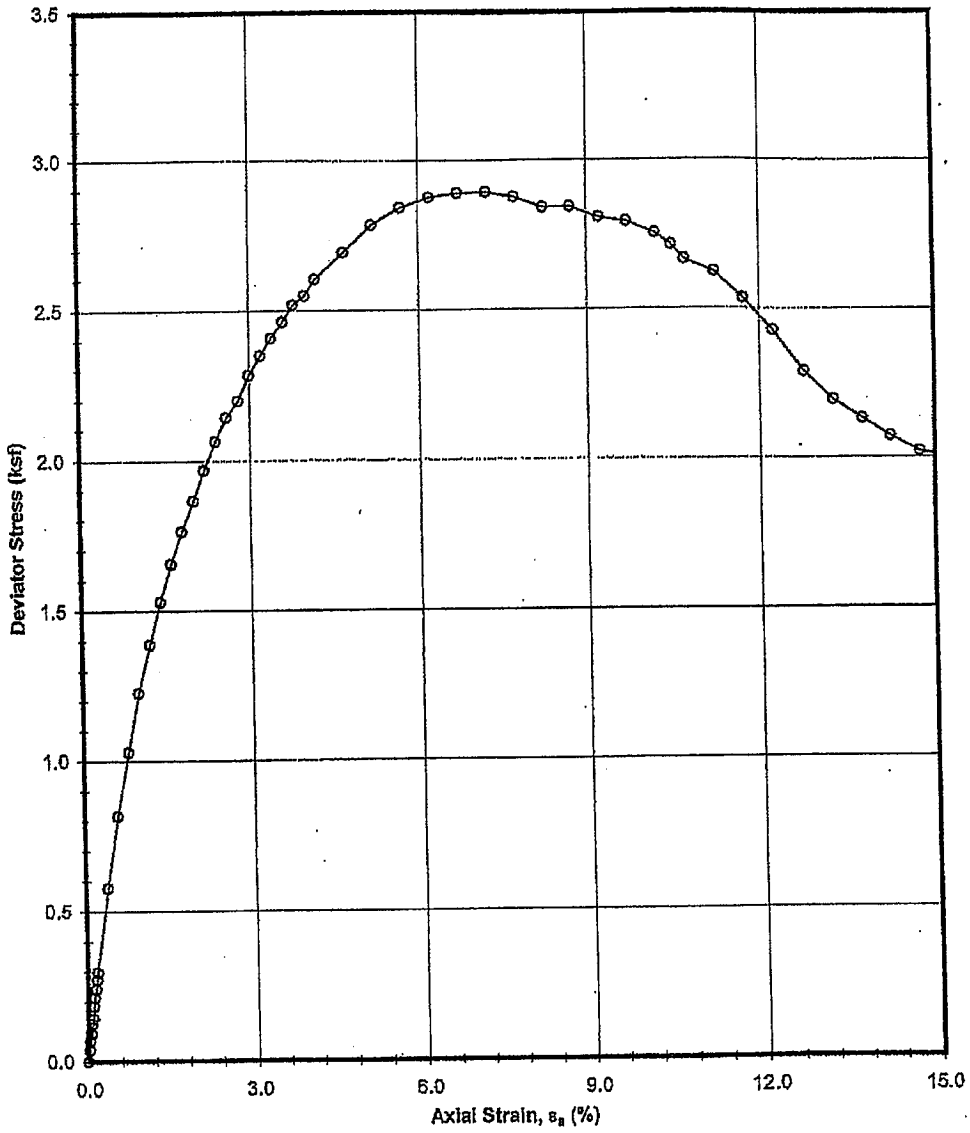
Unconsolidated-Undrained Triaxial Compression Test

Boring B-779, Sample UD-9d, Depth 70.18 ft, Confining Pressure = 25 psi



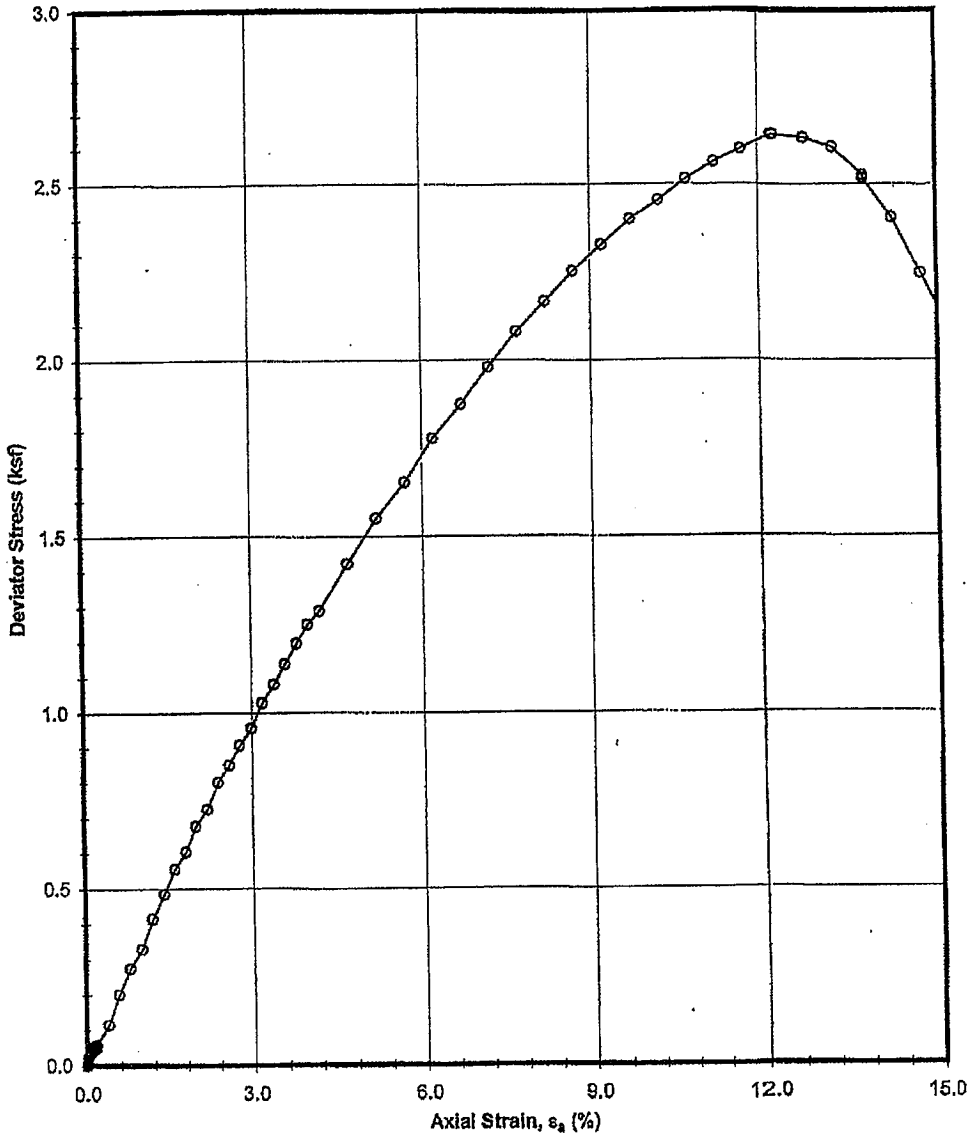
Unconsolidated-Undrained Triaxial Compression Test

Boring B-779, Sample UD-11d, Depth 98.40 ft, Confining Pressure = 32 psi



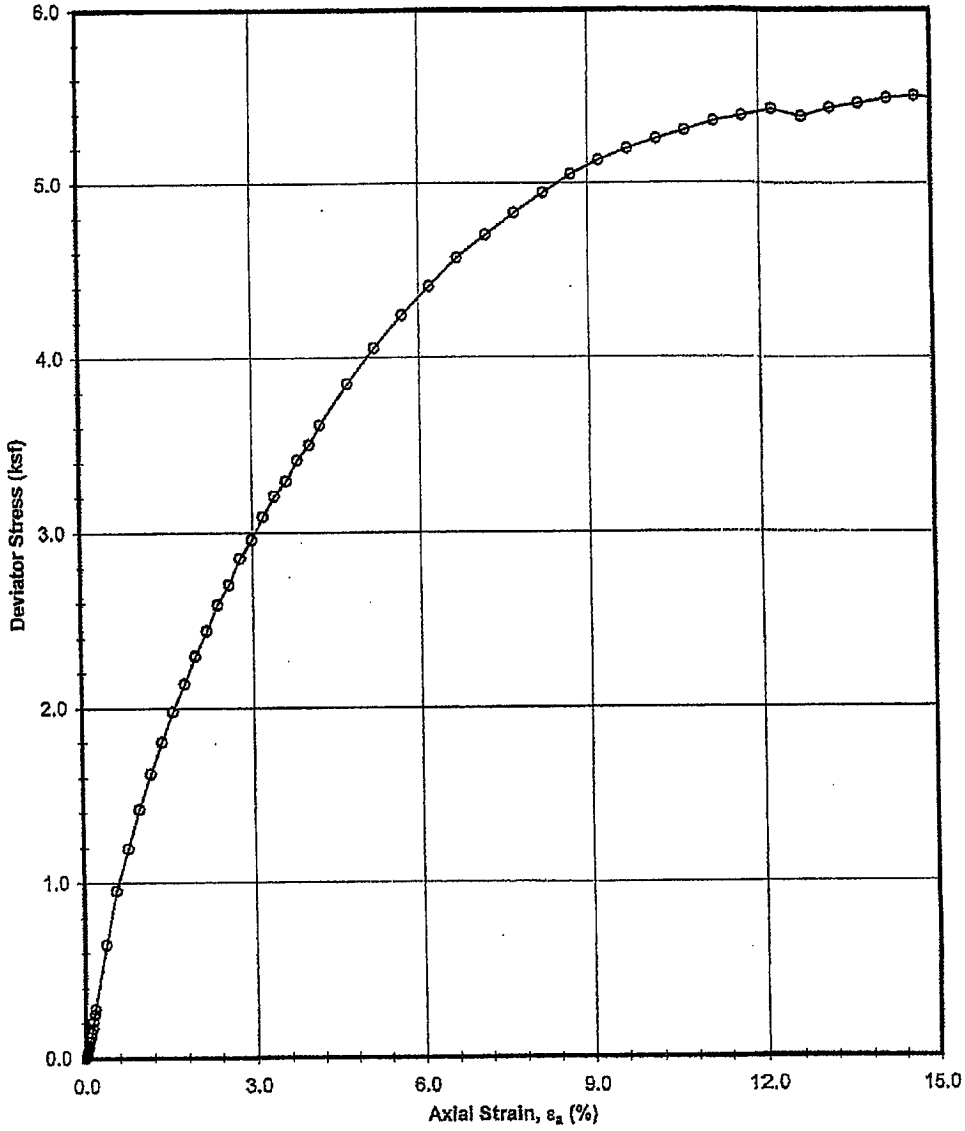
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-4, Depth 199.3 ft, Confining Pressure = 54 psi



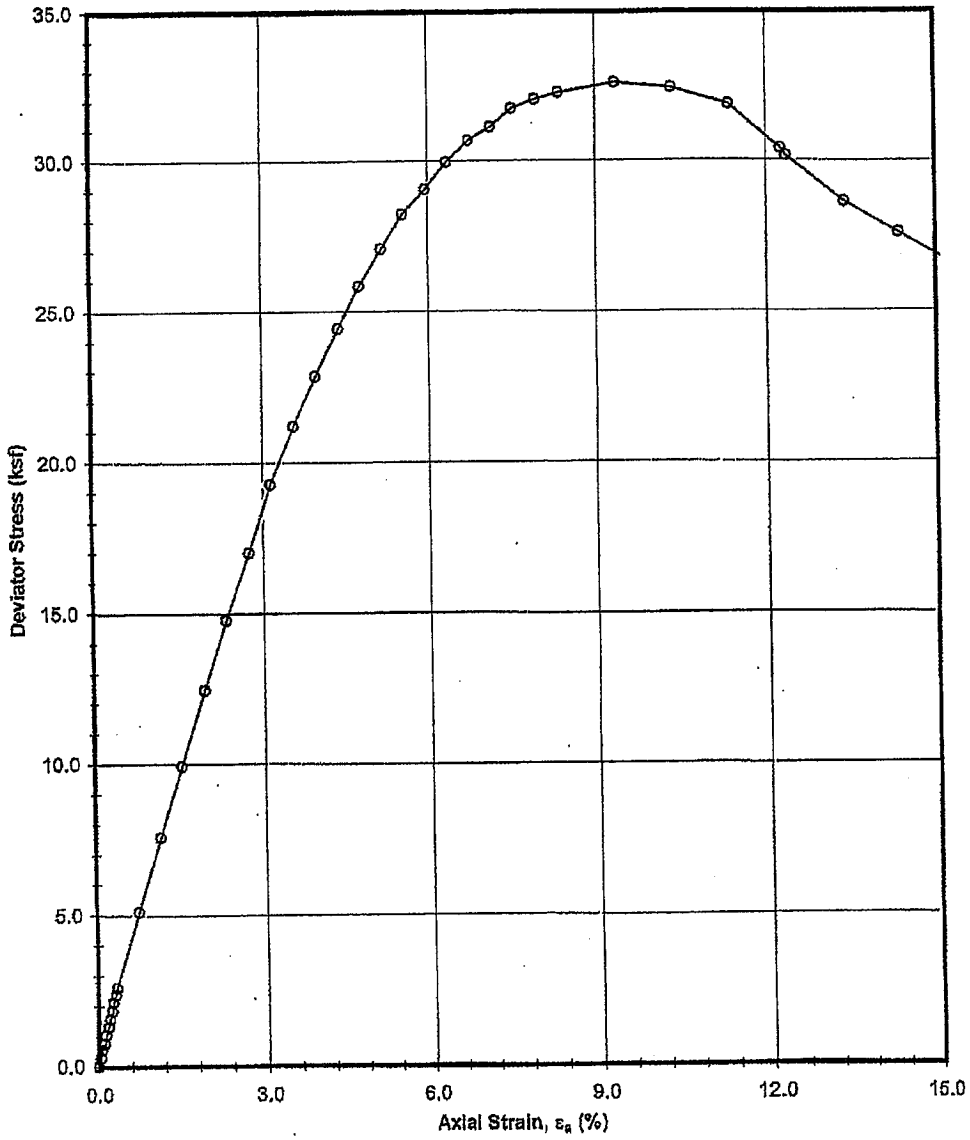
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-5, Depth 219.25 ft, Confining Pressure = 58 psi



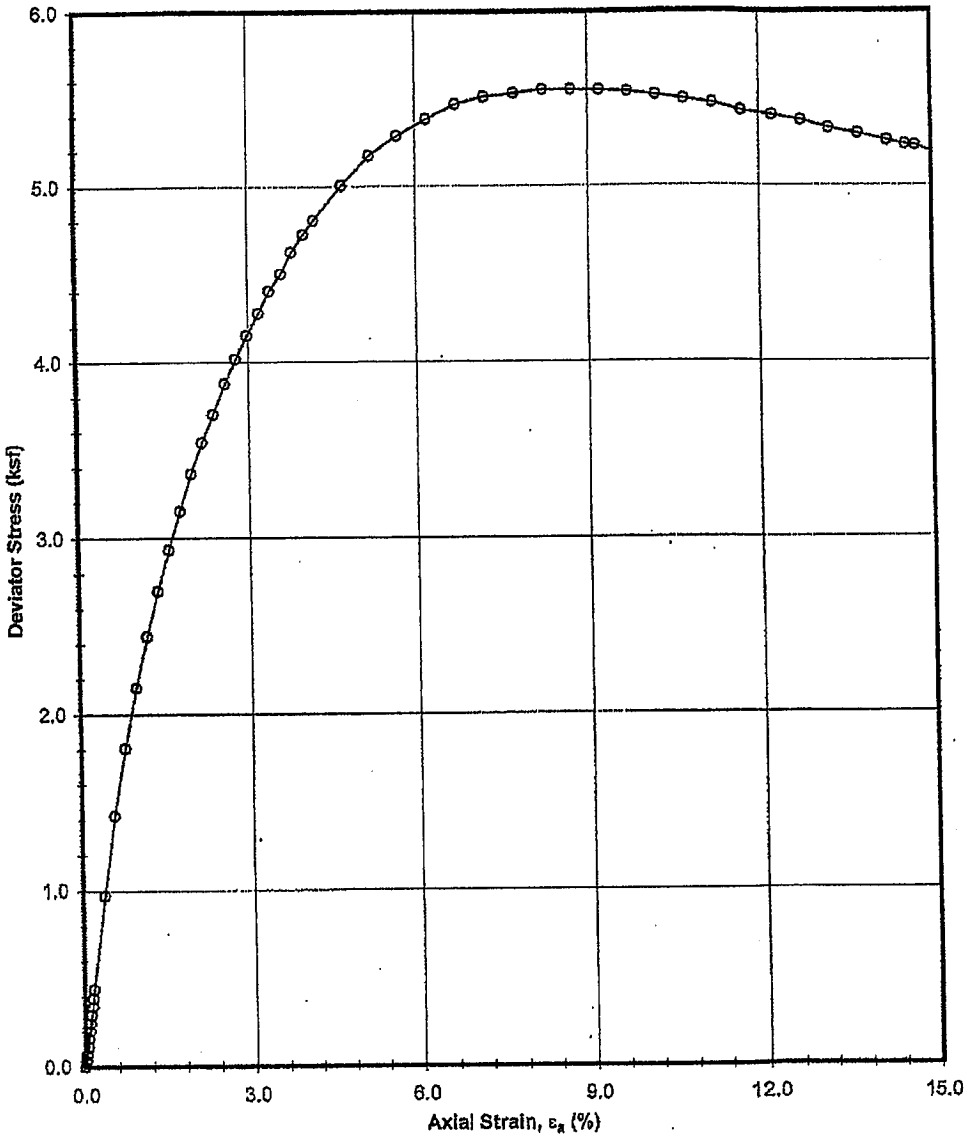
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-6, Depth 239.25 ft, Confining Pressure = 63 psi



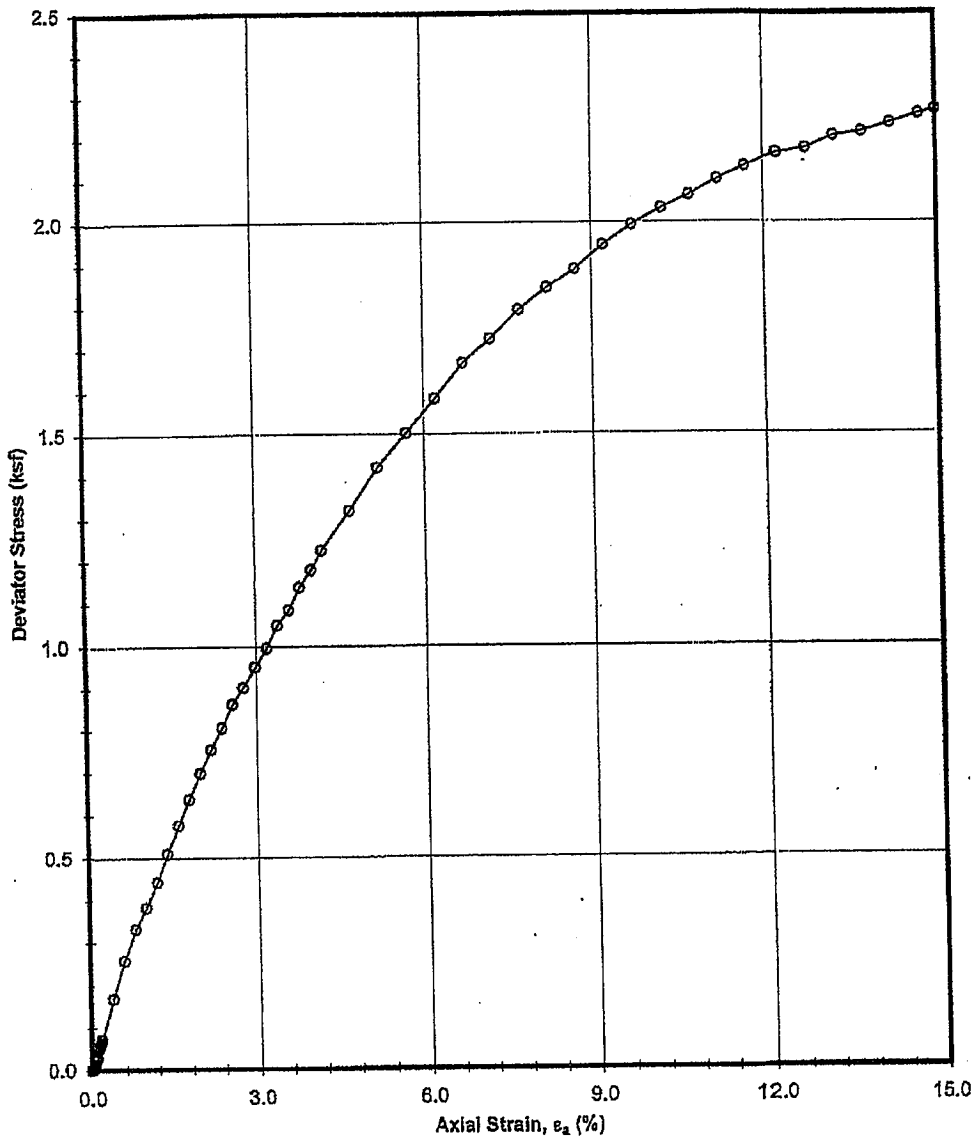
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-7, Depth 259.25 ft, Confining Pressure = 67 psi



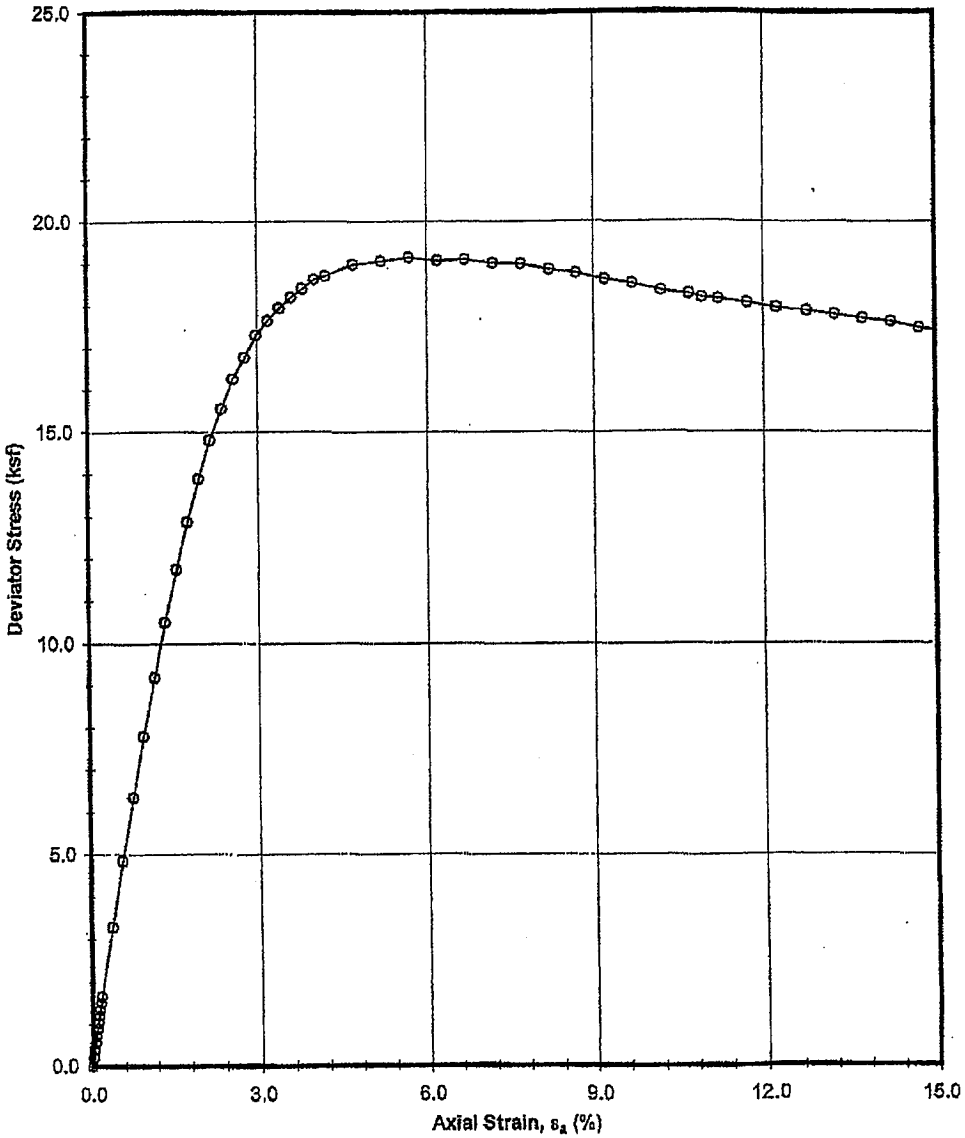
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-8, Depth 269.25 ft ft, Confining Pressure = 70 psi



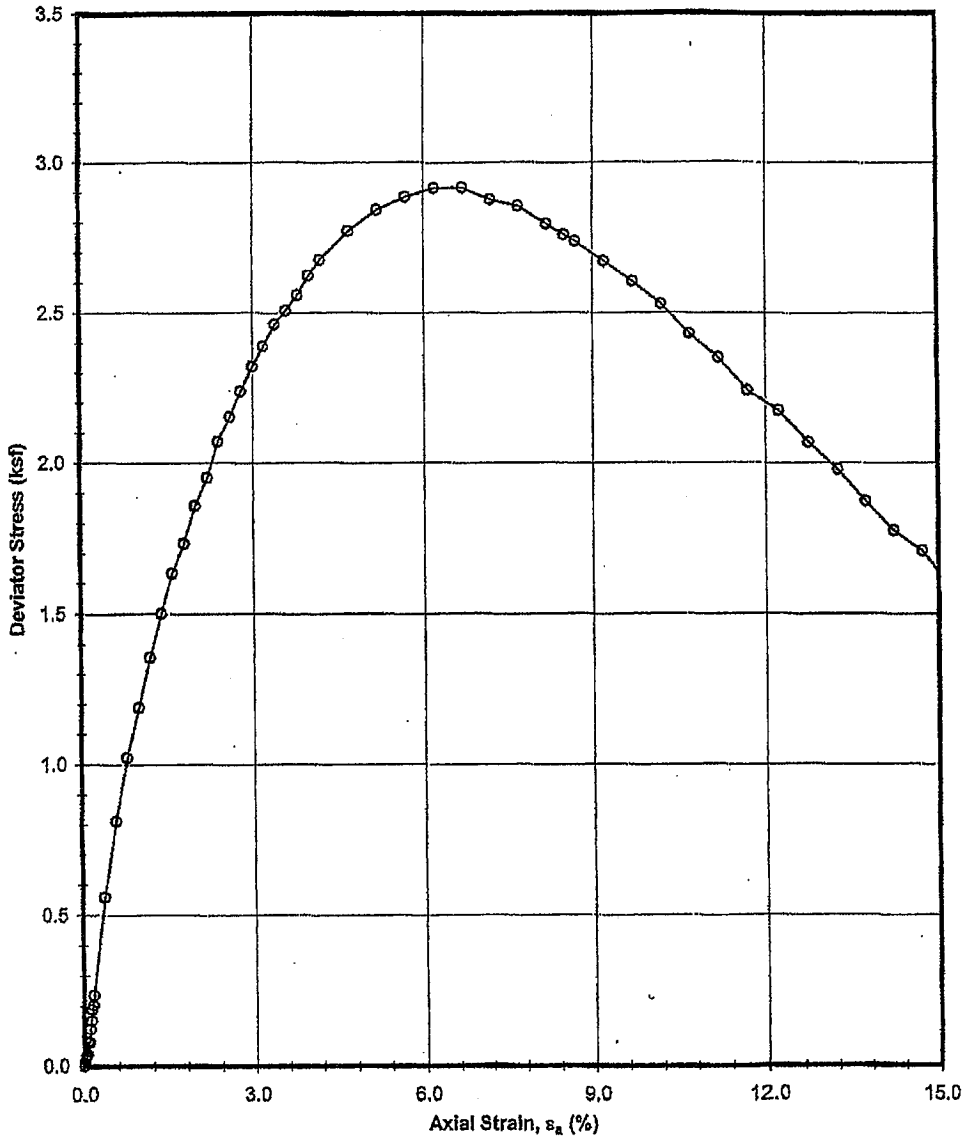
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-9, Depth 279.80 ft ft, Confining Pressure = 72 psi



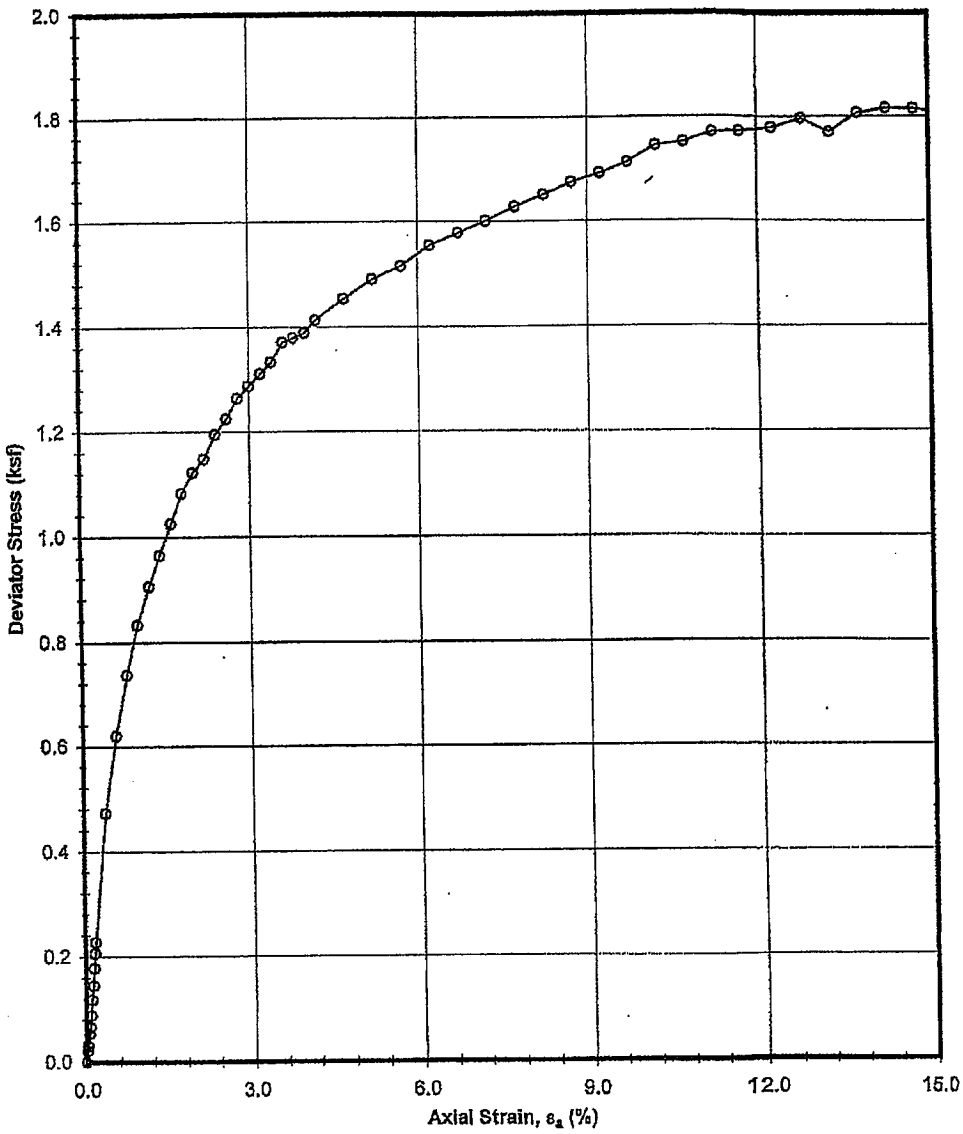
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-9, Depth 279.8 ft ft, Confining Pressure = 72 psi



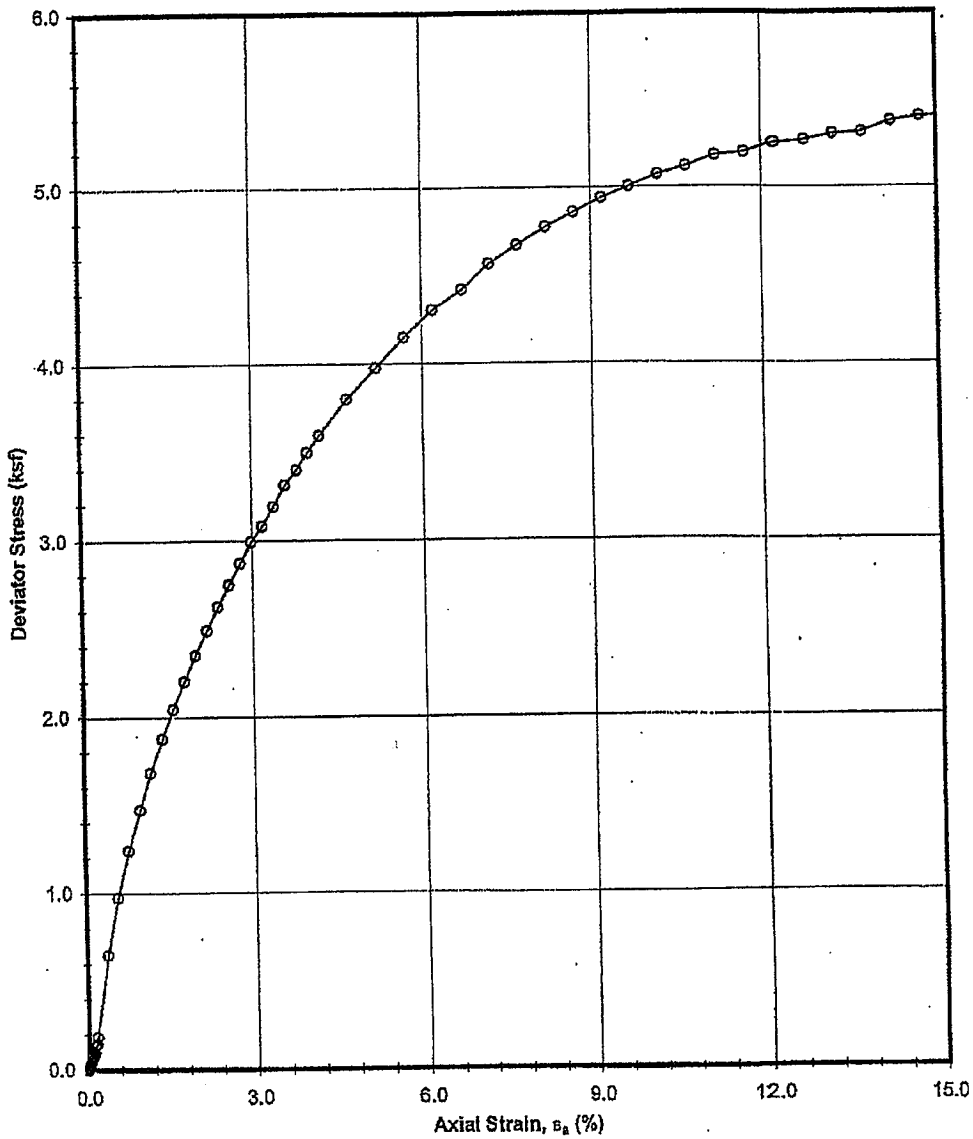
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-11, Depth 299.75 ft, Confining Pressure = 77 psi



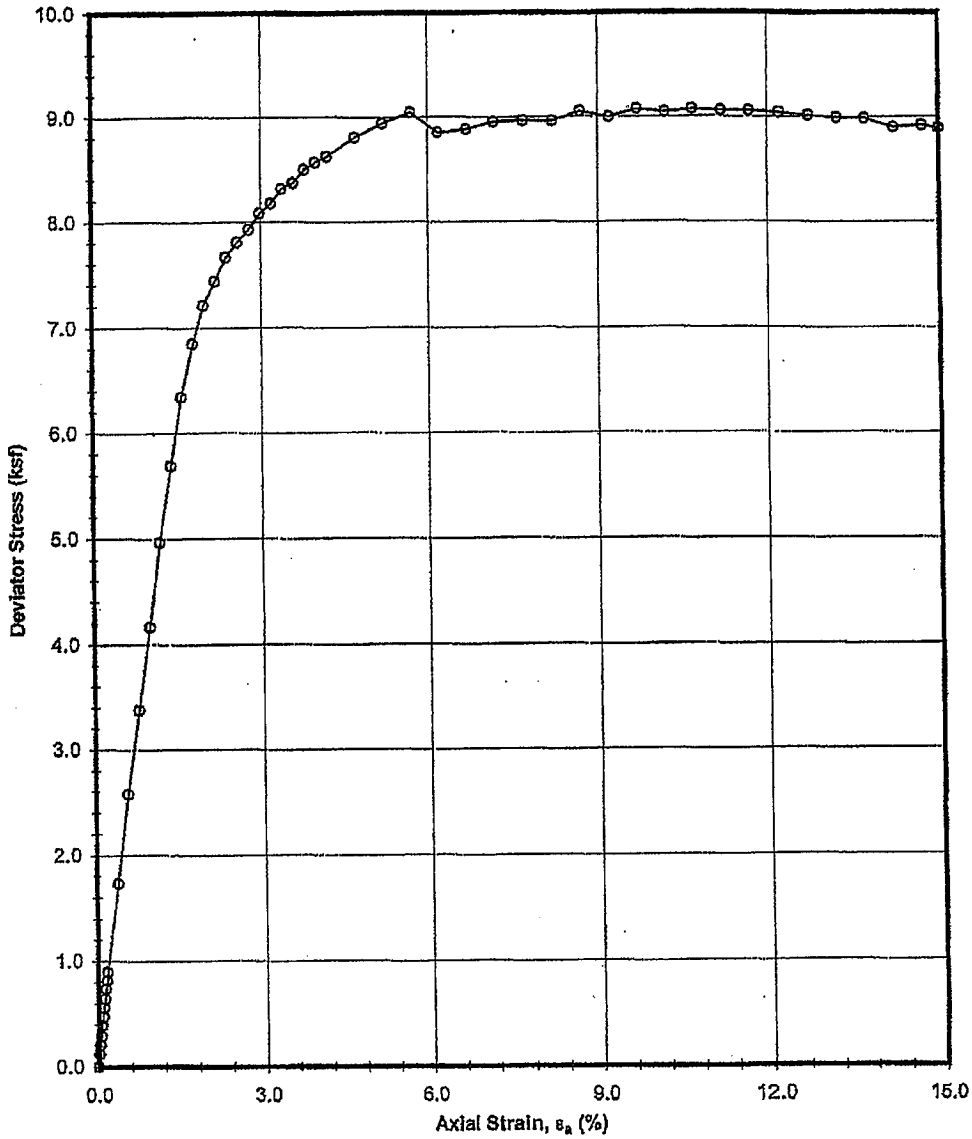
Unconsolidated-Undrained Triaxial Compression Test

Boring B-301A, Sample UD-15, Depth 339.70 ft ft, Confining Pressure = 87 psi



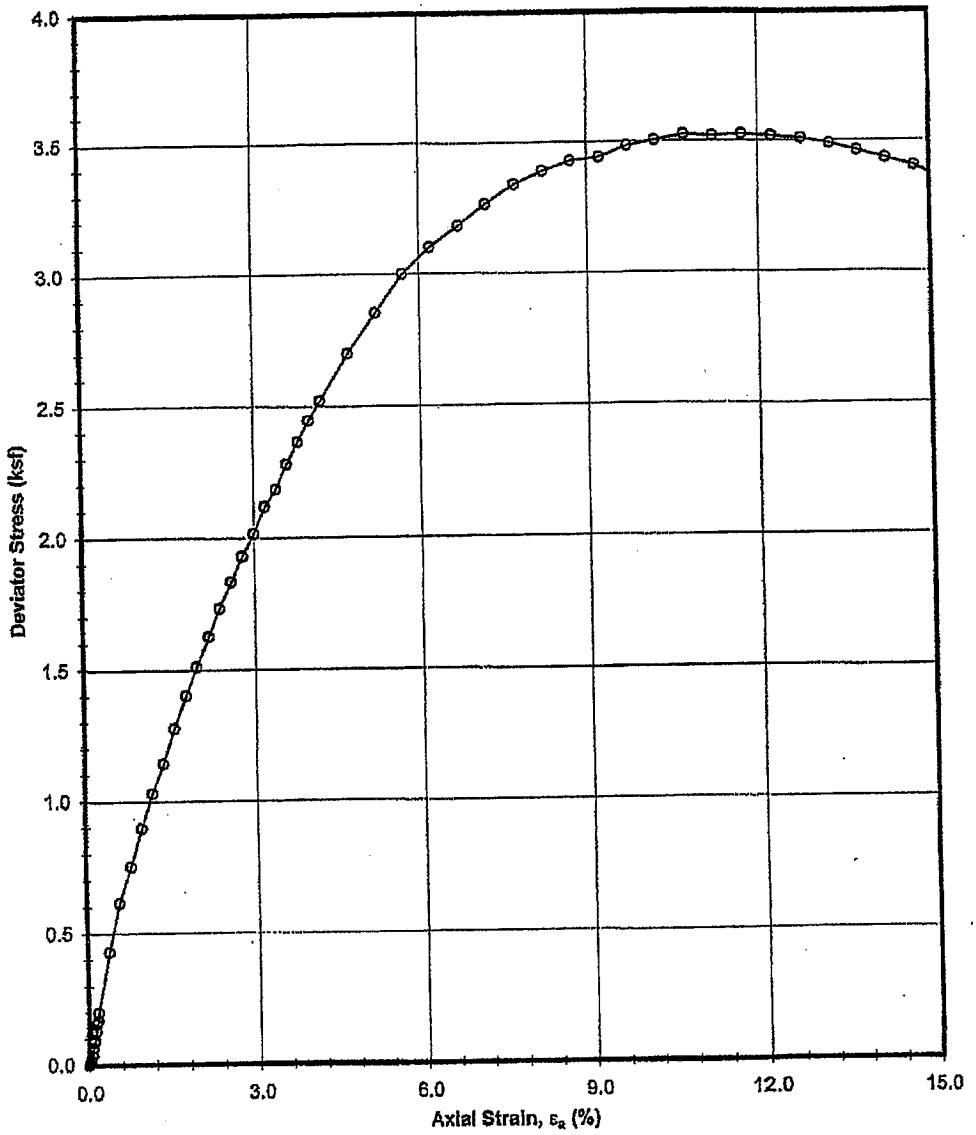
Unconsolidated-Undrained Triaxial Compression Test

Boring B-344, Sample UD-6, Depth 223.30 ft, Confining Pressure = 55 psi



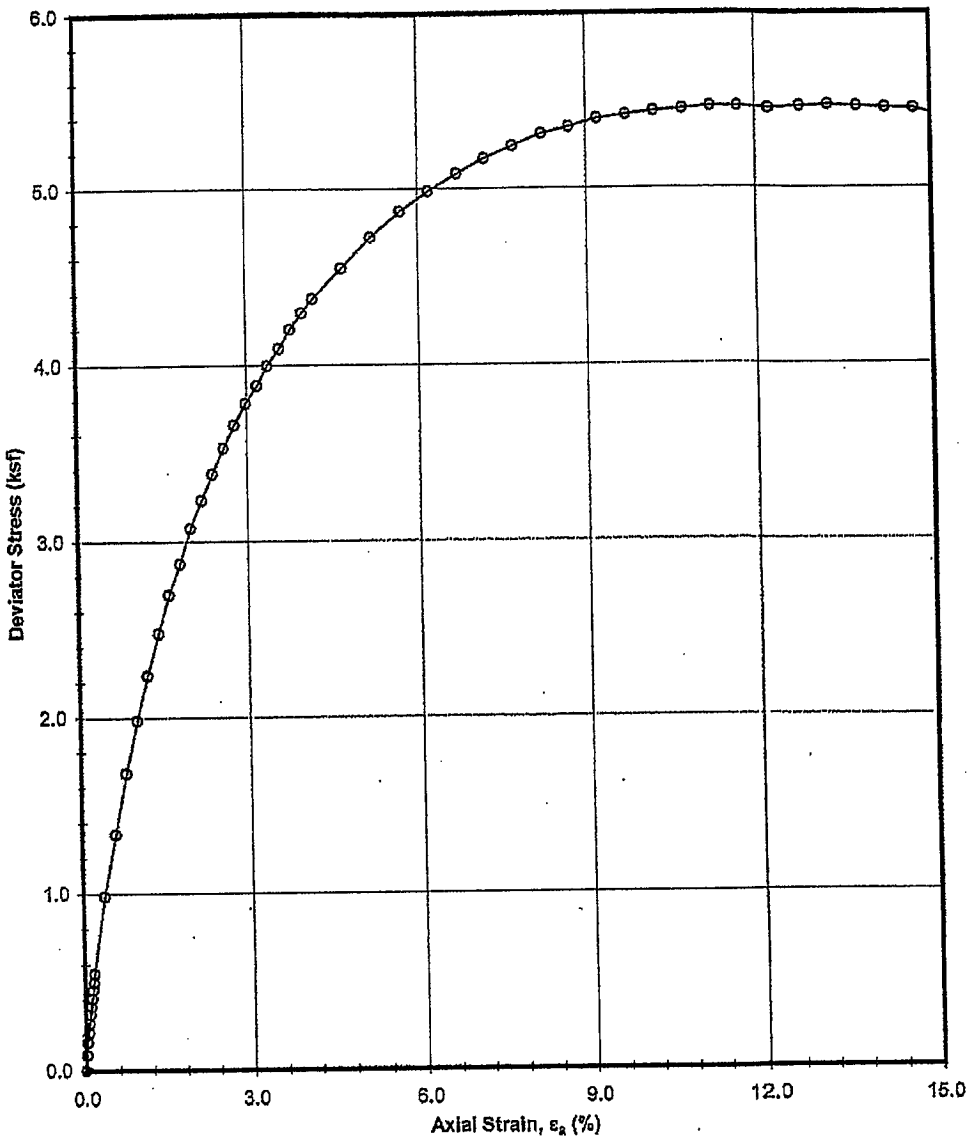
Unconsolidated-Undrained Triaxial Compression Test

Boring B-344, Sample UD-8, Depth 243.30 ft, Confining Pressure = 60 psi



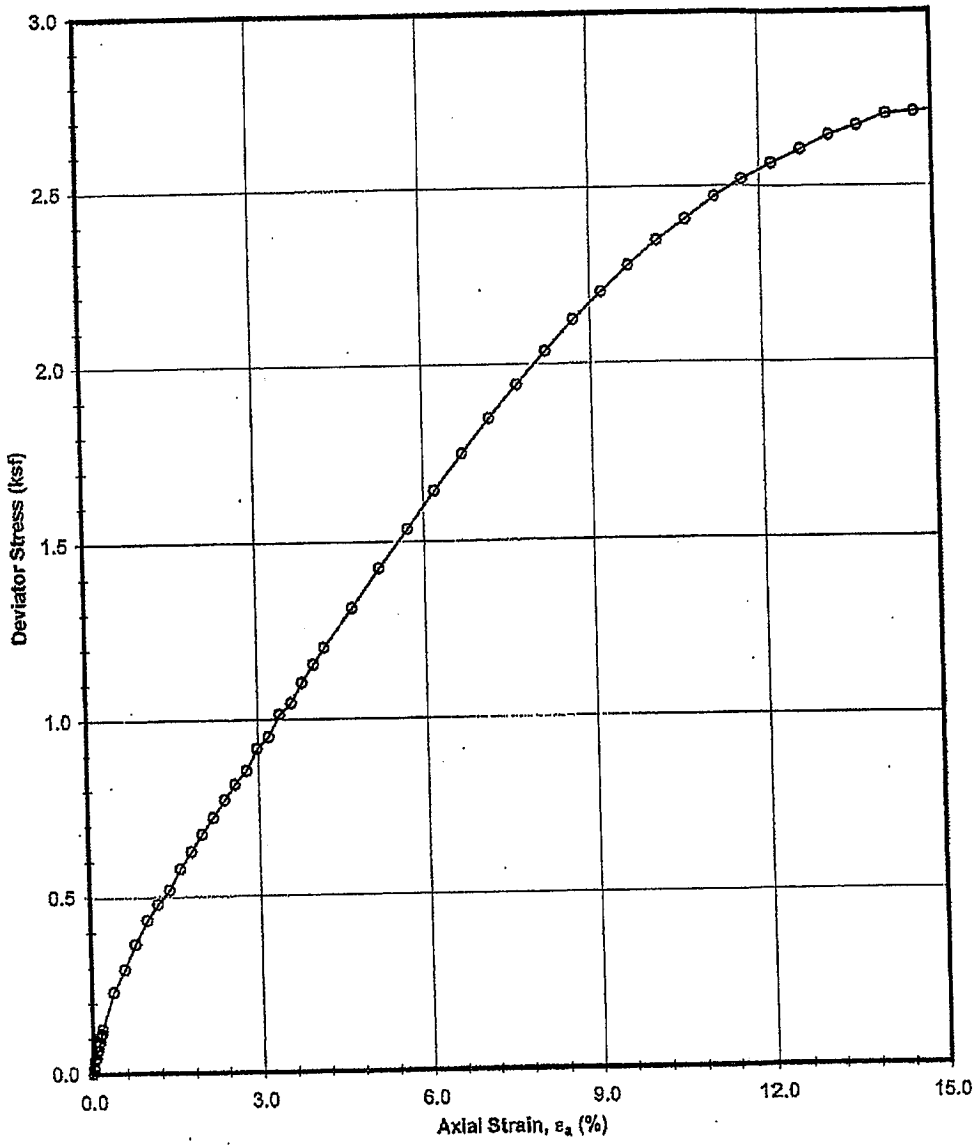
Unconsolidated-Undrained Triaxial Compression Test

Boring B-771, Sample UD-2, Depth 43.30 ft ft, Confining Pressure = 11 psi



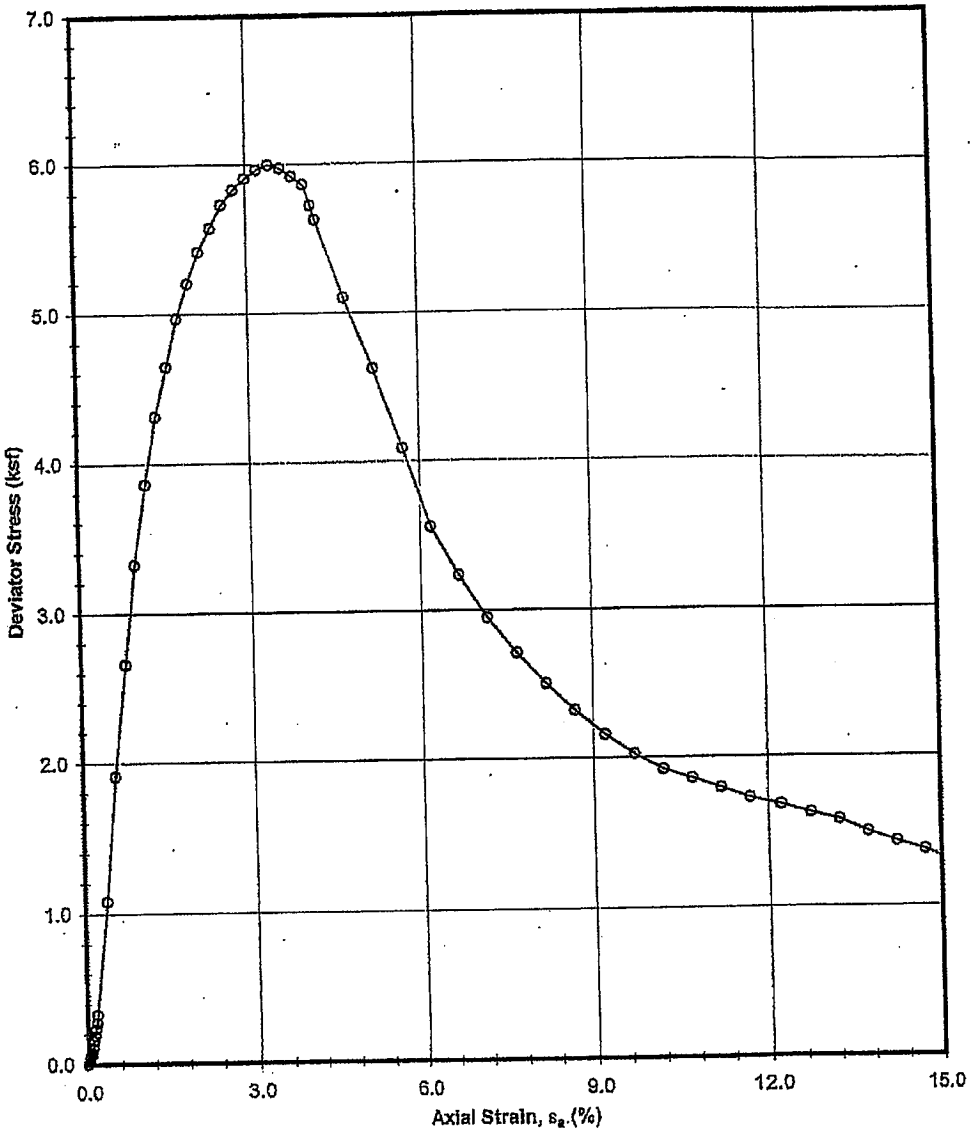
Unconsolidated-Undrained Triaxial Compression Test

Boring B-771, Sample UD-4, Depth 63.05 ft, Confining Pressure = 15 psi



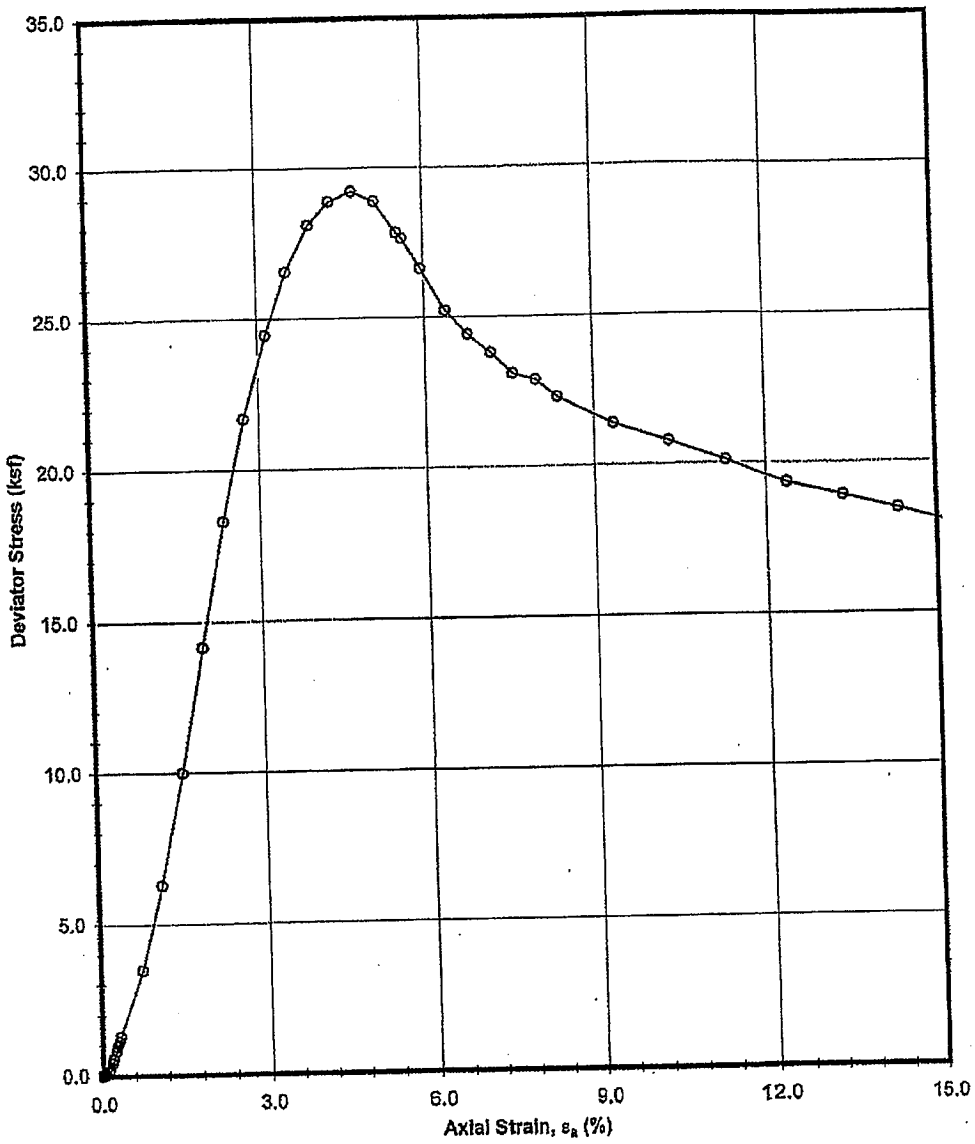
Unconsolidated-Undrained Triaxial Compression Test

Boring B-771, Sample UD-5, Depth 73.30 ft ft, Confining Pressure = 17 psi



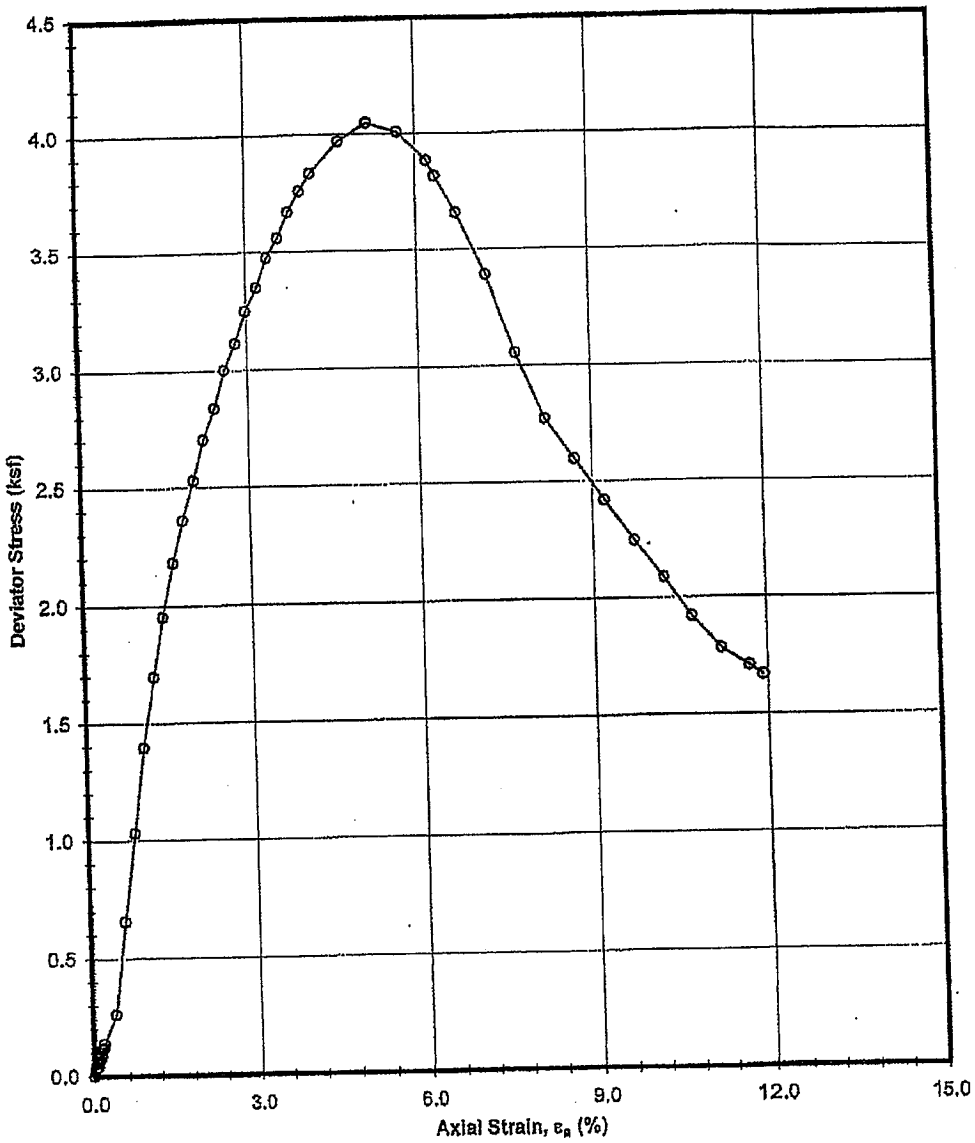
Unconsolidated-Undrained Triaxial Compression Test

Boring B-771, Sample UD-7, Depth 91.7 ft ft, Confining Pressure = 22 psi



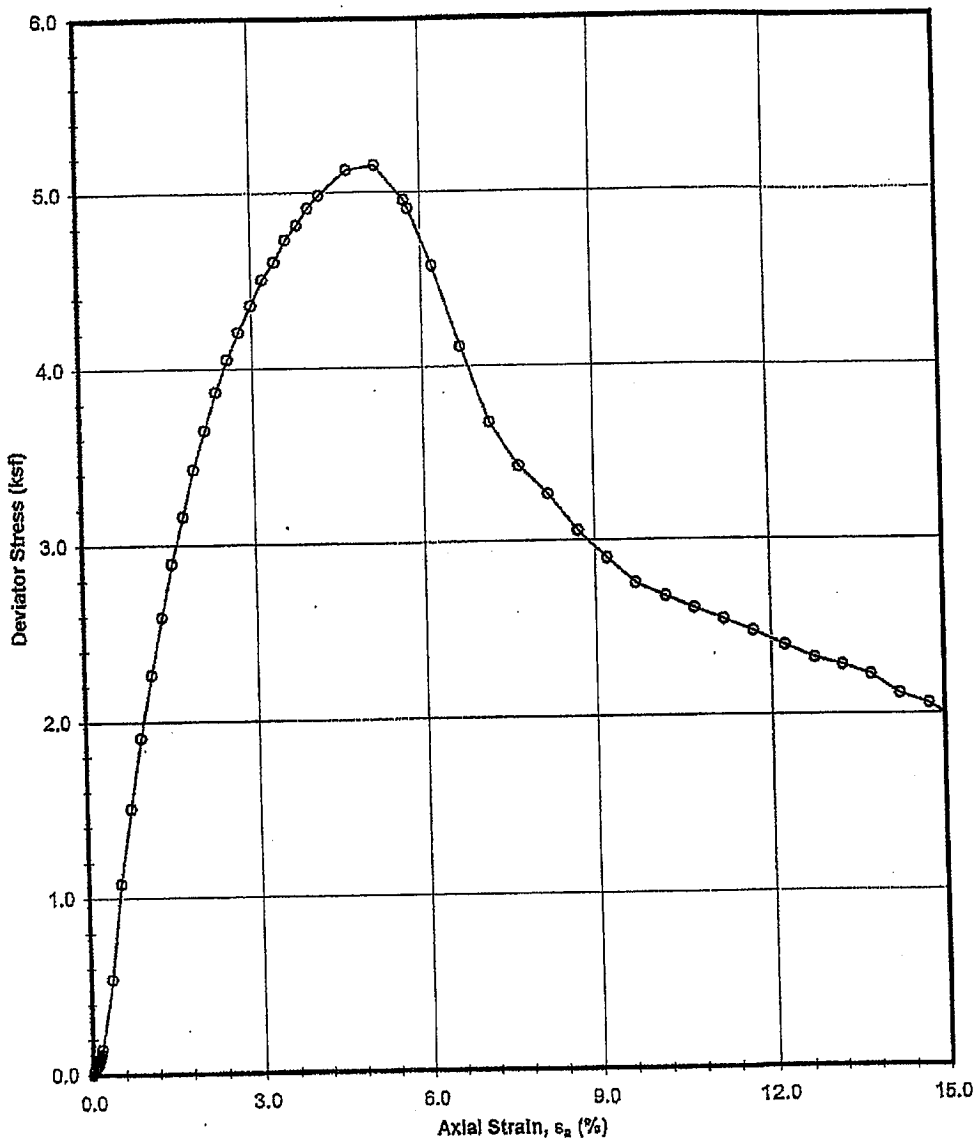
Unconsolidated-Undrained Triaxial Compression Test

Boring B-774, Sample UD-6, Depth 53.20 ft ft, Confining Pressure = 13 psi



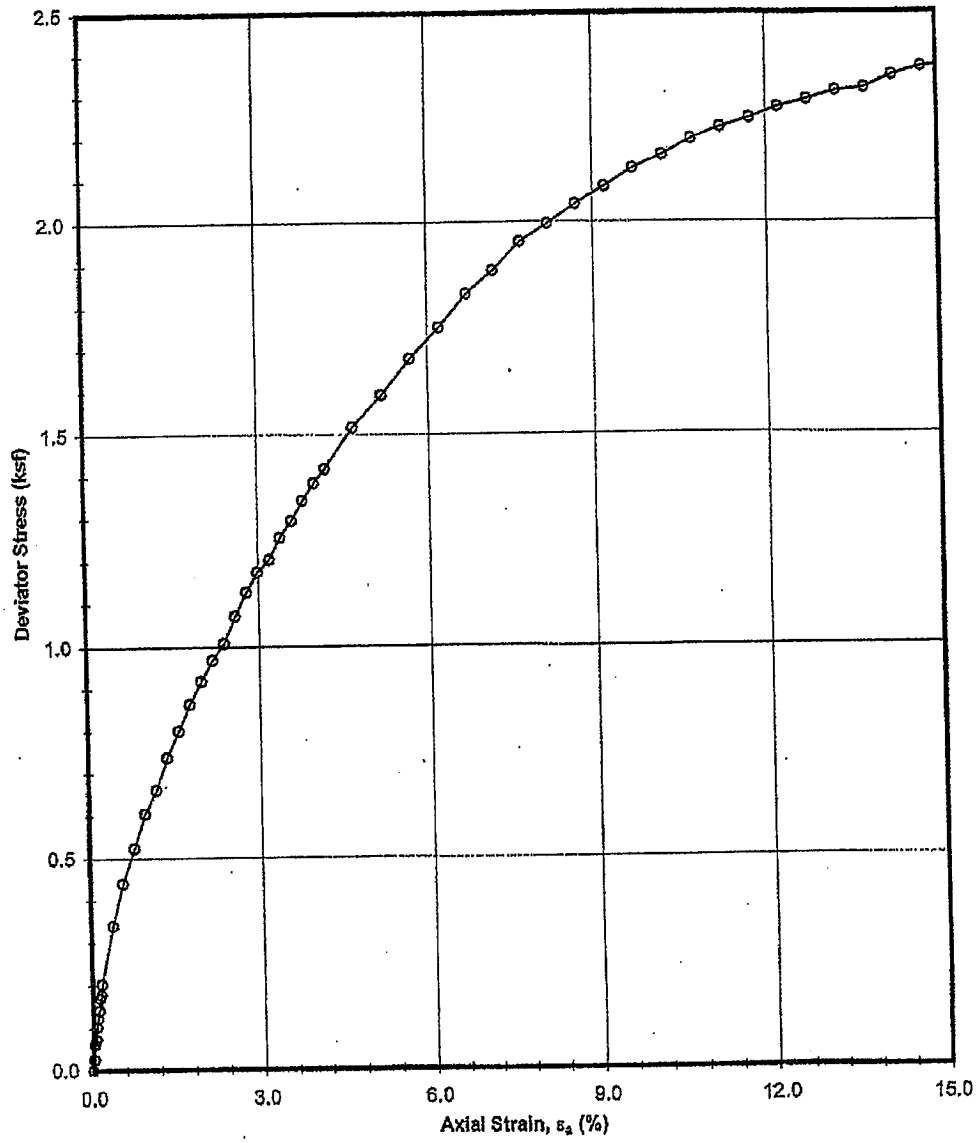
Unconsolidated-Undrained Triaxial Compression Test

Boring B-774, Sample UD-7, Depth 83.20 ft, Confining Pressure = 20 psi



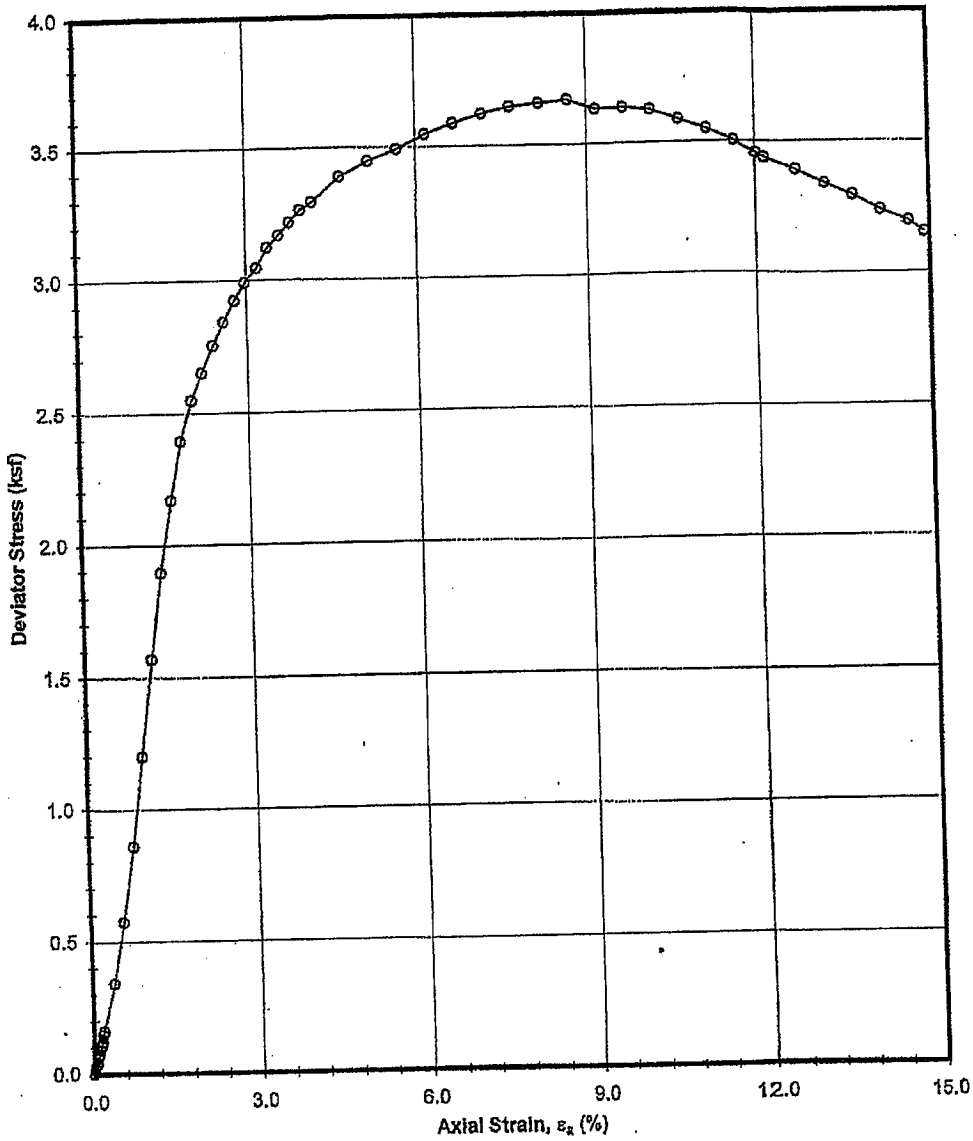
Unconsolidated-Undrained Triaxial Compression Test

Boring B-774, Sample UD-8, Depth 102.05 ft ft, Confining Pressure = 25 psi



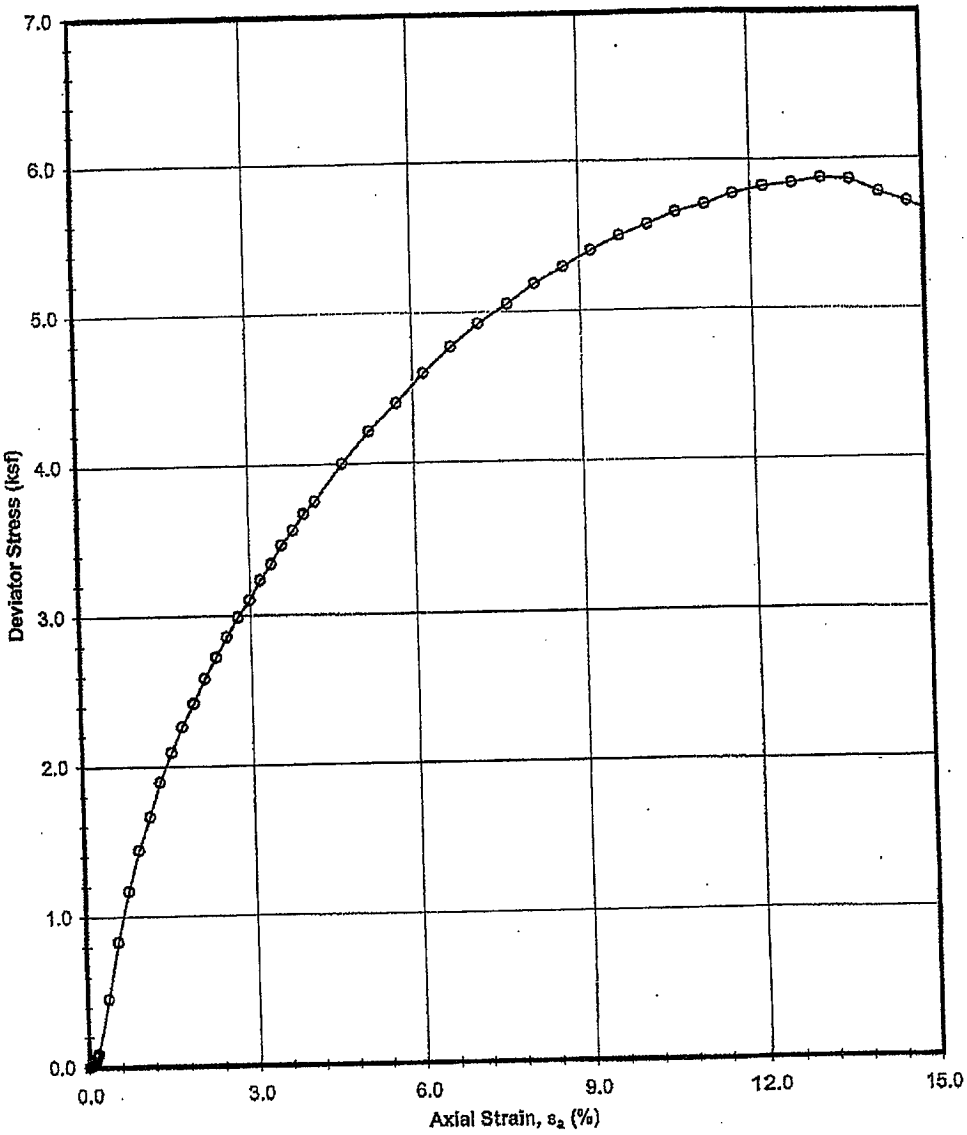
Unconsolidated-Undrained Triaxial Compression Test

Boring B-774, Sample UD-12, Depth 143.20 ft, Confining Pressure = 33 psi



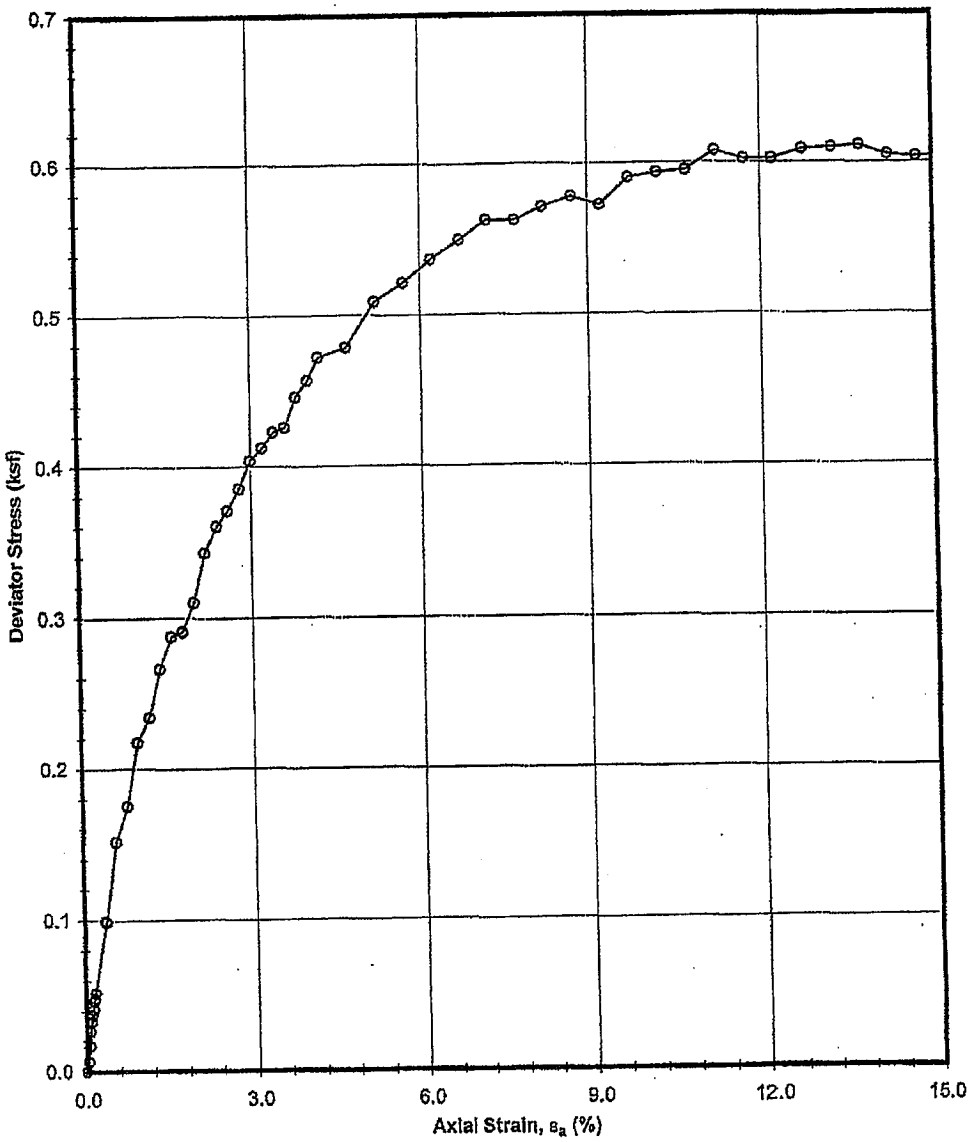
Unconsolidated-Undrained Triaxial Compression Test

Boring B-778, Sample UD-10, Depth 71.35 ft ft, Confining Pressure = 30 psi



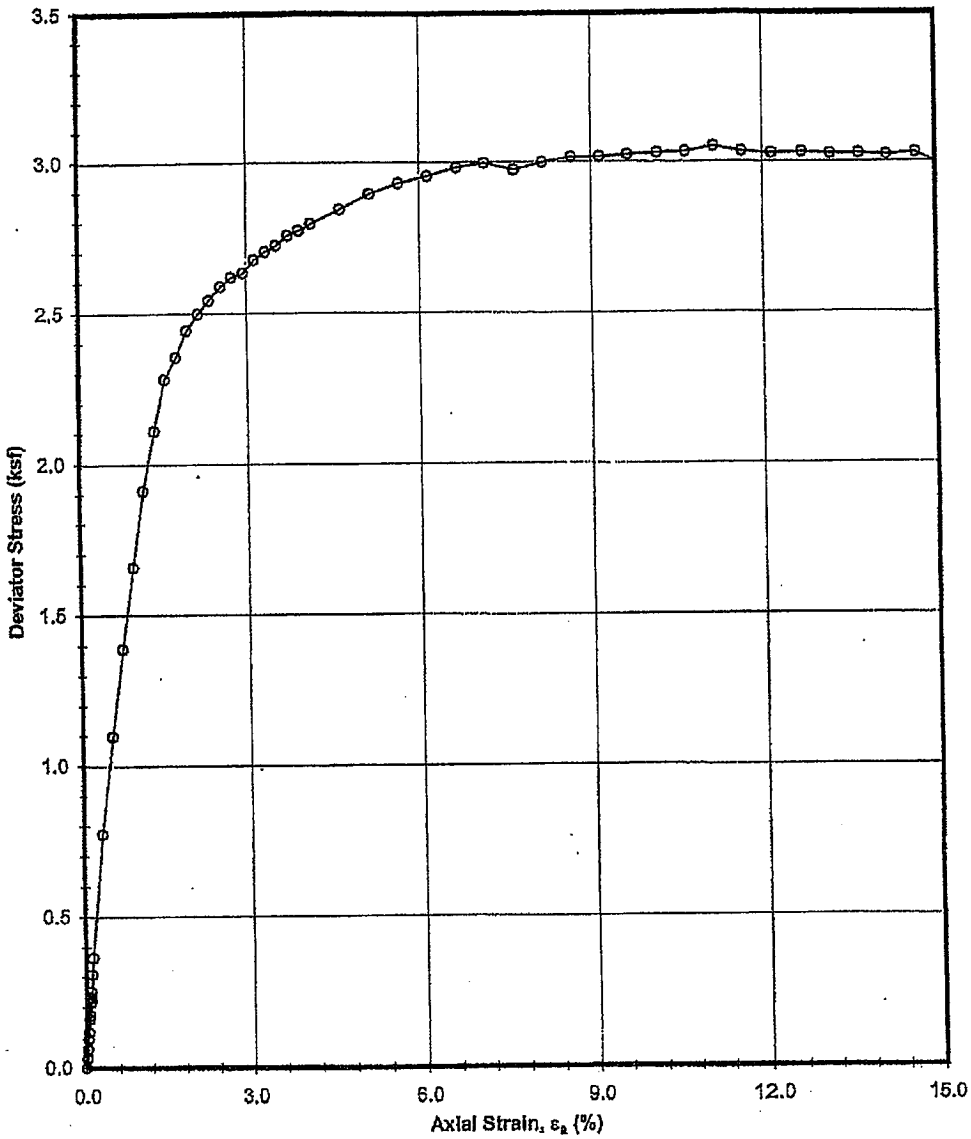
Unconsolidated-Undrained Triaxial Compression Test

Boring B-778, Sample UD-11, Depth 81.3 ft, Confining Pressure = 35 psi



Unconsolidated-Undrained Triaxial Compression Test

Boring B-779, Sample UD-8, Depth 61.38 ft, Confining Pressure = 22 psi

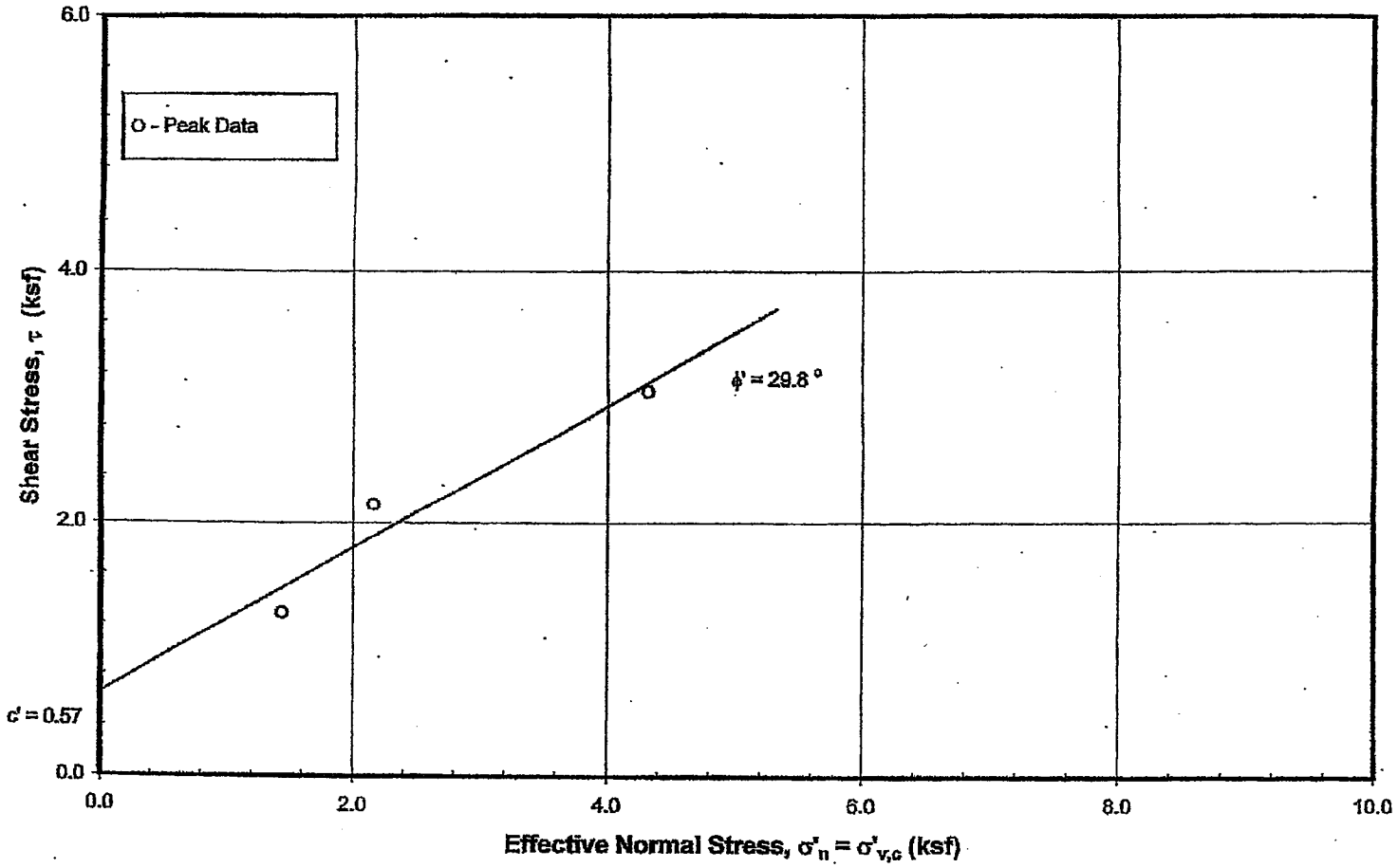


Unconsolidated-Undrained Triaxial Compression Test

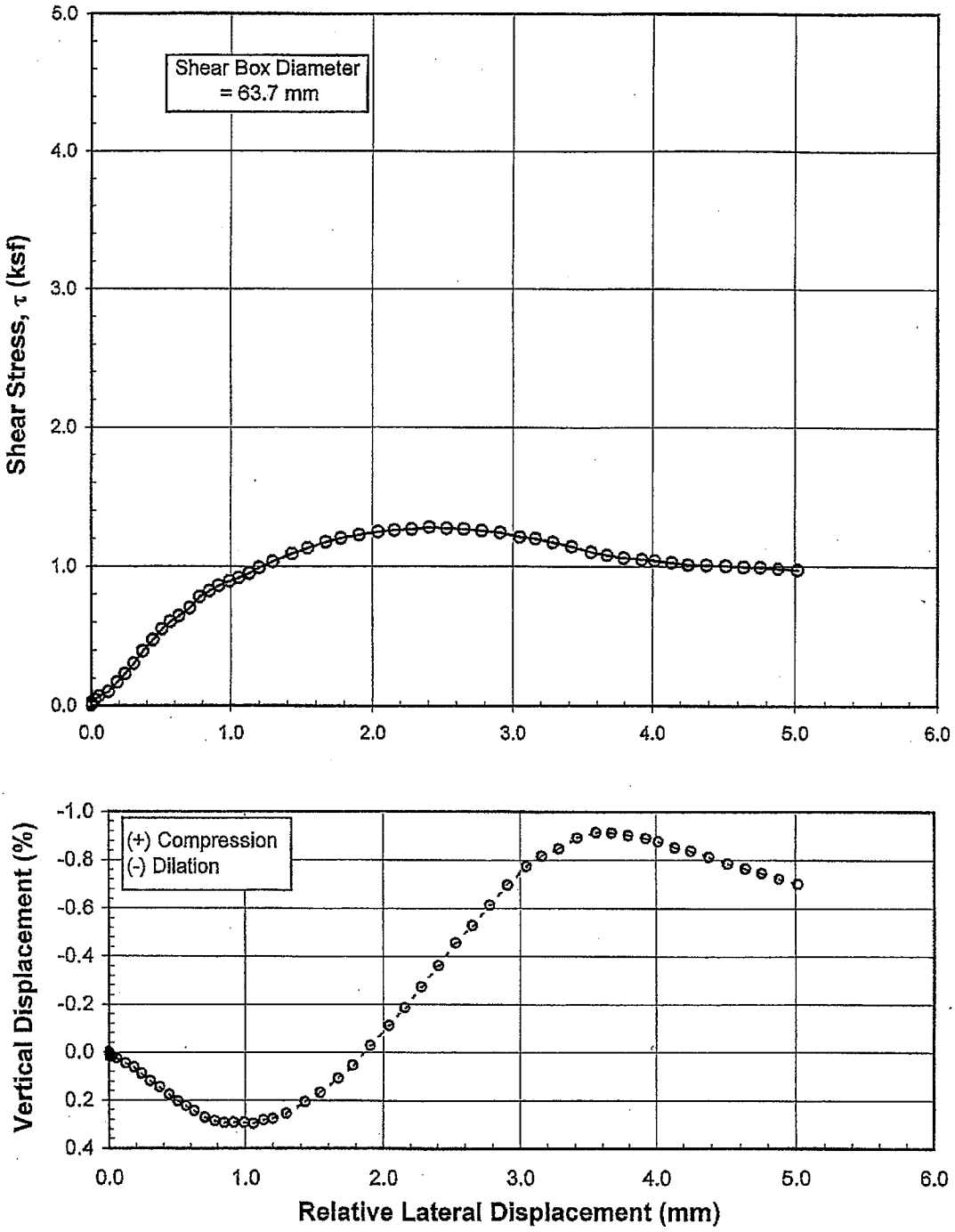
Boring B-779, Sample UD-9, Depth 73.38 ft ft, Confining Pressure = 25 psi

Calvert Cliffs Nuclear Power Plant Unit 3
Bechtel Job No. 25237
Bechtel Purchase Order No. 25237-103-P0A-CY05-00001
MACTEC Project Number 6234-08-4783

Direct Shear (Soil-3pt) (ASTM D3080)



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-771 - Sample: UD-1 - Depth: 32.9 ft

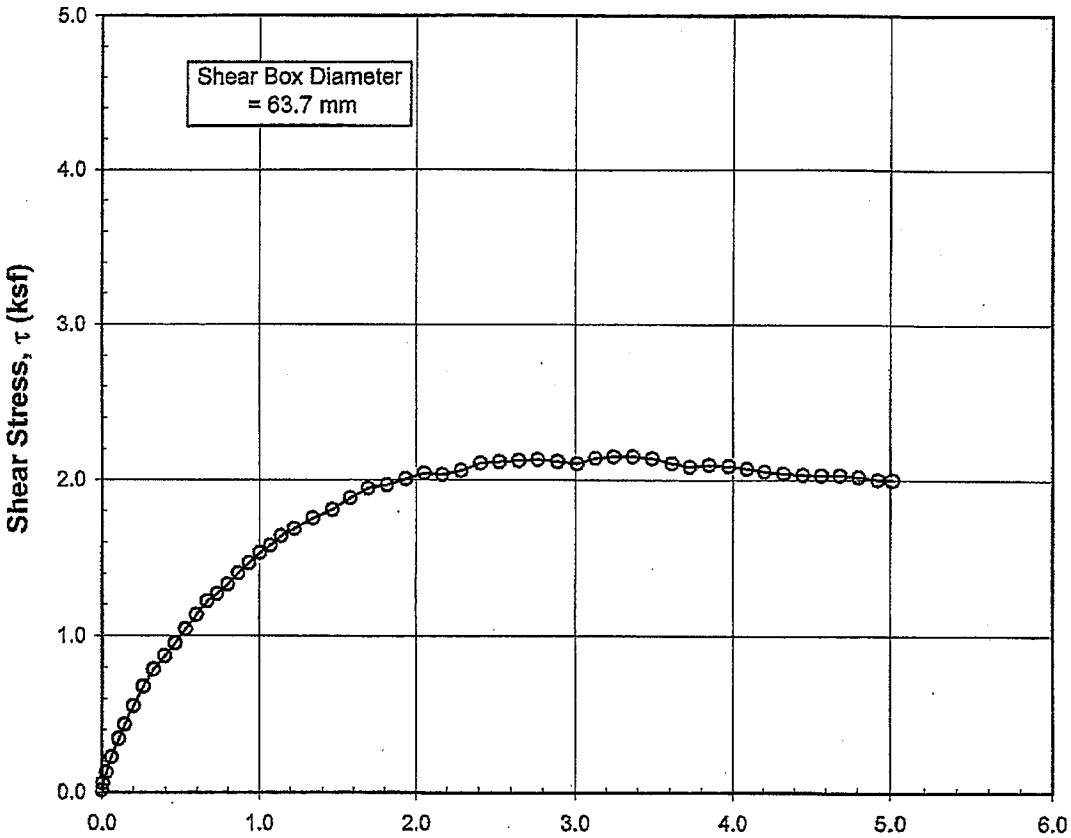


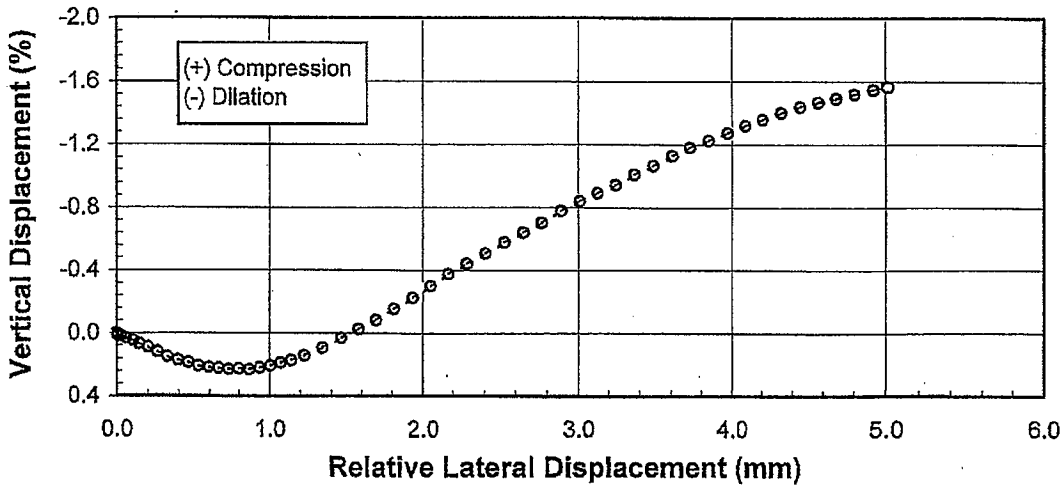
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 1.44 ksf

Boring: B-771 - Sample: UD-1b - Depth: 32.90 ft

Reviewed By: HP



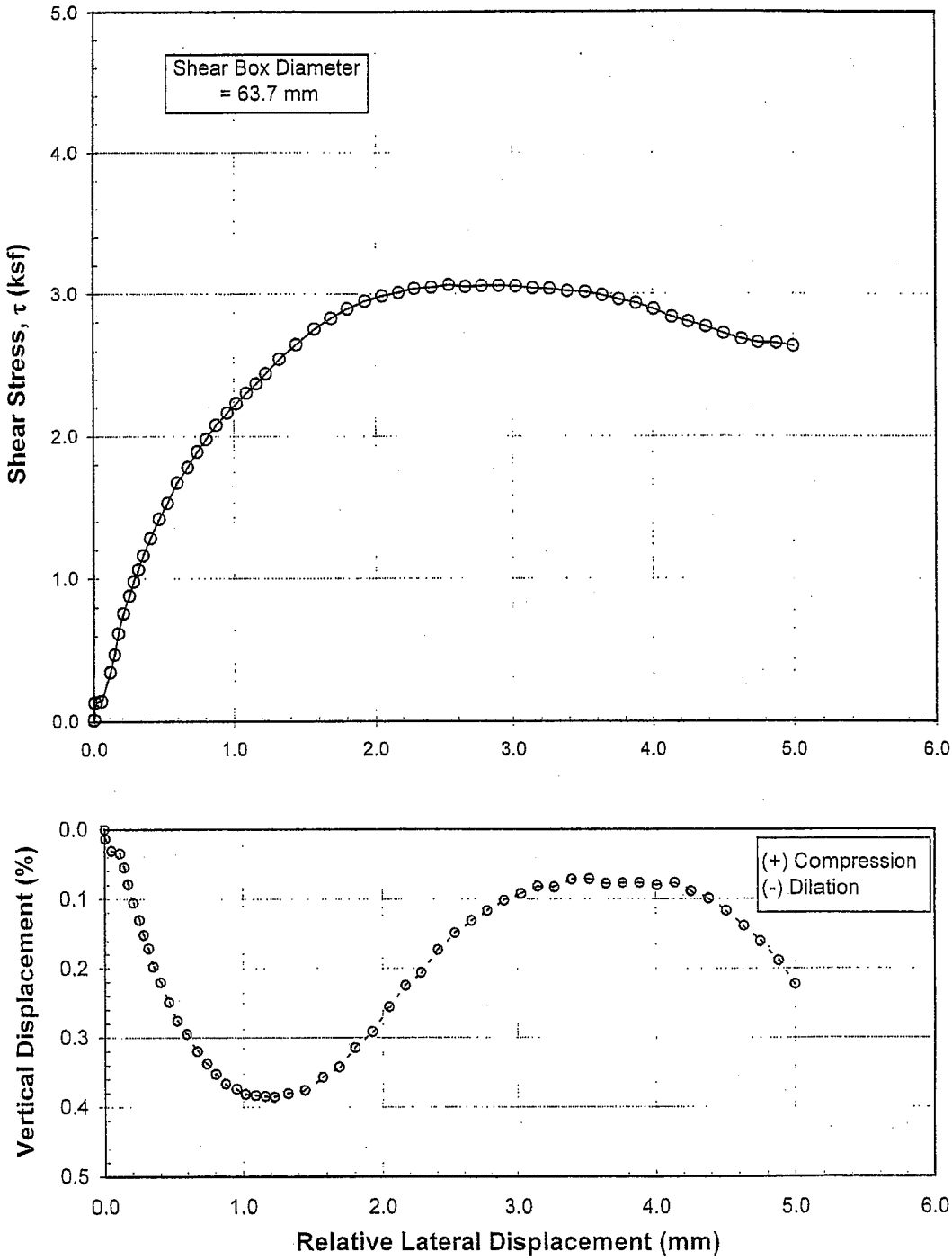


DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 2.16 ksf

Boring: B-771 - Sample: UD-1c - Depth: 32.6 ft

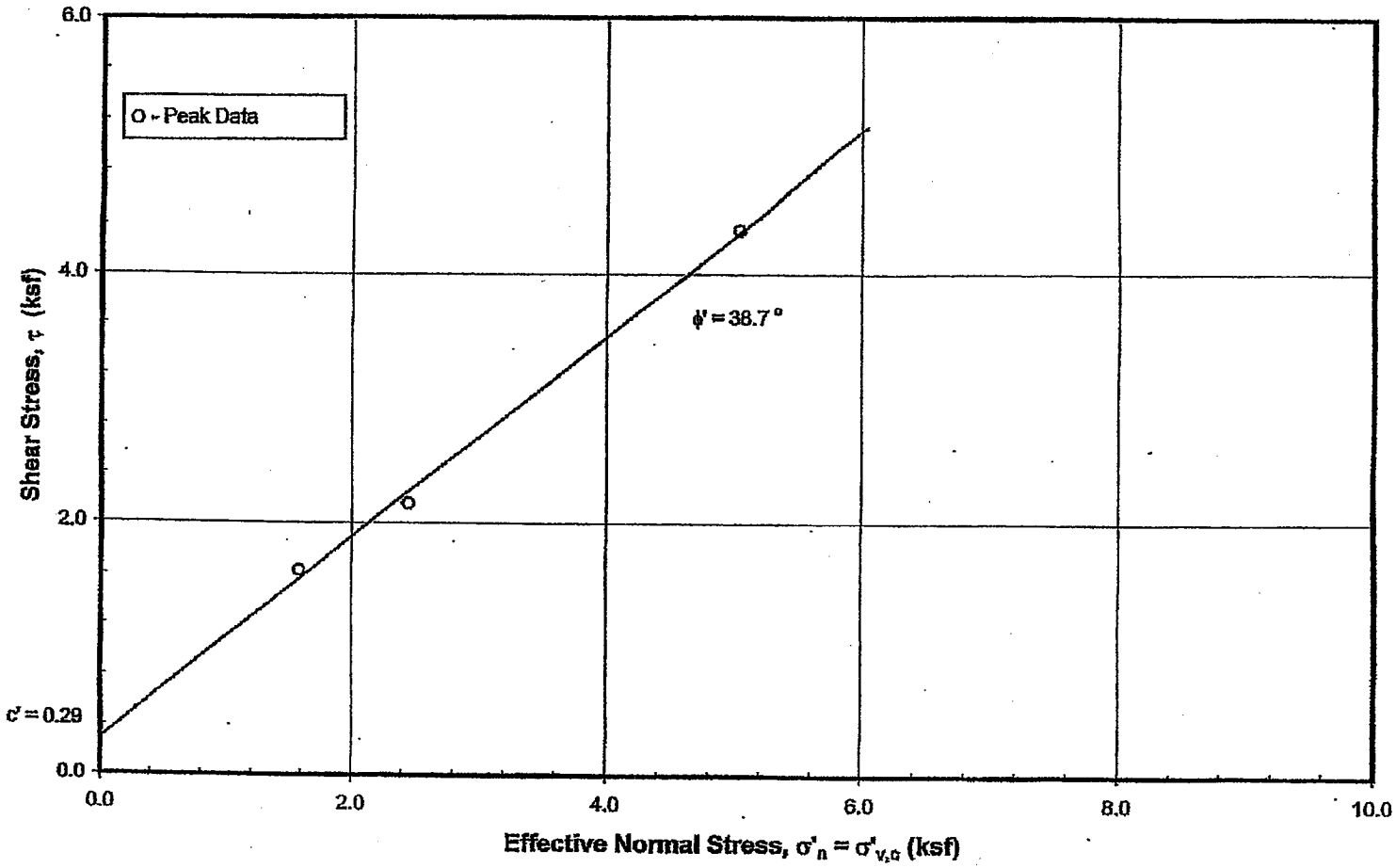
Reviewed By: HP



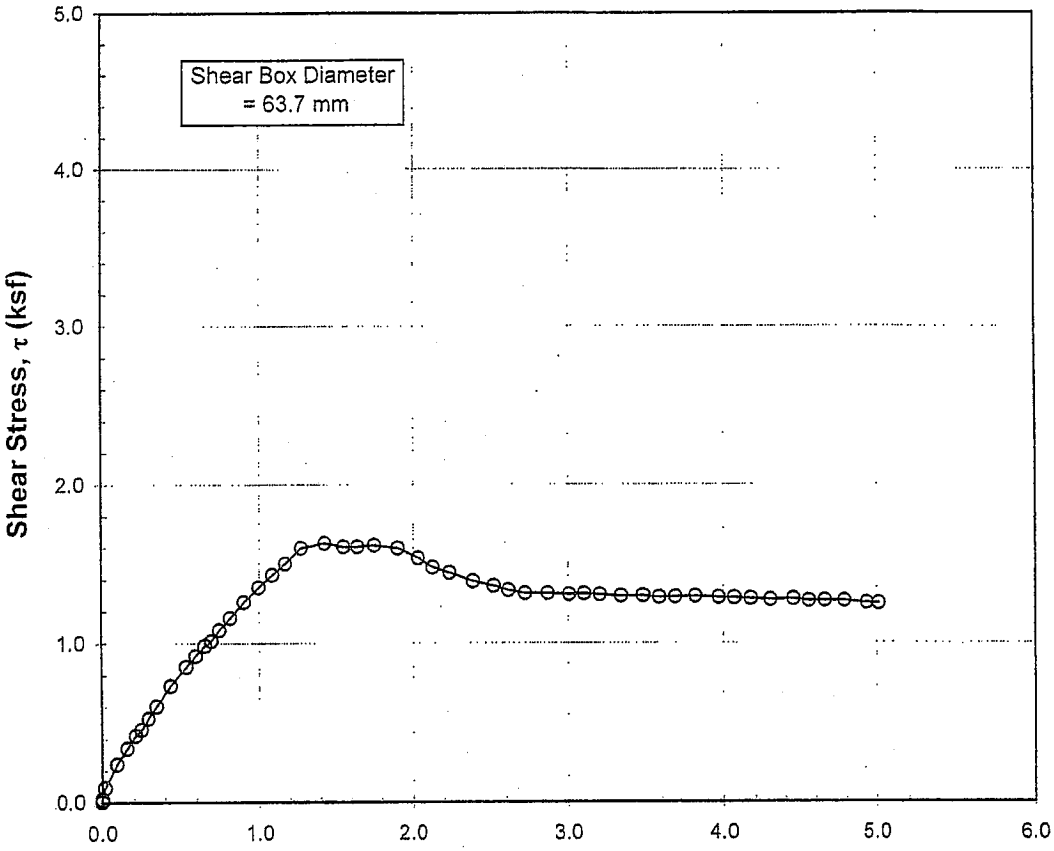
DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

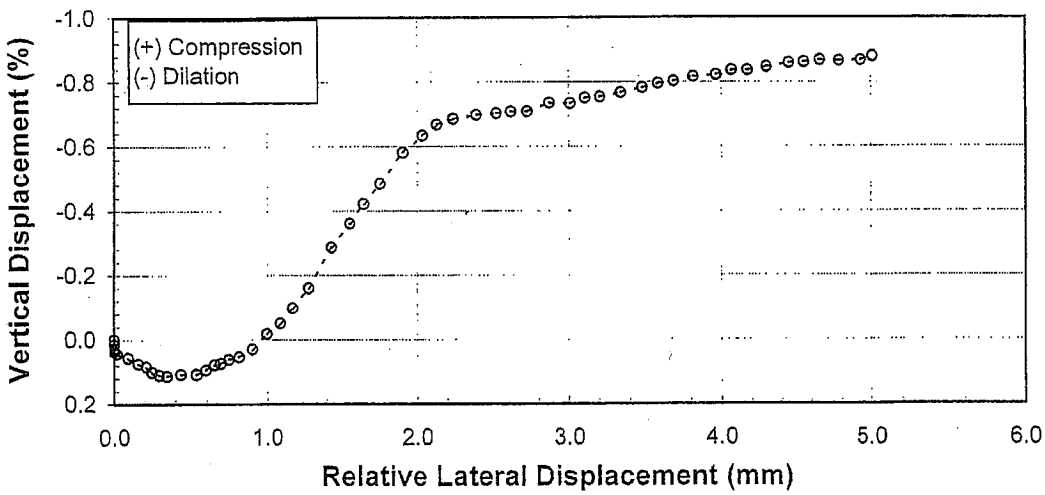
Soil - Soil Interface $\sigma'_{v,c}$ = 4.32 ksf

Boring: B-771 - Sample: UD-1d - Depth: 32.7 ft



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-771 - Sample: UD-2d - Depth: 42.55 ft

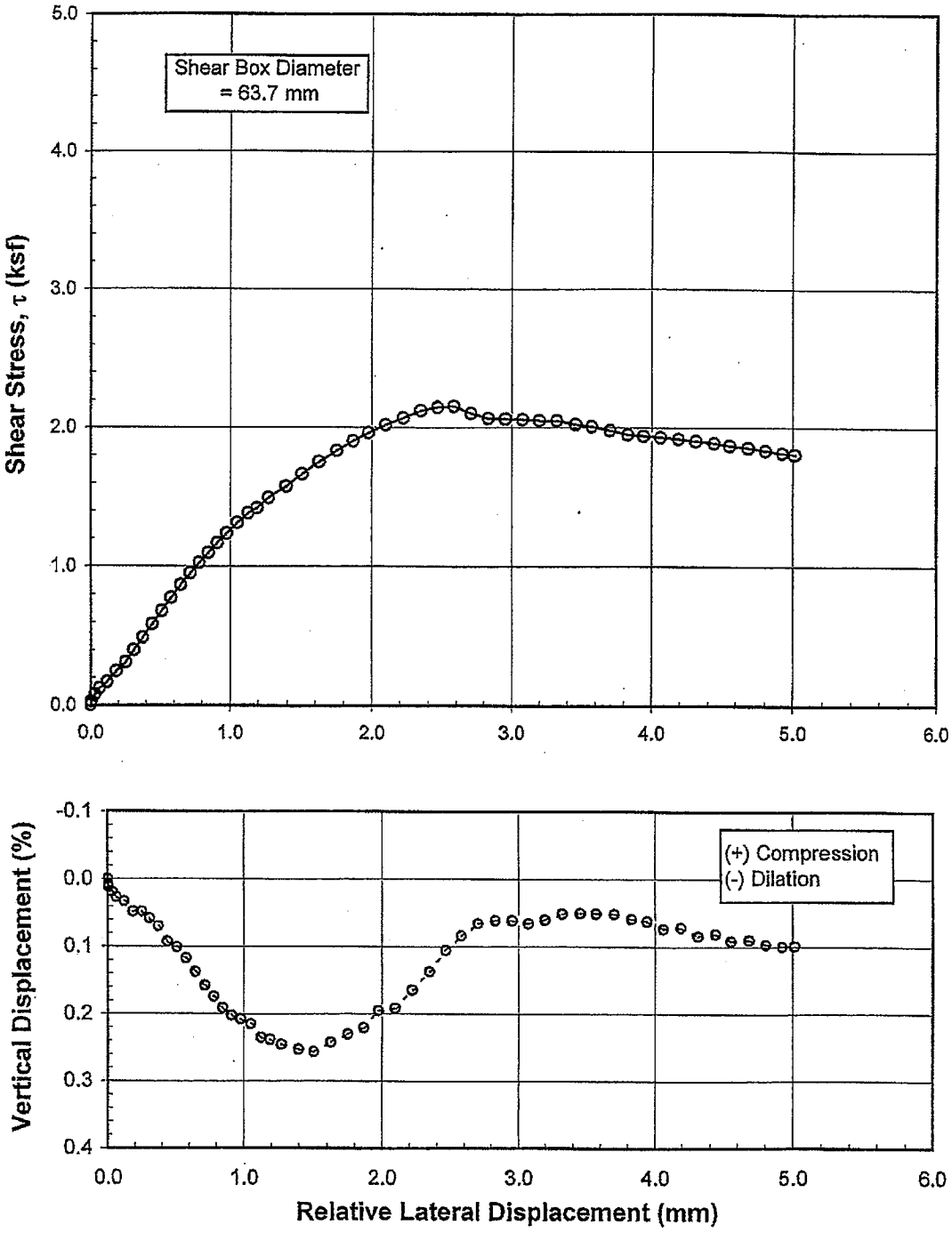




DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 1.58 ksf

Boring: B-771 - Sample: UD-2b - Depth: 42.75 ft

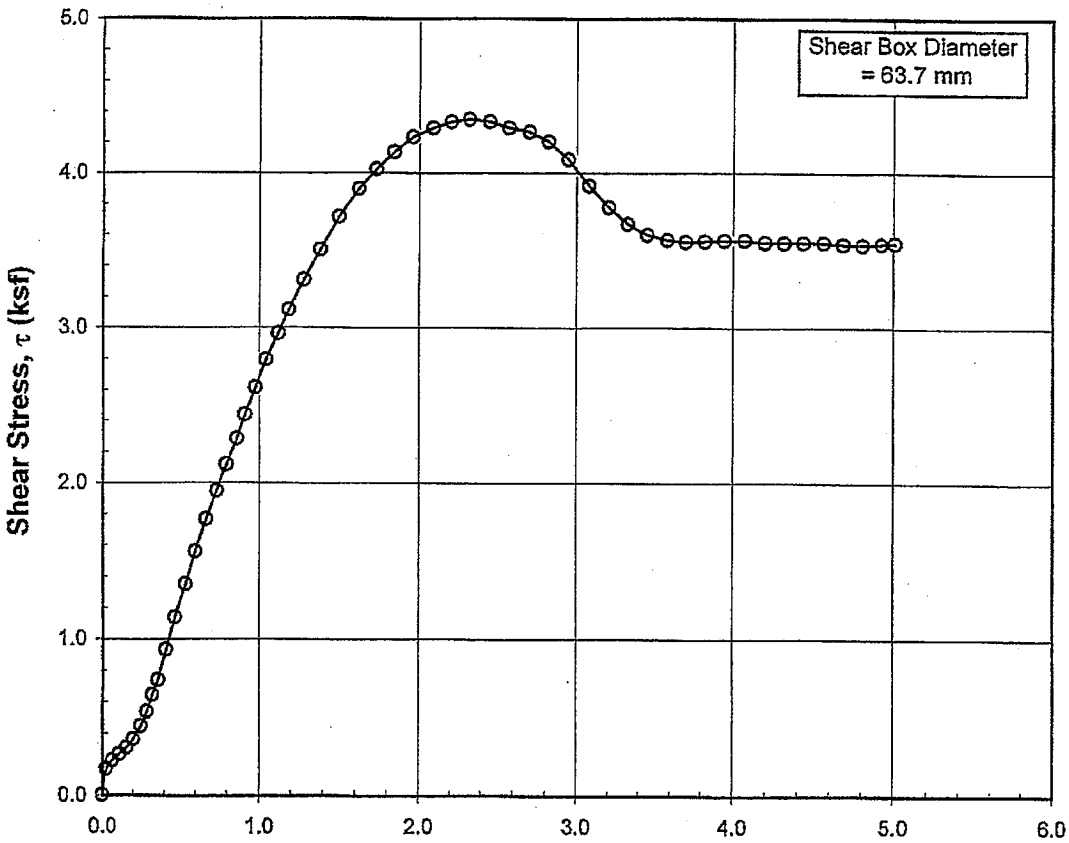


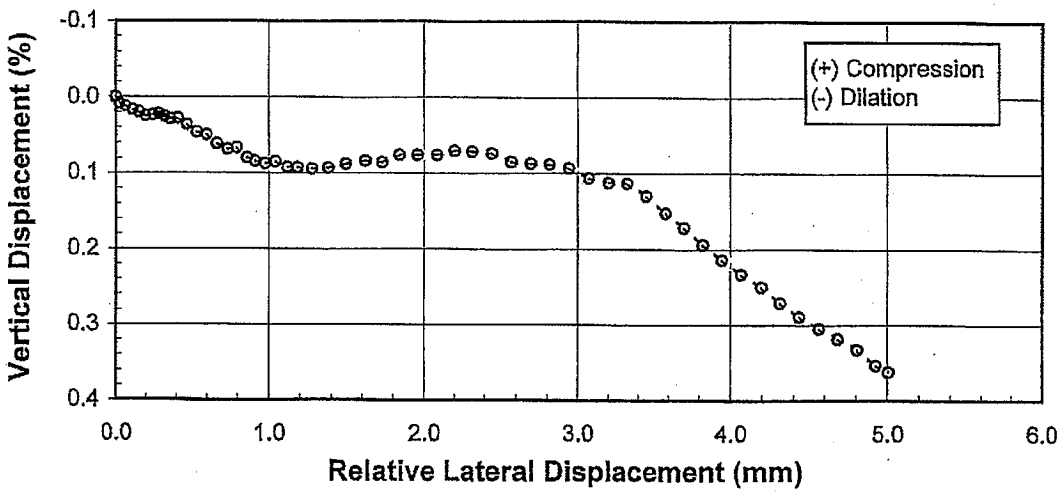
DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 2.45 ksf

Boring: B-771 - Sample: UD-2c - Depth: 42.65 ft

Reviewed By: HP





DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 5.04 ksf

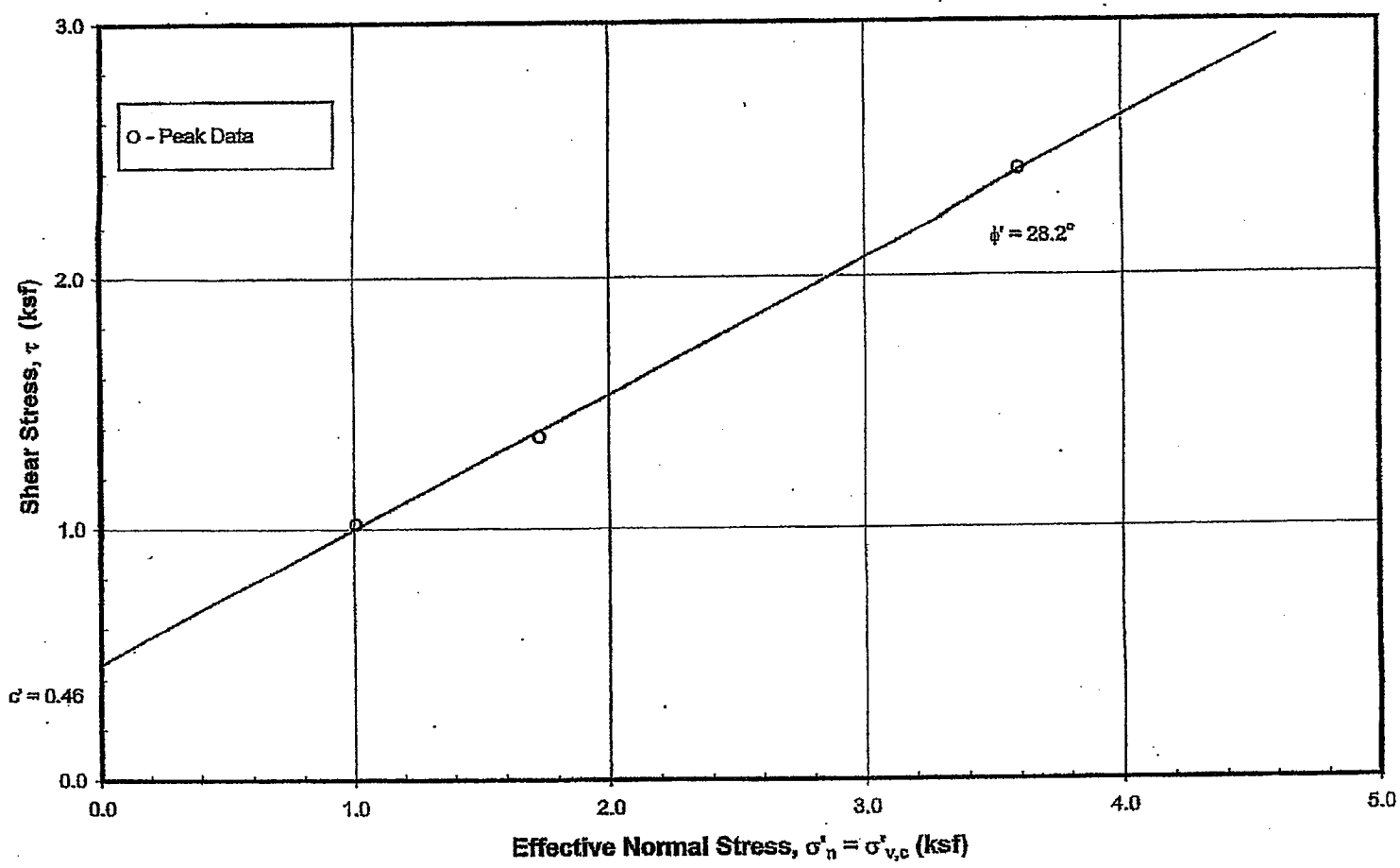
Boring: B-771 - Sample: UD-2d - Depth: 42.55 ft

Reviewed By: HP

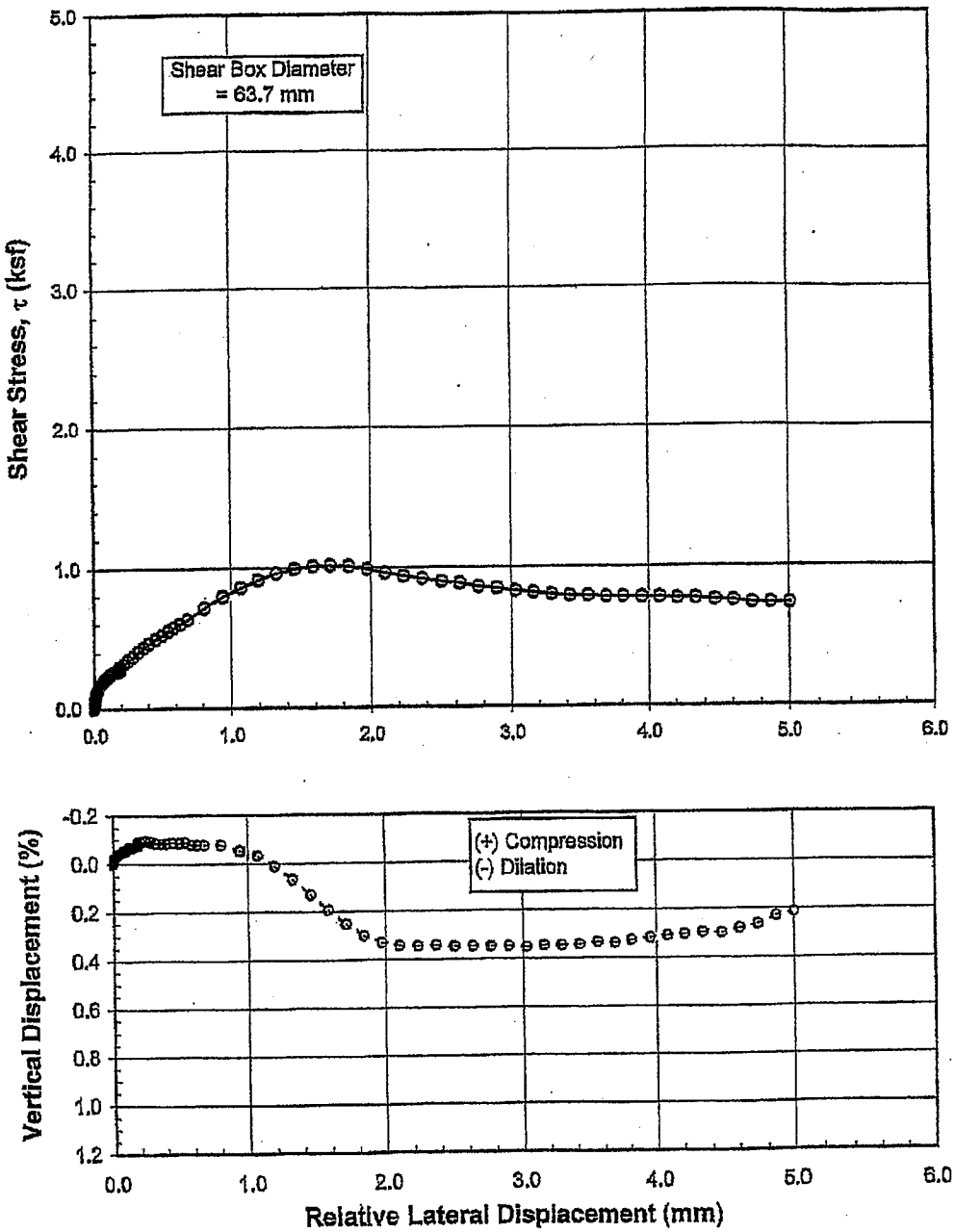
Prepared By: HP
Reviewed By: HP

B-773A_UD-2c.xls, c-phi plot 10/2/2008

Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-773A - Sample: UD-2c - Depth: 24.90 ft

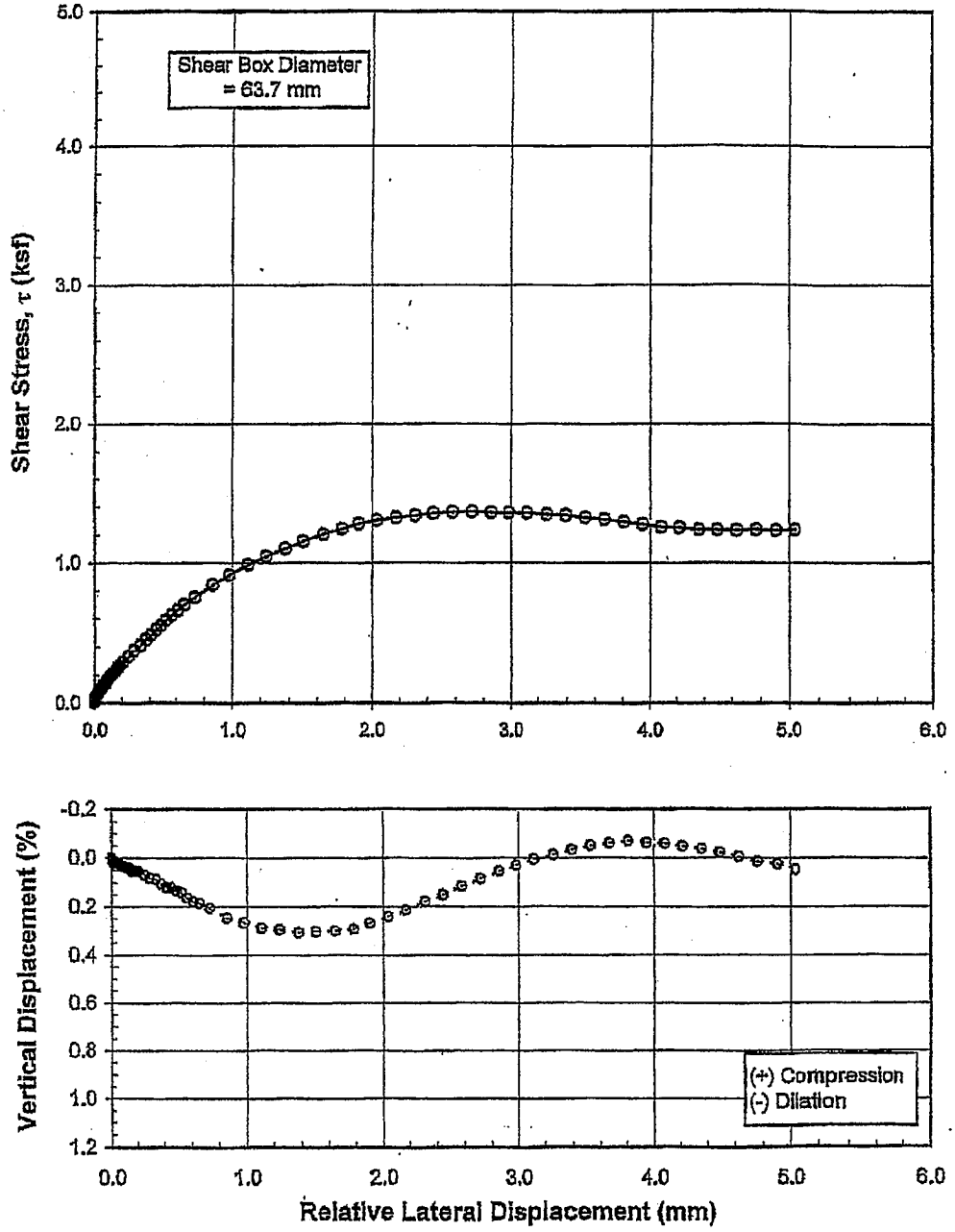


DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,o}$ = 1.01 ksf

Boring: B-773A - Sample: UD-2a - Depth: 24.70 ft

Reviewed By: NP

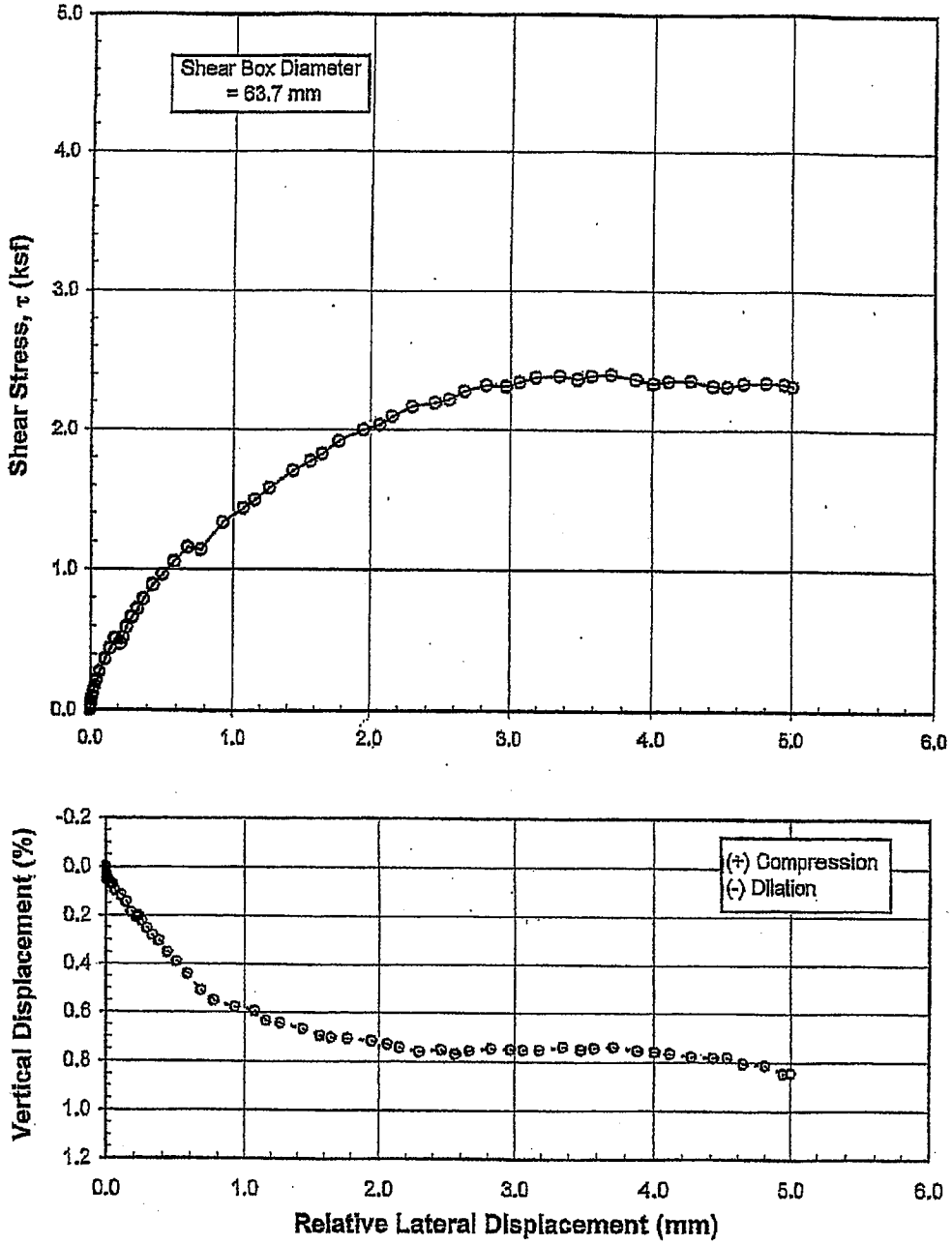


DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 1.73 ksf

Boring: B-773A - Sample: UD-2b - Depth: 24.80 ft

Reviewed By: HP



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,o}$ = 3.60 ksf

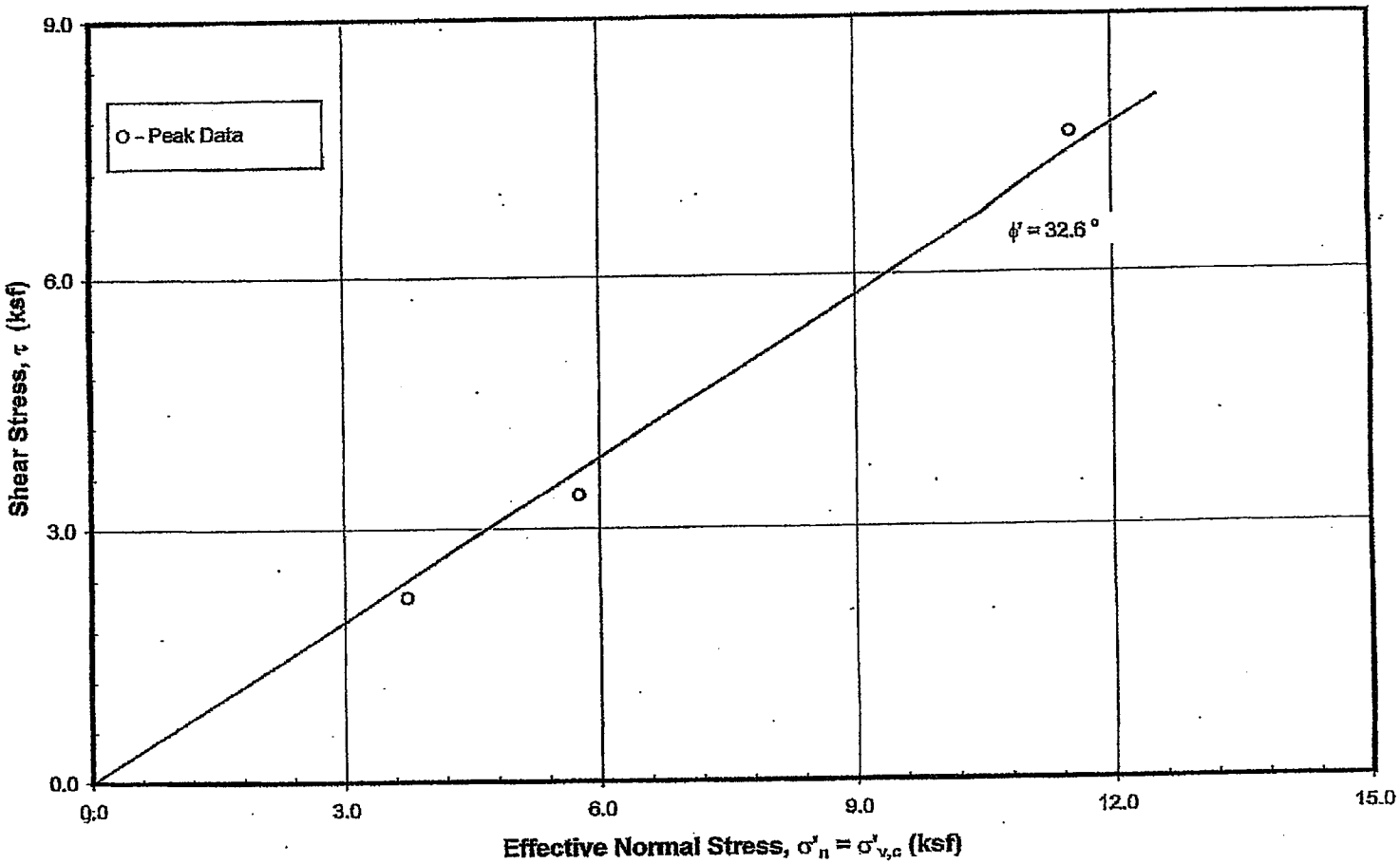
Boring: B-773A - Sample: UD-2c - Depth: 24.90 ft

Reviewed By: HP

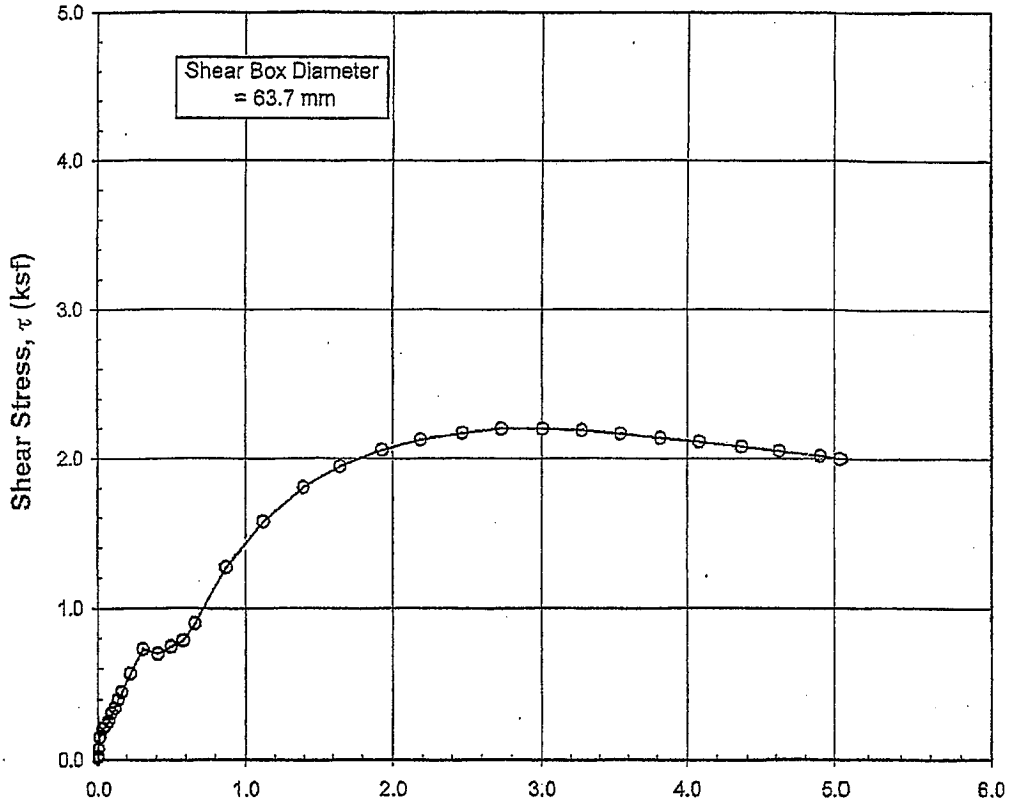
Prepared By: HP
Reviewed By: HP

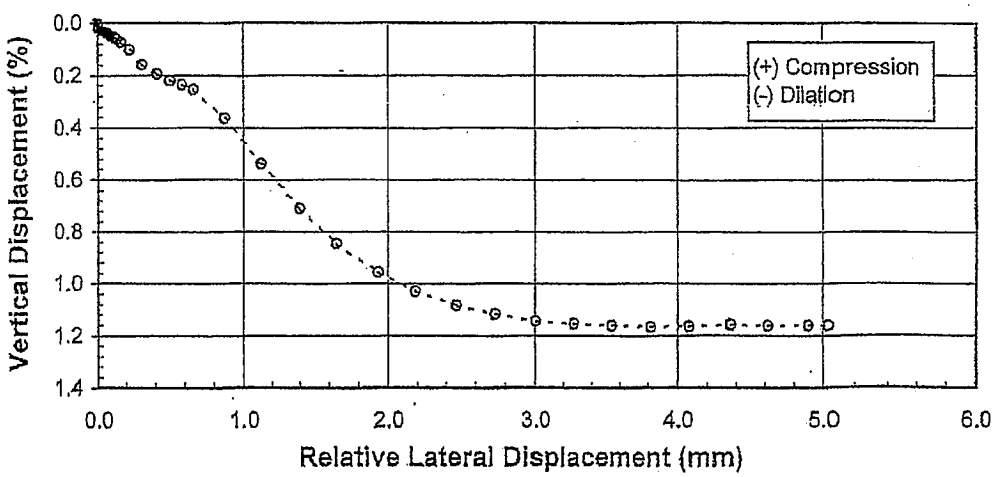
B-773A_UD-9c.xls, c-phi plot 10/1/2008

Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-773A - Sample: UD-9c - Depth: 94.90 ft



