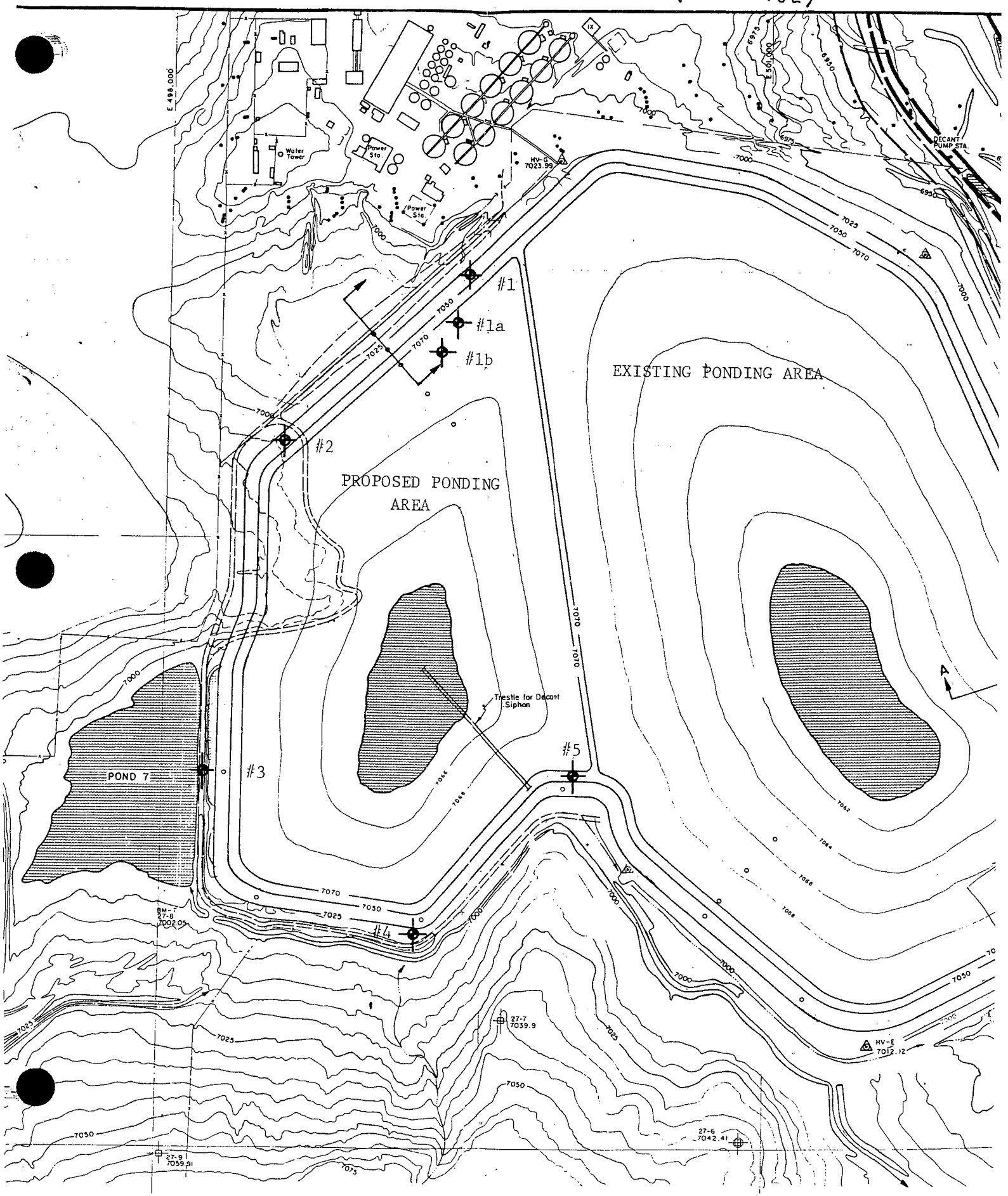
APPENDIX A

APPENDIX A-1

GEOTECHNICAL INVESTIGATIONS - 1982

DRILLING LOCATIONS (OCT. 1982)



ENGINEERING SERVICES

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PROJECT: Kerr-McGee Proposed Tailings Dam

LAB NO.: 4260-82

Ambrosia Lake, New Mexico

DATE: Oct. 25, 1982

BORING LOG GRAPH -TEST HOLE NO. 1, 1a & 1b

DEPTH - FT.	VISUAL DESCRIPTION	PENETRATION RESISTANCE Per Foot N	Per 6" or as Noted	Per Foot C	SAMPLER TYPE	MOISTURE CONTENT % M	DRY DENSITY P.C.F. D	PARTICLE SIZE DISTRIBUTION % GRAVEL	SAND	SILT & CLAY	ATTERBERG LIMITS% LIQUID LIMIT	PLASTIC LIMIT	P.I.
	Sand, tan to gray, silty, clayey (SM-SC) tailings Soft					14.5	AUGER CUTTINGS 0-2½'						
	3'		2					1	59	40			
		8	2		C	19.0	102						
	Sand, light brown		6			25.8	86	0	60	40			
5	to tan, silty,					20.2	101						
	clayey (SM-SC), wea-		2			14.4	--						
		7	4		C	16.7	100	26	22	52			
	thered sandstone Soft		3			14.9	111						
	7'												
			9			22.4	94						
	Clay-Shale, gray,	48	19		C	17.7	108				51	17	34
	thinly bedded,		29			22.9	--						
10	fractured, carbon-												
			22										
	aceous, bedding	89+	39		S	9.7	--						
	planes and fractures		50-5½"			8.8	128	4	5	91			
	are iron-stained and					9.8	128						
	oxidized some 1/8"					8.9	130						
	fractures filled												
	with gypsum; very					9.6		0	5	95			
	weathered from 7'-												
	10' depth becoming	*			*								
	more sound below												
	10'; *intervals												
	cored from 15'-20'												
20	and 20'-25' using												
	5' NX double tube												
	core barrel, carbide	*			*								
	bit and water; 80%												
	core recovery in												
	fragments up to 2"												
25	inch length.												
	Test Hole 1a												
0	Sand, gray, silty,												
1½	clayey(SM-SC) tailings					7.6	83						
					C	14.2	85	0	80	20			
						10.0	88						
						20.3	88						
	Test Hole 1b												
0	Sand and clay, gray,					15.7	66						
	silty (SM-SC to CL)				C	16.5	78	0	58	42			
	tailings					29.5	72						

ENGINEERING SERVICES

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PROJECT: Kerr-McGee Proposed Tailings Dam

LAB NO.: 4260-82

Ambrosia Lake, New Mexico

DATE: Oct. 25, 1982

BORING LOG GRAPH -TEST HOLE NO. 2

DEPTH - FT.	VISUAL DESCRIPTION	PENETRATION RESISTANCE Per Foot N	Per 6" or as Noted	Per Foot C	SAMPLER TYPE	MOISTURE CONTENT % M	DRY DENSITY P.C.F. D	PARTICLE SIZE DISTRIBUTION % GRAVEL	SAND	SILT & CLAY	ATTERBERG LIMITS% LIQUID LIMIT	PLASTIC LIMIT	P.I.
	Sand, tan, silty, fine (SM)					5.5	AUGER	CUTTINGS 0-2½' 6	69	25			
	3'	90+	40 50-3"		S	8.3		7	77	16			
5	Sandstone, tan, fine grained, weathered in the upper 3 to 4 feet becoming less weathered with depth; moderately bedded.	50+	50-4"		S	5.8							
10		50+	50-3½"		S	8.6							
		*											
20	Core drill from 10'-20' depth with 10' NX double tube core barrel, carbide bit and water; 100% recovery; core in 1" to 9½" lengths to 18' depth; 18'-20' core badly broken and in fragments.												

ENGINEERING SERVICES

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PROJECT: Kerr-McGee Proposed Tailings Dam

LAB NO.: 4260-82

Ambrosia Lake, New Mexico

DATE: Oct. 25, 1982

BORING LOG GRAPH -TEST HOLE NO. 3

DEPTH - FT.	VISUAL DESCRIPTION	PENETRATION RESISTANCE Per Foot N	Per 6" or as Noted	Per Foot C	SAMPLER TYPE	MOISTURE CONTENT % M	DRY DENSITY P.C.F. D	PARTICLE SIZE DISTRIBUTION % GRAVEL	SAND	SILT & CLAY	ATTERBERG LIMITS% LIQUID LIMIT	PLASTIC LIMIT	P.I.
	Embankment Fill,					11.3	AUGER	CUTTINGS 0-2½' 1	56	43			
	Sand, medium to		9			10.3	--						
	dark brown, silty,	9	5		C	10.6	113						
			4			10.8	103	0	68	32			
5	clayey, fine		9			9.8	102						
	grained (SM-SC)	8	4		C	9.7	105						
			4			8.9	100						
	Loose or Soft					9.5	105						
			7										
	to Moderately	10	5		C	10.6	103						
			5			15.5	102	0	69	31			
10	Firm					16.8	104						
			4										
		11	5		C	18.2	101						
			6			18.5	94	0	71	29			
	14'±					19.7	100						
			3										
		9	5		S	22.6		0	77	23			
			4										
20			4										
		9	4		S	22.5		0	75	25			
			5										
25			2										
		9	4		S	SATURATED		0	75	25			
			5										
	28'												
	Natural Ground												
30	Sand, light to	71	19		S	SATURATED		35	53	12			
			52										
	medium brown,												
	silty, contains												
	some scattered												
35	sandstone fragments	9	2		S	SATURATED		0	81	19			
			3										
	(SM) Variably		6										
	Loose to Dense												

ENGINEERING SERVICES

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PROJECT: Kerr-McGee Proposed Tailings Dam

LAB NO.: 4260-82

Ambrosia Lake, New Mexico

DATE: Oct. 25, 1982

BORING LOG GRAPH -TEST HOLE NO. 3 (CONTINUED)

DEPTH - FT.	VISUAL DESCRIPTION	PENETRATION RESISTANCE Per Foot N	Per 6" or as Noted	Per Foot C	SAMPLER TYPE	MOISTURE CONTENT % M	DRY DENSITY P.C.F. D	PARTICLE SIZE DISTRIBUTION % GRAVEL	SAND	SILT & CLAY	ATTERBERG LIMITS% LIQUID LIMIT	PLASTIC LIMIT	P.I.
	Sand, light to medium brown,												
45	silty (SM)												
	46'	68+	18 50-4'		S	SATURATED		6	76	18			
	Sandstone, tan,												
50	fine grained.	50+	50-4'		S			34	38	28			
		*											
	Core drill from 50' to 53' depth with 10' NX double tube core barrel, carbide bit and water; no core recovered.												

ENGINEERING SERVICES

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PROJECT: Kerr-McGee Proposed Tailings Dam

LAB NO.: 4260-82

Ambrosia Lake, New Mexico

DATE: Oct. 25, 1982

BORING LOG GRAPH -TEST HOLE NO. 4

DEPTH - FT.	VISUAL DESCRIPTION	PENETRATION RESISTANCE Per Foot N	Per 6" or as Noted	Per Foot C	SAMPLER TYPE	MOISTURE CONTENT % M	DRY DENSITY P.C.F. D	PARTICLE SIZE DISTRIBUTION % GRAVEL	SAND	SILT & CLAY	ATTERBERG LIMITS% LIQUID LIMIT	PLASTIC LIMIT	P.I.
	Sand, brown to					8.9	AUGER	CUTTINGS 0-2½'					
	reddish-brown,	32	23 16 16		C	7.9 4.3 6.0	100 102 107	0	67	33			
5	silty, clayey, fine (SM-SC) Medium Dense	42	6 19 23		C	9.5 8.0	94 105	1	53	46	26	14	12
	or Firm near the surface becoming	13	7 7 6		S	6.8		0	74	26			
10	Loose with depth.	5	4 2 3		S	10.8		0	64	36			
						4.6	AUGER	CUTTINGS 13'-14'					
	14'												
	Sandstone, tan, fine grained, weathered in the upper 3 to 4 feet becoming less weathered with	87+	37 50-3"		S	10.7							
20	depth; moderate bedding.	80+	30 50-1"		S	8.6							
		*											
25													
	Core drill from 20'-25' depth with 5' NX double tube core barrel, carbide bit, and water; 80% recovery in lengths up to 6"												

ENGINEERING SERVICES

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PROJECT: Kerr-McGee Proposed Tailings Dam

LAB NO.: 4260-82

Ambrosia Lake, New Mexico

DATE: Oct. 25, 1982

BORING LOG GRAPH -TEST HOLE NO. 5

DEPTH - FT.	VISUAL DESCRIPTION	PENETRATION RESISTANCE Per Foot (N)	Per 6" or as Noted	Per Foot (C)	SAMPLER TYPE	MOISTURE CONTENT % (M)	DRY DENSITY P.C.F. (D)	PARTICLE SIZE DISTRIBUTION % GRAVEL	SAND	SILT & CLAY	ATTERBERG LIMITS% LIQUID LIMIT	PLASTIC LIMIT	P.I.
	Tailings	17	7 8 9		S	7.0		0	88	12			
	Embankment	19	16 8 11		C	8.9 9.4 9.7	110 106 106	0	85	15			
5	Sand, gray to	12	5 5 7		C	11.5 14.4 11.4	98 101 97	0	83	17			
	grayish-brown,	10	5 5 5		S	19.8		0	72	28			
	silty, fine (SM)												
10	Medium Dense	7	2 3 4		C	9.7 10.1 8.3	90 92 92	0	86	14			
	near the surface												
	generally												
	becoming Loose	26	11 12 14		C	7.6 9.2 8.1	104 102 99	0	81	19			
	with depth.												
20	22'+	6	3 3 3		S	28.8		0	79	21			
25		4	1 2 2		S	26.1		0	88	12			
	28'												
	Possible Starter Dike Material,												
30	Sand, gray, clean, fine (SP)	2	1 1 1		S	24.1		0	97	3			
	Very Loose in upper portion becoming												
35	Medium Dense with depth.	3	4 2 1		S	21.9		0	95	5			

ENGINEERING SERVICES

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PROJECT: Kerr-McGee Proposed Tailings Dam

LAB NO.: 4260-82

Ambrosia Lake, New Mexico

DATE: Oct. 25, 1982

BORING LOG GRAPH -TEST HOLE NO. 5 CONTINUED

DEPTH - FT.	VISUAL DESCRIPTION	PENETRATION RESISTANCE Per Foot N	Per 6" or as Noted	Per Foot C	SAMPLER TYPE	MOISTURE CONTENT % M	DRY DENSITY P.C.F. D	PARTICLE SIZE DISTRIBUTION % GRAVEL	SAND	SILT & CLAY	ATTERBERG LIMITS% LIQUID LIMIT	PLASTIC LIMIT	P.I.	
	Sand, gray, clean fine (SP) Medium Dense													
45		20	5 10 10		S	21.2		0	93	7				
50		30	10 11 19		S	19.8		0	94	6				
	52'													
	Clay/Shale, gray, harder drilling.	51	16 19 32		S	NO SAMPLE RECOVERED								
60								0	20	80				
								AUGER CUTTINGS			55'-65'			
65														

NOTES AND DEFINITIONS

1. **PENETRATION RESISTANCE** - BLOWS PER FOOT USING "A" ROD, 140 LB. HAMMER WITH 30-INCH GUIDED FREE FALL UNLESS OTHERWISE NOTED.
   - N - STANDARD PENETRATION RESISTANCE (ASTM: D-1586), 2" O.D. SPLIT BARREL SAMPLER
   - C - CONTINUOUS PENETRATION RESISTANCE, 2½" O.D., CONICAL, STEEL DRIVE POINT
   - R - PENETRATION RESISTANCE, 3" O.D. MODIFIED DAMES & MOORE SPLIT RING SAMPLER

2. **SAMPLE TYPE**
   - S - STANDARD SPLIT BARREL; 2" O.D. x 1-3/8" I.D.
   - C - CALIFORNIA SAMPLER; 2-3/8" O.D. EQUIPPED WITH 2" I.D. x 4" HIGH BRASS LINERS
   - R - MODIFIED DAMES & MOORE SAMPLER; 3" O.D. EQUIPPED WITH 2.42" I.D. x 1" HIGH BRASS LINERS
   - T - SHELBY TUBE

3. **SOIL INDEX PROPERTIES**
   - M - MOISTURE CONTENT, % OF DRY SOIL WEIGHT
   - D - DENSITY, LBS PER CUBIC FOOT COMPUTED EITHER BY VOLUMETRIC OR DISPLACEMENT METHODS. SOILS CLASSIFICATIONS ARE VISUAL UNLESS ACCOMPANIED BY GRAIN SIZE ANALYSIS AND ATTERBERG LIMITS.

4. **WATER TABLE** - IF ENCOUNTERED IS NOTED ON LOG GRAPHS AS ⏚ .

UNIFIED SOIL CLASSIFICATION SYSTEM
ASTM: D2487

COARSE-GRAINED SOIL

MORE THAN 50% LARGER THAN 200 SIEVE SIZE

Symbol	Letter	DESCRIPTION	MAJOR DIVISIONS
	GW	WELL-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LESS THAN 5% - 200 FINES	GRAVELS More than half of coarse fraction is larger than No. 4 sieve size.
	GP	POORLY-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LESS THAN 5% - 200 FINES	
	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, MORE THAN 12% - 200 FINES	
	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, MORE THAN 12% - 200 FINES	
	SW	WELL-GRADED SANDS OR GRAVELLY SANDS, LESS THAN 5% - 200 FINES	SANDS More than half of coarse fraction is smaller than No. 4 sieve size.
	SP	POORLY-GRADED SANDS OR GRAVELLY SANDS, LESS THAN 5% - 200 FINES	
	SM	SILTY SANDS, SAND-SILT MIXTURES MORE THAN 12% - 200 FINES	
	SC	CLAYEY SANDS, SAND-CLAY MIXTURES MORE THAN 12% - 200 FINES	

NOTE – Soils with 5 to 12 percent minus 200 fines should be classified with dual symbols.

FINE-GRAINED SOIL

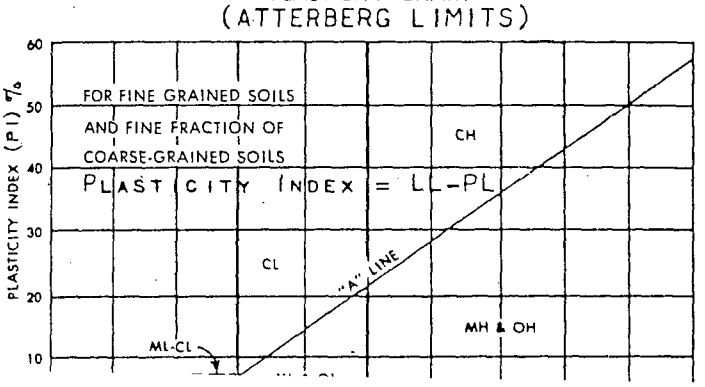
MORE THAN 50% SMALLER THAN 200 SIEVE SIZE

Symbol	Letter	DESCRIPTION	MAJOR DIVISIONS
	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	SILTS AND CLAYS Liquid limit less than 50
	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
	OL	ORGANIC SILTS AND ORGANIC SILT-CLAYS OF LOW PLASTICITY	
	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS	SILTS AND CLAYS Liquid limit greater than 50
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
	PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	

SOIL FRACTIONS

Component			Size Range
Boulders			Above 12 in.
Cobbles			3 in. to 12 in.
Gravel			3 in. to No. 4 sieve
Coarse Gravel			3 in. to ¾ in.
Fine gravel	G		¾ in. to No. 4 sieve
Sand			No. 4 to No. 200
Coarse	CS	TS	No. 4 to No. 10
Medium	MS	TS	No. 10 to No. 40
Fine	FS	TS	No. 40 to No. 200
Fines (silt or clay)	S/C		Below No. 200 sieve

PLASTICITY CHART
(ATTERBERG LIMITS)



TRIAXIAL SHEAR TESTS

TEST DATA: Three sets of consolidated-undrained triaxial shear tests were made in accordance with A.S.T.M. D-2850 on the following materials:

1. existing Pond 7 embankment soils from Test Hole No. 3 at the 10 foot depth.

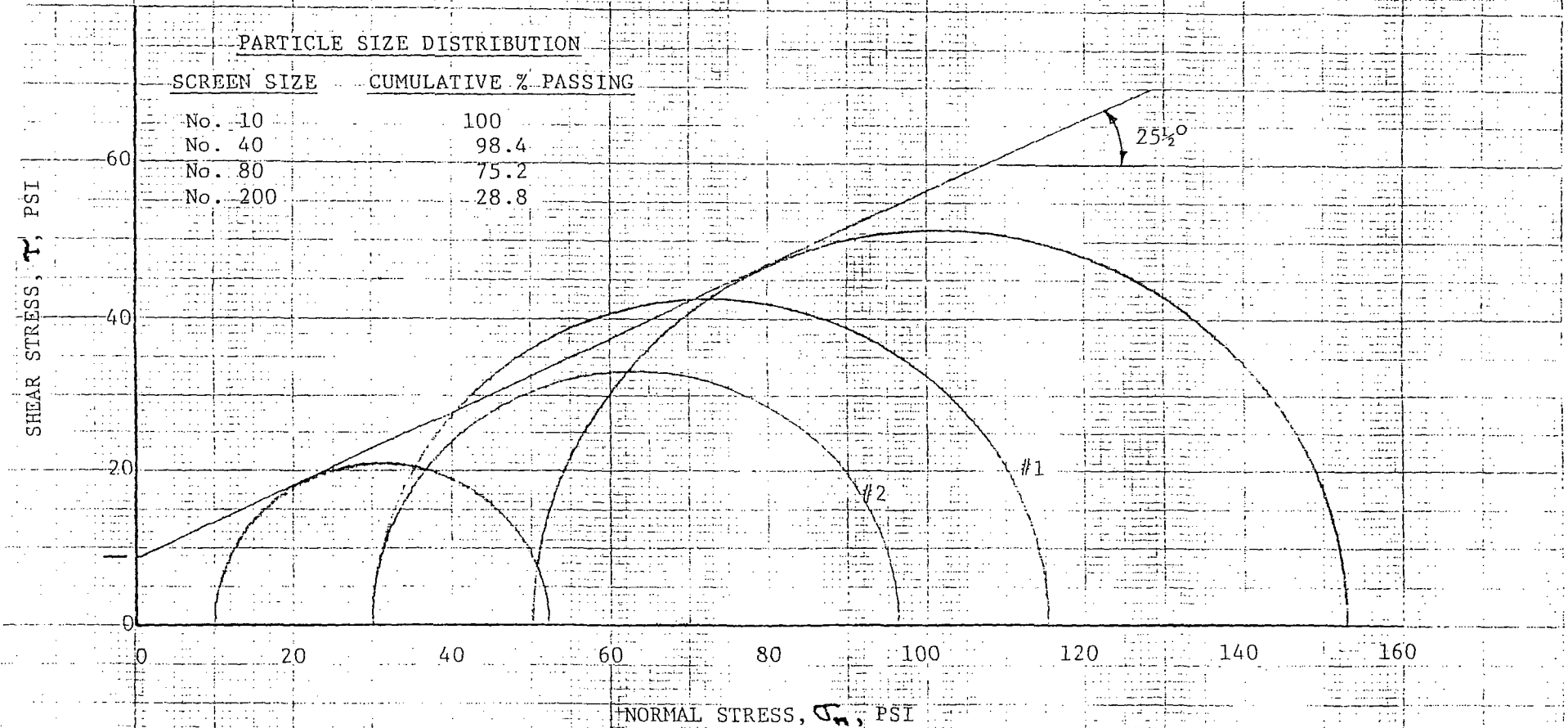
2. existing fine grained soils from Test Hole 1b at the 1 foot depth.

3. spigoted fine tailings.

All samples were remolded and sheared under confining pressures of 10, 30 and 50 pounds/square inch.

TEST RESULTS: Results of the tests are given below. Mohr envelopes and data sheets for the tests are given on the following pages.

Sample Identification	C	Ø
Test Hole 3 at 10 feet	9 psi	$25\frac{1}{2}^{\circ}$
Test Hole 1b at 1 foot	1 psi	$30\frac{1}{2}^{\circ}$
Spigoted fine tailings	0	31°



MOHR ENVELOPE - consolidated-undrained tests on existing embankment material from Test Hole No. 3 at 10' depth - average remolded dry density = 106.9 lbs./ft.^{3}
average moisture content = 17.4%
ϕ = 25½° C= 9 psi

ATL ENGINEERING SERVICES

b. No. 4260-82

TRIAXIAL SHEAR - CONSOLIDATED UNDRAINED

t Kerr-McGee T.H. 3 at 10'

Date October 8, 1982

1.3125 inches Ho 2.816 inches Ao 1.3530 square inches

Cylinder & Wet Soil	--	Wt. Dry Soil & Container	--
Cylinder	--	Wt. Container	--
. Wet Soil	125.4 gms.	Wt. Dry Soil	106.9 gms.
isture Content	17.3%	Dry Density (lbs.cu.ft.)	106.9
rcent of Proctor Density	--	Specific Gravity	2.65 assumed
amber Pressure (psi)	10	Burette at start of Consolidation	15.3 cc
rette After Consolidation (cc)	12.9	Δ V (cc)	2.4
oving Ring No.	1	Constant	0.0001" = 0.462 lbs.
itial Vert. Dial	0	Vert. Dial after Consolidation Δ H	0.004 inche
ecimen Vol. (cu ft)		HC 2.812 inches	

apsed ime	Proving Ring (1)	Vertical Strain (2)	Length Change (2-1) Δ L	Axial Strain ε	Corr. Area A	Axial Load	P/A	Burette Level	Volume Change
min)	(10^{-4}in)	10^{-3} (in)	(in)	(%)	(sq.in)	(lbs)	(lbs/sq.in)	(cc)	(cc)
0	0	0	0	0	1.3530	0	0	--	--
¼	8	7							
½	14.5	14							
1	27	25							
	46	50	0.0454	1.61	1.3751	21.25	15.45		
	64	77							
4	82.2	100							
	98.5	123							
6	112	150							
7	121.5	175							
8	127.8	198							
9	132	223							
10	134.8	250	0.2365	8.41	1.4772	62.28	42.2		
11	136.4	273	0.2594	9.22	1.4904	63.02	42.3		
12	137.5	298	0.2843	10.11	1.5052	63.53	42.2		
13	137.8	325							
14	137.9	347							

Lab. No. 4260-82

TRIAXIAL SHEAR - CONSOLIDATED UNDRAINED

roject Kerr McGee T.H. 3 at 10' Date October 11, 1982

1.3125 inches Ho 2.816 inches Ao 1.3530 square inches

:. Cylinder & Wet Soil -- Wt. Dry Soil & Container --

Cylinder -- Wt. Container --

t. Wet Soil 126.0 gms. Wt. Dry Soil 107.5 gms.

oisture Content 17.2% Dry Density (lbs.cu.ft.) 107.5

ercent of Proctor Density Specific Gravity 2.65 assumed

hamber Pressure (psi) 30 #1 Burette at start of Consolidation 18.5 cc

urette After Consolidation (cc) 15.8 Δ V (cc) 2.7

oving Ring No. 1 Constant 0.0001" = 0.462 lbs.

nitial Vert. Dial 0 Vert. Dial after Consolidation Δ H 0.038 inche

ecimen Vol. (cu ft) HC 2.778 inches

apsed Time	Proving Ring (1)	Vertical Strain (2)	Length Change (2-1) Δ L	Axial Strain ε	Corr. Area A	Axial Load	P/A	Burette Level	Volume Change
.min)	(10^{-4}in)	10^{-3} (in)	(in)	(%)	(sq.in)	(lbs)	(lbs/sq.in)	(cc)	(cc)
0	0	0	0	0	1.3530	0	0	--	--
¼	22	6							
½	32	12							
1	53	23							
2	92	46							
[illegible]	119	70							
4	141	93	0.0789	2.84	1.3925	65.14	46.78		
5	160	116							
6	178	138							
7	195	162							
8	211	185							
9	226	208							
10	239	231							
11	251	254							
12	260	277							
13	267	300							
14	274	323							
15	279	346	0.3181	11.45	1.5280	128.90	84.4		
16	283	368	0.3397	12.23	1.5415	130.75	84.8		
17	285.5	391	0.3625	13.05	1.5561	131.90	84.8		
18	287	414	0.3853	13.87	1.5709	132.59	84.4		
19	287	437							

r[illegible]t Kerr-McGee T.H. 3 at 10' Date October 8, 1982

o 1.3125 inches Ho 2.816 inches Ao 1.3530 square inches

r. Cylinder & Wet Soil	--	Wt. Dry Soil & Container	--
Cylinder	--	Wt. Container	--
t. Wet Soil	125.6 gms	Wt. Dry Soil	107.1 gms.
oisture Content	17.3%	Dry Density (lbs.cu.ft.)	107.1
ercent of Proctor Density	--	Specific Gravity	2.65 assumed
hamber Pressure (psi)	30 #2	Burette at start of Consolidation	14.0
urette After Consolidation (cc)	10.1	Δ V (cc)	3.9
roving Ring No.	1	Constant	0.0001" = 0.462 lbs.
nitial Vert. Dial	0	Vert. Dial after Consolidation Δ H	0.002 inche
pecimen Vol. (cu ft)		HC 2.814 inches	

apsed Time	Proving Ring (1)	Vertical Strain (2)	Length Change (2-1) Δ L	Axial Strain ε	Corr. Area A	Axial Load	P/A	Burette Level	Volume Change
min)	(10^{-4}in)	10^{-3}(in)	(in)	(%)	(sq.in)	(lbs)	(lbs/sq.in)	(cc)	(cc)
0	0	0	0	0	1.3530	0	0	--	--
¼	4	6							
½	13	12							
1	38	24							
[illegible]	72	47							
[illegible]	97	70							
4	116.5	93							
[illegible]	127.5	116							
[illegible]	129.5	130							
6	121	151							
8	148	186							
9	162	199	0.1828	6.50	1.4471	74.84	51.72		
10	172	233							
11	180.5	256							
12	189	280							
13	195.5	303							
14	202	326							
15	207.5	349							
16	212.8	372							
17	217.5	395							
18	221.8	418							
19	225.8	441							
20	229.5	464							
22	232.5	487							
24	235.1	510							
26	237.4	533							
28	239	557							
30	242.3	580	0.5558	19.75	1.6860	111.94	66.4		
31	245	603	0.5785	20.56	1.7032	113.19	66.5		
[illegible]	246.9	626	0.6013	21.37	1.7207	114.07	66.3		
[illegible]	248.5	649	0.6242	22.18	1.7386	114.81	66.03		
34	249.6	672	0.6470	22.99	1.7569	115.32	65.7		
35	250.8	695							
36	251.6	718							
37	251.8	742							

ATL ENGINEERING SERVICES

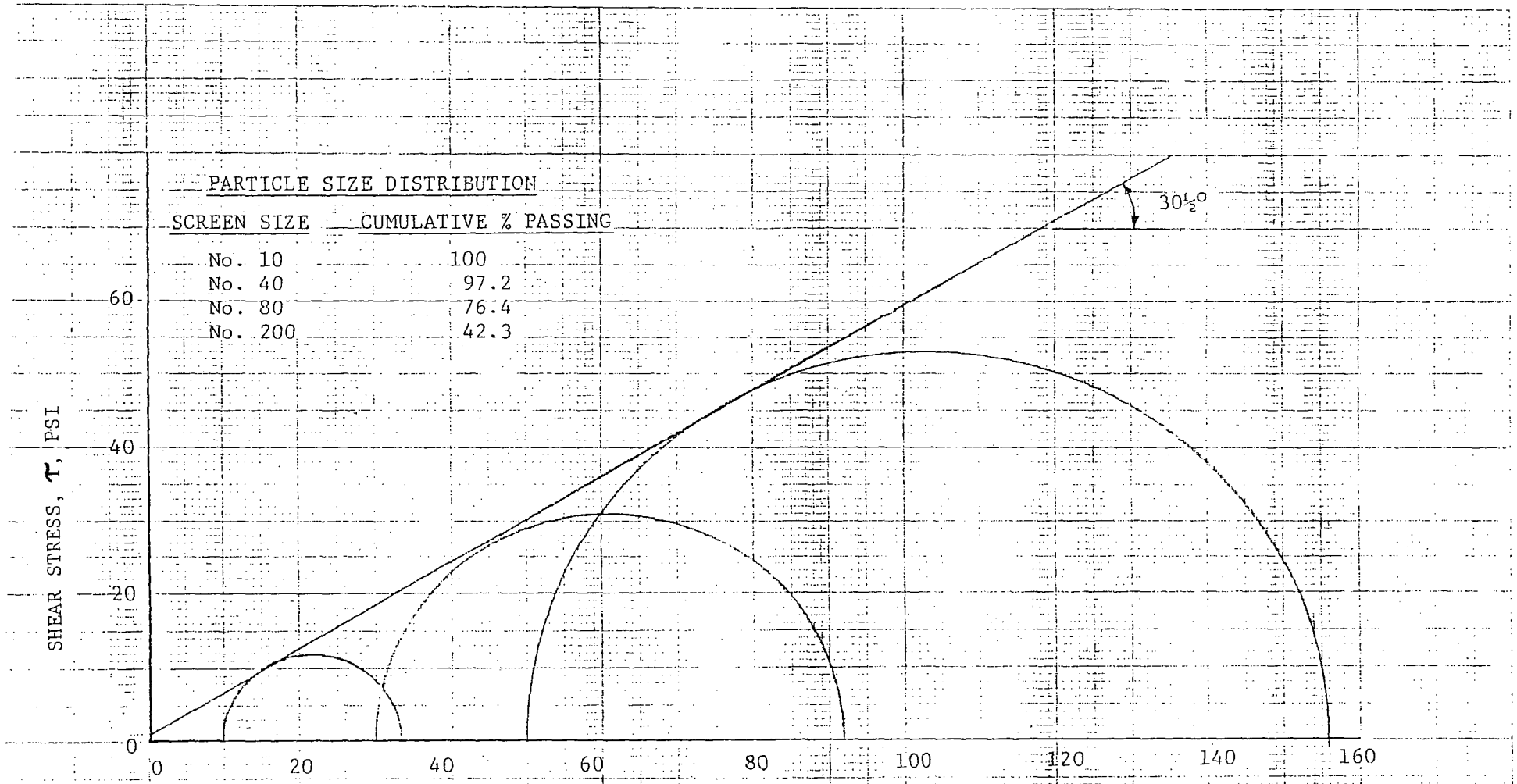
Lab. No. 4260-82

TRIAXIAL SHEAR - CONSOLIDATED UNDRAINED

[redacted]ct Kerr-McGee T.H. 3 at 10' Date October 11, 1982

)	1.3125 inches	Ho	2.816 inches	Ao	1.3530 square inches
Cylinder & Wet Soil	--	Wt. Dry Soil & Container	--		
Cylinder	--	Wt. Container	--		
t. Wet Soil	125.1 gms.	Wt. Dry Soil	106.0 gms.		
oisture Content	18.0%	Dry Density (lbs.cu.ft.)	106.0		
ercent of Proctor Density	--	Specific Gravity	2.65 assumed		
hamber Pressure (psi)	50	Burette at start of Consolidation	18.0		
urette After Consolidation (cc)	15.7	Δ V (cc)	2.3		
roving Ring No.	1	Constant	0.0001" = 0.462 lbs.		
nitial Vert. Dial	0	Vert. Dial after Consolidation Δ H	0.018 inche		
ecimen Vol. (cu ft)		HC 2.7980 inches			

Elapsed Time	Proving Ring (1)	Vertical Strain (2)	Length Change (2-1) Δ L	Axial Strain ε	Corr. Area A	Axial Load	P/A	Burette Level	Volume Change
(min)	(10^{-4} in)	10^{-3} (in)	(in)	(%)	(sq.in)	(lbs)	(lbs/sq.in)	(cc)	(cc)
0	0	0	0	0	1.3530	0	0	--	--
¼	9	7							
½	14	12							
[redacted]	47	23							
[redacted]	106	46							
[redacted]	157	69							
4	197	92	0.0723	2.58	1.3888	91.01	65.53		
	132	115							
o	160	138							
7	186	160							
8	210	184							
9	232	207							
10	252	230							
11	274	252							
12	292	275							
13	307	298							
14	320	321							
15	330	343							
16	338.3	367	0.3332	11.91	1.5359	156.29	101.8		
17	344.8	389	0.3545	12.67	1.5493	159.30	102.8		
18	348	412	0.3772	13.48	1.5638	160.78	102.8		
19	350.3	435	0.4000	14.29	1.5786	161.84	102.5		
20	351.5	457	0.4219	15.08	1.5933	162.39	101.9		
21	354	480	0.4446	15.89	1.6086	163.55	101.7		
22	356	503	0.4674	16.70	1.6242	164.47	101.3		
23	357	526	0.4903	17.52	1.6404	164.93	100.5		
24	357	548							



PARTICLE SIZE DISTRIBUTION

SCREEN SIZE	CUMULATIVE % PASSING
No. 10	100
No. 40	97.2
No. 80	76.4
No. 200	42.3

MOHR ENVELOPE - consolidated-undrained tests on material from Test Hole 1b at 1' depth.

average remolded dry density = 90 lbs./ft.^{3}

average moisture content = 18.9%

ϕ = 30½° C = 1 psi

ATL ENGINEERING SERVICES

Lab. No. 4260-82

TRIAXIAL SHEAR - CONSOLIDATED UNDRAINED

t Kerr McGee T.H. 1b at 1' Date October 15, 1982

1.3125 inches Ho 2.816 inches Ao 1.3530 square inches

Cylinder & Wet Soil	--	Wt. Dry Soil & Container	--
Cylinder	--	Wt. Container	--
. Wet Soil	109.0 gms.	Wt. Dry Soil	91.6 gms.
oisture Content	19.0%	Dry Density (lbs.cu.ft.)	91.6
ercent of Proctor Density	--	Specific Gravity	2.65 assumed
amber Pressure (psi)	10	Burette at start of Consolidation	16.0 cc.
rette After Consolidation (cc)	14.2	Δ V (cc)	1.8
roving Ring No.	1	Constant	0.0001" = 0.462 lbs.
nitial Vert. Dial	0	Vert. Dial after Consolidation Δ H	0.015 inche
ecimen Vol. (cu ft)		HC 2.801 inches	

apsed Time	Proving Ring (1)	Vertical Strain (2)	Length Change (2-1) Δ L	Axial Strain ε	Corr. Area A	Axial Load	P/A	Burette Level	Volume Change
min)	(10^{-4} in)	10^{-3} (in)	(in)	(%)	(sq.in)	(lbs)	(lbs/sq.in)	(cc)	(cc)
0	0	0	0	0	1.3530	0	0	--	--
¼	10	5							
½	16	10							
1	25	21							
[illegible]	38	44							
[illegible]	46.3	67							
4	52	88	0.0828	2.96	1.3943	24.02	17.23		
	56.5	110							
[illegible]	60	132							
7	63	154							
8	65.5	177							
9	67.5	198							
10	69.5	220							
11	71.5	242							
12	73	265							
13	74	287	0.2796	9.98	1.5030	34.19	22.75		
14	75.5	308	0.3005	10.73	1.5156	34.88	23.01		
15	76.3	330	0.3224	11.51	1.5290	35.25	23.05		
16	77.2	353	0.3453	12.33	1.5433	35.67	23.11		

ATL ENGINEERING SERVICES

Lab. No. 4260-82

TRIAXIAL SHEAR - CONSOLIDATED UNDRAINED

t Kerr-McGee T.H. 1b at 1' depth — Date October 15, 1982

1.3125 inches — Ho 2.816 inches — Ao 1.3530 square inches

Cylinder & Wet Soil	--	Wt. Dry Soil & Container	--
Cylinder	--	Wt. Container	--
. Wet Soil	105.0 gms.	Wt. Dry Soil	88.1 gms.
isture Content	19.2%	Dry Density (lbs.cu.ft.)	88.1
ercent of Proctor Density	--	Specific Gravity	2.65 assumed
amber Pressure (psi)	30	Burette at start of Consolidation	18.5 cc.
rette After Consolidation (cc)	14.8	Δ V (cc)	3.7
oving Ring No.	1	Constant	0.0001" = 0.462 lbs.
itial Vert. Dial	0	Vert. Dial after Consolidation Δ H	0.048 inche
ecimen Vol. (cu ft)		HC 2.768 inches	

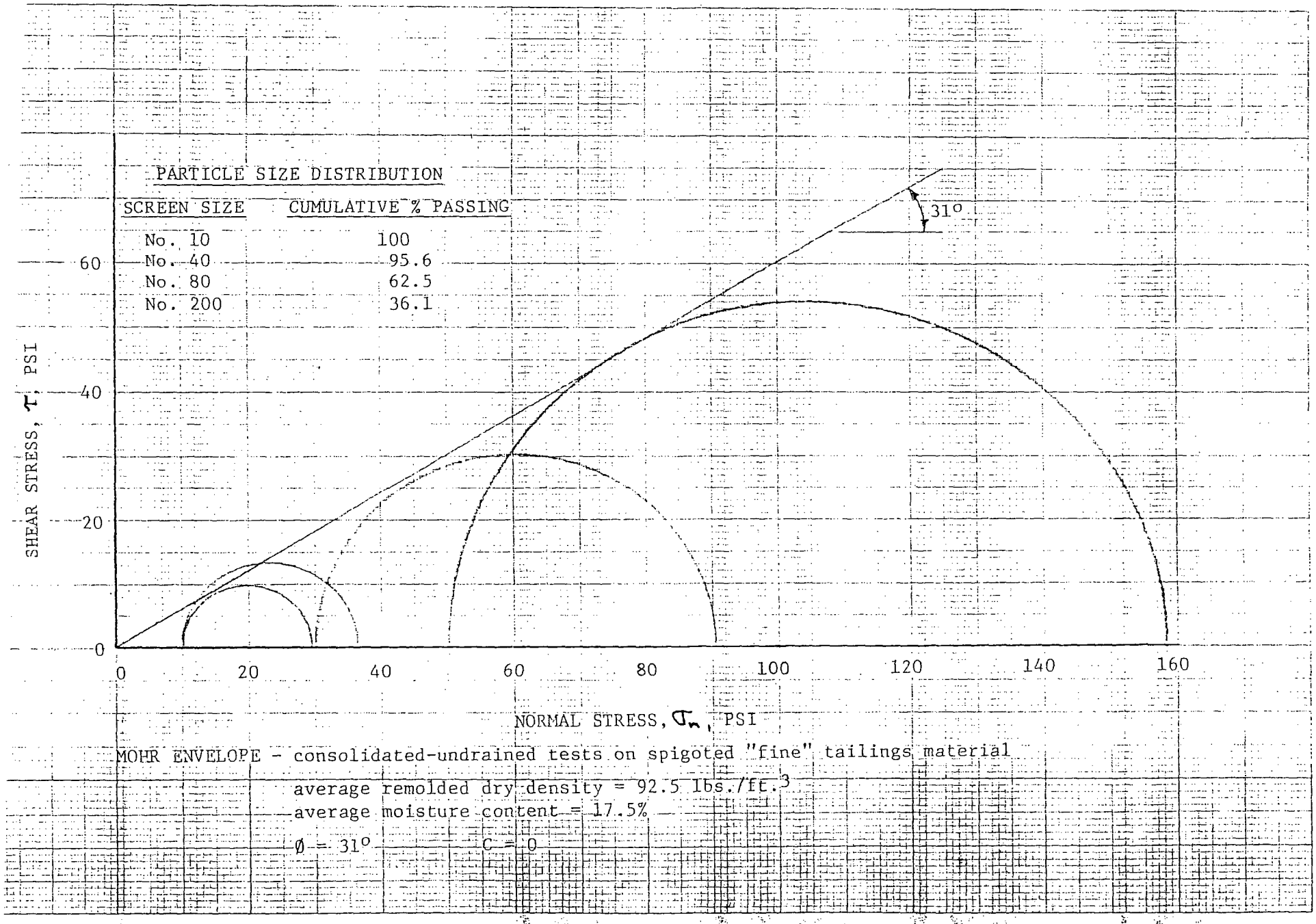
Elapsed Time	Proving Ring (1)	Vertical Strain (2)	Length Change (2-1) Δ L	Axial Strain ε	Corr. Area A	Axial Load	P/A	Burette Level	Volume Change
(min)	(10^{-4} in)	10^{-3} (in)	(in)	(%)	(sq.in)	(lbs)	(lbs/sq.in)	(cc)	(cc)
0	0	0	0	0	1.3530	0	0	--	--
¼	15	5							
½	28	10							
1	46	22							
[illegible]	71	46							
[illegible]	92	69							
4	108	92							
[illegible]	121.2	116							
[illegible]	134.5	140							
7	145	163							
8	154	186	0.1706	6.16	1.4418	71.15	49.3		
9	163	210							
10	170	233							
11	176.5	257							
12	183.2	280							
13	188.8	304							
14	193.5	328							
15	198.5	351							
16	202.2	374							
17	206	398							
18	210	421							
19	212.5	444	0.4228	15.27	1.5968	98.18	61.5		
20	215.2	468	0.4465	16.13	1.6132	99.42	61.6		
21	218.2	492	0.4702	16.99	1.6299	100.81	61.8		
22	220	515	0.4930	17.81	1.6462	101.64	61.7		
23	221.5	538	0.5159	18.64	1.6630	102.33	61.5		
24	223.0	561	0.5387	19.46	1.6799	103.03	61.3		
25	222.2	585							

Project Kerr-McGee T.H. 1b at 1' Date October 18, 1982

Do 1.3125 inches Ho 2.816 inches Ao 1.3530 square inches

Wt. Cylinder & Wet Soil	--	Wt. Dry Soil & Container	--
Wt. Cylinder	--	Wt. Container	--
Wt. Wet Soil	107.0 gms.	Wt. Dry Soil	90.2 gms.
Moisture Content	18.6%	Dry Density (lbs.cu.ft.)	90.2
Percent of Proctor Density	--	Specific Gravity	2.65 assumed
Chamber Pressure (psi)	50	Burette at start of Consolidation	17.1
Burette After Consolidation (cc)	14.0	Δ V (cc)	3.1
Proving Ring No.	1	Constant	0.0001" = 0.462 lbs.
Initial Vert. Dial	0	Vert. Dial after Consolidation Δ H	0.047 inche
Specimen Vol. (cu ft)		HC 2.769 inches	

Elapsed Time	Proving Ring (1)	Vertical Strain (2)	Length Change (2-1) Δ L	Axial Strain ε	Corr. Area A	Axial Load	P/A	Burette Level	Volume Change
(min)	(10^{-4} in)	10^{-3} (in)	(in)	(%)	(sq.in)	(lbs)	(lbs/sq.in)	(cc)	(cc)
0	0	0	0	0	1.3530	0	0	--	--
¼	20	5							
½	37	10							
1	69	23							
[illegible]	112	46							
[illegible]	142	69							
4	168	92							
5	190	114							
[illegible]	210	138							
7	229	161	0.1381	4.99	1.4241	105.80	74.29		
8	245	184							
9	259.5	207							
10	273.5	230							
11	287	254							
12	299	278							
13	310	301							
14	320	323							
15	328.5	347							
16	337	370							
17	344	392							
18	351	415							
19	357	439							
20	361.5	462							
21	365.5	485	0.4485	16.20	1.6146	168.86	104.58		
22	372	508	0.4708	17.00	1.6301	171.86	105.43		
23	376	530	0.4924	17.78	1.6456	173.71	105.56		
24	379	553	0.5151	18.60	1.6622	175.10	105.34		
25	381.1	577	0.5389	19.46	1.6799	176.07	104.81		
26	382.1	599							
[illegible]	383	622							
[illegible]	382	646							



MOHR ENVELOPE - consolidated-undrained tests on spigoted "fine" tailings material

average remolded dry density = 92.5 lbs./ft.^{3}

average moisture content = 17.5%

$\phi = 31^o$ $C = 0$

ATL ENGINEERING SERVICES

Lab. No. 4260-82

TRIAXIAL SHEAR - CONSOLIDATED UNDRAINED

[illegible]t Kerr-McGee fine spigoted tailings #1 Date October 15, 1982

o 1.3125 inches Ho 2.816 inches Ao 1.3530 square inches

Cylinder & Wet Soil	--	Wt. Dry Soil & Container	--
Cylinder	--	Wt. Container	--
t. Wet Soil	101.5 gms.	Wt. Dry Soil	87.5 gms.
oisture Content	16.0%	Dry Density (lbs.cu.ft.)	87.5
ercent of Proctor Density	--	Specific Gravity	2.65 assumed
hamber Pressure (psi)	10	Burette at start of Consolidation	16.2 cc.
urette After Consolidation (cc)	14.4	Δ V (cc)	1.8
roving Ring No.	1	Constant	0.0001" = 0.462 lbs.
nitial Vert. Dial	0	Vert. Dial after Consolidation Δ H	0.017 inche
ecimen Vol. (cu ft)		HC 2.799 inches	

apsed Time	Proving Ring (1)	Vertical Strain (2)	Length Change (2-1) Δ L	Axial Strain ε	Corr. Area A	Axial Load	P/A	Burette Level	Volume Change
min)	(10^{-4}in)	10^{-3} (in)	(in)	(%)	(sq.in)	(lbs)	(lbs/sq.in)	(cc)	(cc)
0	0	0	0	0	1.3530	0	0	--	--
¼	9	6							
½	12.5	12							
1	16.5	24							
[illegible]	25	49							
[illegible]	31.2	75							
4	36	99							
	40	123							
6	43.5	148							
7	46.2	173	0.1684	6.02	1.4397	21.34	14.83		
8	48.5	197							
9	51	222							
10	53	257							
11	55	272							
12	56.9	296							
13	58.9	321							
14	60	345							
15	61.5	371							
16	63	395							
17	64	419							
18	65	433							
19	66.2	469	0.4624	16.52	1.6207	30.58	18.87		
20	67.8	494	0.4872	17.41	1.6382	31.32	19.12		
21	68.5	512	0.5052	18.05	1.6510	31.65	19.17		

Lab. No. 4260-82

TRIAXIAL SHEAR - CONSOLIDATED UNDRAINED

c[illegible]t Kerr-McGee fine spigoted tailings #1 Date October 12, 1982

[illegible] 1.3125 inches Ho 2.816 inches Ao 1.3530 square inches

[illegible] Cylinder & Wet Soil -- Wt. Dry Soil & Container --

Cylinder -- Wt. Container --

[illegible]. Wet Soil 114.6 gms. Wt. Dry Soil 97.4 gms.

[illegible]isture Content 17.7% Dry Density (lbs.cu.ft.) 97.4

[illegible]ercent of Proctor Density -- Specific Gravity 2.65 assumed

[illegible]amber Pressure (psi) 10 Burette at start of Consolidation 16.8

[illegible]urette After Consolidation (cc) 15.6 Δ V (cc) 1.2

[illegible]roving Ring No. 1 Constant 0.0001" = 0.462 lbs.

[illegible]nitial Vert. Dial 0 Vert. Dial after Consolidation Δ H 0.024 inche[illegible]

[illegible]ecimen Vol. (cu ft) HC 2.792 inches

[illegible]apsed [illegible]ime	Proving Ring (1)	Vertical Strain (2)	Length Change (2-1) Δ L	Axial Strain ε	Corr. Area A	Axial Load	P/A	Burette Level	Volume Change
min)	(10^{-4} in)	10^{-3} (in)	(in)	(%)	(sq.in)	(lbs)	(lbs/sq.in)	(cc)	(cc)
0	0	0	0	0	1.3530	0	0	--	--
¼	11	6							
½	18	11							
1	28	23							
[illegible]	41	46							
[illegible]	49	70							
4	55.5	94							
	60.5	117	0.1110	3.98	1.4091	27.95	19.84		
[illegible]	64.5	141							
7	68.1	164							
8	72	187							
9	74.8	211							
10	77.5	234							
11	79.9	257							
12	81.8	281							
13	83.1	305							
14	85	328							
15	86.1	352	0.3434	12.30	1.5428	39.78	25.78		
16	87.3	375	0.3663	13.12	1.5573	40.33	25.90		
17	88.6	398	0.3891	13.94	1.5722	40.93	26.04		
18	89.3	422	0.4131	14.79	1.5878	41.26	25.98		
19	90.1	445	0.4360	15.62	1.6035	41.63	25.96		
20	91	468							

[redacted] Kerr-McGee fine spigoted tailings #1 Date October 12, 1982

1.3125 inches Ho 2.816 inches Ao 1.3530 square inches

Cylinder & Wet Soil	--	Wt. Dry Soil & Container	--
. Cylinder	--	Wt. Container	--
. Wet Soil	108.0 gms.	Wt. Dry Soil	91.4 gms.
isture Content	18.2%	Dry Density (lbs.cu.ft.)	91.4
rcent of Proctor Density		Specific Gravity	2.65 assumed
amber Pressure (psi)	30	Burette at start of Consolidation	16.9
rette After Consolidation (cc)	12.8	Δ V (cc)	4.1
oving Ring No.	1	Constant	0.0001" = 0.462 lbs.
itial Vert. Dial	0	Vert. Dial after Consolidation Δ H	0.052 inche
ecimen Vol. (cu ft)		HC 2.764 inches	

Elapsed Time	Proving Ring (1)	Vertical Strain (2)	Length Change (2-1) Δ L	Axial Strain ε	Corr. Area A	Axial Load	P/A	Burette Level	Volume Change
(min)	(10^{-4}in)	10^{-3} (in)	(in)	(%)	(sq.in)	(lbs)	(lbs/sq.in)	(cc)	(cc)
0	0	0	0	0	1.3530	0	0	--	--
¼	5	6							
½	13	11							
[redacted]	35	24							
[redacted]	58	48							
3	77	73							
4	94	97							
	97.5	120	0.1103	3.99	1.4092	45.05	31.96		
*7	120	145							
8	131	169							
9	141	193							
10	150	217							
11	158	241							
12	165	265							
13	171.5	290							
14	178	314							
15	183.5	337							
16	188.5	362							
17	193.5	386							
18	198	410							
19	202	434							
20	205.8	459							
21	209.2	483							
22	212.3	506							
23	215	530	0.5085	18.40	1.6581	99.33	59.91		
24	218	554	0.5322	19.25	1.6755	100.72	60.11		
25	220.5	578	0.5560	20.11	1.6936	101.87	60.15		
26	222.8	603	0.5807	21.01	1.7129	102.93	60.09		
[redacted]	225	626	0.6035	21.83	1.7308	103.95	60.06		
[redacted]	226.5	650							
29	228	675	0.6522	23.60	1.7709	105.34	59.48		

TRIAXIAL SHEAR - CONSOLIDATED UNDRAINED

ect Kerr-McGee fine spigoted tailings #1 Date October 12, 1982

Do 1.3125 inches Ho 2.816 inches Ao 1.3530 square inches

Cylinder & Wet Soil	--	Wt. Dry Soil & Container	--
Cylinder	--	Wt. Container	--
Wt. Wet Soil	110.2 gms.	Wt. Dry Soil	93.5 gms.
oisture Content	17.9%	Dry Density (lbs.cu.ft.)	
ercent of Proctor Density	--	Specific Gravity	
Chamber Pressure (psi)	50	Burette at start of Consolidation	22.7
urette After Consolidation (cc)	13.8	Δ V (cc)	8.9
roving Ring No.	1	Constant	0.0001" = 0.462 lbs.
Initial Vert. Dial	0	Vert. Dial after Consolidation Δ H	0.052 inche
pecimen Vol. (cu ft)		HC 2.764 inches	

Elapsed Time	Proving Ring (1)	Vertical Strain (2)	Length Change (2-1) Δ L	Axial Strain ε	Corr. Area A	Axial Load	P/A	Burette Level	Volume Change
(min)	(10^{-4}in)	10^{-3} (in)	(in)	(%)	(sq.in)	(lbs)	(lbs/sq.in)	(cc)	(cc)
0	0	0	0	0	1.3530	0	0	--	--
¼	22	5							
½	43	11							
1	75	23							
[illegible]	113	49							
[illegible]	145	74							
4	172	97							
[illegible]	195	121	0.1015	3.67	1.4045	90.09	64.14		
6	217	146							
7	237.5	170							
8	254	194							
9	270	218							
10	286	243							
11	297.5	267							
12	310	291							
13	322	315							
14	331.2	339							
15	340.1	364							
16	349	387							
17	356.5	410							
18	362.5	435							
19	370	459							
20	375	483							
21	379	507							
22	385.5	531	0.4925	17.82	1.6464	178.10	108.18		
23	390.5	555	0.5160	18.67	1.6636	180.41	108.45		
24	394	579	0.5396	19.52	1.6812	182.03	108.27		
25	398.5	603	0.5632	20.37	1.6991	184.11	108.36		
26	401.2	627	0.5869	21.23	1.7177	185.35	107.91		
[illegible]	403	652	0.6117	22.13	1.7375	186.19	107.16		
[illegible]	405	676	0.6355	22.99	1.7569	187.11	106.50		
29	406.5	699	0.6584	23.82	1.7761	187.80	105.74		
0	405	723							

DIRECT SHEAR TESTS

TEST DATA:

Three sets of consolidated-undrained direct shear tests were made in accordance with A.S.T.M. D-3080 on the following materials:

1. cycloned sand (two separate tests)
2. spigoted coarse tailings

Two sets of samples were remolded and sheared under normal loads of approximately 10, 30, and 50 pounds per square inch, and one set of samples were sheared under normal loads of 2.2, 4.4, and 8.8 pounds per square inch.

TEST RESULTS:

Results of the tests are given below as well as plotted graphically on data sheets on the following pages.

Sample Designation	C	Ø
Cycloned Sand (Test No. 1)	0	29½°
Cycloned Sand (Test No. 2)	0.4 psi	30°
Spigoted Coarse Tailings	0	30°

DIRECT SHEAR TEST
(ASTM D-3080 - AASHTO T 236-72)

Project: Proposed Tailings Dam

Client: Kerr-McGee Nuclear Corporation

ATL Lab. No.: 4260-82

Sample Identification: Cycloned Sand No. 1 - Test No. 1

Soil Classification: SP (clean, poorly graded sand)

Liquid Limit: -- Plastic Limit: -- Plasticity Index: --

Type of Test: Consolidated-undrained Specific Gravity: 2.65 assumed

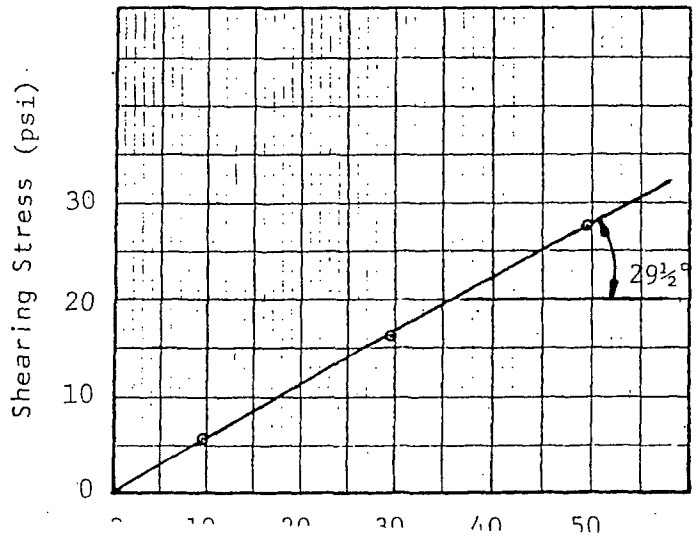
Type of Specimen: remolded Area: 4.0 sq. in. Thickness: 1.01 in. (avg.)

Test No.	1	2	3	4
Initial Moisture %	18.5	17.8	19.8	--
Dry Density pcf	86.6	89.6	83.9	--
Initial Void Ratio	0.9095	0.8457	0.9708	
Degree Saturation %	100	100	100	--
Test Duration (min.)	16	25	24	--
Final Moisture %	--	--	--	--
Normal Stress psi	9.9	29.8	49.6	--
Maximum Shear Stress psi	5.8	16.2	27.6	--
Shear Values		Ø = 29½°		C = 0

Sieve Analysis

Sieve Size	% Passing
No. 10	100
No. 40	87.4
No. 80	24.6
No. 200	3.1

At Maximum Stress



DIRECT SHEAR TEST
(ASTM D-3080 - AASHTO T 236-72)

Project: Proposed Tailings Dam

Client: Kerr-McGee Nuclear Corporation

ATL Lab. No.: 4260-82

Sample Identification: Cycloned Sand No. 1 - Test No. 2

Soil Classification:

Liquid Limit: -- Plastic Limit: -- Plasticity Index: --

Type of Test: Consolidated-undrained Specific Gravity: 2.65 assumed

Type of Specimen: remolded Area: 4.0 sq. in. Thickness: 1.01 (avg)in.

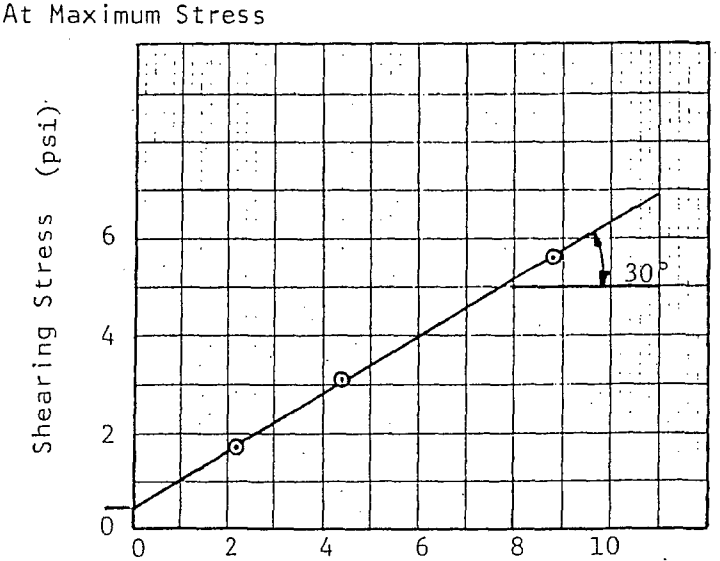
Sieve Analysis

Sieve Size	% Passing
No. 10	100
No. 40	87.4
No. 80	24.6
No. 200	3.1

Test No.	1	2	3	4
Initial Moisture %	11.0	11.1	11.6	--
Dry Density pcf	85.2	84.0	86.8	--
Initial Void Ratio	0.9410	0.9685	0.9051	--
Degree Saturation %	100	100	100	--
Test Duration (min.)	6	5	10	--
Final Moisture %	--	--	--	--
Normal Stress psi	2.2	4.4	8.8	--
Maximum Shear Stress psi	1.7	3.1	5.6	--

Shear Values Ø =30° C =0.4 psi

At Maximum Stress



UNCONFINED COMPRESSIVE STRENGTHS ON ROCK CORES

TEST DATA: Several selected rock core samples were trimmed and tested for their unconfined compressive strengths. Rock coring of the clay/shale did not produce core sizes of adequate size for unconfined compressive strength testing, and the single test made on the clay/shale was made on an "undisturbed" sample taken with the California type soil sampler.

TEST RESULTS:

Sample Designation	Rock Type	Sample Length(in.)	Sample Diam. (in.)	Dry Unit Wt. (pcf)	Moisture Content (%)	Load (lbs.)	Unconfined Compressive Strength (psi)
T.H. 1, 8'	clay/ shale	4.0	1.90	108	17.7	245	86.4
T.H. 2, 12'	sand-stone	3.85	1.58	136.0	8.0	3,780	1,927.8
T.H. 2, 15'	sand-stone	3.16	1.63	139.3	8.7	2,060	987.2
T.H. 2, 17'	sand-stone	3.28	1.63	132.2	8.5	2,810	1,346.6
T.H. 4, 20½'	sand-stone	3.42	1.78	125.7	5.5	4,140	1,663.6
T.H. 4, 22½'	sand-stone	3.46	1.77	127.1	6.5	2,720	1,105.4

APPENDIX A-2

GEOTECHNICAL INVESTIGATIONS - 2004

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1752-4663
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-01
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/18/08
CPT Time: 07:46
CPT File: 390CP01.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 15.24 (ft): 50.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	10.9	0.06	0.5	0.009	0.000	4.2	8.4	0.874	70.1	50.0	10.0
0.33	0.10	40.9	0.15	0.4	0.019	0.000	9.8	19.6	-104.410	95.0	50.0	-9999.0
0.49	0.15	60.7	0.23	0.4	0.029	0.000	14.5	29.1	-104.410	95.0	50.0	-9999.0
0.66	0.20	75.7	0.35	0.5	0.039	0.000	18.1	36.2	-104.410	95.0	50.0	-9999.0
0.82	0.25	69.1	0.43	0.6	0.049	0.000	16.6	33.1	-104.410	95.0	50.0	-9999.0
0.98	0.30	56.4	0.41	0.7	0.059	0.000	13.5	27.0	-104.410	90.9	50.0	-9999.0
1.15	0.35	41.9	0.36	0.9	0.069	0.000	13.4	26.8	-104.410	80.2	50.0	-9999.0
1.31	0.40	34.9	0.37	1.1	0.078	0.000	11.1	22.3	-104.410	73.0	48.0	-9999.0
1.48	0.45	31.8	0.48	1.5	0.088	0.000	12.2	24.3	2.534	68.7	48.0	10.0
1.64	0.50	31.5	0.49	1.6	0.097	0.000	12.1	24.1	2.513	67.0	48.0	10.0
1.80	0.55	31.0	0.49	1.6	0.107	0.000	11.9	23.8	2.472	65.2	46.0	10.0
1.97	0.60	39.9	0.36	0.9	0.116	0.000	12.7	25.5	-104.410	71.2	48.0	-9999.0
2.13	0.65	46.8	0.43	0.9	0.126	0.000	14.9	29.9	-104.410	74.6	48.0	-9999.0
2.30	0.70	47.6	0.59	1.2	0.135	0.000	15.2	30.4	-104.410	74.1	48.0	-9999.0
2.46	0.75	52.9	0.62	1.2	0.145	0.000	16.9	33.7	-104.410	76.1	48.0	-9999.0
2.62	0.80	75.2	0.75	1.0	0.155	0.000	18.0	36.0	-104.410	85.2	48.0	-9999.0
2.79	0.85	109.6	0.79	0.7	0.165	0.000	21.0	42.0	-104.410	95.0	50.0	-9999.0
2.95	0.90	110.5	0.71	0.6	0.175	0.000	21.2	42.3	-104.410	94.5	50.0	-9999.0
3.12	0.95	89.6	0.69	0.8	0.185	0.000	21.5	42.9	-104.410	87.7	48.0	-9999.0
3.28	1.00	66.6	0.84	1.3	0.195	0.000	21.3	42.5	-104.410	78.4	48.0	-9999.0
3.44	1.05	53.6	0.99	1.9	0.205	0.000	17.1	34.2	-104.410	71.5	46.0	-9999.0
3.61	1.10	53.3	0.88	1.7	0.214	0.000	17.0	34.1	-104.410	70.7	46.0	-9999.0
3.77	1.15	80.4	0.94	1.2	0.224	0.000	19.2	38.5	-104.410	81.8	48.0	-9999.0
3.94	1.20	104.0	1.60	1.5	0.234	0.000	24.9	49.8	-104.410	88.6	48.0	-9999.0
4.10	1.25	107.7	1.55	1.4	0.244	0.000	25.8	51.6	-104.410	89.0	48.0	-9999.0
4.27	1.30	119.4	1.58	1.3	0.254	0.000	28.6	56.8	-104.410	91.4	48.0	-9999.0
4.43	1.35	173.0	1.52	0.9	0.264	0.000	33.1	64.5	-104.410	95.0	50.0	-9999.0
4.59	1.40	210.1	1.49	0.7	0.274	0.000	40.2	76.9	-104.410	95.0	50.0	-9999.0
4.76	1.45	267.7	1.65	0.6	0.284	0.000	51.3	96.2	-104.410	95.0	50.0	-9999.0
4.92	1.50	258.9	2.18	0.8	0.294	0.000	49.6	91.4	-104.410	95.0	50.0	-9999.0
5.09	1.55	234.4	2.87	1.2	0.305	0.000	44.9	81.4	-104.410	95.0	50.0	-9999.0
5.25	1.60	157.6	2.88	1.8	0.315	0.000	37.7	67.3	-104.410	95.0	48.0	-9999.0
5.41	1.65	151.8	2.50	1.6	0.324	0.000	36.3	63.8	-104.410	94.7	48.0	-9999.0
5.58	1.70	167.4	2.02	1.2	0.334	0.000	40.1	69.3	-104.410	95.0	48.0	-9999.0
5.74	1.75	138.3	1.90	1.4	0.344	0.000	33.1	56.4	-104.410	91.2	48.0	-9999.0
5.91	1.80	82.4	1.94	2.4	0.354	0.000	26.3	44.2	-104.410	76.0	46.0	-9999.0
6.07	1.85	43.0	1.70	4.0	0.364	0.000	20.6	34.2	3.415	-9999.0	-9999.0	10.0
6.23	1.90	37.6	1.31	3.5	0.373	0.000	18.0	29.4	2.975	-9999.0	-9999.0	10.0
6.40	1.95	61.1	1.19	2.0	0.383	0.000	19.5	31.5	-104.410	66.3	44.0	-9999.0
6.56	2.00	109.5	1.56	1.4	0.392	0.000	26.2	41.9	-104.410	82.7	46.0	-9999.0
6.73	2.05	144.8	2.23	1.5	0.402	0.000	34.7	54.7	-104.410	90.3	48.0	-9999.0
6.89	2.10	156.1	2.43	1.6	0.412	0.000	37.4	58.2	-104.410	92.1	48.0	-9999.0
7.05	2.15	215.3	2.73	1.3	0.422	0.000	41.2	63.5	-104.410	95.0	48.0	-9999.0
7.22	2.20	266.5	3.43	1.3	0.432	0.000	51.0	77.6	-104.410	95.0	50.0	-9999.0
7.38	2.25	246.6	3.71	1.5	0.442	0.000	59.0	88.8	-104.410	95.0	50.0	-9999.0
7.55	2.30	220.0	3.94	1.8	0.452	0.000	52.7	78.3	-104.410	95.0	48.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	260.9	4.12	1.6	0.462	0.000	62.5	91.9	-104.410	95.0	50.0	-9999.0
7.87	2.40	280.2	3.99	1.4	0.472	0.000	53.7	78.1	-104.410	95.0	50.0	-9999.0
8.04	2.45	210.2	3.59	1.7	0.482	0.000	50.3	72.5	-104.410	95.0	48.0	-9999.0
8.20	2.50	209.7	3.15	1.5	0.492	0.000	50.2	71.6	-104.410	95.0	48.0	-9999.0
8.37	2.55	200.7	3.03	1.5	0.502	0.000	48.0	67.8	-104.410	95.0	48.0	-9999.0
8.53	2.60	146.7	2.41	1.6	0.512	0.000	35.1	49.1	-104.410	87.2	46.0	-9999.0
8.69	2.65	148.2	2.02	1.4	0.522	0.000	35.5	49.1	-104.410	87.3	46.0	-9999.0
8.86	2.70	129.2	1.58	1.2	0.532	0.000	30.9	42.4	-104.410	83.0	46.0	-9999.0
9.02	2.75	121.0	1.59	1.3	0.542	0.000	29.0	39.4	-104.410	80.9	46.0	-9999.0
9.19	2.80	114.0	1.76	1.5	0.552	0.000	27.3	36.8	-104.410	78.9	46.0	-9999.0
9.35	2.85	121.1	2.21	1.8	0.562	0.000	38.7	51.6	-104.410	80.4	46.0	-9999.0
9.51	2.90	119.8	2.11	1.8	0.571	0.000	38.2	50.6	-104.410	79.9	46.0	-9999.0
9.68	2.95	83.9	2.74	3.3	0.581	0.000	32.1	42.2	6.663	69.4	44.0	10.0
9.84	3.00	119.7	2.39	2.0	0.590	0.000	38.2	49.7	-104.410	79.4	46.0	-9999.0
10.01	3.05	161.5	1.47	0.9	0.600	0.000	30.9	39.9	-104.410	87.7	46.0	-9999.0
10.17	3.10	66.0	1.02	1.5	0.610	0.000	21.1	27.0	-104.410	61.8	42.0	-9999.0
10.33	3.15	61.2	0.79	1.3	0.620	0.000	19.6	24.8	-104.410	59.5	42.0	-9999.0
10.50	3.20	99.3	0.62	0.6	0.630	0.000	19.0	24.0	-104.410	73.1	44.0	-9999.0
10.66	3.25	131.1	0.69	0.5	0.640	0.000	25.1	31.4	-104.410	80.8	46.0	-9999.0
10.83	3.30	93.4	1.00	1.1	0.650	0.000	22.4	27.8	-104.410	70.9	44.0	-9999.0
10.99	3.35	64.0	1.43	2.2	0.660	0.000	20.4	25.2	-104.410	59.8	42.0	-9999.0
11.15	3.40	47.2	1.35	2.9	0.669	0.000	18.1	22.1	3.725	50.9	40.0	10.0
11.32	3.45	42.4	1.01	2.4	0.679	0.000	16.3	19.7	3.341	47.6	40.0	10.0
11.48	3.50	46.1	0.55	1.2	0.688	0.000	14.7	17.8	-104.410	49.8	40.0	-9999.0
11.65	3.55	51.1	0.35	0.7	0.698	0.000	12.2	14.6	-104.410	52.6	40.0	-9999.0
11.81	3.60	52.2	0.30	0.6	0.708	0.000	12.5	14.9	-104.410	53.0	40.0	-9999.0
11.97	3.65	54.8	0.30	0.5	0.718	0.000	13.1	15.5	-104.410	54.2	40.0	-9999.0
12.14	3.70	59.0	0.25	0.4	0.728	0.000	14.1	16.6	-104.410	56.1	42.0	-9999.0
12.30	3.75	67.0	0.27	0.4	0.738	0.000	16.0	18.7	-104.410	59.5	42.0	-9999.0
12.47	3.80	79.3	0.55	0.7	0.748	0.000	19.0	22.0	-104.410	64.2	42.0	-9999.0
12.63	3.85	110.0	0.78	0.7	0.758	0.000	21.1	24.2	-104.410	73.4	44.0	-9999.0
12.80	3.90	163.8	2.22	1.4	0.768	0.000	39.2	44.8	-104.410	84.6	46.0	-9999.0
12.96	3.95	271.2	2.22	0.8	0.778	0.000	52.0	58.9	-104.410	95.0	48.0	-9999.0
13.12	4.00	632.9	2.22	0.4	0.788	0.000	101.0	113.8	-104.410	95.0	50.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1752-4778
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-02
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/18/08
CPT Time: 10:22
CPT File: 390CP02.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 6.40 (ft): 21.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	41.8	0.02	0.0	0.010	0.000	10.0	20.0	-104.410	95.0	50.0	-9999.0
0.33	0.10	60.0	0.11	0.2	0.020	0.000	14.4	28.7	-104.410	95.0	50.0	-9999.0
0.49	0.15	88.4	0.21	0.2	0.030	0.000	16.9	33.8	-104.410	95.0	50.0	-9999.0
0.66	0.20	139.3	0.26	0.2	0.040	0.000	26.7	53.3	-104.410	95.0	50.0	-9999.0
0.82	0.25	182.8	0.32	0.2	0.050	0.000	35.0	70.0	-104.410	95.0	50.0	-9999.0
0.98	0.30	219.9	0.45	0.2	0.061	0.000	35.1	70.2	-104.410	95.0	50.0	-9999.0
1.15	0.35	235.0	0.47	0.2	0.071	0.000	37.5	75.0	-104.410	95.0	50.0	-9999.0
1.31	0.40	220.4	0.52	0.2	0.081	0.000	35.2	70.4	-104.410	95.0	50.0	-9999.0
1.48	0.45	200.5	0.65	0.3	0.092	0.000	38.4	76.8	-104.410	95.0	50.0	-9999.0
1.64	0.50	199.2	0.66	0.3	0.102	0.000	38.2	76.3	-104.410	95.0	50.0	-9999.0
1.80	0.55	173.8	0.61	0.4	0.112	0.000	33.3	66.6	-104.410	95.0	50.0	-9999.0
1.97	0.60	146.6	0.63	0.4	0.122	0.000	28.1	56.2	-104.410	95.0	50.0	-9999.0
2.13	0.65	119.3	0.50	0.4	0.132	0.000	22.9	45.7	-104.410	95.0	50.0	-9999.0
2.30	0.70	88.8	0.66	0.7	0.143	0.000	21.3	42.5	-104.410	91.2	50.0	-9999.0
2.46	0.75	69.5	0.62	0.9	0.152	0.000	16.6	33.3	-104.410	83.2	48.0	-9999.0
2.62	0.80	52.4	0.65	1.2	0.162	0.000	16.7	33.4	-104.410	74.2	46.0	-9999.0
2.79	0.85	45.8	0.43	0.9	0.172	0.000	14.6	29.2	-104.410	69.5	46.0	-9999.0
2.95	0.90	42.8	0.39	0.9	0.182	0.000	13.7	27.3	-104.410	66.8	46.0	-9999.0
3.12	0.95	45.8	0.51	1.1	0.191	0.000	14.6	29.2	-104.410	68.0	46.0	-9999.0
3.28	1.00	46.3	0.57	1.2	0.201	0.000	14.8	29.6	-104.410	67.6	46.0	-9999.0
3.44	1.05	45.6	0.69	1.5	0.211	0.000	14.6	29.1	-104.410	66.5	46.0	-9999.0
3.61	1.10	47.8	0.69	1.4	0.220	0.000	15.3	30.5	-104.410	67.2	46.0	-9999.0
3.77	1.15	50.4	0.77	1.5	0.230	0.000	16.1	32.2	-104.410	68.1	46.0	-9999.0
3.94	1.20	57.1	1.01	1.8	0.240	0.000	18.2	36.4	-104.410	71.1	46.0	-9999.0
4.10	1.25	68.7	0.95	1.4	0.249	0.000	21.9	43.9	-104.410	75.8	46.0	-9999.0
4.27	1.30	89.8	1.00	1.1	0.259	0.000	21.5	42.3	-104.410	82.9	48.0	-9999.0
4.43	1.35	111.8	1.13	1.0	0.269	0.000	26.8	51.6	-104.410	88.7	48.0	-9999.0
4.59	1.40	126.8	1.32	1.0	0.279	0.000	30.4	57.5	-104.410	91.8	48.0	-9999.0
4.76	1.45	123.0	1.56	1.3	0.289	0.000	29.4	54.8	-104.410	90.4	48.0	-9999.0
4.92	1.50	101.7	1.83	1.8	0.299	0.000	32.5	59.4	-104.410	84.5	48.0	-9999.0
5.09	1.55	85.3	1.77	2.1	0.308	0.000	27.2	49.1	-104.410	79.0	46.0	-9999.0
5.25	1.60	69.7	1.51	2.2	0.318	0.000	22.2	39.5	-104.410	72.7	46.0	-9999.0
5.41	1.65	62.5	1.41	2.3	0.327	0.000	24.0	41.9	4.976	69.2	44.0	10.0
5.58	1.70	71.0	1.44	2.0	0.337	0.000	22.7	39.1	-104.410	72.4	46.0	-9999.0
5.74	1.75	99.3	1.69	1.7	0.347	0.000	31.7	53.9	-104.410	81.7	46.0	-9999.0
5.91	1.80	97.1	1.82	1.9	0.356	0.000	31.0	51.9	-104.410	80.6	46.0	-9999.0
6.07	1.85	140.6	2.59	1.8	0.366	0.000	33.7	55.6	-104.410	90.8	48.0	-9999.0
6.23	1.90	172.3	2.98	1.7	0.376	0.000	41.2	67.3	-104.410	95.0	48.0	-9999.0
6.40	1.95	176.2	3.65	2.1	0.386	0.000	56.2	90.6	-104.410	95.0	48.0	-9999.0
6.56	2.00	178.7	3.77	2.1	0.395	0.000	57.1	90.8	-104.410	95.0	48.0	-9999.0
6.73	2.05	227.1	3.63	1.6	0.405	0.000	54.4	85.4	-104.410	95.0	50.0	-9999.0
6.89	2.10	287.2	3.80	1.3	0.415	0.000	55.0	85.4	-104.410	95.0	50.0	-9999.0
7.05	2.15	276.2	3.36	1.2	0.425	0.000	52.9	81.1	-104.410	95.0	50.0	-9999.0
7.22	2.20	268.7	2.96	1.1	0.436	0.000	51.5	78.0	-104.410	95.0	50.0	-9999.0
7.38	2.25	261.2	2.29	0.9	0.446	0.000	50.0	74.9	-104.410	95.0	50.0	-9999.0
7.55	2.30	248.4	2.22	0.9	0.456	0.000	47.6	70.5	-104.410	95.0	50.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	227.1	2.23	1.0	0.466	0.000	43.5	63.7	-104.410	95.0	48.0	-9999.0
7.87	2.40	197.1	1.97	1.0	0.476	0.000	37.7	54.7	-104.410	95.0	48.0	-9999.0
8.04	2.45	168.0	1.67	1.0	0.486	0.000	32.2	46.1	-104.410	91.9	48.0	-9999.0
8.20	2.50	147.5	1.36	0.9	0.497	0.000	28.2	40.1	-104.410	87.8	46.0	-9999.0
8.37	2.55	132.4	1.21	0.9	0.507	0.000	25.4	35.6	-104.410	84.4	46.0	-9999.0
8.53	2.60	113.1	1.29	1.1	0.517	0.000	27.1	37.7	-104.410	79.6	46.0	-9999.0
8.69	2.65	89.5	1.42	1.6	0.527	0.000	28.6	39.4	-104.410	72.7	44.0	-9999.0
8.86	2.70	70.0	1.08	1.5	0.536	0.000	22.3	30.5	-104.410	65.4	44.0	-9999.0
9.02	2.75	73.0	0.92	1.3	0.546	0.000	17.5	23.6	-104.410	66.3	44.0	-9999.0
9.19	2.80	72.2	0.63	0.9	0.556	0.000	17.3	23.2	-104.410	65.7	44.0	-9999.0
9.35	2.85	58.7	0.35	0.6	0.566	0.000	14.1	18.7	-104.410	59.5	42.0	-9999.0
9.51	2.90	40.2	0.59	1.5	0.576	0.000	12.8	16.9	-104.410	48.5	40.0	-9999.0
9.68	2.95	23.1	0.56	2.4	0.585	0.000	8.9	11.6	1.802	32.3	38.0	10.0
9.84	3.00	19.0	0.51	2.7	0.595	0.000	9.1	11.8	1.470	-9999.0	-9999.0	10.0
10.01	3.05	25.7	0.42	1.6	0.604	0.000	9.8	12.7	2.006	34.9	38.0	10.0
10.17	3.10	28.8	0.42	1.5	0.613	0.000	11.0	14.1	2.255	38.0	38.0	10.0
10.33	3.15	17.2	0.46	2.7	0.623	0.000	8.3	10.5	1.330	-9999.0	-9999.0	10.0
10.50	3.20	13.6	0.47	3.5	0.632	0.000	8.7	10.9	1.037	-9999.0	-9999.0	9.8
10.66	3.25	11.1	0.29	2.6	0.642	0.000	5.3	6.6	0.838	-9999.0	-9999.0	6.9
10.83	3.30	12.2	0.40	3.3	0.651	0.000	7.8	9.7	0.927	-9999.0	-9999.0	7.8
10.99	3.35	13.3	0.35	2.6	0.660	0.000	6.4	7.8	1.011	-9999.0	-9999.0	8.8
11.15	3.40	9.6	0.31	3.2	0.670	0.000	6.1	7.5	0.714	-9999.0	-9999.0	5.0
11.32	3.45	8.2	0.23	2.8	0.679	0.000	5.2	6.4	0.603	-9999.0	-9999.0	3.8
11.48	3.50	7.8	0.17	2.2	0.689	0.000	5.0	6.0	0.567	-9999.0	-9999.0	3.4
11.65	3.55	8.1	0.14	1.7	0.698	0.000	3.9	4.6	0.593	-9999.0	-9999.0	3.6
11.81	3.60	12.0	0.24	2.0	0.707	0.000	5.8	6.9	0.906	-9999.0	-9999.0	6.7
11.97	3.65	12.8	0.30	2.3	0.717	0.000	6.1	7.2	0.967	-9999.0	-9999.0	7.2
12.14	3.70	10.4	0.20	1.9	0.726	0.000	5.0	5.9	0.777	-9999.0	-9999.0	5.0
12.30	3.75	9.9	0.33	3.4	0.736	0.000	6.3	7.3	0.729	-9999.0	-9999.0	4.5
12.47	3.80	15.0	0.27	1.8	0.745	0.000	7.2	8.3	1.141	-9999.0	-9999.0	8.8
12.63	3.85	13.0	0.32	2.5	0.754	0.000	6.2	7.2	0.981	-9999.0	-9999.0	6.8
12.80	3.90	31.9	0.43	1.3	0.764	0.000	10.2	11.7	-104.410	37.8	38.0	-9999.0
12.96	3.95	29.1	0.36	1.2	0.774	0.000	9.3	10.6	-104.410	35.0	38.0	-9999.0
13.12	4.00	39.4	0.31	0.8	0.783	0.000	12.6	14.2	-104.410	43.5	38.0	-9999.0
13.29	4.05	47.5	0.30	0.6	0.793	0.000	11.4	12.8	-104.410	48.6	40.0	-9999.0
13.45	4.10	52.9	0.26	0.5	0.803	0.000	12.7	14.1	-104.410	51.5	40.0	-9999.0
13.62	4.15	52.4	0.29	0.6	0.813	0.000	12.5	13.9	-104.410	51.1	40.0	-9999.0
13.78	4.20	38.0	0.49	1.3	0.823	0.000	12.1	13.4	-104.410	41.7	38.0	-9999.0
13.94	4.25	22.8	0.58	2.5	0.832	0.000	10.9	12.0	1.759	-9999.0	-9999.0	10.0
14.11	4.30	12.4	0.42	3.4	0.842	0.000	7.9	8.6	0.925	-9999.0	-9999.0	5.3
14.27	4.35	10.6	0.23	2.2	0.851	0.000	5.1	5.5	0.782	-9999.0	-9999.0	4.0
14.44	4.40	27.6	0.37	1.3	0.860	0.000	10.6	11.4	2.137	31.9	36.0	10.0
14.60	4.45	21.6	0.43	2.0	0.870	0.000	8.3	8.9	1.660	30.0	34.0	10.0
14.76	4.50	12.9	0.37	2.9	0.879	0.000	6.2	6.6	0.964	-9999.0	-9999.0	5.2
14.93	4.55	12.5	0.24	1.9	0.889	0.000	6.0	6.3	0.928	-9999.0	-9999.0	4.9
15.09	4.60	12.4	0.14	1.1	0.898	0.000	4.7	5.0	0.917	30.0	30.0	4.7
15.26	4.65	11.3	0.11	1.0	0.907	0.000	4.3	4.5	0.830	30.0	30.0	4.0
15.42	4.70	10.8	0.08	0.7	0.917	0.000	4.1	4.3	0.789	30.0	30.0	3.6
15.58	4.75	12.0	0.20	1.7	0.926	0.000	5.7	6.0	0.885	-9999.0	-9999.0	4.3
15.75	4.80	19.4	0.23	1.2	0.936	0.000	7.4	7.7	1.475	30.0	32.0	9.2
15.91	4.85	21.9	0.26	1.2	0.945	0.000	8.4	8.6	1.678	30.0	34.0	10.0
16.08	4.90	32.0	0.34	1.1	0.955	0.000	10.2	10.4	-104.410	34.6	36.0	-9999.0
16.24	4.95	32.4	0.34	1.1	0.964	0.000	10.4	10.5	-104.410	34.9	36.0	-9999.0
16.40	5.00	38.1	0.26	0.7	0.974	0.000	12.2	12.3	-104.410	39.4	38.0	-9999.0
16.57	5.05	49.0	0.20	0.4	0.984	0.000	11.7	11.8	-104.410	46.5	38.0	-9999.0
16.73	5.10	55.0	0.20	0.4	0.994	0.000	13.2	13.2	-104.410	49.6	40.0	-9999.0
16.90	5.15	53.4	0.28	0.5	1.003	0.000	12.8	12.8	-104.410	48.6	38.0	-9999.0
17.06	5.20	47.9	0.59	1.2	1.013	0.000	15.3	15.2	-104.410	45.4	38.0	-9999.0
17.22	5.25	28.6	0.68	2.4	1.023	0.000	11.0	10.8	2.205	30.4	36.0	10.0
17.39	5.30	16.6	0.54	3.3	1.032	0.000	7.9	7.8	1.243	-9999.0	-9999.0	6.0
17.55	5.35	12.4	0.31	2.5	1.042	0.000	5.9	5.8	0.905	-9999.0	-9999.0	3.7
17.72	5.40	11.5	0.19	1.7	1.051	0.000	5.5	5.4	0.838	-9999.0	-9999.0	3.3
17.88	5.45	14.3	0.19	1.3	1.060	0.000	5.5	5.3	1.059	30.0	30.0	4.5
18.04	5.50	14.4	0.14	1.0	1.070	0.000	5.5	5.3	1.064	30.0	30.0	4.5

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	13.6	0.15	1.1	1.079	0.000	5.2	5.0	1.002	30.0	30.0	4.1
18.37	5.60	12.1	0.15	1.2	1.089	0.000	4.6	4.5	0.883	30.0	30.0	3.3
18.54	5.65	12.5	0.28	2.3	1.098	0.000	6.0	5.7	0.909	-9999.0	-9999.0	3.4
18.70	5.70	19.5	0.19	1.0	1.107	0.000	7.5	7.1	1.471	30.0	32.0	7.0
18.86	5.75	38.7	0.42	1.1	1.117	0.000	12.4	11.7	-104.410	37.9	36.0	-9999.0
19.03	5.80	32.9	0.42	1.3	1.127	0.000	10.5	9.9	-104.410	33.1	36.0	-9999.0
19.19	5.85	42.9	0.39	0.9	1.136	0.000	13.7	12.9	-104.410	40.6	38.0	-9999.0
19.36	5.90	55.7	0.35	0.6	1.146	0.000	13.3	12.5	-104.410	47.9	38.0	-9999.0
19.52	5.95	58.1	0.34	0.6	1.156	0.000	13.9	12.9	-104.410	49.0	38.0	-9999.0
19.68	6.00	52.4	0.49	0.9	1.166	0.000	16.7	15.5	-104.410	45.9	38.0	-9999.0
19.85	6.05	44.0	0.74	1.7	1.175	0.000	14.0	12.9	-104.410	40.8	38.0	-9999.0
20.01	6.10	32.4	0.76	2.4	1.185	0.000	12.4	11.4	2.494	31.9	34.0	10.0
20.18	6.15	84.6	0.96	1.1	1.195	0.000	20.3	18.5	-104.410	59.3	40.0	-9999.0
20.34	6.20	96.5	1.54	1.6	1.204	0.000	30.8	28.1	-104.410	63.0	42.0	-9999.0
20.50	6.25	64.6	1.63	2.5	1.214	0.000	24.8	22.5	5.073	51.4	38.0	10.0
20.67	6.30	59.3	1.53	2.6	1.223	0.000	22.7	20.5	4.648	48.8	38.0	10.0
20.83	6.35	58.6	1.15	2.0	1.233	0.000	18.7	16.8	-104.410	48.3	38.0	-9999.0
21.00	6.40	55.4	1.22	2.2	1.242	0.000	21.2	19.1	4.335	46.6	38.0	10.0
21.16	6.45	51.6	1.25	2.4	1.247	0.005	19.8	17.7	4.028	44.5	38.0	10.0
21.33	6.50	43.0	1.26	2.9	1.251	0.010	16.5	14.7	3.342	39.3	36.0	10.0
21.49	6.55	39.3	1.11	2.8	1.255	0.015	15.1	13.4	3.044	36.6	36.0	10.0
21.65	6.60	36.8	0.99	2.7	1.260	0.020	14.1	12.6	2.844	34.7	36.0	10.0
21.82	6.65	34.7	0.98	2.8	1.264	0.026	13.3	11.8	2.669	32.9	36.0	10.0
21.98	6.70	30.2	0.89	2.9	1.268	0.031	14.5	12.9	2.316	-9999.0	-9999.0	10.0
22.15	6.75	27.6	0.74	2.7	1.272	0.036	13.2	11.7	2.101	-9999.0	-9999.0	9.9
22.31	6.80	31.7	0.67	2.1	1.277	0.041	12.2	10.8	2.433	30.3	34.0	10.0
22.47	6.85	32.0	0.68	2.1	1.281	0.046	12.2	10.8	2.452	30.4	34.0	10.0
22.64	6.90	32.3	0.70	2.2	1.285	0.051	12.4	10.9	2.476	30.7	34.0	10.0
22.80	6.95	30.9	0.66	2.1	1.289	0.056	11.8	10.4	2.363	30.0	34.0	10.0
22.97	7.00	29.4	0.72	2.5	1.294	0.061	11.2	9.9	2.240	30.0	34.0	10.0
23.13	7.05	27.9	0.70	2.5	1.298	0.066	10.7	9.4	2.121	30.0	34.0	9.8
23.29	7.10	30.9	0.57	1.9	1.302	0.072	11.8	10.4	2.360	30.0	34.0	10.0
23.46	7.15	35.5	0.44	1.2	1.307	0.077	11.3	9.9	-104.410	33.1	34.0	-9999.0
23.62	7.20	42.0	0.34	0.8	1.311	0.082	13.4	11.7	-104.410	37.9	36.0	-9999.0
23.79	7.25	51.0	0.25	0.5	1.316	0.087	12.2	10.6	-104.410	43.4	38.0	-9999.0
23.95	7.30	57.6	0.23	0.4	1.321	0.092	13.8	12.0	-104.410	46.8	38.0	-9999.0
24.11	7.35	63.6	0.30	0.5	1.325	0.097	15.2	13.2	-104.410	49.6	38.0	-9999.0
24.28	7.40	65.0	0.30	0.5	1.330	0.102	15.6	13.5	-104.410	50.2	38.0	-9999.0
24.44	7.45	60.7	0.32	0.5	1.335	0.107	14.5	12.6	-104.410	48.2	38.0	-9999.0
24.61	7.50	58.7	0.31	0.5	1.340	0.113	14.1	12.1	-104.410	47.2	38.0	-9999.0
24.77	7.55	57.8	0.32	0.6	1.345	0.118	13.8	11.9	-104.410	46.7	38.0	-9999.0
24.93	7.60	59.1	0.33	0.6	1.349	0.123	14.2	12.2	-104.410	47.3	38.0	-9999.0
25.10	7.65	61.2	0.34	0.6	1.354	0.128	14.7	12.6	-104.410	48.2	38.0	-9999.0
25.26	7.70	63.3	0.28	0.4	1.359	0.133	15.2	13.0	-104.410	49.2	38.0	-9999.0
25.43	7.75	66.9	0.33	0.5	1.364	0.138	16.0	13.7	-104.410	50.7	38.0	-9999.0
25.59	7.80	80.8	0.51	0.6	1.369	0.143	19.3	16.5	-104.410	56.0	40.0	-9999.0
25.75	7.85	107.0	0.92	0.9	1.373	0.148	25.6	21.9	-104.410	64.1	40.0	-9999.0
25.92	7.90	142.6	1.23	0.9	1.378	0.154	27.3	23.3	-104.410	72.2	42.0	-9999.0
26.08	7.95	158.8	1.41	0.9	1.383	0.159	30.4	25.9	-104.410	75.3	42.0	-9999.0
26.25	8.00	147.8	2.19	1.5	1.388	0.164	35.4	30.0	-104.410	73.1	42.0	-9999.0
26.41	8.05	126.8	2.66	2.1	1.393	0.169	40.5	34.3	-104.410	68.7	42.0	-9999.0
26.57	8.10	98.7	2.81	2.8	1.397	0.174	37.8	32.0	7.773	61.5	40.0	10.0
26.74	8.15	84.9	2.79	3.3	1.402	0.179	32.5	27.5	6.668	57.1	40.0	10.0
26.90	8.20	95.2	3.15	3.3	1.406	0.184	36.5	30.8	7.490	60.4	40.0	10.0
27.07	8.25	116.6	3.50	3.0	1.410	0.189	44.7	37.6	9.197	66.1	42.0	10.0
27.23	8.30	197.9	4.28	2.2	1.415	0.195	63.2	53.1	-104.410	81.2	44.0	-9999.0
27.39	8.35	347.3	5.00	1.4	1.420	0.200	66.5	55.8	-104.410	95.0	46.0	-9999.0
27.56	8.40	472.0	5.00	1.1	1.425	0.205	90.4	75.7	-104.410	95.0	48.0	-9999.0
27.72	8.45	530.0	5.00	0.9	1.430	0.210	84.6	70.8	-104.410	95.0	48.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1752-4921
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-03
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/17/08
CPT Time: 10:48
CPT File: 390CP03.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 9.75 (ft): 32.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	14.8	0.03	0.2	0.009	0.000	5.7	11.3	1.180	78.7	50.0	10.0
0.33	0.10	61.8	0.05	0.1	0.019	0.000	14.8	29.6	-104.410	95.0	50.0	-9999.0
0.49	0.15	63.4	0.13	0.2	0.029	0.000	15.2	30.4	-104.410	95.0	50.0	-9999.0
0.66	0.20	76.3	0.18	0.2	0.039	0.000	18.3	36.6	-104.410	95.0	50.0	-9999.0
0.82	0.25	85.4	0.31	0.4	0.049	0.000	16.3	32.7	-104.410	95.0	50.0	-9999.0
0.98	0.30	87.3	0.45	0.5	0.059	0.000	20.9	41.8	-104.410	95.0	50.0	-9999.0
1.15	0.35	86.2	0.46	0.5	0.069	0.000	20.6	41.3	-104.410	95.0	50.0	-9999.0
1.31	0.40	74.2	0.48	0.6	0.079	0.000	17.8	35.5	-104.410	94.5	50.0	-9999.0
1.48	0.45	64.2	0.59	0.9	0.089	0.000	15.4	30.7	-104.410	88.7	50.0	-9999.0
1.64	0.50	48.2	0.75	1.6	0.099	0.000	15.4	30.8	-104.410	78.9	48.0	-9999.0
1.80	0.55	37.1	0.87	2.4	0.108	0.000	14.2	28.4	2.956	70.1	48.0	10.0
1.97	0.60	34.8	0.93	2.7	0.117	0.000	13.3	26.7	2.776	67.1	46.0	10.0
2.13	0.65	34.2	0.89	2.6	0.127	0.000	13.1	26.2	2.724	65.5	46.0	10.0
2.30	0.70	29.3	0.75	2.6	0.136	0.000	11.2	22.4	2.330	60.0	46.0	10.0
2.46	0.75	26.3	0.59	2.3	0.146	0.000	10.1	20.1	2.090	55.9	44.0	10.0
2.62	0.80	23.1	0.50	2.2	0.155	0.000	8.8	17.7	1.833	51.3	44.0	10.0
2.79	0.85	22.8	0.44	1.9	0.164	0.000	8.7	17.5	1.811	50.2	44.0	10.0
2.95	0.90	26.3	0.43	1.6	0.174	0.000	10.1	20.2	2.091	53.5	44.0	10.0
3.12	0.95	36.2	0.42	1.2	0.183	0.000	11.6	23.1	-104.410	61.8	46.0	-9999.0
3.28	1.00	42.8	0.58	1.4	0.193	0.000	13.7	27.4	-104.410	65.9	46.0	-9999.0
3.44	1.05	46.4	0.69	1.5	0.203	0.000	14.8	29.6	-104.410	67.5	46.0	-9999.0
3.61	1.10	45.3	0.79	1.7	0.212	0.000	14.5	28.9	-104.410	66.2	46.0	-9999.0
3.77	1.15	38.1	0.66	1.7	0.222	0.000	14.6	29.2	3.031	60.6	44.0	10.0
3.94	1.20	34.9	0.63	1.8	0.231	0.000	13.4	26.7	2.770	57.4	44.0	10.0
4.10	1.25	51.9	0.79	1.5	0.241	0.000	16.6	33.1	-104.410	68.3	46.0	-9999.0
4.27	1.30	104.2	0.91	0.9	0.251	0.000	25.0	49.9	-104.410	87.7	48.0	-9999.0
4.43	1.35	90.6	1.00	1.1	0.261	0.000	21.7	42.5	-104.410	83.1	48.0	-9999.0
4.59	1.40	53.0	1.14	2.2	0.270	0.000	20.3	39.1	4.218	67.2	44.0	10.0
4.76	1.45	35.8	1.48	4.1	0.280	0.000	22.9	43.2	2.843	-9999.0	-9999.0	10.0
4.92	1.50	34.3	1.42	4.2	0.289	0.000	21.9	40.7	2.719	-9999.0	-9999.0	10.0
5.09	1.55	43.7	1.48	3.4	0.298	0.000	20.9	38.3	3.475	-9999.0	-9999.0	10.0
5.25	1.60	102.8	2.00	1.9	0.308	0.000	32.8	59.2	-104.410	84.3	48.0	-9999.0
5.41	1.65	135.9	2.28	1.7	0.318	0.000	32.5	57.7	-104.410	91.9	48.0	-9999.0
5.58	1.70	156.3	2.84	1.8	0.328	0.000	37.4	65.4	-104.410	95.0	48.0	-9999.0
5.74	1.75	177.2	2.73	1.5	0.338	0.000	42.4	73.0	-104.410	95.0	48.0	-9999.0
5.91	1.80	181.6	2.85	1.6	0.347	0.000	43.5	73.8	-104.410	95.0	48.0	-9999.0
6.07	1.85	199.9	2.64	1.3	0.357	0.000	47.9	80.1	-104.410	95.0	50.0	-9999.0
6.23	1.90	192.8	2.51	1.3	0.367	0.000	46.1	76.2	-104.410	95.0	48.0	-9999.0
6.40	1.95	143.3	2.42	1.7	0.377	0.000	34.3	55.9	-104.410	90.9	48.0	-9999.0
6.56	2.00	108.5	2.46	2.3	0.387	0.000	34.6	55.7	-104.410	82.6	46.0	-9999.0
6.73	2.05	86.1	2.41	2.8	0.397	0.000	33.0	52.4	6.854	75.6	46.0	10.0
6.89	2.10	81.3	2.02	2.5	0.406	0.000	26.0	40.7	-104.410	73.7	46.0	-9999.0
7.05	2.15	90.3	1.70	1.9	0.416	0.000	28.8	44.7	-104.410	76.3	46.0	-9999.0
7.22	2.20	74.9	1.62	2.2	0.425	0.000	23.9	36.7	-104.410	70.6	44.0	-9999.0
7.38	2.25	50.8	1.65	3.3	0.435	0.000	19.5	29.5	4.029	59.2	42.0	10.0
7.55	2.30	44.1	1.58	3.6	0.444	0.000	21.1	31.7	3.491	-9999.0	-9999.0	10.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	50.7	1.55	3.1	0.454	0.000	19.4	28.8	4.017	58.5	42.0	10.0
7.87	2.40	70.9	1.34	1.9	0.463	0.000	22.6	33.3	-104.410	67.8	44.0	-9999.0
8.04	2.45	65.7	1.01	1.5	0.473	0.000	21.0	30.5	-104.410	65.4	44.0	-9999.0
8.20	2.50	56.5	0.82	1.5	0.483	0.000	18.0	26.0	-104.410	60.7	42.0	-9999.0
8.37	2.55	42.2	0.69	1.6	0.492	0.000	13.5	19.2	-104.410	52.1	42.0	-9999.0
8.53	2.60	27.8	0.62	2.2	0.502	0.000	10.7	15.1	2.188	39.9	40.0	10.0
8.69	2.65	44.1	0.52	1.2	0.511	0.000	14.1	19.7	-104.410	52.8	42.0	-9999.0
8.86	2.70	41.4	0.51	1.2	0.521	0.000	13.2	18.3	-104.410	50.7	42.0	-9999.0
9.02	2.75	40.1	0.70	1.8	0.530	0.000	15.3	21.1	3.162	49.5	40.0	10.0
9.19	2.80	39.5	0.44	1.1	0.540	0.000	12.6	17.2	-104.410	48.8	40.0	-9999.0
9.35	2.85	48.2	0.39	0.8	0.550	0.000	15.4	20.8	-104.410	54.3	42.0	-9999.0
9.51	2.90	52.4	0.20	0.4	0.559	0.000	12.6	16.8	-104.410	56.5	42.0	-9999.0
9.68	2.95	47.4	0.16	0.3	0.569	0.000	11.3	15.0	-104.410	53.3	42.0	-9999.0
9.84	3.00	39.8	0.18	0.5	0.579	0.000	12.7	16.7	-104.410	48.1	40.0	-9999.0
10.01	3.05	39.7	0.25	0.6	0.589	0.000	12.7	16.5	-104.410	47.7	40.0	-9999.0
10.17	3.10	37.0	0.45	1.2	0.598	0.000	11.8	15.3	-104.410	45.6	40.0	-9999.0
10.33	3.15	24.7	0.44	1.8	0.608	0.000	9.5	12.1	1.929	33.7	38.0	10.0
10.50	3.20	29.6	0.39	1.3	0.618	0.000	9.4	12.0	-104.410	38.7	38.0	-9999.0
10.66	3.25	39.0	0.29	0.7	0.627	0.000	12.4	15.7	-104.410	46.3	40.0	-9999.0
10.83	3.30	36.8	0.17	0.5	0.637	0.000	11.7	14.7	-104.410	44.5	40.0	-9999.0
10.99	3.35	37.5	0.17	0.5	0.646	0.000	12.0	14.9	-104.410	44.8	40.0	-9999.0
11.15	3.40	41.5	0.21	0.5	0.656	0.000	9.9	12.3	-104.410	47.5	40.0	-9999.0
11.32	3.45	51.2	0.24	0.5	0.666	0.000	12.3	15.0	-104.410	53.3	40.0	-9999.0
11.48	3.50	63.7	0.26	0.4	0.676	0.000	15.2	18.5	-104.410	59.3	42.0	-9999.0
11.65	3.55	67.8	0.30	0.4	0.686	0.000	16.2	19.6	-104.410	60.9	42.0	-9999.0
11.81	3.60	66.7	0.33	0.5	0.696	0.000	16.0	19.1	-104.410	60.2	42.0	-9999.0
11.97	3.65	65.2	0.25	0.4	0.706	0.000	15.6	18.6	-104.410	59.4	42.0	-9999.0
12.14	3.70	65.7	0.26	0.4	0.716	0.000	15.7	18.6	-104.410	59.4	42.0	-9999.0
12.30	3.75	59.2	0.26	0.4	0.726	0.000	14.2	16.6	-104.410	56.2	42.0	-9999.0
12.47	3.80	52.2	0.25	0.5	0.736	0.000	12.5	14.6	-104.410	52.4	40.0	-9999.0
12.63	3.85	40.4	0.28	0.7	0.745	0.000	12.9	15.0	-104.410	44.9	40.0	-9999.0
12.80	3.90	27.7	0.25	0.9	0.755	0.000	8.8	10.2	-104.410	33.8	38.0	-9999.0
12.96	3.95	25.9	0.20	0.8	0.765	0.000	8.3	9.4	-104.410	31.7	36.0	-9999.0
13.12	4.00	31.8	0.15	0.5	0.774	0.000	10.2	11.5	-104.410	37.5	38.0	-9999.0
13.29	4.05	35.0	0.14	0.4	0.784	0.000	11.2	12.6	-104.410	40.1	38.0	-9999.0
13.45	4.10	34.8	0.13	0.4	0.794	0.000	11.1	12.5	-104.410	39.7	38.0	-9999.0
13.62	4.15	31.1	0.13	0.4	0.803	0.000	9.9	11.1	-104.410	36.3	38.0	-9999.0
13.78	4.20	30.9	0.25	0.8	0.813	0.000	9.9	10.9	-104.410	36.0	38.0	-9999.0
13.94	4.25	24.7	0.39	1.6	0.823	0.000	9.5	10.4	1.912	30.0	36.0	10.0
14.11	4.30	18.8	0.35	1.9	0.832	0.000	7.2	7.9	1.441	30.0	34.0	10.0
14.27	4.35	20.0	0.35	1.8	0.841	0.000	7.7	8.4	1.532	30.0	34.0	10.0
14.44	4.40	20.9	0.33	1.6	0.851	0.000	8.0	8.7	1.608	30.0	34.0	10.0
14.60	4.45	17.8	0.24	1.4	0.860	0.000	6.8	7.4	1.357	30.0	32.0	9.2
14.76	4.50	22.4	0.23	1.0	0.870	0.000	8.6	9.2	1.719	30.0	34.0	10.0
14.93	4.55	31.9	0.13	0.4	0.879	0.000	10.2	10.9	-104.410	35.8	38.0	-9999.0
15.09	4.60	32.8	0.06	0.2	0.889	0.000	10.5	11.1	-104.410	36.4	38.0	-9999.0
15.26	4.65	28.9	0.08	0.3	0.898	0.000	9.2	9.7	-104.410	32.6	36.0	-9999.0
15.42	4.70	25.4	0.18	0.7	0.908	0.000	8.1	8.5	-104.410	30.0	36.0	-9999.0
15.58	4.75	23.6	0.37	1.6	0.918	0.000	9.1	9.5	1.818	30.0	34.0	10.0
15.75	4.80	16.9	0.34	2.0	0.927	0.000	8.1	8.4	1.275	-9999.0	-9999.0	7.4
15.91	4.85	11.4	0.26	2.3	0.936	0.000	5.4	5.6	0.835	-9999.0	-9999.0	3.8
16.08	4.90	18.8	0.15	0.8	0.946	0.000	7.2	7.4	1.427	30.0	32.0	8.6
16.24	4.95	29.4	0.11	0.4	0.955	0.000	9.4	9.6	-104.410	32.2	36.0	-9999.0
16.40	5.00	34.3	0.12	0.4	0.965	0.000	10.9	11.1	-104.410	36.5	36.0	-9999.0
16.57	5.05	42.2	0.17	0.4	0.975	0.000	10.1	10.2	-104.410	42.3	38.0	-9999.0
16.73	5.10	50.4	0.18	0.4	0.985	0.000	12.1	12.2	-104.410	47.2	38.0	-9999.0
16.90	5.15	49.8	0.19	0.4	0.995	0.000	11.9	12.0	-104.410	46.8	38.0	-9999.0
17.06	5.20	46.3	0.27	0.6	1.005	0.000	11.1	11.1	-104.410	44.5	38.0	-9999.0
17.22	5.25	46.2	0.23	0.5	1.014	0.000	11.1	11.0	-104.410	44.3	38.0	-9999.0
17.39	5.30	50.0	0.24	0.5	1.024	0.000	12.0	11.8	-104.410	46.5	38.0	-9999.0
17.55	5.35	50.4	0.26	0.5	1.034	0.000	12.1	11.9	-104.410	46.5	38.0	-9999.0
17.72	5.40	44.6	0.25	0.6	1.044	0.000	10.7	10.5	-104.410	42.9	38.0	-9999.0
17.88	5.45	41.0	0.23	0.6	1.054	0.000	13.1	12.8	-104.410	40.4	38.0	-9999.0
18.04	5.50	44.2	0.27	0.6	1.064	0.000	10.6	10.3	-104.410	42.4	38.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	38.2	0.37	1.0	1.074	0.000	12.2	11.8	-104.410	38.1	36.0	-9999.0
18.37	5.60	25.5	0.45	1.8	1.083	0.000	9.8	9.4	1.954	30.0	34.0	10.0
18.54	5.65	21.1	0.33	1.6	1.092	0.000	8.1	7.7	1.600	30.0	32.0	8.2
18.70	5.70	19.2	0.50	2.6	1.102	0.000	9.2	8.7	1.446	-9999.0	-9999.0	6.9
18.86	5.75	18.8	0.40	2.1	1.111	0.000	7.2	6.8	1.415	30.0	32.0	6.6
19.03	5.80	22.9	0.26	1.1	1.121	0.000	8.8	8.3	1.746	30.0	32.0	9.1
19.19	5.85	41.8	0.26	0.6	1.130	0.000	13.3	12.6	-104.410	39.9	38.0	-9999.0
19.36	5.90	57.3	0.21	0.4	1.140	0.000	13.7	12.8	-104.410	48.8	38.0	-9999.0
19.52	5.95	62.6	0.24	0.4	1.150	0.000	15.0	14.0	-104.410	51.2	40.0	-9999.0
19.68	6.00	57.5	0.38	0.7	1.160	0.000	13.8	12.8	-104.410	48.7	38.0	-9999.0
19.85	6.05	43.1	0.62	1.4	1.170	0.000	13.7	12.7	-104.410	40.3	38.0	-9999.0
20.01	6.10	25.2	0.46	1.8	1.179	0.000	9.7	8.9	1.925	30.0	34.0	9.8
20.18	6.15	16.9	0.42	2.5	1.189	0.000	8.1	7.4	1.260	-9999.0	-9999.0	5.0
20.34	6.20	22.5	0.47	2.1	1.198	0.000	8.6	7.9	1.704	30.0	32.0	7.8
20.50	6.25	18.5	0.33	1.8	1.207	0.000	7.1	6.5	1.386	30.0	32.0	5.6
20.67	6.30	15.0	0.35	2.3	1.217	0.000	7.2	6.5	1.105	-9999.0	-9999.0	3.9
20.83	6.35	18.7	0.23	1.2	1.226	0.000	7.2	6.5	1.400	30.0	32.0	5.6
21.00	6.40	15.5	0.07	0.5	1.236	0.000	6.0	5.4	1.144	30.0	30.0	4.1
21.16	6.45	14.0	0.10	0.7	1.245	0.000	5.4	4.8	1.021	30.0	30.0	3.4
21.33	6.50	45.3	0.26	0.6	1.255	0.000	10.8	9.7	-104.410	40.7	38.0	-9999.0
21.49	6.55	56.1	0.37	0.7	1.265	0.000	13.4	11.9	-104.410	46.7	38.0	-9999.0
21.65	6.60	46.2	0.46	1.0	1.274	0.000	14.7	13.1	-104.410	41.0	38.0	-9999.0
21.82	6.65	41.5	0.49	1.2	1.284	0.000	13.2	11.7	-104.410	37.9	36.0	-9999.0
21.98	6.70	33.8	0.60	1.8	1.294	0.000	12.9	11.4	2.598	31.8	34.0	10.0
22.15	6.75	37.4	1.11	3.0	1.303	0.000	14.3	12.6	2.888	34.7	36.0	10.0
22.31	6.80	48.3	1.87	3.9	1.312	0.000	23.1	20.2	3.756	-9999.0	-9999.0	10.0
22.47	6.85	63.5	2.16	3.4	1.322	0.000	24.3	21.2	4.972	49.6	38.0	10.0
22.64	6.90	83.4	2.24	2.7	1.331	0.000	31.9	27.7	6.562	57.3	40.0	10.0
22.80	6.95	102.6	1.74	1.7	1.341	0.000	32.7	28.3	-104.410	63.2	40.0	-9999.0
22.97	7.00	120.3	1.10	0.9	1.350	0.000	28.8	24.8	-104.410	67.6	42.0	-9999.0
23.13	7.05	135.3	2.03	1.5	1.360	0.000	32.4	27.8	-104.410	70.9	42.0	-9999.0
23.29	7.10	197.1	1.53	0.8	1.370	0.000	37.8	32.3	-104.410	81.6	44.0	-9999.0
23.46	7.15	100.1	1.04	1.0	1.380	0.000	24.0	20.4	-104.410	62.1	40.0	-9999.0
23.62	7.20	75.7	0.86	1.1	1.390	0.000	18.1	15.4	-104.410	53.9	40.0	-9999.0
23.79	7.25	53.8	1.06	2.0	1.400	0.000	17.2	14.5	-104.410	44.0	38.0	-9999.0
23.95	7.30	34.0	0.92	2.7	1.410	0.000	13.0	11.0	2.609	30.8	34.0	10.0
24.11	7.35	15.1	0.67	4.5	1.419	0.000	14.4	12.1	1.091	-9999.0	-9999.0	3.1
24.28	7.40	8.8	0.41	4.7	1.428	0.000	8.4	7.0	0.589	-9999.0	-9999.0	1.4
24.44	7.45	7.5	0.29	3.9	1.437	0.000	7.2	6.0	0.486	-9999.0	-9999.0	1.1
24.61	7.50	7.8	0.25	3.2	1.446	0.000	7.4	6.2	0.506	-9999.0	-9999.0	1.2
24.77	7.55	8.4	0.26	3.1	1.456	0.000	5.4	4.4	0.556	-9999.0	-9999.0	1.3
24.93	7.60	9.8	0.31	3.2	1.465	0.000	6.3	5.2	0.668	-9999.0	-9999.0	1.6
25.10	7.65	11.1	0.30	2.7	1.474	0.000	5.3	4.4	0.769	-9999.0	-9999.0	1.8
25.26	7.70	11.3	0.33	2.9	1.484	0.000	7.2	5.9	0.784	-9999.0	-9999.0	1.9
25.43	7.75	11.4	0.34	3.0	1.493	0.000	7.3	6.0	0.793	-9999.0	-9999.0	1.9
25.59	7.80	10.6	0.27	2.5	1.503	0.000	5.1	4.2	0.731	-9999.0	-9999.0	1.7
25.75	7.85	11.8	0.25	2.1	1.512	0.000	5.6	4.6	0.822	-9999.0	-9999.0	1.9
25.92	7.90	11.8	0.17	1.4	1.521	0.000	5.6	4.6	0.822	-9999.0	-9999.0	1.9
26.08	7.95	11.7	0.15	1.3	1.531	0.000	5.6	4.5	0.815	-9999.0	-9999.0	1.9
26.25	8.00	15.0	0.09	0.6	1.540	0.000	5.8	4.6	1.081	30.0	30.0	2.7
26.41	8.05	23.0	0.10	0.4	1.550	0.000	7.3	5.9	-104.410	30.0	32.0	-9999.0
26.57	8.10	28.1	0.10	0.4	1.559	0.000	9.0	7.2	-104.410	30.0	32.0	-9999.0
26.74	8.15	35.9	0.15	0.4	1.569	0.000	11.5	9.2	-104.410	30.9	34.0	-9999.0
26.90	8.20	47.0	0.19	0.4	1.579	0.000	11.2	9.0	-104.410	38.5	36.0	-9999.0
27.07	8.25	60.0	0.27	0.5	1.589	0.000	14.4	11.4	-104.410	45.4	38.0	-9999.0
27.23	8.30	71.8	0.38	0.5	1.599	0.000	17.2	13.6	-104.410	50.4	38.0	-9999.0
27.39	8.35	81.4	0.48	0.6	1.609	0.000	19.5	15.4	-104.410	53.9	38.0	-9999.0
27.56	8.40	89.1	0.60	0.7	1.619	0.000	21.3	16.8	-104.410	56.4	40.0	-9999.0
27.72	8.45	95.4	0.70	0.7	1.628	0.000	22.8	17.9	-104.410	58.3	40.0	-9999.0
27.89	8.50	99.8	0.80	0.8	1.638	0.000	23.9	18.7	-104.410	59.5	40.0	-9999.0
28.05	8.55	105.2	0.89	0.8	1.648	0.000	25.2	19.6	-104.410	60.9	40.0	-9999.0
28.21	8.60	109.8	0.96	0.9	1.658	0.000	26.3	20.4	-104.410	62.1	40.0	-9999.0
28.38	8.65	114.6	0.90	0.8	1.668	0.000	22.0	17.0	-104.410	63.2	40.0	-9999.0
28.54	8.70	117.1	0.93	0.8	1.678	0.000	22.4	17.3	-104.410	63.7	40.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
28.71	8.75	116.0	0.97	0.8	1.689	0.000	22.2	17.1	-104.410	63.4	40.0	-9999.0
28.87	8.80	120.1	1.03	0.9	1.699	0.000	23.0	17.6	-104.410	64.3	40.0	-9999.0
29.04	8.85	122.8	1.14	0.9	1.709	0.000	29.4	22.5	-104.410	64.9	40.0	-9999.0
29.20	8.90	121.7	1.20	1.0	1.719	0.000	29.1	22.2	-104.410	64.5	40.0	-9999.0
29.36	8.95	120.6	1.19	1.0	1.729	0.000	28.9	22.0	-104.410	64.2	40.0	-9999.0
29.53	9.00	117.2	1.18	1.0	1.739	0.000	28.1	21.3	-104.410	63.3	40.0	-9999.0
29.69	9.05	109.7	1.10	1.0	1.749	0.000	26.3	19.9	-104.410	61.3	40.0	-9999.0
29.86	9.10	102.9	1.04	1.0	1.758	0.000	24.6	18.6	-104.410	59.4	40.0	-9999.0
30.02	9.15	99.0	0.95	1.0	1.768	0.000	23.7	17.8	-104.410	58.2	40.0	-9999.0
30.18	9.20	96.5	0.95	1.0	1.778	0.000	23.1	17.3	-104.410	57.4	40.0	-9999.0
30.35	9.25	92.3	0.94	1.0	1.788	0.000	22.1	16.5	-104.410	56.0	38.0	-9999.0
30.51	9.30	86.2	0.92	1.1	1.798	0.000	20.6	15.4	-104.410	54.0	38.0	-9999.0
30.68	9.35	85.9	0.87	1.0	1.808	0.000	20.6	15.3	-104.410	53.8	38.0	-9999.0
30.84	9.40	86.1	0.88	1.0	1.818	0.000	20.6	15.3	-104.410	53.8	38.0	-9999.0
31.00	9.45	83.1	0.86	1.0	1.828	0.000	19.9	14.7	-104.410	52.7	38.0	-9999.0
31.17	9.50	80.0	0.82	1.0	1.838	0.000	19.2	14.1	-104.410	51.5	38.0	-9999.0
31.33	9.55	79.3	0.93	1.2	1.848	0.000	19.0	14.0	-104.410	51.2	38.0	-9999.0
31.50	9.60	82.0	1.09	1.3	1.858	0.000	19.6	14.4	-104.410	52.1	38.0	-9999.0
31.66	9.65	92.8	0.95	1.0	1.868	0.000	22.2	16.3	-104.410	55.6	38.0	-9999.0
31.82	9.70	109.7	1.34	1.2	1.877	0.000	26.3	19.2	-104.410	60.3	40.0	-9999.0
31.99	9.75	121.6	2.58	2.1	1.887	0.000	38.8	28.3	-104.410	63.2	40.0	-9999.0
32.15	9.80	102.2	2.67	2.6	1.892	0.005	32.6	23.7	-104.410	58.1	40.0	-9999.0
32.32	9.85	150.8	3.08	2.0	1.897	0.010	48.2	35.0	-104.410	69.3	42.0	-9999.0
32.48	9.90	202.2	2.93	1.4	1.901	0.015	48.4	35.1	-104.410	77.6	42.0	-9999.0
32.64	9.95	220.7	3.51	1.6	1.906	0.020	52.9	38.3	-104.410	80.1	42.0	-9999.0
32.81	10.00	239.0	4.00	1.7	1.911	0.025	57.2	41.4	-104.410	82.3	42.0	-9999.0
32.97	10.05	191.5	4.18	2.2	1.916	0.030	61.1	44.2	-104.410	76.0	42.0	-9999.0
33.14	10.10	100.3	3.64	3.6	1.920	0.035	38.4	27.7	7.864	57.4	38.0	10.0
33.30	10.15	66.5	3.00	4.5	1.924	0.041	31.8	22.9	5.160	-9999.0	-9999.0	10.0
33.46	10.20	58.5	2.56	4.4	1.929	0.046	28.0	20.2	4.525	-9999.0	-9999.0	10.0
33.63	10.25	64.9	2.65	4.1	1.933	0.051	31.1	22.3	5.031	-9999.0	-9999.0	10.0
33.79	10.30	69.1	2.87	4.1	1.937	0.056	33.1	23.8	5.368	-9999.0	-9999.0	10.0
33.96	10.35	67.6	3.07	4.5	1.941	0.061	32.4	23.2	5.250	-9999.0	-9999.0	10.0
34.12	10.40	67.8	3.29	4.9	1.946	0.066	64.9	46.5	-104.410	46.0	36.0	-9999.0
34.28	10.45	60.7	2.99	4.9	1.952	0.071	58.2	41.6	-104.410	42.8	36.0	-9999.0
34.45	10.50	68.2	3.27	4.8	1.958	0.076	65.3	46.7	-104.410	46.1	36.0	-9999.0
34.61	10.55	75.2	3.17	4.2	1.962	0.082	36.0	25.7	5.850	-9999.0	-9999.0	10.0
34.78	10.60	79.7	3.47	4.4	1.967	0.087	38.2	27.2	6.212	-9999.0	-9999.0	10.0
34.94	10.65	73.3	4.14	5.6	1.972	0.092	70.2	50.0	-104.410	48.0	38.0	-9999.0
35.10	10.70	65.7	4.27	6.5	1.977	0.097	62.9	44.8	-104.410	44.9	36.0	-9999.0
35.27	10.75	80.0	4.34	5.4	1.983	0.102	76.6	54.4	-104.410	50.4	38.0	-9999.0
35.43	10.80	111.3	4.22	3.8	1.988	0.107	42.6	30.2	8.734	59.9	40.0	10.0
35.60	10.85	114.8	4.41	3.8	1.992	0.112	44.0	31.2	9.015	60.7	40.0	10.0
35.76	10.90	130.0	5.13	3.9	1.997	0.117	124.5	88.1	-104.410	64.3	40.0	-9999.0
35.92	10.95	132.4	5.86	4.4	2.003	0.123	126.8	89.6	-104.410	64.7	40.0	-9999.0
36.09	11.00	105.9	5.47	5.2	2.008	0.128	101.4	71.6	-104.410	58.3	38.0	-9999.0
36.25	11.05	90.4	4.56	5.0	2.014	0.133	86.5	61.0	-104.410	53.7	38.0	-9999.0
36.42	11.10	74.5	3.62	4.9	2.019	0.138	71.3	50.2	-104.410	48.1	38.0	-9999.0
36.58	11.15	53.9	3.66	6.8	2.024	0.143	51.6	36.3	4.140	-9999.0	-9999.0	10.0
36.74	11.20	42.8	3.69	8.6	2.027	0.148	-9999.0	-9999.0	-104.410	-9999.0	-9999.0	-9999.0
36.91	11.25	91.7	4.28	4.7	2.031	0.153	87.9	61.7	-104.410	54.0	38.0	-9999.0
37.07	11.30	118.4	4.72	4.0	2.036	0.158	113.4	79.5	-104.410	61.3	40.0	-9999.0
37.24	11.35	148.4	5.79	3.9	2.041	0.164	71.1	49.8	-104.410	67.8	40.0	-9999.0
37.40	11.40	161.1	6.84	4.2	2.047	0.169	154.3	107.9	-104.410	70.1	40.0	-9999.0
37.57	11.45	145.1	7.76	5.3	2.052	0.174	139.0	97.0	-104.410	67.0	40.0	-9999.0
37.73	11.50	140.1	7.13	5.1	2.058	0.179	134.2	93.5	-104.410	66.0	40.0	-9999.0
37.89	11.55	126.4	6.56	5.2	2.063	0.184	121.0	84.3	-104.410	63.0	40.0	-9999.0
38.06	11.60	111.1	6.41	5.8	2.069	0.189	106.4	74.0	-104.410	59.3	38.0	-9999.0
38.22	11.65	107.6	6.16	5.7	2.074	0.194	103.1	71.6	-104.410	58.3	38.0	-9999.0
38.39	11.70	106.6	6.03	5.7	2.080	0.199	102.0	70.8	-104.410	58.0	38.0	-9999.0
38.55	11.75	106.5	5.77	5.4	2.086	0.204	102.0	70.6	-104.410	57.9	38.0	-9999.0
38.71	11.80	96.5	5.82	6.0	2.091	0.210	92.4	63.9	-104.410	55.1	38.0	-9999.0
38.88	11.85	87.3	5.71	6.5	2.097	0.215	83.6	57.7	-104.410	52.1	38.0	-9999.0
39.04	11.90	76.9	6.08	7.9	2.102	0.220	73.6	50.8	-104.410	48.5	38.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
39.21	11.95	82.7	6.15	7.4	2.108	0.225	79.2	54.6	-104.410	50.5	38.0	-9999.0
39.37	12.00	124.9	6.72	5.4	2.113	0.230	119.6	82.3	-104.410	62.3	40.0	-9999.0
39.53	12.05	135.6	7.15	5.3	2.119	0.235	129.8	89.2	-104.410	64.6	40.0	-9999.0
39.70	12.10	140.5	7.44	5.3	2.125	0.240	134.5	92.3	-104.410	65.6	40.0	-9999.0
39.86	12.15	160.4	7.96	5.0	2.130	0.245	153.7	105.3	-104.410	69.4	40.0	-9999.0
40.03	12.20	174.7	8.75	5.0	2.136	0.251	167.3	114.5	-104.410	71.8	42.0	-9999.0
40.19	12.25	181.8	9.33	5.1	2.141	0.256	174.1	119.0	-104.410	72.9	42.0	-9999.0
40.35	12.30	178.4	9.76	5.5	2.147	0.261	170.8	116.6	-104.410	72.3	42.0	-9999.0
40.52	12.35	198.9	9.33	4.7	2.153	0.266	190.5	129.8	-104.410	75.4	42.0	-9999.0
40.68	12.40	191.9	9.12	4.8	2.158	0.271	183.8	125.1	-104.410	74.3	42.0	-9999.0
40.85	12.45	222.0	9.05	4.1	2.163	0.276	106.3	72.3	-104.410	78.5	42.0	-9999.0
41.01	12.50	254.5	9.32	3.7	2.168	0.281	121.8	82.8	-104.410	82.3	42.0	-9999.0
41.17	12.55	299.9	10.78	3.6	2.173	0.286	143.6	97.4	-104.410	87.0	44.0	-9999.0
41.34	12.60	318.4	11.77	3.7	2.178	0.292	152.4	103.3	-104.410	88.7	44.0	-9999.0
41.50	12.65	304.7	11.86	3.9	2.183	0.297	145.9	98.8	-104.410	87.4	44.0	-9999.0
41.67	12.70	325.8	11.88	3.6	2.187	0.302	156.0	105.5	-104.410	89.3	44.0	-9999.0
41.83	12.75	330.6	11.87	3.6	2.192	0.307	158.3	106.9	-104.410	89.7	44.0	-9999.0
41.99	12.80	335.5	11.87	3.5	2.197	0.312	160.6	108.4	-104.410	90.1	44.0	-9999.0
42.16	12.85	340.1	11.87	3.5	2.202	0.317	162.9	109.8	-104.410	90.4	44.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1752-5108
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-04
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/18/08
CPT Time: 12:00
CPT File: 390CP04.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 9.14 (ft): 30.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	30.4	0.16	0.5	0.010	0.000	9.7	19.4	-104.410	95.0	50.0	-9999.0
0.33	0.10	204.9	0.10	0.0	0.020	0.000	32.7	65.4	-104.410	95.0	50.0	-9999.0
0.49	0.15	150.4	0.14	0.1	0.030	0.000	28.8	57.6	-104.410	95.0	50.0	-9999.0
0.66	0.20	97.8	0.22	0.2	0.040	0.000	18.7	37.4	-104.410	95.0	50.0	-9999.0
0.82	0.25	68.4	0.29	0.4	0.050	0.000	16.4	32.7	-104.410	95.0	50.0	-9999.0
0.98	0.30	80.5	0.16	0.2	0.060	0.000	15.4	30.8	-104.410	95.0	50.0	-9999.0
1.15	0.35	102.3	0.13	0.1	0.070	0.000	19.6	39.2	-104.410	95.0	50.0	-9999.0
1.31	0.40	95.0	0.22	0.2	0.081	0.000	18.2	36.4	-104.410	95.0	50.0	-9999.0
1.48	0.45	80.4	0.40	0.5	0.091	0.000	19.2	38.5	-104.410	94.8	50.0	-9999.0
1.64	0.50	77.8	0.50	0.6	0.101	0.000	18.6	37.2	-104.410	92.4	50.0	-9999.0
1.80	0.55	113.5	0.58	0.5	0.111	0.000	21.7	43.5	-104.410	95.0	50.0	-9999.0
1.97	0.60	174.5	0.53	0.3	0.121	0.000	33.4	66.8	-104.410	95.0	50.0	-9999.0
2.13	0.65	224.6	0.47	0.2	0.131	0.000	35.9	71.7	-104.410	95.0	50.0	-9999.0
2.30	0.70	266.9	0.47	0.2	0.142	0.000	42.6	85.2	-104.410	95.0	50.0	-9999.0
2.46	0.75	265.5	0.56	0.2	0.152	0.000	42.4	84.8	-104.410	95.0	50.0	-9999.0
2.62	0.80	269.7	0.99	0.4	0.163	0.000	43.0	86.1	-104.410	95.0	50.0	-9999.0
2.79	0.85	270.9	1.42	0.5	0.173	0.000	43.2	86.5	-104.410	95.0	50.0	-9999.0
2.95	0.90	268.3	1.33	0.5	0.183	0.000	42.8	85.7	-104.410	95.0	50.0	-9999.0
3.12	0.95	296.1	1.19	0.4	0.194	0.000	47.3	94.5	-104.410	95.0	50.0	-9999.0
3.28	1.00	310.3	0.90	0.3	0.204	0.000	49.5	99.1	-104.410	95.0	50.0	-9999.0
3.44	1.05	307.3	0.86	0.3	0.215	0.000	49.0	98.1	-104.410	95.0	50.0	-9999.0
3.61	1.10	287.1	0.81	0.3	0.225	0.000	45.8	91.6	-104.410	95.0	50.0	-9999.0
3.77	1.15	266.4	0.80	0.3	0.236	0.000	42.5	85.1	-104.410	95.0	50.0	-9999.0
3.94	1.20	235.1	0.76	0.3	0.246	0.000	37.5	75.1	-104.410	95.0	50.0	-9999.0
4.10	1.25	191.8	0.83	0.4	0.256	0.000	36.7	72.6	-104.410	95.0	50.0	-9999.0
4.27	1.30	152.2	0.86	0.6	0.267	0.000	29.2	56.5	-104.410	95.0	50.0	-9999.0
4.43	1.35	154.3	0.78	0.5	0.277	0.000	29.5	56.2	-104.410	95.0	50.0	-9999.0
4.59	1.40	158.0	0.67	0.4	0.287	0.000	30.3	56.5	-104.410	95.0	50.0	-9999.0
4.76	1.45	144.0	0.57	0.4	0.297	0.000	27.6	50.6	-104.410	94.5	48.0	-9999.0
4.92	1.50	137.0	0.50	0.4	0.307	0.000	26.2	47.3	-104.410	92.6	48.0	-9999.0
5.09	1.55	137.1	0.50	0.4	0.317	0.000	26.3	46.6	-104.410	92.2	48.0	-9999.0
5.25	1.60	133.6	0.53	0.4	0.328	0.000	25.6	44.7	-104.410	91.0	48.0	-9999.0
5.41	1.65	123.5	0.51	0.4	0.338	0.000	23.6	40.7	-104.410	88.3	48.0	-9999.0
5.58	1.70	110.0	0.47	0.4	0.348	0.000	21.1	35.7	-104.410	84.5	46.0	-9999.0
5.74	1.75	98.8	0.39	0.4	0.358	0.000	18.9	31.6	-104.410	81.0	46.0	-9999.0
5.91	1.80	89.5	0.33	0.4	0.368	0.000	17.2	28.3	-104.410	77.8	46.0	-9999.0
6.07	1.85	83.7	0.28	0.3	0.379	0.000	16.0	26.1	-104.410	75.5	46.0	-9999.0
6.23	1.90	81.4	0.24	0.3	0.389	0.000	15.6	25.0	-104.410	74.3	46.0	-9999.0
6.40	1.95	76.3	0.24	0.3	0.399	0.000	18.3	28.9	-104.410	72.1	44.0	-9999.0
6.56	2.00	71.1	0.24	0.3	0.409	0.000	17.0	26.6	-104.410	69.7	44.0	-9999.0
6.73	2.05	65.7	0.21	0.3	0.419	0.000	15.7	24.3	-104.410	67.1	44.0	-9999.0
6.89	2.10	58.7	0.19	0.3	0.429	0.000	14.1	21.5	-104.410	63.5	44.0	-9999.0
7.05	2.15	51.1	0.17	0.3	0.438	0.000	12.2	18.5	-104.410	59.2	42.0	-9999.0
7.22	2.20	44.9	0.15	0.3	0.448	0.000	10.7	16.1	-104.410	55.2	42.0	-9999.0
7.38	2.25	37.9	0.16	0.4	0.458	0.000	12.1	17.9	-104.410	50.0	42.0	-9999.0
7.55	2.30	37.6	0.15	0.4	0.468	0.000	12.0	17.6	-104.410	49.5	42.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	40.4	0.11	0.3	0.478	0.000	9.7	14.0	-104.410	51.2	42.0	-9999.0
7.87	2.40	36.6	0.09	0.2	0.488	0.000	8.8	12.5	-104.410	48.1	40.0	-9999.0
8.04	2.45	28.7	0.17	0.6	0.497	0.000	9.2	13.0	-104.410	40.9	40.0	-9999.0
8.20	2.50	21.2	0.22	1.0	0.507	0.000	8.1	11.4	1.655	31.9	38.0	10.0
8.37	2.55	18.3	0.21	1.1	0.516	0.000	7.0	9.8	1.424	30.0	36.0	10.0
8.53	2.60	26.9	0.16	0.6	0.526	0.000	8.6	11.8	-104.410	38.2	38.0	-9999.0
8.69	2.65	33.5	0.12	0.4	0.535	0.000	10.7	14.6	-104.410	44.2	40.0	-9999.0
8.86	2.70	38.8	0.07	0.2	0.545	0.000	9.3	12.6	-104.410	48.2	40.0	-9999.0
9.02	2.75	38.4	0.04	0.1	0.555	0.000	9.2	12.3	-104.410	47.6	40.0	-9999.0
9.19	2.80	35.4	0.04	0.1	0.565	0.000	8.5	11.3	-104.410	45.1	40.0	-9999.0
9.35	2.85	33.6	0.04	0.1	0.575	0.000	10.7	14.1	-104.410	43.3	40.0	-9999.0
9.51	2.90	37.0	0.03	0.1	0.585	0.000	8.9	11.6	-104.410	45.9	40.0	-9999.0
9.68	2.95	38.8	0.04	0.1	0.595	0.000	9.3	12.0	-104.410	46.9	40.0	-9999.0
9.84	3.00	36.0	0.04	0.1	0.604	0.000	8.6	11.1	-104.410	44.6	40.0	-9999.0
10.01	3.05	32.9	0.04	0.1	0.614	0.000	10.5	13.4	-104.410	41.8	38.0	-9999.0
10.17	3.10	31.8	0.03	0.1	0.624	0.000	10.2	12.9	-104.410	40.6	38.0	-9999.0
10.33	3.15	30.7	0.03	0.1	0.634	0.000	9.8	12.3	-104.410	39.4	38.0	-9999.0
10.50	3.20	27.5	0.05	0.2	0.643	0.000	8.8	11.0	-104.410	36.0	38.0	-9999.0
10.66	3.25	22.1	0.14	0.6	0.653	0.000	7.1	8.7	-104.410	30.0	36.0	-9999.0
10.83	3.30	13.9	0.19	1.4	0.662	0.000	5.3	6.5	1.060	30.0	34.0	9.4
10.99	3.35	9.4	0.17	1.8	0.672	0.000	4.5	5.5	0.701	-9999.0	-9999.0	4.9
11.15	3.40	11.7	0.15	1.3	0.681	0.000	5.6	6.8	0.885	-9999.0	-9999.0	6.8
11.32	3.45	27.6	0.11	0.4	0.691	0.000	8.8	10.6	-104.410	35.1	38.0	-9999.0
11.48	3.50	31.7	0.09	0.3	0.700	0.000	10.1	12.1	-104.410	38.9	38.0	-9999.0
11.65	3.55	35.6	0.10	0.3	0.710	0.000	11.4	13.5	-104.410	41.9	38.0	-9999.0
11.81	3.60	40.4	0.24	0.6	0.720	0.000	12.9	15.2	-104.410	45.4	40.0	-9999.0
11.97	3.65	38.3	0.41	1.1	0.729	0.000	12.2	14.3	-104.410	43.7	38.0	-9999.0
12.14	3.70	33.7	0.48	1.4	0.739	0.000	10.7	12.5	-104.410	39.8	38.0	-9999.0
12.30	3.75	45.7	0.28	0.6	0.749	0.000	10.9	12.7	-104.410	48.4	40.0	-9999.0
12.47	3.80	87.3	0.36	0.4	0.759	0.000	16.7	19.2	-104.410	66.7	42.0	-9999.0
12.63	3.85	101.1	0.44	0.4	0.769	0.000	19.4	22.1	-104.410	70.7	44.0	-9999.0
12.80	3.90	73.3	0.70	1.0	0.779	0.000	17.6	19.9	-104.410	61.3	42.0	-9999.0
12.96	3.95	41.1	1.01	2.5	0.789	0.000	15.8	17.7	3.228	44.6	38.0	10.0
13.12	4.00	33.9	0.74	2.2	0.798	0.000	13.0	14.5	2.645	38.8	38.0	10.0
13.29	4.05	60.9	0.73	1.2	0.808	0.000	19.5	21.6	-104.410	55.5	40.0	-9999.0
13.45	4.10	108.3	0.40	0.4	0.818	0.000	20.8	23.0	-104.410	71.8	44.0	-9999.0
13.62	4.15	124.6	0.33	0.3	0.828	0.000	23.9	26.2	-104.410	75.7	44.0	-9999.0
13.78	4.20	131.3	0.31	0.2	0.838	0.000	25.2	27.5	-104.410	77.0	44.0	-9999.0
13.94	4.25	141.5	0.35	0.2	0.848	0.000	27.1	29.4	-104.410	79.0	44.0	-9999.0
14.11	4.30	140.9	0.41	0.3	0.858	0.000	27.0	29.1	-104.410	78.7	44.0	-9999.0
14.27	4.35	137.6	0.41	0.3	0.869	0.000	26.4	28.3	-104.410	77.8	44.0	-9999.0
14.44	4.40	133.6	0.42	0.3	0.879	0.000	25.6	27.3	-104.410	76.8	44.0	-9999.0
14.60	4.45	123.6	0.44	0.4	0.889	0.000	23.7	25.1	-104.410	74.4	44.0	-9999.0
14.76	4.50	105.0	0.67	0.6	0.899	0.000	20.1	21.2	-104.410	69.6	42.0	-9999.0
14.93	4.55	74.4	0.72	1.0	0.909	0.000	17.8	18.7	-104.410	59.6	42.0	-9999.0
15.09	4.60	59.7	0.64	1.1	0.919	0.000	19.0	19.9	-104.410	53.1	40.0	-9999.0
15.26	4.65	84.0	0.48	0.6	0.929	0.000	20.1	20.9	-104.410	62.7	42.0	-9999.0
15.42	4.70	76.7	0.37	0.5	0.939	0.000	18.4	18.9	-104.410	59.9	42.0	-9999.0
15.58	4.75	64.0	0.18	0.3	0.949	0.000	15.3	15.7	-104.410	54.6	40.0	-9999.0
15.75	4.80	62.5	0.16	0.3	0.958	0.000	15.0	15.3	-104.410	53.8	40.0	-9999.0
15.91	4.85	63.4	0.14	0.2	0.968	0.000	15.2	15.4	-104.410	54.1	40.0	-9999.0
16.08	4.90	66.2	0.13	0.2	0.978	0.000	15.8	16.0	-104.410	55.1	40.0	-9999.0
16.24	4.95	60.5	0.24	0.4	0.988	0.000	14.5	14.6	-104.410	52.4	40.0	-9999.0
16.40	5.00	43.4	0.37	0.9	0.998	0.000	13.8	13.9	-104.410	42.7	38.0	-9999.0
16.57	5.05	36.3	0.42	1.2	1.008	0.000	11.6	11.5	-104.410	37.5	38.0	-9999.0
16.73	5.10	33.7	0.43	1.3	1.017	0.000	10.8	10.7	-104.410	35.3	36.0	-9999.0
16.90	5.15	43.7	0.35	0.8	1.027	0.000	13.9	13.8	-104.410	42.5	38.0	-9999.0
17.06	5.20	54.7	0.22	0.4	1.037	0.000	13.1	12.9	-104.410	48.8	38.0	-9999.0
17.22	5.25	66.4	0.18	0.3	1.047	0.000	15.9	15.5	-104.410	54.3	40.0	-9999.0
17.39	5.30	67.0	0.14	0.2	1.057	0.000	16.0	15.6	-104.410	54.4	40.0	-9999.0
17.55	5.35	68.4	0.15	0.2	1.067	0.000	16.4	15.8	-104.410	54.8	40.0	-9999.0
17.72	5.40	74.3	0.17	0.2	1.076	0.000	17.8	17.1	-104.410	57.1	40.0	-9999.0
17.88	5.45	80.6	0.19	0.2	1.086	0.000	15.4	14.8	-104.410	59.3	40.0	-9999.0
18.04	5.50	80.7	0.19	0.2	1.097	0.000	15.5	14.8	-104.410	59.2	40.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	79.9	0.19	0.2	1.107	0.000	15.3	14.5	-104.410	58.8	40.0	-9999.0
18.37	5.60	79.7	0.19	0.2	1.117	0.000	15.3	14.4	-104.410	58.6	40.0	-9999.0
18.54	5.65	74.6	0.22	0.3	1.127	0.000	17.9	16.8	-104.410	56.5	40.0	-9999.0
18.70	5.70	68.3	0.20	0.3	1.137	0.000	16.3	15.3	-104.410	53.9	40.0	-9999.0
18.86	5.75	68.1	0.14	0.2	1.147	0.000	16.3	15.2	-104.410	53.7	40.0	-9999.0
19.03	5.80	72.7	0.18	0.2	1.157	0.000	17.4	16.2	-104.410	55.4	40.0	-9999.0
19.19	5.85	72.5	0.20	0.3	1.167	0.000	17.4	16.1	-104.410	55.2	40.0	-9999.0
19.36	5.90	69.2	0.19	0.3	1.177	0.000	16.6	15.3	-104.410	53.8	40.0	-9999.0
19.52	5.95	70.8	0.22	0.3	1.187	0.000	17.0	15.6	-104.410	54.3	40.0	-9999.0
19.68	6.00	76.4	0.22	0.3	1.197	0.000	18.3	16.7	-104.410	56.4	40.0	-9999.0
19.85	6.05	77.0	0.23	0.3	1.206	0.000	18.4	16.8	-104.410	56.5	40.0	-9999.0
20.01	6.10	71.7	0.23	0.3	1.216	0.000	17.2	15.6	-104.410	54.3	40.0	-9999.0
20.18	6.15	65.9	0.21	0.3	1.226	0.000	15.8	14.2	-104.410	51.8	38.0	-9999.0
20.34	6.20	59.3	0.18	0.3	1.236	0.000	14.2	12.8	-104.410	48.6	38.0	-9999.0
20.50	6.25	56.1	0.16	0.3	1.246	0.000	13.4	12.0	-104.410	46.9	38.0	-9999.0
20.67	6.30	59.3	0.15	0.3	1.256	0.000	14.2	12.7	-104.410	48.4	38.0	-9999.0
20.83	6.35	66.0	0.17	0.3	1.266	0.000	15.8	14.1	-104.410	51.4	38.0	-9999.0
21.00	6.40	74.7	0.18	0.2	1.276	0.000	17.9	15.8	-104.410	54.8	40.0	-9999.0
21.16	6.45	71.4	0.20	0.3	1.286	0.000	17.1	15.1	-104.410	53.4	40.0	-9999.0
21.33	6.50	62.8	0.19	0.3	1.296	0.000	15.0	13.2	-104.410	49.6	38.0	-9999.0
21.49	6.55	60.1	0.17	0.3	1.306	0.000	14.4	12.6	-104.410	48.2	38.0	-9999.0
21.65	6.60	61.1	0.16	0.3	1.316	0.000	14.6	12.8	-104.410	48.6	38.0	-9999.0
21.82	6.65	59.5	0.15	0.3	1.325	0.000	14.3	12.4	-104.410	47.8	38.0	-9999.0
21.98	6.70	59.1	0.16	0.3	1.335	0.000	14.1	12.2	-104.410	47.4	38.0	-9999.0
22.15	6.75	62.1	0.13	0.2	1.345	0.000	14.9	12.8	-104.410	48.7	38.0	-9999.0
22.31	6.80	66.3	0.16	0.2	1.355	0.000	15.9	13.6	-104.410	50.5	38.0	-9999.0
22.47	6.85	67.9	0.20	0.3	1.365	0.000	16.3	13.9	-104.410	51.1	38.0	-9999.0
22.64	6.90	66.3	0.22	0.3	1.375	0.000	15.9	13.5	-104.410	50.3	38.0	-9999.0
22.80	6.95	55.7	0.22	0.4	1.385	0.000	13.3	11.3	-104.410	45.2	38.0	-9999.0
22.97	7.00	46.0	0.18	0.4	1.395	0.000	11.0	9.3	-104.410	39.6	36.0	-9999.0
23.13	7.05	39.6	0.14	0.4	1.405	0.000	9.5	8.0	-104.410	35.2	36.0	-9999.0
23.29	7.10	34.9	0.11	0.3	1.415	0.000	11.1	9.4	-104.410	31.5	34.0	-9999.0
23.46	7.15	32.1	0.09	0.3	1.424	0.000	10.2	8.6	-104.410	30.0	34.0	-9999.0
23.62	7.20	30.6	0.08	0.3	1.434	0.000	9.8	8.2	-104.410	30.0	34.0	-9999.0
23.79	7.25	30.2	0.08	0.3	1.444	0.000	9.6	8.0	-104.410	30.0	34.0	-9999.0
23.95	7.30	27.7	0.10	0.4	1.453	0.000	8.9	7.3	-104.410	30.0	32.0	-9999.0
24.11	7.35	26.7	0.11	0.4	1.463	0.000	8.5	7.0	-104.410	30.0	32.0	-9999.0
24.28	7.40	27.3	0.10	0.4	1.473	0.000	8.7	7.2	-104.410	30.0	32.0	-9999.0
24.44	7.45	27.8	0.09	0.3	1.482	0.000	8.9	7.3	-104.410	30.0	32.0	-9999.0
24.61	7.50	29.3	0.20	0.7	1.492	0.000	9.3	7.6	-104.410	30.0	32.0	-9999.0
24.77	7.55	26.6	0.40	1.5	1.501	0.000	10.2	8.3	2.010	30.0	32.0	7.1
24.93	7.60	17.4	0.31	1.8	1.511	0.000	6.7	5.4	1.275	30.0	30.0	3.5
25.10	7.65	26.6	0.23	0.9	1.520	0.000	8.5	6.9	-104.410	30.0	32.0	-9999.0
25.26	7.70	33.6	0.20	0.6	1.530	0.000	10.7	8.7	-104.410	30.0	34.0	-9999.0
25.43	7.75	44.2	0.08	0.2	1.540	0.000	10.6	8.5	-104.410	37.1	36.0	-9999.0
25.59	7.80	49.9	0.10	0.2	1.550	0.000	11.9	9.6	-104.410	40.4	36.0	-9999.0
25.75	7.85	56.5	0.16	0.3	1.560	0.000	13.5	10.8	-104.410	43.9	38.0	-9999.0
25.92	7.90	60.5	0.24	0.4	1.570	0.000	14.5	11.6	-104.410	45.8	38.0	-9999.0
26.08	7.95	63.2	0.22	0.3	1.579	0.000	15.1	12.0	-104.410	46.9	38.0	-9999.0
26.25	8.00	77.2	0.24	0.3	1.589	0.000	18.5	14.7	-104.410	52.6	38.0	-9999.0
26.41	8.05	94.8	0.27	0.3	1.599	0.000	18.2	14.4	-104.410	58.4	40.0	-9999.0
26.57	8.10	107.1	0.32	0.3	1.610	0.000	20.5	16.2	-104.410	61.8	40.0	-9999.0
26.74	8.15	111.4	0.36	0.3	1.620	0.000	21.3	16.8	-104.410	62.8	40.0	-9999.0
26.90	8.20	114.0	0.37	0.3	1.630	0.000	21.8	17.1	-104.410	63.4	40.0	-9999.0
27.07	8.25	111.4	0.36	0.3	1.640	0.000	21.3	16.7	-104.410	62.6	40.0	-9999.0
27.23	8.30	105.3	0.35	0.3	1.650	0.000	20.2	15.7	-104.410	61.0	40.0	-9999.0
27.39	8.35	91.0	0.31	0.3	1.661	0.000	17.4	13.5	-104.410	56.7	40.0	-9999.0
27.56	8.40	69.9	0.29	0.4	1.671	0.000	16.7	12.9	-104.410	49.0	38.0	-9999.0
27.72	8.45	52.3	0.23	0.4	1.681	0.000	12.5	9.7	-104.410	40.6	36.0	-9999.0
27.89	8.50	43.1	0.15	0.3	1.690	0.000	10.3	7.9	-104.410	35.0	34.0	-9999.0
28.05	8.55	48.4	0.08	0.2	1.700	0.000	11.6	8.9	-104.410	38.2	36.0	-9999.0
28.21	8.60	59.8	0.09	0.2	1.710	0.000	14.3	10.9	-104.410	44.2	36.0	-9999.0
28.38	8.65	60.4	0.16	0.3	1.720	0.000	14.5	11.0	-104.410	44.4	36.0	-9999.0
28.54	8.70	63.9	0.18	0.3	1.730	0.000	15.3	11.6	-104.410	46.0	38.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
28.71	8.75	78.6	0.19	0.2	1.740	0.000	18.8	14.3	-104.410	51.8	38.0	-9999.0
28.87	8.80	89.9	0.28	0.3	1.750	0.000	17.2	13.0	-104.410	55.6	38.0	-9999.0
29.04	8.85	87.6	0.33	0.4	1.760	0.000	16.8	12.7	-104.410	54.8	38.0	-9999.0
29.20	8.90	83.8	0.32	0.4	1.770	0.000	20.1	15.1	-104.410	53.4	38.0	-9999.0
29.36	8.95	84.6	0.31	0.4	1.780	0.000	16.2	12.2	-104.410	53.6	38.0	-9999.0
29.53	9.00	84.8	0.36	0.4	1.790	0.000	20.3	15.2	-104.410	53.6	38.0	-9999.0
29.69	9.05	76.5	0.37	0.5	1.800	0.000	18.3	13.6	-104.410	50.5	38.0	-9999.0
29.86	9.10	59.0	0.59	1.0	1.810	0.000	14.1	10.5	-104.410	43.0	36.0	-9999.0
30.02	9.15	42.4	0.83	2.0	1.819	0.001	16.2	12.0	3.248	33.5	34.0	10.0
30.18	9.20	32.5	1.16	3.6	1.824	0.006	15.6	11.5	2.456	-9999.0	-9999.0	7.2
30.35	9.25	32.9	0.79	2.4	1.828	0.011	12.6	9.3	2.487	30.0	32.0	7.3
30.51	9.30	46.3	1.18	2.6	1.832	0.016	17.7	13.1	3.554	35.9	34.0	10.0
30.68	9.35	37.3	1.18	3.2	1.836	0.021	17.9	13.2	2.835	-9999.0	-9999.0	8.9
30.84	9.40	94.0	1.20	1.3	1.841	0.026	22.5	16.6	-104.410	56.1	38.0	-9999.0
31.00	9.45	147.9	2.92	2.0	1.846	0.031	47.2	34.8	-104.410	69.1	42.0	-9999.0
31.17	9.50	135.4	3.03	2.2	1.850	0.036	43.2	31.8	-104.410	66.5	40.0	-9999.0
31.33	9.55	289.3	6.39	2.2	1.855	0.042	69.3	50.9	-104.410	88.3	44.0	-9999.0
31.50	9.60	467.9	6.39	1.4	1.860	0.047	89.6	65.7	-104.410	95.0	46.0	-9999.0
31.66	9.65	511.6	6.39	1.2	1.865	0.052	98.0	71.8	-104.410	95.0	46.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1752-5256
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-05
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/18/08
CPT Time: 11:26
CPT File: 390CP05.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 3.05 (ft): 10.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	2.0	0.02	1.0	0.009	0.000	1.0	1.9	0.160	-9999.0	-9999.0	10.0
0.33	0.10	6.5	0.02	0.3	0.018	0.000	3.1	6.2	0.515	-9999.0	-9999.0	10.0
0.49	0.15	12.3	0.03	0.2	0.028	0.000	4.7	9.4	0.979	58.0	48.0	10.0
0.66	0.20	25.7	0.05	0.2	0.037	0.000	8.2	16.4	-104.410	75.0	50.0	-9999.0
0.82	0.25	26.1	0.10	0.4	0.047	0.000	8.3	16.7	-104.410	72.1	50.0	-9999.0
0.98	0.30	33.0	0.19	0.6	0.056	0.000	10.5	21.1	-104.410	76.1	50.0	-9999.0
1.15	0.35	63.8	0.28	0.4	0.066	0.000	15.3	30.5	-104.410	92.7	50.0	-9999.0
1.31	0.40	78.5	0.31	0.4	0.076	0.000	18.8	37.6	-104.410	95.0	50.0	-9999.0
1.48	0.45	103.1	0.56	0.5	0.086	0.000	19.7	39.5	-104.410	95.0	50.0	-9999.0
1.64	0.50	99.3	1.06	1.1	0.096	0.000	23.8	47.6	-104.410	95.0	50.0	-9999.0
1.80	0.55	76.3	0.97	1.3	0.106	0.000	18.3	36.5	-104.410	91.0	50.0	-9999.0
1.97	0.60	98.5	0.92	0.9	0.116	0.000	23.6	47.2	-104.410	95.0	50.0	-9999.0
2.13	0.65	148.1	0.86	0.6	0.126	0.000	28.4	56.7	-104.410	95.0	50.0	-9999.0
2.30	0.70	148.7	0.69	0.5	0.136	0.000	28.5	57.0	-104.410	95.0	50.0	-9999.0
2.46	0.75	141.8	0.67	0.5	0.146	0.000	27.2	54.3	-104.410	95.0	50.0	-9999.0
2.62	0.80	127.1	0.53	0.4	0.157	0.000	24.4	48.7	-104.410	95.0	50.0	-9999.0
2.79	0.85	107.6	0.69	0.6	0.167	0.000	20.6	41.2	-104.410	94.4	50.0	-9999.0
2.95	0.90	85.4	0.91	1.1	0.177	0.000	20.4	40.9	-104.410	87.0	48.0	-9999.0
3.12	0.95	77.8	1.16	1.5	0.187	0.000	24.8	49.6	-104.410	83.5	48.0	-9999.0
3.28	1.00	45.0	1.10	2.5	0.196	0.000	17.2	34.4	3.581	67.1	46.0	10.0
3.44	1.05	30.9	0.77	2.5	0.206	0.000	11.8	23.6	2.452	55.6	44.0	10.0
3.61	1.10	25.1	0.67	2.7	0.215	0.000	12.0	24.0	1.987	-9999.0	-9999.0	10.0
3.77	1.15	24.5	0.36	1.5	0.224	0.000	9.4	18.8	1.941	47.7	42.0	10.0
3.94	1.20	48.1	0.27	0.6	0.234	0.000	11.5	23.1	-104.410	66.5	46.0	-9999.0
4.10	1.25	61.7	0.23	0.4	0.244	0.000	14.8	29.6	-104.410	73.0	46.0	-9999.0
4.27	1.30	54.1	0.19	0.4	0.254	0.000	12.9	25.7	-104.410	68.7	46.0	-9999.0
4.43	1.35	43.4	0.19	0.4	0.264	0.000	10.4	20.2	-104.410	61.8	44.0	-9999.0
4.59	1.40	35.3	0.24	0.7	0.274	0.000	11.3	21.6	-104.410	55.4	44.0	-9999.0
4.76	1.45	28.1	0.25	0.9	0.283	0.000	9.0	16.9	-104.410	48.4	42.0	-9999.0
4.92	1.50	25.4	0.24	0.9	0.293	0.000	8.1	15.0	-104.410	45.0	42.0	-9999.0
5.09	1.55	31.5	0.18	0.6	0.303	0.000	10.1	18.3	-104.410	50.7	42.0	-9999.0
5.25	1.60	32.6	0.13	0.4	0.312	0.000	10.4	18.6	-104.410	51.2	42.0	-9999.0
5.41	1.65	34.0	0.09	0.3	0.322	0.000	10.9	19.1	-104.410	52.0	42.0	-9999.0
5.58	1.70	32.4	0.13	0.4	0.332	0.000	10.3	18.0	-104.410	50.2	42.0	-9999.0
5.74	1.75	29.4	0.23	0.8	0.341	0.000	9.4	16.1	-104.410	47.0	42.0	-9999.0
5.91	1.80	21.8	0.28	1.3	0.351	0.000	8.4	14.1	1.720	38.1	40.0	10.0
6.07	1.85	19.5	0.32	1.6	0.360	0.000	7.5	12.4	1.531	34.4	40.0	10.0
6.23	1.90	10.9	0.25	2.3	0.370	0.000	5.2	8.6	0.845	-9999.0	-9999.0	10.0
6.40	1.95	10.4	0.18	1.7	0.379	0.000	5.0	8.1	0.798	-9999.0	-9999.0	10.0
6.56	2.00	10.4	0.16	1.5	0.388	0.000	5.0	8.0	0.803	-9999.0	-9999.0	10.0
6.73	2.05	14.6	0.21	1.4	0.398	0.000	5.6	8.9	1.139	30.0	38.0	10.0
6.89	2.10	14.9	0.19	1.3	0.407	0.000	5.7	8.9	1.159	30.0	38.0	10.0
7.05	2.15	25.7	0.19	0.7	0.417	0.000	8.2	12.7	-104.410	40.3	40.0	-9999.0
7.22	2.20	18.1	0.28	1.5	0.426	0.000	7.0	10.7	1.418	30.0	38.0	10.0
7.38	2.25	11.8	0.24	2.0	0.436	0.000	5.6	8.5	0.906	-9999.0	-9999.0	10.0
7.55	2.30	9.5	0.19	2.0	0.445	0.000	4.6	6.8	0.727	-9999.0	-9999.0	9.8