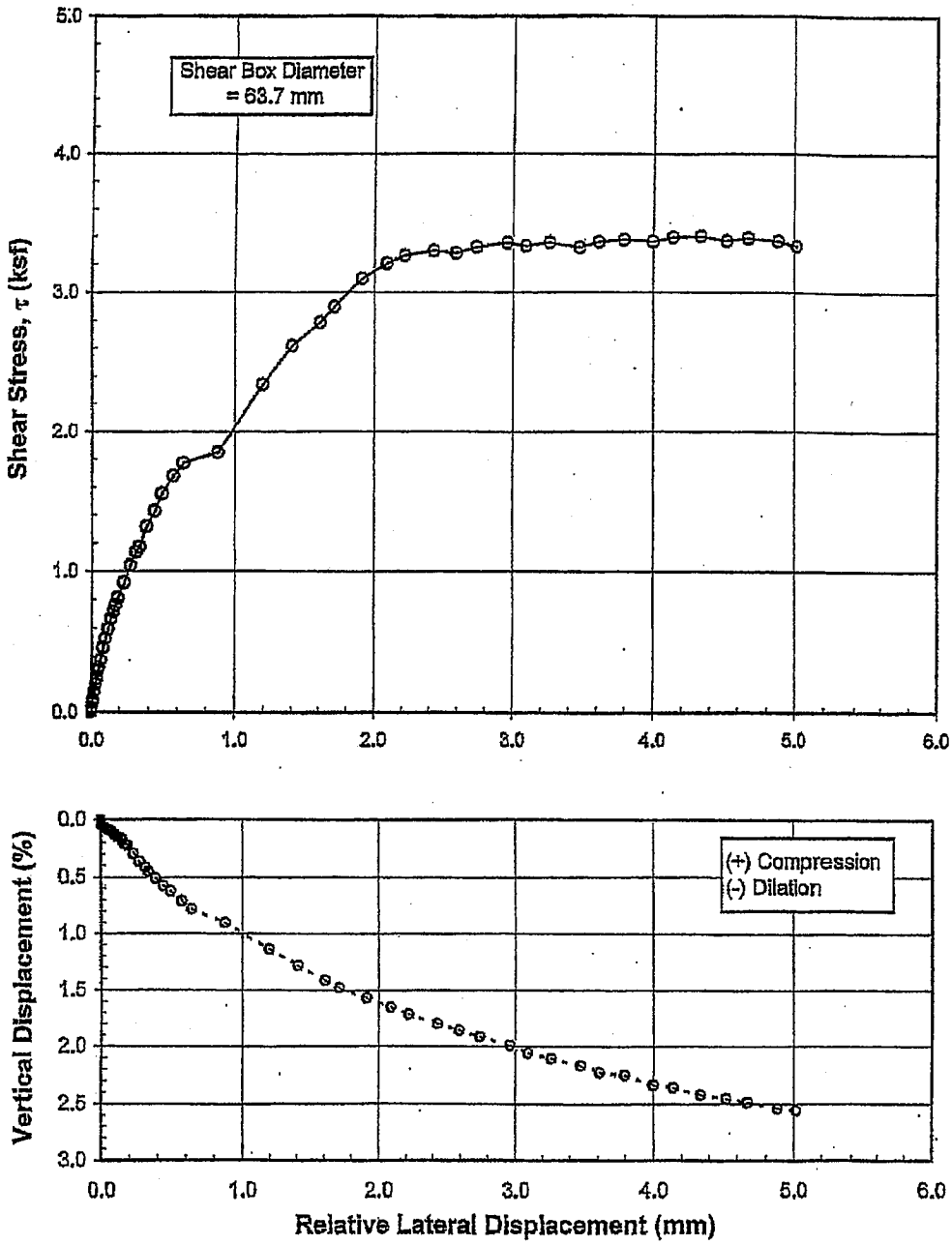


DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 3.74 ksf

Boring: B-773A - Sample: UD-9a - Depth: 94.70 ft

Reviewed By: HP

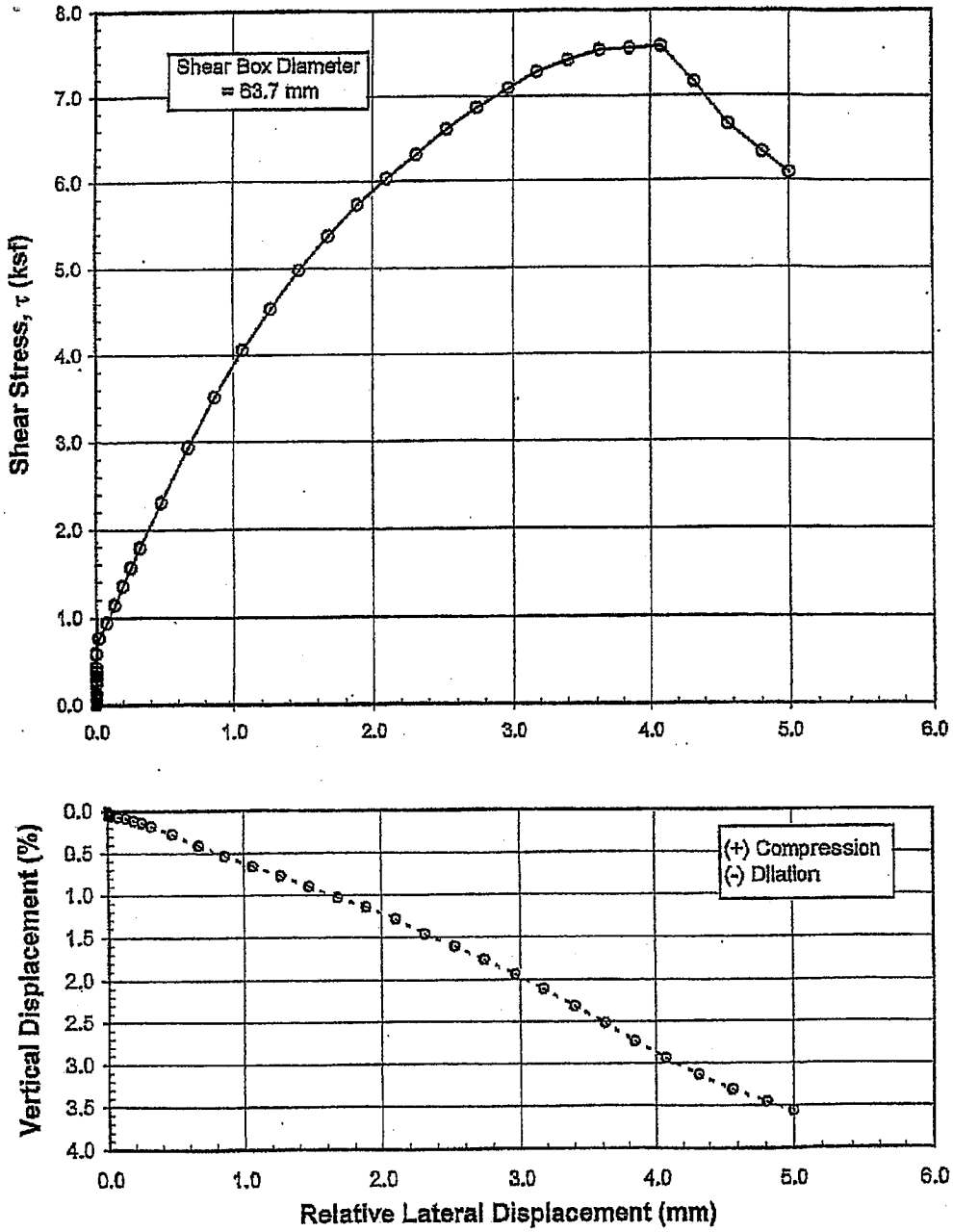


DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 5.76 ksf

Boring: B-773A - Sample: UD-9b - Depth: 94.80 ft

Reviewed By: HP



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 11.52 ksf

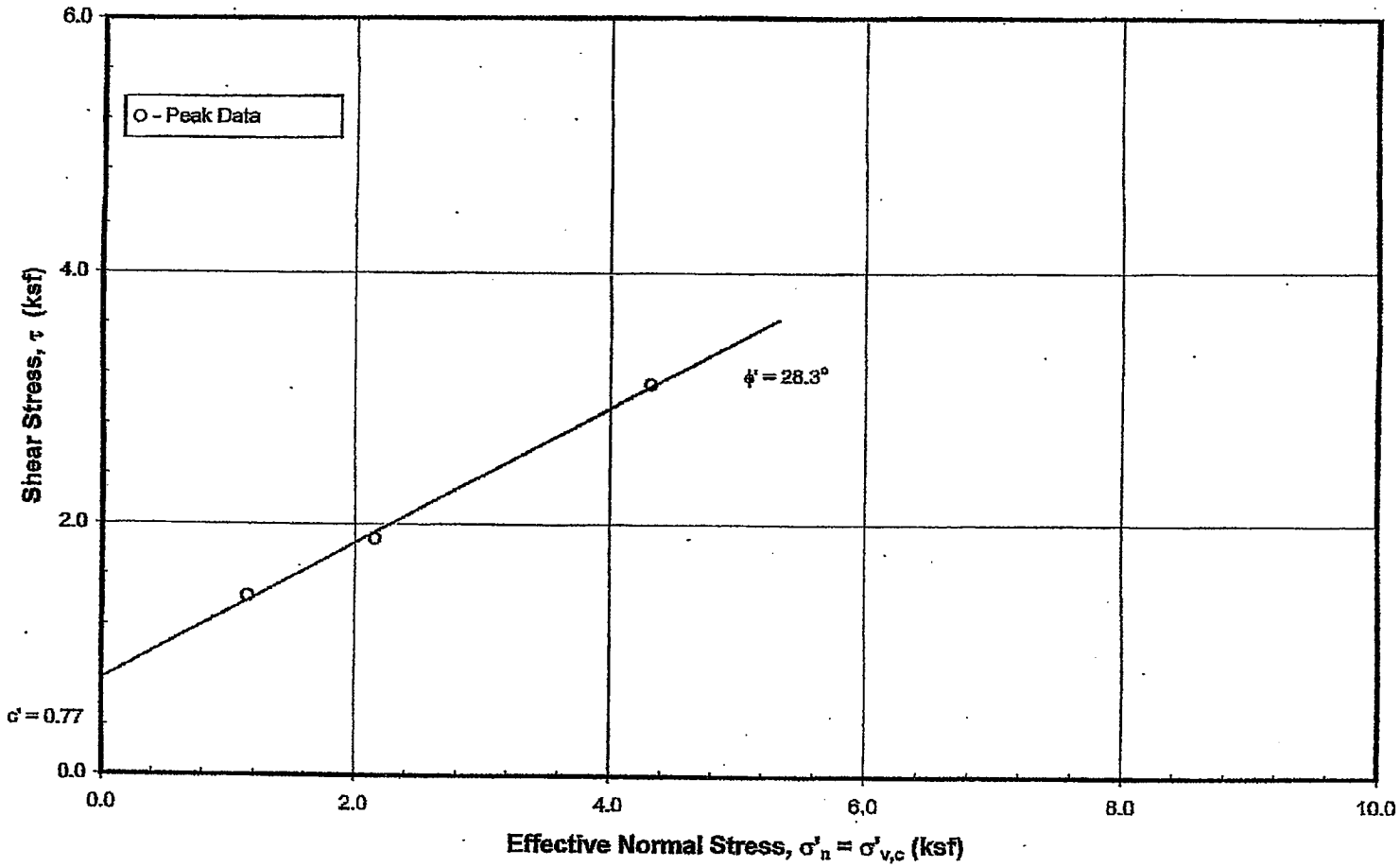
Boring: B-773A - Sample: UD-9c - Depth: 94.90 ft

Reviewed By: HP

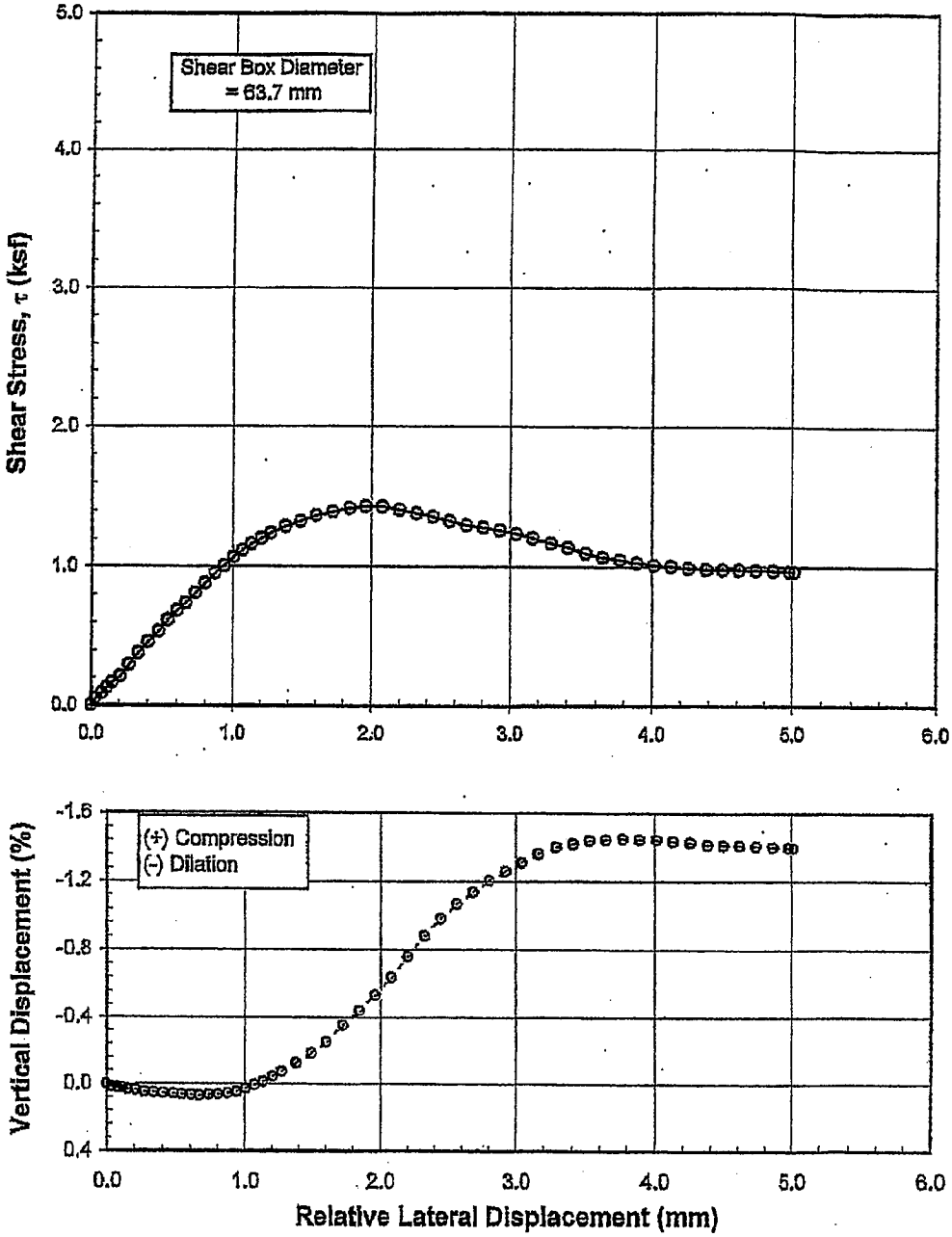
Prepared By: HP
Reviewed By: HP

B-774_UD-4d.xls, c-phi plot 9/11/2008

Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-774 - Sample: UD-4d - Depth: 32.75 ft

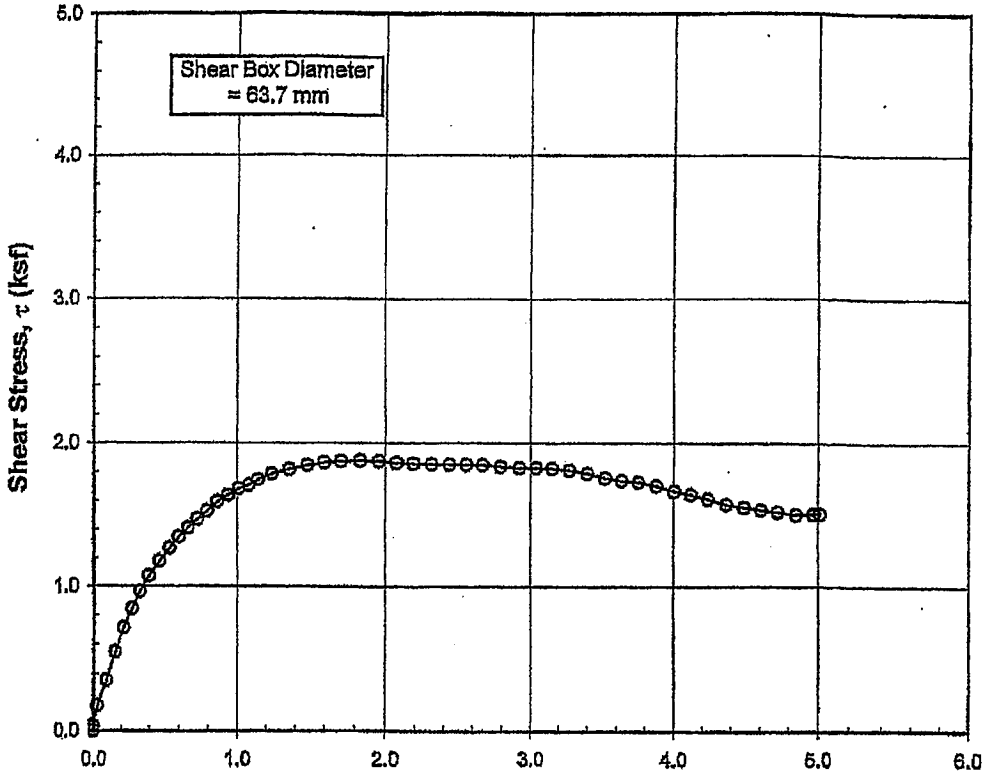


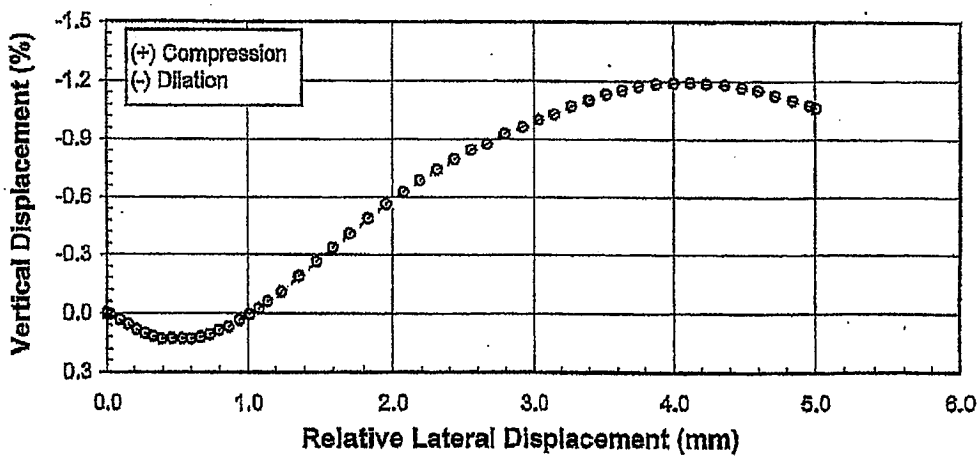
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 1.15 ksf

Boring: B-774 - Sample: UD-4b - Depth: 32.8 ft

Reviewed By: HP

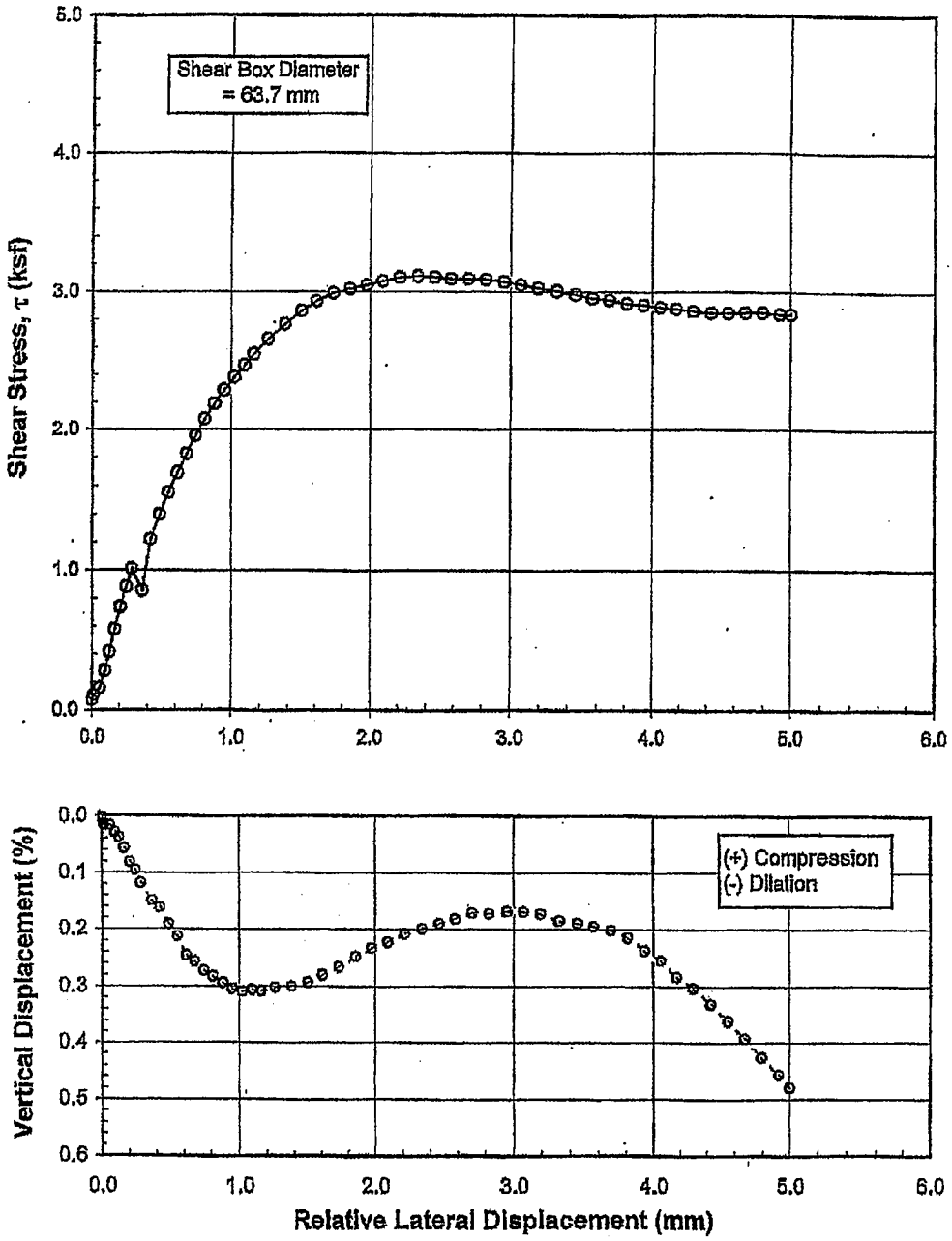




DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 2.16 ksf
Boring: B-774 - Sample: UD-4c - Depth: 32.85 ft

Reviewed By: HP



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 4.32 ksf

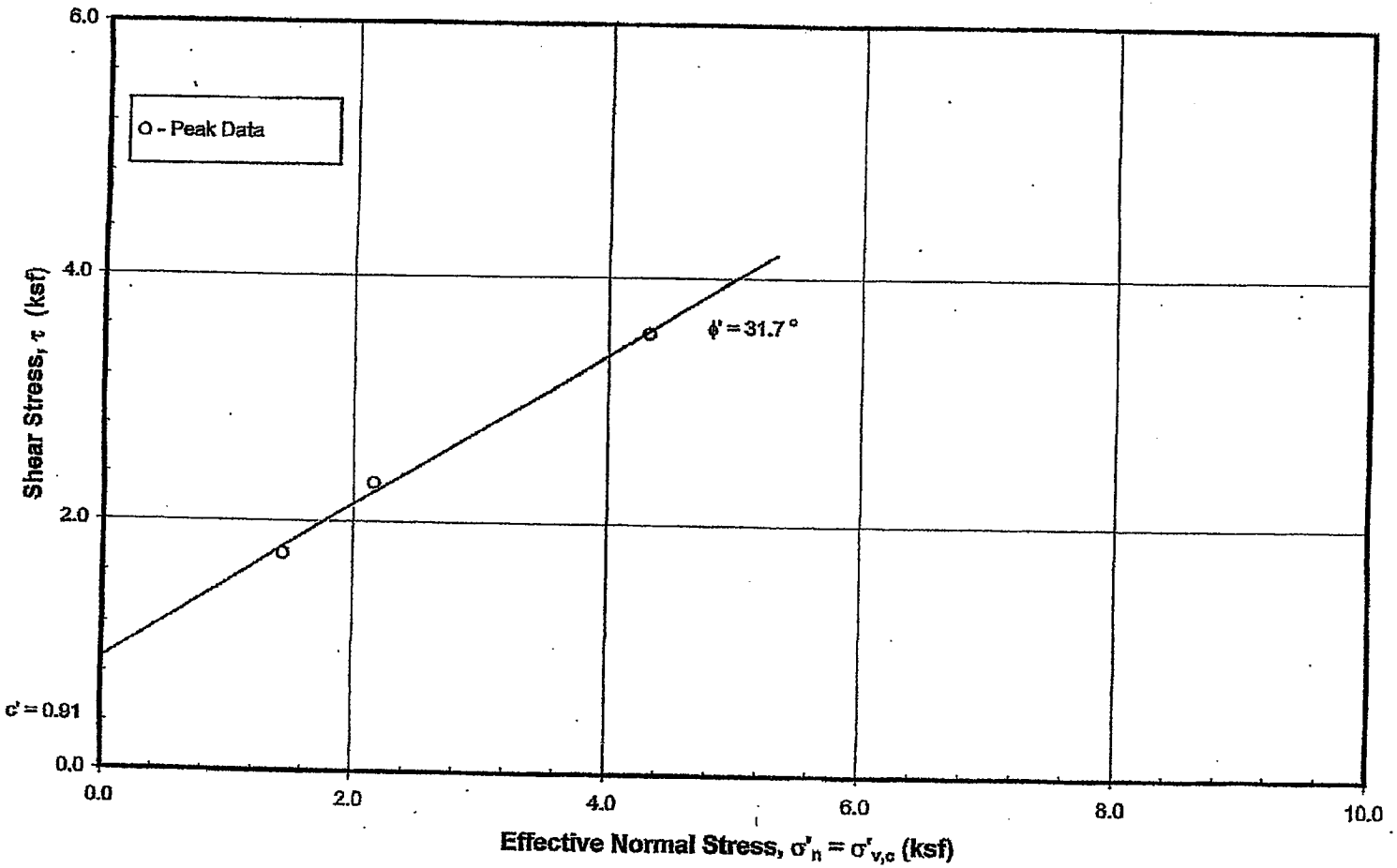
Boring: B-774 - Sample: UD-4d - Depth: 32.75 ft

Reviewed By: HP

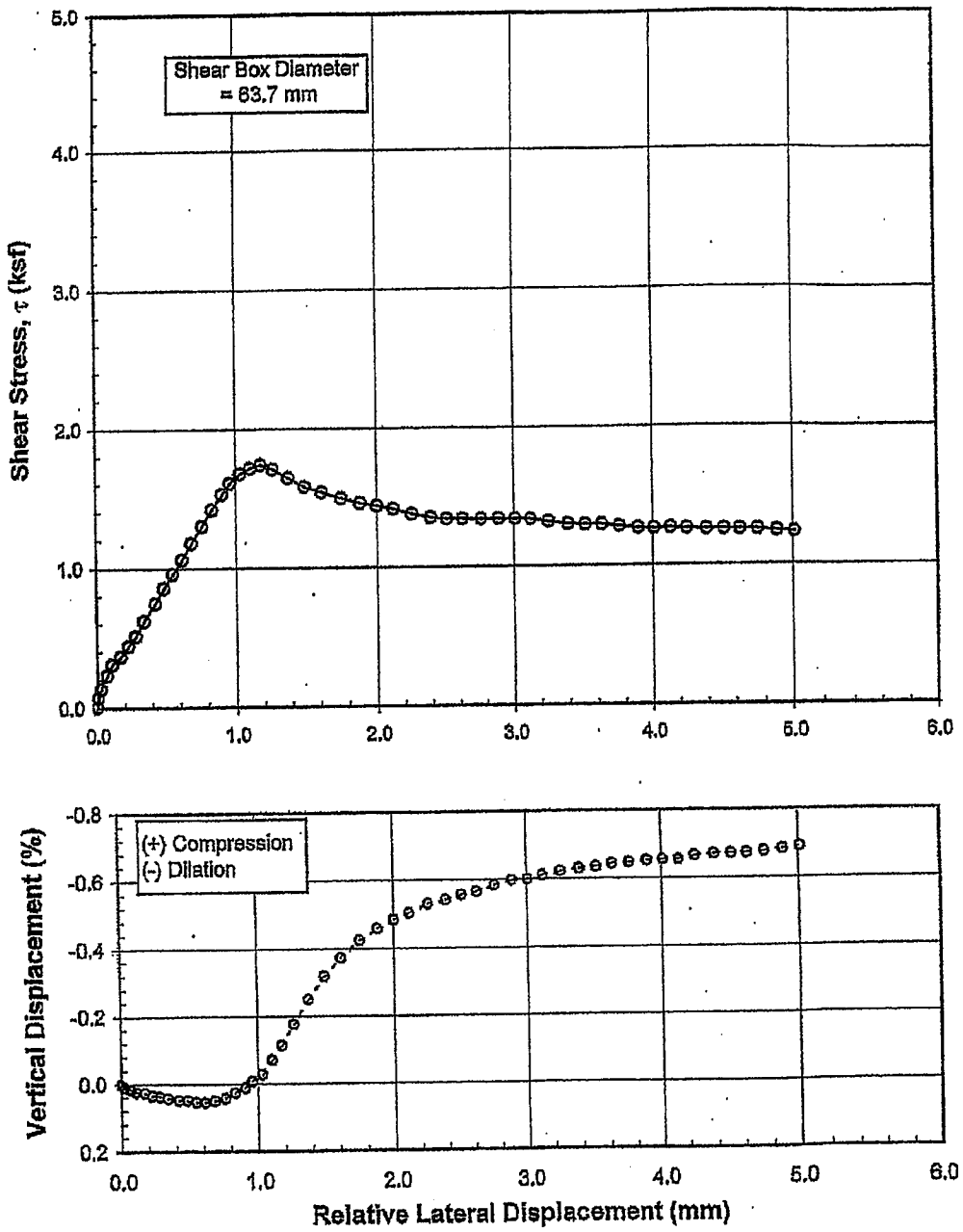
Prepared By: HP
Reviewed By: HP

B-774_UD-5d.xls, c-phi plot 9/18/2008

Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-774 - Sample: UD-5 - Depth: 42.45 ft

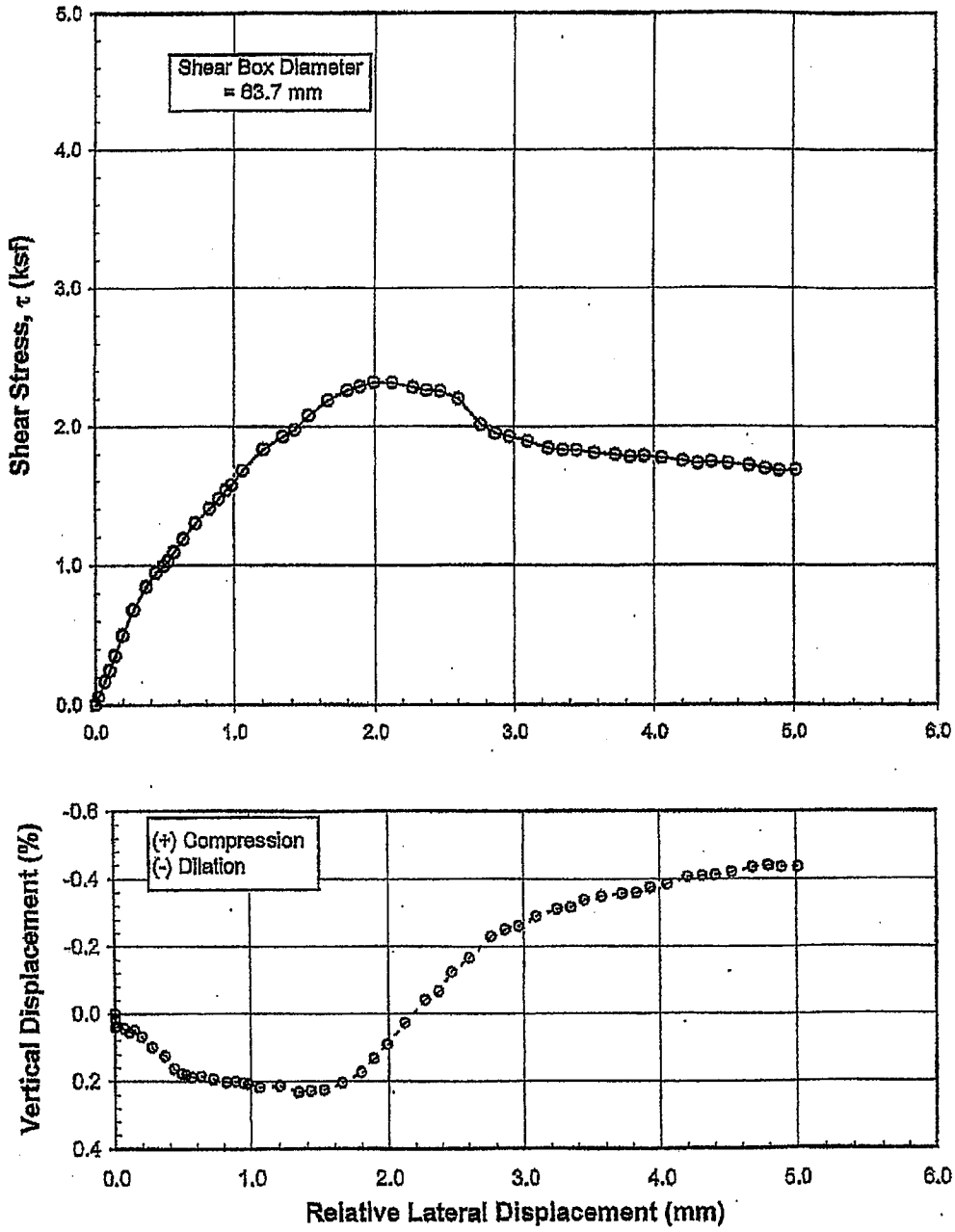


DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 1.44 ksf

Boring: B-774- Sample: UD-5b - Depth: 42.55 ft

Reviewed By: HO

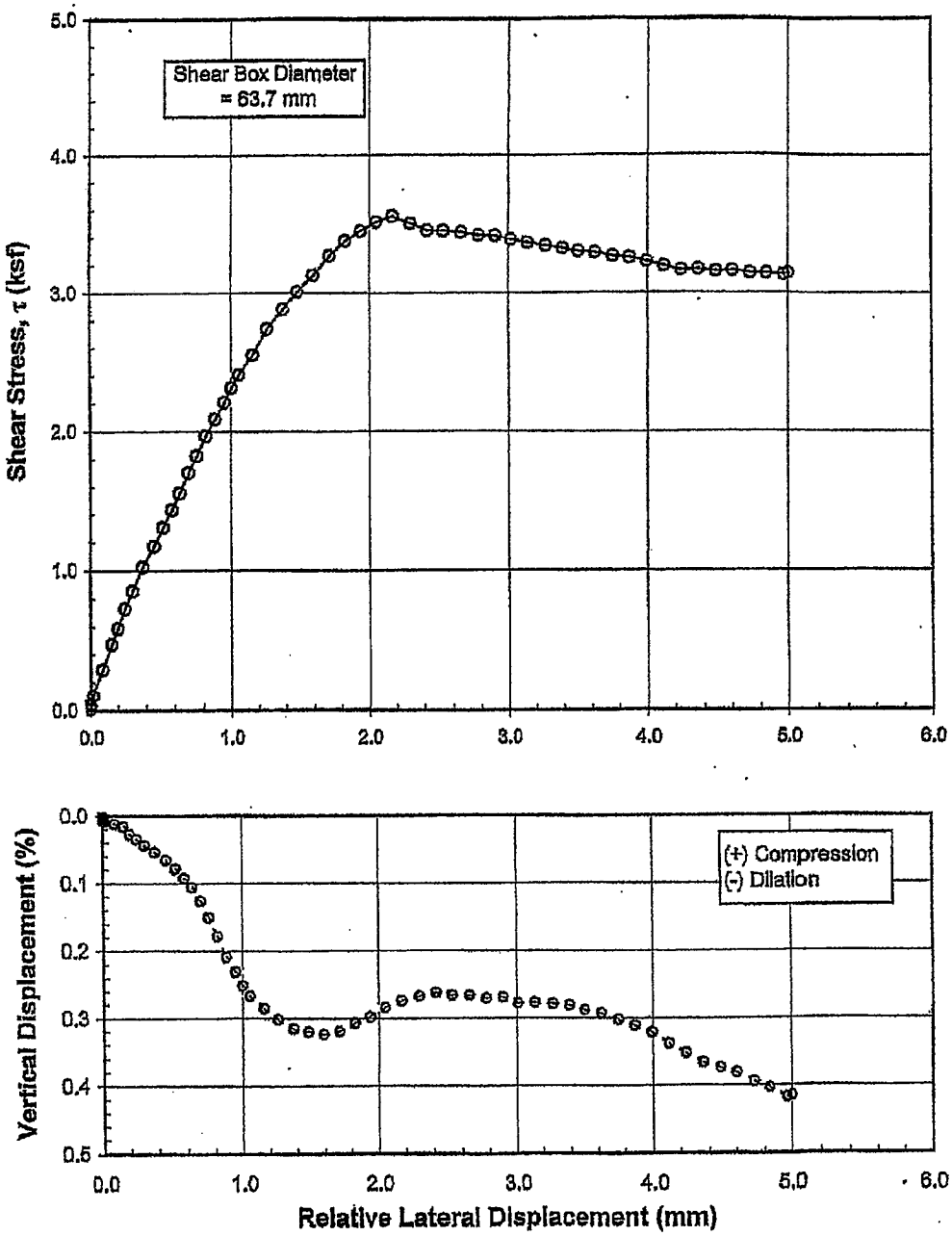


DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 2.16 ksf

Boring: B-774 - Sample: UD-5c - Depth: 42.65 ft

Reviewed By: HP



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 4.32 ksf

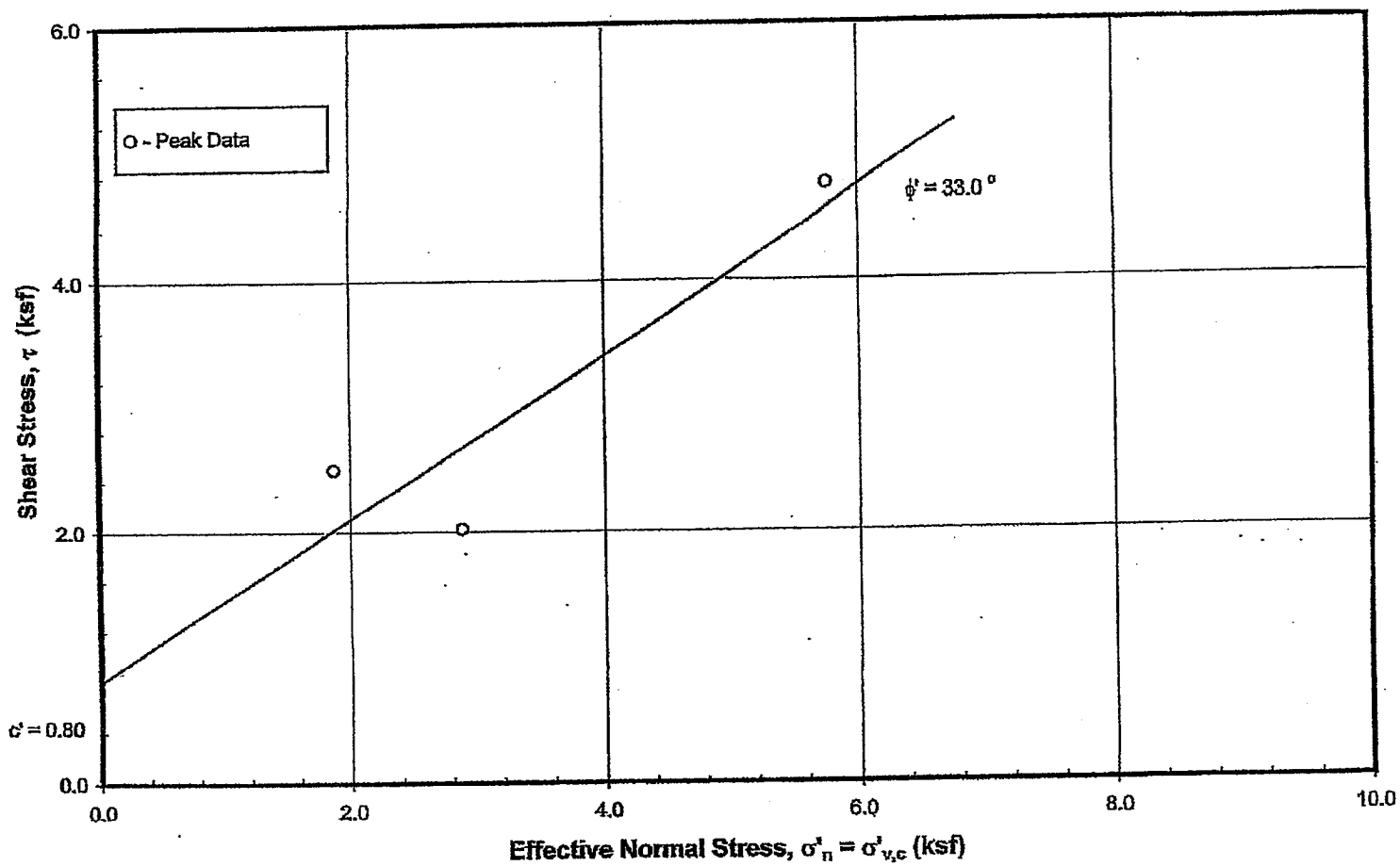
Boring: B-774 - Sample: UD-5d - Depth: 42.45 ft

Reviewed By: HP

Prepared By: _____
Reviewed By: _____

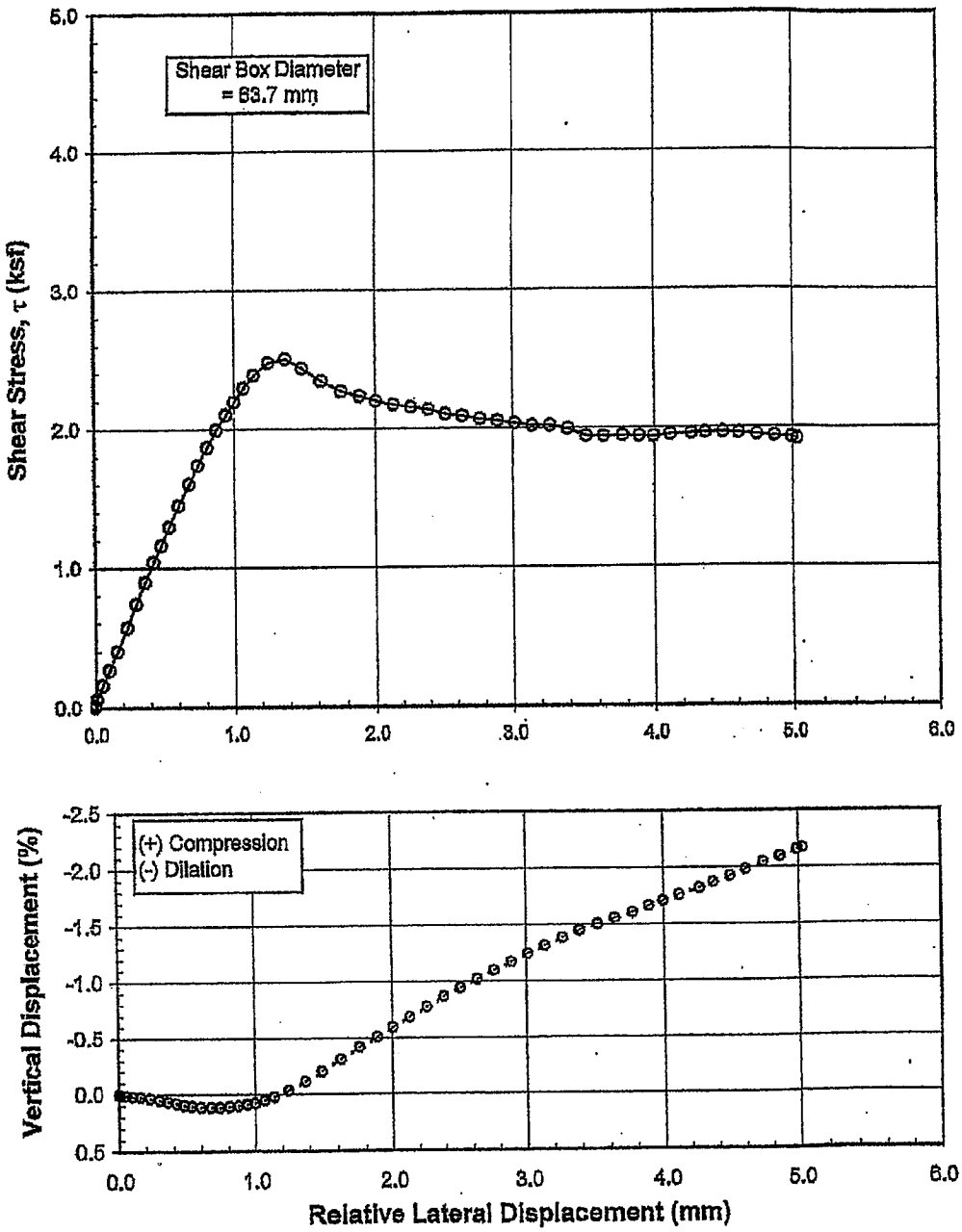
B-774_UD-6d.xls, c-phi plot 9/18/2008

Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-774 - Sample: UD-6 - Depth: 52.70 ft

Report No. 0411-08-1707

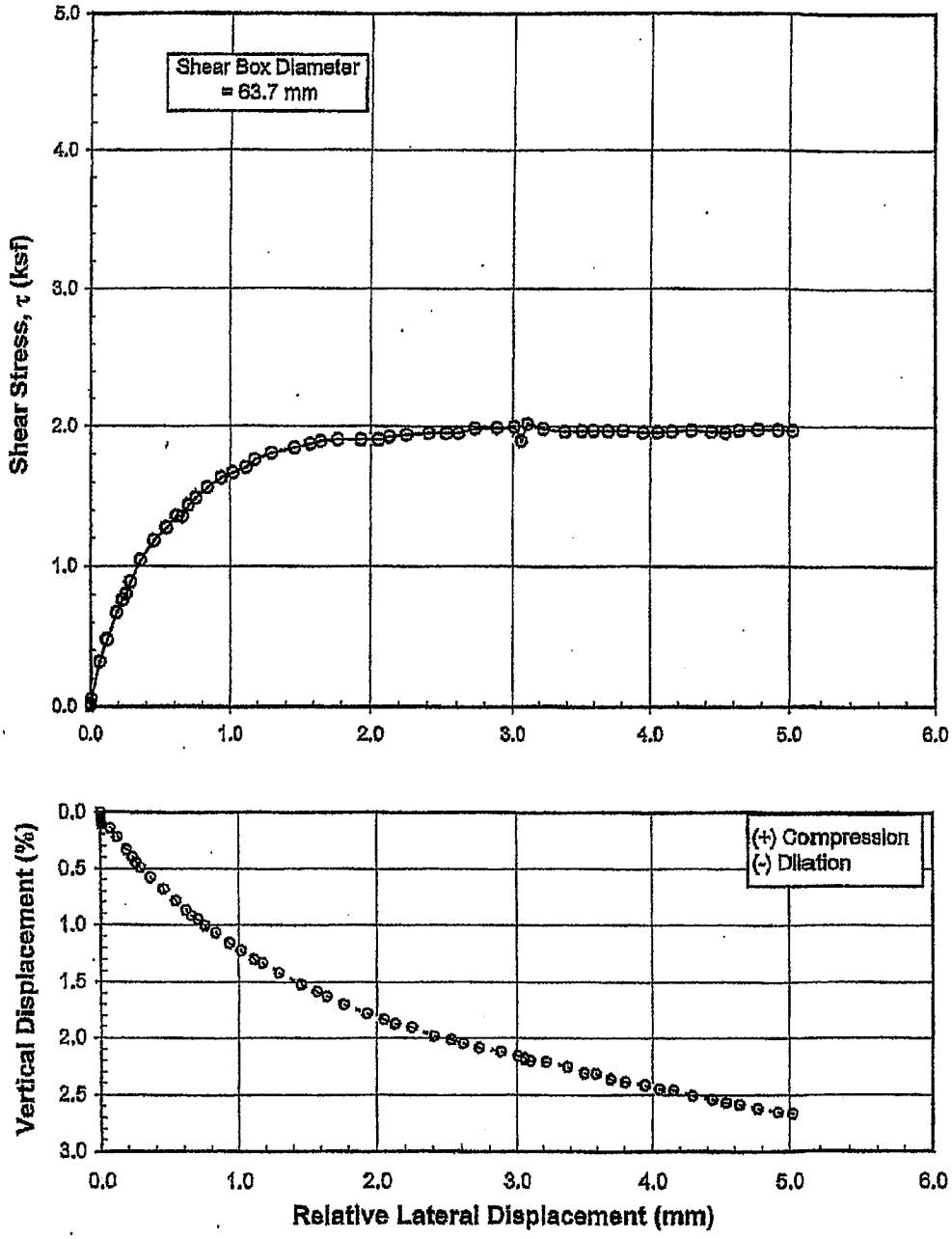


DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 1.87 ksf

Boring: B-774 - Sample: UD-6b - Depth: 52.5 ft

Reviewed By: _____

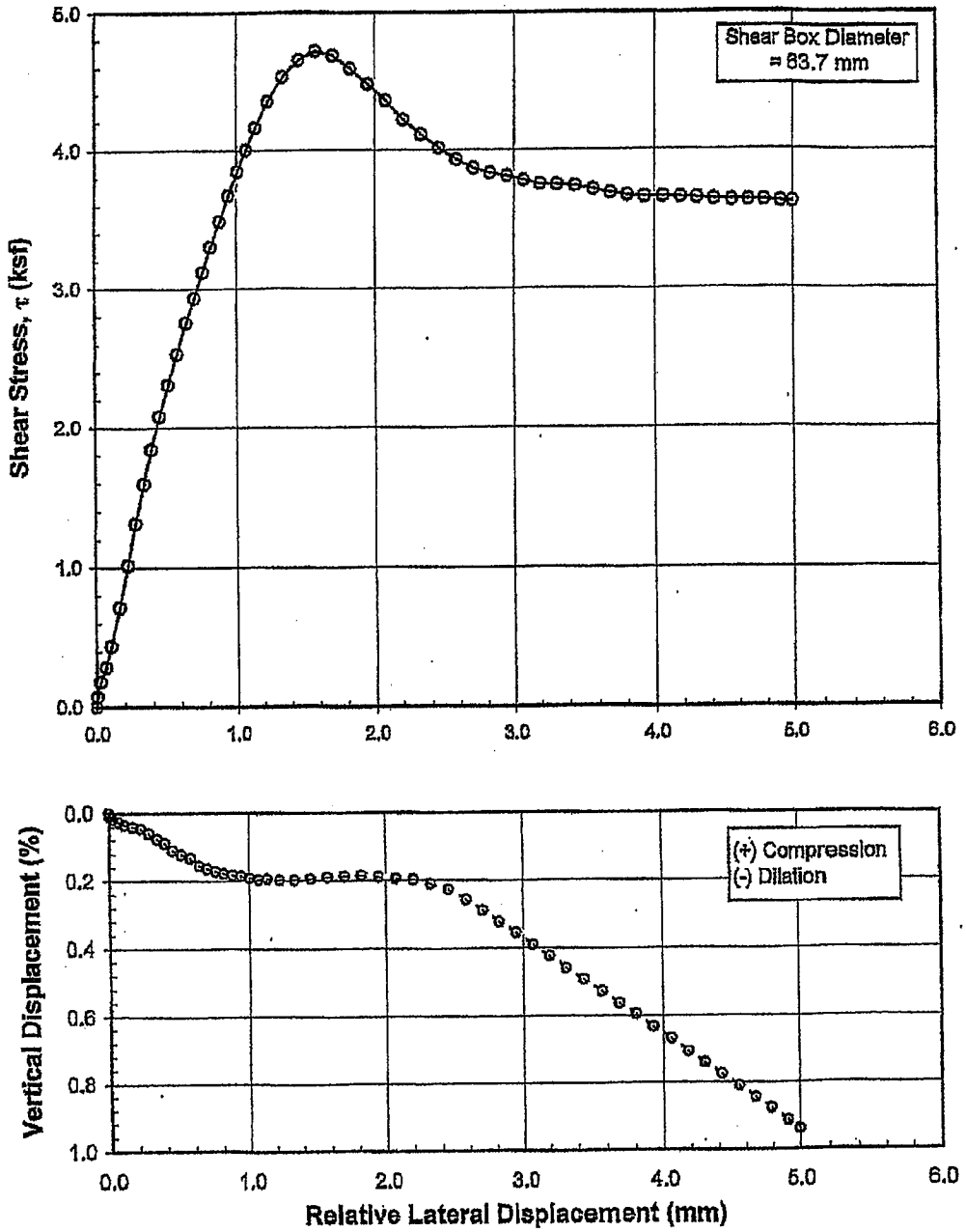


DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 2.88 ksf

Boring: B-774 - Sample: UD-6c - Depth: 52.6 ft

Reviewed By: HP



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 5.76 ksf

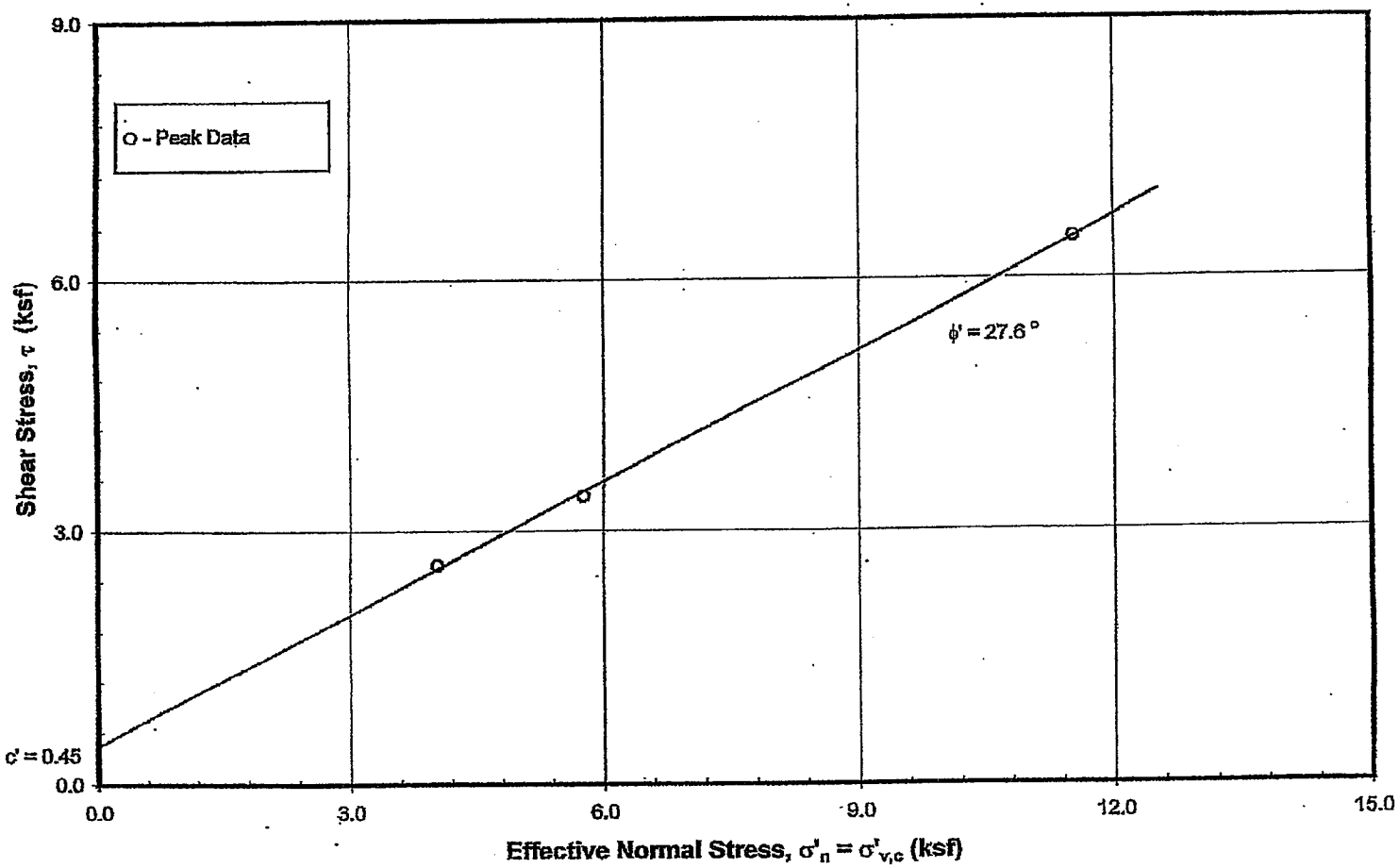
Boring: B-774 - Sample: UD-6d - Depth: 52.70 ft

Reviewed By: HP

Prepared By: ___
Reviewed By: ___

B-774_UD-10d.xls, c-phi plot 9/18/2008

Revision Date: 12/01/07

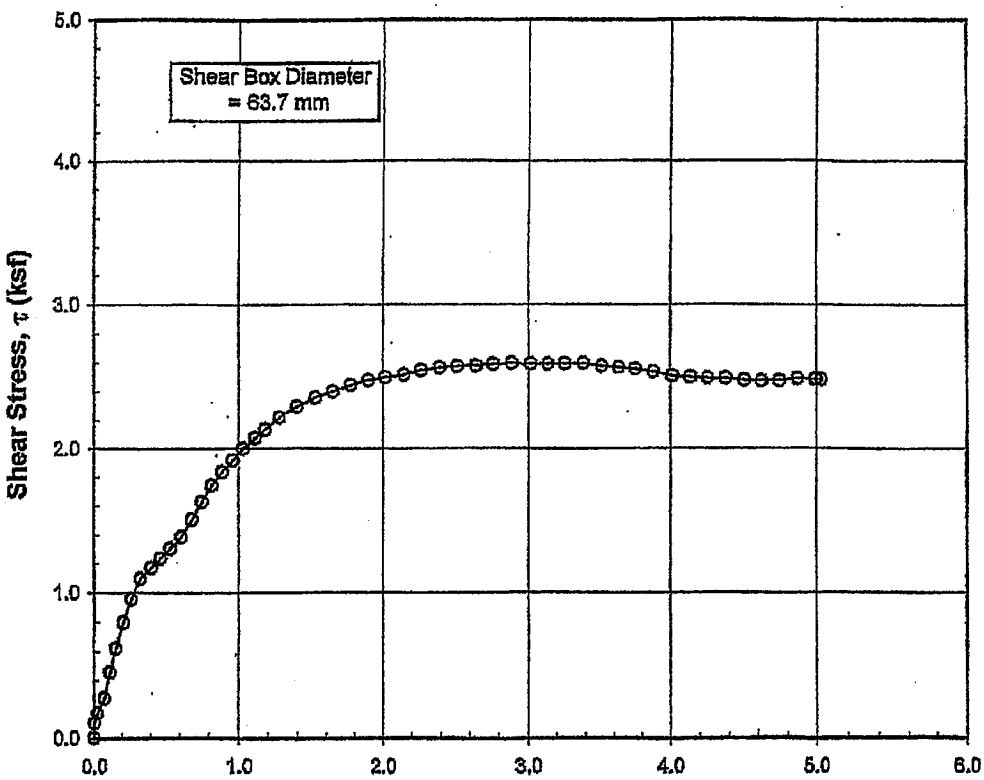


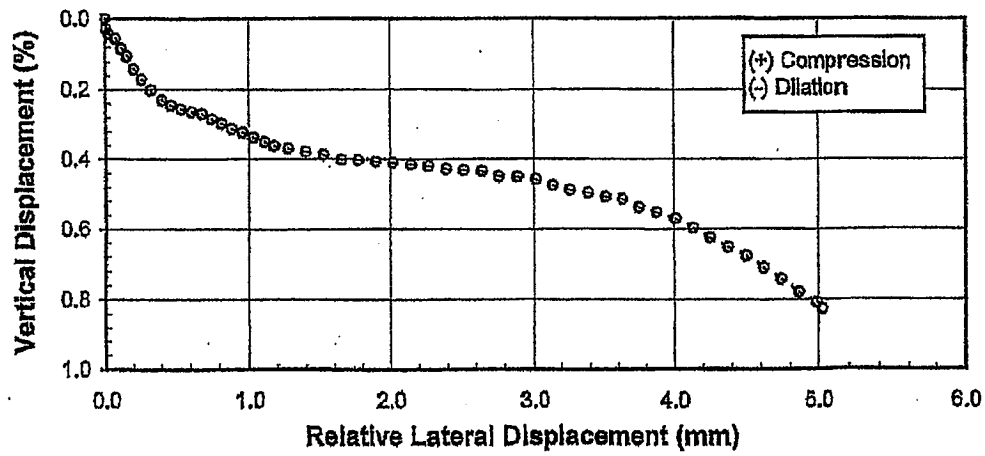
DRAINED DIRECT SHEAR TEST: Test Series - (Peak)

Soil - Soil Interface & OCR = Unkown

Boring: B-774 - Sample: UD-10 - Depth: 122.4 ft

Report No. 0411-08-1707



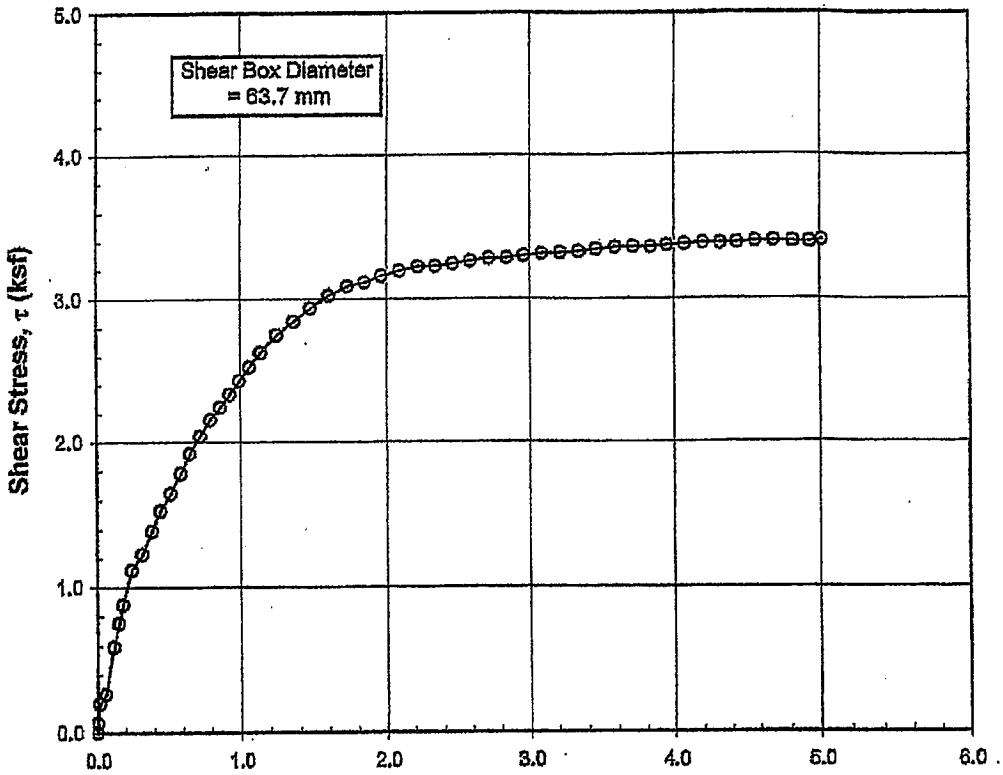


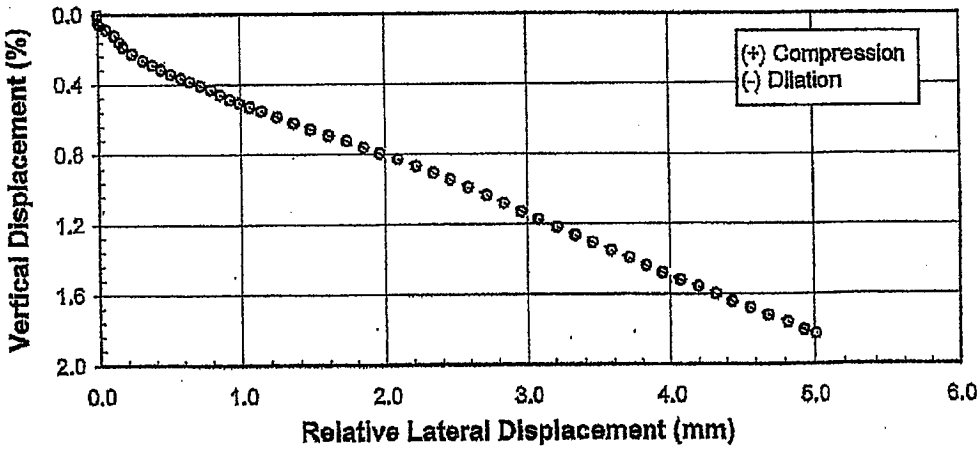
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 4.03 ksf

Boring: B-774 - Sample: UD-10b - Depth: 122.5 ft

Reviewed By: MP



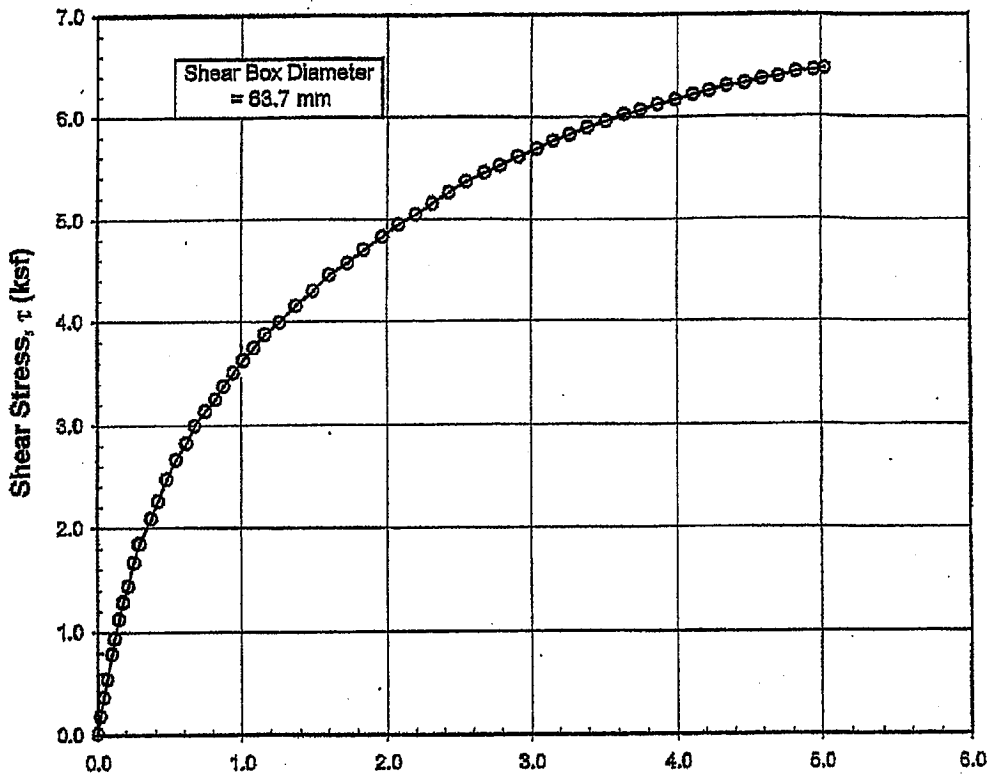


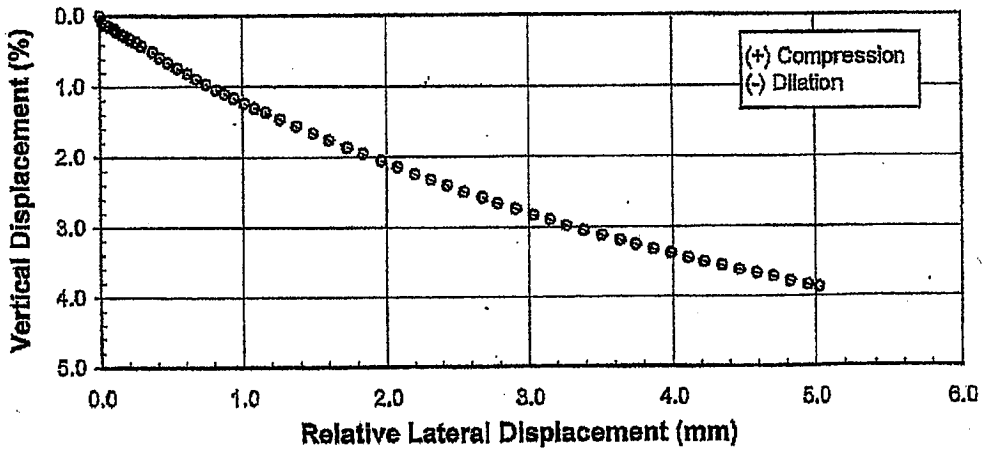
DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 5.76 ksf

Boring: B-774 - Sample: UD-10c - Depth: 122.6 ft

Reviewed By: HP





DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 11.52 ksf

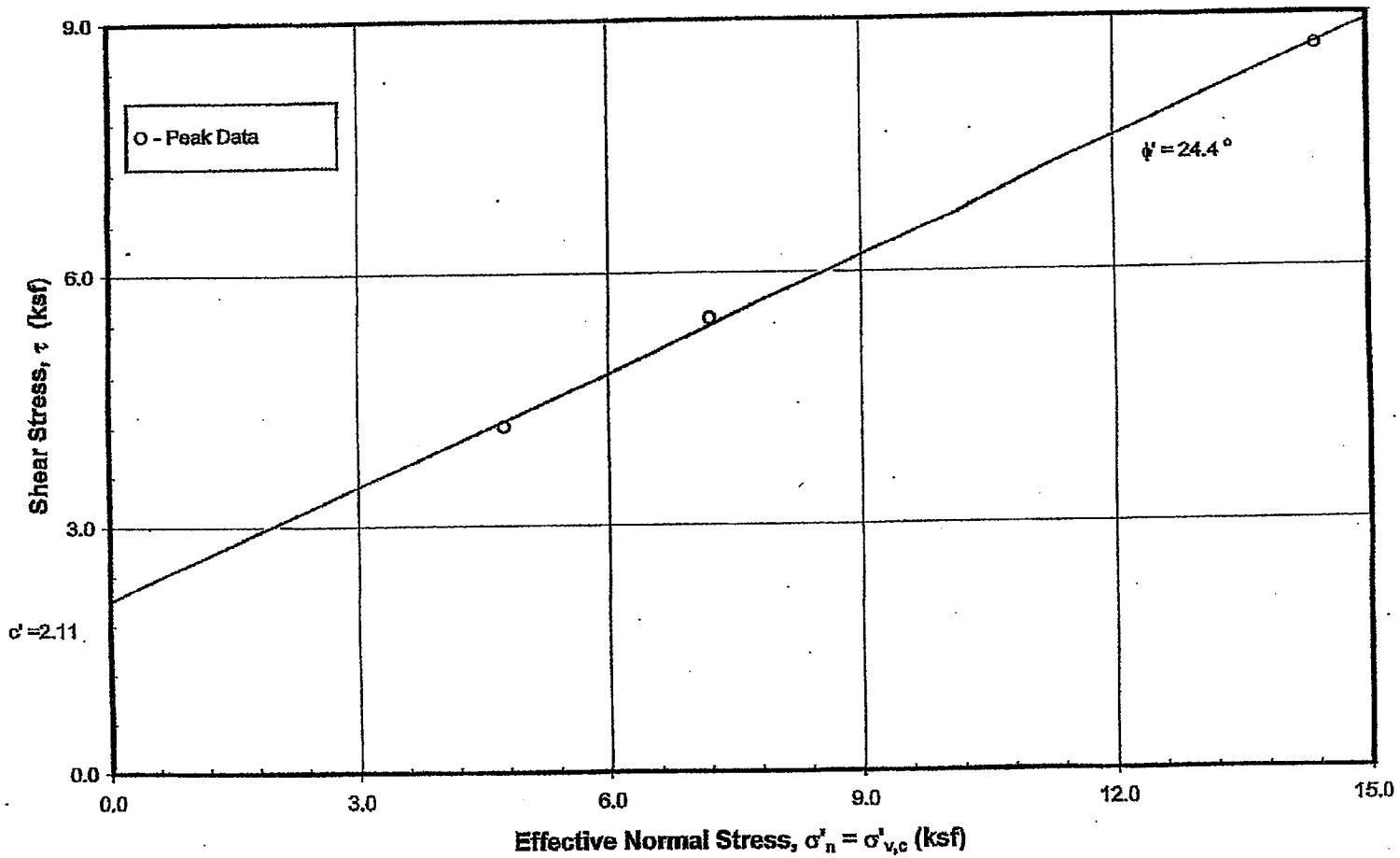
Boring: B-774 - Sample: UD-10d - Depth: 122.4 ft

Reviewed By: _____

Prepared By: dP
Reviewed By: HP

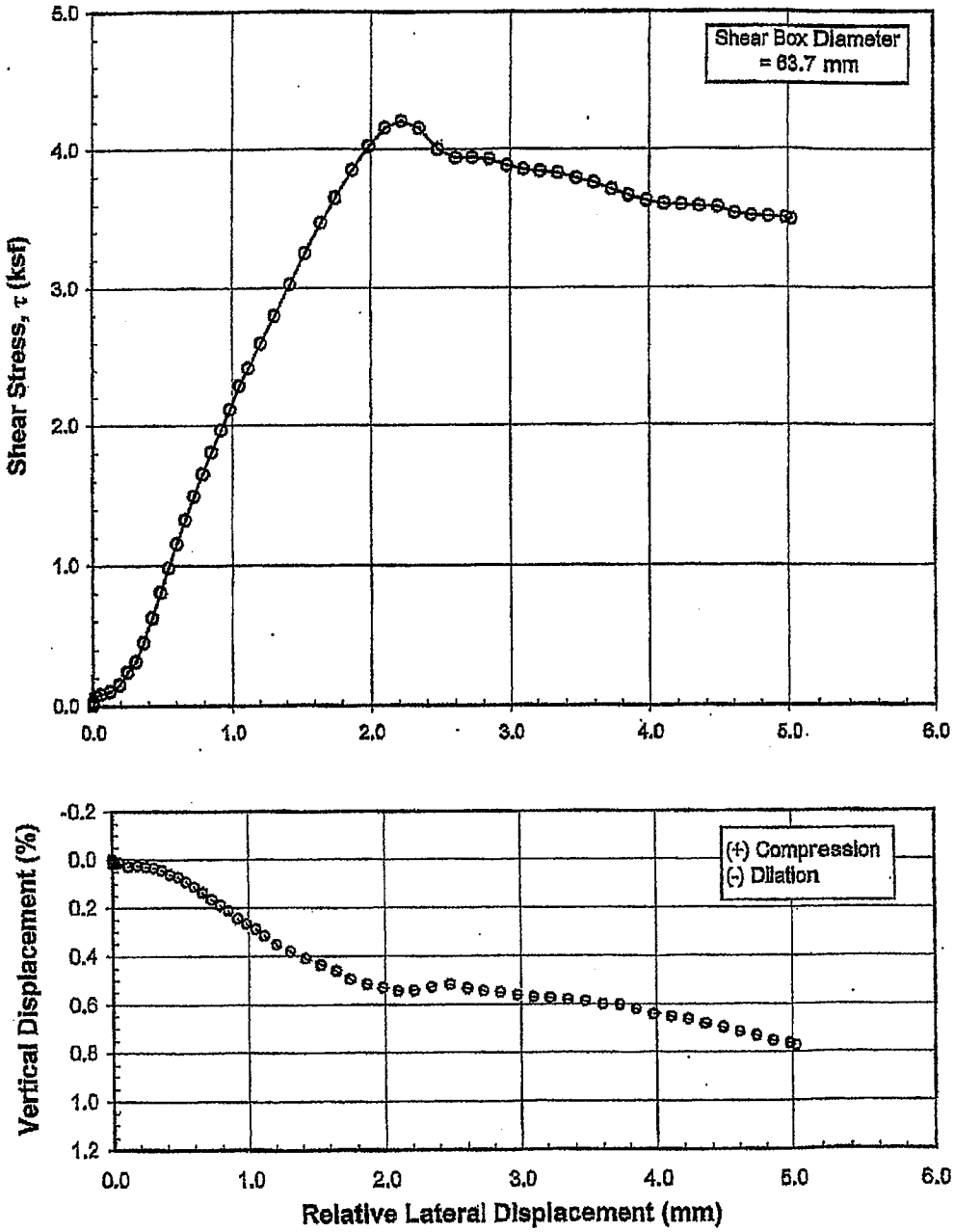
B-774_UD-12d.xls, c-phi plot 9/19/2008

Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-774 - Sample: UD-12 - Depth: 142.7 ft

Report No. 0411-08-1707

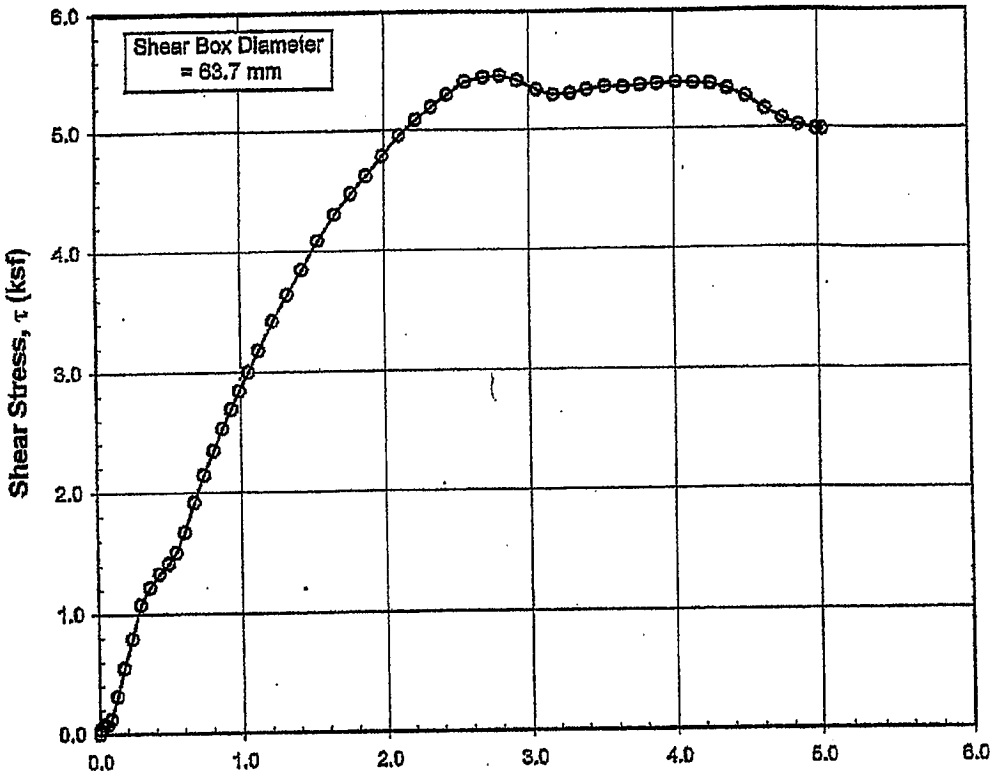


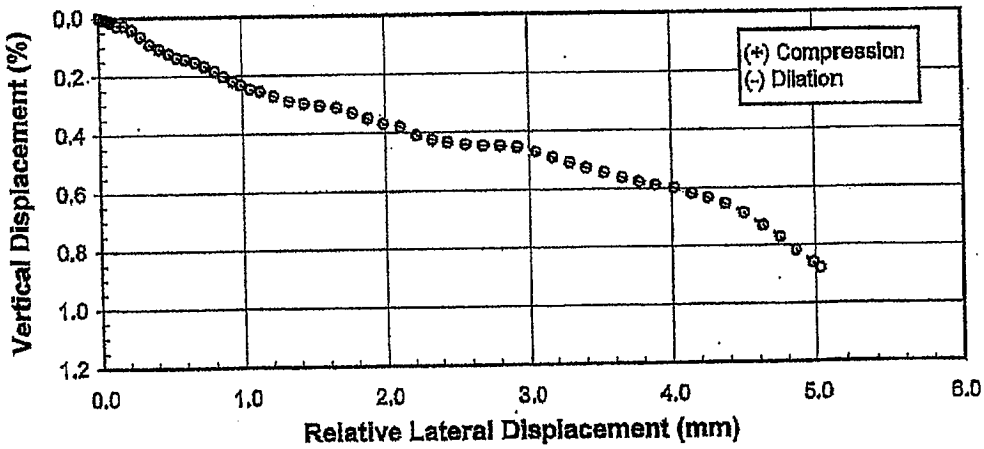
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,o}$ = 4.75 ksf

Boring: B-774 - Sample: UD-12b - Depth: 142.5 ft

Reviewed By: HP



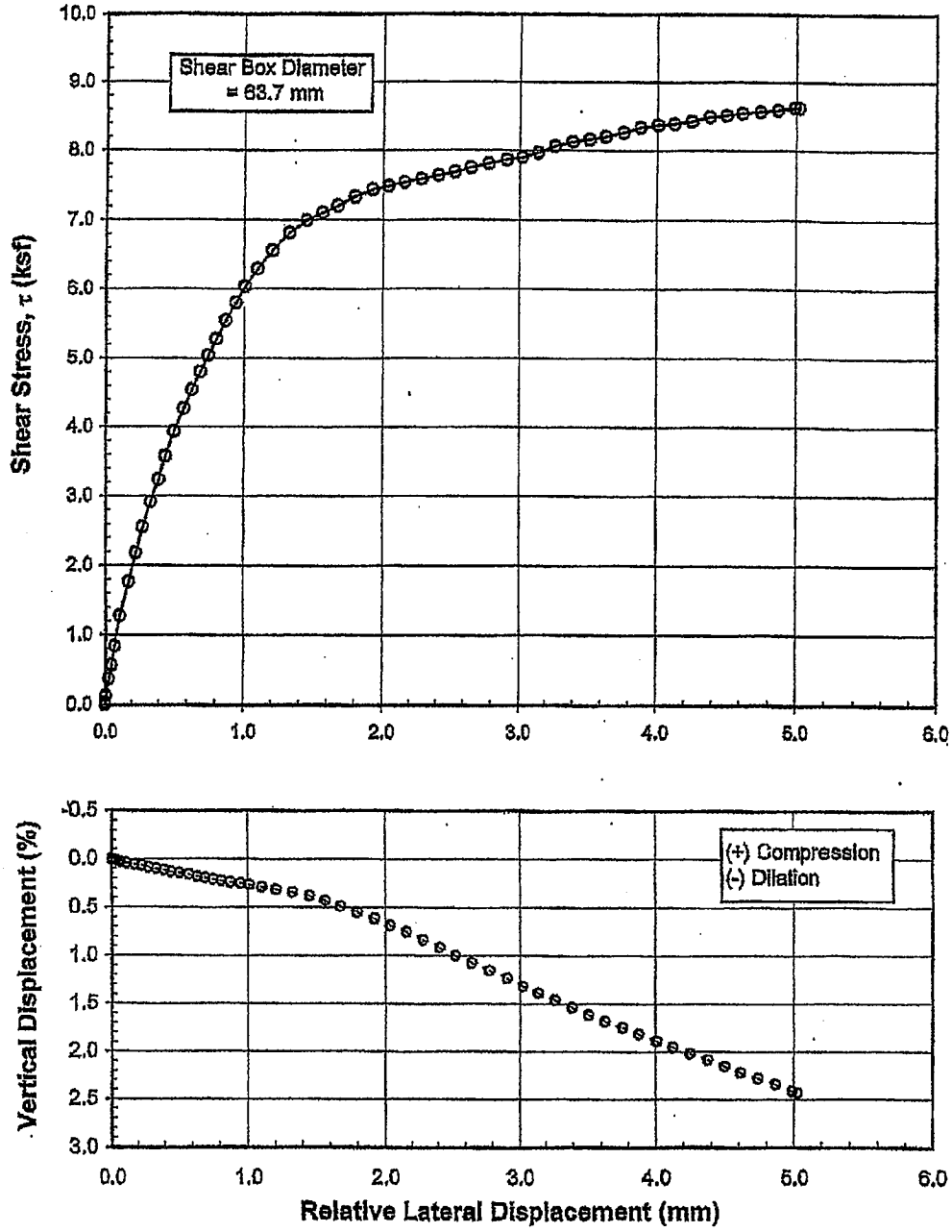


DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 7.20 ksf

Boring: B-774 - Sample: UD-12c - Depth: 142.6 ft

Reviewed By: NP



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 14.40 ksf

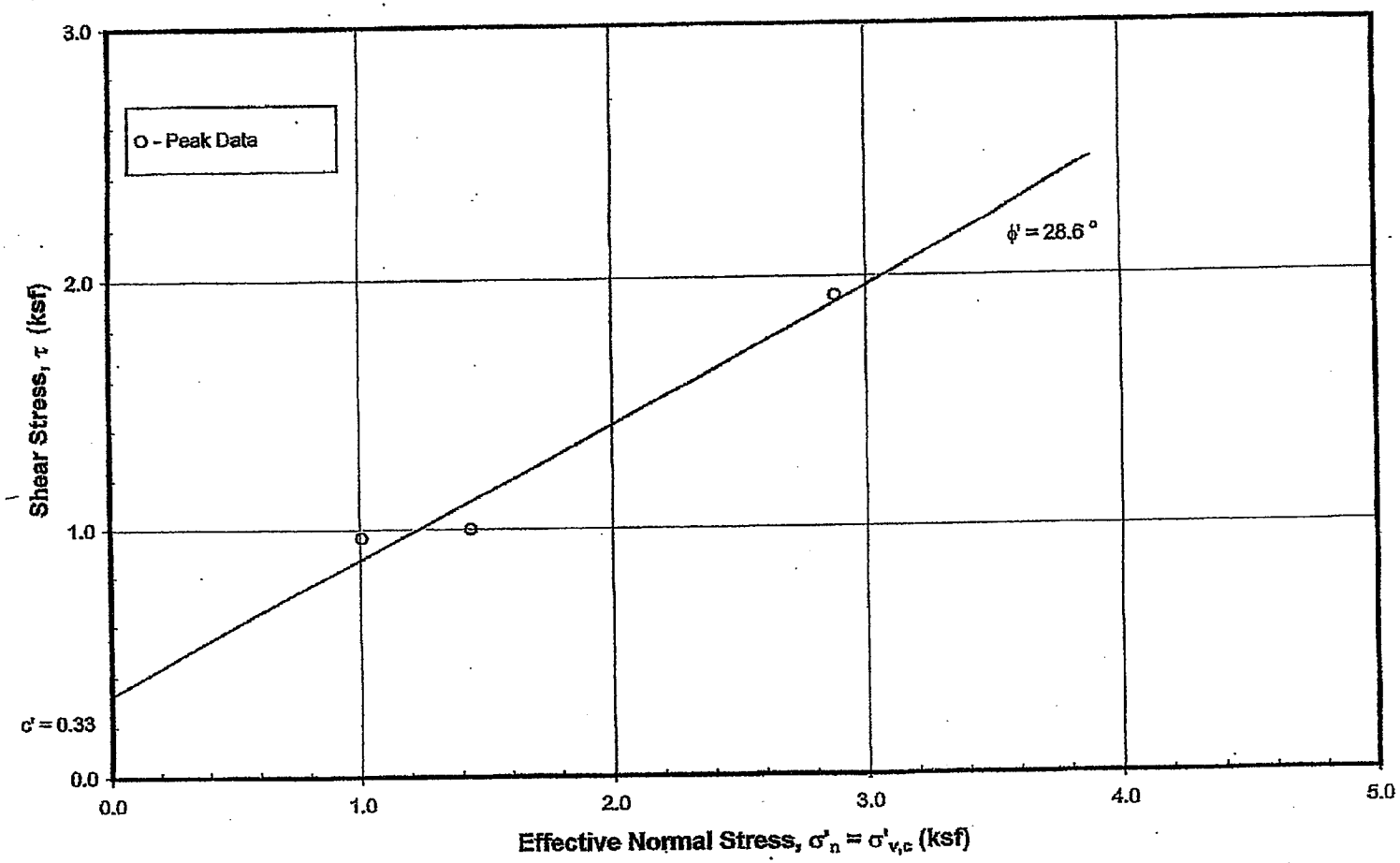
Boring: B-774 - Sample: UD-12d - Depth: 142.7 ft

Reviewed By: HP

Prepared By: HP
Reviewed By: BP

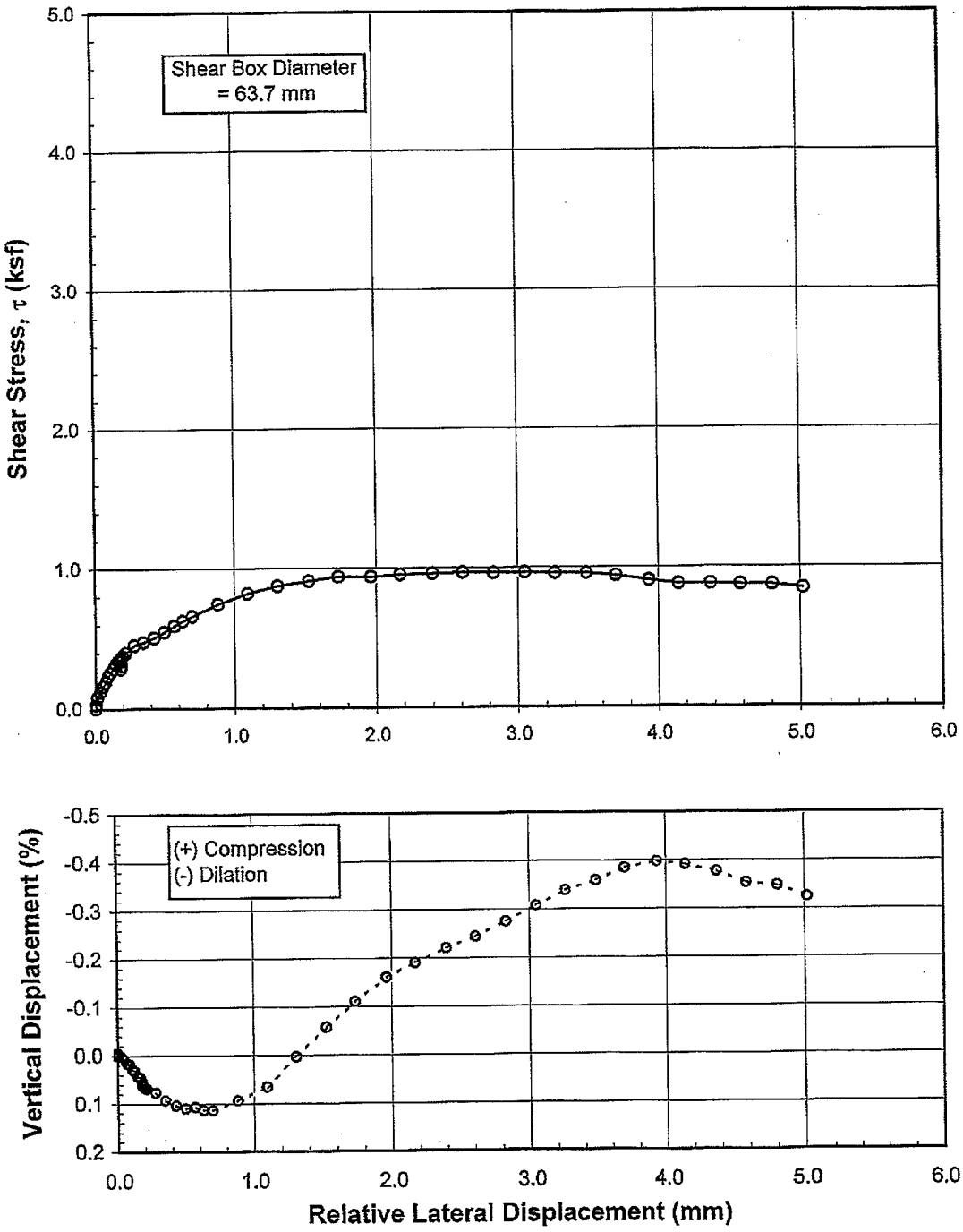
B-778_UD-2c.xls, c-phi plot 10/2/2008

Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-778 - Sample: UD-2c - Depth: 13.5 ft

Report No. 0411-08-1707

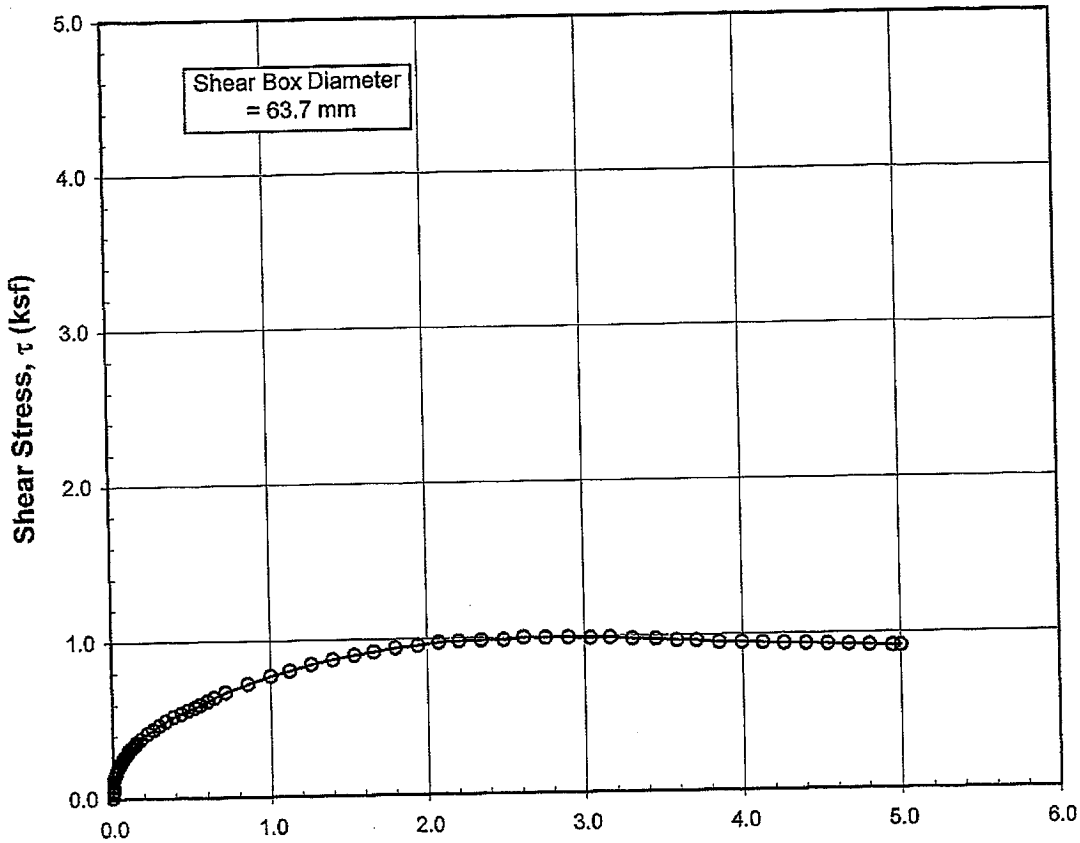


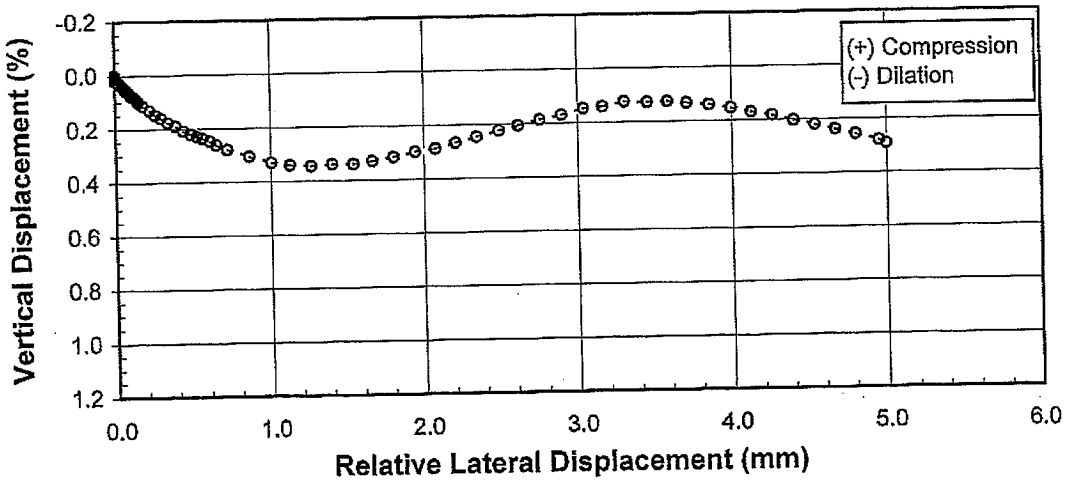
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 1.01 ksf

Boring: B-778 - Sample: UD-2a - Depth: 13.30 ft

Reviewed By: HP



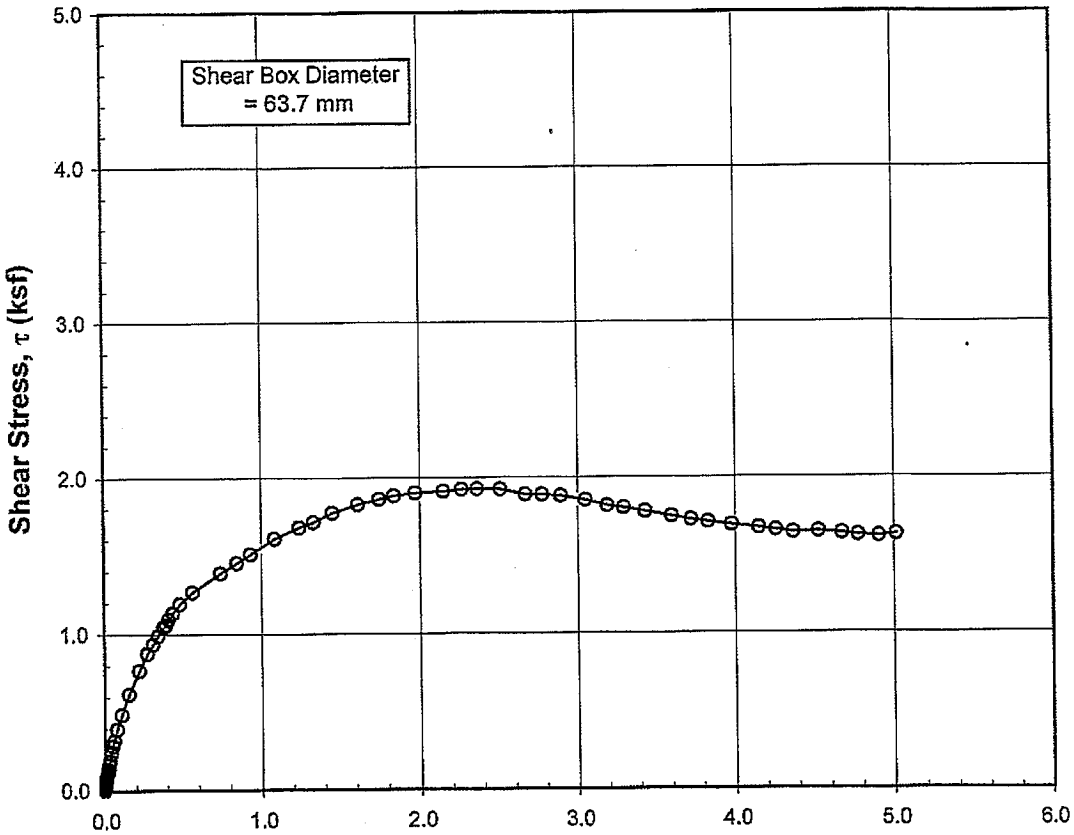


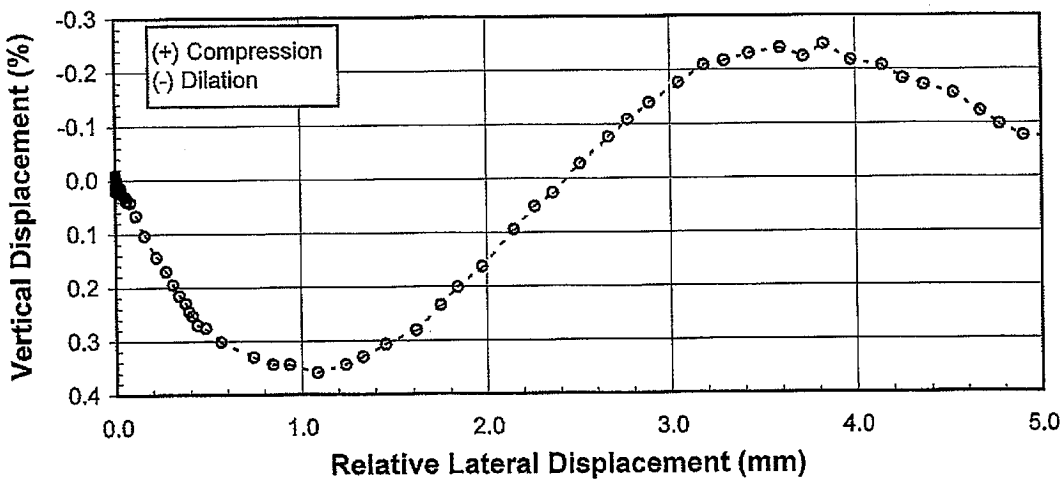
DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 1.44 ksf

Boring: B-778 - Sample: UD-2b - Depth: 13.4 ft

Reviewed By: HP



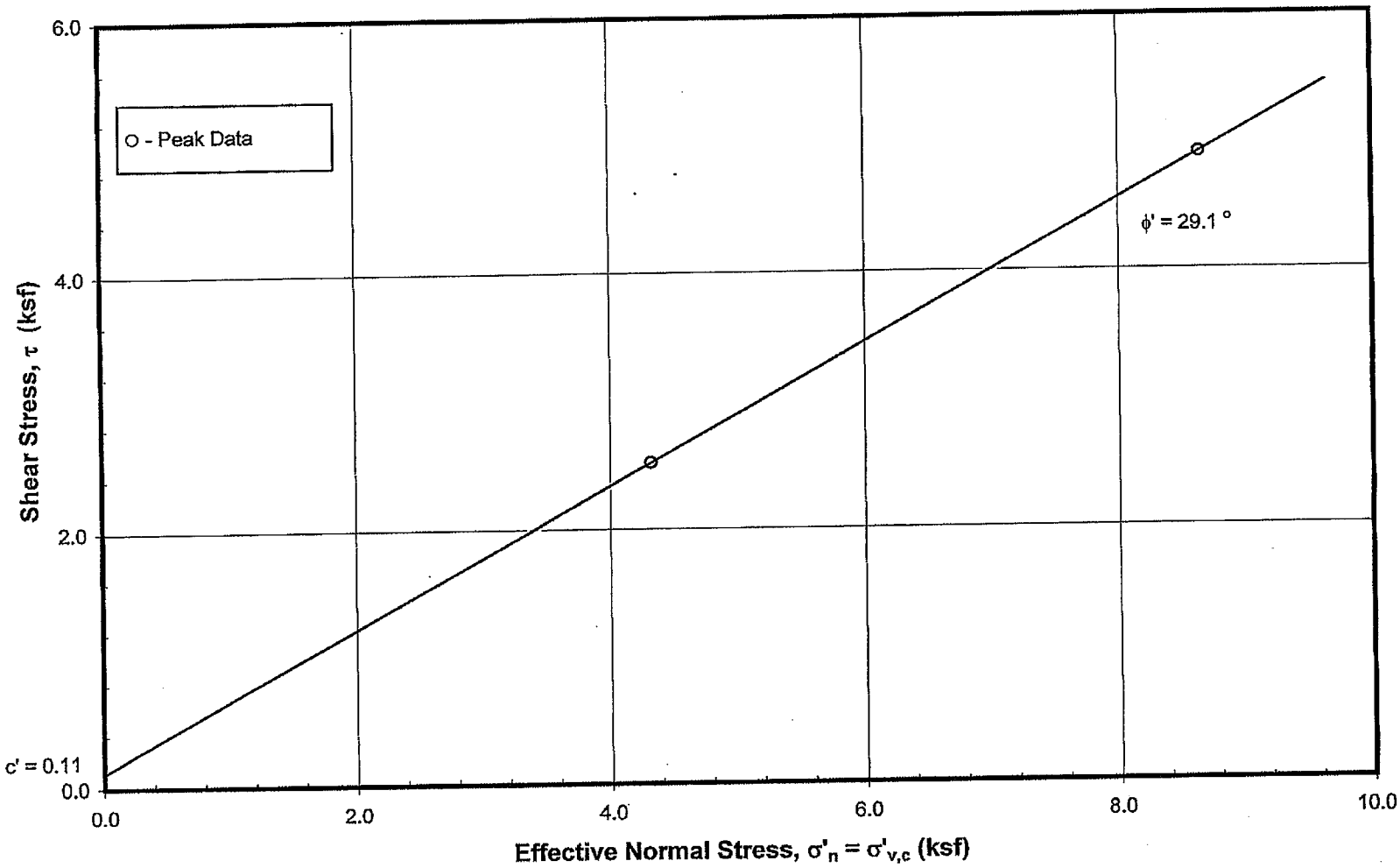


DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

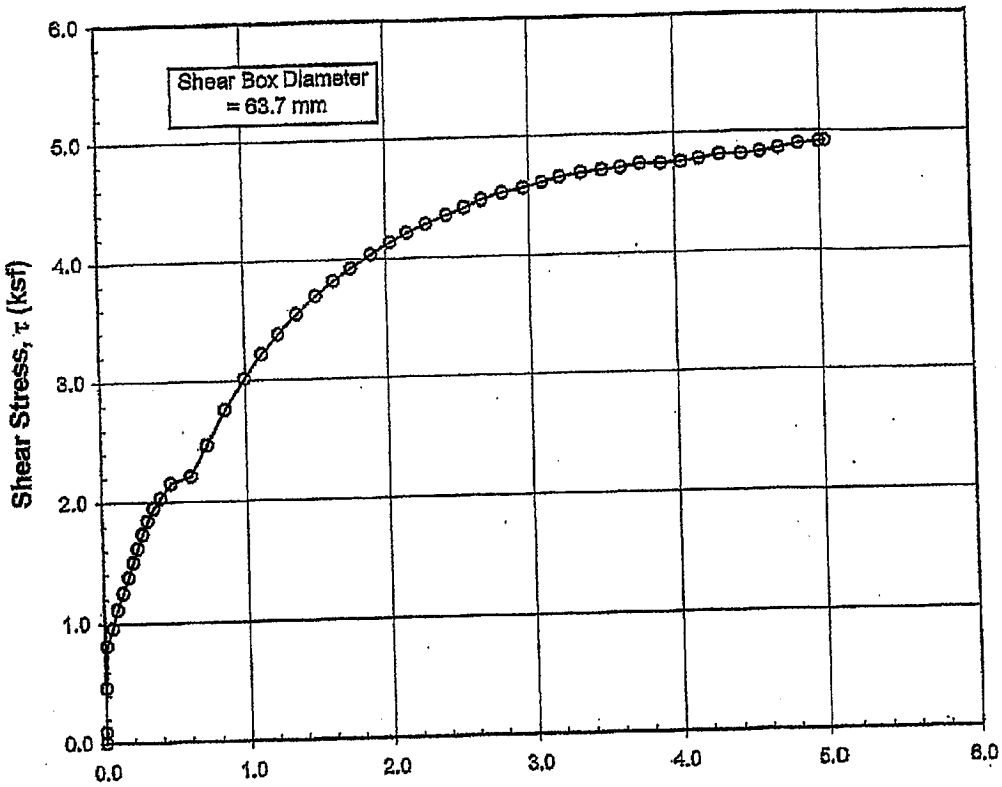
Soil - Soil Interface $\sigma'_{v,c}$ = 2.88 ksf

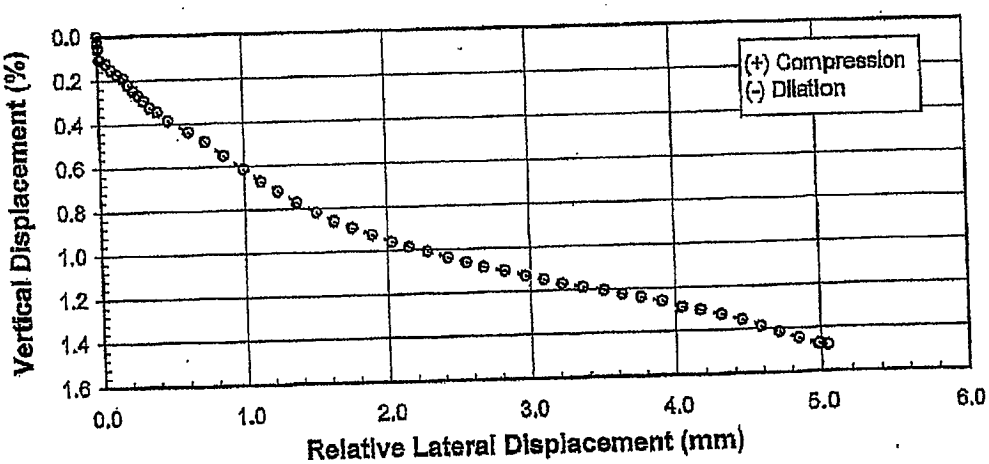
Boring: B-778 - Sample: UD-2c - Depth: 13.5 ft

Reviewed By: HP



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-778 - Sample: UD-6b - Depth: 33.3 ft



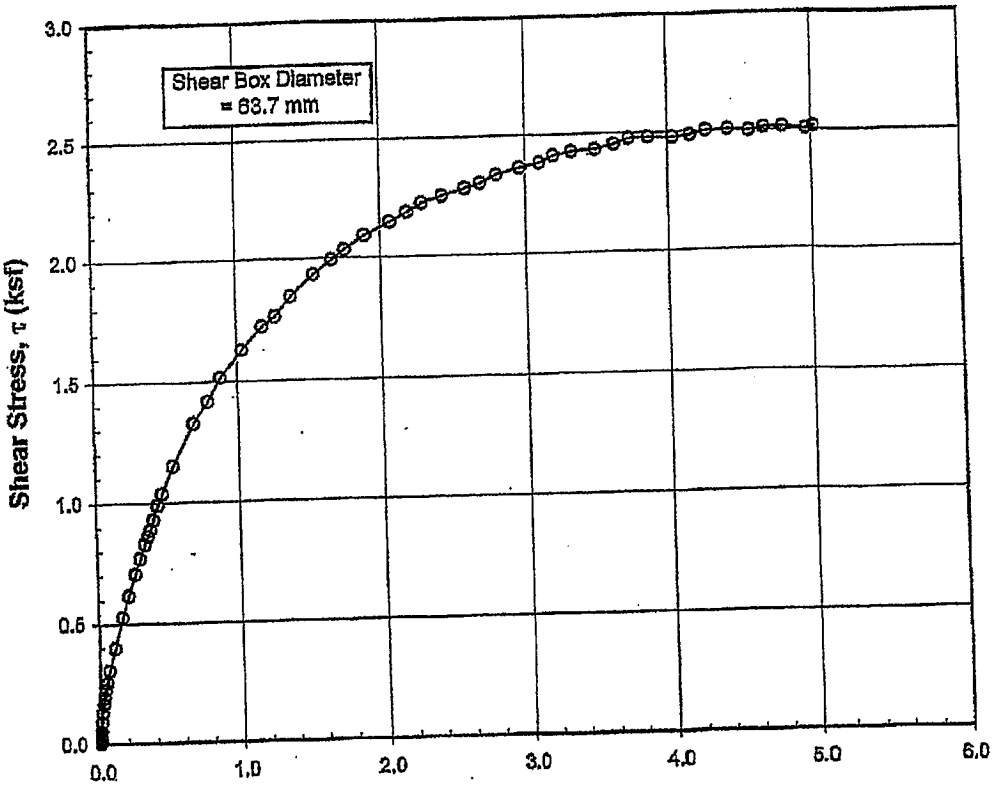


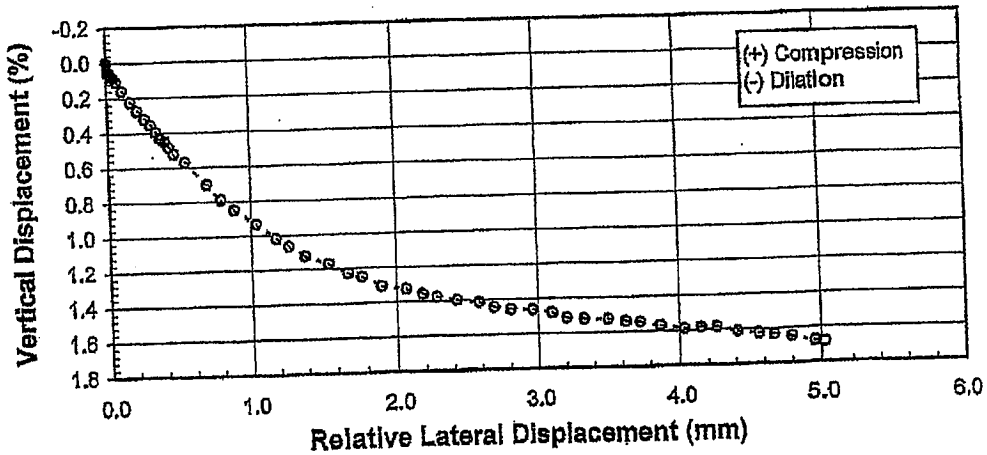
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 8.64 ksf

Boring: B-778 - Sample: UD-6a - Depth: 33.2 ft

Reviewed By: HP





DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 4.32 ksf

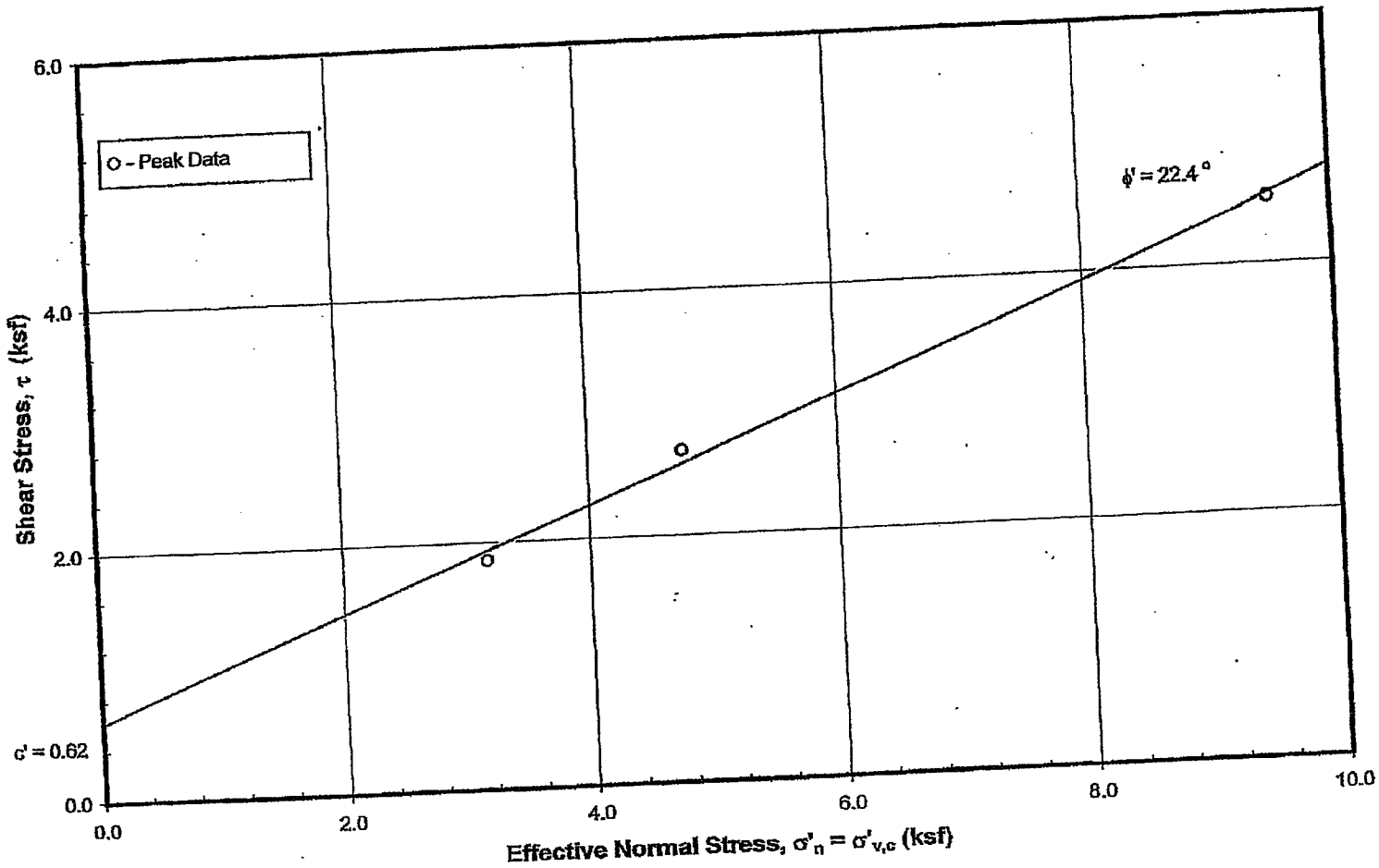
Boring: B-778 - Sample: UD-6b - Depth: 33.3 ft

Reviewed By: HP

Revision Date: 12/01/07

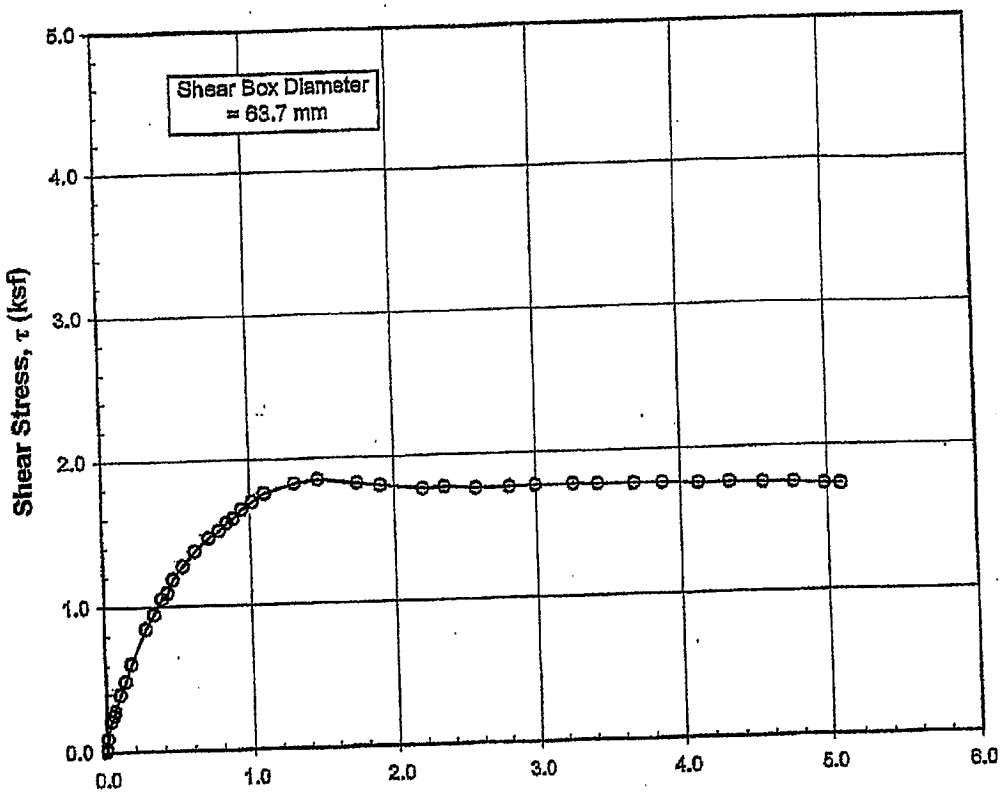
B-778_UD-7c.xls, c-phi plot 9/30/2008

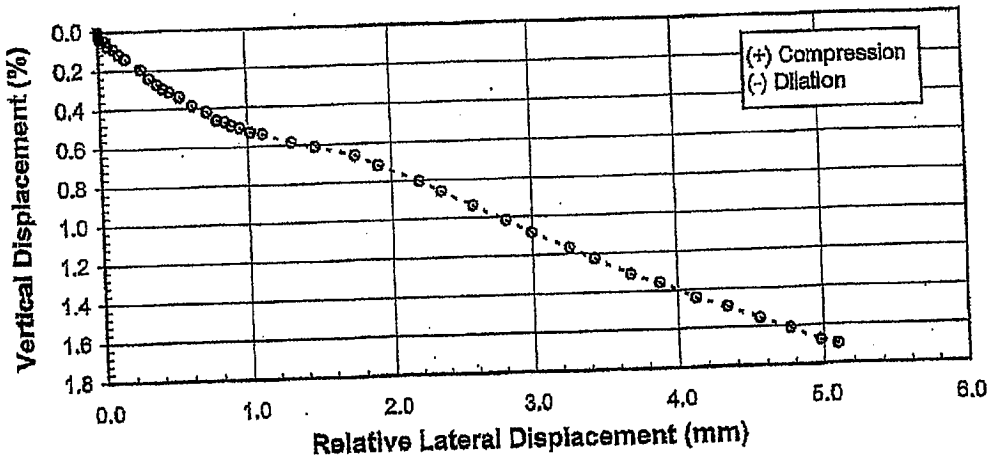
Prepared By: HP
Reviewed By: HP



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-778 - Sample: UD-7c - Depth: 43.3 ft

Report No. 0411-08-1707



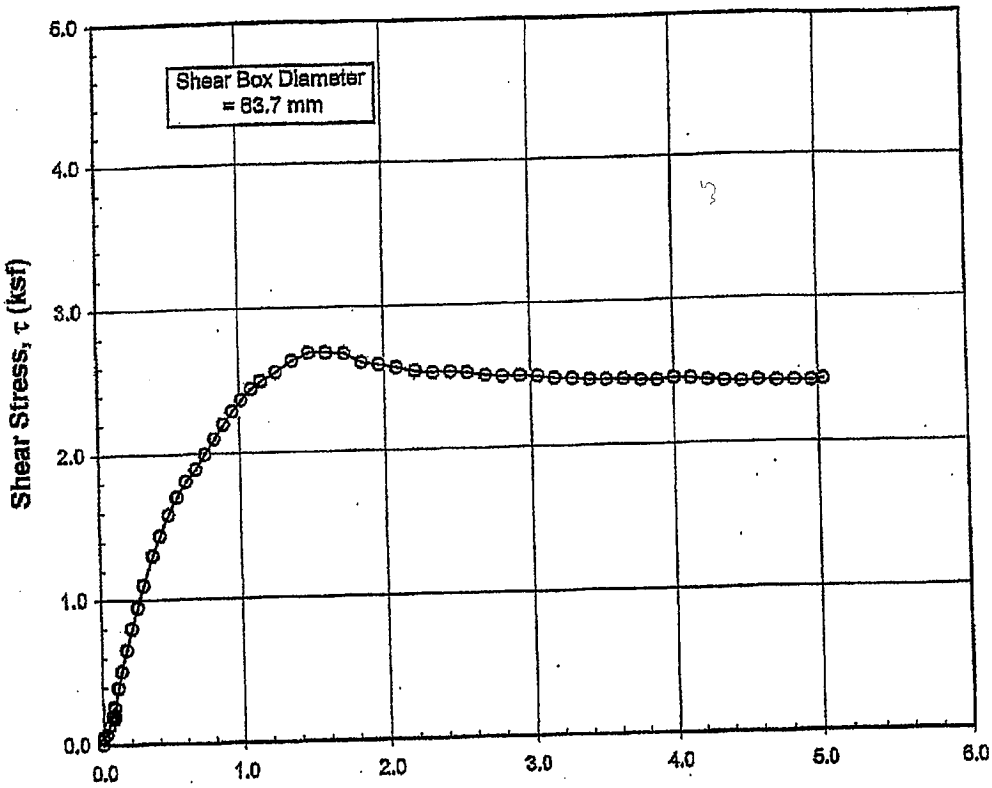


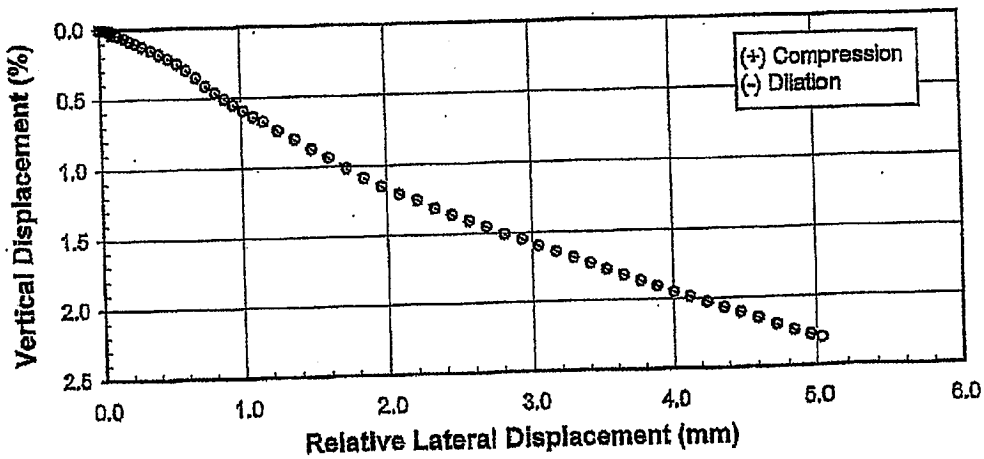
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,o}$ = 3.17 ksf

Boring: B-778 - Sample: UD-7d - Depth: 43.45 ft

Reviewed By: HP



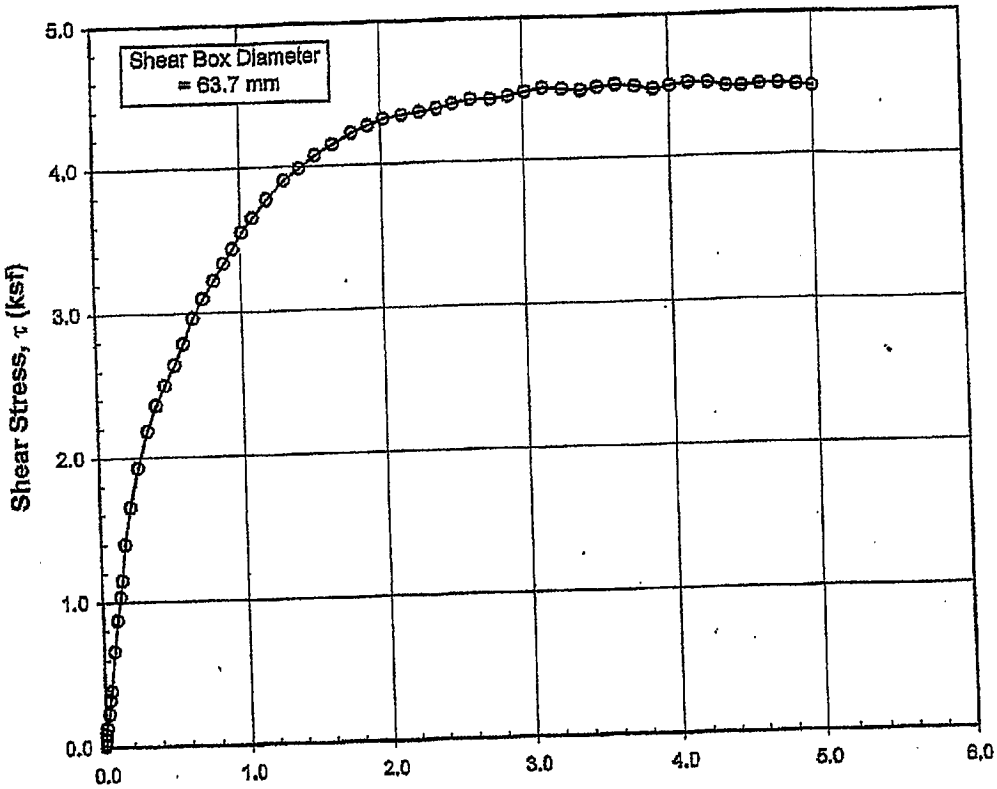


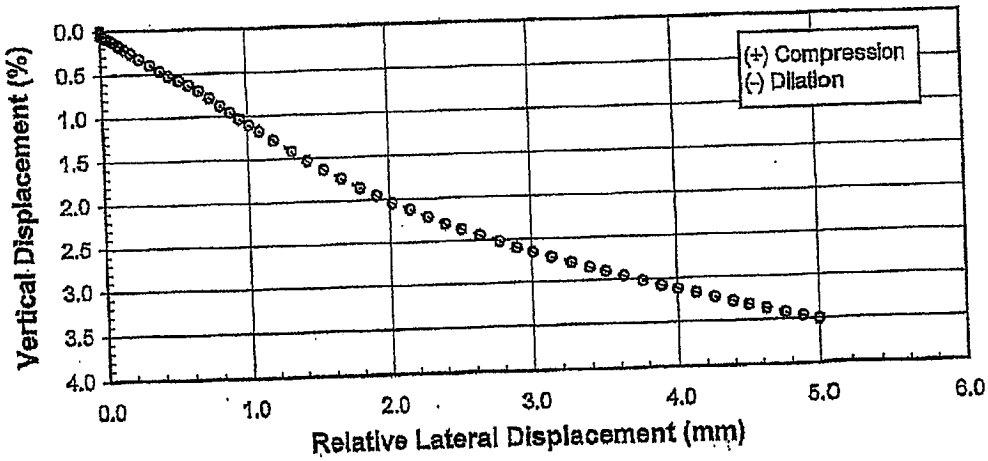
DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 4.75 ksf

Boring: B-778 - Sample: UD-7b - Depth: 43.2 ft

Reviewed By: HD





DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

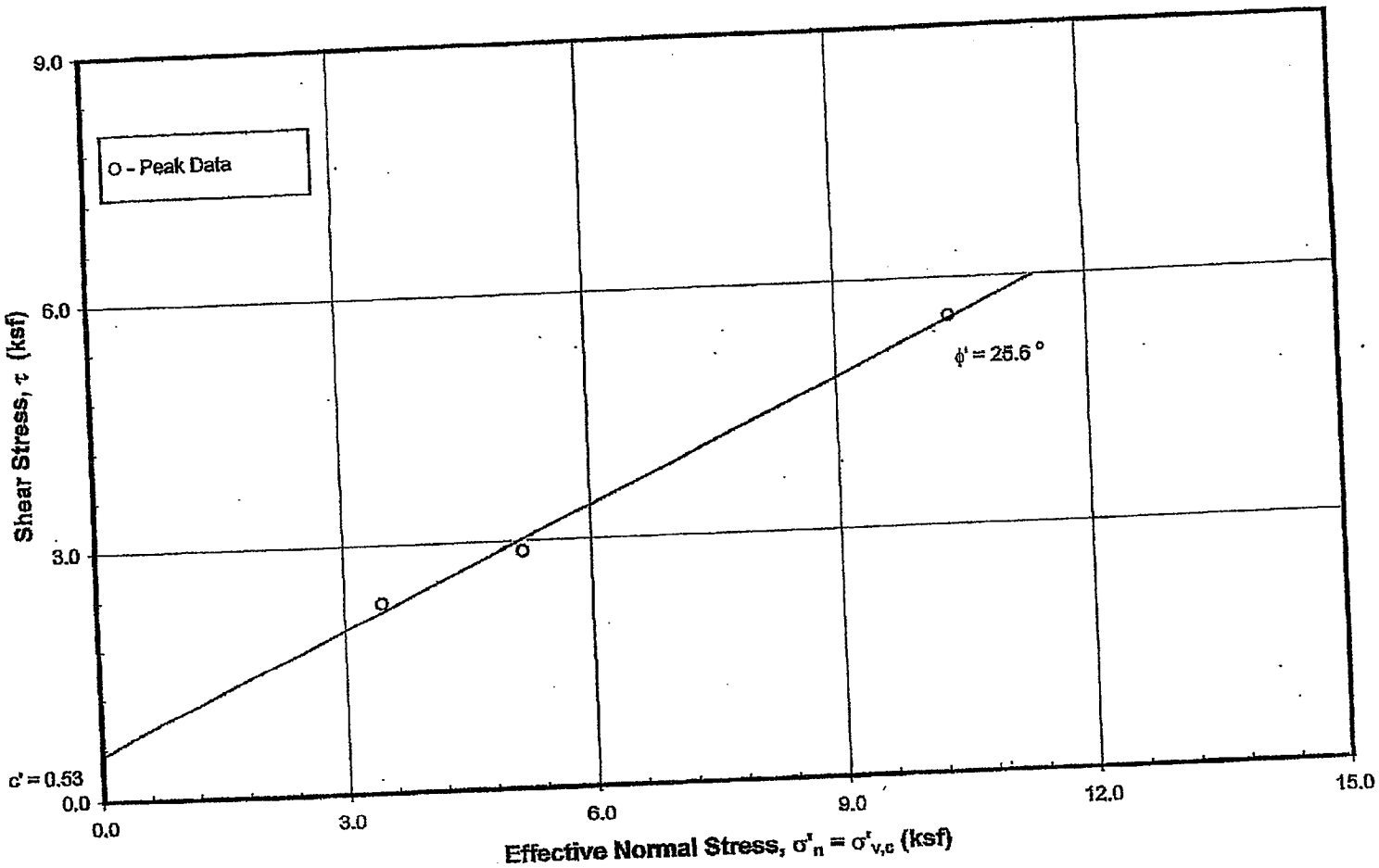
Soil - Soil Interface $\sigma'_{v,c}$ = 9.50 ksf

Boring: B-778 - Sample: UD-7c - Depth: 43.3 ft

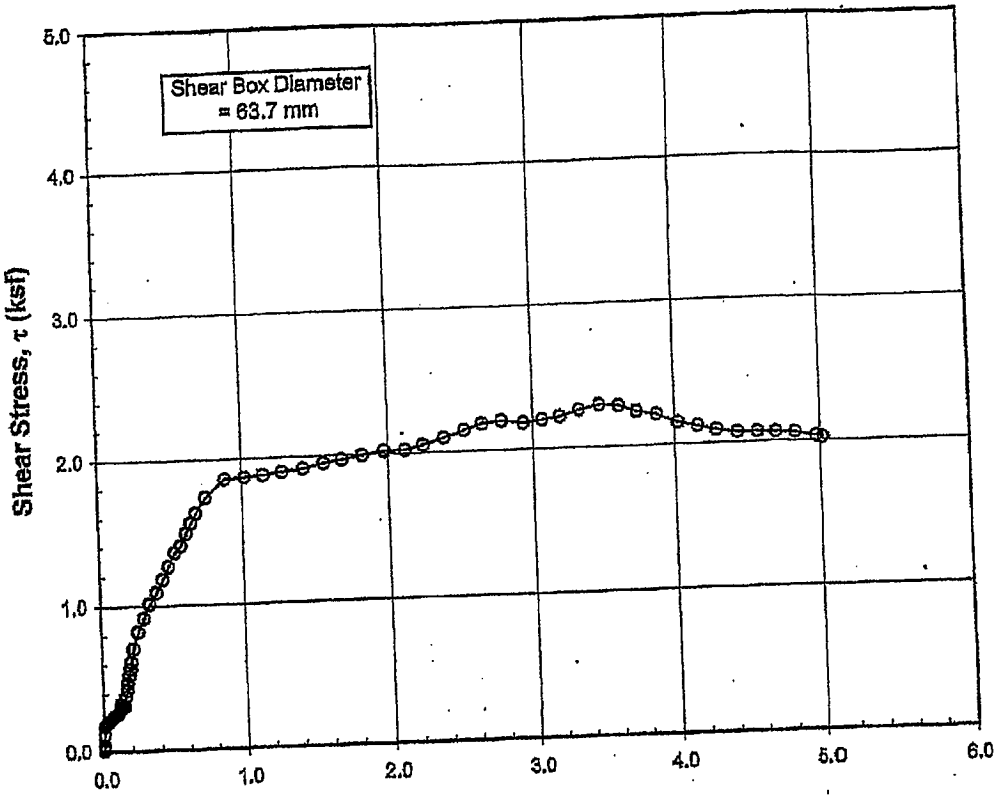
Reviewed By: _____

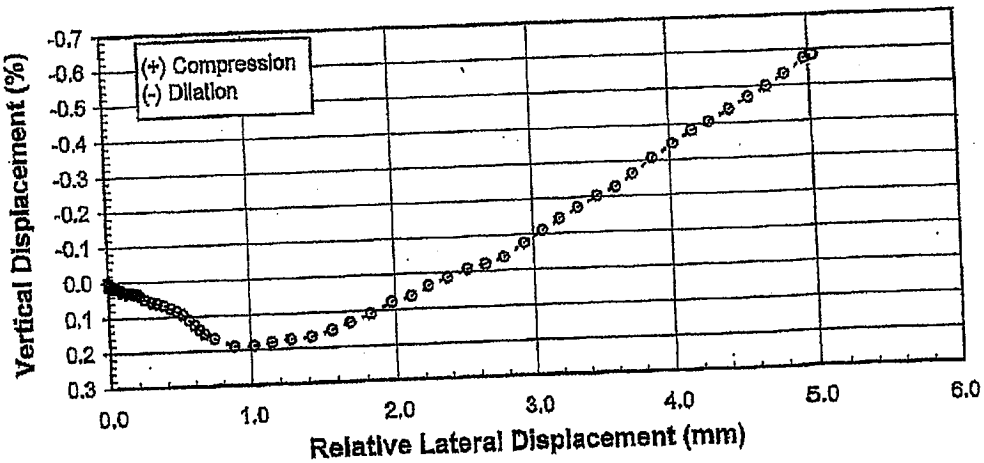
B-778_UD-8f.xls, c-phi plot 9/30/2008

Prepared By: [illegible]
Reviewed By: [illegible]



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-778 - Sample: UD-8f - Depth: 52.85 ft



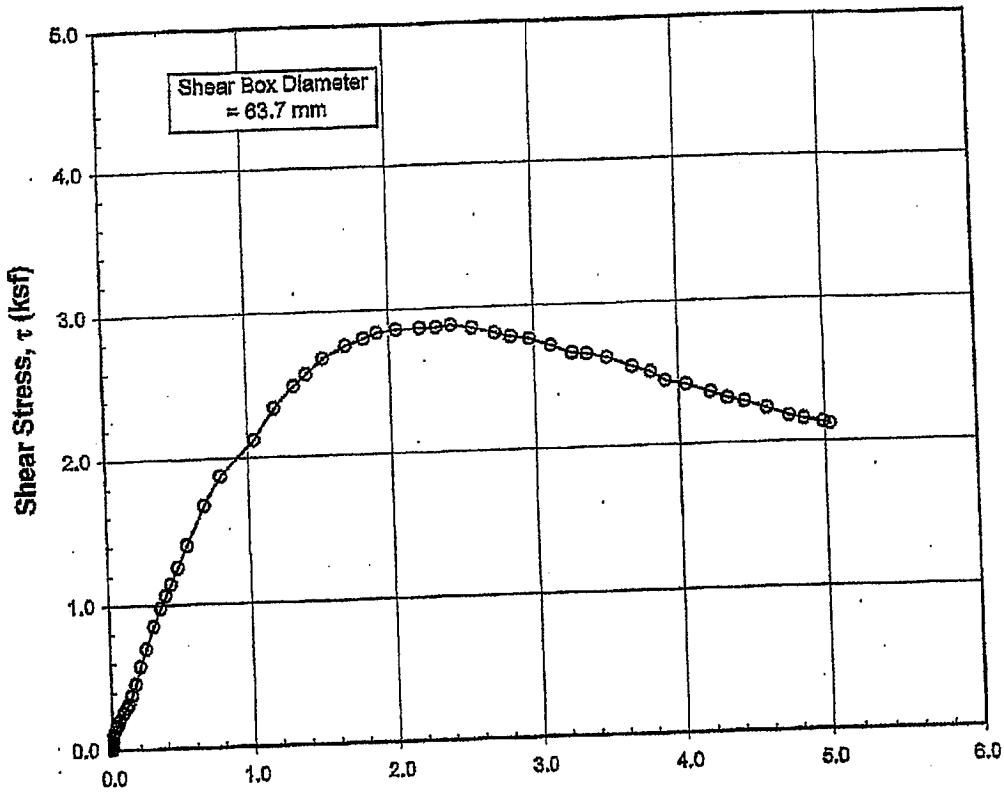


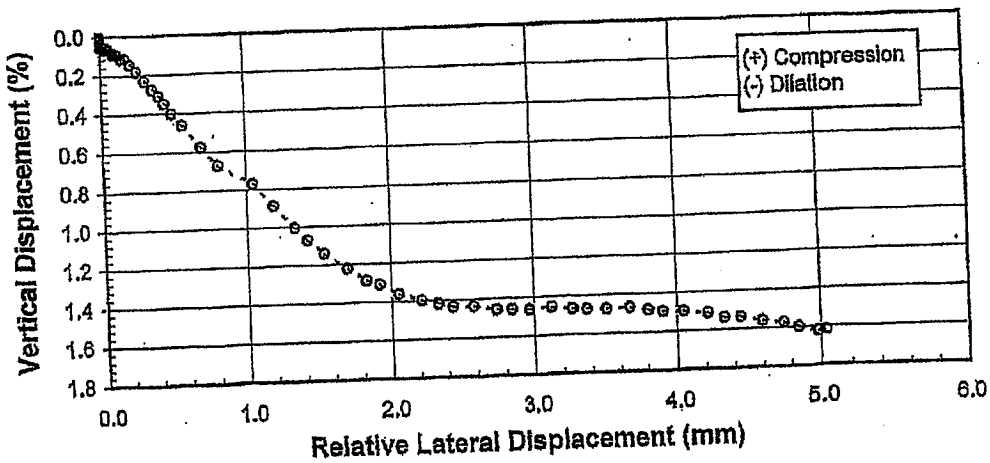
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 3.46 ksf

Boring: B-778 - Sample: UD-8d - Depth: 52.65 ft

Reviewed By: HP



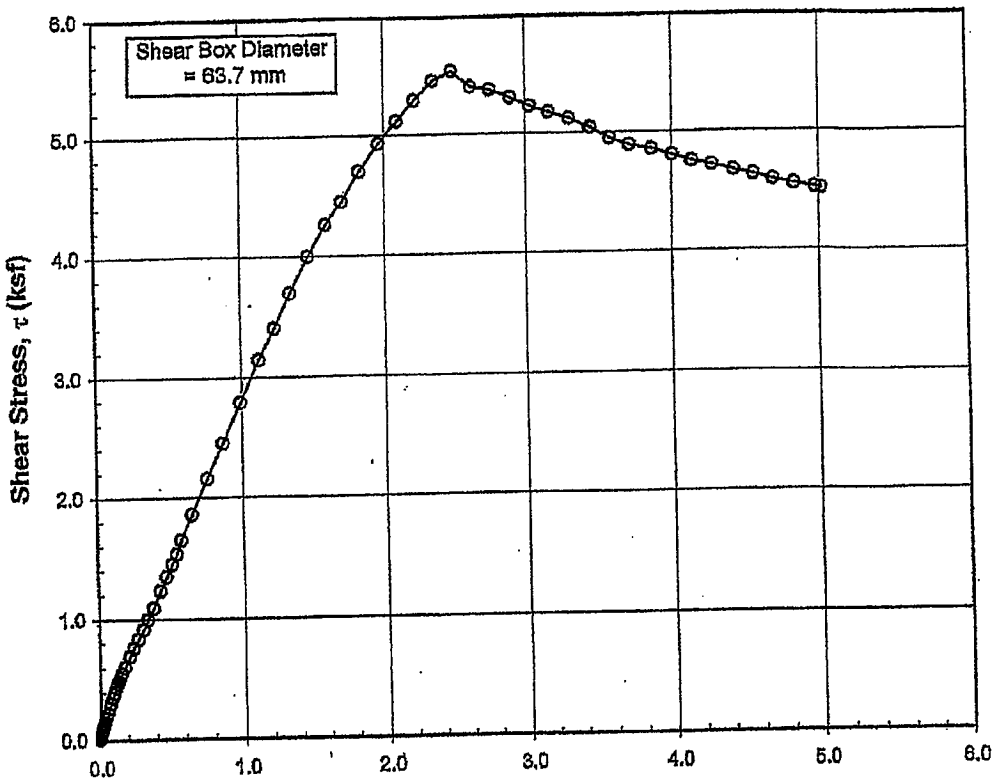


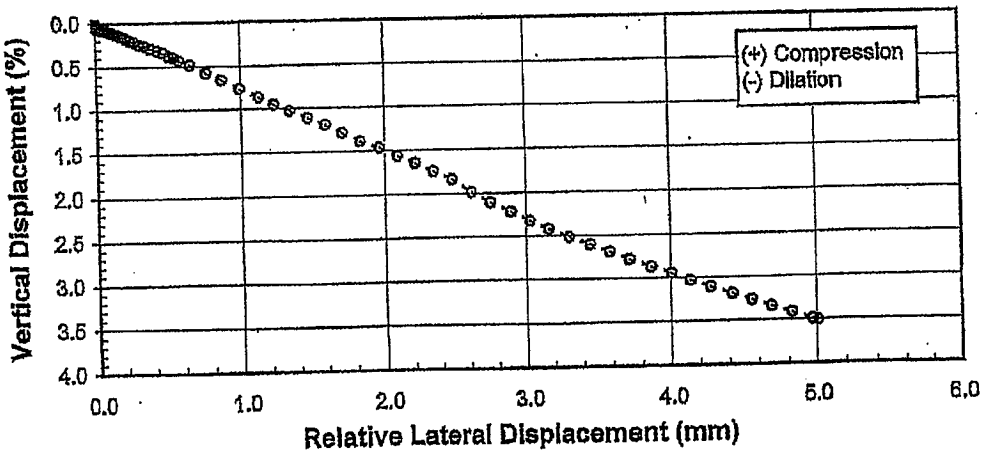
DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 5.18 ksf