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	19.9	0.15	0.8	0.454	0.000	7.6	11.3	1.554	31.7	38.0	10.0
7.87	2.40	23.1	0.11	0.5	0.464	0.000	7.4	10.8	-104.410	35.6	38.0	-9999.0
8.04	2.45	27.2	0.19	0.7	0.474	0.000	8.7	12.6	-104.410	40.0	40.0	-9999.0
8.20	2.50	22.1	0.27	1.2	0.483	0.000	8.5	12.2	1.730	33.8	38.0	10.0
8.37	2.55	18.9	0.36	1.9	0.492	0.000	7.2	10.3	1.474	30.0	38.0	10.0
8.53	2.60	19.5	0.32	1.6	0.502	0.000	7.5	10.5	1.520	30.0	38.0	10.0
8.69	2.65	17.0	0.23	1.4	0.511	0.000	6.5	9.1	1.319	30.0	36.0	10.0
8.86	2.70	26.5	0.23	0.9	0.521	0.000	8.4	11.7	-104.410	37.9	38.0	-9999.0
9.02	2.75	23.6	0.21	0.9	0.530	0.000	7.5	10.3	-104.410	34.3	38.0	-9999.0
9.19	2.80	22.8	0.13	0.6	0.540	0.000	7.3	9.9	-104.410	33.1	38.0	-9999.0
9.35	2.85	27.4	0.22	0.8	0.550	0.000	8.8	11.8	-104.410	38.1	38.0	-9999.0
9.51	2.90	20.5	0.27	1.3	0.559	0.000	7.9	10.5	1.597	30.0	38.0	10.0
9.68	2.95	12.7	0.21	1.7	0.569	0.000	6.1	8.1	0.972	-9999.0	-9999.0	10.0
9.84	3.00	23.3	0.21	0.9	0.578	0.000	7.4	9.8	-104.410	32.8	38.0	-9999.0
10.01	3.05	32.0	0.28	0.9	0.588	0.000	10.2	13.3	-104.410	41.6	40.0	-9999.0
10.17	3.10	22.8	0.48	2.1	0.592	0.005	8.7	11.3	1.773	31.7	38.0	10.0
10.33	3.15	14.5	0.32	2.2	0.596	0.010	6.9	9.0	1.113	-9999.0	-9999.0	10.0
10.50	3.20	14.1	0.26	1.8	0.601	0.016	6.8	8.7	1.081	-9999.0	-9999.0	10.0
10.66	3.25	30.0	0.20	0.7	0.605	0.021	9.6	12.3	-104.410	39.4	38.0	-9999.0
10.83	3.30	27.9	0.16	0.6	0.610	0.026	8.9	11.4	-104.410	37.1	38.0	-9999.0
10.99	3.35	24.8	0.18	0.7	0.614	0.031	7.9	10.1	-104.410	33.7	38.0	-9999.0
11.15	3.40	18.5	0.33	1.8	0.619	0.036	7.1	9.0	1.430	30.0	36.0	10.0
11.32	3.45	15.3	0.46	3.0	0.623	0.041	7.3	9.3	1.169	-9999.0	-9999.0	10.0
11.48	3.50	12.0	0.37	3.1	0.627	0.046	7.6	9.6	0.903	-9999.0	-9999.0	8.0
11.65	3.55	8.3	0.27	3.3	0.631	0.051	5.3	6.7	0.611	-9999.0	-9999.0	4.3
11.81	3.60	7.4	0.18	2.4	0.636	0.057	4.7	6.0	0.540	-9999.0	-9999.0	3.6
11.97	3.65	7.8	0.13	1.7	0.640	0.062	3.7	4.6	0.565	-9999.0	-9999.0	3.8
12.14	3.70	7.4	0.14	1.9	0.644	0.067	3.6	4.4	0.539	-9999.0	-9999.0	3.5
12.30	3.75	8.2	0.16	2.0	0.648	0.072	3.9	4.8	0.595	-9999.0	-9999.0	4.0
12.47	3.80	16.2	0.07	0.4	0.653	0.077	6.2	7.7	1.239	30.0	34.0	10.0
12.63	3.85	27.4	0.07	0.3	0.657	0.082	8.7	10.8	-104.410	35.5	38.0	-9999.0
12.80	3.90	28.1	0.08	0.3	0.662	0.087	9.0	11.0	-104.410	36.2	38.0	-9999.0
12.96	3.95	30.2	0.29	1.0	0.666	0.092	9.6	11.8	-104.410	38.1	38.0	-9999.0
13.12	4.00	23.8	0.40	1.7	0.671	0.098	9.1	11.1	1.841	31.2	36.0	10.0
13.29	4.05	14.4	0.32	2.2	0.675	0.103	6.9	8.4	1.089	-9999.0	-9999.0	9.6
13.45	4.10	12.0	0.22	1.8	0.679	0.108	5.8	7.0	0.899	-9999.0	-9999.0	7.0
13.62	4.15	12.2	0.12	1.0	0.683	0.113	4.7	5.6	0.909	30.0	32.0	7.1
13.78	4.20	11.3	0.11	1.0	0.688	0.118	4.3	5.2	0.842	30.0	32.0	6.2
13.94	4.25	11.7	0.10	0.9	0.692	0.123	4.5	5.4	0.872	30.0	32.0	6.5
14.11	4.30	11.6	0.10	0.9	0.696	0.128	4.4	5.3	0.861	30.0	32.0	6.3
14.27	4.35	11.6	0.16	1.4	0.701	0.133	5.6	6.6	0.861	-9999.0	-9999.0	6.2
14.44	4.40	21.1	0.39	1.9	0.705	0.138	8.1	9.6	1.621	30.0	36.0	10.0
14.60	4.45	85.5	1.08	1.3	0.709	0.144	20.5	24.3	-104.410	67.1	42.0	-9999.0
14.76	4.50	206.0	1.08	0.5	0.714	0.149	39.5	46.7	-104.410	92.2	46.0	-9999.0
14.93	4.55	717.1	1.08	0.2	0.719	0.154	114.5	135.0	-104.410	95.0	50.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1752-5377
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-06
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/18/08
CPT Time: 08:12
CPT File: 390CP06.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 3.96 (ft): 13.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	4.6	0.16	3.5	0.009	0.000	4.4	8.8	0.368	-9999.0	-9999.0	10.0
0.33	0.10	41.2	0.29	0.7	0.019	0.000	13.2	26.3	-104.410	95.0	50.0	-9999.0
0.49	0.15	117.3	0.32	0.3	0.028	0.000	22.5	44.9	-104.410	95.0	50.0	-9999.0
0.66	0.20	142.4	0.40	0.3	0.039	0.000	27.3	54.6	-104.410	95.0	50.0	-9999.0
0.82	0.25	145.4	0.53	0.4	0.049	0.000	27.8	55.7	-104.410	95.0	50.0	-9999.0
0.98	0.30	130.6	0.73	0.6	0.059	0.000	25.0	50.0	-104.410	95.0	50.0	-9999.0
1.15	0.35	119.7	0.82	0.7	0.069	0.000	22.9	45.9	-104.410	95.0	50.0	-9999.0
1.31	0.40	107.3	0.85	0.8	0.079	0.000	25.7	51.4	-104.410	95.0	50.0	-9999.0
1.48	0.45	105.3	1.21	1.2	0.089	0.000	25.2	50.4	-104.410	95.0	50.0	-9999.0
1.64	0.50	102.6	1.92	1.9	0.099	0.000	32.8	65.5	-104.410	95.0	50.0	-9999.0
1.80	0.55	102.9	2.80	2.7	0.109	0.000	32.9	65.7	-104.410	95.0	50.0	-9999.0
1.97	0.60	106.5	3.27	3.1	0.118	0.000	40.8	81.6	8.512	95.0	50.0	10.0
2.13	0.65	99.3	3.57	3.6	0.128	0.000	38.0	76.1	7.934	95.0	50.0	10.0
2.30	0.70	95.1	3.69	3.9	0.137	0.000	45.6	91.1	7.601	-9999.0	-9999.0	10.0
2.46	0.75	108.5	3.41	3.1	0.146	0.000	41.6	83.1	8.668	95.0	50.0	10.0
2.62	0.80	132.6	3.11	2.3	0.156	0.000	42.3	84.6	-104.410	95.0	50.0	-9999.0
2.79	0.85	118.7	2.58	2.2	0.166	0.000	37.9	75.8	-104.410	95.0	50.0	-9999.0
2.95	0.90	122.4	1.85	1.5	0.175	0.000	29.3	58.6	-104.410	95.0	50.0	-9999.0
3.12	0.95	117.0	1.81	1.6	0.185	0.000	28.0	56.0	-104.410	95.0	50.0	-9999.0
3.28	1.00	106.5	2.13	2.0	0.195	0.000	34.0	68.0	-104.410	91.9	50.0	-9999.0
3.44	1.05	86.9	2.61	3.0	0.205	0.000	33.3	66.6	6.936	85.4	48.0	10.0
3.61	1.10	72.5	3.00	4.1	0.214	0.000	34.7	69.5	5.785	-9999.0	-9999.0	10.0
3.77	1.15	66.3	3.04	4.6	0.223	0.000	42.3	84.7	5.289	-9999.0	-9999.0	10.0
3.94	1.20	67.4	3.14	4.7	0.233	0.000	43.0	86.0	5.370	-9999.0	-9999.0	10.0
4.10	1.25	88.2	3.08	3.5	0.242	0.000	33.8	67.6	7.040	83.4	48.0	10.0
4.27	1.30	124.2	4.08	3.3	0.252	0.000	47.6	94.9	9.916	92.6	48.0	10.0
4.43	1.35	166.7	5.26	3.2	0.261	0.000	63.9	125.0	13.314	95.0	50.0	10.0
4.59	1.40	209.0	5.92	2.8	0.270	0.000	66.7	128.3	-104.410	95.0	50.0	-9999.0
4.76	1.45	220.8	5.44	2.5	0.280	0.000	70.5	133.2	-104.410	95.0	50.0	-9999.0
4.92	1.50	183.7	4.14	2.3	0.290	0.000	58.7	109.0	-104.410	95.0	50.0	-9999.0
5.09	1.55	171.2	3.38	2.0	0.300	0.000	41.0	74.9	-104.410	95.0	50.0	-9999.0
5.25	1.60	160.2	4.27	2.7	0.309	0.000	51.2	92.0	-104.410	95.0	48.0	-9999.0
5.41	1.65	174.8	4.99	2.9	0.319	0.000	55.8	98.8	-104.410	95.0	50.0	-9999.0
5.58	1.70	188.7	6.19	3.3	0.329	0.000	72.3	126.1	15.067	95.0	50.0	10.0
5.74	1.75	228.1	3.91	1.7	0.338	0.000	54.6	93.9	-104.410	95.0	50.0	-9999.0
5.91	1.80	216.6	3.00	1.4	0.348	0.000	51.9	87.9	-104.410	95.0	50.0	-9999.0
6.07	1.85	167.8	1.94	1.2	0.358	0.000	32.1	53.7	-104.410	95.0	48.0	-9999.0
6.23	1.90	142.2	1.17	0.8	0.368	0.000	27.2	44.9	-104.410	91.1	48.0	-9999.0
6.40	1.95	133.7	0.89	0.7	0.379	0.000	25.6	41.6	-104.410	88.9	48.0	-9999.0
6.56	2.00	122.5	0.85	0.7	0.389	0.000	23.5	37.6	-104.410	86.0	46.0	-9999.0
6.73	2.05	96.2	0.72	0.8	0.399	0.000	23.0	36.5	-104.410	78.7	46.0	-9999.0
6.89	2.10	75.0	0.67	0.9	0.409	0.000	18.0	28.1	-104.410	71.2	44.0	-9999.0
7.05	2.15	54.0	0.68	1.3	0.418	0.000	17.2	26.6	-104.410	61.5	44.0	-9999.0
7.22	2.20	47.0	0.54	1.2	0.428	0.000	15.0	22.9	-104.410	57.2	42.0	-9999.0
7.38	2.25	54.7	0.58	1.1	0.438	0.000	17.5	26.4	-104.410	61.2	42.0	-9999.0
7.55	2.30	66.5	0.70	1.1	0.448	0.000	15.9	23.8	-104.410	66.5	44.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	60.8	0.83	1.4	0.457	0.000	19.4	28.7	-104.410	63.6	44.0	-9999.0
7.87	2.40	51.4	0.97	1.9	0.467	0.000	16.4	24.0	-104.410	58.5	42.0	-9999.0
8.04	2.45	45.4	0.98	2.2	0.477	0.000	17.4	25.2	3.592	54.6	42.0	10.0
8.20	2.50	44.2	0.79	1.8	0.486	0.000	14.1	20.3	-104.410	53.6	42.0	-9999.0
8.37	2.55	42.9	0.55	1.3	0.496	0.000	13.7	19.5	-104.410	52.5	42.0	-9999.0
8.53	2.60	43.6	0.36	0.8	0.505	0.000	13.9	19.6	-104.410	52.6	42.0	-9999.0
8.69	2.65	41.8	0.27	0.6	0.515	0.000	13.3	18.6	-104.410	51.2	42.0	-9999.0
8.86	2.70	38.8	0.23	0.6	0.525	0.000	12.4	17.1	-104.410	48.7	40.0	-9999.0
9.02	2.75	36.9	0.11	0.3	0.534	0.000	8.8	12.1	-104.410	47.1	40.0	-9999.0
9.19	2.80	37.4	0.12	0.3	0.544	0.000	9.0	12.1	-104.410	47.2	40.0	-9999.0
9.35	2.85	41.0	0.12	0.3	0.554	0.000	9.8	13.2	-104.410	49.5	40.0	-9999.0
9.51	2.90	46.1	0.14	0.3	0.564	0.000	11.0	14.7	-104.410	52.6	42.0	-9999.0
9.68	2.95	49.5	0.18	0.4	0.574	0.000	11.9	15.6	-104.410	54.5	42.0	-9999.0
9.84	3.00	50.7	0.19	0.4	0.584	0.000	12.1	15.9	-104.410	54.9	42.0	-9999.0
10.01	3.05	49.4	0.22	0.4	0.594	0.000	11.8	15.4	-104.410	53.9	42.0	-9999.0
10.17	3.10	46.1	0.23	0.5	0.604	0.000	11.0	14.2	-104.410	51.7	40.0	-9999.0
10.33	3.15	38.8	0.21	0.5	0.614	0.000	12.4	15.8	-104.410	46.5	40.0	-9999.0
10.50	3.20	32.4	0.17	0.5	0.623	0.000	10.3	13.1	-104.410	41.1	38.0	-9999.0
10.66	3.25	28.6	0.14	0.5	0.633	0.000	9.1	11.5	-104.410	37.4	38.0	-9999.0
10.83	3.30	28.4	0.12	0.4	0.643	0.000	9.1	11.3	-104.410	36.9	38.0	-9999.0
10.99	3.35	33.7	0.15	0.4	0.652	0.000	10.7	13.3	-104.410	41.6	38.0	-9999.0
11.15	3.40	43.8	0.15	0.3	0.662	0.000	10.5	12.9	-104.410	48.9	40.0	-9999.0
11.32	3.45	52.6	0.18	0.3	0.672	0.000	12.6	15.4	-104.410	54.0	40.0	-9999.0
11.48	3.50	57.5	0.24	0.4	0.682	0.000	13.8	16.7	-104.410	56.3	42.0	-9999.0
11.65	3.55	64.8	0.32	0.5	0.692	0.000	15.5	18.6	-104.410	59.5	42.0	-9999.0
11.81	3.60	78.2	0.43	0.6	0.702	0.000	18.7	22.3	-104.410	64.7	42.0	-9999.0
11.97	3.65	93.0	0.57	0.6	0.712	0.000	22.3	26.4	-104.410	69.4	44.0	-9999.0
12.14	3.70	106.9	0.69	0.6	0.722	0.000	20.5	24.1	-104.410	73.3	44.0	-9999.0
12.30	3.75	123.6	0.70	0.6	0.732	0.000	23.7	27.7	-104.410	77.2	44.0	-9999.0
12.47	3.80	139.0	0.89	0.6	0.742	0.000	26.6	30.9	-104.410	80.4	44.0	-9999.0
12.63	3.85	146.9	1.15	0.8	0.752	0.000	28.1	32.5	-104.410	81.8	44.0	-9999.0
12.80	3.90	153.7	1.30	0.8	0.763	0.000	29.4	33.7	-104.410	82.9	46.0	-9999.0
12.96	3.95	152.7	1.36	0.9	0.773	0.000	29.2	33.3	-104.410	82.5	46.0	-9999.0
13.12	4.00	153.9	1.31	0.9	0.779	0.004	29.5	33.4	-104.410	82.6	46.0	-9999.0
13.29	4.05	148.2	1.59	1.1	0.784	0.009	28.4	32.1	-104.410	81.4	44.0	-9999.0
13.45	4.10	146.1	1.91	1.3	0.789	0.014	35.0	39.4	-104.410	80.9	44.0	-9999.0
13.62	4.15	142.7	2.96	2.1	0.794	0.019	45.5	51.1	-104.410	80.2	44.0	-9999.0
13.78	4.20	129.8	3.78	2.9	0.798	0.024	41.4	46.4	-104.410	77.4	44.0	-9999.0
13.94	4.25	101.3	3.80	3.8	0.803	0.029	38.8	43.3	8.035	70.2	44.0	10.0
14.11	4.30	101.1	3.92	3.9	0.807	0.035	48.4	53.9	8.024	-9999.0	-9999.0	10.0
14.27	4.35	135.6	4.56	3.4	0.811	0.040	52.0	57.7	10.783	78.4	44.0	10.0
14.44	4.40	142.6	5.28	3.7	0.816	0.045	68.3	75.6	-104.410	79.7	44.0	-9999.0
14.60	4.45	151.7	6.47	4.3	0.821	0.050	145.3	160.4	-104.410	81.4	44.0	-9999.0
14.76	4.50	195.3	7.64	3.9	0.826	0.055	93.5	102.9	-104.410	88.6	46.0	-9999.0
14.93	4.55	247.7	7.86	3.2	0.831	0.060	118.6	130.1	-104.410	95.0	46.0	-9999.0
15.09	4.60	374.9	7.86	2.1	0.836	0.065	89.8	98.2	-104.410	95.0	48.0	-9999.0
15.26	4.65	396.3	7.86	2.0	0.841	0.070	94.9	103.5	-104.410	95.0	48.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1752-5498
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-07
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/18/08
CPT Time: 08:47
CPT File: 390CP07.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 4.57 (ft): 15.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	11.0	0.02	0.2	0.009	0.000	4.2	8.4	0.879	70.3	50.0	10.0
0.33	0.10	24.5	0.12	0.5	0.019	0.000	7.8	15.6	-104.410	83.2	50.0	-9999.0
0.49	0.15	27.9	0.25	0.9	0.029	0.000	8.9	17.8	-104.410	81.0	50.0	-9999.0
0.66	0.20	49.1	0.47	1.0	0.038	0.000	15.7	31.3	-104.410	93.0	50.0	-9999.0
0.82	0.25	68.3	0.63	0.9	0.048	0.000	16.4	32.7	-104.410	95.0	50.0	-9999.0
0.98	0.30	62.1	0.76	1.2	0.058	0.000	19.8	39.7	-104.410	93.9	50.0	-9999.0
1.15	0.35	56.9	0.87	1.5	0.067	0.000	18.2	36.3	-104.410	89.1	50.0	-9999.0
1.31	0.40	50.2	0.97	1.9	0.077	0.000	16.0	32.0	-104.410	83.6	50.0	-9999.0
1.48	0.45	53.1	1.12	2.1	0.087	0.000	20.3	40.7	4.242	83.6	50.0	10.0
1.64	0.50	67.2	1.13	1.7	0.096	0.000	21.5	42.9	-104.410	88.8	50.0	-9999.0
1.80	0.55	63.5	1.04	1.6	0.106	0.000	20.3	40.5	-104.410	85.8	50.0	-9999.0
1.97	0.60	51.9	0.85	1.6	0.116	0.000	16.6	33.1	-104.410	78.8	48.0	-9999.0
2.13	0.65	45.6	0.83	1.8	0.125	0.000	14.5	29.1	-104.410	73.9	48.0	-9999.0
2.30	0.70	41.2	0.75	1.8	0.135	0.000	15.8	31.5	3.282	69.9	46.0	10.0
2.46	0.75	36.6	0.64	1.8	0.144	0.000	14.0	28.0	2.913	65.6	46.0	10.0
2.62	0.80	32.6	0.60	1.8	0.153	0.000	12.5	25.0	2.596	61.4	46.0	10.0
2.79	0.85	38.9	0.61	1.6	0.163	0.000	12.4	24.8	-104.410	65.6	46.0	-9999.0
2.95	0.90	44.6	0.66	1.5	0.173	0.000	14.2	28.5	-104.410	68.7	46.0	-9999.0
3.12	0.95	52.5	0.73	1.4	0.182	0.000	16.7	33.5	-104.410	72.6	46.0	-9999.0
3.28	1.00	63.4	0.86	1.4	0.192	0.000	20.2	40.5	-104.410	77.2	48.0	-9999.0
3.44	1.05	66.2	0.94	1.4	0.202	0.000	21.1	42.3	-104.410	77.8	48.0	-9999.0
3.61	1.10	61.9	0.96	1.6	0.211	0.000	19.8	39.5	-104.410	75.2	46.0	-9999.0
3.77	1.15	77.5	0.92	1.2	0.221	0.000	18.6	37.1	-104.410	81.0	48.0	-9999.0
3.94	1.20	107.2	0.99	0.9	0.231	0.000	25.7	51.3	-104.410	89.6	48.0	-9999.0
4.10	1.25	104.9	1.15	1.1	0.241	0.000	25.1	50.2	-104.410	88.4	48.0	-9999.0
4.27	1.30	82.5	1.50	1.8	0.251	0.000	26.3	52.6	-104.410	81.0	48.0	-9999.0
4.43	1.35	67.3	1.72	2.6	0.260	0.000	25.8	50.5	5.362	74.6	46.0	10.0
4.59	1.40	57.8	1.55	2.7	0.270	0.000	22.2	42.7	4.605	69.7	46.0	10.0
4.76	1.45	54.5	1.58	2.9	0.279	0.000	20.9	39.5	4.334	67.5	44.0	10.0
4.92	1.50	62.4	2.00	3.2	0.288	0.000	23.9	44.5	4.967	70.9	46.0	10.0
5.09	1.55	162.0	2.17	1.3	0.298	0.000	38.8	71.1	-104.410	95.0	50.0	-9999.0
5.25	1.60	238.4	3.62	1.5	0.308	0.000	57.1	102.8	-104.410	95.0	50.0	-9999.0
5.41	1.65	232.2	4.04	1.7	0.318	0.000	55.6	98.6	-104.410	95.0	50.0	-9999.0
5.58	1.70	272.5	4.07	1.5	0.328	0.000	65.2	113.9	-104.410	95.0	50.0	-9999.0
5.74	1.75	252.7	3.13	1.2	0.338	0.000	48.4	83.3	-104.410	95.0	50.0	-9999.0
5.91	1.80	180.4	3.50	1.9	0.348	0.000	43.2	73.2	-104.410	95.0	48.0	-9999.0
6.07	1.85	170.6	5.19	3.0	0.358	0.000	54.5	91.1	-104.410	95.0	48.0	-9999.0
6.23	1.90	172.9	5.41	3.1	0.367	0.000	55.2	91.0	-104.410	95.0	48.0	-9999.0
6.40	1.95	148.7	4.36	2.9	0.377	0.000	47.5	77.3	-104.410	92.0	48.0	-9999.0
6.56	2.00	182.6	3.50	1.9	0.387	0.000	43.7	70.3	-104.410	95.0	48.0	-9999.0
6.73	2.05	276.4	2.48	0.9	0.397	0.000	52.9	84.0	-104.410	95.0	50.0	-9999.0
6.89	2.10	304.4	2.67	0.9	0.407	0.000	58.3	91.4	-104.410	95.0	50.0	-9999.0
7.05	2.15	351.3	2.97	0.8	0.417	0.000	67.3	104.2	-104.410	95.0	50.0	-9999.0
7.22	2.20	349.9	3.08	0.9	0.427	0.000	67.0	102.5	-104.410	95.0	50.0	-9999.0
7.38	2.25	360.7	3.31	0.9	0.438	0.000	69.1	104.4	-104.410	95.0	50.0	-9999.0
7.55	2.30	380.2	3.54	0.9	0.448	0.000	72.8	108.8	-104.410	95.0	50.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	378.0	3.79	1.0	0.458	0.000	72.4	107.0	-104.410	95.0	50.0	-9999.0
7.87	2.40	370.2	3.51	0.9	0.468	0.000	70.9	103.6	-104.410	95.0	50.0	-9999.0
8.04	2.45	353.9	3.12	0.9	0.478	0.000	67.8	98.0	-104.410	95.0	50.0	-9999.0
8.20	2.50	322.8	2.93	0.9	0.489	0.000	61.8	88.5	-104.410	95.0	50.0	-9999.0
8.37	2.55	265.6	2.80	1.1	0.499	0.000	50.9	72.0	-104.410	95.0	48.0	-9999.0
8.53	2.60	196.2	2.56	1.3	0.509	0.000	37.6	52.7	-104.410	95.0	48.0	-9999.0
8.69	2.65	158.1	2.25	1.4	0.519	0.000	37.9	52.6	-104.410	89.2	46.0	-9999.0
8.86	2.70	121.5	2.37	1.9	0.529	0.000	38.8	53.4	-104.410	81.4	46.0	-9999.0
9.02	2.75	91.8	1.58	1.7	0.538	0.000	29.3	39.9	-104.410	73.1	44.0	-9999.0
9.19	2.80	70.7	1.29	1.8	0.548	0.000	22.6	30.5	-104.410	65.4	44.0	-9999.0
9.35	2.85	58.1	0.98	1.7	0.558	0.000	18.5	24.8	-104.410	59.5	42.0	-9999.0
9.51	2.90	36.7	0.80	2.2	0.567	0.000	14.1	18.7	2.889	46.0	40.0	10.0
9.68	2.95	21.3	0.62	2.9	0.577	0.000	10.2	13.5	1.662	-9999.0	-9999.0	10.0
9.84	3.00	18.3	0.47	2.6	0.586	0.000	8.8	11.4	1.416	-9999.0	-9999.0	10.0
10.01	3.05	17.3	0.38	2.2	0.595	0.000	8.3	10.7	1.334	-9999.0	-9999.0	10.0
10.17	3.10	14.2	0.34	2.4	0.605	0.000	6.8	8.7	1.087	-9999.0	-9999.0	10.0
10.33	3.15	10.9	0.33	3.0	0.614	0.000	6.9	8.9	0.820	-9999.0	-9999.0	7.1
10.50	3.20	10.4	0.29	2.8	0.624	0.000	6.7	8.4	0.784	-9999.0	-9999.0	6.5
10.66	3.25	18.7	0.20	1.1	0.633	0.000	7.2	9.0	1.448	30.0	36.0	10.0
10.83	3.30	34.4	0.37	1.1	0.643	0.000	11.0	13.7	-104.410	42.4	38.0	-9999.0
10.99	3.35	38.0	0.44	1.2	0.652	0.000	12.1	15.0	-104.410	45.1	40.0	-9999.0
11.15	3.40	44.0	0.50	1.1	0.662	0.000	14.1	17.3	-104.410	49.1	40.0	-9999.0
11.32	3.45	48.0	0.55	1.1	0.672	0.000	15.3	18.7	-104.410	51.3	40.0	-9999.0
11.48	3.50	59.1	0.54	0.9	0.681	0.000	14.2	17.1	-104.410	57.1	42.0	-9999.0
11.65	3.55	104.0	0.71	0.7	0.691	0.000	19.9	24.0	-104.410	73.1	44.0	-9999.0
11.81	3.60	109.1	0.69	0.6	0.702	0.000	20.9	24.9	-104.410	74.2	44.0	-9999.0
11.97	3.65	62.2	0.60	1.0	0.712	0.000	14.9	17.6	-104.410	57.9	42.0	-9999.0
12.14	3.70	40.8	0.56	1.4	0.721	0.000	13.0	15.3	-104.410	45.6	40.0	-9999.0
12.30	3.75	23.3	0.33	1.4	0.731	0.000	8.9	10.5	1.808	30.0	36.0	10.0
12.47	3.80	12.5	0.35	2.8	0.740	0.000	6.0	6.9	0.938	-9999.0	-9999.0	6.5
12.63	3.85	10.0	0.24	2.4	0.750	0.000	4.8	5.5	0.739	-9999.0	-9999.0	4.5
12.80	3.90	10.1	0.19	1.9	0.759	0.000	4.8	5.5	0.744	-9999.0	-9999.0	4.4
12.96	3.95	11.1	0.22	2.0	0.769	0.000	5.3	6.1	0.830	-9999.0	-9999.0	5.1
13.12	4.00	12.9	0.22	1.7	0.778	0.000	6.2	7.0	0.967	-9999.0	-9999.0	6.4
13.29	4.05	9.0	0.20	2.2	0.787	0.000	4.3	4.9	0.656	-9999.0	-9999.0	3.5
13.45	4.10	8.8	0.16	1.8	0.797	0.000	4.2	4.7	0.641	-9999.0	-9999.0	3.3
13.62	4.15	8.9	0.11	1.2	0.806	0.000	4.2	4.7	0.645	-9999.0	-9999.0	3.3
13.78	4.20	11.7	0.11	0.9	0.816	0.000	4.5	5.0	0.874	30.0	32.0	5.1
13.94	4.25	29.3	0.26	0.9	0.825	0.000	9.4	10.3	-104.410	34.3	36.0	-9999.0
14.11	4.30	18.2	0.38	2.1	0.835	0.000	8.7	9.6	1.391	-9999.0	-9999.0	10.0
14.27	4.35	13.7	0.36	2.6	0.844	0.000	6.5	7.1	1.027	-9999.0	-9999.0	6.1
14.44	4.40	10.2	0.29	2.9	0.853	0.000	6.5	7.0	0.745	-9999.0	-9999.0	3.7
14.60	4.45	10.4	0.22	2.1	0.863	0.000	5.0	5.4	0.764	-9999.0	-9999.0	3.8
14.76	4.50	10.1	0.20	2.0	0.872	0.000	4.8	5.2	0.738	-9999.0	-9999.0	3.6
14.93	4.55	10.7	0.19	1.8	0.882	0.000	5.1	5.5	0.788	-9999.0	-9999.0	3.9
15.09	4.60	11.0	0.22	2.0	0.888	0.003	5.3	5.6	0.812	-9999.0	-9999.0	4.0
15.26	4.65	18.8	0.20	1.1	0.892	0.008	7.2	7.6	1.436	30.0	34.0	9.5
15.42	4.70	26.4	0.34	1.3	0.897	0.013	10.1	10.7	2.043	30.1	36.0	10.0
15.58	4.75	20.5	0.30	1.5	0.901	0.018	7.8	8.3	1.566	30.0	34.0	10.0
15.75	4.80	15.1	0.29	1.9	0.905	0.023	7.2	7.6	1.136	-9999.0	-9999.0	6.4
15.91	4.85	22.1	0.27	1.2	0.909	0.028	8.5	8.9	1.697	30.0	34.0	10.0
16.08	4.90	40.5	0.26	0.6	0.914	0.034	12.9	13.5	-104.410	42.1	38.0	-9999.0
16.24	4.95	38.1	0.34	0.9	0.918	0.039	12.2	12.7	-104.410	40.2	38.0	-9999.0
16.40	5.00	23.9	0.47	2.0	0.923	0.044	9.1	9.5	1.833	30.0	34.0	10.0
16.57	5.05	14.2	0.40	2.8	0.927	0.049	6.8	7.0	1.055	-9999.0	-9999.0	5.5
16.73	5.10	11.1	0.18	1.6	0.931	0.054	5.3	5.5	0.808	-9999.0	-9999.0	3.7
16.90	5.15	12.5	0.26	2.1	0.936	0.059	6.0	6.2	0.921	-9999.0	-9999.0	4.4
17.06	5.20	16.1	0.38	2.4	0.940	0.064	7.7	8.0	1.211	-9999.0	-9999.0	6.7
17.22	5.25	15.4	0.43	2.8	0.944	0.069	7.4	7.6	1.149	-9999.0	-9999.0	6.1
17.39	5.30	14.4	0.43	3.0	0.948	0.075	6.9	7.1	1.071	-9999.0	-9999.0	5.5
17.55	5.35	16.1	0.40	2.5	0.953	0.080	7.7	7.9	1.208	-9999.0	-9999.0	6.6
17.72	5.40	14.1	0.42	3.0	0.957	0.085	6.8	6.9	1.048	-9999.0	-9999.0	5.2
17.88	5.45	11.5	0.40	3.5	0.961	0.090	7.4	7.5	0.838	-9999.0	-9999.0	3.7
18.04	5.50	9.4	0.27	2.9	0.966	0.095	6.0	6.1	0.663	-9999.0	-9999.0	2.6

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	8.3	0.33	4.0	0.970	0.100	8.0	8.1	0.581	-9999.0	-9999.0	2.2
18.37	5.60	10.0	0.34	3.4	0.974	0.105	6.4	6.5	0.714	-9999.0	-9999.0	2.9
18.54	5.65	44.4	0.42	0.9	0.978	0.110	14.2	14.3	-104.410	43.7	38.0	-9999.0
18.70	5.70	88.2	0.55	0.6	0.983	0.116	21.1	21.3	-104.410	63.3	42.0	-9999.0
18.86	5.75	84.3	0.51	0.6	0.988	0.121	20.2	20.3	-104.410	61.9	42.0	-9999.0
19.03	5.80	71.3	0.46	0.6	0.993	0.126	17.1	17.1	-104.410	57.1	40.0	-9999.0
19.19	5.85	56.3	0.38	0.7	0.997	0.131	13.5	13.5	-104.410	50.2	40.0	-9999.0
19.36	5.90	50.8	0.29	0.6	1.002	0.136	12.2	12.1	-104.410	47.2	38.0	-9999.0
19.52	5.95	50.2	0.24	0.5	1.007	0.141	12.0	12.0	-104.410	46.8	38.0	-9999.0
19.68	6.00	47.9	0.20	0.4	1.012	0.146	11.5	11.4	-104.410	45.4	38.0	-9999.0
19.85	6.05	43.7	0.18	0.4	1.017	0.151	10.5	10.4	-104.410	42.7	38.0	-9999.0
20.01	6.10	41.0	0.16	0.4	1.021	0.157	9.8	9.7	-104.410	40.8	38.0	-9999.0
20.18	6.15	40.5	0.17	0.4	1.026	0.162	9.7	9.6	-104.410	40.4	38.0	-9999.0
20.34	6.20	40.7	0.17	0.4	1.031	0.167	9.8	9.6	-104.410	40.5	38.0	-9999.0
20.50	6.25	40.1	0.17	0.4	1.036	0.172	9.6	9.4	-104.410	40.0	38.0	-9999.0
20.67	6.30	40.2	0.35	0.9	1.040	0.177	12.8	12.6	-104.410	40.0	38.0	-9999.0
20.83	6.35	45.9	0.61	1.3	1.045	0.182	14.7	14.3	-104.410	43.7	38.0	-9999.0
21.00	6.40	59.4	3.14	5.3	1.050	0.187	56.9	55.6	-104.410	51.0	40.0	-9999.0
21.16	6.45	106.5	2.87	2.7	1.055	0.192	34.0	33.1	-104.410	67.7	42.0	-9999.0
21.33	6.50	347.7	4.00	1.2	1.060	0.197	66.6	64.7	-104.410	95.0	48.0	-9999.0
21.49	6.55	571.3	4.00	0.7	1.065	0.203	91.2	88.4	-104.410	95.0	50.0	-9999.0
21.65	6.60	735.3	4.00	0.5	1.070	0.208	117.4	113.4	-104.410	95.0	50.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1752-5635
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-08
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/17/08
CPT Time: 11:42
CPT File: 390CP08.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 5.18 (ft): 17.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	6.8	0.02	0.3	0.009	0.000	3.3	6.5	0.546	-9999.0	-9999.0	10.0
0.33	0.10	93.0	0.04	0.0	0.019	0.000	17.8	35.6	-104.410	95.0	50.0	-9999.0
0.49	0.15	197.1	0.18	0.1	0.029	0.000	31.5	62.9	-104.410	95.0	50.0	-9999.0
0.66	0.20	210.7	0.57	0.3	0.039	0.000	40.4	80.7	-104.410	95.0	50.0	-9999.0
0.82	0.25	183.1	0.87	0.5	0.050	0.000	35.1	70.1	-104.410	95.0	50.0	-9999.0
0.98	0.30	172.8	0.93	0.5	0.060	0.000	33.1	66.2	-104.410	95.0	50.0	-9999.0
1.15	0.35	181.4	0.82	0.5	0.070	0.000	34.7	69.5	-104.410	95.0	50.0	-9999.0
1.31	0.40	170.7	0.82	0.5	0.080	0.000	32.7	65.4	-104.410	95.0	50.0	-9999.0
1.48	0.45	132.1	0.74	0.6	0.090	0.000	25.3	50.6	-104.410	95.0	50.0	-9999.0
1.64	0.50	119.4	1.09	0.9	0.100	0.000	28.6	57.2	-104.410	95.0	50.0	-9999.0
1.80	0.55	100.6	1.35	1.3	0.110	0.000	24.1	48.2	-104.410	95.0	50.0	-9999.0
1.97	0.60	77.1	1.38	1.8	0.120	0.000	24.6	49.2	-104.410	89.6	50.0	-9999.0
2.13	0.65	61.9	1.44	2.3	0.130	0.000	23.7	47.4	4.943	82.2	48.0	10.0
2.30	0.70	53.5	1.30	2.4	0.139	0.000	20.5	41.0	4.272	77.0	48.0	10.0
2.46	0.75	46.5	1.15	2.5	0.148	0.000	17.8	35.6	3.704	72.0	46.0	10.0
2.62	0.80	39.3	1.01	2.6	0.158	0.000	15.0	30.1	3.130	66.3	46.0	10.0
2.79	0.85	36.8	0.89	2.4	0.167	0.000	14.1	28.2	2.931	63.6	46.0	10.0
2.95	0.90	40.2	0.86	2.1	0.177	0.000	15.4	30.8	3.206	65.4	46.0	10.0
3.12	0.95	42.7	0.79	1.9	0.186	0.000	16.4	32.7	3.404	66.4	46.0	10.0
3.28	1.00	33.9	0.70	2.1	0.195	0.000	13.0	25.9	2.693	59.0	44.0	10.0
3.44	1.05	31.8	0.64	2.0	0.205	0.000	12.2	24.4	2.529	56.6	44.0	10.0
3.61	1.10	29.4	0.58	2.0	0.214	0.000	11.3	22.6	2.339	53.7	44.0	10.0
3.77	1.15	31.4	0.54	1.7	0.224	0.000	12.0	24.0	2.491	54.9	44.0	10.0
3.94	1.20	41.1	0.56	1.4	0.233	0.000	13.1	26.2	-104.410	62.0	44.0	-9999.0
4.10	1.25	52.1	0.65	1.3	0.243	0.000	16.6	33.3	-104.410	68.3	46.0	-9999.0
4.27	1.30	55.2	0.77	1.4	0.252	0.000	17.6	35.1	-104.410	69.3	46.0	-9999.0
4.43	1.35	51.9	0.94	1.8	0.262	0.000	16.6	32.4	-104.410	67.1	46.0	-9999.0
4.59	1.40	61.1	1.02	1.7	0.272	0.000	19.5	37.4	-104.410	71.2	46.0	-9999.0
4.76	1.45	90.3	1.15	1.3	0.282	0.000	21.6	40.7	-104.410	81.9	46.0	-9999.0
4.92	1.50	85.5	1.33	1.6	0.291	0.000	27.3	50.6	-104.410	79.8	46.0	-9999.0
5.09	1.55	75.4	1.61	2.1	0.301	0.000	24.1	43.9	-104.410	75.8	46.0	-9999.0
5.25	1.60	70.6	1.75	2.5	0.311	0.000	27.1	48.6	5.626	73.5	46.0	10.0
5.41	1.65	60.0	1.74	2.9	0.320	0.000	23.0	40.7	4.777	68.4	44.0	10.0
5.58	1.70	45.9	1.58	3.4	0.329	0.000	22.0	38.3	3.647	-9999.0	-9999.0	10.0
5.74	1.75	54.2	1.48	2.7	0.339	0.000	20.8	35.7	4.310	64.6	44.0	10.0
5.91	1.80	161.5	1.83	1.1	0.349	0.000	30.9	52.4	-104.410	95.0	48.0	-9999.0
6.07	1.85	293.8	3.01	1.0	0.359	0.000	56.3	94.0	-104.410	95.0	50.0	-9999.0
6.23	1.90	334.9	3.23	1.0	0.369	0.000	64.1	105.6	-104.410	95.0	50.0	-9999.0
6.40	1.95	406.3	3.08	0.8	0.379	0.000	64.9	105.3	-104.410	95.0	50.0	-9999.0
6.56	2.00	440.9	2.88	0.7	0.390	0.000	70.4	112.8	-104.410	95.0	50.0	-9999.0
6.73	2.05	448.8	2.73	0.6	0.400	0.000	71.6	113.3	-104.410	95.0	50.0	-9999.0
6.89	2.10	444.7	2.65	0.6	0.411	0.000	71.0	110.8	-104.410	95.0	50.0	-9999.0
7.05	2.15	475.2	2.49	0.5	0.421	0.000	75.8	116.9	-104.410	95.0	50.0	-9999.0
7.22	2.20	509.1	2.41	0.5	0.431	0.000	81.3	123.7	-104.410	95.0	50.0	-9999.0
7.38	2.25	531.8	2.33	0.4	0.442	0.000	84.9	127.7	-104.410	95.0	50.0	-9999.0
7.55	2.30	563.7	2.46	0.4	0.452	0.000	90.0	133.8	-104.410	95.0	50.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	564.5	2.64	0.5	0.463	0.000	90.1	132.5	-104.410	95.0	50.0	-9999.0
7.87	2.40	544.1	2.60	0.5	0.473	0.000	86.8	126.3	-104.410	95.0	50.0	-9999.0
8.04	2.45	499.8	2.77	0.6	0.484	0.000	79.8	114.7	-104.410	95.0	50.0	-9999.0
8.20	2.50	434.4	3.28	0.8	0.494	0.000	69.3	98.7	-104.410	95.0	50.0	-9999.0
8.37	2.55	346.4	3.62	1.0	0.504	0.000	66.3	93.4	-104.410	95.0	50.0	-9999.0
8.53	2.60	236.3	3.16	1.3	0.515	0.000	45.3	63.1	-104.410	95.0	48.0	-9999.0
8.69	2.65	145.2	2.58	1.8	0.525	0.000	34.8	48.0	-104.410	86.6	46.0	-9999.0
8.86	2.70	85.8	2.26	2.6	0.534	0.000	32.9	45.0	6.824	71.3	44.0	10.0
9.02	2.75	61.0	2.46	4.0	0.544	0.000	29.2	39.6	4.836	-9999.0	-9999.0	10.0
9.19	2.80	48.1	2.22	4.6	0.553	0.000	30.7	41.3	3.803	-9999.0	-9999.0	10.0
9.35	2.85	111.8	2.37	2.1	0.563	0.000	35.7	47.6	-104.410	78.1	46.0	-9999.0
9.51	2.90	198.1	2.14	1.1	0.572	0.000	37.9	50.1	-104.410	94.2	48.0	-9999.0
9.68	2.95	229.6	2.04	0.9	0.583	0.000	44.0	57.6	-104.410	95.0	48.0	-9999.0
9.84	3.00	244.5	1.38	0.6	0.593	0.000	46.8	60.8	-104.410	95.0	48.0	-9999.0
10.01	3.05	231.9	1.45	0.6	0.603	0.000	44.4	57.2	-104.410	95.0	48.0	-9999.0
10.17	3.10	199.6	1.33	0.7	0.613	0.000	38.2	48.8	-104.410	93.5	48.0	-9999.0
10.33	3.15	166.1	1.13	0.7	0.623	0.000	31.8	40.3	-104.410	88.0	46.0	-9999.0
10.50	3.20	129.7	1.07	0.8	0.634	0.000	24.8	31.2	-104.410	80.7	46.0	-9999.0
10.66	3.25	88.8	1.02	1.2	0.644	0.000	21.3	26.5	-104.410	69.6	44.0	-9999.0
10.83	3.30	63.4	0.90	1.4	0.653	0.000	20.2	25.0	-104.410	59.7	42.0	-9999.0
10.99	3.35	72.0	1.01	1.4	0.663	0.000	23.0	28.2	-104.410	63.1	42.0	-9999.0
11.15	3.40	52.8	1.10	2.1	0.673	0.000	20.2	24.6	4.166	54.0	40.0	10.0
11.32	3.45	40.1	0.68	1.7	0.682	0.000	12.8	15.5	-104.410	45.9	40.0	-9999.0
11.48	3.50	42.3	0.43	1.0	0.692	0.000	13.5	16.3	-104.410	47.3	40.0	-9999.0
11.65	3.55	57.3	0.20	0.3	0.702	0.000	13.7	16.4	-104.410	55.8	42.0	-9999.0
11.81	3.60	53.9	0.16	0.3	0.711	0.000	12.9	15.3	-104.410	53.8	40.0	-9999.0
11.97	3.65	43.3	0.36	0.8	0.721	0.000	13.8	16.3	-104.410	47.3	40.0	-9999.0
12.14	3.70	33.3	0.36	1.1	0.731	0.000	10.6	12.4	-104.410	39.7	38.0	-9999.0
12.30	3.75	31.0	0.49	1.6	0.740	0.000	11.9	13.8	2.418	37.4	38.0	10.0
12.47	3.80	25.6	0.47	1.8	0.750	0.000	9.8	11.3	1.988	31.7	36.0	10.0
12.63	3.85	34.5	0.44	1.3	0.759	0.000	11.0	12.6	-104.410	40.1	38.0	-9999.0
12.80	3.90	31.2	0.38	1.2	0.769	0.000	9.9	11.3	-104.410	37.0	38.0	-9999.0
12.96	3.95	31.4	0.30	1.0	0.779	0.000	10.0	11.4	-104.410	37.1	38.0	-9999.0
13.12	4.00	30.6	0.23	0.8	0.788	0.000	9.8	11.0	-104.410	36.1	38.0	-9999.0
13.29	4.05	34.3	0.24	0.7	0.798	0.000	10.9	12.3	-104.410	39.2	38.0	-9999.0
13.45	4.10	34.2	0.26	0.8	0.808	0.000	10.9	12.1	-104.410	38.9	38.0	-9999.0
13.62	4.15	34.6	0.28	0.8	0.817	0.000	11.0	12.2	-104.410	39.1	38.0	-9999.0
13.78	4.20	41.8	0.25	0.6	0.827	0.000	13.3	14.7	-104.410	44.4	38.0	-9999.0
13.94	4.25	34.2	0.26	0.8	0.837	0.000	10.9	11.9	-104.410	38.4	38.0	-9999.0
14.11	4.30	28.7	0.22	0.8	0.846	0.000	9.2	9.9	-104.410	33.2	36.0	-9999.0
14.27	4.35	29.0	0.23	0.8	0.856	0.000	9.3	10.0	-104.410	33.4	36.0	-9999.0
14.44	4.40	27.3	0.19	0.7	0.866	0.000	8.7	9.4	-104.410	31.5	36.0	-9999.0
14.60	4.45	31.7	0.14	0.4	0.875	0.000	10.1	10.8	-104.410	35.7	38.0	-9999.0
14.76	4.50	33.0	0.12	0.4	0.885	0.000	10.5	11.2	-104.410	36.6	38.0	-9999.0
14.93	4.55	35.6	0.14	0.4	0.895	0.000	11.4	12.0	-104.410	38.6	38.0	-9999.0
15.09	4.60	38.6	0.29	0.8	0.904	0.000	12.3	13.0	-104.410	40.8	38.0	-9999.0
15.26	4.65	28.2	0.42	1.5	0.914	0.000	10.8	11.3	2.185	31.7	36.0	10.0
15.42	4.70	24.6	0.30	1.2	0.923	0.000	9.4	9.8	1.893	30.0	34.0	10.0
15.58	4.75	23.2	0.38	1.6	0.933	0.000	8.9	9.2	1.780	30.0	34.0	10.0
15.75	4.80	28.2	0.35	1.2	0.942	0.000	9.0	9.3	-104.410	31.3	36.0	-9999.0
15.91	4.85	21.1	0.23	1.1	0.952	0.000	8.1	8.3	1.610	30.0	34.0	10.0
16.08	4.90	35.4	0.26	0.7	0.961	0.000	11.3	11.5	-104.410	37.4	38.0	-9999.0
16.24	4.95	38.6	0.23	0.6	0.971	0.000	12.3	12.5	-104.410	39.8	38.0	-9999.0
16.40	5.00	42.3	0.26	0.6	0.981	0.000	13.5	13.6	-104.410	42.3	38.0	-9999.0
16.57	5.05	42.4	0.44	1.0	0.990	0.000	13.5	13.6	-104.410	42.2	38.0	-9999.0
16.73	5.10	28.4	0.56	2.0	1.000	0.000	10.9	10.9	2.194	30.6	36.0	10.0
16.90	5.15	22.6	0.52	2.3	1.009	0.000	8.7	8.6	1.728	30.0	34.0	10.0
17.06	5.20	24.1	0.51	2.1	1.017	0.002	9.3	9.2	1.850	30.0	34.0	10.0
17.22	5.25	14.2	0.33	2.3	1.021	0.007	6.8	6.8	1.057	-9999.0	-9999.0	4.8
17.39	5.30	14.9	0.24	1.6	1.025	0.012	5.7	5.7	1.113	30.0	32.0	5.2
17.55	5.35	15.0	0.21	1.4	1.029	0.017	5.8	5.7	1.118	30.0	32.0	5.2
17.72	5.40	14.6	0.23	1.6	1.034	0.022	5.6	5.5	1.086	30.0	30.0	4.9
17.88	5.45	28.9	0.34	1.2	1.038	0.027	9.2	9.0	-104.410	30.5	36.0	-9999.0
18.04	5.50	24.1	0.39	1.6	1.043	0.033	9.2	9.0	1.841	30.0	34.0	10.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	14.4	0.31	2.2	1.047	0.038	6.9	6.7	1.064	-9999.0	-9999.0	4.7
18.37	5.60	13.9	0.26	1.9	1.051	0.043	6.6	6.5	1.022	-9999.0	-9999.0	4.4
18.54	5.65	23.0	0.31	1.4	1.055	0.048	8.8	8.6	1.752	30.0	34.0	10.0
18.70	5.70	23.6	0.18	0.8	1.060	0.053	7.5	7.3	-104.410	30.0	34.0	-9999.0
18.86	5.75	37.4	0.24	0.6	1.064	0.058	12.0	11.6	-104.410	37.6	36.0	-9999.0
19.03	5.80	31.0	0.42	1.4	1.069	0.063	9.9	9.6	-104.410	32.1	36.0	-9999.0
19.19	5.85	21.1	0.32	1.5	1.073	0.068	8.1	7.8	1.601	30.0	32.0	8.4
19.36	5.90	24.6	0.50	2.0	1.078	0.074	9.4	9.1	1.876	30.0	34.0	10.0
19.52	5.95	26.1	0.67	2.6	1.082	0.079	10.0	9.6	1.993	30.0	34.0	10.0
19.68	6.00	16.1	0.55	3.4	1.086	0.084	10.3	9.9	1.195	-9999.0	-9999.0	5.3
19.85	6.05	10.3	0.35	3.4	1.090	0.089	6.6	6.3	0.729	-9999.0	-9999.0	2.5
20.01	6.10	9.7	0.21	2.2	1.095	0.094	4.6	4.4	0.677	-9999.0	-9999.0	2.3
20.18	6.15	10.8	0.14	1.3	1.099	0.099	5.2	4.9	0.769	-9999.0	-9999.0	2.7
20.34	6.20	13.2	0.09	0.7	1.103	0.104	5.1	4.8	0.962	30.0	30.0	3.7
20.50	6.25	10.6	0.12	1.1	1.107	0.109	5.1	4.8	0.752	-9999.0	-9999.0	2.6
20.67	6.30	10.3	0.15	1.5	1.112	0.115	4.9	4.7	0.726	-9999.0	-9999.0	2.5
20.83	6.35	10.4	0.17	1.6	1.116	0.120	5.0	4.7	0.736	-9999.0	-9999.0	2.5
21.00	6.40	16.4	0.25	1.5	1.120	0.125	6.3	6.0	1.216	30.0	32.0	5.2
21.16	6.45	26.1	0.32	1.2	1.125	0.130	10.0	9.4	1.986	30.0	34.0	10.0
21.33	6.50	28.1	0.40	1.4	1.129	0.135	10.8	10.1	2.149	30.0	34.0	10.0
21.49	6.55	17.0	0.32	1.9	1.133	0.140	6.5	6.1	1.259	30.0	32.0	5.3
21.65	6.60	14.3	0.30	2.1	1.137	0.145	6.9	6.4	1.043	-9999.0	-9999.0	4.0
21.82	6.65	16.3	0.49	3.0	1.142	0.150	7.8	7.3	1.201	-9999.0	-9999.0	4.9
21.98	6.70	20.0	0.30	1.5	1.146	0.156	7.7	7.2	1.497	30.0	32.0	6.9
22.15	6.75	13.2	0.28	2.1	1.150	0.161	6.3	5.9	0.950	-9999.0	-9999.0	3.4
22.31	6.80	10.8	0.19	1.8	1.154	0.166	5.2	4.8	0.761	-9999.0	-9999.0	2.5
22.47	6.85	11.1	0.13	1.2	1.159	0.171	5.3	4.9	0.781	-9999.0	-9999.0	2.6
22.64	6.90	11.0	0.14	1.3	1.163	0.176	5.3	4.9	0.776	-9999.0	-9999.0	2.5
22.80	6.95	10.7	0.14	1.3	1.167	0.181	5.1	4.8	0.750	-9999.0	-9999.0	2.4
22.97	7.00	29.6	0.16	0.5	1.172	0.186	9.4	8.7	-104.410	30.0	34.0	-9999.0
23.13	7.05	63.8	0.27	0.4	1.176	0.191	15.3	14.1	-104.410	51.5	40.0	-9999.0
23.29	7.10	88.7	0.46	0.5	1.181	0.197	21.2	19.5	-104.410	60.8	40.0	-9999.0
23.46	7.15	111.9	0.60	0.5	1.186	0.202	21.4	19.7	-104.410	67.4	42.0	-9999.0
23.62	7.20	121.3	0.67	0.6	1.191	0.207	23.2	21.3	-104.410	69.7	42.0	-9999.0
23.79	7.25	118.4	0.71	0.6	1.196	0.212	22.7	20.7	-104.410	68.9	42.0	-9999.0
23.95	7.30	109.5	0.68	0.6	1.201	0.217	21.0	19.1	-104.410	66.6	42.0	-9999.0
24.11	7.35	94.9	0.62	0.7	1.206	0.222	22.7	20.7	-104.410	62.5	40.0	-9999.0
24.28	7.40	79.2	0.49	0.6	1.211	0.227	19.0	17.2	-104.410	57.2	40.0	-9999.0
24.44	7.45	63.7	0.40	0.6	1.216	0.232	15.3	13.8	-104.410	50.9	38.0	-9999.0
24.61	7.50	48.6	0.41	0.8	1.220	0.237	15.5	14.0	-104.410	43.1	38.0	-9999.0
24.77	7.55	38.9	0.40	1.0	1.225	0.243	12.4	11.2	-104.410	36.7	36.0	-9999.0
24.93	7.60	36.5	0.40	1.1	1.230	0.248	11.6	10.5	-104.410	34.8	36.0	-9999.0
25.10	7.65	38.2	0.35	0.9	1.234	0.253	12.2	11.0	-104.410	36.1	36.0	-9999.0
25.26	7.70	42.7	0.10	0.2	1.239	0.258	10.2	9.2	-104.410	39.2	36.0	-9999.0
25.43	7.75	45.1	0.09	0.2	1.244	0.263	10.8	9.7	-104.410	40.7	38.0	-9999.0
25.59	7.80	49.3	0.13	0.3	1.248	0.268	11.8	10.6	-104.410	43.2	38.0	-9999.0
25.75	7.85	56.8	0.20	0.4	1.253	0.273	13.6	12.2	-104.410	47.2	38.0	-9999.0
25.92	7.90	74.5	0.28	0.4	1.258	0.278	17.8	15.9	-104.410	54.9	40.0	-9999.0
26.08	7.95	90.2	0.38	0.4	1.263	0.284	17.3	15.4	-104.410	60.3	40.0	-9999.0
26.25	8.00	87.5	0.45	0.5	1.268	0.289	20.9	18.6	-104.410	59.4	40.0	-9999.0
26.41	8.05	87.8	0.44	0.5	1.273	0.294	21.0	18.6	-104.410	59.5	40.0	-9999.0
26.57	8.10	85.6	0.37	0.4	1.277	0.299	20.5	18.1	-104.410	58.7	40.0	-9999.0
26.74	8.15	83.6	0.30	0.4	1.282	0.304	20.0	17.7	-104.410	58.0	40.0	-9999.0
26.90	8.20	78.9	0.33	0.4	1.287	0.309	18.9	16.7	-104.410	56.3	40.0	-9999.0
27.07	8.25	72.3	0.27	0.4	1.292	0.314	17.3	15.2	-104.410	53.7	40.0	-9999.0
27.23	8.30	66.3	0.25	0.4	1.297	0.319	15.9	14.0	-104.410	51.2	38.0	-9999.0
27.39	8.35	54.8	0.20	0.4	1.301	0.325	13.1	11.5	-104.410	45.6	38.0	-9999.0
27.56	8.40	46.3	0.14	0.3	1.306	0.330	11.1	9.7	-104.410	40.8	36.0	-9999.0
27.72	8.45	41.4	0.24	0.6	1.311	0.335	13.2	11.5	-104.410	37.5	36.0	-9999.0
27.89	8.50	38.6	0.31	0.8	1.315	0.340	12.3	10.7	-104.410	35.4	36.0	-9999.0
28.05	8.55	42.3	0.33	0.8	1.320	0.345	13.5	11.7	-104.410	38.0	36.0	-9999.0
28.21	8.60	51.1	0.36	0.7	1.325	0.350	12.2	10.6	-104.410	43.4	38.0	-9999.0
28.38	8.65	63.6	0.38	0.6	1.329	0.355	15.2	13.2	-104.410	49.6	38.0	-9999.0
28.54	8.70	65.3	0.10	0.2	1.334	0.360	15.6	13.5	-104.410	50.3	38.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
28.71	8.75	70.1	0.17	0.2	1.339	0.366	16.8	14.5	-104.410	52.3	38.0	-9999.0
28.87	8.80	75.1	0.30	0.4	1.344	0.371	18.0	15.5	-104.410	54.2	40.0	-9999.0
29.04	8.85	90.1	0.41	0.5	1.349	0.376	17.3	14.9	-104.410	59.4	40.0	-9999.0
29.20	8.90	103.1	0.75	0.7	1.354	0.381	24.7	21.2	-104.410	63.2	40.0	-9999.0
29.36	8.95	129.0	1.10	0.9	1.359	0.386	24.7	21.2	-104.410	69.6	42.0	-9999.0
29.53	9.00	199.6	1.19	0.6	1.364	0.391	38.2	32.7	-104.410	82.0	44.0	-9999.0
29.69	9.05	161.7	1.55	1.0	1.369	0.396	31.0	26.5	-104.410	75.9	42.0	-9999.0
29.86	9.10	97.4	2.11	2.2	1.373	0.401	31.1	26.5	-104.410	61.4	40.0	-9999.0
30.02	9.15	75.3	1.94	2.6	1.378	0.407	28.9	24.6	5.884	53.9	40.0	10.0
30.18	9.20	83.7	2.33	2.8	1.382	0.412	32.0	27.3	6.549	56.9	40.0	10.0
30.35	9.25	157.0	2.68	1.7	1.387	0.417	37.6	31.9	-104.410	74.9	42.0	-9999.0
30.51	9.30	226.0	4.28	1.9	1.392	0.422	54.1	45.9	-104.410	85.3	44.0	-9999.0
30.68	9.35	255.7	6.31	2.5	1.396	0.427	81.6	69.1	-104.410	88.8	44.0	-9999.0
30.84	9.40	275.2	8.00	2.9	1.401	0.432	131.8	111.3	-104.410	90.8	44.0	-9999.0
31.00	9.45	375.1	8.00	2.1	1.406	0.437	89.8	75.8	-104.410	95.0	46.0	-9999.0
31.17	9.50	526.0	8.00	1.5	1.411	0.442	100.8	84.8	-104.410	95.0	48.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1752-5789
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-09
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/18/08
CPT Time: 12:49
CPT File: 390CP09.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 7.32 (ft): 24.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	3.8	0.02	0.5	0.009	0.000	1.8	3.6	0.304	-9999.0	-9999.0	10.0
0.33	0.10	52.0	0.04	0.1	0.019	0.000	12.5	24.9	-104.410	95.0	50.0	-9999.0
0.49	0.15	101.5	0.21	0.2	0.029	0.000	19.4	38.9	-104.410	95.0	50.0	-9999.0
0.66	0.20	119.1	0.35	0.3	0.039	0.000	22.8	45.6	-104.410	95.0	50.0	-9999.0
0.82	0.25	115.1	0.51	0.4	0.049	0.000	22.1	44.1	-104.410	95.0	50.0	-9999.0
0.98	0.30	111.9	2.07	1.8	0.059	0.000	35.7	71.4	-104.410	95.0	50.0	-9999.0
1.15	0.35	124.6	1.69	1.4	0.069	0.000	29.8	59.6	-104.410	95.0	50.0	-9999.0
1.31	0.40	216.2	2.33	1.1	0.079	0.000	41.4	82.8	-104.410	95.0	50.0	-9999.0
1.48	0.45	224.0	3.58	1.6	0.089	0.000	53.6	107.3	-104.410	95.0	50.0	-9999.0
1.64	0.50	187.0	3.99	2.1	0.099	0.000	59.7	119.4	-104.410	95.0	50.0	-9999.0
1.80	0.55	189.2	4.23	2.2	0.108	0.000	60.4	120.8	-104.410	95.0	50.0	-9999.0
1.97	0.60	194.0	3.83	2.0	0.118	0.000	46.4	92.9	-104.410	95.0	50.0	-9999.0
2.13	0.65	198.7	3.73	1.9	0.128	0.000	47.6	95.2	-104.410	95.0	50.0	-9999.0
2.30	0.70	172.3	3.39	2.0	0.138	0.000	41.3	82.5	-104.410	95.0	50.0	-9999.0
2.46	0.75	133.4	2.82	2.1	0.148	0.000	42.6	85.2	-104.410	95.0	50.0	-9999.0
2.62	0.80	104.6	3.07	2.9	0.157	0.000	40.1	80.1	8.354	94.4	50.0	10.0
2.79	0.85	75.0	3.00	4.0	0.167	0.000	35.9	71.8	5.986	-9999.0	-9999.0	10.0
2.95	0.90	57.0	2.86	5.0	0.176	0.000	36.4	72.8	4.549	-9999.0	-9999.0	10.0
3.12	0.95	49.8	2.42	4.9	0.185	0.000	31.8	63.5	3.965	-9999.0	-9999.0	10.0
3.28	1.00	41.6	2.21	5.3	0.195	0.000	39.8	79.6	3.311	-9999.0	-9999.0	10.0
3.44	1.05	38.8	1.86	4.8	0.204	0.000	24.8	49.6	3.090	-9999.0	-9999.0	10.0
3.61	1.10	41.5	1.57	3.8	0.213	0.000	19.8	39.7	3.299	-9999.0	-9999.0	10.0
3.77	1.15	42.1	1.45	3.5	0.223	0.000	20.2	40.3	3.349	-9999.0	-9999.0	10.0
3.94	1.20	37.7	1.48	3.9	0.232	0.000	18.1	36.1	3.000	-9999.0	-9999.0	10.0
4.10	1.25	38.0	1.76	4.6	0.242	0.000	24.3	48.5	3.020	-9999.0	-9999.0	10.0
4.27	1.30	45.1	2.00	4.4	0.251	0.000	28.8	57.5	3.587	-9999.0	-9999.0	10.0
4.43	1.35	73.7	2.63	3.6	0.260	0.000	28.2	55.3	5.876	77.2	46.0	10.0
4.59	1.40	99.9	3.18	3.2	0.270	0.000	38.3	73.6	7.967	85.4	48.0	10.0
4.76	1.45	105.6	3.39	3.2	0.279	0.000	40.5	76.6	8.426	86.5	48.0	10.0
4.92	1.50	83.7	3.10	3.7	0.289	0.000	32.1	59.7	6.672	79.4	46.0	10.0
5.09	1.55	45.4	2.35	5.2	0.298	0.000	43.5	79.7	3.609	-9999.0	-9999.0	10.0
5.25	1.60	45.3	1.45	3.2	0.307	0.000	17.3	31.3	3.598	60.9	44.0	10.0
5.41	1.65	52.5	1.47	2.8	0.317	0.000	20.1	35.8	4.175	64.7	44.0	10.0
5.58	1.70	40.6	1.49	3.7	0.326	0.000	19.4	34.0	3.219	-9999.0	-9999.0	10.0
5.74	1.75	83.7	0.99	1.2	0.336	0.000	20.0	34.6	-104.410	77.2	46.0	-9999.0
5.91	1.80	110.2	0.97	0.9	0.345	0.000	26.4	44.9	-104.410	84.7	46.0	-9999.0
6.07	1.85	110.5	0.95	0.9	0.355	0.000	26.4	44.4	-104.410	84.3	46.0	-9999.0
6.23	1.90	99.7	0.84	0.8	0.365	0.000	23.9	39.5	-104.410	81.0	46.0	-9999.0
6.40	1.95	83.9	0.70	0.8	0.375	0.000	20.1	32.8	-104.410	75.7	46.0	-9999.0
6.56	2.00	74.8	0.62	0.8	0.385	0.000	17.9	28.9	-104.410	72.0	44.0	-9999.0
6.73	2.05	72.2	0.46	0.6	0.395	0.000	17.3	27.5	-104.410	70.6	44.0	-9999.0
6.89	2.10	77.6	0.44	0.6	0.405	0.000	18.6	29.2	-104.410	72.3	44.0	-9999.0
7.05	2.15	80.7	0.43	0.5	0.415	0.000	19.3	30.0	-104.410	73.1	44.0	-9999.0
7.22	2.20	75.1	0.39	0.5	0.425	0.000	18.0	27.6	-104.410	70.7	44.0	-9999.0
7.38	2.25	67.1	0.33	0.5	0.435	0.000	16.1	24.4	-104.410	67.2	44.0	-9999.0
7.55	2.30	62.2	0.36	0.6	0.445	0.000	14.9	22.3	-104.410	64.7	44.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	53.8	0.51	0.9	0.454	0.000	17.2	25.5	-104.410	60.2	42.0	-9999.0
7.87	2.40	35.8	0.60	1.7	0.464	0.000	13.7	20.1	2.824	48.2	40.0	10.0
8.04	2.45	36.3	0.50	1.4	0.474	0.000	11.6	16.9	-104.410	48.4	40.0	-9999.0
8.20	2.50	36.2	0.48	1.3	0.483	0.000	11.6	16.6	-104.410	48.0	40.0	-9999.0
8.37	2.55	28.5	0.45	1.6	0.493	0.000	10.9	15.6	2.244	40.9	40.0	10.0
8.53	2.60	23.1	0.46	2.0	0.502	0.000	8.9	12.5	1.809	34.5	38.0	10.0
8.69	2.65	22.8	0.44	1.9	0.512	0.000	8.7	12.2	1.783	33.9	38.0	10.0
8.86	2.70	23.8	0.42	1.8	0.521	0.000	9.1	12.6	1.864	34.9	38.0	10.0
9.02	2.75	24.5	0.16	0.7	0.530	0.000	7.8	10.7	-104.410	35.4	38.0	-9999.0
9.19	2.80	27.2	0.19	0.7	0.540	0.000	8.7	11.8	-104.410	38.2	38.0	-9999.0
9.35	2.85	20.6	0.23	1.1	0.550	0.000	7.9	10.7	1.606	30.0	38.0	10.0
9.51	2.90	13.9	0.21	1.5	0.559	0.000	5.3	7.1	1.069	30.0	34.0	10.0
9.68	2.95	21.2	0.19	0.9	0.568	0.000	8.1	10.8	1.651	30.3	38.0	10.0
9.84	3.00	27.2	0.14	0.5	0.578	0.000	8.7	11.4	-104.410	37.2	38.0	-9999.0
10.01	3.05	25.9	0.09	0.3	0.588	0.000	8.3	10.8	-104.410	35.5	38.0	-9999.0
10.17	3.10	23.2	0.09	0.4	0.597	0.000	7.4	9.6	-104.410	32.1	38.0	-9999.0
10.33	3.15	23.5	0.08	0.3	0.607	0.000	7.5	9.6	-104.410	32.3	38.0	-9999.0
10.50	3.20	28.0	0.09	0.3	0.617	0.000	8.9	11.4	-104.410	37.1	38.0	-9999.0
10.66	3.25	28.9	0.13	0.5	0.626	0.000	9.2	11.7	-104.410	37.8	38.0	-9999.0
10.83	3.30	22.1	0.35	1.6	0.636	0.000	8.5	10.6	1.717	30.0	36.0	10.0
10.99	3.35	15.0	0.34	2.3	0.645	0.000	7.2	9.0	1.149	-9999.0	-9999.0	10.0
11.15	3.40	14.9	0.38	2.6	0.655	0.000	7.1	8.8	1.138	-9999.0	-9999.0	10.0
11.32	3.45	20.4	0.36	1.8	0.664	0.000	7.8	9.6	1.577	30.0	36.0	10.0
11.48	3.50	24.7	0.30	1.2	0.673	0.000	9.4	11.5	1.919	32.2	38.0	10.0
11.65	3.55	27.4	0.21	0.8	0.683	0.000	8.7	10.6	-104.410	35.0	38.0	-9999.0
11.81	3.60	24.5	0.22	0.9	0.693	0.000	7.8	9.4	-104.410	31.6	36.0	-9999.0
11.97	3.65	21.0	0.35	1.7	0.702	0.000	8.1	9.6	1.625	30.0	36.0	10.0
12.14	3.70	14.9	0.31	2.1	0.711	0.000	7.2	8.5	1.138	-9999.0	-9999.0	9.4
12.30	3.75	16.4	0.27	1.6	0.721	0.000	6.3	7.4	1.256	30.0	34.0	10.0
12.47	3.80	21.1	0.38	1.8	0.730	0.000	8.1	9.4	1.628	30.0	36.0	10.0
12.63	3.85	16.4	0.29	1.8	0.740	0.000	6.3	7.3	1.255	30.0	34.0	10.0
12.80	3.90	23.3	0.23	1.0	0.749	0.000	8.9	10.3	1.801	30.0	36.0	10.0
12.96	3.95	33.4	0.21	0.6	0.759	0.000	10.6	12.2	-104.410	39.1	38.0	-9999.0
13.12	4.00	26.3	0.15	0.6	0.768	0.000	8.4	9.6	-104.410	32.1	36.0	-9999.0
13.29	4.05	25.2	0.14	0.6	0.778	0.000	8.1	9.1	-104.410	30.8	36.0	-9999.0
13.45	4.10	24.5	0.13	0.5	0.788	0.000	7.8	8.8	-104.410	30.0	36.0	-9999.0
13.62	4.15	26.2	0.12	0.5	0.797	0.000	8.4	9.4	-104.410	31.5	36.0	-9999.0
13.78	4.20	23.6	0.24	1.0	0.807	0.000	9.1	10.1	1.826	30.0	36.0	10.0
13.94	4.25	19.1	0.35	1.8	0.816	0.000	7.3	8.1	1.462	30.0	34.0	10.0
14.11	4.30	17.4	0.36	2.1	0.826	0.000	8.4	9.2	1.329	-9999.0	-9999.0	9.5
14.27	4.35	21.3	0.28	1.3	0.835	0.000	8.2	8.9	1.640	30.0	34.0	10.0
14.44	4.40	29.3	0.29	1.0	0.844	0.000	9.3	10.2	-104.410	33.9	36.0	-9999.0
14.60	4.45	27.2	0.40	1.5	0.854	0.000	10.4	11.3	2.109	31.6	36.0	10.0
14.76	4.50	20.7	0.44	2.1	0.863	0.000	7.9	8.5	1.587	30.0	34.0	10.0
14.93	4.55	23.0	0.42	1.8	0.873	0.000	8.8	9.4	1.770	30.0	34.0	10.0
15.09	4.60	26.6	0.37	1.4	0.882	0.000	10.2	10.8	2.056	30.5	36.0	10.0
15.26	4.65	31.2	0.30	1.0	0.892	0.000	10.0	10.5	-104.410	34.9	36.0	-9999.0
15.42	4.70	25.5	0.41	1.6	0.901	0.000	9.8	10.3	1.968	30.0	36.0	10.0
15.58	4.75	18.8	0.47	2.5	0.911	0.000	9.0	9.4	1.430	-9999.0	-9999.0	9.2
15.75	4.80	14.0	0.40	2.9	0.920	0.000	6.7	7.0	1.046	-9999.0	-9999.0	5.5
15.91	4.85	9.9	0.30	3.0	0.929	0.000	6.3	6.5	0.715	-9999.0	-9999.0	3.1
16.08	4.90	10.0	0.23	2.3	0.939	0.000	4.8	4.9	0.721	-9999.0	-9999.0	3.1
16.24	4.95	18.1	0.21	1.2	0.948	0.000	7.0	7.1	1.376	30.0	32.0	8.1
16.40	5.00	47.9	0.22	0.5	0.958	0.000	11.5	11.7	-104.410	46.2	38.0	-9999.0
16.57	5.05	54.8	0.24	0.4	0.968	0.000	13.1	13.3	-104.410	49.9	40.0	-9999.0
16.73	5.10	56.9	0.26	0.5	0.978	0.000	13.6	13.8	-104.410	50.8	40.0	-9999.0
16.90	5.15	52.9	0.28	0.5	0.988	0.000	12.7	12.8	-104.410	48.6	38.0	-9999.0
17.06	5.20	53.9	0.24	0.4	0.998	0.000	12.9	12.9	-104.410	49.0	40.0	-9999.0
17.22	5.25	57.0	0.25	0.4	1.008	0.000	13.7	13.6	-104.410	50.4	40.0	-9999.0
17.39	5.30	52.3	0.25	0.5	1.017	0.000	12.5	12.4	-104.410	47.8	38.0	-9999.0
17.55	5.35	48.8	0.24	0.5	1.027	0.000	11.7	11.5	-104.410	45.7	38.0	-9999.0
17.72	5.40	44.9	0.21	0.5	1.037	0.000	10.7	10.6	-104.410	43.2	38.0	-9999.0
17.88	5.45	41.6	0.18	0.4	1.047	0.000	10.0	9.7	-104.410	40.9	38.0	-9999.0
18.04	5.50	37.5	0.16	0.4	1.057	0.000	12.0	11.6	-104.410	37.7	36.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	30.2	0.14	0.5	1.067	0.000	9.7	9.3	-104.410	31.4	36.0	-9999.0
18.37	5.60	24.2	0.24	1.0	1.076	0.000	7.7	7.5	-104.410	30.0	34.0	-9999.0
18.54	5.65	18.7	0.36	1.9	1.086	0.000	7.2	6.9	1.412	30.0	32.0	6.8
18.70	5.70	12.8	0.25	2.0	1.095	0.000	6.1	5.9	0.936	-9999.0	-9999.0	3.6
18.86	5.75	25.6	0.17	0.7	1.105	0.000	8.2	7.8	-104.410	30.0	34.0	-9999.0
19.03	5.80	48.8	0.20	0.4	1.115	0.000	11.7	11.1	-104.410	44.5	38.0	-9999.0
19.19	5.85	58.3	0.24	0.4	1.124	0.000	14.0	13.2	-104.410	49.5	38.0	-9999.0
19.36	5.90	70.2	0.31	0.4	1.134	0.000	16.8	15.8	-104.410	54.7	40.0	-9999.0
19.52	5.95	77.6	0.38	0.5	1.144	0.000	18.6	17.4	-104.410	57.4	40.0	-9999.0
19.68	6.00	78.2	0.45	0.6	1.154	0.000	18.7	17.4	-104.410	57.6	40.0	-9999.0
19.85	6.05	74.4	0.45	0.6	1.164	0.000	17.8	16.5	-104.410	56.0	40.0	-9999.0
20.01	6.10	70.7	0.43	0.6	1.174	0.000	16.9	15.6	-104.410	54.4	40.0	-9999.0
20.18	6.15	66.7	0.43	0.6	1.184	0.000	16.0	14.7	-104.410	52.6	40.0	-9999.0
20.34	6.20	62.6	0.44	0.7	1.194	0.000	15.0	13.7	-104.410	50.7	38.0	-9999.0
20.50	6.25	61.3	0.39	0.6	1.204	0.000	14.7	13.4	-104.410	50.0	38.0	-9999.0
20.67	6.30	58.9	0.33	0.6	1.214	0.000	14.1	12.8	-104.410	48.7	38.0	-9999.0
20.83	6.35	50.9	0.34	0.7	1.224	0.000	12.2	11.0	-104.410	44.4	38.0	-9999.0
21.00	6.40	41.2	0.53	1.3	1.233	0.000	13.2	11.8	-104.410	38.2	36.0	-9999.0
21.16	6.45	36.5	0.73	2.0	1.243	0.000	14.0	12.5	2.820	34.6	36.0	10.0
21.33	6.50	23.6	0.61	2.6	1.252	0.000	11.3	10.1	1.787	-9999.0	-9999.0	7.9
21.49	6.55	46.7	0.50	1.1	1.262	0.000	14.9	13.3	-104.410	41.5	38.0	-9999.0
21.65	6.60	49.8	0.44	0.9	1.272	0.000	15.9	14.1	-104.410	43.2	38.0	-9999.0
21.82	6.65	54.6	0.29	0.5	1.281	0.000	13.1	11.5	-104.410	45.7	38.0	-9999.0
21.98	6.70	59.0	0.31	0.5	1.291	0.000	14.1	12.4	-104.410	47.9	38.0	-9999.0
22.15	6.75	64.0	0.24	0.4	1.301	0.000	15.3	13.4	-104.410	50.1	38.0	-9999.0
22.31	6.80	65.7	0.31	0.5	1.311	0.000	15.7	13.7	-104.410	50.7	38.0	-9999.0
22.47	6.85	61.9	0.36	0.6	1.321	0.000	14.8	12.9	-104.410	48.9	38.0	-9999.0
22.64	6.90	60.1	0.36	0.6	1.331	0.000	14.4	12.5	-104.410	48.0	38.0	-9999.0
22.80	6.95	60.5	0.36	0.6	1.341	0.000	14.5	12.5	-104.410	48.1	38.0	-9999.0
22.97	7.00	60.3	0.36	0.6	1.351	0.000	14.4	12.4	-104.410	47.9	38.0	-9999.0
23.13	7.05	59.2	0.35	0.6	1.361	0.000	14.2	12.2	-104.410	47.2	38.0	-9999.0
23.29	7.10	58.2	0.36	0.6	1.371	0.000	13.9	11.9	-104.410	46.6	38.0	-9999.0
23.46	7.15	54.6	0.34	0.6	1.381	0.000	13.1	11.1	-104.410	44.7	38.0	-9999.0
23.62	7.20	52.8	0.32	0.6	1.390	0.000	12.6	10.7	-104.410	43.6	38.0	-9999.0
23.79	7.25	57.1	0.31	0.5	1.400	0.000	13.7	11.5	-104.410	45.8	38.0	-9999.0
23.95	7.30	58.8	0.33	0.6	1.410	0.000	14.1	11.9	-104.410	46.5	38.0	-9999.0
24.11	7.35	59.8	0.35	0.6	1.417	0.004	14.3	12.0	-104.410	46.9	38.0	-9999.0
24.28	7.40	61.7	0.38	0.6	1.421	0.009	14.8	12.4	-104.410	47.8	38.0	-9999.0
24.44	7.45	63.6	0.40	0.6	1.426	0.014	15.2	12.7	-104.410	48.6	38.0	-9999.0
24.61	7.50	64.0	0.41	0.6	1.431	0.019	15.3	12.8	-104.410	48.7	38.0	-9999.0
24.77	7.55	73.9	0.44	0.6	1.436	0.024	17.7	14.8	-104.410	52.8	38.0	-9999.0
24.93	7.60	84.5	0.49	0.6	1.441	0.029	20.2	16.9	-104.410	56.6	40.0	-9999.0
25.10	7.65	89.4	0.55	0.6	1.445	0.034	21.4	17.8	-104.410	58.2	40.0	-9999.0
25.26	7.70	86.3	0.57	0.7	1.450	0.039	20.7	17.2	-104.410	57.1	40.0	-9999.0
25.43	7.75	79.1	0.36	0.5	1.455	0.045	18.9	15.7	-104.410	54.6	40.0	-9999.0
25.59	7.80	75.1	0.37	0.5	1.460	0.050	18.0	14.9	-104.410	53.0	38.0	-9999.0
25.75	7.85	68.4	0.37	0.5	1.465	0.055	16.4	13.5	-104.410	50.3	38.0	-9999.0
25.92	7.90	70.1	0.39	0.6	1.469	0.060	16.8	13.8	-104.410	51.0	38.0	-9999.0
26.08	7.95	74.8	0.43	0.6	1.474	0.065	17.9	14.8	-104.410	52.8	38.0	-9999.0
26.25	8.00	76.9	0.45	0.6	1.479	0.070	18.4	15.1	-104.410	53.5	38.0	-9999.0
26.41	8.05	80.4	0.48	0.6	1.484	0.075	19.2	15.8	-104.410	54.7	40.0	-9999.0
26.57	8.10	85.6	0.52	0.6	1.489	0.080	20.5	16.8	-104.410	56.5	40.0	-9999.0
26.74	8.15	90.2	0.56	0.6	1.493	0.086	21.6	17.7	-104.410	58.0	40.0	-9999.0
26.90	8.20	90.0	0.58	0.6	1.498	0.091	21.5	17.6	-104.410	57.8	40.0	-9999.0
27.07	8.25	87.5	0.57	0.7	1.503	0.096	20.9	17.1	-104.410	57.0	40.0	-9999.0
27.23	8.30	85.0	0.57	0.7	1.508	0.101	20.3	16.6	-104.410	56.1	40.0	-9999.0
27.39	8.35	80.4	0.54	0.7	1.513	0.106	19.3	15.7	-104.410	54.5	38.0	-9999.0
27.56	8.40	77.8	0.52	0.7	1.517	0.111	18.6	15.1	-104.410	53.5	38.0	-9999.0
27.72	8.45	81.8	0.51	0.6	1.522	0.116	19.6	15.9	-104.410	54.9	38.0	-9999.0
27.89	8.50	81.4	0.53	0.7	1.527	0.121	19.5	15.8	-104.410	54.7	38.0	-9999.0
28.05	8.55	75.2	0.52	0.7	1.532	0.126	18.0	14.6	-104.410	52.4	38.0	-9999.0
28.21	8.60	71.2	0.52	0.7	1.537	0.132	17.0	13.7	-104.410	50.8	38.0	-9999.0
28.38	8.65	66.0	0.56	0.9	1.541	0.137	15.8	12.7	-104.410	48.5	38.0	-9999.0
28.54	8.70	58.3	0.60	1.0	1.546	0.142	18.6	15.0	-104.410	44.9	38.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
28.71	8.75	62.8	0.45	0.7	1.551	0.147	15.0	12.1	-104.410	47.0	38.0	-9999.0
28.87	8.80	73.4	0.46	0.6	1.556	0.152	17.6	14.1	-104.410	51.4	38.0	-9999.0
29.04	8.85	65.6	0.46	0.7	1.560	0.157	15.7	12.6	-104.410	48.2	38.0	-9999.0
29.20	8.90	60.6	0.45	0.7	1.565	0.162	14.5	11.6	-104.410	45.9	38.0	-9999.0
29.36	8.95	52.1	0.49	0.9	1.570	0.167	16.6	13.3	-104.410	41.5	36.0	-9999.0
29.53	9.00	48.1	0.49	1.0	1.574	0.173	15.3	12.2	-104.410	39.1	36.0	-9999.0
29.69	9.05	62.7	0.47	0.8	1.579	0.178	15.0	11.9	-104.410	46.7	38.0	-9999.0
29.86	9.10	68.1	0.46	0.7	1.584	0.183	16.3	13.0	-104.410	49.1	38.0	-9999.0
30.02	9.15	71.2	0.41	0.6	1.589	0.188	17.0	13.5	-104.410	50.3	38.0	-9999.0
30.18	9.20	71.4	0.41	0.6	1.593	0.193	17.1	13.5	-104.410	50.3	38.0	-9999.0
30.35	9.25	71.1	0.44	0.6	1.598	0.198	17.0	13.5	-104.410	50.1	38.0	-9999.0
30.51	9.30	71.6	0.45	0.6	1.603	0.203	17.1	13.5	-104.410	50.3	38.0	-9999.0
30.68	9.35	72.1	0.43	0.6	1.608	0.208	17.3	13.6	-104.410	50.5	38.0	-9999.0
30.84	9.40	70.5	0.44	0.6	1.613	0.214	16.9	13.3	-104.410	49.8	38.0	-9999.0
31.00	9.45	71.6	0.40	0.6	1.617	0.219	17.1	13.5	-104.410	50.2	38.0	-9999.0
31.17	9.50	75.3	0.40	0.5	1.622	0.224	18.0	14.2	-104.410	51.6	38.0	-9999.0
31.33	9.55	75.2	0.41	0.5	1.627	0.229	18.0	14.1	-104.410	51.5	38.0	-9999.0
31.50	9.60	69.3	0.39	0.6	1.632	0.234	16.6	13.0	-104.410	49.1	38.0	-9999.0
31.66	9.65	63.5	0.35	0.6	1.637	0.239	15.2	11.9	-104.410	46.6	38.0	-9999.0
31.82	9.70	55.8	0.31	0.6	1.641	0.244	13.4	10.4	-104.410	42.9	36.0	-9999.0
31.99	9.75	49.3	0.24	0.5	1.646	0.249	11.8	9.2	-104.410	39.3	36.0	-9999.0
32.15	9.80	44.7	0.21	0.5	1.651	0.255	10.7	8.3	-104.410	36.4	34.0	-9999.0
32.32	9.85	41.5	0.20	0.5	1.656	0.260	9.9	7.7	-104.410	34.2	34.0	-9999.0
32.48	9.90	41.5	0.20	0.5	1.661	0.265	9.9	7.7	-104.410	34.2	34.0	-9999.0
32.64	9.95	42.2	0.20	0.5	1.665	0.270	10.1	7.8	-104.410	34.6	34.0	-9999.0
32.81	10.00	43.1	0.20	0.5	1.670	0.275	10.3	8.0	-104.410	35.2	34.0	-9999.0
32.97	10.05	44.7	0.21	0.5	1.675	0.280	10.7	8.3	-104.410	36.2	34.0	-9999.0
33.14	10.10	47.0	0.21	0.4	1.680	0.285	11.3	8.7	-104.410	37.6	36.0	-9999.0
33.30	10.15	47.7	0.23	0.5	1.685	0.290	11.4	8.8	-104.410	38.0	36.0	-9999.0
33.46	10.20	48.0	0.23	0.5	1.689	0.295	11.5	8.8	-104.410	38.1	36.0	-9999.0
33.63	10.25	47.9	0.23	0.5	1.694	0.301	11.5	8.8	-104.410	38.0	36.0	-9999.0
33.79	10.30	49.3	0.24	0.5	1.699	0.306	11.8	9.0	-104.410	38.8	36.0	-9999.0
33.96	10.35	51.6	0.25	0.5	1.704	0.311	12.4	9.5	-104.410	40.1	36.0	-9999.0
34.12	10.40	55.9	0.26	0.5	1.709	0.316	13.4	10.2	-104.410	42.3	36.0	-9999.0
34.28	10.45	63.1	0.29	0.5	1.713	0.321	15.1	11.5	-104.410	45.8	38.0	-9999.0
34.45	10.50	69.6	0.32	0.5	1.718	0.326	16.7	12.7	-104.410	48.5	38.0	-9999.0
34.61	10.55	73.6	0.35	0.5	1.723	0.331	17.6	13.4	-104.410	50.1	38.0	-9999.0
34.78	10.60	75.2	0.37	0.5	1.728	0.336	18.0	13.7	-104.410	50.7	38.0	-9999.0
34.94	10.65	75.1	0.37	0.5	1.733	0.342	18.0	13.7	-104.410	50.6	38.0	-9999.0
35.10	10.70	73.1	0.37	0.5	1.737	0.347	17.5	13.3	-104.410	49.8	38.0	-9999.0
35.27	10.75	70.1	0.32	0.5	1.742	0.352	16.8	12.7	-104.410	48.5	38.0	-9999.0
35.43	10.80	67.7	0.32	0.5	1.747	0.357	16.2	12.3	-104.410	47.5	38.0	-9999.0
35.60	10.85	62.6	0.33	0.5	1.752	0.362	15.0	11.3	-104.410	45.2	36.0	-9999.0
35.76	10.90	59.4	0.31	0.5	1.757	0.367	14.2	10.7	-104.410	43.6	36.0	-9999.0
35.92	10.95	57.7	0.30	0.5	1.761	0.372	13.8	10.4	-104.410	42.8	36.0	-9999.0
36.09	11.00	58.2	0.29	0.5	1.766	0.377	13.9	10.5	-104.410	43.0	36.0	-9999.0
36.25	11.05	57.0	0.28	0.5	1.771	0.383	13.6	10.3	-104.410	42.4	36.0	-9999.0
36.42	11.10	54.8	0.28	0.5	1.776	0.388	13.1	9.8	-104.410	41.2	36.0	-9999.0
36.58	11.15	52.5	0.27	0.5	1.781	0.393	12.6	9.4	-104.410	39.9	36.0	-9999.0
36.74	11.20	50.4	0.25	0.5	1.785	0.398	12.1	9.0	-104.410	38.7	36.0	-9999.0
36.91	11.25	49.1	0.25	0.5	1.790	0.403	11.8	8.8	-104.410	37.9	36.0	-9999.0
37.07	11.30	47.3	0.25	0.5	1.795	0.408	11.3	8.5	-104.410	36.8	34.0	-9999.0
37.24	11.35	49.7	0.23	0.5	1.800	0.413	11.9	8.9	-104.410	38.2	36.0	-9999.0
37.40	11.40	51.5	0.25	0.5	1.805	0.418	12.3	9.2	-104.410	39.1	36.0	-9999.0
37.57	11.45	50.8	0.24	0.5	1.809	0.424	12.2	9.0	-104.410	38.7	36.0	-9999.0
37.73	11.50	50.6	0.26	0.5	1.814	0.429	12.1	9.0	-104.410	38.6	36.0	-9999.0
37.89	11.55	49.7	0.32	0.6	1.819	0.434	11.9	8.8	-104.410	38.1	34.0	-9999.0
38.06	11.60	47.7	0.43	0.9	1.824	0.439	15.2	11.3	-104.410	36.8	34.0	-9999.0
38.22	11.65	41.4	0.62	1.5	1.828	0.444	13.2	9.8	-104.410	32.7	34.0	-9999.0
38.39	11.70	33.6	0.77	2.3	1.833	0.449	12.9	9.5	2.508	30.0	32.0	7.4
38.55	11.75	23.6	0.50	2.1	1.837	0.454	9.0	6.7	1.706	30.0	30.0	4.1
38.71	11.80	19.1	0.46	2.4	1.841	0.459	9.1	6.7	1.342	-9999.0	-9999.0	2.9
38.88	11.85	15.2	0.33	2.2	1.845	0.465	7.3	5.4	1.034	-9999.0	-9999.0	2.0
39.04	11.90	14.0	0.19	1.4	1.850	0.470	5.4	3.9	0.932	30.0	30.0	1.8