Boring: B-778 - Sample: UD-8e - Depth: 52.75 ft

Reviewed By: HP





DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 10.37 ksf

Boring: B-778 - Sample: UD-8f - Depth: 52.85 ft

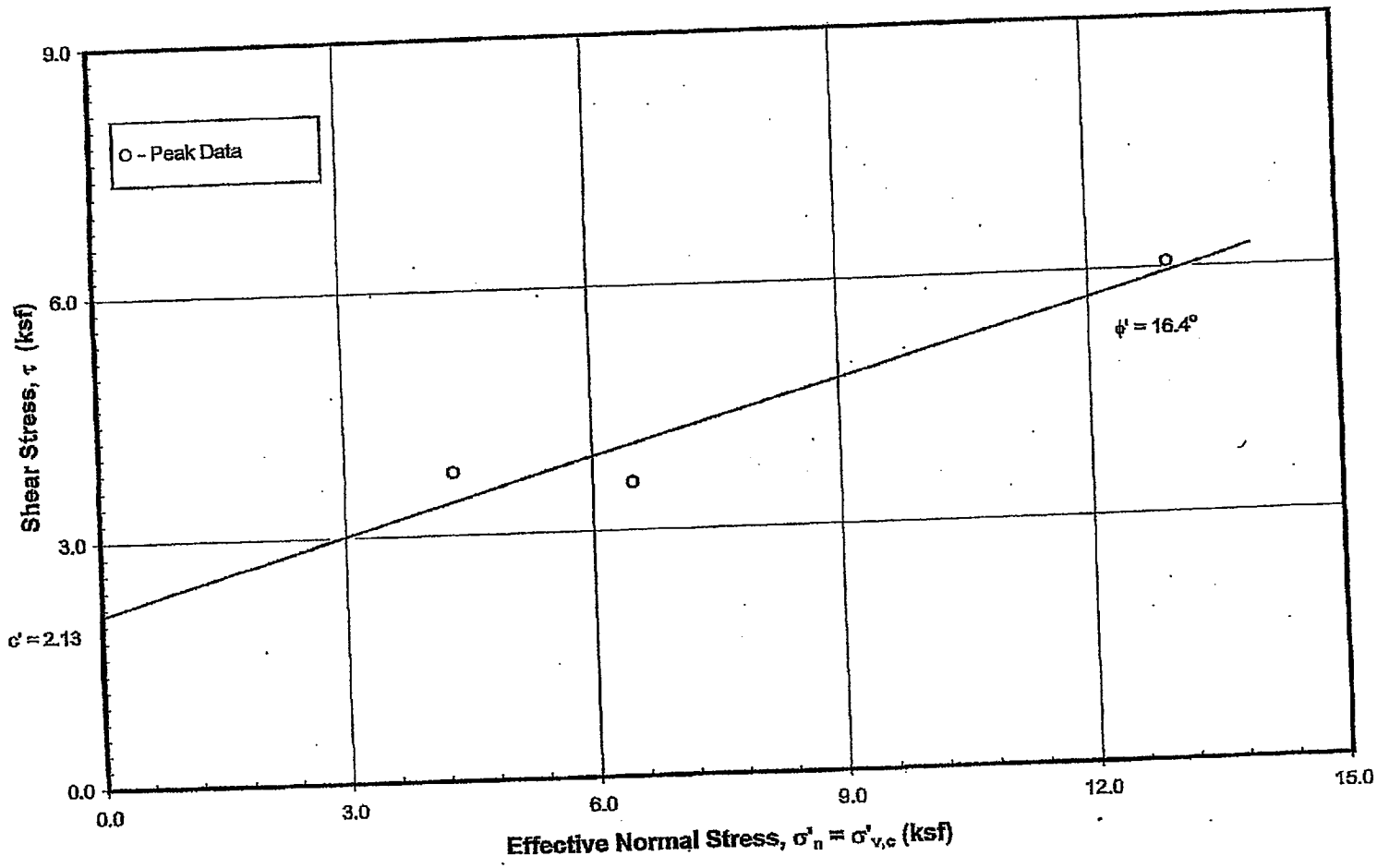
Reviewed By: MP

Prepared By: HP
Reviewed By: HP

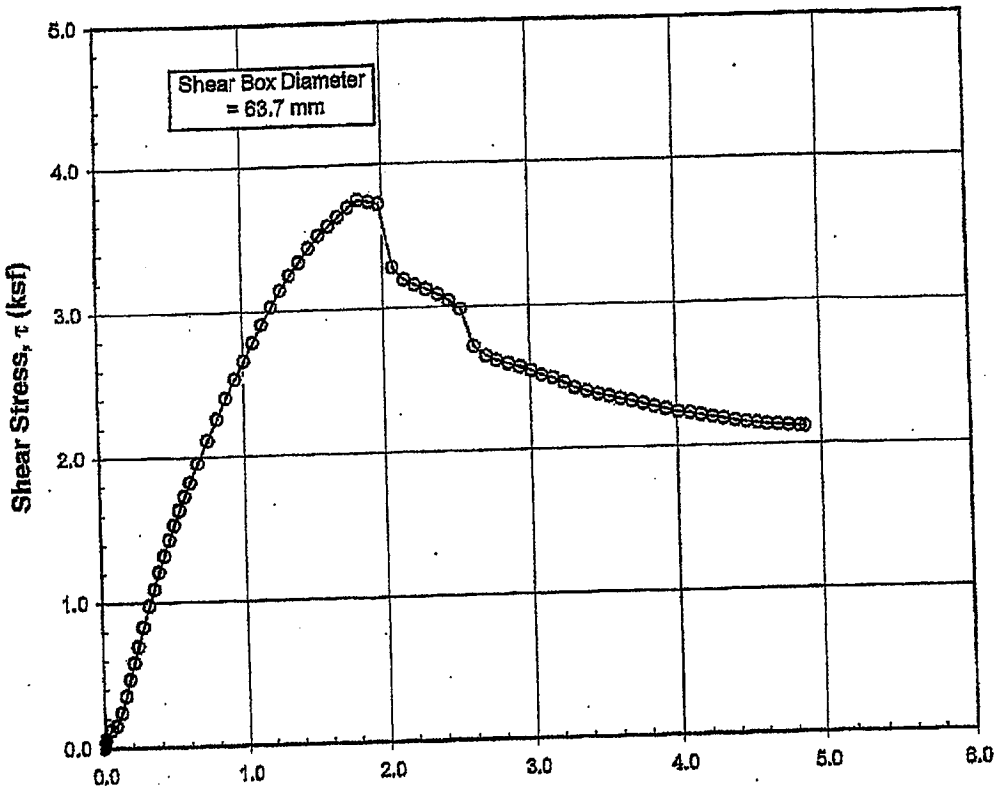
B-778_UD-10c.xls, c-phi plot 10/1/2008

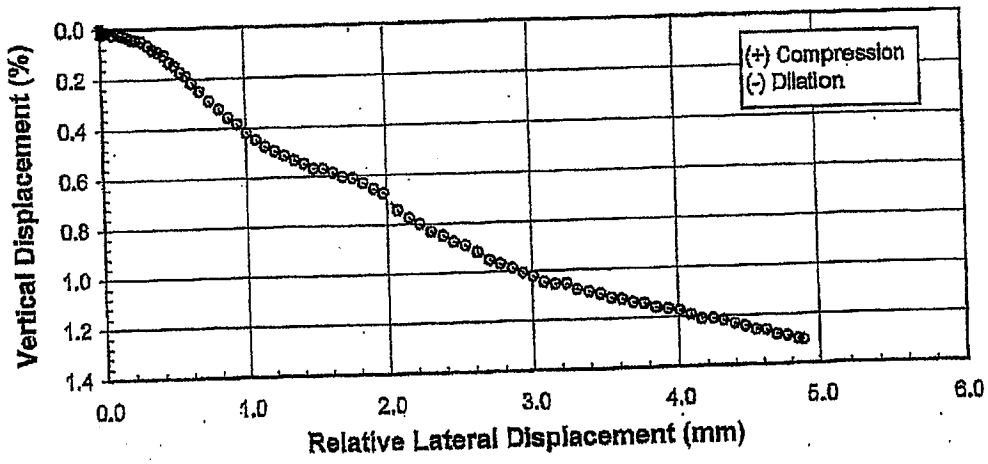
Revision Date: 12/01/07

Report No. 0411-08-1707



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-778 - Sample: UD-10c - Depth: 72.7 ft





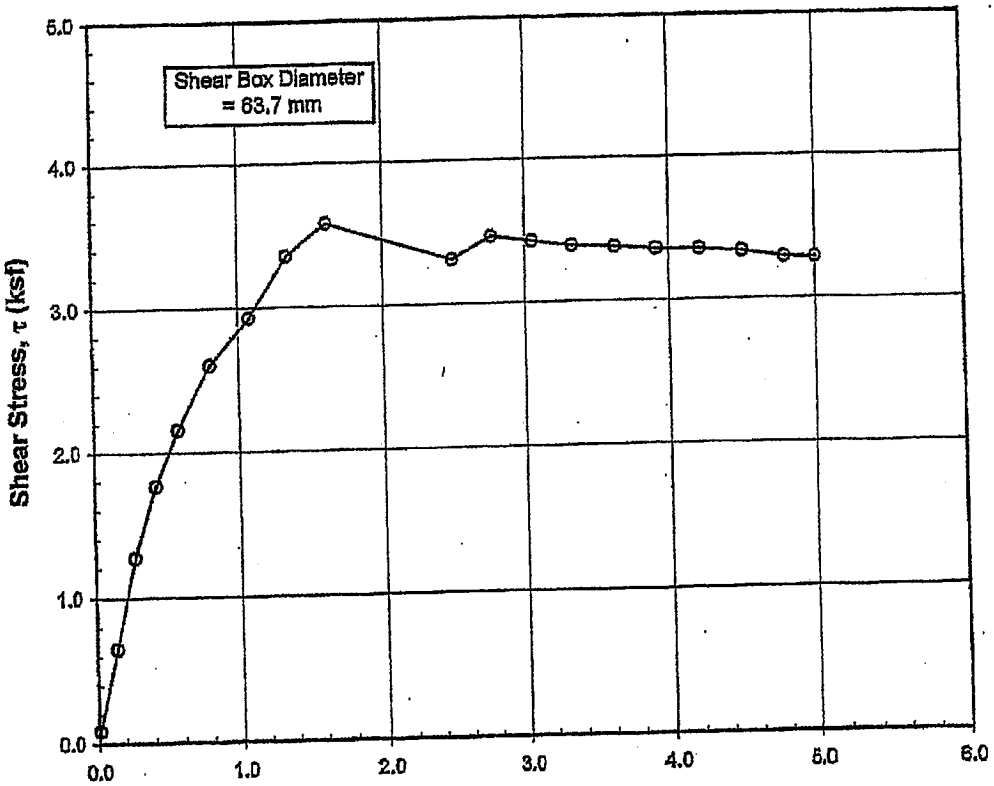
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

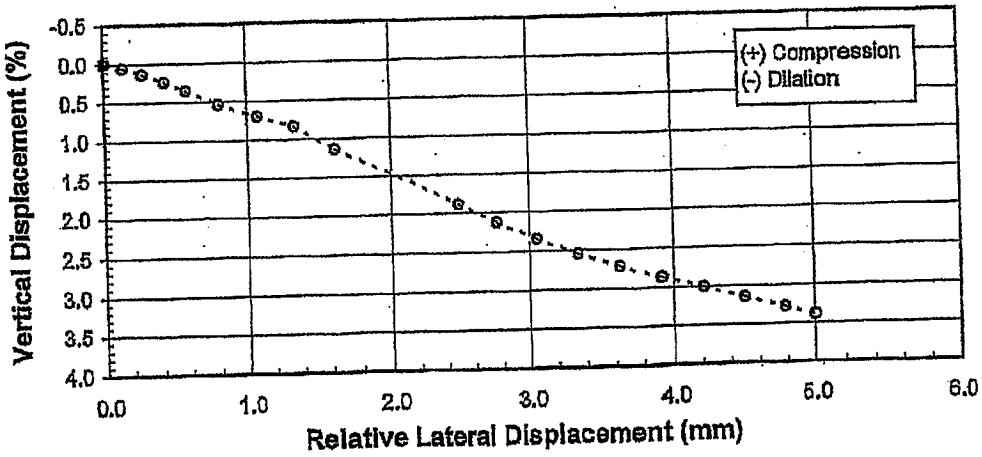
Soil - Soil Interface $\sigma'_{v,c}$ = 4.32 ksf

Boring: B-788 - Sample: UD-10a - Depth: 72.5. ft

Reviewed By: HP

Report No. 0411-08-1707



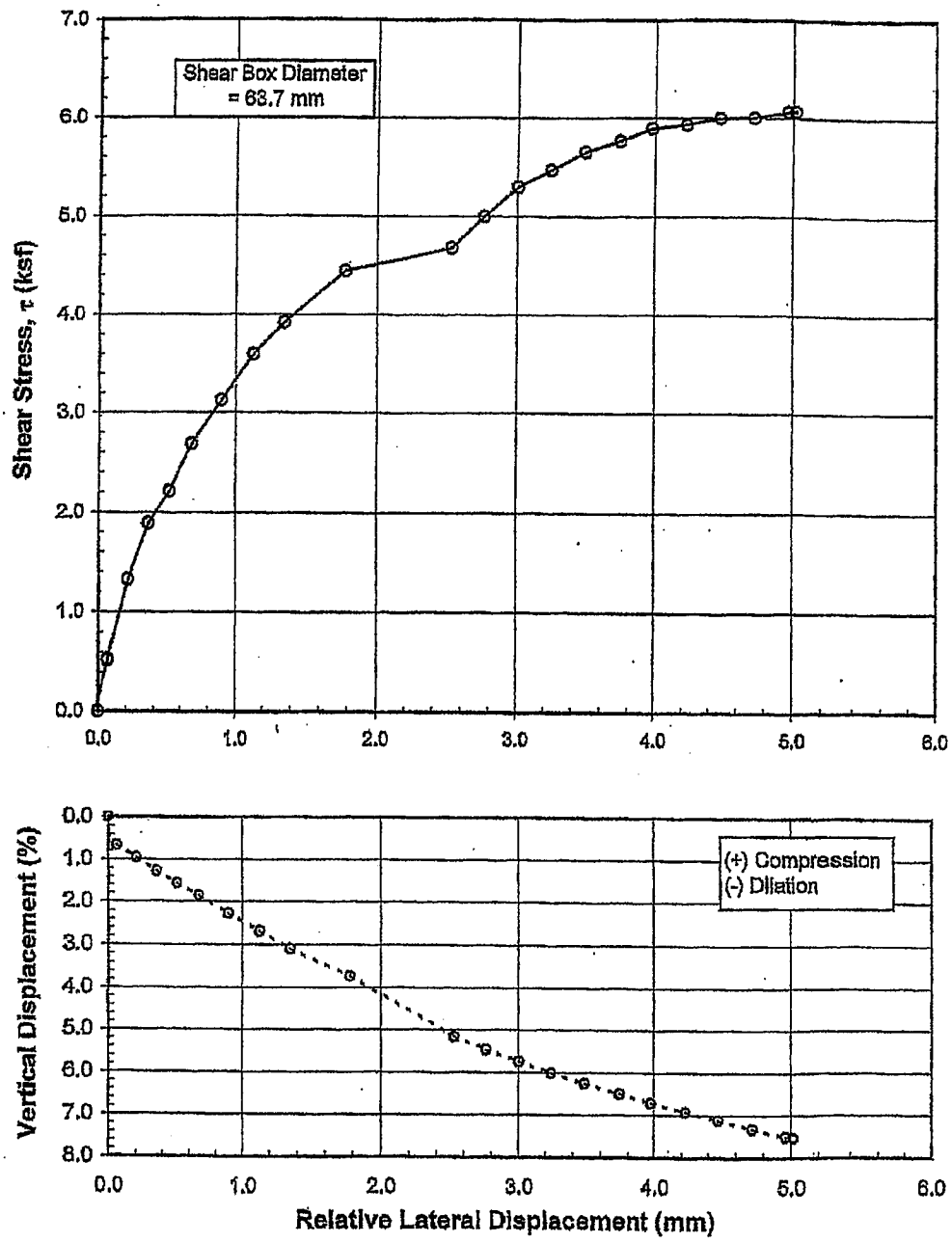


DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 6.48 ksf

Boring: B-778 - Sample: UD-10b - Depth: 72.6 ft

Reviewed By: HP



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 12.96 ksf

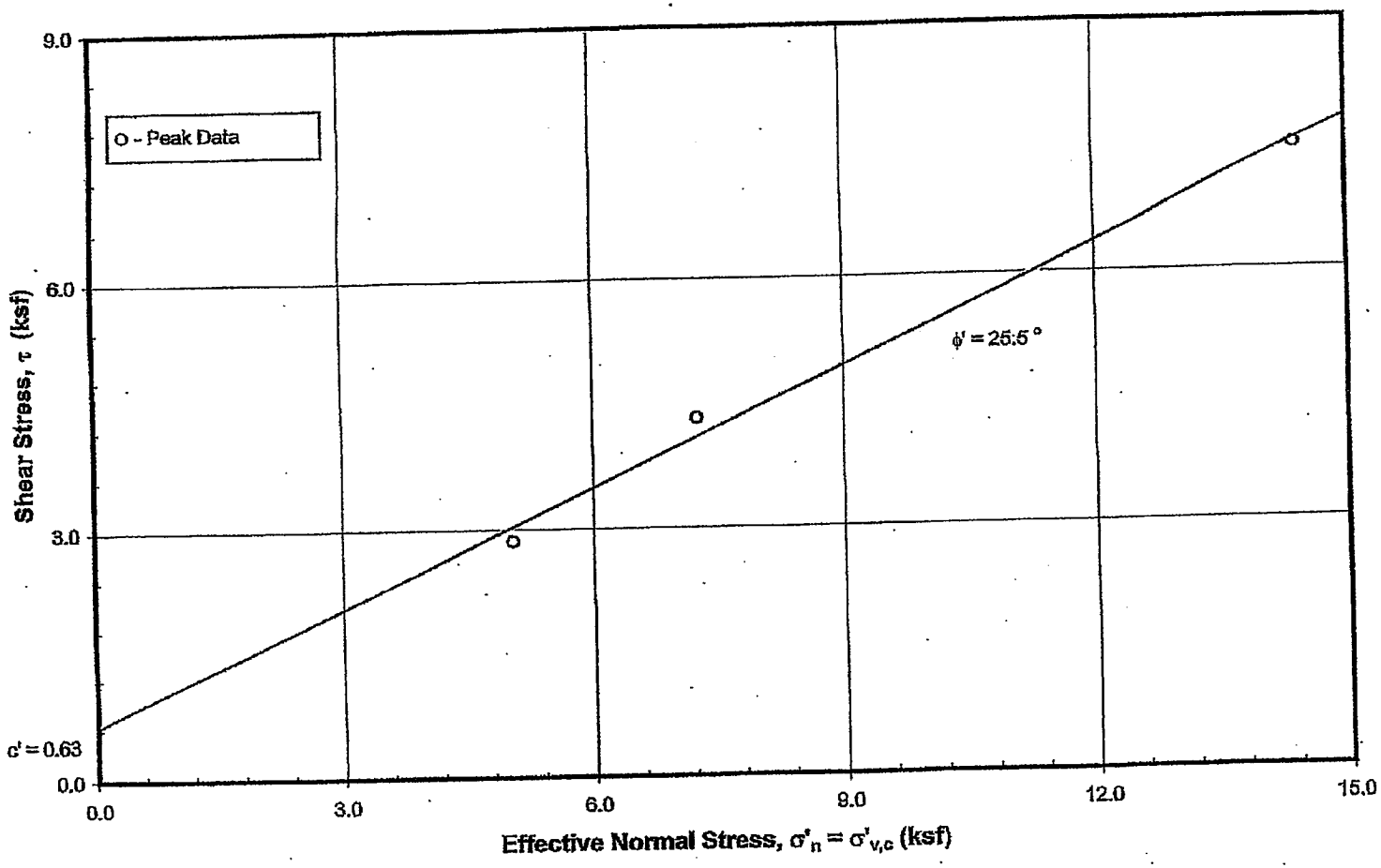
Boring: B-778 - Sample: UD-10c - Depth: 72.7 ft

Reviewed By: HP

Prepared By: HP
Reviewed By: HP

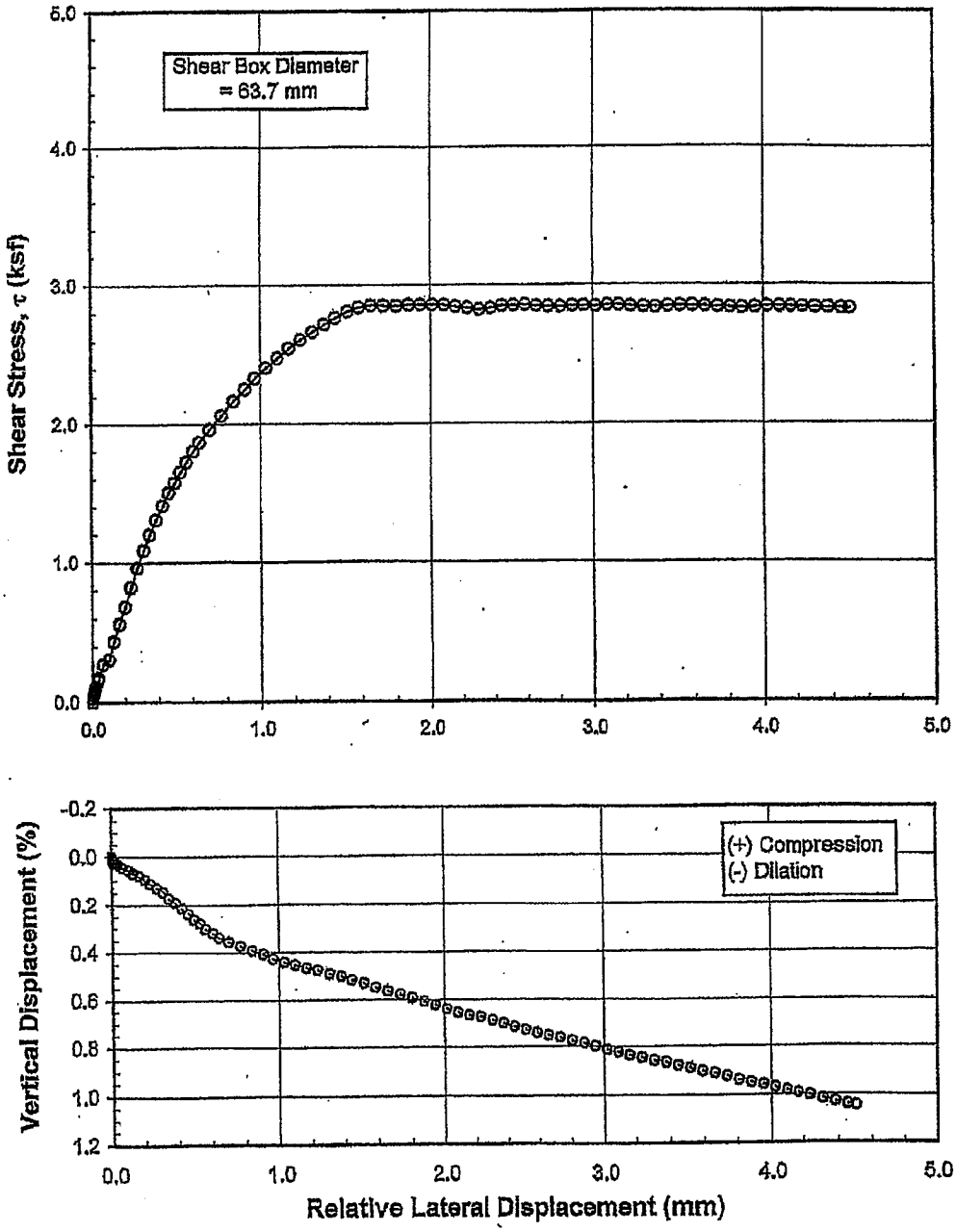
B-778_UD-11c.xls, c-phi plot 10/1/2008

Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-778 - Sample: UD-11c - Depth: 83.8 ft

Report No. 041-08-1707

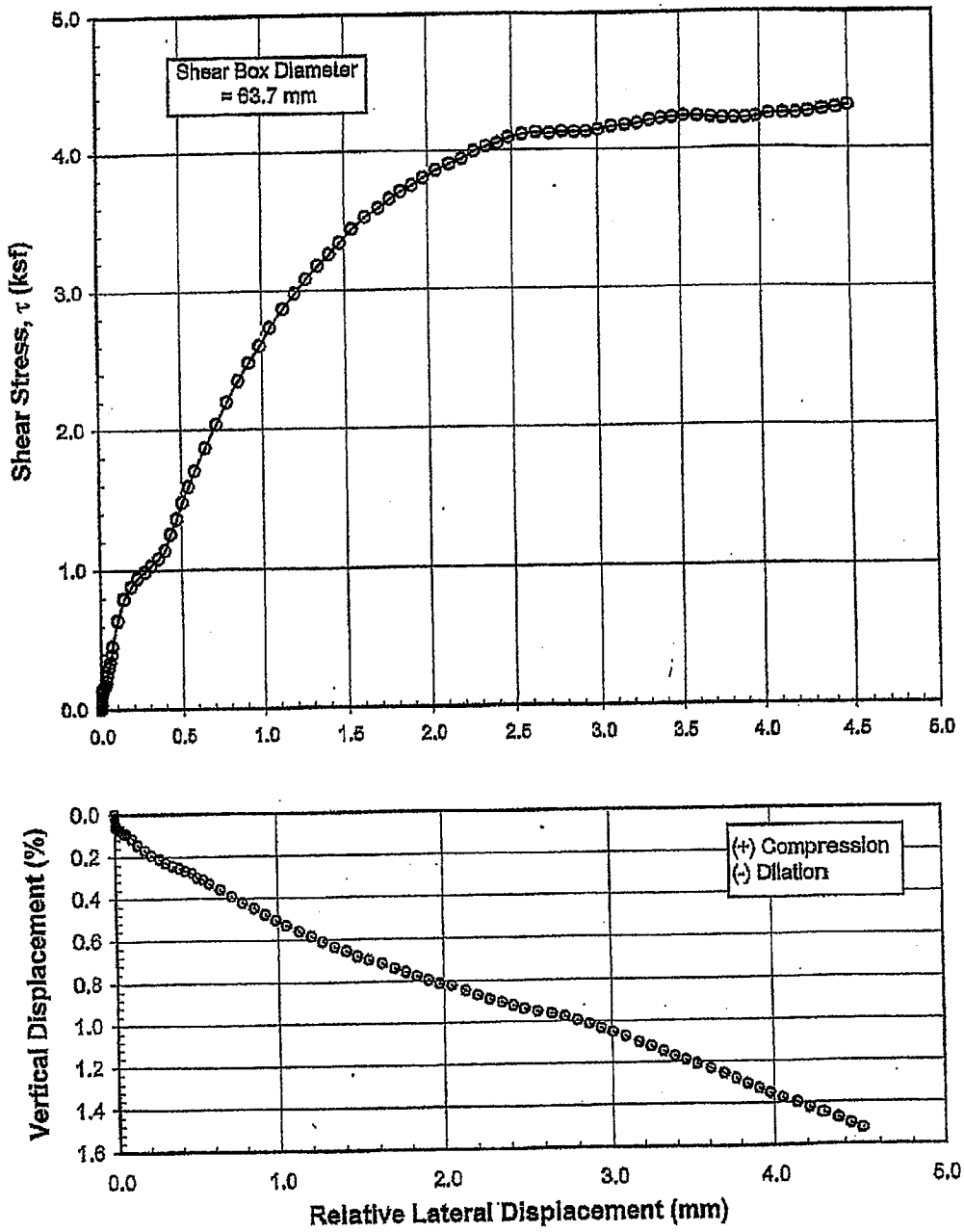


DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 5.04 ksf

Boring: B-778 - Sample: UD-11a - Depth: 83.6 ft

Reviewed By: HP

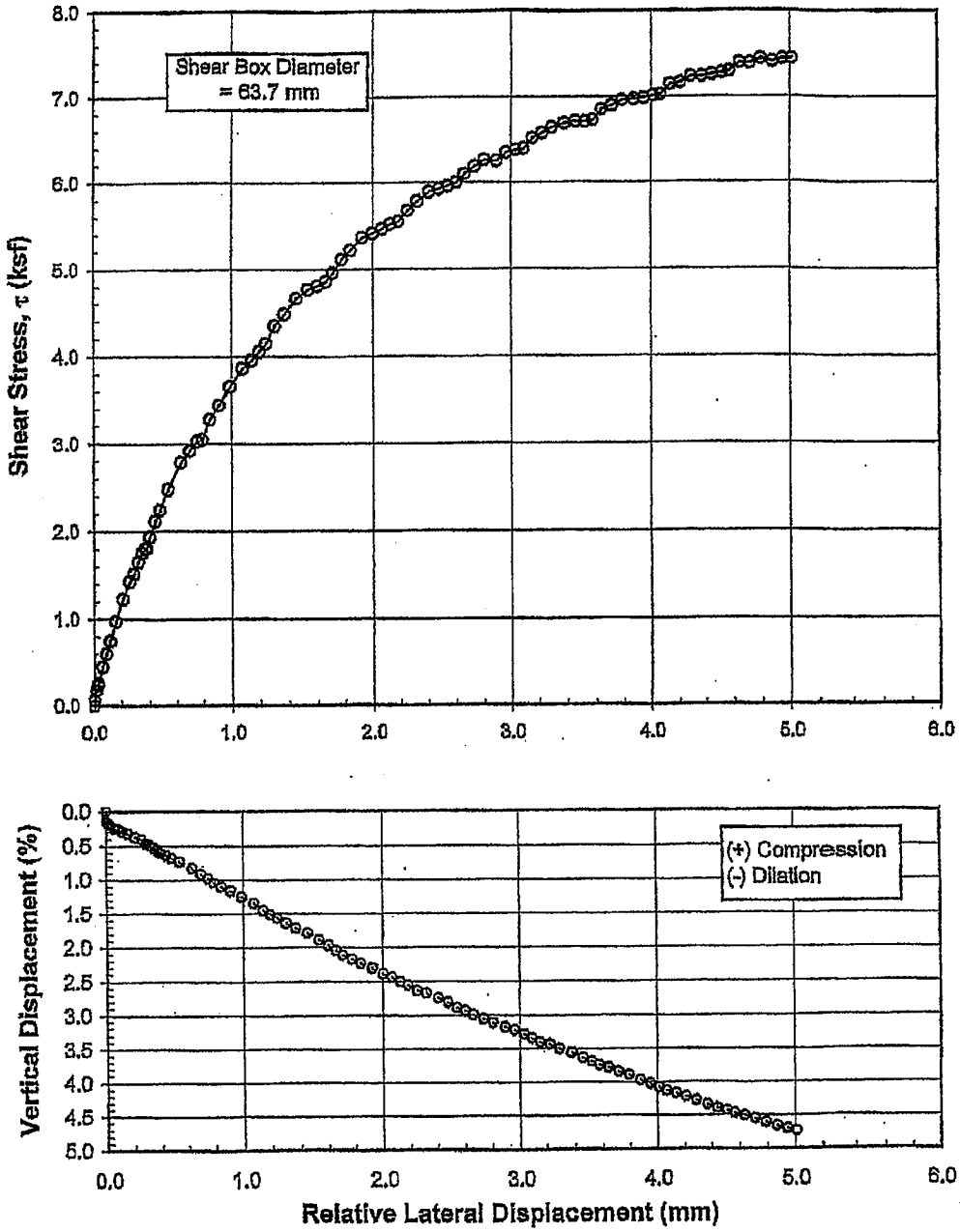


DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 7.25 ksf

Boring: B-778 - Sample: UD-11b - Depth: 83.7 ft

Reviewed By: HP



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 14.40 ksf

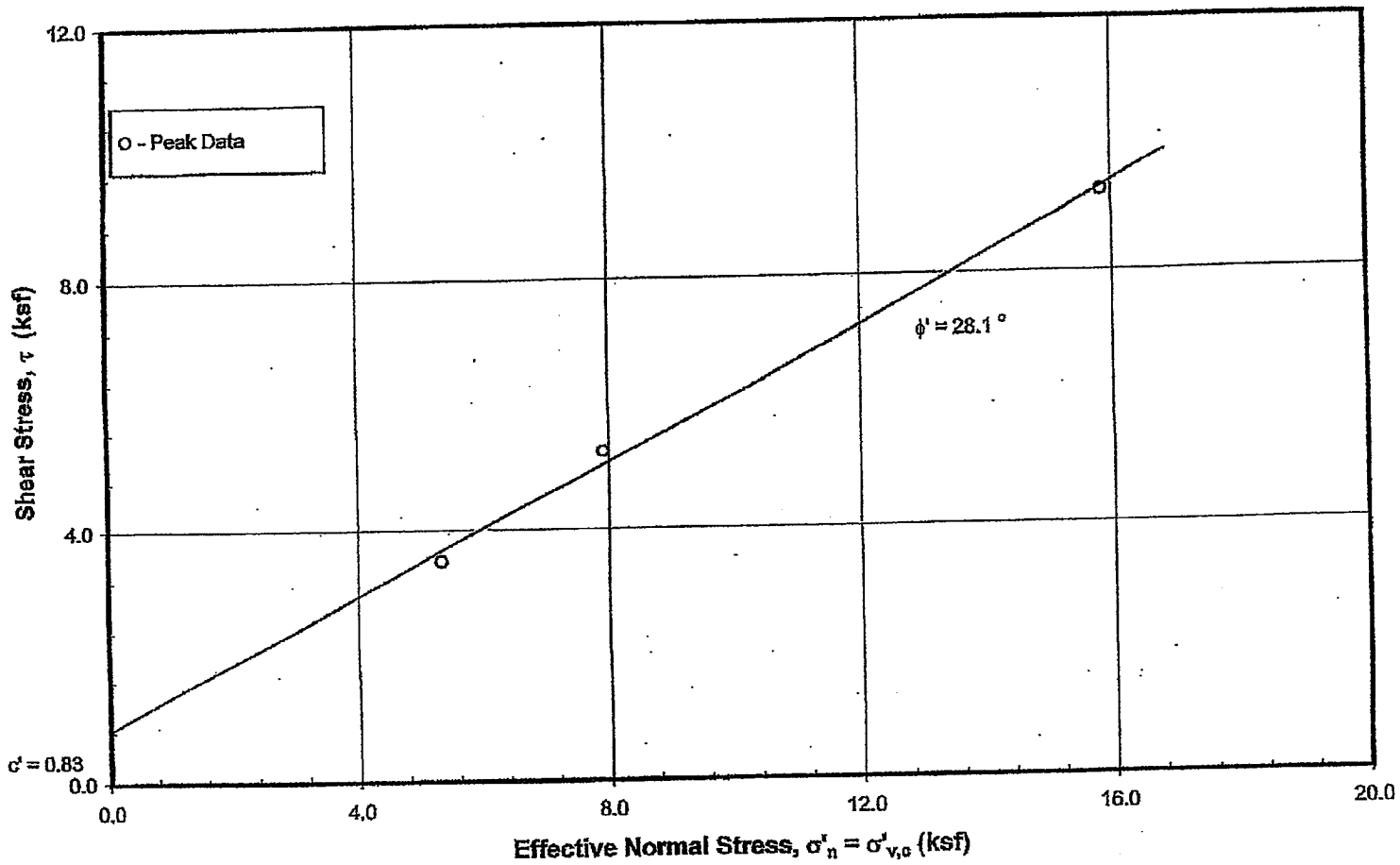
Boring: B-778 - Sample: UD-11c - Depth: 83.8 ft

Reviewed By: HP

Prepared By: HP
Reviewed By: HP

B-778_UD-14c.xls, c-phi plot 10/1/2008

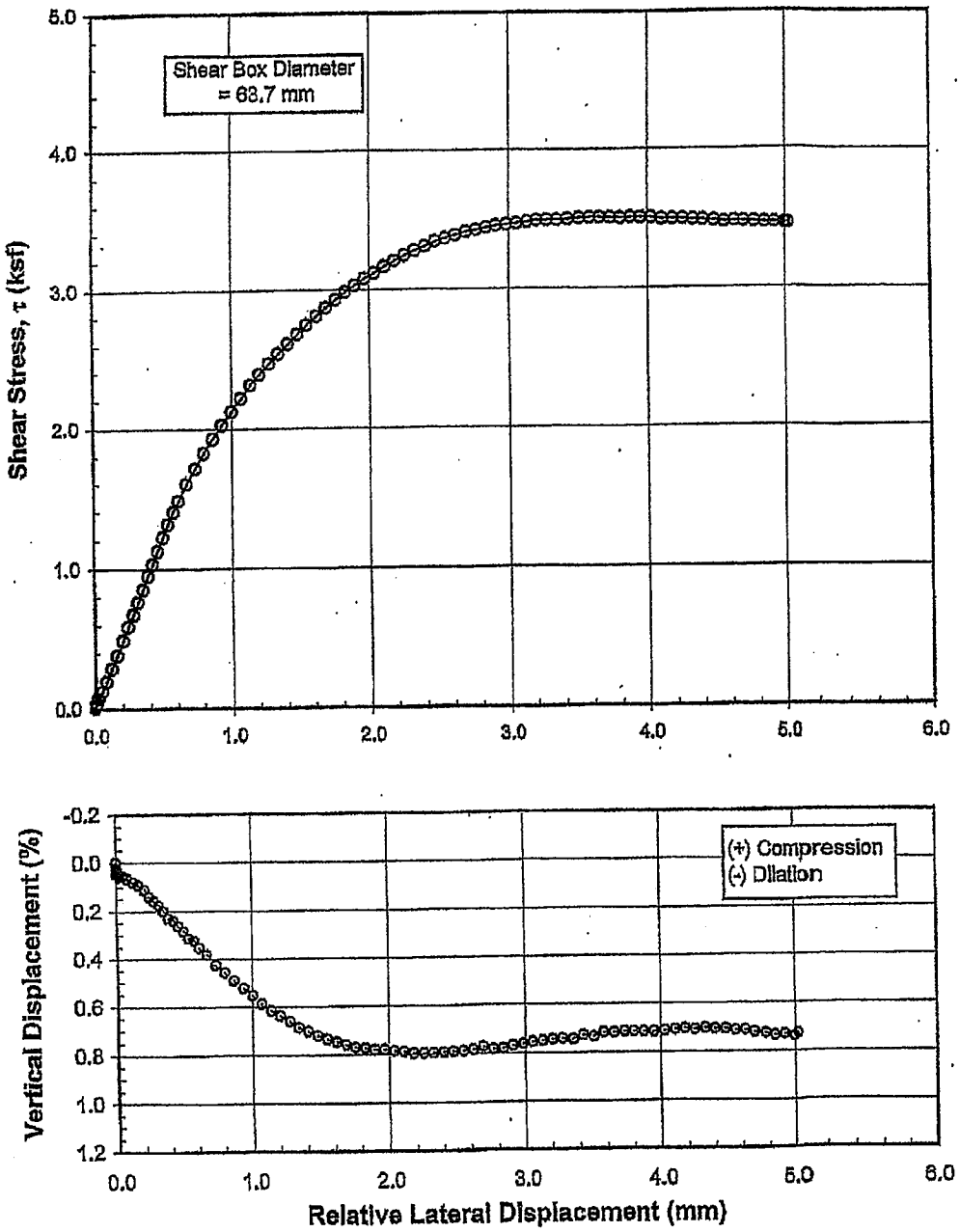
Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-778 - Sample: UD-14c - Depth: 102.9 ft

Report No. 0411-08-1707

Report No. 0411-08-1707

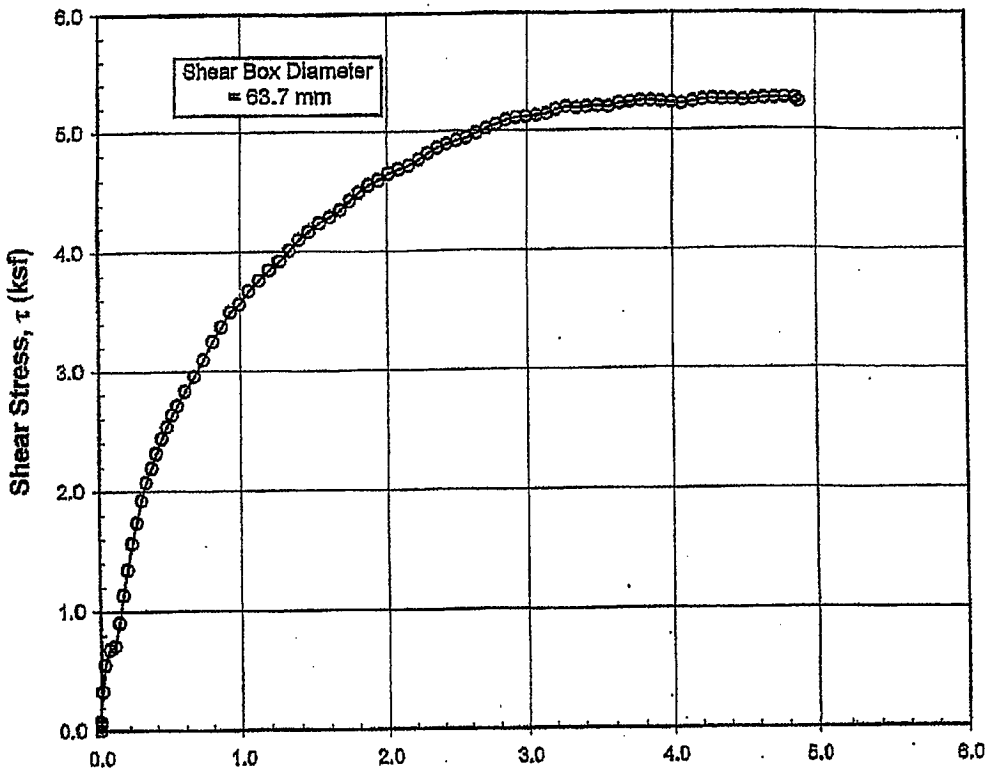


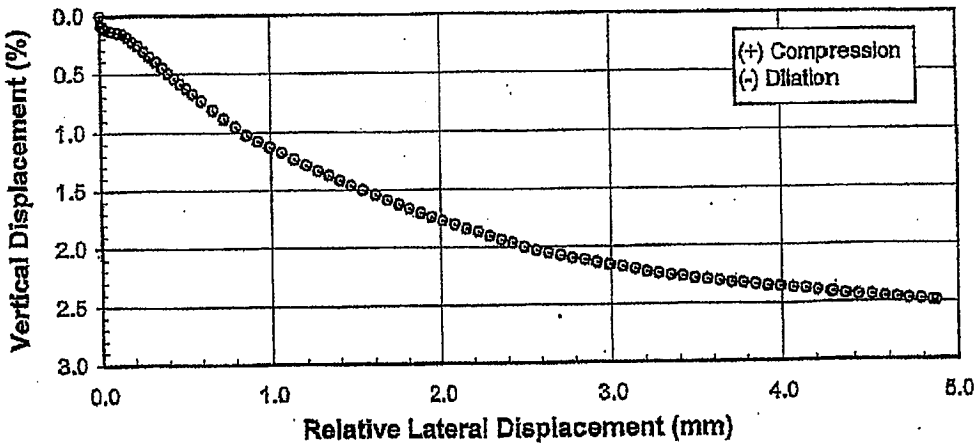
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 5.33 ksf

Boring: B-778 - Sample: UD-14a - Depth: 102.7 ft

Reviewed By: HP



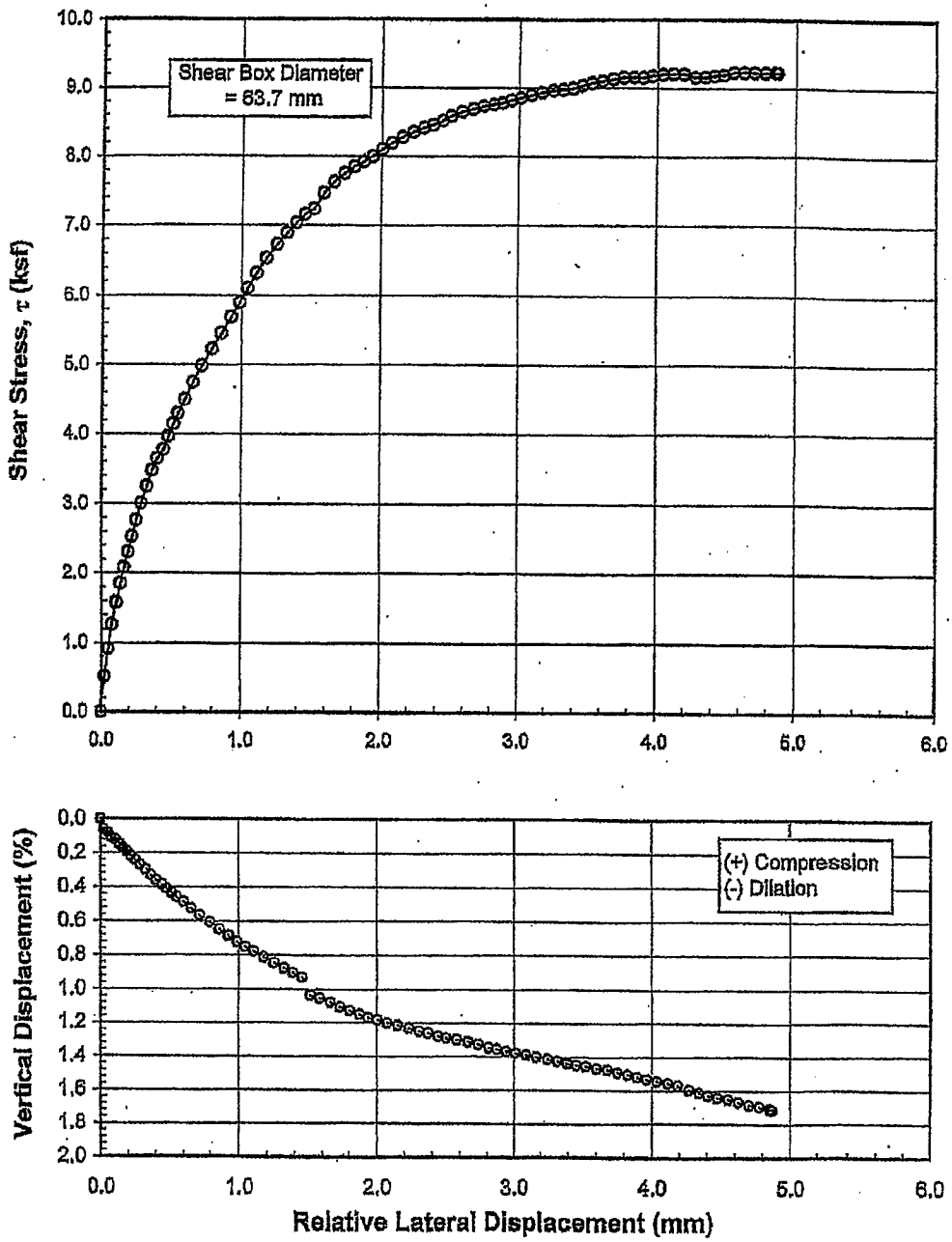


DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 7.92 ksf

Boring: B-778 - Sample: UD-14b - Depth: 102.8 ft

Reviewed By: _____



DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 15.84 ksf

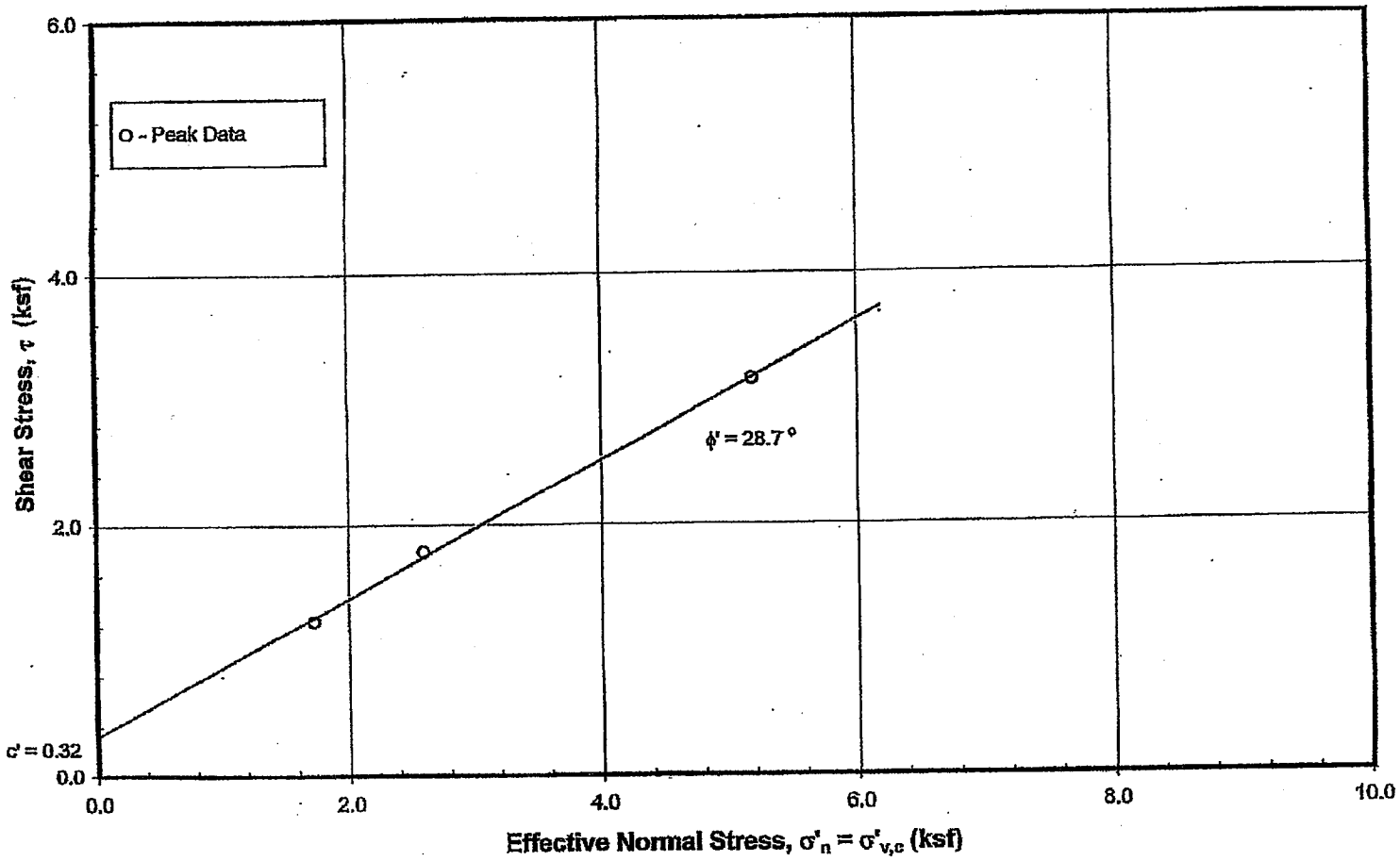
Boring: B-778 - Sample: UD-14c - Depth: 102.9 ft

Reviewed By: HP

Prepared By: W
Reviewed By: RP

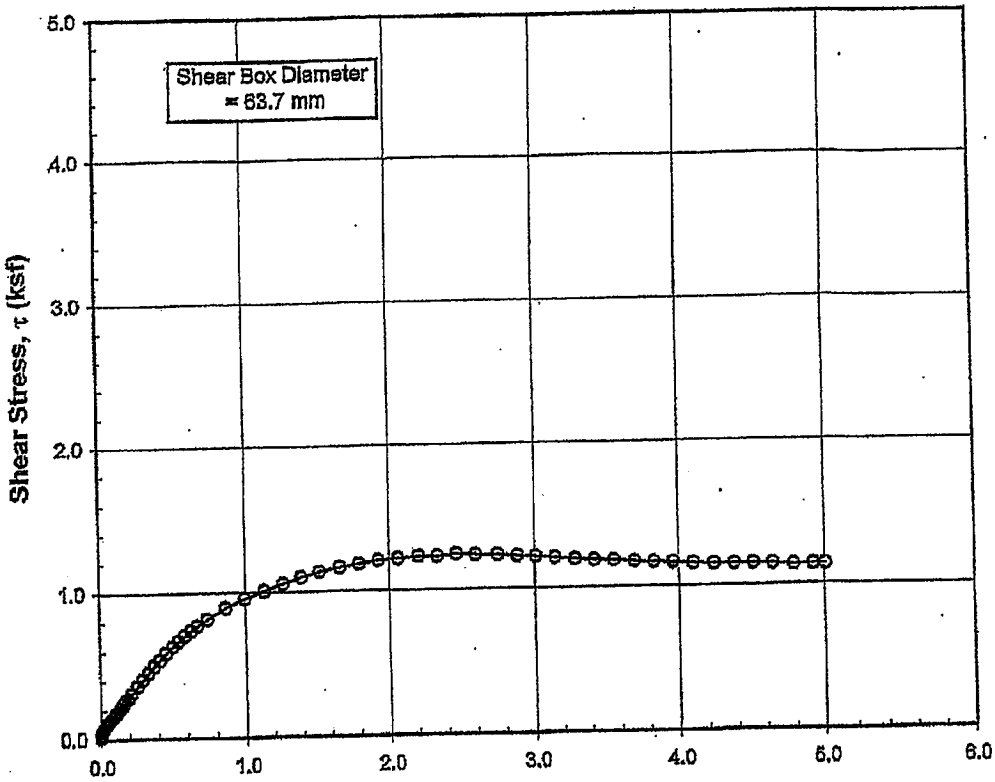
B-779_UD-3c.xls, c-phi plot 10/1/2008

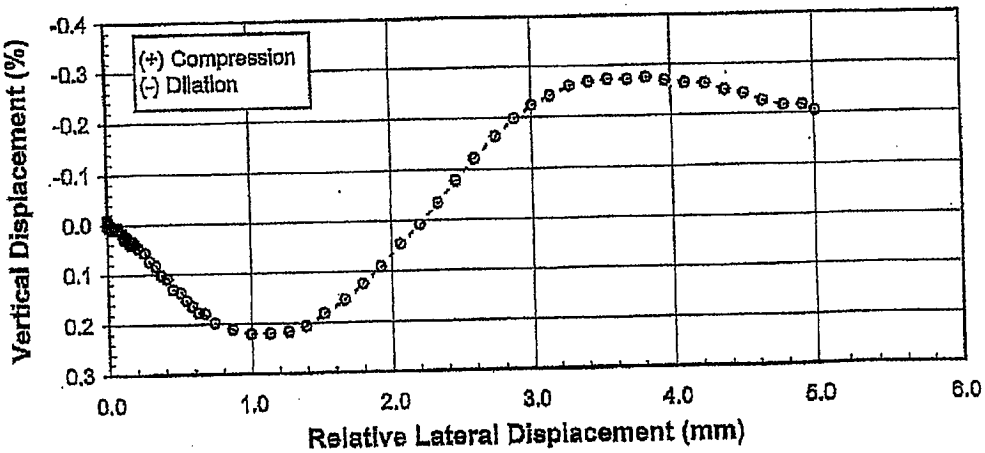
Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-779 - Sample: UD-3c - Depth: 22.9 ft

Report No. 0411-08-1707



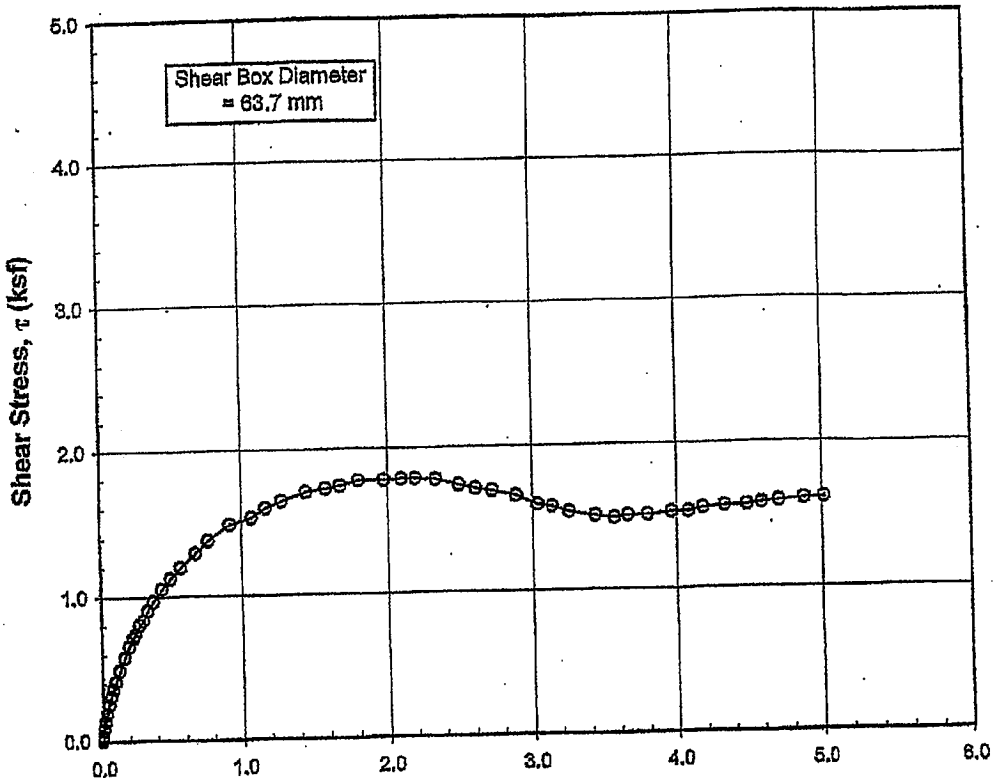


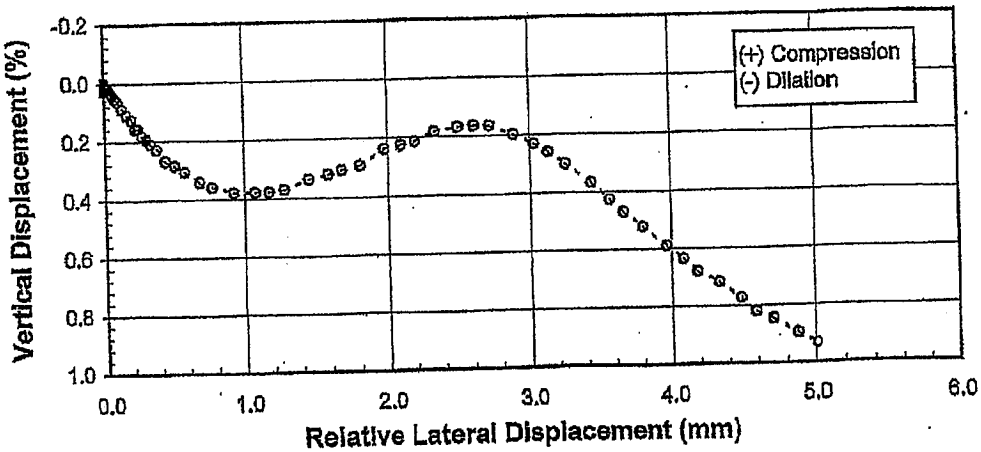
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 1.73 ksf

Boring: B-779 - Sample: UD-3a - Depth: 22.7 ft

Reviewed By: HP



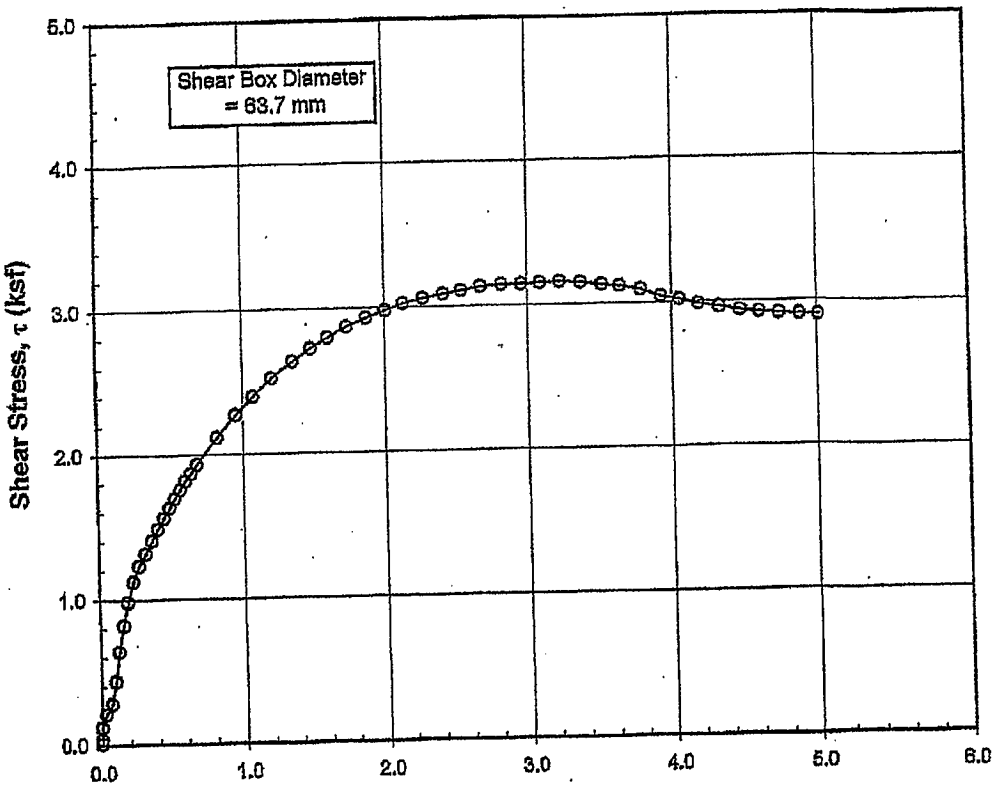


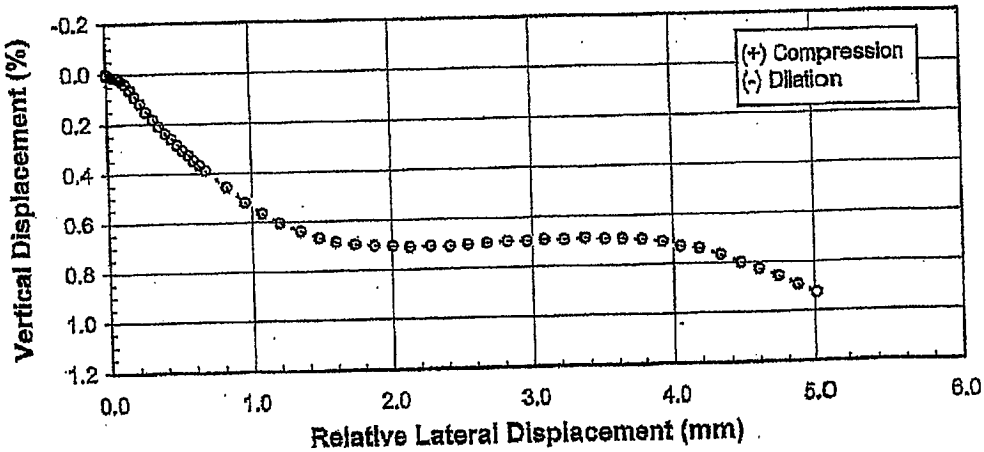
DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 2.59 ksf

Boring: B-779 - Sample: UD-3b - Depth: 22.8 ft

Reviewed By: HP





DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 5.18 ksf

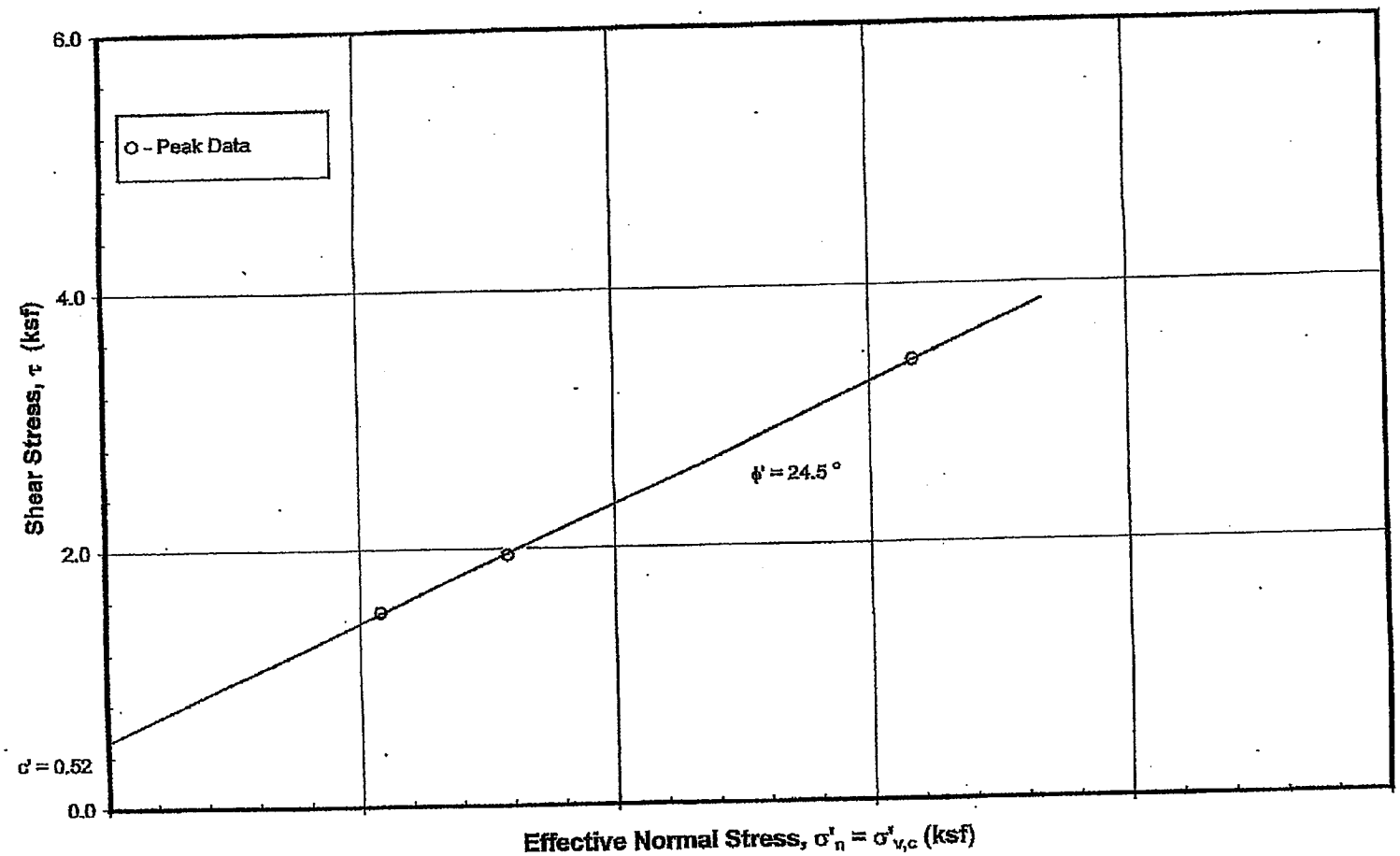
Boring: B-779 - Sample: UD-3c - Depth: 22.9 ft

Reviewed By: HP

Prepared By: HP
Reviewed By: HP

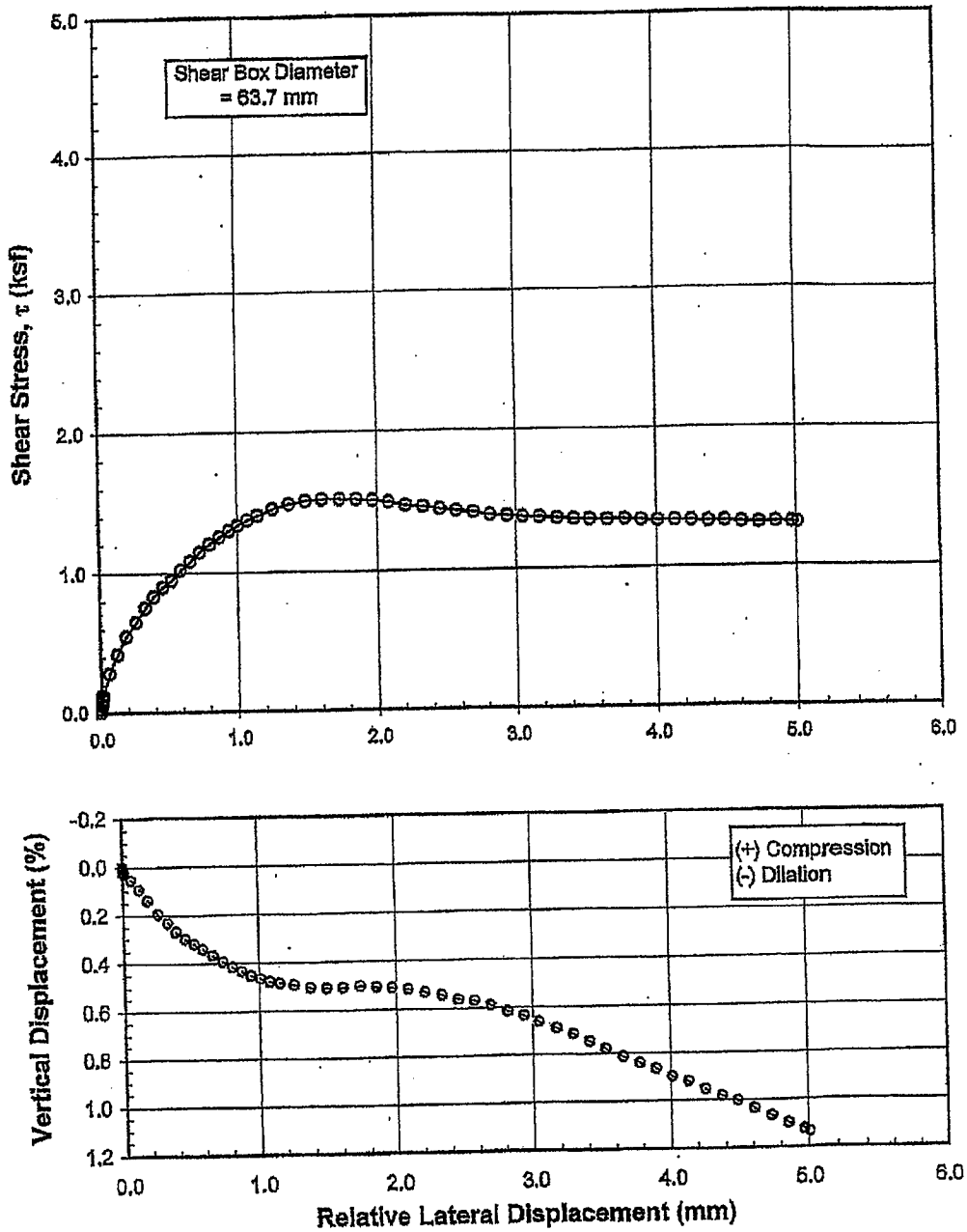
B-779_UD-4c.xls, c-phi plot 10/1/2008

Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-779 - Sample: UD-4c - Depth: 31.35 ft

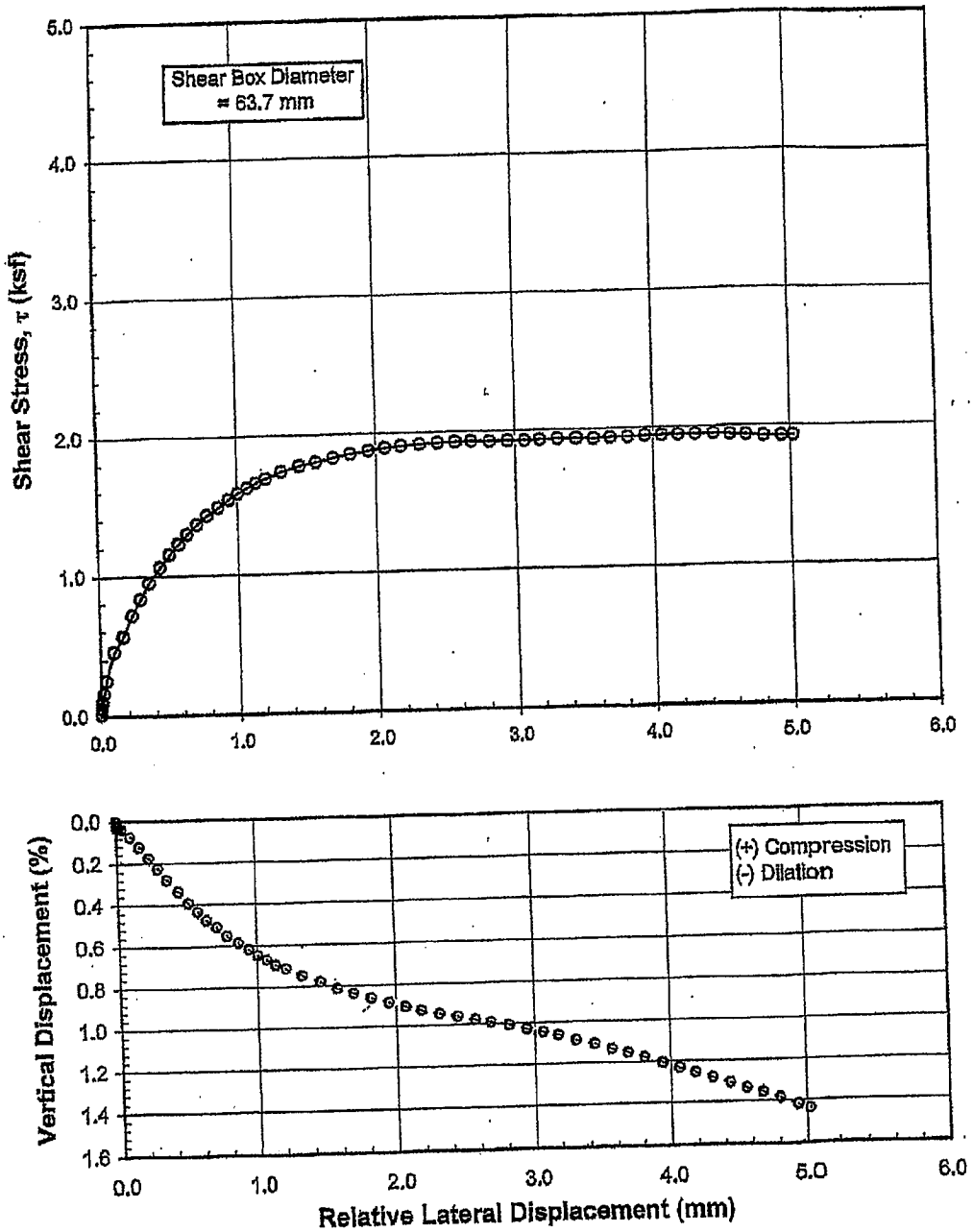
Report No. 0411-08-1707



DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 2.16 ksf
Boring: B-779 - Sample: UD-4a - Depth: 31.15 ft

Reviewed By: HY

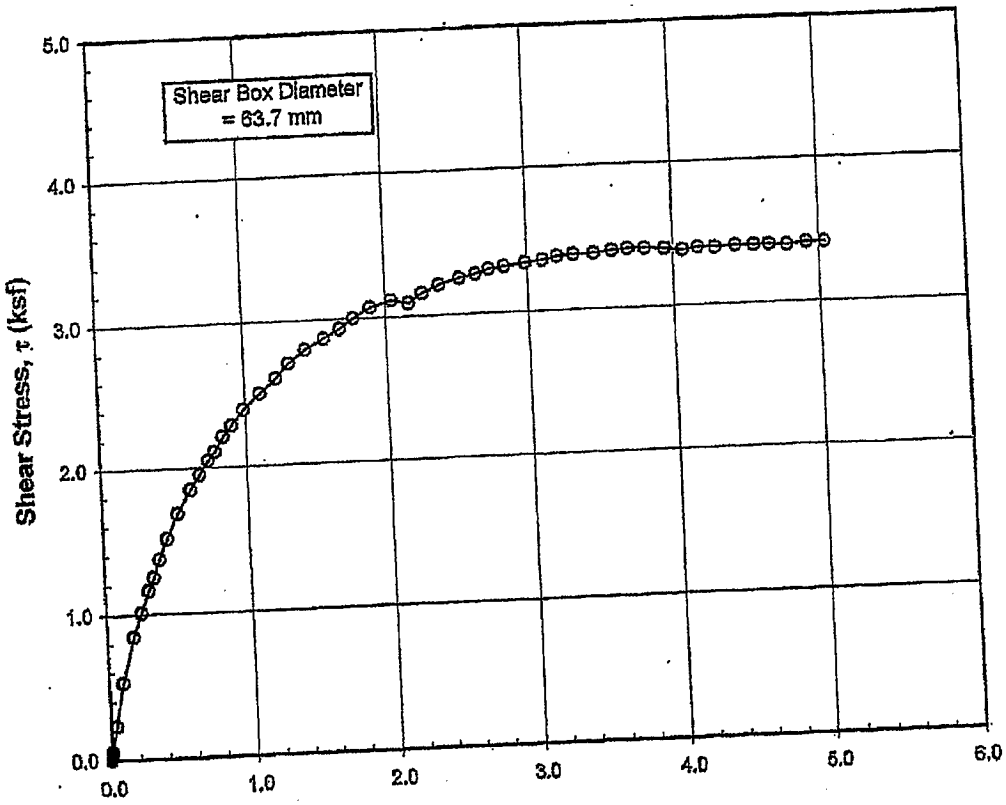


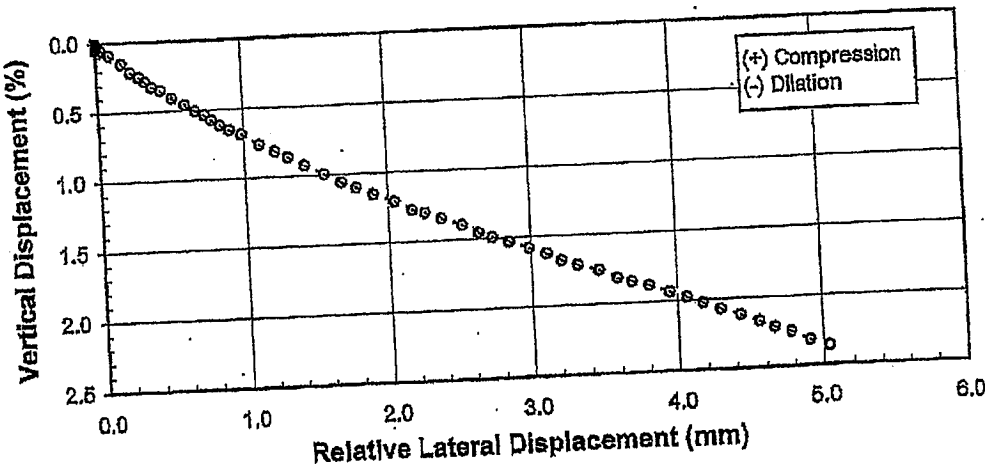
DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 3.17 ksf

Boring: B-779 - Sample: UD-4b - Depth: 31.25 ft

Reviewed By: HP





DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 6.34 ksf

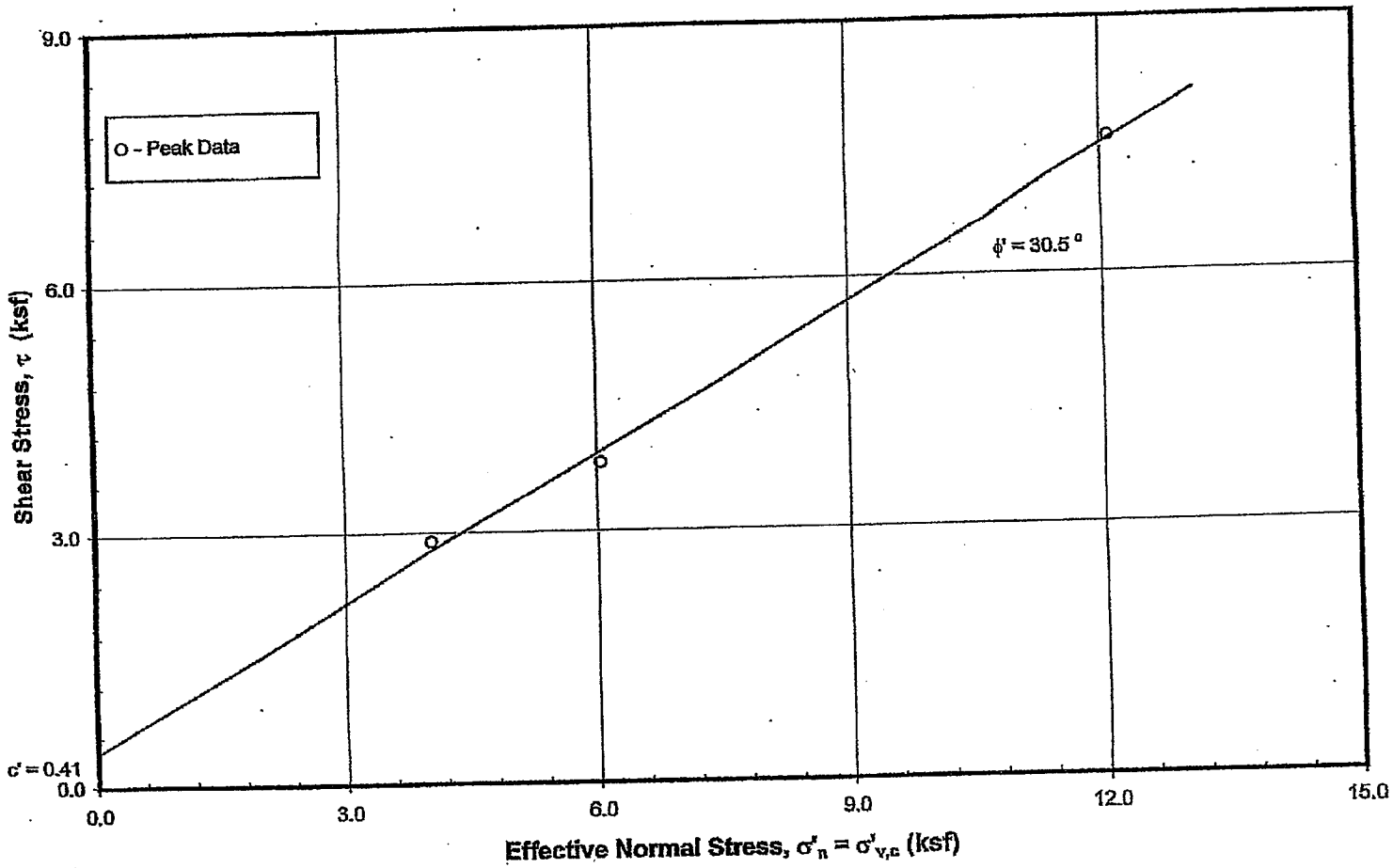
Boring: B-779 - Sample: UD-4c - Depth: 31.35 ft

Reviewed By: HP

Prepared By: HP
Reviewed By: HP

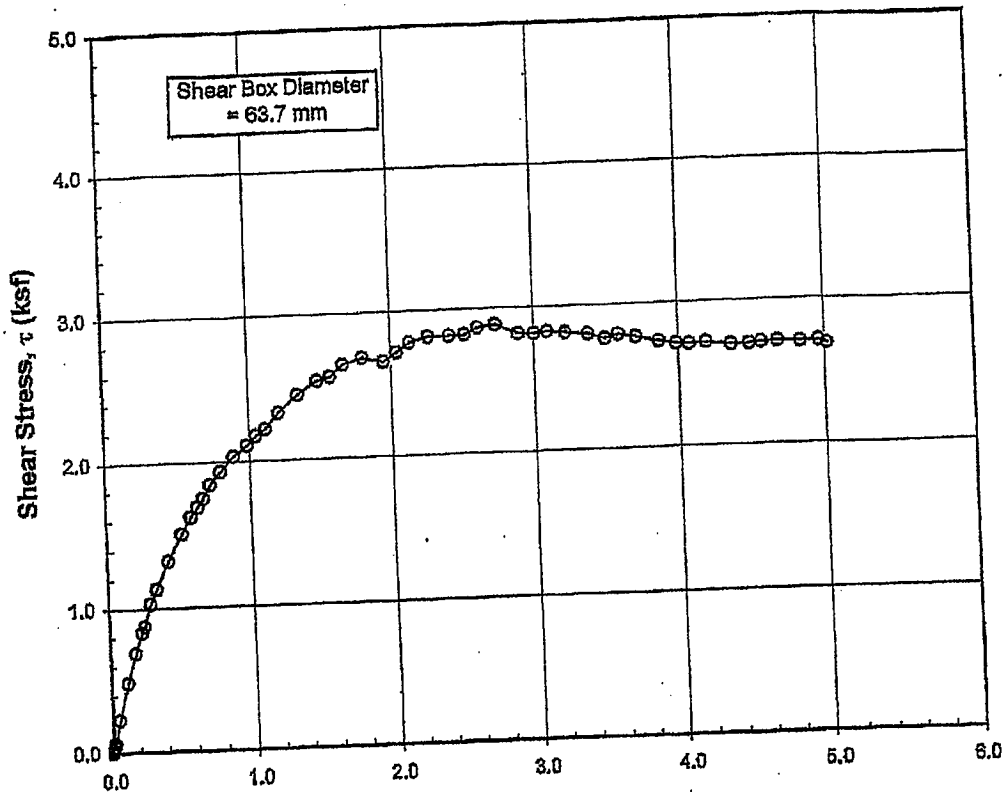
B-779_UD-10c.xls, c-phi plot 10/2/2008

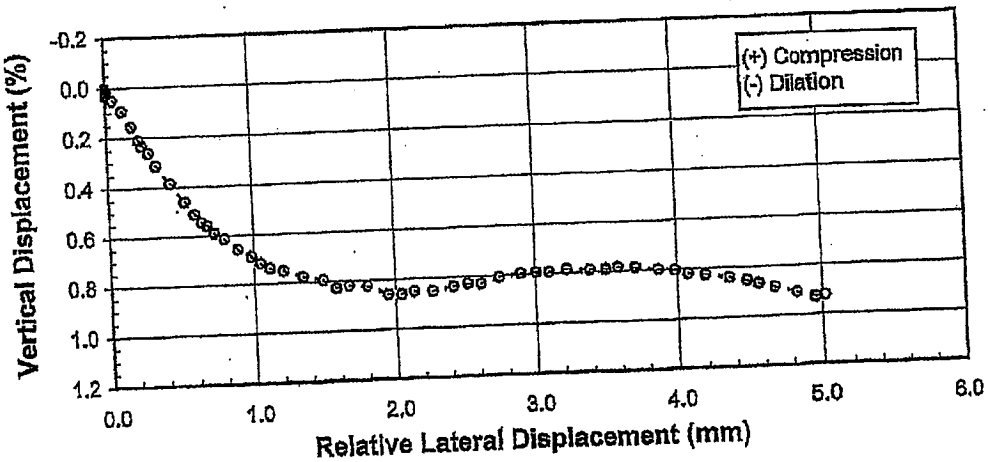
Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-779 - Sample: UD-10c - Depth: 83.4 ft

Report No. 0411-08-1707



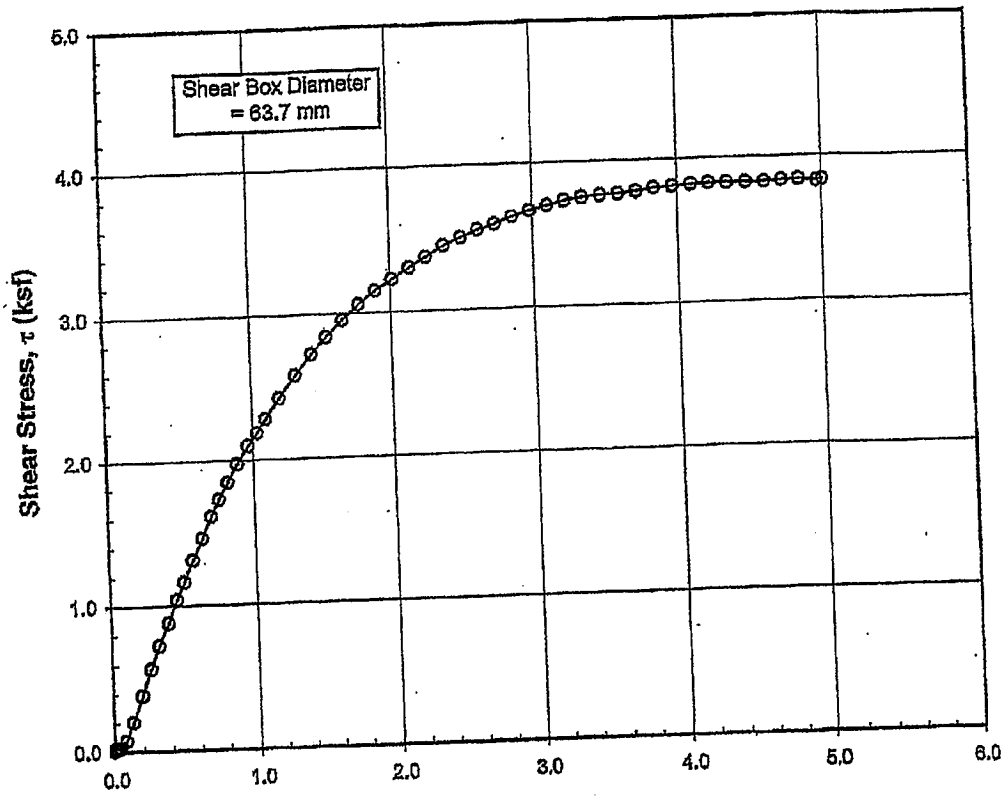


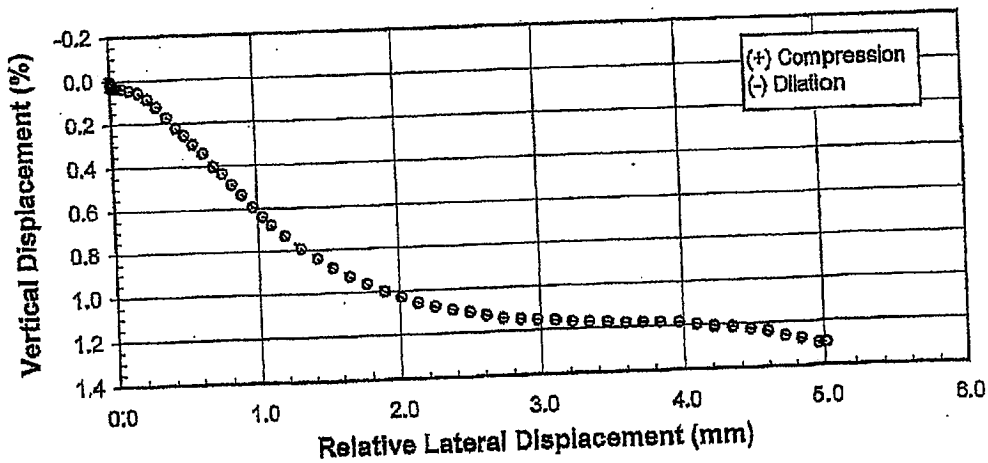
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 4.03 ksf

Boring: B-779 - Sample: UD-10a - Depth: 83.2 ft

Reviewed By: NP



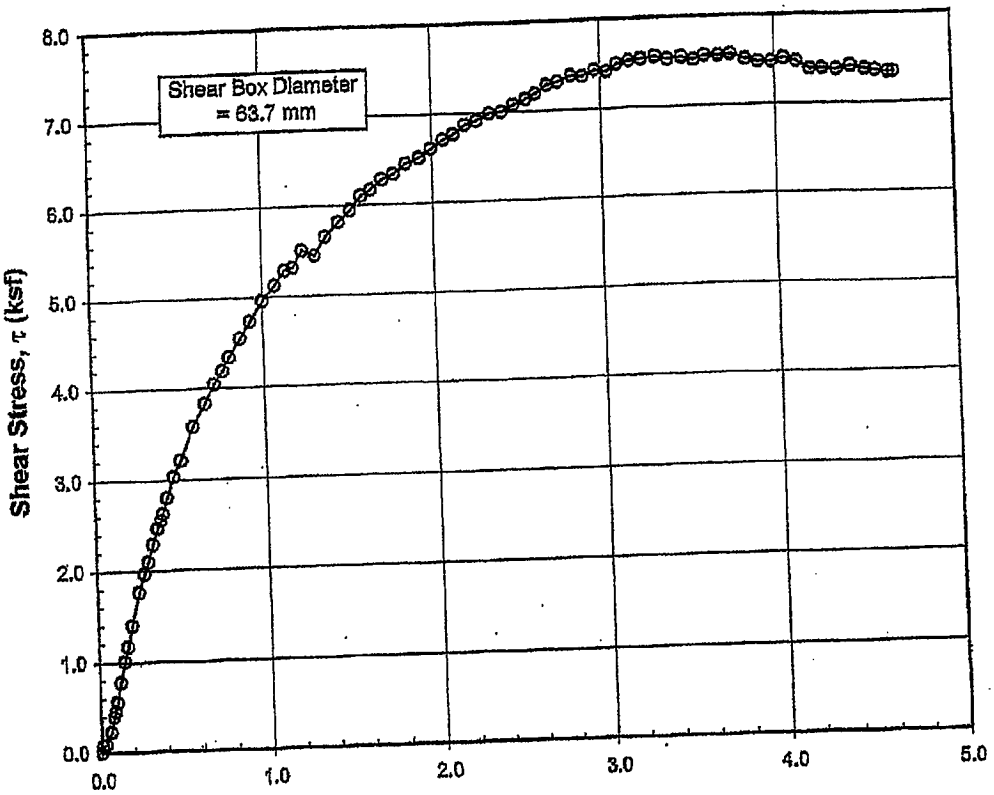


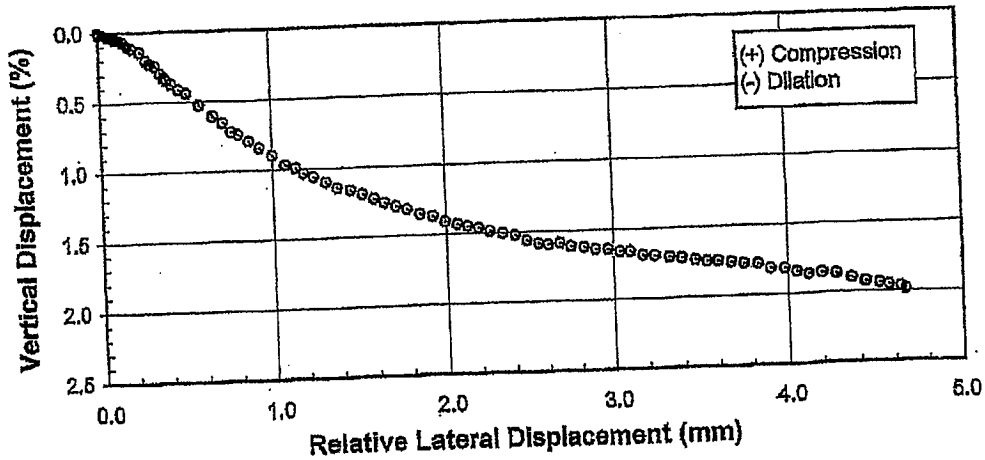
DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 6.05 ksf

Boring: B-779 - Sample: UD-10b - Depth: 83.3 ft

Reviewed By: WP





DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 12.10 ksf

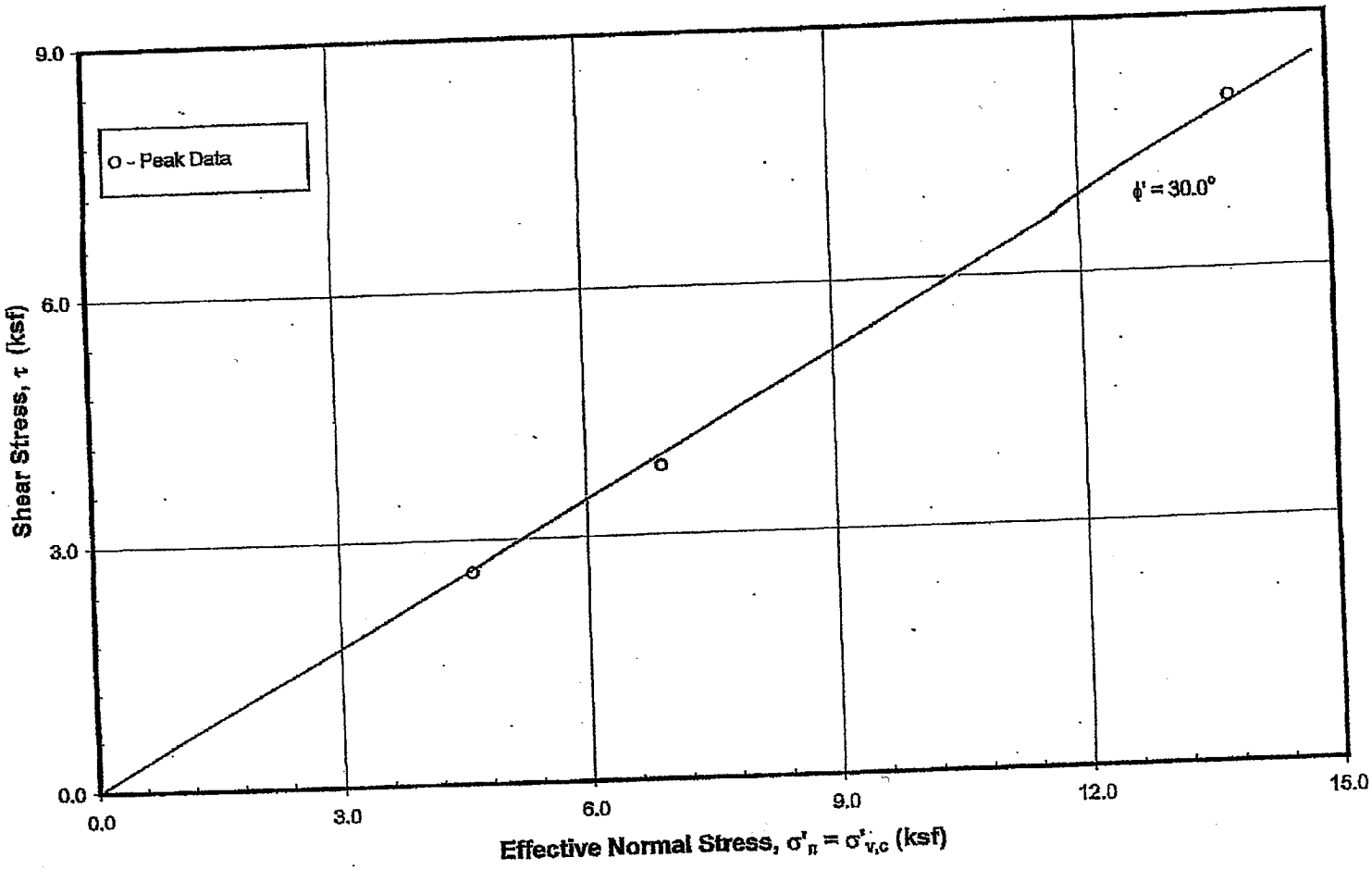
Boring: B-779 - Sample: UD-10c - Depth: 83.4 ft

Reviewed By: MP

Prepared By: MP
Reviewed By: MP

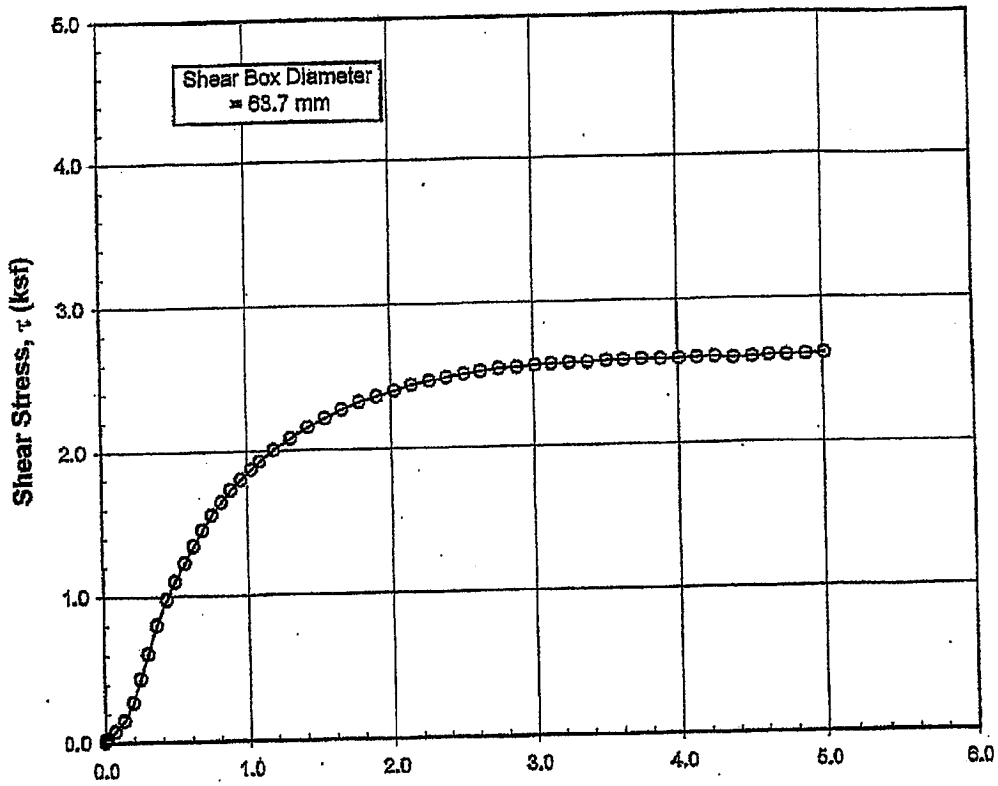
B-779_UD-11c.xls, c-phi plot 10/1/2008

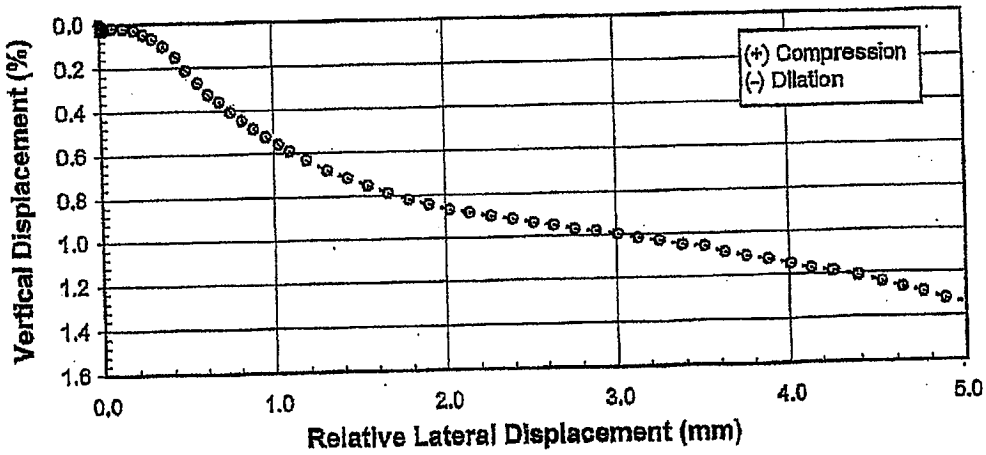
Revision Date: 12/01/07



DRAINED DIRECT SHEAR TEST: Test Series - (Peak)
Soil - Soil Interface & OCR = Unkown
Boring: B-779 - Sample: UD-11c - Depth: 97.9 ft

Report No. 0411-08-1707



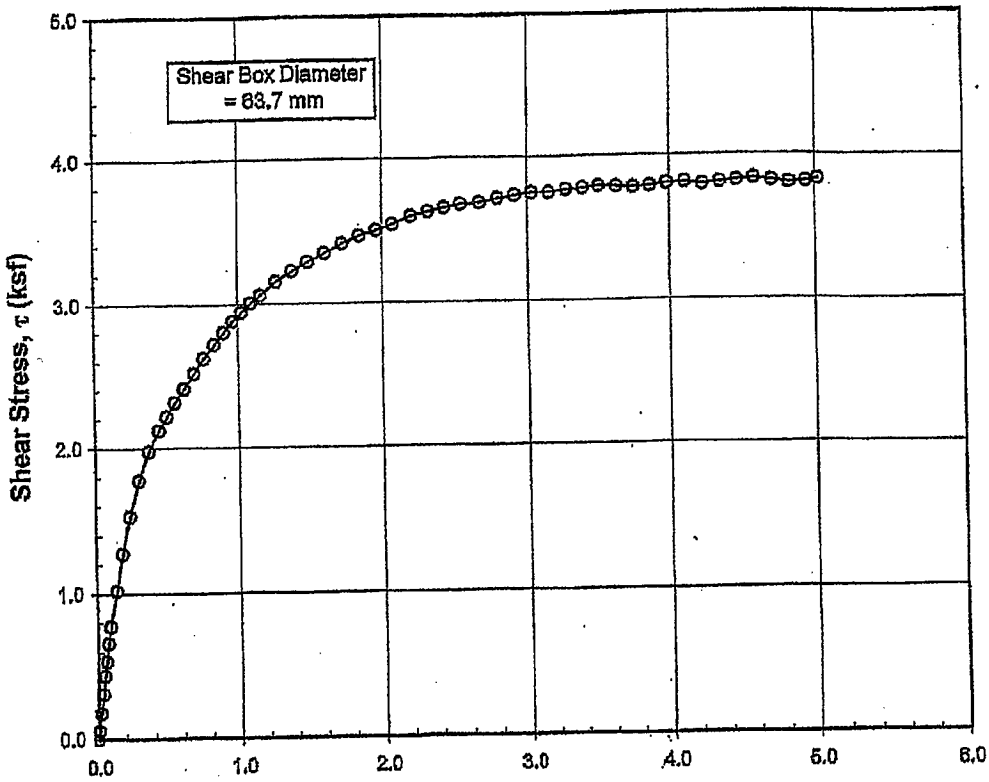


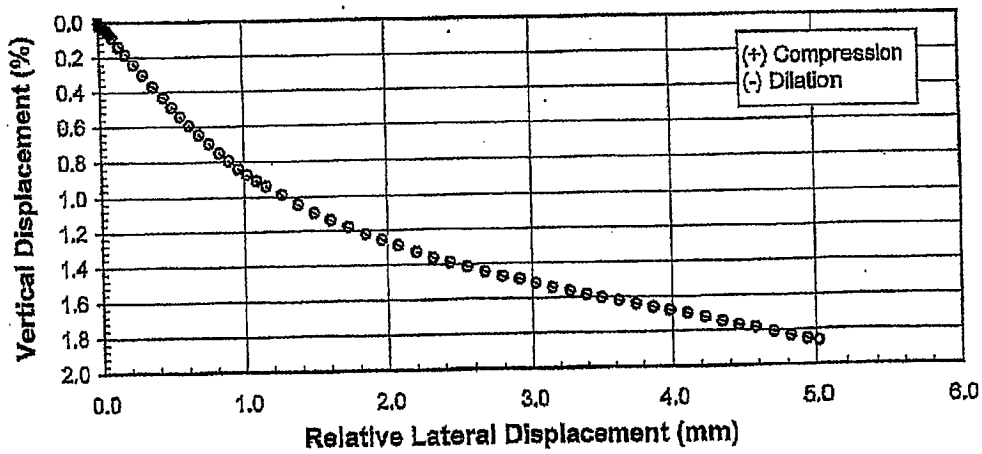
DRAINED DIRECT SHEAR TEST: 1st Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 4.61 ksf

Boring: B-779 - Sample: UD-11a - Depth: 97.7 ft

Reviewed By: HP



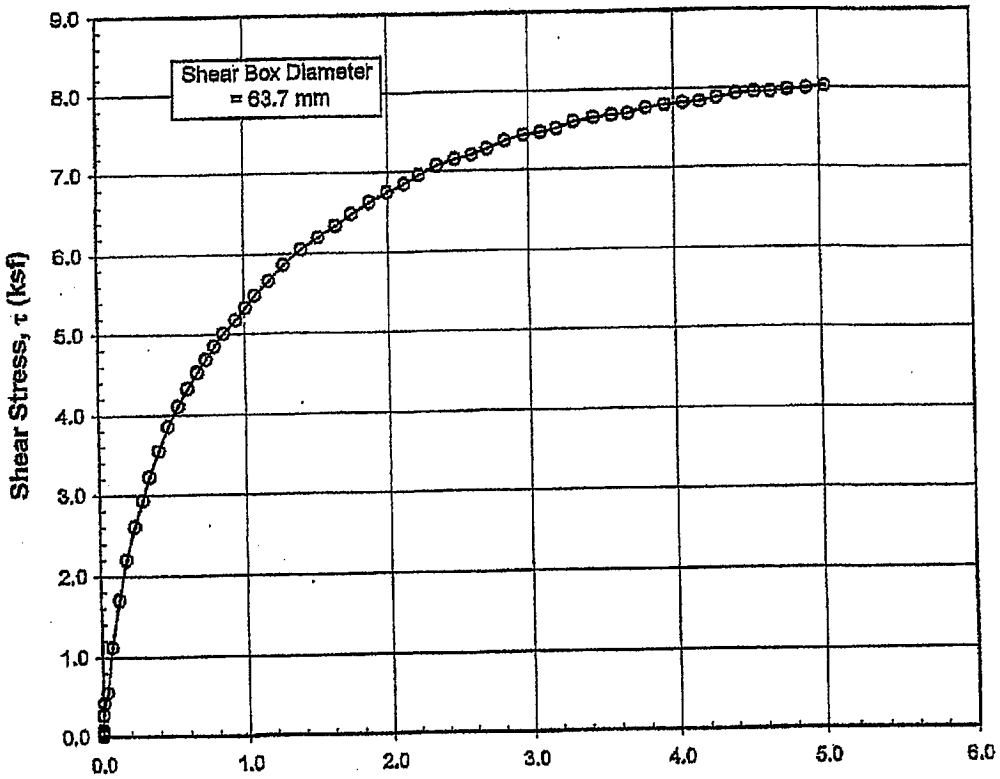


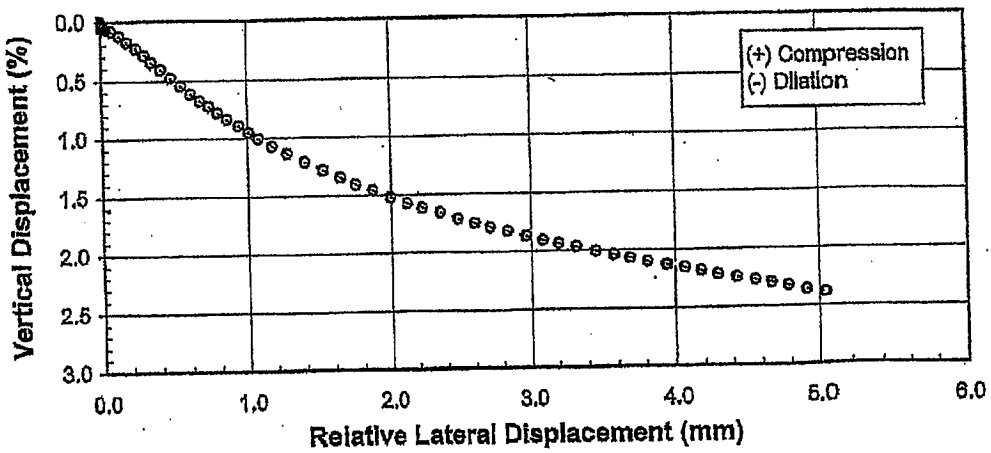
DRAINED DIRECT SHEAR TEST: 2nd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 6.91 ksf

Boring: B-779 - Sample: UD11b - Depth: 97.8 ft

Reviewed By: HP





DRAINED DIRECT SHEAR TEST: 3rd Test in Test Series

Soil - Soil Interface $\sigma'_{v,c}$ = 13.82 ksf

Boring: B-779 - Sample: UD-11c - Depth: 97.9 ft

Reviewed By: HP

Calvert Cliffs Nuclear Power Plant Unit 3
Bechtel Job No. 25237
Bechtel Purchase Order No. 25237-103-P0A-CY05-00001
MACTEC Project Number 6234-08-4783

Grain Size Analysis w/ #200 Wash (Washed Sieve ASTM D6913)

Grain Size Analysis w/ Hydrometer (Hydrometer Analysis ASTM D422)

Atterberg Limits (ASTM D4318)

MACTEC

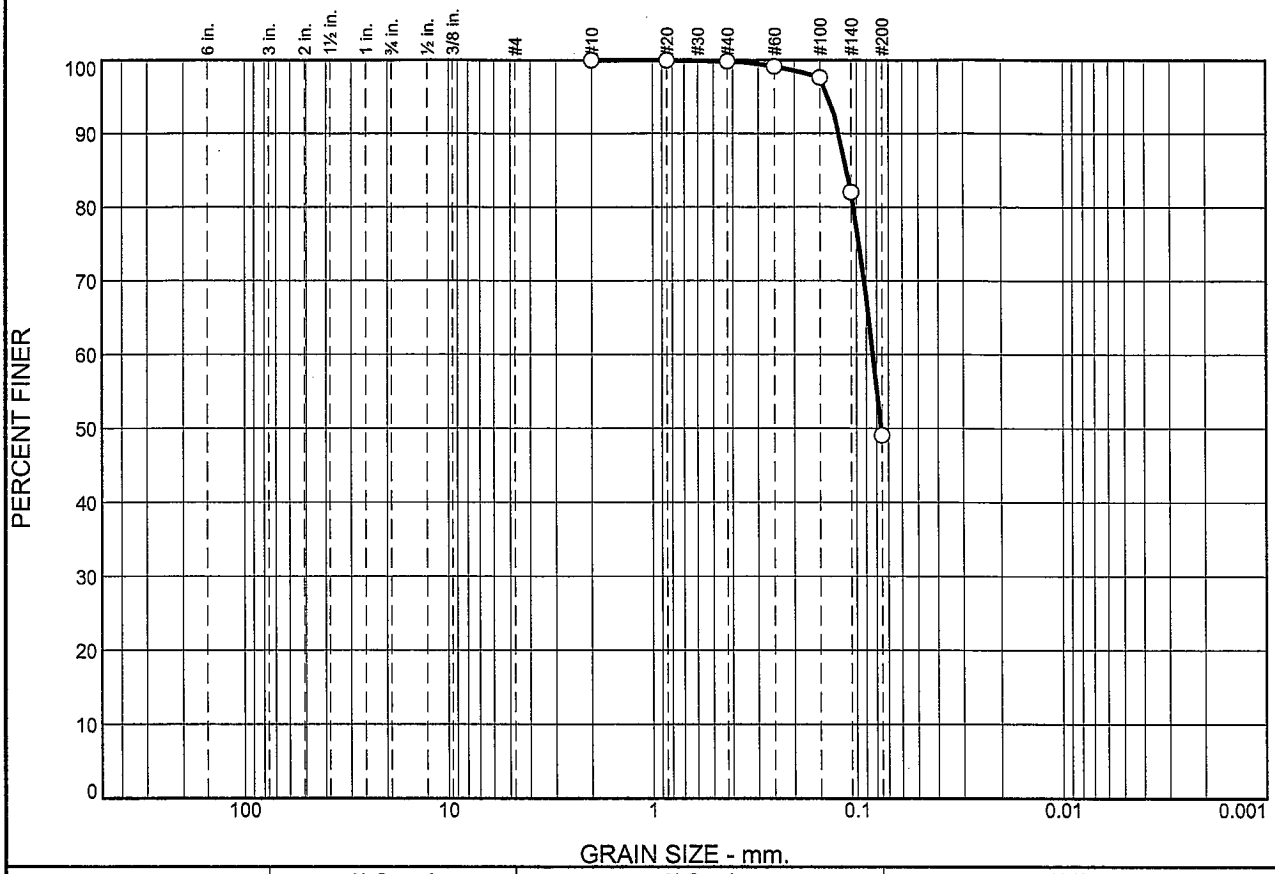
Calvert Cliffs Nuclear Power Plant Unit 3
Bechtel Project No. 25237
Bechtel Purchase Order No. 25237-103-P0A-CY05-00001
MACTEC Project No. 6234-08-4783

Notes for the Liquid and Plastic Limit Test Report and the Particle Size Distribution Report

NP = Non Plastic
NV = Non Viscous
NR = Not Requested
LM = Limited Material
D_x = Diameter of Particle at which Percentage X is Finer
C_u = Coefficient of Uniformity
C_c = Coefficient of Curvature

Note: Coefficient values are left blank when they are not defined by the test data.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	50.8	49.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	99.8		
#60	99.1		
#100	97.6		
#140	82.0		
#200	49.0		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 26 LL= 64 PI= 38

Coefficients

D_{85}= 0.1107 D_{60}= 0.0832 D_{50}= 0.0757
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-7-6(14)

Remarks

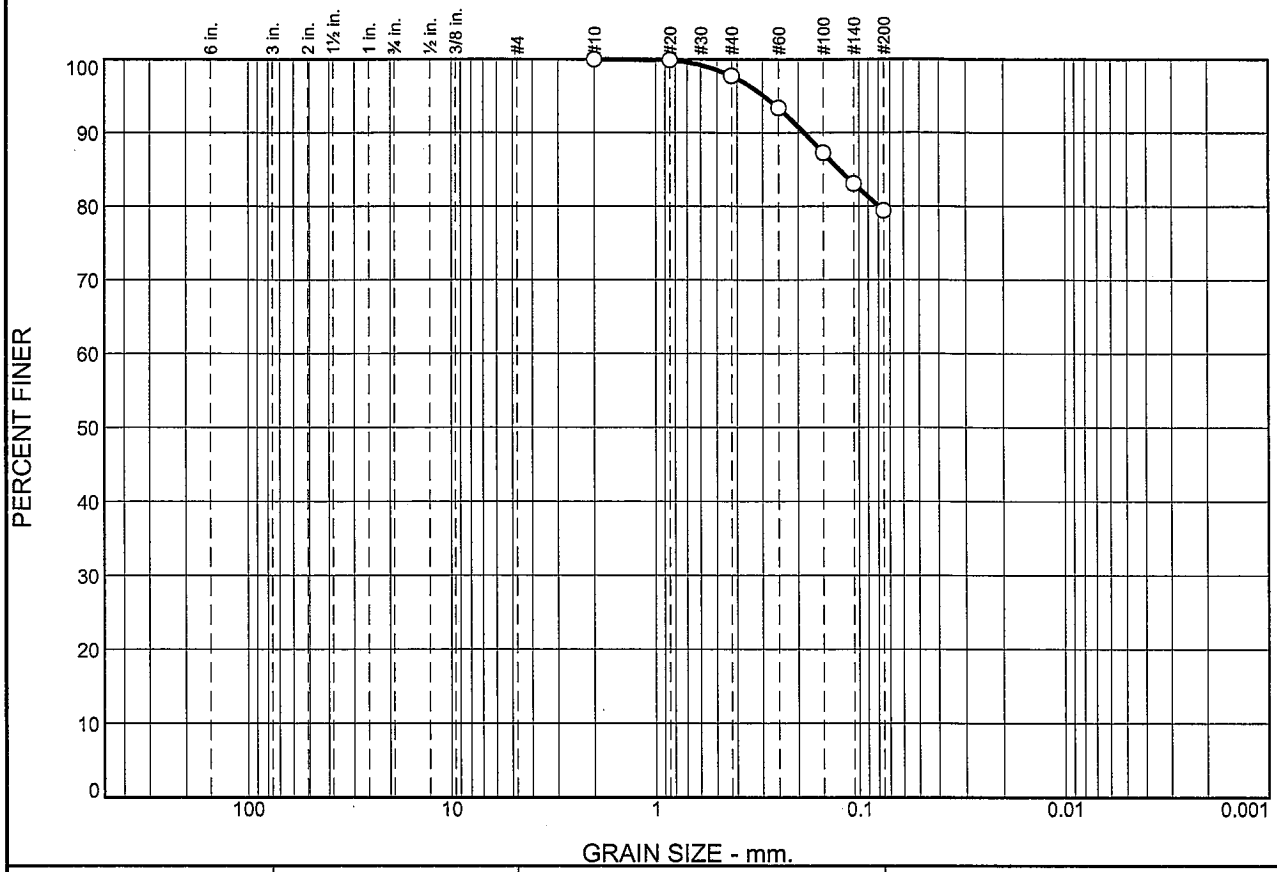
ASTM D6913-04
ASTM D4318-05

Sample Number: S-18 **Depth:** 73.5'-75.0'
Location: B-771 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.3	18.3	79.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	97.7		
#60	93.3		
#100	87.3		
#140	83.1		
#200	79.4		

* (no specification provided)

Material Description

Elastic Silt with Sand

Atterberg Limits

PL= 74 LL= 122 PI= 48

Coefficients

D_{85}= 0.1249 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(51)

Remarks

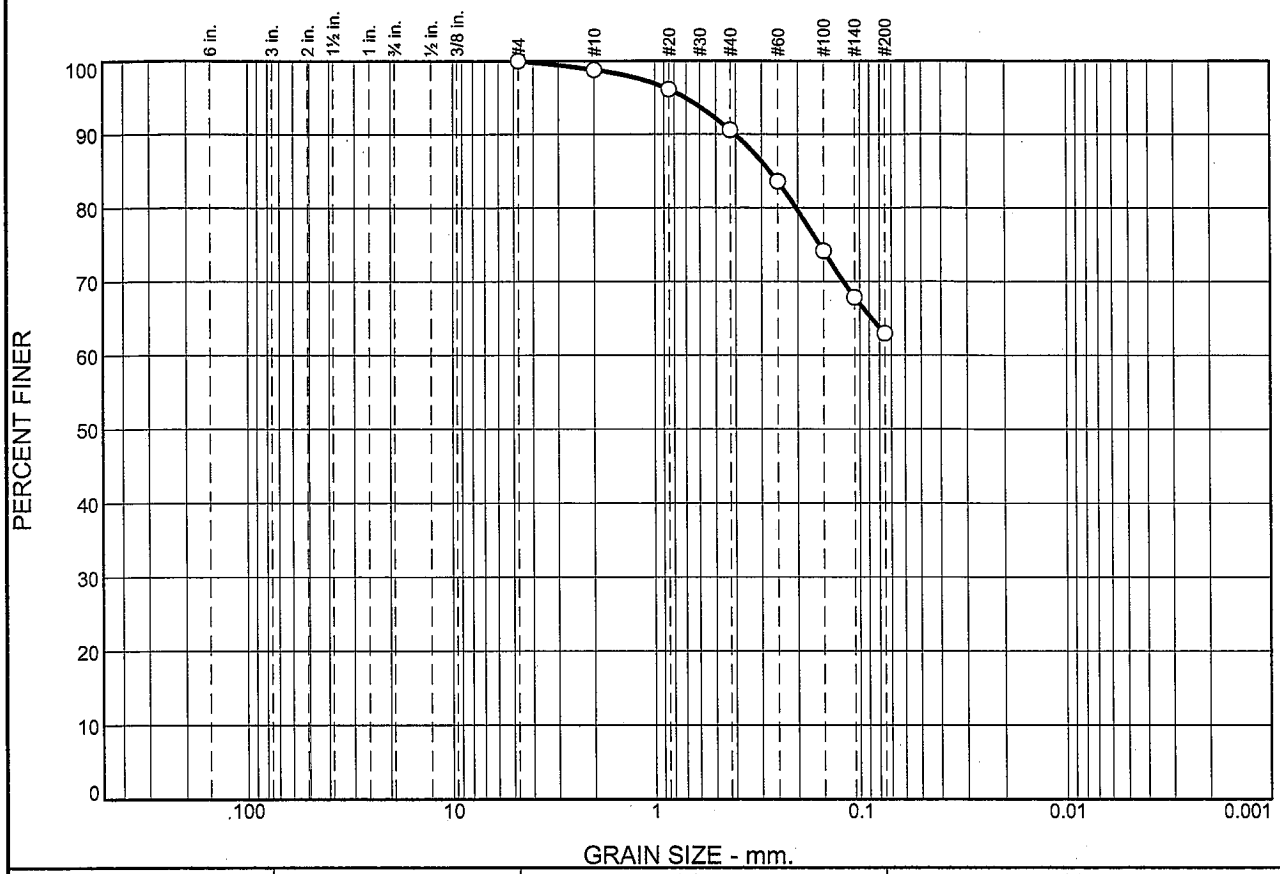
ASTM D6913-04
ASTM D4318-05

Sample Number: S-19 **Depth:** 78.5'-80.0'
Location: B-771 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.2	8.2	27.7	62.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.8		
#20	96.1		
#40	90.6		
#60	83.6		
#100	74.1		
#140	67.8		
#200	62.9		

* (no specification provided)

Material Description

Sandy Elastic Silt

Atterberg Limits

PL= 65 LL= 119 PI= 54

Coefficients

D_{85}= 0.2738 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(38)

Remarks

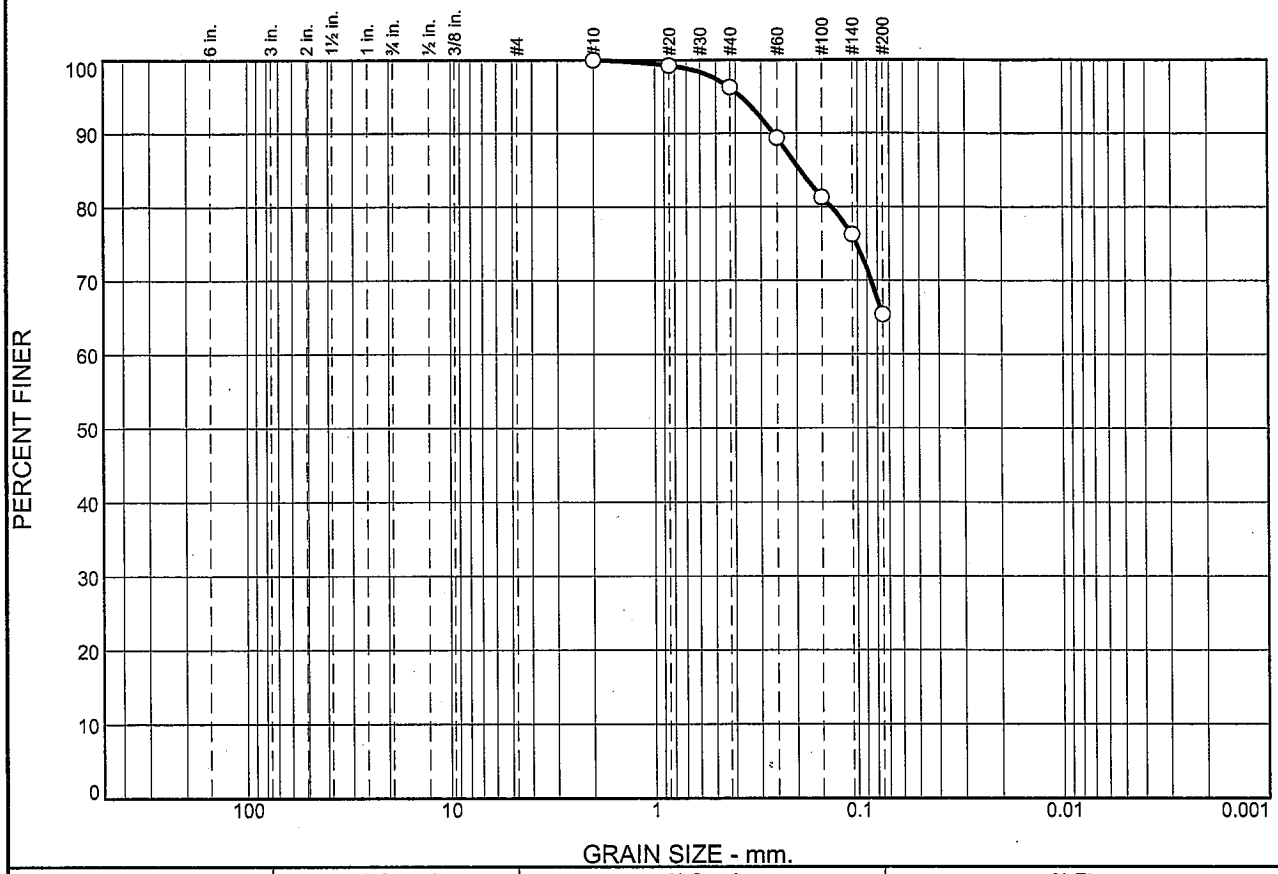
ASTM D6913-04
ASTM D4318-05

Sample Number: S-20 **Depth:** 83.5'-85.0'
Location: B-771 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.7	30.9	65.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.3		
#40	96.3		
#60	89.4		
#100	81.3		
#140	76.2		
#200	65.4		

* (no specification provided)

Material Description

Sandy Elastic Silt

Atterberg Limits

PL= 54 LL= 96 PI= 42

Coefficients

D_{85}= 0.1926 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(30)

Remarks

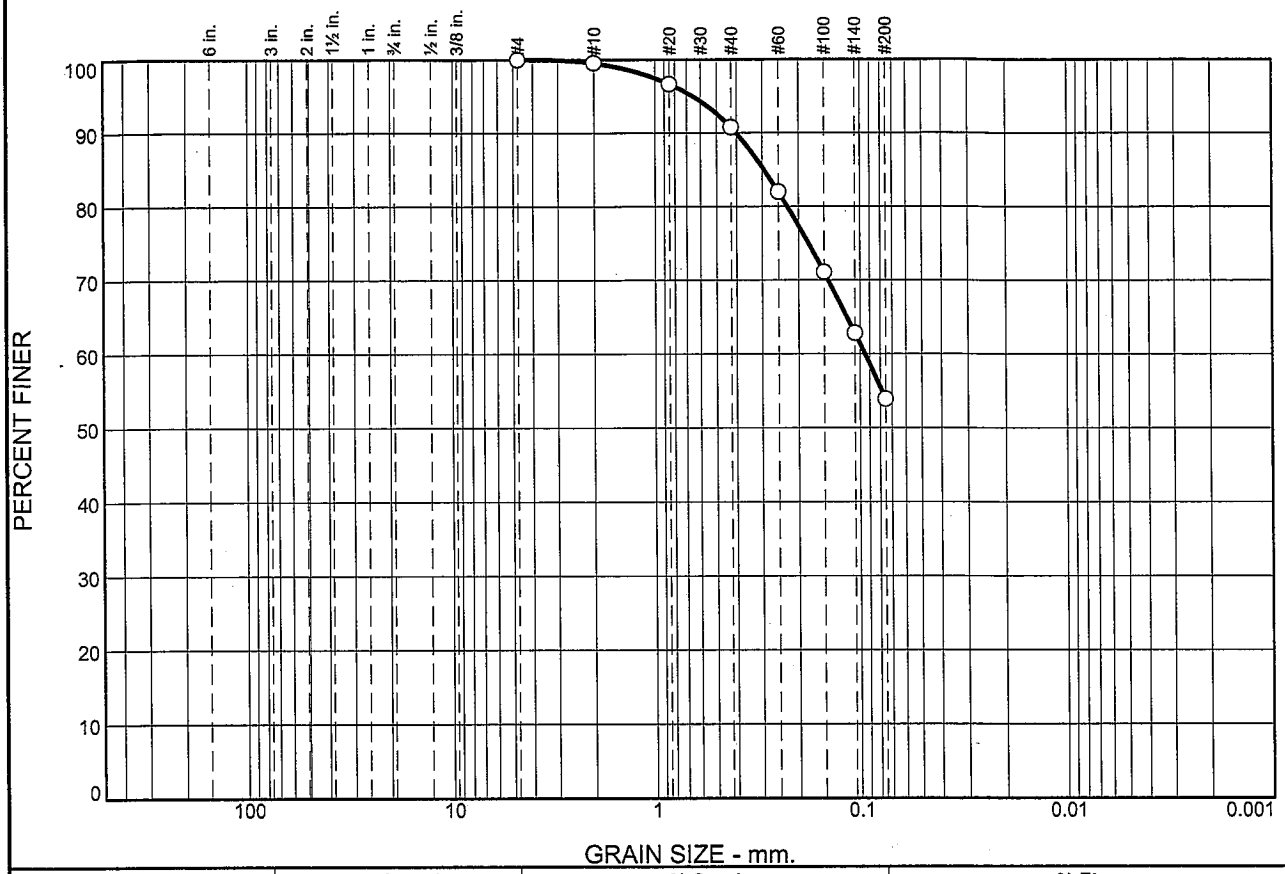
ASTM D6913-04
ASTM D4318-05

Sample Number: S-21 **Depth:** 88.5'-90.0'
Location: B-771 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.5	8.7	36.9	53.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.5		
#20	96.7		
#40	90.8		
#60	82.0		
#100	71.1		
#140	62.8		
#200	53.9		

* (no specification provided)

Material Description

Sandy Elastic Silt

Atterberg Limits

PL= 71 LL= 110 PI= 39

Coefficients

D_{85}= 0.2938 D_{60}= 0.0948 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(22)

Remarks

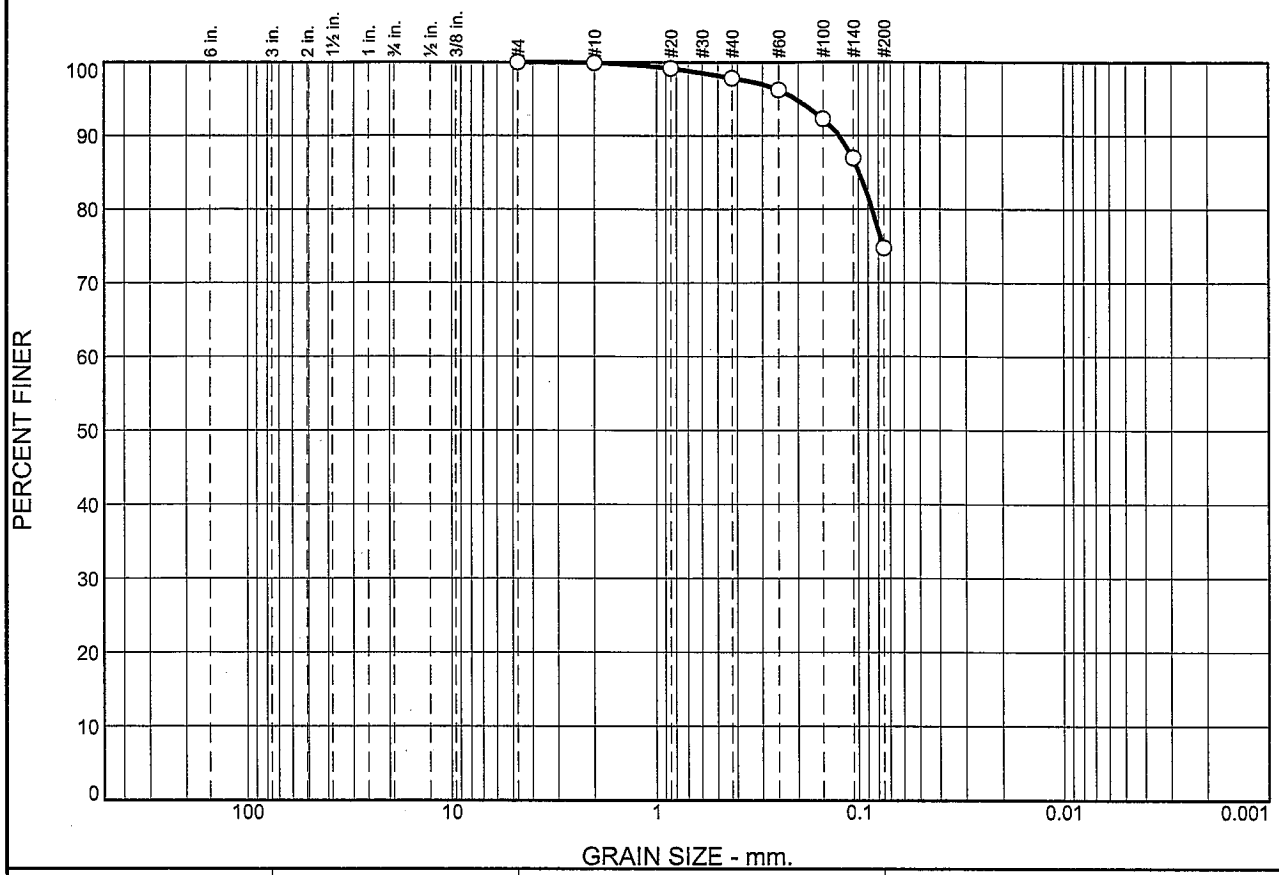
ASTM D6913-04
ASTM D4318-05

Sample Number: S-22 **Depth:** 93.5'-95.0'
Location: B-771 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.1	23.1	74.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.1		
#40	97.8		
#60	96.2		
#100	92.2		
#140	86.9		
#200	74.7		

* (no specification provided)

Material Description

Elastic Silt with Sand

Atterberg Limits

PL= 52 LL= 92 PI= 40

Coefficients

D_{85}= 0.0990 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(36)

Remarks

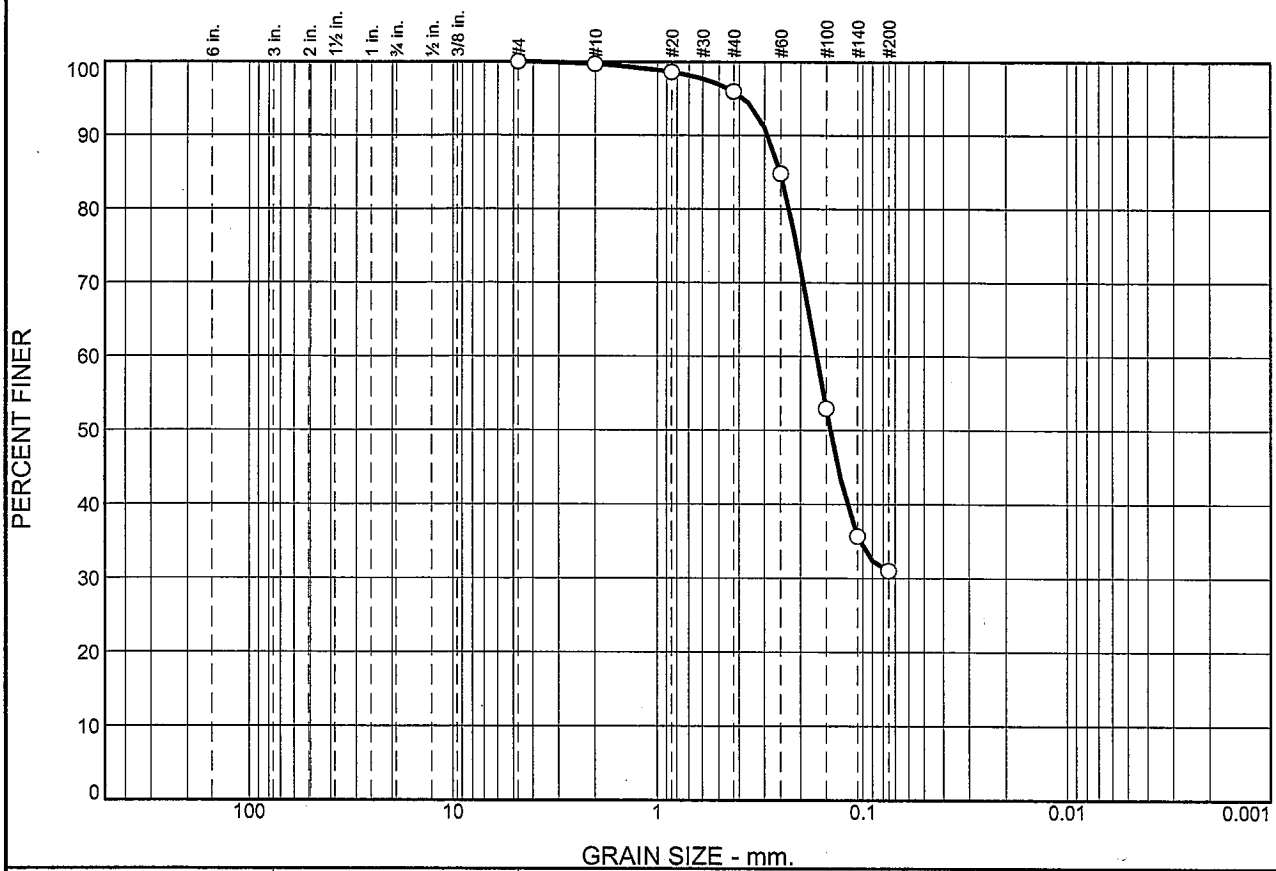
ASTM D6913-04
ASTM D4318-05

Sample Number: S-23 **Depth:** 98.5'-100.0'
Location: B-771 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	3.7	65.0	31.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.7		
#20	98.6		
#40	96.0		
#60	84.8		
#100	52.9		
#140	35.7		
#200	31.0		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.2513 D_{60}= 0.1669 D_{50}= 0.1431
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