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
39.21	11.95	14.7	0.20	1.4	1.854	0.475	5.6	4.1	0.989	30.0	30.0	1.9
39.37	12.00	28.3	0.18	0.6	1.858	0.480	9.0	6.6	-104.410	30.0	32.0	-9999.0
39.53	12.05	42.8	0.20	0.5	1.863	0.485	10.2	7.5	-104.410	33.4	34.0	-9999.0
39.70	12.10	49.0	0.20	0.4	1.868	0.490	11.7	8.6	-104.410	37.3	34.0	-9999.0
39.86	12.15	56.4	0.24	0.4	1.873	0.495	13.5	9.9	-104.410	41.2	36.0	-9999.0
40.03	12.20	63.5	0.30	0.5	1.877	0.500	15.2	11.1	-104.410	44.6	36.0	-9999.0
40.19	12.25	62.9	0.36	0.6	1.882	0.505	15.1	11.0	-104.410	44.3	36.0	-9999.0
40.35	12.30	58.7	0.38	0.6	1.887	0.511	14.1	10.2	-104.410	42.3	36.0	-9999.0
40.52	12.35	57.9	0.38	0.7	1.892	0.516	13.9	10.1	-104.410	41.9	36.0	-9999.0
40.68	12.40	59.1	0.38	0.6	1.897	0.521	14.1	10.3	-104.410	42.4	36.0	-9999.0
40.85	12.45	61.4	0.38	0.6	1.901	0.526	14.7	10.7	-104.410	43.4	36.0	-9999.0
41.01	12.50	63.4	0.39	0.6	1.906	0.531	15.2	11.0	-104.410	44.4	36.0	-9999.0
41.17	12.55	64.0	0.45	0.7	1.911	0.536	15.3	11.1	-104.410	44.6	36.0	-9999.0
41.34	12.60	67.9	0.67	1.0	1.916	0.541	16.3	11.8	-104.410	46.3	36.0	-9999.0
41.50	12.65	69.3	1.31	1.9	1.920	0.546	22.1	16.0	-104.410	46.8	38.0	-9999.0
41.67	12.70	48.0	1.57	3.3	1.925	0.552	18.4	13.3	3.643	36.2	34.0	10.0
41.83	12.75	34.5	0.96	2.8	1.929	0.557	13.2	9.5	2.560	30.0	32.0	7.0
41.99	12.80	27.9	0.83	3.0	1.933	0.562	13.4	9.6	2.036	-9999.0	-9999.0	4.9
42.16	12.85	51.7	0.65	1.3	1.938	0.567	16.5	11.9	-104.410	38.3	34.0	-9999.0
42.32	12.90	36.8	0.63	1.7	1.942	0.572	14.1	10.1	2.741	30.0	32.0	7.7
42.49	12.95	27.4	0.76	2.8	1.947	0.577	13.1	9.4	1.993	-9999.0	-9999.0	4.7
42.65	13.00	24.1	0.85	3.5	1.951	0.582	11.6	8.3	1.728	-9999.0	-9999.0	3.8
42.81	13.05	24.1	1.00	4.2	1.955	0.587	15.4	11.0	1.728	-9999.0	-9999.0	3.8
42.98	13.10	25.4	1.12	4.4	1.959	0.593	16.2	11.6	1.830	-9999.0	-9999.0	4.1
43.14	13.15	26.3	1.30	5.0	1.963	0.598	25.2	18.0	1.901	-9999.0	-9999.0	4.3
43.31	13.20	29.0	1.65	5.7	1.967	0.603	27.7	19.8	2.111	-9999.0	-9999.0	5.1
43.47	13.25	44.3	1.99	4.5	1.972	0.608	28.3	20.2	3.341	-9999.0	-9999.0	10.0
43.63	13.30	187.6	2.85	1.5	1.976	0.613	44.9	31.9	-104.410	74.9	42.0	-9999.0
43.80	13.35	151.8	3.29	2.2	1.981	0.618	48.5	34.4	-104.410	68.8	40.0	-9999.0
43.96	13.40	93.8	3.36	3.6	1.985	0.623	35.9	25.5	7.295	55.0	38.0	10.0
44.13	13.45	85.2	3.01	3.5	1.990	0.628	32.6	23.1	6.605	52.2	38.0	10.0
44.29	13.50	66.7	2.71	4.1	1.994	0.634	31.9	22.6	5.128	-9999.0	-9999.0	10.0
44.45	13.55	42.1	2.35	5.6	1.998	0.639	40.3	28.5	3.157	-9999.0	-9999.0	9.3
44.62	13.60	37.1	1.91	5.2	2.002	0.644	35.6	25.1	2.759	-9999.0	-9999.0	7.5
44.78	13.65	31.2	1.71	5.5	2.006	0.649	29.9	21.1	2.284	-9999.0	-9999.0	5.5
44.95	13.70	36.6	1.90	5.2	2.010	0.654	35.0	24.7	2.712	-9999.0	-9999.0	7.2
45.11	13.75	37.9	1.98	5.2	2.014	0.659	36.3	25.5	2.815	-9999.0	-9999.0	7.6
45.28	13.80	45.1	2.34	5.2	2.018	0.664	43.2	30.4	3.394	-9999.0	-9999.0	10.0
45.44	13.85	54.6	2.68	4.9	2.022	0.669	34.9	24.5	4.156	-9999.0	-9999.0	10.0
45.60	13.90	54.8	3.07	5.6	2.026	0.675	52.5	36.9	4.170	-9999.0	-9999.0	10.0
45.77	13.95	61.3	3.36	5.5	2.031	0.680	58.7	41.2	-104.410	42.5	36.0	-9999.0
45.93	14.00	79.4	3.93	5.0	2.037	0.685	76.0	53.3	-104.410	49.8	38.0	-9999.0
46.10	14.05	78.4	4.25	5.4	2.042	0.690	75.1	52.5	-104.410	49.4	38.0	-9999.0
46.26	14.10	68.7	4.47	6.5	2.048	0.695	65.8	46.0	-104.410	45.6	36.0	-9999.0
46.42	14.15	75.4	4.13	5.5	2.053	0.700	72.2	50.4	-104.410	48.2	38.0	-9999.0
46.59	14.20	85.9	4.32	5.0	2.059	0.705	82.3	57.4	-104.410	52.0	38.0	-9999.0
46.75	14.25	99.3	4.67	4.7	2.065	0.710	95.1	66.2	-104.410	56.1	38.0	-9999.0
46.92	14.30	109.0	5.07	4.7	2.070	0.715	104.4	72.5	-104.410	58.7	38.0	-9999.0
47.08	14.35	119.6	5.56	4.7	2.076	0.721	114.5	79.5	-104.410	61.3	40.0	-9999.0
47.24	14.40	146.2	5.83	4.0	2.081	0.726	140.0	97.1	-104.410	67.0	40.0	-9999.0
47.41	14.45	160.5	6.69	4.2	2.087	0.731	153.7	106.4	-104.410	69.7	40.0	-9999.0
47.57	14.50	176.5	7.68	4.4	2.093	0.736	169.0	116.9	-104.410	72.4	42.0	-9999.0
47.74	14.55	154.9	8.07	5.2	2.098	0.741	148.4	102.4	-104.410	68.6	40.0	-9999.0
47.90	14.60	155.3	7.51	4.8	2.104	0.746	148.8	102.6	-104.410	68.6	40.0	-9999.0
48.06	14.65	168.7	7.63	4.5	2.109	0.751	161.5	111.2	-104.410	70.9	42.0	-9999.0
48.23	14.70	157.4	7.63	4.8	2.115	0.756	150.7	103.6	-104.410	68.9	40.0	-9999.0
48.39	14.75	154.0	7.63	5.0	2.120	0.762	147.5	101.3	-104.410	68.3	40.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1753-0042
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-10
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/18/08
CPT Time: 15:24
CPT File: 390CP10.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 15.24 (ft): 50.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	45.0	0.02	0.0	0.010	0.000	10.8	21.6	-104.410	95.0	50.0	-9999.0
0.33	0.10	92.2	0.08	0.1	0.020	0.000	17.7	35.3	-104.410	95.0	50.0	-9999.0
0.49	0.15	108.1	0.19	0.2	0.030	0.000	20.7	41.4	-104.410	95.0	50.0	-9999.0
0.66	0.20	104.4	0.15	0.1	0.040	0.000	20.0	40.0	-104.410	95.0	50.0	-9999.0
0.82	0.25	85.9	0.19	0.2	0.051	0.000	16.4	32.9	-104.410	95.0	50.0	-9999.0
0.98	0.30	70.6	0.35	0.5	0.061	0.000	16.9	33.8	-104.410	95.0	50.0	-9999.0
1.15	0.35	56.5	0.66	1.2	0.070	0.000	18.0	36.1	-104.410	88.3	50.0	-9999.0
1.31	0.40	49.0	0.92	1.9	0.080	0.000	15.6	31.3	-104.410	82.4	50.0	-9999.0
1.48	0.45	41.7	0.98	2.4	0.090	0.000	16.0	32.0	3.330	76.2	48.0	10.0
1.64	0.50	39.7	1.02	2.6	0.099	0.000	15.2	30.4	3.171	73.4	48.0	10.0
1.80	0.55	46.3	0.79	1.7	0.108	0.000	14.8	29.6	-104.410	76.4	48.0	-9999.0
1.97	0.60	54.0	0.70	1.3	0.118	0.000	17.2	34.5	-104.410	79.6	48.0	-9999.0
2.13	0.65	51.0	0.84	1.6	0.128	0.000	16.3	32.6	-104.410	76.9	48.0	-9999.0
2.30	0.70	50.5	0.97	1.9	0.137	0.000	16.1	32.2	-104.410	75.5	48.0	-9999.0
2.46	0.75	52.4	1.07	2.0	0.147	0.000	16.7	33.5	-104.410	75.6	48.0	-9999.0
2.62	0.80	61.3	1.19	1.9	0.157	0.000	19.6	39.1	-104.410	79.2	48.0	-9999.0
2.79	0.85	89.3	0.98	1.1	0.167	0.000	21.4	42.7	-104.410	89.1	48.0	-9999.0
2.95	0.90	146.0	1.09	0.7	0.177	0.000	28.0	55.9	-104.410	95.0	50.0	-9999.0
3.12	0.95	138.3	1.44	1.0	0.187	0.000	33.1	66.2	-104.410	95.0	50.0	-9999.0
3.28	1.00	96.6	1.66	1.7	0.196	0.000	30.8	61.7	-104.410	89.0	48.0	-9999.0
3.44	1.05	72.6	1.92	2.6	0.206	0.000	27.8	55.7	5.795	80.1	48.0	10.0
3.61	1.10	95.9	1.73	1.8	0.215	0.000	30.6	61.2	-104.410	87.5	48.0	-9999.0
3.77	1.15	72.7	1.48	2.0	0.225	0.000	23.2	46.4	-104.410	78.9	46.0	-9999.0
3.94	1.20	93.7	1.60	1.7	0.235	0.000	29.9	59.8	-104.410	85.6	48.0	-9999.0
4.10	1.25	126.8	1.78	1.4	0.245	0.000	30.4	60.7	-104.410	93.6	48.0	-9999.0
4.27	1.30	138.1	1.95	1.4	0.255	0.000	33.1	65.5	-104.410	95.0	50.0	-9999.0
4.43	1.35	181.6	2.22	1.2	0.265	0.000	34.8	67.6	-104.410	95.0	50.0	-9999.0
4.59	1.40	254.9	2.31	0.9	0.275	0.000	48.8	93.2	-104.410	95.0	50.0	-9999.0
4.76	1.45	291.1	2.40	0.8	0.285	0.000	55.8	104.5	-104.410	95.0	50.0	-9999.0
4.92	1.50	263.5	2.77	1.0	0.295	0.000	50.5	92.9	-104.410	95.0	50.0	-9999.0
5.09	1.55	215.2	3.68	1.7	0.305	0.000	51.5	93.3	-104.410	95.0	50.0	-9999.0
5.25	1.60	160.3	4.18	2.6	0.315	0.000	51.2	91.2	-104.410	95.0	48.0	-9999.0
5.41	1.65	183.7	3.32	1.8	0.325	0.000	44.0	77.2	-104.410	95.0	50.0	-9999.0
5.58	1.70	262.5	2.89	1.1	0.335	0.000	50.3	86.9	-104.410	95.0	50.0	-9999.0
5.74	1.75	271.8	2.29	0.8	0.345	0.000	52.1	88.7	-104.410	95.0	50.0	-9999.0
5.91	1.80	241.9	2.05	0.8	0.355	0.000	46.3	77.8	-104.410	95.0	50.0	-9999.0
6.07	1.85	247.3	2.09	0.8	0.365	0.000	47.4	78.4	-104.410	95.0	50.0	-9999.0
6.23	1.90	237.3	3.07	1.3	0.376	0.000	45.5	74.2	-104.410	95.0	50.0	-9999.0
6.40	1.95	217.0	3.98	1.8	0.386	0.000	52.0	83.7	-104.410	95.0	50.0	-9999.0
6.56	2.00	200.5	4.76	2.4	0.395	0.000	64.0	101.8	-104.410	95.0	48.0	-9999.0
6.73	2.05	187.3	4.58	2.4	0.405	0.000	59.8	94.0	-104.410	95.0	48.0	-9999.0
6.89	2.10	246.7	4.16	1.7	0.415	0.000	59.1	91.7	-104.410	95.0	50.0	-9999.0
7.05	2.15	338.9	3.75	1.1	0.425	0.000	64.9	99.6	-104.410	95.0	50.0	-9999.0
7.22	2.20	360.8	3.81	1.1	0.435	0.000	69.1	104.8	-104.410	95.0	50.0	-9999.0
7.38	2.25	307.9	3.91	1.3	0.445	0.000	59.0	88.4	-104.410	95.0	50.0	-9999.0
7.55	2.30	238.4	4.62	1.9	0.455	0.000	57.1	84.6	-104.410	95.0	48.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	178.0	4.66	2.6	0.465	0.000	56.8	83.3	-104.410	94.2	48.0	-9999.0
7.87	2.40	165.5	3.90	2.4	0.475	0.000	52.8	76.7	-104.410	91.8	48.0	-9999.0
8.04	2.45	176.8	3.83	2.2	0.484	0.000	56.4	81.1	-104.410	93.4	48.0	-9999.0
8.20	2.50	176.1	3.33	1.9	0.494	0.000	42.2	60.0	-104.410	93.0	48.0	-9999.0
8.37	2.55	167.6	3.87	2.3	0.504	0.000	53.5	75.4	-104.410	91.3	48.0	-9999.0
8.53	2.60	182.2	3.54	1.9	0.514	0.000	43.6	60.9	-104.410	93.4	48.0	-9999.0
8.69	2.65	222.5	3.95	1.8	0.524	0.000	53.3	73.6	-104.410	95.0	48.0	-9999.0
8.86	2.70	228.1	3.63	1.6	0.534	0.000	54.6	74.8	-104.410	95.0	48.0	-9999.0
9.02	2.75	216.1	3.02	1.4	0.544	0.000	51.7	70.2	-104.410	95.0	48.0	-9999.0
9.19	2.80	200.8	2.75	1.4	0.553	0.000	48.1	64.6	-104.410	95.0	48.0	-9999.0
9.35	2.85	176.0	2.68	1.5	0.563	0.000	42.1	56.1	-104.410	91.1	46.0	-9999.0
9.51	2.90	160.0	2.99	1.9	0.573	0.000	38.3	50.6	-104.410	88.1	46.0	-9999.0
9.68	2.95	130.7	2.92	2.2	0.583	0.000	41.7	54.7	-104.410	82.1	46.0	-9999.0
9.84	3.00	177.1	3.23	1.8	0.593	0.000	42.4	55.1	-104.410	90.5	46.0	-9999.0
10.01	3.05	212.3	3.41	1.6	0.603	0.000	50.8	65.5	-104.410	95.0	48.0	-9999.0
10.17	3.10	222.0	3.41	1.5	0.613	0.000	53.1	67.9	-104.410	95.0	48.0	-9999.0
10.33	3.15	232.5	3.37	1.4	0.623	0.000	55.7	70.6	-104.410	95.0	48.0	-9999.0
10.50	3.20	232.1	3.28	1.4	0.633	0.000	55.6	69.9	-104.410	95.0	48.0	-9999.0
10.66	3.25	209.7	3.04	1.4	0.642	0.000	50.2	62.6	-104.410	94.2	48.0	-9999.0
10.83	3.30	179.5	2.83	1.6	0.652	0.000	43.0	53.2	-104.410	89.6	46.0	-9999.0
10.99	3.35	149.6	2.66	1.8	0.662	0.000	35.8	44.0	-104.410	84.1	46.0	-9999.0
11.15	3.40	122.6	2.43	2.0	0.672	0.000	39.1	47.8	-104.410	78.2	44.0	-9999.0
11.32	3.45	117.5	2.14	1.8	0.682	0.000	37.5	45.4	-104.410	76.8	44.0	-9999.0
11.48	3.50	114.5	1.47	1.3	0.692	0.000	27.4	33.0	-104.410	75.8	44.0	-9999.0
11.65	3.55	104.6	1.09	1.0	0.701	0.000	25.0	29.9	-104.410	73.0	44.0	-9999.0
11.81	3.60	96.6	0.94	1.0	0.711	0.000	23.1	27.4	-104.410	70.6	44.0	-9999.0
11.97	3.65	87.4	0.84	1.0	0.721	0.000	20.9	24.7	-104.410	67.5	42.0	-9999.0
12.14	3.70	78.6	0.73	0.9	0.731	0.000	18.8	22.0	-104.410	64.2	42.0	-9999.0
12.30	3.75	73.0	0.57	0.8	0.741	0.000	17.5	20.3	-104.410	61.9	42.0	-9999.0
12.47	3.80	75.4	1.53	2.0	0.751	0.000	24.1	27.8	-104.410	62.7	42.0	-9999.0
12.63	3.85	107.0	1.53	1.4	0.761	0.000	25.6	29.4	-104.410	72.5	44.0	-9999.0
12.80	3.90	281.5	1.53	0.5	0.771	0.000	44.9	51.2	-104.410	95.0	48.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1753-0157
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-11
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/17/08
CPT Time: 12:37
CPT File: 390CP11.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 4.57 (ft): 15.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	2.0	0.02	1.0	0.009	0.000	1.0	1.9	0.160	-9999.0	-9999.0	10.0
0.33	0.10	33.3	0.02	0.1	0.019	0.000	8.0	16.0	-104.410	92.2	50.0	-9999.0
0.49	0.15	126.1	0.02	0.0	0.029	0.000	24.2	48.3	-104.410	95.0	50.0	-9999.0
0.66	0.20	127.6	0.02	0.0	0.039	0.000	24.4	48.9	-104.410	95.0	50.0	-9999.0
0.82	0.25	122.8	0.36	0.3	0.049	0.000	23.5	47.0	-104.410	95.0	50.0	-9999.0
0.98	0.30	150.9	0.38	0.3	0.059	0.000	28.9	57.8	-104.410	95.0	50.0	-9999.0
1.15	0.35	174.0	0.48	0.3	0.069	0.000	33.3	66.7	-104.410	95.0	50.0	-9999.0
1.31	0.40	160.7	0.64	0.4	0.080	0.000	30.8	61.5	-104.410	95.0	50.0	-9999.0
1.48	0.45	118.5	0.99	0.8	0.090	0.000	22.7	45.4	-104.410	95.0	50.0	-9999.0
1.64	0.50	89.4	1.17	1.3	0.100	0.000	21.4	42.8	-104.410	95.0	50.0	-9999.0
1.80	0.55	122.2	1.44	1.2	0.110	0.000	29.2	58.5	-104.410	95.0	50.0	-9999.0
1.97	0.60	140.9	1.77	1.3	0.120	0.000	33.7	67.5	-104.410	95.0	50.0	-9999.0
2.13	0.65	114.6	1.73	1.5	0.130	0.000	27.4	54.9	-104.410	95.0	50.0	-9999.0
2.30	0.70	91.3	1.57	1.7	0.139	0.000	29.1	58.3	-104.410	92.3	50.0	-9999.0
2.46	0.75	116.0	1.66	1.4	0.149	0.000	27.8	55.6	-104.410	95.0	50.0	-9999.0
2.62	0.80	101.7	1.89	1.9	0.159	0.000	32.5	64.9	-104.410	93.5	50.0	-9999.0
2.79	0.85	95.4	1.96	2.1	0.169	0.000	30.4	60.9	-104.410	90.8	50.0	-9999.0
2.95	0.90	88.1	1.95	2.2	0.178	0.000	28.1	56.2	-104.410	87.7	48.0	-9999.0
3.12	0.95	61.6	1.99	3.2	0.188	0.000	23.6	47.2	4.916	76.8	48.0	10.0
3.28	1.00	56.1	1.85	3.3	0.197	0.000	21.5	43.0	4.476	73.4	46.0	10.0
3.44	1.05	57.4	1.84	3.2	0.207	0.000	22.0	44.0	4.577	73.4	46.0	10.0
3.61	1.10	57.4	1.88	3.3	0.216	0.000	22.0	44.0	4.572	72.7	46.0	10.0
3.77	1.15	55.1	1.81	3.3	0.225	0.000	21.1	42.2	4.387	70.9	46.0	10.0
3.94	1.20	53.7	1.78	3.3	0.235	0.000	20.6	41.2	4.279	69.6	46.0	10.0
4.10	1.25	58.5	1.72	2.9	0.244	0.000	22.4	44.8	4.657	71.5	46.0	10.0
4.27	1.30	60.2	1.50	2.5	0.254	0.000	23.1	45.8	4.799	71.8	46.0	10.0
4.43	1.35	61.2	1.52	2.5	0.263	0.000	23.4	45.7	4.872	71.7	46.0	10.0
4.59	1.40	60.6	1.54	2.5	0.272	0.000	23.2	44.5	4.824	70.9	46.0	10.0
4.76	1.45	77.6	1.58	2.0	0.282	0.000	24.8	46.6	-104.410	77.5	46.0	-9999.0
4.92	1.50	82.8	1.89	2.3	0.292	0.000	26.4	49.0	-104.410	78.9	46.0	-9999.0
5.09	1.55	101.7	2.20	2.2	0.301	0.000	32.5	59.1	-104.410	84.3	48.0	-9999.0
5.25	1.60	125.9	2.87	2.3	0.311	0.000	40.2	72.1	-104.410	90.0	48.0	-9999.0
5.41	1.65	104.6	3.41	3.3	0.320	0.000	40.1	70.8	8.340	84.2	48.0	10.0
5.58	1.70	74.5	3.07	4.1	0.330	0.000	35.7	62.1	5.933	-9999.0	-9999.0	10.0
5.74	1.75	69.9	2.61	3.7	0.339	0.000	33.5	57.5	5.564	-9999.0	-9999.0	10.0
5.91	1.80	101.5	2.92	2.9	0.349	0.000	38.9	65.8	8.089	82.2	46.0	10.0
6.07	1.85	158.9	3.22	2.0	0.358	0.000	50.7	84.7	-104.410	94.6	48.0	-9999.0
6.23	1.90	181.5	3.12	1.7	0.368	0.000	43.5	71.6	-104.410	95.0	48.0	-9999.0
6.40	1.95	185.4	3.71	2.0	0.378	0.000	44.4	72.2	-104.410	95.0	48.0	-9999.0
6.56	2.00	184.8	3.80	2.1	0.388	0.000	59.0	94.7	-104.410	95.0	48.0	-9999.0
6.73	2.05	299.5	4.33	1.4	0.398	0.000	57.4	91.0	-104.410	95.0	50.0	-9999.0
6.89	2.10	302.0	4.97	1.6	0.408	0.000	72.3	113.3	-104.410	95.0	50.0	-9999.0
7.05	2.15	198.0	4.97	2.5	0.417	0.000	63.2	97.9	-104.410	95.0	48.0	-9999.0
7.22	2.20	182.0	3.97	2.2	0.427	0.000	58.1	88.9	-104.410	95.0	48.0	-9999.0
7.38	2.25	198.4	3.46	1.7	0.437	0.000	47.5	71.9	-104.410	95.0	48.0	-9999.0
7.55	2.30	180.8	2.42	1.3	0.447	0.000	43.3	64.8	-104.410	95.0	48.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	171.5	2.05	1.2	0.457	0.000	32.8	48.6	-104.410	93.3	48.0	-9999.0
7.87	2.40	159.6	2.07	1.3	0.467	0.000	38.2	55.9	-104.410	91.0	48.0	-9999.0
8.04	2.45	146.8	2.18	1.5	0.477	0.000	35.1	50.9	-104.410	88.3	46.0	-9999.0
8.20	2.50	136.9	2.10	1.5	0.487	0.000	32.8	47.0	-104.410	86.0	46.0	-9999.0
8.37	2.55	128.9	1.91	1.5	0.497	0.000	30.9	43.8	-104.410	84.0	46.0	-9999.0
8.53	2.60	128.7	1.70	1.3	0.507	0.000	30.8	43.3	-104.410	83.6	46.0	-9999.0
8.69	2.65	123.7	1.59	1.3	0.516	0.000	29.6	41.2	-104.410	82.2	46.0	-9999.0
8.86	2.70	114.7	1.80	1.6	0.526	0.000	27.5	37.8	-104.410	79.8	46.0	-9999.0
9.02	2.75	97.4	1.93	2.0	0.536	0.000	31.1	42.5	-104.410	74.8	44.0	-9999.0
9.19	2.80	55.3	1.55	2.8	0.546	0.000	21.2	28.7	4.382	58.4	42.0	10.0
9.35	2.85	54.1	1.35	2.5	0.555	0.000	20.7	27.8	4.284	57.5	42.0	10.0
9.51	2.90	61.4	1.09	1.8	0.565	0.000	19.6	26.1	-104.410	60.9	42.0	-9999.0
9.68	2.95	63.2	0.84	1.3	0.574	0.000	20.2	26.6	-104.410	61.5	42.0	-9999.0
9.84	3.00	60.8	0.47	0.8	0.584	0.000	14.6	19.1	-104.410	60.1	42.0	-9999.0
10.01	3.05	60.6	0.40	0.7	0.594	0.000	14.5	18.8	-104.410	59.8	42.0	-9999.0
10.17	3.10	60.5	0.42	0.7	0.604	0.000	14.5	18.6	-104.410	59.5	42.0	-9999.0
10.33	3.15	66.4	0.42	0.6	0.614	0.000	15.9	20.3	-104.410	61.9	42.0	-9999.0
10.50	3.20	76.8	0.47	0.6	0.624	0.000	18.4	23.3	-104.410	65.8	42.0	-9999.0
10.66	3.25	73.0	0.59	0.8	0.634	0.000	17.5	21.9	-104.410	64.2	42.0	-9999.0
10.83	3.30	50.8	0.89	1.8	0.643	0.000	16.2	20.2	-104.410	53.6	42.0	-9999.0
10.99	3.35	30.8	1.15	3.7	0.653	0.000	14.8	18.3	2.416	-9999.0	-9999.0	10.0
11.15	3.40	22.9	0.87	3.8	0.662	0.000	14.6	17.9	1.776	-9999.0	-9999.0	10.0
11.32	3.45	28.2	0.79	2.8	0.672	0.000	13.5	16.5	2.206	-9999.0	-9999.0	10.0
11.48	3.50	54.3	0.79	1.5	0.681	0.000	17.3	21.0	-104.410	54.6	42.0	-9999.0
11.65	3.55	54.2	0.80	1.5	0.691	0.000	17.3	20.8	-104.410	54.4	40.0	-9999.0
11.81	3.60	40.6	0.85	2.1	0.701	0.000	15.6	18.6	3.195	45.9	40.0	10.0
11.97	3.65	28.5	0.70	2.5	0.710	0.000	10.9	13.0	2.223	35.6	38.0	10.0
12.14	3.70	21.5	0.61	2.8	0.719	0.000	10.3	12.2	1.666	-9999.0	-9999.0	10.0
12.30	3.75	16.4	0.43	2.6	0.729	0.000	7.9	9.2	1.256	-9999.0	-9999.0	10.0
12.47	3.80	14.1	0.32	2.3	0.738	0.000	6.8	7.9	1.071	-9999.0	-9999.0	8.1
12.63	3.85	13.4	0.30	2.3	0.748	0.000	6.4	7.4	1.009	-9999.0	-9999.0	7.2
12.80	3.90	27.4	0.25	0.9	0.757	0.000	8.7	10.1	-104.410	33.5	38.0	-9999.0
12.96	3.95	43.2	0.18	0.4	0.767	0.000	10.3	11.8	-104.410	46.4	40.0	-9999.0
13.12	4.00	43.1	0.33	0.8	0.777	0.000	13.8	15.6	-104.410	46.2	40.0	-9999.0
13.29	4.05	27.8	0.50	1.8	0.786	0.000	10.6	12.0	2.158	33.4	36.0	10.0
13.45	4.10	16.1	0.43	2.7	0.796	0.000	7.7	8.6	1.221	-9999.0	-9999.0	8.8
13.62	4.15	18.5	0.44	2.4	0.805	0.000	8.9	9.9	1.419	-9999.0	-9999.0	10.0
13.78	4.20	37.1	0.45	1.2	0.814	0.000	11.8	13.1	-104.410	41.2	38.0	-9999.0
13.94	4.25	29.3	0.63	2.2	0.824	0.000	11.2	12.4	2.277	34.2	36.0	10.0
14.11	4.30	18.5	0.50	2.7	0.833	0.000	8.8	9.7	1.412	-9999.0	-9999.0	10.0
14.27	4.35	15.0	0.48	3.2	0.843	0.000	7.2	7.8	1.135	-9999.0	-9999.0	7.2
14.44	4.40	20.7	0.44	2.1	0.852	0.000	7.9	8.6	1.584	30.0	34.0	10.0
14.60	4.45	24.5	0.49	2.0	0.862	0.000	9.4	10.1	1.889	30.0	36.0	10.0
14.76	4.50	24.9	0.46	1.9	0.871	0.000	9.5	10.2	1.923	30.0	36.0	10.0
14.93	4.55	30.7	0.30	1.0	0.881	0.000	9.8	10.4	-104.410	34.6	36.0	-9999.0
15.09	4.60	33.8	0.48	1.4	0.887	0.003	10.8	11.5	-104.410	37.3	38.0	-9999.0
15.26	4.65	26.2	0.53	2.0	0.892	0.008	10.0	10.6	2.026	30.0	36.0	10.0
15.42	4.70	20.3	0.47	2.3	0.896	0.013	9.7	10.3	1.555	-9999.0	-9999.0	10.0
15.58	4.75	28.9	0.54	1.9	0.900	0.018	11.1	11.7	2.239	32.6	36.0	10.0
15.75	4.80	30.4	0.30	1.0	0.905	0.023	9.7	10.2	-104.410	34.0	36.0	-9999.0
15.91	4.85	24.8	0.45	1.8	0.909	0.028	9.5	10.0	1.910	30.0	34.0	10.0
16.08	4.90	26.0	0.59	2.3	0.913	0.034	10.0	10.4	2.004	30.0	36.0	10.0
16.24	4.95	16.8	0.61	3.6	0.918	0.039	10.8	11.2	1.271	-9999.0	-9999.0	7.5
16.40	5.00	21.2	0.64	3.0	0.922	0.044	10.1	10.6	1.617	-9999.0	-9999.0	10.0
16.57	5.05	20.4	0.56	2.8	0.926	0.049	9.7	10.1	1.551	-9999.0	-9999.0	10.0
16.73	5.10	20.5	0.40	2.0	0.930	0.054	7.9	8.2	1.565	30.0	34.0	10.0
16.90	5.15	49.0	0.33	0.7	0.935	0.059	11.7	12.1	-104.410	47.2	38.0	-9999.0
17.06	5.20	49.5	0.31	0.6	0.940	0.064	11.8	12.2	-104.410	47.4	38.0	-9999.0
17.22	5.25	35.4	0.43	1.2	0.944	0.069	11.3	11.6	-104.410	37.7	38.0	-9999.0
17.39	5.30	22.8	0.49	2.2	0.949	0.075	8.7	9.0	1.745	30.0	34.0	10.0
17.55	5.35	20.3	0.42	2.1	0.953	0.080	7.8	8.0	1.545	30.0	34.0	9.6
17.72	5.40	33.5	0.36	1.1	0.958	0.085	10.7	10.9	-104.410	35.9	36.0	-9999.0
17.88	5.45	33.8	0.28	0.8	0.962	0.090	10.8	11.0	-104.410	36.1	36.0	-9999.0
18.04	5.50	33.0	0.19	0.6	0.967	0.095	10.5	10.7	-104.410	35.4	36.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	33.7	0.17	0.5	0.971	0.100	10.8	10.9	-104.410	35.9	36.0	-9999.0
18.37	5.60	34.8	0.16	0.5	0.976	0.105	11.1	11.3	-104.410	36.8	36.0	-9999.0
18.54	5.65	37.0	0.16	0.4	0.980	0.110	11.8	11.9	-104.410	38.5	38.0	-9999.0
18.70	5.70	42.0	0.17	0.4	0.985	0.116	10.1	10.1	-104.410	42.0	38.0	-9999.0
18.86	5.75	52.2	0.20	0.4	0.990	0.121	12.5	12.6	-104.410	48.2	38.0	-9999.0
19.03	5.80	68.6	0.28	0.4	0.995	0.126	16.4	16.5	-104.410	55.9	40.0	-9999.0
19.19	5.85	82.6	0.43	0.5	0.999	0.131	19.8	19.8	-104.410	61.2	42.0	-9999.0
19.36	5.90	103.1	0.62	0.6	1.004	0.136	19.8	19.7	-104.410	67.5	42.0	-9999.0
19.52	5.95	136.2	0.91	0.7	1.009	0.141	26.1	26.0	-104.410	75.4	44.0	-9999.0
19.68	6.00	199.5	1.39	0.7	1.014	0.146	38.2	37.9	-104.410	86.2	44.0	-9999.0
19.85	6.05	246.2	2.39	1.0	1.019	0.151	47.2	46.7	-104.410	92.2	46.0	-9999.0
20.01	6.10	290.4	4.22	1.5	1.024	0.157	55.6	55.0	-104.410	95.0	46.0	-9999.0
20.18	6.15	334.1	4.74	1.4	1.030	0.162	64.0	63.1	-104.410	95.0	48.0	-9999.0
20.34	6.20	419.0	4.74	1.1	1.035	0.167	80.3	78.9	-104.410	95.0	48.0	-9999.0
20.50	6.25	794.8	4.74	0.6	1.040	0.172	126.9	124.4	-104.410	95.0	50.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1753-0289
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-12
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/18/08
CPT Time: 13:48
CPT File: 390CP12.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 5.18 (ft): 17.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	2.0	0.02	1.0	0.009	0.000	1.0	1.9	0.160	-9999.0	-9999.0	10.0
0.33	0.10	28.2	0.02	0.1	0.019	0.000	9.0	18.0	-104.410	87.6	50.0	-9999.0
0.49	0.15	69.2	0.02	0.0	0.028	0.000	16.6	33.1	-104.410	95.0	50.0	-9999.0
0.66	0.20	114.2	0.02	0.0	0.038	0.000	21.9	43.8	-104.410	95.0	50.0	-9999.0
0.82	0.25	137.3	0.18	0.1	0.049	0.000	26.3	52.6	-104.410	95.0	50.0	-9999.0
0.98	0.30	157.6	0.26	0.2	0.059	0.000	30.2	60.4	-104.410	95.0	50.0	-9999.0
1.15	0.35	153.7	0.18	0.1	0.069	0.000	29.4	58.9	-104.410	95.0	50.0	-9999.0
1.31	0.40	120.2	0.20	0.2	0.079	0.000	23.0	46.1	-104.410	95.0	50.0	-9999.0
1.48	0.45	98.6	0.18	0.2	0.089	0.000	18.9	37.8	-104.410	95.0	50.0	-9999.0
1.64	0.50	89.9	0.30	0.3	0.099	0.000	17.2	34.4	-104.410	95.0	50.0	-9999.0
1.80	0.55	76.2	0.46	0.6	0.110	0.000	18.3	36.5	-104.410	90.6	50.0	-9999.0
1.97	0.60	71.3	0.46	0.6	0.119	0.000	17.1	34.1	-104.410	87.4	50.0	-9999.0
2.13	0.65	66.3	0.57	0.9	0.129	0.000	15.9	31.7	-104.410	84.2	48.0	-9999.0
2.30	0.70	54.3	0.72	1.3	0.139	0.000	17.3	34.7	-104.410	77.4	48.0	-9999.0
2.46	0.75	45.6	0.79	1.7	0.149	0.000	14.5	29.1	-104.410	71.4	46.0	-9999.0
2.62	0.80	42.7	0.74	1.7	0.158	0.000	13.6	27.3	-104.410	68.7	46.0	-9999.0
2.79	0.85	53.1	0.68	1.3	0.168	0.000	16.9	33.9	-104.410	74.1	46.0	-9999.0
2.95	0.90	51.8	0.62	1.2	0.178	0.000	16.5	33.1	-104.410	72.6	46.0	-9999.0
3.12	0.95	50.5	0.73	1.4	0.187	0.000	16.1	32.2	-104.410	71.1	46.0	-9999.0
3.28	1.00	49.6	0.92	1.9	0.197	0.000	15.8	31.7	-104.410	69.9	46.0	-9999.0
3.44	1.05	49.6	1.06	2.1	0.207	0.000	19.0	38.0	3.955	69.2	46.0	10.0
3.61	1.10	75.6	1.18	1.6	0.216	0.000	24.1	48.3	-104.410	80.6	48.0	-9999.0
3.77	1.15	83.0	1.12	1.4	0.226	0.000	19.9	39.7	-104.410	82.6	48.0	-9999.0
3.94	1.20	101.7	1.39	1.4	0.236	0.000	24.3	48.7	-104.410	87.8	48.0	-9999.0
4.10	1.25	124.5	1.53	1.2	0.246	0.000	29.8	59.6	-104.410	93.1	48.0	-9999.0
4.27	1.30	118.0	1.99	1.7	0.256	0.000	28.3	55.9	-104.410	90.9	48.0	-9999.0
4.43	1.35	69.1	2.01	2.9	0.265	0.000	26.5	51.4	5.504	75.1	46.0	10.0
4.59	1.40	52.8	1.96	3.7	0.275	0.000	25.3	48.3	4.205	-9999.0	-9999.0	10.0
4.76	1.45	101.8	1.96	1.9	0.284	0.000	32.5	60.9	-104.410	85.2	48.0	-9999.0
4.92	1.50	107.9	2.03	1.9	0.294	0.000	34.4	63.5	-104.410	86.4	48.0	-9999.0
5.09	1.55	153.1	2.61	1.7	0.304	0.000	36.6	66.5	-104.410	95.0	48.0	-9999.0
5.25	1.60	184.7	3.43	1.9	0.314	0.000	44.2	79.0	-104.410	95.0	50.0	-9999.0
5.41	1.65	175.1	2.47	1.4	0.324	0.000	41.9	73.7	-104.410	95.0	50.0	-9999.0
5.58	1.70	192.6	2.27	1.2	0.334	0.000	36.9	63.9	-104.410	95.0	50.0	-9999.0
5.74	1.75	368.4	2.29	0.6	0.344	0.000	58.8	100.3	-104.410	95.0	50.0	-9999.0
5.91	1.80	465.1	2.18	0.5	0.354	0.000	74.2	124.7	-104.410	95.0	50.0	-9999.0
6.07	1.85	509.9	2.43	0.5	0.365	0.000	81.4	134.7	-104.410	95.0	50.0	-9999.0
6.23	1.90	512.5	2.88	0.6	0.375	0.000	81.8	133.5	-104.410	95.0	50.0	-9999.0
6.40	1.95	490.9	3.04	0.6	0.386	0.000	78.4	126.2	-104.410	95.0	50.0	-9999.0
6.56	2.00	463.1	2.94	0.6	0.396	0.000	73.9	117.4	-104.410	95.0	50.0	-9999.0
6.73	2.05	381.5	3.40	0.9	0.406	0.000	73.1	114.6	-104.410	95.0	50.0	-9999.0
6.89	2.10	265.5	3.56	1.3	0.417	0.000	50.9	78.8	-104.410	95.0	50.0	-9999.0
7.05	2.15	191.8	3.62	1.9	0.427	0.000	45.9	70.3	-104.410	95.0	48.0	-9999.0
7.22	2.20	143.5	3.52	2.5	0.436	0.000	45.8	69.3	-104.410	88.9	48.0	-9999.0
7.38	2.25	119.3	3.00	2.5	0.446	0.000	38.1	57.0	-104.410	83.3	46.0	-9999.0
7.55	2.30	120.0	2.53	2.1	0.456	0.000	38.3	56.8	-104.410	83.2	46.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	117.6	2.39	2.0	0.465	0.000	37.5	55.0	-104.410	82.3	46.0	-9999.0
7.87	2.40	209.1	1.91	0.9	0.475	0.000	40.1	58.1	-104.410	95.0	48.0	-9999.0
8.04	2.45	343.1	1.91	0.6	0.486	0.000	54.8	78.6	-104.410	95.0	50.0	-9999.0
8.20	2.50	398.9	2.60	0.7	0.496	0.000	63.7	90.4	-104.410	95.0	50.0	-9999.0
8.37	2.55	409.0	3.11	0.8	0.507	0.000	65.3	91.7	-104.410	95.0	50.0	-9999.0
8.53	2.60	411.9	3.51	0.9	0.517	0.000	65.8	91.5	-104.410	95.0	50.0	-9999.0
8.69	2.65	375.8	2.87	0.8	0.527	0.000	60.0	82.6	-104.410	95.0	50.0	-9999.0
8.86	2.70	314.4	1.91	0.6	0.538	0.000	50.2	68.4	-104.410	95.0	50.0	-9999.0
9.02	2.75	229.7	2.25	1.0	0.548	0.000	44.0	59.4	-104.410	95.0	48.0	-9999.0
9.19	2.80	182.0	2.97	1.6	0.558	0.000	43.6	58.3	-104.410	92.2	48.0	-9999.0
9.35	2.85	115.8	3.34	2.9	0.568	0.000	44.3	58.8	9.215	79.0	46.0	10.0
9.51	2.90	97.2	2.75	2.8	0.577	0.000	37.2	49.0	7.732	73.7	44.0	10.0
9.68	2.95	129.6	2.01	1.6	0.587	0.000	31.0	40.5	-104.410	81.7	46.0	-9999.0
9.84	3.00	184.6	1.60	0.9	0.597	0.000	35.4	45.8	-104.410	91.6	46.0	-9999.0
10.01	3.05	197.2	1.25	0.6	0.607	0.000	37.8	48.5	-104.410	93.3	48.0	-9999.0
10.17	3.10	176.6	1.18	0.7	0.617	0.000	33.8	43.0	-104.410	89.9	46.0	-9999.0
10.33	3.15	131.9	1.36	1.0	0.627	0.000	31.6	39.9	-104.410	81.3	46.0	-9999.0
10.50	3.20	117.4	1.97	1.7	0.637	0.000	28.1	35.2	-104.410	77.7	44.0	-9999.0
10.66	3.25	95.2	1.86	2.0	0.647	0.000	30.4	37.8	-104.410	71.5	44.0	-9999.0
10.83	3.30	91.8	1.47	1.6	0.657	0.000	29.3	36.2	-104.410	70.2	44.0	-9999.0
10.99	3.35	109.2	1.03	0.9	0.667	0.000	26.2	32.0	-104.410	75.0	44.0	-9999.0
11.15	3.40	86.0	0.97	1.1	0.677	0.000	20.6	25.0	-104.410	67.9	44.0	-9999.0
11.32	3.45	52.7	1.32	2.5	0.686	0.000	20.2	24.4	4.161	53.7	40.0	10.0
11.48	3.50	38.3	1.11	2.9	0.696	0.000	14.7	17.6	3.011	44.4	40.0	10.0
11.65	3.55	52.4	0.78	1.5	0.705	0.000	16.7	19.9	-104.410	53.1	40.0	-9999.0
11.81	3.60	53.8	0.69	1.3	0.715	0.000	17.2	20.3	-104.410	53.7	40.0	-9999.0
11.97	3.65	43.8	0.41	0.9	0.724	0.000	14.0	16.4	-104.410	47.6	40.0	-9999.0
12.14	3.70	42.4	0.42	1.0	0.734	0.000	13.5	15.8	-104.410	46.5	40.0	-9999.0
12.30	3.75	55.1	0.41	0.7	0.744	0.000	13.2	15.3	-104.410	53.8	40.0	-9999.0
12.47	3.80	56.1	0.37	0.7	0.754	0.000	13.4	15.5	-104.410	54.1	40.0	-9999.0
12.63	3.85	52.6	0.55	1.0	0.764	0.000	16.8	19.2	-104.410	52.1	40.0	-9999.0
12.80	3.90	36.9	0.56	1.5	0.773	0.000	11.8	13.4	-104.410	41.7	38.0	-9999.0
12.96	3.95	33.4	0.52	1.6	0.783	0.000	12.8	14.5	2.611	38.8	38.0	10.0
13.12	4.00	37.6	0.55	1.5	0.792	0.000	12.0	13.5	-104.410	41.9	38.0	-9999.0
13.29	4.05	29.4	0.54	1.8	0.802	0.000	11.3	12.6	2.287	34.7	38.0	10.0
13.45	4.10	25.2	0.51	2.0	0.811	0.000	9.7	10.7	1.954	30.2	36.0	10.0
13.62	4.15	26.3	0.46	1.8	0.821	0.000	10.1	11.1	2.041	31.2	36.0	10.0
13.78	4.20	35.2	0.32	0.9	0.830	0.000	11.2	12.3	-104.410	39.4	38.0	-9999.0
13.94	4.25	35.8	0.22	0.6	0.840	0.000	11.4	12.5	-104.410	39.7	38.0	-9999.0
14.11	4.30	37.0	0.19	0.5	0.849	0.000	11.8	12.8	-104.410	40.5	38.0	-9999.0
14.27	4.35	43.6	0.19	0.4	0.859	0.000	10.4	11.3	-104.410	45.1	38.0	-9999.0
14.44	4.40	45.8	0.20	0.4	0.869	0.000	11.0	11.8	-104.410	46.3	38.0	-9999.0
14.60	4.45	44.0	0.19	0.4	0.879	0.000	10.5	11.2	-104.410	45.0	38.0	-9999.0
14.76	4.50	46.5	0.18	0.4	0.889	0.000	11.1	11.8	-104.410	46.4	38.0	-9999.0
14.93	4.55	46.8	0.17	0.4	0.899	0.000	11.2	11.8	-104.410	46.4	38.0	-9999.0
15.09	4.60	41.9	0.17	0.4	0.909	0.000	10.0	10.5	-104.410	43.1	38.0	-9999.0
15.26	4.65	35.1	0.15	0.4	0.919	0.000	11.2	11.7	-104.410	37.8	38.0	-9999.0
15.42	4.70	28.9	0.16	0.6	0.928	0.000	9.2	9.6	-104.410	32.1	36.0	-9999.0
15.58	4.75	31.2	0.15	0.5	0.938	0.000	10.0	10.3	-104.410	34.2	36.0	-9999.0
15.75	4.80	31.0	0.13	0.4	0.948	0.000	9.9	10.2	-104.410	33.9	36.0	-9999.0
15.91	4.85	32.4	0.20	0.6	0.957	0.000	10.3	10.6	-104.410	35.0	36.0	-9999.0
16.08	4.90	32.4	0.38	1.2	0.967	0.000	10.3	10.5	-104.410	34.8	36.0	-9999.0
16.24	4.95	25.0	0.39	1.6	0.976	0.000	9.6	9.7	1.921	30.0	34.0	10.0
16.40	5.00	26.5	0.41	1.6	0.986	0.000	10.1	10.2	2.037	30.0	34.0	10.0
16.57	5.05	32.4	0.53	1.6	0.995	0.000	12.4	12.4	2.512	34.4	36.0	10.0
16.73	5.10	20.2	0.52	2.6	1.005	0.000	9.7	9.6	1.535	-9999.0	-9999.0	8.8
16.90	5.15	15.4	0.45	2.9	1.014	0.000	7.4	7.3	1.152	-9999.0	-9999.0	5.5
17.06	5.20	14.1	0.40	2.8	1.022	0.002	6.8	6.7	1.048	-9999.0	-9999.0	4.7
17.22	5.25	13.1	0.37	2.8	1.026	0.007	6.3	6.2	0.966	-9999.0	-9999.0	4.2
17.39	5.30	14.9	0.25	1.7	1.030	0.012	5.7	5.6	1.109	30.0	32.0	5.1
17.55	5.35	30.4	0.27	0.9	1.035	0.017	9.7	9.6	-104.410	32.1	36.0	-9999.0
17.72	5.40	28.2	0.51	1.8	1.039	0.022	10.8	10.6	2.171	30.0	34.0	10.0
17.88	5.45	19.6	0.46	2.3	1.043	0.027	9.4	9.2	1.485	-9999.0	-9999.0	7.8
18.04	5.50	14.3	0.44	3.1	1.047	0.033	6.9	6.7	1.060	-9999.0	-9999.0	4.6

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	15.8	0.31	2.0	1.052	0.038	7.6	7.4	1.177	-9999.0	-9999.0	5.4
18.37	5.60	20.2	0.32	1.6	1.056	0.043	7.7	7.5	1.524	30.0	32.0	8.0
18.54	5.65	28.8	0.33	1.1	1.060	0.048	9.2	8.9	-104.410	30.1	34.0	-9999.0
18.70	5.70	20.3	0.35	1.7	1.065	0.053	7.8	7.5	1.533	30.0	32.0	8.0
18.86	5.75	28.7	0.34	1.2	1.069	0.058	9.1	8.8	-104.410	30.0	34.0	-9999.0
19.03	5.80	38.6	0.43	1.1	1.074	0.063	12.3	11.9	-104.410	38.4	38.0	-9999.0
19.19	5.85	34.0	0.69	2.0	1.078	0.068	13.0	12.5	2.625	34.6	36.0	10.0
19.36	5.90	21.4	0.68	3.2	1.082	0.074	10.2	9.8	1.617	-9999.0	-9999.0	8.5
19.52	5.95	13.1	0.57	4.4	1.087	0.079	12.6	12.1	0.957	-9999.0	-9999.0	3.8
19.68	6.00	10.1	0.34	3.4	1.091	0.084	6.4	6.2	0.711	-9999.0	-9999.0	2.5
19.85	6.05	8.7	0.20	2.3	1.095	0.089	4.2	4.0	0.603	-9999.0	-9999.0	2.0
20.01	6.10	7.3	0.15	2.1	1.099	0.094	4.6	4.4	0.485	-9999.0	-9999.0	1.5
20.18	6.15	7.3	0.14	1.9	1.104	0.099	3.5	3.3	0.485	-9999.0	-9999.0	1.5
20.34	6.20	8.5	0.14	1.7	1.108	0.104	4.1	3.9	0.582	-9999.0	-9999.0	1.9
20.50	6.25	9.0	0.15	1.7	1.112	0.109	4.3	4.1	0.624	-9999.0	-9999.0	2.0
20.67	6.30	7.7	0.20	2.6	1.116	0.115	4.9	4.7	0.517	-9999.0	-9999.0	1.6
20.83	6.35	8.5	0.27	3.2	1.121	0.120	5.4	5.1	0.580	-9999.0	-9999.0	1.8
21.00	6.40	14.6	0.54	3.7	1.125	0.125	9.3	8.8	1.064	-9999.0	-9999.0	4.2
21.16	6.45	15.9	0.51	3.2	1.129	0.130	7.6	7.2	1.171	-9999.0	-9999.0	4.8
21.33	6.50	11.2	0.41	3.7	1.134	0.135	7.1	6.7	0.794	-9999.0	-9999.0	2.7
21.49	6.55	13.8	0.47	3.4	1.138	0.140	8.8	8.2	0.998	-9999.0	-9999.0	3.7
21.65	6.60	16.6	0.45	2.7	1.142	0.145	7.9	7.4	1.222	-9999.0	-9999.0	5.0
21.82	6.65	10.2	0.28	2.8	1.146	0.150	6.5	6.1	0.710	-9999.0	-9999.0	2.3
21.98	6.70	10.8	0.28	2.6	1.151	0.156	5.2	4.8	0.756	-9999.0	-9999.0	2.5
22.15	6.75	9.3	0.23	2.5	1.155	0.161	4.5	4.1	0.640	-9999.0	-9999.0	2.0
22.31	6.80	9.3	0.19	2.0	1.159	0.166	4.5	4.1	0.639	-9999.0	-9999.0	2.0
22.47	6.85	9.1	0.14	1.5	1.163	0.171	4.3	4.0	0.618	-9999.0	-9999.0	1.9
22.64	6.90	10.2	0.14	1.4	1.168	0.176	4.9	4.5	0.705	-9999.0	-9999.0	2.2
22.80	6.95	10.9	0.16	1.5	1.172	0.181	5.2	4.8	0.761	-9999.0	-9999.0	2.4
22.97	7.00	10.0	0.15	1.5	1.176	0.186	4.8	4.4	0.688	-9999.0	-9999.0	2.1
23.13	7.05	9.9	0.19	1.9	1.181	0.191	4.7	4.4	0.683	-9999.0	-9999.0	2.1
23.29	7.10	10.9	0.18	1.7	1.185	0.197	5.2	4.8	0.759	-9999.0	-9999.0	2.4
23.46	7.15	40.6	0.24	0.6	1.189	0.202	13.0	11.9	-104.410	38.3	36.0	-9999.0
23.62	7.20	48.1	0.27	0.6	1.194	0.207	11.5	10.5	-104.410	43.2	38.0	-9999.0
23.79	7.25	41.8	0.21	0.5	1.199	0.212	10.0	9.1	-104.410	39.0	36.0	-9999.0
23.95	7.30	37.6	0.15	0.4	1.203	0.217	12.0	10.9	-104.410	35.9	36.0	-9999.0
24.11	7.35	36.7	0.13	0.4	1.208	0.222	11.7	10.7	-104.410	35.2	36.0	-9999.0
24.28	7.40	39.3	0.18	0.5	1.212	0.227	12.6	11.4	-104.410	37.2	36.0	-9999.0
24.44	7.45	44.7	0.33	0.7	1.217	0.232	14.3	12.9	-104.410	40.8	38.0	-9999.0
24.61	7.50	62.1	1.01	1.6	1.222	0.237	19.8	17.9	-104.410	50.1	38.0	-9999.0
24.77	7.55	109.2	1.99	1.8	1.226	0.243	34.8	31.5	-104.410	66.2	42.0	-9999.0
24.93	7.60	312.4	1.99	0.6	1.231	0.248	49.9	45.0	-104.410	95.0	46.0	-9999.0
25.10	7.65	882.0	1.99	0.2	1.236	0.253	140.8	126.6	-104.410	95.0	50.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1753-0432
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-13
Location: AMBROSIA LAKE
Cone: 10 Ton St 146
CPT Date: 04/19/08
CPT Time: 14:56
CPT File: 390CP13.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 15.24 (ft): 50.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	58.2	0.27	0.5	0.010	0.000	13.9	27.9	-104.410	95.0	50.0	-9999.0
0.33	0.10	147.7	0.29	0.2	0.020	0.000	28.3	56.6	-104.410	95.0	50.0	-9999.0
0.49	0.15	248.7	0.63	0.3	0.030	0.000	39.7	79.4	-104.410	95.0	50.0	-9999.0
0.66	0.20	256.9	1.23	0.5	0.041	0.000	41.0	82.0	-104.410	95.0	50.0	-9999.0
0.82	0.25	233.2	1.80	0.8	0.051	0.000	44.7	89.3	-104.410	95.0	50.0	-9999.0
0.98	0.30	214.2	2.54	1.2	0.061	0.000	41.0	82.1	-104.410	95.0	50.0	-9999.0
1.15	0.35	216.1	3.01	1.4	0.071	0.000	51.7	103.5	-104.410	95.0	50.0	-9999.0
1.31	0.40	211.3	3.19	1.5	0.081	0.000	50.6	101.2	-104.410	95.0	50.0	-9999.0
1.48	0.45	202.8	3.14	1.5	0.091	0.000	48.6	97.1	-104.410	95.0	50.0	-9999.0
1.64	0.50	196.1	3.09	1.6	0.101	0.000	47.0	93.9	-104.410	95.0	50.0	-9999.0
1.80	0.55	147.1	3.08	2.1	0.111	0.000	47.0	93.9	-104.410	95.0	50.0	-9999.0
1.97	0.60	100.4	2.95	2.9	0.120	0.000	38.5	76.9	8.025	95.0	50.0	10.0
2.13	0.65	74.0	2.36	3.2	0.130	0.000	28.3	56.7	5.908	87.3	50.0	10.0
2.30	0.70	82.5	1.97	2.4	0.139	0.000	26.3	52.7	-104.410	89.4	50.0	-9999.0
2.46	0.75	79.1	1.64	2.1	0.149	0.000	25.3	50.5	-104.410	87.2	48.0	-9999.0
2.62	0.80	56.4	1.53	2.7	0.158	0.000	21.6	43.2	4.502	76.7	48.0	10.0
2.79	0.85	36.4	1.43	3.9	0.168	0.000	17.4	34.9	2.902	-9999.0	-9999.0	10.0
2.95	0.90	30.1	1.33	4.4	0.177	0.000	19.2	38.4	2.394	-9999.0	-9999.0	10.0
3.12	0.95	29.5	1.32	4.5	0.187	0.000	18.9	37.7	2.348	-9999.0	-9999.0	10.0
3.28	1.00	33.3	1.32	4.0	0.196	0.000	15.9	31.9	2.648	-9999.0	-9999.0	10.0
3.44	1.05	32.5	1.35	4.2	0.205	0.000	20.8	41.5	2.584	-9999.0	-9999.0	10.0
3.61	1.10	34.2	1.54	4.5	0.215	0.000	21.8	43.6	2.716	-9999.0	-9999.0	10.0
3.77	1.15	35.7	1.77	5.0	0.224	0.000	34.2	68.3	2.837	-9999.0	-9999.0	10.0
3.94	1.20	81.2	2.11	2.6	0.233	0.000	31.1	62.2	6.479	81.5	48.0	10.0
4.10	1.25	98.7	2.77	2.8	0.243	0.000	37.8	75.7	7.880	86.6	48.0	10.0
4.27	1.30	92.8	3.63	3.9	0.252	0.000	44.4	88.5	7.403	-9999.0	-9999.0	10.0
4.43	1.35	90.5	3.41	3.8	0.262	0.000	43.3	84.7	7.216	-9999.0	-9999.0	10.0
4.59	1.40	63.3	2.72	4.3	0.271	0.000	30.3	58.2	5.043	-9999.0	-9999.0	10.0
4.76	1.45	43.1	1.94	4.5	0.280	0.000	27.5	52.0	3.428	-9999.0	-9999.0	10.0
4.92	1.50	39.1	1.66	4.3	0.290	0.000	24.9	46.3	3.103	-9999.0	-9999.0	10.0
5.09	1.55	46.5	1.64	3.5	0.299	0.000	22.3	40.7	3.699	-9999.0	-9999.0	10.0
5.25	1.60	73.3	2.05	2.8	0.309	0.000	28.1	50.6	5.839	74.6	46.0	10.0
5.41	1.65	62.1	2.79	4.5	0.318	0.000	29.7	52.7	4.942	-9999.0	-9999.0	10.0
5.58	1.70	47.3	3.01	6.4	0.327	0.000	45.3	79.1	3.756	-9999.0	-9999.0	10.0
5.74	1.75	88.4	2.99	3.4	0.336	0.000	33.9	58.4	7.046	78.7	46.0	10.0
5.91	1.80	172.0	3.33	1.9	0.346	0.000	41.2	70.0	-104.410	95.0	48.0	-9999.0
6.07	1.85	194.7	3.87	2.0	0.356	0.000	46.6	78.1	-104.410	95.0	50.0	-9999.0
6.23	1.90	203.6	3.35	1.6	0.366	0.000	48.7	80.6	-104.410	95.0	50.0	-9999.0
6.40	1.95	202.2	3.44	1.7	0.376	0.000	48.4	79.0	-104.410	95.0	50.0	-9999.0
6.56	2.00	196.1	3.39	1.7	0.386	0.000	47.0	75.6	-104.410	95.0	48.0	-9999.0
6.73	2.05	192.5	4.05	2.1	0.396	0.000	61.4	97.7	-104.410	95.0	48.0	-9999.0
6.89	2.10	169.7	4.37	2.6	0.405	0.000	54.2	85.1	-104.410	94.8	48.0	-9999.0
7.05	2.15	184.2	4.32	2.3	0.415	0.000	58.8	91.3	-104.410	95.0	48.0	-9999.0
7.22	2.20	229.2	4.11	1.8	0.425	0.000	54.9	84.2	-104.410	95.0	50.0	-9999.0
7.38	2.25	234.8	4.09	1.7	0.435	0.000	56.2	85.3	-104.410	95.0	50.0	-9999.0
7.55	2.30	227.4	4.07	1.8	0.445	0.000	54.5	81.7	-104.410	95.0	48.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	220.9	4.43	2.0	0.454	0.000	52.9	78.5	-104.410	95.0	48.0	-9999.0
7.87	2.40	236.1	4.49	1.9	0.464	0.000	56.5	83.0	-104.410	95.0	48.0	-9999.0
8.04	2.45	235.4	4.07	1.7	0.474	0.000	56.4	81.9	-104.410	95.0	48.0	-9999.0
8.20	2.50	225.5	3.48	1.5	0.484	0.000	54.0	77.6	-104.410	95.0	48.0	-9999.0
8.37	2.55	210.5	3.30	1.6	0.494	0.000	50.4	71.7	-104.410	95.0	48.0	-9999.0
8.53	2.60	180.6	3.45	1.9	0.504	0.000	43.2	60.9	-104.410	93.4	48.0	-9999.0
8.69	2.65	141.6	3.10	2.2	0.514	0.000	45.2	63.1	-104.410	86.2	46.0	-9999.0
8.86	2.70	103.3	2.52	2.4	0.524	0.000	33.0	45.6	-104.410	76.9	46.0	-9999.0
9.02	2.75	74.5	1.80	2.4	0.533	0.000	28.5	39.1	5.915	67.2	44.0	10.0
9.19	2.80	58.1	1.79	3.1	0.542	0.000	22.2	30.2	4.602	59.8	42.0	10.0
9.35	2.85	45.2	1.86	4.1	0.552	0.000	21.6	29.1	3.572	-9999.0	-9999.0	10.0
9.51	2.90	40.2	1.93	4.8	0.561	0.000	25.7	34.2	3.170	-9999.0	-9999.0	10.0
9.68	2.95	35.4	1.93	5.5	0.571	0.000	33.9	44.9	2.788	-9999.0	-9999.0	10.0
9.84	3.00	33.5	1.74	5.2	0.580	0.000	32.1	42.2	2.634	-9999.0	-9999.0	10.0
10.01	3.05	56.2	1.57	2.8	0.589	0.000	21.5	28.1	4.450	57.7	42.0	10.0
10.17	3.10	93.9	1.49	1.6	0.598	0.000	30.0	38.8	-104.410	72.2	44.0	-9999.0
10.33	3.15	124.4	1.59	1.3	0.608	0.000	29.8	38.2	-104.410	80.0	46.0	-9999.0
10.50	3.20	144.8	1.69	1.2	0.618	0.000	34.7	44.1	-104.410	84.2	46.0	-9999.0
10.66	3.25	152.7	1.81	1.2	0.628	0.000	36.6	46.1	-104.410	85.5	46.0	-9999.0
10.83	3.30	153.1	1.91	1.3	0.638	0.000	36.7	45.9	-104.410	85.3	46.0	-9999.0
10.99	3.35	147.6	2.02	1.4	0.648	0.000	35.3	43.9	-104.410	84.0	46.0	-9999.0
11.15	3.40	145.6	2.02	1.4	0.658	0.000	34.9	43.0	-104.410	83.4	46.0	-9999.0
11.32	3.45	162.6	2.12	1.3	0.668	0.000	38.9	47.7	-104.410	86.4	46.0	-9999.0
11.48	3.50	171.6	2.33	1.4	0.678	0.000	41.1	49.9	-104.410	87.7	46.0	-9999.0
11.65	3.55	185.6	2.56	1.4	0.688	0.000	44.4	53.6	-104.410	89.8	46.0	-9999.0
11.81	3.60	182.8	2.71	1.5	0.698	0.000	43.8	52.4	-104.410	89.1	46.0	-9999.0
11.97	3.65	170.8	2.78	1.6	0.707	0.000	40.9	48.6	-104.410	87.0	46.0	-9999.0
12.14	3.70	153.3	2.60	1.7	0.717	0.000	36.7	43.3	-104.410	83.7	46.0	-9999.0
12.30	3.75	134.2	2.05	1.5	0.727	0.000	32.1	37.7	-104.410	79.7	44.0	-9999.0
12.47	3.80	122.2	1.82	1.5	0.737	0.000	29.2	34.1	-104.410	76.8	44.0	-9999.0
12.63	3.85	114.2	1.54	1.4	0.747	0.000	27.3	31.6	-104.410	74.6	44.0	-9999.0
12.80	3.90	122.8	1.43	1.2	0.757	0.000	29.4	33.8	-104.410	76.5	44.0	-9999.0
12.96	3.95	130.2	1.54	1.2	0.767	0.000	31.2	35.6	-104.410	78.0	44.0	-9999.0
13.12	4.00	138.3	1.63	1.2	0.777	0.000	33.1	37.6	-104.410	79.6	44.0	-9999.0
13.29	4.05	141.2	1.73	1.2	0.787	0.000	33.8	38.1	-104.410	80.0	44.0	-9999.0
13.45	4.10	140.8	1.75	1.2	0.797	0.000	33.7	37.8	-104.410	79.7	44.0	-9999.0
13.62	4.15	142.4	1.75	1.2	0.807	0.000	34.1	38.0	-104.410	79.9	44.0	-9999.0
13.78	4.20	149.3	1.78	1.2	0.817	0.000	35.8	39.6	-104.410	81.1	44.0	-9999.0
13.94	4.25	161.6	1.91	1.2	0.826	0.000	38.7	42.6	-104.410	83.1	44.0	-9999.0
14.11	4.30	169.5	2.10	1.2	0.836	0.000	40.6	44.4	-104.410	84.3	46.0	-9999.0
14.27	4.35	180.8	2.22	1.2	0.846	0.000	34.6	37.6	-104.410	86.0	46.0	-9999.0
14.44	4.40	190.2	2.30	1.2	0.857	0.000	36.4	39.4	-104.410	87.3	46.0	-9999.0
14.60	4.45	201.4	2.44	1.2	0.867	0.000	38.6	41.4	-104.410	88.8	46.0	-9999.0
14.76	4.50	218.9	2.68	1.2	0.877	0.000	41.9	44.8	-104.410	91.0	46.0	-9999.0
14.93	4.55	230.1	2.94	1.3	0.887	0.000	44.1	46.8	-104.410	92.3	46.0	-9999.0
15.09	4.60	238.8	3.06	1.3	0.897	0.000	45.7	48.3	-104.410	93.2	46.0	-9999.0
15.26	4.65	249.8	3.12	1.2	0.908	0.000	47.8	50.2	-104.410	94.3	46.0	-9999.0
15.42	4.70	255.2	3.16	1.2	0.918	0.000	48.9	51.0	-104.410	94.7	46.0	-9999.0
15.58	4.75	259.5	2.78	1.1	0.928	0.000	49.7	51.6	-104.410	95.0	46.0	-9999.0
15.75	4.80	263.3	3.14	1.2	0.938	0.000	50.4	52.1	-104.410	95.0	46.0	-9999.0
15.91	4.85	257.1	3.23	1.3	0.948	0.000	49.2	50.6	-104.410	94.5	46.0	-9999.0
16.08	4.90	257.6	3.02	1.2	0.958	0.000	49.3	50.4	-104.410	94.4	46.0	-9999.0
16.24	4.95	253.8	2.92	1.1	0.969	0.000	48.6	49.4	-104.410	93.8	46.0	-9999.0
16.40	5.00	252.5	2.90	1.1	0.979	0.000	48.4	48.9	-104.410	93.5	46.0	-9999.0
16.57	5.05	249.4	3.06	1.2	0.989	0.000	47.8	48.0	-104.410	93.0	46.0	-9999.0
16.73	5.10	246.7	3.17	1.3	0.999	0.000	47.3	47.3	-104.410	92.6	46.0	-9999.0
16.90	5.15	239.7	3.14	1.3	1.009	0.000	45.9	45.7	-104.410	91.6	46.0	-9999.0
17.06	5.20	228.1	2.99	1.3	1.020	0.000	43.7	43.3	-104.410	90.0	46.0	-9999.0
17.22	5.25	218.8	2.85	1.3	1.030	0.000	41.9	41.3	-104.410	88.7	46.0	-9999.0
17.39	5.30	213.3	2.76	1.3	1.040	0.000	40.8	40.1	-104.410	87.8	46.0	-9999.0
17.55	5.35	210.1	2.79	1.3	1.050	0.000	40.2	39.3	-104.410	87.2	46.0	-9999.0
17.72	5.40	207.2	2.80	1.3	1.060	0.000	49.6	48.2	-104.410	86.7	44.0	-9999.0
17.88	5.45	200.6	2.68	1.3	1.070	0.000	48.0	46.4	-104.410	85.6	44.0	-9999.0
18.04	5.50	191.1	2.35	1.2	1.080	0.000	36.6	35.2	-104.410	84.1	44.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	178.4	2.14	1.2	1.090	0.000	34.2	32.7	-104.410	82.0	44.0	-9999.0
18.37	5.60	164.2	1.99	1.2	1.100	0.000	39.3	37.5	-104.410	79.5	44.0	-9999.0
18.54	5.65	146.3	1.96	1.3	1.110	0.000	35.0	33.2	-104.410	76.1	44.0	-9999.0
18.70	5.70	121.7	1.81	1.5	1.120	0.000	29.1	27.5	-104.410	70.7	42.0	-9999.0
18.86	5.75	86.3	1.21	1.4	1.130	0.000	20.7	19.4	-104.410	60.7	40.0	-9999.0
19.03	5.80	57.5	1.19	2.1	1.140	0.000	18.4	17.2	-104.410	48.9	38.0	-9999.0
19.19	5.85	31.6	1.25	4.0	1.149	0.000	15.1	14.1	2.434	-9999.0	-9999.0	10.0
19.36	5.90	22.6	1.27	5.6	1.159	0.000	21.6	20.1	1.712	-9999.0	-9999.0	8.3
19.52	5.95	28.3	1.36	4.8	1.168	0.000	27.1	25.0	2.168	-9999.0	-9999.0	10.0
19.68	6.00	42.3	1.69	4.0	1.177	0.000	20.3	18.7	3.291	-9999.0	-9999.0	10.0
19.85	6.05	55.5	1.95	3.5	1.186	0.000	26.6	24.4	4.347	-9999.0	-9999.0	10.0
20.01	6.10	56.2	2.31	4.1	1.196	0.000	26.9	24.6	4.399	-9999.0	-9999.0	10.0
20.18	6.15	55.0	2.29	4.2	1.205	0.000	26.3	24.0	4.306	-9999.0	-9999.0	10.0
20.34	6.20	57.1	2.31	4.0	1.215	0.000	27.3	24.8	4.472	-9999.0	-9999.0	10.0
20.50	6.25	61.7	2.69	4.4	1.224	0.000	29.6	26.7	4.842	-9999.0	-9999.0	10.0
20.67	6.30	55.9	2.79	5.0	1.233	0.000	35.7	32.1	4.373	-9999.0	-9999.0	10.0
20.83	6.35	60.7	3.26	5.4	1.244	0.000	58.1	52.1	-104.410	49.2	38.0	-9999.0
21.00	6.40	58.8	3.26	5.5	1.254	0.000	56.3	50.3	-104.410	48.2	38.0	-9999.0
21.16	6.45	76.0	3.70	4.9	1.265	0.000	72.8	64.7	-104.410	55.4	40.0	-9999.0
21.33	6.50	76.5	4.03	5.3	1.276	0.000	73.3	64.9	-104.410	55.5	40.0	-9999.0
21.49	6.55	79.4	4.41	5.6	1.286	0.000	76.1	67.1	-104.410	56.4	40.0	-9999.0
21.65	6.60	71.4	4.32	6.1	1.297	0.000	68.4	60.0	-104.410	53.3	40.0	-9999.0
21.82	6.65	66.9	4.20	6.3	1.308	0.000	64.0	56.0	-104.410	51.3	38.0	-9999.0
21.98	6.70	66.1	4.22	6.4	1.318	0.000	63.3	55.2	-104.410	50.8	38.0	-9999.0
22.15	6.75	102.5	4.56	4.4	1.329	0.000	98.2	85.2	-104.410	63.3	40.0	-9999.0
22.31	6.80	97.9	5.18	5.3	1.340	0.000	93.8	81.0	-104.410	61.9	40.0	-9999.0
22.47	6.85	89.2	5.76	6.5	1.351	0.000	85.4	73.5	-104.410	59.1	40.0	-9999.0
22.64	6.90	83.8	5.34	6.4	1.361	0.000	80.3	68.8	-104.410	57.2	40.0	-9999.0
22.80	6.95	90.6	5.18	5.7	1.372	0.000	86.8	74.1	-104.410	59.3	40.0	-9999.0
22.97	7.00	86.3	5.34	6.2	1.383	0.000	82.6	70.3	-104.410	57.8	40.0	-9999.0
23.13	7.05	79.9	5.15	6.4	1.393	0.000	76.5	64.8	-104.410	55.5	40.0	-9999.0
23.29	7.10	80.4	5.21	6.5	1.404	0.000	77.0	65.0	-104.410	55.5	40.0	-9999.0
23.46	7.15	97.6	5.17	5.3	1.415	0.000	93.5	78.6	-104.410	61.0	40.0	-9999.0
23.62	7.20	105.8	5.52	5.2	1.425	0.000	101.3	84.8	-104.410	63.2	40.0	-9999.0
23.79	7.25	114.8	6.48	5.6	1.436	0.000	110.0	91.8	-104.410	65.4	42.0	-9999.0
23.95	7.30	108.2	6.01	5.6	1.447	0.000	103.7	86.2	-104.410	63.6	40.0	-9999.0
24.11	7.35	159.6	6.65	4.2	1.458	0.000	152.8	126.6	-104.410	74.7	42.0	-9999.0
24.28	7.40	148.5	7.11	4.8	1.468	0.000	142.3	117.4	-104.410	72.5	42.0	-9999.0
24.44	7.45	136.4	7.75	5.7	1.479	0.000	130.6	107.4	-104.410	69.9	42.0	-9999.0
24.61	7.50	100.6	7.13	7.1	1.490	0.000	96.4	79.0	-104.410	61.1	40.0	-9999.0
24.77	7.55	95.9	6.27	6.5	1.500	0.000	91.9	75.0	-104.410	59.7	40.0	-9999.0
24.93	7.60	106.3	5.42	5.1	1.511	0.000	101.8	82.8	-104.410	62.5	40.0	-9999.0
25.10	7.65	112.5	5.38	4.8	1.522	0.000	107.7	87.3	-104.410	64.0	40.0	-9999.0
25.26	7.70	111.7	5.38	4.8	1.532	0.000	107.0	86.5	-104.410	63.7	40.0	-9999.0
25.43	7.75	192.3	5.38	2.8	1.543	0.000	61.4	49.4	-104.410	79.2	42.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1753-0580
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-14
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/17/08
CPT Time: 13:54
CPT File: 390CP14.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 2.44 (ft): 8.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	16.7	0.02	0.1	0.010	0.000	5.3	10.7	-104.410	81.9	50.0	-9999.0
0.33	0.10	22.8	0.04	0.2	0.019	0.000	7.3	14.6	-104.410	80.9	50.0	-9999.0
0.49	0.15	56.3	0.03	0.1	0.029	0.000	13.5	27.0	-104.410	95.0	50.0	-9999.0
0.66	0.20	77.3	0.16	0.2	0.039	0.000	18.5	37.0	-104.410	95.0	50.0	-9999.0
0.82	0.25	63.7	0.32	0.5	0.049	0.000	15.2	30.5	-104.410	95.0	50.0	-9999.0
0.98	0.30	57.6	0.47	0.8	0.059	0.000	13.8	27.6	-104.410	91.4	50.0	-9999.0
1.15	0.35	56.8	0.77	1.4	0.069	0.000	18.1	36.2	-104.410	88.8	50.0	-9999.0
1.31	0.40	61.9	1.05	1.7	0.078	0.000	19.7	39.5	-104.410	89.4	50.0	-9999.0
1.48	0.45	81.1	0.89	1.1	0.088	0.000	19.4	38.8	-104.410	95.0	50.0	-9999.0
1.64	0.50	79.0	0.70	0.9	0.098	0.000	18.9	37.8	-104.410	93.2	50.0	-9999.0
1.80	0.55	58.8	0.62	1.1	0.108	0.000	18.8	37.5	-104.410	83.3	50.0	-9999.0
1.97	0.60	47.0	0.78	1.7	0.117	0.000	15.0	30.0	-104.410	75.7	48.0	-9999.0
2.13	0.65	41.5	1.10	2.7	0.127	0.000	15.9	31.8	3.313	71.0	48.0	10.0
2.30	0.70	40.6	1.21	3.0	0.136	0.000	15.6	31.1	3.238	69.4	46.0	10.0
2.46	0.75	50.4	1.17	2.3	0.146	0.000	19.3	38.6	4.022	74.6	48.0	10.0
2.62	0.80	67.8	1.07	1.6	0.155	0.000	21.6	43.3	-104.410	82.2	48.0	-9999.0
2.79	0.85	81.2	1.09	1.3	0.165	0.000	19.4	38.9	-104.410	86.5	48.0	-9999.0
2.95	0.90	94.9	1.34	1.4	0.175	0.000	22.7	45.4	-104.410	90.1	50.0	-9999.0
3.12	0.95	90.8	1.48	1.6	0.185	0.000	29.0	58.0	-104.410	88.1	48.0	-9999.0
3.28	1.00	71.6	1.68	2.4	0.194	0.000	22.9	45.7	-104.410	80.6	48.0	-9999.0
3.44	1.05	52.0	1.76	3.4	0.204	0.000	24.9	49.8	4.146	-9999.0	-9999.0	10.0
3.61	1.10	66.5	2.13	3.2	0.213	0.000	25.5	50.9	5.301	77.1	46.0	10.0
3.77	1.15	198.2	2.45	1.2	0.223	0.000	38.0	75.9	-104.410	95.0	50.0	-9999.0
3.94	1.20	299.3	3.53	1.2	0.233	0.000	57.3	114.6	-104.410	95.0	50.0	-9999.0
4.10	1.25	264.6	4.06	1.5	0.243	0.000	63.4	126.7	-104.410	95.0	50.0	-9999.0
4.27	1.30	284.4	4.72	1.7	0.253	0.000	68.1	135.3	-104.410	95.0	50.0	-9999.0
4.43	1.35	306.6	4.62	1.5	0.263	0.000	58.7	114.5	-104.410	95.0	50.0	-9999.0
4.59	1.40	302.3	4.86	1.6	0.273	0.000	72.4	138.4	-104.410	95.0	50.0	-9999.0
4.76	1.45	288.3	5.01	1.7	0.283	0.000	69.0	129.7	-104.410	95.0	50.0	-9999.0
4.92	1.50	225.5	5.41	2.4	0.293	0.000	72.0	133.0	-104.410	95.0	50.0	-9999.0
5.09	1.55	197.6	6.51	3.3	0.303	0.000	94.6	172.0	-104.410	95.0	50.0	-9999.0
5.25	1.60	181.7	5.72	3.2	0.313	0.000	58.0	103.7	-104.410	95.0	50.0	-9999.0
5.41	1.65	142.9	4.31	3.0	0.322	0.000	54.7	96.4	11.406	93.1	48.0	10.0
5.58	1.70	126.8	2.39	1.9	0.332	0.000	40.5	70.3	-104.410	89.3	48.0	-9999.0
5.74	1.75	130.8	1.90	1.5	0.342	0.000	31.3	53.6	-104.410	89.8	48.0	-9999.0
5.91	1.80	172.3	2.42	1.4	0.352	0.000	41.3	69.6	-104.410	95.0	48.0	-9999.0
6.07	1.85	156.8	2.92	1.9	0.361	0.000	37.5	62.5	-104.410	94.1	48.0	-9999.0
6.23	1.90	103.2	2.97	2.9	0.371	0.000	39.5	64.9	8.229	81.8	46.0	10.0
6.40	1.95	78.8	3.50	4.4	0.380	0.000	37.7	61.2	6.272	-9999.0	-9999.0	10.0
6.56	2.00	89.7	4.94	5.5	0.391	0.000	85.9	137.5	-104.410	77.0	46.0	-9999.0
6.73	2.05	143.0	6.27	4.4	0.401	0.000	137.0	216.3	-104.410	90.0	48.0	-9999.0
6.89	2.10	118.7	4.84	4.1	0.412	0.000	113.7	177.2	-104.410	84.3	46.0	-9999.0
7.05	2.15	137.0	3.86	2.8	0.422	0.000	43.7	67.3	-104.410	88.0	48.0	-9999.0
7.22	2.20	78.9	0.65	0.8	0.432	0.000	18.9	28.7	-104.410	71.9	44.0	-9999.0
7.38	2.25	62.0	1.13	1.8	0.442	0.000	19.8	29.8	-104.410	64.7	44.0	-9999.0
7.55	2.30	68.2	0.94	1.4	0.451	0.000	21.8	32.4	-104.410	67.1	44.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	58.9	0.93	1.6	0.461	0.000	18.8	27.7	-104.410	62.6	44.0	-9999.0
7.87	2.40	64.5	0.84	1.3	0.471	0.000	20.6	30.0	-104.410	64.9	44.0	-9999.0
8.04	2.45	55.0	0.68	1.2	0.479	0.001	17.6	25.4	-104.410	60.1	42.0	-9999.0
8.20	2.50	45.9	0.41	0.9	0.484	0.006	14.6	21.0	-104.410	54.7	42.0	-9999.0
8.37	2.55	31.9	0.41	1.3	0.488	0.011	10.2	14.6	-104.410	44.1	40.0	-9999.0
8.53	2.60	20.4	0.31	1.5	0.493	0.017	7.8	11.1	1.589	31.2	38.0	10.0
8.69	2.65	16.0	0.27	1.7	0.497	0.022	6.1	8.7	1.241	30.0	36.0	10.0
8.86	2.70	37.2	0.26	0.7	0.501	0.027	11.9	16.8	-104.410	48.2	40.0	-9999.0
9.02	2.75	43.3	0.25	0.6	0.506	0.032	10.4	14.6	-104.410	52.4	42.0	-9999.0
9.19	2.80	40.4	0.28	0.7	0.511	0.037	12.9	18.0	-104.410	50.3	42.0	-9999.0
9.35	2.85	36.1	0.25	0.7	0.515	0.042	11.5	16.1	-104.410	47.0	40.0	-9999.0
9.51	2.90	31.9	0.53	1.7	0.520	0.047	12.2	16.9	2.504	43.3	40.0	10.0
9.68	2.95	34.0	0.95	2.8	0.524	0.052	13.0	18.0	2.672	45.0	40.0	10.0
9.84	3.00	58.6	1.00	1.7	0.528	0.058	18.7	25.7	-104.410	60.5	42.0	-9999.0
10.01	3.05	496.5	1.00	0.2	0.533	0.063	79.2	108.5	-104.410	95.0	50.0	-9999.0
10.17	3.10	762.5	1.00	0.1	0.539	0.068	121.7	165.9	-104.410	95.0	50.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1753-0684
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-15
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/18/08
CPT Time: 15:52
CPT File: 390CP15.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 4.88 (ft): 16.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	20.1	0.06	0.3	0.010	0.000	6.4	12.8	-104.410	87.1	50.0	-9999.0
0.33	0.10	35.5	0.12	0.3	0.019	0.000	11.3	22.6	-104.410	93.5	50.0	-9999.0
0.49	0.15	63.5	0.14	0.2	0.029	0.000	15.2	30.4	-104.410	95.0	50.0	-9999.0
0.66	0.20	77.2	0.19	0.2	0.039	0.000	18.5	37.0	-104.410	95.0	50.0	-9999.0
0.82	0.25	96.2	0.37	0.4	0.049	0.000	18.4	36.8	-104.410	95.0	50.0	-9999.0
0.98	0.30	100.2	0.91	0.9	0.059	0.000	24.0	48.0	-104.410	95.0	50.0	-9999.0
1.15	0.35	91.0	1.46	1.6	0.069	0.000	29.0	58.1	-104.410	95.0	50.0	-9999.0
1.31	0.40	104.2	2.26	2.2	0.079	0.000	33.3	66.5	-104.410	95.0	50.0	-9999.0
1.48	0.45	98.5	2.50	2.5	0.088	0.000	31.4	62.9	-104.410	95.0	50.0	-9999.0
1.64	0.50	105.3	2.46	2.3	0.098	0.000	33.6	67.2	-104.410	95.0	50.0	-9999.0
1.80	0.55	109.8	2.26	2.1	0.108	0.000	35.1	70.1	-104.410	95.0	50.0	-9999.0
1.97	0.60	66.1	2.00	3.0	0.117	0.000	25.3	50.6	5.276	85.5	50.0	10.0
2.13	0.65	42.1	1.67	4.0	0.126	0.000	20.2	40.3	3.359	-9999.0	-9999.0	10.0
2.30	0.70	50.8	1.60	3.2	0.136	0.000	19.5	38.9	4.053	75.8	48.0	10.0
2.46	0.75	53.1	1.75	3.3	0.145	0.000	20.3	40.7	4.236	76.2	48.0	10.0
2.62	0.80	59.5	1.72	2.9	0.155	0.000	22.8	45.6	4.751	78.5	48.0	10.0
2.79	0.85	52.3	1.61	3.1	0.164	0.000	20.0	40.1	4.173	74.0	46.0	10.0
2.95	0.90	33.9	1.49	4.4	0.173	0.000	21.6	43.2	2.696	-9999.0	-9999.0	10.0
3.12	0.95	29.7	1.69	5.7	0.183	0.000	28.4	56.9	2.362	-9999.0	-9999.0	10.0
3.28	1.00	27.6	1.65	6.0	0.192	0.000	26.4	52.9	2.193	-9999.0	-9999.0	10.0
3.44	1.05	39.9	1.82	4.6	0.201	0.000	25.5	50.9	3.174	-9999.0	-9999.0	10.0
3.61	1.10	63.4	2.27	3.6	0.211	0.000	30.4	60.8	5.059	-9999.0	-9999.0	10.0
3.77	1.15	102.5	3.50	3.4	0.220	0.000	39.3	78.5	8.181	89.1	48.0	10.0
3.94	1.20	121.2	4.30	3.5	0.229	0.000	46.4	92.9	9.678	93.3	48.0	10.0
4.10	1.25	111.5	4.66	4.2	0.239	0.000	106.8	213.5	-104.410	90.3	48.0	-9999.0
4.27	1.30	72.3	4.30	6.0	0.250	0.000	69.2	138.4	-104.410	77.2	46.0	-9999.0
4.43	1.35	59.4	3.76	6.3	0.261	0.000	56.9	111.5	-104.410	71.0	46.0	-9999.0
4.59	1.40	133.9	3.85	2.9	0.271	0.000	42.7	82.1	-104.410	93.7	48.0	-9999.0
4.76	1.45	285.1	4.51	1.6	0.281	0.000	68.3	128.8	-104.410	95.0	50.0	-9999.0
4.92	1.50	366.9	5.26	1.4	0.291	0.000	70.3	130.3	-104.410	95.0	50.0	-9999.0
5.09	1.55	381.0	5.95	1.6	0.301	0.000	73.0	133.0	-104.410	95.0	50.0	-9999.0
5.25	1.60	390.1	6.61	1.7	0.311	0.000	93.4	167.5	-104.410	95.0	50.0	-9999.0
5.41	1.65	386.1	6.95	1.8	0.321	0.000	92.4	163.2	-104.410	95.0	50.0	-9999.0
5.58	1.70	373.5	5.94	1.6	0.331	0.000	71.5	124.3	-104.410	95.0	50.0	-9999.0
5.74	1.75	352.7	5.48	1.6	0.341	0.000	67.6	115.7	-104.410	95.0	50.0	-9999.0
5.91	1.80	320.6	4.95	1.5	0.351	0.000	61.4	103.6	-104.410	95.0	50.0	-9999.0
6.07	1.85	297.3	4.55	1.5	0.361	0.000	71.2	118.4	-104.410	95.0	50.0	-9999.0
6.23	1.90	275.1	4.32	1.6	0.371	0.000	65.9	108.1	-104.410	95.0	50.0	-9999.0
6.40	1.95	272.9	4.20	1.5	0.381	0.000	65.3	105.8	-104.410	95.0	50.0	-9999.0
6.56	2.00	252.5	4.62	1.8	0.391	0.000	60.4	96.7	-104.410	95.0	50.0	-9999.0
6.73	2.05	207.4	4.32	2.1	0.401	0.000	49.7	78.4	-104.410	95.0	48.0	-9999.0
6.89	2.10	221.4	3.55	1.6	0.411	0.000	53.0	82.7	-104.410	95.0	50.0	-9999.0
7.05	2.15	245.6	3.25	1.3	0.421	0.000	47.0	72.5	-104.410	95.0	50.0	-9999.0
7.22	2.20	229.2	2.76	1.2	0.431	0.000	43.9	66.9	-104.410	95.0	48.0	-9999.0
7.38	2.25	217.9	2.16	1.0	0.441	0.000	41.7	62.8	-104.410	95.0	48.0	-9999.0
7.55	2.30	212.6	1.81	0.9	0.452	0.000	40.7	60.6	-104.410	95.0	48.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	197.2	1.64	0.8	0.462	0.000	37.8	55.6	-104.410	95.0	48.0	-9999.0
7.87	2.40	183.4	1.51	0.8	0.472	0.000	35.1	51.1	-104.410	94.8	48.0	-9999.0
8.04	2.45	168.1	1.36	0.8	0.482	0.000	32.2	46.4	-104.410	92.0	48.0	-9999.0
8.20	2.50	142.5	1.38	1.0	0.492	0.000	27.3	38.9	-104.410	87.0	46.0	-9999.0
8.37	2.55	114.5	1.46	1.3	0.502	0.000	27.4	38.7	-104.410	80.4	46.0	-9999.0
8.53	2.60	88.9	1.38	1.6	0.512	0.000	28.4	39.6	-104.410	72.9	44.0	-9999.0
8.69	2.65	88.3	1.21	1.4	0.522	0.000	21.1	29.3	-104.410	72.4	44.0	-9999.0
8.86	2.70	83.0	0.82	1.0	0.532	0.000	19.9	27.3	-104.410	70.4	44.0	-9999.0
9.02	2.75	90.8	0.65	0.7	0.542	0.000	21.7	29.5	-104.410	72.7	44.0	-9999.0
9.19	2.80	80.9	0.64	0.8	0.552	0.000	19.4	26.1	-104.410	69.1	44.0	-9999.0
9.35	2.85	74.4	0.78	1.1	0.562	0.000	17.8	23.8	-104.410	66.5	44.0	-9999.0
9.51	2.90	64.0	0.83	1.3	0.571	0.000	20.4	27.0	-104.410	61.9	42.0	-9999.0
9.68	2.95	66.6	0.77	1.2	0.581	0.000	15.9	20.9	-104.410	62.8	42.0	-9999.0
9.84	3.00	81.5	0.70	0.9	0.591	0.000	19.5	25.4	-104.410	68.3	44.0	-9999.0
10.01	3.05	88.2	0.54	0.6	0.601	0.000	21.1	27.2	-104.410	70.4	44.0	-9999.0
10.17	3.10	77.2	0.43	0.6	0.611	0.000	18.5	23.6	-104.410	66.3	44.0	-9999.0
10.33	3.15	61.2	0.43	0.7	0.621	0.000	14.7	18.6	-104.410	59.4	42.0	-9999.0
10.50	3.20	56.4	0.40	0.7	0.631	0.000	13.5	17.0	-104.410	56.8	42.0	-9999.0
10.66	3.25	52.1	0.36	0.7	0.641	0.000	12.5	15.6	-104.410	54.3	42.0	-9999.0
10.83	3.30	45.4	0.31	0.7	0.651	0.000	14.5	18.0	-104.410	50.2	40.0	-9999.0
10.99	3.35	41.5	0.27	0.7	0.660	0.000	13.3	16.3	-104.410	47.4	40.0	-9999.0
11.15	3.40	40.6	0.24	0.6	0.670	0.000	13.0	15.8	-104.410	46.6	40.0	-9999.0
11.32	3.45	41.3	0.29	0.7	0.680	0.000	13.2	16.0	-104.410	46.8	40.0	-9999.0
11.48	3.50	39.9	0.44	1.1	0.689	0.000	12.7	15.4	-104.410	45.7	40.0	-9999.0
11.65	3.55	31.9	0.46	1.4	0.699	0.000	12.2	14.6	2.494	39.0	38.0	10.0
11.81	3.60	37.4	0.41	1.1	0.708	0.000	11.9	14.2	-104.410	43.4	38.0	-9999.0
11.97	3.65	40.9	0.34	0.8	0.718	0.000	13.1	15.4	-104.410	45.8	40.0	-9999.0
12.14	3.70	41.0	0.11	0.3	0.728	0.000	9.8	11.5	-104.410	45.7	40.0	-9999.0
12.30	3.75	39.0	0.19	0.5	0.737	0.000	12.4	14.5	-104.410	44.0	38.0	-9999.0
12.47	3.80	39.3	0.22	0.6	0.747	0.000	12.5	14.5	-104.410	44.0	38.0	-9999.0
12.63	3.85	42.3	0.23	0.5	0.757	0.000	10.1	11.6	-104.410	46.0	40.0	-9999.0
12.80	3.90	46.1	0.26	0.6	0.767	0.000	11.0	12.6	-104.410	48.2	40.0	-9999.0
12.96	3.95	47.3	0.42	0.9	0.777	0.000	15.1	17.1	-104.410	48.8	40.0	-9999.0
13.12	4.00	36.9	0.55	1.5	0.786	0.000	11.8	13.3	-104.410	41.5	38.0	-9999.0
13.29	4.05	29.8	0.63	2.1	0.796	0.000	11.4	12.8	2.318	35.2	38.0	10.0
13.45	4.10	32.4	0.66	2.0	0.805	0.000	12.4	13.8	2.527	37.4	38.0	10.0
13.62	4.15	25.7	0.53	2.1	0.815	0.000	9.9	10.9	1.994	30.7	36.0	10.0
13.78	4.20	36.4	0.34	0.9	0.824	0.000	11.6	12.8	-104.410	40.5	38.0	-9999.0
13.94	4.25	41.7	0.36	0.9	0.834	0.000	13.3	14.6	-104.410	44.2	38.0	-9999.0
14.11	4.30	36.0	0.52	1.4	0.843	0.000	11.5	12.5	-104.410	39.8	38.0	-9999.0
14.27	4.35	23.3	0.73	3.1	0.853	0.000	11.2	12.1	1.797	-9999.0	-9999.0	10.0
14.44	4.40	17.2	0.69	4.0	0.862	0.000	11.0	11.8	1.306	-9999.0	-9999.0	8.7
14.60	4.45	16.5	0.56	3.4	0.872	0.000	10.5	11.3	1.249	-9999.0	-9999.0	7.9
14.76	4.50	22.3	0.63	2.8	0.881	0.000	10.7	11.4	1.713	-9999.0	-9999.0	10.0
14.93	4.55	23.3	0.51	2.2	0.891	0.000	8.9	9.5	1.794	30.0	34.0	10.0
15.09	4.60	20.5	0.40	2.0	0.900	0.000	7.9	8.3	1.569	30.0	34.0	10.0
15.26	4.65	29.7	0.49	1.7	0.909	0.000	11.4	11.9	2.303	33.2	36.0	10.0
15.42	4.70	28.0	0.31	1.1	0.919	0.000	8.9	9.3	-104.410	31.4	36.0	-9999.0
15.58	4.75	29.6	0.73	2.5	0.928	0.000	11.4	11.8	2.297	32.9	36.0	10.0
15.75	4.80	21.3	0.69	3.2	0.938	0.000	10.2	10.5	1.632	-9999.0	-9999.0	10.0
15.91	4.85	13.5	0.55	4.1	0.947	0.000	12.9	13.3	1.003	-9999.0	-9999.0	5.0
16.08	4.90	10.3	0.36	3.5	0.954	0.002	6.6	6.7	0.747	-9999.0	-9999.0	3.2
16.24	4.95	12.3	0.38	3.1	0.958	0.007	7.8	8.0	0.905	-9999.0	-9999.0	4.2
16.40	5.00	17.5	0.44	2.5	0.963	0.013	8.4	8.5	1.323	-9999.0	-9999.0	7.4
16.57	5.05	13.3	0.43	3.2	0.967	0.018	8.5	8.6	0.986	-9999.0	-9999.0	4.7
16.73	5.10	13.4	0.37	2.8	0.971	0.023	6.4	6.5	0.995	-9999.0	-9999.0	4.7
16.90	5.15	20.5	0.40	2.0	0.975	0.028	7.9	8.0	1.562	30.0	34.0	9.5
17.06	5.20	27.1	0.67	2.5	0.980	0.033	10.4	10.5	2.086	30.0	36.0	10.0
17.22	5.25	19.7	0.63	3.2	0.984	0.038	9.4	9.5	1.496	-9999.0	-9999.0	8.7
17.39	5.30	55.6	0.81	1.5	0.988	0.043	17.7	17.8	-104.410	50.0	40.0	-9999.0
17.55	5.35	95.7	1.03	1.1	0.993	0.048	22.9	23.0	-104.410	65.5	42.0	-9999.0
17.72	5.40	92.0	1.04	1.1	0.998	0.054	22.0	22.0	-104.410	64.3	42.0	-9999.0
17.88	5.45	85.3	1.01	1.2	1.003	0.059	20.4	20.4	-104.410	62.1	42.0	-9999.0
18.04	5.50	96.4	1.43	1.5	1.007	0.064	23.1	23.0	-104.410	65.5	42.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	152.5	1.73	1.1	1.012	0.069	36.5	36.3	-104.410	78.6	44.0	-9999.0
18.37	5.60	237.8	2.50	1.0	1.017	0.074	45.5	45.2	-104.410	91.2	46.0	-9999.0
18.54	5.65	373.2	2.56	0.7	1.022	0.079	59.6	58.9	-104.410	95.0	48.0	-9999.0
18.70	5.70	466.5	2.56	0.5	1.028	0.084	74.5	73.5	-104.410	95.0	48.0	-9999.0
18.86	5.75	469.2	2.56	0.5	1.033	0.089	74.9	73.7	-104.410	95.0	48.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1753-0811
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-16
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/18/08
CPT Time: 11:01
CPT File: 390CP16.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 1.52 (ft): 5.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	2.0	0.02	1.0	0.009	0.000	1.0	1.9	0.160	-9999.0	-9999.0	10.0
0.33	0.10	5.9	0.02	0.3	0.018	0.000	2.8	5.6	0.469	-9999.0	-9999.0	10.0
0.49	0.15	9.1	0.02	0.2	0.027	0.000	4.4	8.7	0.725	-9999.0	-9999.0	10.0
0.66	0.20	16.0	0.02	0.1	0.037	0.000	5.1	10.2	-104.410	61.4	48.0	-9999.0
0.82	0.25	37.2	0.02	0.1	0.047	0.000	8.9	17.8	-104.410	82.3	50.0	-9999.0
0.98	0.30	59.7	0.02	0.0	0.057	0.000	14.3	28.6	-104.410	93.0	50.0	-9999.0
1.15	0.35	57.3	0.08	0.1	0.066	0.000	13.7	27.4	-104.410	89.6	50.0	-9999.0
1.31	0.40	47.5	0.25	0.5	0.076	0.000	11.4	22.7	-104.410	82.2	50.0	-9999.0
1.48	0.45	39.0	0.34	0.9	0.086	0.000	12.5	24.9	-104.410	74.8	48.0	-9999.0
1.64	0.50	36.1	0.34	0.9	0.096	0.000	11.5	23.0	-104.410	71.1	48.0	-9999.0
1.80	0.55	31.0	0.23	0.7	0.105	0.000	9.9	19.8	-104.410	65.4	46.0	-9999.0
1.97	0.60	28.6	0.17	0.6	0.115	0.000	9.1	18.3	-104.410	61.8	46.0	-9999.0
2.13	0.65	25.8	0.17	0.7	0.125	0.000	8.2	16.5	-104.410	57.7	46.0	-9999.0
2.30	0.70	23.4	0.32	1.4	0.134	0.000	9.0	18.0	1.865	53.9	44.0	10.0
2.46	0.75	25.8	0.38	1.5	0.144	0.000	9.9	19.8	2.054	55.6	44.0	10.0
2.62	0.80	35.8	0.55	1.5	0.153	0.000	11.4	22.9	-104.410	64.1	46.0	-9999.0
2.79	0.85	62.5	0.75	1.2	0.163	0.000	19.9	39.9	-104.410	79.2	48.0	-9999.0
2.95	0.90	70.7	0.88	1.2	0.173	0.000	16.9	33.9	-104.410	81.9	48.0	-9999.0
3.12	0.95	62.9	0.85	1.4	0.182	0.000	20.1	40.1	-104.410	77.7	48.0	-9999.0
3.28	1.00	56.0	0.76	1.4	0.192	0.000	17.9	35.8	-104.410	73.7	46.0	-9999.0
3.44	1.05	47.8	0.67	1.4	0.202	0.000	15.3	30.5	-104.410	68.4	46.0	-9999.0
3.61	1.10	38.0	0.69	1.8	0.211	0.000	14.6	29.1	3.022	61.2	44.0	10.0
3.77	1.15	27.8	0.69	2.5	0.221	0.000	10.7	21.3	2.209	51.7	44.0	10.0
3.94	1.20	25.5	0.59	2.3	0.230	0.000	9.8	19.5	2.021	48.5	42.0	10.0
4.10	1.25	25.2	0.50	2.0	0.240	0.000	9.7	19.3	2.000	47.7	42.0	10.0
4.27	1.30	23.4	0.46	2.0	0.249	0.000	9.0	18.0	1.856	45.0	42.0	10.0
4.43	1.35	18.7	0.51	2.7	0.258	0.000	9.0	17.6	1.477	-9999.0	-9999.0	10.0
4.59	1.40	21.2	0.51	2.4	0.268	0.000	10.2	19.7	1.678	-9999.0	-9999.0	10.0
4.76	1.45	29.8	0.58	2.0	0.277	0.000	11.4	21.7	2.362	50.4	42.0	10.0
4.92	1.50	31.2	0.64	2.1	0.287	0.000	11.9	22.3	2.470	51.1	42.0	10.0
5.09	1.55	31.3	0.68	2.2	0.293	0.003	12.0	22.2	2.484	51.0	42.0	10.0
5.25	1.60	23.5	0.67	2.9	0.298	0.008	11.3	20.7	1.859	-9999.0	-9999.0	10.0
5.41	1.65	18.2	0.55	3.0	0.302	0.013	8.7	15.8	1.428	-9999.0	-9999.0	10.0
5.58	1.70	16.4	0.49	3.0	0.306	0.018	7.8	14.2	1.284	-9999.0	-9999.0	10.0
5.74	1.75	10.2	0.37	3.6	0.310	0.023	9.8	17.6	0.793	-9999.0	-9999.0	10.0
5.91	1.80	9.0	0.37	4.1	0.314	0.028	8.7	15.5	0.696	-9999.0	-9999.0	10.0
6.07	1.85	9.7	0.40	4.1	0.318	0.033	9.3	16.4	0.745	-9999.0	-9999.0	10.0
6.23	1.90	11.7	0.34	2.9	0.322	0.039	7.5	13.2	0.908	-9999.0	-9999.0	10.0
6.40	1.95	17.8	0.29	1.6	0.327	0.044	6.8	12.0	1.398	33.3	40.0	10.0
6.56	2.00	14.7	0.26	1.8	0.331	0.049	7.1	12.3	1.148	-9999.0	-9999.0	10.0
6.73	2.05	13.4	0.29	2.2	0.335	0.054	6.4	11.1	1.040	-9999.0	-9999.0	10.0
6.89	2.10	9.8	0.34	3.5	0.339	0.059	6.3	10.8	0.753	-9999.0	-9999.0	10.0
7.05	2.15	8.5	0.26	3.1	0.344	0.064	5.5	9.3	0.650	-9999.0	-9999.0	10.0
7.22	2.20	9.5	0.18	1.9	0.348	0.069	4.5	7.7	0.726	-9999.0	-9999.0	10.0
7.38	2.25	9.7	0.18	1.9	0.352	0.074	4.6	7.8	0.738	-9999.0	-9999.0	10.0
7.55	2.30	9.0	0.19	2.1	0.357	0.079	4.3	7.2	0.683	-9999.0	-9999.0	10.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	8.7	0.20	2.3	0.361	0.085	4.2	6.9	0.661	-9999.0	-9999.0	10.0
7.87	2.40	8.5	0.18	2.1	0.365	0.090	4.1	6.7	0.644	-9999.0	-9999.0	10.0
8.04	2.45	7.3	0.11	1.5	0.369	0.095	3.5	5.8	0.550	-9999.0	-9999.0	8.4
8.20	2.50	5.0	0.10	2.0	0.374	0.100	3.2	5.3	0.366	-9999.0	-9999.0	4.4
8.37	2.55	3.8	0.07	1.8	0.378	0.105	1.8	3.0	0.269	-9999.0	-9999.0	2.8
8.53	2.60	2.6	0.06	2.3	0.382	0.110	2.5	4.0	0.167	-9999.0	-9999.0	1.5
8.69	2.65	2.8	0.06	2.1	0.386	0.115	1.4	2.2	0.188	-9999.0	-9999.0	1.7
8.86	2.70	3.4	0.07	2.0	0.390	0.120	1.6	2.6	0.233	-9999.0	-9999.0	2.2
9.02	2.75	3.6	0.05	1.4	0.394	0.126	1.7	2.7	0.246	-9999.0	-9999.0	2.3
9.19	2.80	4.4	0.04	0.9	0.398	0.131	2.1	3.3	0.306	-9999.0	-9999.0	3.1
9.35	2.85	3.0	0.02	0.7	0.402	0.136	1.4	2.3	0.198	-9999.0	-9999.0	1.7
9.51	2.90	2.4	0.03	1.2	0.406	0.141	1.2	1.8	0.151	-9999.0	-9999.0	1.2
9.68	2.95	2.1	0.03	1.4	0.410	0.146	1.0	1.6	0.122	-9999.0	-9999.0	1.0
9.84	3.00	2.1	0.03	1.4	0.414	0.151	1.0	1.6	0.122	-9999.0	-9999.0	1.0
10.01	3.05	2.1	0.02	0.9	0.418	0.156	1.0	1.6	0.124	-9999.0	-9999.0	1.0
10.17	3.10	2.1	0.02	0.9	0.422	0.161	1.0	1.6	0.123	-9999.0	-9999.0	1.0
10.33	3.15	2.1	0.03	1.4	0.426	0.167	1.0	1.6	0.123	-9999.0	-9999.0	1.0
10.50	3.20	2.1	0.04	1.9	0.430	0.172	1.0	1.6	0.122	-9999.0	-9999.0	1.0
10.66	3.25	2.1	0.04	1.9	0.434	0.177	1.0	1.5	0.120	-9999.0	-9999.0	0.9
10.83	3.30	2.1	0.04	1.9	0.438	0.182	1.0	1.5	0.119	-9999.0	-9999.0	0.9
10.99	3.35	2.1	0.03	1.4	0.442	0.187	1.0	1.5	0.120	-9999.0	-9999.0	0.9
11.15	3.40	2.1	0.03	1.4	0.446	0.192	1.0	1.5	0.119	-9999.0	-9999.0	0.9
11.32	3.45	2.1	0.03	1.4	0.450	0.197	1.0	1.5	0.119	-9999.0	-9999.0	0.9