ASTM D6913-04
ASTM D4318-05

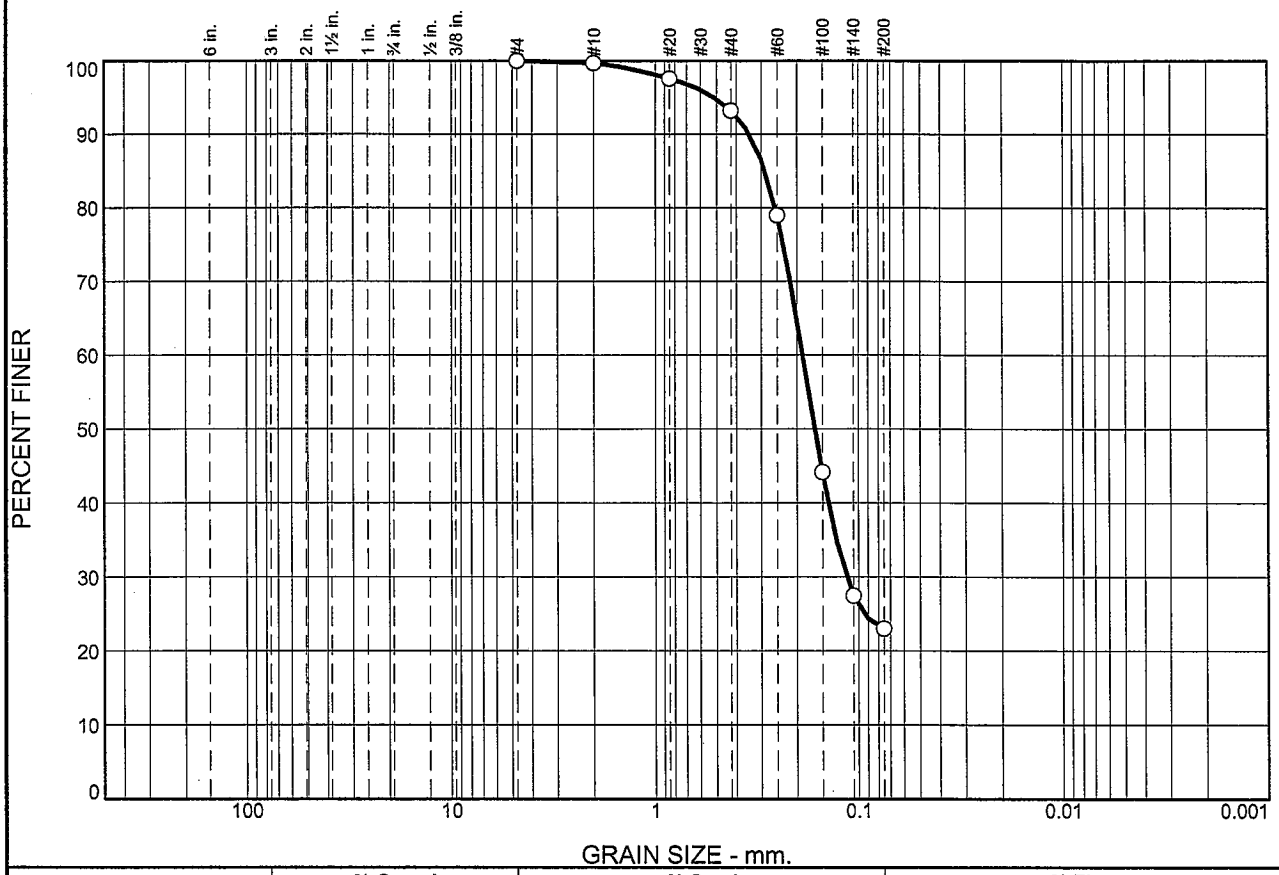
Sample Number: S-2 **Depth:** 2.5'-4.0'
Location: B-773

Date: 8-19-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	6.5	70.2	23.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.7		
#20	97.6		
#40	93.2		
#60	78.9		
#100	44.2		
#140	27.5		
#200	23.0		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.2871 D_{60}= 0.1874 D_{50}= 0.1634
D_{30}= 0.1145 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

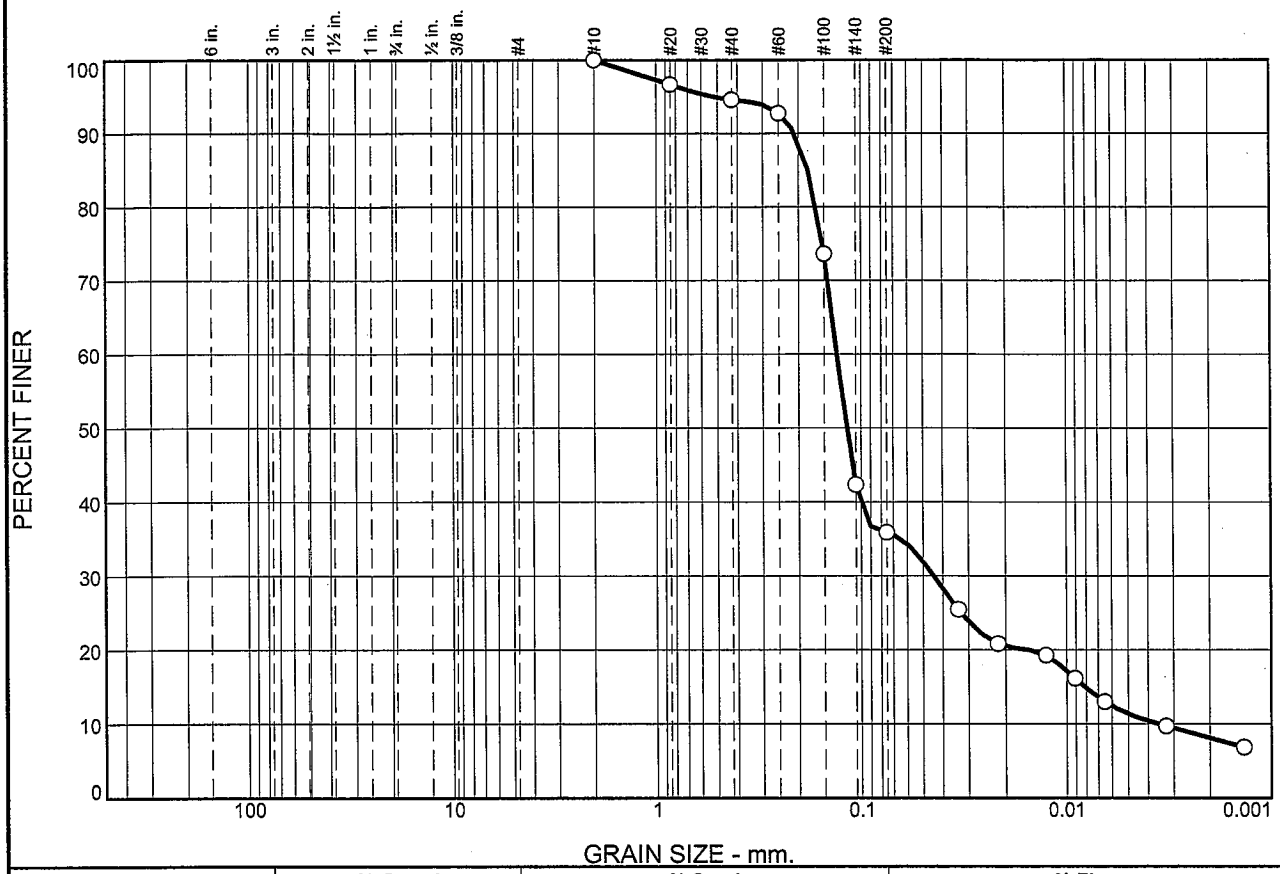
ASTM D6913-04
ASTM D4318-05

Sample Number: S-4 **Depth:** 7.5'-9.0'
Location: B-773 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.4	58.7	24.5	11.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	96.7		
#40	94.6		
#60	92.7		
#100	73.6		
#140	42.3		
#200	35.9		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.1799 D_{60}= 0.1300 D_{50}= 0.1172
D_{30}= 0.0444 D_{15}= 0.0081 D_{10}= 0.0035
C_u= 36.76 C_c= 4.28

Classification

USCS= SM AASHTO= A-4(0)

Remarks

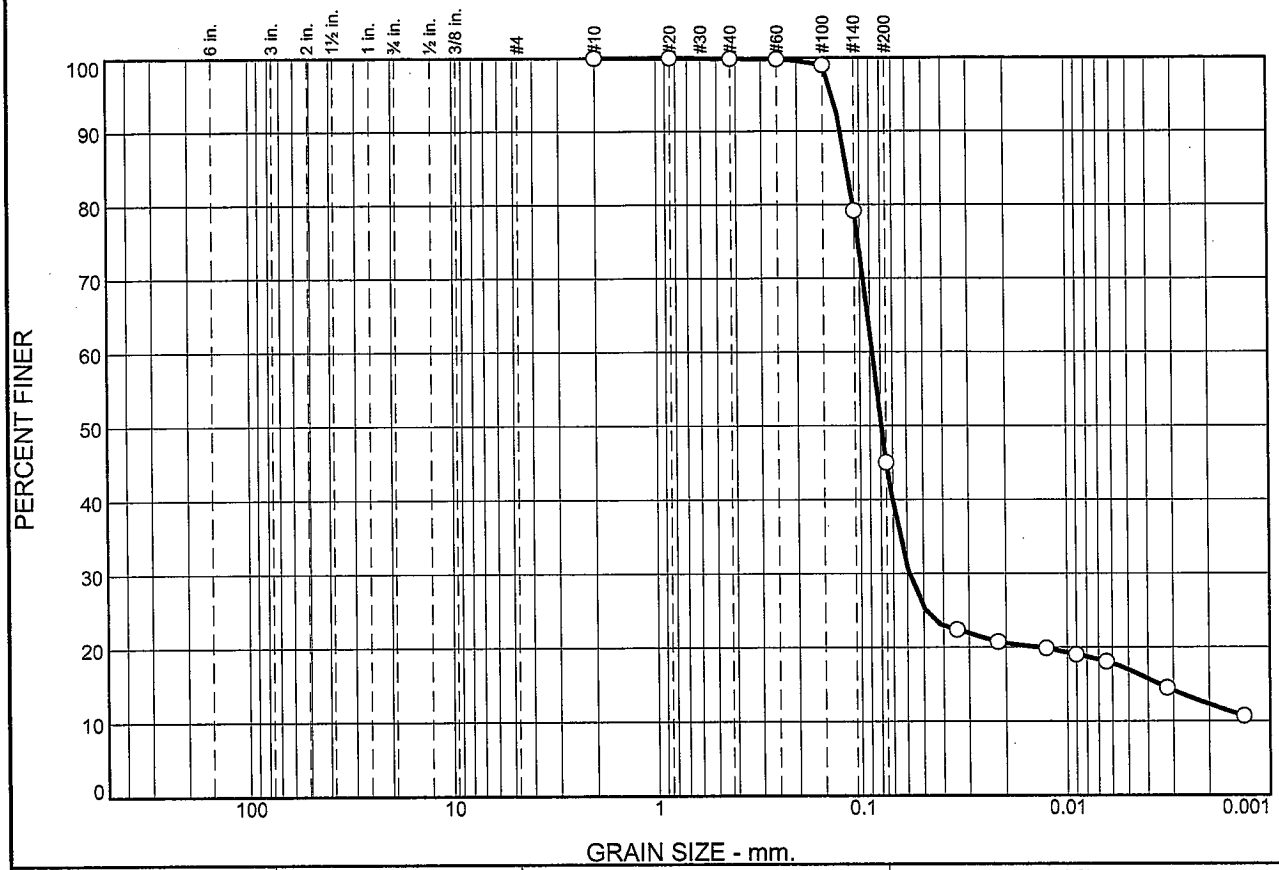
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-8 **Depth:** 20.0'-21.5'
Location: B-773 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

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	54.9	28.0	17.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	99.9		
#60	99.8		
#100	99.0		
#140	79.2		
#200	45.0		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= 31 LL= 58 PI= 27

Coefficients

D_{85}= 0.1138 D_{60}= 0.0876 D_{50}= 0.0793
D_{30}= 0.0585 D_{15}= 0.0035 D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-7-5(8)

Remarks

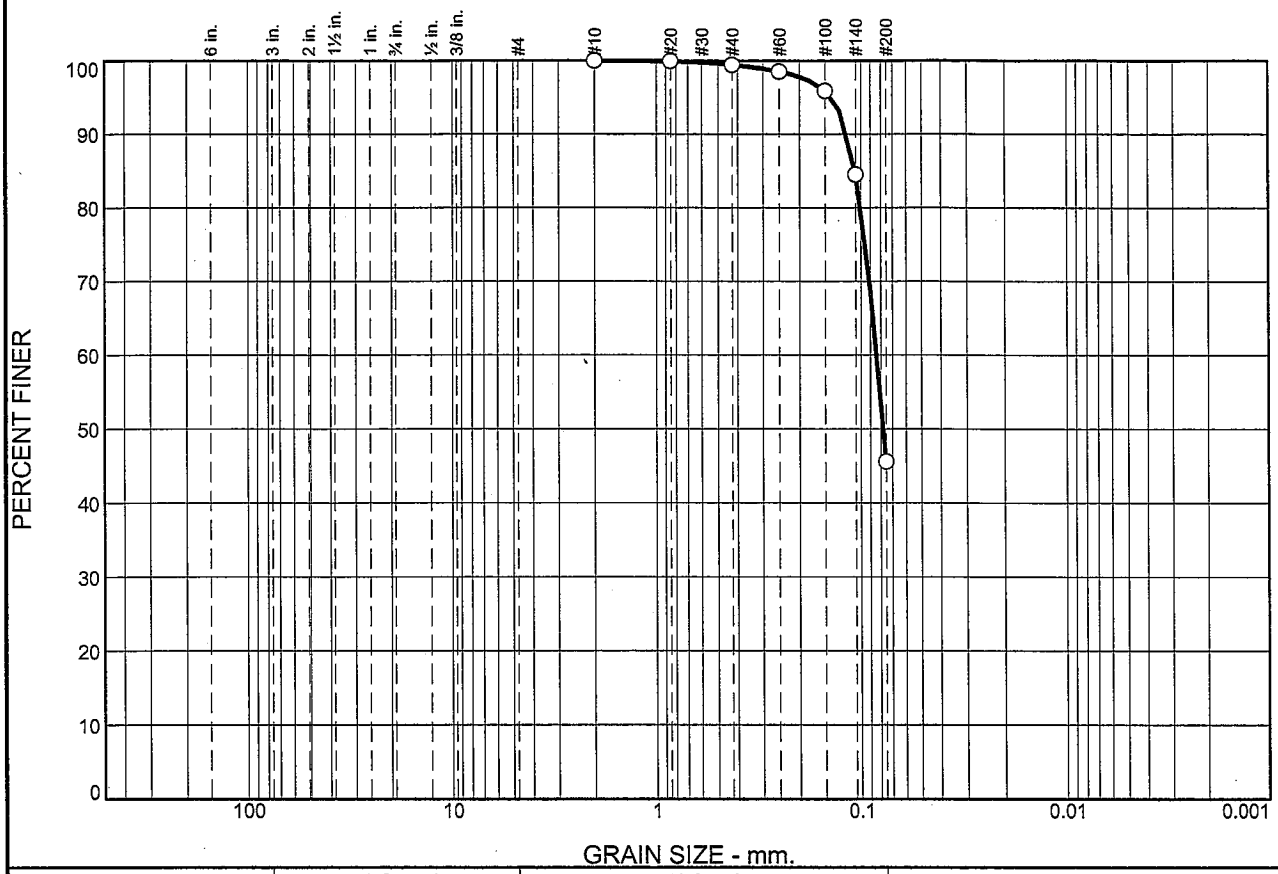
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-18 **Depth:** 70.0'-71.5'
Location: B-773 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

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	53.8	45.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.4		
#60	98.5		
#100	95.8		
#140	84.5		
#200	45.6		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 32 LL= 73 PI= 41

Coefficients

D_{85}= 0.1067 D_{60}= 0.0838 D_{50}= 0.0776
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-7-5(14)

Remarks

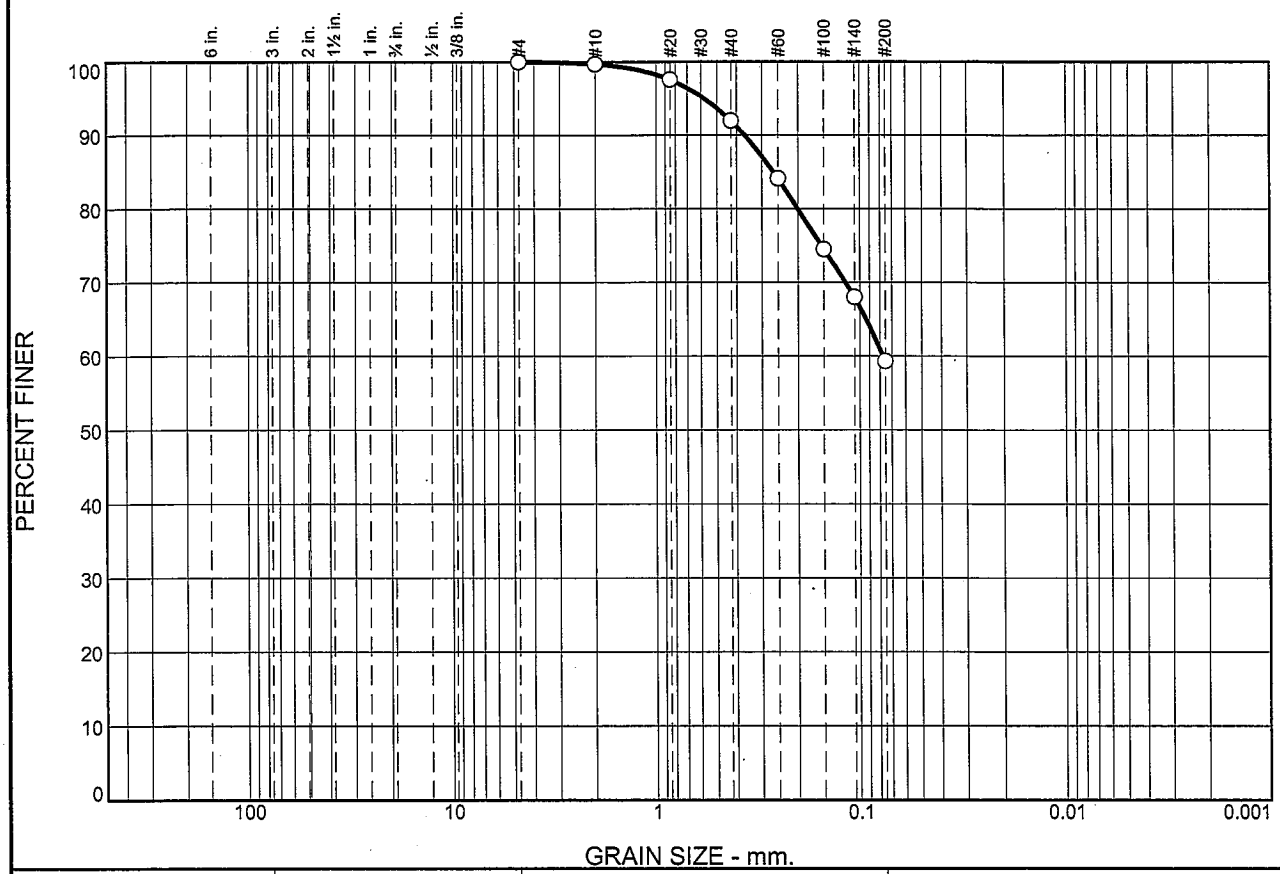
ASTM D6913-04
ASTM D4318-05

Sample Number: S-23 **Depth:** 95.0'-96.5'
Location: B-773 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	7.8	32.6	59.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.7		
#20	97.5		
#40	91.9		
#60	84.1		
#100	74.5		
#140	68.0		
#200	59.3		

* (no specification provided)

Material Description

Sandy Elastic Silt

Atterberg Limits

PL= 58 LL= 97 PI= 39

Coefficients

D_{85}= 0.2635 D_{60}= 0.0769 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(24)

Remarks

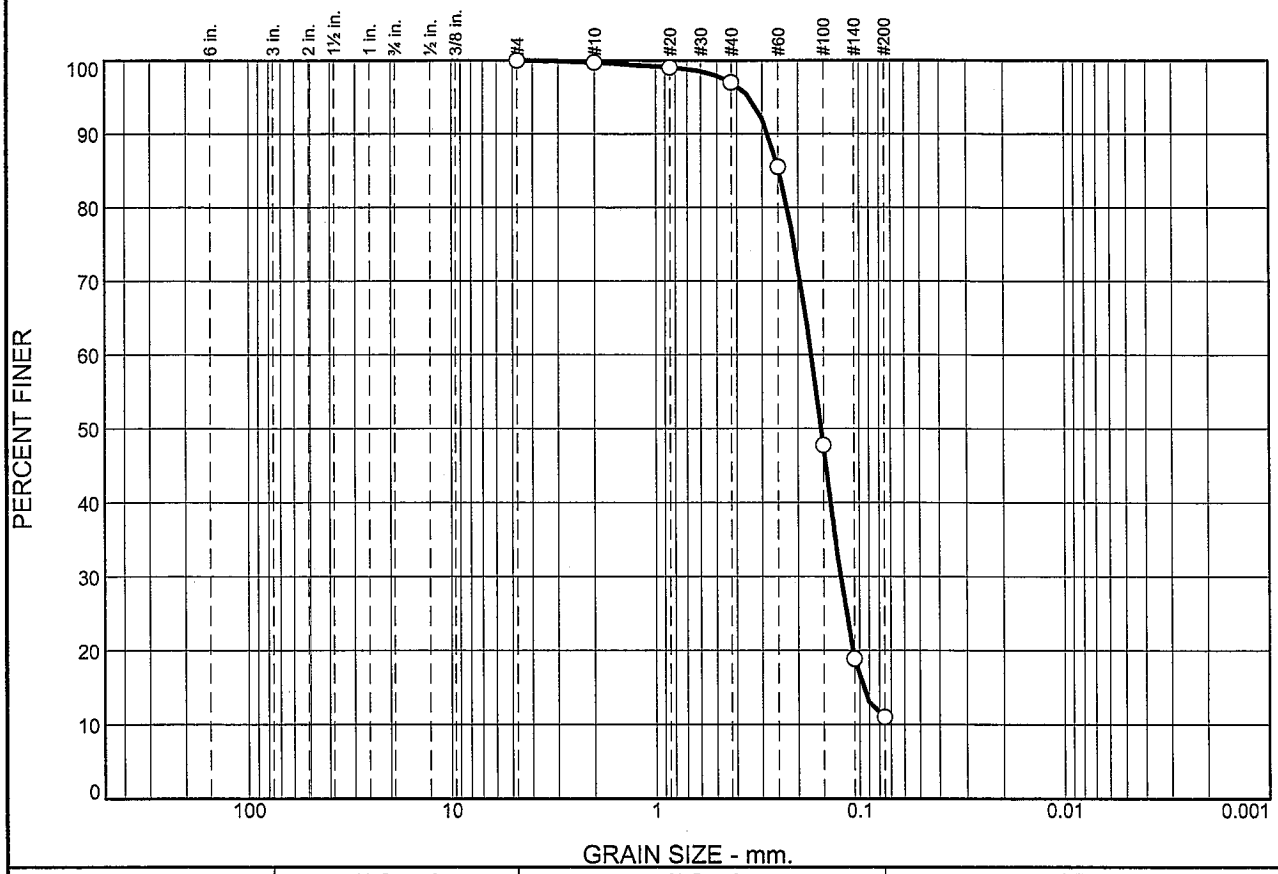
ASTM D6913-04
ASTM D4318-05

Sample Number: S-24 **Depth:** 100.0'-101.5'
Location: B-773 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	2.7	86.0	11.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.7		
#20	99.0		
#40	97.0		
#60	85.5		
#100	47.8		
#140	18.9		
#200	11.0		

* (no specification provided)

Material Description

Poorly Graded Sand with Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.2474 D_{60}= 0.1719 D_{50}= 0.1537
D_{30}= 0.1238 D_{15}= 0.0968 D_{10}=
C_u= C_c=

Classification

USCS= SP-SM AASHTO= A-2-4(0)

Remarks

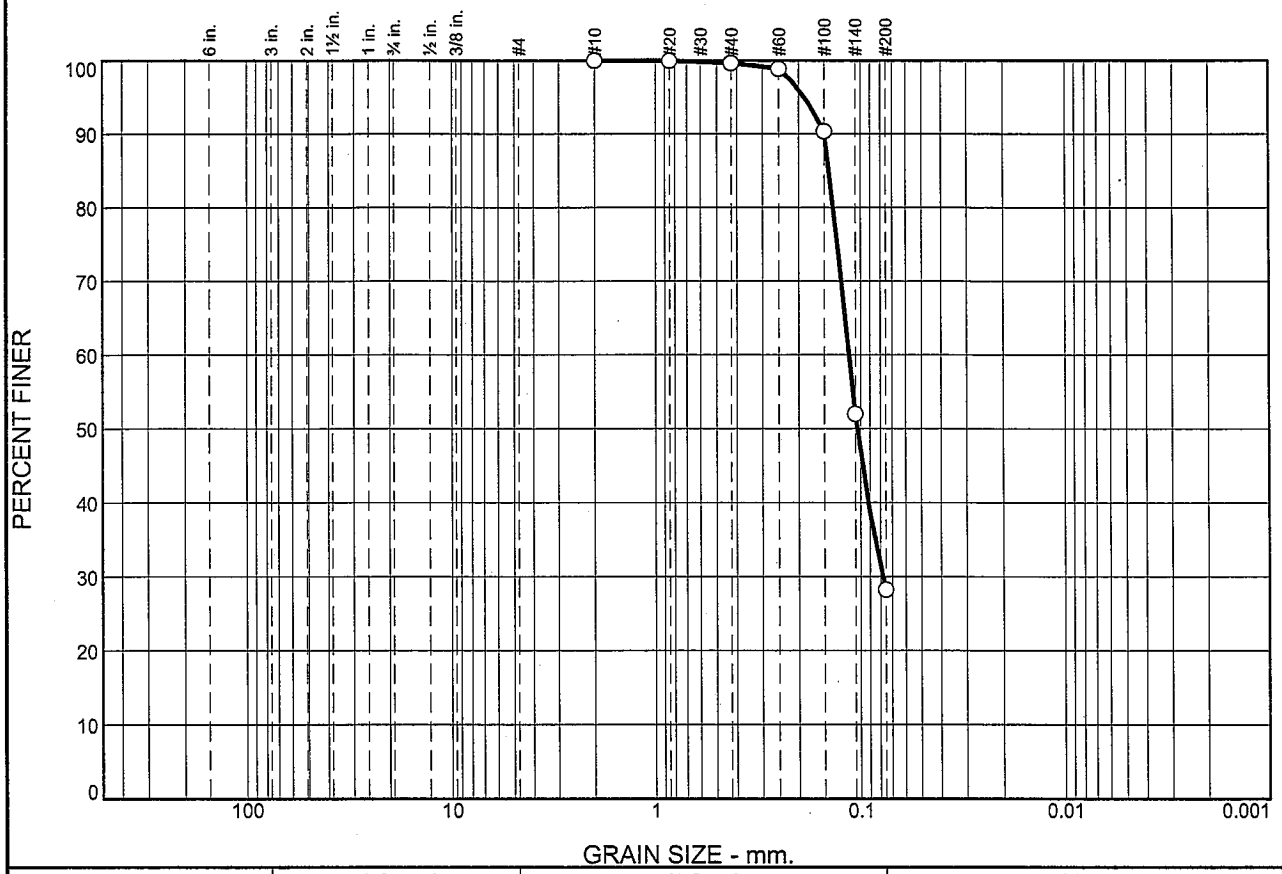
ASTM D6913-04
ASTM D4318-05

Sample Number: S-27 **Depth:** 115.0'-116.5'
Location: B-773 **Date:** 8-28-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	71.4	28.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.6		
#60	98.9		
#100	90.3		
#140	52.0		
#200	28.2		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= 34 LL= 49 PI= 15

Coefficients

D_{85}= 0.1415 D_{60}= 0.1140 D_{50}= 0.1039
D_{30}= 0.0776 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-7(1)

Remarks

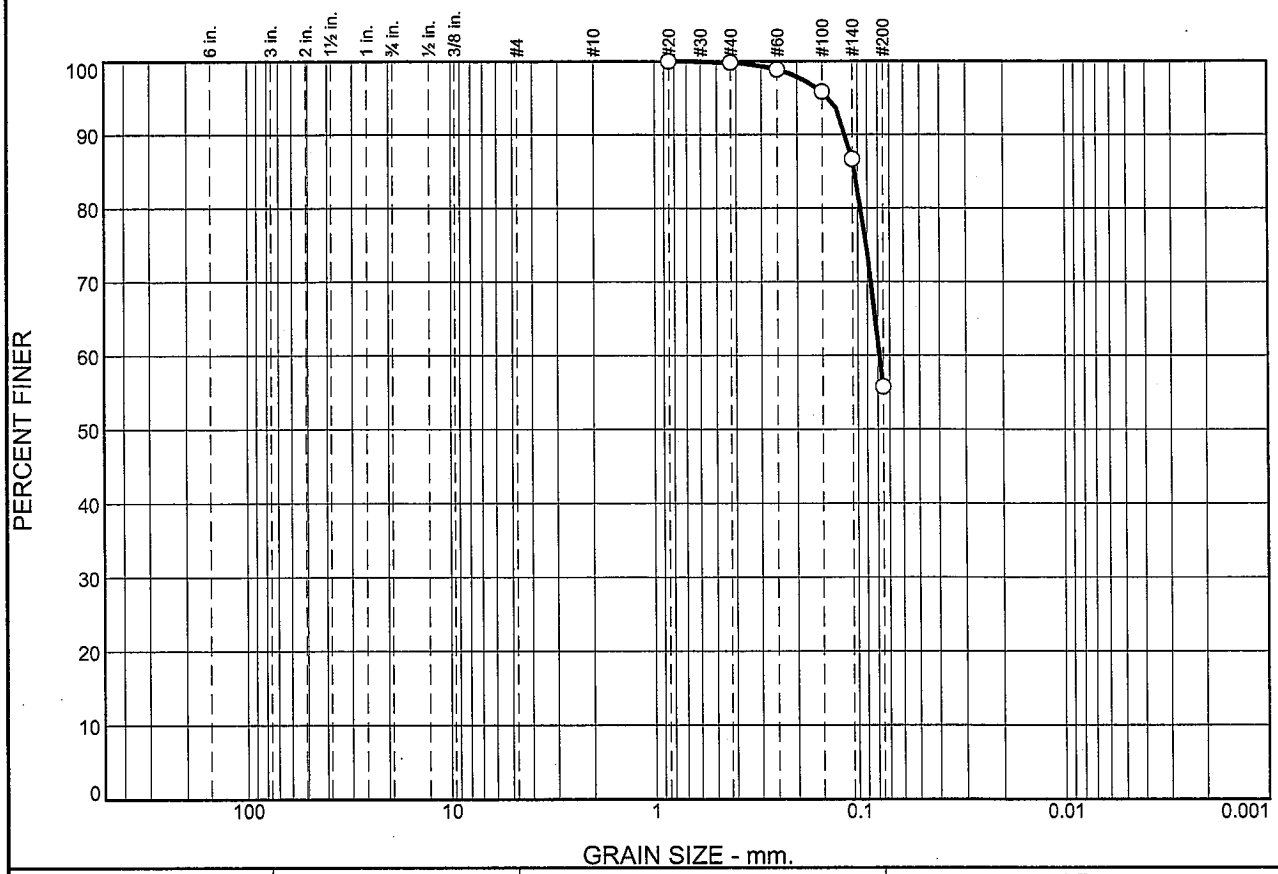
ASTM D6913-04
ASTM D4318-05

Sample Number: S-28 **Depth:** 120.0'-121.5'
Location: B-773 **Date:** 9-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	44.1	55.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	99.8		
#60	98.8		
#100	95.8		
#140	86.6		
#200	55.7		

* (no specification provided)

Material Description

Sandy Elastic Silt

Atterberg Limits

PL= 55 LL= 97 PI= 42

Coefficients

D_{85}= 0.1032 D_{60}= 0.0781 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(23)

Remarks

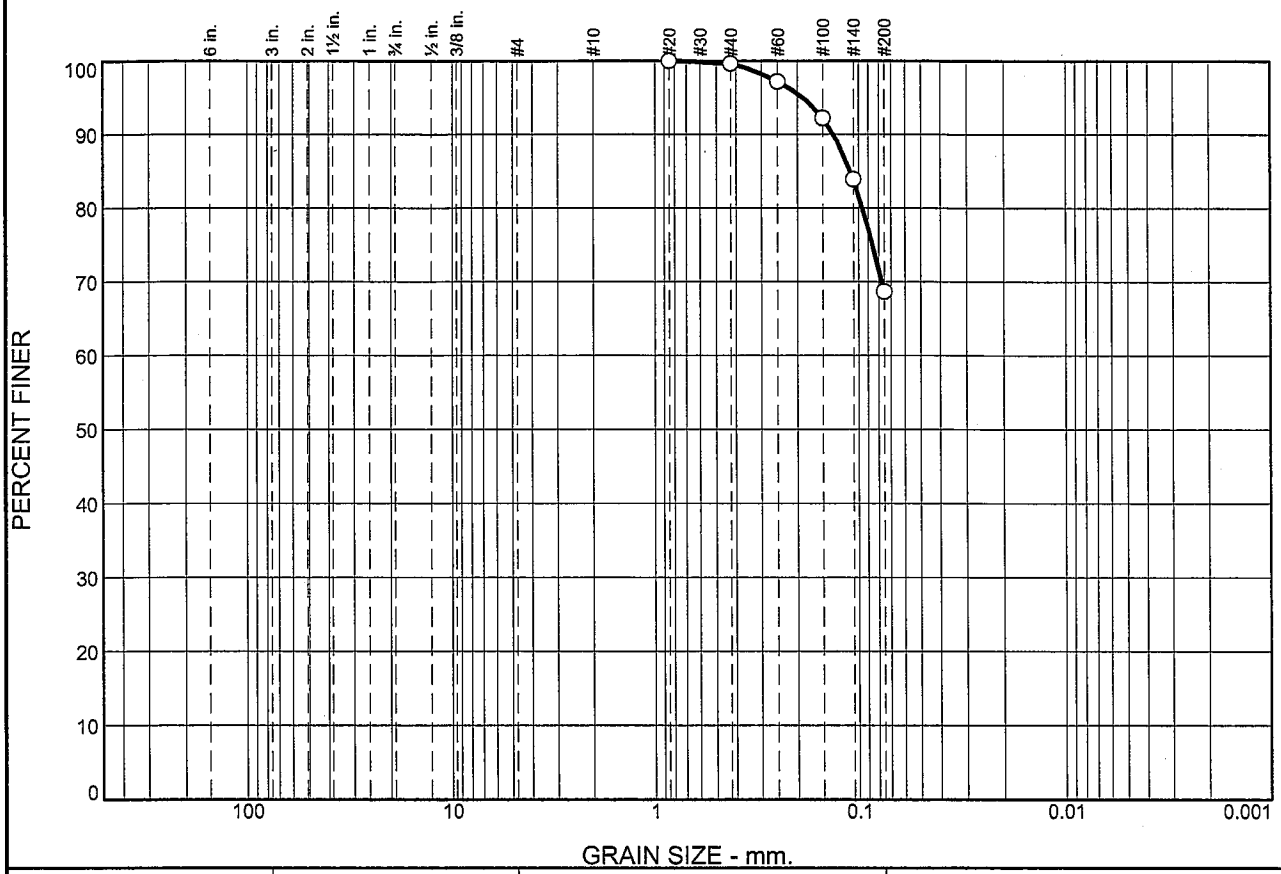
ASTM D6913-04
ASTM D4318-05

Sample Number: S-33 **Depth:** 145.0'-146.5'
Location: B-773 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	31.0	68.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	99.6		
#60	97.2		
#100	92.2		
#140	83.9		
#200	68.6		

* (no specification provided)

Material Description

Sandy Elastic Silt

Atterberg Limits

PL= 63 LL= 112 PI= 49

Coefficients

D_{85}= 0.1096 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(40)

Remarks

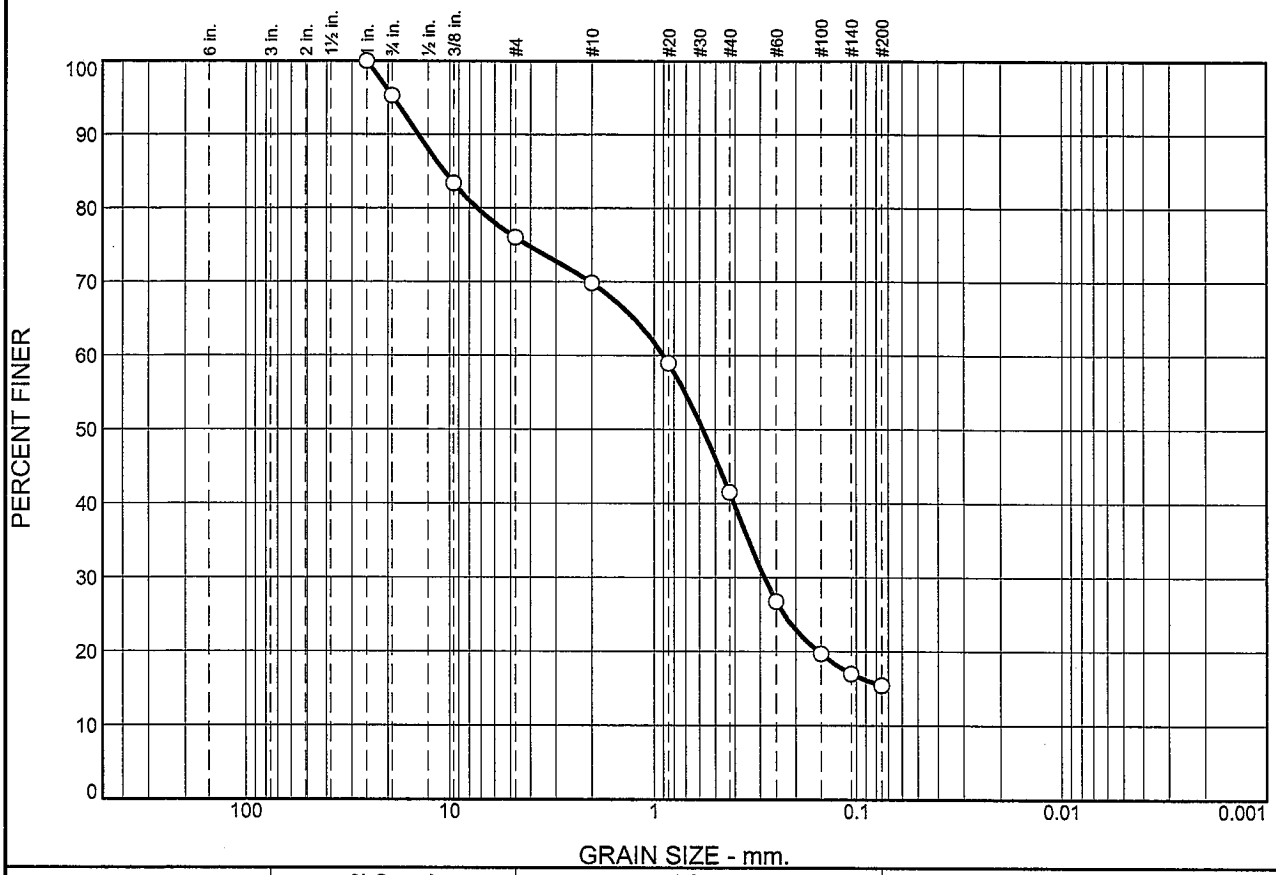
ASTM D6913-04
ASTM D4318-05

Sample Number: S-34 **Depth:** 148.5'-150.0'
Location: B-773 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	4.7	19.3	6.2	28.3	26.1	15.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1in.	100.0		
3/4in.	95.3		
3/8in.	83.4		
#4	76.0		
#10	69.8		
#20	58.9		
#40	41.5		
#60	26.8		
#100	19.7		
#140	17.0		
#200	15.4		

* (no specification provided)

Material Description

Sand with Fine to Coarse Gravel

Atterberg Limits

PL= LM LL= LM PI= LM

Coefficients

D_{85}= 10.5918 D_{60}= 0.8990 D_{50}= 0.5752
D_{30}= 0.2864 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= LM AASHTO= LM

Remarks

ASTM D6913-04

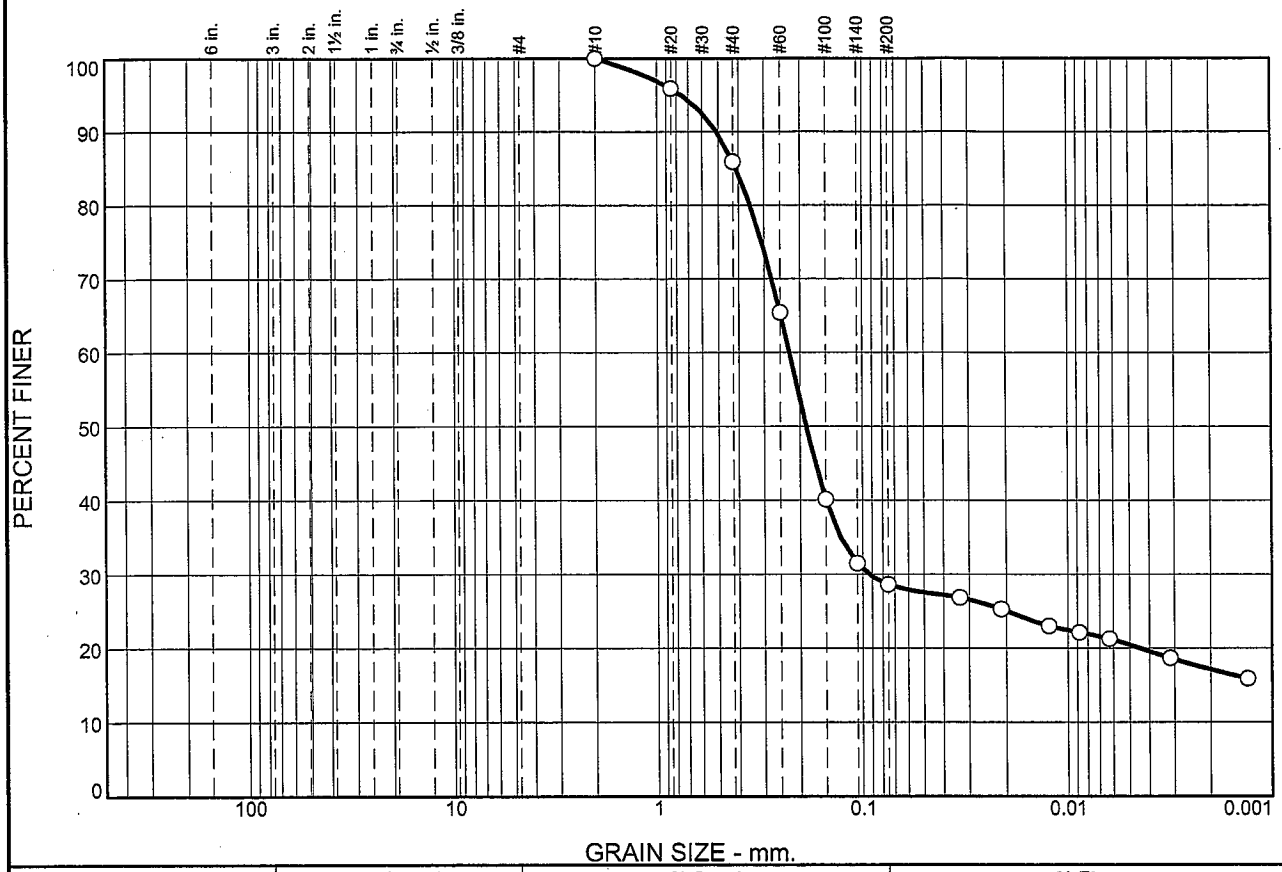
Sample Number: S-1 **Depth:** 0.0-1.5
Location: B-774

Date: 9-15-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	14.1	57.3	8.1	20.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	95.9		
#40	85.9		
#60	65.4		
#100	40.1		
#140	31.5		
#200	28.6		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 14 LL= 24 PI= 10

Coefficients

D_{85}= 0.4107 D_{60}= 0.2253 D_{50}= 0.1864
D_{30}= 0.0932 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-2-4(0)

Remarks

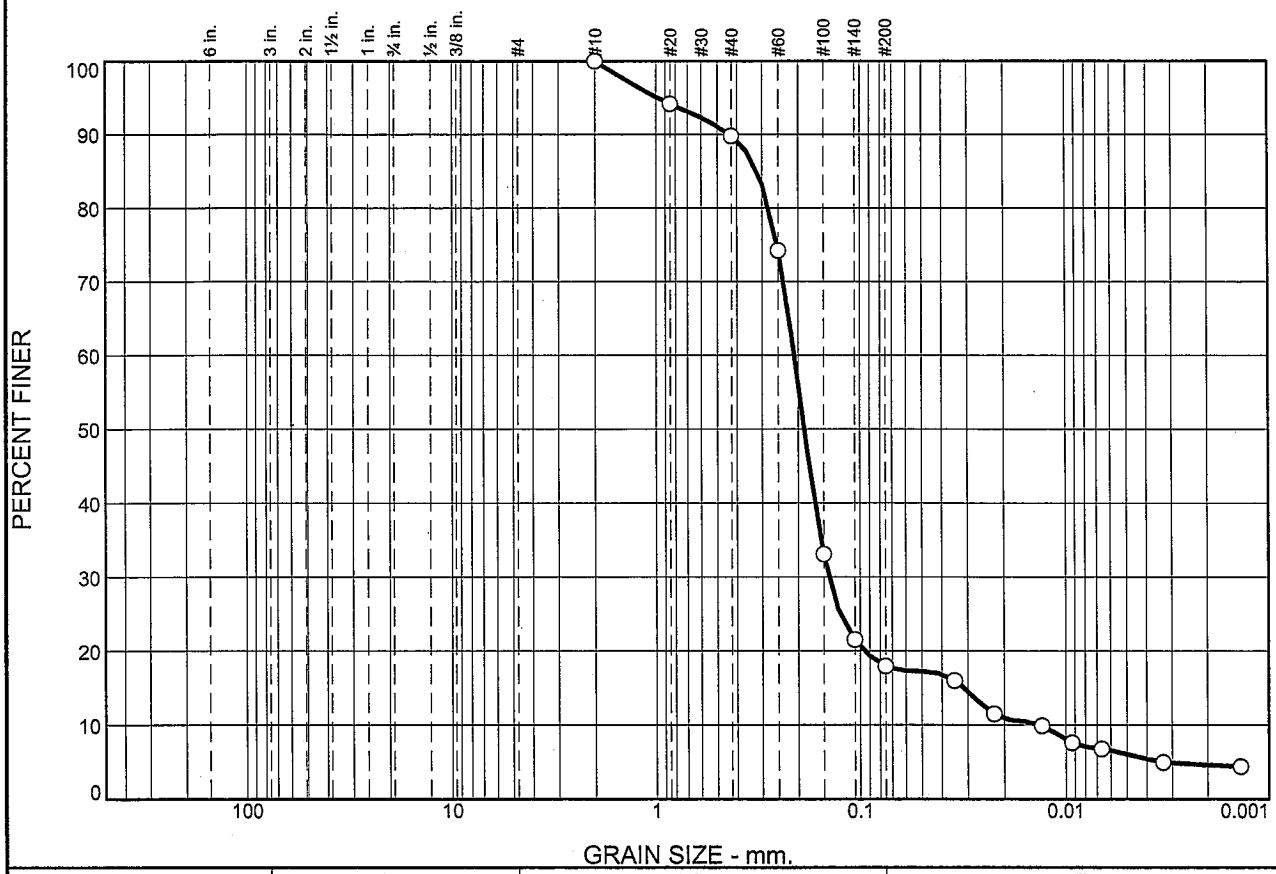
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-5 **Depth:** 10.0'-11.5'
Location: B-774 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	10.2	71.9	11.8	6.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	94.1		
#40	89.8		
#60	74.2		
#100	33.1		
#140	21.5		
#200	17.9		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.3175 D_{60}= 0.2088 D_{50}= 0.1866
D_{30}= 0.1418 D_{15}= 0.0312 D_{10}= 0.0133
C_u= 15.69 C_c= 7.24

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

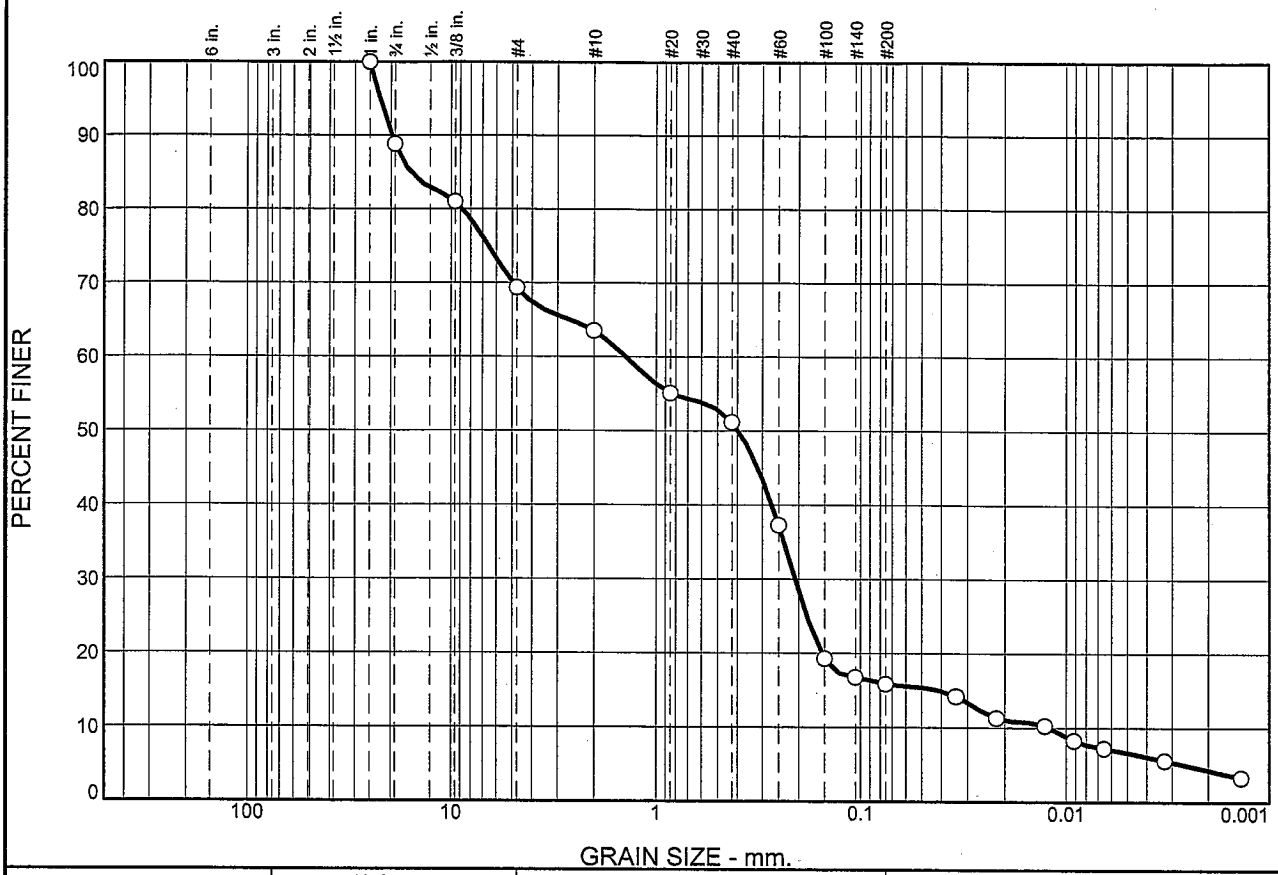
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-6 **Depth:** 13.1'-14.6'
Location: B-774 **Date:** 8-19-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	11.2	19.5	5.8	12.3	35.3	9.2	6.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.0	100.0		
0.75	88.8		
0.375	81.0		
#4	69.3		
#10	63.5		
#20	55.1		
#40	51.2		
#60	37.3		
#100	19.3		
#140	16.8		
#200	15.9		

* (no specification provided)

Material Description

Silty Sand with Gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 15.9230 D_{60}= 1.4090 D_{50}= 0.3946
D_{30}= 0.2082 D_{15}= 0.0409 D_{10}= 0.0120
C_u= 117.29 C_c= 2.56

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-7 **Depth:** 15.0'-16.5'
Location: B-774

Date: 8-19-08

MACTEC Engineering and Consulting, Inc.

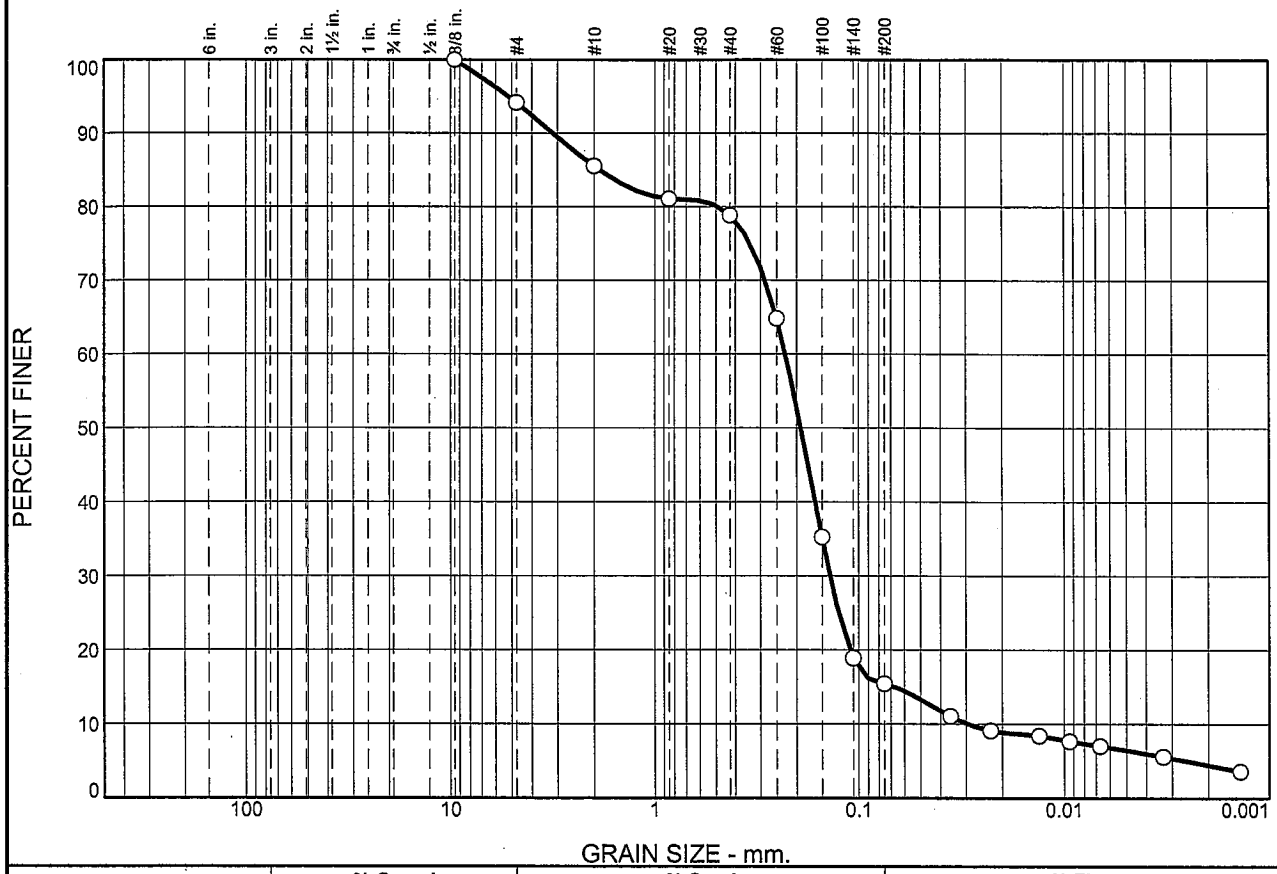
Charlotte, North Carolina

Client: Bechtel Power Corporation
Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL

Project No: 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.9	8.6	6.7	63.4	8.9	6.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375	100.0		
#4	94.1		
#10	85.5		
#20	81.1		
#40	78.8		
#60	64.8		
#100	35.3		
#140	18.9		
#200	15.4		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 1.8785 D_{60}= 0.2268 D_{50}= 0.1906
D_{30}= 0.1370 D_{15}= 0.0668 D_{10}= 0.0293
C_u= 7.75 C_c= 2.83

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

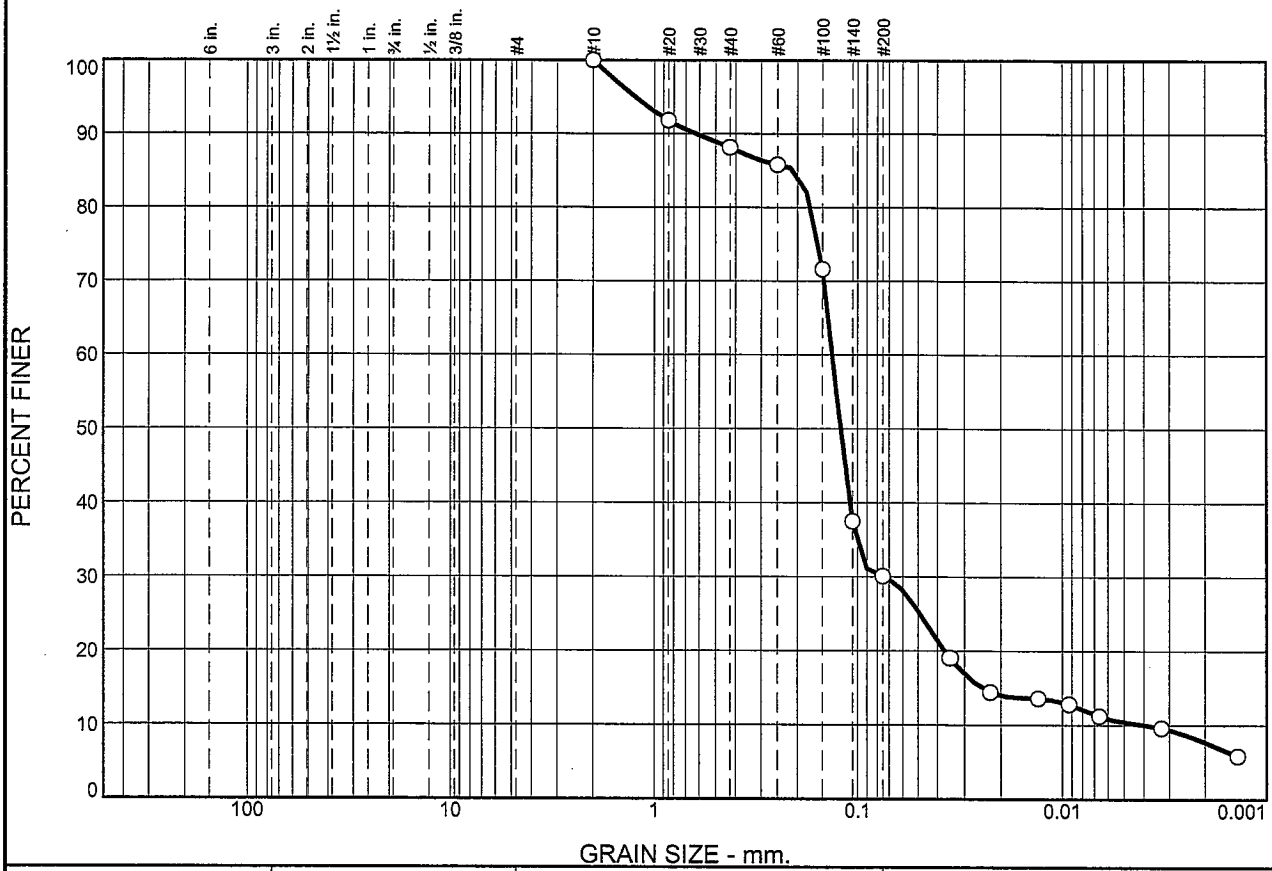
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-8 **Depth:** 18.5'-20.0'
Location: B-774 **Date:** 8-20-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	11.9	58.0	19.7	10.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	91.8		
#40	88.1		
#60	85.8		
#100	71.6		
#140	37.5		
#200	30.1		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.2078 D_{60}= 0.1334 D_{50}= 0.1217
D_{30}= 0.0729 D_{15}= 0.0246 D_{10}= 0.0039
C_u= 34.03 C_c= 10.16

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

ASTM D422-63 (2007)
ASTM D4318-05

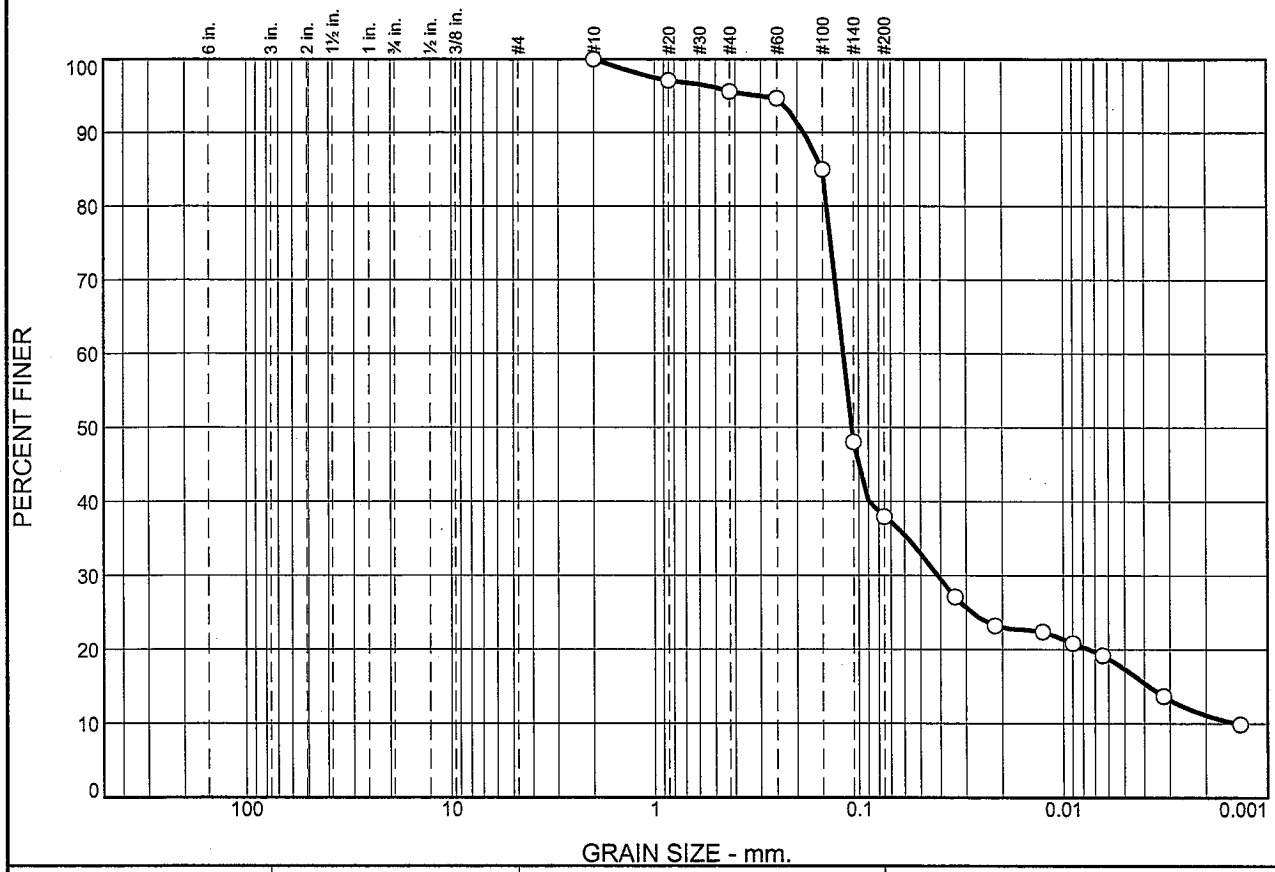
Sample Number: S-10 **Depth:** 23.5'-25.0'
Location: B-774

Date: 8-20-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.4	57.7	20.5	17.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	97.1		
#40	95.6		
#60	94.6		
#100	84.9		
#140	48.0		
#200	37.9		

* (no specification provided)

Material Description

Silty, Clayey Sand

Atterberg Limits

PL= 23 LL= 30 PI= 7

Coefficients

D_{85}= 0.1503 D_{60}= 0.1196 D_{50}= 0.1085
D_{30}= 0.0413 D_{15}= 0.0038 D_{10}= 0.0014
C_u= 84.38 C_c= 10.09

Classification

USCS= SC-SM AASHTO= A-4(0)

Remarks

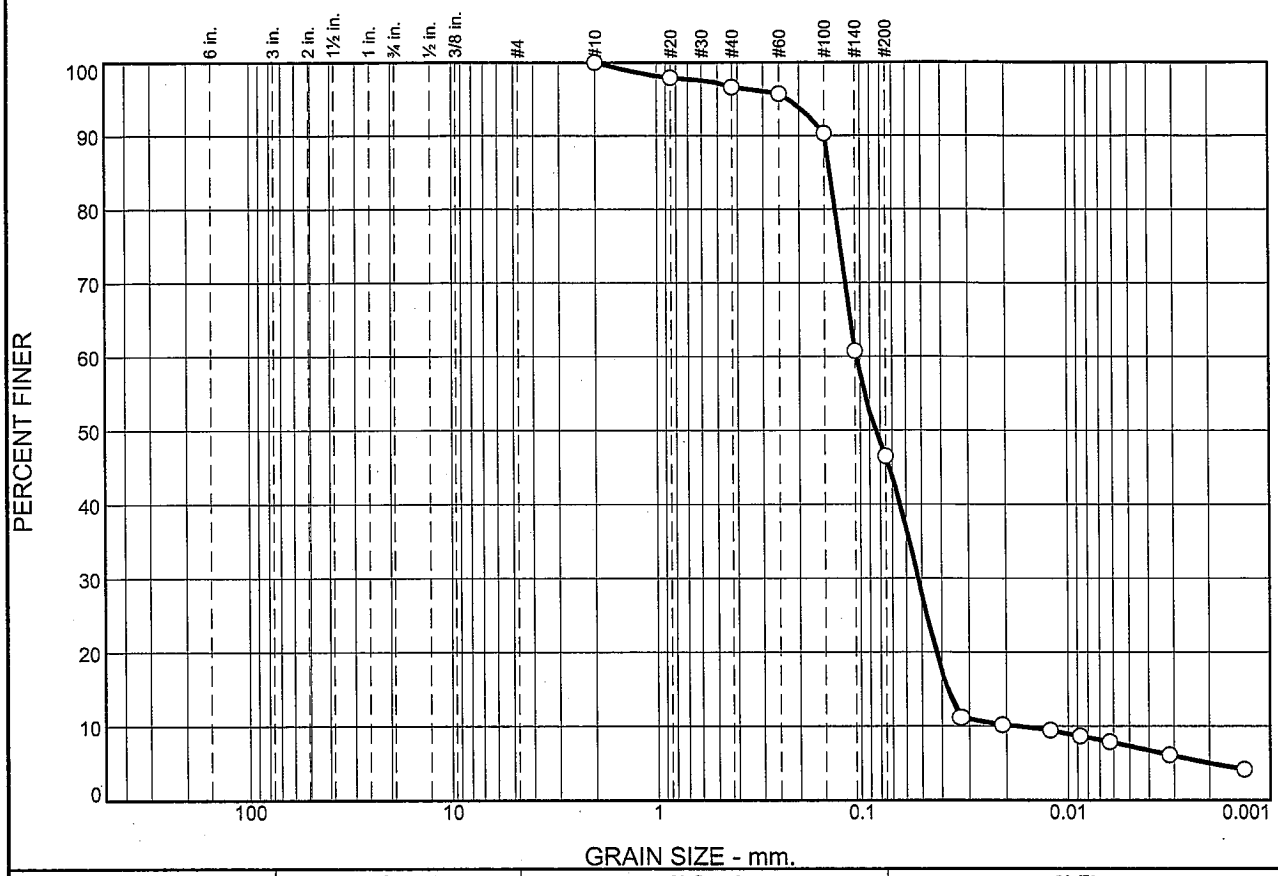
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-11 **Depth:** 25.0'-26.5'
Location: B-774 **Date:** 8-20-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.4	50.1	39.2	7.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	97.9		
#40	96.6		
#60	95.7		
#100	90.3		
#140	60.7		
#200	46.5		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 22 LL= 40 PI= 18

Coefficients

D_{85}= 0.1396 D_{60}= 0.1049 D_{50}= 0.0837
D_{30}= 0.0522 D_{15}= 0.0374 D_{10}= 0.0172
C_u= 6.11 C_c= 1.52

Classification

USCS= SC AASHTO= A-6(5)

Remarks

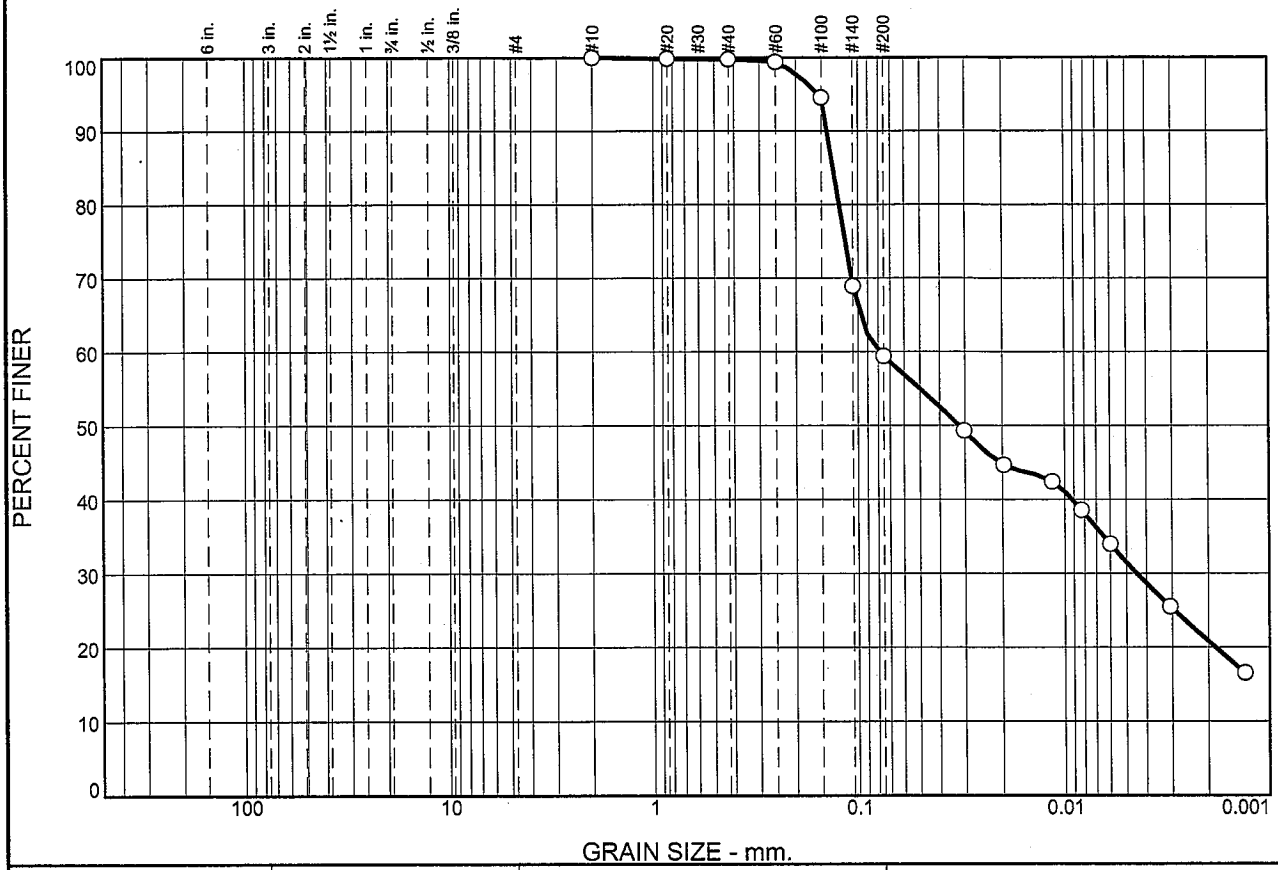
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-12 **Depth:** 27.5'-29.0'
Location: B-774 **Date:** 8-20-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	40.4	27.9	31.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.8		
#40	99.8		
#60	99.4		
#100	94.5		
#140	68.9		
#200	59.4		

* (no specification provided)

Material Description

Sandy Elastic Silt

Atterberg Limits

PL= 51 LL= 82 PI= 31

Coefficients

D_{85}= 0.1310 D_{60}= 0.0789 D_{50}= 0.0321
D_{30}= 0.0044 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(19)

Remarks

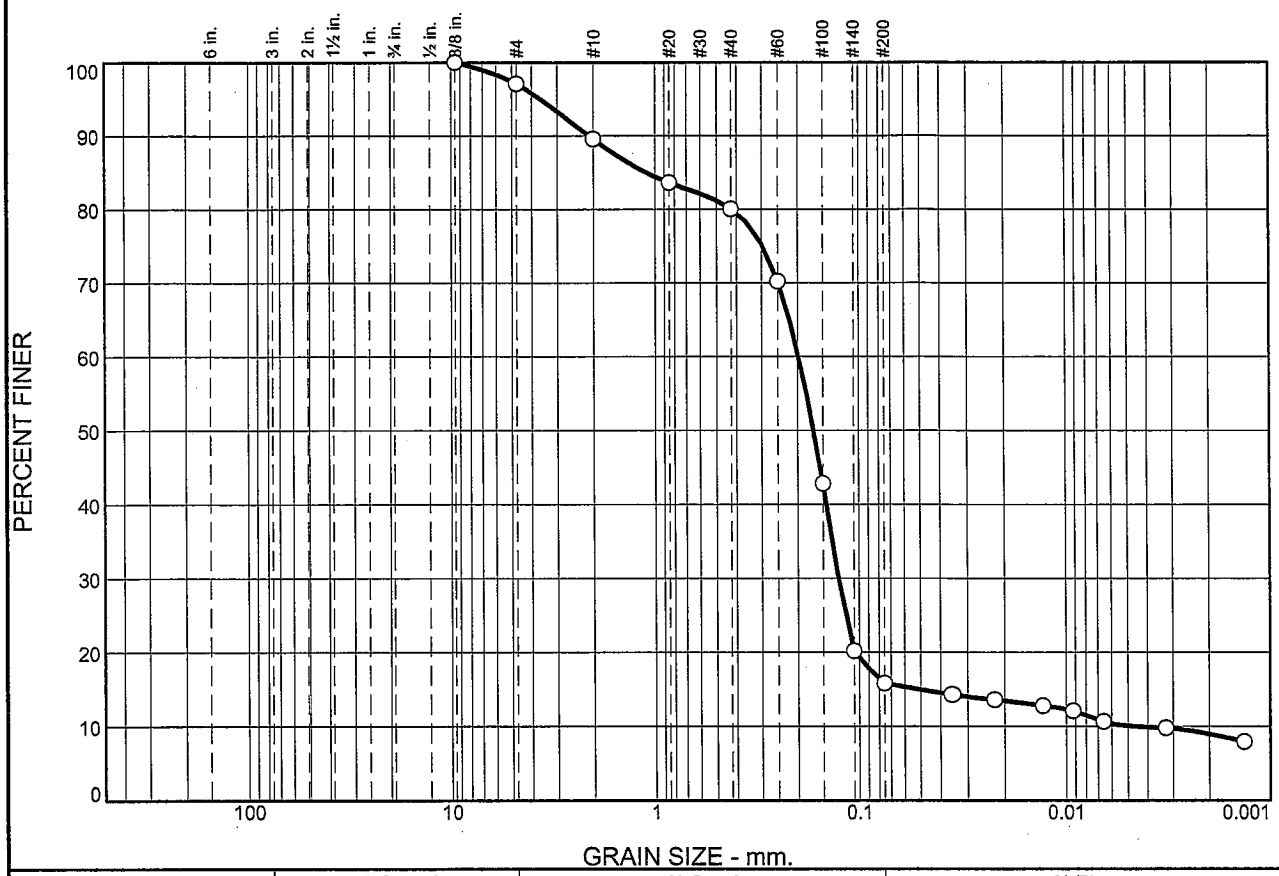
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-16 **Depth:** 37.5'-39.0'
Location: B-774 **Date:** 8-20-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.9	7.6	9.5	64.2	5.7	10.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375	100.0		
#4	97.1		
#10	89.5		
#20	83.6		
#40	80.0		
#60	70.2		
#100	42.8		
#140	20.2		
#200	15.8		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 1.1033 D_{60}= 0.1976 D_{50}= 0.1666
D_{30}= 0.1259 D_{15}= 0.0510 D_{10}= 0.0047
C_u= 42.24 C_c= 17.13

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

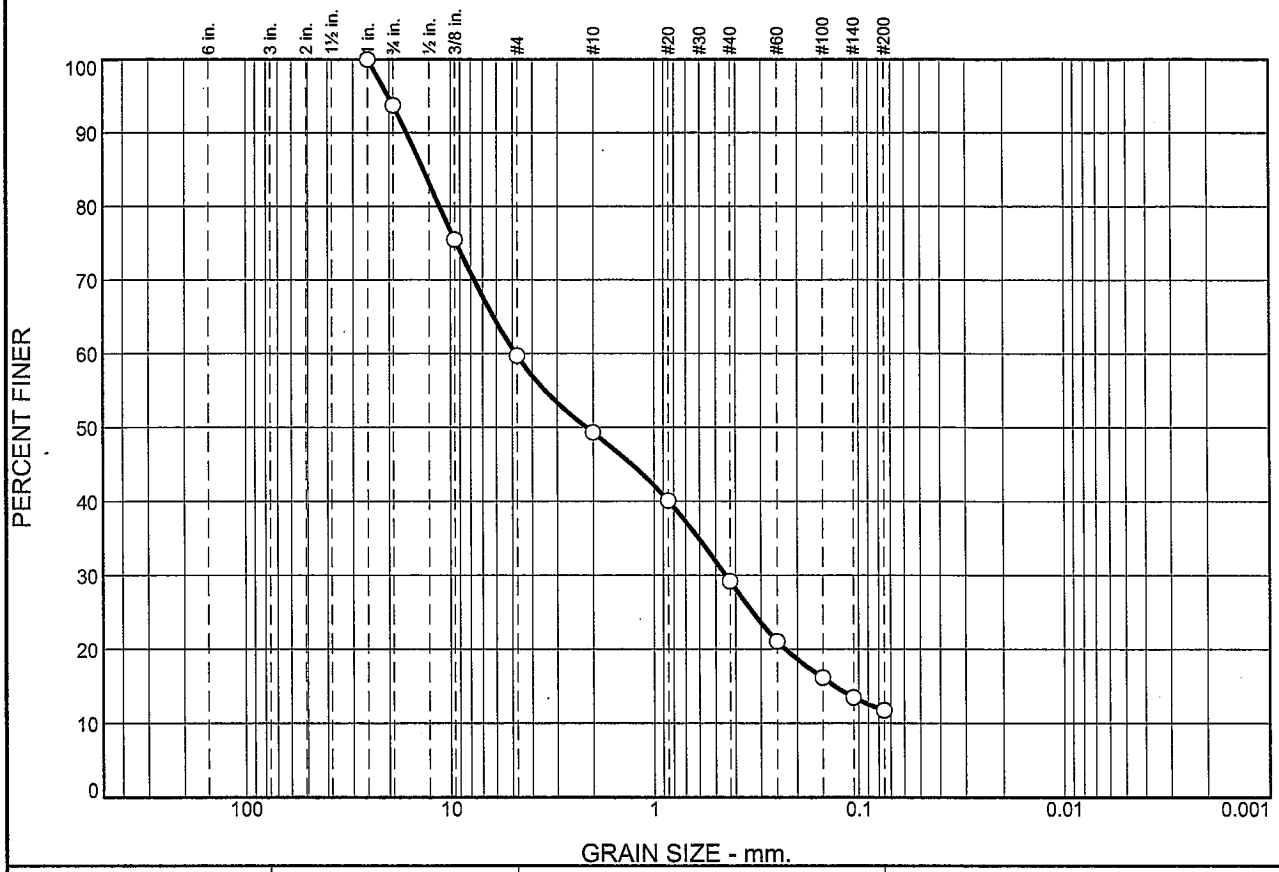
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-21 **Depth:** 50.0'-51.5'
Location: B-774 **Date:** 8-21-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	6.3	34.0	10.4	20.1	17.4	11.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1in.	100.0		
3/4in.	93.7		
3/8in.	75.4		
#4	59.7		
#10	49.3		
#20	40.1		
#40	29.2		
#60	21.1		
#100	16.1		
#140	13.5		
#200	11.8		

* (no specification provided)

Material Description

Sand with Fine to Coarse Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 13.5469 D_{60}= 4.8323 D_{50}= 2.1565
D_{30}= 0.4464 D_{15}= 0.1306 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

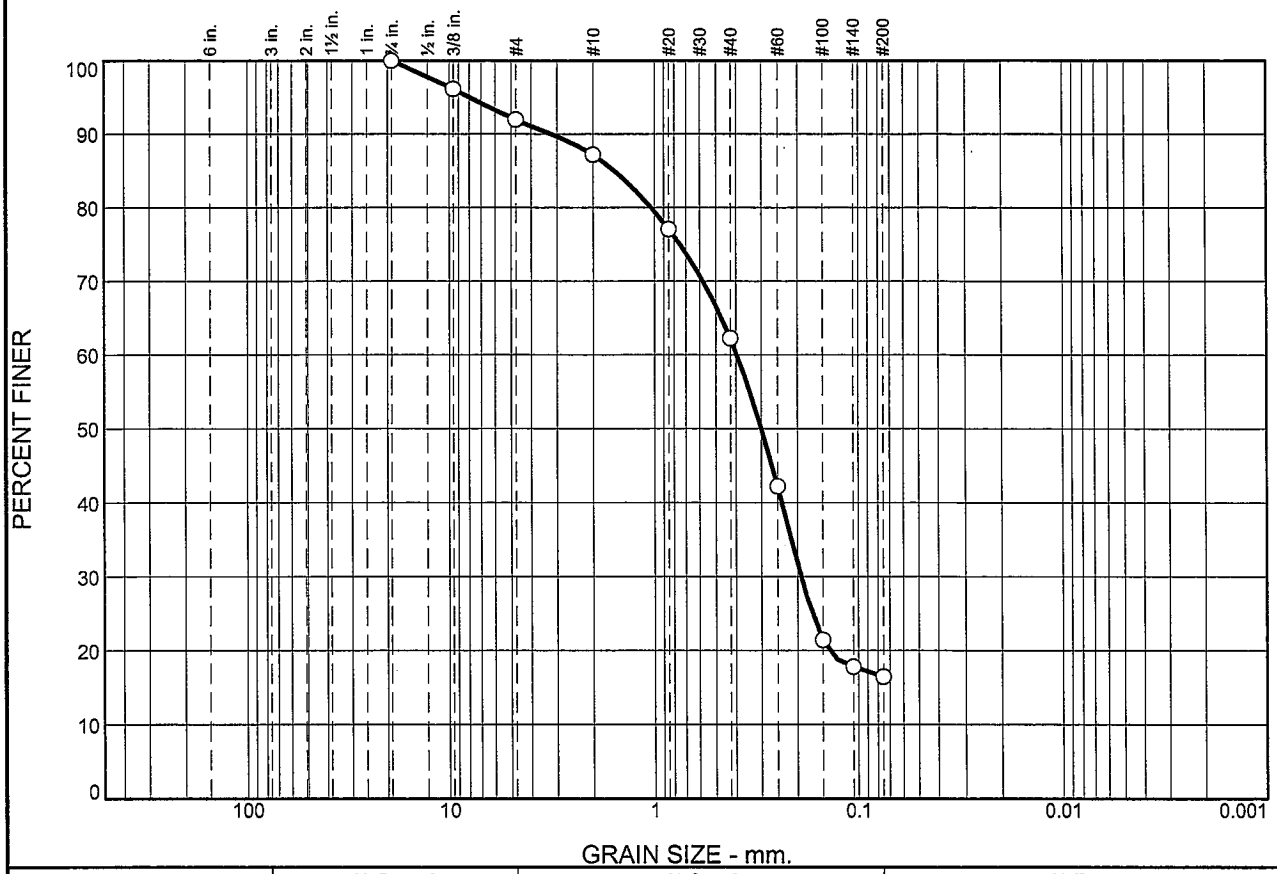
ASTM D6913-04

Sample Number: S-1 **Depth:** 0.0'-1.5'
Location: B-775 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	8.1	4.7	25.0	45.7	16.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4in.	100.0		
3/8in.	96.1		
#4	91.9		
#10	87.2		
#20	77.1		
#40	62.2		
#60	42.2		
#100	21.4		
#140	17.8		
#200	16.5		

* (no specification provided)

Material Description

Sand with Fine to Coarse Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.5708 D_{60}= 0.3952 D_{50}= 0.2998
D_{30}= 0.1918 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

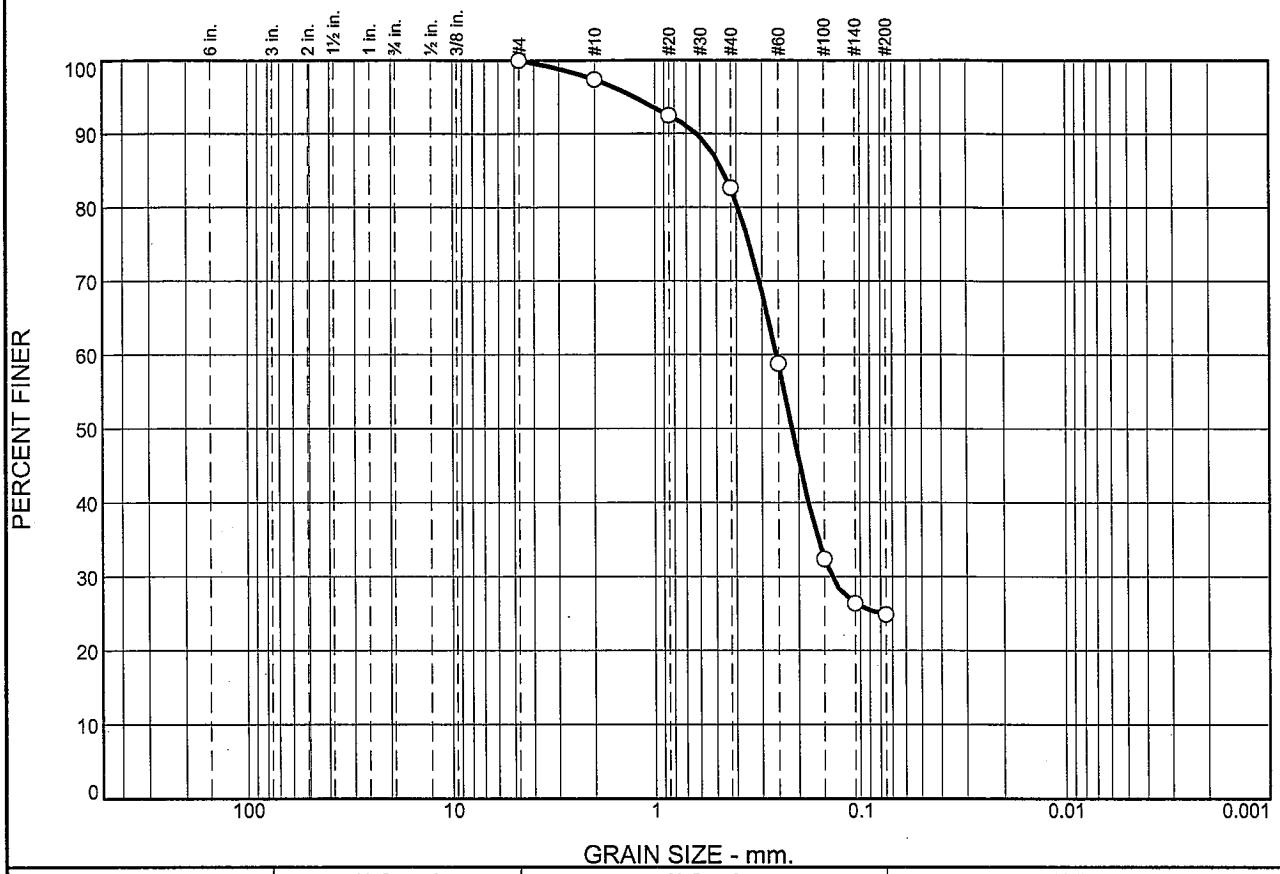
ASTM D6913-04

Sample Number: S-3 **Depth:** 5.0'-6.5'
Location: B-775 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.6	14.8	57.7	24.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	97.4		
#20	92.5		
#40	82.6		
#60	58.8		
#100	32.4		
#140	26.4		
#200	24.9		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.4642 D_{60}= 0.2554 D_{50}= 0.2149
D_{30}= 0.1378 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

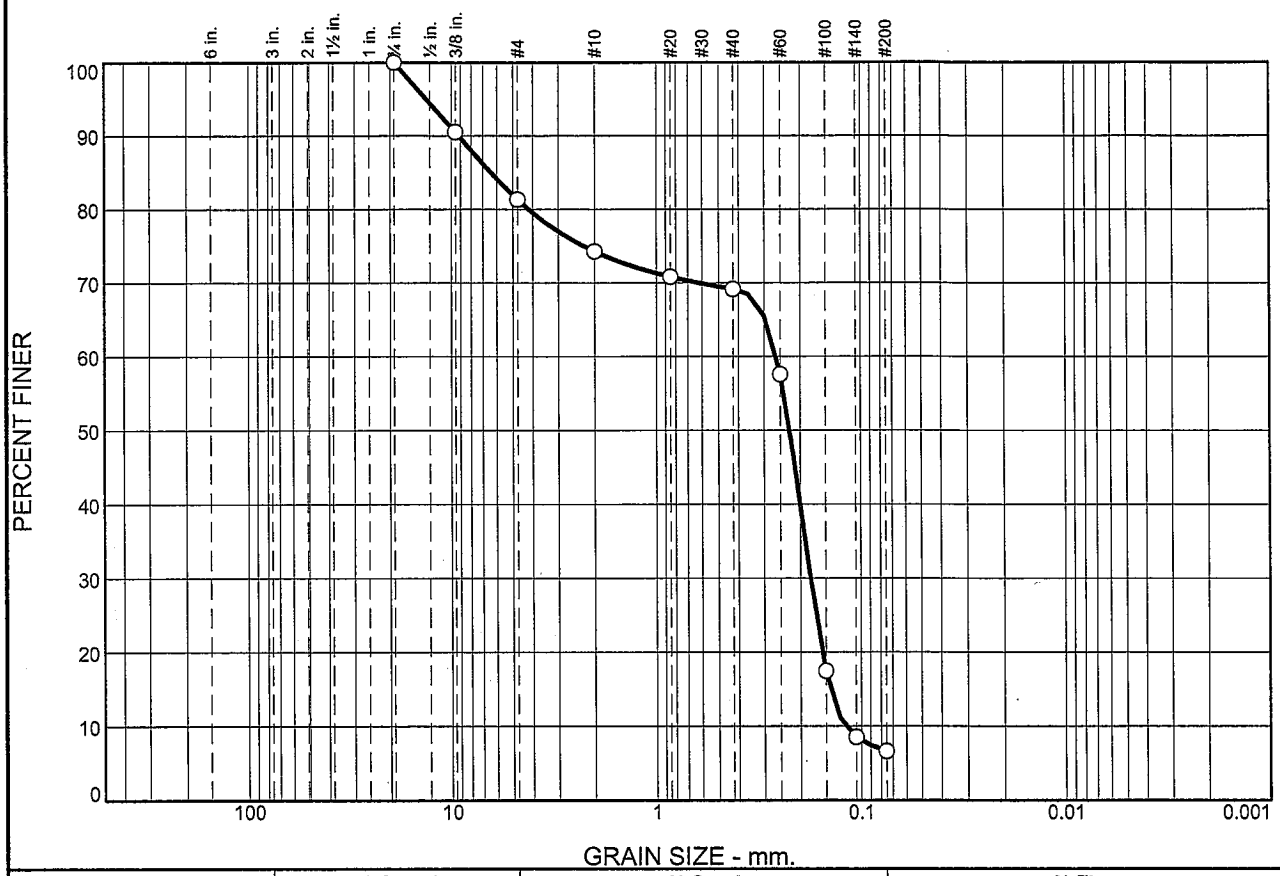
ASTM D6913-04

Sample Number: S-4 **Depth:** 7.5'-9.0'
Location: B-775 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	18.7	7.0	5.2	62.4	6.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4in.	100.0		
3/8in.	90.5		
#4	81.3		
#10	74.3		
#20	70.8		
#40	69.1		
#60	57.6		
#100	17.5		
#140	8.5		
#200	6.7		

* (no specification provided)

Material Description

Sand with Fine Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 6.3900 D_{60}= 0.2610 D_{50}= 0.2249
D_{30}= 0.1784 D_{15}= 0.1428 D_{10}= 0.1201
C_u= 2.17 C_c= 1.02

Classification

USCS= NR AASHTO= NR

Remarks

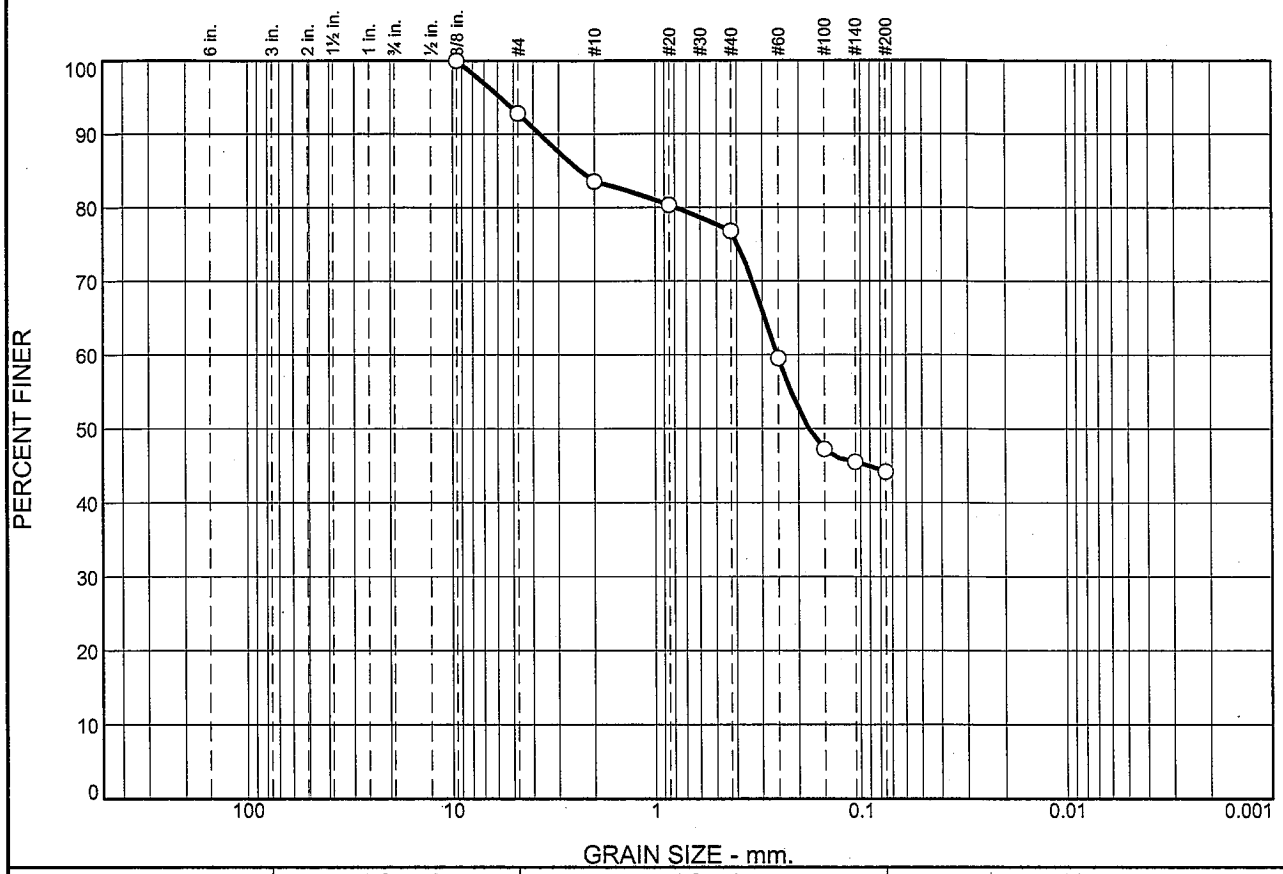
ASTM D6913-04

Sample Number: S-6 **Depth:** 12.5'-14.0'
Location: B-775 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.2	9.3	6.7	32.6	44.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	92.8		
#10	83.5		
#20	80.3		
#40	76.8		
#60	59.5		
#100	47.3		
#140	45.5		
#200	44.2		

* (no specification provided)

Material Description

Silty Clayey Sand with Fine Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 2.3477 D_{60}= 0.2536 D_{50}= 0.1779
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

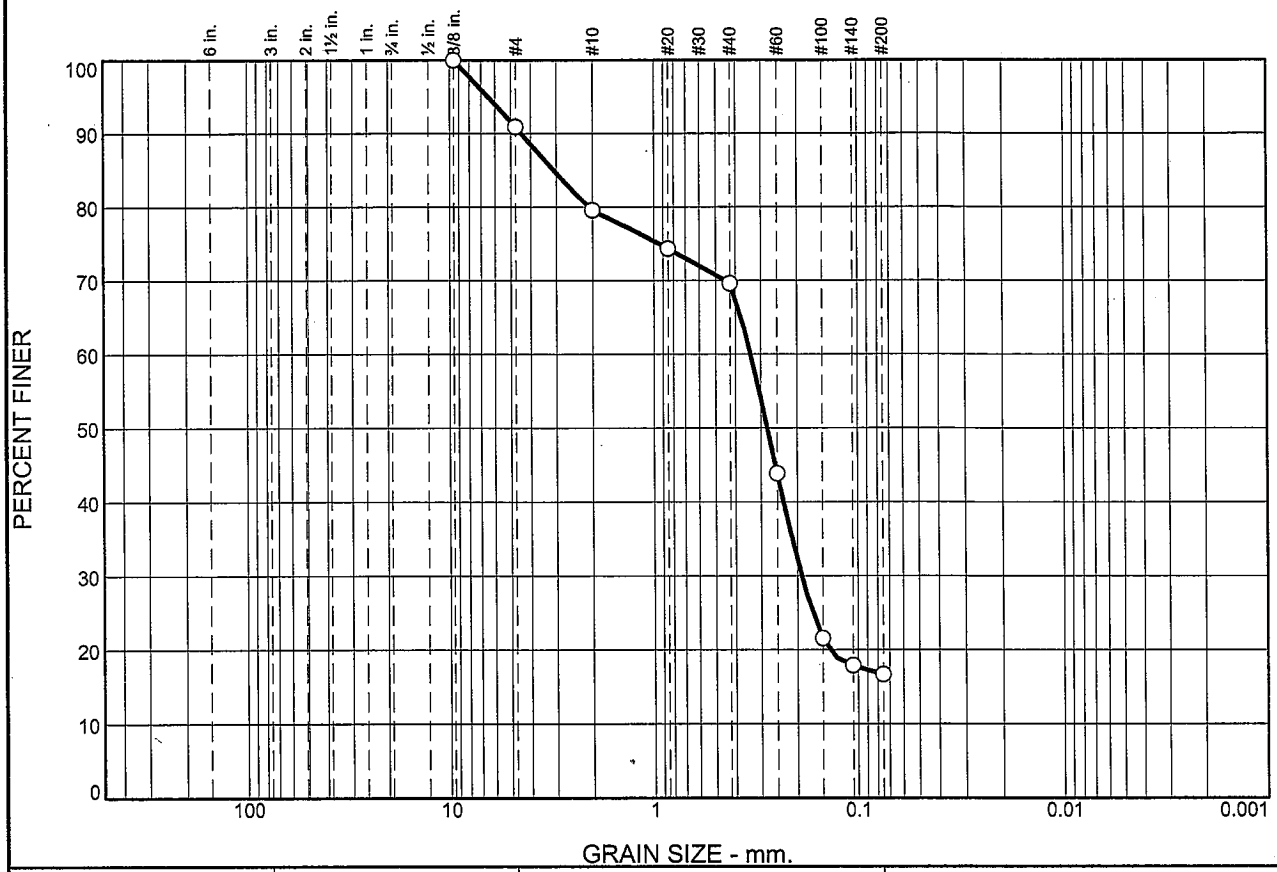
ASTM D6913-04

Sample Number: S-7 **Depth:** 15.0'-16.5'
Location: B-775 **Date:** 8-22-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	9.1	11.4	9.9	52.9	16.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	90.9		
#10	79.5		
#20	74.3		
#40	69.6		
#60	43.9		
#100	21.6		
#140	17.9		
#200	16.7		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 17 LL= 27 PI= 10

Coefficients

D_{85}= 3.0904 D_{60}= 0.3364 D_{50}= 0.2790
D_{30}= 0.1909 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-2-4(0)

Remarks

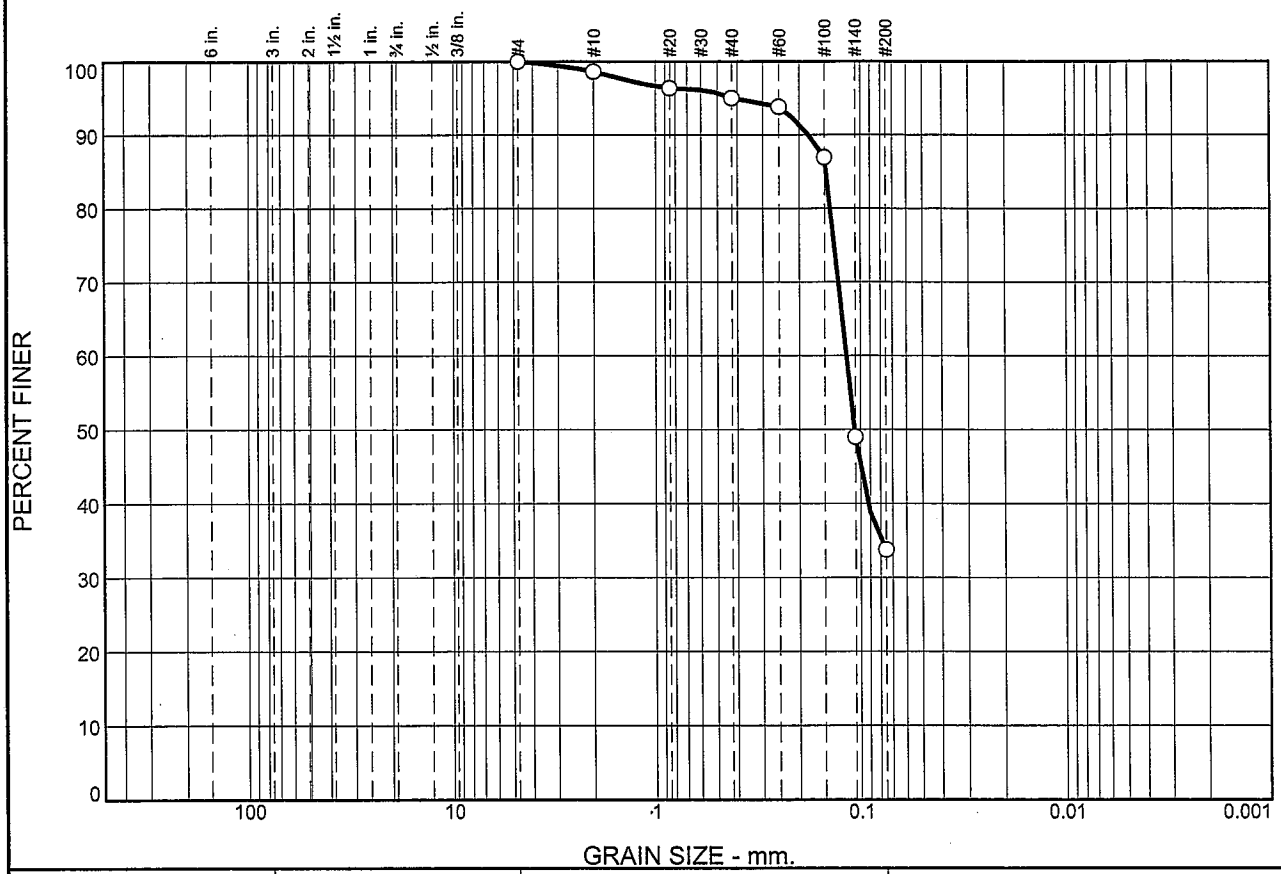
ASTM D6913-04
ASTM D4318-05

Sample Number: S-8 **Depth:** 17.5'-19.0'
Location: B-775 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.4	3.6	61.2	33.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.6		
#20	96.4		
#40	95.0		
#60	93.8		
#100	86.9		
#140	49.0		
#200	33.8		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 23 LL= 34 PI= 11

Coefficients

D_{85}= 0.1467 D_{60}= 0.1177 D_{50}= 0.1072
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-2-6(0)

Remarks

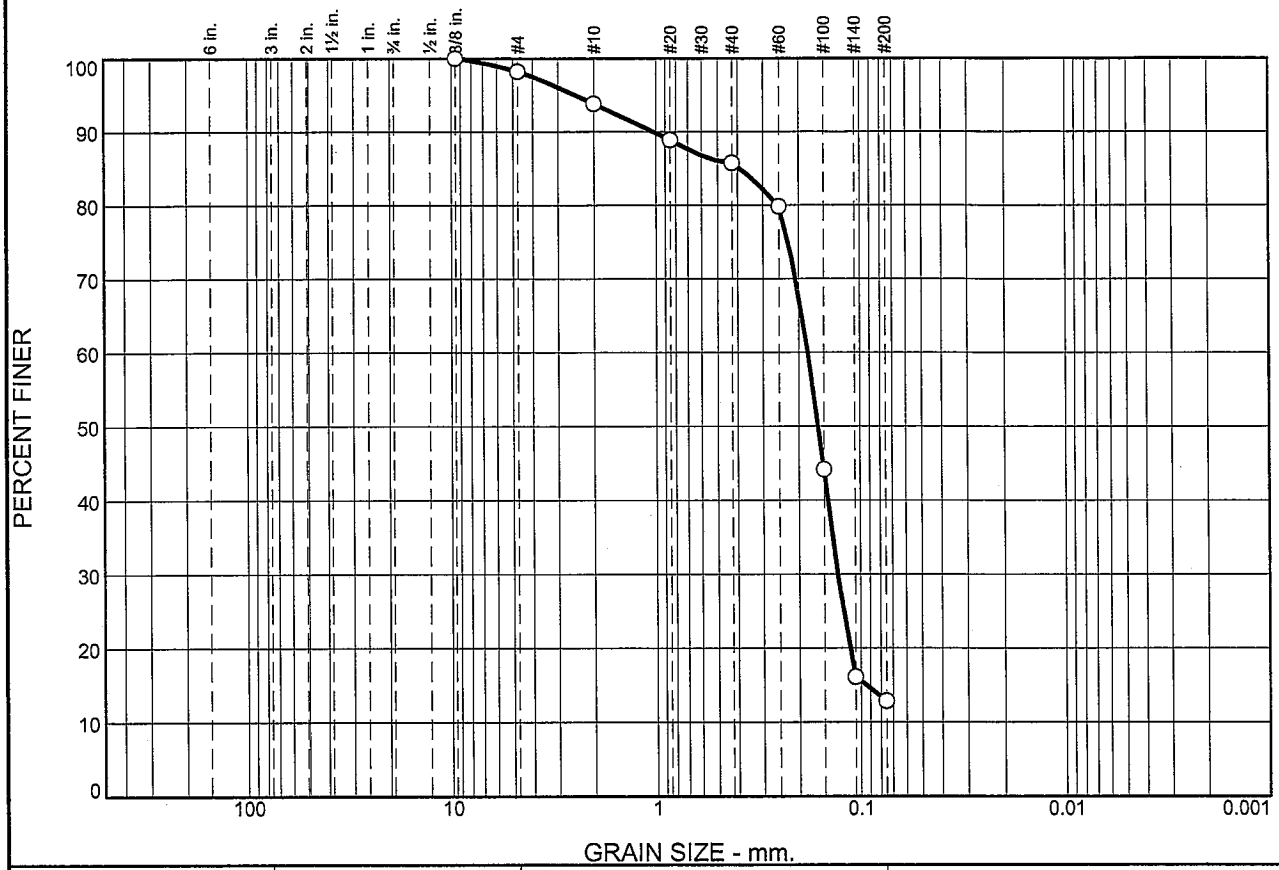
ASTM D6913-04
ASTM D4318-05

Sample Number: S-12 **Depth:** 27.5'-29.0'
Location: B-775 **Date:** 8-27-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.8	4.4	8.1	72.8	12.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	98.2		
#10	93.8		
#20	88.9		
#40	85.7		
#60	79.8		
#100	44.2		
#140	16.1		
#200	12.9		

* (no specification provided)

Material Description

Sand with Fine Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3909 D_{60}= 0.1800 D_{50}= 0.1599
D_{30}= 0.1288 D_{15}= 0.0941 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

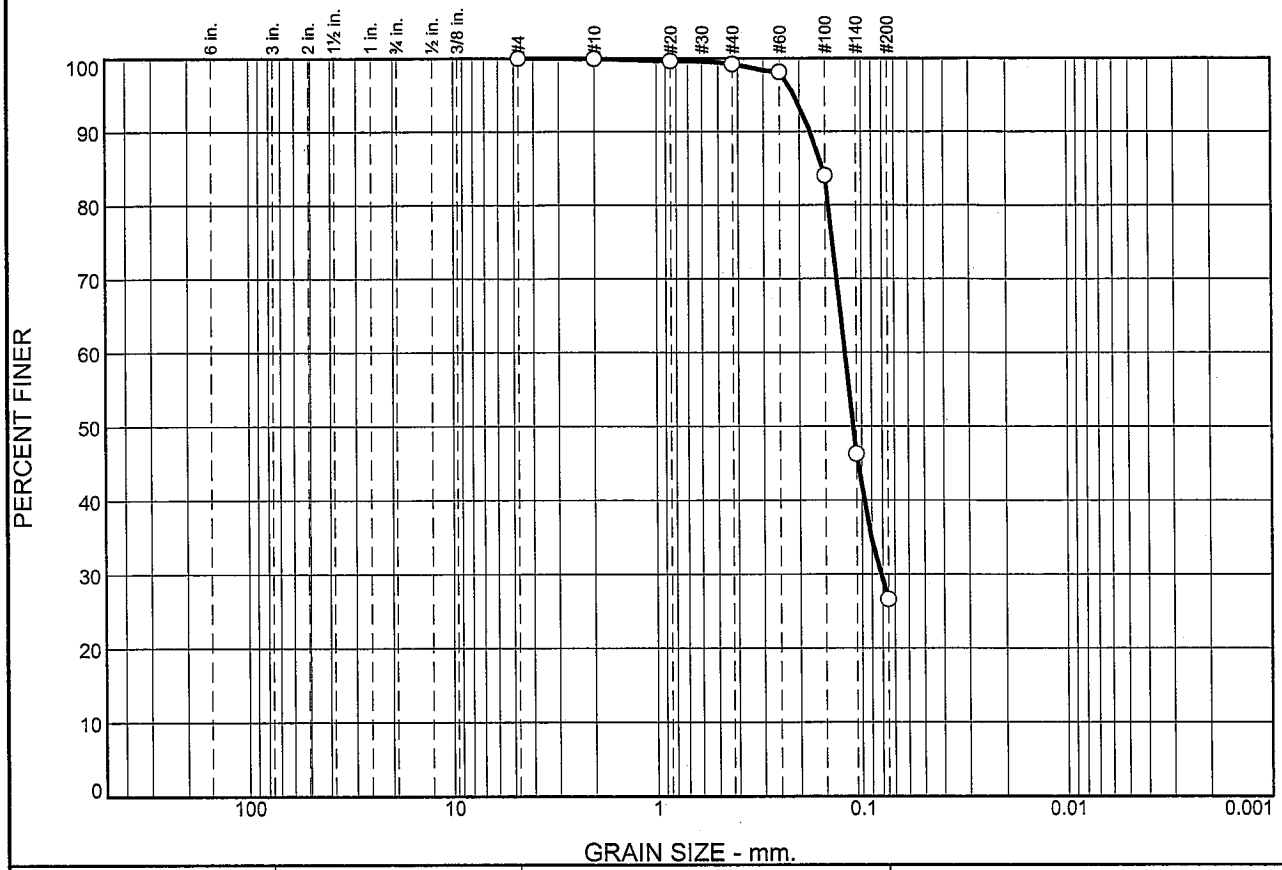
ASTM D6913-04

Sample Number: S-14 **Depth:** 32.5'-34.0'
Location: B-775 **Date:** 8-28-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.7	72.6	26.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.6		
#40	99.2		
#60	98.1		
#100	84.0		
#140	46.3		
#200	26.6		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1537 D_{60}= 0.1204 D_{50}= 0.1101
D_{30}= 0.0817 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

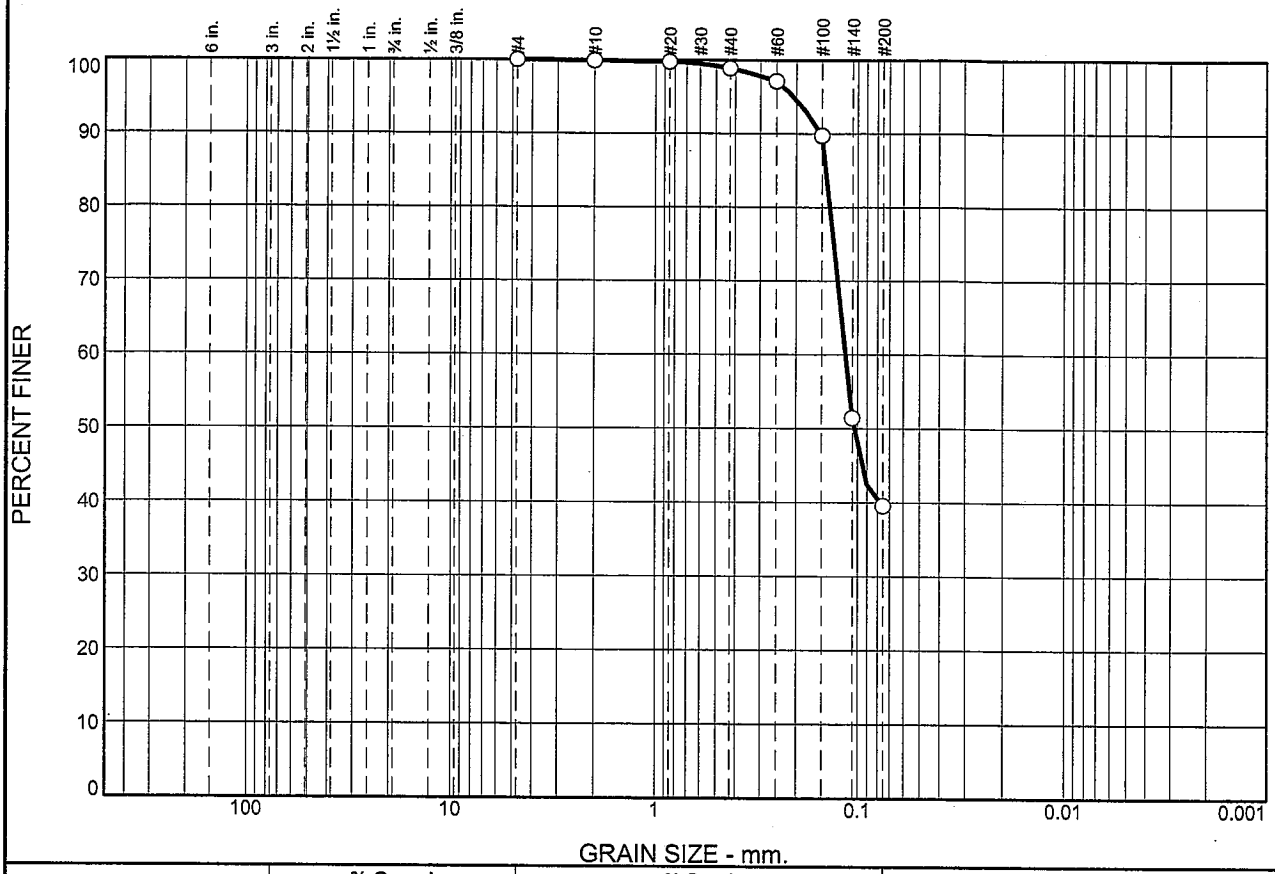
ASTM D6913-04

Sample Number: S-16 **Depth:** 37.5'-39.0'
Location: B-775 **Date:** 8-28-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.0	59.3	39.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.7		
#40	98.9		
#60	97.1		
#100	89.7		
#140	51.4		
#200	39.6		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1426 D_{60}= 0.1154 D_{50}= 0.1042
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

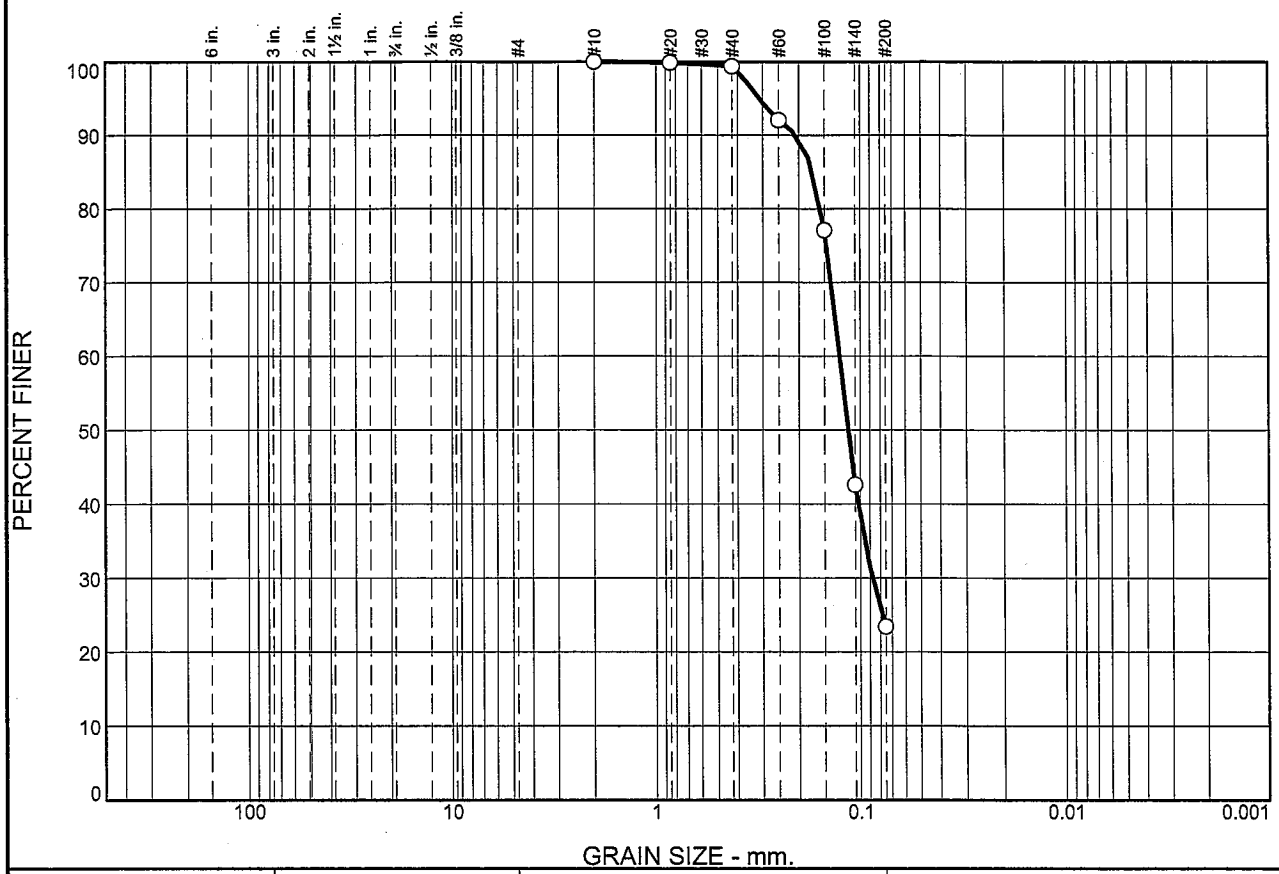
Sample Number: S-18 **Depth:** 42.5'-44.0'
Location: B-775

Date: 8-28-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

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	76.0	23.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.4		
#60	92.0		
#100	77.1		
#140	42.6		
#200	23.4		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 25 LL= 42 PI= 17

Coefficients

D_{85}= 0.1711 D_{60}= 0.1259 D_{50}= 0.1146
D_{30}= 0.0874 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-2-7(1)

Remarks

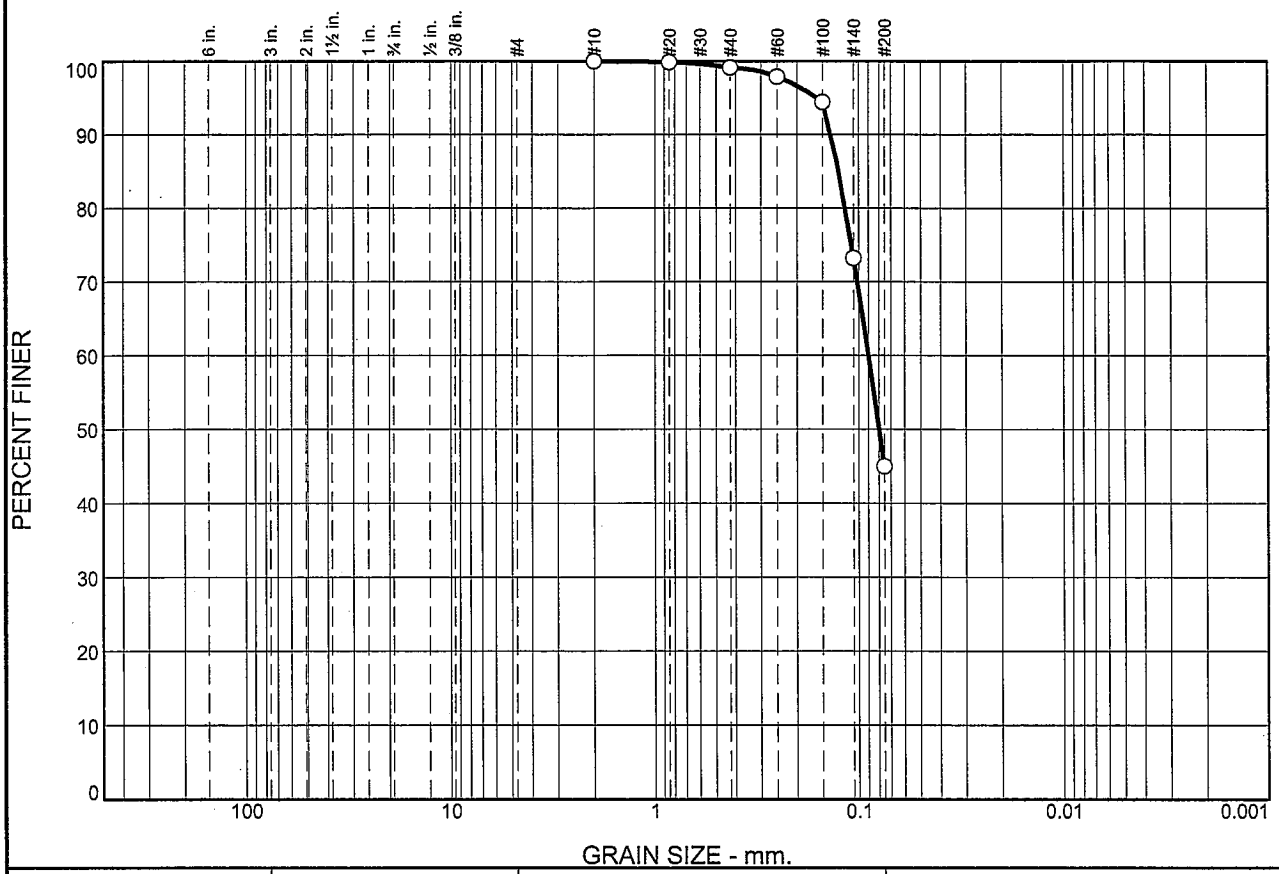
ASTM D6913-04
ASTM D4318-05

Sample Number: S-21 **Depth:** 50.0'-51.5'
Location: B-775 **Date:** 8-28-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

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	54.1	45.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.1		
#60	97.9		
#100	94.4		
#140	73.2		
#200	45.0		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1250 D_{60}= 0.0898 D_{50}= 0.0796
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

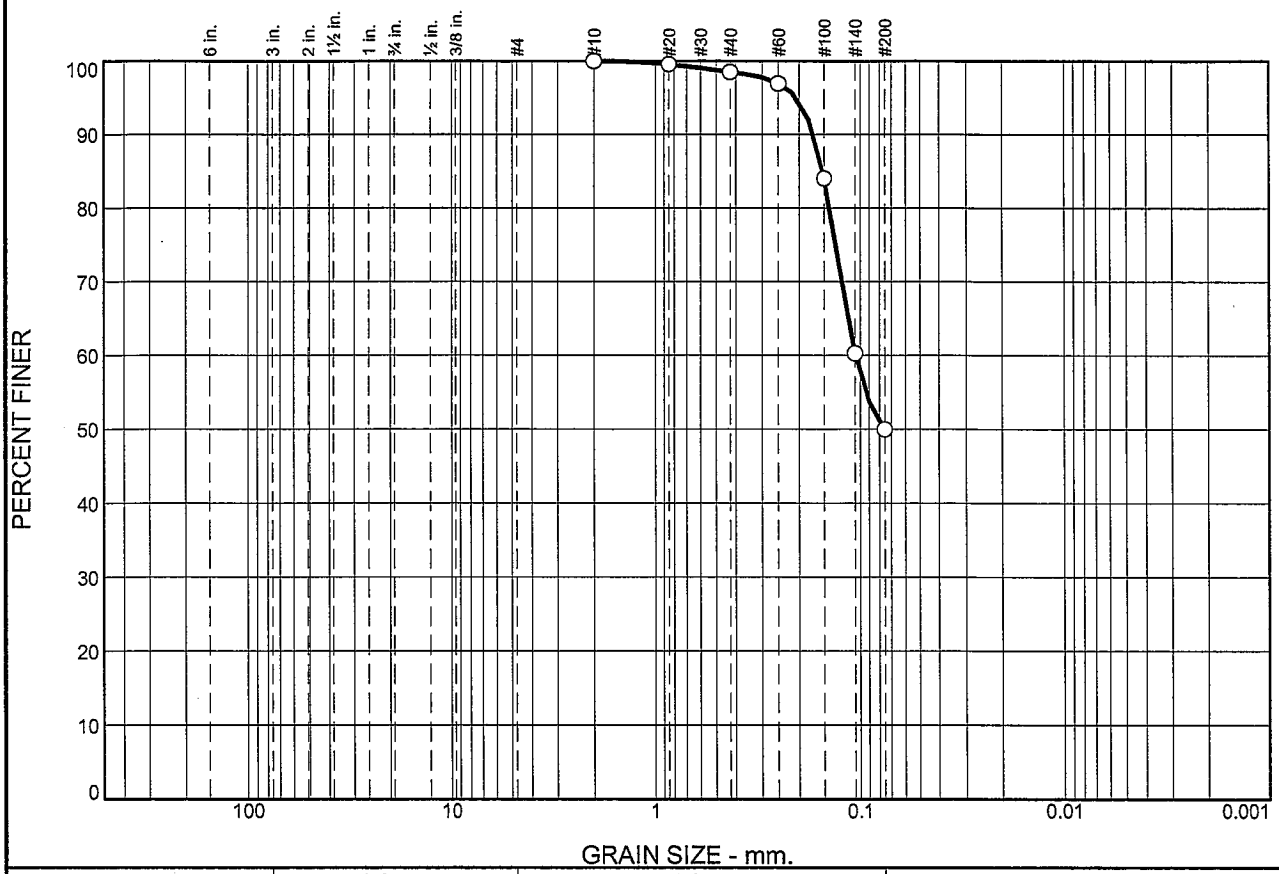
ASTM D6913-04

Sample Number: S-31 **Depth:** 75.0'-76.5'
Location: B-775 **Date:** 8-28-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.5	48.6	49.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.5		
#40	98.5		
#60	96.9		
#100	84.0		
#140	60.2		
#200	49.9		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1527 D_{60}= 0.1055 D_{50}= 0.0752
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

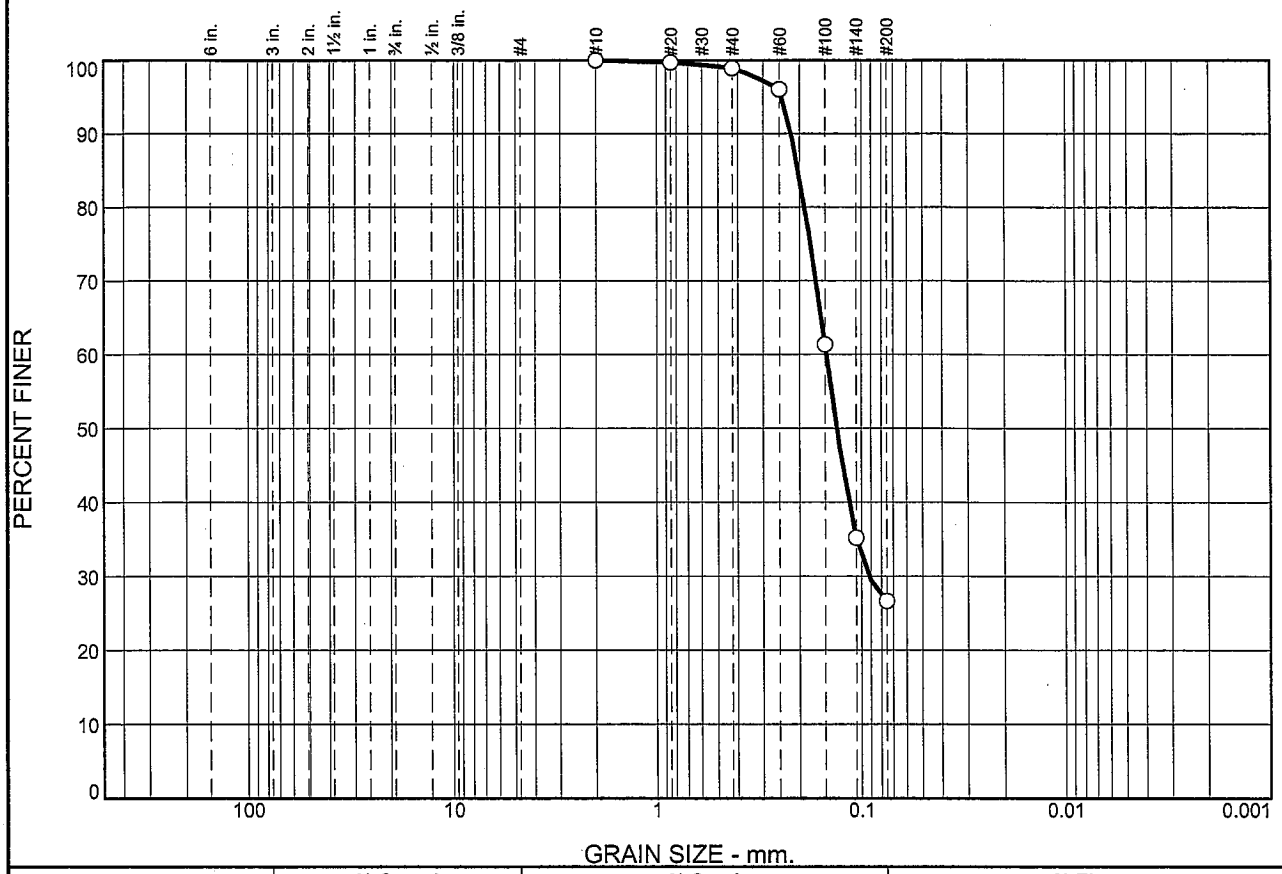
ASTM D6913-04

Sample Number: S-3 **Depth:** 5.0-6.5
Location: B-778 **Date:** 9-5-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.1	72.3	26.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.7		
#40	98.9		
#60	96.0		
#100	61.3		
#140	35.2		
#200	26.6		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2024 D_{60}= 0.1477 D_{50}= 0.1314
D_{30}= 0.0921 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

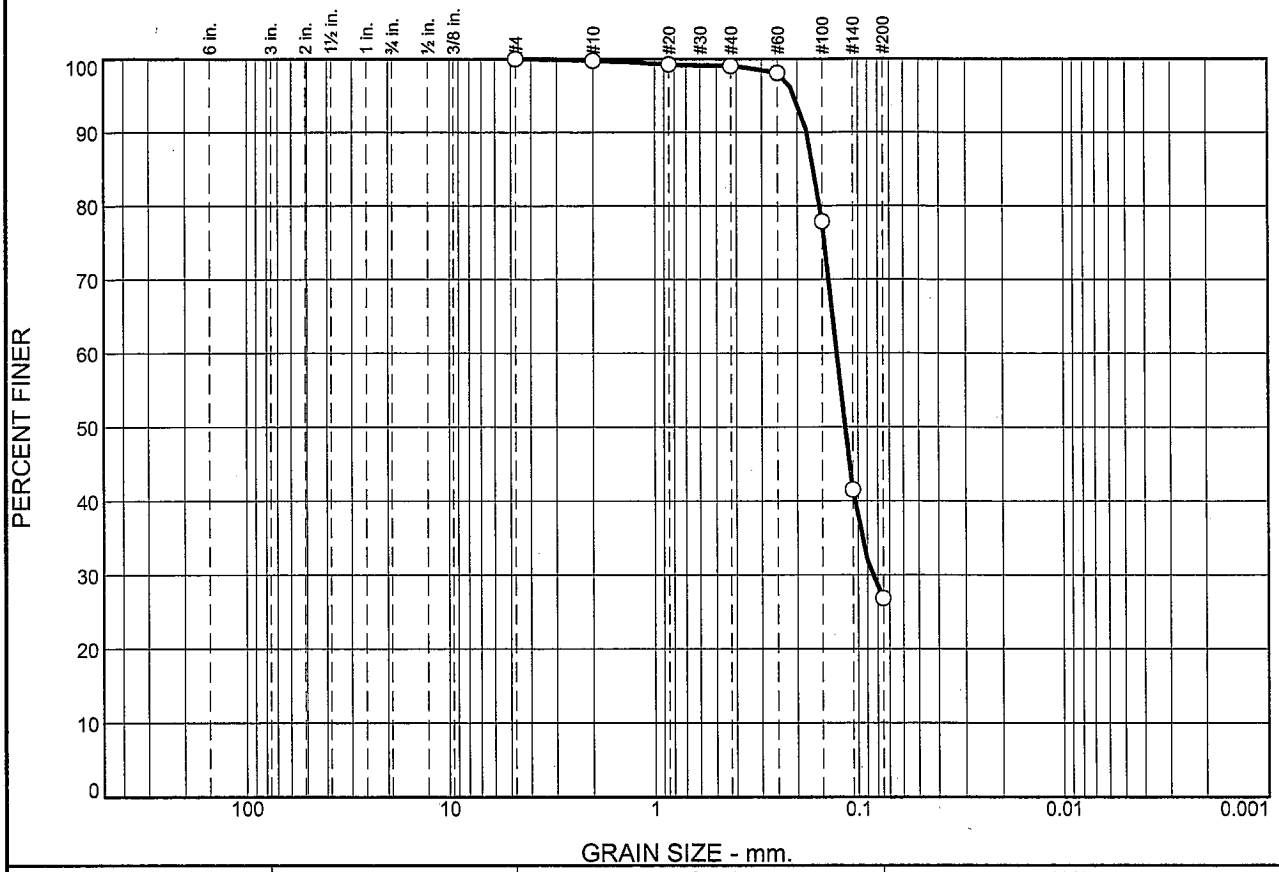
ASTM D6913-04

Sample Number: S-4 **Depth:** 8.5-10.0.
Location: B-778 **Date:** 9-5-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	0.8	72.1	26.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.8		
#20	99.2		
#40	99.0		
#60	98.1		
#100	77.9		
#140	41.5		
#200	26.9		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1641 D_{60}= 0.1269 D_{50}= 0.1159
D_{30}= 0.0849 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

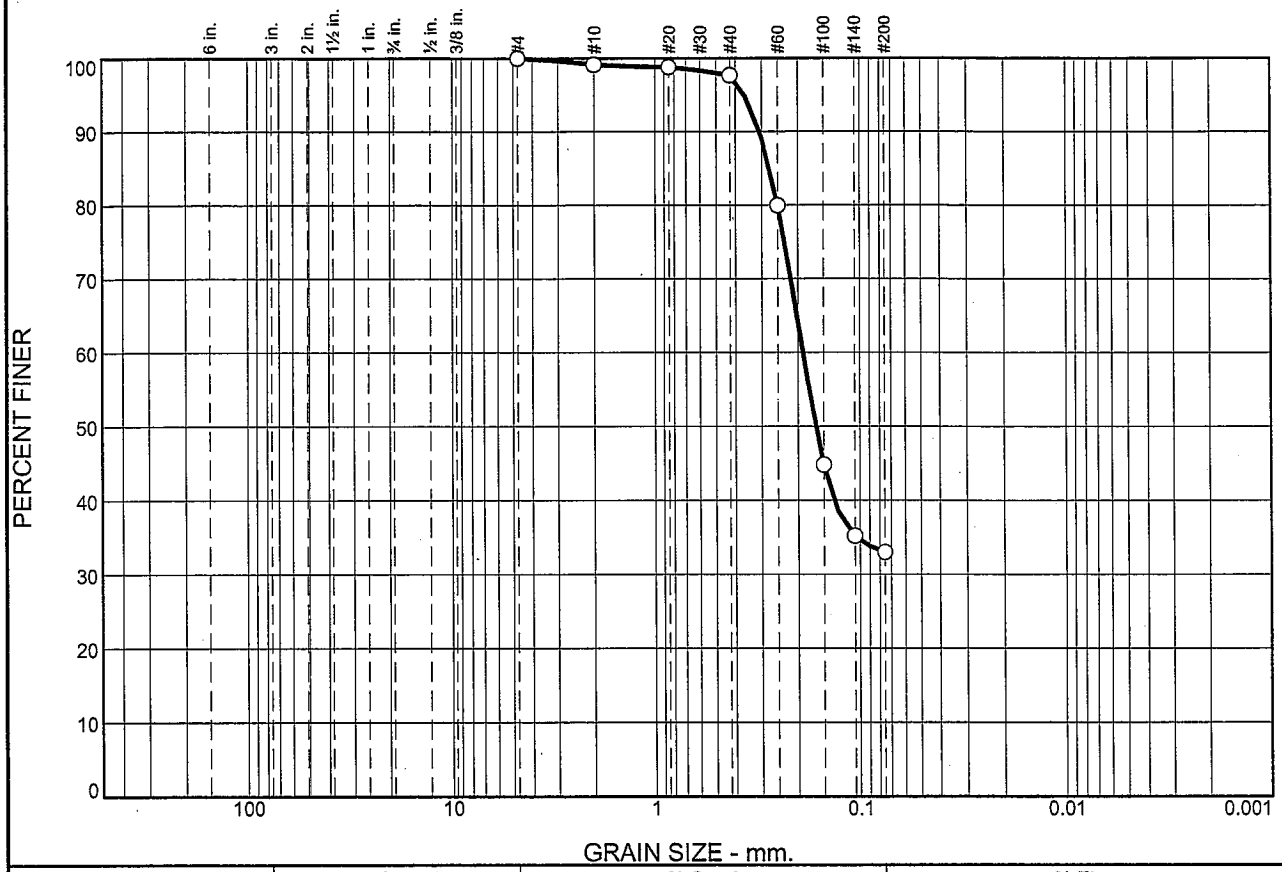
ASTM D6913-04

Sample Number: S-5 **Depth:** 10.0-11.5
Location: B-778 **Date:** 9-5-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.9	1.5	64.6	33.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.1		
#20	98.7		
#40	97.6		
#60	80.0		
#100	44.8		
#140	35.2		
#200	33.0		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2738 D_{60}= 0.1893 D_{50}= 0.1642
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

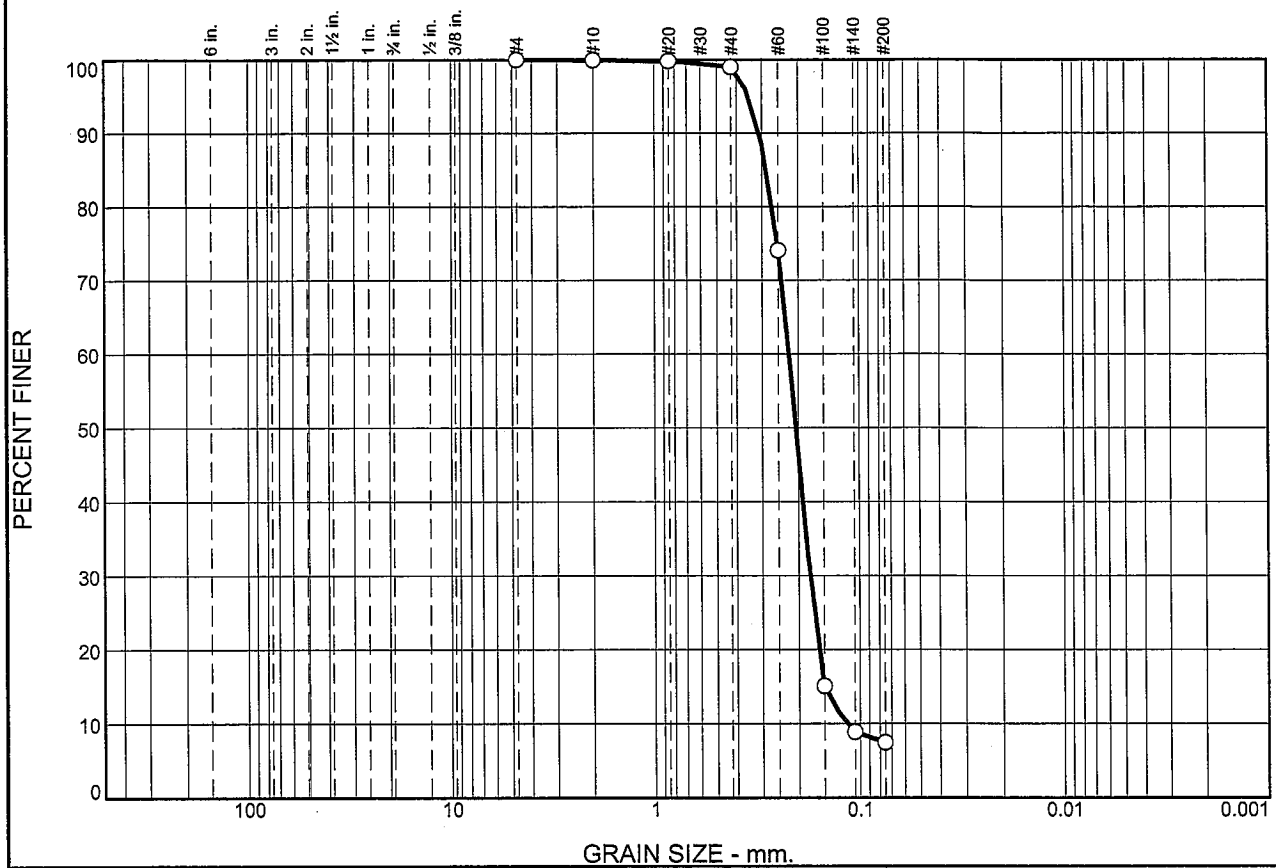
ASTM D6913-04

Sample Number: S-6 **Depth:** 13.5-15.0
Location: B-778 **Date:** 9-5-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.9	91.5	7.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.0		
#60	74.0		
#100	15.1		
#140	8.9		
#200	7.5		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2841 D_{60}= 0.2218 D_{50}= 0.2055
D_{30}= 0.1757 D_{15}= 0.1495 D_{10}= 0.1158
C_u= 1.91 C_c= 1.20