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1753-0915
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-17
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/17/08
CPT Time: 14:30
CPT File: 390CP17.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 4.88 (ft): 16.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	17.1	0.02	0.1	0.010	0.000	5.4	10.9	-104.410	82.5	50.0	-9999.0
0.33	0.10	15.2	0.02	0.1	0.019	0.000	5.8	11.7	1.215	69.3	50.0	10.0
0.49	0.15	35.7	0.02	0.1	0.029	0.000	8.5	17.1	-104.410	88.0	50.0	-9999.0
0.66	0.20	60.5	0.05	0.1	0.039	0.000	14.5	29.0	-104.410	95.0	50.0	-9999.0
0.82	0.25	53.8	0.26	0.5	0.049	0.000	12.9	25.8	-104.410	92.2	50.0	-9999.0
0.98	0.30	34.4	0.45	1.3	0.058	0.000	11.0	21.9	-104.410	76.7	50.0	-9999.0
1.15	0.35	32.9	0.69	2.1	0.068	0.000	12.6	25.2	2.627	73.3	48.0	10.0
1.31	0.40	36.5	0.91	2.5	0.077	0.000	14.0	27.9	2.912	74.4	48.0	10.0
1.48	0.45	37.3	1.07	2.9	0.087	0.000	14.3	28.6	2.978	73.4	48.0	10.0
1.64	0.50	32.4	1.12	3.5	0.096	0.000	15.5	31.1	2.588	-9999.0	-9999.0	10.0
1.80	0.55	29.2	1.28	4.4	0.106	0.000	18.6	37.3	2.327	-9999.0	-9999.0	10.0
1.97	0.60	30.2	1.34	4.4	0.115	0.000	19.3	38.6	2.408	-9999.0	-9999.0	10.0
2.13	0.65	31.0	1.38	4.5	0.124	0.000	19.8	39.6	2.469	-9999.0	-9999.0	10.0
2.30	0.70	39.7	1.20	3.0	0.134	0.000	15.2	30.4	3.163	69.0	46.0	10.0
2.46	0.75	50.6	1.35	2.7	0.143	0.000	19.4	38.8	4.037	75.0	48.0	10.0
2.62	0.80	58.0	1.54	2.7	0.153	0.000	22.2	44.5	4.630	78.0	48.0	10.0
2.79	0.85	88.9	1.92	2.2	0.162	0.000	28.4	56.7	-104.410	89.4	50.0	-9999.0
2.95	0.90	106.5	2.12	2.0	0.172	0.000	34.0	68.0	-104.410	93.7	50.0	-9999.0
3.12	0.95	95.7	1.95	2.0	0.181	0.000	30.6	61.1	-104.410	89.9	48.0	-9999.0
3.28	1.00	80.8	1.57	1.9	0.191	0.000	25.8	51.6	-104.410	84.2	48.0	-9999.0
3.44	1.05	68.0	1.54	2.3	0.201	0.000	21.7	43.4	-104.410	78.6	48.0	-9999.0
3.61	1.10	70.1	2.07	2.9	0.210	0.000	26.9	53.7	5.595	78.8	48.0	10.0
3.77	1.15	54.7	2.32	4.2	0.220	0.000	26.2	52.4	4.358	-9999.0	-9999.0	10.0
3.94	1.20	68.9	2.95	4.3	0.229	0.000	33.0	66.0	5.497	-9999.0	-9999.0	10.0
4.10	1.25	156.0	3.09	2.0	0.239	0.000	49.8	99.6	-104.410	95.0	50.0	-9999.0
4.27	1.30	225.6	3.18	1.4	0.248	0.000	54.0	108.0	-104.410	95.0	50.0	-9999.0
4.43	1.35	241.3	2.82	1.2	0.258	0.000	46.2	90.9	-104.410	95.0	50.0	-9999.0
4.59	1.40	212.9	3.02	1.4	0.268	0.000	51.0	98.4	-104.410	95.0	50.0	-9999.0
4.76	1.45	167.6	3.99	2.4	0.278	0.000	53.5	101.5	-104.410	95.0	50.0	-9999.0
4.92	1.50	113.8	4.53	4.0	0.288	0.000	54.5	101.6	9.085	-9999.0	-9999.0	10.0
5.09	1.55	81.1	4.58	5.6	0.298	0.000	77.7	142.4	-104.410	78.0	46.0	-9999.0
5.25	1.60	98.7	4.18	4.2	0.309	0.000	94.5	170.2	-104.410	83.1	46.0	-9999.0
5.41	1.65	135.4	4.88	3.6	0.319	0.000	51.9	91.9	10.806	91.7	48.0	10.0
5.58	1.70	193.9	4.37	2.3	0.328	0.000	61.9	108.1	-104.410	95.0	50.0	-9999.0
5.74	1.75	215.0	4.90	2.3	0.338	0.000	68.6	118.1	-104.410	95.0	50.0	-9999.0
5.91	1.80	218.6	5.72	2.6	0.347	0.000	69.8	118.4	-104.410	95.0	50.0	-9999.0
6.07	1.85	174.4	5.73	3.3	0.357	0.000	66.8	111.8	13.920	95.0	48.0	10.0
6.23	1.90	141.4	6.03	4.3	0.367	0.000	135.4	223.5	-104.410	90.9	48.0	-9999.0
6.40	1.95	116.9	5.50	4.7	0.378	0.000	111.9	182.1	-104.410	85.1	46.0	-9999.0
6.56	2.00	102.9	4.34	4.2	0.388	0.000	98.6	158.2	-104.410	81.0	46.0	-9999.0
6.73	2.05	87.5	3.50	4.0	0.398	0.000	41.9	66.3	6.965	-9999.0	-9999.0	10.0
6.89	2.10	76.1	2.71	3.6	0.408	0.000	29.1	45.6	6.055	71.7	44.0	10.0
7.05	2.15	72.2	2.01	2.8	0.417	0.000	27.7	42.8	5.747	69.9	44.0	10.0
7.22	2.20	66.3	1.47	2.2	0.427	0.000	21.2	32.4	-104.410	67.1	44.0	-9999.0
7.38	2.25	60.1	1.12	1.9	0.436	0.000	19.2	29.1	-104.410	64.0	44.0	-9999.0
7.55	2.30	55.8	1.19	2.1	0.446	0.000	21.4	32.0	4.426	61.5	42.0	10.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	44.2	1.25	2.8	0.455	0.000	16.9	25.1	3.500	54.5	42.0	10.0
7.87	2.40	41.5	1.15	2.8	0.465	0.000	15.9	23.3	3.284	52.4	42.0	10.0
8.04	2.45	42.3	0.97	2.3	0.474	0.000	16.2	23.5	3.345	52.7	42.0	10.0
8.20	2.50	41.8	0.81	1.9	0.484	0.000	16.0	23.1	3.309	52.1	42.0	10.0
8.37	2.55	42.1	0.66	1.6	0.493	0.000	13.4	19.1	-104.410	52.0	42.0	-9999.0
8.53	2.60	41.6	0.51	1.2	0.503	0.000	13.3	18.8	-104.410	51.4	42.0	-9999.0
8.69	2.65	37.5	0.50	1.3	0.512	0.000	12.0	16.7	-104.410	48.1	40.0	-9999.0
8.86	2.70	29.0	0.45	1.6	0.522	0.000	11.1	15.4	2.278	40.5	40.0	10.0
9.02	2.75	26.0	0.37	1.4	0.531	0.000	10.0	13.7	2.037	37.1	38.0	10.0
9.19	2.80	27.2	0.27	1.0	0.541	0.000	8.7	11.8	-104.410	38.2	38.0	-9999.0
9.35	2.85	28.4	0.20	0.7	0.551	0.000	9.1	12.2	-104.410	39.2	38.0	-9999.0
9.51	2.90	28.3	0.20	0.7	0.560	0.000	9.0	12.1	-104.410	38.8	38.0	-9999.0
9.68	2.95	25.7	0.21	0.8	0.570	0.000	8.2	10.9	-104.410	35.8	38.0	-9999.0
9.84	3.00	24.1	0.17	0.7	0.580	0.000	7.7	10.1	-104.410	33.7	38.0	-9999.0
10.01	3.05	23.2	0.13	0.6	0.589	0.000	7.4	9.6	-104.410	32.3	38.0	-9999.0
10.17	3.10	21.9	0.11	0.5	0.599	0.000	7.0	9.0	-104.410	30.5	38.0	-9999.0
10.33	3.15	21.3	0.10	0.5	0.609	0.000	6.8	8.7	-104.410	30.0	36.0	-9999.0
10.50	3.20	21.3	0.11	0.5	0.618	0.000	6.8	8.7	-104.410	30.0	36.0	-9999.0
10.66	3.25	22.0	0.08	0.4	0.628	0.000	7.0	8.9	-104.410	30.0	36.0	-9999.0
10.83	3.30	21.9	0.12	0.5	0.637	0.000	7.0	8.8	-104.410	30.0	36.0	-9999.0
10.99	3.35	19.0	0.17	0.9	0.647	0.000	7.3	9.0	1.466	30.0	36.0	10.0
11.15	3.40	17.0	0.21	1.2	0.656	0.000	6.5	8.0	1.307	30.0	34.0	10.0
11.32	3.45	16.3	0.22	1.4	0.666	0.000	6.2	7.6	1.250	30.0	34.0	10.0
11.48	3.50	17.9	0.16	0.9	0.675	0.000	6.9	8.3	1.377	30.0	34.0	10.0
11.65	3.55	20.8	0.13	0.6	0.685	0.000	6.6	8.0	-104.410	30.0	36.0	-9999.0
11.81	3.60	22.9	0.12	0.5	0.694	0.000	7.3	8.8	-104.410	30.0	36.0	-9999.0
11.97	3.65	24.7	0.11	0.4	0.704	0.000	7.9	9.4	-104.410	31.6	36.0	-9999.0
12.14	3.70	27.2	0.08	0.3	0.714	0.000	8.7	10.3	-104.410	34.1	38.0	-9999.0
12.30	3.75	29.9	0.09	0.3	0.723	0.000	9.5	11.2	-104.410	36.7	38.0	-9999.0
12.47	3.80	34.7	0.12	0.3	0.733	0.000	11.1	12.9	-104.410	40.8	38.0	-9999.0
12.63	3.85	41.7	0.15	0.4	0.743	0.000	10.0	11.6	-104.410	45.8	40.0	-9999.0
12.80	3.90	46.4	0.15	0.3	0.753	0.000	11.1	12.8	-104.410	48.7	40.0	-9999.0
12.96	3.95	44.5	0.16	0.4	0.763	0.000	10.6	12.2	-104.410	47.3	40.0	-9999.0
13.12	4.00	41.0	0.17	0.4	0.773	0.000	9.8	11.2	-104.410	44.8	38.0	-9999.0
13.29	4.05	38.4	0.17	0.4	0.782	0.000	12.3	13.9	-104.410	42.7	38.0	-9999.0
13.45	4.10	37.8	0.16	0.4	0.792	0.000	12.1	13.6	-104.410	42.1	38.0	-9999.0
13.62	4.15	40.1	0.16	0.4	0.802	0.000	9.6	10.7	-104.410	43.6	38.0	-9999.0
13.78	4.20	42.4	0.18	0.4	0.812	0.000	10.2	11.3	-104.410	45.1	38.0	-9999.0
13.94	4.25	39.6	0.19	0.5	0.822	0.000	12.6	13.9	-104.410	42.9	38.0	-9999.0
14.11	4.30	33.5	0.18	0.5	0.831	0.000	10.7	11.7	-104.410	38.0	38.0	-9999.0
14.27	4.35	31.2	0.19	0.6	0.841	0.000	10.0	10.9	-104.410	35.7	38.0	-9999.0
14.44	4.40	27.7	0.18	0.7	0.851	0.000	8.9	9.6	-104.410	32.2	36.0	-9999.0
14.60	4.45	30.0	0.17	0.6	0.860	0.000	9.6	10.3	-104.410	34.3	36.0	-9999.0
14.76	4.50	29.4	0.17	0.6	0.870	0.000	9.4	10.1	-104.410	33.6	36.0	-9999.0
14.93	4.55	28.1	0.15	0.5	0.879	0.000	9.0	9.6	-104.410	32.1	36.0	-9999.0
15.09	4.60	31.2	0.14	0.5	0.889	0.000	10.0	10.6	-104.410	34.9	36.0	-9999.0
15.26	4.65	27.0	0.24	0.9	0.899	0.000	8.6	9.1	-104.410	30.7	36.0	-9999.0
15.42	4.70	22.1	0.41	1.9	0.908	0.000	8.5	8.9	1.696	30.0	34.0	10.0
15.58	4.75	15.1	0.38	2.5	0.918	0.000	7.2	7.5	1.133	-9999.0	-9999.0	6.3
15.75	4.80	9.0	0.29	3.2	0.927	0.000	5.8	6.0	0.648	-9999.0	-9999.0	2.7
15.91	4.85	28.2	0.24	0.9	0.937	0.000	9.0	9.3	-104.410	31.3	36.0	-9999.0
16.08	4.90	37.6	0.34	0.9	0.944	0.002	12.0	12.4	-104.410	39.5	38.0	-9999.0
16.24	4.95	22.1	0.45	2.0	0.948	0.007	8.4	8.7	1.688	30.0	34.0	10.0
16.40	5.00	11.4	0.39	3.4	0.953	0.013	7.3	7.4	0.833	-9999.0	-9999.0	3.7
16.57	5.05	8.7	0.28	3.2	0.957	0.018	5.6	5.7	0.618	-9999.0	-9999.0	2.4
16.73	5.10	9.9	0.18	1.8	0.961	0.023	4.7	4.8	0.715	-9999.0	-9999.0	3.0
16.90	5.15	10.7	0.27	2.5	0.965	0.028	5.1	5.2	0.780	-9999.0	-9999.0	3.3
17.06	5.20	33.6	0.29	0.9	0.970	0.033	10.7	10.9	-104.410	35.8	36.0	-9999.0
17.22	5.25	36.2	0.31	0.9	0.974	0.038	11.5	11.7	-104.410	37.9	38.0	-9999.0
17.39	5.30	28.1	0.30	1.1	0.979	0.043	9.0	9.1	-104.410	30.5	36.0	-9999.0
17.55	5.35	21.4	0.31	1.5	0.983	0.048	8.2	8.3	1.631	30.0	34.0	10.0
17.72	5.40	22.6	0.30	1.3	0.988	0.054	8.6	8.7	1.723	30.0	34.0	10.0
17.88	5.45	30.7	0.27	0.9	0.992	0.059	9.8	9.9	-104.410	33.0	36.0	-9999.0
18.04	5.50	33.6	0.27	0.8	0.997	0.064	10.7	10.7	-104.410	35.4	36.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	31.1	0.34	1.1	1.001	0.069	9.9	9.9	-104.410	33.1	36.0	-9999.0
18.37	5.60	20.5	0.33	1.6	1.005	0.074	7.8	7.8	1.550	30.0	32.0	8.9
18.54	5.65	21.5	0.34	1.6	1.010	0.079	8.2	8.2	1.631	30.0	34.0	9.6
18.70	5.70	26.1	0.18	0.7	1.014	0.084	8.3	8.3	-104.410	30.0	34.0	-9999.0
18.86	5.75	30.2	0.19	0.6	1.019	0.089	9.6	9.6	-104.410	32.1	36.0	-9999.0
19.03	5.80	28.1	0.20	0.7	1.023	0.095	9.0	8.9	-104.410	30.0	36.0	-9999.0
19.19	5.85	27.5	0.31	1.1	1.028	0.100	8.8	8.7	-104.410	30.0	34.0	-9999.0
19.36	5.90	25.5	0.53	2.1	1.032	0.105	9.8	9.6	1.949	30.0	34.0	10.0
19.52	5.95	14.9	0.53	3.6	1.036	0.110	9.5	9.3	1.100	-9999.0	-9999.0	5.0
19.68	6.00	10.2	0.35	3.5	1.041	0.115	6.5	6.4	0.721	-9999.0	-9999.0	2.7
19.85	6.05	7.8	0.22	2.8	1.045	0.120	5.0	4.9	0.531	-9999.0	-9999.0	1.8
20.01	6.10	7.7	0.12	1.6	1.049	0.125	3.7	3.6	0.521	-9999.0	-9999.0	1.7
20.18	6.15	6.9	0.09	1.3	1.053	0.130	3.3	3.2	0.454	-9999.0	-9999.0	1.5
20.34	6.20	6.7	0.08	1.2	1.057	0.136	3.2	3.1	0.439	-9999.0	-9999.0	1.4
20.50	6.25	7.2	0.09	1.2	1.062	0.141	3.5	3.4	0.484	-9999.0	-9999.0	1.6
20.67	6.30	7.5	0.09	1.2	1.066	0.146	3.6	3.5	0.504	-9999.0	-9999.0	1.6
20.83	6.35	7.6	0.10	1.3	1.070	0.151	3.7	3.5	0.513	-9999.0	-9999.0	1.7
21.00	6.40	7.2	0.10	1.4	1.074	0.156	3.4	3.3	0.477	-9999.0	-9999.0	1.5
21.16	6.45	7.1	0.10	1.4	1.079	0.161	3.4	3.3	0.470	-9999.0	-9999.0	1.5
21.33	6.50	7.4	0.14	1.9	1.083	0.166	3.5	3.4	0.491	-9999.0	-9999.0	1.5
21.49	6.55	9.4	0.26	2.8	1.087	0.171	6.0	5.7	0.648	-9999.0	-9999.0	2.2
21.65	6.60	21.0	0.64	3.1	1.092	0.177	10.1	9.6	1.578	-9999.0	-9999.0	8.0
21.82	6.65	53.0	1.12	2.1	1.096	0.182	20.3	19.4	4.138	47.1	38.0	10.0
21.98	6.70	145.5	1.02	0.7	1.100	0.187	27.9	26.6	-104.410	76.0	44.0	-9999.0
22.15	6.75	171.1	1.39	0.8	1.106	0.192	32.8	31.2	-104.410	80.6	44.0	-9999.0
22.31	6.80	138.7	1.51	1.1	1.110	0.197	33.2	31.5	-104.410	74.5	42.0	-9999.0
22.47	6.85	114.2	1.51	1.3	1.115	0.202	27.3	25.9	-104.410	68.9	42.0	-9999.0
22.64	6.90	93.5	1.32	1.4	1.120	0.207	22.4	21.2	-104.410	63.1	42.0	-9999.0
22.80	6.95	77.8	1.04	1.3	1.125	0.212	18.6	17.6	-104.410	57.8	40.0	-9999.0
22.97	7.00	64.0	0.76	1.2	1.130	0.217	20.4	19.2	-104.410	52.1	40.0	-9999.0
23.13	7.05	50.8	0.52	1.0	1.134	0.223	16.2	15.2	-104.410	45.4	38.0	-9999.0
23.29	7.10	41.5	0.37	0.9	1.139	0.228	13.3	12.4	-104.410	39.6	38.0	-9999.0
23.46	7.15	37.2	0.28	0.8	1.143	0.233	11.9	11.1	-104.410	36.4	36.0	-9999.0
23.62	7.20	36.5	0.27	0.7	1.148	0.238	11.6	10.9	-104.410	35.8	36.0	-9999.0
23.79	7.25	37.3	0.25	0.7	1.152	0.243	11.9	11.1	-104.410	36.3	36.0	-9999.0
23.95	7.30	39.6	0.30	0.8	1.157	0.248	12.6	11.7	-104.410	38.0	36.0	-9999.0
24.11	7.35	40.4	0.31	0.8	1.161	0.253	12.9	12.0	-104.410	38.5	36.0	-9999.0
24.28	7.40	39.6	0.31	0.8	1.166	0.258	12.6	11.7	-104.410	37.9	36.0	-9999.0
24.44	7.45	38.1	0.27	0.7	1.170	0.264	12.2	11.2	-104.410	36.7	36.0	-9999.0
24.61	7.50	36.4	0.27	0.7	1.175	0.269	11.6	10.7	-104.410	35.4	36.0	-9999.0
24.77	7.55	35.1	0.33	0.9	1.179	0.274	11.2	10.3	-104.410	34.3	36.0	-9999.0
24.93	7.60	36.2	0.42	1.2	1.184	0.279	11.6	10.6	-104.410	35.1	36.0	-9999.0
25.10	7.65	36.2	0.46	1.3	1.189	0.284	11.6	10.6	-104.410	35.1	36.0	-9999.0
25.26	7.70	31.8	0.22	0.7	1.193	0.289	10.1	9.3	-104.410	31.2	34.0	-9999.0
25.43	7.75	29.1	0.21	0.7	1.198	0.294	9.3	8.5	-104.410	30.0	34.0	-9999.0
25.59	7.80	25.4	0.21	0.8	1.202	0.299	8.1	7.4	-104.410	30.0	34.0	-9999.0
25.75	7.85	20.8	0.26	1.3	1.207	0.305	8.0	7.3	1.545	30.0	32.0	6.7
25.92	7.90	18.4	0.32	1.7	1.211	0.310	7.0	6.4	1.351	30.0	32.0	5.4
26.08	7.95	18.3	0.26	1.4	1.215	0.315	7.0	6.4	1.345	30.0	32.0	5.3
26.25	8.00	13.3	0.19	1.4	1.219	0.320	5.1	4.6	0.941	30.0	30.0	3.1
26.41	8.05	12.2	0.27	2.2	1.224	0.325	5.8	5.3	0.853	-9999.0	-9999.0	2.7
26.57	8.10	16.3	0.26	1.6	1.228	0.330	6.2	5.6	1.179	30.0	30.0	4.3
26.74	8.15	20.4	0.34	1.7	1.232	0.335	7.8	7.1	1.510	30.0	32.0	6.2
26.90	8.20	23.9	0.36	1.5	1.236	0.340	9.2	8.2	1.786	30.0	32.0	8.0
27.07	8.25	33.1	0.42	1.3	1.241	0.346	10.6	9.5	-104.410	31.9	34.0	-9999.0
27.23	8.30	39.2	0.48	1.2	1.245	0.351	12.5	11.2	-104.410	36.6	36.0	-9999.0
27.39	8.35	43.5	0.53	1.2	1.250	0.356	13.9	12.4	-104.410	39.6	36.0	-9999.0
27.56	8.40	49.5	0.72	1.5	1.254	0.361	15.8	14.1	-104.410	43.3	38.0	-9999.0
27.72	8.45	54.4	0.93	1.7	1.259	0.366	17.4	15.5	-104.410	45.9	38.0	-9999.0
27.89	8.50	53.6	1.23	2.3	1.263	0.371	20.5	18.3	4.158	45.4	38.0	10.0
28.05	8.55	59.9	1.35	2.3	1.268	0.376	22.9	20.4	4.658	48.6	38.0	10.0
28.21	8.60	70.2	1.36	1.9	1.272	0.381	22.4	19.9	-104.410	53.0	40.0	-9999.0
28.38	8.65	71.9	1.27	1.8	1.277	0.387	22.9	20.3	-104.410	53.7	40.0	-9999.0
28.54	8.70	65.9	0.69	1.0	1.281	0.392	15.8	13.9	-104.410	51.2	38.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
28.71	8.75	59.9	1.01	1.7	1.286	0.397	19.1	16.9	-104.410	48.3	38.0	-9999.0
28.87	8.80	65.6	1.54	2.4	1.290	0.402	25.1	22.1	5.116	50.9	38.0	10.0
29.04	8.85	101.0	2.03	2.0	1.295	0.407	32.2	28.3	-104.410	63.2	40.0	-9999.0
29.20	8.90	166.9	3.31	2.0	1.299	0.412	40.0	35.1	-104.410	77.6	44.0	-9999.0
29.36	8.95	200.1	4.32	2.2	1.304	0.417	63.9	55.9	-104.410	82.7	44.0	-9999.0
29.53	9.00	174.6	5.71	3.3	1.309	0.422	66.9	58.5	13.826	78.8	44.0	10.0
29.69	9.05	180.4	6.01	3.3	1.313	0.427	69.1	60.3	14.295	79.7	44.0	10.0
29.86	9.10	170.8	5.04	3.0	1.317	0.433	54.5	47.5	-104.410	78.1	44.0	-9999.0
30.02	9.15	123.3	6.04	4.9	1.322	0.438	118.0	102.7	-104.410	68.6	42.0	-9999.0
30.18	9.20	90.4	8.82	9.8	1.326	0.443	-9999.0	-9999.0	-104.410	-9999.0	-9999.0	-9999.0
30.35	9.25	157.2	8.82	5.6	1.330	0.448	150.5	130.5	-104.410	75.5	42.0	-9999.0
30.51	9.30	345.0	8.82	2.6	1.335	0.453	165.2	143.0	-104.410	95.0	46.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1753-1080
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-18
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/18/08
CPT Time: 16:17
CPT File: 390CP18.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 5.79 (ft): 19.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	10.6	0.02	0.2	0.009	0.000	4.1	8.1	0.847	69.2	50.0	10.0
0.33	0.10	14.2	0.09	0.6	0.019	0.000	5.4	10.9	1.133	67.6	50.0	10.0
0.49	0.15	37.5	0.17	0.5	0.028	0.000	12.0	23.9	-104.410	89.6	50.0	-9999.0
0.66	0.20	81.2	0.23	0.3	0.038	0.000	15.6	31.1	-104.410	95.0	50.0	-9999.0
0.82	0.25	129.2	0.44	0.3	0.048	0.000	24.7	49.5	-104.410	95.0	50.0	-9999.0
0.98	0.30	137.3	0.69	0.5	0.059	0.000	26.3	52.6	-104.410	95.0	50.0	-9999.0
1.15	0.35	159.1	1.00	0.6	0.069	0.000	30.5	61.0	-104.410	95.0	50.0	-9999.0
1.31	0.40	142.3	1.28	0.9	0.079	0.000	27.3	54.5	-104.410	95.0	50.0	-9999.0
1.48	0.45	108.6	1.65	1.5	0.089	0.000	26.0	52.0	-104.410	95.0	50.0	-9999.0
1.64	0.50	76.3	1.92	2.5	0.099	0.000	29.2	58.5	6.099	92.1	50.0	10.0
1.80	0.55	55.8	2.10	3.8	0.108	0.000	26.7	53.4	4.453	-9999.0	-9999.0	10.0
1.97	0.60	47.0	2.10	4.5	0.117	0.000	30.0	60.0	3.752	-9999.0	-9999.0	10.0
2.13	0.65	42.2	2.00	4.7	0.127	0.000	27.0	53.9	3.368	-9999.0	-9999.0	10.0
2.30	0.70	40.1	1.77	4.4	0.136	0.000	25.6	51.2	3.199	-9999.0	-9999.0	10.0
2.46	0.75	39.2	1.48	3.8	0.146	0.000	18.7	37.5	3.121	-9999.0	-9999.0	10.0
2.62	0.80	36.0	1.46	4.1	0.155	0.000	17.2	34.4	2.865	-9999.0	-9999.0	10.0
2.79	0.85	37.2	1.47	4.0	0.164	0.000	17.8	35.6	2.961	-9999.0	-9999.0	10.0
2.95	0.90	36.0	1.51	4.2	0.174	0.000	23.0	46.0	2.868	-9999.0	-9999.0	10.0
3.12	0.95	36.1	1.49	4.1	0.183	0.000	23.0	46.1	2.873	-9999.0	-9999.0	10.0
3.28	1.00	35.1	1.43	4.1	0.193	0.000	16.8	33.6	2.795	-9999.0	-9999.0	10.0
3.44	1.05	36.3	1.42	3.9	0.202	0.000	17.4	34.8	2.887	-9999.0	-9999.0	10.0
3.61	1.10	40.1	1.51	3.8	0.211	0.000	19.2	38.4	3.188	-9999.0	-9999.0	10.0
3.77	1.15	42.1	1.65	3.9	0.221	0.000	20.2	40.3	3.350	-9999.0	-9999.0	10.0
3.94	1.20	43.9	1.66	3.8	0.230	0.000	21.0	42.0	3.492	-9999.0	-9999.0	10.0
4.10	1.25	45.1	1.66	3.7	0.240	0.000	21.6	43.2	3.589	-9999.0	-9999.0	10.0
4.27	1.30	43.2	1.79	4.2	0.249	0.000	20.7	41.4	3.435	-9999.0	-9999.0	10.0
4.43	1.35	41.8	1.89	4.5	0.258	0.000	26.7	52.5	3.322	-9999.0	-9999.0	10.0
4.59	1.40	34.5	1.92	5.6	0.268	0.000	33.0	63.9	2.738	-9999.0	-9999.0	10.0
4.76	1.45	31.0	1.73	5.6	0.277	0.000	29.7	56.4	2.457	-9999.0	-9999.0	10.0
4.92	1.50	32.7	1.52	4.7	0.286	0.000	20.9	39.0	2.594	-9999.0	-9999.0	10.0
5.09	1.55	39.5	1.60	4.1	0.296	0.000	18.9	34.8	3.140	-9999.0	-9999.0	10.0
5.25	1.60	63.0	1.78	2.8	0.305	0.000	24.1	43.7	5.014	70.4	46.0	10.0
5.41	1.65	73.5	1.69	2.3	0.314	0.000	23.5	41.8	-104.410	74.4	46.0	-9999.0
5.58	1.70	69.4	2.02	2.9	0.324	0.000	26.6	46.7	5.529	72.4	46.0	10.0
5.74	1.75	59.5	1.34	2.3	0.333	0.000	22.8	39.5	4.731	67.5	44.0	10.0
5.91	1.80	55.3	1.62	2.9	0.343	0.000	21.2	36.2	4.398	65.0	44.0	10.0
6.07	1.85	47.5	1.71	3.6	0.352	0.000	22.8	38.3	3.773	-9999.0	-9999.0	10.0
6.23	1.90	34.2	1.86	5.5	0.361	0.000	32.7	54.4	2.704	-9999.0	-9999.0	10.0
6.40	1.95	37.4	1.89	5.1	0.371	0.000	35.8	58.9	2.964	-9999.0	-9999.0	10.0
6.56	2.00	32.3	2.28	7.1	0.380	0.000	30.9	50.1	2.550	-9999.0	-9999.0	10.0
6.73	2.05	29.8	2.35	7.9	0.389	0.000	28.6	45.8	2.355	-9999.0	-9999.0	10.0
6.89	2.10	130.6	2.64	2.0	0.398	0.000	41.7	66.1	-104.410	87.5	48.0	-9999.0
7.05	2.15	281.0	2.96	1.1	0.408	0.000	53.8	84.3	-104.410	95.0	50.0	-9999.0
7.22	2.20	247.7	3.17	1.3	0.418	0.000	47.4	73.4	-104.410	95.0	50.0	-9999.0
7.38	2.25	161.4	3.98	2.5	0.428	0.000	51.5	78.8	-104.410	92.5	48.0	-9999.0
7.55	2.30	99.5	4.50	4.5	0.438	0.000	95.2	143.9	-104.410	78.3	46.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	68.9	3.48	5.1	0.449	0.000	65.9	98.4	-104.410	67.4	44.0	-9999.0
7.87	2.40	95.1	3.67	3.9	0.459	0.000	45.5	67.2	7.568	-9999.0	-9999.0	10.0
8.04	2.45	133.5	4.82	3.6	0.469	0.000	51.1	74.7	10.644	85.8	46.0	10.0
8.20	2.50	119.2	5.29	4.4	0.479	0.000	114.2	165.0	-104.410	82.3	46.0	-9999.0
8.37	2.55	102.5	5.28	5.2	0.489	0.000	98.1	140.3	-104.410	77.6	46.0	-9999.0
8.53	2.60	146.2	5.43	3.7	0.500	0.000	70.0	99.0	-104.410	87.5	46.0	-9999.0
8.69	2.65	161.5	4.74	2.9	0.509	0.000	51.6	72.2	-104.410	90.1	46.0	-9999.0
8.86	2.70	224.6	4.20	1.9	0.519	0.000	53.8	74.6	-104.410	95.0	48.0	-9999.0
9.02	2.75	267.0	2.58	1.0	0.529	0.000	51.1	70.3	-104.410	95.0	48.0	-9999.0
9.19	2.80	296.0	2.90	1.0	0.539	0.000	56.7	77.2	-104.410	95.0	50.0	-9999.0
9.35	2.85	319.7	3.44	1.1	0.550	0.000	61.2	82.6	-104.410	95.0	50.0	-9999.0
9.51	2.90	334.7	4.36	1.3	0.560	0.000	64.1	85.7	-104.410	95.0	50.0	-9999.0
9.68	2.95	307.4	4.80	1.6	0.570	0.000	73.6	97.5	-104.410	95.0	50.0	-9999.0
9.84	3.00	271.0	4.62	1.7	0.580	0.000	64.9	85.2	-104.410	95.0	48.0	-9999.0
10.01	3.05	232.0	4.11	1.8	0.590	0.000	55.5	72.3	-104.410	95.0	48.0	-9999.0
10.17	3.10	189.6	4.01	2.1	0.600	0.000	60.5	78.2	-104.410	92.3	46.0	-9999.0
10.33	3.15	132.9	3.91	2.9	0.609	0.000	42.4	54.4	-104.410	81.9	46.0	-9999.0
10.50	3.20	107.4	3.49	3.2	0.619	0.000	41.1	52.3	8.541	75.6	44.0	10.0
10.66	3.25	127.8	3.18	2.5	0.628	0.000	40.8	51.5	-104.410	80.3	46.0	-9999.0
10.83	3.30	144.8	2.76	1.9	0.638	0.000	46.2	57.9	-104.410	83.7	46.0	-9999.0
10.99	3.35	153.1	2.08	1.4	0.648	0.000	36.6	45.5	-104.410	85.1	46.0	-9999.0
11.15	3.40	136.1	1.91	1.4	0.658	0.000	32.6	40.2	-104.410	81.5	46.0	-9999.0
11.32	3.45	91.1	2.17	2.4	0.667	0.000	29.1	35.6	-104.410	69.8	44.0	-9999.0
11.48	3.50	49.8	1.67	3.4	0.677	0.000	23.9	29.0	3.933	-9999.0	-9999.0	10.0
11.65	3.55	61.6	1.43	2.3	0.686	0.000	23.6	28.5	4.872	58.2	42.0	10.0
11.81	3.60	90.5	1.31	1.5	0.696	0.000	21.7	26.0	-104.410	69.0	44.0	-9999.0
11.97	3.65	84.3	1.16	1.4	0.706	0.000	20.2	24.0	-104.410	66.8	42.0	-9999.0
12.14	3.70	76.9	0.72	0.9	0.716	0.000	18.4	21.8	-104.410	63.9	42.0	-9999.0
12.30	3.75	80.0	0.57	0.7	0.726	0.000	19.2	22.5	-104.410	64.8	42.0	-9999.0
12.47	3.80	71.1	0.56	0.8	0.736	0.000	17.0	19.9	-104.410	61.3	42.0	-9999.0
12.63	3.85	59.7	0.73	1.2	0.745	0.000	19.1	22.1	-104.410	56.1	42.0	-9999.0
12.80	3.90	53.6	0.98	1.8	0.755	0.000	17.1	19.7	-104.410	52.8	40.0	-9999.0
12.96	3.95	52.2	0.90	1.7	0.765	0.000	16.7	19.1	-104.410	51.9	40.0	-9999.0
13.12	4.00	71.5	0.86	1.2	0.775	0.000	17.1	19.4	-104.410	60.7	42.0	-9999.0
13.29	4.05	107.4	0.74	0.7	0.785	0.000	20.6	23.2	-104.410	72.2	44.0	-9999.0
13.45	4.10	126.7	0.69	0.5	0.795	0.000	24.3	27.2	-104.410	76.7	44.0	-9999.0
13.62	4.15	133.9	0.81	0.6	0.805	0.000	25.6	28.6	-104.410	78.1	44.0	-9999.0
13.78	4.20	122.4	0.89	0.7	0.815	0.000	23.4	26.0	-104.410	75.4	44.0	-9999.0
13.94	4.25	105.4	0.83	0.8	0.825	0.000	25.2	27.8	-104.410	70.9	44.0	-9999.0
14.11	4.30	96.0	0.72	0.8	0.835	0.000	23.0	25.1	-104.410	68.1	42.0	-9999.0
14.27	4.35	88.8	0.61	0.7	0.845	0.000	21.3	23.1	-104.410	65.7	42.0	-9999.0
14.44	4.40	80.9	0.59	0.7	0.855	0.000	19.4	21.0	-104.410	62.8	42.0	-9999.0
14.60	4.45	69.2	0.86	1.2	0.865	0.000	22.1	23.8	-104.410	58.2	42.0	-9999.0
14.76	4.50	49.6	0.98	2.0	0.874	0.000	15.8	16.9	-104.410	48.5	40.0	-9999.0
14.93	4.55	31.1	0.76	2.4	0.884	0.000	11.9	12.7	2.418	35.0	36.0	10.0
15.09	4.60	51.6	0.55	1.1	0.893	0.000	16.5	17.4	-104.410	49.3	40.0	-9999.0
15.26	4.65	63.8	0.51	0.8	0.903	0.000	15.3	16.1	-104.410	55.2	40.0	-9999.0
15.42	4.70	57.3	0.43	0.8	0.913	0.000	13.7	14.4	-104.410	52.0	40.0	-9999.0
15.58	4.75	48.4	0.46	1.0	0.923	0.000	15.4	16.1	-104.410	47.0	38.0	-9999.0
15.75	4.80	43.4	0.70	1.6	0.933	0.000	13.8	14.3	-104.410	43.7	38.0	-9999.0
15.91	4.85	20.8	0.87	4.2	0.942	0.000	13.3	13.7	1.585	-9999.0	-9999.0	10.0
16.08	4.90	16.7	0.60	3.6	0.952	0.000	10.7	11.0	1.263	-9999.0	-9999.0	7.0
16.24	4.95	13.5	0.56	4.1	0.961	0.000	13.0	13.2	1.007	-9999.0	-9999.0	4.9
16.40	5.00	21.9	0.66	3.0	0.970	0.000	10.5	10.7	1.675	-9999.0	-9999.0	10.0
16.57	5.05	21.0	0.46	2.2	0.979	0.000	8.1	8.1	1.603	30.0	34.0	9.8
16.73	5.10	29.5	0.53	1.8	0.989	0.000	11.3	11.3	2.277	31.8	36.0	10.0
16.90	5.15	50.7	0.87	1.7	0.998	0.000	16.2	16.2	-104.410	47.2	38.0	-9999.0
17.06	5.20	27.4	0.74	2.7	1.008	0.000	13.1	13.1	2.112	-9999.0	-9999.0	10.0
17.22	5.25	36.3	0.67	1.9	1.017	0.000	13.9	13.8	2.822	37.4	36.0	10.0
17.39	5.30	65.9	0.77	1.2	1.027	0.000	15.8	15.6	-104.410	54.3	40.0	-9999.0
17.55	5.35	48.7	0.83	1.7	1.037	0.000	15.5	15.3	-104.410	45.5	38.0	-9999.0
17.72	5.40	38.1	0.68	1.8	1.046	0.000	14.6	14.3	2.962	38.3	38.0	10.0
17.88	5.45	51.4	0.58	1.1	1.056	0.000	16.4	16.0	-104.410	46.8	38.0	-9999.0
18.04	5.50	70.8	0.54	0.8	1.066	0.000	16.9	16.4	-104.410	55.8	40.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	62.7	0.50	0.8	1.076	0.000	15.0	14.5	-104.410	52.2	40.0	-9999.0
18.37	5.60	53.4	0.65	1.2	1.085	0.000	17.0	16.4	-104.410	47.5	38.0	-9999.0
18.54	5.65	34.4	0.78	2.3	1.095	0.000	13.2	12.6	2.667	34.8	36.0	10.0
18.70	5.70	31.7	0.95	3.0	1.104	0.000	15.2	14.5	2.451	-9999.0	-9999.0	10.0
18.86	5.75	23.8	0.56	2.4	1.114	0.000	9.1	8.6	1.812	30.0	34.0	9.7
19.03	5.80	20.5	0.40	2.0	1.122	0.001	7.9	7.4	1.551	30.0	32.0	7.5
19.19	5.85	44.2	0.33	0.7	1.127	0.006	14.1	13.3	-104.410	41.5	38.0	-9999.0
19.36	5.90	46.4	0.25	0.5	1.131	0.011	11.1	10.5	-104.410	42.9	38.0	-9999.0
19.52	5.95	43.1	0.26	0.6	1.136	0.016	13.8	12.9	-104.410	40.7	38.0	-9999.0
19.68	6.00	37.9	0.25	0.7	1.140	0.021	12.1	11.3	-104.410	37.0	36.0	-9999.0
19.85	6.05	31.9	0.20	0.6	1.145	0.027	10.2	9.5	-104.410	32.0	36.0	-9999.0
20.01	6.10	28.8	0.13	0.5	1.149	0.032	9.2	8.6	-104.410	30.0	34.0	-9999.0
20.18	6.15	25.7	0.07	0.3	1.154	0.037	8.2	7.6	-104.410	30.0	34.0	-9999.0
20.34	6.20	19.9	0.05	0.3	1.159	0.042	6.3	5.9	-104.410	30.0	32.0	-9999.0
20.50	6.25	16.7	0.03	0.2	1.163	0.047	5.3	5.0	-104.410	30.0	32.0	-9999.0
20.67	6.30	15.5	0.05	0.3	1.168	0.052	6.0	5.5	1.145	30.0	30.0	4.4
20.83	6.35	16.1	0.24	1.5	1.172	0.057	6.2	5.7	1.190	30.0	30.0	4.7
21.00	6.40	13.4	0.36	2.7	1.176	0.062	6.4	5.9	0.975	-9999.0	-9999.0	3.5
21.16	6.45	9.3	0.43	4.6	1.180	0.067	8.9	8.2	0.647	-9999.0	-9999.0	2.0
21.33	6.50	8.3	0.28	3.4	1.184	0.073	7.9	7.3	0.560	-9999.0	-9999.0	1.6
21.49	6.55	8.8	0.28	3.2	1.188	0.078	5.6	5.2	0.605	-9999.0	-9999.0	1.8
21.65	6.60	8.5	0.29	3.4	1.193	0.083	8.2	7.5	0.580	-9999.0	-9999.0	1.7
21.82	6.65	9.0	0.23	2.6	1.197	0.088	5.8	5.3	0.620	-9999.0	-9999.0	1.8
21.98	6.70	8.6	0.19	2.2	1.201	0.093	4.1	3.8	0.588	-9999.0	-9999.0	1.7
22.15	6.75	9.1	0.16	1.8	1.205	0.098	4.4	4.0	0.623	-9999.0	-9999.0	1.8
22.31	6.80	9.3	0.18	1.9	1.209	0.103	4.5	4.1	0.642	-9999.0	-9999.0	1.9
22.47	6.85	9.4	0.21	2.2	1.214	0.108	4.5	4.1	0.648	-9999.0	-9999.0	1.9
22.64	6.90	9.4	0.22	2.4	1.218	0.114	4.5	4.1	0.642	-9999.0	-9999.0	1.9
22.80	6.95	9.6	0.21	2.2	1.222	0.119	4.6	4.1	0.658	-9999.0	-9999.0	1.9
22.97	7.00	9.5	0.22	2.3	1.227	0.124	4.5	4.1	0.651	-9999.0	-9999.0	1.9
23.13	7.05	10.3	0.22	2.1	1.231	0.129	4.9	4.4	0.712	-9999.0	-9999.0	2.1
23.29	7.10	10.0	0.27	2.7	1.235	0.134	6.4	5.7	0.691	-9999.0	-9999.0	2.0
23.46	7.15	13.3	0.30	2.3	1.239	0.139	6.4	5.7	0.951	-9999.0	-9999.0	3.1
23.62	7.20	11.3	0.29	2.6	1.244	0.144	5.4	4.9	0.797	-9999.0	-9999.0	2.4
23.79	7.25	9.4	0.27	2.9	1.248	0.149	6.0	5.4	0.643	-9999.0	-9999.0	1.8
23.95	7.30	9.4	0.21	2.2	1.252	0.155	4.5	4.0	0.637	-9999.0	-9999.0	1.8
24.11	7.35	9.4	0.20	2.1	1.257	0.160	4.5	4.0	0.642	-9999.0	-9999.0	1.8
24.28	7.40	8.8	0.19	2.2	1.261	0.165	4.2	3.8	0.590	-9999.0	-9999.0	1.6
24.44	7.45	9.0	0.18	2.0	1.265	0.170	4.3	3.8	0.604	-9999.0	-9999.0	1.6
24.61	7.50	8.6	0.18	2.1	1.269	0.175	4.1	3.7	0.573	-9999.0	-9999.0	1.5
24.77	7.55	8.5	0.18	2.1	1.274	0.180	4.1	3.6	0.568	-9999.0	-9999.0	1.5
24.93	7.60	8.7	0.17	2.0	1.278	0.185	4.2	3.7	0.577	-9999.0	-9999.0	1.5
25.10	7.65	8.6	0.14	1.6	1.282	0.190	4.1	3.6	0.566	-9999.0	-9999.0	1.5
25.26	7.70	8.4	0.14	1.7	1.286	0.196	4.0	3.6	0.555	-9999.0	-9999.0	1.5
25.43	7.75	9.6	0.17	1.8	1.291	0.201	4.6	4.0	0.647	-9999.0	-9999.0	1.7
25.59	7.80	10.1	0.21	2.1	1.295	0.206	4.9	4.3	0.692	-9999.0	-9999.0	1.9
25.75	7.85	10.8	0.24	2.2	1.299	0.211	5.2	4.5	0.743	-9999.0	-9999.0	2.1
25.92	7.90	10.4	0.24	2.3	1.304	0.216	5.0	4.4	0.711	-9999.0	-9999.0	1.9
26.08	7.95	9.5	0.22	2.3	1.308	0.221	4.5	4.0	0.634	-9999.0	-9999.0	1.7
26.25	8.00	8.8	0.22	2.5	1.312	0.226	5.6	4.9	0.582	-9999.0	-9999.0	1.5
26.41	8.05	8.6	0.24	2.8	1.316	0.231	5.5	4.8	0.561	-9999.0	-9999.0	1.4
26.57	8.10	22.2	0.23	1.0	1.321	0.236	8.5	7.4	1.654	30.0	32.0	6.4
26.74	8.15	32.0	0.25	0.8	1.325	0.242	10.2	8.9	-104.410	30.0	34.0	-9999.0
26.90	8.20	36.2	0.27	0.7	1.330	0.247	11.6	10.0	-104.410	33.5	34.0	-9999.0
27.07	8.25	35.4	0.29	0.8	1.334	0.252	11.3	9.8	-104.410	32.8	34.0	-9999.0
27.23	8.30	32.6	0.30	0.9	1.339	0.257	10.4	9.0	-104.410	30.3	34.0	-9999.0
27.39	8.35	31.8	0.28	0.9	1.343	0.262	10.1	8.7	-104.410	30.0	34.0	-9999.0
27.56	8.40	33.0	0.27	0.8	1.348	0.267	10.5	9.1	-104.410	30.6	34.0	-9999.0
27.72	8.45	36.0	0.30	0.8	1.352	0.272	11.5	9.9	-104.410	33.1	34.0	-9999.0
27.89	8.50	37.7	0.39	1.0	1.357	0.277	12.0	10.3	-104.410	34.3	36.0	-9999.0
28.05	8.55	35.1	0.52	1.5	1.361	0.283	11.2	9.6	-104.410	32.2	34.0	-9999.0
28.21	8.60	28.6	0.66	2.3	1.366	0.288	11.0	9.4	2.157	30.0	34.0	9.3
28.38	8.65	23.6	0.70	3.0	1.370	0.293	11.3	9.7	1.758	-9999.0	-9999.0	6.7
28.54	8.70	22.2	0.60	2.7	1.374	0.298	10.6	9.1	1.644	-9999.0	-9999.0	6.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
28.71	8.75	23.8	0.86	3.6	1.379	0.303	11.4	9.7	1.766	-9999.0	-9999.0	6.7
28.87	8.80	25.0	1.09	4.4	1.383	0.308	16.0	13.6	1.868	-9999.0	-9999.0	7.2
29.04	8.85	29.9	1.15	3.8	1.387	0.313	14.3	12.2	2.260	-9999.0	-9999.0	9.7
29.20	8.90	25.9	1.00	3.9	1.391	0.318	16.6	14.0	1.938	-9999.0	-9999.0	7.6
29.36	8.95	23.4	0.79	3.4	1.396	0.324	11.2	9.5	1.737	-9999.0	-9999.0	6.4
29.53	9.00	19.9	0.60	3.0	1.400	0.329	9.5	8.1	1.456	-9999.0	-9999.0	4.8
29.69	9.05	19.0	0.59	3.1	1.404	0.334	9.1	7.7	1.384	-9999.0	-9999.0	4.5
29.86	9.10	22.9	0.52	2.3	1.409	0.339	8.8	7.4	1.689	30.0	32.0	6.0
30.02	9.15	31.0	0.45	1.5	1.413	0.344	11.9	10.0	2.337	30.0	34.0	10.0
30.18	9.20	40.7	0.35	0.9	1.417	0.349	13.0	10.9	-104.410	35.9	36.0	-9999.0
30.35	9.25	45.7	0.27	0.6	1.422	0.354	10.9	9.2	-104.410	39.1	36.0	-9999.0
30.51	9.30	47.5	0.25	0.5	1.427	0.359	11.4	9.5	-104.410	40.2	36.0	-9999.0
30.68	9.35	44.5	0.24	0.5	1.431	0.365	10.6	8.9	-104.410	38.3	36.0	-9999.0
30.84	9.40	37.2	0.22	0.6	1.436	0.370	11.9	9.9	-104.410	33.1	34.0	-9999.0
31.00	9.45	28.0	0.24	0.9	1.441	0.375	8.9	7.4	-104.410	30.0	32.0	-9999.0
31.17	9.50	24.7	0.26	1.1	1.445	0.380	7.9	6.6	-104.410	30.0	32.0	-9999.0
31.33	9.55	24.1	0.33	1.4	1.450	0.385	9.2	7.7	1.784	30.0	32.0	6.3
31.50	9.60	26.2	0.49	1.9	1.454	0.390	10.1	8.3	1.952	30.0	32.0	7.2
31.66	9.65	28.5	0.68	2.4	1.458	0.395	10.9	9.1	2.135	30.0	32.0	8.2
31.82	9.70	28.9	0.79	2.7	1.462	0.400	11.1	9.2	2.165	30.0	32.0	8.4
31.99	9.75	23.4	0.74	3.2	1.467	0.406	11.2	9.2	1.720	-9999.0	-9999.0	5.8
32.15	9.80	19.6	0.80	4.1	1.471	0.411	12.5	10.3	1.418	-9999.0	-9999.0	4.3
32.32	9.85	30.3	0.71	2.4	1.475	0.416	11.6	9.5	2.270	30.0	32.0	8.9
32.48	9.90	46.3	0.65	1.4	1.480	0.421	14.8	12.2	-104.410	39.0	36.0	-9999.0
32.64	9.95	62.7	0.55	0.9	1.484	0.426	15.0	12.3	-104.410	47.6	38.0	-9999.0
32.81	10.00	68.9	0.54	0.8	1.489	0.431	16.5	13.5	-104.410	50.3	38.0	-9999.0
32.97	10.05	69.5	0.55	0.8	1.494	0.436	16.6	13.6	-104.410	50.5	38.0	-9999.0
33.14	10.10	68.7	0.58	0.8	1.499	0.441	16.4	13.4	-104.410	50.1	38.0	-9999.0
33.30	10.15	71.8	0.55	0.8	1.504	0.446	17.2	14.0	-104.410	51.3	38.0	-9999.0
33.46	10.20	75.9	0.54	0.7	1.508	0.452	18.2	14.8	-104.410	52.9	38.0	-9999.0
33.63	10.25	79.5	0.52	0.7	1.513	0.457	19.0	15.5	-104.410	54.2	38.0	-9999.0
33.79	10.30	84.4	0.56	0.7	1.518	0.462	20.2	16.4	-104.410	55.8	40.0	-9999.0
33.96	10.35	95.4	0.67	0.7	1.523	0.467	22.8	18.5	-104.410	59.3	40.0	-9999.0
34.12	10.40	109.7	0.83	0.8	1.528	0.472	21.0	17.0	-104.410	63.2	40.0	-9999.0
34.28	10.45	116.4	0.99	0.9	1.533	0.477	22.3	18.0	-104.410	64.9	40.0	-9999.0
34.45	10.50	116.8	1.02	0.9	1.538	0.482	28.0	22.6	-104.410	64.9	40.0	-9999.0
34.61	10.55	117.6	0.97	0.8	1.543	0.487	22.5	18.1	-104.410	65.1	40.0	-9999.0
34.78	10.60	118.6	0.89	0.8	1.548	0.493	22.7	18.3	-104.410	65.3	40.0	-9999.0
34.94	10.65	107.3	0.77	0.7	1.553	0.498	20.6	16.5	-104.410	62.4	40.0	-9999.0
35.10	10.70	88.0	0.65	0.7	1.558	0.503	21.1	16.9	-104.410	56.6	40.0	-9999.0
35.27	10.75	73.0	0.50	0.7	1.562	0.508	17.5	14.0	-104.410	51.2	38.0	-9999.0
35.43	10.80	67.0	0.40	0.6	1.567	0.513	16.0	12.8	-104.410	48.7	38.0	-9999.0
35.60	10.85	71.1	0.39	0.5	1.572	0.518	17.0	13.6	-104.410	50.4	38.0	-9999.0
35.76	10.90	73.5	0.54	0.7	1.577	0.523	17.6	14.0	-104.410	51.3	38.0	-9999.0
35.92	10.95	46.6	0.63	1.4	1.581	0.528	14.9	11.8	-104.410	38.2	36.0	-9999.0
36.09	11.00	25.9	0.54	2.1	1.586	0.534	9.9	7.9	1.900	30.0	32.0	6.0
36.25	11.05	24.9	0.42	1.7	1.590	0.539	9.5	7.6	1.822	30.0	32.0	5.6
36.42	11.10	24.1	0.28	1.2	1.594	0.544	9.2	7.3	1.755	30.0	32.0	5.3
36.58	11.15	18.6	0.18	1.0	1.599	0.549	7.1	5.6	1.315	30.0	30.0	3.4
36.74	11.20	19.7	0.14	0.7	1.603	0.554	7.6	6.0	1.406	30.0	30.0	3.7
36.91	11.25	28.7	0.10	0.3	1.607	0.559	9.2	7.2	-104.410	30.0	32.0	-9999.0
37.07	11.30	27.8	0.10	0.4	1.612	0.564	8.9	7.0	-104.410	30.0	32.0	-9999.0
37.24	11.35	24.4	0.11	0.5	1.616	0.569	7.8	6.1	-104.410	30.0	32.0	-9999.0
37.40	11.40	25.6	0.19	0.7	1.621	0.575	8.2	6.4	-104.410	30.0	32.0	-9999.0
37.57	11.45	27.0	0.24	0.9	1.626	0.580	8.6	6.8	-104.410	30.0	32.0	-9999.0
37.73	11.50	27.6	0.38	1.4	1.630	0.585	10.6	8.3	2.030	30.0	32.0	6.4
37.89	11.55	31.0	0.62	2.0	1.634	0.590	11.9	9.3	2.305	30.0	32.0	7.7
38.06	11.60	32.0	0.73	2.3	1.639	0.595	12.3	9.6	2.381	30.0	32.0	8.1
38.22	11.65	39.5	0.64	1.6	1.643	0.600	12.6	9.8	-104.410	32.9	34.0	-9999.0
38.39	11.70	39.9	0.47	1.2	1.647	0.605	12.7	9.9	-104.410	33.2	34.0	-9999.0
38.55	11.75	33.0	0.24	0.7	1.652	0.610	10.5	8.2	-104.410	30.0	32.0	-9999.0
38.71	11.80	27.9	0.33	1.2	1.657	0.616	8.9	6.9	-104.410	30.0	32.0	-9999.0
38.88	11.85	27.6	0.45	1.6	1.661	0.621	10.6	8.2	2.025	30.0	32.0	6.2
39.04	11.90	31.1	0.63	2.0	1.665	0.626	11.9	9.2	2.305	30.0	32.0	7.5