Classification

USCS= NR AASHTO= NR

Remarks

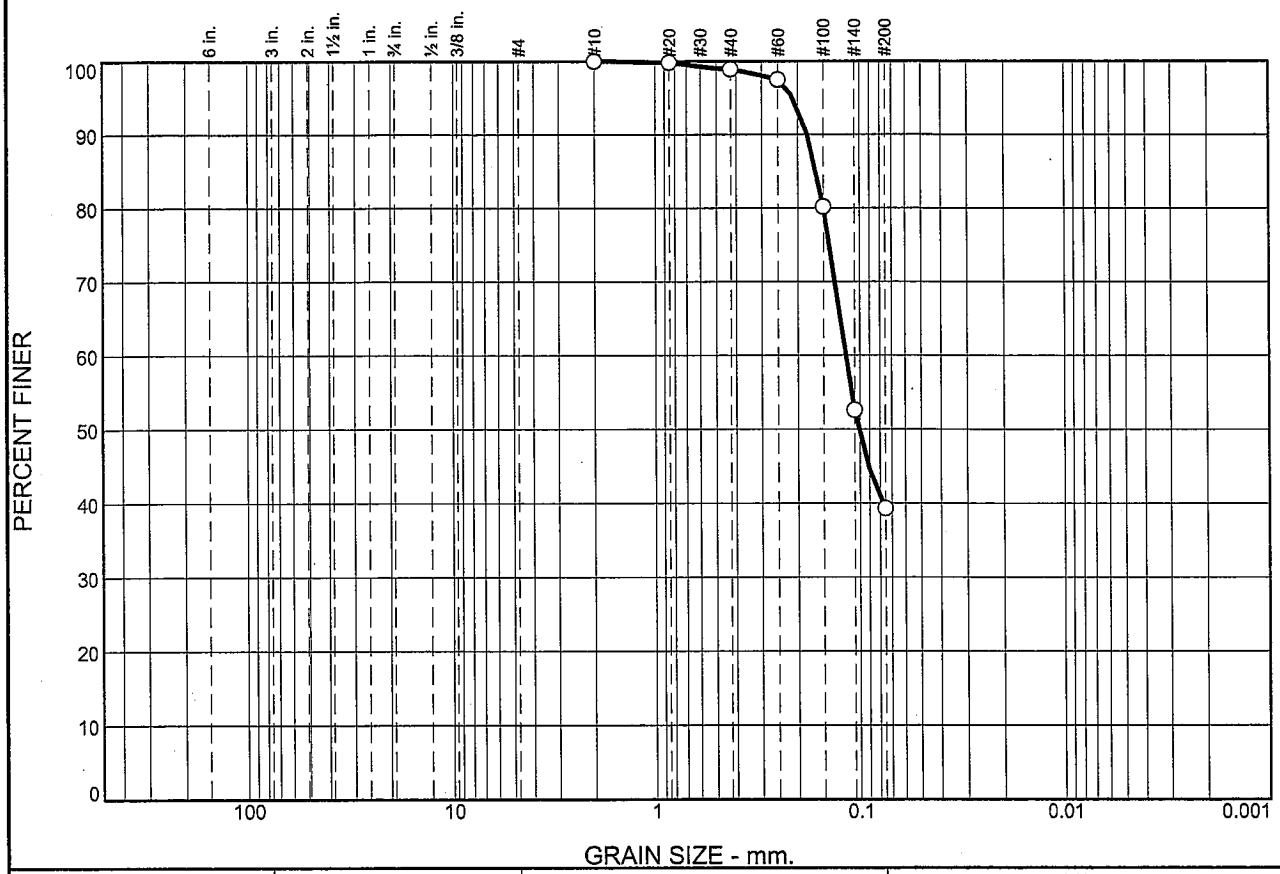
ASTM D6913-04

Sample Number: S-7 **Depth:** 18.5-20.0
Location: B-778 **Date:** 9-5-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.1	59.6	39.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.8		
#40	98.9		
#60	97.5		
#100	80.2		
#140	52.6		
#200	39.3		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1619 D_{60}= 0.1172 D_{50}= 0.1015
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

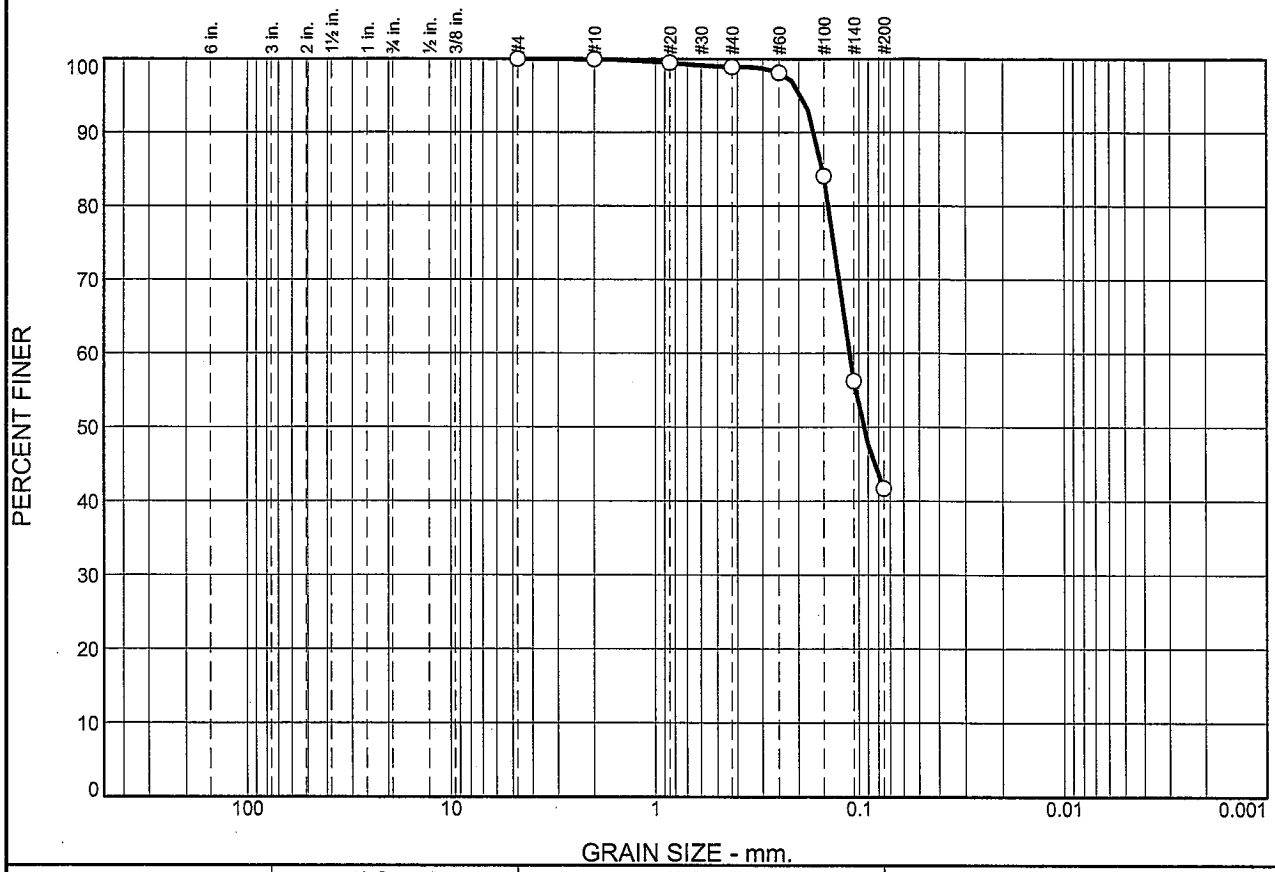
ASTM D6913-04

Sample Number: S-8 **Depth:** 25.5-27.0
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.0	57.2	41.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.4		
#40	98.9		
#60	98.1		
#100	84.1		
#140	56.2		
#200	41.7		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1522 D_{60}= 0.1117 D_{50}= 0.0950
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

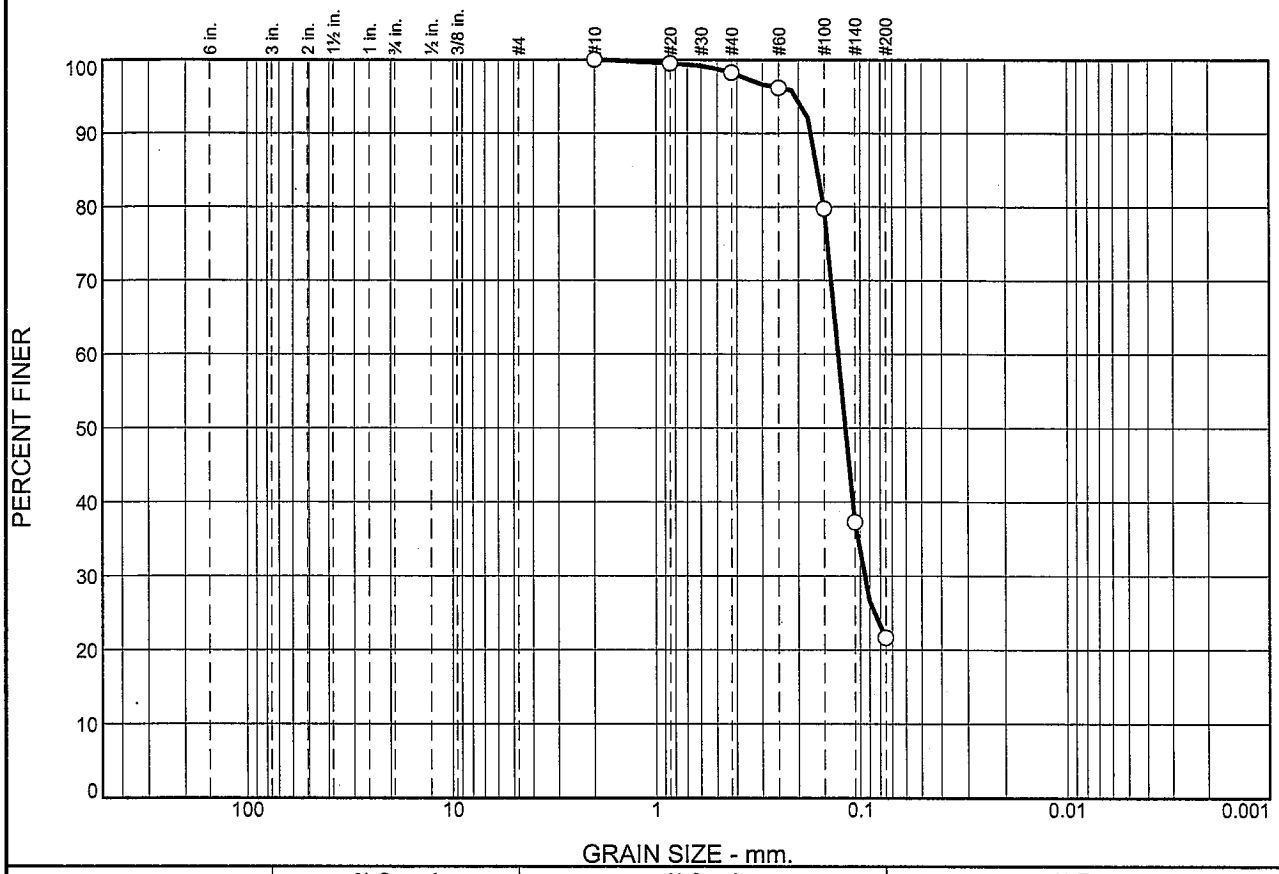
ASTM D6913-04

Sample Number: S-9 **Depth:** 28.5-30.0
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.8	76.6	21.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.5		
#40	98.2		
#60	96.2		
#100	79.7		
#140	37.3		
#200	21.6		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.1592 D_{60}= 0.1277 D_{50}= 0.1184
D_{30}= 0.0964 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

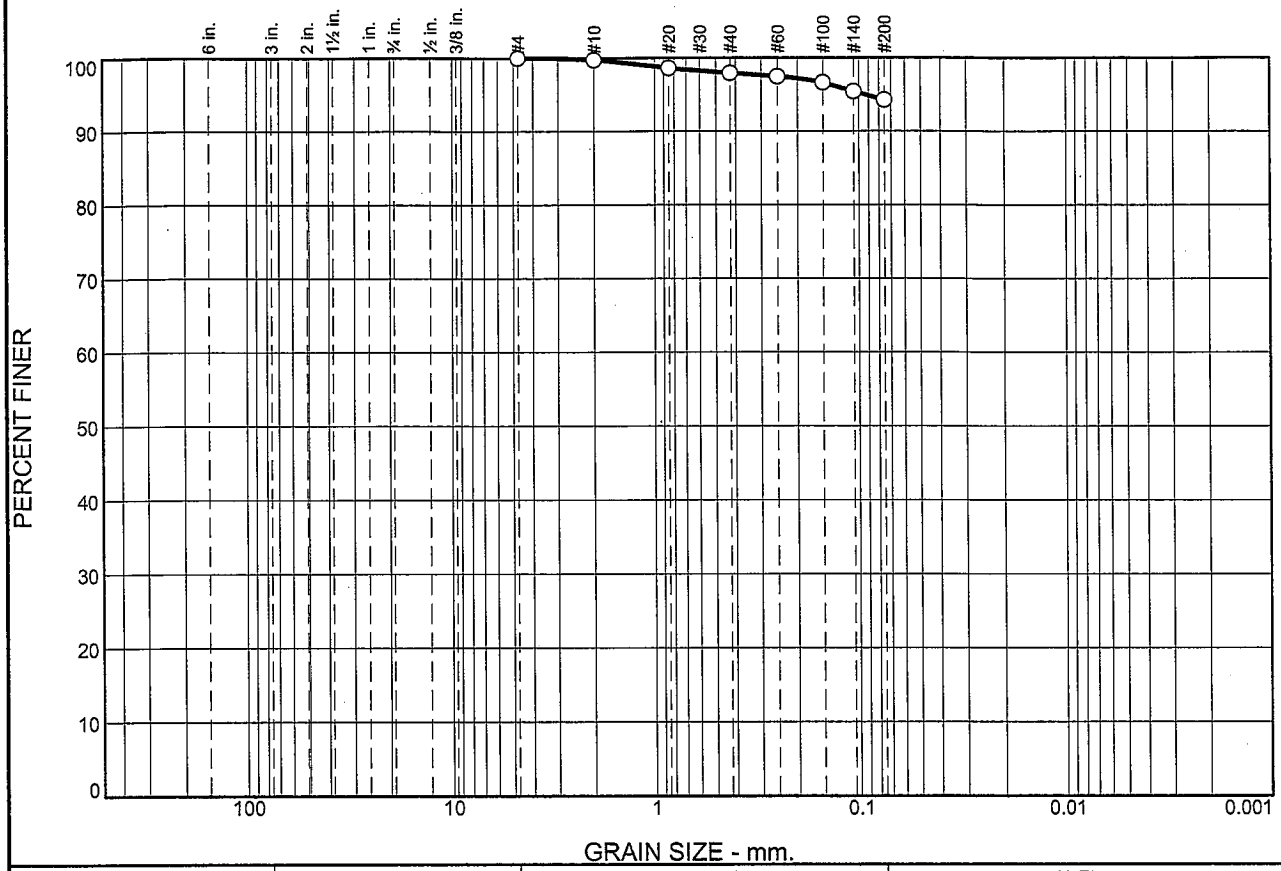
ASTM D6913-04
ASTM D4318-05

Sample Number: S-12 **Depth:** 43.5-45.0
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	1.8	3.7	94.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.7		
#20	98.6		
#40	97.9		
#60	97.4		
#100	96.6		
#140	95.4		
#200	94.2		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 30 LL= 63 PI= 33

Coefficients

D_{85}= D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(37)

Remarks

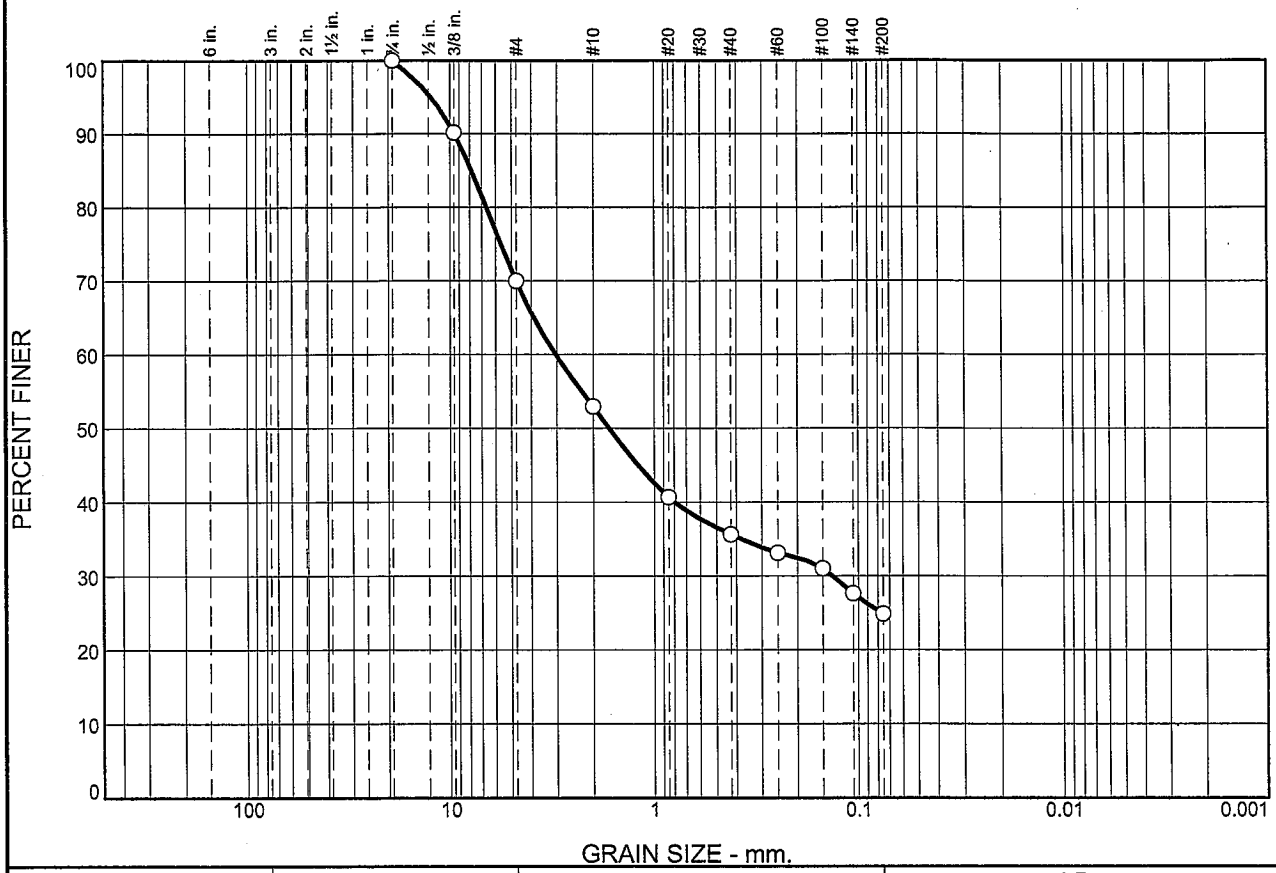
ASTM D6913-04
ASTM D4318-05

Sample Number: S-13 **Depth:** 48.5-50.0
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	30.0	17.0	17.4	10.8	24.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4in.	100.0		
3/8in.	90.1		
#4	70.0		
#10	53.0		
#20	40.7		
#40	35.6		
#60	33.1		
#100	31.0		
#140	27.6		
#200	24.8		

* (no specification provided)

Material Description

Sand with Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 7.8341 D_{60}= 3.0414 D_{50}= 1.6634
D_{30}= 0.1338 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

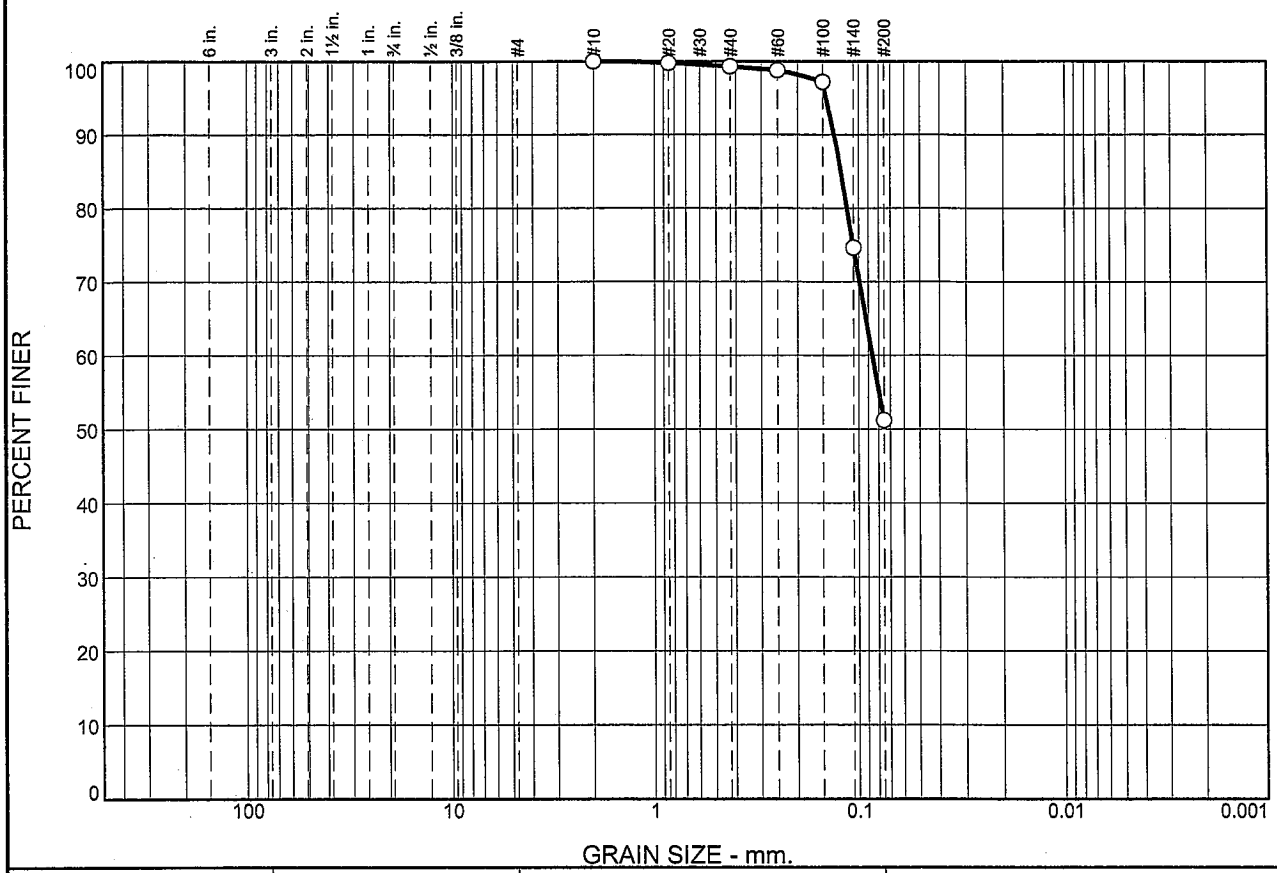
ASTM D6913-04

Sample Number: S-16 **Depth:** 63.5-63.9
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.7	48.1	51.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.8		
#40	99.3		
#60	98.8		
#100	97.2		
#140	74.6		
#200	51.2		

* (no specification provided)

Material Description

Sandy Fat Clay

Atterberg Limits

PL= 22 LL= 54 PI= 32

Coefficients

D_{85}= 0.1219 D_{60}= 0.0858 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(12)

Remarks

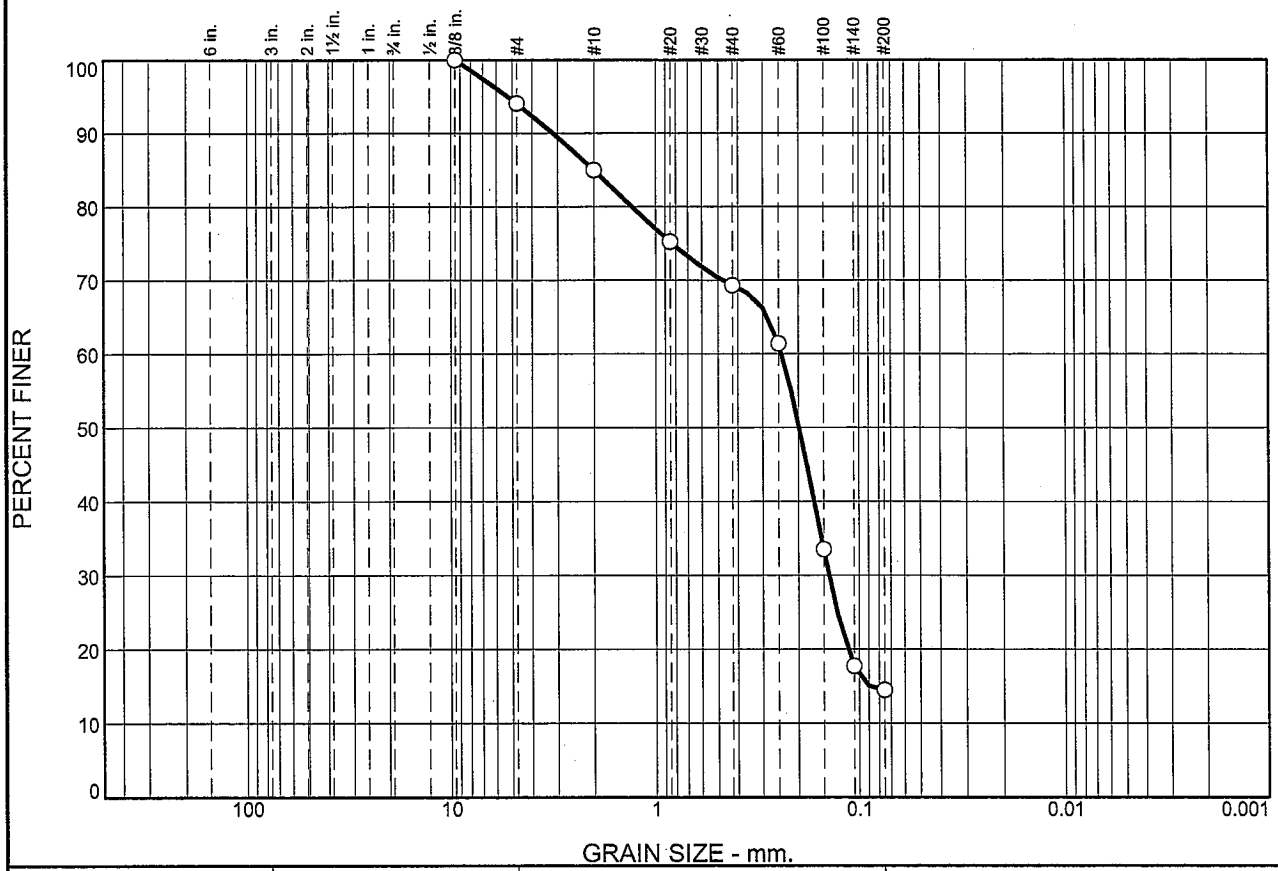
ASTM D6913-04
ASTM D4318-05

Sample Number: S-17 **Depth:** 68.5-70.0
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.0	9.0	15.7	54.8	14.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	94.0		
#10	85.0		
#20	75.2		
#40	69.3		
#60	61.4		
#100	33.5		
#140	17.7		
#200	14.5		

* (no specification provided)

Material Description

Sand with Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 2.0059 D_{60}= 0.2413 D_{50}= 0.1975
D_{30}= 0.1410 D_{15}= 0.0893 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

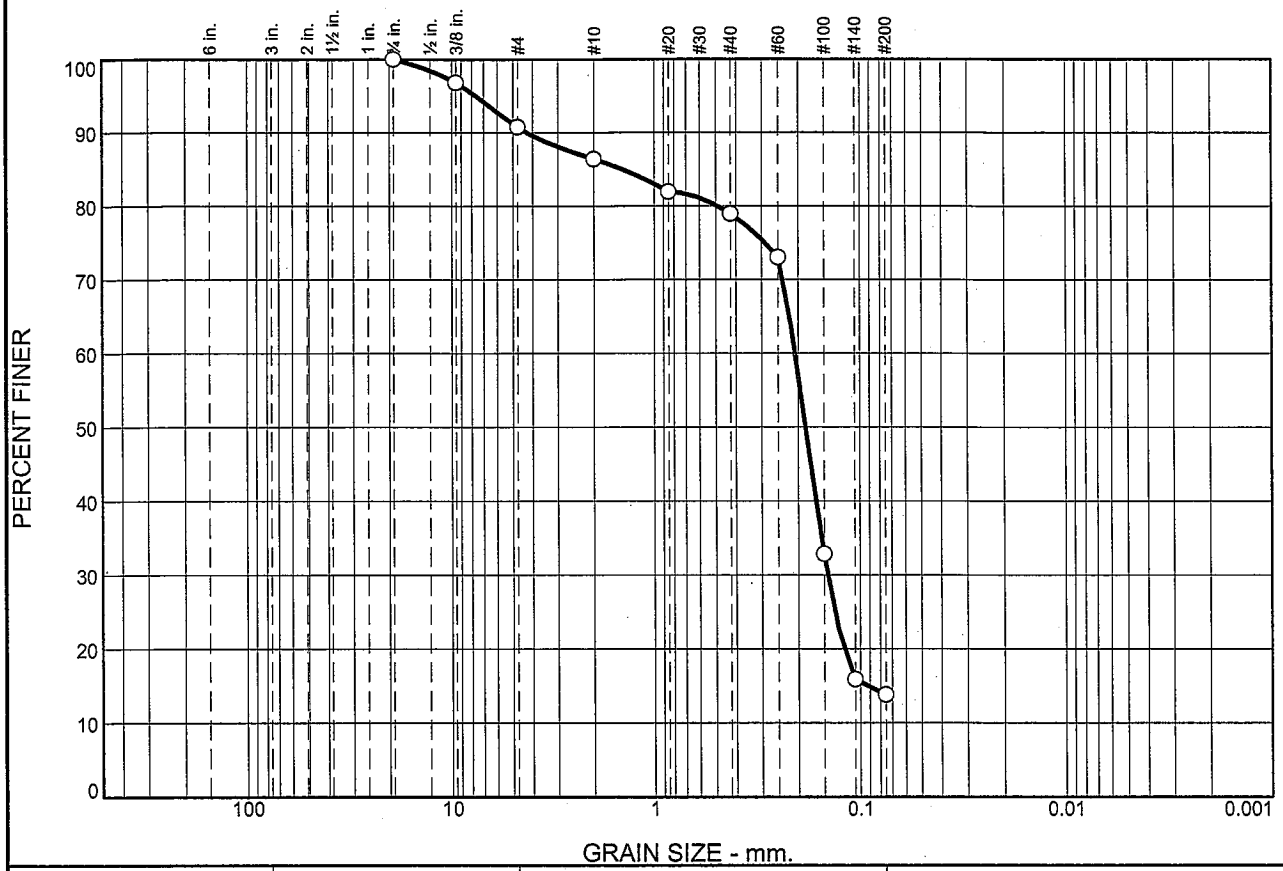
ASTM D6913-04

Sample Number: S-21 **Depth:** 88.5-90.0
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	9.2	4.4	7.5	65.1	13.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4in.	100.0		
3/8in.	96.8		
#4	90.8		
#10	86.4		
#20	81.9		
#40	78.9		
#60	73.0		
#100	32.9		
#140	15.9		
#200	13.8		

* (no specification provided)

Material Description

Sand with FIne Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.4432 D_{60}= 0.2066 D_{50}= 0.1840
D_{30}= 0.1441 D_{15}= 0.0912 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

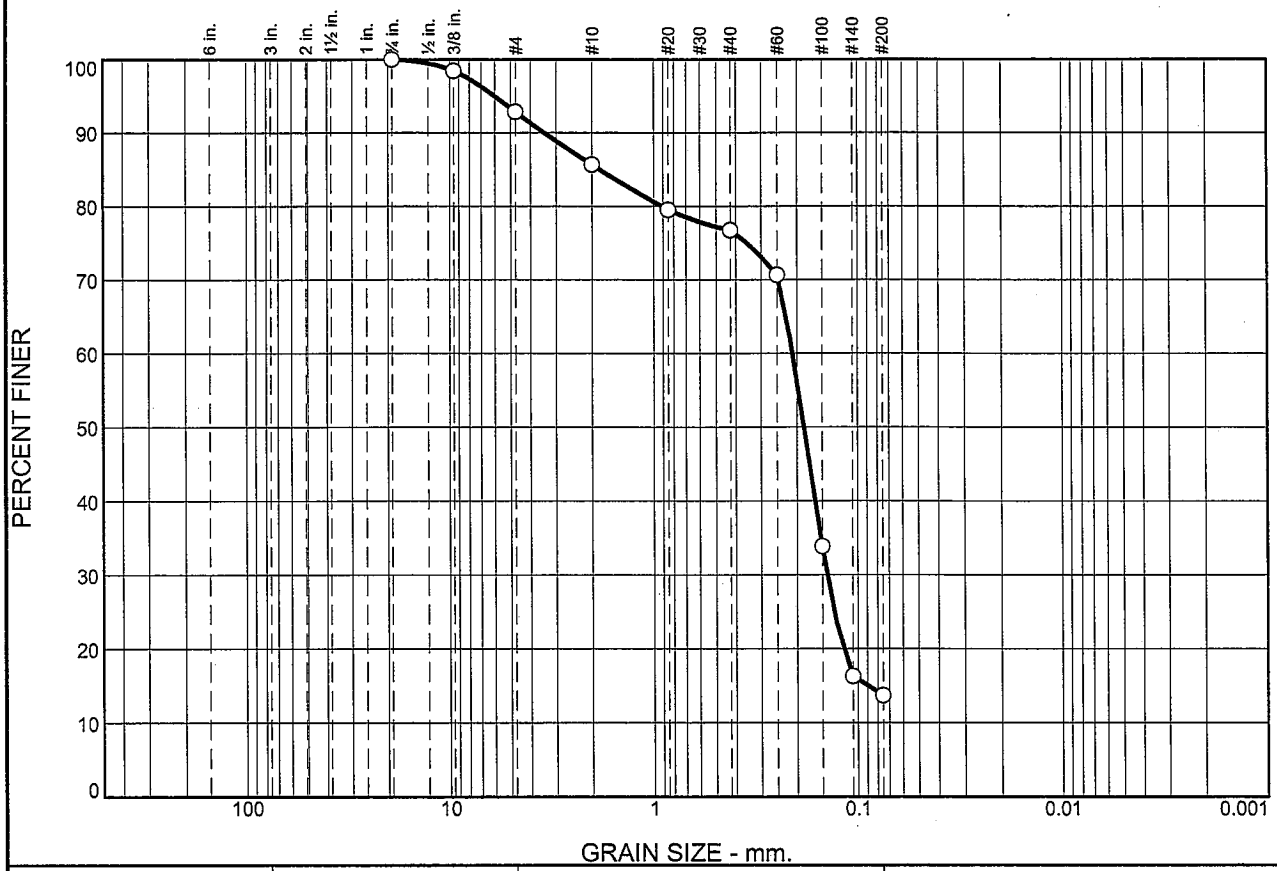
ASTM D6913-04

Sample Number: S-22 **Depth:** 95.5-97.0
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.1	7.3	8.8	63.1	13.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4in.	100.0		
3/8in.	98.4		
#4	92.9		
#10	85.6		
#20	79.5		
#40	76.8		
#60	70.6		
#100	33.8		
#140	16.3		
#200	13.7		

* (no specification provided)

Material Description

Sand with Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.8374 D_{60}= 0.2098 D_{50}= 0.1844
D_{30}= 0.1419 D_{15}= 0.0892 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

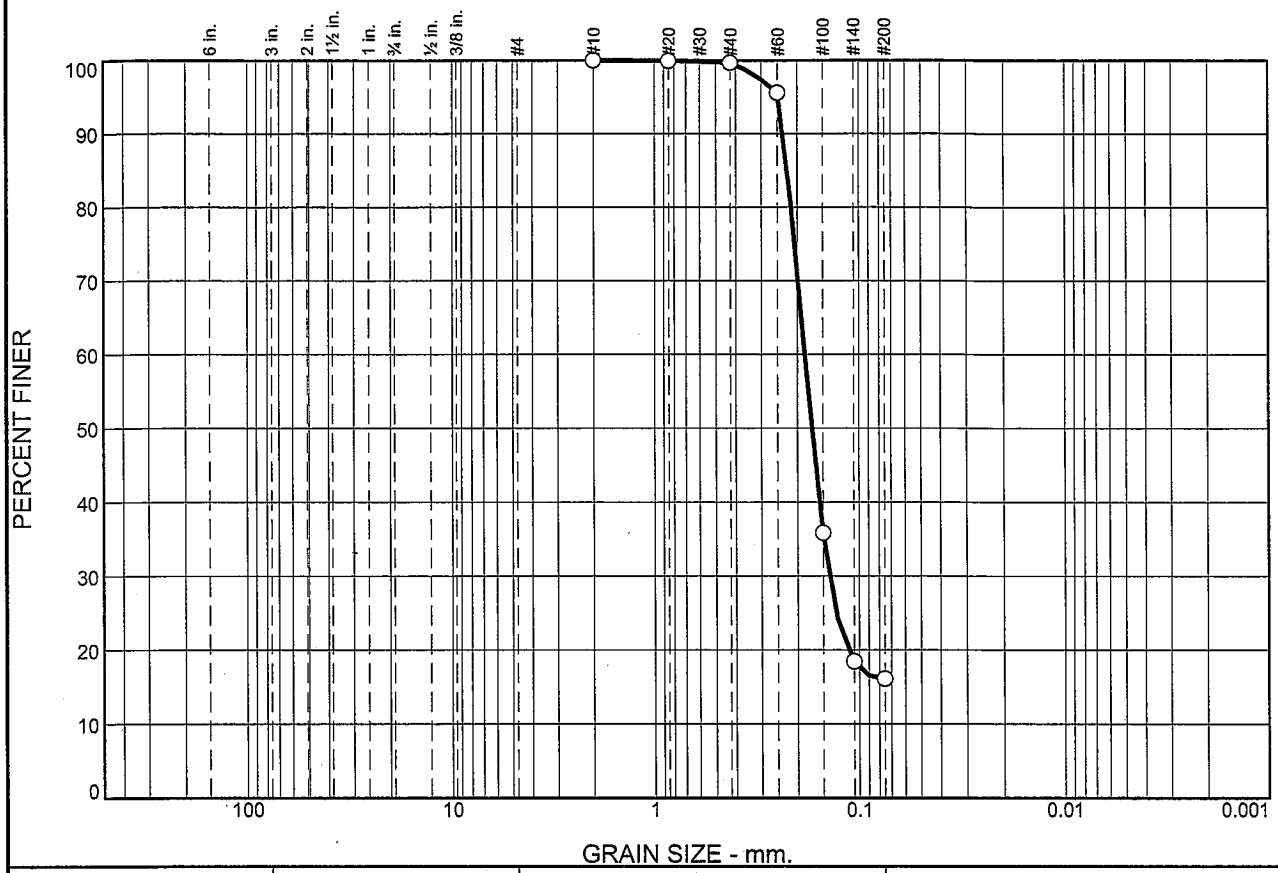
Sample Number: S-23 **Depth:** 98.5-99.8
Location: B-778

Date: 9-8-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	83.6	16.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.7		
#60	95.6		
#100	35.9		
#140	18.4		
#200	16.1		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2236 D_{60}= 0.1837 D_{50}= 0.1701
D_{30}= 0.1399 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

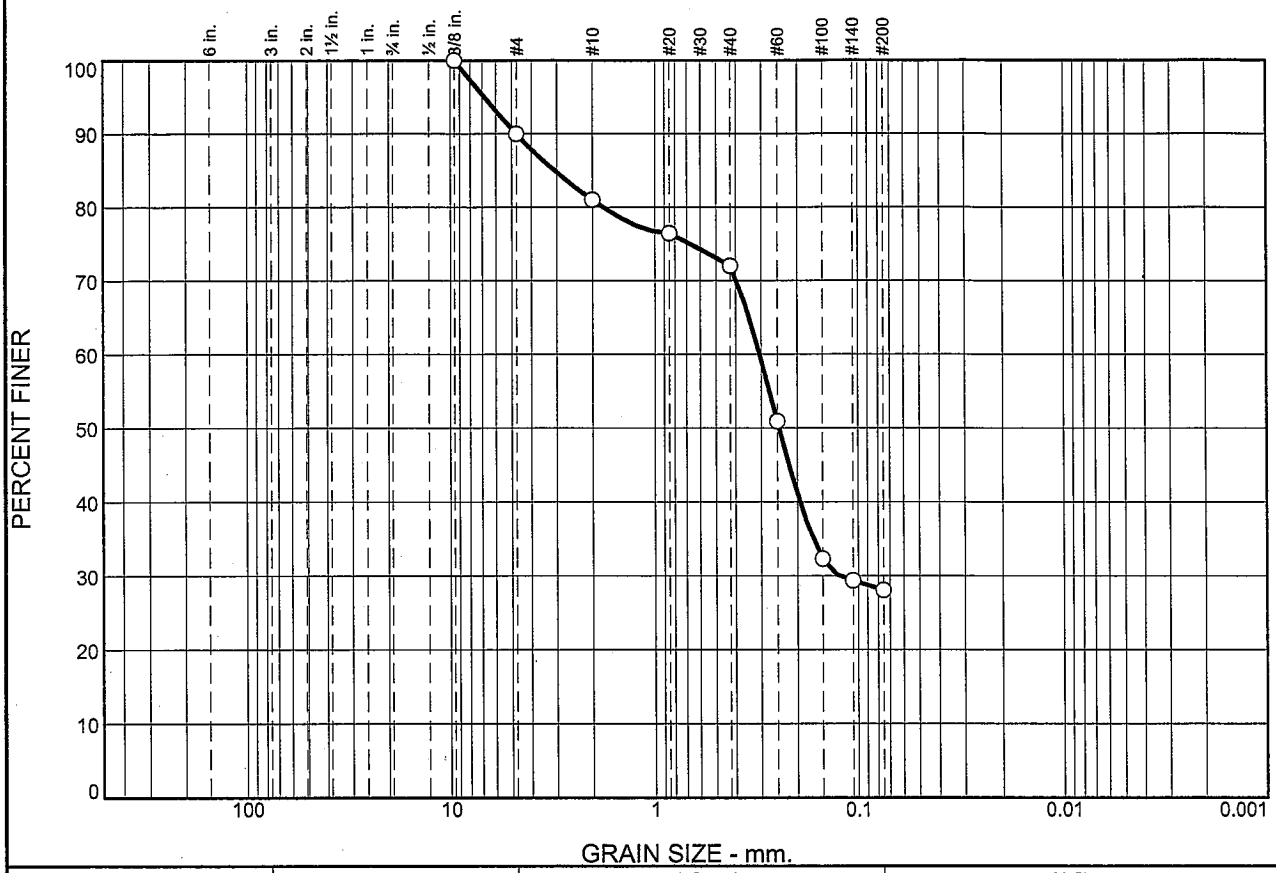
ASTM D6913-04

Sample Number: S-25 **Depth:** 108.5-110.0
Location: B-778 **Date:** 9-8-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	10.1	8.9	9.0	43.9	28.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	89.9		
#10	81.0		
#20	76.4		
#40	72.0		
#60	50.9		
#100	32.3		
#140	29.3		
#200	28.1		

* (no specification provided)

Material Description

Sand with Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 3.0804 D_{60}= 0.3052 D_{50}= 0.2451
D_{30}= 0.1238 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

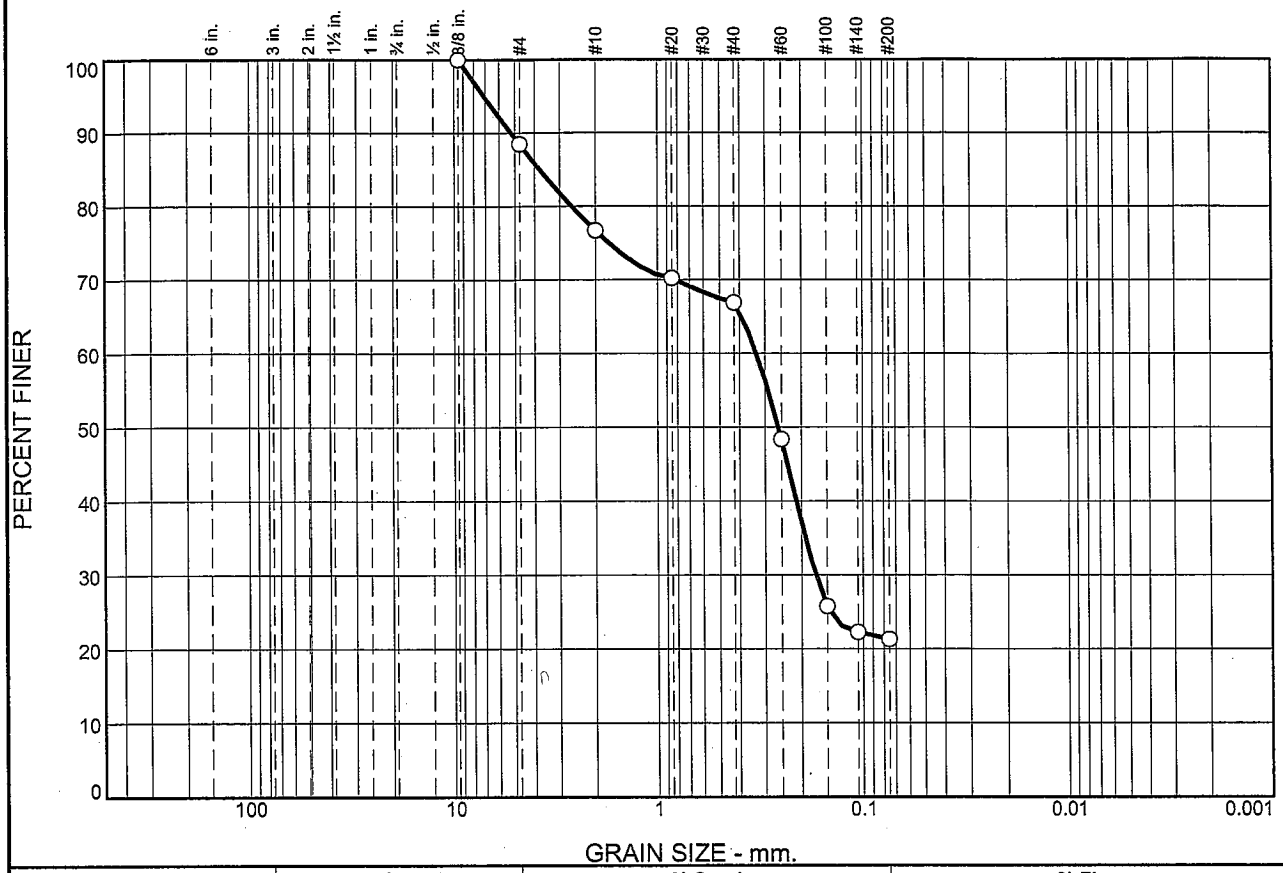
ASTM D6913-04

Sample Number: S-27 **Depth:** 118.5-119.0
Location: B-778 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	11.5	11.8	9.8	45.6	21.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	88.5		
#10	76.7		
#20	70.2		
#40	66.9		
#60	48.3		
#100	25.8		
#140	22.3		
#200	21.3		

* (no specification provided)

Material Description

Sand with Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 3.7697 D_{60}= 0.3300 D_{50}= 0.2589
D_{30}= 0.1706 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

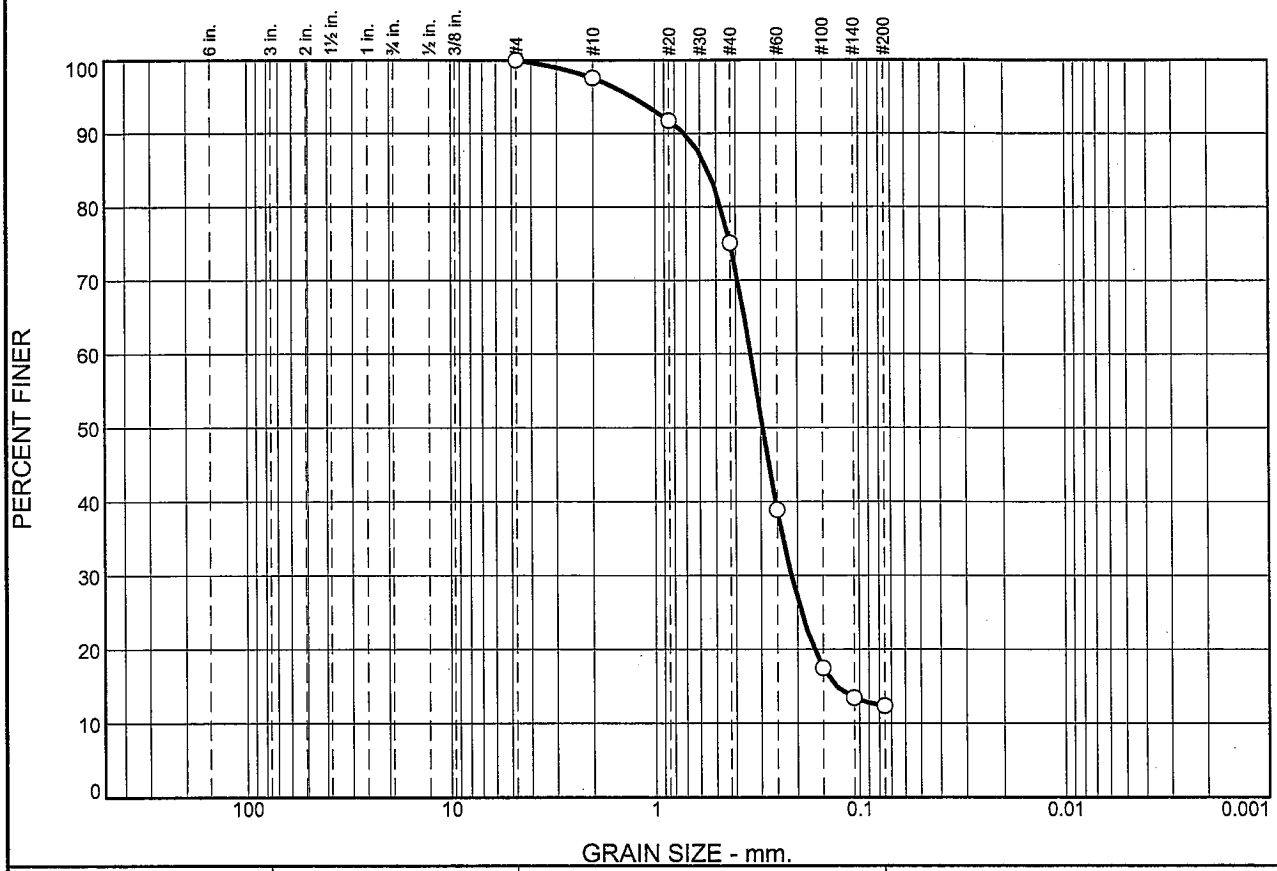
ASTM D6913-04

Sample Number: S-28 **Depth:** 120.0-121.5
Location: B-778 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.5	22.5	62.6	12.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	97.5		
#20	91.7		
#40	75.0		
#60	38.9		
#100	17.5		
#140	13.4		
#200	12.4		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.5461 D_{60}= 0.3368 D_{50}= 0.2937
D_{30}= 0.2138 D_{15}= 0.1289 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

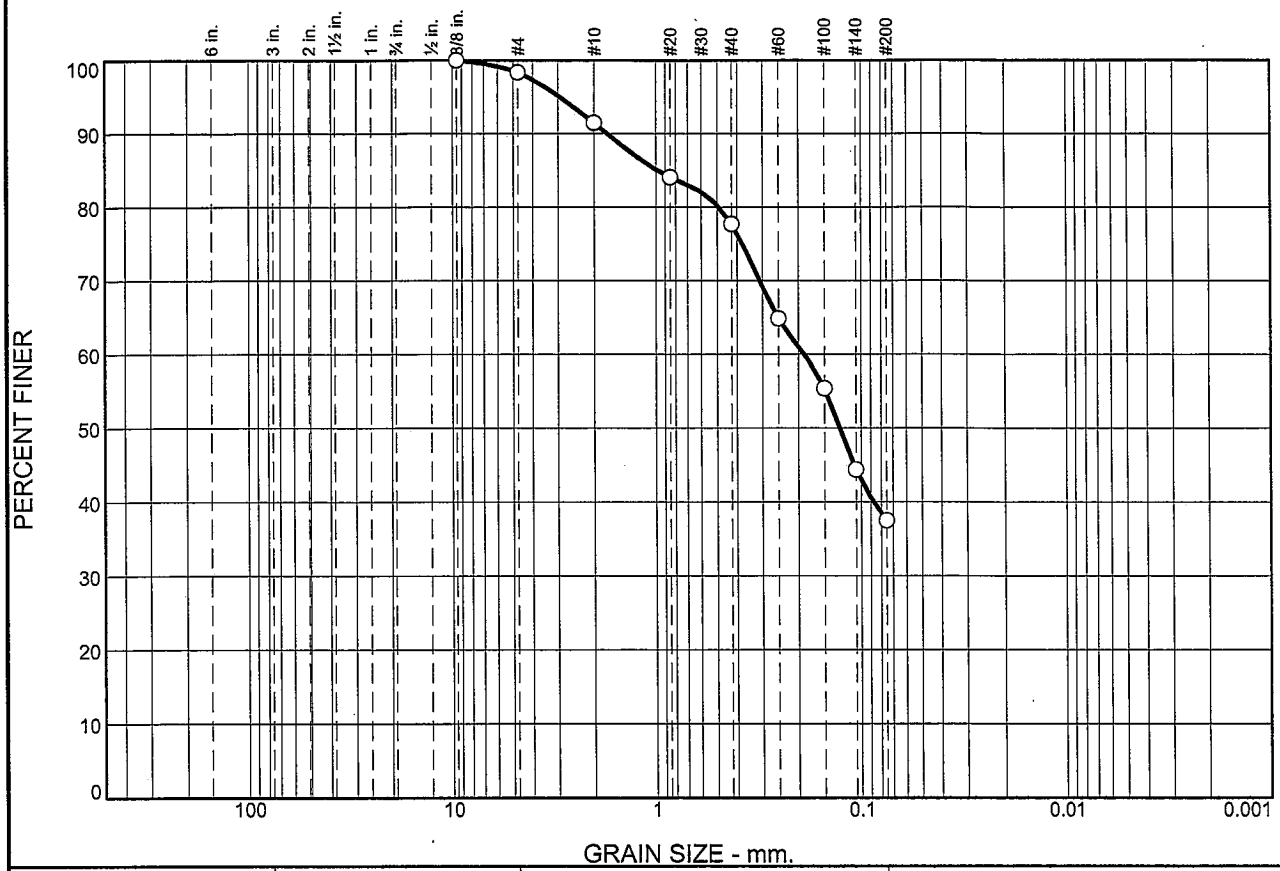
ASTM D6913-04

Sample Number: S-3 **Depth:** 5.0-6.5
Location: B-779 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.7	6.9	13.7	40.2	37.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	98.3		
#10	91.4		
#20	84.1		
#40	77.7		
#60	64.8		
#100	55.4		
#140	44.4		
#200	37.5		

* (no specification provided)

Material Description

Sand with some Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.9817 D_{60}= 0.1872 D_{50}= 0.1265
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

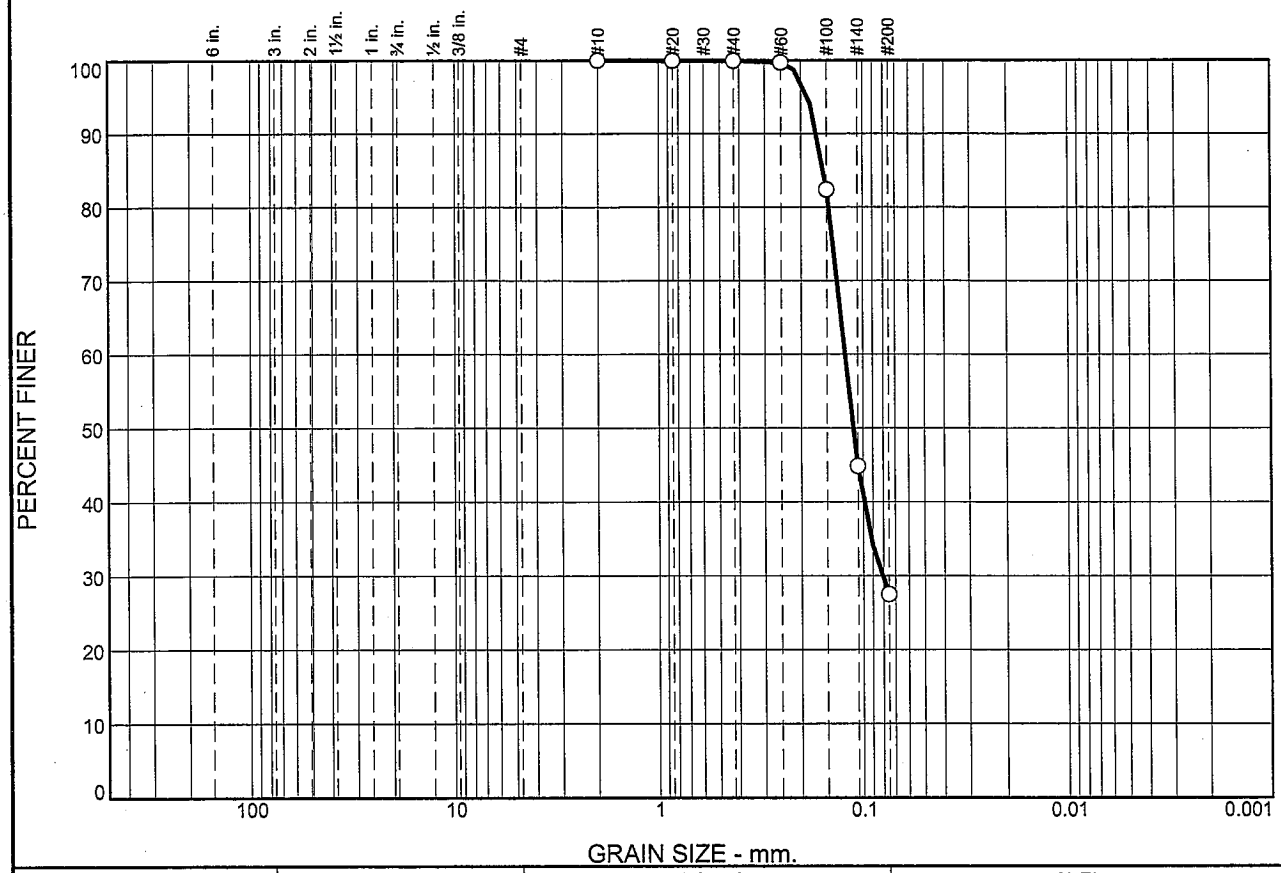
ASTM D6913-04

Sample Number: S-6 **Depth:** 13.5-15.0
Location: B-779 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

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	72.4	27.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.9		
#60	99.7		
#100	82.4		
#140	44.8		
#200	27.5		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1547 D_{60}= 0.1223 D_{50}= 0.1118
D_{30}= 0.0811 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

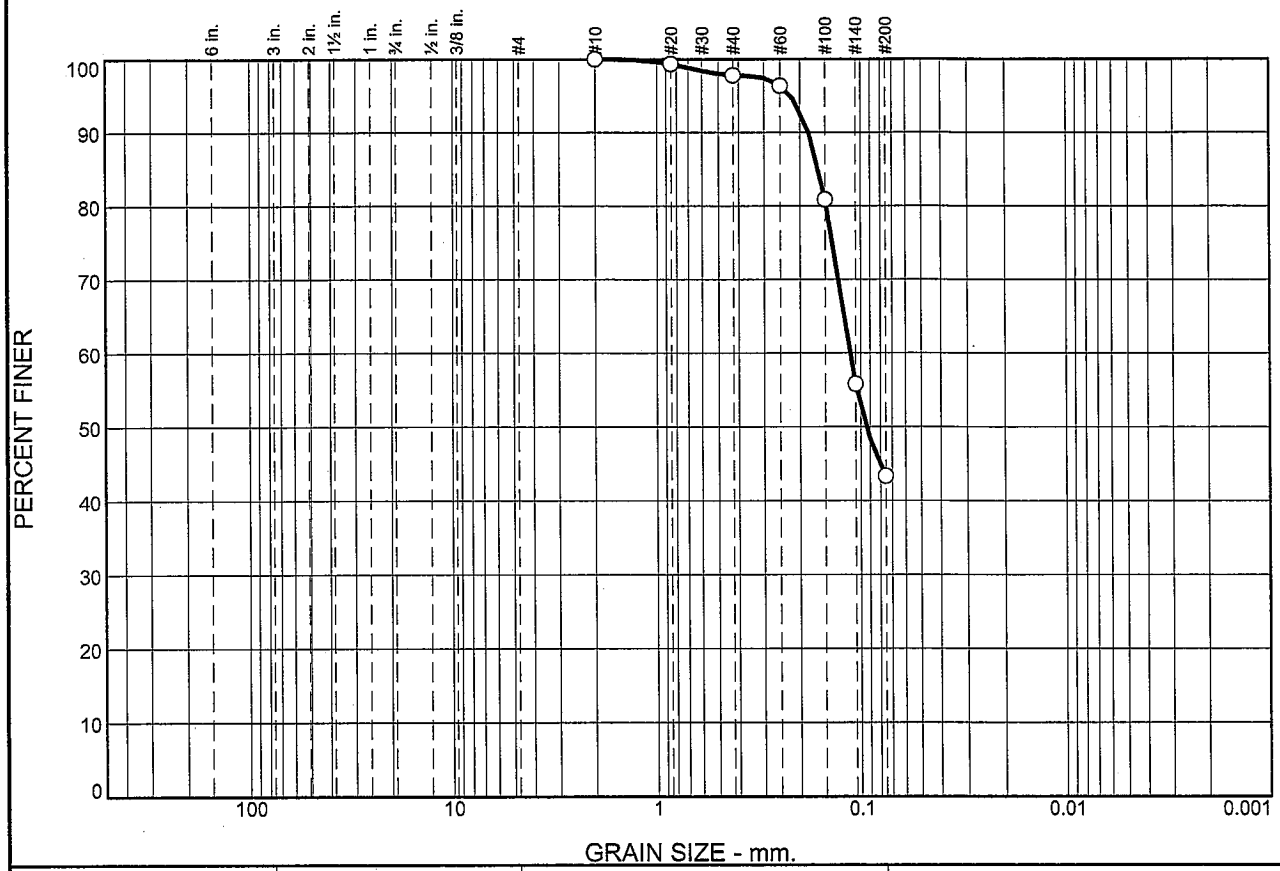
ASTM D6913-04

Sample Number: S-7 **Depth:** 18.5-20.0
Location: B-779 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.2	54.4	43.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.3		
#40	97.8		
#60	96.4		
#100	80.9		
#140	55.8		
#200	43.4		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 18 LL= 32 PI= 14

Coefficients

D_{85}= 0.1612 D_{60}= 0.1131 D_{50}= 0.0940
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-6(2)

Remarks

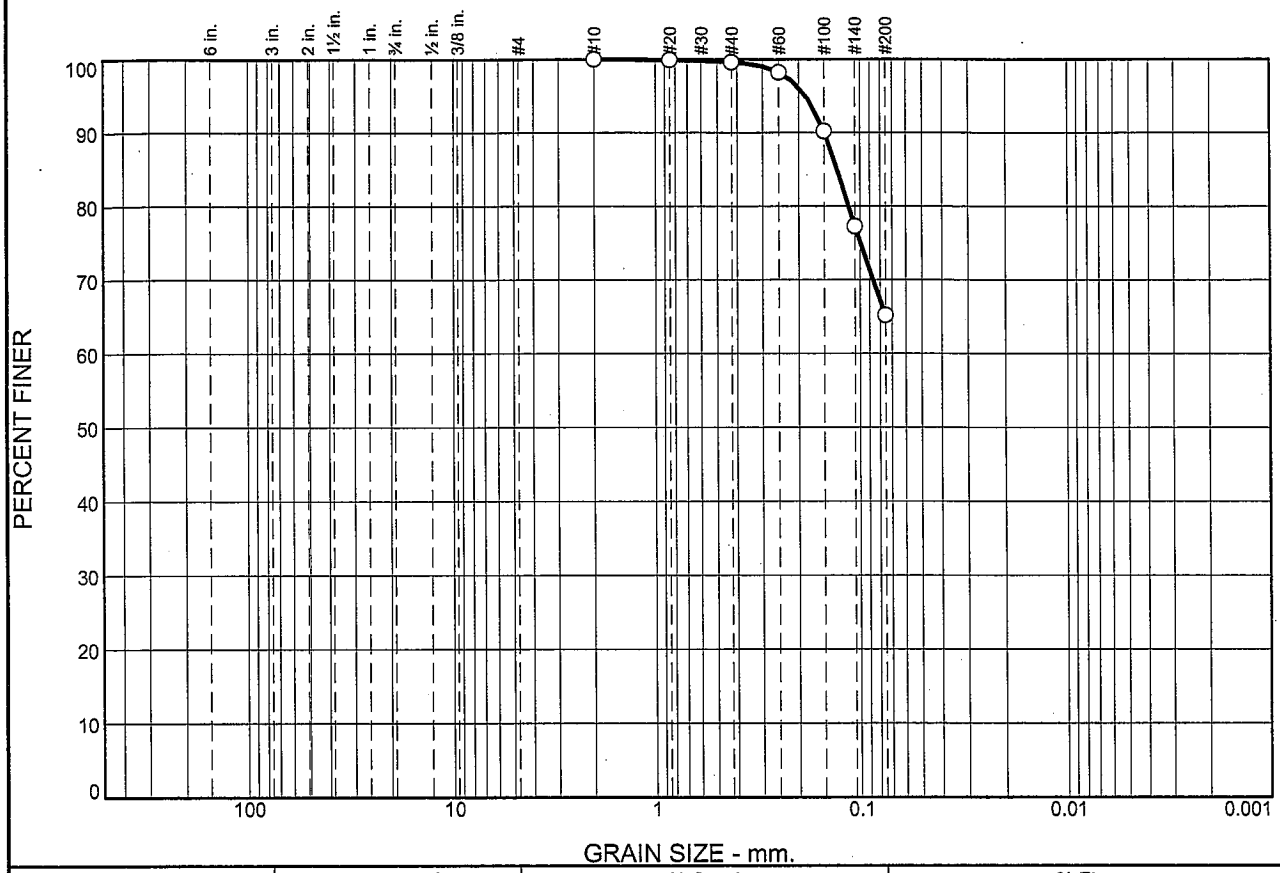
ASTM D6913-04
ASTM D4318-05

Sample Number: S-8 **Depth:** 23.5-25.0
Location: B-779 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	34.4	65.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.6		
#60	98.2		
#100	90.2		
#140	77.3		
#200	65.2		

* (no specification provided)

Material Description

Silt and Clay with Sand

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1291 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

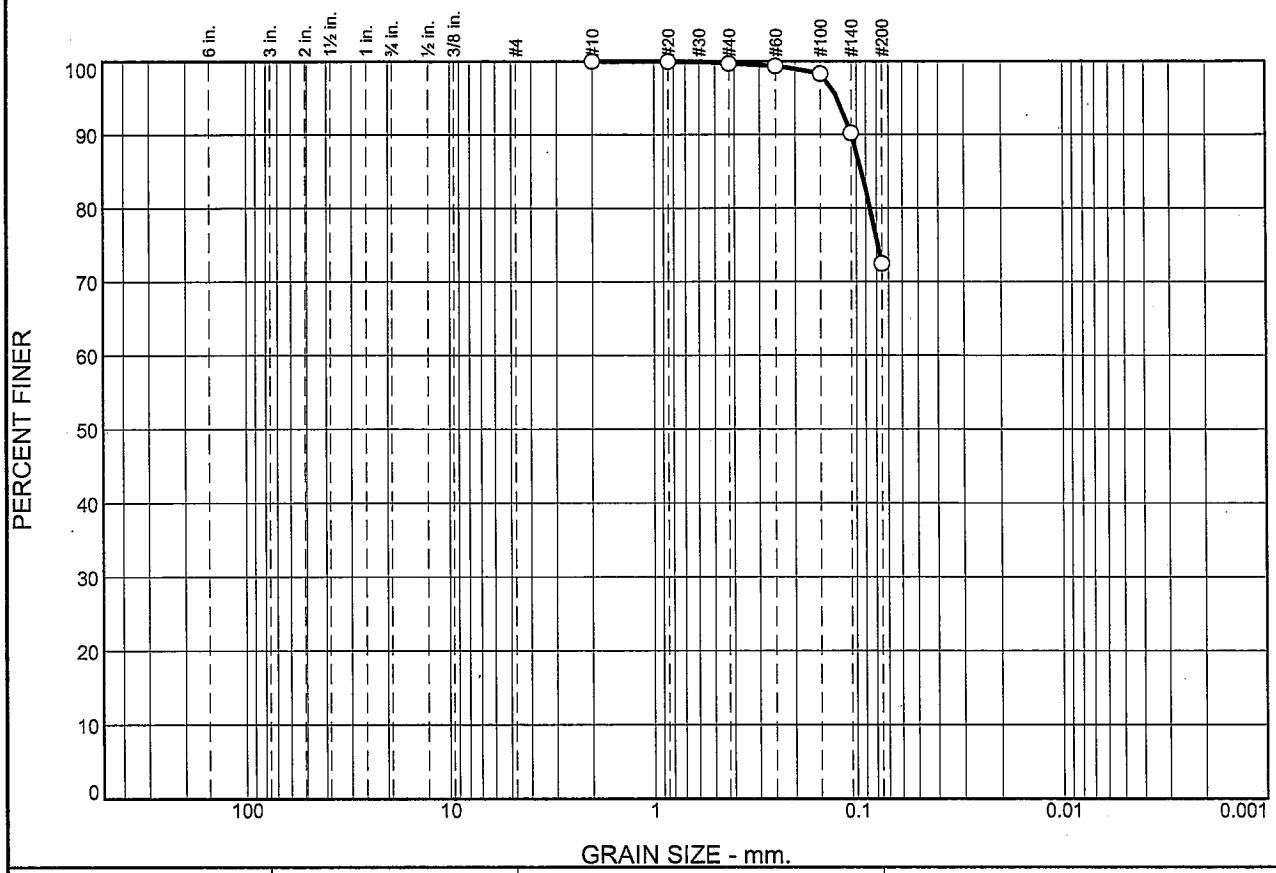
ASTM D6913-04

Sample Number: S-15 **Depth:** 58.5-60.0
Location: B-779 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	27.2	72.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	99.7		
#60	99.3		
#100	98.3		
#140	90.2		
#200	72.5		

* (no specification provided)

Material Description

Silt and Clay with Sand

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.0943 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

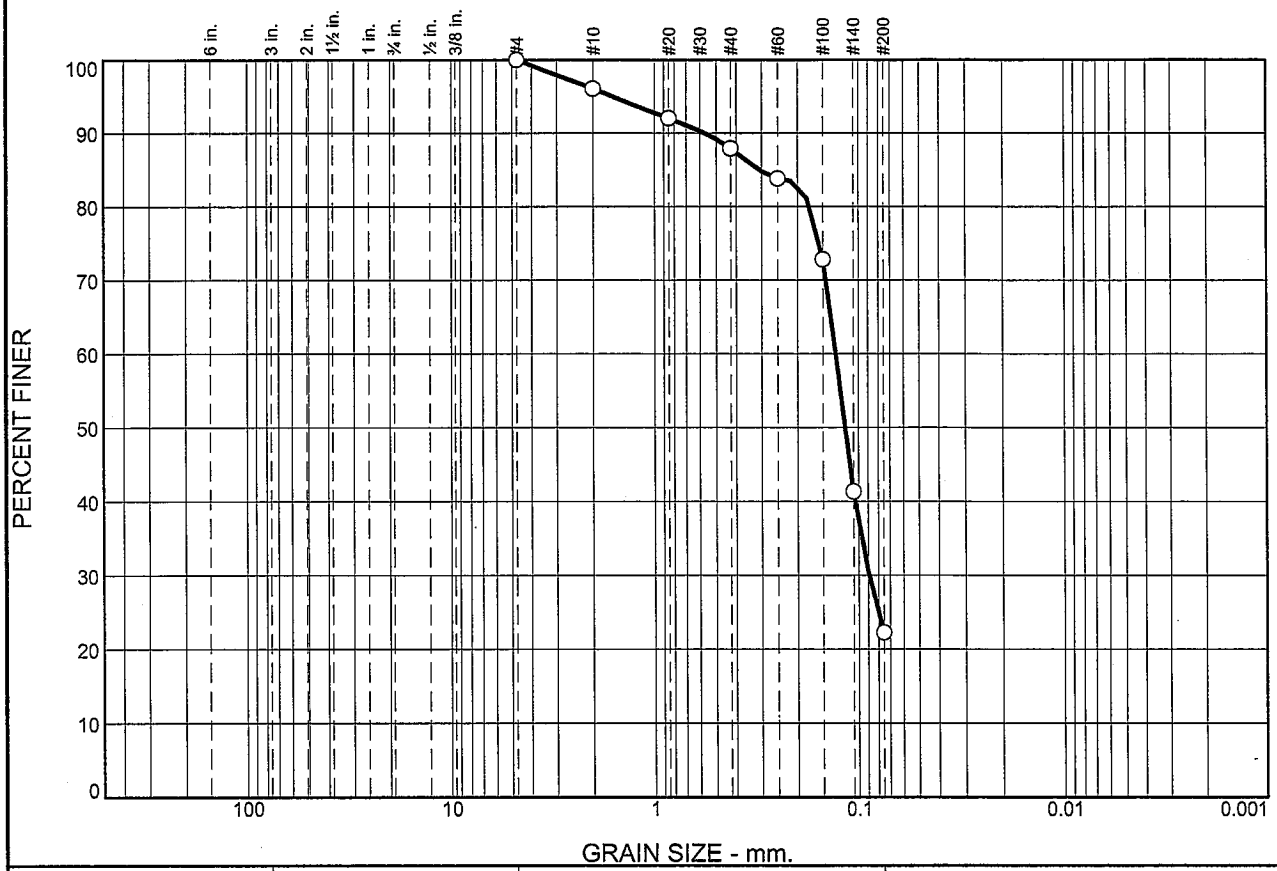
ASTM D6913-04

Sample Number: S-17 **Depth:** 68.5-70.0
Location: B-779 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	4.0	8.1	65.7	22.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	96.0		
#20	92.0		
#40	87.9		
#60	83.8		
#100	72.8		
#140	41.4		
#200	22.2		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3091 D_{60}= 0.1292 D_{50}= 0.1167
D_{30}= 0.0890 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

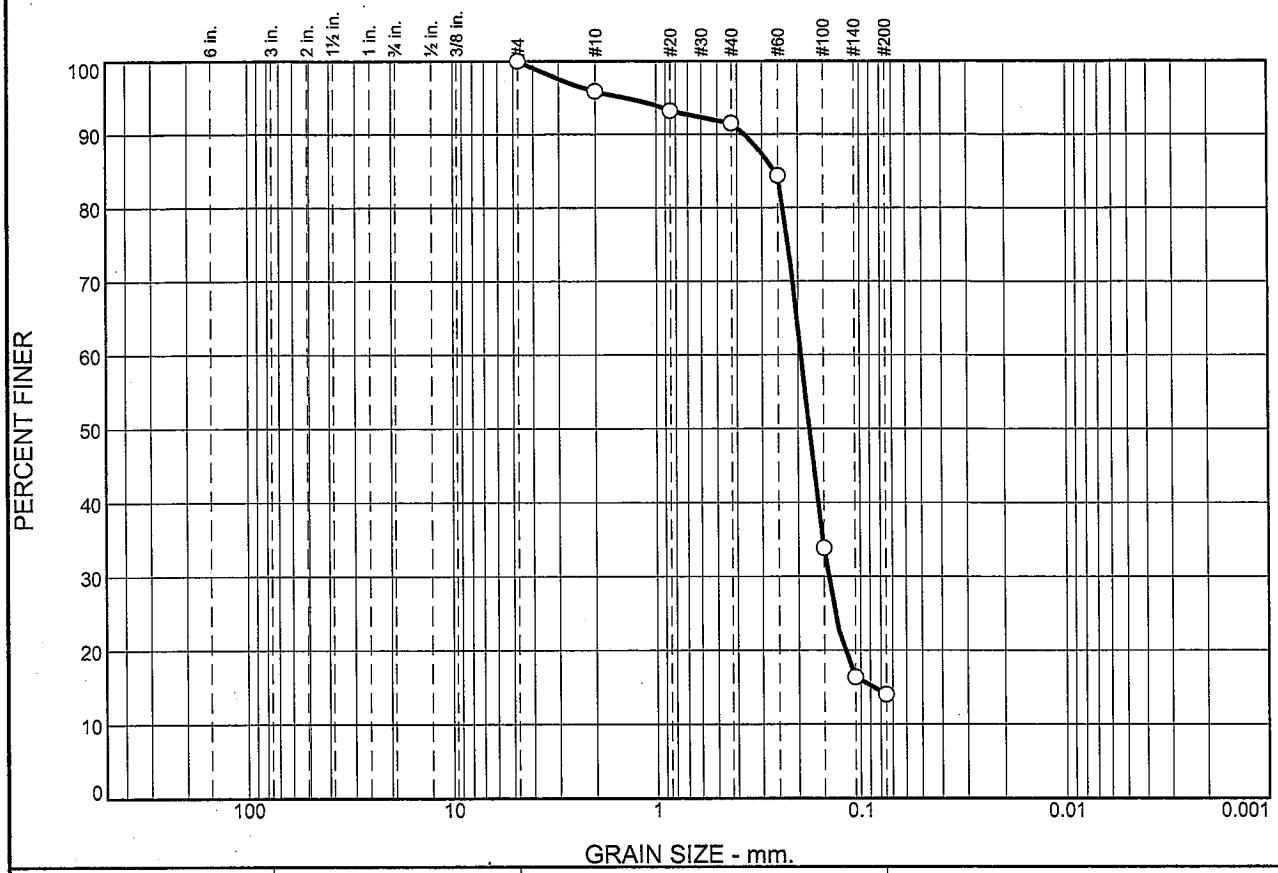
ASTM D6913-04

Sample Number: S-18 **Depth:** 73.5-75.0
Location: B-779 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	4.1	4.4	77.5	14.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	95.9		
#20	93.2		
#40	91.5		
#60	84.3		
#100	33.9		
#140	16.4		
#200	14.0		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2594 D_{60}= 0.1930 D_{50}= 0.1764
D_{30}= 0.1429 D_{15}= 0.0863 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

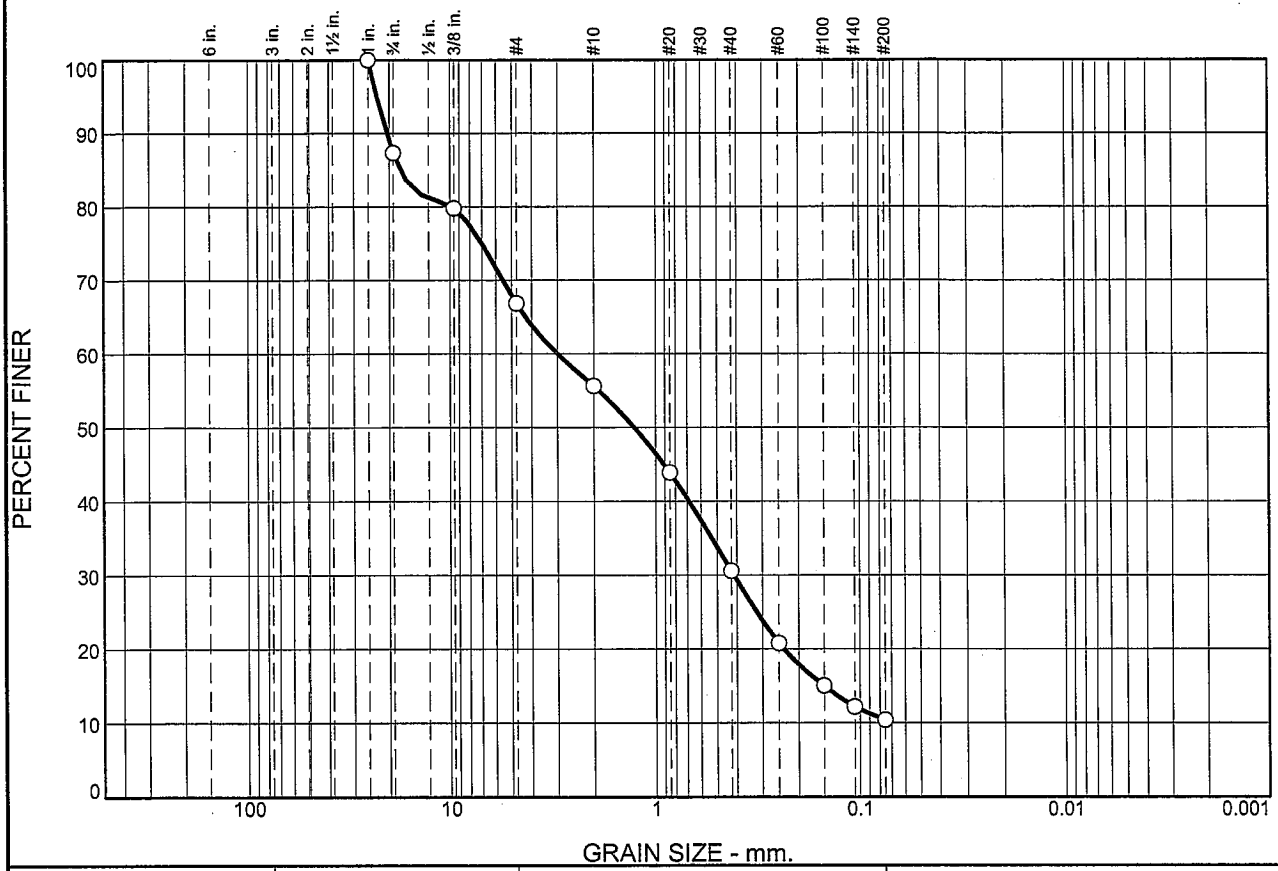
ASTM D6913-04

Sample Number: S-20 **Depth:** 83.5-85.0
Location: B-779 **Date:** 9-9-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	12.7	20.5	11.2	25.0	20.2	10.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1in.	100.0		
3/4in.	87.3		
3/8in.	79.8		
#4	66.8		
#10	55.6		
#20	43.9		
#40	30.6		
#60	20.8		
#100	15.0		
#140	12.2		
#200	10.4		

* (no specification provided)

Material Description

Sand with Fine to Coarse Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 17.5512 D_{60}= 2.9949 D_{50}= 1.2654
D_{30}= 0.4131 D_{15}= 0.1496 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

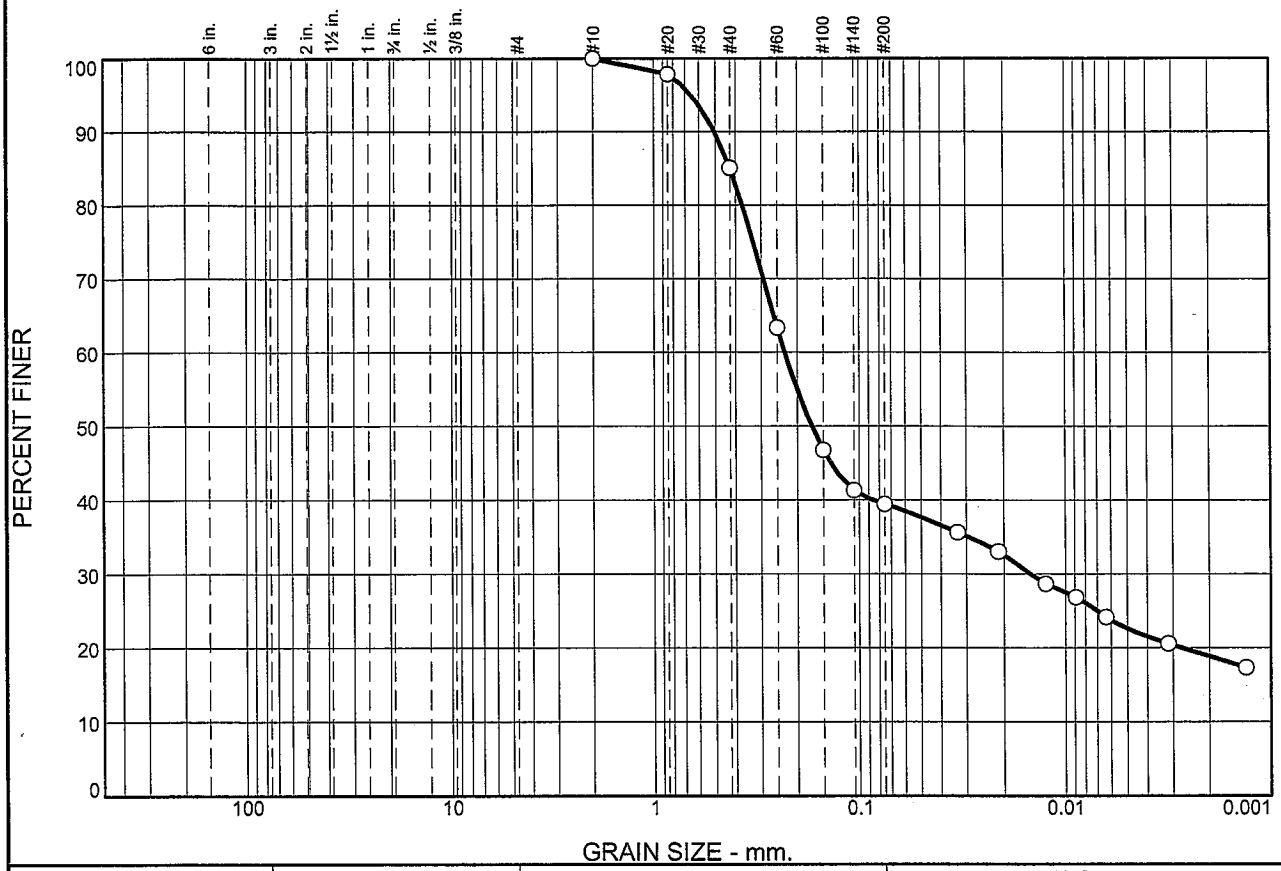
ASTM D6913-04

Sample Number: S-1 **Depth:** 0.0'-1.5'
Location: B-781 **Date:** 8-28-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	14.9	45.6	16.9	22.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	97.8		
#40	85.1		
#60	63.3		
#100	46.8		
#140	41.3		
#200	39.5		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 15 LL= 24 PI= 9

Coefficients

D_{85}= 0.4242 D_{60}= 0.2299 D_{50}= 0.1705
D_{30}= 0.0149 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-4(0)

Remarks

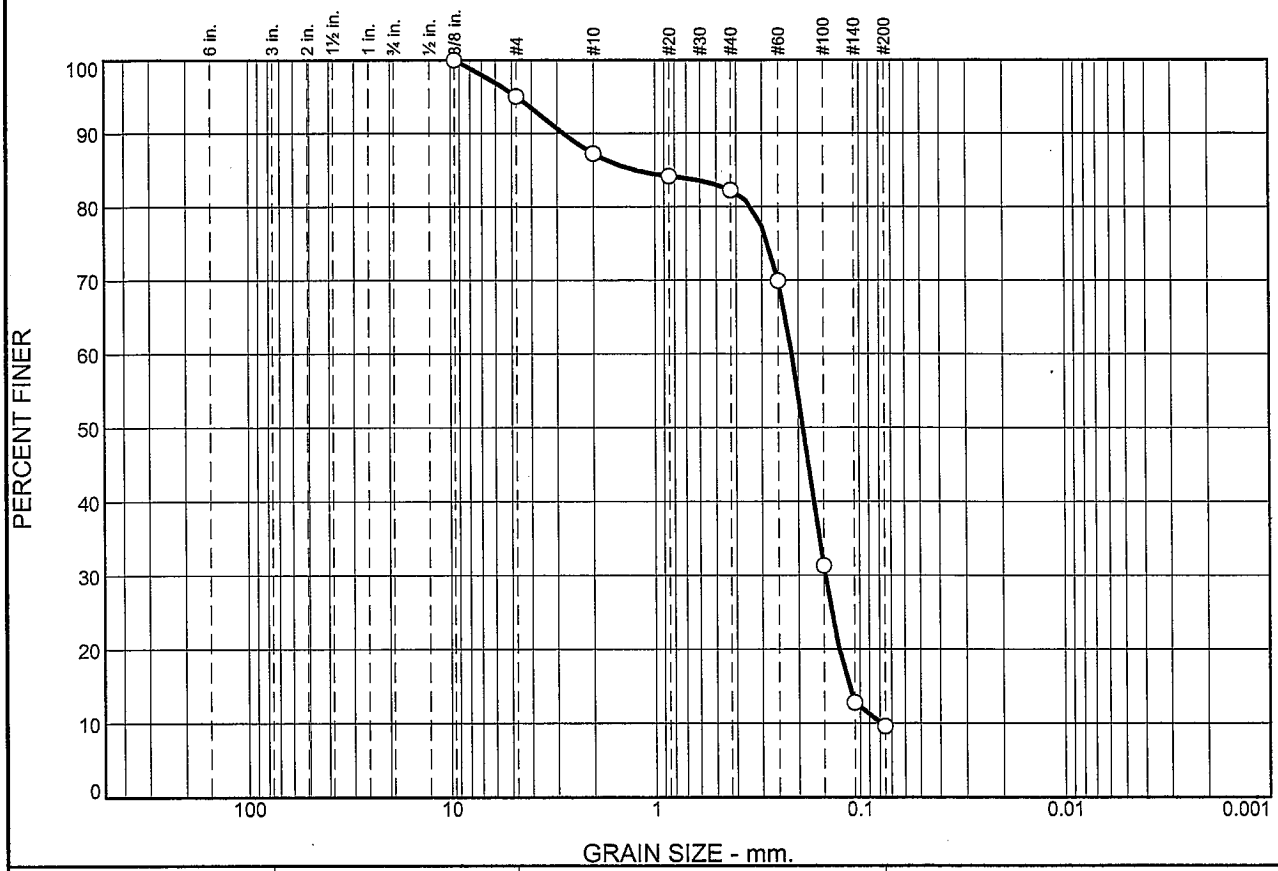
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-3 **Depth:** 5.0'-6.5'
Location: B-781 **Date:** 8-25-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.0	7.8	5.0	72.6	9.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	95.0		
#10	87.2		
#20	84.1		
#40	82.2		
#60	69.9		
#100	31.3		
#140	12.8		
#200	9.6		

* (no specification provided)

Material Description

Sand with Fine to Coarse Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.2587 D_{60}= 0.2149 D_{50}= 0.1893
D_{30}= 0.1473 D_{15}= 0.1131 D_{10}= 0.0785
C_u= 2.74 C_c= 1.29

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

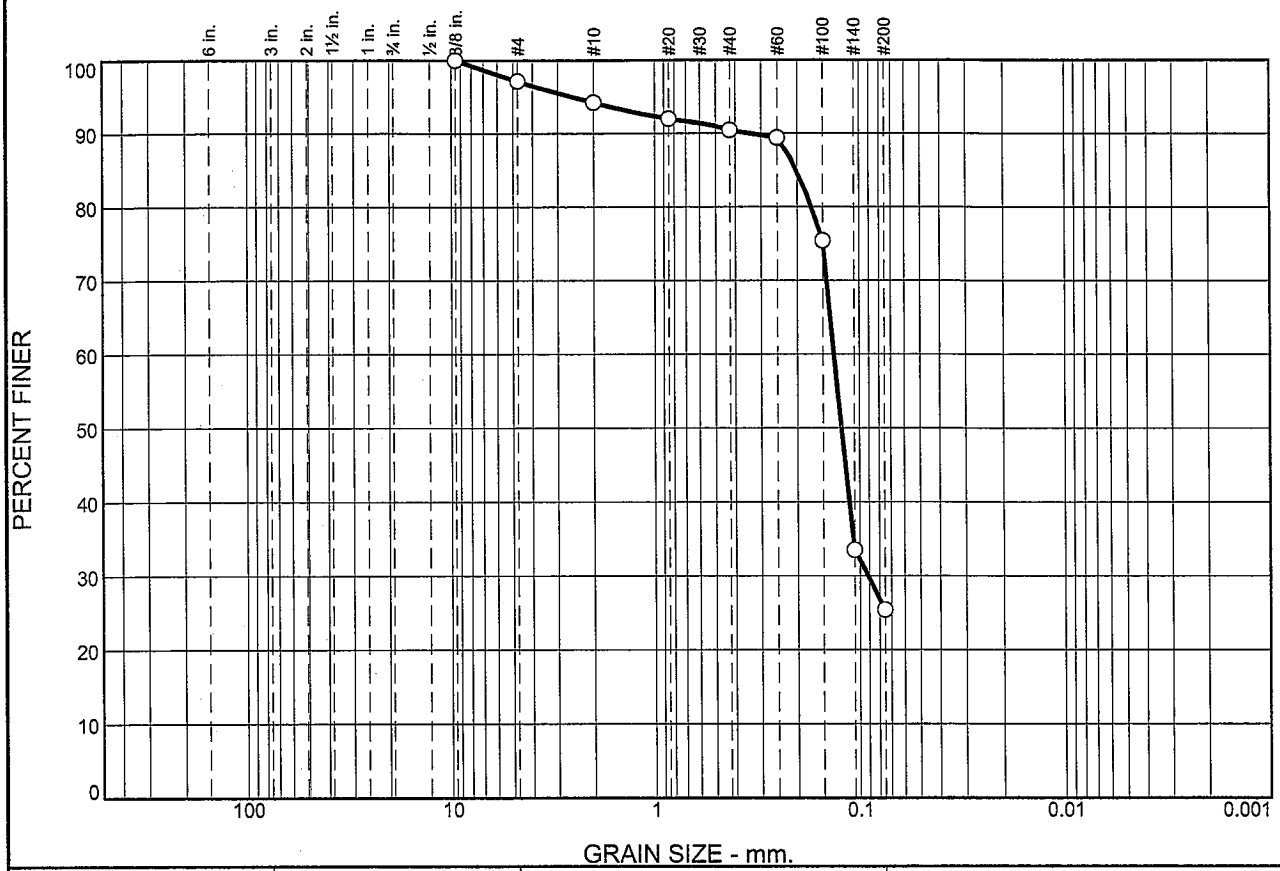
Sample Number: S-7 **Depth:** 18.5'-20.0'
Location: B-781

Date: 8-28-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.9	2.9	3.8	65.0	25.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	97.1		
#10	94.2		
#20	92.0		
#40	90.4		
#60	89.4		
#100	75.4		
#140	33.5		
#200	25.4		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.2013 D_{60}= 0.1320 D_{50}= 0.1226
D_{30}= 0.0913 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

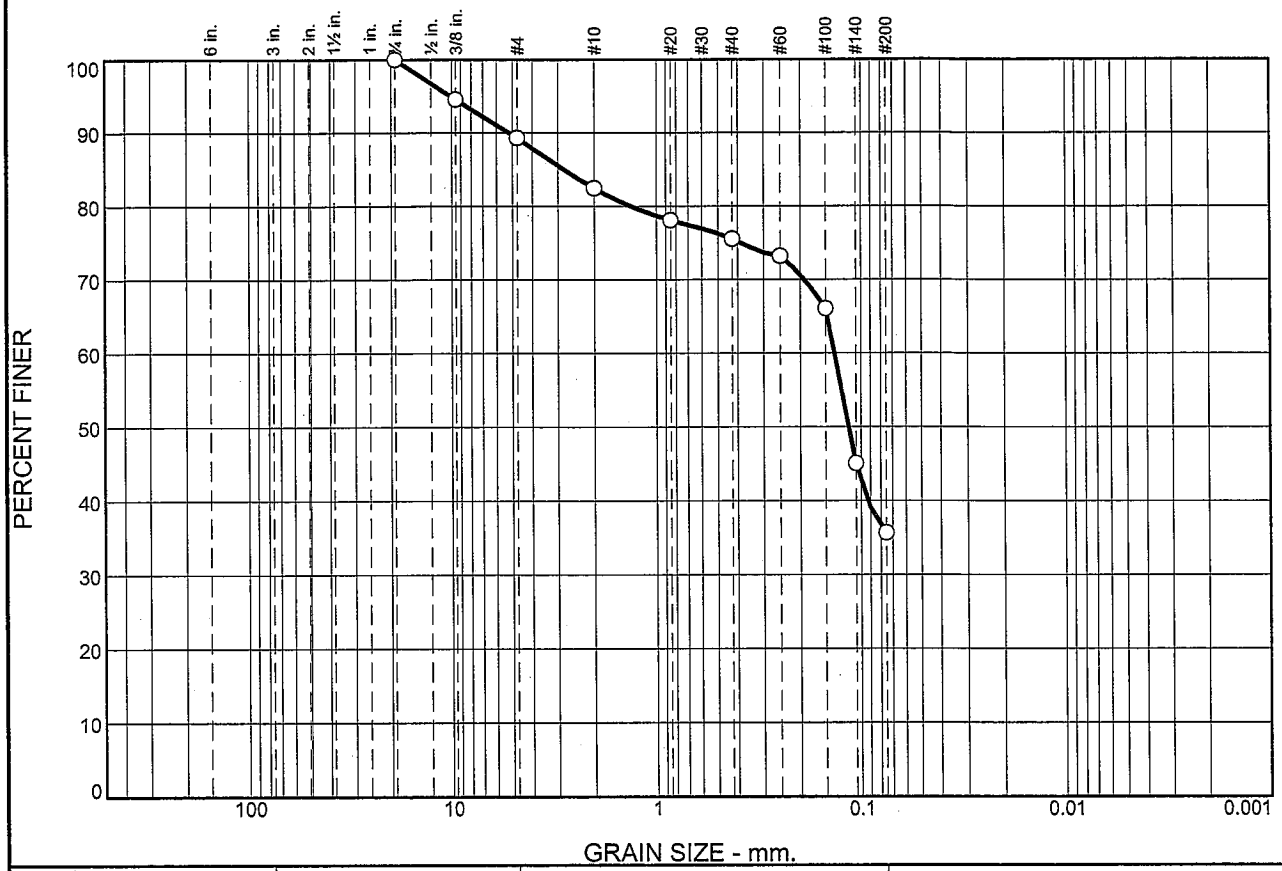
ASTM D6913-04
ASTM D4318-05

Sample Number: S-8 **Depth:** 23.5'-25.0'
Location: B-781 **Date:** 8-28-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	10.7	6.8	7.0	39.8	35.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4in.	100.0		
3/8in.	94.5		
#4	89.3		
#10	82.5		
#20	78.1		
#40	75.5		
#60	73.2		
#100	66.0		
#140	45.1		
#200	35.7		

* (no specification provided)

Material Description

Silty, Clayey Sand

Atterberg Limits

PL= 22 LL= 28 PI= 6

Coefficients

D_{85}= 2.8015 D_{60}= 0.1348 D_{50}= 0.1156
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC-SM AASHTO= A-4(0)

Remarks

ASTM D6913-04
ASTM D4318-05

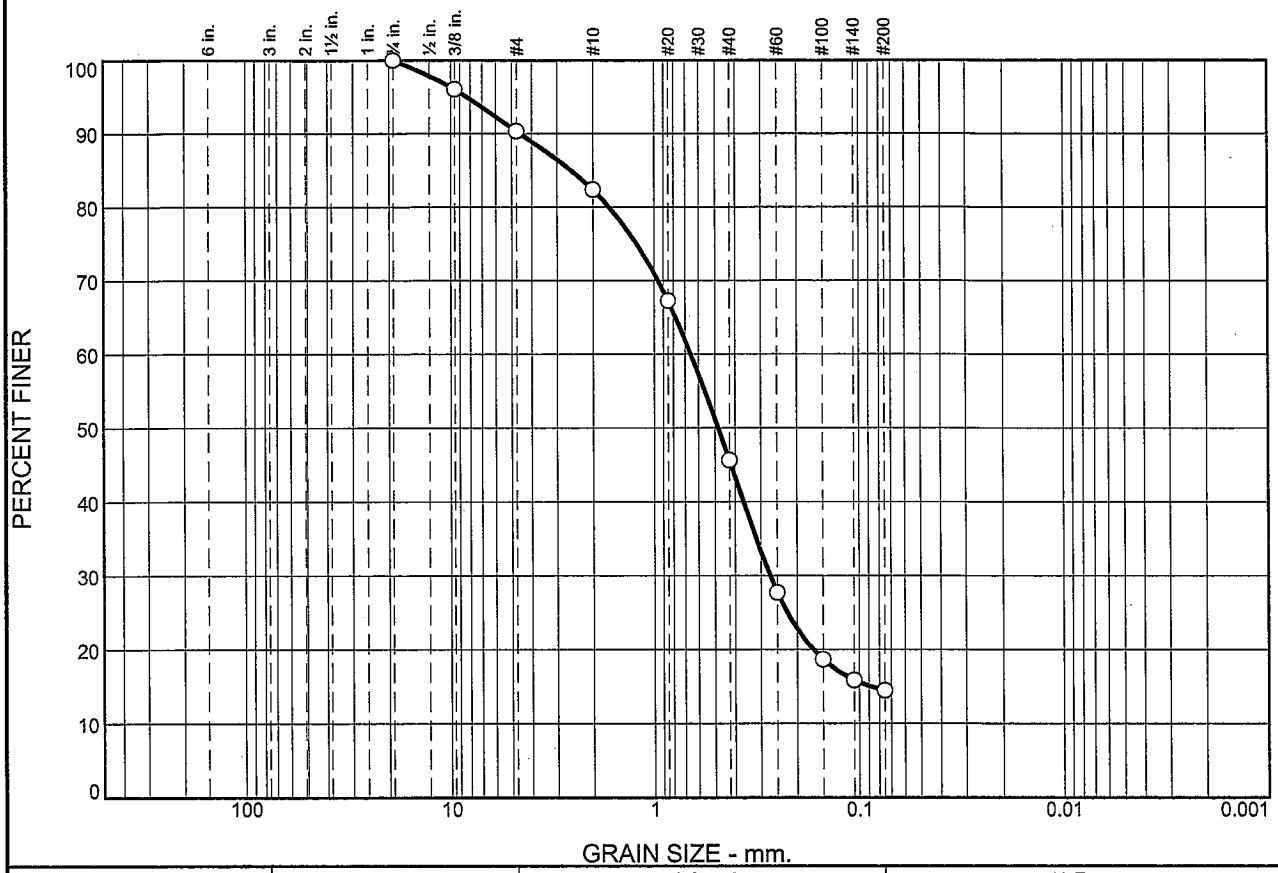
Sample Number: S-9 **Depth:** 28.5'-29.8'
Location: B-781

Date: 8-28-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	9.7	7.9	36.8	31.1	14.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4in.	100.0		
3/8in.	96.0		
#4	90.3		
#10	82.4		
#20	67.3		
#40	45.6		
#60	27.7		
#100	18.7		
#140	15.8		
#200	14.5		

* (no specification provided)

Material Description

Sand with Fine to Coarse Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 2.5575 D_{60}= 0.6543 D_{50}= 0.4810
D_{30}= 0.2709 D_{15}= 0.0877 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

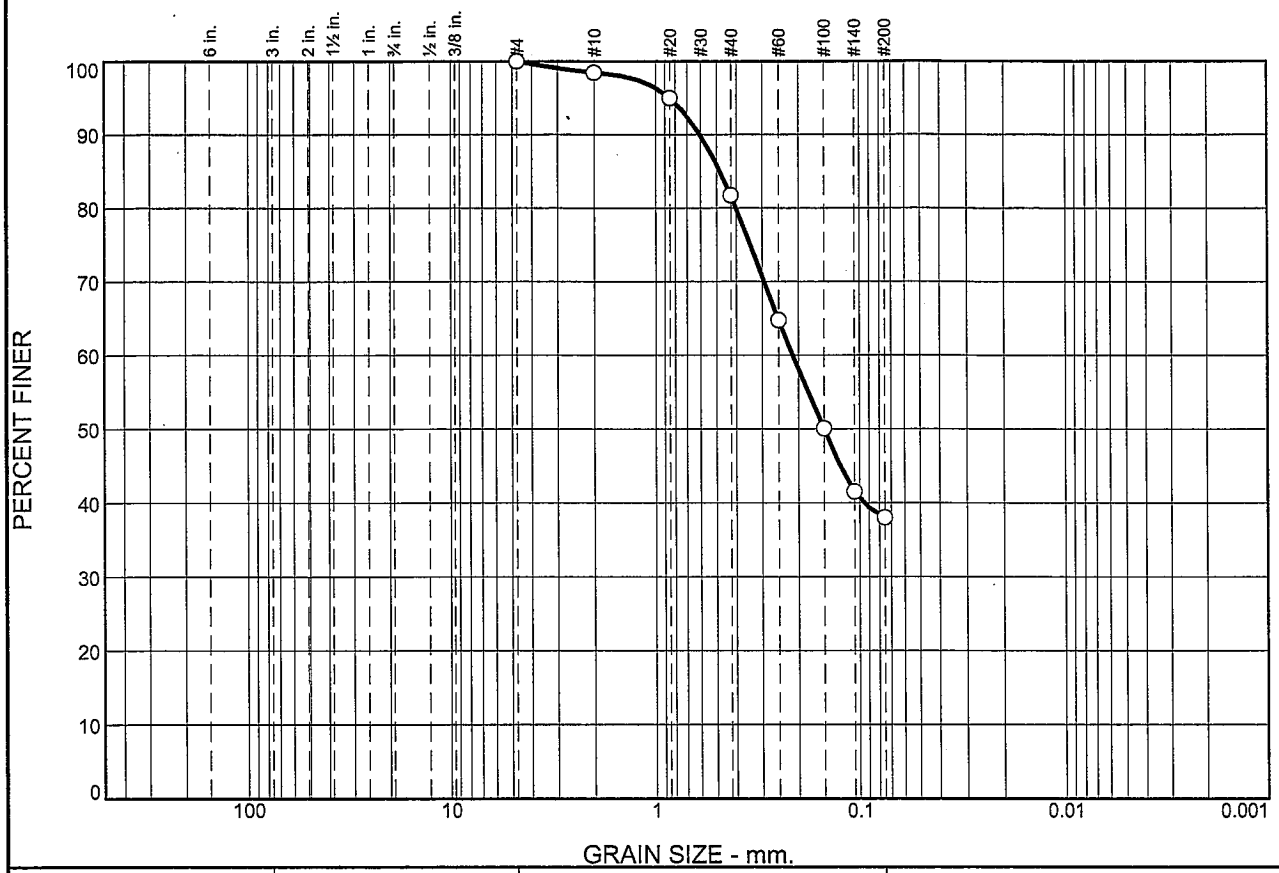
ASTM D6913-04

Sample Number: S-1 **Depth:** 0.0'-1.5'
Location: B-782 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.6	16.7	43.7	38.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.4		
#20	95.0		
#40	81.7		
#60	64.8		
#100	50.1		
#140	41.5		
#200	38.0		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.4809 D_{60}= 0.2135 D_{50}= 0.1496
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

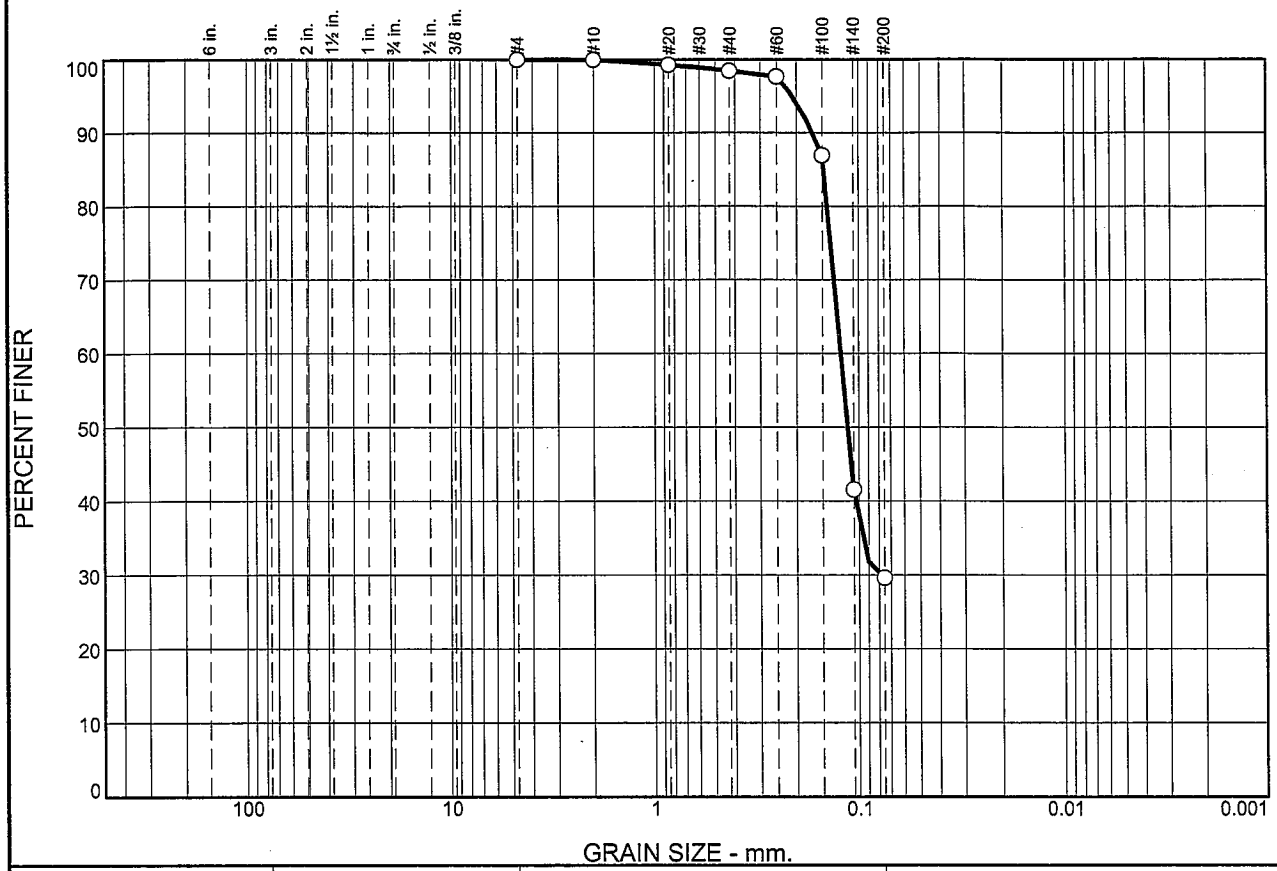
ASTM D6913-04

Sample Number: S-2 **Depth:** 25.'-4.0'
Location: B-782 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.5	68.8	29.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.2		
#40	98.4		
#60	97.6		
#100	86.9		
#140	41.6		
#200	29.6		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1473 D_{60}= 0.1226 D_{50}= 0.1141
D_{30}= 0.0812 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

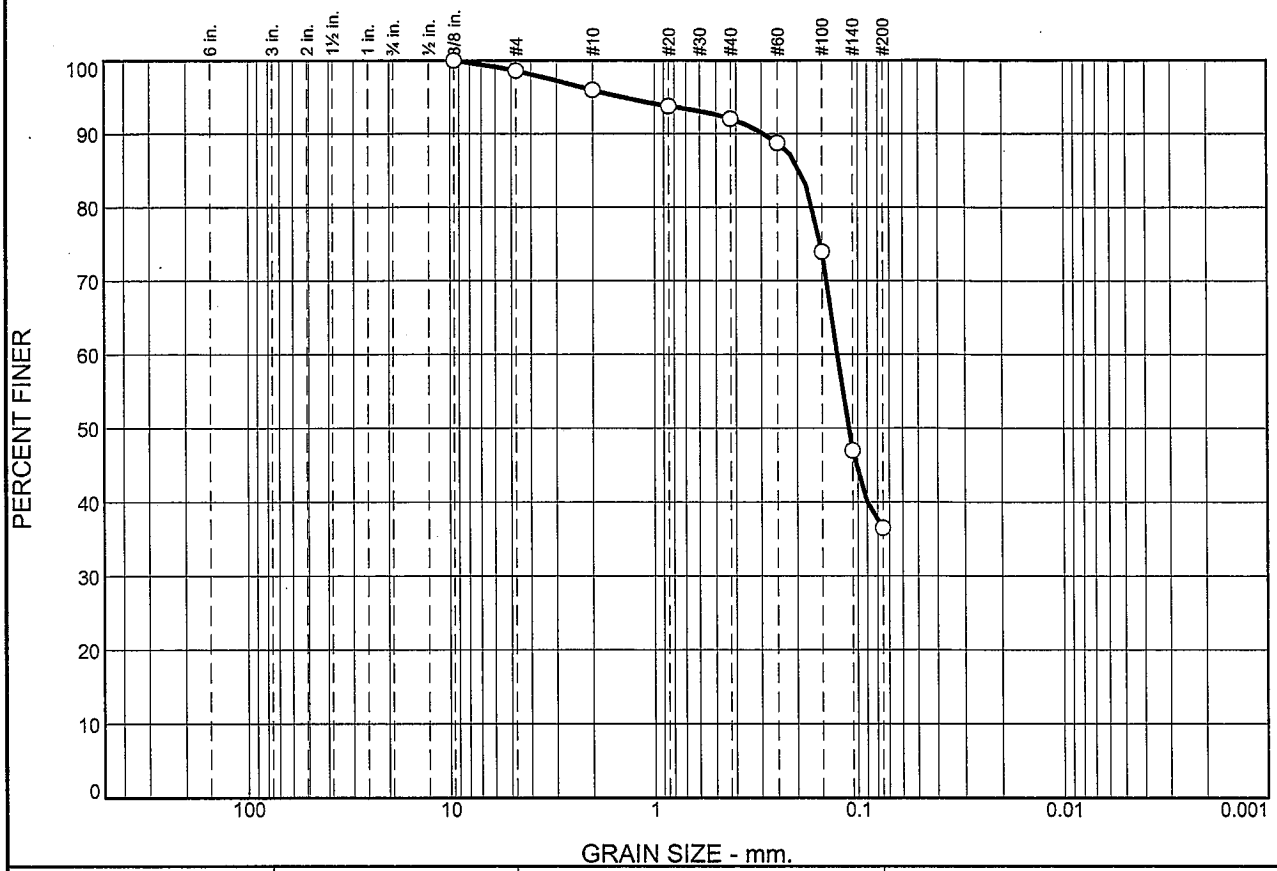
ASTM D6913-04

Sample Number: S-9 **Depth:** 28.5'-30.0'
Location: B-782 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	2.7	3.9	55.5	36.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	98.6		
#10	95.9		
#20	93.7		
#40	92.0		
#60	88.7		
#100	73.9		
#140	47.0		
#200	36.5		

* (no specification provided)

Material Description

Sand with some Fine Gravel and some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1931 D_{60}= 0.1259 D_{50}= 0.1110
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

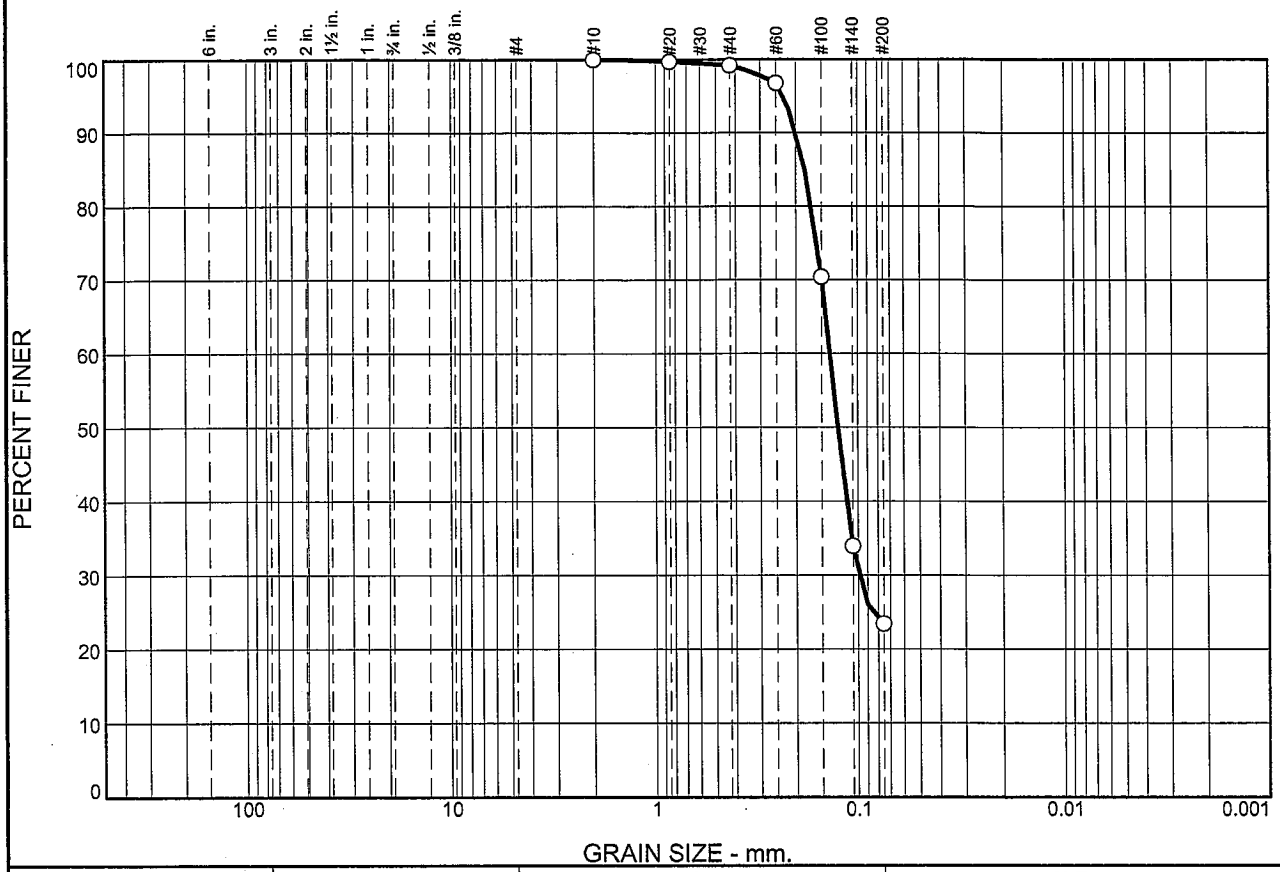
ASTM D6913-04

Sample Number: S-10 **Depth:** 33.5'-35.0'
Location: B-782 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

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	75.7	23.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.7		
#40	99.1		
#60	96.8		
#100	70.4		
#140	34.0		
#200	23.4		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1806 D_{60}= 0.1362 D_{50}= 0.1249
D_{30}= 0.0996 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

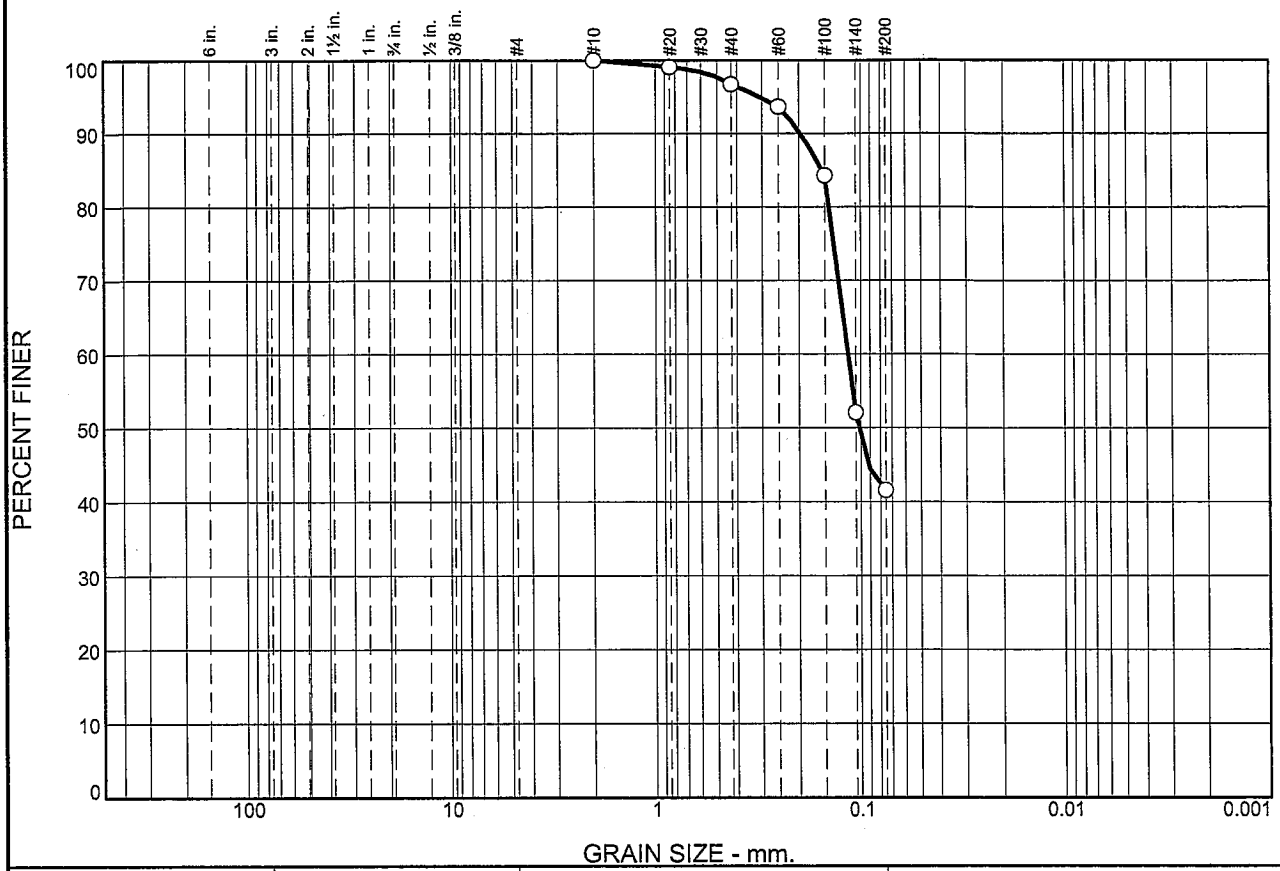
ASTM D6913-04

Sample Number: S-11 **Depth:** 38.5'-40.0'
Location: B-782 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.3	55.2	41.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.1		
#40	96.7		
#60	93.6		
#100	84.3		
#140	52.1		
#200	41.5		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1547 D_{60}= 0.1163 D_{50}= 0.1027
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

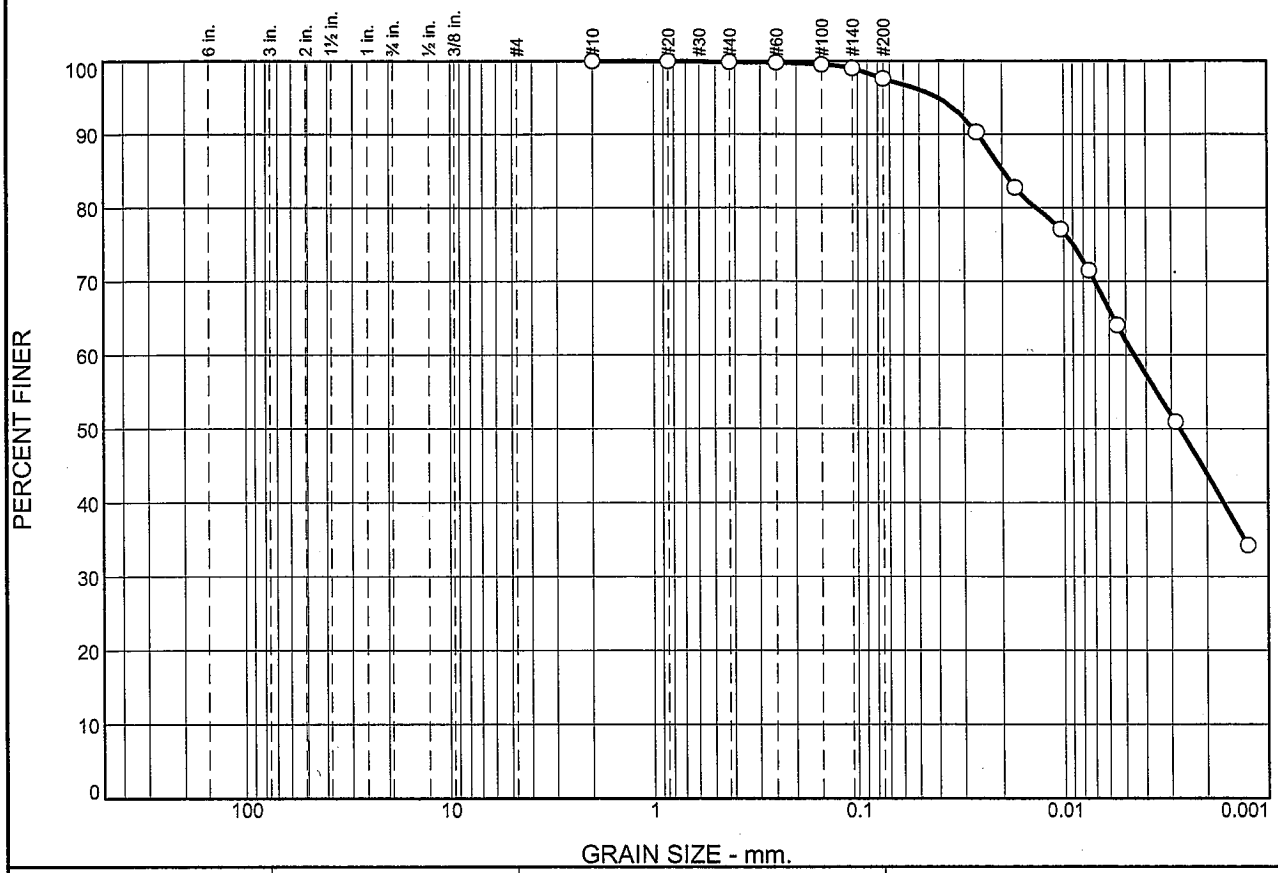
ASTM D6913-04

Sample Number: S-12 **Depth:** 43.5'-45.0'
Location: B-782 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	2.3	35.5	62.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	99.8		
#60	99.8		
#100	99.5		
#140	99.0		
#200	97.5		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 31 LL= 66 PI= 35

Coefficients

D_{85}= 0.0198 D_{60}= 0.0046 D_{50}= 0.0027
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(42)

Remarks

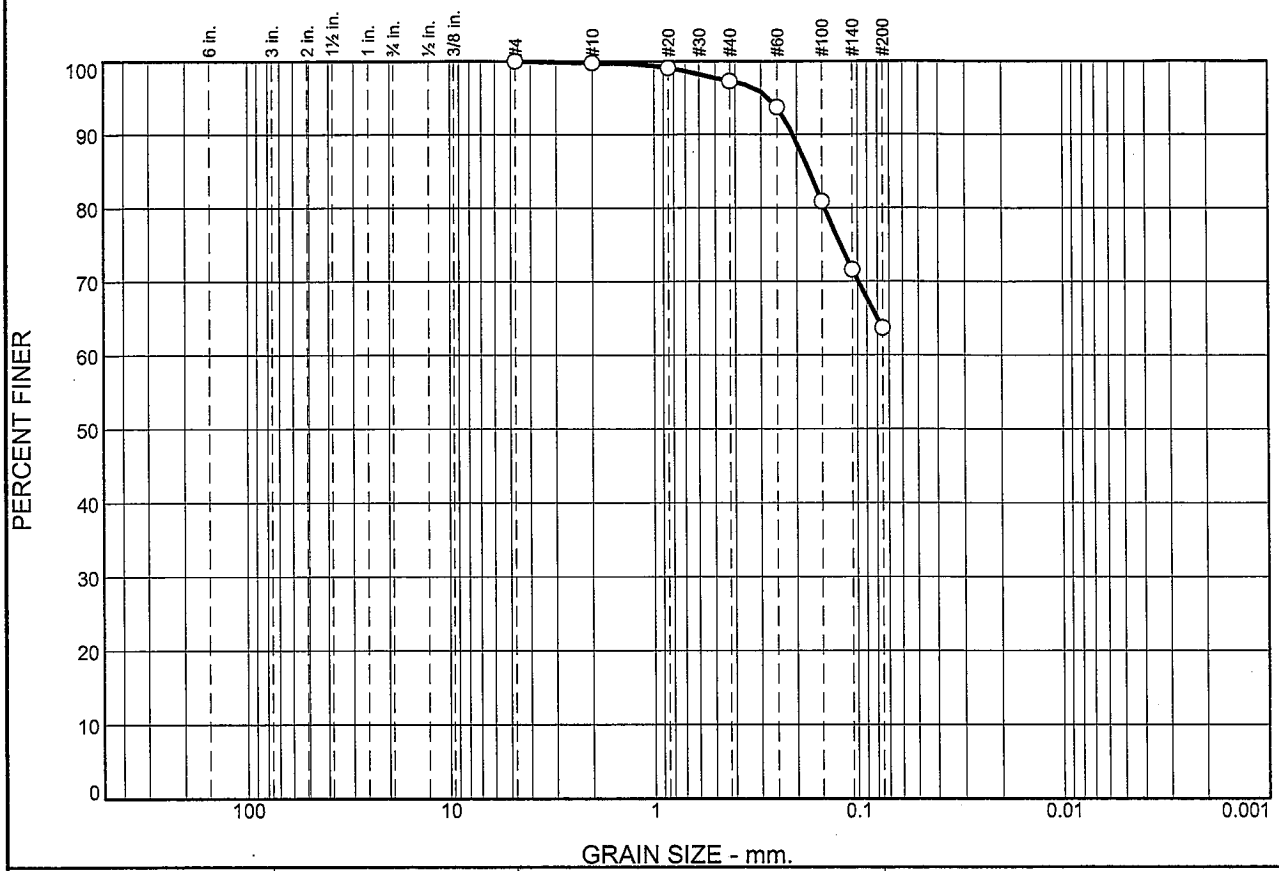
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: S-12 **Depth:** 43.5-45.0
Location: B-785 **Date:** 9-12-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	2.6	33.5	63.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.8		
#20	99.1		
#40	97.2		
#60	93.7		
#100	80.9		
#140	71.6		
#200	63.7		

* (no specification provided)

Material Description

Sandy Lean Clay

Atterberg Limits

PL= 19 LL= 41 PI= 22

Coefficients

D_{85}= 0.1732 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(12)

Remarks

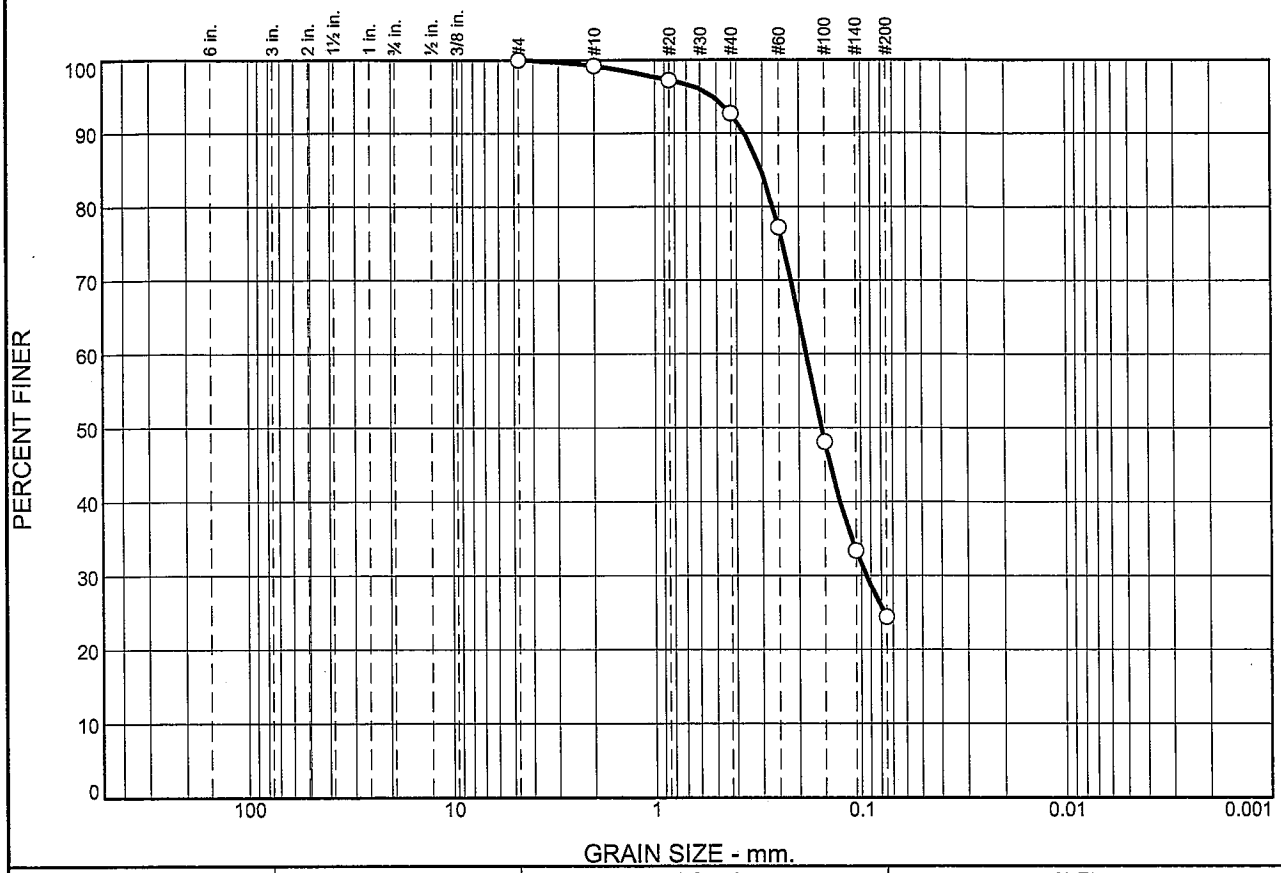
ASTM D6913-04
ASTM D4318-05

Sample Number: S-13 **Depth:** 48.5-50.0
Location: B-785 **Date:** 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.8	6.6	68.2	24.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.2		
#20	97.2		
#40	92.6		
#60	77.2		
#100	48.1		
#140	33.4		
#200	24.4		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3042 D_{60}= 0.1842 D_{50}= 0.1553
D_{30}= 0.0946 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

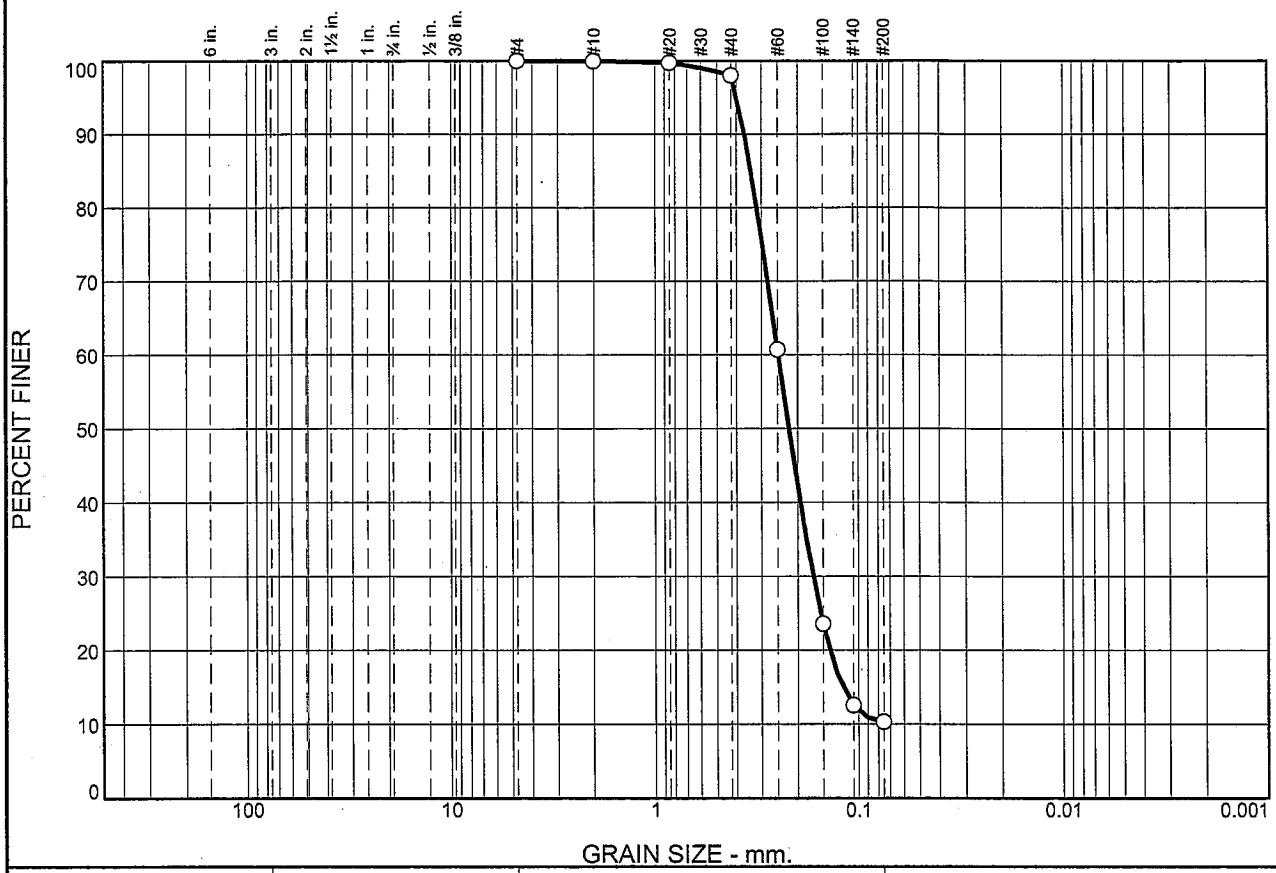
ASTM D6913-04

Sample Number: S-14 **Depth:** 53.5-55.0
Location: B-785 **Date:** 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.9	87.7	10.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.7		
#40	98.0		
#60	60.7		
#100	23.5		
#140	12.6		
#200	10.3		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3381 D_{60}= 0.2480 D_{50}= 0.2200
D_{30}= 0.1679 D_{15}= 0.1194 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

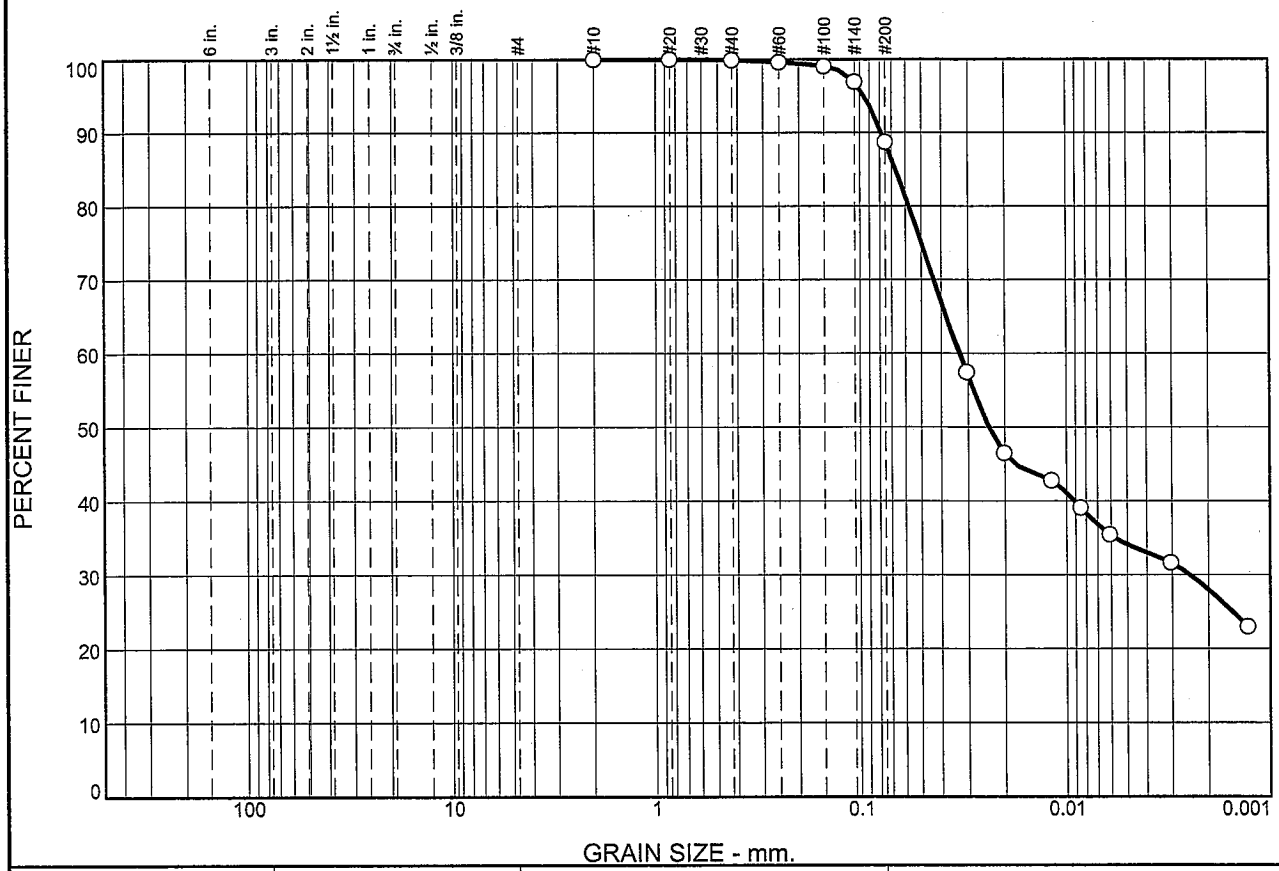
ASTM D6913-04

Sample Number: S-15 **Depth:** 58.5-60.0
Location: B-785 **Date:** 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