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
39.21	11.95	38.8	0.81	2.1	1.669	0.631	14.9	11.5	2.918	32.2	34.0	10.0
39.37	12.00	47.3	1.06	2.2	1.674	0.636	18.1	14.0	3.602	37.8	36.0	10.0
39.53	12.05	64.7	1.51	2.3	1.678	0.641	24.8	19.1	4.991	46.8	38.0	10.0
39.70	12.10	107.6	2.01	1.9	1.682	0.646	34.4	26.5	-104.410	61.3	40.0	-9999.0
39.86	12.15	156.5	2.81	1.8	1.687	0.651	37.5	28.9	-104.410	72.0	42.0	-9999.0
40.03	12.20	183.3	3.52	1.9	1.692	0.656	43.9	33.7	-104.410	76.5	42.0	-9999.0
40.19	12.25	212.8	4.21	2.0	1.697	0.662	50.9	39.1	-104.410	80.7	42.0	-9999.0
40.35	12.30	216.6	4.84	2.2	1.701	0.667	69.1	53.0	-104.410	81.2	44.0	-9999.0
40.52	12.35	231.6	5.70	2.5	1.706	0.672	73.9	56.6	-104.410	83.1	44.0	-9999.0
40.68	12.40	288.7	5.70	2.0	1.711	0.677	69.1	52.9	-104.410	89.4	44.0	-9999.0
40.85	12.45	602.3	5.70	0.9	1.716	0.682	96.1	73.4	-104.410	95.0	48.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1753-1250
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-19
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/19/08
CPT Time: 12:02
CPT File: 390CP19.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 4.57 (ft): 15.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	7.6	0.02	0.3	0.009	0.000	3.6	7.3	0.608	-9999.0	-9999.0	10.0
0.33	0.10	18.1	0.02	0.1	0.019	0.000	5.8	11.5	-104.410	74.8	50.0	-9999.0
0.49	0.15	31.8	0.02	0.1	0.028	0.000	10.1	20.3	-104.410	84.9	50.0	-9999.0
0.66	0.20	66.1	0.05	0.1	0.038	0.000	15.8	31.6	-104.410	95.0	50.0	-9999.0
0.82	0.25	106.9	0.24	0.2	0.048	0.000	20.5	40.9	-104.410	95.0	50.0	-9999.0
0.98	0.30	119.1	0.48	0.4	0.058	0.000	22.8	45.6	-104.410	95.0	50.0	-9999.0
1.15	0.35	95.3	0.73	0.8	0.068	0.000	22.8	45.6	-104.410	95.0	50.0	-9999.0
1.31	0.40	66.6	0.97	1.5	0.078	0.000	21.3	42.5	-104.410	91.6	50.0	-9999.0
1.48	0.45	45.9	1.17	2.6	0.088	0.000	17.6	35.1	3.663	79.2	48.0	10.0
1.64	0.50	39.8	1.18	3.0	0.097	0.000	15.2	30.5	3.177	73.7	48.0	10.0
1.80	0.55	31.2	1.08	3.5	0.106	0.000	15.0	29.9	2.491	-9999.0	-9999.0	10.0
1.97	0.60	28.7	0.99	3.5	0.116	0.000	13.7	27.5	2.286	-9999.0	-9999.0	10.0
2.13	0.65	26.7	0.95	3.6	0.125	0.000	12.8	25.5	2.122	-9999.0	-9999.0	10.0
2.30	0.70	26.9	0.86	3.2	0.135	0.000	12.9	25.8	2.142	-9999.0	-9999.0	10.0
2.46	0.75	27.6	1.01	3.7	0.144	0.000	13.2	26.4	2.198	-9999.0	-9999.0	10.0
2.62	0.80	51.7	1.16	2.2	0.153	0.000	19.8	39.6	4.127	74.6	48.0	10.0
2.79	0.85	68.2	1.65	2.4	0.163	0.000	26.1	52.3	5.443	81.7	48.0	10.0
2.95	0.90	59.2	2.04	3.5	0.172	0.000	22.7	45.4	4.723	76.8	48.0	10.0
3.12	0.95	101.4	2.52	2.5	0.182	0.000	32.4	64.7	-104.410	91.5	50.0	-9999.0
3.28	1.00	130.4	3.29	2.5	0.191	0.000	41.6	83.3	-104.410	95.0	50.0	-9999.0
3.44	1.05	110.2	3.65	3.3	0.201	0.000	42.2	84.4	8.798	92.4	50.0	10.0
3.61	1.10	89.1	3.69	4.1	0.210	0.000	42.7	85.3	7.112	-9999.0	-9999.0	10.0
3.77	1.15	83.8	3.51	4.2	0.220	0.000	40.1	80.3	6.688	-9999.0	-9999.0	10.0
3.94	1.20	113.9	3.74	3.3	0.229	0.000	43.6	87.3	9.097	91.5	48.0	10.0
4.10	1.25	122.2	3.88	3.2	0.238	0.000	46.8	93.6	9.755	92.9	48.0	10.0
4.27	1.30	133.2	4.48	3.4	0.248	0.000	51.0	102.0	10.633	94.9	50.0	10.0
4.43	1.35	251.2	4.07	1.6	0.258	0.000	60.1	118.5	-104.410	95.0	50.0	-9999.0
4.59	1.40	325.0	3.97	1.2	0.268	0.000	62.3	120.4	-104.410	95.0	50.0	-9999.0
4.76	1.45	344.2	3.95	1.1	0.278	0.000	65.9	125.1	-104.410	95.0	50.0	-9999.0
4.92	1.50	341.9	4.90	1.4	0.288	0.000	65.5	122.1	-104.410	95.0	50.0	-9999.0
5.09	1.55	316.3	5.74	1.8	0.298	0.000	75.7	138.8	-104.410	95.0	50.0	-9999.0
5.25	1.60	314.8	5.77	1.8	0.308	0.000	75.4	135.8	-104.410	95.0	50.0	-9999.0
5.41	1.65	316.2	5.28	1.7	0.318	0.000	75.7	134.3	-104.410	95.0	50.0	-9999.0
5.58	1.70	380.3	3.89	1.0	0.328	0.000	72.8	127.2	-104.410	95.0	50.0	-9999.0
5.74	1.75	460.2	4.41	1.0	0.338	0.000	88.1	151.6	-104.410	95.0	50.0	-9999.0
5.91	1.80	539.3	6.05	1.1	0.348	0.000	103.3	175.1	-104.410	95.0	50.0	-9999.0
6.07	1.85	584.4	7.51	1.3	0.358	0.000	111.9	187.0	-104.410	95.0	50.0	-9999.0
6.23	1.90	568.6	8.94	1.6	0.369	0.000	108.9	179.4	-104.410	95.0	50.0	-9999.0
6.40	1.95	551.3	9.53	1.7	0.379	0.000	132.0	214.5	-104.410	95.0	50.0	-9999.0
6.56	2.00	543.6	9.74	1.8	0.389	0.000	130.1	208.8	-104.410	95.0	50.0	-9999.0
6.73	2.05	509.5	9.59	1.9	0.398	0.000	122.0	193.3	-104.410	95.0	50.0	-9999.0
6.89	2.10	476.9	9.21	1.9	0.408	0.000	114.2	178.7	-104.410	95.0	50.0	-9999.0
7.05	2.15	453.6	8.65	1.9	0.418	0.000	108.6	167.9	-104.410	95.0	50.0	-9999.0
7.22	2.20	405.8	7.87	1.9	0.428	0.000	97.2	148.5	-104.410	95.0	50.0	-9999.0
7.38	2.25	350.5	6.92	2.0	0.438	0.000	83.9	126.8	-104.410	95.0	50.0	-9999.0
7.55	2.30	324.8	6.03	1.9	0.448	0.000	77.8	116.2	-104.410	95.0	50.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	301.5	5.61	1.9	0.458	0.000	72.2	106.7	-104.410	95.0	50.0	-9999.0
7.87	2.40	268.0	5.13	1.9	0.468	0.000	64.2	93.8	-104.410	95.0	50.0	-9999.0
8.04	2.45	247.0	4.33	1.8	0.478	0.000	59.1	85.6	-104.410	95.0	48.0	-9999.0
8.20	2.50	216.1	3.71	1.7	0.488	0.000	51.7	74.1	-104.410	95.0	48.0	-9999.0
8.37	2.55	189.9	3.18	1.7	0.498	0.000	45.5	64.5	-104.410	95.0	48.0	-9999.0
8.53	2.60	168.5	2.60	1.5	0.508	0.000	40.3	56.6	-104.410	91.3	48.0	-9999.0
8.69	2.65	150.5	2.11	1.4	0.518	0.000	36.0	50.1	-104.410	87.8	46.0	-9999.0
8.86	2.70	139.7	1.31	0.9	0.528	0.000	26.8	36.9	-104.410	85.4	46.0	-9999.0
9.02	2.75	130.9	1.18	0.9	0.538	0.000	25.1	34.2	-104.410	83.3	46.0	-9999.0
9.19	2.80	112.3	1.07	1.0	0.548	0.000	26.9	36.3	-104.410	78.6	46.0	-9999.0
9.35	2.85	104.9	0.99	0.9	0.558	0.000	25.1	33.6	-104.410	76.4	44.0	-9999.0
9.51	2.90	93.4	0.96	1.0	0.568	0.000	22.4	29.7	-104.410	72.8	44.0	-9999.0
9.68	2.95	79.5	0.86	1.1	0.578	0.000	19.0	25.0	-104.410	67.9	44.0	-9999.0
9.84	3.00	65.8	0.71	1.1	0.587	0.000	15.7	20.5	-104.410	62.3	42.0	-9999.0
10.01	3.05	47.1	0.74	1.6	0.597	0.000	15.0	19.5	-104.410	52.5	40.0	-9999.0
10.17	3.10	43.8	0.84	1.9	0.607	0.000	16.8	21.5	3.456	50.2	40.0	10.0
10.33	3.15	25.0	0.74	3.0	0.616	0.000	12.0	15.2	1.947	-9999.0	-9999.0	10.0
10.50	3.20	18.4	0.51	2.8	0.626	0.000	8.8	11.1	1.420	-9999.0	-9999.0	10.0
10.66	3.25	27.6	0.39	1.4	0.635	0.000	10.6	13.3	2.156	36.2	38.0	10.0
10.83	3.30	34.5	0.48	1.4	0.645	0.000	11.0	13.7	-104.410	42.5	38.0	-9999.0
10.99	3.35	28.0	0.51	1.8	0.654	0.000	10.7	13.3	2.190	36.3	38.0	10.0
11.15	3.40	27.9	0.47	1.7	0.663	0.000	10.7	13.1	2.179	35.9	38.0	10.0
11.32	3.45	40.6	0.44	1.1	0.673	0.000	13.0	15.8	-104.410	46.5	40.0	-9999.0
11.48	3.50	46.1	0.36	0.8	0.683	0.000	14.7	17.8	-104.410	49.9	40.0	-9999.0
11.65	3.55	49.9	0.31	0.6	0.692	0.000	11.9	14.3	-104.410	52.0	40.0	-9999.0
11.81	3.60	51.4	0.31	0.6	0.702	0.000	12.3	14.7	-104.410	52.6	40.0	-9999.0
11.97	3.65	53.1	0.31	0.6	0.712	0.000	12.7	15.1	-104.410	53.4	40.0	-9999.0
12.14	3.70	54.3	0.21	0.4	0.722	0.000	13.0	15.3	-104.410	53.8	40.0	-9999.0
12.30	3.75	54.9	0.45	0.8	0.732	0.000	13.1	15.4	-104.410	53.9	40.0	-9999.0
12.47	3.80	38.2	0.62	1.6	0.742	0.000	12.2	14.2	-104.410	43.4	38.0	-9999.0
12.63	3.85	22.3	0.59	2.6	0.751	0.000	10.7	12.3	1.727	-9999.0	-9999.0	10.0
12.80	3.90	21.1	0.47	2.2	0.761	0.000	8.1	9.3	1.629	30.0	36.0	10.0
12.96	3.95	24.7	0.38	1.5	0.770	0.000	9.4	10.8	1.911	30.3	36.0	10.0
13.12	4.00	39.6	0.35	0.9	0.780	0.000	12.6	14.3	-104.410	43.7	38.0	-9999.0
13.29	4.05	41.5	0.35	0.8	0.789	0.000	13.2	14.9	-104.410	44.8	38.0	-9999.0
13.45	4.10	43.5	0.36	0.8	0.799	0.000	13.9	15.5	-104.410	46.0	40.0	-9999.0
13.62	4.15	46.6	0.32	0.7	0.809	0.000	11.1	12.4	-104.410	47.8	40.0	-9999.0
13.78	4.20	42.4	0.28	0.7	0.819	0.000	13.5	15.0	-104.410	44.9	38.0	-9999.0
13.94	4.25	38.0	0.46	1.2	0.828	0.000	12.1	13.3	-104.410	41.6	38.0	-9999.0
14.11	4.30	27.3	0.79	2.9	0.838	0.000	13.1	14.3	2.119	-9999.0	-9999.0	10.0
14.27	4.35	18.3	0.79	4.3	0.847	0.000	17.5	19.0	1.394	-9999.0	-9999.0	9.9
14.44	4.40	18.7	0.67	3.6	0.856	0.000	11.9	12.9	1.428	-9999.0	-9999.0	10.0
14.60	4.45	17.9	0.59	3.3	0.866	0.000	8.6	9.2	1.362	-9999.0	-9999.0	9.2
14.76	4.50	22.6	0.56	2.5	0.875	0.000	10.8	11.5	1.735	-9999.0	-9999.0	10.0
14.93	4.55	15.6	0.59	3.8	0.885	0.000	9.9	10.6	1.176	-9999.0	-9999.0	7.1
15.09	4.60	12.0	0.42	3.5	0.891	0.003	7.7	8.1	0.889	-9999.0	-9999.0	4.5
15.26	4.65	15.1	0.33	2.2	0.895	0.008	7.2	7.7	1.139	-9999.0	-9999.0	6.6
15.42	4.70	29.3	0.16	0.5	0.900	0.013	9.3	9.9	-104.410	33.0	36.0	-9999.0
15.58	4.75	30.0	0.17	0.6	0.904	0.018	9.6	10.1	-104.410	33.6	36.0	-9999.0
15.75	4.80	28.0	0.31	1.1	0.909	0.023	9.0	9.4	-104.410	31.6	36.0	-9999.0
15.91	4.85	23.2	0.35	1.5	0.913	0.028	8.9	9.3	1.780	30.0	34.0	10.0
16.08	4.90	23.1	0.37	1.6	0.918	0.034	8.9	9.2	1.774	30.0	34.0	10.0
16.24	4.95	31.0	0.32	1.0	0.922	0.039	9.9	10.3	-104.410	34.2	36.0	-9999.0
16.40	5.00	36.2	0.27	0.7	0.926	0.044	11.6	12.0	-104.410	38.6	38.0	-9999.0
16.57	5.05	37.8	0.39	1.0	0.931	0.049	12.1	12.5	-104.410	39.8	38.0	-9999.0
16.73	5.10	35.0	0.61	1.7	0.935	0.054	13.4	13.9	2.722	37.5	38.0	10.0
16.90	5.15	25.2	0.72	2.9	0.940	0.059	12.1	12.5	1.939	-9999.0	-9999.0	10.0
17.06	5.20	32.8	0.88	2.7	0.944	0.064	12.6	13.0	2.547	35.6	36.0	10.0
17.22	5.25	26.1	0.82	3.2	0.948	0.069	12.5	12.8	2.004	-9999.0	-9999.0	10.0
17.39	5.30	25.2	0.57	2.3	0.953	0.075	9.7	9.9	1.937	30.0	34.0	10.0
17.55	5.35	43.6	0.47	1.1	0.957	0.080	13.9	14.2	-104.410	43.5	38.0	-9999.0
17.72	5.40	48.7	0.37	0.8	0.962	0.085	11.7	11.9	-104.410	46.6	38.0	-9999.0
17.88	5.45	50.9	0.32	0.6	0.966	0.090	12.2	12.4	-104.410	47.8	38.0	-9999.0
18.04	5.50	54.7	0.35	0.6	0.971	0.095	13.1	13.3	-104.410	49.8	40.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	54.8	0.37	0.7	0.976	0.100	13.1	13.3	-104.410	49.8	40.0	-9999.0
18.37	5.60	50.9	0.41	0.8	0.981	0.105	12.2	12.3	-104.410	47.6	38.0	-9999.0
18.54	5.65	48.7	0.38	0.8	0.985	0.110	15.6	15.7	-104.410	46.3	38.0	-9999.0
18.70	5.70	47.9	0.29	0.6	0.990	0.116	11.5	11.5	-104.410	45.7	38.0	-9999.0
18.86	5.75	46.8	0.32	0.7	0.995	0.121	11.2	11.2	-104.410	45.0	38.0	-9999.0
19.03	5.80	41.3	0.35	0.8	1.000	0.126	13.2	13.2	-104.410	41.3	38.0	-9999.0
19.19	5.85	40.7	0.35	0.9	1.004	0.131	13.0	13.0	-104.410	40.8	38.0	-9999.0
19.36	5.90	44.1	0.37	0.8	1.009	0.136	14.1	14.0	-104.410	43.1	38.0	-9999.0
19.52	5.95	48.5	0.36	0.7	1.013	0.141	11.6	11.5	-104.410	45.7	38.0	-9999.0
19.68	6.00	48.1	0.35	0.7	1.018	0.146	11.5	11.4	-104.410	45.4	38.0	-9999.0
19.85	6.05	47.2	0.34	0.7	1.023	0.151	11.3	11.2	-104.410	44.8	38.0	-9999.0
20.01	6.10	45.0	0.35	0.8	1.028	0.157	14.4	14.2	-104.410	43.4	38.0	-9999.0
20.18	6.15	42.7	0.35	0.8	1.032	0.162	13.6	13.4	-104.410	41.8	38.0	-9999.0
20.34	6.20	41.8	0.34	0.8	1.037	0.167	13.3	13.1	-104.410	41.1	38.0	-9999.0
20.50	6.25	45.9	0.34	0.7	1.041	0.172	14.7	14.4	-104.410	43.8	38.0	-9999.0
20.67	6.30	50.8	0.37	0.7	1.046	0.177	12.2	11.9	-104.410	46.6	38.0	-9999.0
20.83	6.35	54.3	0.41	0.8	1.051	0.182	13.0	12.7	-104.410	48.4	38.0	-9999.0
21.00	6.40	59.1	0.45	0.8	1.055	0.187	14.2	13.8	-104.410	50.8	40.0	-9999.0
21.16	6.45	59.5	0.48	0.8	1.060	0.192	14.2	13.8	-104.410	50.9	40.0	-9999.0
21.33	6.50	58.1	0.49	0.8	1.065	0.197	13.9	13.5	-104.410	50.2	40.0	-9999.0
21.49	6.55	58.1	0.51	0.9	1.070	0.203	13.9	13.4	-104.410	50.1	40.0	-9999.0
21.65	6.60	59.6	0.50	0.8	1.075	0.208	14.3	13.8	-104.410	50.8	40.0	-9999.0
21.82	6.65	61.5	0.55	0.9	1.079	0.213	14.7	14.2	-104.410	51.6	40.0	-9999.0
21.98	6.70	62.2	0.58	0.9	1.084	0.218	14.9	14.3	-104.410	51.9	40.0	-9999.0
22.15	6.75	50.5	0.81	1.6	1.089	0.223	16.1	15.5	-104.410	45.9	38.0	-9999.0
22.31	6.80	53.9	0.74	1.4	1.093	0.228	17.2	16.4	-104.410	47.6	38.0	-9999.0
22.47	6.85	57.4	0.64	1.1	1.098	0.233	18.3	17.5	-104.410	49.4	38.0	-9999.0
22.64	6.90	64.3	0.50	0.8	1.103	0.238	15.4	14.7	-104.410	52.6	40.0	-9999.0
22.80	6.95	69.8	0.50	0.7	1.107	0.244	16.7	15.9	-104.410	54.9	40.0	-9999.0
22.97	7.00	68.9	0.52	0.8	1.112	0.249	16.5	15.7	-104.410	54.5	40.0	-9999.0
23.13	7.05	63.6	0.51	0.8	1.117	0.254	15.2	14.4	-104.410	52.1	40.0	-9999.0
23.29	7.10	60.4	0.49	0.8	1.122	0.259	14.5	13.7	-104.410	50.6	40.0	-9999.0
23.46	7.15	55.7	0.46	0.8	1.127	0.264	13.3	12.6	-104.410	48.2	38.0	-9999.0
23.62	7.20	53.1	0.46	0.9	1.131	0.269	12.7	12.0	-104.410	46.7	38.0	-9999.0
23.79	7.25	49.8	0.42	0.8	1.136	0.274	15.9	14.9	-104.410	44.9	38.0	-9999.0
23.95	7.30	50.6	0.43	0.9	1.141	0.279	16.2	15.1	-104.410	45.2	38.0	-9999.0
24.11	7.35	52.7	0.43	0.8	1.145	0.285	12.6	11.8	-104.410	46.4	38.0	-9999.0
24.28	7.40	49.5	0.40	0.8	1.150	0.290	15.8	14.7	-104.410	44.5	38.0	-9999.0
24.44	7.45	44.4	0.38	0.9	1.155	0.295	14.2	13.2	-104.410	41.3	38.0	-9999.0
24.61	7.50	39.7	0.36	0.9	1.159	0.300	12.7	11.8	-104.410	38.1	36.0	-9999.0
24.77	7.55	39.8	0.35	0.9	1.164	0.305	12.7	11.8	-104.410	38.1	36.0	-9999.0
24.93	7.60	40.4	0.30	0.7	1.168	0.310	12.9	11.9	-104.410	38.5	36.0	-9999.0
25.10	7.65	36.4	0.29	0.8	1.173	0.315	11.6	10.7	-104.410	35.4	36.0	-9999.0
25.26	7.70	37.6	0.20	0.5	1.177	0.320	12.0	11.1	-104.410	36.3	36.0	-9999.0
25.43	7.75	35.8	0.21	0.6	1.182	0.326	11.4	10.5	-104.410	34.9	36.0	-9999.0
25.59	7.80	53.1	0.17	0.3	1.186	0.331	12.7	11.7	-104.410	46.1	38.0	-9999.0
25.75	7.85	59.8	0.25	0.4	1.191	0.336	14.3	13.1	-104.410	49.4	38.0	-9999.0
25.92	7.90	60.6	0.33	0.5	1.196	0.341	14.5	13.3	-104.410	49.7	38.0	-9999.0
26.08	7.95	63.8	0.43	0.7	1.201	0.346	15.3	13.9	-104.410	51.2	38.0	-9999.0
26.25	8.00	64.6	0.46	0.7	1.206	0.351	15.5	14.1	-104.410	51.4	38.0	-9999.0
26.41	8.05	61.9	0.47	0.8	1.210	0.356	14.8	13.5	-104.410	50.2	38.0	-9999.0
26.57	8.10	56.9	0.47	0.8	1.215	0.361	13.6	12.4	-104.410	47.7	38.0	-9999.0
26.74	8.15	52.5	0.44	0.8	1.220	0.367	12.6	11.4	-104.410	45.3	38.0	-9999.0
26.90	8.20	56.1	0.40	0.7	1.225	0.372	13.4	12.1	-104.410	47.2	38.0	-9999.0
27.07	8.25	63.6	0.40	0.6	1.230	0.377	15.2	13.7	-104.410	50.7	38.0	-9999.0
27.23	8.30	64.5	0.43	0.7	1.234	0.382	15.5	13.9	-104.410	51.1	38.0	-9999.0
27.39	8.35	57.2	0.44	0.8	1.239	0.387	13.7	12.3	-104.410	47.6	38.0	-9999.0
27.56	8.40	49.9	0.43	0.9	1.244	0.392	15.9	14.3	-104.410	43.6	38.0	-9999.0
27.72	8.45	45.4	0.56	1.2	1.248	0.397	14.5	13.0	-104.410	40.8	38.0	-9999.0
27.89	8.50	34.0	0.83	2.4	1.253	0.402	13.0	11.6	2.588	32.5	34.0	10.0
28.05	8.55	19.3	0.82	4.3	1.257	0.407	12.3	11.0	1.407	-9999.0	-9999.0	5.4
28.21	8.60	17.3	0.66	3.8	1.261	0.413	11.0	9.8	1.249	-9999.0	-9999.0	4.5
28.38	8.65	38.8	0.43	1.1	1.266	0.418	12.4	11.0	-104.410	36.2	36.0	-9999.0
28.54	8.70	57.3	0.33	0.6	1.270	0.423	13.7	12.2	-104.410	47.3	38.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
28.71	8.75	58.1	0.30	0.5	1.275	0.428	13.9	12.3	-104.410	47.6	38.0	-9999.0
28.87	8.80	51.3	0.35	0.7	1.280	0.433	12.3	10.9	-104.410	44.0	38.0	-9999.0
29.04	8.85	45.2	0.36	0.8	1.285	0.438	14.4	12.7	-104.410	40.3	36.0	-9999.0
29.20	8.90	40.0	0.35	0.9	1.289	0.443	12.8	11.2	-104.410	36.7	36.0	-9999.0
29.36	8.95	37.3	0.30	0.8	1.294	0.448	11.9	10.5	-104.410	34.7	36.0	-9999.0
29.53	9.00	38.7	0.28	0.7	1.298	0.454	12.3	10.8	-104.410	35.7	36.0	-9999.0
29.69	9.05	41.6	0.28	0.7	1.303	0.459	13.3	11.6	-104.410	37.7	36.0	-9999.0
29.86	9.10	41.5	0.31	0.7	1.307	0.464	13.2	11.6	-104.410	37.6	36.0	-9999.0
30.02	9.15	38.6	0.38	1.0	1.312	0.469	12.3	10.8	-104.410	35.5	36.0	-9999.0
30.18	9.20	34.0	0.42	1.2	1.316	0.474	10.8	9.5	-104.410	31.8	34.0	-9999.0
30.35	9.25	26.8	0.50	1.9	1.321	0.479	10.2	8.9	1.996	30.0	32.0	8.6
30.51	9.30	19.5	0.50	2.6	1.325	0.484	9.4	8.1	1.418	-9999.0	-9999.0	5.0
30.68	9.35	18.1	0.33	1.8	1.329	0.489	6.9	6.0	1.300	30.0	30.0	4.4
30.84	9.40	16.2	0.37	2.3	1.334	0.495	7.7	6.7	1.146	-9999.0	-9999.0	3.6
31.00	9.45	11.6	0.34	2.9	1.338	0.500	7.4	6.4	0.782	-9999.0	-9999.0	2.1
31.17	9.50	8.5	0.25	3.0	1.342	0.505	5.4	4.7	0.531	-9999.0	-9999.0	1.3
31.33	9.55	10.5	0.07	0.7	1.347	0.510	4.0	3.5	0.690	30.0	30.0	1.8
31.50	9.60	13.7	0.10	0.7	1.351	0.515	5.2	4.5	0.945	30.0	30.0	2.7
31.66	9.65	10.0	0.18	1.8	1.355	0.520	4.8	4.1	0.654	-9999.0	-9999.0	1.7
31.82	9.70	8.8	0.21	2.4	1.359	0.525	5.6	4.8	0.552	-9999.0	-9999.0	1.4
31.99	9.75	10.0	0.20	2.0	1.364	0.530	4.8	4.1	0.650	-9999.0	-9999.0	1.6
32.15	9.80	9.9	0.21	2.1	1.368	0.536	4.8	4.1	0.643	-9999.0	-9999.0	1.6
32.32	9.85	9.2	0.21	2.3	1.372	0.541	4.4	3.7	0.579	-9999.0	-9999.0	1.4
32.48	9.90	9.3	0.19	2.0	1.376	0.546	4.5	3.8	0.591	-9999.0	-9999.0	1.5
32.64	9.95	10.0	0.21	2.1	1.381	0.551	4.8	4.1	0.645	-9999.0	-9999.0	1.6
32.81	10.00	9.9	0.24	2.4	1.385	0.556	4.8	4.0	0.640	-9999.0	-9999.0	1.6
32.97	10.05	10.1	0.24	2.4	1.389	0.561	4.8	4.1	0.651	-9999.0	-9999.0	1.6
33.14	10.10	9.9	0.22	2.2	1.394	0.566	4.7	4.0	0.631	-9999.0	-9999.0	1.5
33.30	10.15	9.2	0.20	2.2	1.398	0.571	4.4	3.7	0.575	-9999.0	-9999.0	1.4
33.46	10.20	9.3	0.18	2.0	1.402	0.577	4.4	3.7	0.582	-9999.0	-9999.0	1.4
33.63	10.25	9.6	0.19	2.0	1.406	0.582	4.6	3.9	0.609	-9999.0	-9999.0	1.5
33.79	10.30	9.5	0.19	2.0	1.411	0.587	4.5	3.8	0.600	-9999.0	-9999.0	1.4
33.96	10.35	9.3	0.17	1.8	1.415	0.592	4.5	3.8	0.587	-9999.0	-9999.0	1.4
34.12	10.40	8.4	0.14	1.7	1.419	0.597	4.0	3.4	0.514	-9999.0	-9999.0	1.2
34.28	10.45	8.3	0.10	1.2	1.424	0.602	4.0	3.3	0.498	-9999.0	-9999.0	1.2
34.45	10.50	8.3	0.10	1.2	1.428	0.607	4.0	3.3	0.504	-9999.0	-9999.0	1.2
34.61	10.55	8.4	0.09	1.1	1.432	0.612	4.0	3.4	0.511	-9999.0	-9999.0	1.2
34.78	10.60	9.4	0.12	1.3	1.436	0.617	4.5	3.8	0.589	-9999.0	-9999.0	1.4
34.94	10.65	10.0	0.17	1.7	1.441	0.623	4.8	4.0	0.631	-9999.0	-9999.0	1.5
35.10	10.70	10.3	0.18	1.8	1.445	0.628	4.9	4.1	0.655	-9999.0	-9999.0	1.5
35.27	10.75	9.8	0.20	2.0	1.449	0.633	4.7	3.9	0.618	-9999.0	-9999.0	1.4
35.43	10.80	9.4	0.21	2.2	1.453	0.638	4.5	3.7	0.583	-9999.0	-9999.0	1.3
35.60	10.85	9.1	0.21	2.3	1.458	0.643	4.4	3.6	0.562	-9999.0	-9999.0	1.3
35.76	10.90	8.5	0.20	2.4	1.462	0.648	5.4	4.5	0.509	-9999.0	-9999.0	1.2
35.92	10.95	7.3	0.19	2.6	1.466	0.653	4.7	3.8	0.413	-9999.0	-9999.0	0.9
36.09	11.00	7.3	0.18	2.5	1.471	0.658	4.7	3.9	0.415	-9999.0	-9999.0	0.9
36.25	11.05	9.5	0.12	1.3	1.475	0.664	4.5	3.7	0.586	-9999.0	-9999.0	1.3
36.42	11.10	15.7	0.18	1.1	1.479	0.669	6.0	4.9	1.085	30.0	30.0	2.9
36.58	11.15	10.1	0.27	2.7	1.483	0.674	6.5	5.3	0.638	-9999.0	-9999.0	1.5
36.74	11.20	7.3	0.22	3.0	1.488	0.679	4.7	3.8	0.413	-9999.0	-9999.0	0.9
36.91	11.25	19.7	0.19	1.0	1.492	0.684	7.6	6.2	1.403	30.0	30.0	4.2
37.07	11.30	40.1	0.21	0.5	1.496	0.689	12.8	10.5	-104.410	34.7	34.0	-9999.0
37.24	11.35	44.4	0.25	0.6	1.501	0.694	10.6	8.7	-104.410	37.6	36.0	-9999.0
37.40	11.40	47.0	0.30	0.6	1.506	0.699	11.3	9.2	-104.410	39.2	36.0	-9999.0
37.57	11.45	50.4	0.33	0.7	1.511	0.705	12.1	9.8	-104.410	41.1	36.0	-9999.0
37.73	11.50	54.4	0.35	0.6	1.515	0.710	13.0	10.6	-104.410	43.3	38.0	-9999.0
37.89	11.55	55.2	0.37	0.7	1.520	0.715	13.2	10.7	-104.410	43.6	38.0	-9999.0
38.06	11.60	55.0	0.38	0.7	1.525	0.720	13.2	10.7	-104.410	43.5	38.0	-9999.0
38.22	11.65	53.7	0.37	0.7	1.530	0.725	12.8	10.4	-104.410	42.7	36.0	-9999.0
38.39	11.70	51.1	0.32	0.6	1.535	0.730	12.2	9.9	-104.410	41.3	36.0	-9999.0
38.55	11.75	51.8	0.30	0.6	1.539	0.735	12.4	10.0	-104.410	41.6	36.0	-9999.0
38.71	11.80	50.8	0.31	0.6	1.544	0.740	12.2	9.8	-104.410	41.0	36.0	-9999.0
38.88	11.85	44.8	0.32	0.7	1.549	0.746	14.3	11.5	-104.410	37.3	36.0	-9999.0
39.04	11.90	40.1	0.40	1.0	1.553	0.751	12.8	10.3	-104.410	34.2	34.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
39.21	11.95	37.4	0.67	1.8	1.558	0.756	14.3	11.5	2.811	32.2	34.0	10.0
39.37	12.00	31.3	1.00	3.2	1.562	0.761	15.0	12.0	2.316	-9999.0	-9999.0	8.4
39.53	12.05	20.1	0.91	4.5	1.566	0.766	19.2	15.4	1.420	-9999.0	-9999.0	3.9
39.70	12.10	16.4	0.60	3.7	1.570	0.771	10.5	8.4	1.127	-9999.0	-9999.0	2.8
39.86	12.15	14.0	0.28	2.0	1.575	0.776	6.7	5.3	0.933	-9999.0	-9999.0	2.2
40.03	12.20	13.0	0.27	2.1	1.579	0.781	6.2	4.9	0.848	-9999.0	-9999.0	1.9
40.19	12.25	13.0	0.29	2.2	1.583	0.786	6.2	5.0	0.853	-9999.0	-9999.0	1.9
40.35	12.30	15.5	0.30	1.9	1.587	0.792	7.4	5.9	1.049	-9999.0	-9999.0	2.5
40.52	12.35	16.7	0.34	2.0	1.592	0.797	8.0	6.4	1.149	-9999.0	-9999.0	2.8
40.68	12.40	17.3	0.37	2.1	1.596	0.802	8.3	6.5	1.189	-9999.0	-9999.0	3.0
40.85	12.45	16.8	0.40	2.4	1.600	0.807	8.0	6.3	1.148	-9999.0	-9999.0	2.8
41.01	12.50	16.5	0.41	2.5	1.605	0.812	7.9	6.2	1.129	-9999.0	-9999.0	2.7
41.17	12.55	15.5	0.40	2.6	1.609	0.817	7.4	5.9	1.049	-9999.0	-9999.0	2.5
41.34	12.60	14.6	0.39	2.7	1.613	0.822	7.0	5.5	0.970	-9999.0	-9999.0	2.2
41.50	12.65	12.9	0.34	2.6	1.617	0.827	6.2	4.9	0.840	-9999.0	-9999.0	1.8
41.67	12.70	17.3	0.26	1.5	1.622	0.833	6.6	5.2	1.184	30.0	30.0	2.9
41.83	12.75	24.3	0.26	1.1	1.626	0.838	9.3	7.3	1.749	30.0	32.0	5.1
41.99	12.80	29.1	0.43	1.5	1.630	0.843	11.2	8.7	2.133	30.0	32.0	6.9
42.16	12.85	33.5	0.51	1.5	1.634	0.848	12.8	10.0	2.484	30.0	32.0	8.7
42.32	12.90	54.8	0.53	1.0	1.639	0.853	17.5	13.7	-104.410	42.3	36.0	-9999.0
42.49	12.95	88.8	0.58	0.7	1.644	0.858	21.3	16.6	-104.410	56.1	40.0	-9999.0
42.65	13.00	107.1	0.58	0.5	1.649	0.863	20.5	16.0	-104.410	61.5	40.0	-9999.0
42.81	13.05	128.3	0.75	0.6	1.654	0.868	24.6	19.1	-104.410	66.6	40.0	-9999.0
42.98	13.10	150.1	0.98	0.7	1.659	0.874	28.7	22.3	-104.410	71.0	42.0	-9999.0
43.14	13.15	153.7	1.15	0.7	1.664	0.879	29.4	22.8	-104.410	71.7	42.0	-9999.0
43.31	13.20	143.9	1.42	1.0	1.669	0.884	27.6	21.3	-104.410	69.8	42.0	-9999.0
43.47	13.25	132.1	1.80	1.4	1.674	0.889	31.6	24.4	-104.410	67.2	40.0	-9999.0
43.63	13.30	125.6	2.27	1.8	1.678	0.894	40.1	30.9	-104.410	65.8	40.0	-9999.0
43.80	13.35	173.5	2.25	1.3	1.683	0.899	41.5	32.0	-104.410	75.0	42.0	-9999.0
43.96	13.40	286.5	2.52	0.9	1.688	0.904	54.9	42.2	-104.410	89.3	44.0	-9999.0
44.13	13.45	358.8	2.98	0.8	1.693	0.909	68.7	52.8	-104.410	95.0	46.0	-9999.0
44.29	13.50	342.3	3.20	0.9	1.698	0.915	65.6	50.3	-104.410	94.3	46.0	-9999.0
44.45	13.55	357.0	2.98	0.8	1.703	0.920	68.4	52.4	-104.410	95.0	46.0	-9999.0
44.62	13.60	312.5	2.98	1.0	1.708	0.925	59.9	45.8	-104.410	91.6	44.0	-9999.0
44.78	13.65	287.5	2.98	1.0	1.713	0.930	55.1	42.1	-104.410	89.2	44.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1753-1437
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-20
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/17/08
CPT Time: 15:20
CPT File: 390CP20.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 3.05 (ft): 10.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	7.0	0.02	0.3	0.009	0.000	3.4	6.7	0.560	-9999.0	-9999.0	10.0
0.33	0.10	13.6	0.02	0.1	0.018	0.000	5.2	10.4	1.083	66.6	50.0	10.0
0.49	0.15	24.5	0.09	0.4	0.028	0.000	7.8	15.6	-104.410	77.6	50.0	-9999.0
0.66	0.20	74.6	0.13	0.2	0.038	0.000	17.9	35.7	-104.410	95.0	50.0	-9999.0
0.82	0.25	92.9	0.11	0.1	0.048	0.000	17.8	35.6	-104.410	95.0	50.0	-9999.0
0.98	0.30	106.7	0.12	0.1	0.058	0.000	20.4	40.9	-104.410	95.0	50.0	-9999.0
1.15	0.35	107.9	0.33	0.3	0.068	0.000	20.7	41.3	-104.410	95.0	50.0	-9999.0
1.31	0.40	98.1	0.35	0.4	0.078	0.000	18.8	37.6	-104.410	95.0	50.0	-9999.0
1.48	0.45	80.8	0.36	0.4	0.088	0.000	19.4	38.7	-104.410	95.0	50.0	-9999.0
1.64	0.50	75.7	0.43	0.6	0.098	0.000	18.1	36.3	-104.410	91.9	50.0	-9999.0
1.80	0.55	67.5	0.55	0.8	0.108	0.000	16.2	32.3	-104.410	87.3	50.0	-9999.0
1.97	0.60	59.3	0.71	1.2	0.118	0.000	18.9	37.8	-104.410	82.3	48.0	-9999.0
2.13	0.65	53.3	0.64	1.2	0.128	0.000	17.0	34.1	-104.410	78.1	48.0	-9999.0
2.30	0.70	47.5	0.54	1.1	0.137	0.000	15.2	30.4	-104.410	73.8	48.0	-9999.0
2.46	0.75	45.5	0.66	1.5	0.147	0.000	14.5	29.0	-104.410	71.6	46.0	-9999.0
2.62	0.80	40.8	0.71	1.7	0.157	0.000	13.0	26.1	-104.410	67.6	46.0	-9999.0
2.79	0.85	36.7	0.70	1.9	0.166	0.000	14.0	28.1	2.920	63.6	46.0	10.0
2.95	0.90	35.5	0.72	2.0	0.176	0.000	13.6	27.2	2.827	61.9	46.0	10.0
3.12	0.95	36.2	0.80	2.2	0.185	0.000	13.9	27.7	2.883	61.7	44.0	10.0
3.28	1.00	34.8	0.86	2.5	0.194	0.000	13.3	26.7	2.770	59.9	44.0	10.0
3.44	1.05	34.7	0.90	2.6	0.204	0.000	13.3	26.6	2.759	59.1	44.0	10.0
3.61	1.10	34.6	0.89	2.6	0.213	0.000	13.3	26.5	2.753	58.4	44.0	10.0
3.77	1.15	35.3	0.85	2.4	0.223	0.000	13.5	27.0	2.804	58.3	44.0	10.0
3.94	1.20	38.7	0.86	2.2	0.232	0.000	14.8	29.7	3.079	60.4	44.0	10.0
4.10	1.25	40.3	0.96	2.4	0.241	0.000	15.4	30.9	3.206	61.0	44.0	10.0
4.27	1.30	41.7	1.03	2.5	0.251	0.000	16.0	31.9	3.317	61.4	44.0	10.0
4.43	1.35	62.9	1.14	1.8	0.260	0.000	20.1	39.3	-104.410	72.6	46.0	-9999.0
4.59	1.40	91.9	1.34	1.5	0.270	0.000	22.0	42.4	-104.410	83.0	48.0	-9999.0
4.76	1.45	106.1	1.45	1.4	0.280	0.000	25.4	48.0	-104.410	86.6	48.0	-9999.0
4.92	1.50	104.6	1.72	1.6	0.290	0.000	33.4	62.1	-104.410	85.7	48.0	-9999.0
5.09	1.55	85.2	1.47	1.7	0.299	0.000	27.2	49.7	-104.410	79.4	46.0	-9999.0
5.25	1.60	67.3	1.26	1.9	0.309	0.000	21.5	38.7	-104.410	72.1	46.0	-9999.0
5.41	1.65	82.4	1.30	1.6	0.319	0.000	26.3	46.6	-104.410	77.5	46.0	-9999.0
5.58	1.70	174.3	1.60	0.9	0.329	0.000	33.4	58.2	-104.410	95.0	48.0	-9999.0
5.74	1.75	249.5	1.94	0.8	0.339	0.000	47.8	82.1	-104.410	95.0	50.0	-9999.0
5.91	1.80	292.4	1.69	0.6	0.349	0.000	46.7	79.0	-104.410	95.0	50.0	-9999.0
6.07	1.85	280.2	1.92	0.7	0.359	0.000	53.7	89.5	-104.410	95.0	50.0	-9999.0
6.23	1.90	282.0	2.75	1.0	0.370	0.000	54.0	88.9	-104.410	95.0	50.0	-9999.0
6.40	1.95	236.1	3.61	1.5	0.380	0.000	56.5	91.7	-104.410	95.0	50.0	-9999.0
6.56	2.00	191.1	3.98	2.1	0.389	0.000	61.0	97.8	-104.410	95.0	48.0	-9999.0
6.73	2.05	167.7	3.60	2.1	0.399	0.000	53.5	84.7	-104.410	94.6	48.0	-9999.0
6.89	2.10	139.9	3.04	2.2	0.409	0.000	44.6	69.8	-104.410	89.1	48.0	-9999.0
7.05	2.15	127.9	2.17	1.7	0.419	0.000	30.6	47.3	-104.410	86.2	46.0	-9999.0
7.22	2.20	109.5	1.48	1.4	0.429	0.000	26.2	40.1	-104.410	81.4	46.0	-9999.0
7.38	2.25	99.0	0.85	0.9	0.438	0.000	23.7	35.8	-104.410	78.2	46.0	-9999.0
7.55	2.30	96.2	0.69	0.7	0.448	0.000	23.0	34.4	-104.410	77.0	46.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	99.0	0.71	0.7	0.458	0.000	23.7	35.0	-104.410	77.6	46.0	-9999.0
7.87	2.40	101.4	0.70	0.7	0.468	0.000	24.3	35.5	-104.410	77.9	46.0	-9999.0
8.04	2.45	91.9	0.66	0.7	0.478	0.000	22.0	31.8	-104.410	74.8	44.0	-9999.0
8.20	2.50	82.7	0.61	0.7	0.488	0.000	19.8	28.3	-104.410	71.5	44.0	-9999.0
8.37	2.55	73.8	0.61	0.8	0.498	0.000	17.7	25.0	-104.410	67.9	44.0	-9999.0
8.53	2.60	67.8	0.75	1.1	0.508	0.000	16.2	22.8	-104.410	65.2	44.0	-9999.0
8.69	2.65	63.6	0.98	1.5	0.518	0.000	20.3	28.2	-104.410	63.1	42.0	-9999.0
8.86	2.70	65.3	0.80	1.2	0.527	0.000	20.8	28.7	-104.410	63.6	42.0	-9999.0
9.02	2.75	68.4	0.69	1.0	0.537	0.000	16.4	22.4	-104.410	64.7	44.0	-9999.0
9.19	2.80	52.7	0.75	1.4	0.547	0.000	16.8	22.8	-104.410	57.0	42.0	-9999.0
9.35	2.85	34.7	1.02	2.9	0.556	0.000	13.3	17.8	2.730	44.7	40.0	10.0
9.51	2.90	30.5	0.85	2.8	0.566	0.000	11.7	15.5	2.392	40.8	40.0	10.0
9.68	2.95	32.1	0.88	2.8	0.575	0.000	12.3	16.2	2.519	42.0	40.0	10.0
9.84	3.00	37.9	0.80	2.1	0.585	0.000	14.5	19.0	2.989	46.6	40.0	10.0
10.01	3.05	42.3	0.92	2.2	0.594	0.000	16.2	21.0	3.336	49.5	40.0	10.0
10.17	3.10	40.9	0.78	1.9	0.598	0.005	15.7	20.3	3.223	48.4	40.0	10.0
10.33	3.15	37.8	0.69	1.8	0.602	0.010	14.5	18.6	2.971	46.0	40.0	10.0
10.50	3.20	30.6	0.61	2.0	0.607	0.016	11.7	15.1	2.398	39.9	38.0	10.0
10.66	3.25	28.4	0.51	1.8	0.611	0.021	10.9	13.9	2.218	37.6	38.0	10.0
10.83	3.30	27.0	0.35	1.3	0.615	0.026	10.4	13.2	2.111	36.1	38.0	10.0
10.99	3.35	26.0	0.19	0.7	0.620	0.031	8.3	10.5	-104.410	34.9	38.0	-9999.0
11.15	3.40	24.7	0.13	0.5	0.624	0.036	7.9	10.0	-104.410	33.3	38.0	-9999.0
11.32	3.45	23.7	0.09	0.4	0.629	0.041	7.6	9.5	-104.410	32.0	38.0	-9999.0
11.48	3.50	22.2	0.06	0.3	0.633	0.046	7.1	8.9	-104.410	30.1	36.0	-9999.0
11.65	3.55	20.4	0.05	0.2	0.638	0.051	6.5	8.1	-104.410	30.0	36.0	-9999.0
11.81	3.60	19.3	0.05	0.3	0.642	0.057	6.2	7.7	-104.410	30.0	36.0	-9999.0
11.97	3.65	18.8	0.06	0.3	0.647	0.062	6.0	7.5	-104.410	30.0	36.0	-9999.0
12.14	3.70	19.4	0.13	0.7	0.651	0.067	7.4	9.2	1.496	30.0	36.0	10.0
12.30	3.75	20.1	0.18	0.9	0.656	0.072	7.7	9.5	1.546	30.0	36.0	10.0
12.47	3.80	19.2	0.28	1.5	0.660	0.077	7.3	9.0	1.474	30.0	36.0	10.0
12.63	3.85	18.6	0.36	1.9	0.664	0.082	7.1	8.7	1.428	30.0	36.0	10.0
12.80	3.90	15.3	0.35	2.3	0.668	0.087	7.3	8.9	1.161	-9999.0	-9999.0	10.0
12.96	3.95	16.0	0.34	2.1	0.673	0.092	7.6	9.3	1.217	-9999.0	-9999.0	10.0
13.12	4.00	18.5	0.31	1.7	0.677	0.098	7.1	8.6	1.416	30.0	34.0	10.0
13.29	4.05	19.9	0.33	1.7	0.681	0.103	7.6	9.2	1.527	30.0	36.0	10.0
13.45	4.10	19.4	0.34	1.8	0.685	0.108	7.4	9.0	1.485	30.0	36.0	10.0
13.62	4.15	18.3	0.38	2.1	0.690	0.113	7.0	8.4	1.398	30.0	34.0	10.0
13.78	4.20	16.4	0.39	2.4	0.694	0.118	7.9	9.4	1.249	-9999.0	-9999.0	10.0
13.94	4.25	17.2	0.41	2.4	0.698	0.123	8.2	9.8	1.309	-9999.0	-9999.0	10.0
14.11	4.30	17.3	0.51	3.0	0.703	0.128	8.3	9.9	1.319	-9999.0	-9999.0	10.0
14.27	4.35	15.9	0.50	3.2	0.707	0.133	7.6	9.1	1.206	-9999.0	-9999.0	10.0
14.44	4.40	15.5	0.39	2.5	0.711	0.138	7.4	8.8	1.169	-9999.0	-9999.0	9.9
14.60	4.45	20.3	0.29	1.4	0.715	0.144	7.8	9.2	1.552	30.0	36.0	10.0
14.76	4.50	22.9	0.29	1.3	0.720	0.149	8.8	10.3	1.760	30.0	36.0	10.0
14.93	4.55	22.0	0.33	1.5	0.724	0.154	8.4	9.9	1.694	30.0	36.0	10.0
15.09	4.60	22.2	0.47	2.1	0.728	0.159	8.5	10.0	1.708	30.0	36.0	10.0
15.26	4.65	21.1	0.51	2.4	0.732	0.164	10.1	11.8	1.615	-9999.0	-9999.0	10.0
15.42	4.70	20.1	0.52	2.6	0.737	0.169	9.6	11.2	1.538	-9999.0	-9999.0	10.0
15.58	4.75	22.6	0.38	1.7	0.741	0.174	8.6	10.0	1.731	30.0	36.0	10.0
15.75	4.80	22.2	0.41	1.9	0.745	0.179	8.5	9.8	1.699	30.0	36.0	10.0
15.91	4.85	18.3	0.46	2.5	0.750	0.185	8.8	10.1	1.388	-9999.0	-9999.0	10.0
16.08	4.90	15.7	0.44	2.8	0.754	0.190	7.5	8.6	1.177	-9999.0	-9999.0	9.1
16.24	4.95	15.1	0.42	2.8	0.758	0.195	7.2	8.3	1.131	-9999.0	-9999.0	8.5
16.40	5.00	19.4	0.44	2.3	0.762	0.200	9.3	10.7	1.477	-9999.0	-9999.0	10.0
16.57	5.05	22.4	0.39	1.7	0.767	0.205	8.6	9.8	1.711	30.0	36.0	10.0
16.73	5.10	26.6	0.33	1.2	0.771	0.210	10.2	11.6	2.048	32.4	36.0	10.0
16.90	5.15	30.4	0.22	0.7	0.775	0.215	9.7	11.0	-104.410	36.2	38.0	-9999.0
17.06	5.20	31.4	0.23	0.7	0.780	0.220	10.0	11.4	-104.410	37.0	38.0	-9999.0
17.22	5.25	28.3	0.33	1.2	0.784	0.226	9.0	10.2	-104.410	34.0	38.0	-9999.0
17.39	5.30	27.2	0.39	1.4	0.789	0.231	10.4	11.7	2.091	32.7	36.0	10.0
17.55	5.35	26.8	0.42	1.6	0.793	0.236	10.3	11.5	2.065	32.3	36.0	10.0
17.72	5.40	26.0	0.45	1.7	0.797	0.241	10.0	11.2	1.998	31.3	36.0	10.0
17.88	5.45	26.5	0.52	2.0	0.802	0.246	10.2	11.3	2.038	31.8	36.0	10.0
18.04	5.50	23.5	0.57	2.4	0.806	0.251	9.0	10.0	1.797	30.0	36.0	10.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	20.0	0.63	3.2	0.810	0.256	9.6	10.6	1.515	-9999.0	-9999.0	10.0
18.37	5.60	20.4	0.68	3.3	0.815	0.261	9.8	10.8	1.545	-9999.0	-9999.0	10.0
18.54	5.65	15.8	0.46	2.9	0.819	0.267	7.6	8.4	1.181	-9999.0	-9999.0	8.0
18.70	5.70	12.2	0.33	2.7	0.823	0.272	5.8	6.4	0.884	-9999.0	-9999.0	5.1
18.86	5.75	13.5	0.16	1.2	0.827	0.277	5.2	5.7	0.991	30.0	32.0	6.0
19.03	5.80	23.3	0.24	1.0	0.832	0.282	8.9	9.8	1.778	30.0	36.0	10.0
19.19	5.85	37.9	0.49	1.3	0.836	0.287	12.1	13.2	-104.410	41.4	38.0	-9999.0
19.36	5.90	30.7	0.78	2.5	0.840	0.292	11.8	12.8	2.366	35.3	38.0	10.0
19.52	5.95	22.5	0.65	2.9	0.845	0.297	10.8	11.7	1.710	-9999.0	-9999.0	10.0
19.68	6.00	14.9	0.51	3.4	0.849	0.302	9.5	10.3	1.102	-9999.0	-9999.0	6.8
19.85	6.05	12.1	0.31	2.6	0.853	0.308	5.8	6.3	0.876	-9999.0	-9999.0	4.7
20.01	6.10	11.3	0.24	2.1	0.858	0.313	5.4	5.8	0.810	-9999.0	-9999.0	4.2
20.18	6.15	10.7	0.18	1.7	0.862	0.318	5.1	5.5	0.759	-9999.0	-9999.0	3.8
20.34	6.20	11.0	0.14	1.3	0.866	0.323	5.3	5.7	0.783	-9999.0	-9999.0	3.9
20.50	6.25	11.6	0.15	1.3	0.870	0.328	5.6	6.0	0.834	-9999.0	-9999.0	4.3
20.67	6.30	11.3	0.20	1.8	0.875	0.333	5.4	5.8	0.808	-9999.0	-9999.0	4.0
20.83	6.35	11.2	0.30	2.7	0.879	0.338	5.4	5.7	0.802	-9999.0	-9999.0	4.0
21.00	6.40	12.2	0.31	2.5	0.883	0.343	5.8	6.2	0.879	-9999.0	-9999.0	4.5
21.16	6.45	40.3	0.30	0.7	0.888	0.348	12.9	13.7	-104.410	42.3	38.0	-9999.0
21.33	6.50	54.3	0.27	0.5	0.892	0.354	13.0	13.8	-104.410	50.8	40.0	-9999.0
21.49	6.55	56.1	0.37	0.7	0.897	0.359	13.4	14.2	-104.410	51.6	40.0	-9999.0
21.65	6.60	48.9	0.67	1.4	0.902	0.364	15.6	16.4	-104.410	47.6	40.0	-9999.0
21.82	6.65	29.1	0.61	2.1	0.906	0.369	11.2	11.7	2.228	32.7	36.0	10.0
21.98	6.70	18.4	0.49	2.7	0.910	0.374	8.8	9.3	1.373	-9999.0	-9999.0	8.6
22.15	6.75	17.1	0.27	1.6	0.915	0.379	6.6	6.9	1.266	30.0	32.0	7.5
22.31	6.80	15.4	0.18	1.2	0.919	0.384	5.9	6.2	1.128	30.0	32.0	6.2
22.47	6.85	14.5	0.13	0.9	0.923	0.389	5.6	5.8	1.059	30.0	32.0	5.6
22.64	6.90	13.8	0.12	0.9	0.928	0.395	5.3	5.5	0.996	30.0	32.0	5.1
22.80	6.95	12.5	0.12	1.0	0.932	0.400	4.8	5.0	0.896	30.0	30.0	4.3
22.97	7.00	11.4	0.13	1.1	0.936	0.405	4.4	4.5	0.807	30.0	30.0	3.7
23.13	7.05	10.9	0.14	1.3	0.940	0.410	5.2	5.4	0.761	-9999.0	-9999.0	3.3
23.29	7.10	11.6	0.14	1.2	0.945	0.415	4.4	4.6	0.818	30.0	30.0	3.7
23.46	7.15	12.0	0.16	1.3	0.949	0.420	5.7	5.9	0.848	-9999.0	-9999.0	3.9
23.62	7.20	12.6	0.13	1.0	0.953	0.425	4.8	5.0	0.902	30.0	30.0	4.2
23.79	7.25	10.7	0.12	1.1	0.957	0.430	5.1	5.3	0.748	-9999.0	-9999.0	3.2
23.95	7.30	9.0	0.10	1.1	0.962	0.436	4.3	4.4	0.612	-9999.0	-9999.0	2.4
24.11	7.35	6.5	0.09	1.4	0.966	0.441	3.1	3.2	0.409	-9999.0	-9999.0	1.4
24.28	7.40	5.8	0.05	0.9	0.970	0.446	2.8	2.8	0.347	-9999.0	-9999.0	1.2
24.44	7.45	8.7	0.05	0.6	0.974	0.451	4.1	4.2	0.579	-9999.0	-9999.0	2.2
24.61	7.50	6.5	0.05	0.8	0.978	0.456	3.1	3.2	0.409	-9999.0	-9999.0	1.4
24.77	7.55	5.1	0.06	1.2	0.982	0.461	2.5	2.5	0.296	-9999.0	-9999.0	1.0
24.93	7.60	5.4	0.07	1.3	0.986	0.466	2.6	2.6	0.318	-9999.0	-9999.0	1.1
25.10	7.65	6.3	0.07	1.1	0.990	0.471	3.0	3.0	0.385	-9999.0	-9999.0	1.3
25.26	7.70	8.4	0.11	1.3	0.994	0.477	4.0	4.0	0.555	-9999.0	-9999.0	2.0
25.43	7.75	10.1	0.13	1.3	0.998	0.482	4.8	4.8	0.689	-9999.0	-9999.0	2.7
25.59	7.80	12.3	0.12	1.0	1.003	0.487	4.7	4.7	0.868	30.0	30.0	3.7
25.75	7.85	18.5	0.20	1.1	1.007	0.492	7.1	7.0	1.356	30.0	32.0	7.2
25.92	7.90	14.0	0.14	1.0	1.011	0.497	5.4	5.3	0.997	30.0	30.0	4.5
26.08	7.95	13.3	0.18	1.4	1.015	0.502	5.1	5.0	0.940	30.0	30.0	4.1
26.25	8.00	10.3	0.24	2.3	1.020	0.507	4.9	4.9	0.705	-9999.0	-9999.0	2.7
26.41	8.05	8.5	0.25	3.0	1.024	0.512	5.4	5.3	0.553	-9999.0	-9999.0	1.9
26.57	8.10	14.3	0.28	2.0	1.028	0.518	6.9	6.8	1.023	-9999.0	-9999.0	4.5
26.74	8.15	26.8	0.44	1.6	1.033	0.523	10.3	10.1	2.023	30.0	34.0	10.0
26.90	8.20	31.3	0.45	1.4	1.037	0.528	12.0	11.8	2.380	32.9	36.0	10.0
27.07	8.25	62.7	0.33	0.5	1.041	0.533	15.0	14.7	-104.410	52.7	40.0	-9999.0
27.23	8.30	69.5	0.60	0.9	1.046	0.538	16.6	16.3	-104.410	55.6	40.0	-9999.0
27.39	8.35	37.7	0.66	1.8	1.051	0.543	14.4	14.1	2.887	38.0	38.0	10.0
27.56	8.40	24.5	0.54	2.2	1.055	0.548	9.4	9.1	1.829	30.0	34.0	10.0
27.72	8.45	17.6	0.45	2.6	1.059	0.553	8.4	8.2	1.282	-9999.0	-9999.0	6.1
27.89	8.50	18.2	0.32	1.8	1.064	0.558	7.0	6.8	1.328	30.0	32.0	6.4
28.05	8.55	17.5	0.28	1.6	1.068	0.564	6.7	6.5	1.273	30.0	32.0	6.0
28.21	8.60	15.5	0.35	2.3	1.072	0.569	7.4	7.2	1.109	-9999.0	-9999.0	4.8
28.38	8.65	14.4	0.40	2.8	1.076	0.574	6.9	6.6	1.017	-9999.0	-9999.0	4.2
28.54	8.70	13.5	0.37	2.8	1.081	0.579	6.5	6.2	0.945	-9999.0	-9999.0	3.7