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	11.2	54.6	34.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	99.9		
#60	99.6		
#100	99.0		
#140	96.9		
#200	88.7		

* (no specification provided)

Material Description

Fine Sandy Clayey Silt

Atterberg Limits

PL= LM LL= LM PI= LM

Coefficients

D_{85}= 0.0668 D_{60}= 0.0329 D_{50}= 0.0238
D_{30}= 0.0025 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= LM AASHTO= LM

Remarks

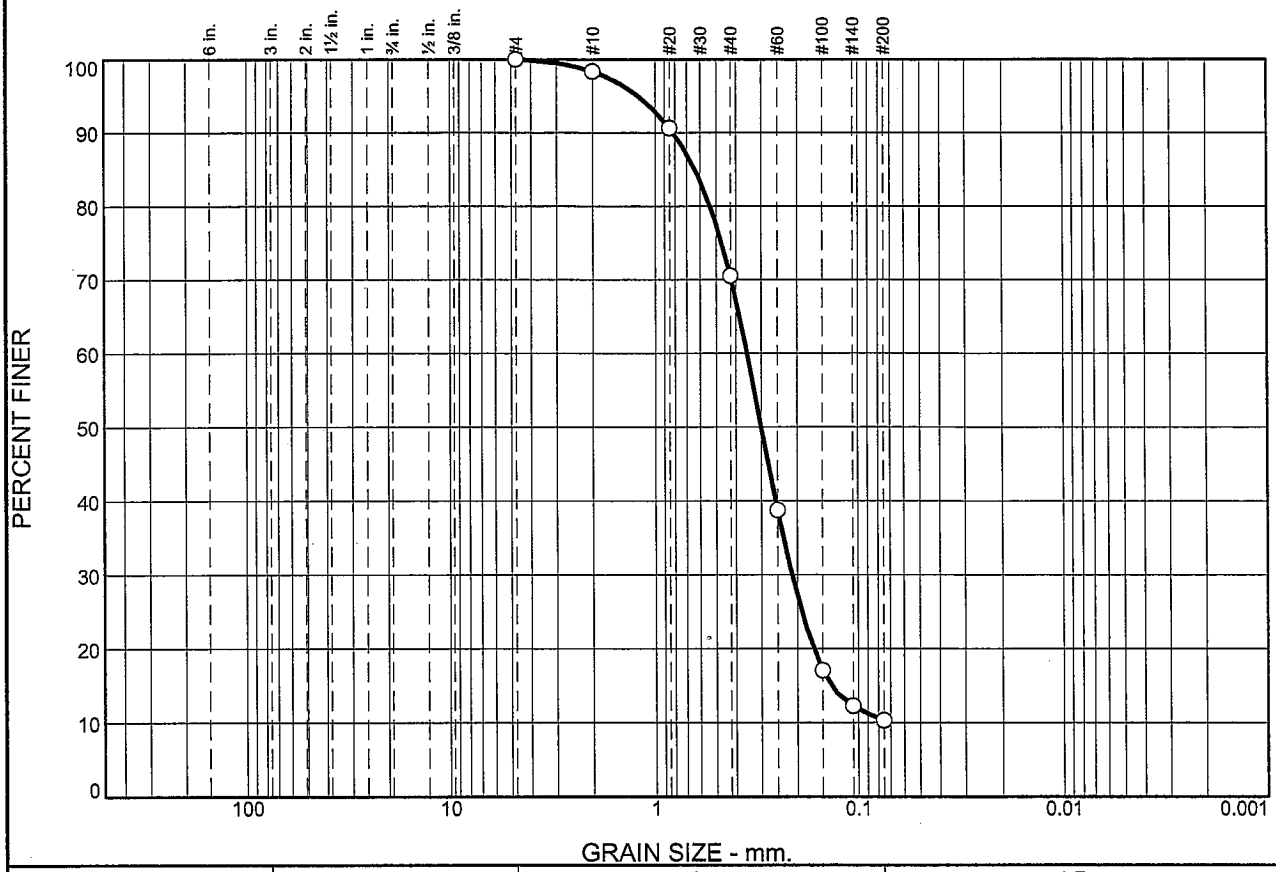
ASTM D422-63 (2007)

Sample Number: S-16 **Depth:** 63.5-65.0
Location: B-785 **Date:** 9-15-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.7	27.8	60.2	10.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.3		
#20	90.6		
#40	70.5		
#60	38.7		
#100	17.1		
#140	12.3		
#200	10.3		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.6353 D_{60}= 0.3524 D_{50}= 0.3004
D_{30}= 0.2124 D_{15}= 0.1355 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

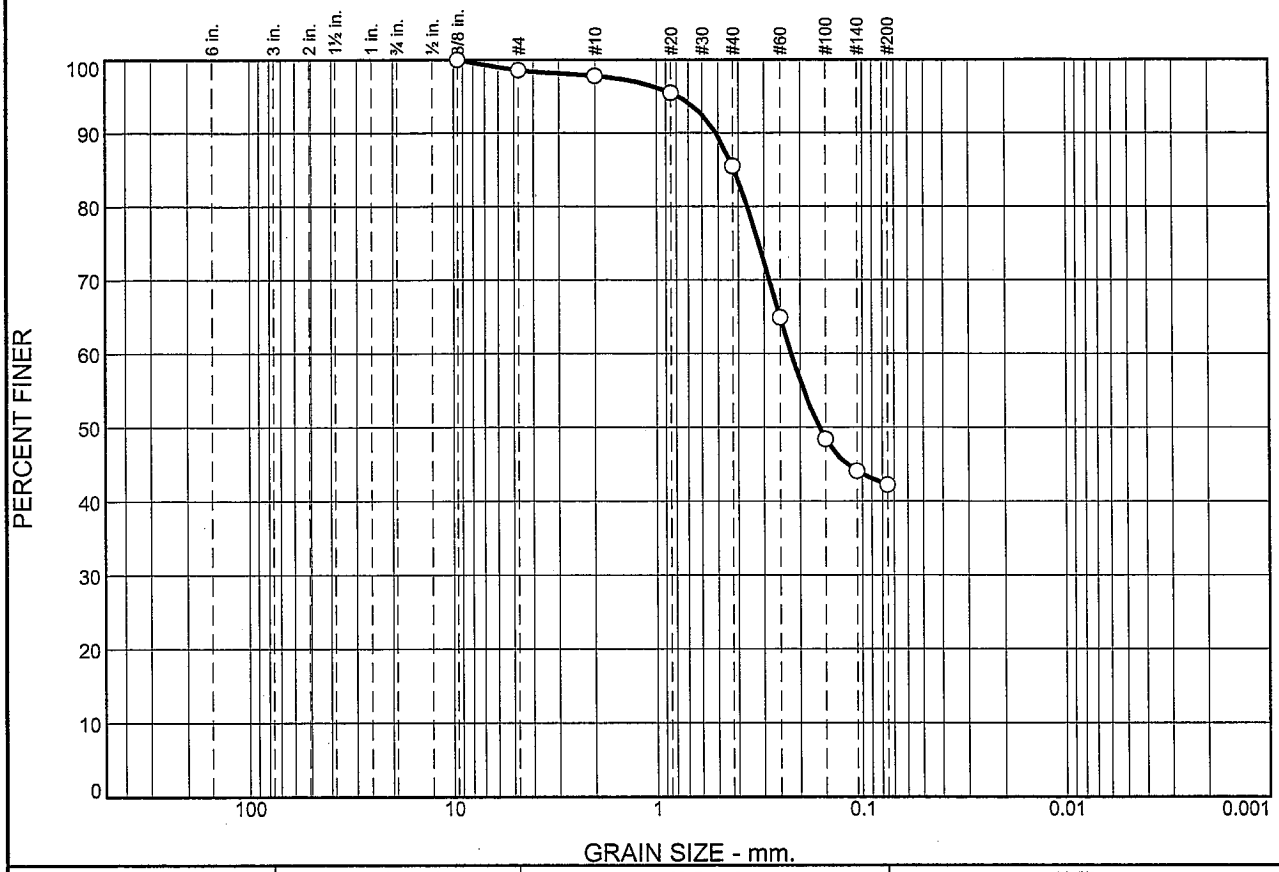
Sample Number: S-1 **Depth:** 0.0-1.5
Location: B-786

Date: 9-10-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	0.8	12.3	43.3	42.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	98.6		
#10	97.8		
#20	95.4		
#40	85.5		
#60	64.9		
#100	48.4		
#140	44.1		
#200	42.2		

* (no specification provided)

Material Description

Sand with some Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.4185 D_{60}= 0.2208 D_{50}= 0.1611
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

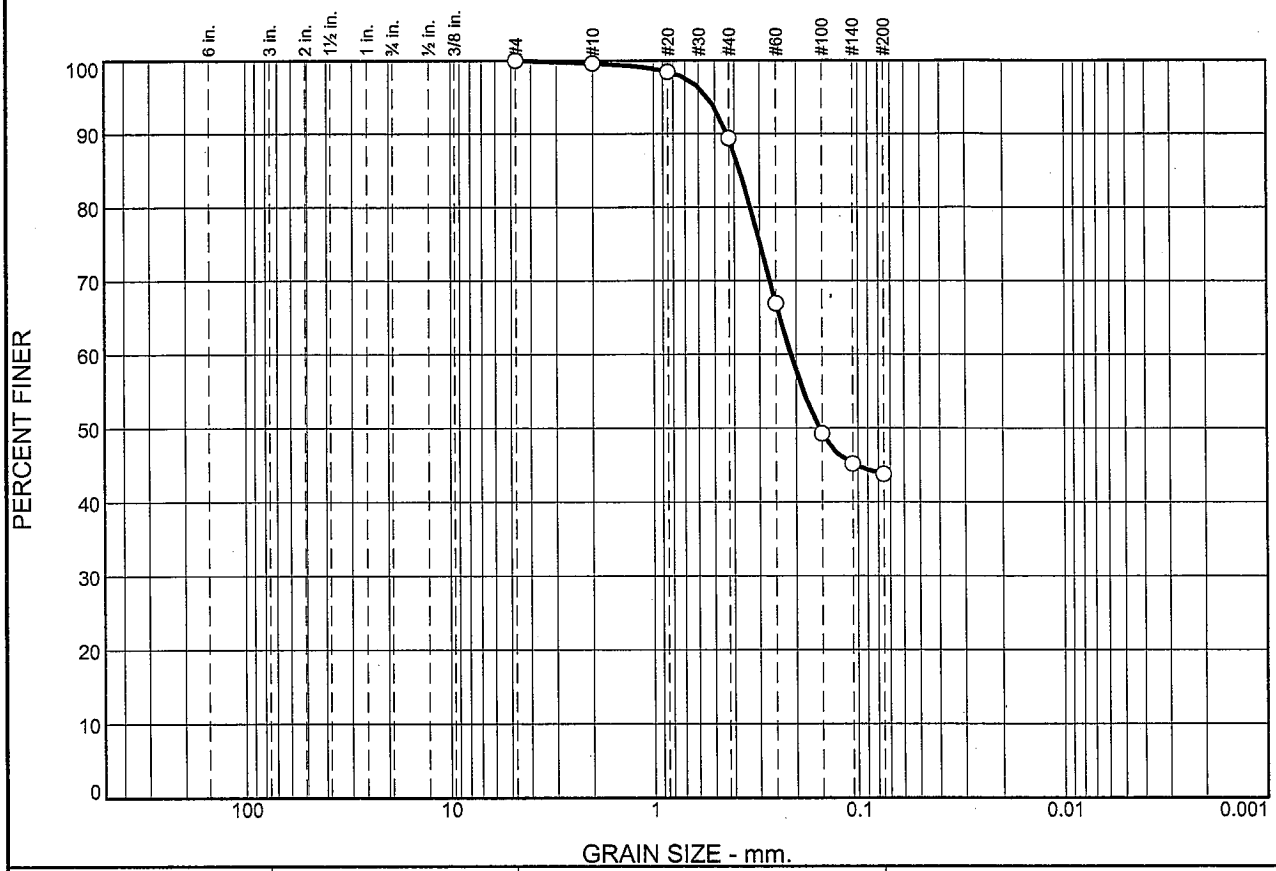
Sample Number: S-2 **Depth:** 2.5-4.0
Location: B-786

Date: 9-10-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	10.2	45.6	43.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.6		
#20	98.4		
#40	89.4		
#60	66.9		
#100	49.3		
#140	45.1		
#200	43.8		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3755 D_{60}= 0.2122 D_{50}= 0.1551
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

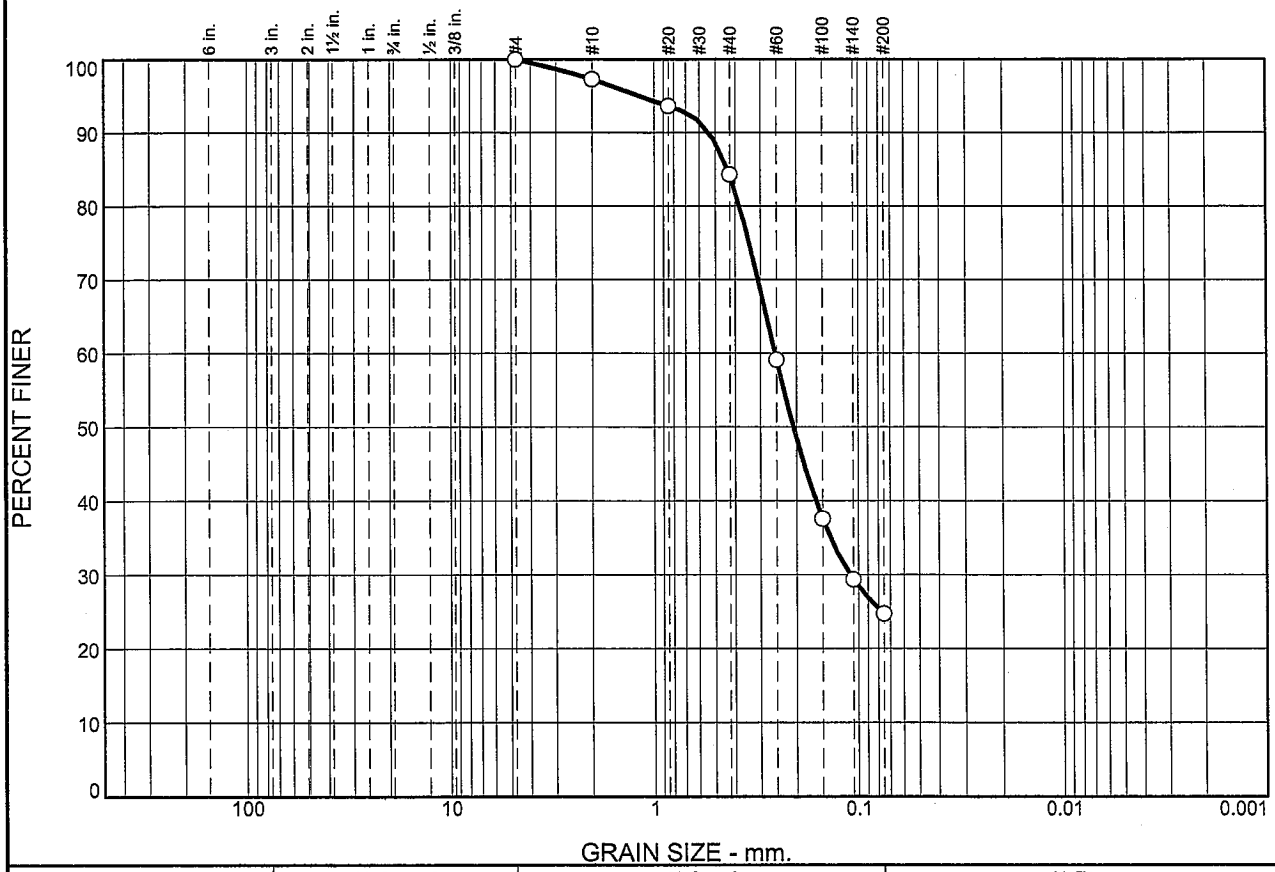
ASTM D6913-04

Sample Number: S-3 **Depth:** 5.0-6.5
Location: B-786 **Date:** 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.7	13.0	59.6	24.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	97.3		
#20	93.6		
#40	84.3		
#60	59.1		
#100	37.6		
#140	29.4		
#200	24.7		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.4348 D_{60}= 0.2544 D_{50}= 0.2069
D_{30}= 0.1100 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

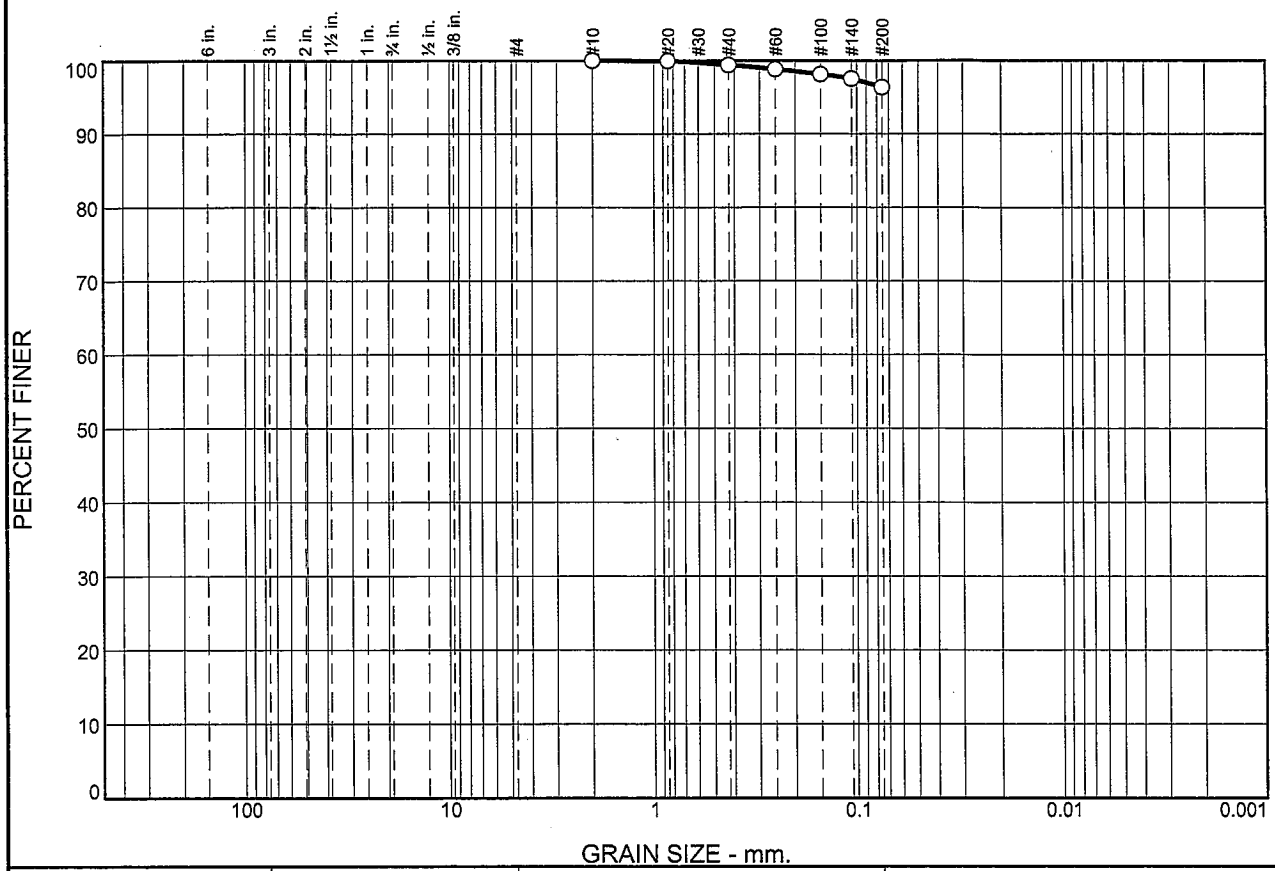
Sample Number: S-4 **Depth:** 7.5-9.0
Location: B-786

Date: 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

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	3.1	96.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.4		
#60	98.8		
#100	98.1		
#140	97.5		
#200	96.3		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 32 LL= 68 PI= 36

Coefficients

D_{85}= D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(42)

Remarks

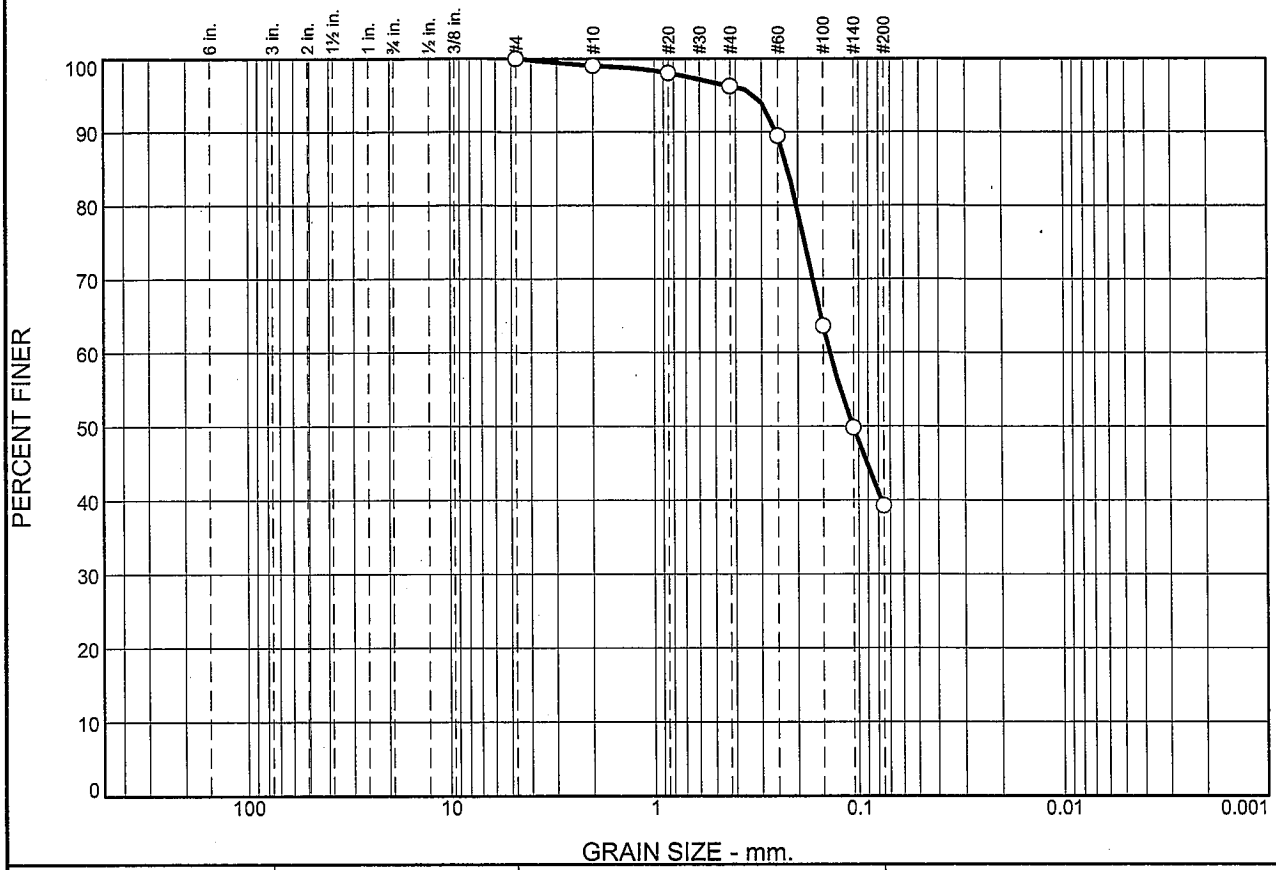
ASTM D6913-04
ASTM D4318-05

Sample Number: S-5 **Depth:** 10.0-11.5
Location: B-786 **Date:** 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	2.8	56.9	39.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.0		
#20	98.1		
#40	96.2		
#60	89.4		
#100	63.6		
#140	49.8		
#200	39.3		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2244 D_{60}= 0.1388 D_{50}= 0.1065
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

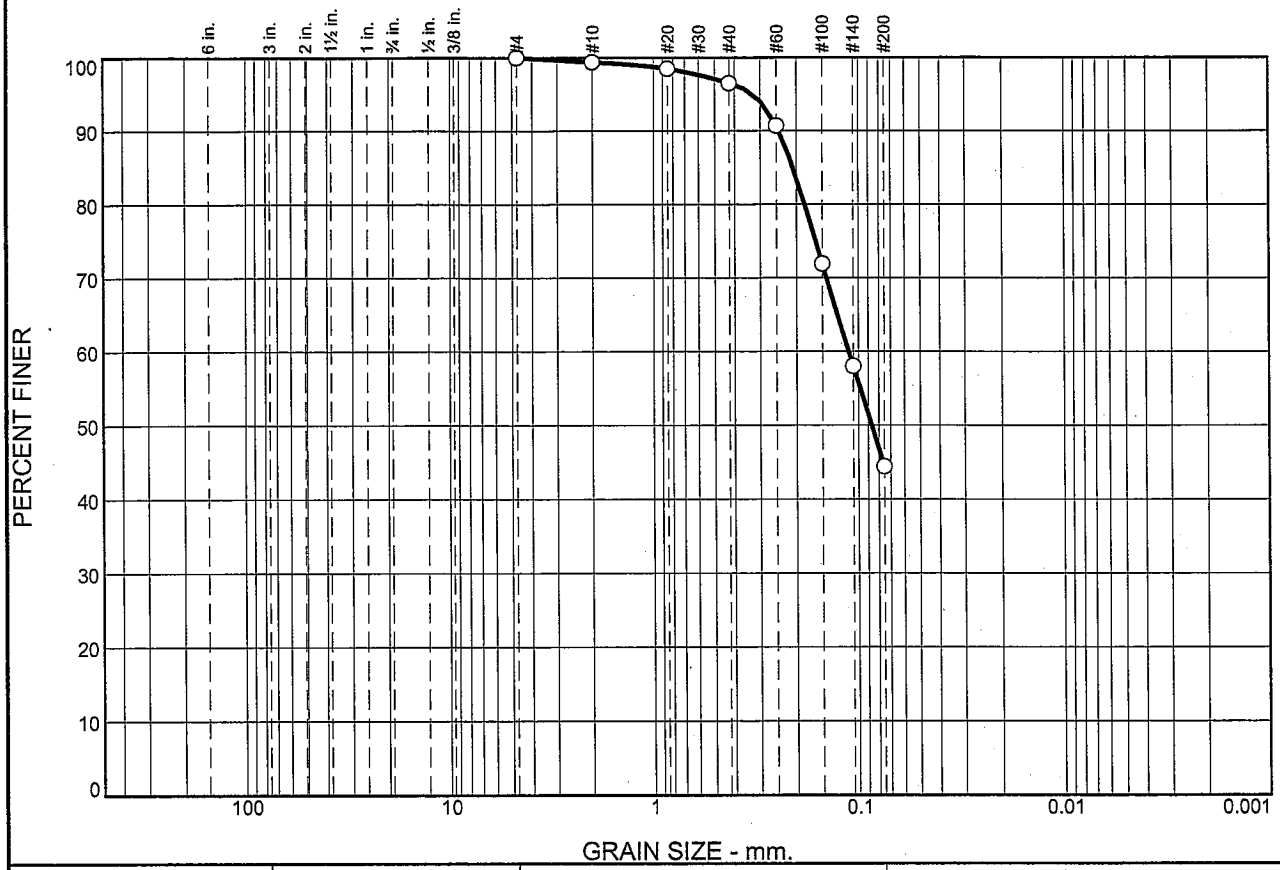
ASTM D6913-04

Sample Number: S-1 **Depth:** 13.5-15.0
Location: B-786A **Date:** 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	2.9	52.1	44.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.4		
#20	98.5		
#40	96.5		
#60	90.7		
#100	71.9		
#140	58.0		
#200	44.4		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2079 D_{60}= 0.1115 D_{50}= 0.0864
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

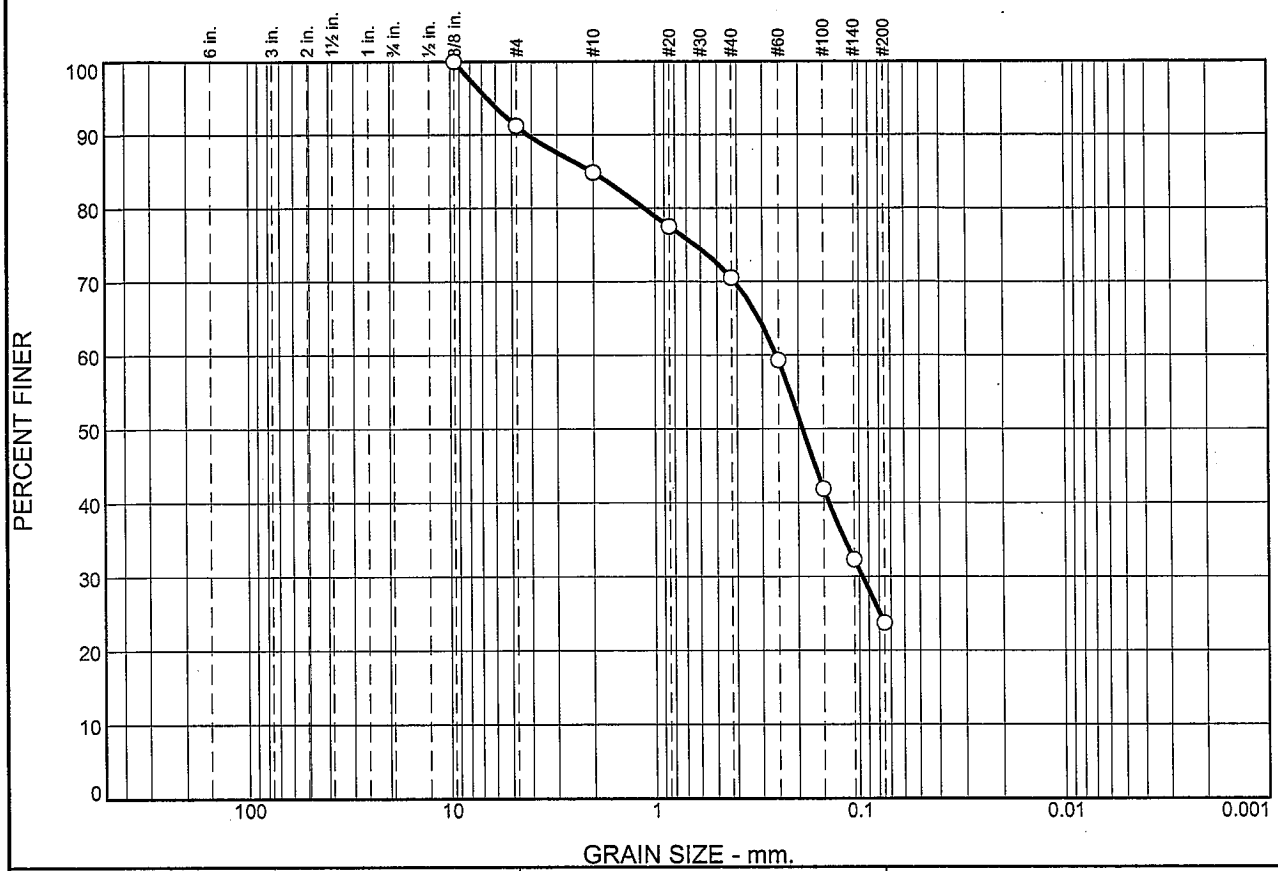
Sample Number: S-2A **Depth:** 18.5-19.3
Location: B-786A

Date: 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	8.8	6.3	14.4	46.8	23.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	91.2		
#10	84.9		
#20	77.5		
#40	70.5		
#60	59.3		
#100	41.9		
#140	32.3		
#200	23.7		

* (no specification provided)

Material Description

Sand with some Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 2.0405 D_{60}= 0.2559 D_{50}= 0.1900
D_{30}= 0.0966 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

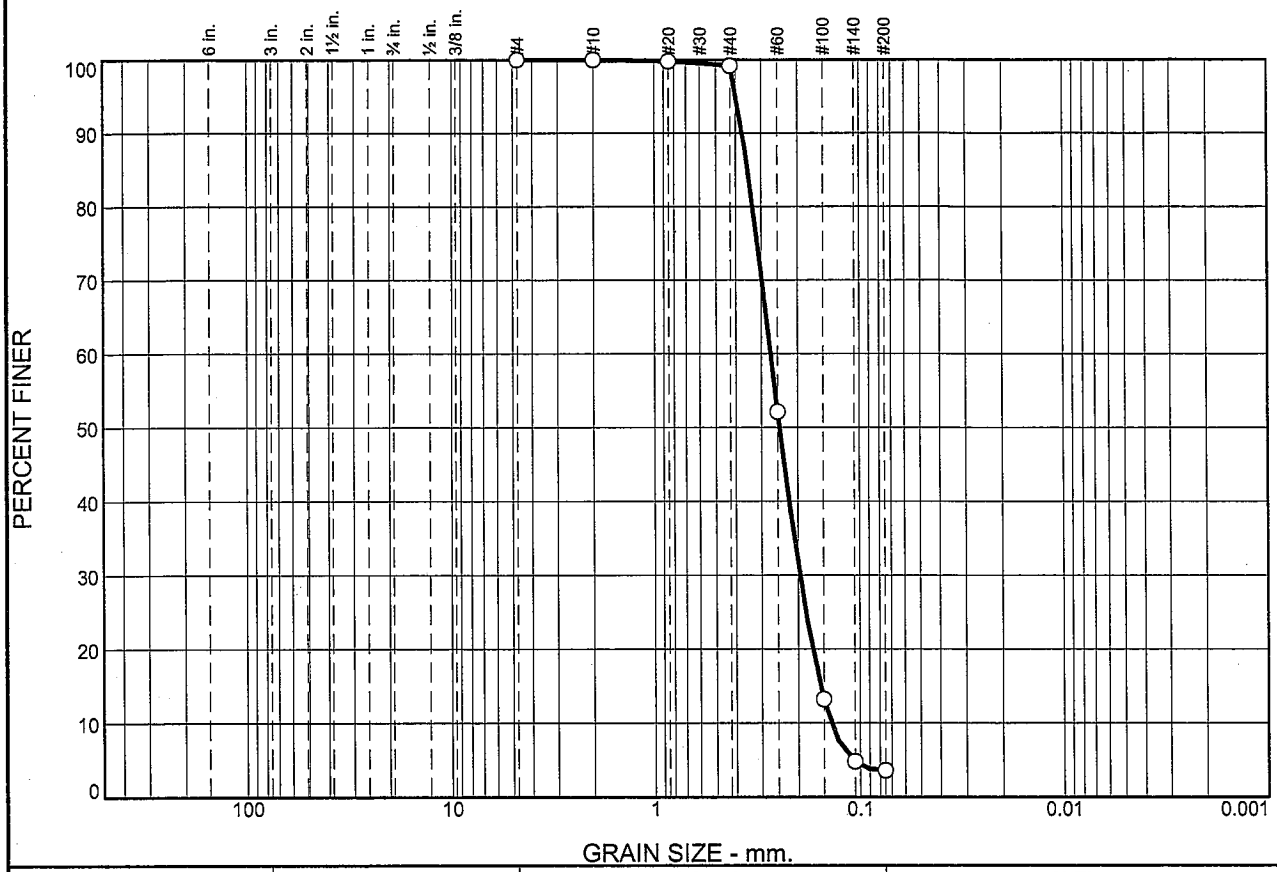
ASTM D6913-04

Sample Number: S-2B **Depth:** 19.3-20.0
Location: B-786A **Date:** 9-10-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

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	95.5	3.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.8		
#40	99.1		
#60	52.1		
#100	13.2		
#140	4.8		
#200	3.6		

* (no specification provided)

Material Description

Poorly Graded Sand

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3485 D_{60}= 0.2702 D_{50}= 0.2447
D_{30}= 0.1956 D_{15}= 0.1556 D_{10}= 0.1380
C_u= 1.96 C_c= 1.03

Classification

USCS= SP AASHTO= NR

Remarks

ASTM D6913-04

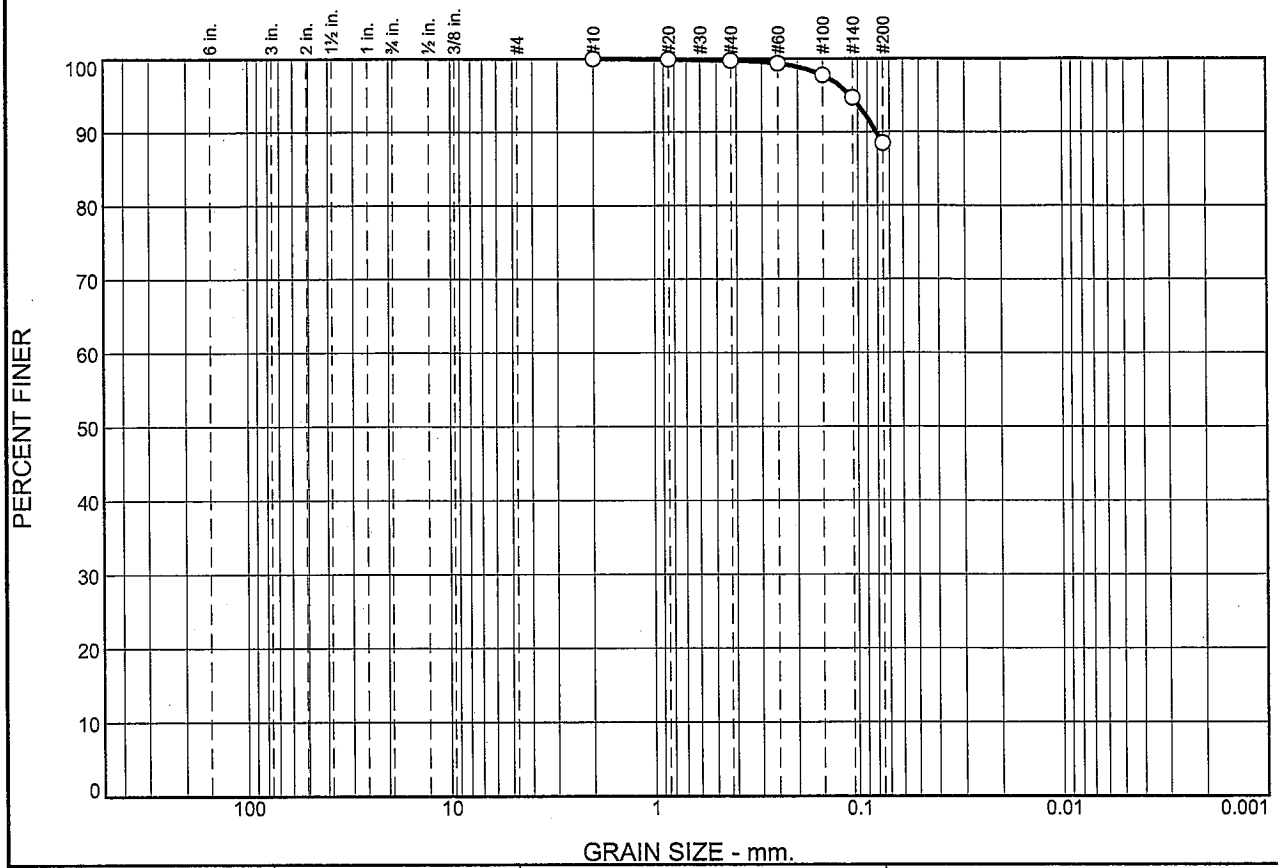
Sample Number: S-3 **Depth:** 23.5-25.0
Location: B-786A

Date: 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	11.2	88.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.7		
#60	99.4		
#100	97.7		
#140	94.7		
#200	88.5		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 33 LL= 75 PI= 42

Coefficients

D_{85}= D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(43)

Remarks

ASTM D6913-04
ASTM D4318-05

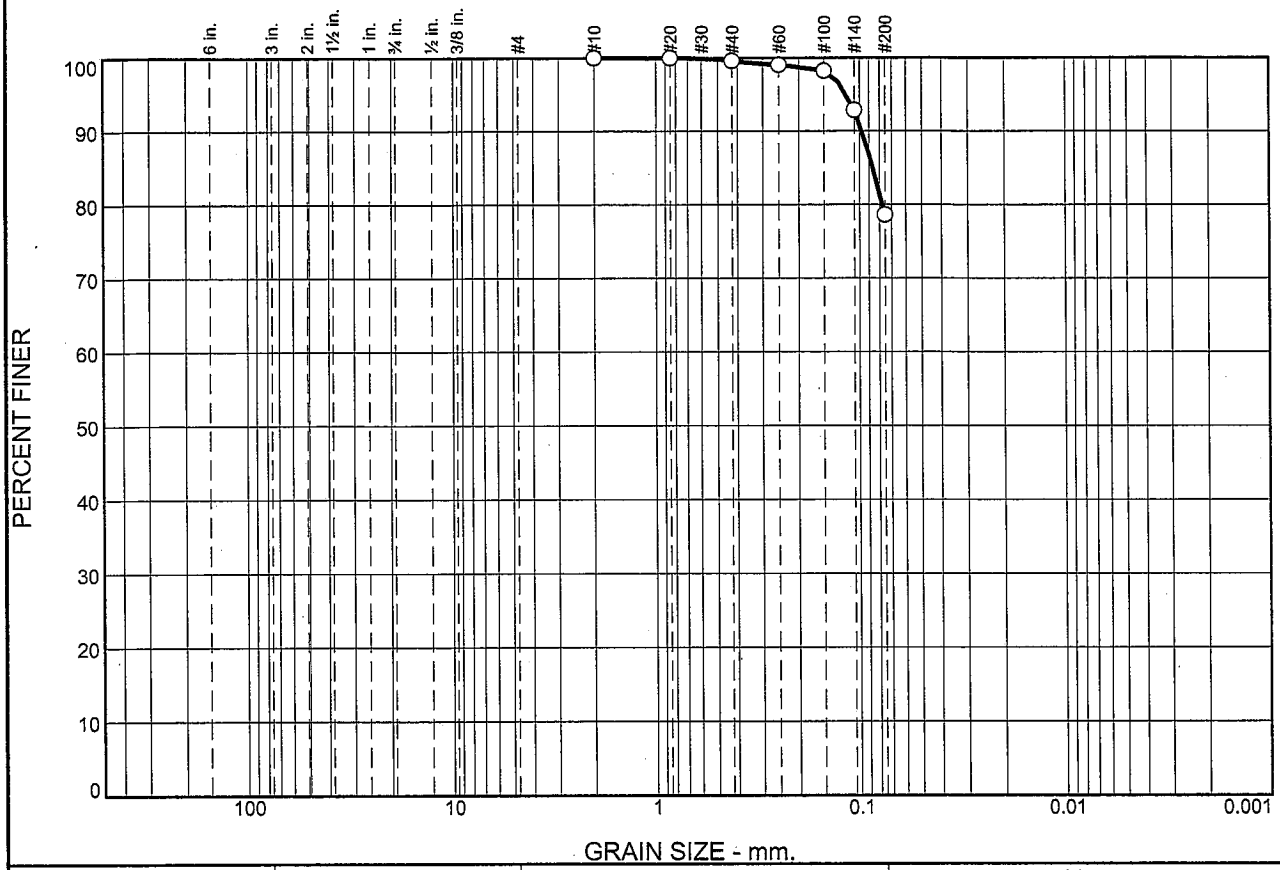
Sample Number: S-4 **Depth:** 28.5-30.0
Location: B-786A

Date: 9-12-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	21.0	78.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	99.6		
#60	99.0		
#100	98.2		
#140	92.8		
#200	78.6		

* (no specification provided)

Material Description

Lean Clay with Sand

Atterberg Limits

PL= 24 LL= 48 PI= 24

Coefficients

D_{85}= 0.0861 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(20)

Remarks

ASTM D6913-04
ASTM D4318-05

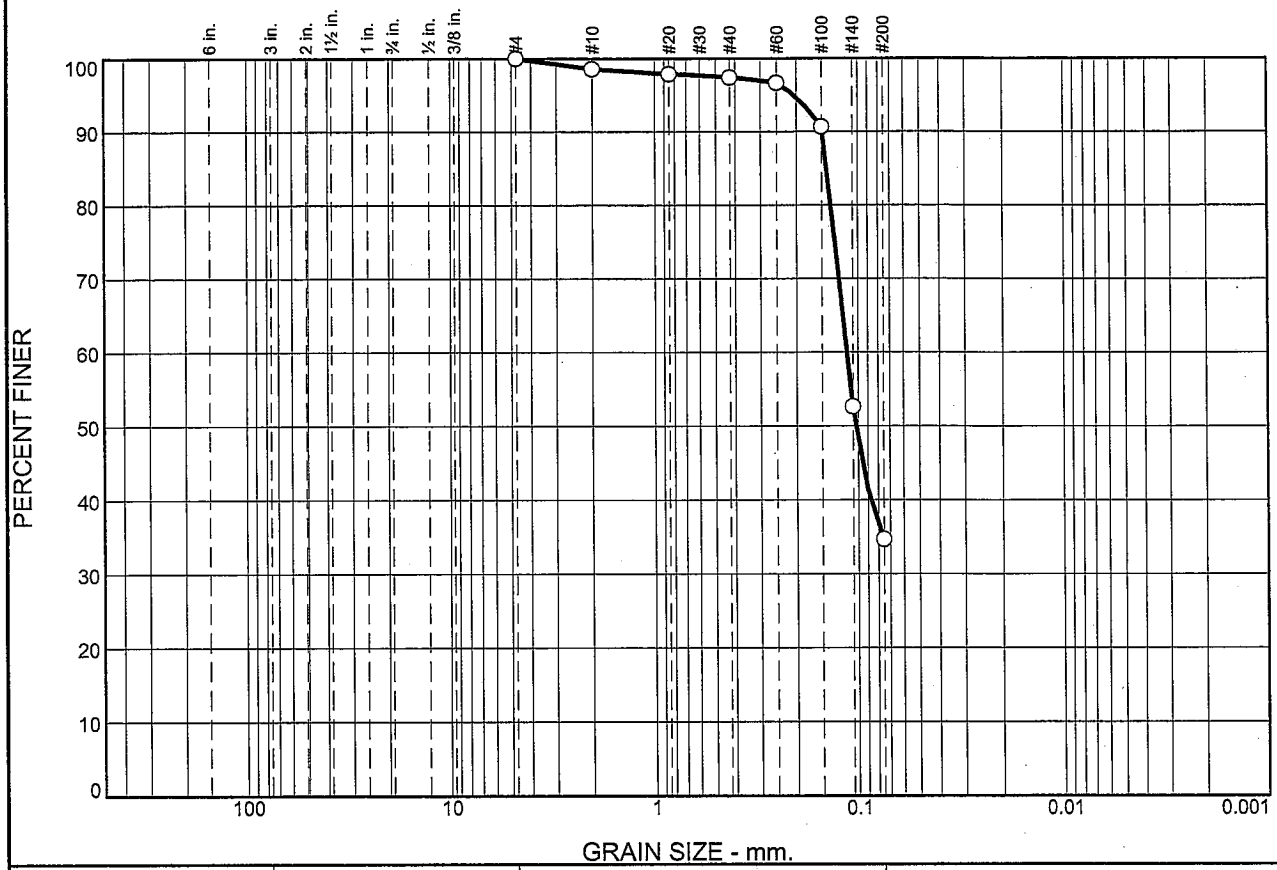
Sample Number: S-5 **Depth:** 33.5-35.0
Location: B-786A

Date: 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.4	1.2	62.7	34.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.6		
#20	97.9		
#40	97.4		
#60	96.7		
#100	90.6		
#140	52.6		
#200	34.7		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.1410 D_{60}= 0.1138 D_{50}= 0.1029
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

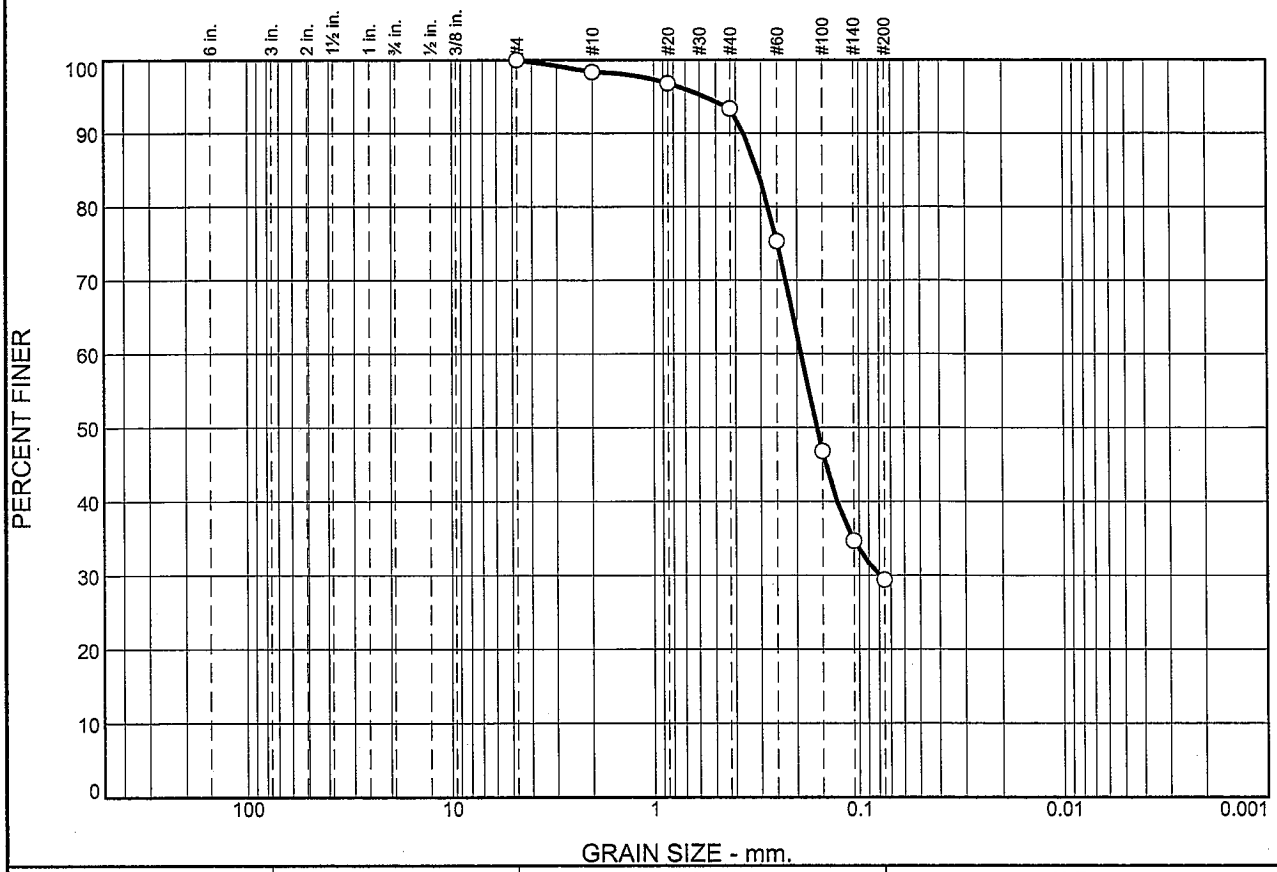
Sample Number: S-6 **Depth:** 38.5-39.7
Location: B-786A

Date: 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.7	5.0	63.9	29.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.3		
#20	96.8		
#40	93.3		
#60	75.3		
#100	46.8		
#140	34.7		
#200	29.4		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3125 D_{60}= 0.1909 D_{50}= 0.1598
D_{30}= 0.0790 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

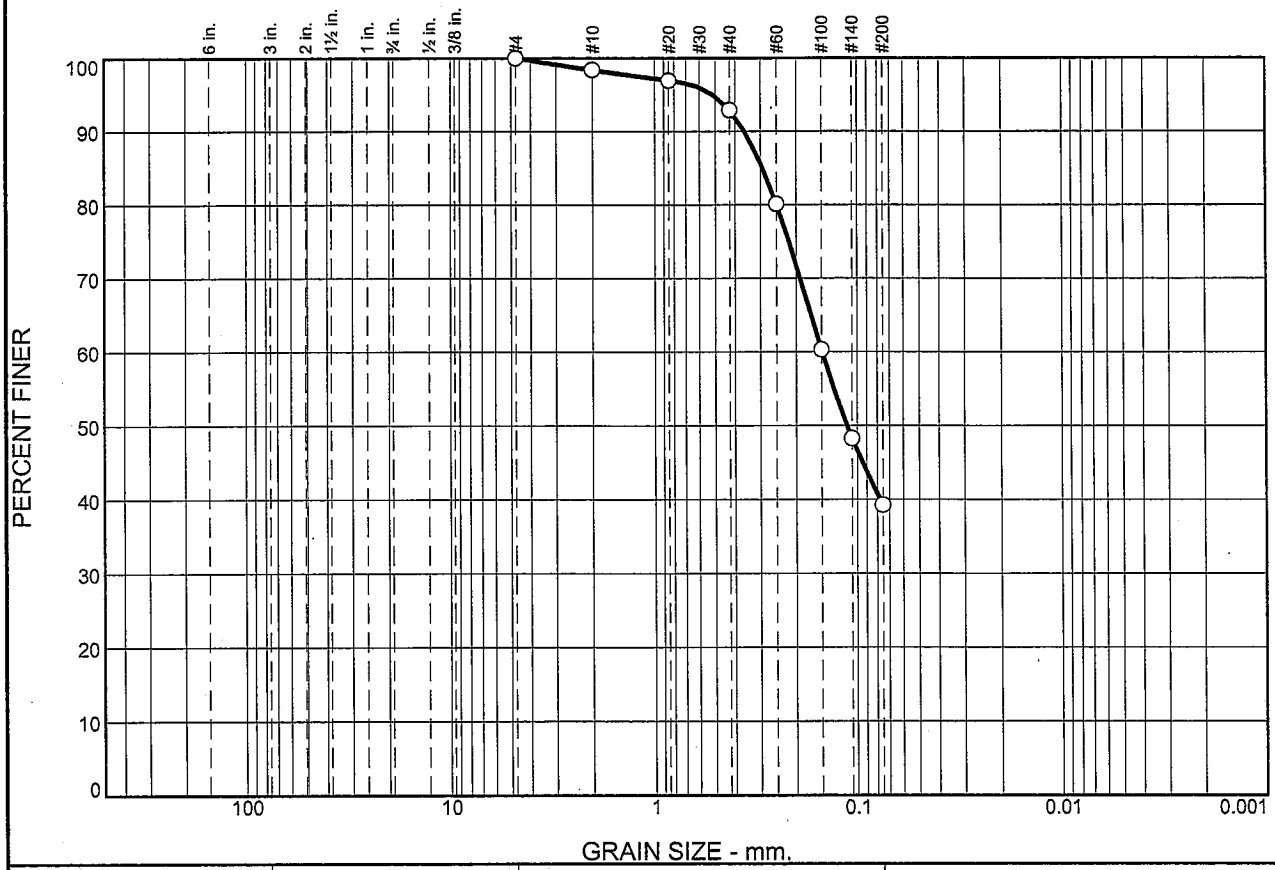
Sample Number: S-1 **Depth:** 0.0-1.5
Location: B-787

Date: 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.6	5.5	53.6	39.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.4		
#20	96.9		
#40	92.9		
#60	80.1		
#100	60.3		
#140	48.3		
#200	39.3		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 19 LL= 31 PI= 12

Coefficients

D_{85}= 0.2925 D_{60}= 0.1489 D_{50}= 0.1121
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-6(1)

Remarks

ASTM D6913-04
ASTM D4318-05

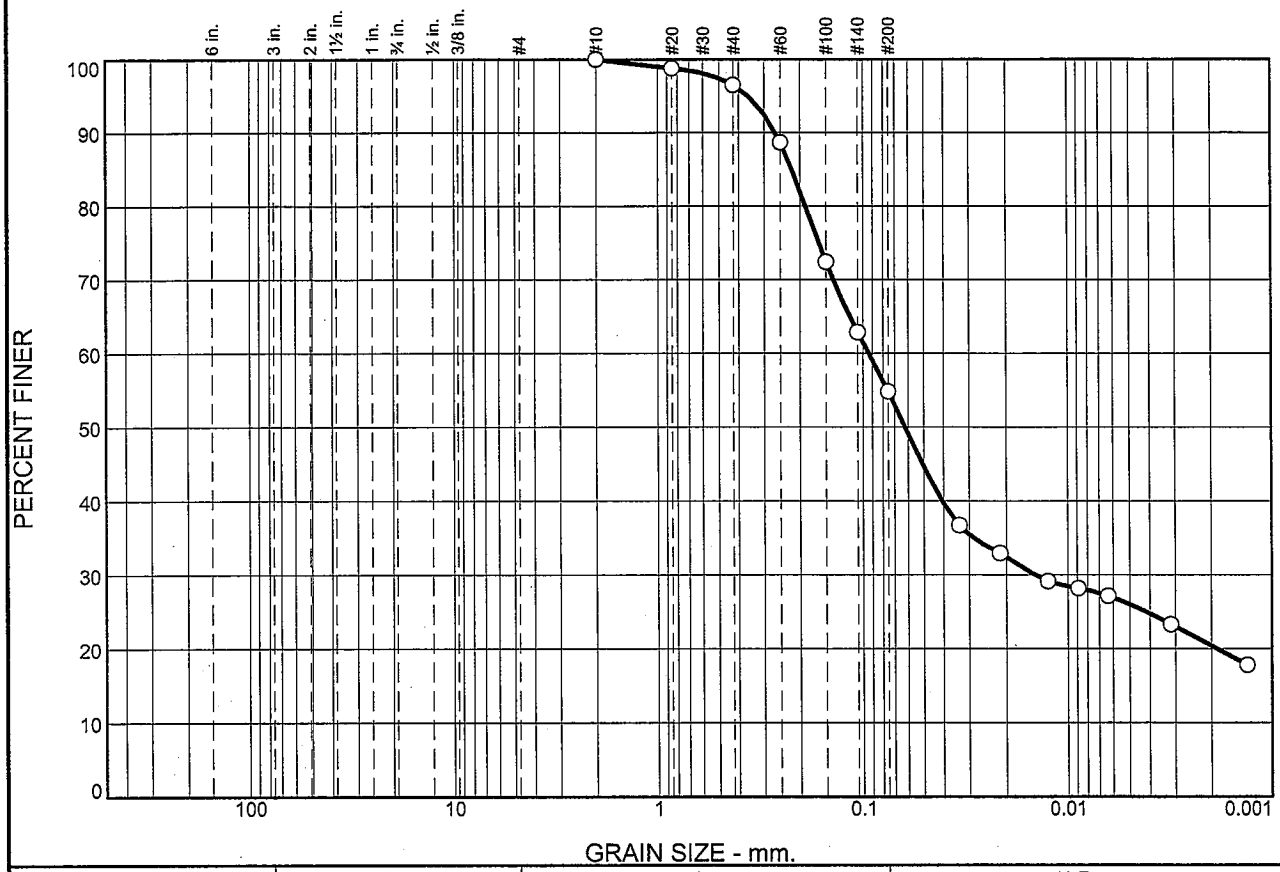
Sample Number: S-2 **Depth:** 2.5-4.0
Location: B-787

Date: 9-12-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.5	41.7	28.8	26.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	98.8		
#40	96.5		
#60	88.6		
#100	72.4		
#140	62.9		
#200	54.8		

* (no specification provided)

Material Description

Clayey Silty Fine to Medium Sand

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2197 D_{60}= 0.0939 D_{50}= 0.0619
D_{30}= 0.0145 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D422-63 (2007)

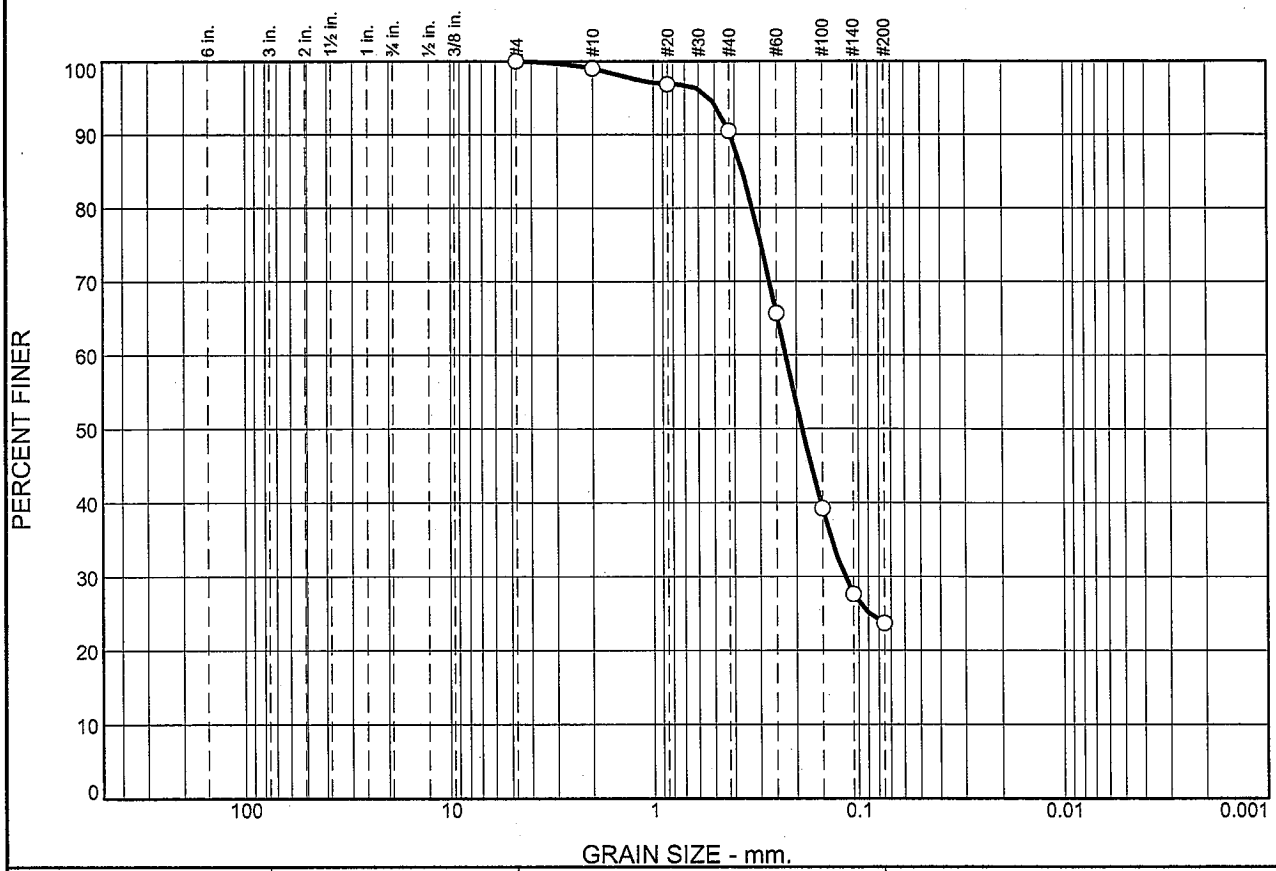
Sample Number: S-3 **Depth:** 5.0-6.5
Location: B-787

Date: 9-12-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	8.5	66.8	23.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.0		
#20	96.8		
#40	90.5		
#60	65.7		
#100	39.2		
#140	27.6		
#200	23.7		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3657 D_{60}= 0.2257 D_{50}= 0.1875
D_{30}= 0.1166 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

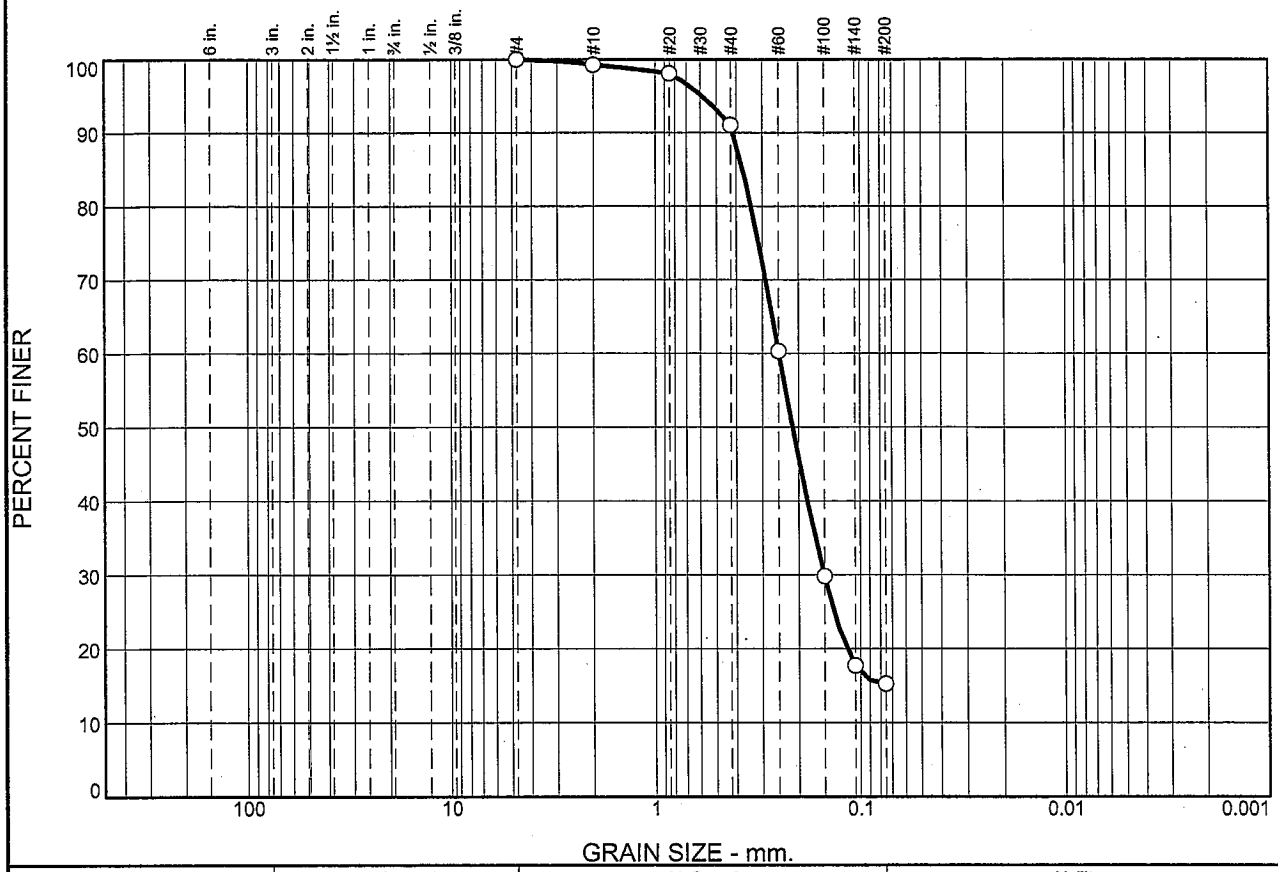
Sample Number: S-4 **Depth:** 7.5-9.0
Location: B-787

Date: 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.8	8.2	75.8	15.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.2		
#20	98.1		
#40	91.0		
#60	60.3		
#100	29.8		
#140	17.7		
#200	15.2		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3713 D_{60}= 0.2489 D_{50}= 0.2137
D_{30}= 0.1505 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

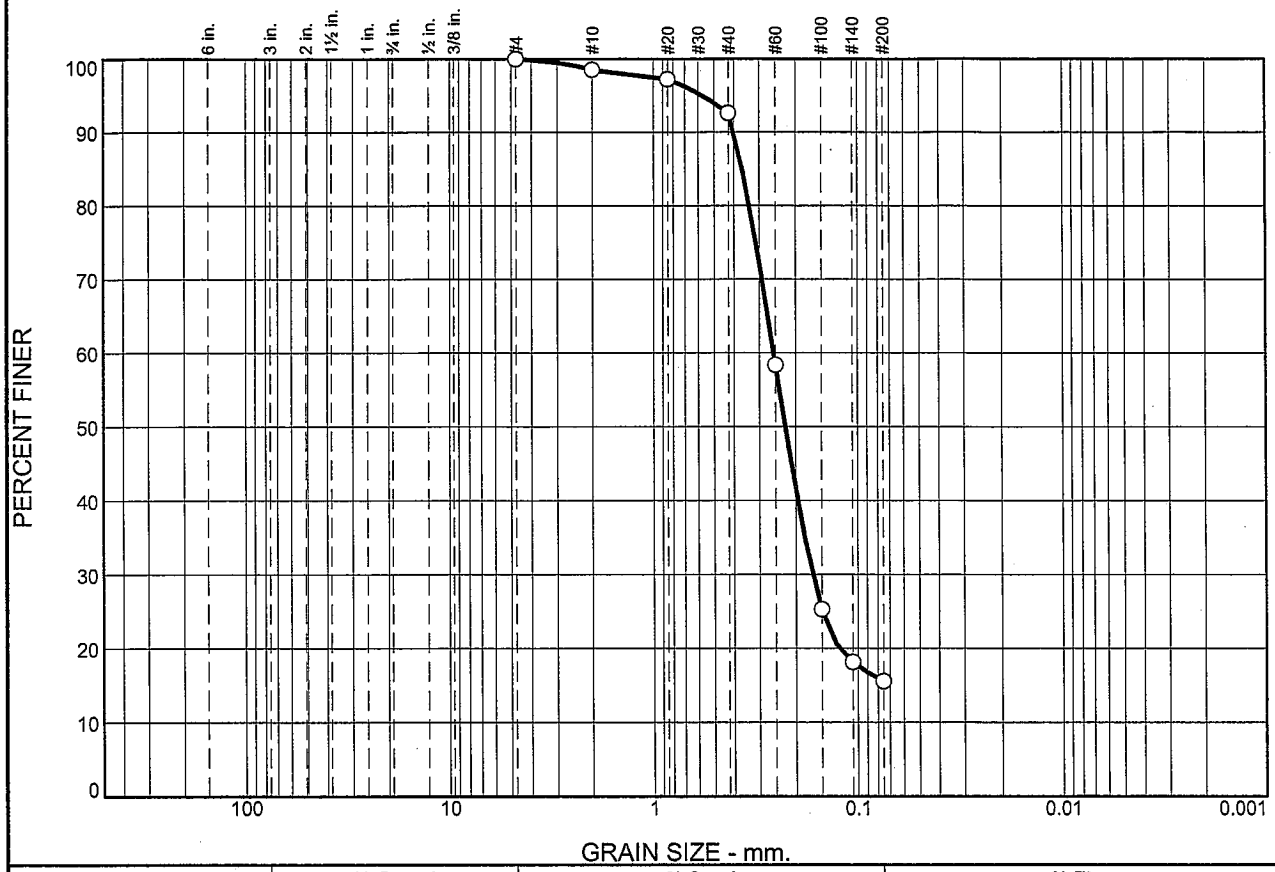
Sample Number: S-5 **Depth:** 10.0-11.5
Location: B-787

Date: 9-12-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.5	5.9	77.0	15.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.5		
#20	97.2		
#40	92.6		
#60	58.4		
#100	25.3		
#140	18.1		
#200	15.6		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3636 D_{60}= 0.2553 D_{50}= 0.2243
D_{30}= 0.1660 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

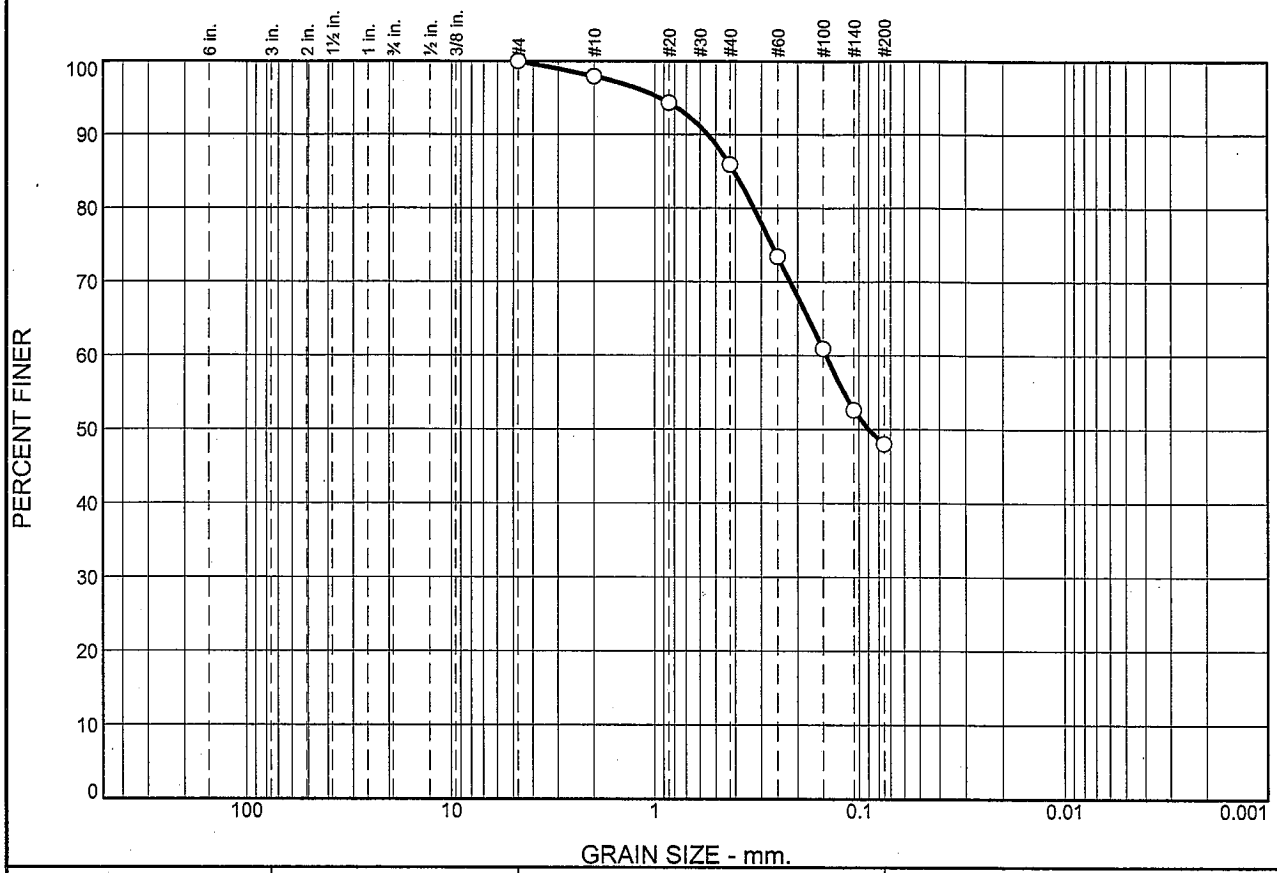
ASTM D6913-04

Sample Number: S-6A **Depth:** 13.5-15.0
Location: B-787 **Date:** 9-12-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.1	12.0	37.9	48.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	97.9		
#20	94.3		
#40	85.9		
#60	73.4		
#100	60.9		
#140	52.6		
#200	48.0		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.4059 D_{60}= 0.1447 D_{50}= 0.0897
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

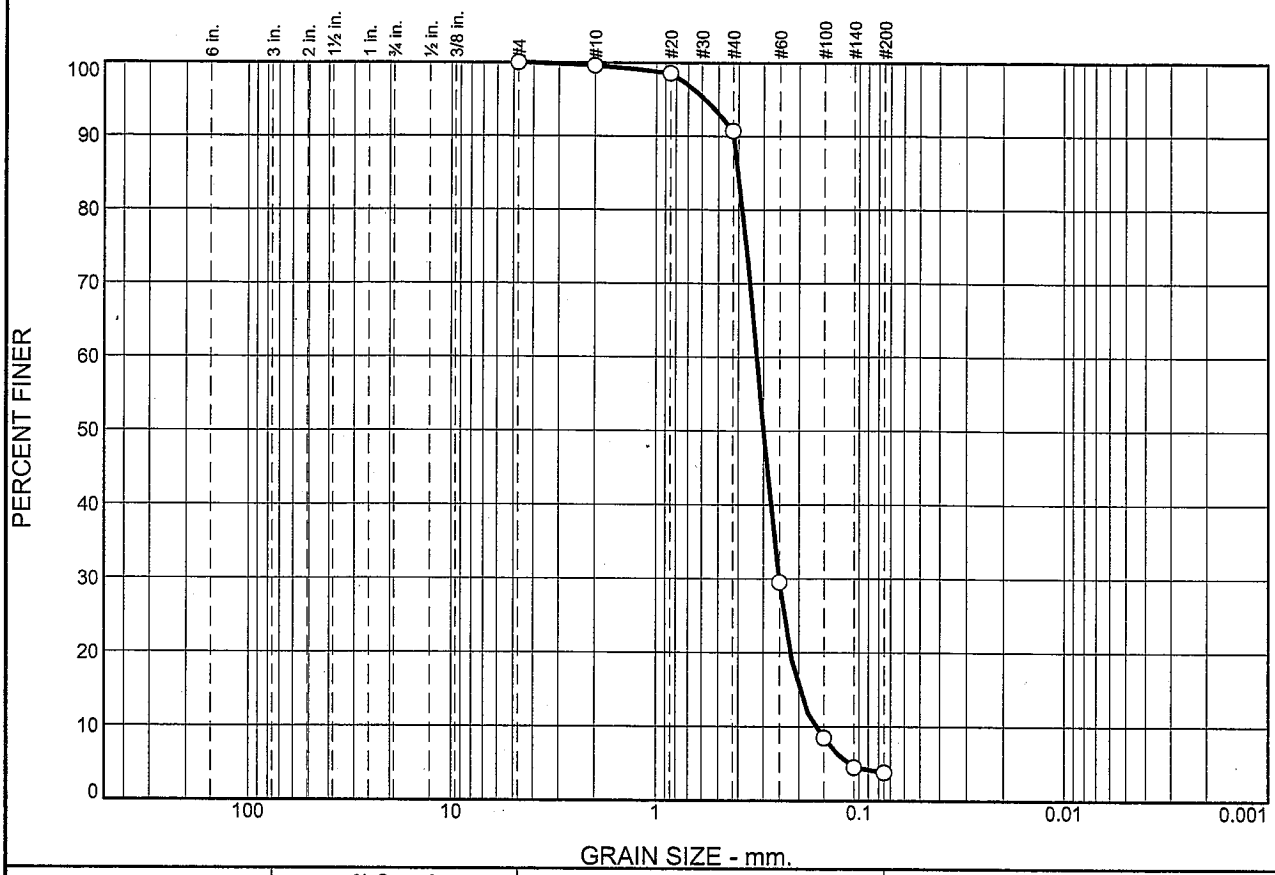
Sample Number: S-6B **Depth:** 13.5-15.0
Location: B-787

Date: 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	8.9	86.9	3.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.6		
#20	98.6		
#40	90.7		
#60	29.5		
#100	8.5		
#140	4.5		
#200	3.8		

* (no specification provided)

Material Description

Poorly Graded Sand

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3993 D_{60}= 0.3239 D_{50}= 0.2997
D_{30}= 0.2513 D_{15}= 0.1987 D_{10}= 0.1649
C_u= 1.96 C_c= 1.18

Classification

USCS= SP AASHTO= NA

Remarks

ASTM D6913-04

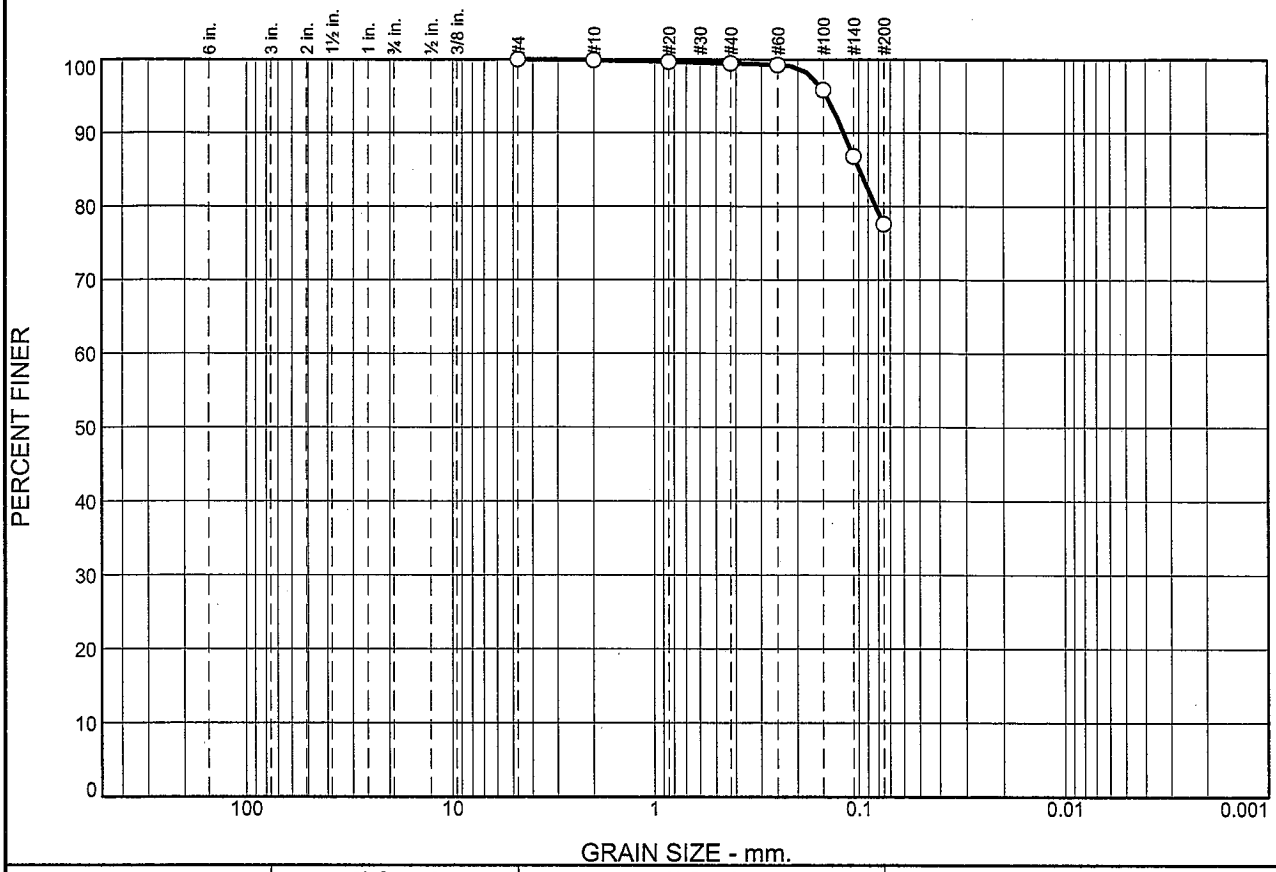
Sample Number: S-7 **Depth:** 18.5-20.0
Location: B-787

Date: 9-12-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.5	21.9	77.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.6		
#40	99.4		
#60	99.3		
#100	95.8		
#140	86.8		
#200	77.5		

* (no specification provided)

Material Description

Silt and Clay with Fine Sand

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.0994 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

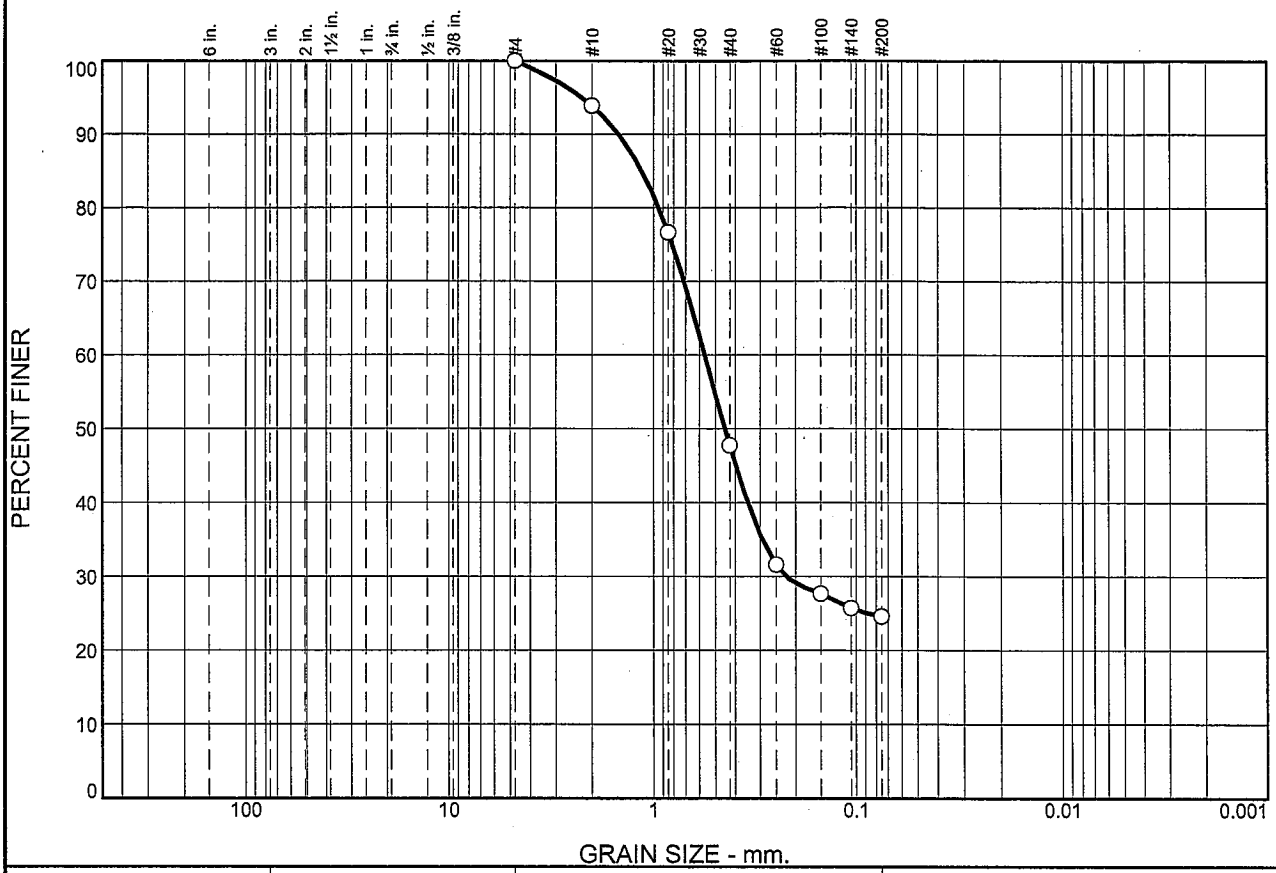
ASTM D6913-04

Sample Number: S-1 **Depth:** 0.0'-1.5'
Location: B-789 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	6.1	46.2	23.1	24.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	93.9		
#20	76.7		
#40	47.7		
#60	31.6		
#100	27.7		
#140	25.7		
#200	24.6		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.1390 D_{60}= 0.5649 D_{50}= 0.4490
D_{30}= 0.2227 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

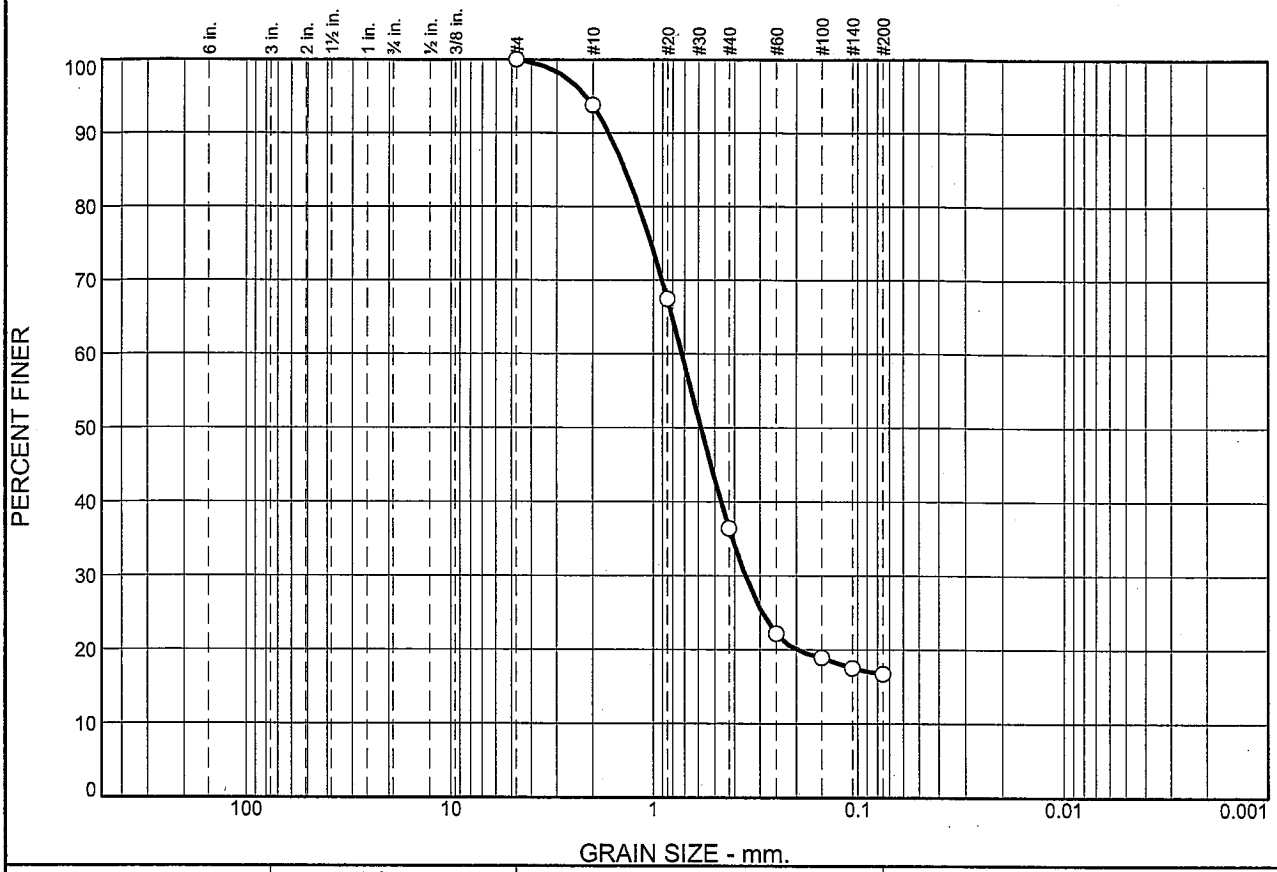
ASTM D6913-04

Sample Number: S-1 **Depth:** 0.0'-1.5'
Location: B-791 **Date:** 8-29-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	6.2	57.4	19.7	16.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	93.8		
#20	67.4		
#40	36.4		
#60	22.2		
#100	18.9		
#140	17.5		
#200	16.7		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.3746 D_{60}= 0.7209 D_{50}= 0.5820
D_{30}= 0.3532 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

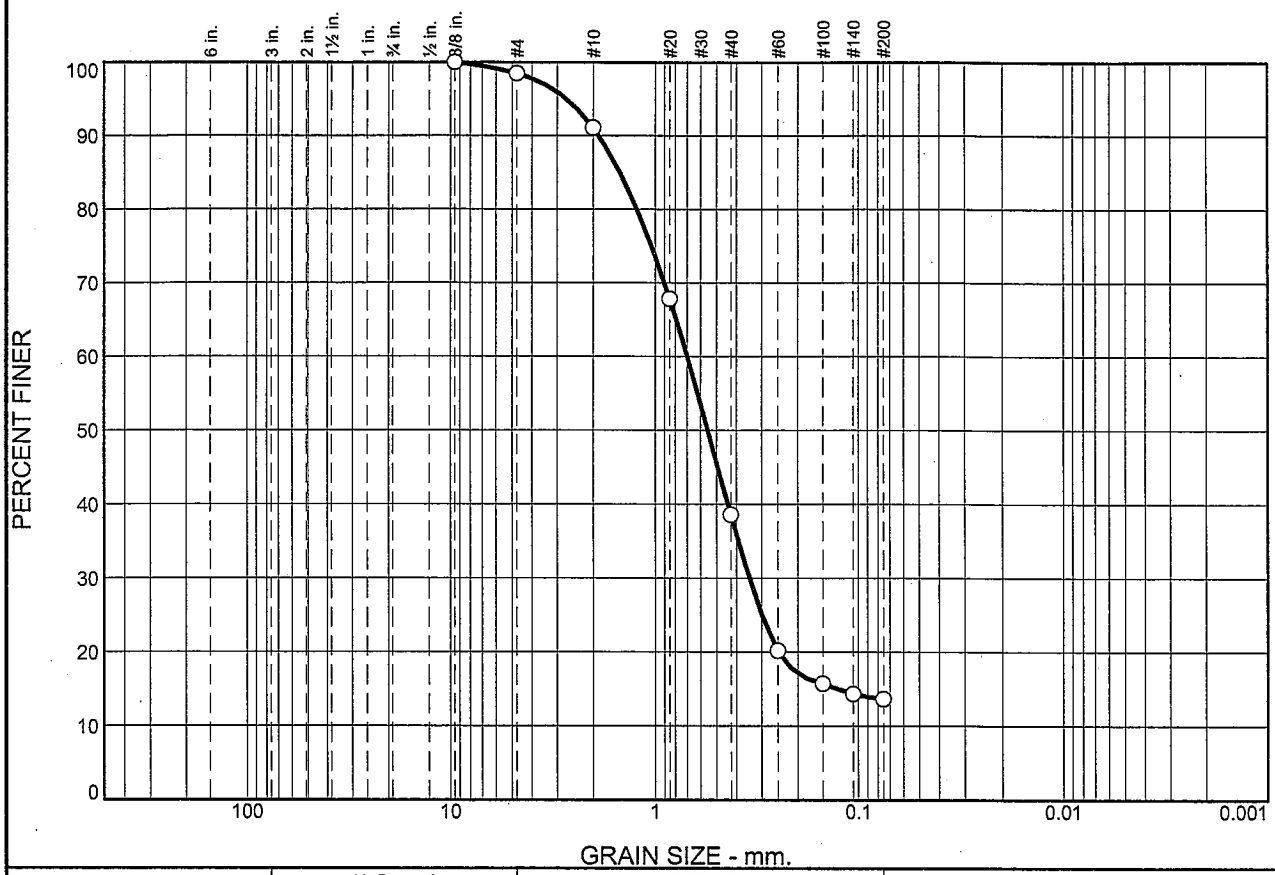
Sample Number: S-2 **Depth:** 2.6'-4.1'
Location: B-791

Date: 8-29-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.5	7.4	52.5	25.0	13.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	98.5		
#10	91.1		
#20	67.8		
#40	38.6		
#60	20.2		
#100	15.7		
#140	14.4		
#200	13.6		

* (no specification provided)

Material Description

Sand with some Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.4829 D_{60}= 0.6980 D_{50}= 0.5527
D_{30}= 0.3448 D_{15}= 0.1259 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

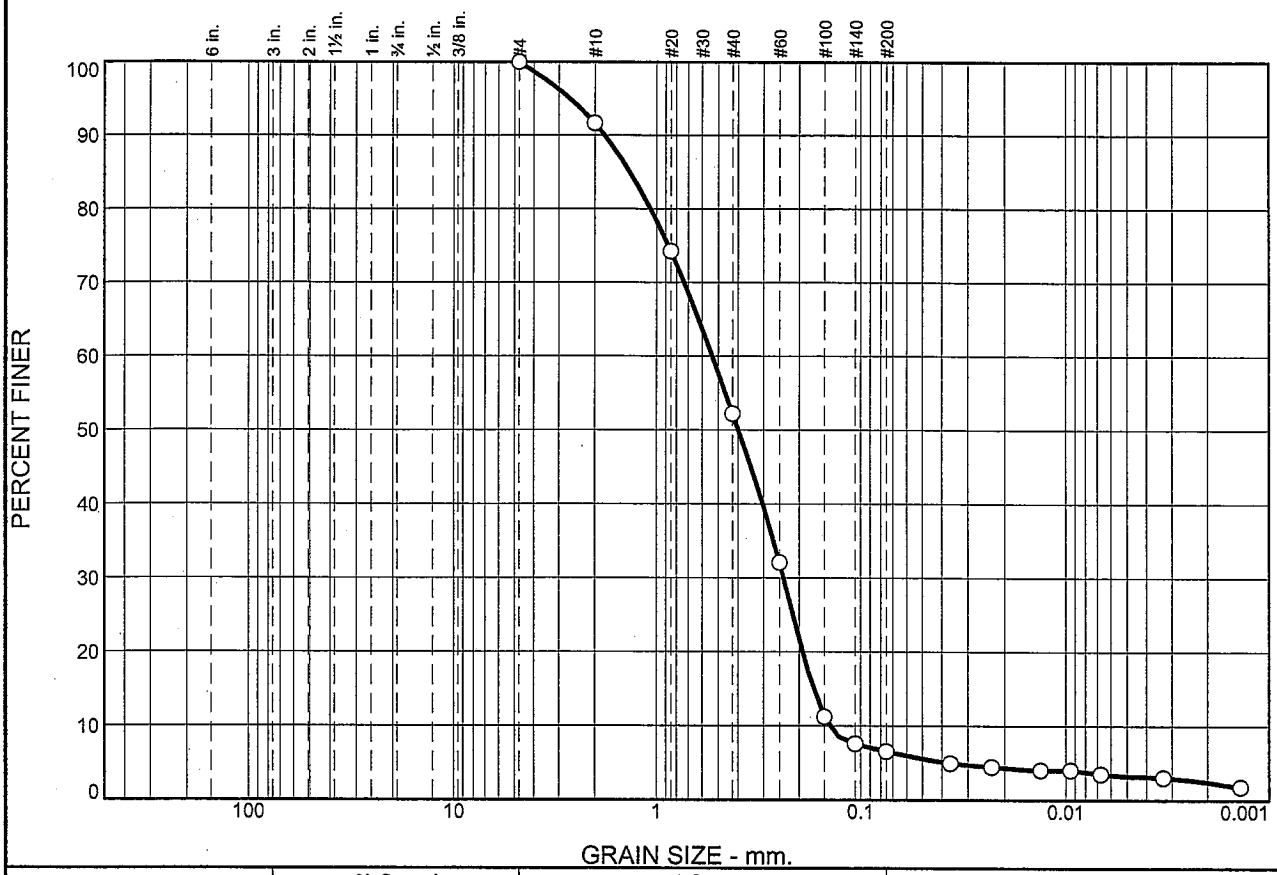
Sample Number: S-3 **Depth:** 5.0'-6.5'
Location: B-791

Date: 8-29-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	8.4	39.4	45.6	3.3	3.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	91.6		
#20	74.2		
#40	52.2		
#60	32.1		
#100	11.2		
#140	7.6		
#200	6.6		

* (no specification provided)

Material Description

Poorly Graded Sand with Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 1.3440 D_{60}= 0.5350 D_{50}= 0.3986
D_{30}= 0.2386 D_{15}= 0.1698 D_{10}= 0.1415
C_u= 3.78 C_c= 0.75

Classification

USCS= SP-SM AASHTO= A-3

Remarks

ASTM D422-63 (2007)
ASTM D4318-05

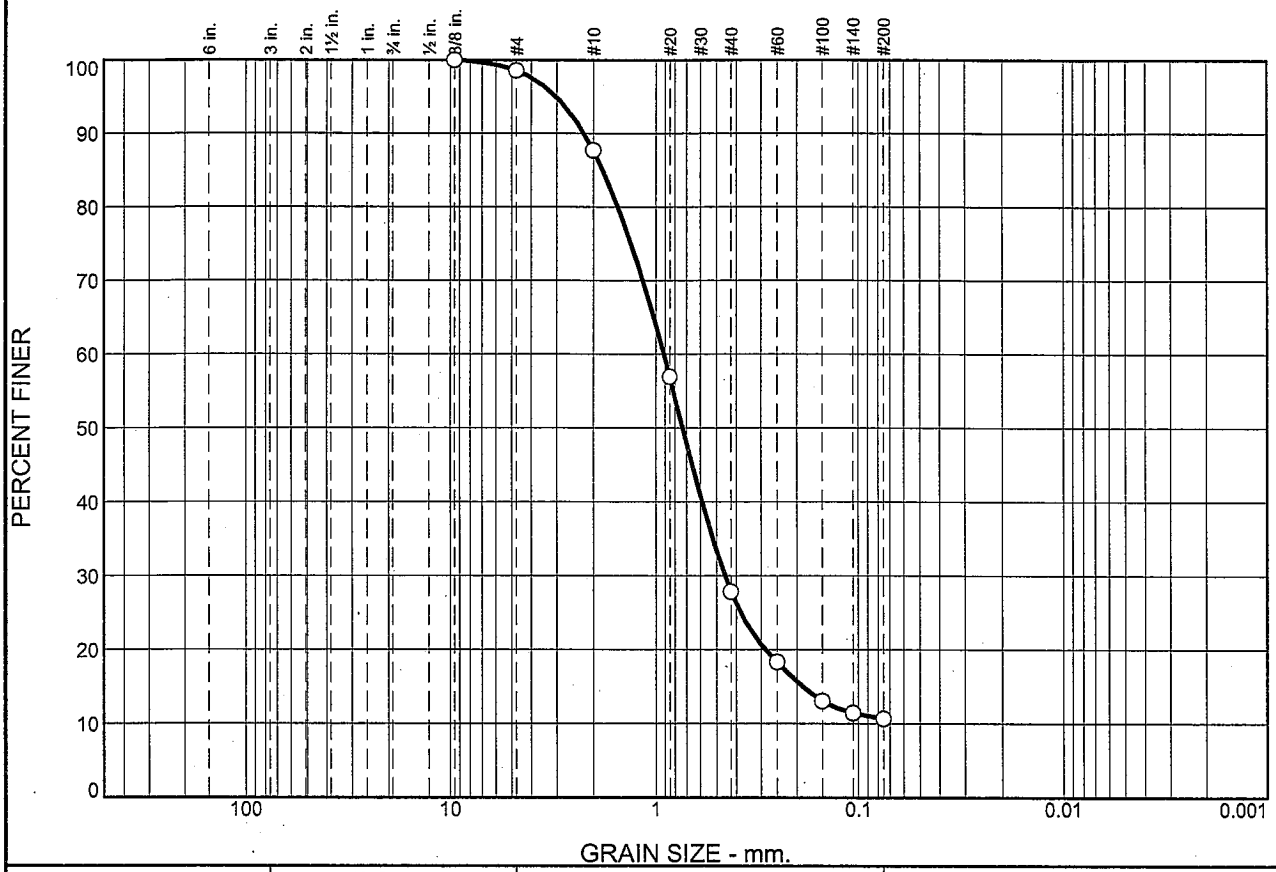
Sample Number: S-4 **Depth:** 7.5'-9.0'
Location: B-791

Date: 8-25-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	10.9	59.9	17.1	10.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	98.6		
#10	87.7		
#20	56.9		
#40	27.8		
#60	18.3		
#100	13.1		
#140	11.4		
#200	10.7		

* (no specification provided)

Material Description

Sand with some Fine Gravel

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.8005 D_{60}= 0.9104 D_{50}= 0.7319
D_{30}= 0.4552 D_{15}= 0.1868 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

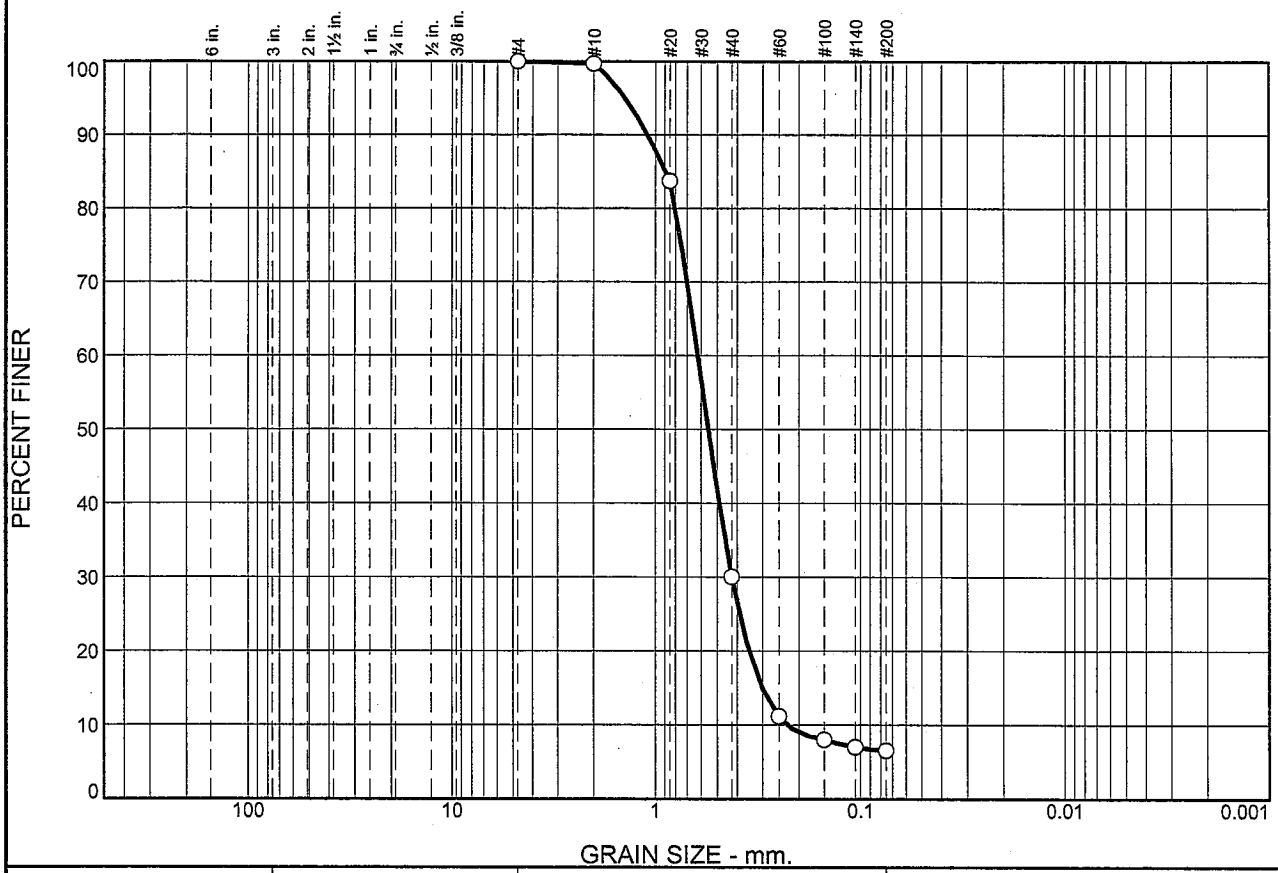
ASTM D6913-04

Sample Number: S-5 **Depth:** 10.0-11.5
Location: B-791 **Date:** 9-5-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	69.7	23.5	6.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.7		
#20	83.7		
#40	30.0		
#60	11.2		
#100	8.0		
#140	7.0		
#200	6.5		

* (no specification provided)

Material Description

Fine to Medium Sand

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.8909 D_{60}= 0.6207 D_{50}= 0.5520
D_{30}= 0.4247 D_{15}= 0.3014 D_{10}= 0.2270
C_u= 2.73 C_c= 1.28

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

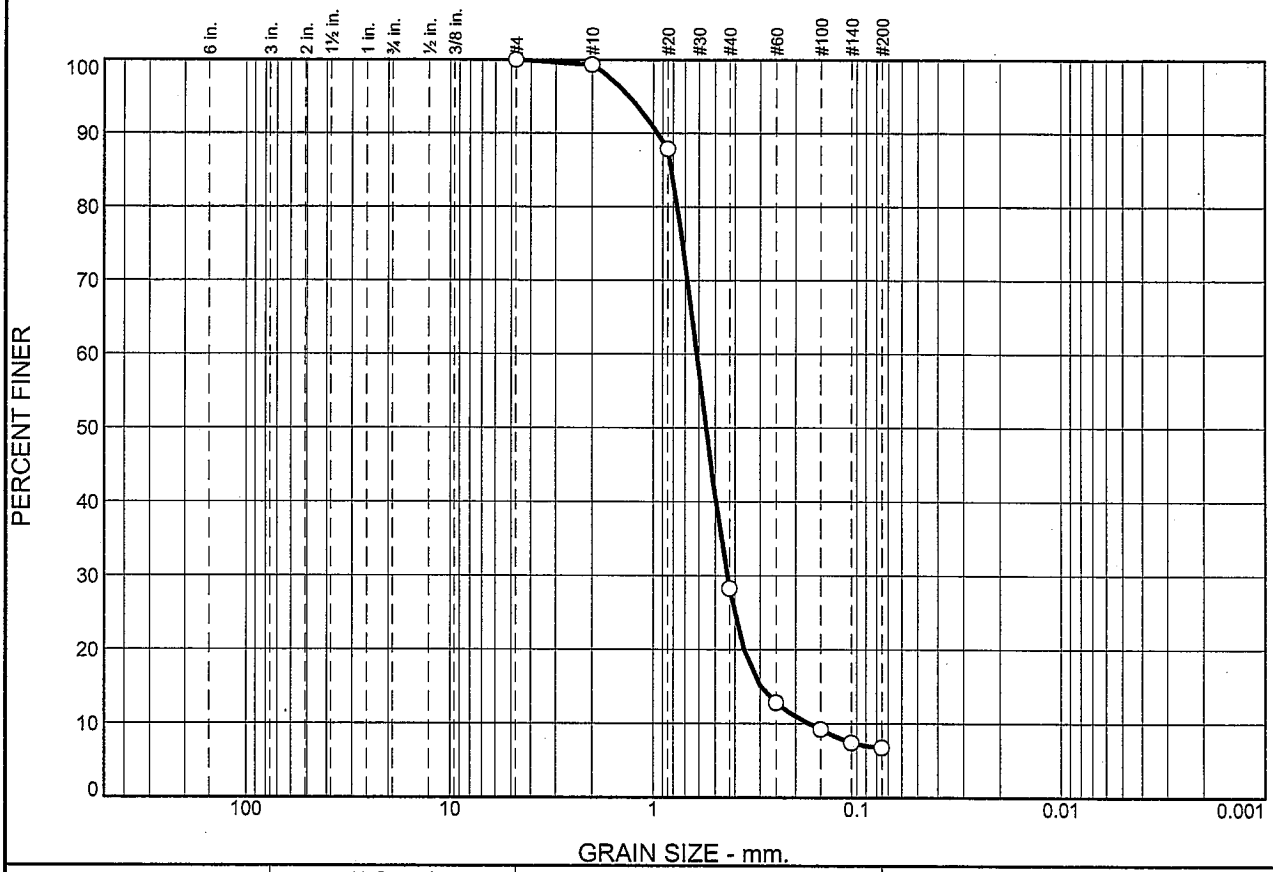
Sample Number: S-6 **Depth:** 12.5-14.0
Location: B-791

Date: 9-5-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	71.0	21.5	6.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.3		
#20	87.9		
#40	28.3		
#60	12.8		
#100	9.2		
#140	7.4		
#200	6.8		

* (no specification provided)

Material Description

Sand with some Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.8150 D_{60}= 0.6132 D_{50}= 0.5527
D_{30}= 0.4362 D_{15}= 0.2973 D_{10}= 0.1709
C_u= 3.59 C_c= 1.82

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

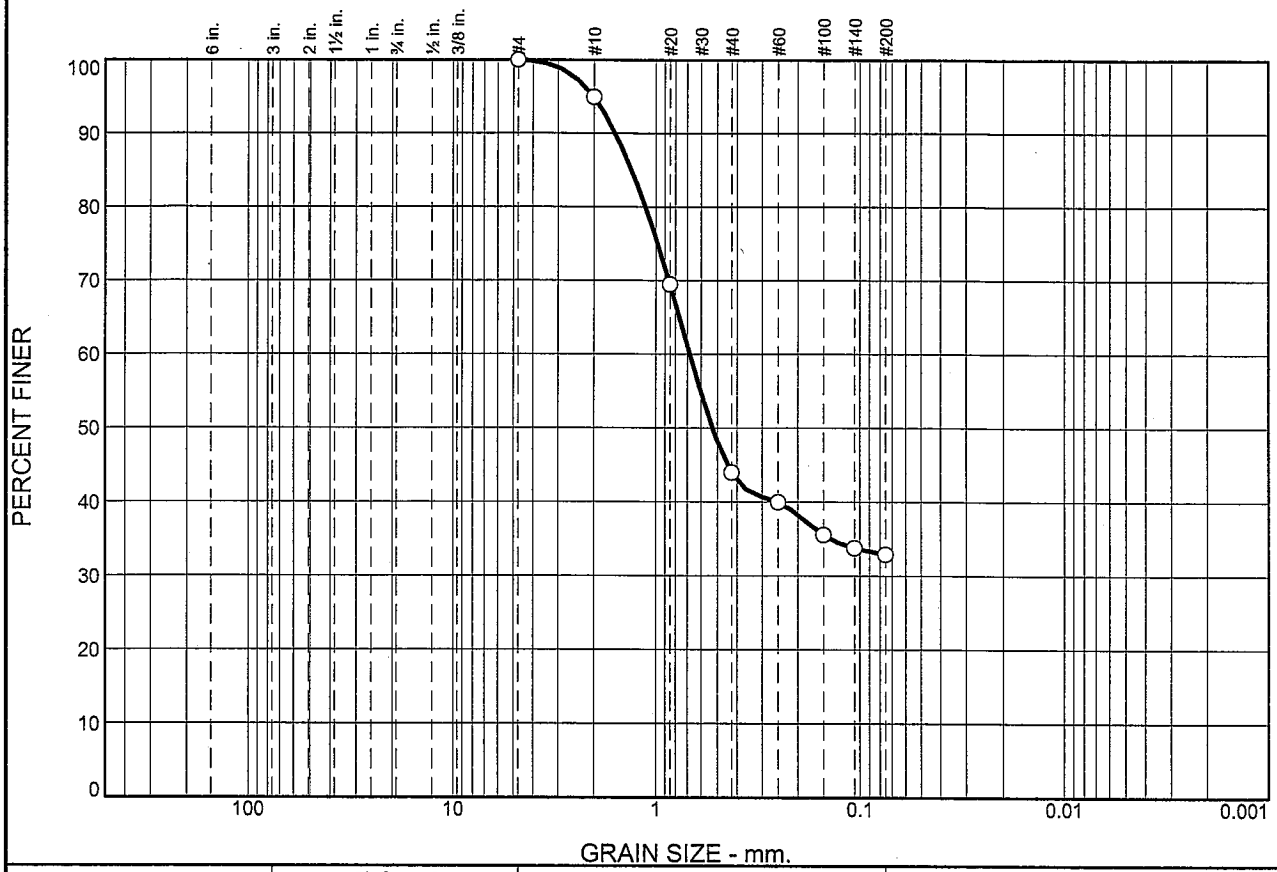
Sample Number: S-7 **Depth:** 15.0-16.5
Location: B-791

Date: 9-5-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	5.1	50.9	11.1	32.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	94.9		
#20	69.5		
#40	44.0		
#60	40.0		
#100	35.6		
#140	33.8		
#200	32.9		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.3099 D_{60}= 0.6803 D_{50}= 0.5275
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

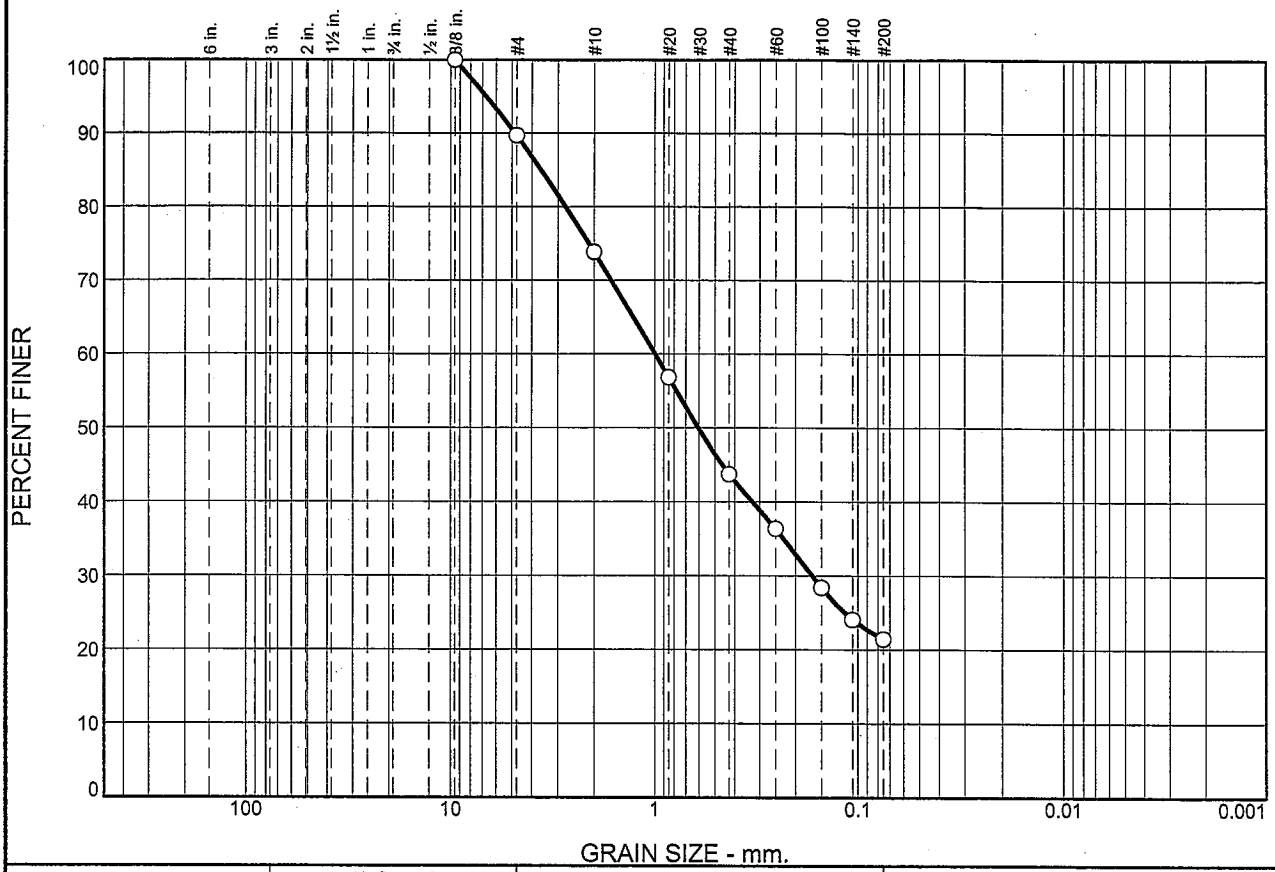
Sample Number: S-8 **Depth:** 19.0-20.5
Location: B-791

Date: 9-5-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	10.3	15.9	30.1	22.2	21.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	89.7		
#10	73.8		
#20	56.8		
#40	43.7		
#60	36.4		
#100	28.4		
#140	24.1		
#200	21.5		

* (no specification provided)

Material Description

Sand with Fine Gravel and Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 3.6147 D_{60}= 0.9936 D_{50}= 0.6050
D_{30}= 0.1665 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

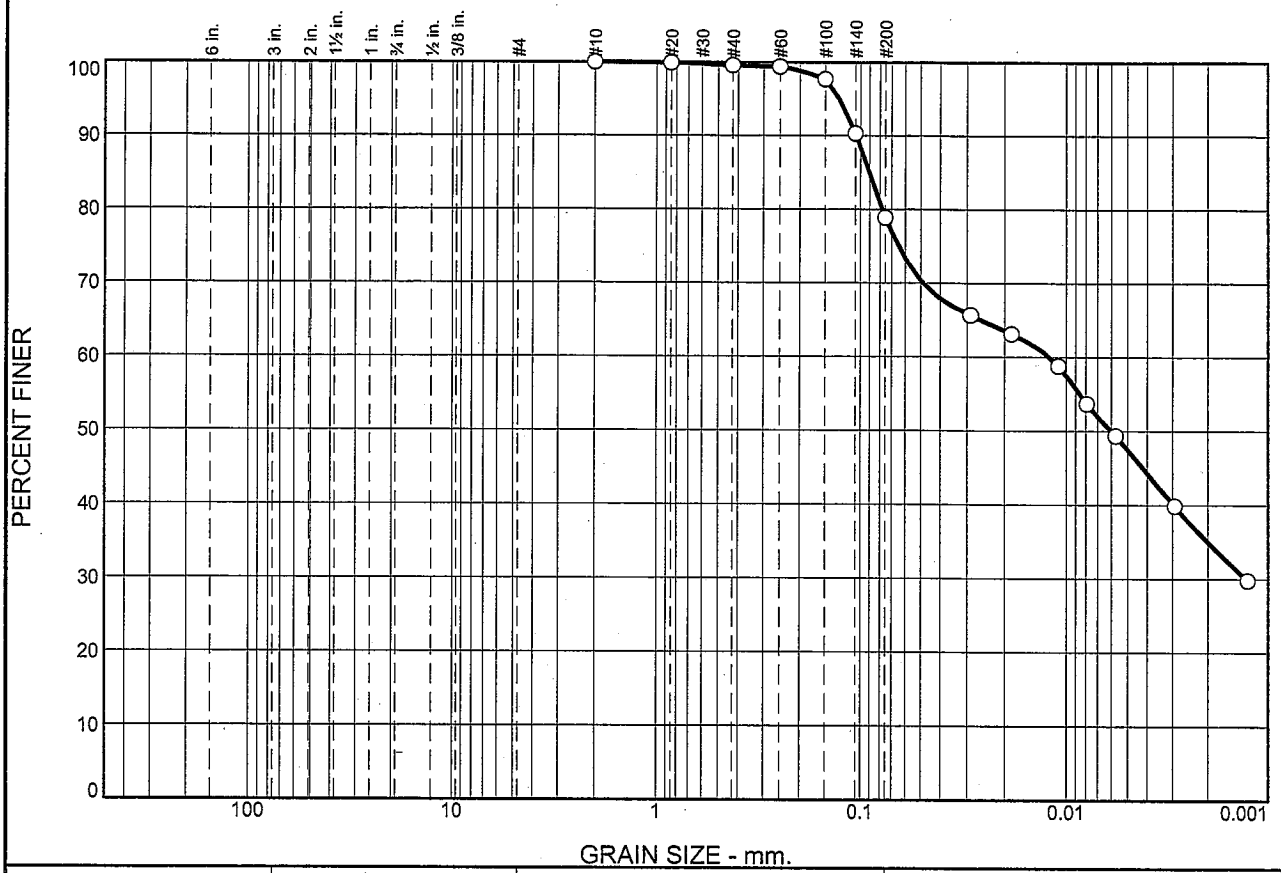
ASTM D6913-04

Sample Number: S-9 **Depth:** 23.5-25.0
Location: B-791 **Date:** 9-5-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

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	20.6	31.4	47.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.5		
#60	99.4		
#100	97.7		
#140	90.3		
#200	78.9		

* (no specification provided)

Material Description

Fat Clay with Sand

Atterberg Limits

PL= 23 LL= 59 PI= 36

Coefficients

D_{85}= 0.0903 D_{60}= 0.0120 D_{50}= 0.0060
D_{30}= 0.0013 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(30)

Remarks

ASTM D422-63 (2007)
ASTM D4318-05

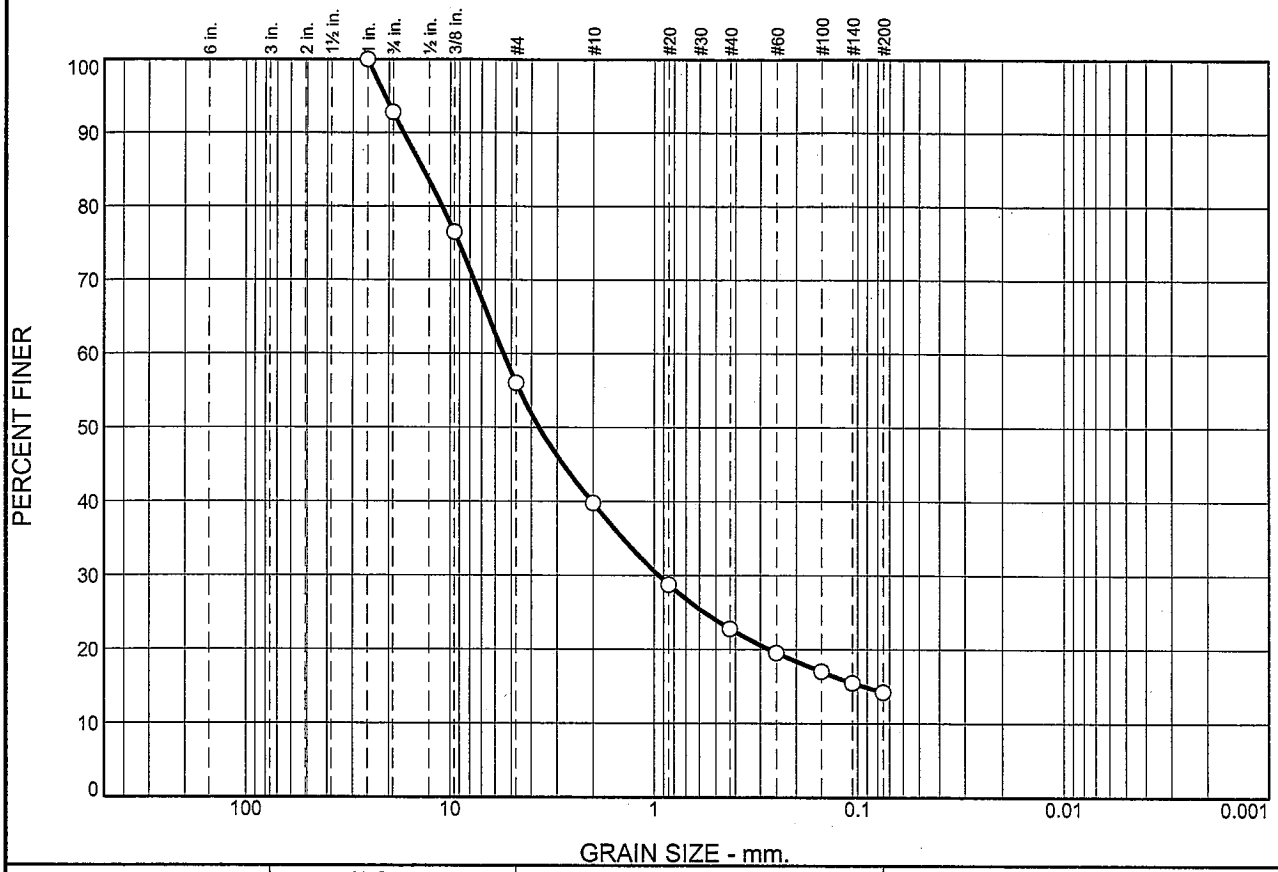
Sample Number: S-10 **Depth:** 28.5'-30.0'
Location: B-791

Date: 8-25-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	7.3	36.7	16.2	17.0	8.6	14.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1in.	100.0		
3/4in.	92.7		
3/8in.	76.5		
#4	56.0		
#10	39.8		
#20	28.8		
#40	22.8		
#60	19.5		
#100	17.0		
#140	15.5		
#200	14.2		

* (no specification provided)

Material Description

Fine to Coarse Gravel with Sand and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 13.5429 D_{60}= 5.4805 D_{50}= 3.6686
D_{30}= 0.9515 D_{15}= 0.0940 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

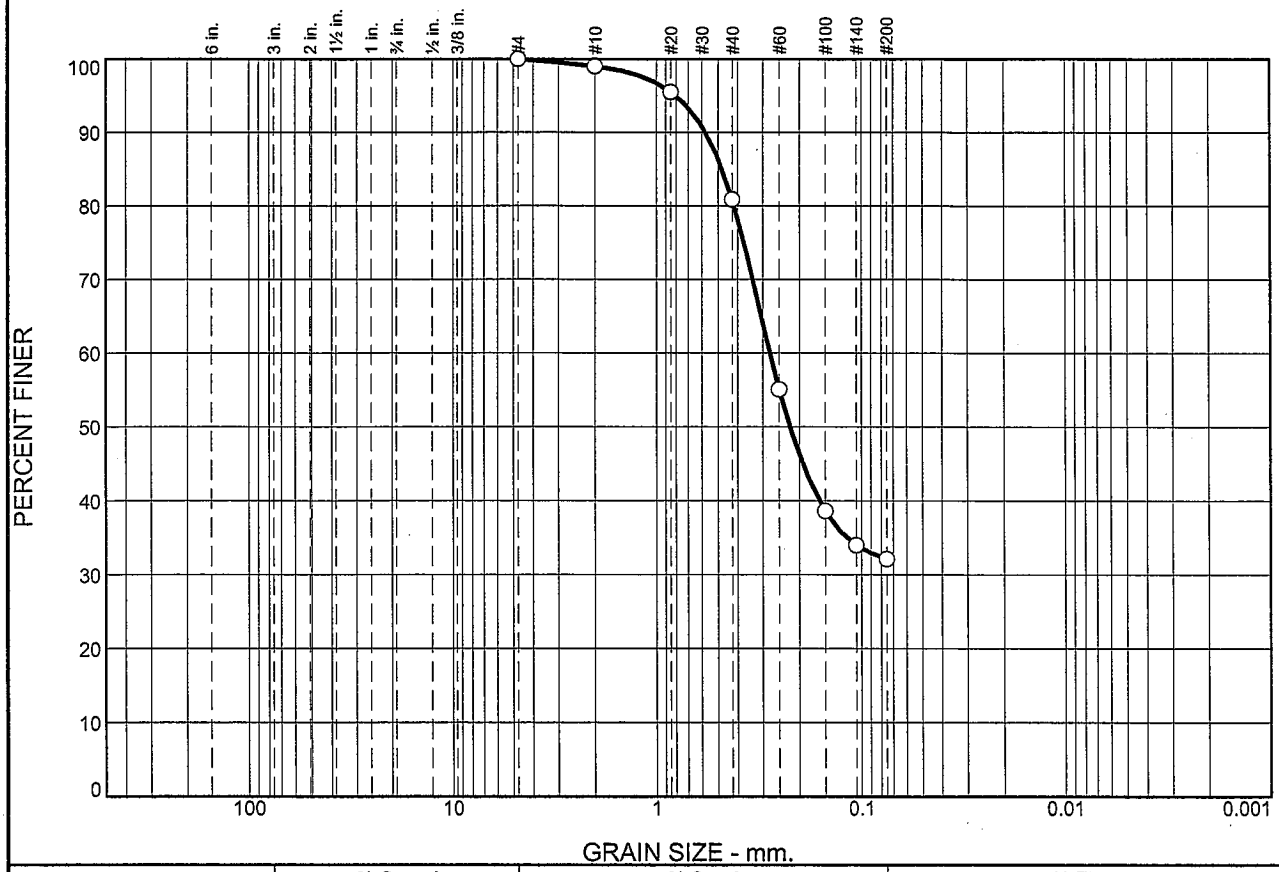
Sample Number: S-1 **Depth:** 0.0-1.5
Location: B-821

Date: 9-11-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	18.1	48.8	32.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.0		
#20	95.5		
#40	80.9		
#60	55.1		
#100	38.6		
#140	34.0		
#200	32.1		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.4764 D_{60}= 0.2772 D_{50}= 0.2218
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

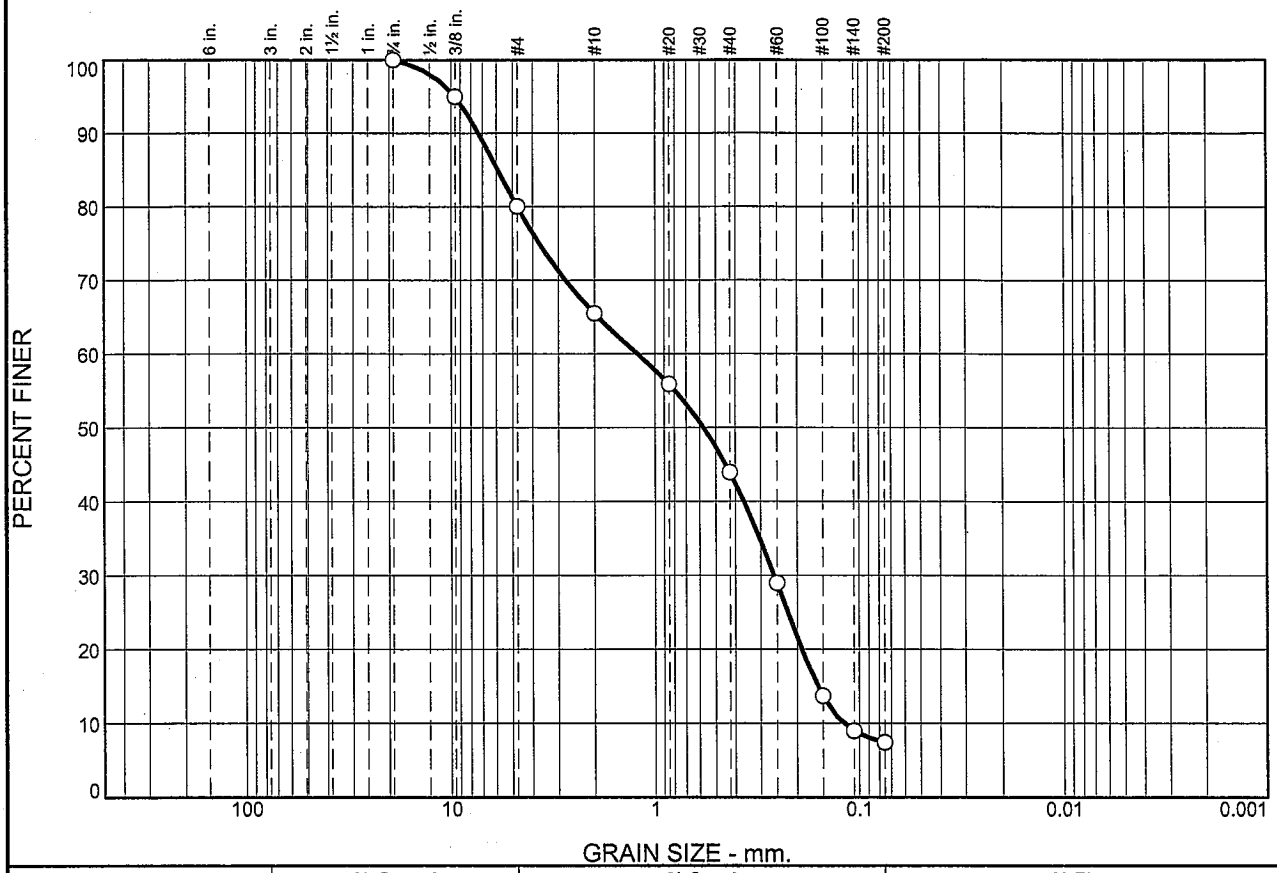
ASTM D6913-04

Sample Number: S-2 **Depth:** 2.5-4.0
Location: B-821 **Date:** 9-11-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	20.0	14.5	21.5	36.6	7.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4in.	100.0		
3/8in.	94.9		
#4	80.0		
#10	65.5		
#20	55.9		
#40	44.0		
#60	29.0		
#100	13.7		
#140	9.0		
#200	7.4		

* (no specification provided)

Material Description

Sand with Fine Gravel and with some Silt and Clay

Atterberg Limits

PL= LM LL= LM PI= LM

Coefficients

D_{85}= 5.8925 D_{60}= 1.2190 D_{50}= 0.5726
D_{30}= 0.2580 D_{15}= 0.1589 D_{10}= 0.1187
C_u= 10.27 C_c= 0.46

Classification

USCS= LM AASHTO= LM

Remarks

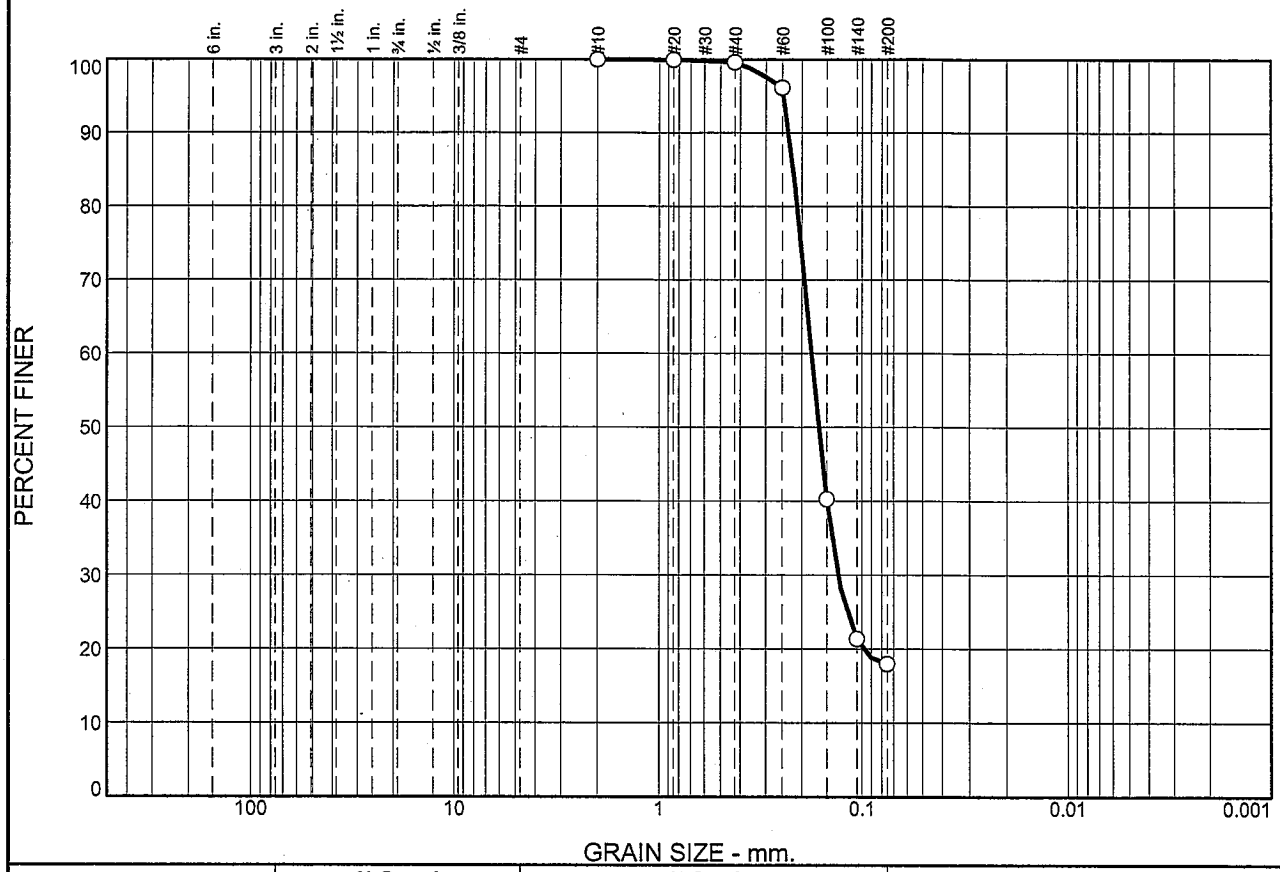
ASTM D6913-04

Sample Number: S-4 **Depth:** 7.5-9.0
Location: B-821 **Date:** 9-12-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	81.6	18.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.6		
#60	96.1		
#100	40.2		
#140	21.3		
#200	18.0		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.2205 D_{60}= 0.1789 D_{50}= 0.1646
D_{30}= 0.1312 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

ASTM D6913-04
ASTM D4318-05

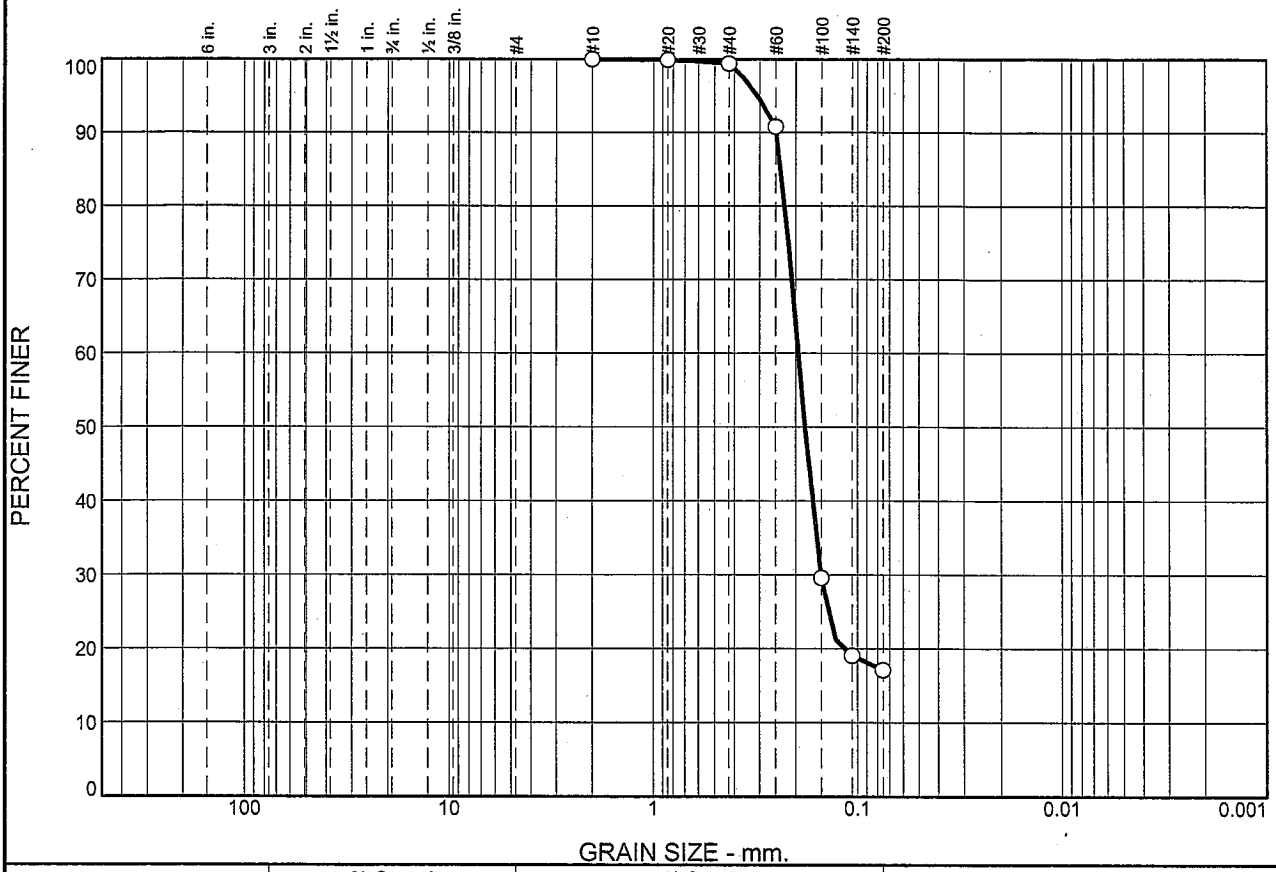
Sample Number: S-5 **Depth:** 10.0-11.5
Location: B-821

Date: 9-11-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

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	82.3	17.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.4		
#60	90.8		
#100	29.6		
#140	19.0		
#200	17.1		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2356 D_{60}= 0.1938 D_{50}= 0.1801
D_{30}= 0.1508 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

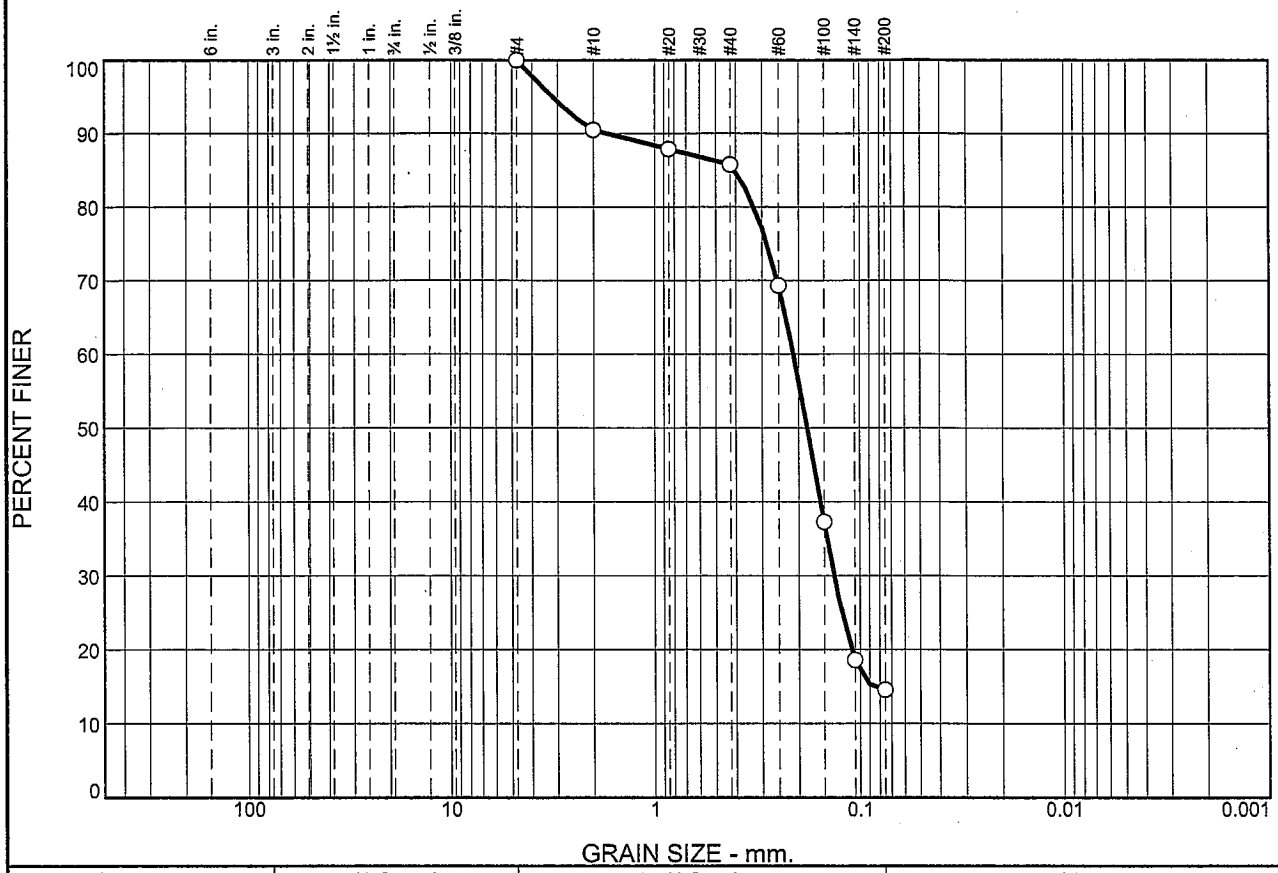
Sample Number: S-6 **Depth:** 13.5-15.0
Location: B-821

Date: 9-11-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	9.5	4.8	71.1	14.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	90.5		
#20	87.9		
#40	85.7		
#60	69.3		
#100	37.3		
#140	18.6		
#200	14.6		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.4055 D_{60}= 0.2119 D_{50}= 0.1814
D_{30}= 0.1340 D_{15}= 0.0864 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

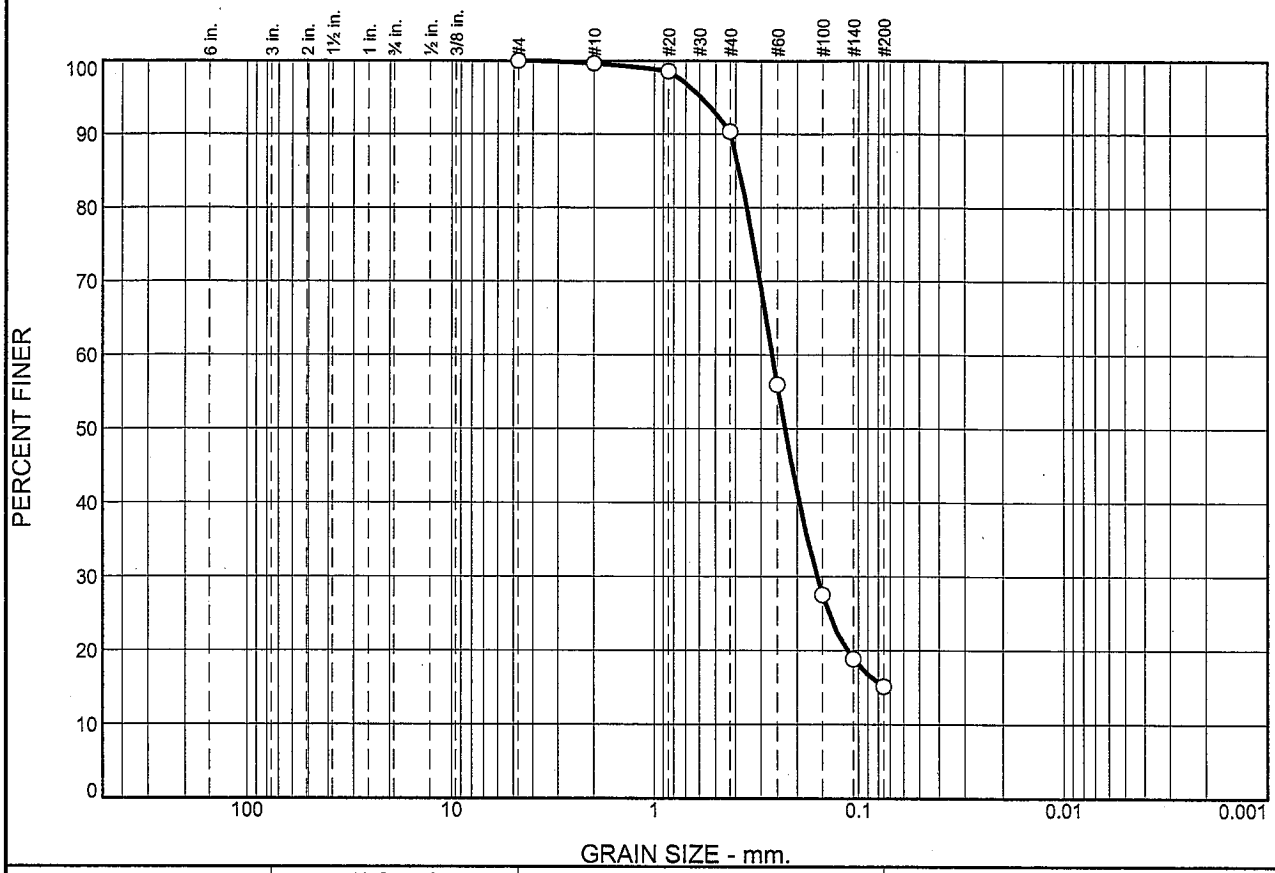
ASTM D6913-04

Sample Number: S-8 **Depth:** 23.5-25.0
Location: B-821 **Date:** 9-11-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	9.3	75.2	15.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.6		
#20	98.6		
#40	90.3		
#60	56.0		
#100	27.6		
#140	18.8		
#200	15.1		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.3821 D_{60}= 0.2645 D_{50}= 0.2290
D_{30}= 0.1594 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

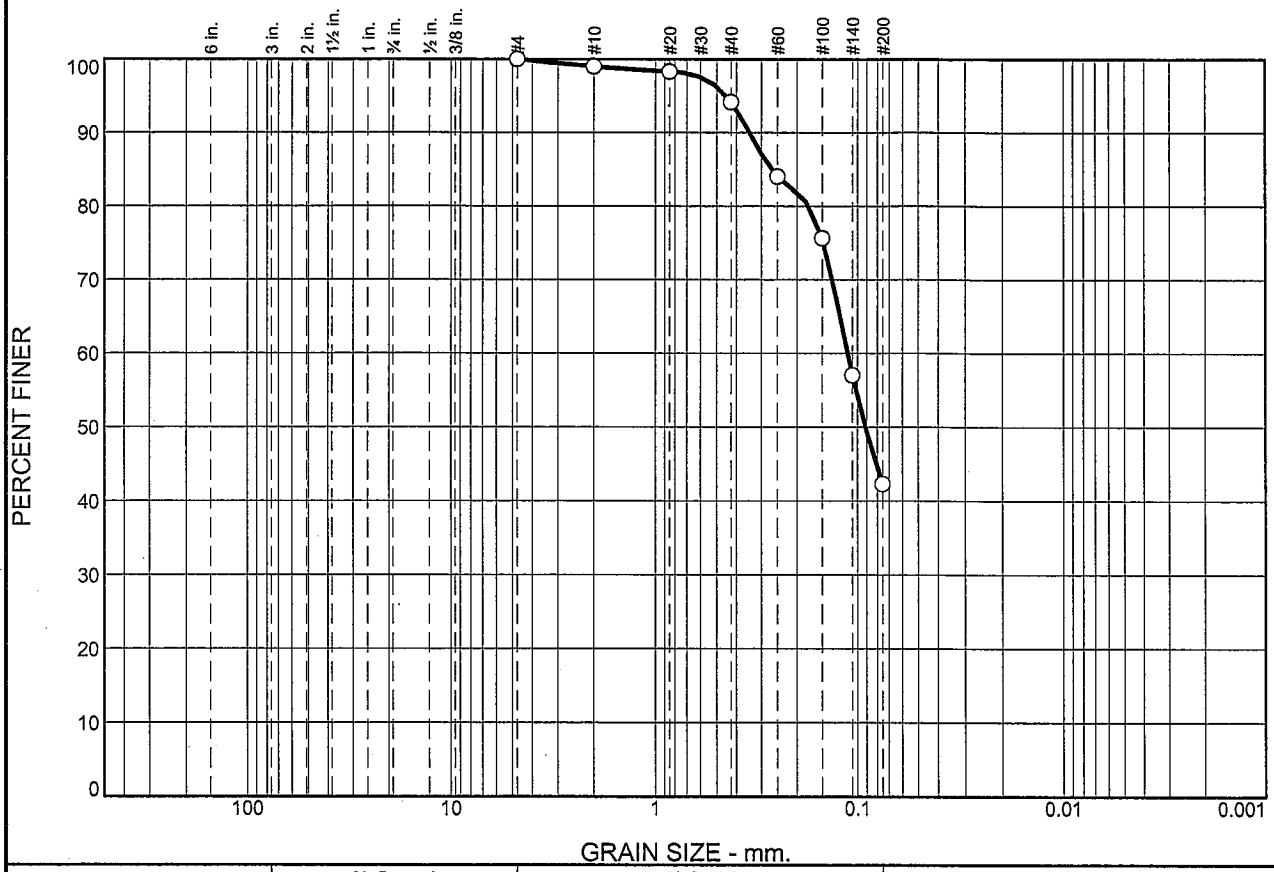
Sample Number: S-1 **Depth:** 0.0-1.5
Location: B-822

Date: 9-11-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	4.9	51.8	42.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.0		
#20	98.3		
#40	94.1		
#60	84.0		
#100	75.6		
#140	57.0		
#200	42.3		

* (no specification provided)

Material Description

Sand with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 0.2681 D_{60}= 0.1119 D_{50}= 0.0914
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

ASTM D6913-04

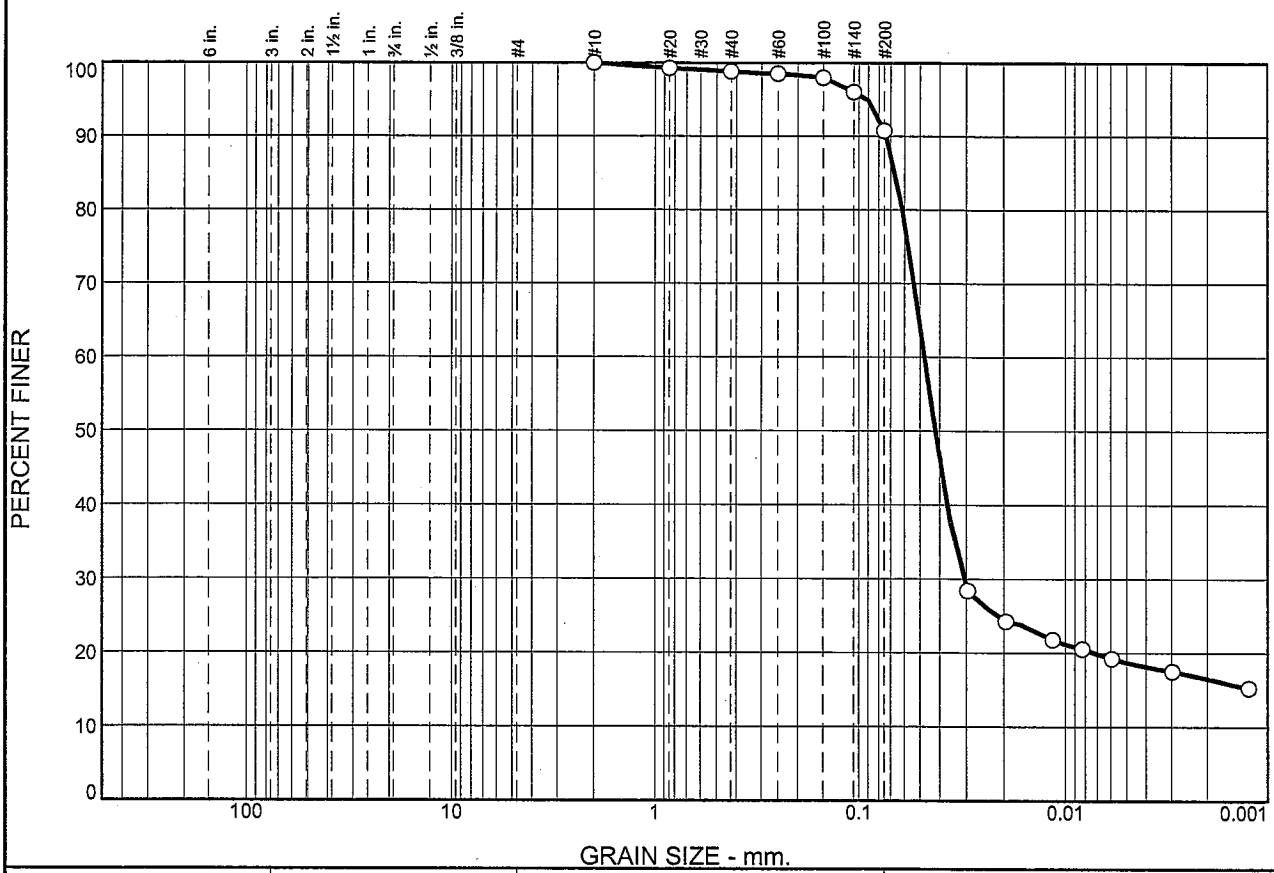
Sample Number: S-2 **Depth:** 2.5-4.0
Location: B-822

Date: 9-11-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.2	8.1	72.0	18.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.3		
#40	98.8		
#60	98.5		
#100	98.0		
#140	96.0		
#200	90.7		

* (no specification provided)

Material Description

Clayey Silt with some Fine Sand

Atterberg Limits

PL= LM LL= LM PI= LM

Coefficients

D_{85}= 0.0665 D_{60}= 0.0475 D_{50}= 0.0420
D_{30}= 0.0308 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= LM AASHTO= LM

Remarks

ASTM D422-63 (2007)

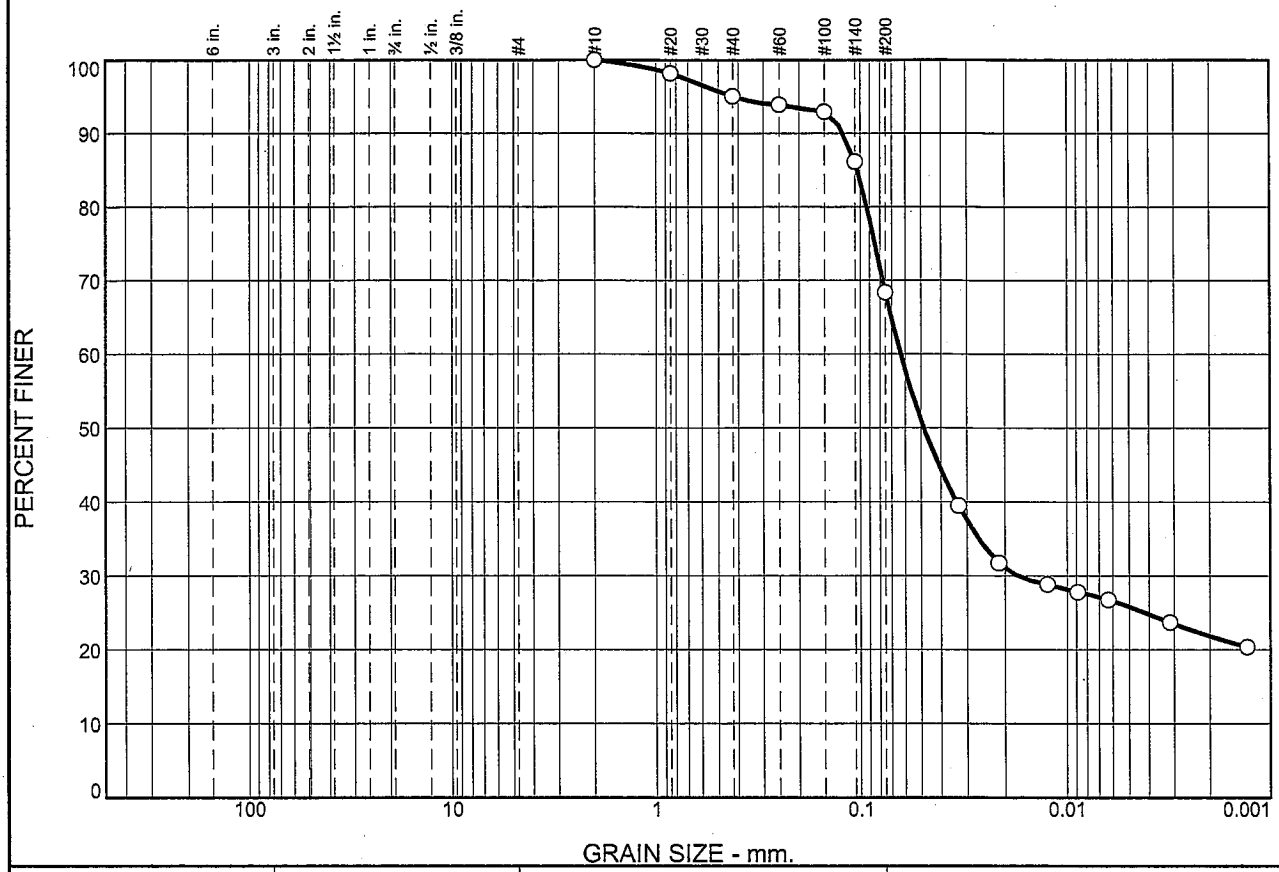
Sample Number: S-3 **Depth:** 5.0-6.5
Location: B-822

Date: 9-15-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.0	26.7	42.5	25.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	98.2		
#40	95.0		
#60	93.9		
#100	92.9		
#140	86.1		
#200	68.3		

* (no specification provided)

Material Description

Clayey Sandy Silt

Atterberg Limits

PL= LM LL= LM PI= LM

Coefficients

D_{85}= 0.1030 D_{60}= 0.0631 D_{50}= 0.0484
D_{30}= 0.0173 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= LM AASHTO= LM

Remarks

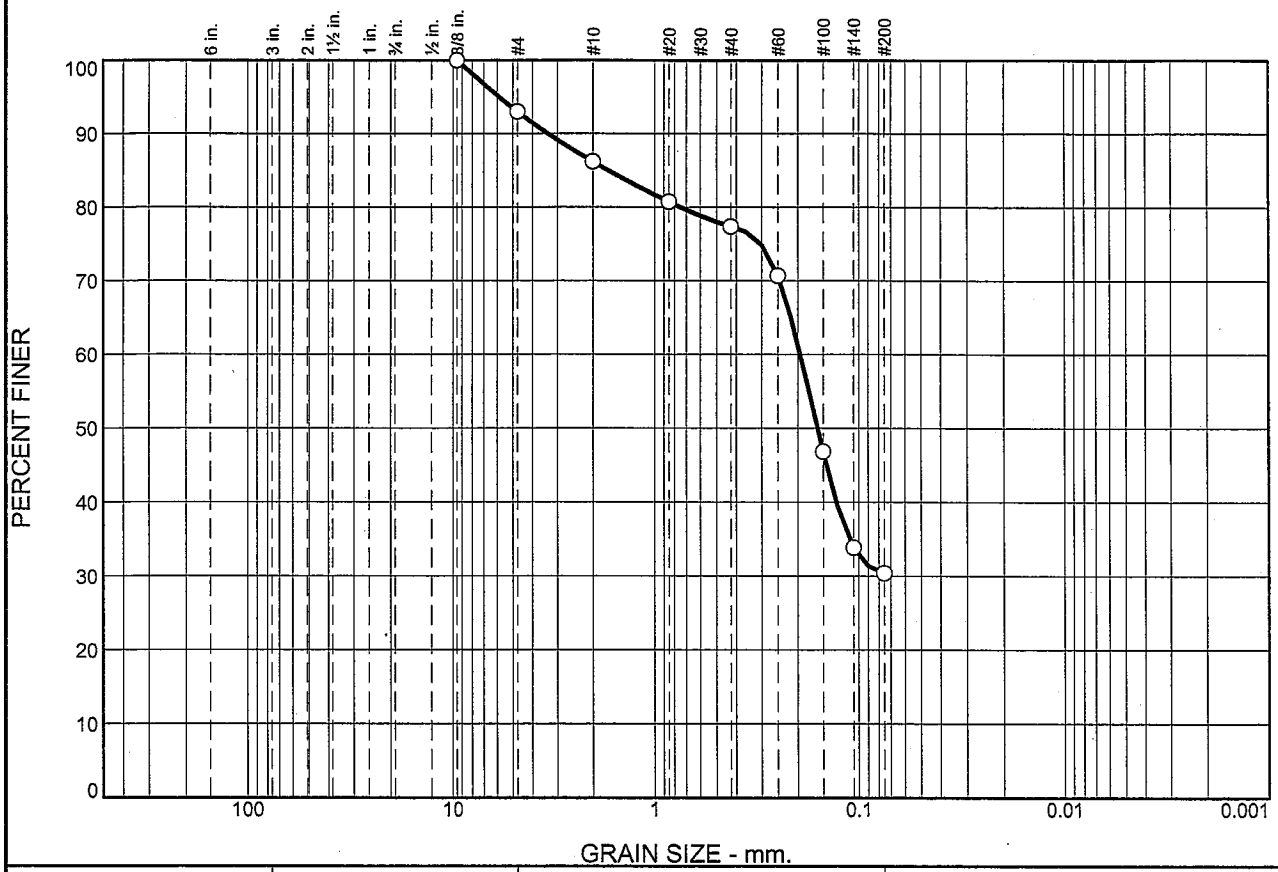
ASTM D422-63 (2007)

Sample Number: S-5 **Depth:** 10.0-11.5
Location: B-822 **Date:** 9-15-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.0	6.8	8.9	46.9	30.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	93.0		
#10	86.2		
#20	80.7		
#40	77.3		
#60	70.7		
#100	46.8		
#140	33.8		
#200	30.4		

* (no specification provided)

Material Description

Sand with some Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 1.6850 D_{60}= 0.1942 D_{50}= 0.1598
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

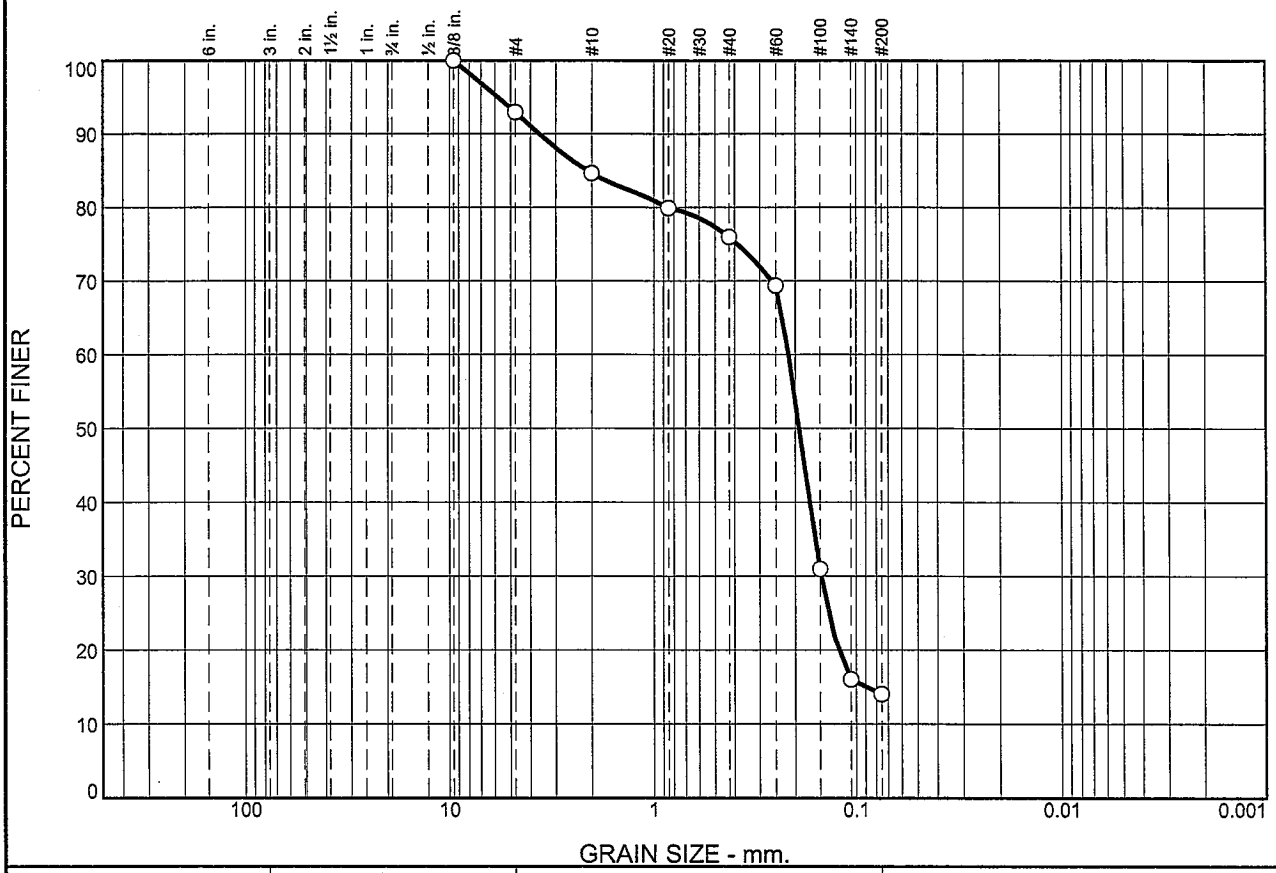
ASTM D6913-04

Sample Number: S-7 **Depth:** 18.5-20.0
Location: B-822 **Date:** 9-11-08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.1	8.3	8.7	61.9	14.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	92.9		
#10	84.6		
#20	79.9		
#40	75.9		
#60	69.3		
#100	31.0		
#140	16.0		
#200	14.0		

* (no specification provided)

Material Description

Sand with some Fine Gravel and with Silt and Clay

Atterberg Limits

PL= NR LL= NR PI= NR

Coefficients

D_{85}= 2.1123 D_{60}= 0.2158 D_{50}= 0.1906
D_{30}= 0.1478 D_{15}= 0.0888 D_{10}=
C_u= C_c=

Classification

USCS= NR AASHTO= NR

Remarks

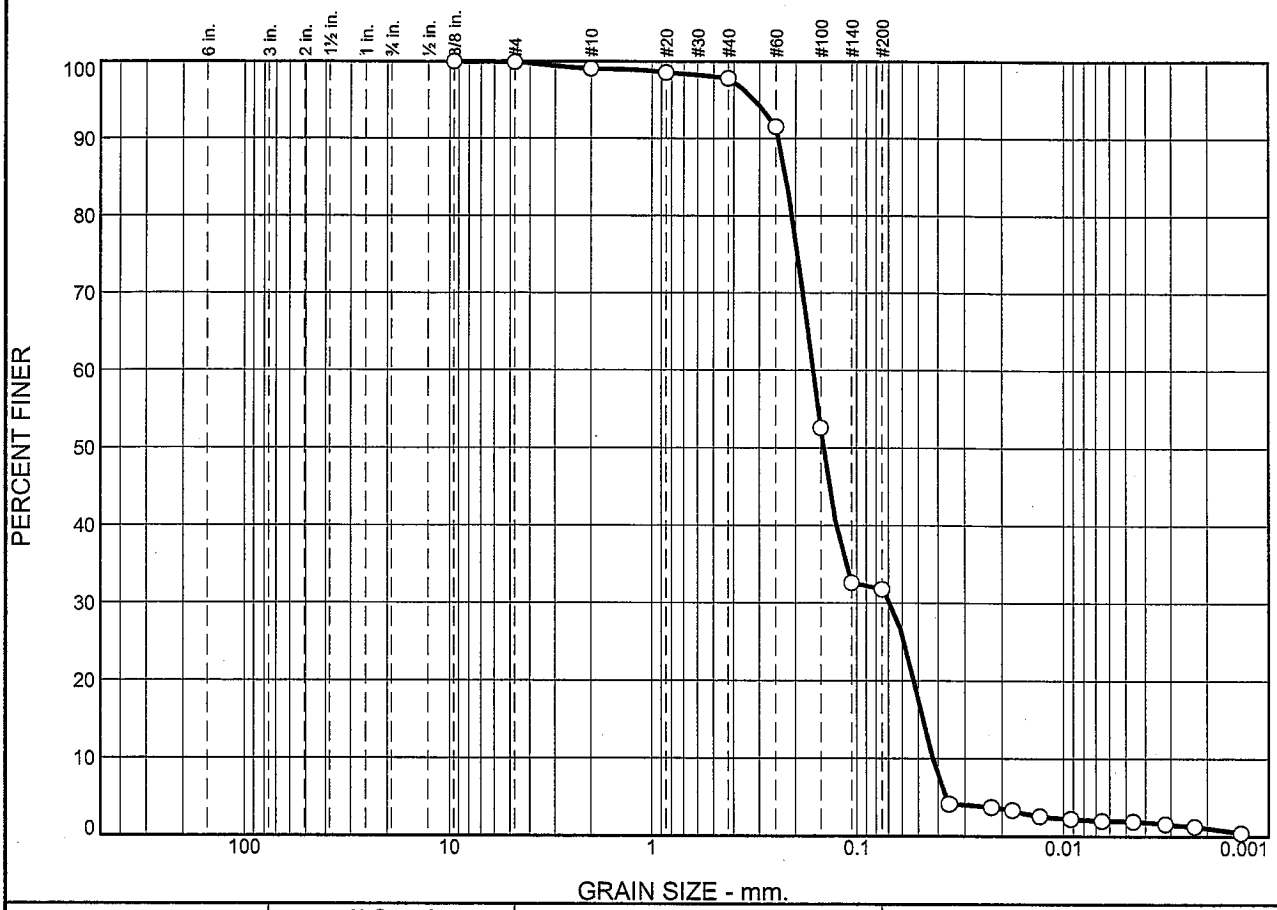
ASTM D6913-04

Sample Number: S-8 **Depth:** 23.5-25.0
Location: B-822 **Date:** 9-11-08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Tested By: DK **Checked By:** JA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.8	1.3	66.0	29.8	2.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375	100.0		
#4	99.9		
#10	99.1		
#20	98.6		
#40	97.8		
#60	91.5		
#100	52.6		
#140	32.6		
#200	31.8		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.2232 D_{60}= 0.1638 D_{50}= 0.1452
D_{30}= 0.0679 D_{15}= 0.0473 D_{10}= 0.0424
C_u= 3.87 C_c= 0.66

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

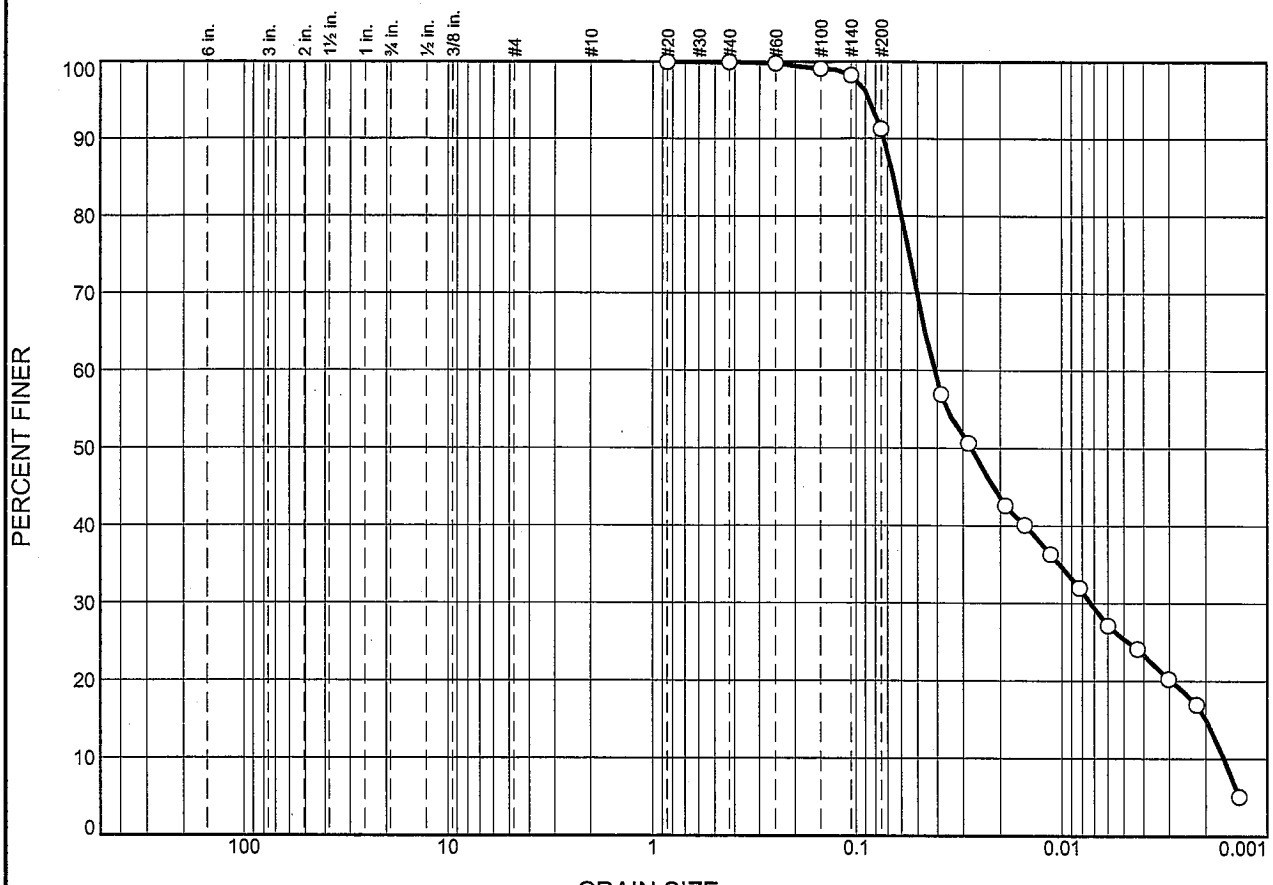
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-2 **Depth:** 61.05 ft.
Location: B-301A

Date: 9/26/08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					8.7	65.9	25.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	100.0		
#60	99.8		
#100	99.1		
#140	98.2		
#200	91.3		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 25 LL= 115 PI= 90

Coefficients

D_{85}= 0.0653 D_{60}= 0.0413 D_{50}= 0.0273
D_{30}= 0.0073 D_{15}= 0.0020 D_{10}= 0.0016
C_u= 25.37 C_c= 0.78

Classification

USCS= CH AASHTO= A-7-6(93)

Remarks

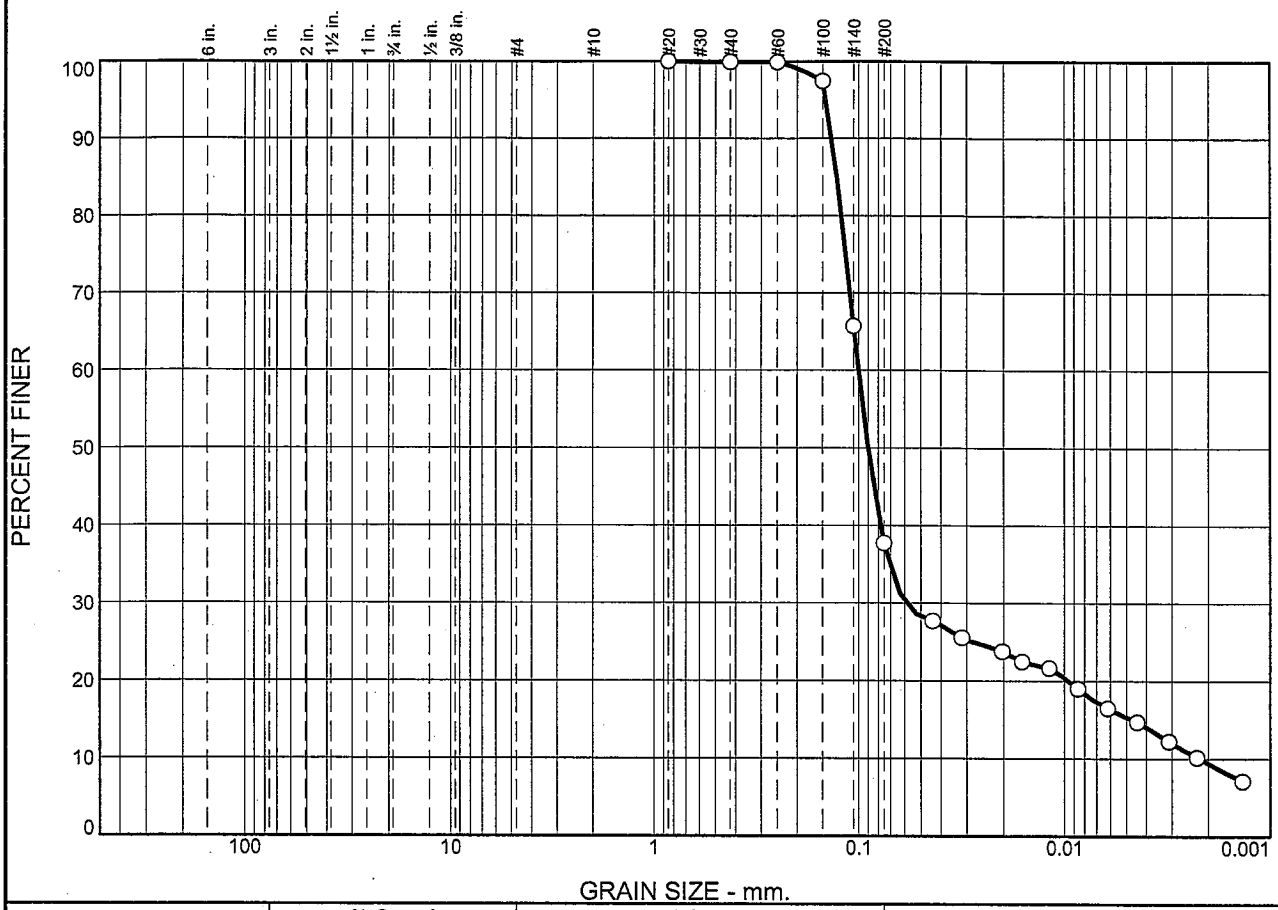
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-4 **Depth:** 199.30 ft
Location: B-301A

Date: 9/26/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					62.3	22.3	15.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	100.0		
#60	99.9		
#100	97.4		
#140	65.7		
#200	37.7		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 26 LL= 66 PI= 40

Coefficients

D_{85}= 0.1280 D_{60}= 0.1001 D_{50}= 0.0896
D_{30}= 0.0593 D_{15}= 0.0047 D_{10}= 0.0022
C_u= 45.40 C_c= 15.92

Classification

USCS= SC AASHTO=

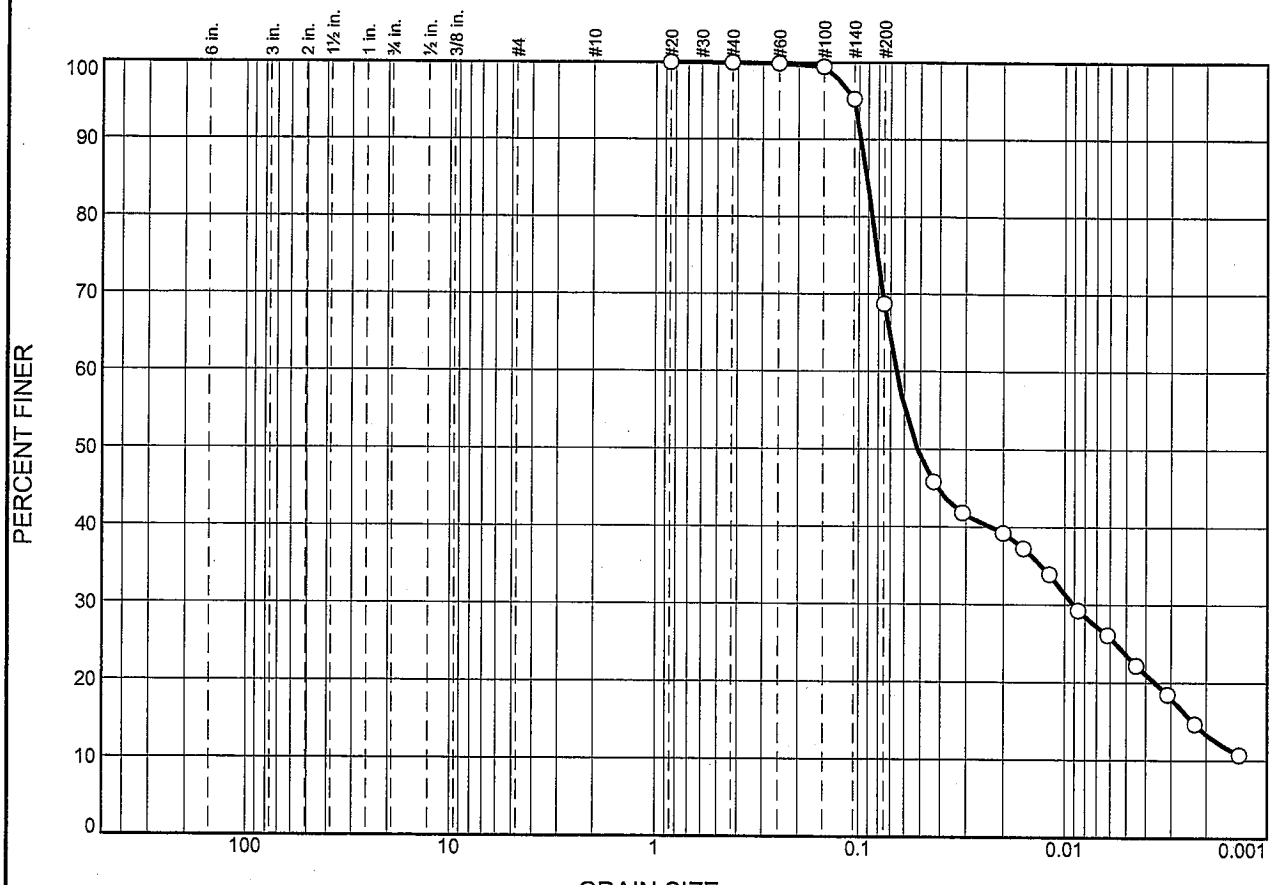
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-5 **Depth:** 219.25 ft
Location: B-301A **Date:** 9/28/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	31.2	45.1	23.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	99.9		
#60	99.9		
#100	99.4		
#140	95.3		
#200	68.7		

* (no specification provided)

Material Description

Sandy Fat Clay

Atterberg Limits

PL= 26 LL= 96 PI= 70

Coefficients

D_{85}= 0.0911 D_{60}= 0.0657 D_{50}= 0.0516
D_{30}= 0.0091 D_{15}= 0.0024 D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(49)

Remarks

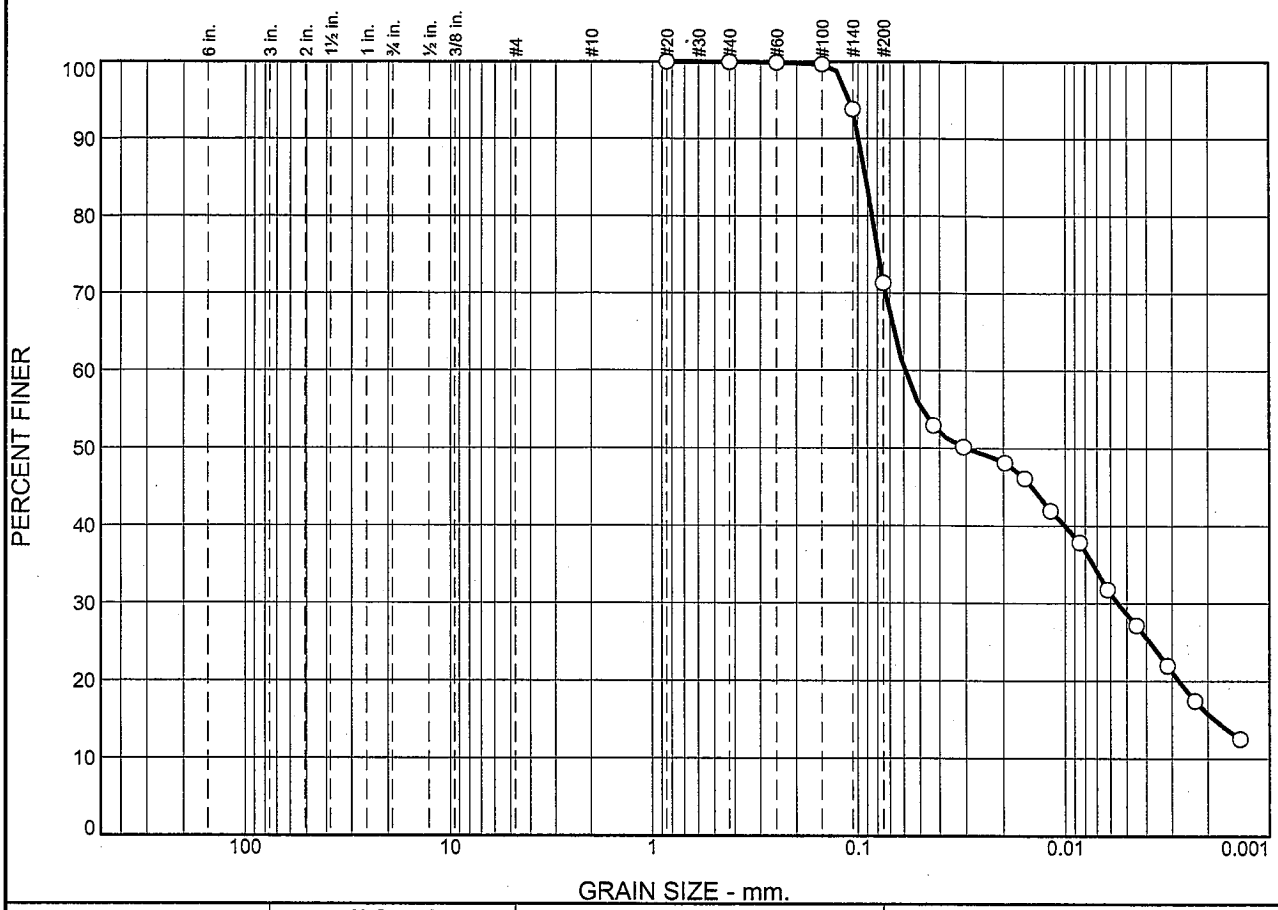
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-6 **Depth:** 239.25 ft
Location: B-301A

Date: 9/28/08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

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	28.7	42.6	28.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	100.0		
#60	99.9		
#100	99.7		
#140	93.8		
#200	71.3		

* (no specification provided)

Material Description

Fat Clay with Sand

Atterberg Limits

PL= 31 LL= 113 PI= 82

Coefficients

D_{85}= 0.0913 D_{60}= 0.0591 D_{50}= 0.0299
D_{30}= 0.0055 D_{15}= 0.0019 D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(61)

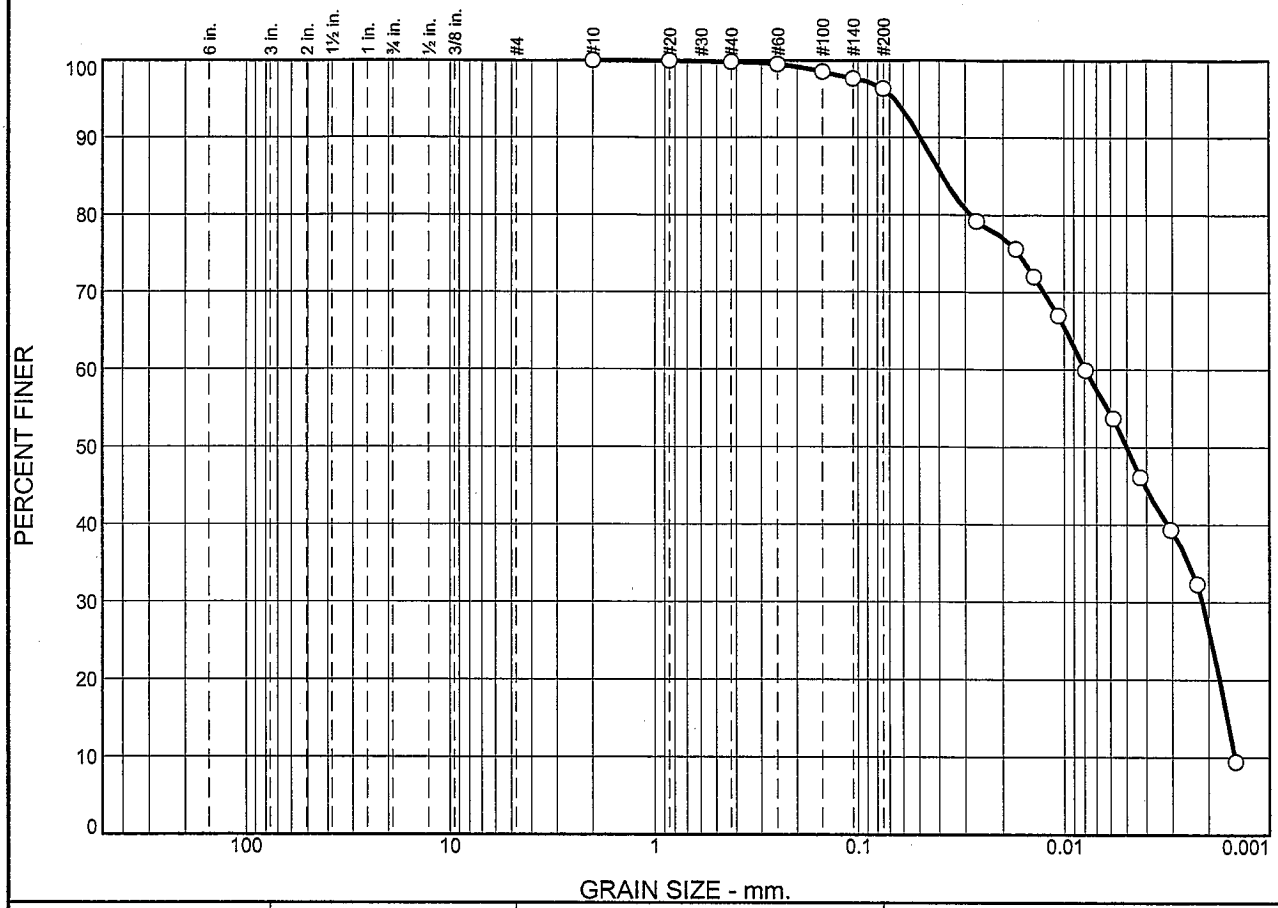
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-7 **Depth:** 259.25 ft
Location: B-301A **Date:** 9/28/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	3.5	46.2	50.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	99.8		
#60	99.5		
#100	98.5		
#140	97.6		
#200	96.3		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 49 LL= 182 PI= 133

Coefficients

D_{85}= 0.0384 D_{60}= 0.0079 D_{50}= 0.0050
D_{30}= 0.0021 D_{15}= 0.0016 D_{10}= 0.0015
C_u= 5.31 C_c= 0.39

Classification

USCS= CH AASHTO= A-7-5(155)

Remarks

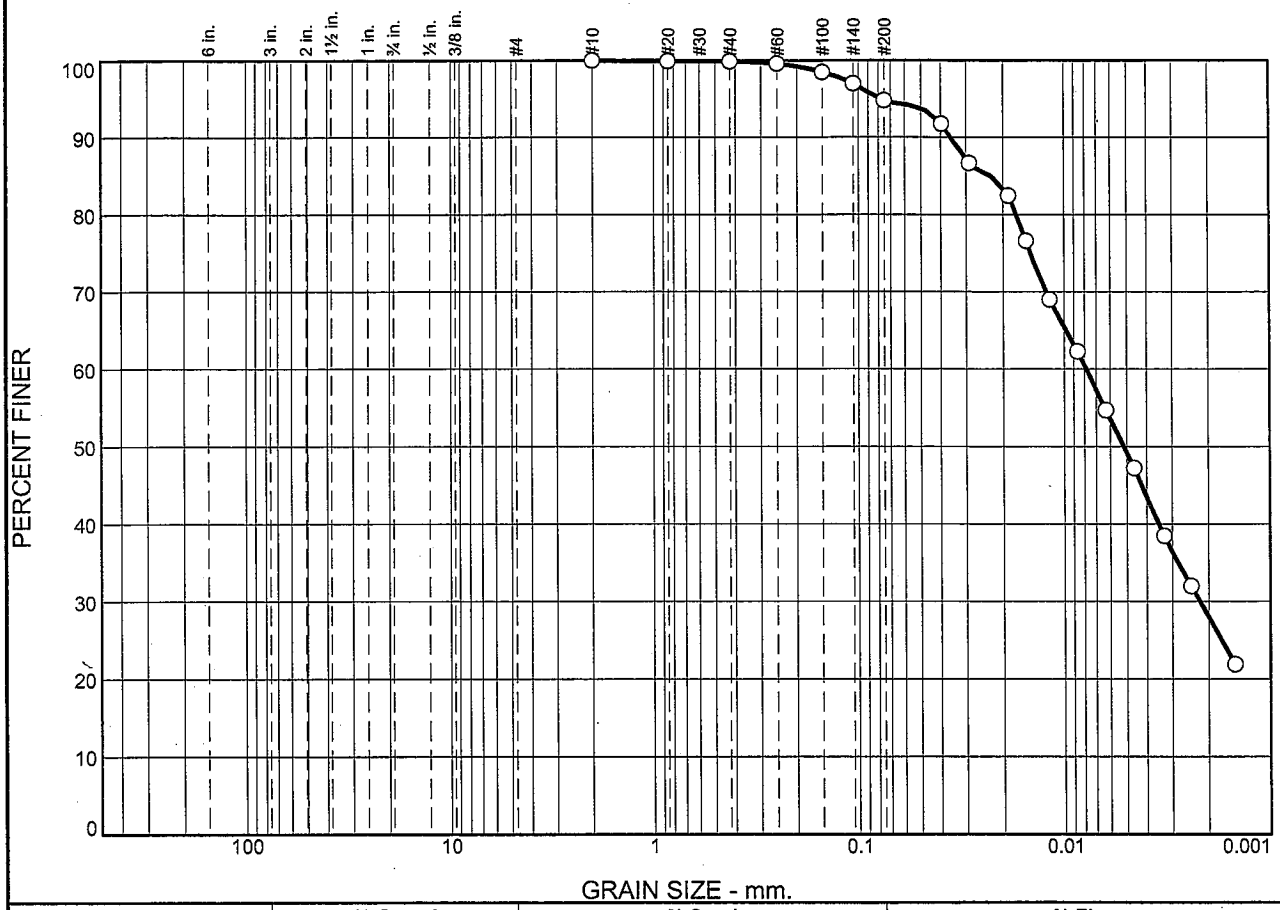
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-8 **Depth:** 269.25 ft
Location: B-301A

Date: 9/28/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	5.1	45.5	49.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.9		
#60	99.6		
#100	98.5		
#140	97.0		
#200	94.8		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 54 LL= 187 PI= 133

Coefficients

D_{85}= 0.0227 D_{60}= 0.0078 D_{50}= 0.0051
D_{30}= 0.0022 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(154)

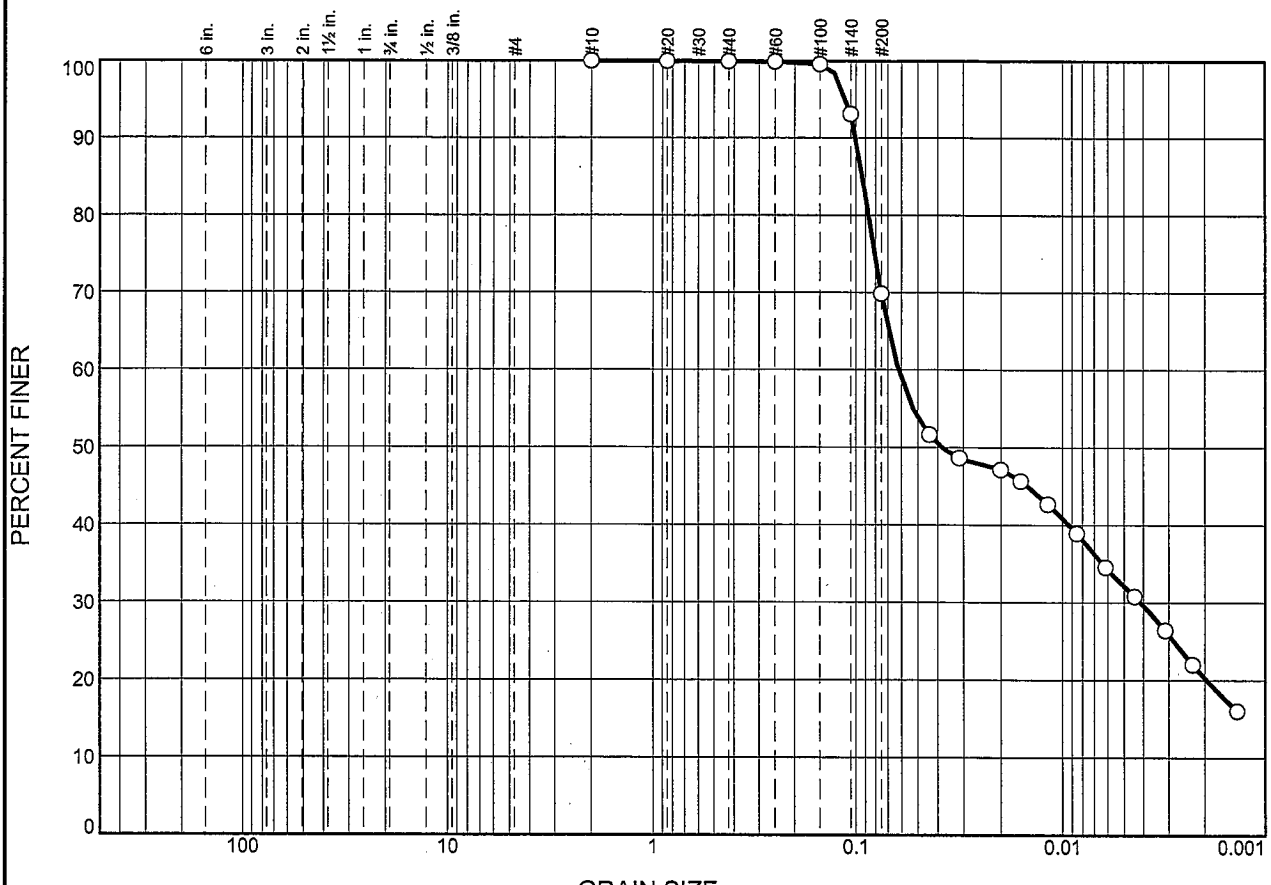
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-9 **Depth:** 279.30 ft
Location: B-301A **Date:** 9/26/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	30.2	37.6	32.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	100.0		
#60	99.9		
#100	99.6		
#140	93.1		
#200	69.8		

* (no specification provided)

Material Description

Sandy Fat Clay

Atterberg Limits

PL= 30 LL= 115 PI= 85

Coefficients

D_{85}= 0.0927 D_{60}= 0.0618 D_{50}= 0.0380
D_{30}= 0.0041 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(61)

Remarks

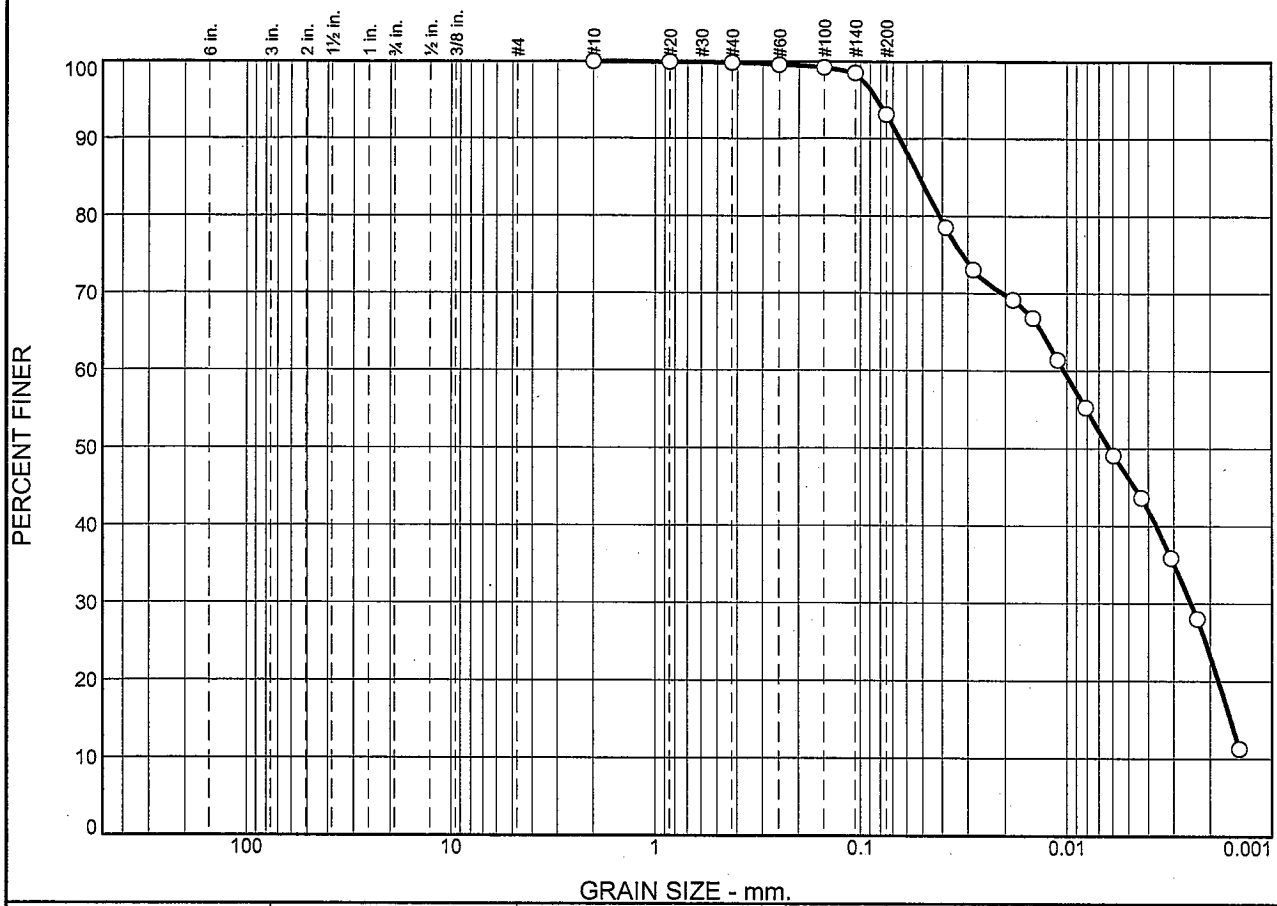
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-10 **Depth:** 289.75 ft
Location: B-301A

Date: 9/29/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	6.8	46.8	46.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	99.9		
#60	99.6		
#100	99.2		
#140	98.5		
#200	93.1		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 35 LL= 135 PI= 100

Coefficients

D_{85}= 0.0518 D_{60}= 0.0103 D_{50}= 0.0062
D_{30}= 0.0025 D_{15}= 0.0016 D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(109)

Remarks

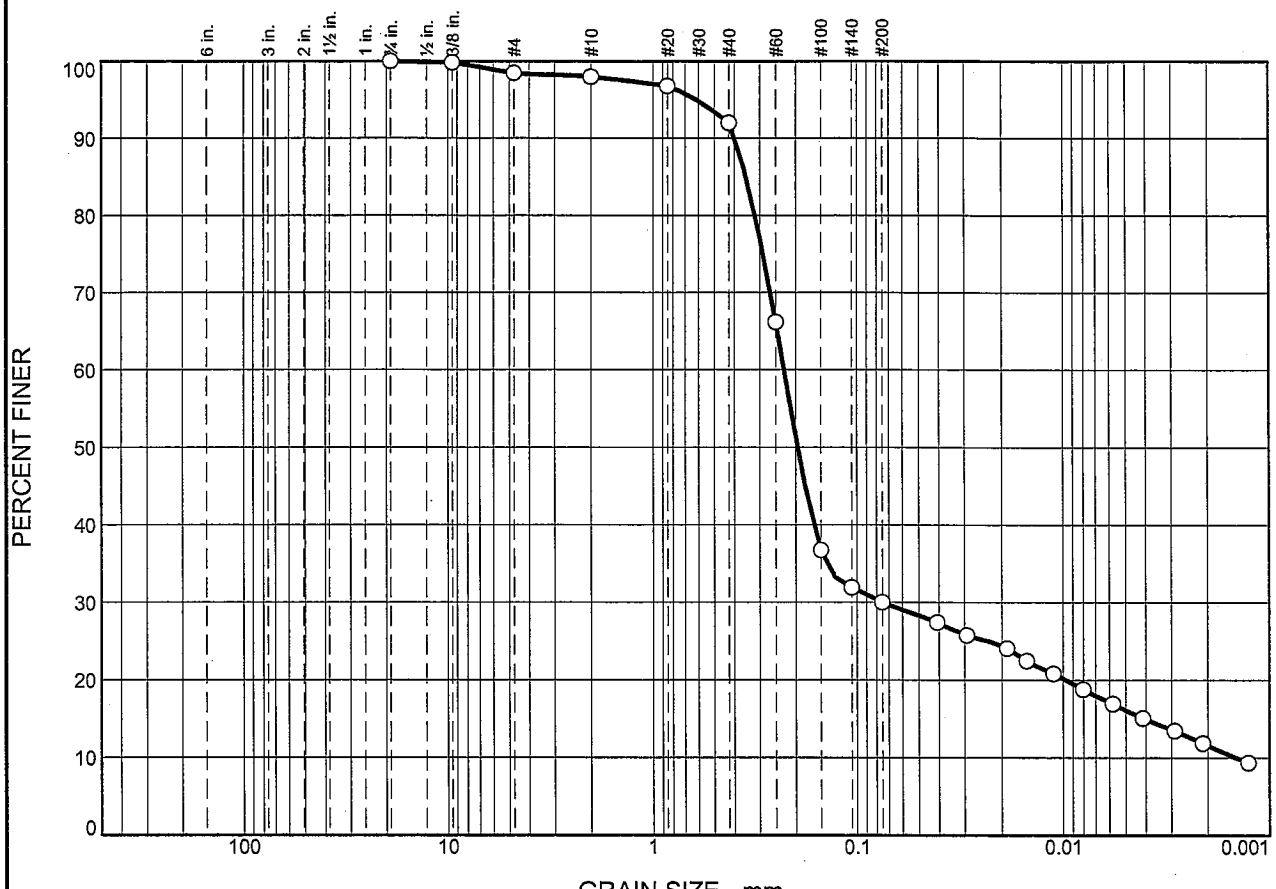
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-11 **Depth:** 299.75 ft
Location: B-301A

Date: 9/29/08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.5	0.5	6.0	62.0	13.9	16.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.75	100.0		
0.375	99.8		
#4	98.5		
#10	98.0		
#20	96.8		
#40	92.0		
#60	66.1		
#100	36.7		
#140	31.9		
#200	30.0		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 17 LL= 56 PI= 39

Coefficients

D_{85}= 0.3509 D_{60}= 0.2278 D_{50}= 0.1955
D_{30}= 0.0746 D_{15}= 0.0041 D_{10}= 0.0015
C_u= 156.37 C_c= 16.78

Classification

USCS= SC AASHTO= A-2-7(4)

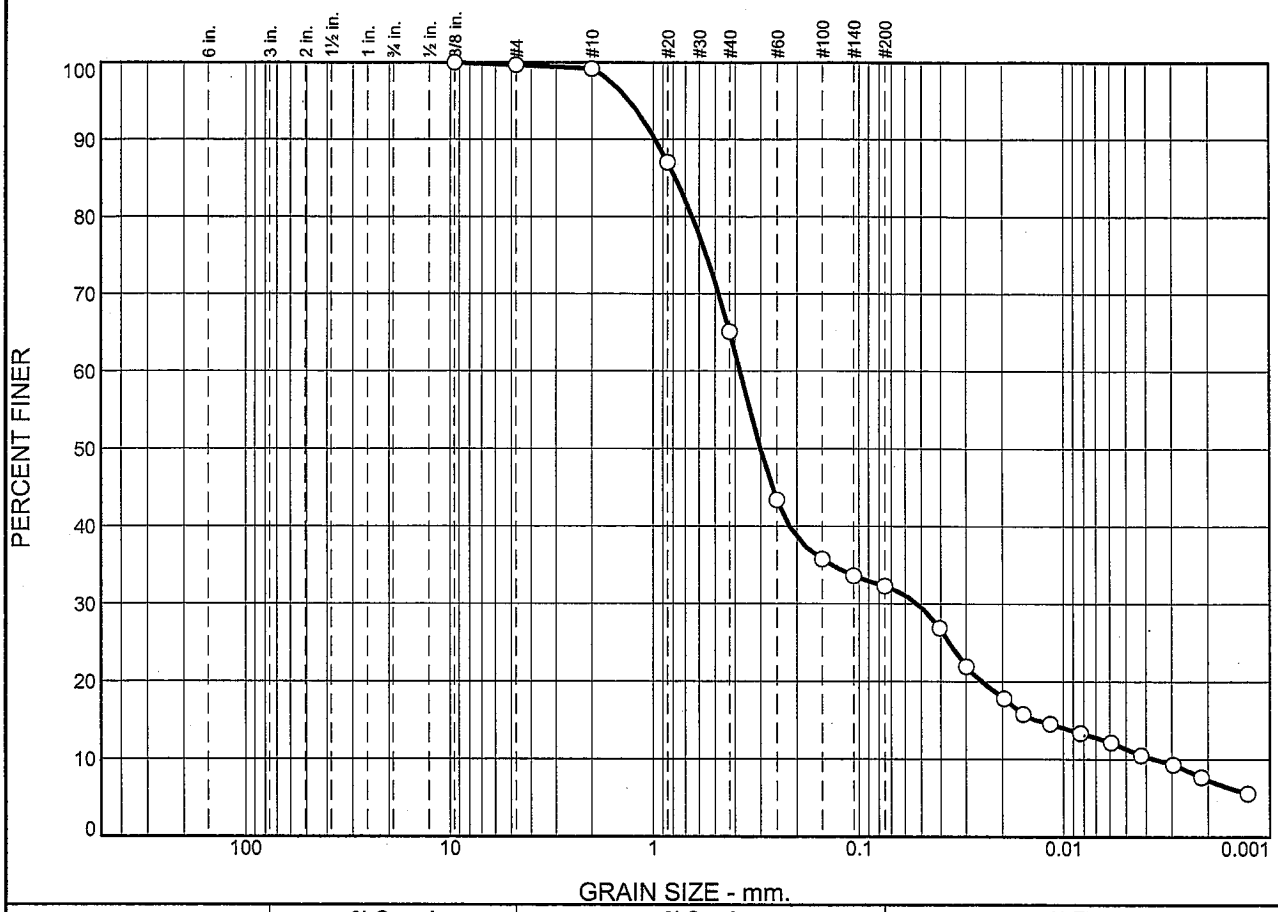
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-12 **Depth:** 309.75 ft
Location: B-301A **Date:** 9/29/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.5	34.1	32.8	21.0	11.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375	100.0		
#4	99.7		
#10	99.2		
#20	87.0		
#40	65.1		
#60	43.4		
#100	35.7		
#140	33.6		
#200	32.3		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 14 LL= 36 PI= 22

Coefficients

D_{85}= 0.7805 D_{60}= 0.3780 D_{50}= 0.3007
D_{30}= 0.0522 D_{15}= 0.0136 D_{10}= 0.0037
C_u= 103.07 C_c= 1.97

Classification

USCS= SC AASHTO= A-2-6(2)

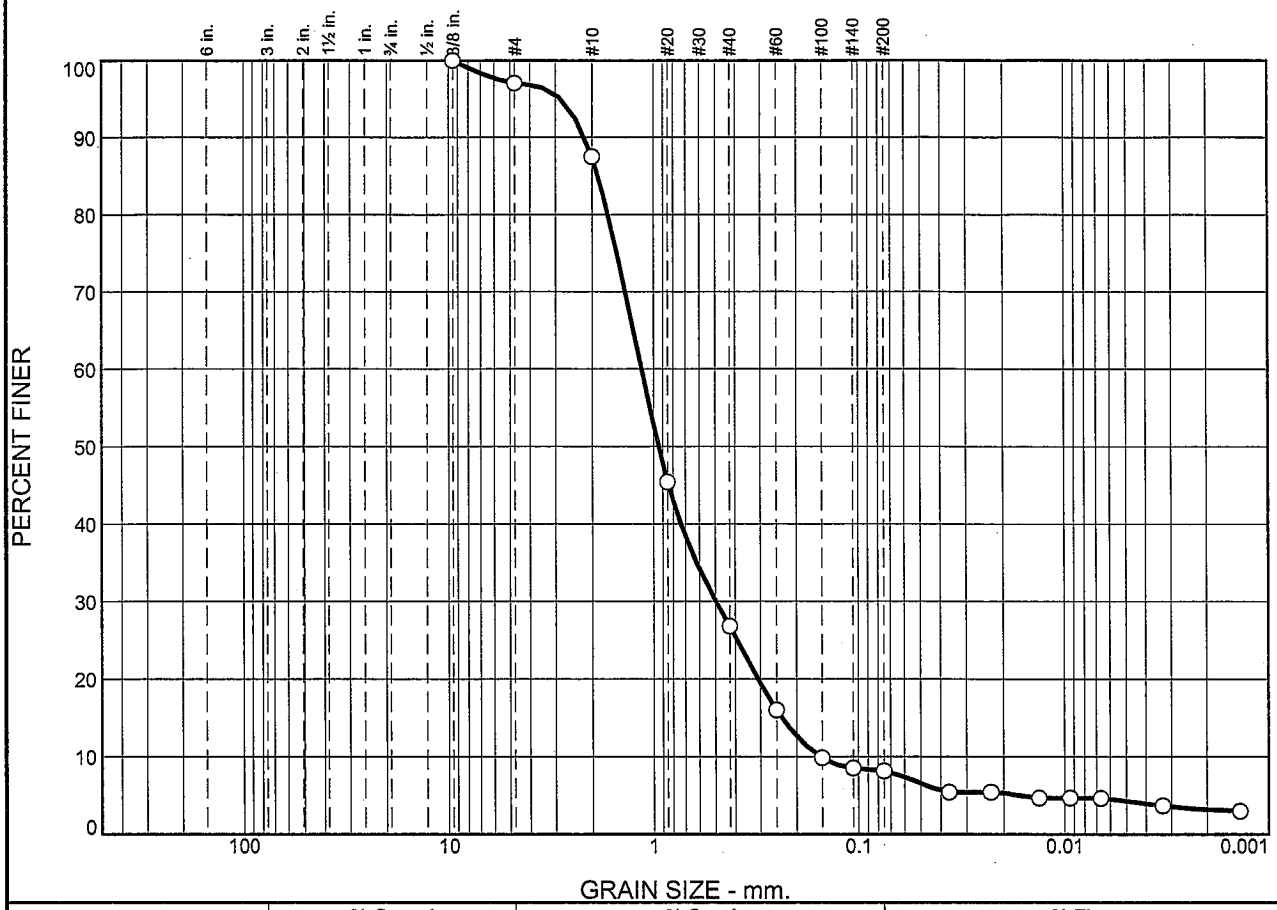
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-13 **Depth:** 319.70 ft
Location: B-301A **Date:** 9/28/08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.0	9.5	60.7	18.7	3.8	4.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	97.0		
#10	87.5		
#20	45.4		
#40	26.8		
#60	16.0		
#100	9.8		
#140	8.5		
#200	8.1		
0.0363 mm.	5.4		
0.0230 mm.	5.4		
0.0133 mm.	4.7		
0.0094 mm.	4.7		
0.0067 mm.	4.6		
0.0033 mm.	3.7		
0.0014 mm.	3.0		

* (no specification provided)

Soil Description

Well-Graded Sand with Clay

Atterberg Limits

PL= 20 LL= 79 PI= 59

Coefficients

D_{85}= 1.8706 D_{60}= 1.1427 D_{50}= 0.9417
D_{30}= 0.4969 D_{15}= 0.2357 D_{10}= 0.1534
C_u= 7.45 C_c= 1.41

Classification

USCS= SC AASHTO= A-2-7(0)

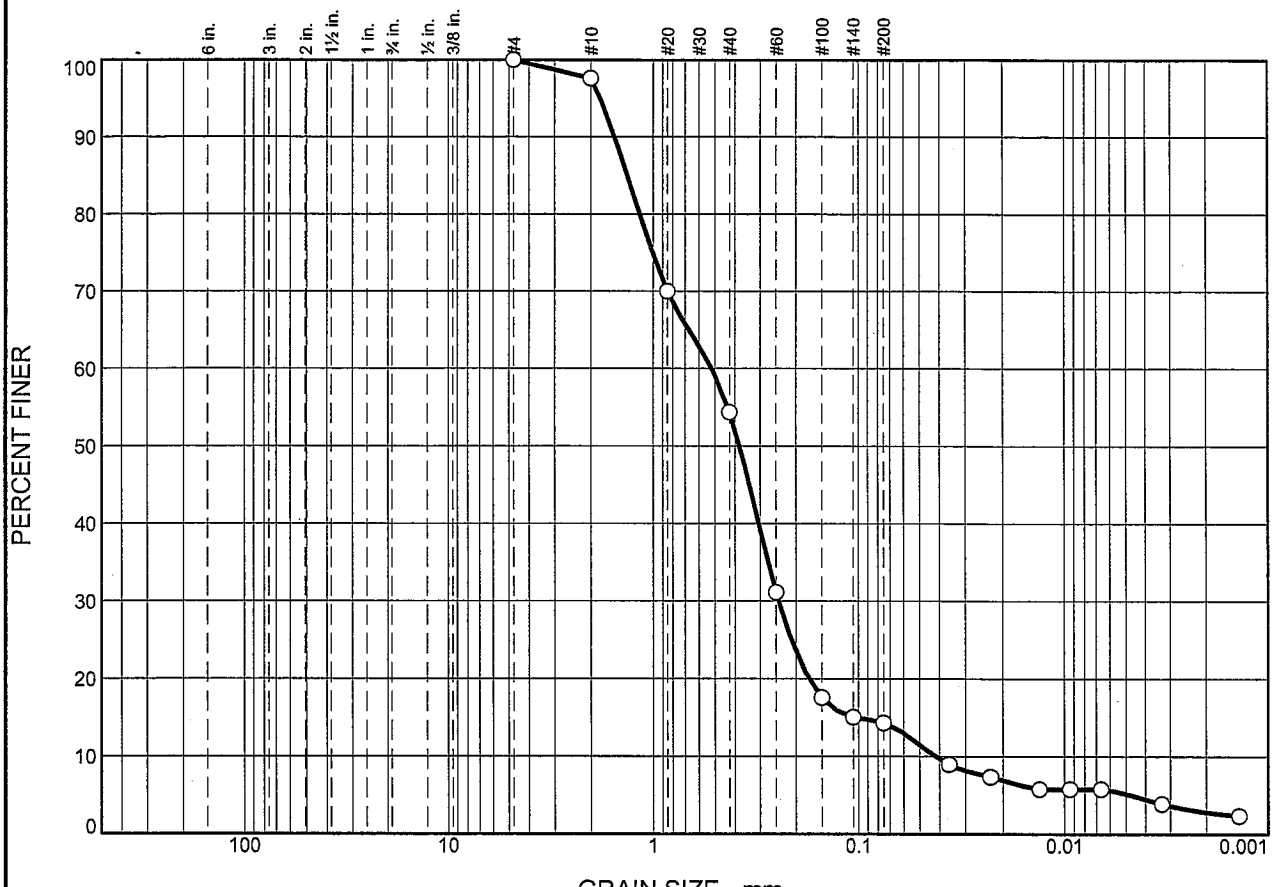
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample No.: UD-14 **Source of Sample:** B-301A **Date:** 12-18-08
Location: B-301A **Elev./Depth:** 329.75

MACTEC Engineering and Consulting, Inc.	**Client:**
	Project: Calvert Cliffs
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.4	43.2	40.1	9.1	5.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	97.6		
#20	70.0		
#40	54.4		
#60	31.1		
#100	17.6		
#140	15.0		
#200	14.3		
0.0359 mm.	9.0		
0.0228 mm.	7.4		
0.0133 mm.	5.8		
0.0094 mm.	5.8		
0.0066 mm.	5.8		
0.0033 mm.	3.9		
0.0014 mm.	2.3		

* (no specification provided)

Soil Description

Clayey Sand

Atterberg Limits

PL= 22 LL= 66 PI= 44

Coefficients

D_{85}= 1.3298 D_{60}= 0.5197 D_{50}= 0.3797
D_{30}= 0.2429 D_{15}= 0.1040 D_{10}= 0.0418
C_u= 12.42 C_c= 2.71

Classification

USCS= SC AASHTO= A-2-7(0)

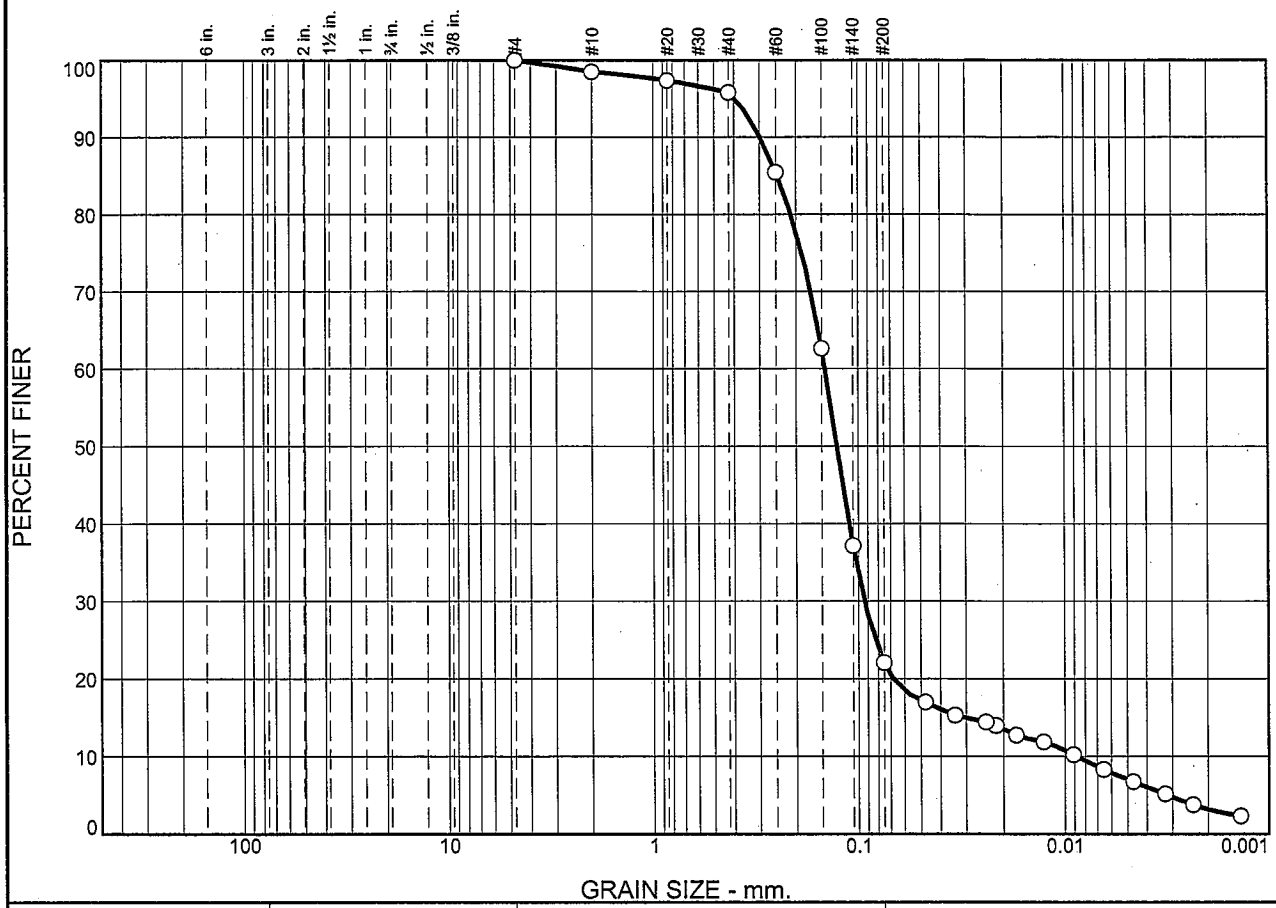
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample No.: UD-15 **Source of Sample:** B-301A **Date:** 12-18-08
Location: B-301A **Elev./Depth:** 339.7

MACTEC Engineering and Consulting, Inc.	**Client:**
	Project: Calvert Cliffs
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.5	2.7	73.8	15.0	7.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.5		
#20	97.4		
#40	95.8		
#60	85.4		
#100	62.6		
#140	37.1		
#200	22.0		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 23 LL= 44 PI= 21

Coefficients

D_{85}= 0.2462 D_{60}= 0.1445 D_{50}= 0.1265
D_{30}= 0.0934 D_{15}= 0.0308 D_{10}= 0.0088
C_u= 16.49 C_c= 6.89

Classification

USCS= SC AASHTO= A-2-7(1)

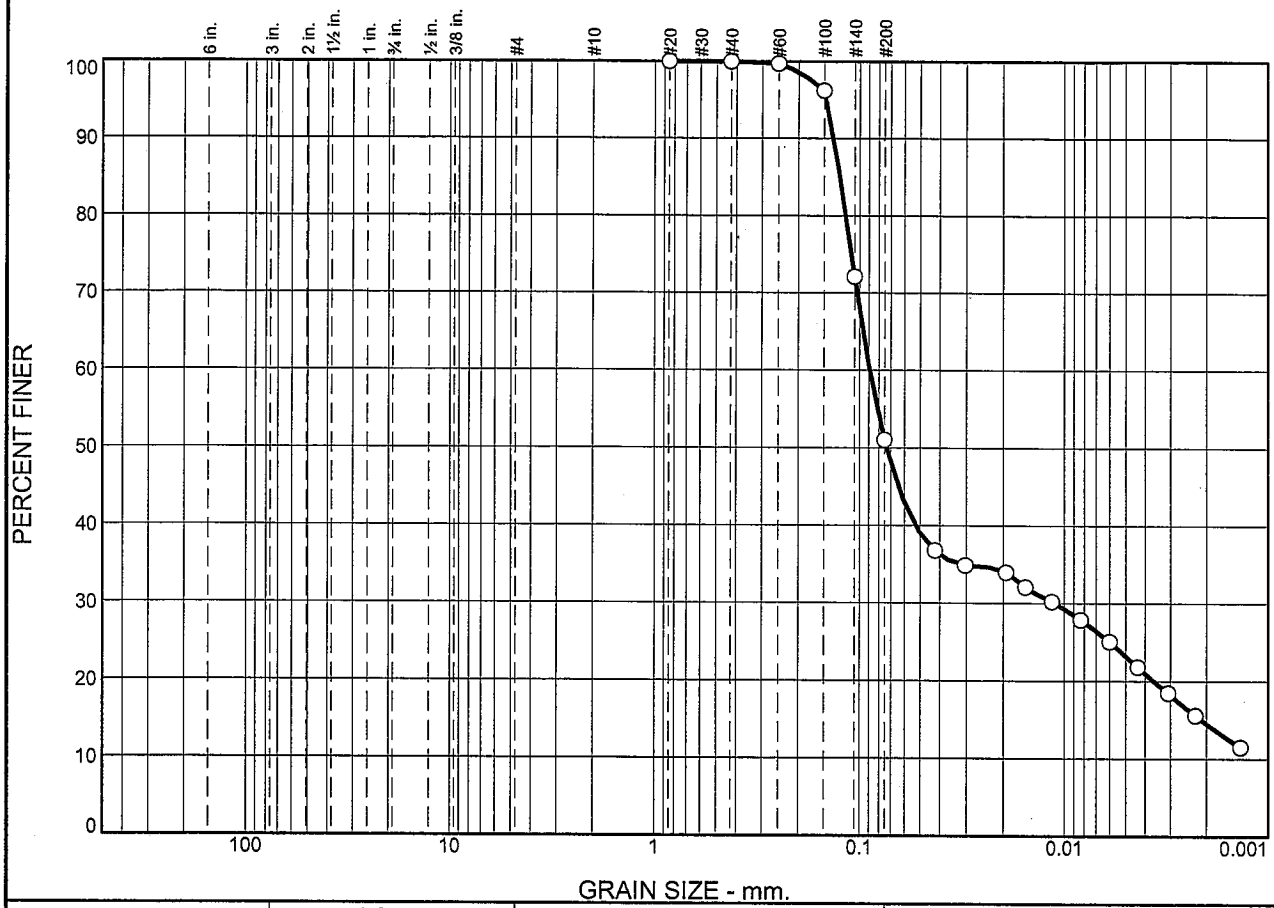
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-1 **Depth:** 183.30 ft
Location: B-344 **Date:** 10/02/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	49.0	27.8	23.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	100.0		
#60	99.7		
#100	96.2		
#140	72.1		
#200	51.0		

* (no specification provided)

Material Description

Sandy Fat Clay

Atterberg Limits

PL= 25 LL= 81 PI= 56

Coefficients

D_{85}= 0.1253 D_{60}= 0.0888 D_{50}= 0.0733
D_{30}= 0.0111 D_{15}= 0.0021 D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(23)

Remarks

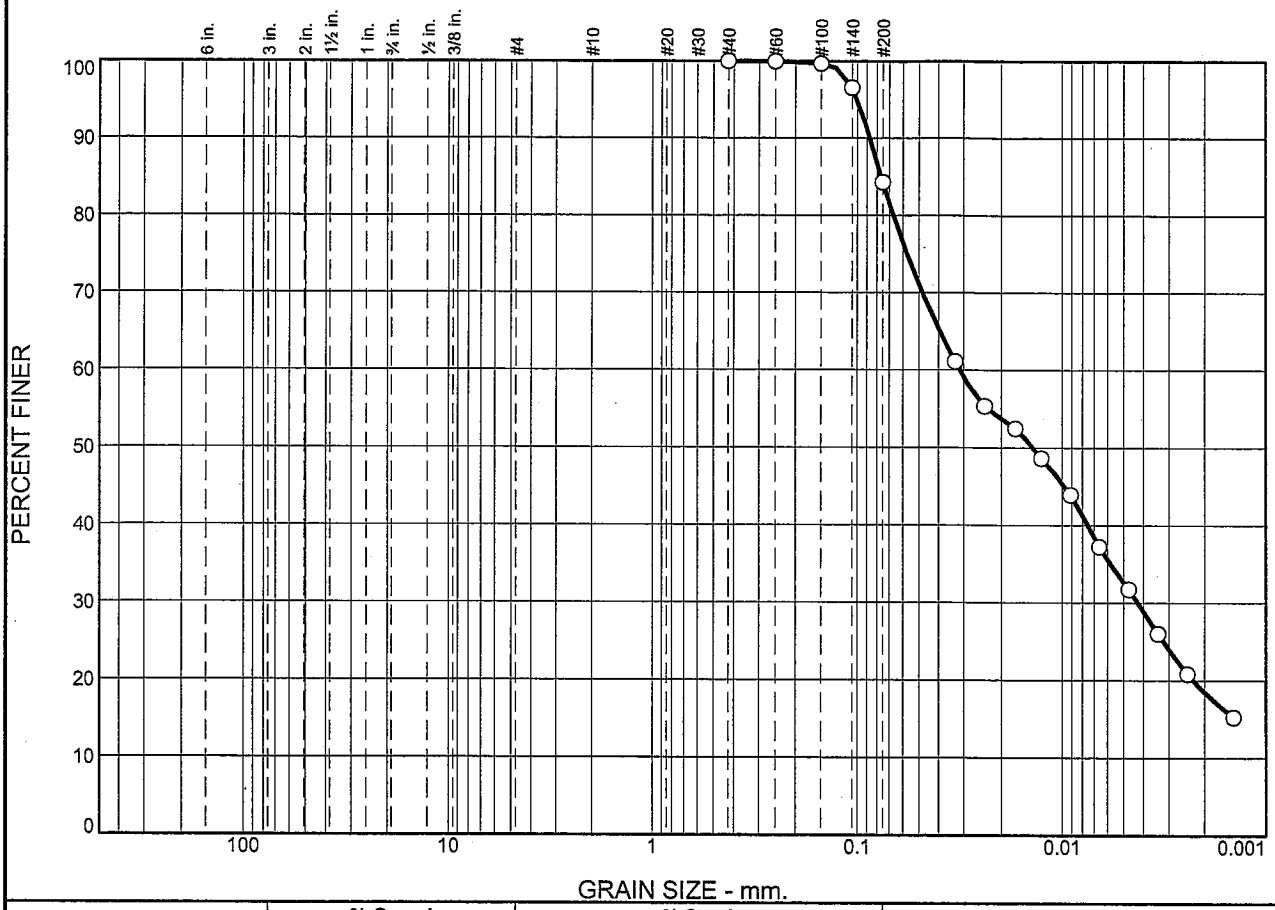
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-4 **Depth:** 205.80 ft
Location: B-344

Date: 9/27/08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

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	15.7	51.6	32.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#40	100.0		
#60	99.9		
#100	99.7		
#140	96.5		
#200	84.3		

* (no specification provided)

Material Description

Fat Clay with Sand

Atterberg Limits

PL= 31 LL= 119 PI= 88

Coefficients

D_{85}= 0.0764 D_{60}= 0.0312 D_{50}= 0.0139
D_{30}= 0.0043 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(83)

Remarks

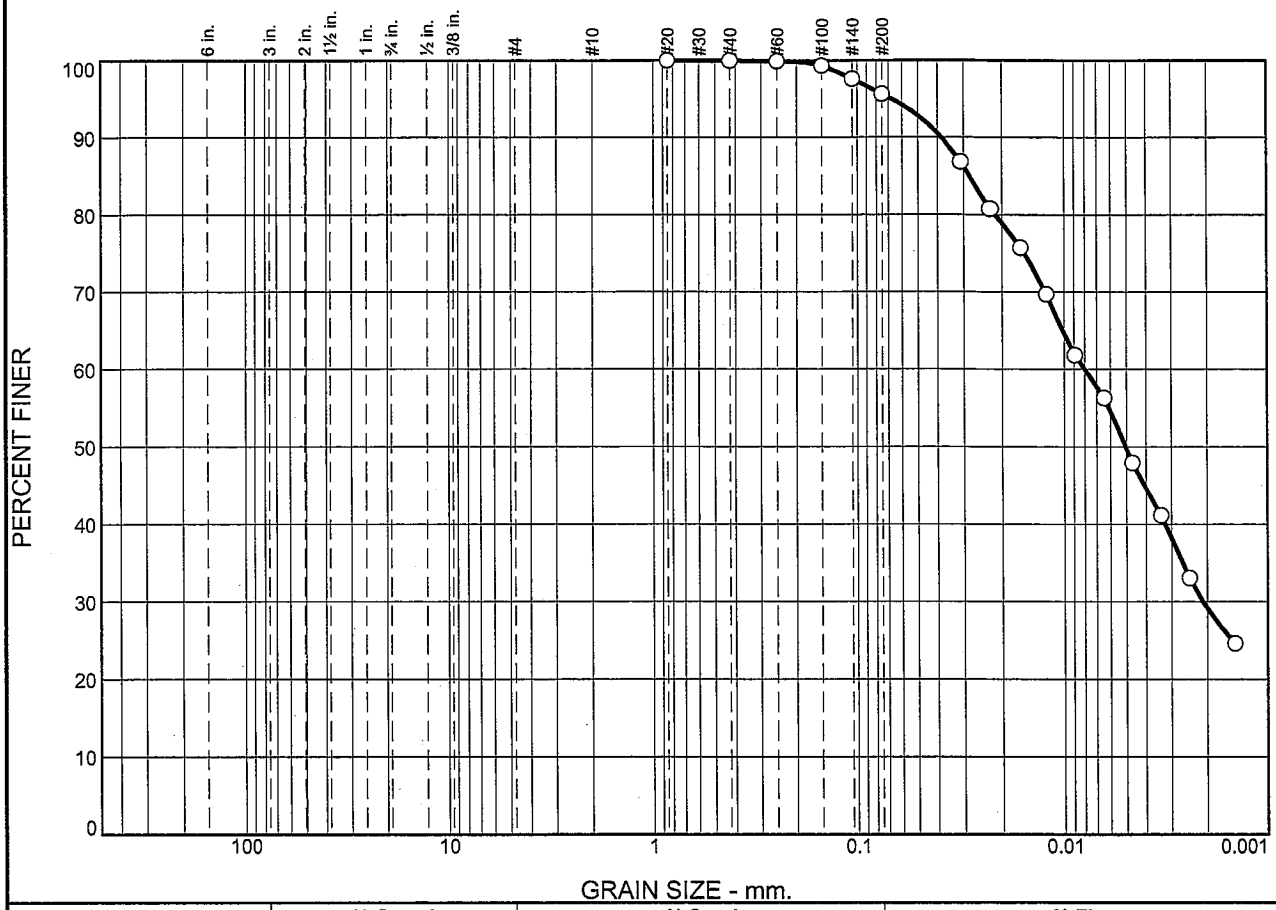
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-6 **Depth:** 223.30 ft
Location: B-344

Date: 9/05/08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

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	4.4	45.9	49.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	100.0		
#60	99.9		
#100	99.3		
#140	97.6		
#200	95.6		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 50 LL= 176 PI= 126

Coefficients

D_{85}= 0.0280 D_{60}= 0.0080 D_{50}= 0.0051
D_{30}= 0.0021 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(148)

Remarks

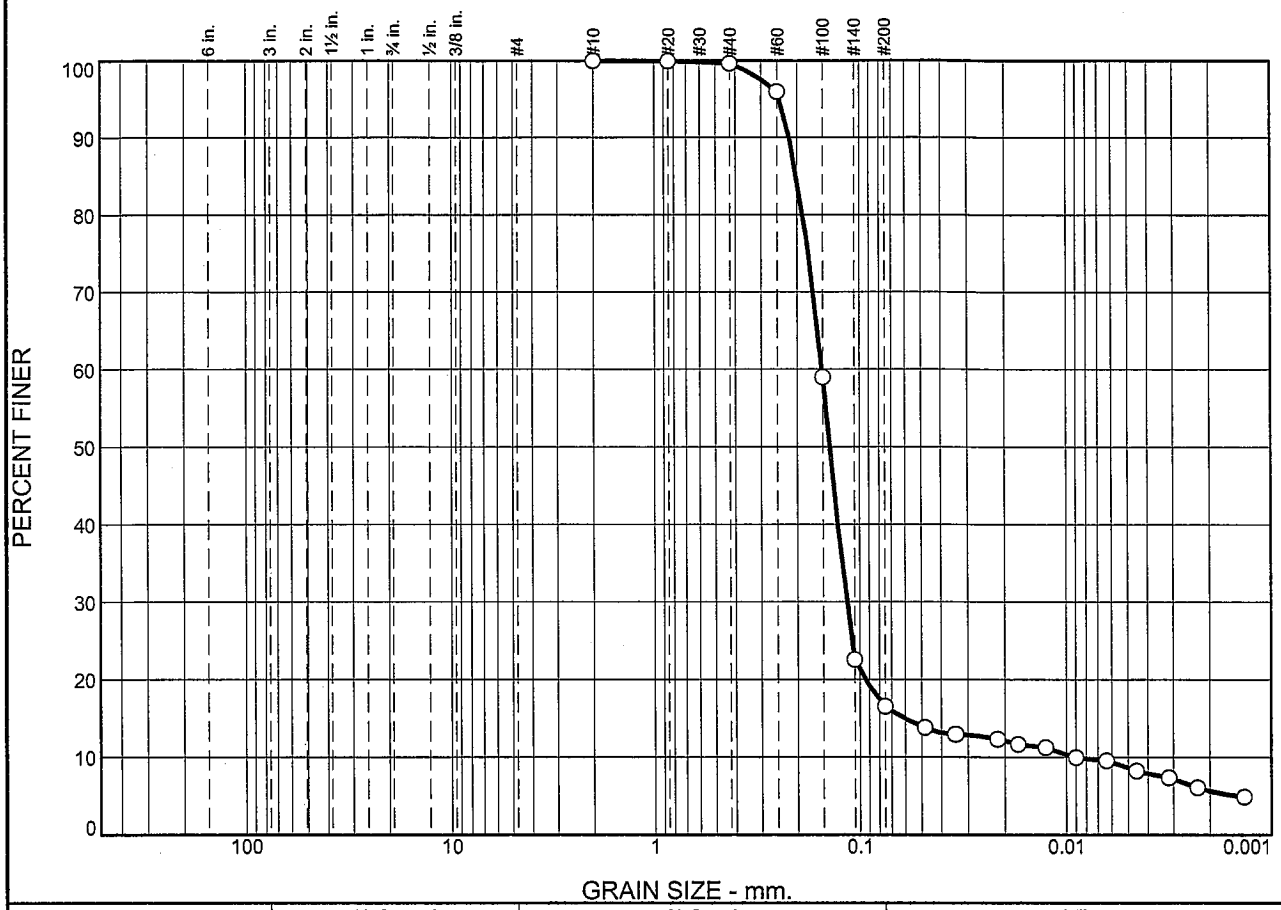
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-8 **Depth:** 243.30 ft
Location: B-344

Date: 9/03/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	83.1	7.9	8.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.6		
#60	96.0		
#100	59.0		
#140	22.5		
#200	16.5		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 23 LL= 36 PI= 13

Coefficients

D_{85}= 0.2006 D_{60}= 0.1514 D_{50}= 0.1389
D_{30}= 0.1162 D_{15}= 0.0605 D_{10}= 0.0092
C_u= 16.50 C_c= 9.72

Classification

USCS= SC AASHTO= A-2-6(0)

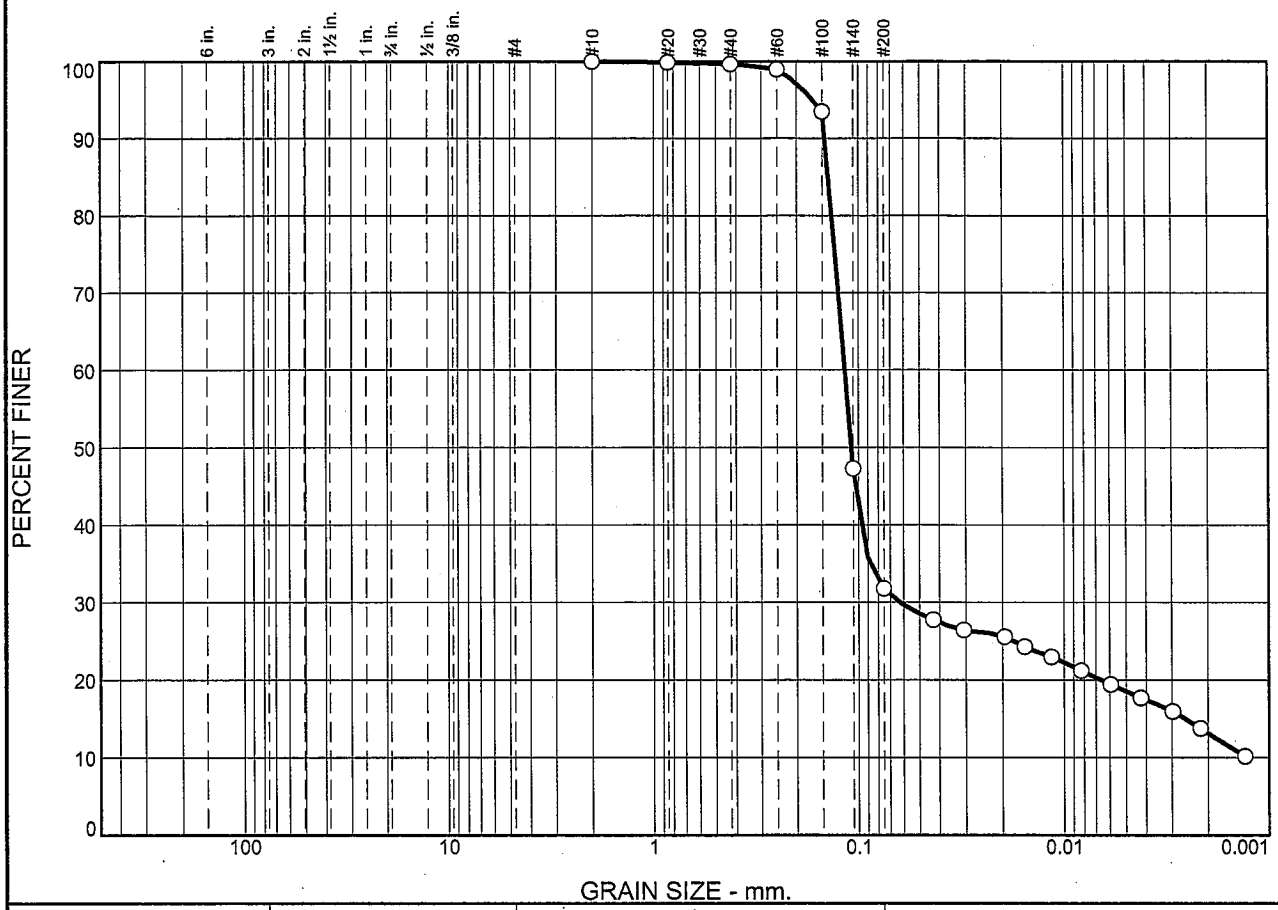
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-1 **Depth:** 33.15 ft
Location: B-771 **Date:** 9/27/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	67.9	13.3	18.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.7		
#60	99.0		
#100	93.5		
#140	47.3		
#200	31.8		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 18 LL= 59 PI= 41

Coefficients

D_{85}= 0.1394 D_{60}= 0.1172 D_{50}= 0.1086
D_{30}= 0.0626 D_{15}= 0.0026 D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-2-7(5)

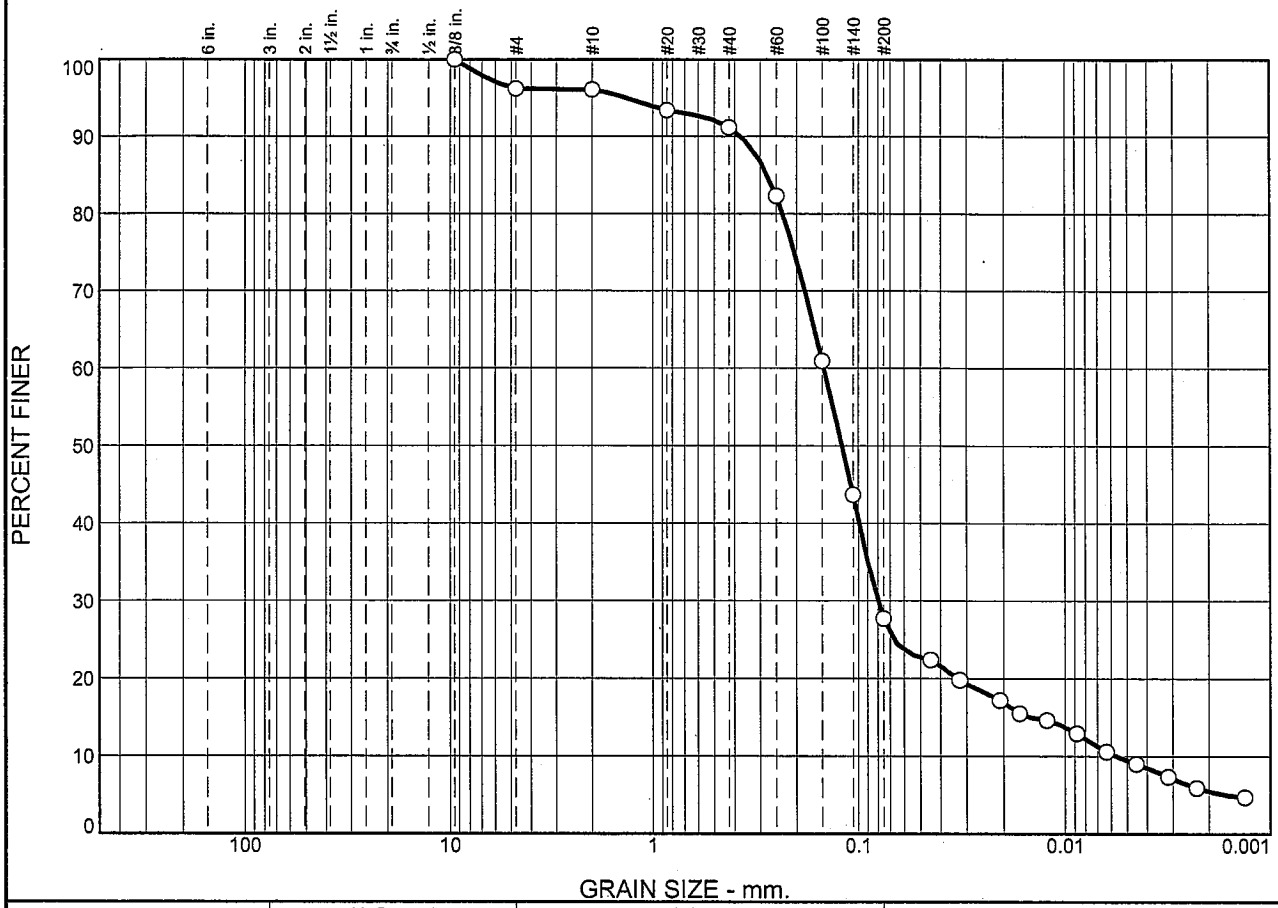
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-2 **Depth:** 43.30 ft
Location: B-771 **Date:** 9/27/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.8	0.1	4.9	63.5	18.3	9.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375	100.0		
#4	96.2		
#10	96.1		
#20	93.4		
#40	91.2		
#60	82.3		
#100	60.9		
#140	43.7		
#200	27.7		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 19 LL= 52 PI= 33

Coefficients

D_{85}= 0.2763 D_{60}= 0.1472 D_{50}= 0.1200
D_{30}= 0.0801 D_{15}= 0.0148 D_{10}= 0.0057
C_u= 25.87 C_c= 7.66

Classification

USCS= SC AASHTO= A-2-7(3)

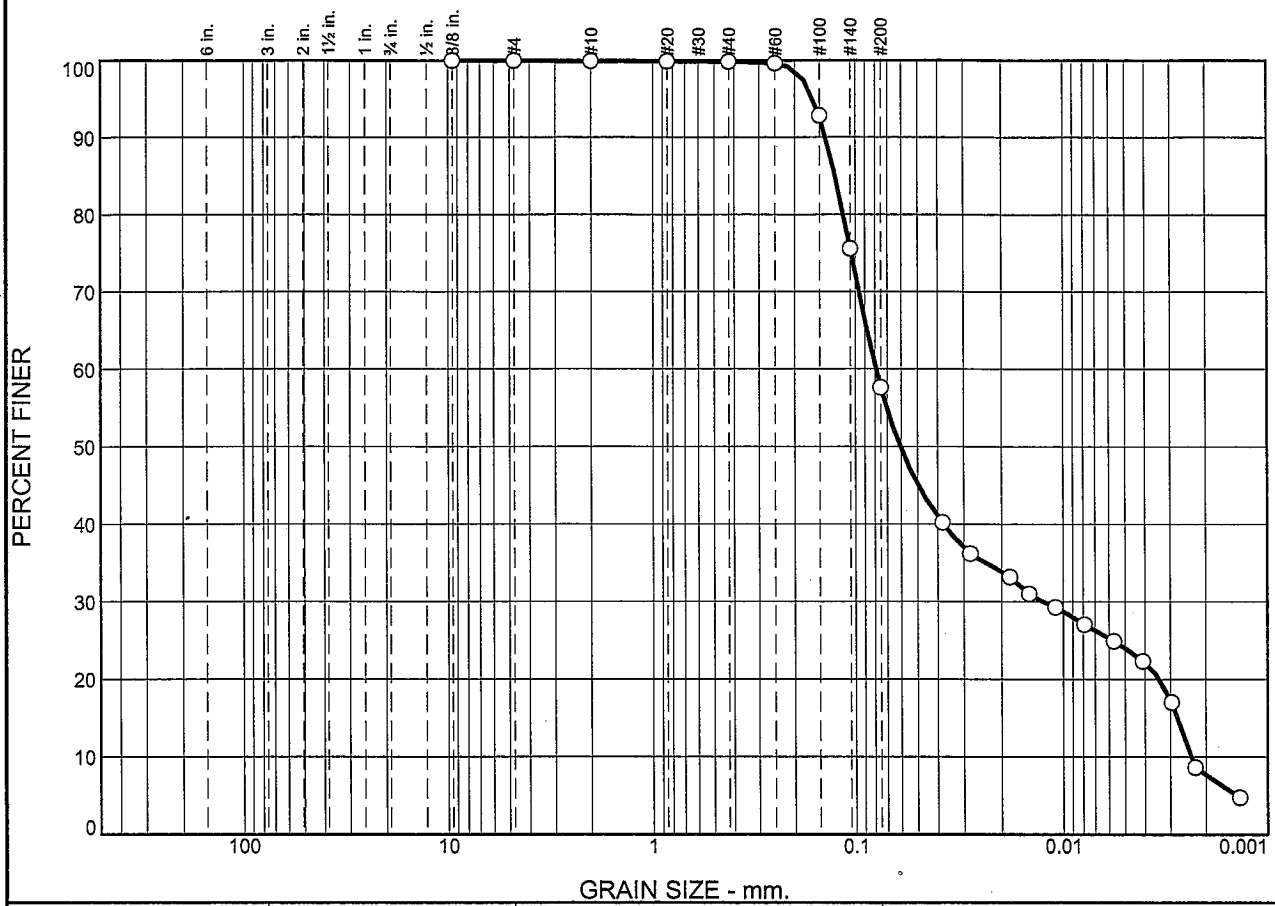
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-3 **Depth:** 52.90 ft
Location: B-771 **Date:** 10/02/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	42.2	33.6	24.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375	100.0		
#4	100.0		
#10	99.9		
#20	99.9		
#40	99.8		
#60	99.6		
#100	92.8		
#140	75.6		
#200	57.6		

* (no specification provided)

Material Description

Sandy Fat Clay

Atterberg Limits

PL= 21 LL= 64 PI= 43

Coefficients

D_{85}= 0.1258 D_{60}= 0.0791 D_{50}= 0.0607
D_{30}= 0.0126 D_{15}= 0.0028 D_{10}= 0.0024
C_u= 33.33 C_c= 0.85

Classification

USCS= CH AASHTO= A-7-6(22)

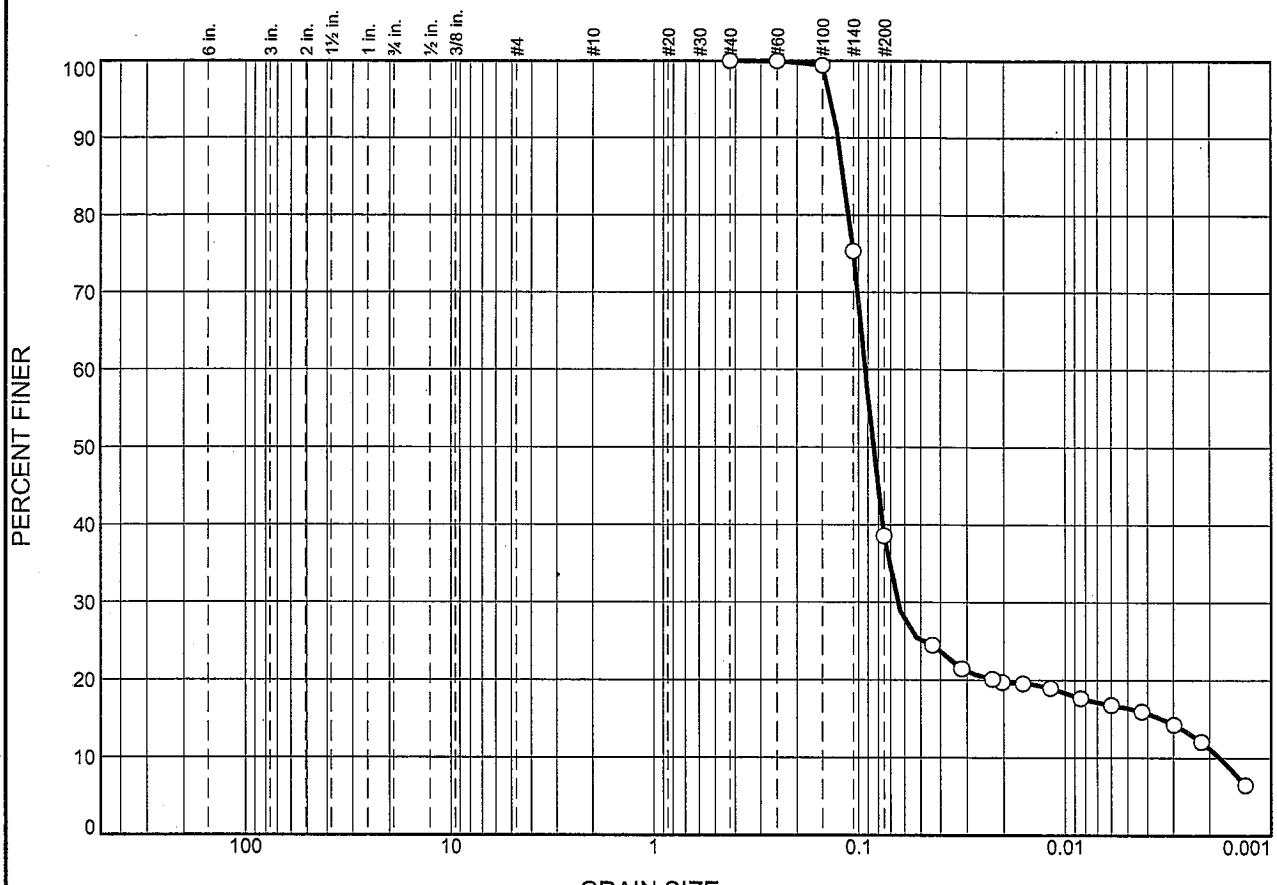
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-4 **Depth:** 63.30 ft
Location: B-771 **Date:** 9/27/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	61.4	22.2	16.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#40	100.0		
#60	100.0		
#100	99.4		
#140	75.3		
#200	38.6		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 21 LL= 55 PI= 34

Coefficients

D_{85}= 0.1175 D_{60}= 0.0924 D_{50}= 0.0845
D_{30}= 0.0648 D_{15}= 0.0034 D_{10}= 0.0018
C_u= 51.84 C_c= 25.49

Classification

USCS= SC AASHTO= A-7-6(7)

Remarks

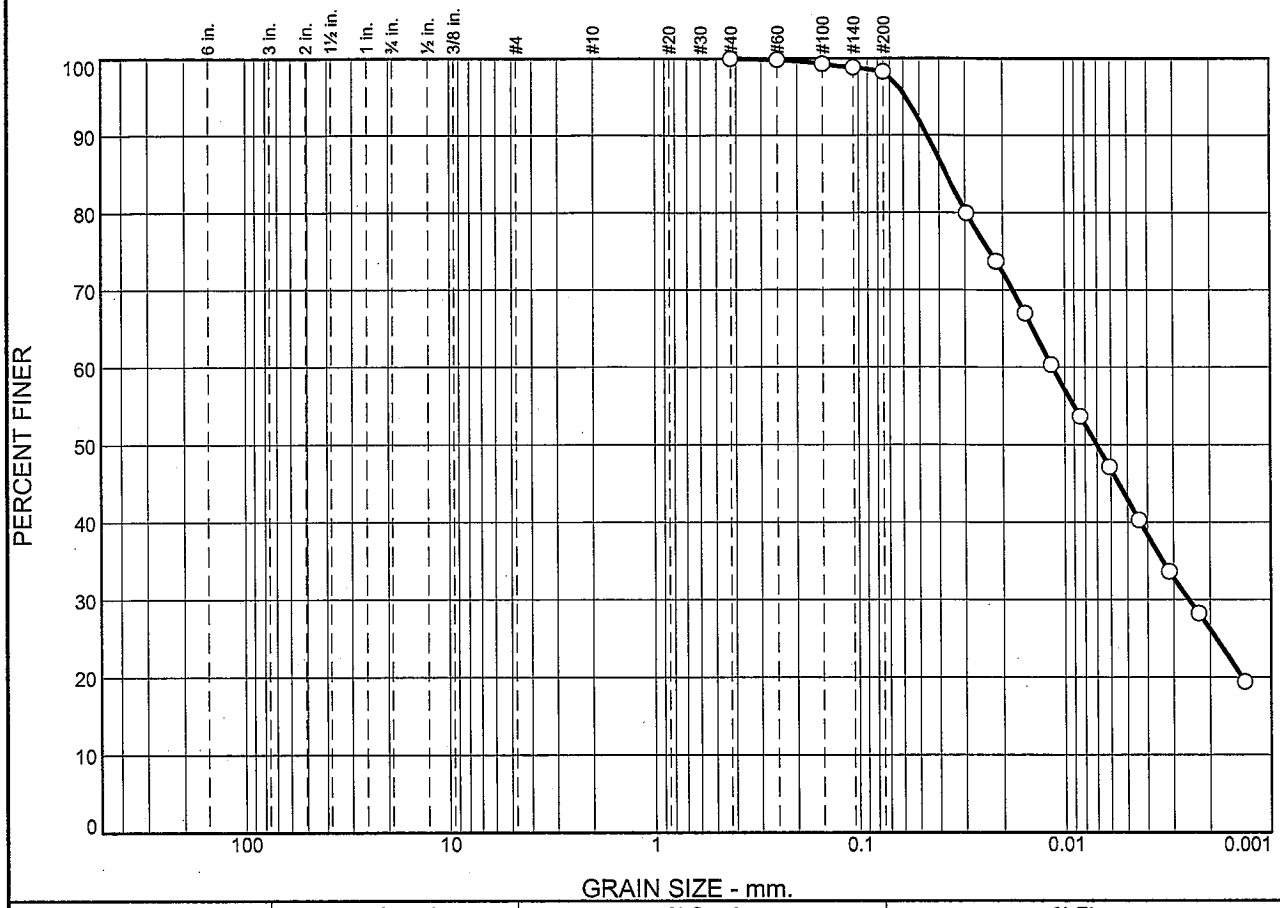
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-5 **Depth:** 73.30 ft
Location: B-771

Date: 9/27/08

MACTEC Engineering and Consulting, Inc. **Charlotte, North Carolina**	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL **Project No:** 6234084783 **Figure**

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	1.7	55.2	43.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#40	100.0		
#60	99.8		
#100	99.3		
#140	98.8		
#200	98.3		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 37 LL= 136 PI= 99

Coefficients

D_{85}= 0.0368 D_{60}= 0.0115 D_{50}= 0.0070
D_{30}= 0.0025 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(117)

Remarks

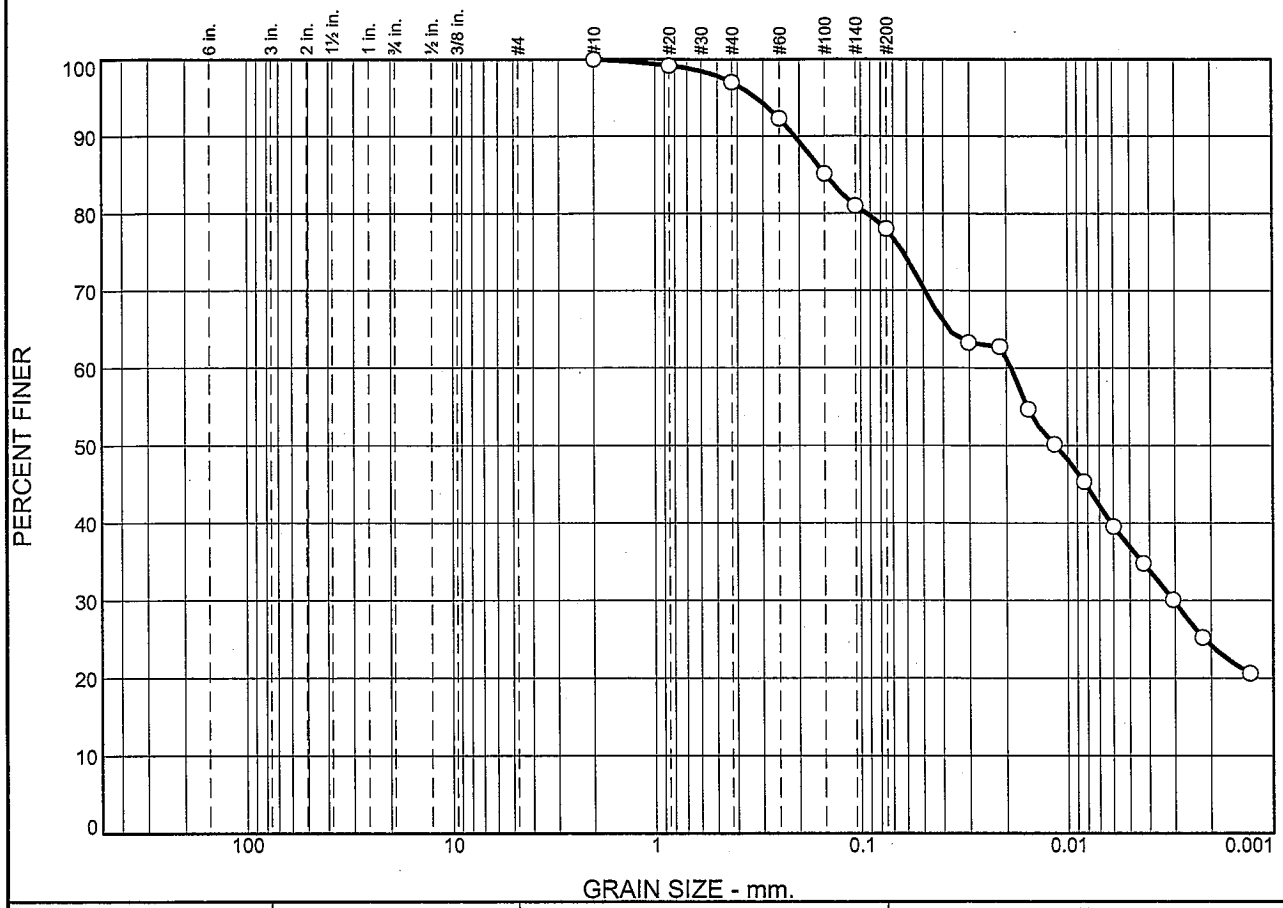
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-6 **Depth:** 81.50 ft
Location: B-771

Date: 9/08/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.0	19.0	41.1	36.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.2		
#40	97.0		
#60	92.3		
#100	85.2		
#140	81.0		
#200	78.0		

* (no specification provided)

Material Description

Fat Clay with Sand

Atterberg Limits

PL= 32 LL= 140 PI= 108

Coefficients

D_{85}= 0.1484 D_{60}= 0.0189 D_{50}= 0.0114
D_{30}= 0.0031 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(92)

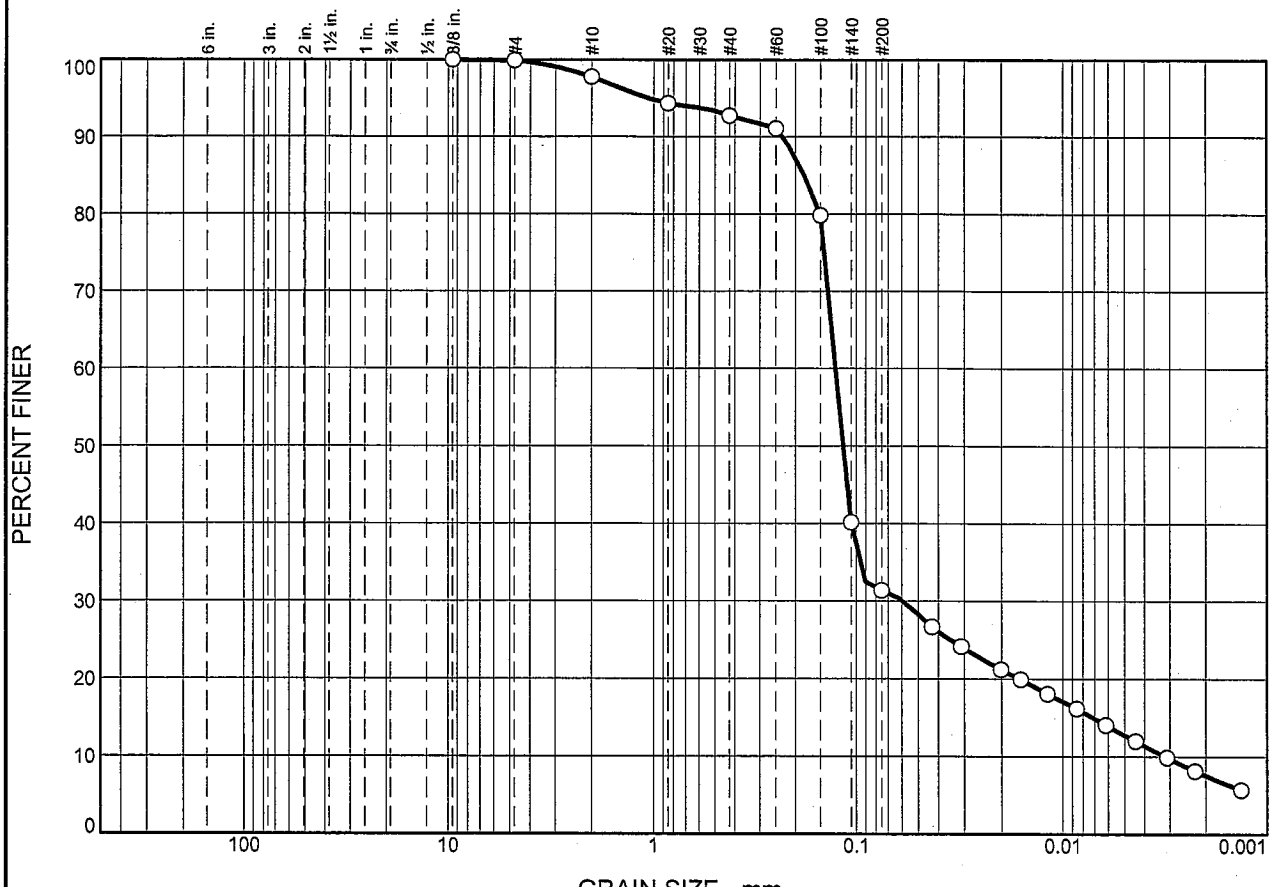
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-7 **Depth:** 93.30 ft
Location: B-771 **Date:** 8/30/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	2.1	5.1	61.3	18.6	12.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375	100.0		
#4	99.9		
#10	97.8		
#20	94.4		
#40	92.7		
#60	91.1		
#100	79.8		
#140	40.2		
#200	31.4		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 20 LL= 42 PI= 22

Coefficients

D_{85}= 0.1805 D_{60}= 0.1266 D_{50}= 0.1168
D_{30}= 0.0592 D_{15}= 0.0071 D_{10}= 0.0032
C_u= 39.96 C_c= 8.74

Classification

USCS= SC AASHTO= A-2-7(2)

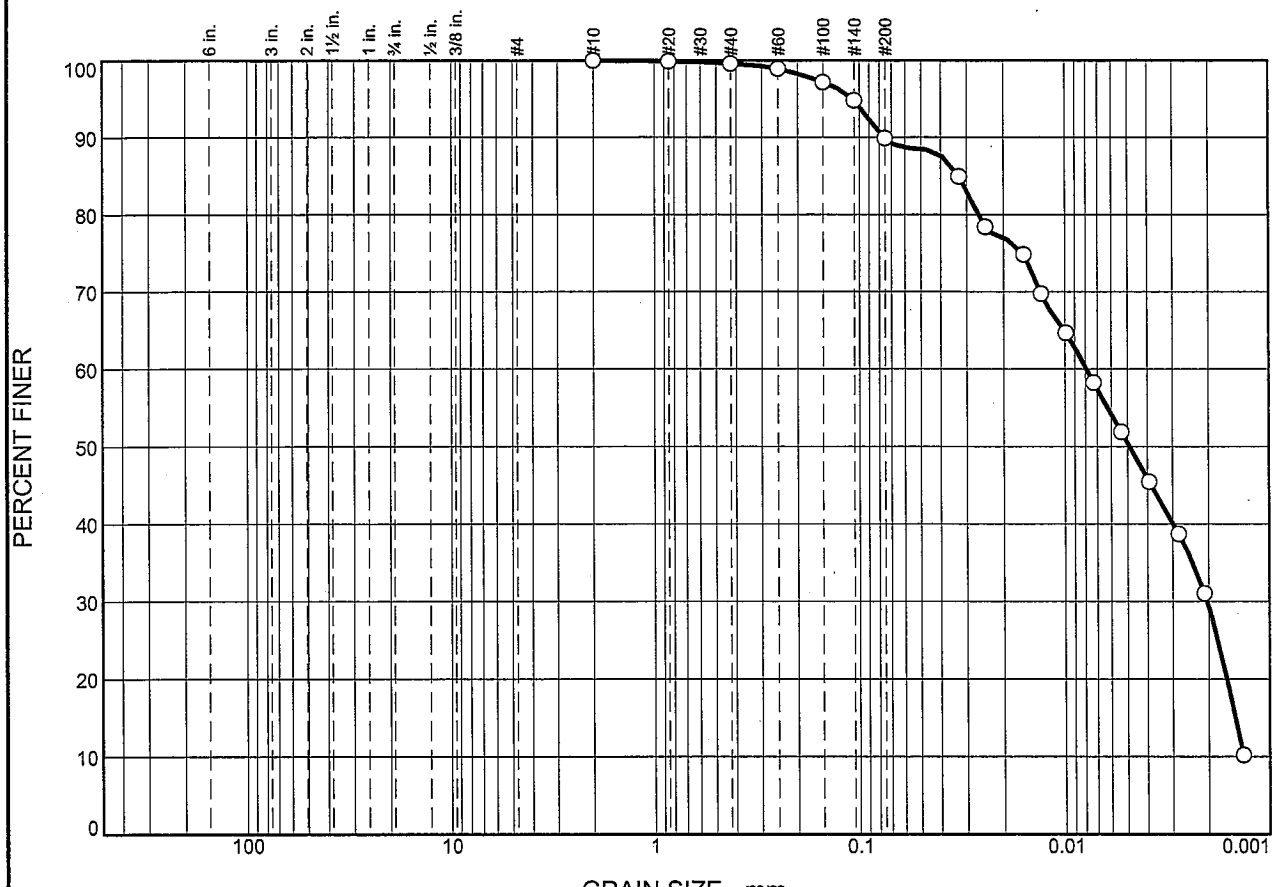
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-2 **Depth:** 24.15 ft
Location: B-773A **Date:** 9/30/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	9.7	39.4	50.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.6		
#60	98.9		
#100	97.2		
#140	94.8		
#200	89.9		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 33 LL= 143 PI= 110

Coefficients

D_{85}= 0.0326 D_{60}= 0.0079 D_{50}= 0.0049
D_{30}= 0.0020 D_{15}= 0.0015 D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(114)

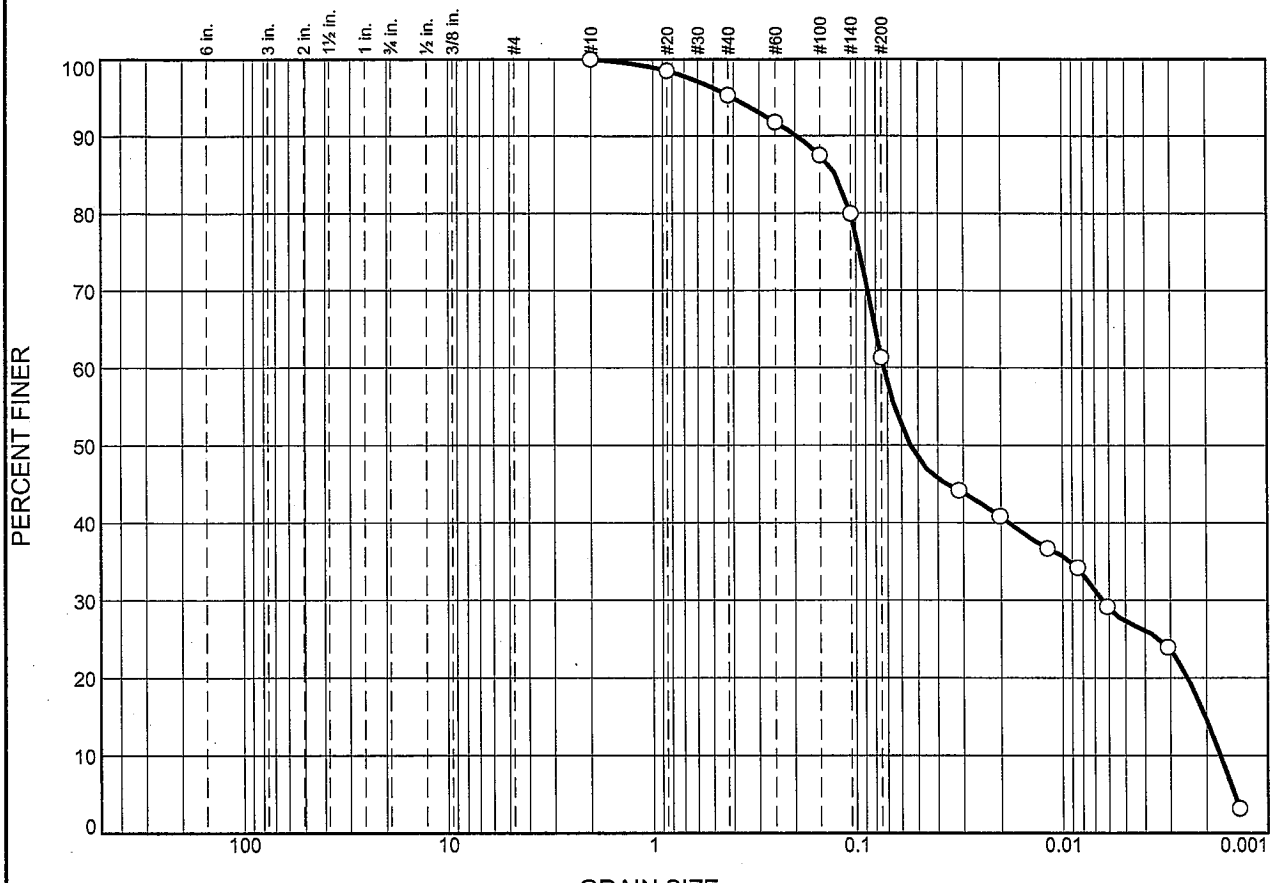
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-8 **Depth:** 84.65 ft
Location: B-773A **Date:** 9/27/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.7	34.0	34.0	27.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	98.5		
#40	95.3		
#60	91.9		
#100	87.5		
#140	79.9		
#200	61.3		
0.0314 mm.	44.2		
0.0202 mm.	40.8		
0.0118 mm.	36.7		
0.0085 mm.	34.2		
0.0061 mm.	29.2		
0.0031 mm.	24.0		
0.0014 mm.	3.2		

* (no specification provided)

Soil Description

Sandy Fat Clay

Atterberg Limits

PL= 26 LL= 116 PI= 90

Coefficients

D_{85}= 0.1258 D_{60}= 0.0730 D_{50}= 0.0544
D_{30}= 0.0065 D_{15}= 0.0020 D_{10}= 0.0017
C_u= 42.60 C_c= 0.33

Classification

USCS= CH AASHTO= A-7-6(52)

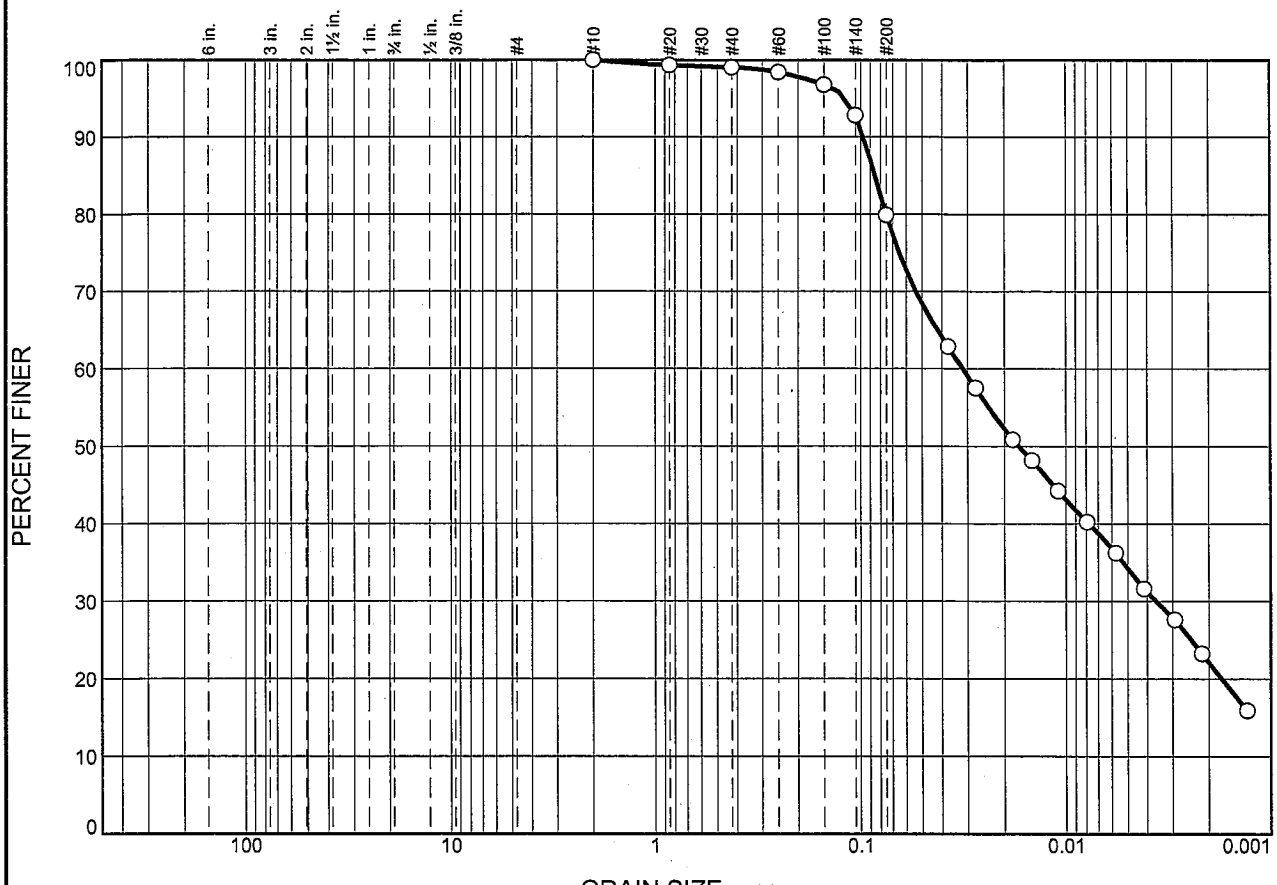
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample No.: UD-9 **Source of Sample:** B-773A **Date:** 12-18-08
Location: B-773A **Elev./Depth:** 94.5-94.9

MACTEC Engineering and Consulting, Inc.	**Client:**
	Project: Calvert Cliffs
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure**

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	19.2	45.6	34.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.3		
#40	99.1		
#60	98.4		
#100	96.8		
#140	92.8		
#200	79.9		

* (no specification provided)

Material Description

Fat Clay with Sand

Atterberg Limits

PL= 25 LL= 110 PI= 85

Coefficients

D_{85}= 0.0851 D_{60}= 0.0316 D_{50}= 0.0170
D_{30}= 0.0036 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(74)

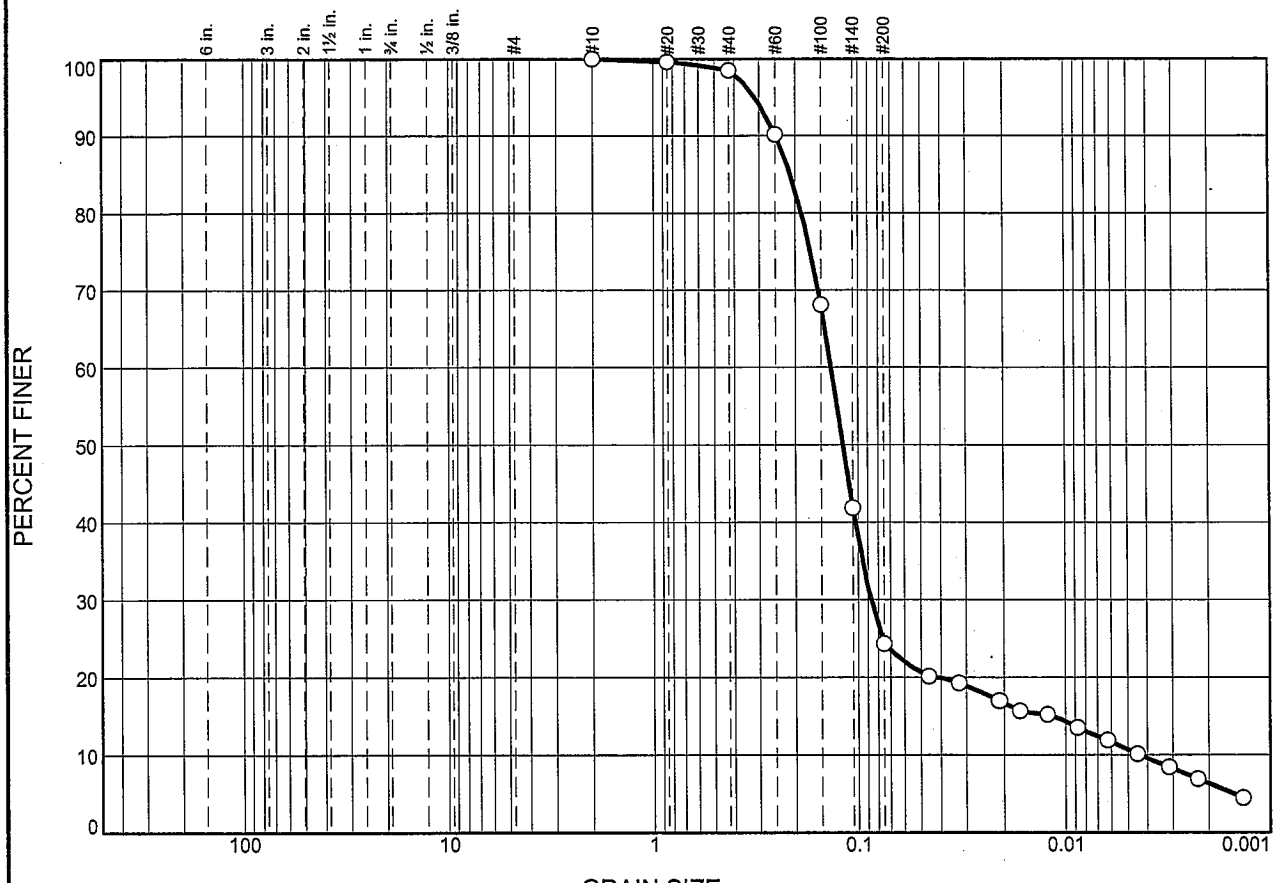
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-10 **Depth:** 103.6 ft
Location: B-773A **Date:** 9/30/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.5	74.2	13.6	10.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.6		
#40	98.5		
#60	90.2		
#100	68.1		
#140	41.9		
#200	24.3		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 22 LL= 43 PI= 21

Coefficients

D_{85}= 0.2104 D_{60}= 0.1342 D_{50}= 0.1182
D_{30}= 0.0869 D_{15}= 0.0115 D_{10}= 0.0044
C_u= 30.68 C_c= 12.84

Classification

USCS= SC AASHTO= A-2-7(1)

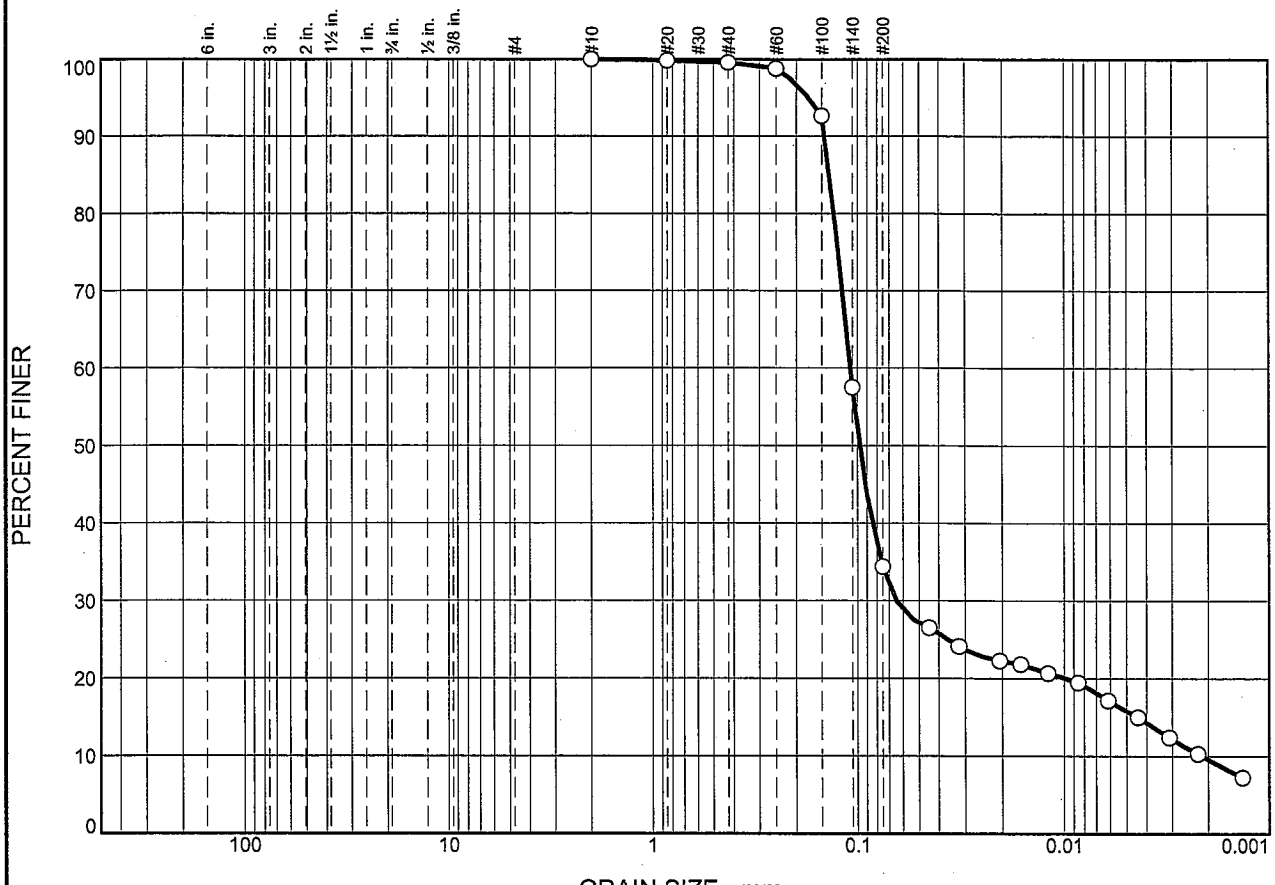
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-11 **Depth:** 114.75 ft
Location: B-773A **Date:** 9/27/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	65.1	18.6	15.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.8		
#40	99.5		
#60	98.8		
#100	92.7		
#140	57.5		
#200	34.4		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 26 LL= 59 PI= 33

Coefficients

D_{85}= 0.1370 D_{60}= 0.1087 D_{50}= 0.0976
D_{30}= 0.0643 D_{15}= 0.0044 D_{10}= 0.0021
C_u= 50.70 C_c= 17.77

Classification

USCS= SC AASHTO= A-2-7(4)

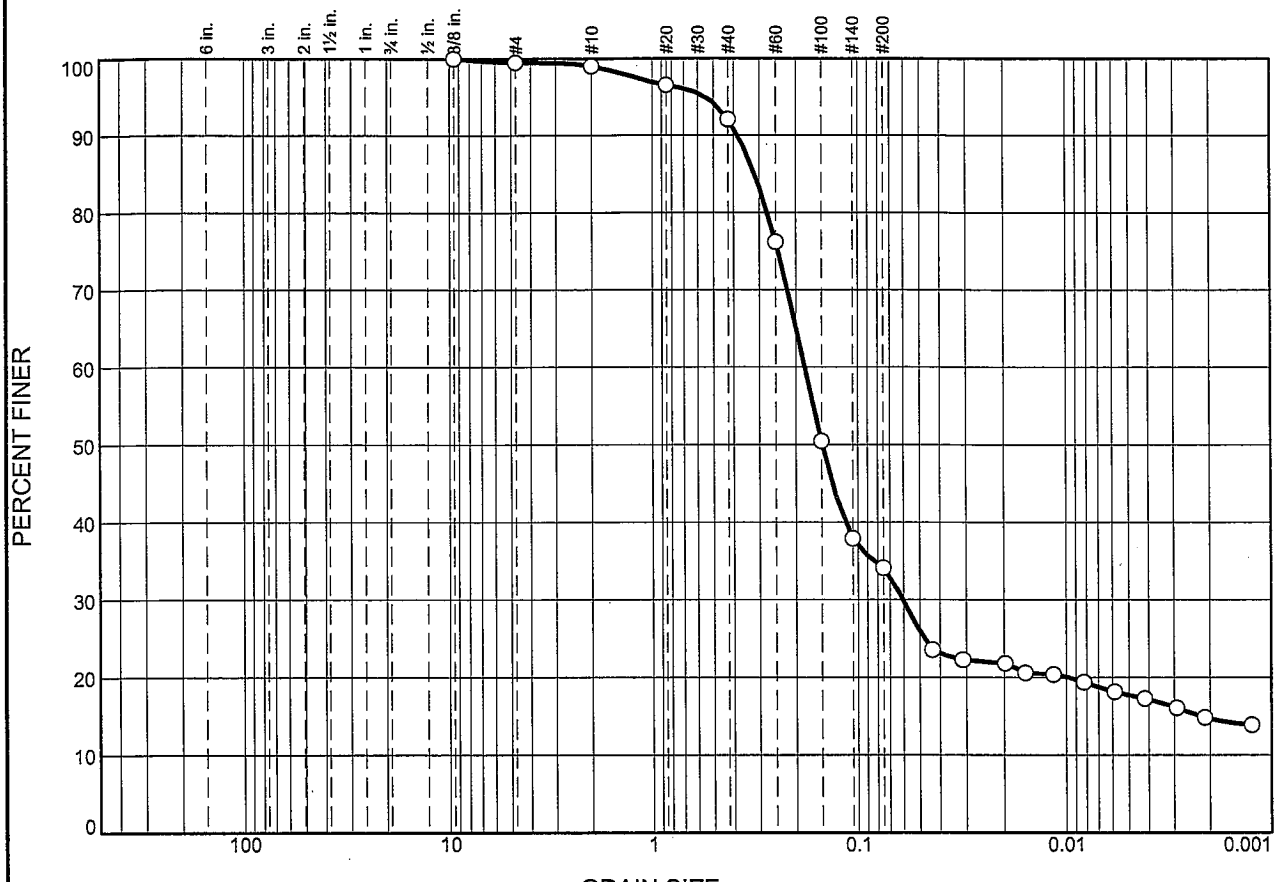
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-12 **Depth:** 124.70 ft
Location: B-773A **Date:** 9/24/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.5	6.9	58.0	16.4	17.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375	100.0		
#4	99.5		
#10	99.0		
#20	96.5		
#40	92.1		
#60	76.2		
#100	50.4		
#140	37.9		
#200	34.1		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 12 LL= 22 PI= 10

Coefficients

D_{85}= 0.3158 D_{60}= 0.1811 D_{50}= 0.1486
D_{30}= 0.0602 D_{15}= 0.0022 D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-2-4(0)

Remarks

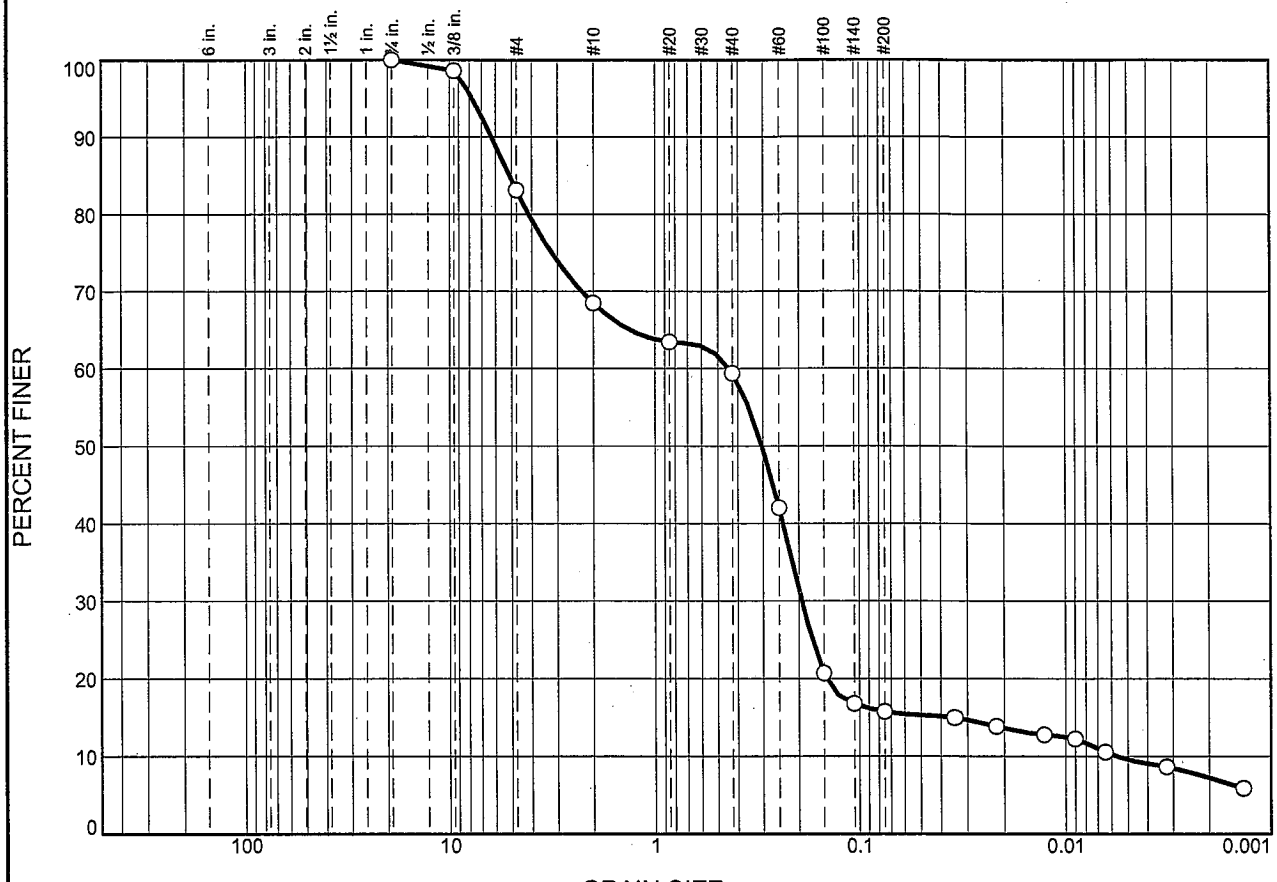
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-1 **Depth:** 13.20 ft
Location: B-774

Date: 9/27/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	16.9	14.6	9.1	43.7	6.1	9.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4in.	100.0		
3/8in.	98.6		
#4	83.1		
#10	68.5		
#20	63.4		
#40	59.4		
#60	42.0		
#100	20.7		
#140	16.8		
#200	15.7		
0.0343 mm.	14.9		
0.0218 mm.	13.8		
0.0127 mm.	12.8		
0.0090 mm.	12.2		
0.0064 mm.	10.5		
0.0032 mm.	8.6		
0.0014 mm.	5.9		

* (no specification provided)

Soil Description

Silty Sand with Gravel

Atterberg Limits

PL= 19 LL= 20 PI= 1

Coefficients

D_{85}= 5.1326 D_{60}= 0.4401 D_{50}= 0.3037
D_{30}= 0.1933 D_{15}= 0.0357 D_{10}= 0.0057
C_u= 77.39 C_c= 14.93

Classification

USCS= SP-SM AASHTO= A-2-4(0)

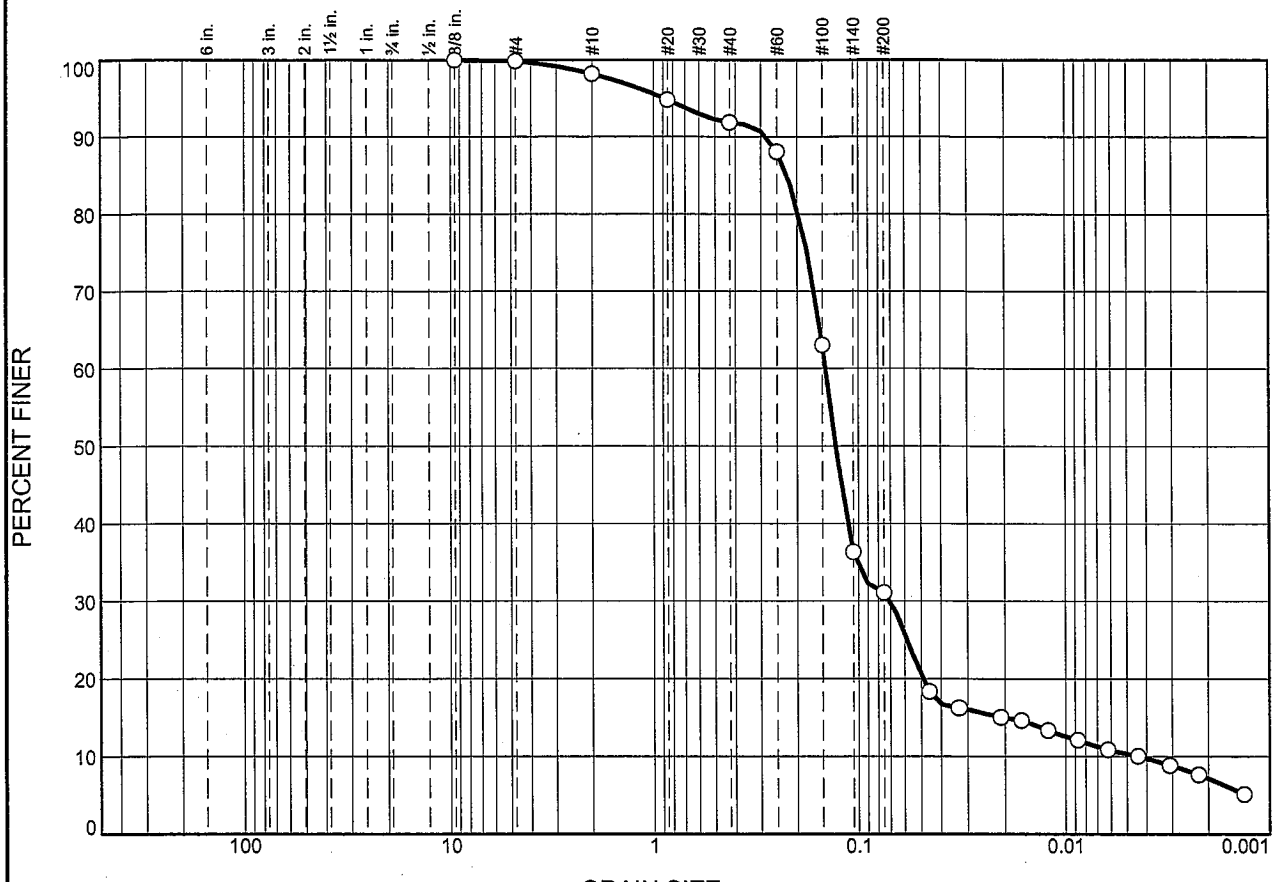
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample No.: UD-2 **Source of Sample:** B-774 **Date:** 12-18-08
Location: B-774 **Elev./Depth:** 16.85-17.05

MACTEC Engineering and Consulting, Inc.	**Client:**
	Project: Calvert Cliffs
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	1.6	6.3	60.8	20.8	10.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375	100.0		
#4	99.8		
#10	98.2		
#20	94.8		
#40	91.9		
#60	88.1		
#100	63.0		
#140	36.3		
#200	31.1		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 19 LL= 30 PI= 11

Coefficients

D_{85}= 0.2232 D_{60}= 0.1446 D_{50}= 0.1288
D_{30}= 0.0701 D_{15}= 0.0206 D_{10}= 0.0043
C_u= 33.37 C_c= 7.84

Classification

USCS= SC AASHTO= A-2-6(0)

Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-3 **Depth:** 23.50 ft
Location: B-774 **Date:** 9/27/08

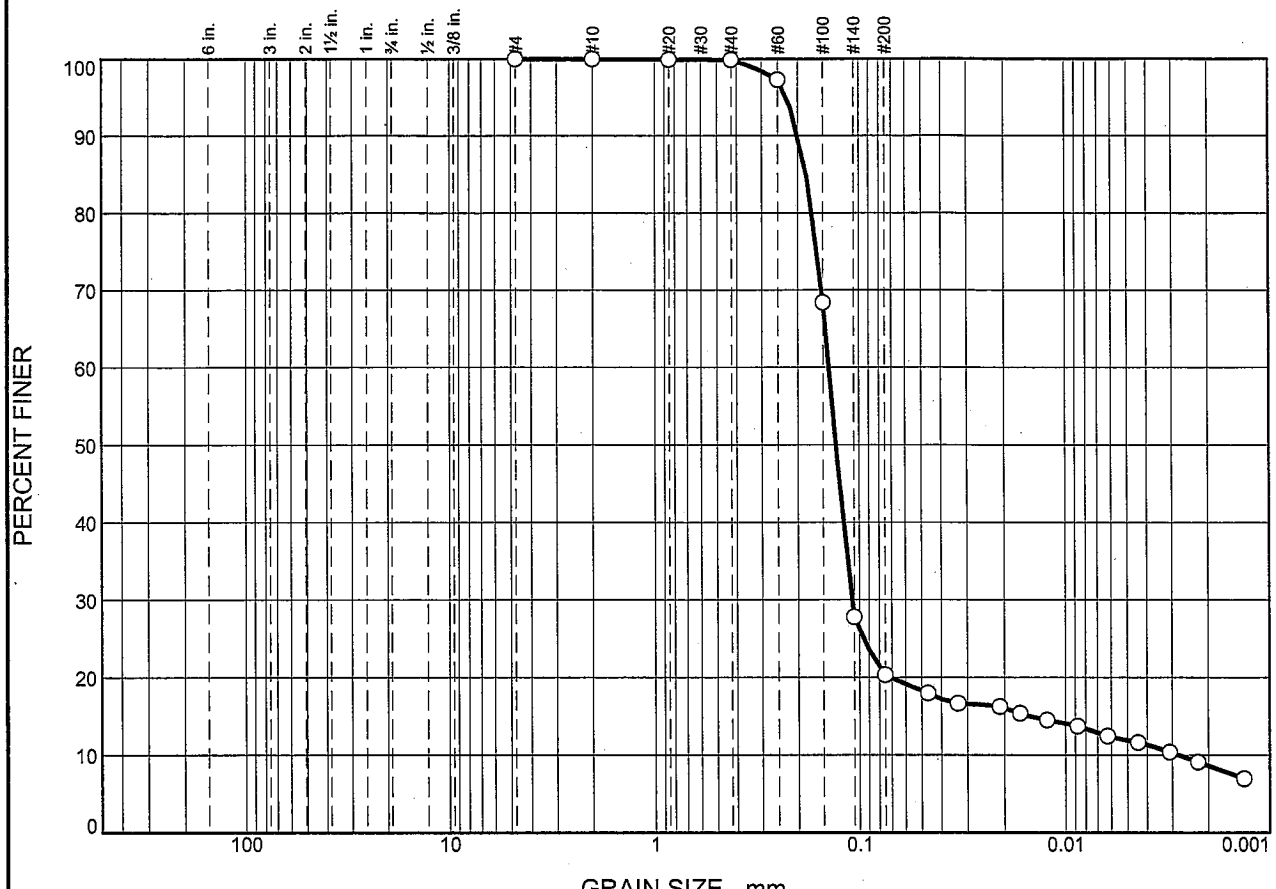
MACTEC Engineering and Consulting, Inc.

Charlotte, North Carolina

Client: Bechtel Power Corporation
Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL

Project No: 6234084783 **Figure**

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	79.6	8.4	11.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.9		
#60	97.3		
#100	68.4		
#140	27.8		
#200	20.3		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 22 LL= 42 PI= 20

Coefficients

D_{85}= 0.1813 D_{60}= 0.1399 D_{50}= 0.1295
D_{30}= 0.1089 D_{15}= 0.0151 D_{10}= 0.0028
C_u= 49.46 C_c= 29.97

Classification

USCS= SC AASHTO= A-2-7(0)

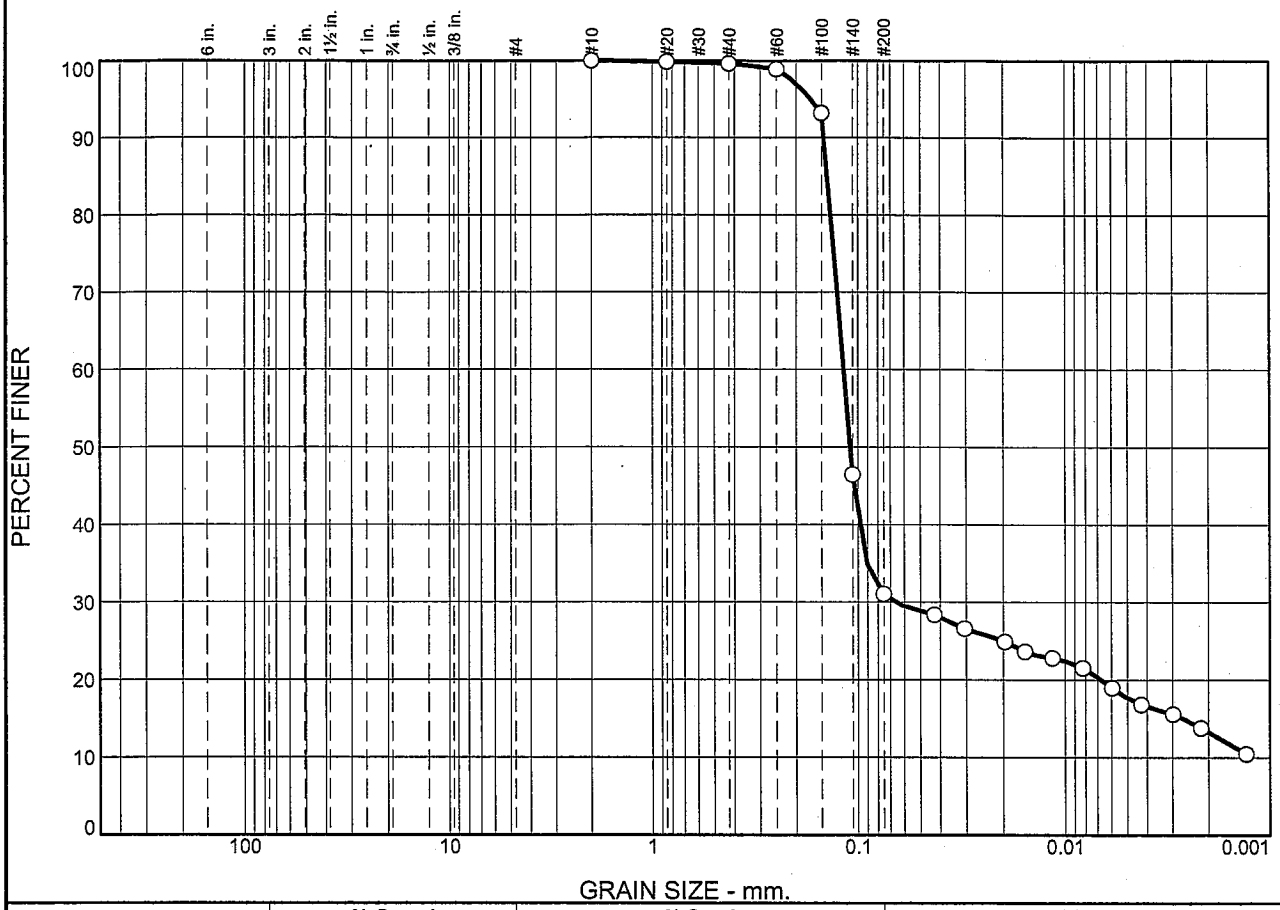
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-4 **Depth:** 32.65 ft
Location: B-774 **Date:** 9/27/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	68.6	13.3	17.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.8		
#40	99.6		
#60	98.9		
#100	93.2		
#140	46.4		
#200	31.0		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 19 LL= 56 PI= 37

Coefficients

D_{85}= 0.1398 D_{60}= 0.1178 D_{50}= 0.1093
D_{30}= 0.0660 D_{15}= 0.0027 D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-2-7(4)

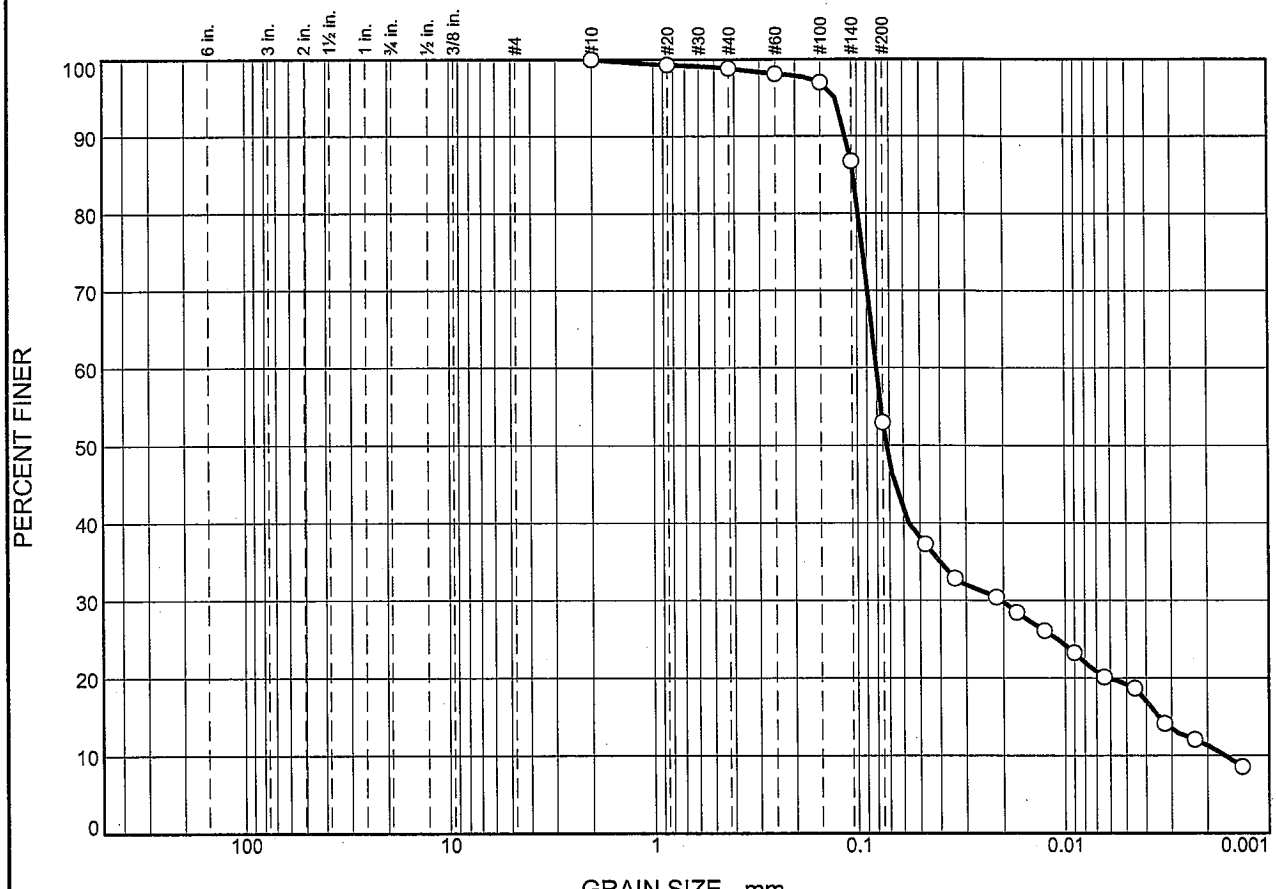
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-5 **Depth:** 43.25 ft
Location: B-774 **Date:** 9/27/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.2	45.8	33.7	19.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.3		
#40	98.8		
#60	98.1		
#100	97.0		
#140	86.8		
#200	53.0		

* (no specification provided)

Material Description

Sandy Fat Clay

Atterberg Limits

PL= 20 LL= 63 PI= 43

Coefficients

D_{85}= 0.1036 D_{60}= 0.0810 D_{50}= 0.0721
D_{30}= 0.0204 D_{15}= 0.0035 D_{10}= 0.0016
C_u= 49.39 C_c= 3.14

Classification

USCS= CH AASHTO= A-7-6(18)

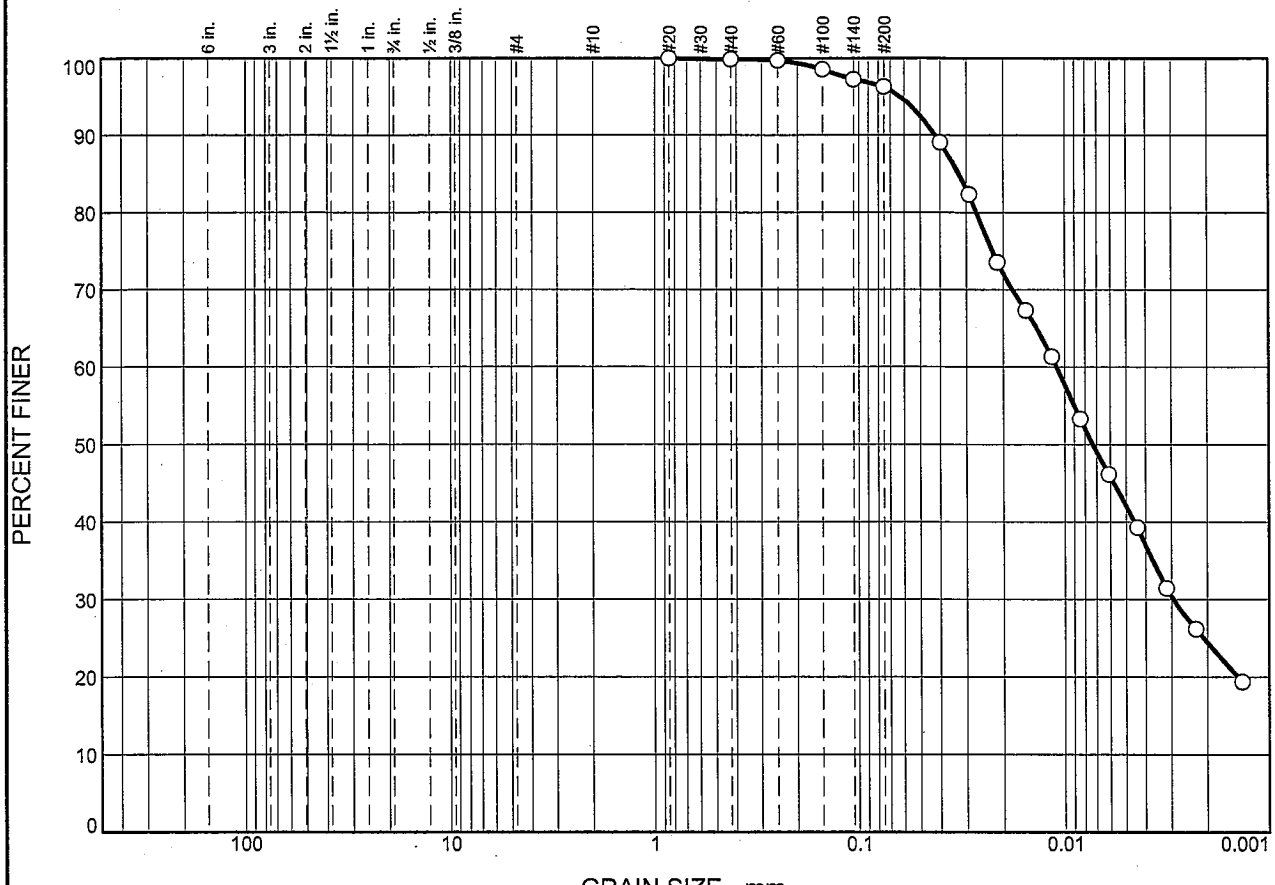
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-6 **Depth:** 53.20 ft
Location: B-774 **Date:** 9/08/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	3.6	54.1	42.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	99.9		
#60	99.7		
#100	98.5		
#140	97.2		
#200	96.3		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 38 LL= 136 PI= 98

Coefficients

D_{85}= 0.0324 D_{60}= 0.0109 D_{50}= 0.0073
D_{30}= 0.0029 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(113)

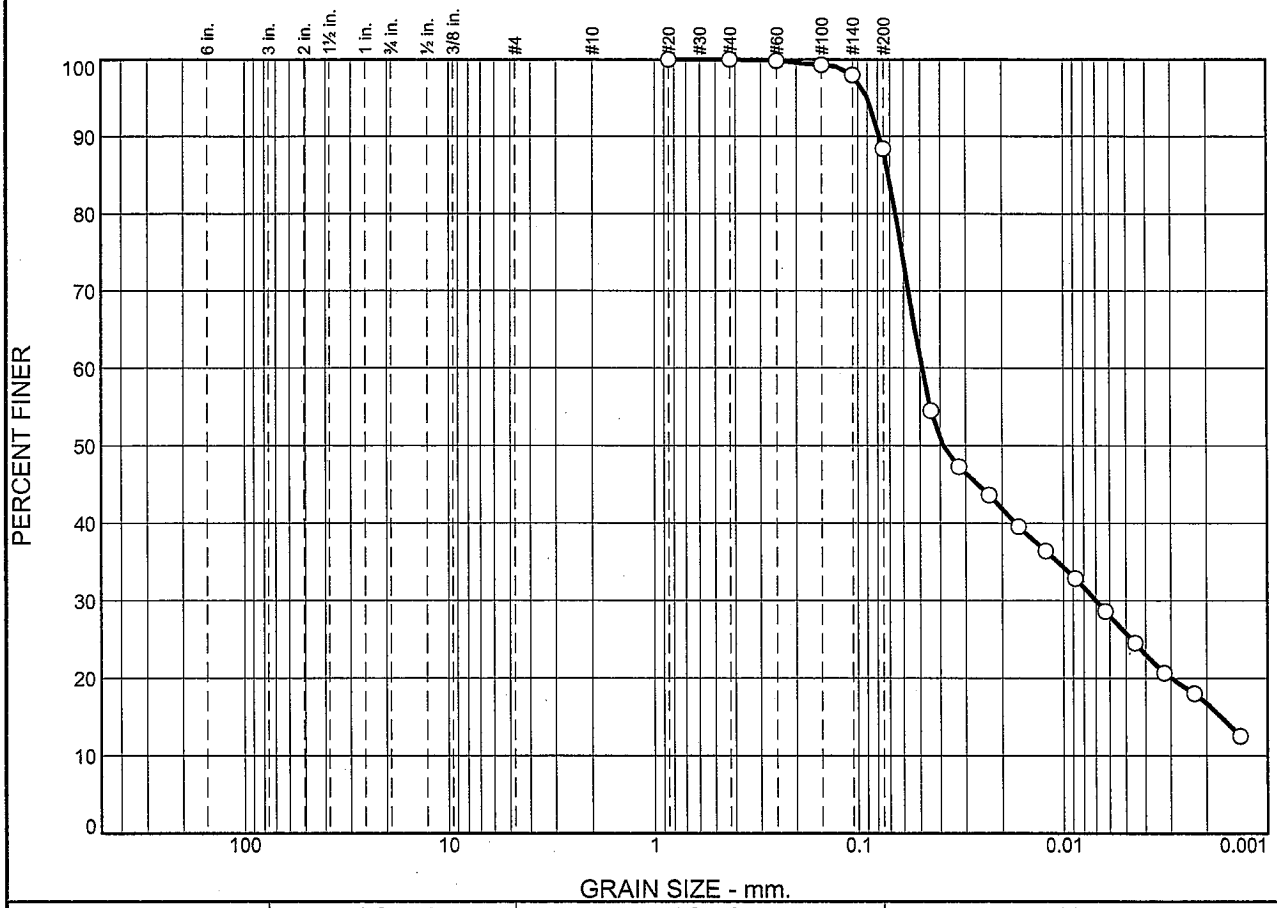
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-7 **Depth:** 83.20 ft
Location: B-774 **Date:** 9/08/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	11.6	62.6	25.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	100.0		
#60	99.8		
#100	99.3		
#140	98.0		
#200	88.4		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 24 LL= 94 PI= 70

Coefficients

D_{85}= 0.0706 D_{60}= 0.0490 D_{50}= 0.0384
D_{30}= 0.0070 D_{15}= 0.0017 D_{10}=
C_u= C_c=

Classification

USCS= AASHTO= A-7-6(69)

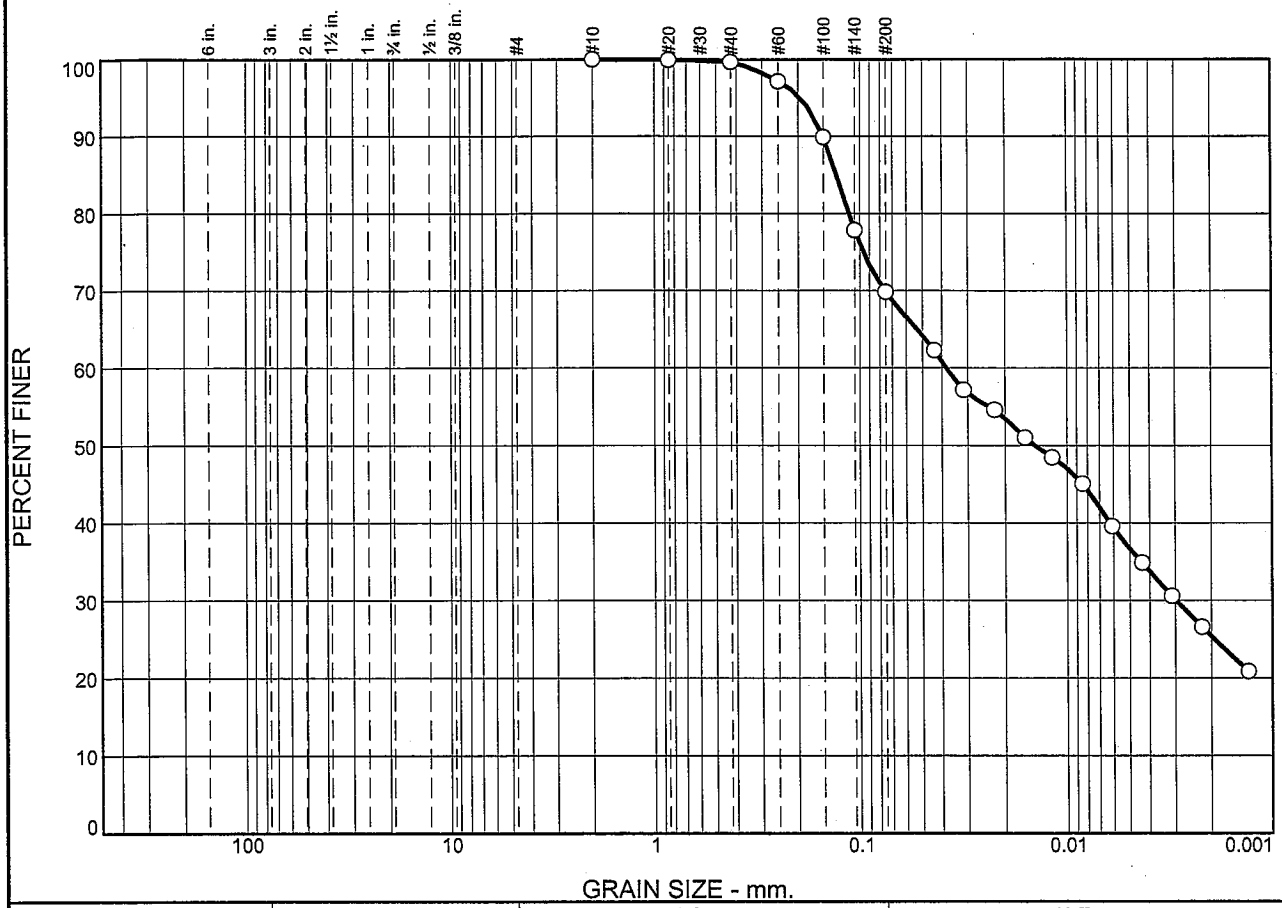
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-8 **Depth:** 102.7 ft
Location: B-774 **Date:** 9/02/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	29.9	33.1	36.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.7		
#60	97.2		
#100	89.9		
#140	77.9		
#200	69.8		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 29 LL= 131 PI= 102

Coefficients

D_{85}= 0.1296 D_{60}= 0.0380 D_{50}= 0.0144
D_{30}= 0.0030 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(74)

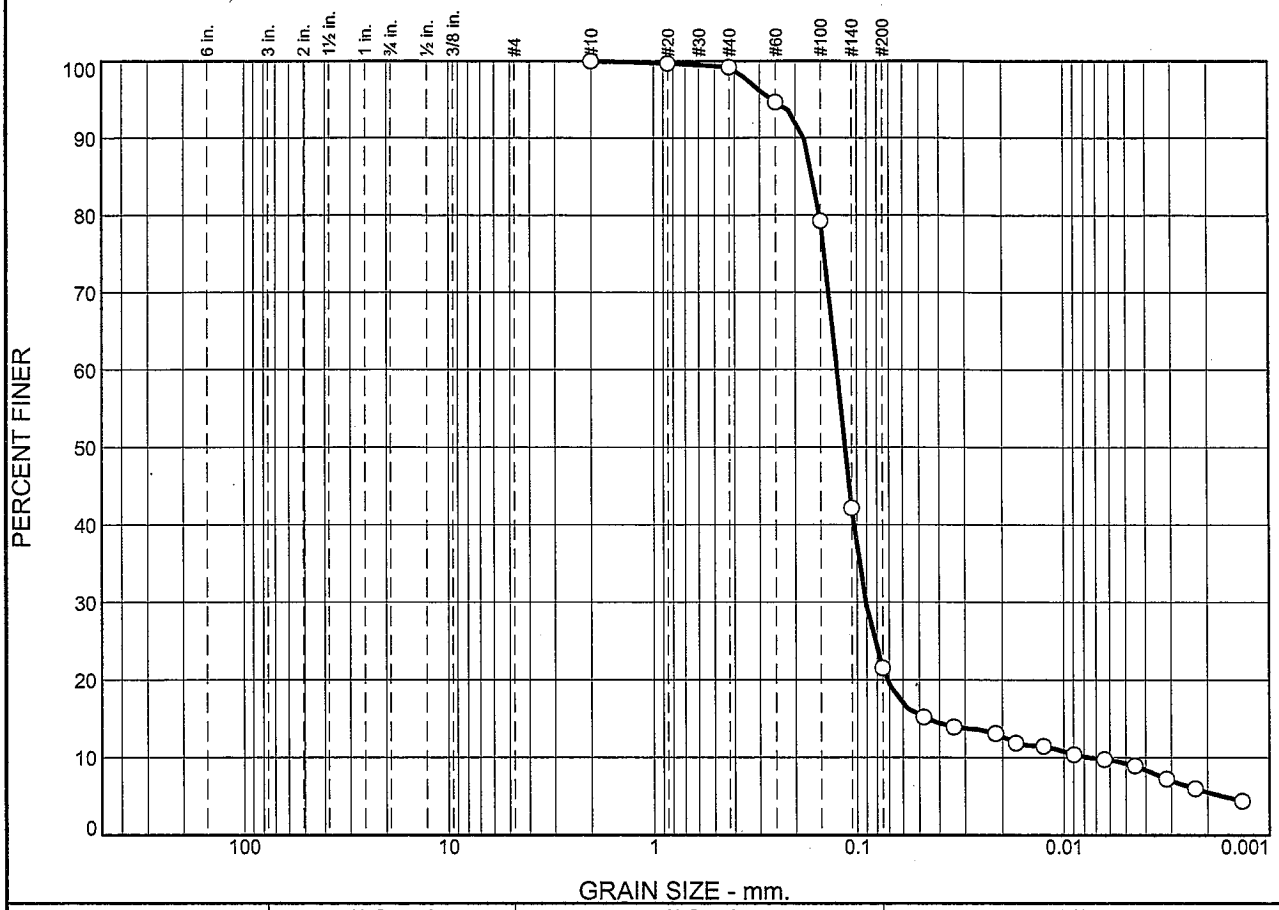
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-9 **Depth:** 113.50 ft
Location: B-774 **Date:** 8/30/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.8	77.7	12.2	9.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.7		
#40	99.2		
#60	94.7		
#100	79.2		
#140	42.1		
#200	21.5		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 25 LL= 42 PI= 17

Coefficients

D_{85}= 0.1626 D_{60}= 0.1248 D_{50}= 0.1143
D_{30}= 0.0906 D_{15}= 0.0453 D_{10}= 0.0076
C_u= 16.45 C_c= 8.68

Classification

USCS= SC AASHTO= A-2-7(0)

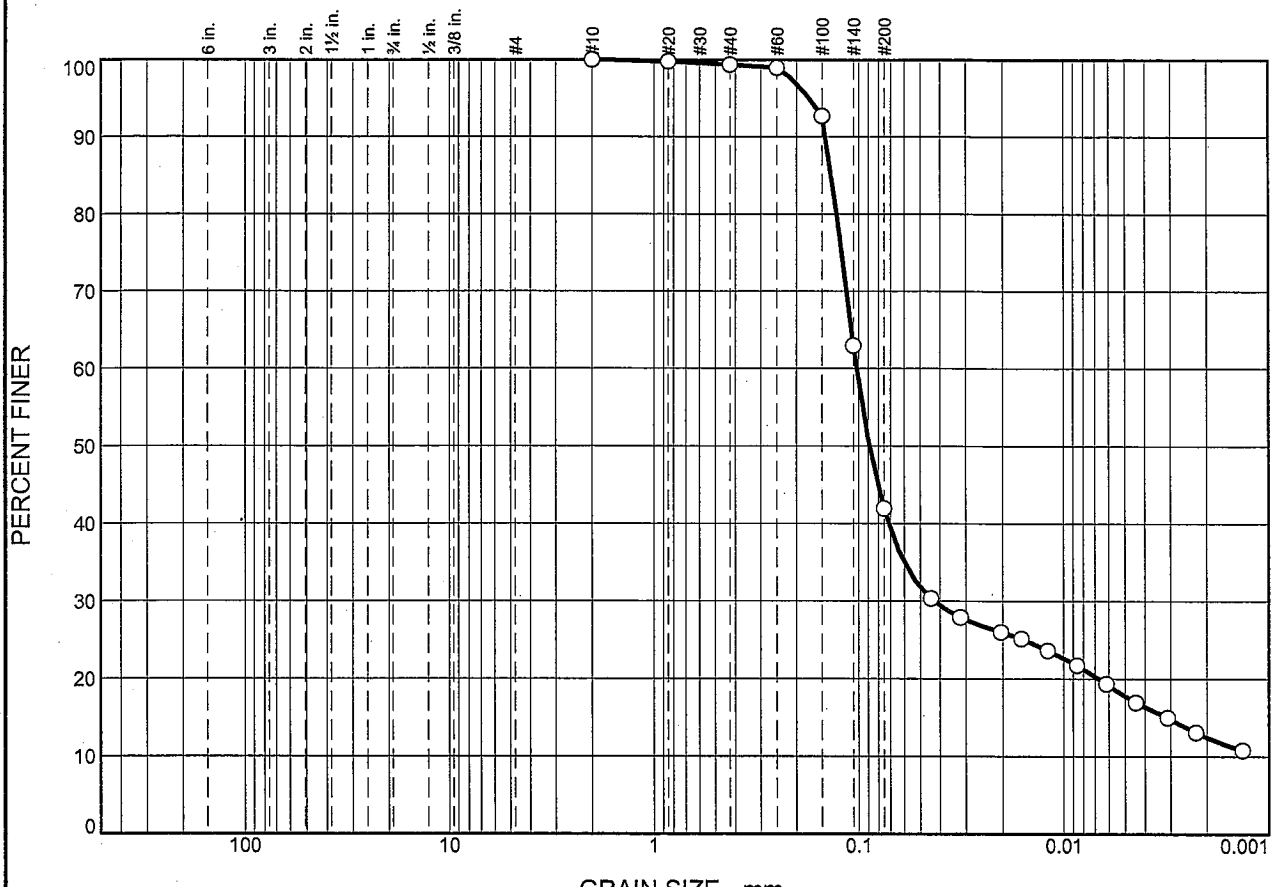
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-10 **Depth:** 123.20 ft
Location: B-774 **Date:** 9/27/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	57.5	24.1	17.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.8		
#40	99.4		
#60	99.0		
#100	92.7		
#140	62.9		
#200	41.9		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 24 LL= 70 PI= 46

Coefficients

D_{85}= 0.1351 D_{60}= 0.1023 D_{50}= 0.0884
D_{30}= 0.0426 D_{15}= 0.0031 D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-7-6(12)

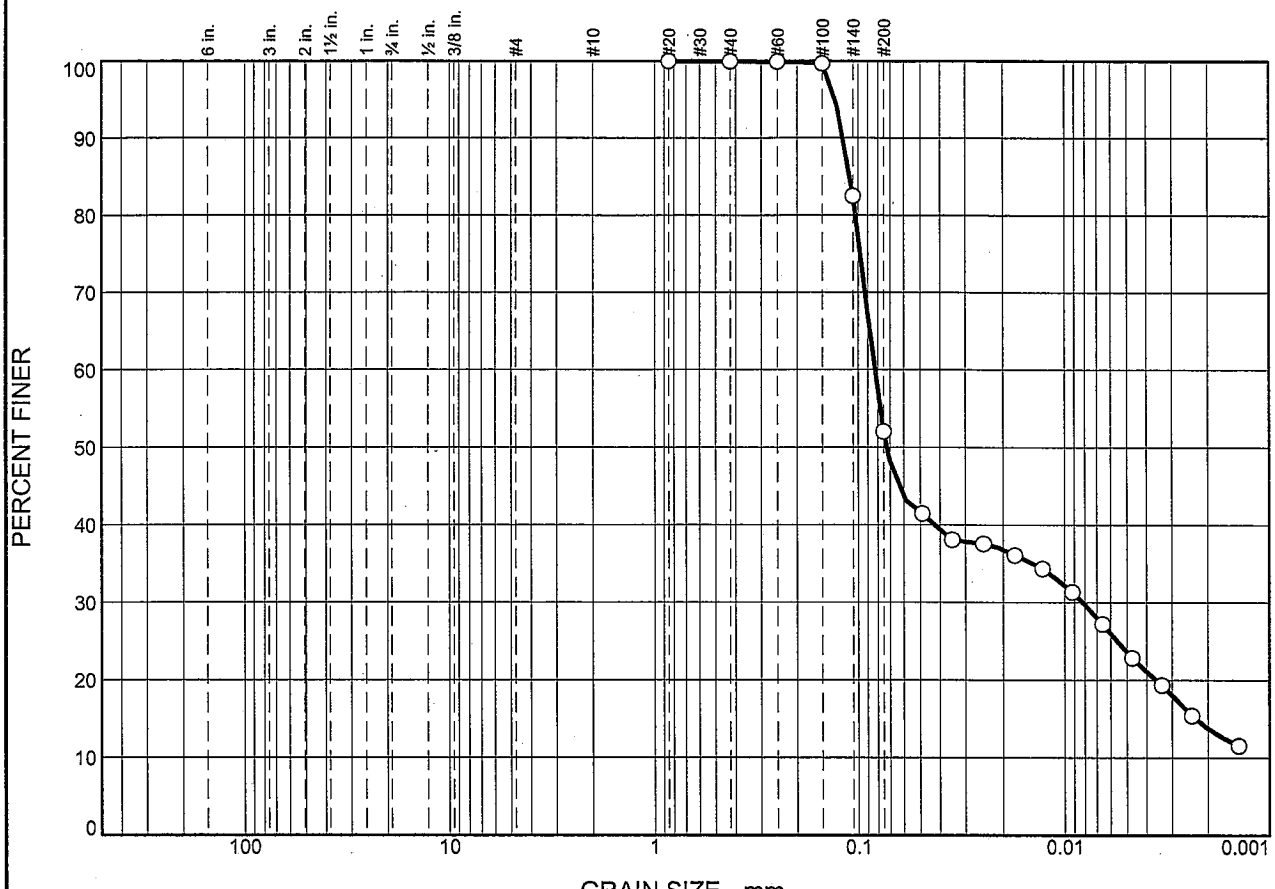
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-11 **Depth:** 133.50 ft
Location: B-774 **Date:** 9/27/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation
	Project: Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	28.4	23.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	100.0		
#60	99.9		
#100	99.7		
#140	82.5		
#200	52.0		

* (no specification provided)

Material Description

Sandy Fat Clay

Atterberg Limits

PL= 24 LL= 90 PI= 66

Coefficients

D_{85}= 0.1095 D_{60}= 0.0831 D_{50}= 0.0725
D_{30}= 0.0082 D_{15}= 0.0023 D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(28)

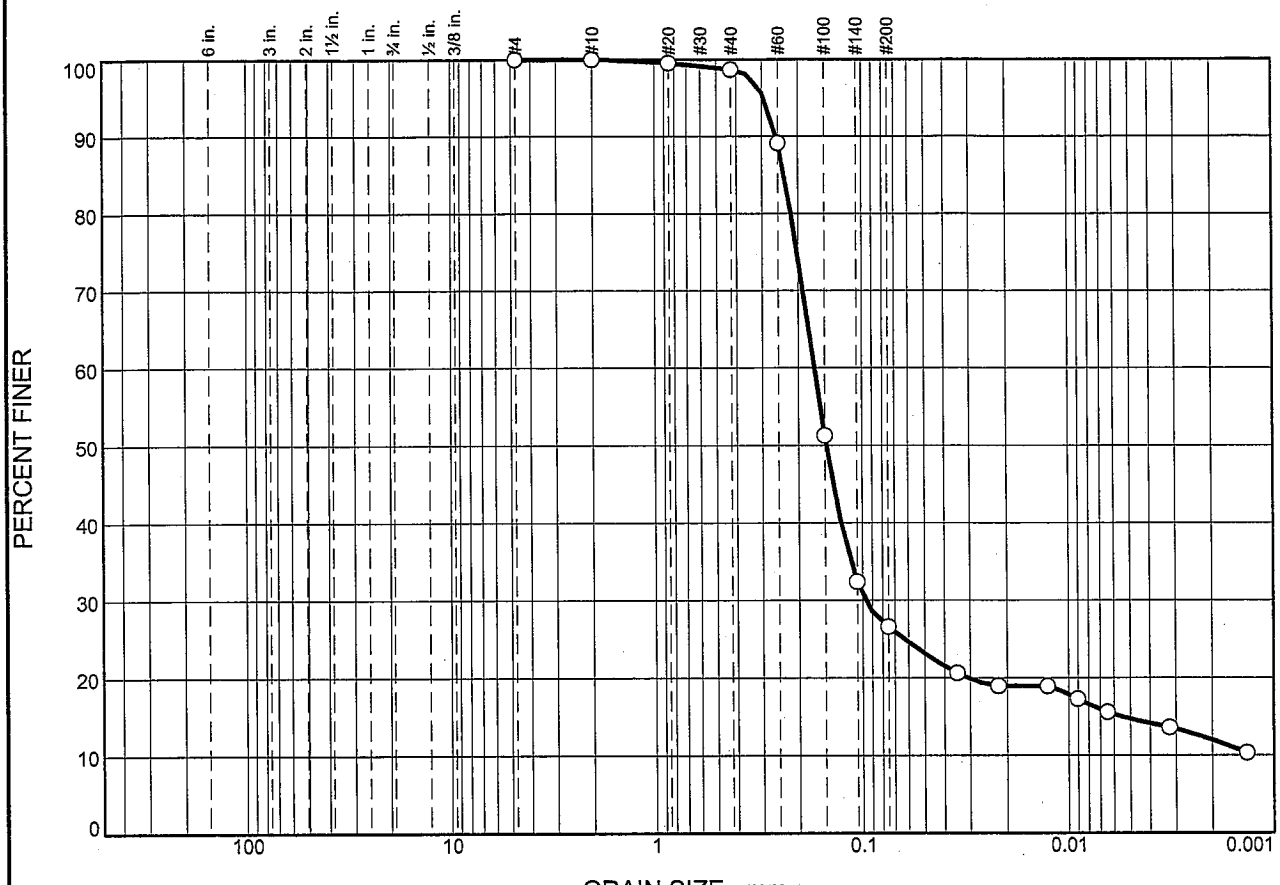
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-12 **Depth:** 143.20 ft
Location: B-774 **Date:** 9/02/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.3	72.1	11.9	14.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.5		
#40	98.7		
#60	89.1		
#100	51.3		
#140	32.4		
#200	26.6		
0.0345 mm.	20.6		
0.0219 mm.	19.0		
0.0127 mm.	18.9		
0.0090 mm.	17.3		
0.0064 mm.	15.5		
0.0032 mm.	13.6		
0.0014 mm.	10.3		

* (no specification provided)

Soil Description

Clayey Sand

Atterberg Limits

PL= 14 LL= 27 PI= 13

Coefficients

D_{85}= 0.2326 D_{60}= 0.1678 D_{50}= 0.1474
D_{30}= 0.0970 D_{15}= 0.0056 D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-2-6(0)

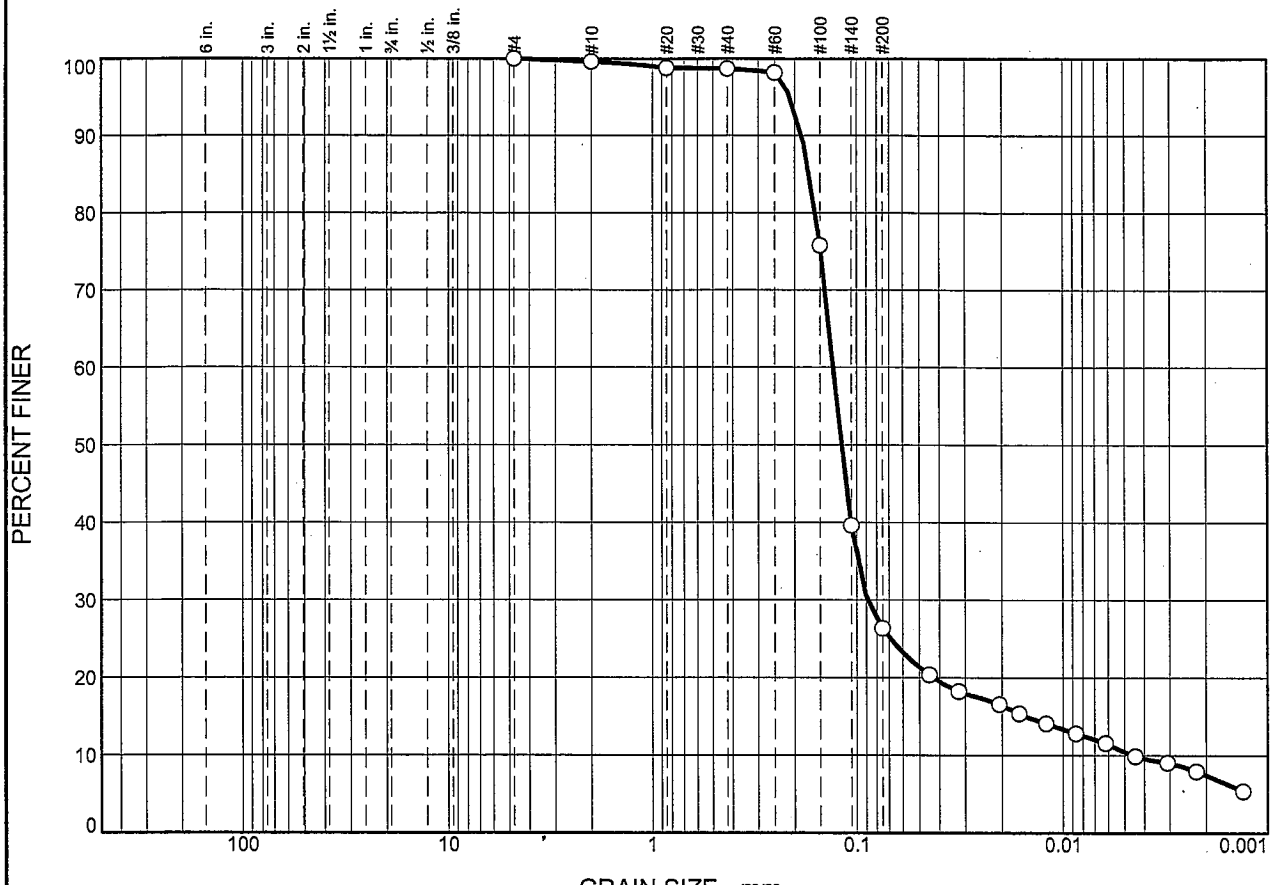
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample No.: UD-2 **Source of Sample:** B-778 **Date:** 12-18-08
Location: B-778 **Elev./Depth:** 12.05

MACTEC Engineering and Consulting, Inc.	**Client:**
	Project: Calvert Cliffs
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	0.9	72.4	15.9	10.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.6		
#20	98.8		
#40	98.7		
#60	98.2		
#100	75.8		
#140	39.6		
#200	26.3		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.1685 D_{60}= 0.1294 D_{50}= 0.1183
D_{30}= 0.0886 D_{15}= 0.0153 D_{10}= 0.0046
C_u= 28.25 C_c= 13.23

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

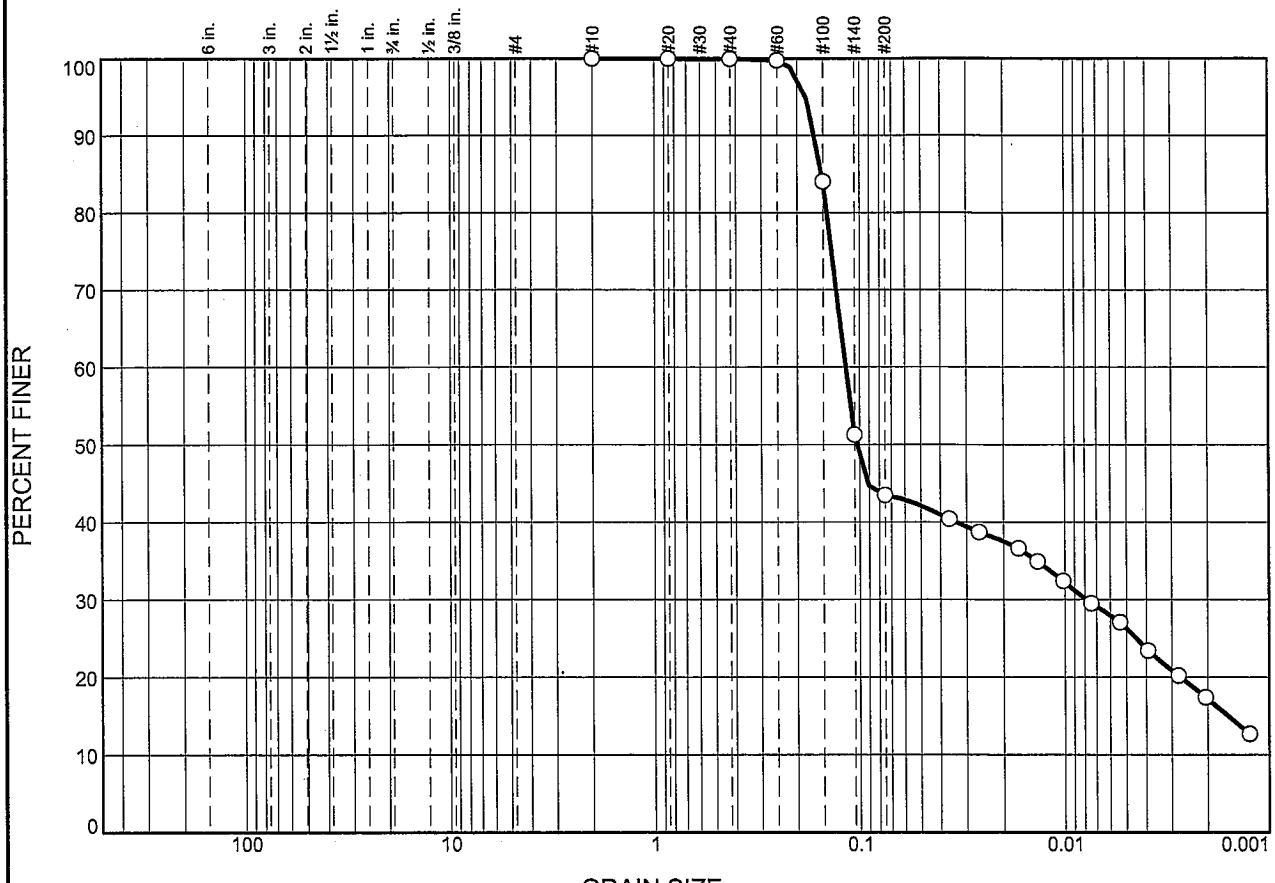
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-6 **Depth:** 33.15 ft
Location: B-778

Date: 9/30/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	56.6	17.1	26.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	100.0		
#60	99.7		
#100	84.1		
#140	51.3		
#200	43.4		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 15 LL= 39 PI= 24

Coefficients

D_{85}= 0.1518 D_{60}= 0.1177 D_{50}= 0.1039
D_{30}= 0.0079 D_{15}= 0.0016 D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-6(5)

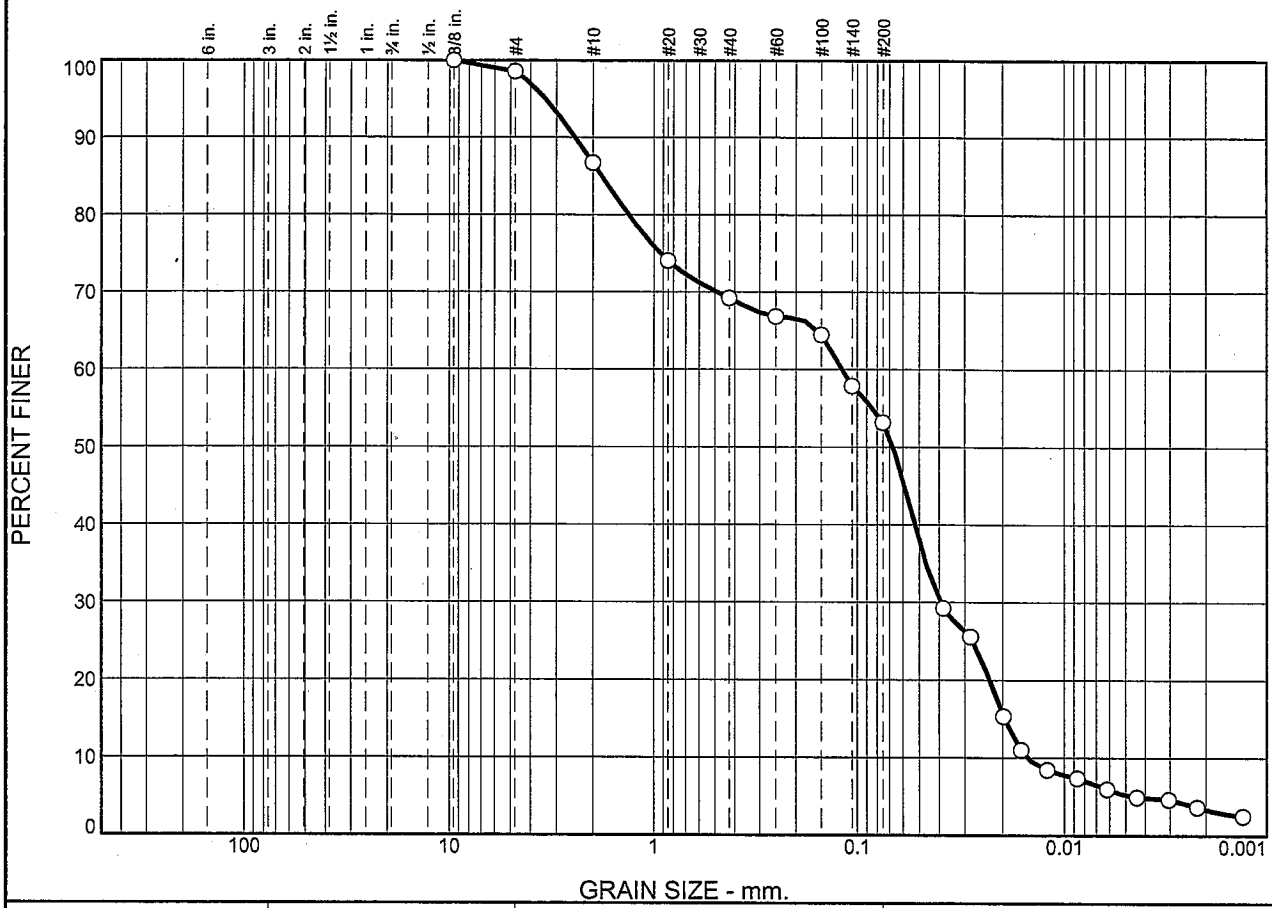
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-7 **Depth:** 41.30 ft
Location: B-778 **Date:** 9/26/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	11.9	17.5	16.0	48.0	5.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375	100.0		
#4	98.6		
#10	86.7		
#20	74.0		
#40	69.2		
#60	66.8		
#100	64.5		
#140	57.9		
#200	53.2		

* (no specification provided)

Material Description

Sandy Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 1.8093 D_{60}= 0.1193 D_{50}= 0.0672
D_{30}= 0.0395 D_{15}= 0.0195 D_{10}= 0.0151
C_u= 7.90 C_c= 0.87

Classification

USCS= ML AASHTO= A-4(0)

Remarks

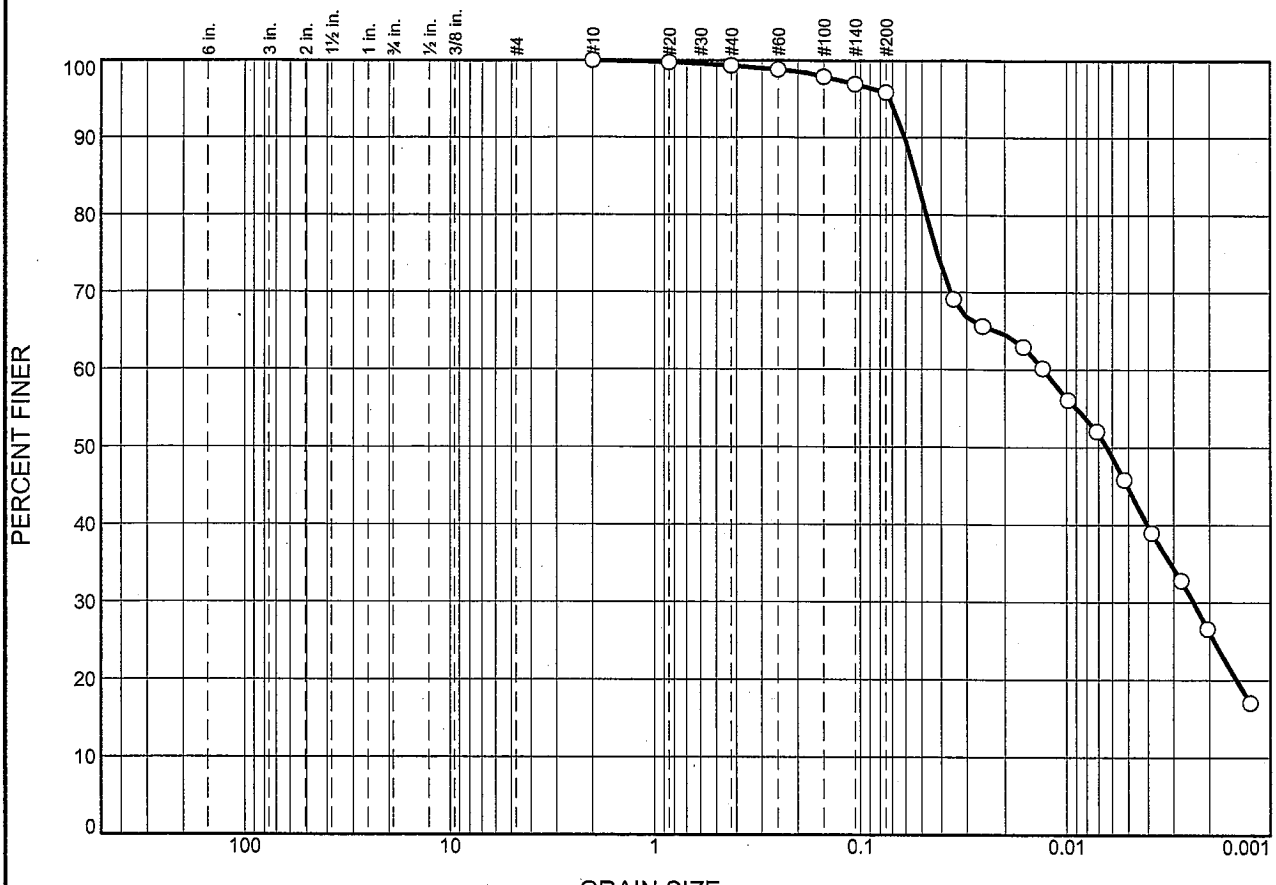
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-8 **Depth:** 54.35 ft
Location: B-778

Date: 9/28/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.7	3.4	51.1	44.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.8		
#40	99.3		
#60	98.8		
#100	97.9		
#140	97.0		
#200	95.9		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 17 LL= 50 PI= 33

Coefficients

D_{85}= 0.0533 D_{60}= 0.0129 D_{50}= 0.0064
D_{30}= 0.0024 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(34)

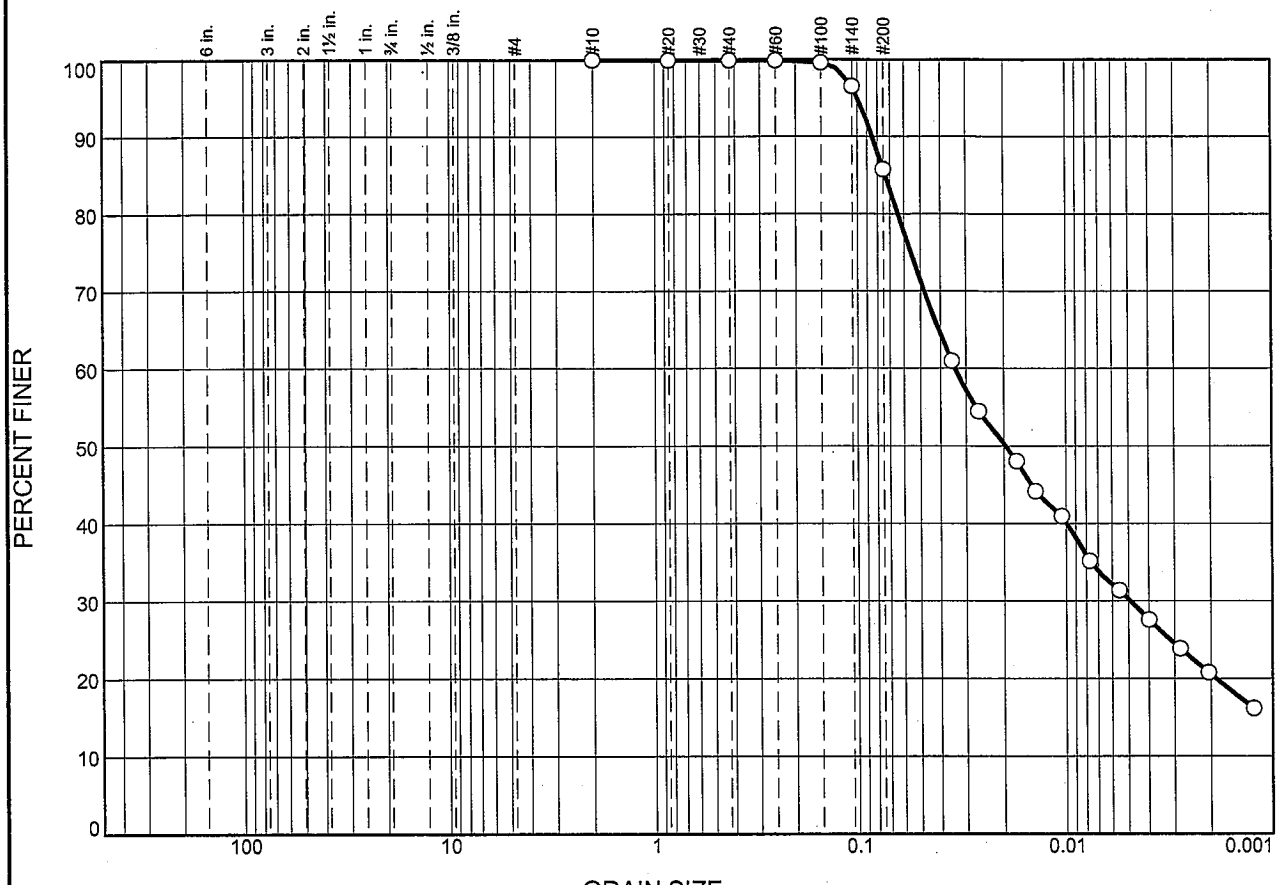
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-9 **Depth:** 64.35 ft
Location: B-778 **Date:** 9/29/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	14.1	55.5	30.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	99.9		
#60	99.9		
#100	99.6		
#140	96.5		
#200	85.8		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 18 LL= 66 PI= 48

Coefficients

D_{85}= 0.0734 D_{60}= 0.0339 D_{50}= 0.0195
D_{30}= 0.0049 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(44)

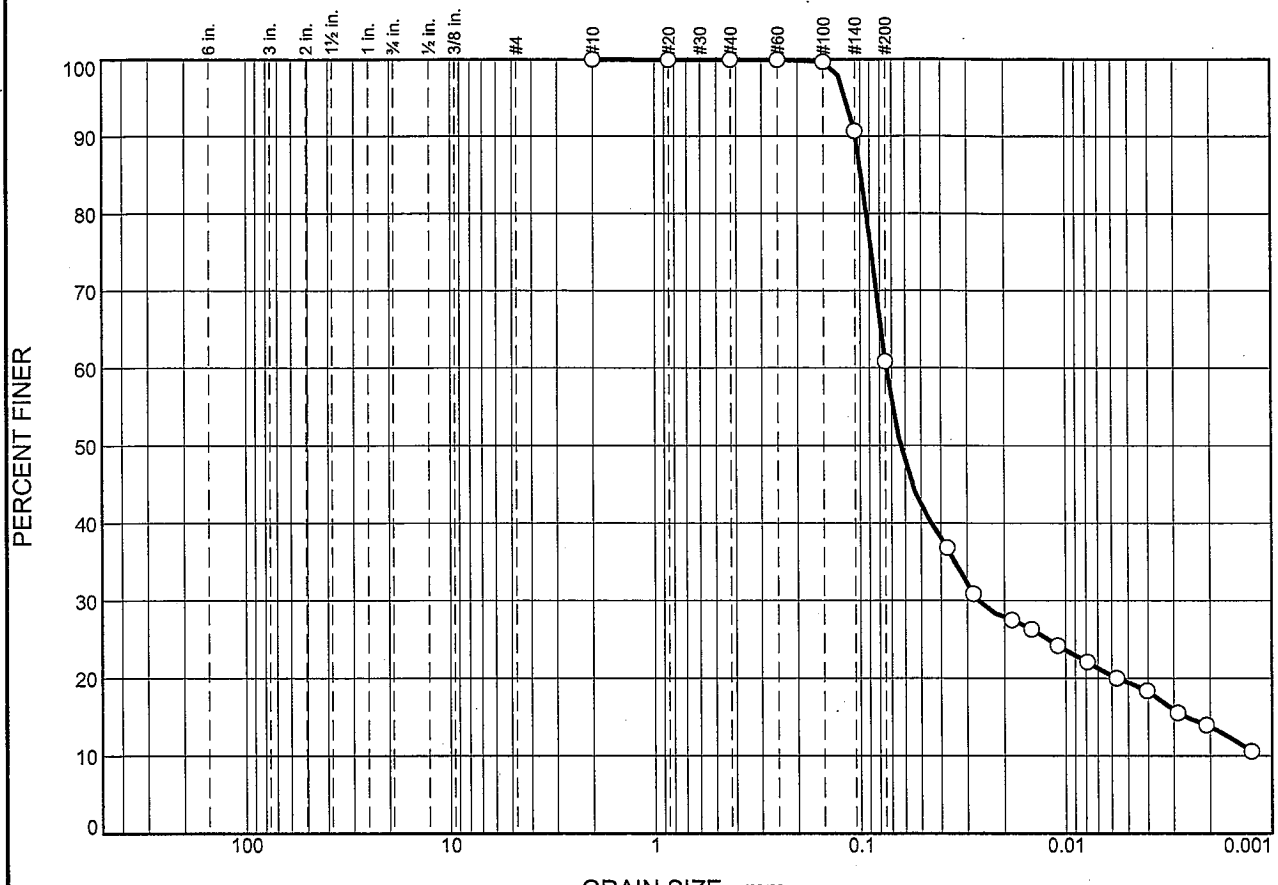
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-10 **Depth:** 71.35 ft
Location: B-778 **Date:** 9/28/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	39.1	41.4	19.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	100.0		
#40	99.9		
#60	99.9		
#100	99.7		
#140	90.7		
#200	60.8		

* (no specification provided)

Material Description

Sandy Lean Clay

Atterberg Limits

PL= 20 LL= 46 PI= 26

Coefficients

D_{85}= 0.0981 D_{60}= 0.0742 D_{50}= 0.0630
D_{30}= 0.0265 D_{15}= 0.0026 D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(13)

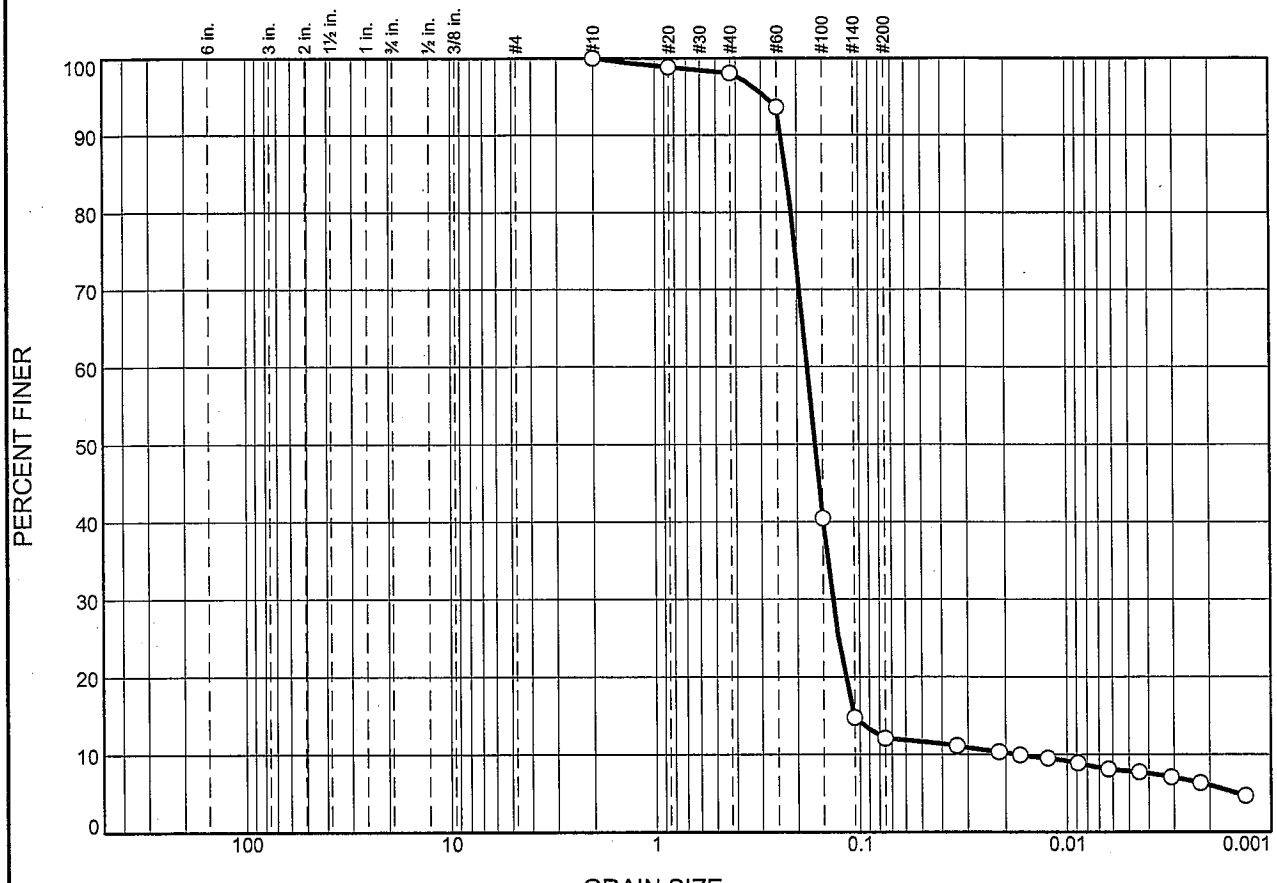
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-11 **Depth:** 81.30 ft
Location: B-778 **Date:** 9/28/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.9	86.0	4.3	7.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	98.8		
#40	98.1		
#60	93.6		
#100	40.4		
#140	14.7		
#200	12.1		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 20 LL= 28 PI= 8

Coefficients

D_{85}= 0.2237 D_{60}= 0.1779 D_{50}= 0.1634
D_{30}= 0.1348 D_{15}= 0.1067 D_{10}= 0.0181
C_u= 9.83 C_c= 5.64

Classification

USCS= SC AASHTO= A-2-4(0)

Remarks

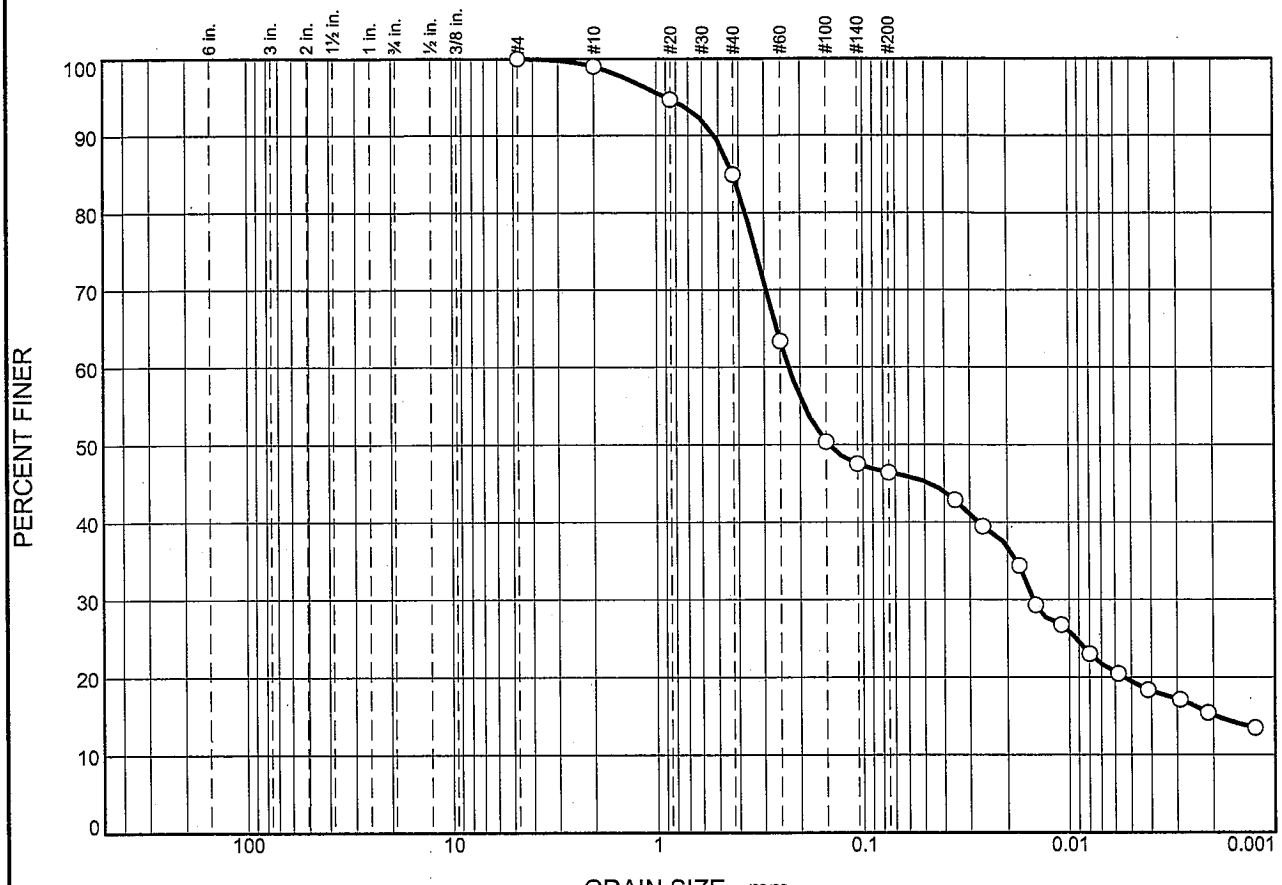
ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-14 **Depth:** 103.40 ft
Location: B-778

Date: 9/27/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	14.1	38.5	26.9	19.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.0		
#20	94.7		
#40	84.9		
#60	63.4		
#100	50.3		
#140	47.5		
#200	46.4		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.4260 D_{60}= 0.2275 D_{50}= 0.1462
D_{30}= 0.0150 D_{15}= 0.0020 D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

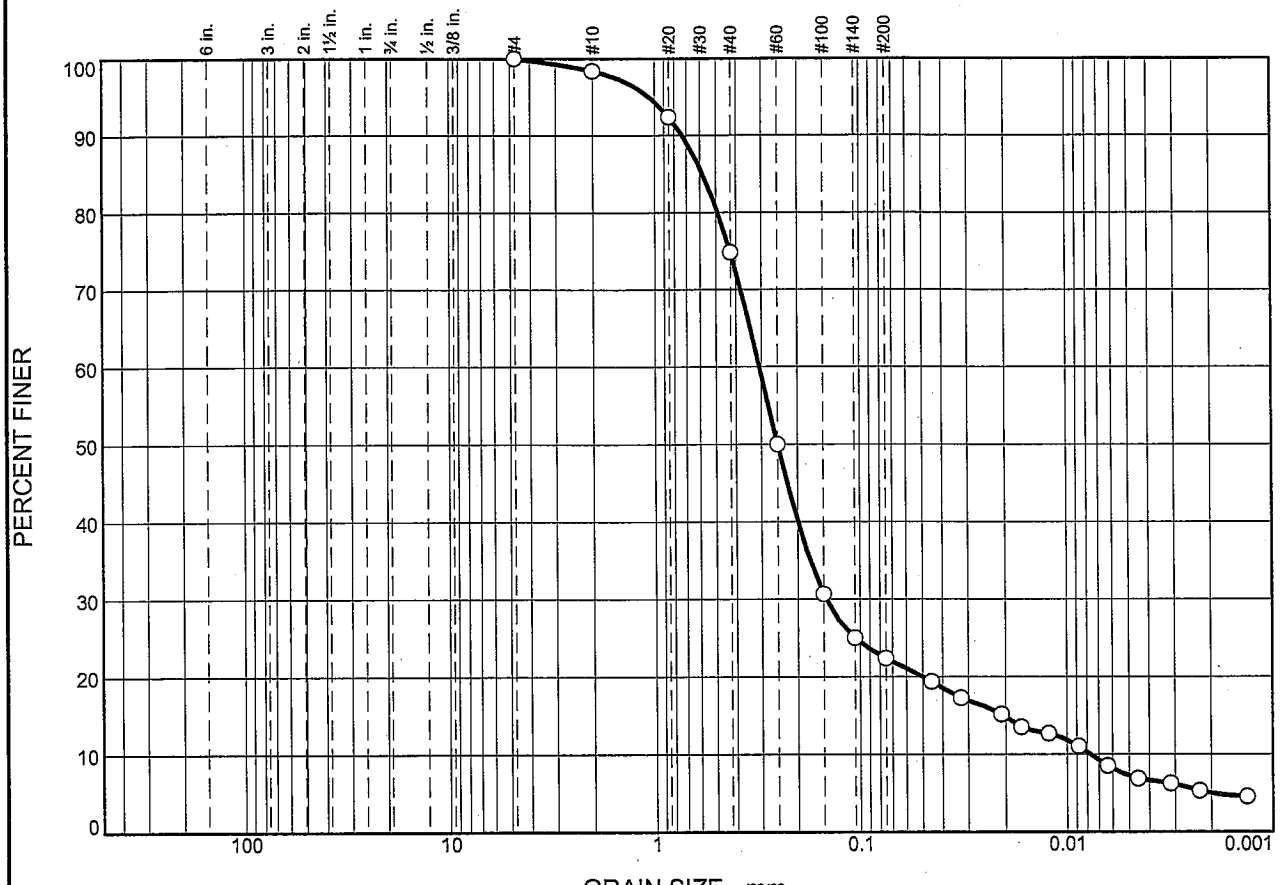
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-1 **Depth:** 7.05 ft
Location: B-779 **Date:** 9/30/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.6	23.6	52.4	15.2	7.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.4		
#20	92.4		
#40	74.8		
#60	50.0		
#100	30.6		
#140	25.0		
#200	22.4		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.5812 D_{60}= 0.3071 D_{50}= 0.2500
D_{30}= 0.1460 D_{15}= 0.0204 D_{10}= 0.0077
C_u= 39.95 C_c= 9.03

Classification

USCS= SM AASHTO= A-2-4(0)

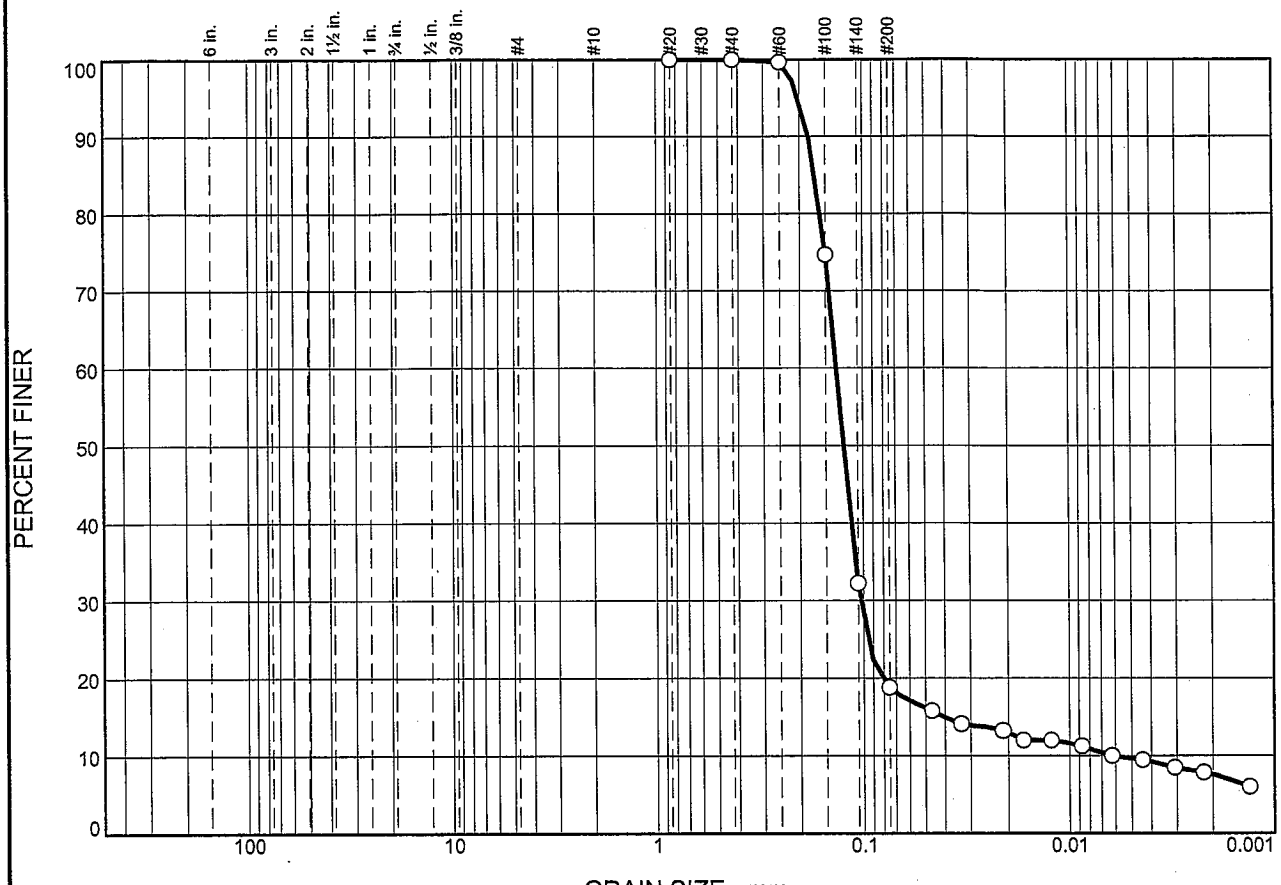
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-2 **Depth:** 12.05 ft
Location: B-779 **Date:** 9/30/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	81.2	9.1	9.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	100.0		
#60	99.7		
#100	74.7		
#140	32.2		
#200	18.8		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{85}= 0.1677 D_{60}= 0.1333 D_{50}= 0.1236
D_{30}= 0.1033 D_{15}= 0.0404 D_{10}= 0.0062
C_u= 21.50 C_c= 12.91

Classification

USCS= SM AASHTO= A-2-4(0)

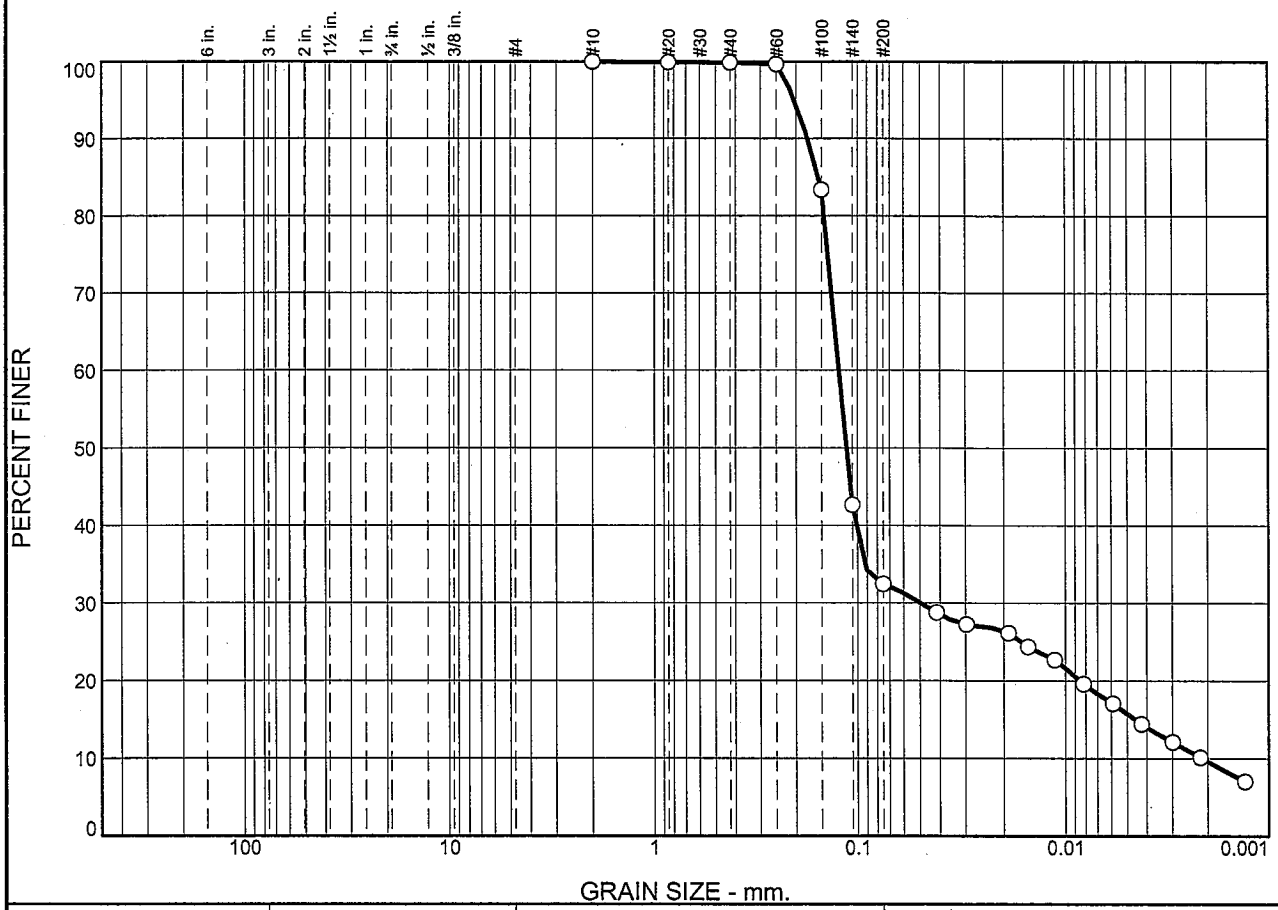
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-3 **Depth:** 23.40 ft
Location: B-779 **Date:** 9/27/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	67.5	16.6	15.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.9		
#60	99.7		
#100	83.4		
#140	42.6		
#200	32.4		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 19 LL= 32 PI= 13

Coefficients

D_{85}= 0.1554 D_{60}= 0.1238 D_{50}= 0.1141
D_{30}= 0.0497 D_{15}= 0.0046 D_{10}= 0.0021
C_u= 58.16 C_c= 9.36

Classification

USCS= SC AASHTO= A-2-6(1)

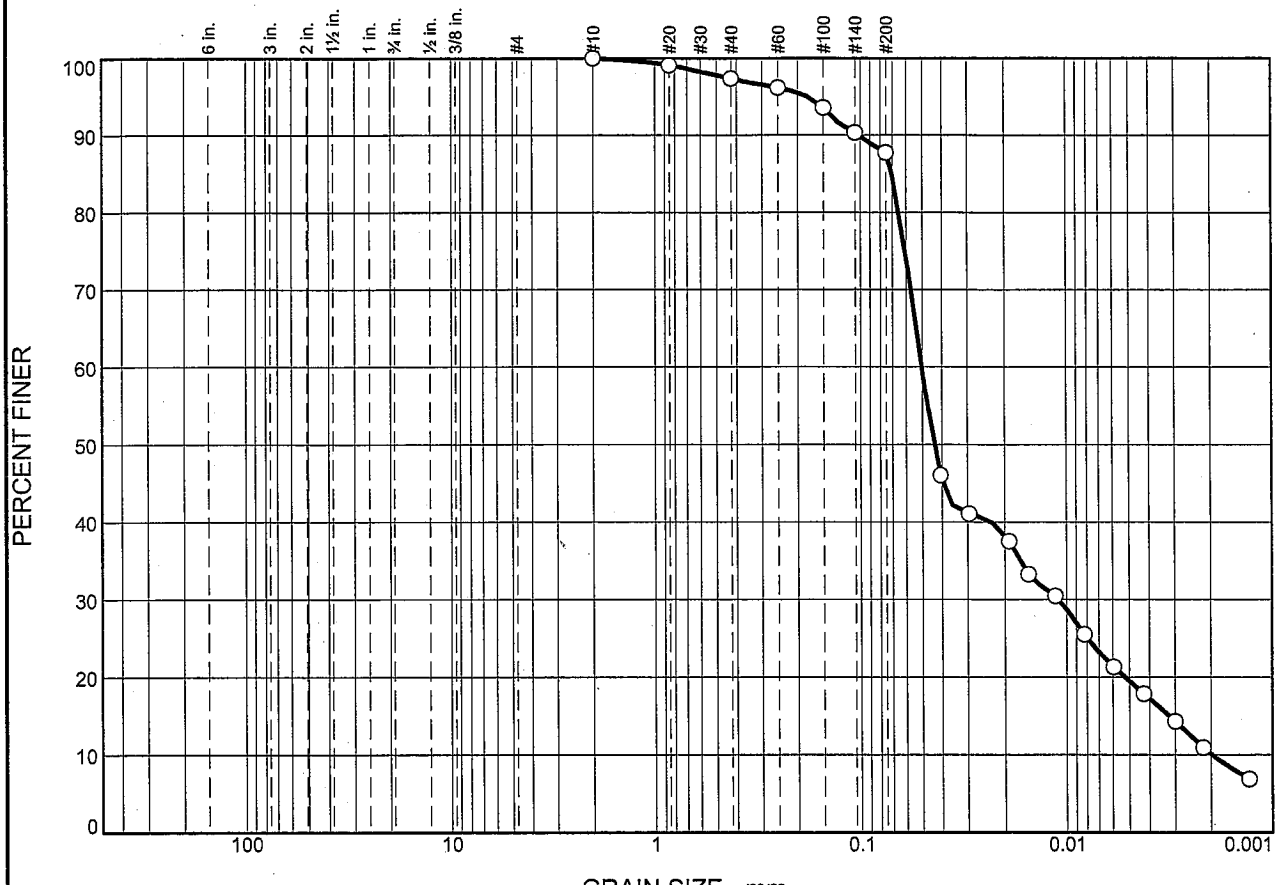
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-4 **Depth:** 33.45 ft
Location: B-779 **Date:** 9/27/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.6	9.6	68.3	19.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.1		
#40	97.4		
#60	96.2		
#100	93.6		
#140	90.3		
#200	87.8		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 19 LL= 69 PI= 50

Coefficients

D_{85}= 0.0705 D_{60}= 0.0503 D_{50}= 0.0437
D_{30}= 0.0109 D_{15}= 0.0032 D_{10}= 0.0020
C_u= 25.38 C_c= 1.20

Classification

USCS= CH AASHTO= A-7-6(47)

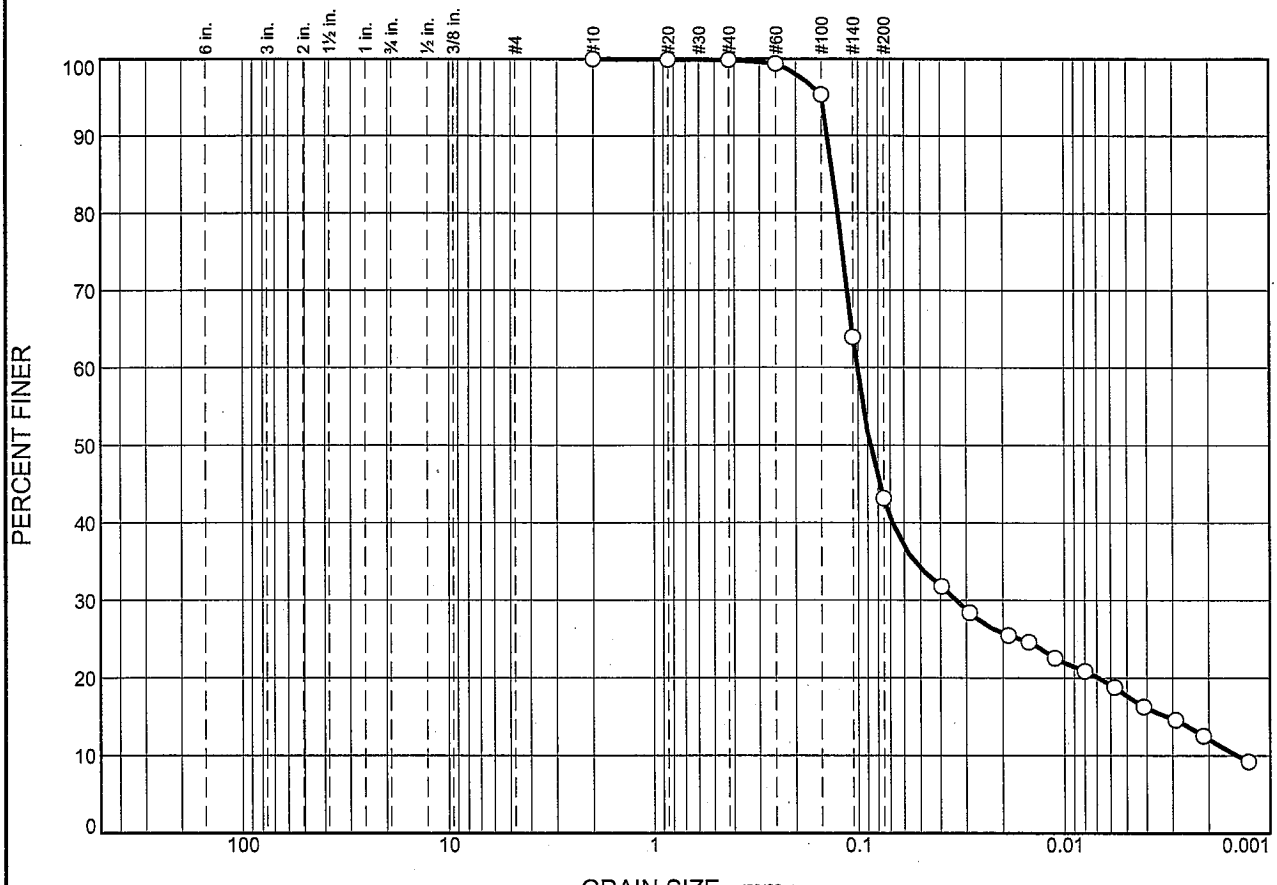
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-5 **Depth:** 42.30 ft
Location: B-779 **Date:** 9/29/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	56.8	25.4	17.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.9		
#60	99.4		
#100	95.3		
#140	63.9		
#200	43.1		

* (no specification provided)

Material Description

Clayey Sand

Atterberg Limits

PL= 20 LL= 40 PI= 20

Coefficients

D_{85}= 0.1317 D_{60}= 0.1012 D_{50}= 0.0871
D_{30}= 0.0335 D_{15}= 0.0032 D_{10}= 0.0015
C_u= 69.73 C_c= 7.65

Classification

USCS= SC AASHTO= A-6(4)

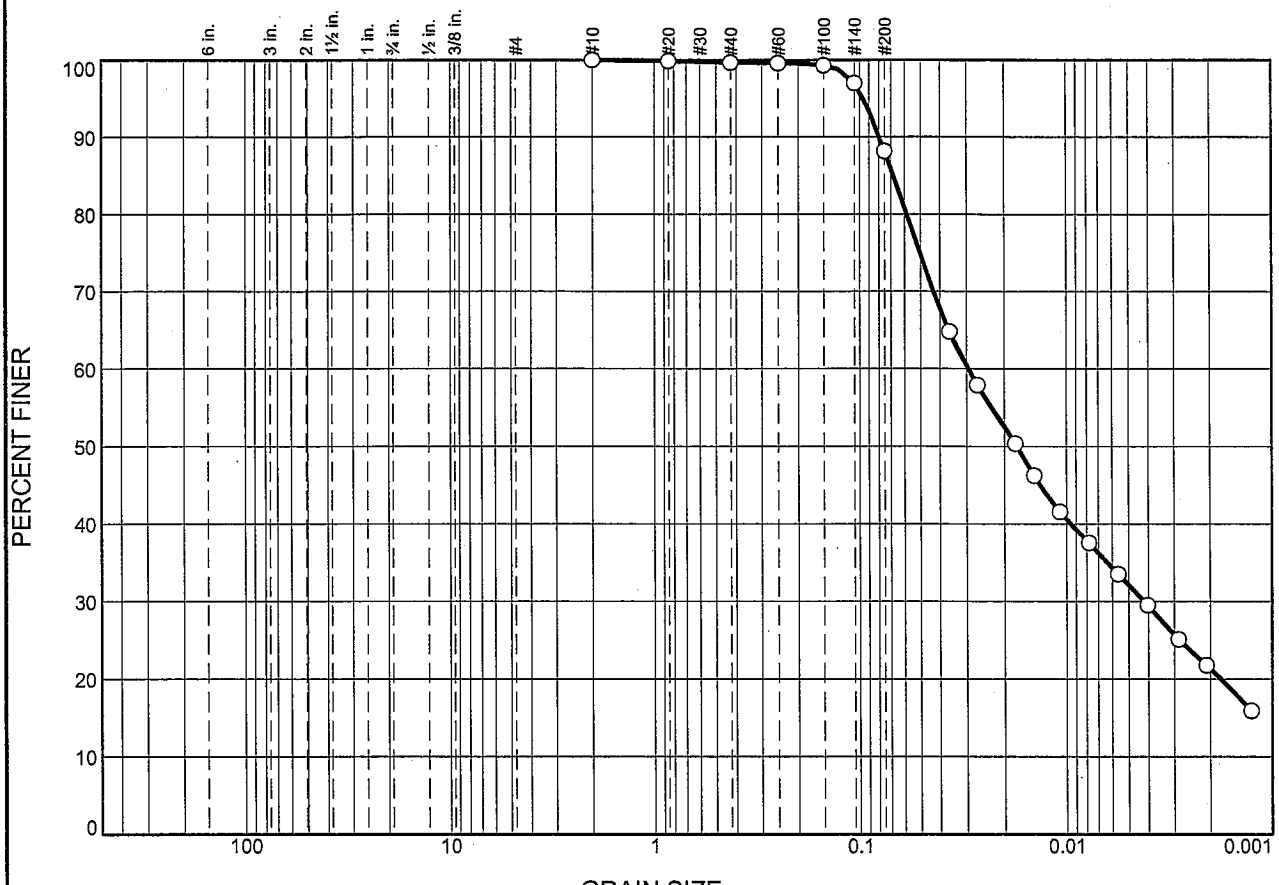
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-7 **Depth:** 53.50 ft
Location: B-779 **Date:** 9/27/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	11.5	56.1	32.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.7		
#60	99.6		
#100	99.3		
#140	97.0		
#200	88.2		

* (no specification provided)

Material Description

Fat Clay

Atterberg Limits

PL= 19 LL= 68 PI= 49

Coefficients

D_{85}= 0.0679 D_{60}= 0.0294 D_{50}= 0.0174
D_{30}= 0.0042 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(46)

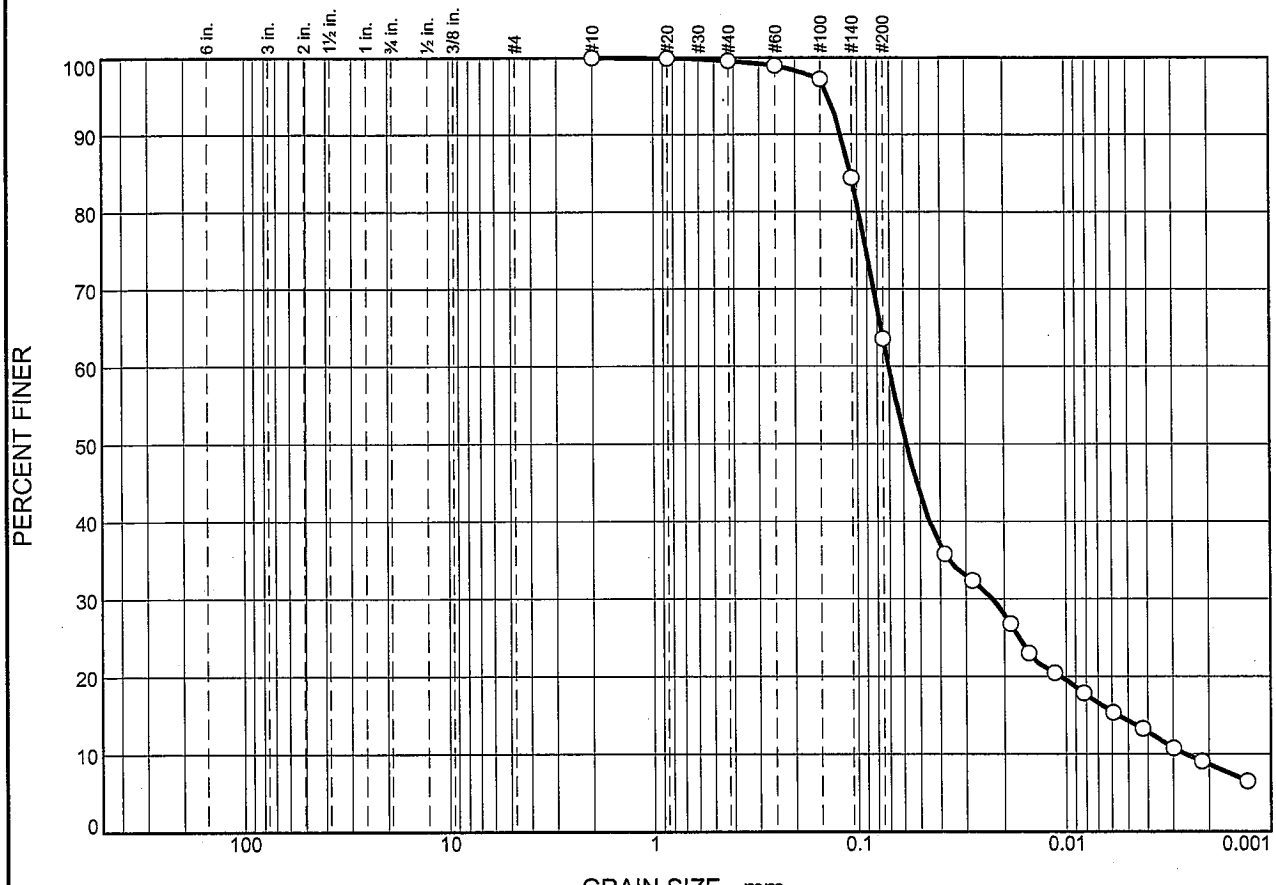
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-8 **Depth:** 60.18 ft
Location: B-779 **Date:** 9/27/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	36.0	49.3	14.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.6		
#60	99.0		
#100	97.2		
#140	84.4		
#200	63.6		

* (no specification provided)

Material Description

Sandy Fat Clay

Atterberg Limits

PL= 20 LL= 51 PI= 31

Coefficients

D_{85}= 0.1072 D_{60}= 0.0706 D_{50}= 0.0583
D_{30}= 0.0226 D_{15}= 0.0056 D_{10}= 0.0026
C_u= 26.99 C_c= 2.77

Classification

USCS= CH AASHTO= A-7-6(18)

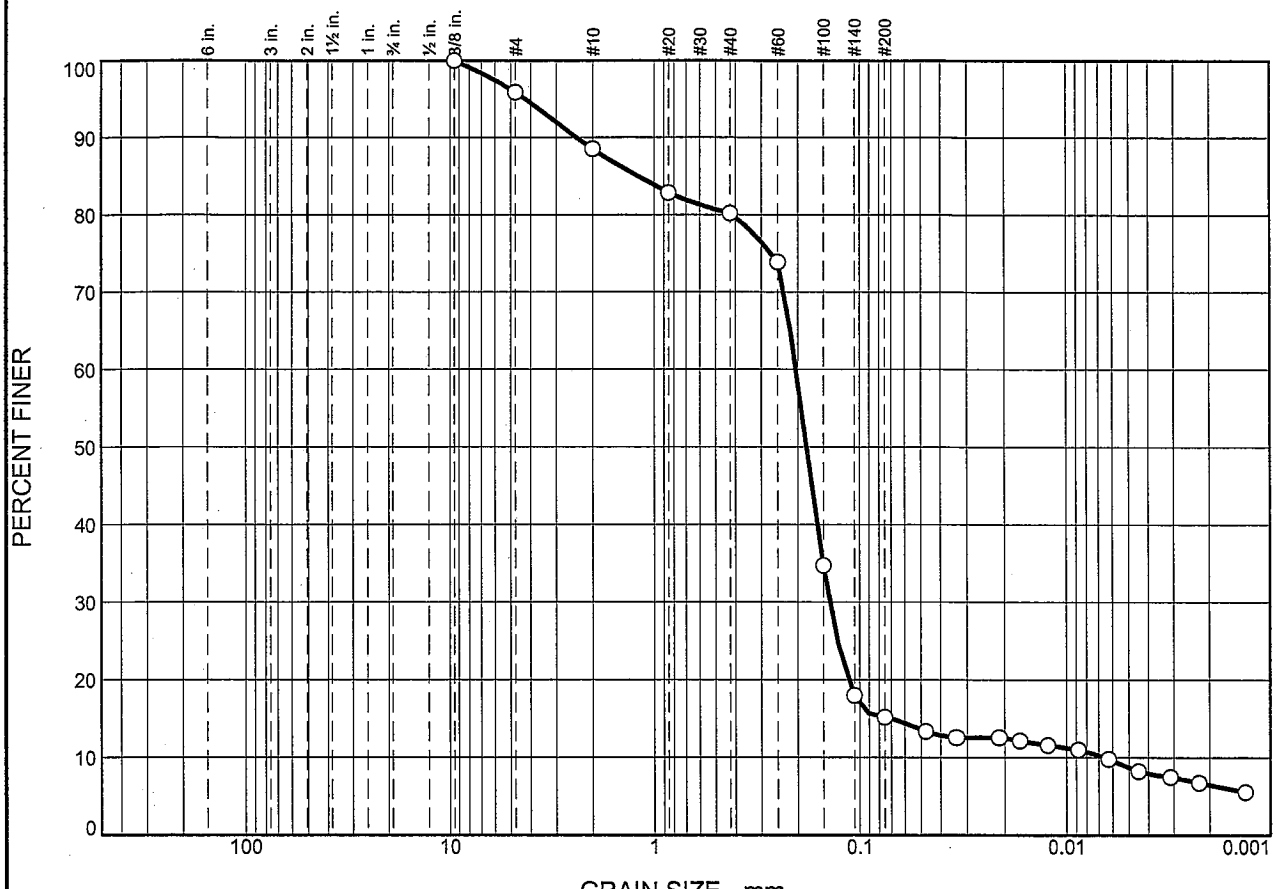
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-9 **Depth:** 70.18 ft
Location: B-779 **Date:** 9/26/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.1	7.4	8.3	65.1	6.4	8.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375	100.0		
#4	95.9		
#10	88.5		
#20	82.8		
#40	80.2		
#60	73.9		
#100	34.7		
#140	18.0		
#200	15.1		

* (no specification provided)

Material Description

Silty, Clayey Sand

Atterberg Limits

PL= 19 LL= 26 PI= 7

Coefficients

D_{85}= 1.1950 D_{60}= 0.2038 D_{50}= 0.1810
D_{30}= 0.1399 D_{15}= 0.0705 D_{10}= 0.0066
C_u= 31.10 C_c= 14.66

Classification

USCS= SC-SM AASHTO= A-2-4(0)

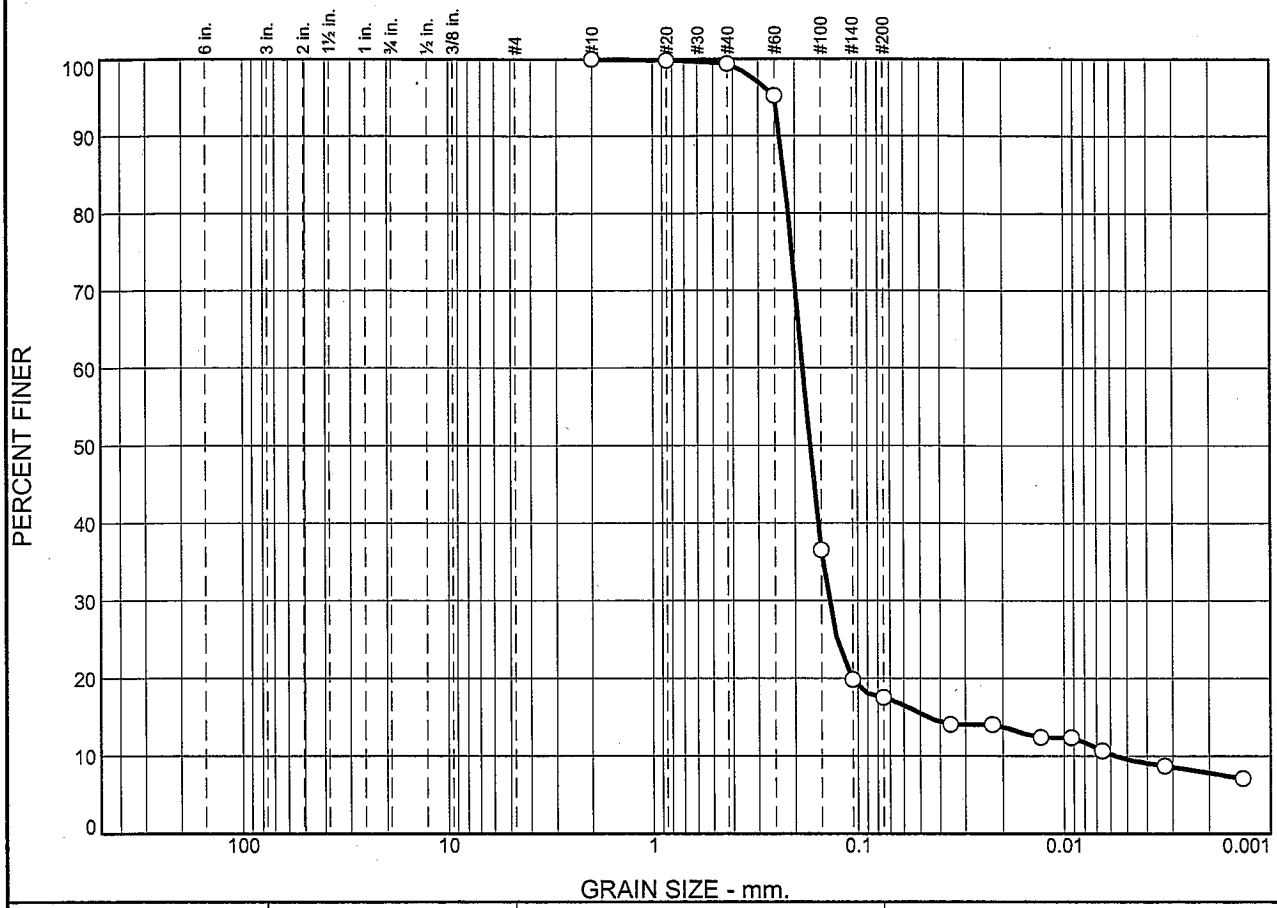
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample Number: UD-10 **Depth:** 82.70 ft
Location: B-779 **Date:** 9/30/08

MACTEC Engineering and Consulting, Inc.	**Client:** Bechtel Power Corporation **Project:** Calvert Cliffs Nuclear Power Plant Unit 3 COL
Charlotte, North Carolina	**Project No:** 6234084783 **Figure**

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	81.9	7.9	9.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.4		
#60	95.2		
#100	36.5		
#140	19.8		
#200	17.5		
0.0354 mm.	14.0		
0.0224 mm.	14.0		
0.0130 mm.	12.4		
0.0092 mm.	12.3		
0.0066 mm.	10.7		
0.0033 mm.	8.7		
0.0014 mm.	7.1		

* (no specification provided)

Soil Description

Clayey Sand

Atterberg Limits

PL= 20 LL= 32 PI= 12

Coefficients

D_{85}= 0.2240 D_{60}= 0.1834 D_{50}= 0.1696
D_{30}= 0.1382 D_{15}= 0.0459 D_{10}= 0.0057
C_u= 32.43 C_c= 18.41

Classification

USCS= SC AASHTO= A-2-6(0)

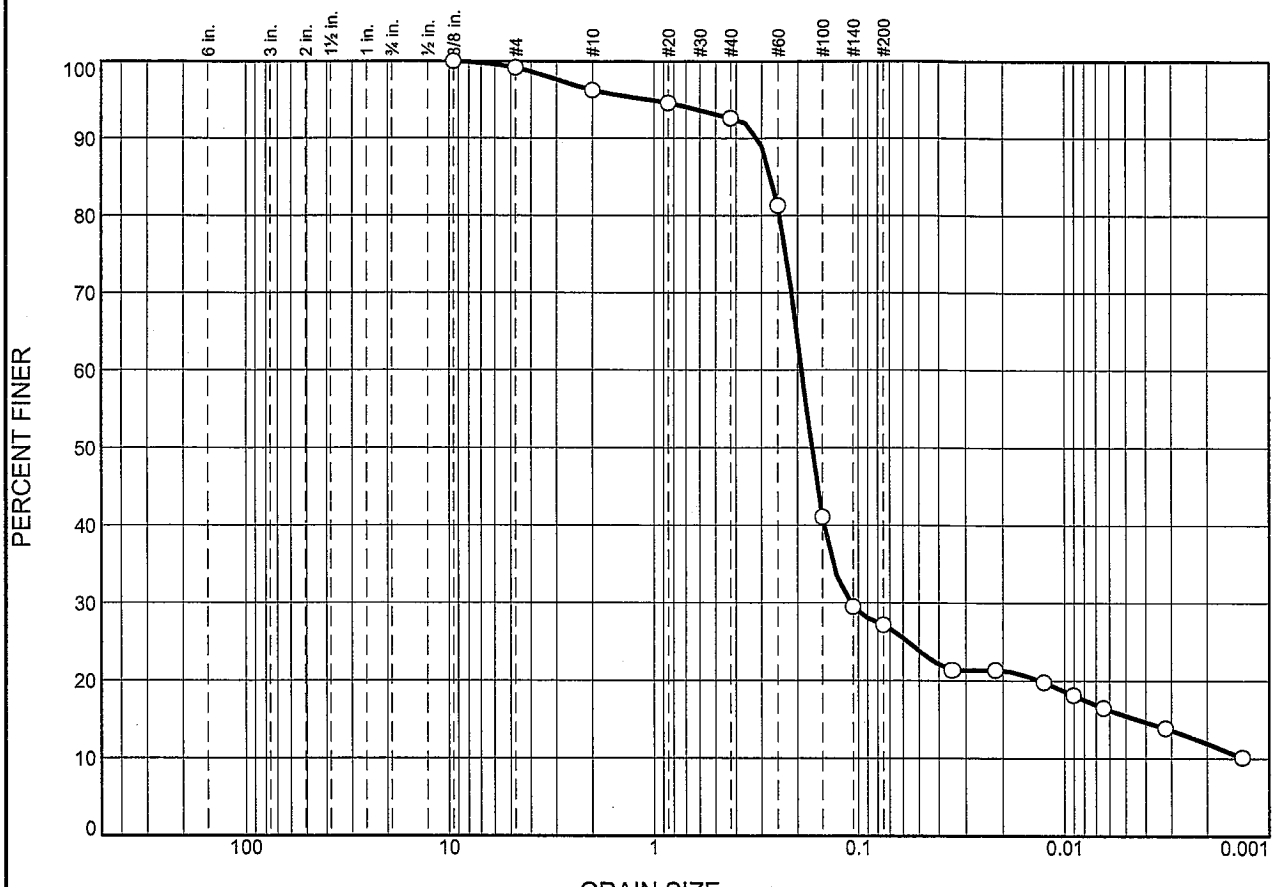
Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample No.: UD-11 **Source of Sample:** B-779 **Date:** 12-18-08
Location: B-779 **Elev./Depth:** 98.4

MACTEC Engineering and Consulting, Inc.	Client:
	Project: Calvert Cliffs
Charlotte, North Carolina	Project No: 6234-08-4783 Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	2.9	3.7	65.4	11.7	15.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8in.	100.0		
#4	99.2		
#10	96.3		
#20	94.6		
#40	92.6		
#60	81.3		
#100	41.1		
#140	29.5		
#200	27.2		
0.0343 mm.	21.3		
0.0217 mm.	21.3		
0.0126 mm.	19.8		
0.0090 mm.	18.1		
0.0064 mm.	16.5		
0.0032 mm.	13.9		
0.0013 mm.	10.1		

* (no specification provided)

Soil Description

Clayey Sand

Atterberg Limits

PL= 17 LL= 39 PI= 22

Coefficients

D_{85}= 0.2683 D_{60}= 0.1908 D_{50}= 0.1697
D_{30}= 0.1096 D_{15}= 0.0044 D_{10}=
C_u= C_c=

Classification

USCS= SC AASHTO= A-2-6(1)

Remarks

ASTM D422-63 (2007)
ASTM D4318-05

Sample No.: UD-12 **Source of Sample:** B-779 **Date:** 12-18-08
Location: B-779 **Elev./Depth:** 100.68

MACTEC Engineering and Consulting, Inc.	**Client:**
	Project: Calvert Cliffs
Charlotte, North Carolina	**Project No:** 6234-08-4783 **Figure**