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
28.71	8.75	14.9	0.31	2.1	1.085	0.584	7.1	6.8	1.057	-9999.0	-9999.0	4.4
28.87	8.80	14.9	0.34	2.3	1.089	0.589	7.1	6.8	1.056	-9999.0	-9999.0	4.3
29.04	8.85	18.4	0.37	2.0	1.093	0.594	7.0	6.7	1.336	30.0	32.0	6.2
29.20	8.90	19.4	0.39	2.0	1.098	0.599	7.4	7.1	1.418	30.0	32.0	6.7
29.36	8.95	22.1	0.45	2.0	1.102	0.605	8.5	8.1	1.631	30.0	32.0	8.3
29.53	9.00	24.5	0.49	2.0	1.106	0.610	9.4	8.9	1.823	30.0	34.0	9.9
29.69	9.05	33.9	0.50	1.5	1.111	0.615	10.8	10.3	-104.410	34.1	36.0	-9999.0
29.86	9.10	39.0	0.51	1.3	1.115	0.620	12.5	11.8	-104.410	38.1	36.0	-9999.0
30.02	9.15	42.4	0.51	1.2	1.120	0.625	13.5	12.8	-104.410	40.4	38.0	-9999.0
30.18	9.20	45.7	0.48	1.1	1.124	0.630	14.6	13.8	-104.410	42.5	38.0	-9999.0
30.35	9.25	48.1	0.49	1.0	1.129	0.635	15.4	14.5	-104.410	43.9	38.0	-9999.0
30.51	9.30	49.8	0.42	0.8	1.133	0.640	15.9	14.9	-104.410	44.8	38.0	-9999.0
30.68	9.35	49.4	0.26	0.5	1.138	0.646	11.8	11.1	-104.410	44.6	38.0	-9999.0
30.84	9.40	52.0	0.21	0.4	1.143	0.651	12.5	11.7	-104.410	46.0	38.0	-9999.0
31.00	9.45	52.9	0.23	0.4	1.148	0.656	12.7	11.8	-104.410	46.5	38.0	-9999.0
31.17	9.50	51.0	0.27	0.5	1.152	0.661	12.2	11.4	-104.410	45.3	38.0	-9999.0
31.33	9.55	45.8	0.26	0.6	1.157	0.666	11.0	10.2	-104.410	42.2	38.0	-9999.0
31.50	9.60	41.2	0.23	0.6	1.162	0.671	13.1	12.2	-104.410	39.1	36.0	-9999.0
31.66	9.65	36.3	0.21	0.6	1.166	0.676	11.6	10.7	-104.410	35.4	36.0	-9999.0
31.82	9.70	34.6	0.17	0.5	1.171	0.681	11.1	10.2	-104.410	34.0	36.0	-9999.0
31.99	9.75	34.7	0.17	0.5	1.176	0.687	11.1	10.2	-104.410	34.0	36.0	-9999.0
32.15	9.80	32.9	0.19	0.6	1.180	0.692	10.5	9.7	-104.410	32.4	36.0	-9999.0
32.32	9.85	27.6	0.19	0.7	1.185	0.697	8.8	8.1	-104.410	30.0	34.0	-9999.0
32.48	9.90	25.1	0.26	1.0	1.189	0.702	8.0	7.4	-104.410	30.0	34.0	-9999.0
32.64	9.95	23.3	0.34	1.5	1.194	0.707	8.9	8.2	1.713	30.0	32.0	8.0
32.81	10.00	22.5	0.36	1.6	1.198	0.712	8.6	7.9	1.650	30.0	32.0	7.5
32.97	10.05	20.2	0.52	2.6	1.202	0.717	9.7	8.8	1.466	-9999.0	-9999.0	6.2
33.14	10.10	29.5	0.41	1.4	1.206	0.722	11.3	10.3	2.207	30.0	34.0	10.0
33.30	10.15	47.0	0.32	0.7	1.211	0.727	11.3	10.2	-104.410	42.3	38.0	-9999.0
33.46	10.20	49.8	0.25	0.5	1.216	0.733	11.9	10.8	-104.410	43.9	38.0	-9999.0
33.63	10.25	53.0	0.23	0.4	1.221	0.738	12.7	11.5	-104.410	45.6	38.0	-9999.0
33.79	10.30	51.3	0.23	0.4	1.225	0.743	12.3	11.1	-104.410	44.6	38.0	-9999.0
33.96	10.35	51.1	0.20	0.4	1.230	0.748	12.2	11.0	-104.410	44.4	38.0	-9999.0
34.12	10.40	51.5	0.25	0.5	1.235	0.753	12.3	11.1	-104.410	44.6	38.0	-9999.0
34.28	10.45	56.3	0.29	0.5	1.240	0.758	13.5	12.1	-104.410	47.1	38.0	-9999.0
34.45	10.50	64.9	0.24	0.4	1.245	0.763	15.5	13.9	-104.410	51.1	38.0	-9999.0
34.61	10.55	67.6	0.23	0.3	1.249	0.768	16.2	14.5	-104.410	52.3	40.0	-9999.0
34.78	10.60	50.8	0.48	0.9	1.254	0.774	16.2	14.5	-104.410	44.0	38.0	-9999.0
34.94	10.65	27.8	0.63	2.3	1.258	0.779	10.7	9.5	2.065	30.0	34.0	9.8
35.10	10.70	18.5	0.45	2.4	1.263	0.784	8.8	7.9	1.313	-9999.0	-9999.0	4.8
35.27	10.75	17.5	0.17	1.0	1.267	0.789	6.7	6.0	1.236	30.0	30.0	4.4
35.43	10.80	21.3	0.22	1.0	1.271	0.794	8.2	7.2	1.539	30.0	32.0	6.1
35.60	10.85	39.7	0.22	0.6	1.276	0.799	12.7	11.2	-104.410	36.7	36.0	-9999.0
35.76	10.90	50.2	0.18	0.4	1.280	0.804	12.0	10.6	-104.410	43.3	38.0	-9999.0
35.92	10.95	51.2	0.11	0.2	1.285	0.809	12.2	10.8	-104.410	43.8	38.0	-9999.0
36.09	11.00	32.2	0.14	0.4	1.290	0.815	10.3	9.1	-104.410	30.5	34.0	-9999.0
36.25	11.05	17.9	0.13	0.7	1.294	0.820	6.8	6.0	1.259	30.0	30.0	4.4
36.42	11.10	13.7	0.08	0.6	1.298	0.825	5.3	4.6	0.927	30.0	30.0	2.8
36.58	11.15	9.3	0.09	1.0	1.303	0.830	4.5	3.9	0.575	-9999.0	-9999.0	1.5
36.74	11.20	9.4	0.07	0.7	1.307	0.835	3.6	3.1	0.580	30.0	30.0	1.5
36.91	11.25	10.0	0.07	0.7	1.311	0.840	3.8	3.3	0.626	30.0	30.0	1.6
37.07	11.30	9.9	0.09	0.9	1.316	0.845	4.8	4.1	0.622	-9999.0	-9999.0	1.6
37.24	11.35	10.8	0.11	1.0	1.320	0.850	4.2	3.6	0.694	30.0	30.0	1.9
37.40	11.40	10.2	0.12	1.2	1.324	0.856	4.9	4.2	0.638	-9999.0	-9999.0	1.7
37.57	11.45	10.6	0.23	2.2	1.328	0.861	5.1	4.4	0.674	-9999.0	-9999.0	1.8
37.73	11.50	11.2	0.20	1.8	1.333	0.866	5.4	4.6	0.720	-9999.0	-9999.0	1.9
37.89	11.55	10.1	0.26	2.6	1.337	0.871	4.8	4.2	0.632	-9999.0	-9999.0	1.6
38.06	11.60	9.6	0.27	2.8	1.341	0.876	6.1	5.3	0.591	-9999.0	-9999.0	1.5
38.22	11.65	12.3	0.24	2.0	1.345	0.881	5.9	5.1	0.805	-9999.0	-9999.0	2.2
38.39	11.70	10.8	0.22	2.0	1.350	0.886	5.2	4.5	0.687	-9999.0	-9999.0	1.8
38.55	11.75	9.5	0.20	2.1	1.354	0.891	4.6	3.9	0.584	-9999.0	-9999.0	1.5
38.71	11.80	10.8	0.23	2.1	1.358	0.897	5.2	4.5	0.687	-9999.0	-9999.0	1.8
38.88	11.85	12.9	0.37	2.9	1.363	0.902	6.2	5.3	0.848	-9999.0	-9999.0	2.3
39.04	11.90	16.1	0.45	2.8	1.367	0.907	7.7	6.6	1.104	-9999.0	-9999.0	3.3

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
39.21	11.95	24.6	0.70	2.9	1.371	0.912	11.8	10.1	1.785	-9999.0	-9999.0	6.8
39.37	12.00	23.5	0.70	3.0	1.375	0.917	11.3	9.6	1.698	-9999.0	-9999.0	6.3
39.53	12.05	23.5	0.66	2.8	1.380	0.922	11.2	9.6	1.695	-9999.0	-9999.0	6.2
39.70	12.10	23.4	0.52	2.2	1.384	0.927	9.0	7.6	1.688	30.0	32.0	6.2
39.86	12.15	19.3	0.46	2.4	1.388	0.932	9.2	7.8	1.355	-9999.0	-9999.0	4.4
40.03	12.20	14.3	0.34	2.4	1.393	0.937	6.9	5.8	0.960	-9999.0	-9999.0	2.7
40.19	12.25	11.6	0.31	2.7	1.397	0.943	5.5	4.7	0.740	-9999.0	-9999.0	1.9
40.35	12.30	11.1	0.33	3.0	1.401	0.948	7.1	6.0	0.704	-9999.0	-9999.0	1.7
40.52	12.35	14.9	0.31	2.1	1.405	0.953	7.1	6.0	1.000	-9999.0	-9999.0	2.8
40.68	12.40	15.9	0.32	2.0	1.410	0.958	7.6	6.4	1.082	-9999.0	-9999.0	3.1
40.85	12.45	13.2	0.37	2.8	1.414	0.963	6.3	5.3	0.862	-9999.0	-9999.0	2.2
41.01	12.50	20.2	0.50	2.5	1.418	0.968	9.7	8.1	1.425	-9999.0	-9999.0	4.6
41.17	12.55	18.3	0.40	2.2	1.422	0.973	8.7	7.3	1.270	-9999.0	-9999.0	3.8
41.34	12.60	13.3	0.38	2.9	1.427	0.978	6.4	5.3	0.870	-9999.0	-9999.0	2.2
41.50	12.65	12.2	0.36	3.0	1.431	0.984	7.8	6.5	0.782	-9999.0	-9999.0	1.9
41.67	12.70	12.3	0.42	3.4	1.435	0.989	7.9	6.6	0.792	-9999.0	-9999.0	2.0
41.83	12.75	9.6	0.42	4.4	1.439	0.994	9.2	7.7	0.576	-9999.0	-9999.0	1.3
41.99	12.80	9.2	0.40	4.4	1.443	0.999	8.8	7.3	0.539	-9999.0	-9999.0	1.2
42.16	12.85	9.1	0.40	4.4	1.447	1.004	8.7	7.3	0.534	-9999.0	-9999.0	1.2
42.32	12.90	10.3	0.39	3.8	1.451	1.009	9.9	8.2	0.626	-9999.0	-9999.0	1.5
42.49	12.95	11.4	0.38	3.3	1.456	1.014	7.3	6.1	0.718	-9999.0	-9999.0	1.7
42.65	13.00	13.9	0.43	3.1	1.460	1.019	6.7	5.5	0.913	-9999.0	-9999.0	2.3
42.81	13.05	14.8	0.41	2.8	1.464	1.025	7.1	5.9	0.985	-9999.0	-9999.0	2.6
42.98	13.10	14.1	0.43	3.1	1.468	1.030	6.8	5.6	0.928	-9999.0	-9999.0	2.4
43.14	13.15	14.3	0.53	3.7	1.473	1.035	9.1	7.5	0.943	-9999.0	-9999.0	2.4
43.31	13.20	14.4	0.56	3.9	1.477	1.040	9.2	7.5	0.948	-9999.0	-9999.0	2.4
43.47	13.25	10.7	0.56	5.2	1.481	1.045	10.3	8.4	0.655	-9999.0	-9999.0	1.5
43.63	13.30	9.2	0.46	5.0	1.485	1.050	8.8	7.2	0.532	-9999.0	-9999.0	1.2
43.80	13.35	9.0	0.37	4.1	1.489	1.055	8.7	7.1	0.520	-9999.0	-9999.0	1.2
43.96	13.40	7.2	0.34	4.7	1.493	1.060	6.9	5.7	0.373	-9999.0	-9999.0	0.9
44.13	13.45	7.0	0.38	5.4	1.497	1.066	6.7	5.5	0.355	-9999.0	-9999.0	0.8
44.29	13.50	9.3	0.42	4.5	1.501	1.071	8.9	7.3	0.539	-9999.0	-9999.0	1.2
44.45	13.55	12.3	0.45	3.7	1.505	1.076	7.9	6.4	0.779	-9999.0	-9999.0	1.8
44.62	13.60	15.0	0.52	3.5	1.510	1.081	9.6	7.8	0.996	-9999.0	-9999.0	2.5
44.78	13.65	17.9	0.52	2.9	1.514	1.086	8.6	7.0	1.227	-9999.0	-9999.0	3.3
44.95	13.70	21.6	0.53	2.5	1.518	1.091	10.3	8.4	1.517	-9999.0	-9999.0	4.5
45.11	13.75	23.5	0.43	1.8	1.522	1.096	9.0	7.3	1.670	30.0	32.0	5.2
45.28	13.80	20.0	0.49	2.5	1.527	1.101	9.6	7.8	1.393	-9999.0	-9999.0	4.0
45.44	13.85	21.7	0.72	3.3	1.531	1.107	10.4	8.4	1.528	-9999.0	-9999.0	4.5
45.60	13.90	23.9	0.75	3.1	1.535	1.112	11.5	9.2	1.702	-9999.0	-9999.0	5.3
45.77	13.95	40.8	0.99	2.4	1.540	1.117	15.6	12.6	3.053	34.8	34.0	10.0
45.93	14.00	153.6	1.30	0.8	1.544	1.122	29.4	23.7	-104.410	72.7	42.0	-9999.0
46.10	14.05	188.9	2.40	1.3	1.549	1.127	36.2	29.1	-104.410	78.6	42.0	-9999.0
46.26	14.10	237.9	3.92	1.6	1.554	1.132	57.0	45.7	-104.410	85.2	44.0	-9999.0
46.42	14.15	204.3	3.91	1.9	1.559	1.137	48.9	39.2	-104.410	80.8	44.0	-9999.0
46.59	14.20	209.4	3.42	1.6	1.564	1.142	50.1	40.1	-104.410	81.4	44.0	-9999.0
46.75	14.25	180.6	3.30	1.8	1.569	1.147	43.2	34.5	-104.410	77.1	42.0	-9999.0
46.92	14.30	121.4	3.00	2.5	1.573	1.153	38.7	30.9	-104.410	65.7	40.0	-9999.0
47.08	14.35	88.9	2.68	3.0	1.578	1.158	34.1	27.1	6.894	56.8	40.0	10.0
47.24	14.40	75.0	2.54	3.4	1.582	1.163	28.7	22.9	5.784	51.9	38.0	10.0
47.41	14.45	81.1	2.56	3.2	1.586	1.168	31.1	24.7	6.266	54.0	38.0	10.0
47.57	14.50	80.0	3.05	3.8	1.591	1.173	38.3	30.4	6.179	-9999.0	-9999.0	10.0
47.74	14.55	81.6	3.46	4.2	1.595	1.178	39.1	31.0	6.310	-9999.0	-9999.0	10.0
47.90	14.60	82.2	3.64	4.4	1.599	1.183	39.4	31.1	6.355	-9999.0	-9999.0	10.0
48.06	14.65	78.2	3.58	4.6	1.604	1.188	74.9	59.2	-104.410	52.8	38.0	-9999.0
48.23	14.70	76.5	3.40	4.4	1.609	1.194	36.7	28.9	5.900	-9999.0	-9999.0	10.0
48.39	14.75	87.0	3.61	4.1	1.613	1.199	41.6	32.8	6.733	-9999.0	-9999.0	10.0
48.56	14.80	93.4	3.62	3.9	1.617	1.204	44.7	35.2	7.244	-9999.0	-9999.0	10.0
48.72	14.85	96.5	3.57	3.7	1.622	1.209	37.0	29.0	7.495	58.7	40.0	10.0
48.88	14.90	116.3	3.88	3.3	1.626	1.214	44.5	34.9	9.075	64.0	40.0	10.0
49.05	14.95	117.8	4.43	3.8	1.630	1.219	45.1	35.3	9.196	64.3	40.0	10.0
49.21	15.00	109.5	4.47	4.1	1.635	1.224	104.8	82.0	-104.410	62.2	40.0	-9999.0
49.38	15.05	111.2	4.53	4.1	1.641	1.229	106.5	83.1	-104.410	62.6	40.0	-9999.0
49.54	15.10	111.4	4.58	4.1	1.646	1.235	106.7	83.2	-104.410	62.6	40.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
49.70	15.15	102.4	4.83	4.7	1.652	1.240	98.1	76.3	-104.410	60.2	40.0	-9999.0
49.87	15.20	100.2	4.80	4.8	1.658	1.245	96.0	74.6	-104.410	59.5	40.0	-9999.0
50.03	15.25	104.2	4.62	4.4	1.663	1.250	99.7	77.3	-104.410	60.5	40.0	-9999.0
50.20	15.30	98.9	4.67	4.7	1.669	1.255	94.7	73.3	-104.410	59.0	40.0	-9999.0
50.36	15.35	94.8	4.41	4.7	1.674	1.260	90.7	70.1	-104.410	57.7	40.0	-9999.0
50.52	15.40	96.0	4.30	4.5	1.680	1.265	91.9	70.9	-104.410	58.0	40.0	-9999.0
50.69	15.45	95.1	4.48	4.7	1.685	1.270	91.1	70.2	-104.410	57.7	40.0	-9999.0
50.85	15.50	93.1	4.48	4.8	1.691	1.276	89.2	68.6	-104.410	57.1	40.0	-9999.0
51.02	15.55	100.4	4.48	4.5	1.697	1.281	96.2	73.8	-104.410	59.2	40.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1753-1640
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-21
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/19/08
CPT Time: 07:32
CPT File: 390CP21.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 3.05 (ft): 10.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	20.9	0.02	0.1	0.010	0.000	6.7	13.3	-104.410	88.2	50.0	-9999.0
0.33	0.10	32.0	0.13	0.4	0.019	0.000	10.2	20.5	-104.410	90.6	50.0	-9999.0
0.49	0.15	95.8	0.35	0.4	0.029	0.000	18.4	36.7	-104.410	95.0	50.0	-9999.0
0.66	0.20	111.7	0.46	0.4	0.039	0.000	21.4	42.8	-104.410	95.0	50.0	-9999.0
0.82	0.25	121.7	0.44	0.4	0.050	0.000	23.3	46.6	-104.410	95.0	50.0	-9999.0
0.98	0.30	96.8	0.48	0.5	0.060	0.000	18.5	37.1	-104.410	95.0	50.0	-9999.0
1.15	0.35	73.2	0.57	0.8	0.070	0.000	17.5	35.1	-104.410	95.0	50.0	-9999.0
1.31	0.40	55.0	0.82	1.5	0.080	0.000	17.6	35.1	-104.410	85.8	50.0	-9999.0
1.48	0.45	43.8	1.21	2.8	0.089	0.000	16.8	33.5	3.494	77.6	48.0	10.0
1.64	0.50	38.8	1.55	4.0	0.099	0.000	18.6	37.1	3.095	-9999.0	-9999.0	10.0
1.80	0.55	35.6	1.82	5.1	0.108	0.000	34.1	68.2	2.840	-9999.0	-9999.0	10.0
1.97	0.60	37.6	1.72	4.6	0.117	0.000	24.0	48.1	3.002	-9999.0	-9999.0	10.0
2.13	0.65	43.3	1.72	4.0	0.126	0.000	20.7	41.4	3.451	-9999.0	-9999.0	10.0
2.30	0.70	45.3	1.68	3.7	0.136	0.000	21.7	43.4	3.613	-9999.0	-9999.0	10.0
2.46	0.75	37.0	1.61	4.4	0.145	0.000	23.6	47.2	2.949	-9999.0	-9999.0	10.0
2.62	0.80	45.2	1.96	4.3	0.155	0.000	28.9	57.8	3.607	-9999.0	-9999.0	10.0
2.79	0.85	70.0	2.31	3.3	0.164	0.000	26.8	53.6	5.588	82.3	48.0	10.0
2.95	0.90	90.4	2.51	2.8	0.173	0.000	34.6	69.3	7.219	88.9	48.0	10.0
3.12	0.95	81.0	2.51	3.1	0.183	0.000	31.0	62.1	6.467	85.0	48.0	10.0
3.28	1.00	63.6	2.21	3.5	0.192	0.000	24.4	48.8	5.075	77.3	48.0	10.0
3.44	1.05	59.2	1.99	3.4	0.202	0.000	22.7	45.4	4.721	74.6	46.0	10.0
3.61	1.10	58.9	2.05	3.5	0.211	0.000	28.2	56.4	4.695	-9999.0	-9999.0	10.0
3.77	1.15	53.5	2.18	4.1	0.220	0.000	25.6	51.3	4.264	-9999.0	-9999.0	10.0
3.94	1.20	79.6	2.82	3.5	0.230	0.000	30.5	61.0	6.349	81.2	48.0	10.0
4.10	1.25	178.3	3.05	1.7	0.240	0.000	42.7	85.4	-104.410	95.0	50.0	-9999.0
4.27	1.30	233.3	3.74	1.6	0.249	0.000	55.9	111.7	-104.410	95.0	50.0	-9999.0
4.43	1.35	256.4	3.98	1.6	0.259	0.000	61.4	120.5	-104.410	95.0	50.0	-9999.0
4.59	1.40	268.4	4.40	1.6	0.269	0.000	64.3	123.8	-104.410	95.0	50.0	-9999.0
4.76	1.45	211.8	4.67	2.2	0.279	0.000	67.6	128.0	-104.410	95.0	50.0	-9999.0
4.92	1.50	149.9	4.81	3.2	0.289	0.000	57.4	106.9	11.967	95.0	48.0	10.0
5.09	1.55	122.7	4.67	3.8	0.298	0.000	47.0	86.1	9.795	89.9	48.0	10.0
5.25	1.60	119.5	4.11	3.4	0.307	0.000	45.8	82.6	9.539	88.7	48.0	10.0
5.41	1.65	136.1	3.70	2.7	0.317	0.000	43.5	77.2	-104.410	92.0	48.0	-9999.0
5.58	1.70	180.3	3.01	1.7	0.327	0.000	43.2	75.5	-104.410	95.0	50.0	-9999.0
5.74	1.75	248.7	2.68	1.1	0.337	0.000	47.6	82.1	-104.410	95.0	50.0	-9999.0
5.91	1.80	289.1	2.52	0.9	0.347	0.000	55.4	94.0	-104.410	95.0	50.0	-9999.0
6.07	1.85	258.1	2.32	0.9	0.357	0.000	49.4	82.7	-104.410	95.0	50.0	-9999.0
6.23	1.90	232.5	2.42	1.0	0.367	0.000	44.5	73.5	-104.410	95.0	50.0	-9999.0
6.40	1.95	207.3	2.33	1.1	0.377	0.000	39.7	64.6	-104.410	95.0	50.0	-9999.0
6.56	2.00	183.1	2.36	1.3	0.388	0.000	43.8	70.4	-104.410	95.0	48.0	-9999.0
6.73	2.05	170.2	2.02	1.2	0.398	0.000	32.6	51.7	-104.410	95.0	48.0	-9999.0
6.89	2.10	162.3	1.79	1.1	0.408	0.000	31.1	48.7	-104.410	93.4	48.0	-9999.0
7.05	2.15	155.4	1.58	1.0	0.418	0.000	29.8	46.0	-104.410	91.8	48.0	-9999.0
7.22	2.20	148.2	1.40	0.9	0.428	0.000	28.4	43.4	-104.410	90.1	48.0	-9999.0
7.38	2.25	141.7	1.35	1.0	0.438	0.000	27.1	41.0	-104.410	88.5	48.0	-9999.0
7.55	2.30	134.0	1.20	0.9	0.448	0.000	25.7	38.3	-104.410	86.5	46.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	124.2	1.02	0.8	0.459	0.000	23.8	35.1	-104.410	84.0	46.0	-9999.0
7.87	2.40	118.5	0.89	0.8	0.469	0.000	22.7	33.1	-104.410	82.4	46.0	-9999.0
8.04	2.45	112.1	0.78	0.7	0.479	0.000	21.5	31.0	-104.410	80.5	46.0	-9999.0
8.20	2.50	106.7	0.74	0.7	0.489	0.000	20.4	29.2	-104.410	78.8	46.0	-9999.0
8.37	2.55	103.6	0.70	0.7	0.499	0.000	19.8	28.1	-104.410	77.6	46.0	-9999.0
8.53	2.60	98.2	0.68	0.7	0.509	0.000	23.5	32.9	-104.410	75.8	44.0	-9999.0
8.69	2.65	89.8	0.65	0.7	0.519	0.000	21.5	29.8	-104.410	73.0	44.0	-9999.0
8.86	2.70	89.9	0.62	0.7	0.529	0.000	21.5	29.6	-104.410	72.7	44.0	-9999.0
9.02	2.75	89.3	0.52	0.6	0.539	0.000	21.4	29.1	-104.410	72.3	44.0	-9999.0
9.19	2.80	83.8	0.47	0.6	0.549	0.000	20.1	27.1	-104.410	70.2	44.0	-9999.0
9.35	2.85	78.7	0.46	0.6	0.559	0.000	18.8	25.2	-104.410	68.1	44.0	-9999.0
9.51	2.90	74.7	0.41	0.5	0.569	0.000	17.9	23.7	-104.410	66.4	44.0	-9999.0
9.68	2.95	70.6	0.39	0.6	0.579	0.000	16.9	22.2	-104.410	64.5	42.0	-9999.0
9.84	3.00	68.2	0.39	0.6	0.589	0.000	16.3	21.3	-104.410	63.3	42.0	-9999.0
10.01	3.05	65.5	0.47	0.7	0.599	0.000	15.7	20.3	-104.410	61.9	42.0	-9999.0
10.17	3.10	63.2	0.50	0.8	0.603	0.005	15.1	19.5	-104.410	60.8	42.0	-9999.0
10.33	3.15	65.3	0.51	0.8	0.608	0.010	15.6	20.0	-104.410	61.6	42.0	-9999.0
10.50	3.20	62.3	0.50	0.8	0.613	0.016	14.9	19.0	-104.410	60.1	42.0	-9999.0
10.66	3.25	60.3	0.45	0.7	0.618	0.021	14.4	18.4	-104.410	59.1	42.0	-9999.0
10.83	3.30	56.1	0.40	0.7	0.623	0.026	13.4	17.0	-104.410	56.9	42.0	-9999.0
10.99	3.35	55.7	0.35	0.6	0.627	0.031	13.3	16.8	-104.410	56.6	42.0	-9999.0
11.15	3.40	53.1	0.33	0.6	0.632	0.036	12.7	16.0	-104.410	55.1	42.0	-9999.0
11.32	3.45	53.8	0.33	0.6	0.637	0.041	12.9	16.2	-104.410	55.4	42.0	-9999.0
11.48	3.50	54.2	0.30	0.6	0.642	0.046	13.0	16.2	-104.410	55.4	42.0	-9999.0
11.65	3.55	52.2	0.28	0.5	0.646	0.051	12.5	15.6	-104.410	54.3	42.0	-9999.0
11.81	3.60	50.3	0.28	0.6	0.651	0.057	12.0	14.9	-104.410	53.1	40.0	-9999.0
11.97	3.65	53.0	0.29	0.5	0.656	0.062	12.7	15.7	-104.410	54.5	42.0	-9999.0
12.14	3.70	56.4	0.27	0.5	0.661	0.067	13.5	16.6	-104.410	56.2	42.0	-9999.0
12.30	3.75	54.0	0.12	0.2	0.666	0.072	12.9	15.9	-104.410	54.8	42.0	-9999.0
12.47	3.80	52.1	0.18	0.3	0.670	0.077	12.5	15.2	-104.410	53.7	40.0	-9999.0
12.63	3.85	70.3	0.26	0.4	0.675	0.082	16.8	20.5	-104.410	62.2	42.0	-9999.0
12.80	3.90	84.6	0.34	0.4	0.680	0.087	20.3	24.6	-104.410	67.4	42.0	-9999.0
12.96	3.95	95.4	0.42	0.4	0.685	0.092	18.3	22.1	-104.410	70.7	44.0	-9999.0
13.12	4.00	100.2	0.47	0.5	0.690	0.098	19.2	23.1	-104.410	72.0	44.0	-9999.0
13.29	4.05	101.5	0.51	0.5	0.695	0.103	19.4	23.3	-104.410	72.3	44.0	-9999.0
13.45	4.10	102.0	0.51	0.5	0.700	0.108	19.5	23.3	-104.410	72.3	44.0	-9999.0
13.62	4.15	108.0	0.53	0.5	0.705	0.113	20.7	24.6	-104.410	73.9	44.0	-9999.0
13.78	4.20	112.9	0.55	0.5	0.710	0.118	21.6	25.7	-104.410	75.0	44.0	-9999.0
13.94	4.25	114.2	0.57	0.5	0.715	0.123	21.9	25.9	-104.410	75.3	44.0	-9999.0
14.11	4.30	110.9	0.57	0.5	0.720	0.128	21.2	25.0	-104.410	74.3	44.0	-9999.0
14.27	4.35	105.1	0.58	0.6	0.725	0.133	20.1	23.6	-104.410	72.7	44.0	-9999.0
14.44	4.40	98.8	0.53	0.5	0.731	0.138	18.9	22.1	-104.410	70.8	44.0	-9999.0
14.60	4.45	94.2	0.49	0.5	0.736	0.144	18.0	21.0	-104.410	69.4	44.0	-9999.0
14.76	4.50	86.7	0.43	0.5	0.741	0.149	20.8	24.1	-104.410	66.9	42.0	-9999.0
14.93	4.55	75.0	0.41	0.5	0.745	0.154	18.0	20.8	-104.410	62.6	42.0	-9999.0
15.09	4.60	50.1	0.50	1.0	0.750	0.159	16.0	18.5	-104.410	51.0	40.0	-9999.0
15.26	4.65	30.3	0.56	1.9	0.754	0.164	11.6	13.4	2.354	36.5	38.0	10.0
15.42	4.70	16.2	0.54	3.3	0.759	0.169	10.4	11.9	1.224	-9999.0	-9999.0	9.6
15.58	4.75	13.2	0.30	2.3	0.763	0.174	6.3	7.2	0.978	-9999.0	-9999.0	6.7
15.75	4.80	11.1	0.23	2.1	0.767	0.179	5.3	6.1	0.814	-9999.0	-9999.0	5.0
15.91	4.85	11.6	0.21	1.8	0.772	0.185	5.5	6.3	0.848	-9999.0	-9999.0	5.3
16.08	4.90	9.6	0.18	1.9	0.776	0.190	4.6	5.2	0.690	-9999.0	-9999.0	3.8
16.24	4.95	8.7	0.18	2.1	0.780	0.195	4.2	4.7	0.620	-9999.0	-9999.0	3.2
16.40	5.00	9.4	0.13	1.4	0.784	0.200	4.5	5.1	0.672	-9999.0	-9999.0	3.6
16.57	5.05	17.4	0.16	0.9	0.789	0.205	6.7	7.5	1.312	30.0	34.0	10.0
16.73	5.10	14.5	0.22	1.5	0.793	0.210	5.6	6.2	1.081	30.0	32.0	7.3
16.90	5.15	11.2	0.31	2.8	0.797	0.215	7.1	8.0	0.813	-9999.0	-9999.0	4.7
17.06	5.20	10.1	0.27	2.7	0.801	0.220	6.5	7.2	0.728	-9999.0	-9999.0	3.9
17.22	5.25	13.7	0.20	1.5	0.806	0.226	5.2	5.8	1.012	30.0	32.0	6.5
17.39	5.30	15.4	0.15	1.0	0.810	0.231	5.9	6.6	1.151	30.0	32.0	7.8
17.55	5.35	11.4	0.17	1.5	0.814	0.236	5.4	6.0	0.825	-9999.0	-9999.0	4.6
17.72	5.40	8.7	0.20	2.3	0.819	0.241	4.1	4.6	0.608	-9999.0	-9999.0	2.9
17.88	5.45	12.3	0.17	1.4	0.823	0.246	5.9	6.5	0.898	-9999.0	-9999.0	5.2
18.04	5.50	22.7	0.09	0.4	0.827	0.251	7.3	8.0	-104.410	30.0	36.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	30.4	0.10	0.3	0.832	0.256	9.7	10.7	-104.410	35.2	38.0	-9999.0
18.37	5.60	19.6	0.18	0.9	0.836	0.261	7.5	8.2	1.484	30.0	34.0	10.0
18.54	5.65	12.0	0.24	2.0	0.840	0.267	5.8	6.3	0.873	-9999.0	-9999.0	4.8
18.70	5.70	10.7	0.18	1.7	0.845	0.272	5.1	5.6	0.764	-9999.0	-9999.0	3.9
18.86	5.75	20.8	0.17	0.8	0.849	0.277	7.9	8.6	1.570	30.0	34.0	10.0
19.03	5.80	13.7	0.21	1.5	0.853	0.282	5.3	5.7	1.006	30.0	32.0	5.9
19.19	5.85	12.3	0.21	1.7	0.858	0.287	5.9	6.3	0.890	-9999.0	-9999.0	4.8
19.36	5.90	10.3	0.13	1.3	0.862	0.292	4.9	5.3	0.733	-9999.0	-9999.0	3.6
19.52	5.95	8.2	0.09	1.1	0.866	0.297	3.9	4.2	0.563	-9999.0	-9999.0	2.4
19.68	6.00	8.4	0.10	1.2	0.870	0.302	4.0	4.3	0.576	-9999.0	-9999.0	2.5
19.85	6.05	8.5	0.10	1.2	0.875	0.308	4.0	4.3	0.582	-9999.0	-9999.0	2.5
20.01	6.10	9.1	0.13	1.4	0.879	0.313	4.4	4.7	0.635	-9999.0	-9999.0	2.8
20.18	6.15	9.4	0.13	1.4	0.883	0.318	4.5	4.8	0.656	-9999.0	-9999.0	2.9
20.34	6.20	9.3	0.18	1.9	0.887	0.323	4.4	4.7	0.646	-9999.0	-9999.0	2.9
20.50	6.25	10.1	0.25	2.5	0.892	0.328	4.8	5.1	0.712	-9999.0	-9999.0	3.3
20.67	6.30	12.5	0.37	3.0	0.896	0.333	6.0	6.3	0.905	-9999.0	-9999.0	4.6
20.83	6.35	12.5	0.32	2.6	0.900	0.338	6.0	6.3	0.898	-9999.0	-9999.0	4.5
21.00	6.40	10.2	0.25	2.5	0.905	0.343	4.9	5.1	0.717	-9999.0	-9999.0	3.2
21.16	6.45	25.4	0.19	0.8	0.909	0.348	8.1	8.5	-104.410	30.0	36.0	-9999.0
21.33	6.50	26.3	0.36	1.4	0.913	0.354	10.1	10.5	2.000	30.0	36.0	10.0
21.49	6.55	20.3	0.31	1.5	0.918	0.359	7.8	8.1	1.519	30.0	34.0	10.0
21.65	6.60	22.6	0.40	1.8	0.922	0.364	8.6	9.0	1.703	30.0	34.0	10.0
21.82	6.65	21.6	0.59	2.7	0.926	0.369	10.4	10.8	1.628	-9999.0	-9999.0	10.0
21.98	6.70	17.1	0.65	3.8	0.931	0.374	10.9	11.3	1.266	-9999.0	-9999.0	7.3
22.15	6.75	15.6	0.58	3.7	0.935	0.379	10.0	10.3	1.146	-9999.0	-9999.0	6.2
22.31	6.80	12.6	0.41	3.3	0.939	0.384	8.0	8.3	0.901	-9999.0	-9999.0	4.3
22.47	6.85	11.0	0.31	2.8	0.943	0.389	7.0	7.2	0.770	-9999.0	-9999.0	3.4
22.64	6.90	10.4	0.21	2.0	0.948	0.395	5.0	5.1	0.725	-9999.0	-9999.0	3.1
22.80	6.95	10.3	0.18	1.7	0.952	0.400	5.0	5.1	0.720	-9999.0	-9999.0	3.0
22.97	7.00	9.7	0.16	1.6	0.956	0.405	4.7	4.8	0.671	-9999.0	-9999.0	2.7
23.13	7.05	9.4	0.16	1.7	0.960	0.410	4.5	4.6	0.640	-9999.0	-9999.0	2.5
23.29	7.10	9.9	0.14	1.4	0.965	0.415	4.8	4.8	0.684	-9999.0	-9999.0	2.8
23.46	7.15	10.9	0.18	1.6	0.969	0.420	5.2	5.3	0.764	-9999.0	-9999.0	3.2
23.62	7.20	10.9	0.22	2.0	0.973	0.425	5.2	5.3	0.760	-9999.0	-9999.0	3.2
23.79	7.25	11.4	0.22	1.9	0.978	0.430	5.5	5.5	0.801	-9999.0	-9999.0	3.4
23.95	7.30	11.5	0.22	1.9	0.982	0.436	5.5	5.6	0.809	-9999.0	-9999.0	3.4
24.11	7.35	11.7	0.20	1.7	0.986	0.441	5.6	5.7	0.824	-9999.0	-9999.0	3.5
24.28	7.40	11.7	0.23	2.0	0.990	0.446	5.6	5.6	0.822	-9999.0	-9999.0	3.5
24.44	7.45	11.7	0.25	2.1	0.995	0.451	5.6	5.6	0.818	-9999.0	-9999.0	3.4
24.61	7.50	12.9	0.38	2.9	0.999	0.456	6.2	6.2	0.918	-9999.0	-9999.0	4.0
24.77	7.55	34.0	0.52	1.5	1.003	0.461	13.0	13.0	2.603	35.7	36.0	10.0
24.93	7.60	45.1	0.61	1.4	1.008	0.466	14.4	14.3	-104.410	43.7	38.0	-9999.0
25.10	7.65	35.2	0.87	2.5	1.012	0.471	13.5	13.4	2.701	36.6	36.0	10.0
25.26	7.70	35.4	0.85	2.4	1.016	0.477	13.6	13.4	2.711	36.6	36.0	10.0
25.43	7.75	48.2	0.49	1.0	1.021	0.482	15.4	15.2	-104.410	45.4	38.0	-9999.0
25.59	7.80	63.9	0.32	0.5	1.025	0.487	15.3	15.1	-104.410	53.4	40.0	-9999.0
25.75	7.85	68.3	0.34	0.5	1.030	0.492	16.4	16.1	-104.410	55.3	40.0	-9999.0
25.92	7.90	63.5	0.38	0.6	1.035	0.497	15.2	15.0	-104.410	53.2	40.0	-9999.0
26.08	7.95	62.6	0.41	0.7	1.040	0.502	15.0	14.7	-104.410	52.7	40.0	-9999.0
26.25	8.00	62.1	0.49	0.8	1.045	0.507	14.9	14.5	-104.410	52.4	40.0	-9999.0
26.41	8.05	65.1	0.43	0.7	1.049	0.512	15.6	15.2	-104.410	53.6	40.0	-9999.0
26.57	8.10	68.3	0.33	0.5	1.054	0.518	16.4	15.9	-104.410	55.0	40.0	-9999.0
26.74	8.15	61.5	0.28	0.5	1.059	0.523	14.7	14.3	-104.410	51.9	40.0	-9999.0
26.90	8.20	48.8	0.17	0.3	1.064	0.528	11.7	11.3	-104.410	45.2	38.0	-9999.0
27.07	8.25	37.1	0.12	0.3	1.069	0.533	8.9	8.6	-104.410	37.3	36.0	-9999.0
27.23	8.30	27.7	0.10	0.4	1.073	0.538	8.8	8.5	-104.410	30.0	34.0	-9999.0
27.39	8.35	23.5	0.04	0.2	1.078	0.543	7.5	7.2	-104.410	30.0	34.0	-9999.0
27.56	8.40	17.9	0.07	0.4	1.082	0.548	5.7	5.5	-104.410	30.0	32.0	-9999.0
27.72	8.45	11.4	0.09	0.8	1.087	0.553	4.4	4.2	0.781	30.0	30.0	2.8
27.89	8.50	10.7	0.08	0.7	1.091	0.558	4.1	3.9	0.726	30.0	30.0	2.5
28.05	8.55	11.3	0.08	0.7	1.095	0.564	4.3	4.1	0.772	30.0	30.0	2.7
28.21	8.60	11.1	0.11	1.0	1.100	0.569	4.3	4.1	0.756	30.0	30.0	2.6
28.38	8.65	11.4	0.15	1.3	1.104	0.574	5.5	5.2	0.781	-9999.0	-9999.0	2.8
28.54	8.70	13.4	0.23	1.7	1.108	0.579	6.4	6.1	0.940	-9999.0	-9999.0	3.6

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
28.71	8.75	17.2	0.40	2.3	1.112	0.584	8.2	7.8	1.242	-9999.0	-9999.0	5.4
28.87	8.80	19.5	0.72	3.7	1.117	0.589	12.4	11.8	1.421	-9999.0	-9999.0	6.6
29.04	8.85	19.3	0.96	5.0	1.121	0.594	18.5	17.5	1.406	-9999.0	-9999.0	6.4
29.20	8.90	20.4	1.05	5.1	1.125	0.599	19.6	18.5	1.497	-9999.0	-9999.0	7.1
29.36	8.95	23.2	1.05	4.5	1.129	0.605	22.2	20.9	1.717	-9999.0	-9999.0	8.7
29.53	9.00	24.6	1.11	4.5	1.133	0.610	15.7	14.7	1.827	-9999.0	-9999.0	9.6
29.69	9.05	23.2	0.90	3.9	1.137	0.615	14.8	13.9	1.713	-9999.0	-9999.0	8.6
29.86	9.10	19.5	0.68	3.5	1.141	0.620	9.3	8.7	1.420	-9999.0	-9999.0	6.4
30.02	9.15	23.7	0.56	2.4	1.146	0.625	9.1	8.5	1.752	30.0	32.0	8.8
30.18	9.20	27.0	0.52	1.9	1.150	0.630	10.3	9.6	2.016	30.0	34.0	10.0
30.35	9.25	20.1	0.35	1.7	1.154	0.635	7.7	7.2	1.467	30.0	32.0	6.6
30.51	9.30	18.2	0.28	1.5	1.159	0.640	7.0	6.5	1.314	30.0	32.0	5.5
30.68	9.35	27.1	0.26	1.0	1.163	0.646	8.7	8.0	-104.410	30.0	34.0	-9999.0
30.84	9.40	34.7	0.25	0.7	1.168	0.651	11.1	10.3	-104.410	34.1	36.0	-9999.0
31.00	9.45	33.0	0.17	0.5	1.172	0.656	10.5	9.7	-104.410	32.6	36.0	-9999.0
31.17	9.50	23.6	0.14	0.6	1.177	0.661	7.5	7.0	-104.410	30.0	32.0	-9999.0
31.33	9.55	14.5	0.16	1.1	1.181	0.666	5.6	5.1	1.012	30.0	30.0	3.6
31.50	9.60	13.2	0.21	1.6	1.185	0.671	6.3	5.8	0.905	-9999.0	-9999.0	3.1
31.66	9.65	16.0	0.34	2.1	1.190	0.676	7.7	7.0	1.131	-9999.0	-9999.0	4.2
31.82	9.70	16.1	0.52	3.2	1.194	0.681	7.7	7.1	1.141	-9999.0	-9999.0	4.3
31.99	9.75	18.4	0.69	3.8	1.198	0.687	11.7	10.7	1.320	-9999.0	-9999.0	5.3
32.15	9.80	18.2	0.80	4.4	1.202	0.692	17.4	15.9	1.304	-9999.0	-9999.0	5.2
32.32	9.85	16.4	0.91	5.6	1.206	0.697	15.7	14.3	1.157	-9999.0	-9999.0	4.3
32.48	9.90	14.4	0.85	5.9	1.210	0.702	13.8	12.5	0.997	-9999.0	-9999.0	3.4
32.64	9.95	11.9	0.72	6.1	1.214	0.707	11.4	10.3	0.797	-9999.0	-9999.0	2.5
32.81	10.00	11.1	0.58	5.3	1.218	0.712	10.6	9.6	0.730	-9999.0	-9999.0	2.2
32.97	10.05	10.6	0.51	4.8	1.222	0.717	10.1	9.1	0.689	-9999.0	-9999.0	2.0
33.14	10.10	10.4	0.52	5.0	1.226	0.722	10.0	9.0	0.678	-9999.0	-9999.0	2.0
33.30	10.15	11.3	0.56	5.0	1.230	0.727	10.8	9.7	0.745	-9999.0	-9999.0	2.2
33.46	10.20	11.6	0.61	5.3	1.234	0.733	11.1	10.0	0.770	-9999.0	-9999.0	2.3
33.63	10.25	11.8	0.69	5.9	1.238	0.738	11.3	10.1	0.784	-9999.0	-9999.0	2.4
33.79	10.30	13.4	0.72	5.4	1.242	0.743	12.9	11.5	0.916	-9999.0	-9999.0	2.9
33.96	10.35	20.8	0.64	3.1	1.247	0.748	10.0	8.9	1.508	-9999.0	-9999.0	6.1
34.12	10.40	32.1	0.45	1.4	1.251	0.753	10.3	9.2	-104.410	30.9	34.0	-9999.0
34.28	10.45	38.9	0.28	0.7	1.256	0.758	12.4	11.1	-104.410	36.3	36.0	-9999.0
34.45	10.50	44.0	0.17	0.4	1.260	0.763	10.5	9.4	-104.410	39.8	36.0	-9999.0
34.61	10.55	46.2	0.13	0.3	1.265	0.768	11.1	9.8	-104.410	41.2	38.0	-9999.0
34.78	10.60	45.6	0.20	0.4	1.270	0.774	10.9	9.7	-104.410	40.7	38.0	-9999.0
34.94	10.65	44.3	0.27	0.6	1.275	0.779	10.6	9.4	-104.410	39.8	36.0	-9999.0
35.10	10.70	54.6	0.30	0.6	1.279	0.784	13.1	11.6	-104.410	45.8	38.0	-9999.0
35.27	10.75	73.5	0.11	0.1	1.284	0.789	17.6	15.5	-104.410	54.3	40.0	-9999.0
35.43	10.80	90.5	0.18	0.2	1.289	0.794	17.3	15.3	-104.410	60.1	40.0	-9999.0
35.60	10.85	94.0	0.37	0.4	1.294	0.799	18.0	15.8	-104.410	61.2	40.0	-9999.0
35.76	10.90	102.7	0.57	0.6	1.299	0.804	19.7	17.3	-104.410	63.7	42.0	-9999.0
35.92	10.95	98.3	0.68	0.7	1.304	0.809	23.5	20.6	-104.410	62.3	40.0	-9999.0
36.09	11.00	89.2	0.65	0.7	1.309	0.815	21.4	18.7	-104.410	59.5	40.0	-9999.0
36.25	11.05	78.3	0.59	0.8	1.314	0.820	18.8	16.4	-104.410	55.7	40.0	-9999.0
36.42	11.10	69.5	0.53	0.8	1.319	0.825	16.6	14.5	-104.410	52.2	38.0	-9999.0
36.58	11.15	63.3	0.43	0.7	1.323	0.830	15.2	13.2	-104.410	49.5	38.0	-9999.0
36.74	11.20	59.6	0.31	0.5	1.328	0.835	14.3	12.4	-104.410	47.8	38.0	-9999.0
36.91	11.25	57.6	0.23	0.4	1.333	0.840	13.8	12.0	-104.410	46.7	38.0	-9999.0
37.07	11.30	56.3	0.17	0.3	1.338	0.845	13.5	11.7	-104.410	46.0	38.0	-9999.0
37.24	11.35	55.1	0.16	0.3	1.343	0.850	13.2	11.4	-104.410	45.4	38.0	-9999.0
37.40	11.40	53.5	0.18	0.3	1.347	0.856	12.8	11.0	-104.410	44.5	38.0	-9999.0
37.57	11.45	50.2	0.21	0.4	1.352	0.861	12.0	10.3	-104.410	42.6	38.0	-9999.0
37.73	11.50	44.0	0.21	0.5	1.357	0.866	10.5	9.1	-104.410	38.8	36.0	-9999.0
37.89	11.55	37.6	0.21	0.6	1.362	0.871	12.0	10.3	-104.410	34.2	36.0	-9999.0
38.06	11.60	32.4	0.17	0.5	1.366	0.876	10.3	8.9	-104.410	30.0	34.0	-9999.0
38.22	11.65	28.5	0.13	0.5	1.371	0.881	9.1	7.8	-104.410	30.0	34.0	-9999.0
38.39	11.70	22.1	0.09	0.4	1.375	0.886	7.0	6.0	-104.410	30.0	32.0	-9999.0
38.55	11.75	18.4	0.10	0.5	1.380	0.891	5.9	5.0	-104.410	30.0	30.0	-9999.0
38.71	11.80	15.4	0.11	0.7	1.384	0.897	5.9	5.0	1.047	30.0	30.0	3.0
38.88	11.85	17.1	0.13	0.8	1.388	0.902	6.6	5.6	1.188	30.0	30.0	3.6
39.04	11.90	15.2	0.45	3.0	1.393	0.907	7.3	6.2	1.031	-9999.0	-9999.0	2.9

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
39.21	11.95	27.8	1.08	3.9	1.397	0.912	13.3	11.3	2.040	-9999.0	-9999.0	8.2
39.37	12.00	91.7	0.98	1.1	1.402	0.917	21.9	18.5	-104.410	59.3	40.0	-9999.0
39.53	12.05	180.8	1.04	0.6	1.406	0.922	34.6	29.2	-104.410	78.7	44.0	-9999.0
39.70	12.10	67.6	0.91	1.3	1.411	0.927	21.6	18.2	-104.410	50.5	38.0	-9999.0
39.86	12.15	27.6	0.65	2.4	1.416	0.932	10.6	8.9	2.024	30.0	32.0	7.9
40.03	12.20	13.2	0.39	3.0	1.420	0.937	6.3	5.3	0.869	-9999.0	-9999.0	2.3
40.19	12.25	9.3	0.28	3.0	1.424	0.943	5.9	5.0	0.555	-9999.0	-9999.0	1.3
40.35	12.30	9.9	0.14	1.4	1.428	0.948	4.8	4.0	0.604	-9999.0	-9999.0	1.4
40.52	12.35	9.7	0.16	1.6	1.433	0.953	4.7	3.9	0.589	-9999.0	-9999.0	1.4
40.68	12.40	11.4	0.21	1.9	1.437	0.958	5.4	4.5	0.717	-9999.0	-9999.0	1.7
40.85	12.45	13.5	0.23	1.7	1.441	0.963	6.5	5.4	0.886	-9999.0	-9999.0	2.3
41.01	12.50	12.2	0.32	2.6	1.446	0.968	5.9	4.9	0.787	-9999.0	-9999.0	1.9
41.17	12.55	16.3	0.28	1.7	1.450	0.973	6.2	5.2	1.110	30.0	30.0	3.1
41.34	12.60	15.5	0.24	1.6	1.454	0.978	5.9	4.9	1.045	30.0	30.0	2.8
41.50	12.65	11.8	0.20	1.7	1.458	0.984	5.6	4.7	0.747	-9999.0	-9999.0	1.8
41.67	12.70	11.4	0.19	1.7	1.463	0.989	5.5	4.5	0.717	-9999.0	-9999.0	1.7
41.83	12.75	11.4	0.18	1.6	1.467	0.994	5.5	4.5	0.718	-9999.0	-9999.0	1.7
41.99	12.80	14.7	0.31	2.1	1.471	0.999	7.1	5.8	0.981	-9999.0	-9999.0	2.5
42.16	12.85	31.4	0.33	1.1	1.476	1.004	10.0	8.3	-104.410	30.0	34.0	-9999.0
42.32	12.90	28.4	0.32	1.1	1.480	1.009	9.1	7.5	-104.410	30.0	32.0	-9999.0
42.49	12.95	23.9	0.34	1.4	1.485	1.014	9.1	7.5	1.710	30.0	32.0	5.6
42.65	13.00	23.2	0.33	1.4	1.489	1.019	8.9	7.3	1.653	30.0	32.0	5.3
42.81	13.05	21.6	0.39	1.8	1.493	1.025	8.3	6.8	1.530	30.0	32.0	4.7
42.98	13.10	30.9	0.47	1.5	1.497	1.030	11.8	9.7	2.271	30.0	32.0	8.7
43.14	13.15	39.3	0.62	1.6	1.502	1.035	12.6	10.2	-104.410	34.1	34.0	-9999.0
43.31	13.20	38.2	0.67	1.8	1.506	1.040	14.6	11.9	2.849	33.2	34.0	10.0
43.47	13.25	32.9	0.63	1.9	1.511	1.045	12.6	10.2	2.424	30.0	34.0	9.5
43.63	13.30	34.1	0.55	1.6	1.515	1.050	13.1	10.6	2.527	30.0	34.0	10.0
43.80	13.35	44.0	0.51	1.2	1.519	1.055	14.1	11.4	-104.410	37.2	36.0	-9999.0
43.96	13.40	44.0	0.47	1.1	1.524	1.060	14.0	11.4	-104.410	37.1	36.0	-9999.0
44.13	13.45	39.2	0.50	1.3	1.528	1.066	12.5	10.1	-104.410	33.7	34.0	-9999.0
44.29	13.50	32.3	0.39	1.2	1.533	1.071	10.3	8.3	-104.410	30.0	34.0	-9999.0
44.45	13.55	21.5	0.24	1.1	1.537	1.076	8.2	6.6	1.508	30.0	30.0	4.4
44.62	13.60	15.3	0.31	2.0	1.541	1.081	7.3	5.9	1.014	-9999.0	-9999.0	2.5
44.78	13.65	20.7	0.23	1.1	1.546	1.086	7.9	6.4	1.446	30.0	30.0	4.1
44.95	13.70	50.7	0.39	0.8	1.550	1.091	12.1	9.8	-104.410	40.9	36.0	-9999.0
45.11	13.75	33.8	0.76	2.3	1.555	1.096	12.9	10.4	2.491	30.0	34.0	9.5
45.28	13.80	29.1	0.94	3.2	1.559	1.101	13.9	11.1	2.113	-9999.0	-9999.0	7.3
45.44	13.85	27.4	1.08	4.0	1.563	1.107	17.5	14.0	1.975	-9999.0	-9999.0	6.5
45.60	13.90	27.4	1.00	3.7	1.568	1.112	13.1	10.5	1.977	-9999.0	-9999.0	6.5
45.77	13.95	41.7	0.99	2.4	1.572	1.117	16.0	12.7	3.122	35.1	34.0	10.0
45.93	14.00	54.5	0.70	1.3	1.576	1.122	17.4	13.9	-104.410	42.7	36.0	-9999.0
46.10	14.05	42.2	0.60	1.4	1.581	1.127	13.5	10.7	-104.410	35.4	34.0	-9999.0
46.26	14.10	40.0	0.70	1.8	1.585	1.132	15.3	12.2	2.984	33.8	34.0	10.0
46.42	14.15	38.0	0.77	2.0	1.590	1.137	14.5	11.5	2.820	32.3	34.0	10.0
46.59	14.20	36.1	1.01	2.8	1.594	1.142	13.8	11.0	2.672	30.8	34.0	10.0
46.75	14.25	36.9	1.27	3.4	1.598	1.147	17.7	14.0	2.735	-9999.0	-9999.0	10.0
46.92	14.30	41.1	1.64	4.0	1.602	1.153	19.7	15.6	3.069	-9999.0	-9999.0	10.0
47.08	14.35	44.8	2.09	4.7	1.607	1.158	28.6	22.6	3.362	-9999.0	-9999.0	10.0
47.24	14.40	47.8	2.38	5.0	1.611	1.163	30.5	24.1	3.606	-9999.0	-9999.0	10.0
47.41	14.45	49.4	2.58	5.2	1.615	1.168	47.3	37.2	3.726	-9999.0	-9999.0	10.0
47.57	14.50	53.5	2.65	5.0	1.619	1.173	34.1	26.8	4.053	-9999.0	-9999.0	10.0
47.74	14.55	53.6	2.83	5.3	1.623	1.178	51.3	40.3	4.062	-9999.0	-9999.0	10.0
47.90	14.60	52.5	2.75	5.2	1.627	1.183	50.3	39.4	3.973	-9999.0	-9999.0	10.0
48.06	14.65	53.2	2.75	5.2	1.631	1.188	51.0	39.9	4.034	-9999.0	-9999.0	10.0
48.23	14.70	58.4	2.83	4.8	1.636	1.194	37.3	29.1	4.443	-9999.0	-9999.0	10.0
48.39	14.75	61.6	3.04	4.9	1.640	1.199	59.0	46.1	-104.410	45.7	38.0	-9999.0
48.56	14.80	62.5	3.17	5.1	1.646	1.204	59.9	46.7	-104.410	46.1	38.0	-9999.0
48.72	14.85	68.7	3.25	4.7	1.652	1.209	65.8	51.2	-104.410	48.7	38.0	-9999.0
48.88	14.90	75.2	3.36	4.5	1.657	1.214	36.0	28.0	5.788	-9999.0	-9999.0	10.0
49.05	14.95	75.9	3.54	4.7	1.662	1.219	72.7	56.4	-104.410	51.5	38.0	-9999.0
49.21	15.00	73.4	3.49	4.8	1.667	1.224	70.3	54.5	-104.410	50.5	38.0	-9999.0
49.38	15.05	73.4	3.52	4.8	1.673	1.229	70.3	54.4	-104.410	50.4	38.0	-9999.0
49.54	15.10	71.8	3.49	4.9	1.678	1.235	68.8	53.1	-104.410	49.8	38.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
49.70	15.15	72.1	3.49	4.8	1.684	1.240	69.0	53.2	-104.410	49.8	38.0	-9999.0
49.87	15.20	74.9	3.51	4.7	1.689	1.245	71.7	55.2	-104.410	50.9	38.0	-9999.0
50.03	15.25	76.8	3.65	4.7	1.695	1.250	73.6	56.5	-104.410	51.5	38.0	-9999.0
50.20	15.30	77.0	3.76	4.9	1.701	1.255	73.7	56.6	-104.410	51.6	38.0	-9999.0
50.36	15.35	77.9	4.06	5.2	1.706	1.260	74.6	57.1	-104.410	51.8	38.0	-9999.0
50.52	15.40	80.2	4.14	5.2	1.712	1.265	76.8	58.7	-104.410	52.6	38.0	-9999.0
50.69	15.45	82.7	4.33	5.2	1.717	1.270	79.2	60.5	-104.410	53.5	38.0	-9999.0
50.85	15.50	87.5	4.29	4.9	1.723	1.276	83.8	63.9	-104.410	55.0	38.0	-9999.0
51.02	15.55	80.0	4.26	5.3	1.728	1.281	76.6	58.2	-104.410	52.4	38.0	-9999.0
51.18	15.60	77.0	4.30	5.6	1.734	1.286	73.8	56.0	-104.410	51.3	38.0	-9999.0
51.34	15.65	77.0	4.12	5.3	1.740	1.291	73.8	55.9	-104.410	51.2	38.0	-9999.0
51.51	15.70	79.0	4.25	5.4	1.745	1.296	75.6	57.3	-104.410	51.9	38.0	-9999.0
51.67	15.75	81.0	4.31	5.3	1.751	1.301	77.6	58.7	-104.410	52.6	38.0	-9999.0
51.84	15.80	79.7	4.63	5.8	1.756	1.306	76.3	57.6	-104.410	52.1	38.0	-9999.0
52.00	15.85	77.8	4.72	6.1	1.762	1.311	74.5	56.2	-104.410	51.4	38.0	-9999.0
52.16	15.90	77.1	4.55	5.9	1.768	1.317	73.8	55.5	-104.410	51.0	38.0	-9999.0
52.33	15.95	77.2	4.38	5.7	1.773	1.322	74.0	55.5	-104.410	51.0	38.0	-9999.0
52.49	16.00	80.1	4.17	5.2	1.779	1.327	76.7	57.5	-104.410	52.0	38.0	-9999.0
52.66	16.05	76.5	4.15	5.4	1.784	1.332	73.3	54.9	-104.410	50.7	38.0	-9999.0
52.82	16.10	78.1	4.08	5.2	1.790	1.337	74.8	55.9	-104.410	51.2	38.0	-9999.0
52.98	16.15	78.1	4.11	5.3	1.795	1.342	74.8	55.8	-104.410	51.2	38.0	-9999.0
53.15	16.20	76.8	4.01	5.2	1.801	1.347	73.6	54.8	-104.410	50.7	38.0	-9999.0
53.31	16.25	77.6	4.06	5.2	1.807	1.352	74.3	55.3	-104.410	50.9	38.0	-9999.0
53.48	16.30	79.1	4.22	5.3	1.812	1.357	75.8	56.3	-104.410	51.4	38.0	-9999.0
53.64	16.35	80.6	4.47	5.5	1.818	1.363	77.2	57.3	-104.410	51.9	38.0	-9999.0
53.81	16.40	77.1	4.62	6.0	1.823	1.368	73.8	54.7	-104.410	50.6	38.0	-9999.0
53.97	16.45	75.6	4.51	6.0	1.829	1.373	72.4	53.5	-104.410	50.0	38.0	-9999.0
54.13	16.50	75.7	4.52	6.0	1.835	1.378	72.5	53.6	-104.410	50.0	38.0	-9999.0
54.30	16.55	69.6	4.45	6.4	1.840	1.383	66.7	49.1	-104.410	47.5	38.0	-9999.0
54.46	16.60	69.7	4.08	5.9	1.846	1.388	66.7	49.1	-104.410	47.5	38.0	-9999.0
54.63	16.65	69.5	4.03	5.8	1.851	1.393	66.5	48.9	-104.410	47.4	38.0	-9999.0
54.79	16.70	71.5	4.17	5.8	1.857	1.398	68.5	50.3	-104.410	48.2	38.0	-9999.0
54.95	16.75	71.7	4.23	5.9	1.862	1.404	68.7	50.3	-104.410	48.2	38.0	-9999.0
55.12	16.80	74.9	4.99	6.7	1.868	1.409	71.7	52.5	-104.410	49.4	38.0	-9999.0
55.28	16.85	75.7	4.90	6.5	1.874	1.414	72.5	53.0	-104.410	49.7	38.0	-9999.0
55.45	16.90	68.6	4.62	6.7	1.879	1.419	65.7	47.9	-104.410	46.8	38.0	-9999.0
55.61	16.95	60.7	4.09	6.7	1.885	1.424	58.1	42.4	-104.410	43.3	36.0	-9999.0
55.77	17.00	64.5	3.88	6.0	1.890	1.429	61.8	44.9	-104.410	45.0	36.0	-9999.0
55.94	17.05	71.5	4.29	6.0	1.896	1.434	68.4	49.7	-104.410	47.9	38.0	-9999.0
56.10	17.10	75.3	4.24	5.6	1.901	1.439	72.1	52.3	-104.410	49.3	38.0	-9999.0
56.27	17.15	76.2	4.38	5.7	1.907	1.445	73.0	52.9	-104.410	49.6	38.0	-9999.0
56.43	17.20	75.9	4.46	5.9	1.913	1.450	72.7	52.6	-104.410	49.5	38.0	-9999.0
56.59	17.25	77.9	4.73	6.1	1.918	1.455	74.6	53.8	-104.410	50.1	38.0	-9999.0
56.76	17.30	75.5	4.87	6.5	1.924	1.460	72.3	52.2	-104.410	49.2	38.0	-9999.0
56.92	17.35	82.0	5.05	6.2	1.929	1.465	78.5	56.5	-104.410	51.5	38.0	-9999.0
57.09	17.40	94.0	5.05	5.4	1.935	1.470	90.1	64.7	-104.410	55.4	38.0	-9999.0
57.25	17.45	97.9	5.13	5.2	1.941	1.475	93.7	67.3	-104.410	56.5	38.0	-9999.0
57.41	17.50	108.2	5.31	4.9	1.946	1.480	103.6	74.3	-104.410	59.4	40.0	-9999.0
57.58	17.55	112.8	5.60	5.0	1.952	1.486	108.0	77.3	-104.410	60.5	40.0	-9999.0
57.74	17.60	107.8	5.97	5.5	1.957	1.491	103.2	73.8	-104.410	59.2	40.0	-9999.0
57.91	17.65	114.5	6.02	5.3	1.963	1.496	109.6	78.2	-104.410	60.9	40.0	-9999.0
58.07	17.70	114.2	5.97	5.2	1.968	1.501	109.4	78.0	-104.410	60.8	40.0	-9999.0
58.23	17.75	107.3	5.97	5.6	1.974	1.506	102.7	73.1	-104.410	58.9	40.0	-9999.0
58.40	17.80	114.0	5.97	5.2	1.980	1.511	109.2	77.6	-104.410	60.6	40.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1753-1854
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-22
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/19/08
CPT Time: 09:15
CPT File: 390CP22.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 4.57 (ft): 15.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	8.1	0.02	0.2	0.009	0.000	3.9	7.7	0.644	-9999.0	-9999.0	10.0
0.33	0.10	33.2	0.03	0.1	0.019	0.000	10.6	21.2	-104.410	92.2	50.0	-9999.0
0.49	0.15	35.5	0.12	0.3	0.028	0.000	11.3	22.7	-104.410	88.1	50.0	-9999.0
0.66	0.20	49.8	0.35	0.7	0.038	0.000	11.9	23.8	-104.410	93.5	50.0	-9999.0
0.82	0.25	41.7	0.58	1.4	0.048	0.000	13.3	26.6	-104.410	85.2	50.0	-9999.0
0.98	0.30	40.8	0.92	2.3	0.057	0.000	15.6	31.2	3.258	81.9	50.0	10.0
1.15	0.35	38.3	1.08	2.8	0.067	0.000	14.7	29.3	3.057	77.9	50.0	10.0
1.31	0.40	52.0	1.22	2.4	0.076	0.000	19.9	39.8	4.151	84.8	50.0	10.0
1.48	0.45	58.3	1.44	2.5	0.085	0.000	22.3	44.7	4.656	86.4	50.0	10.0
1.64	0.50	55.8	1.45	2.6	0.095	0.000	21.4	42.8	4.460	83.7	50.0	10.0
1.80	0.55	35.4	1.40	4.0	0.104	0.000	16.9	33.9	2.823	-9999.0	-9999.0	10.0
1.97	0.60	27.6	1.31	4.8	0.114	0.000	26.4	52.9	2.199	-9999.0	-9999.0	10.0
2.13	0.65	26.2	1.26	4.8	0.123	0.000	25.1	50.2	2.086	-9999.0	-9999.0	10.0
2.30	0.70	25.2	1.20	4.8	0.132	0.000	24.2	48.3	2.008	-9999.0	-9999.0	10.0
2.46	0.75	24.3	1.01	4.2	0.141	0.000	15.5	31.0	1.931	-9999.0	-9999.0	10.0
2.62	0.80	26.6	1.04	3.9	0.150	0.000	17.0	34.0	2.118	-9999.0	-9999.0	10.0
2.79	0.85	25.6	1.06	4.2	0.160	0.000	16.3	32.7	2.033	-9999.0	-9999.0	10.0
2.95	0.90	26.2	1.37	5.3	0.169	0.000	25.0	50.1	2.079	-9999.0	-9999.0	10.0
3.12	0.95	64.9	1.95	3.0	0.178	0.000	24.9	49.7	5.175	79.0	48.0	10.0
3.28	1.00	118.8	2.79	2.3	0.188	0.000	37.9	75.8	-104.410	95.0	50.0	-9999.0
3.44	1.05	170.8	2.92	1.7	0.198	0.000	40.9	81.8	-104.410	95.0	50.0	-9999.0
3.61	1.10	172.4	3.15	1.8	0.208	0.000	41.3	82.5	-104.410	95.0	50.0	-9999.0
3.77	1.15	121.4	2.96	2.4	0.217	0.000	38.8	77.5	-104.410	94.1	50.0	-9999.0
3.94	1.20	88.1	3.02	3.4	0.227	0.000	33.8	67.5	7.032	84.3	48.0	10.0
4.10	1.25	64.4	3.37	5.2	0.237	0.000	61.6	123.3	-104.410	74.7	46.0	-9999.0
4.27	1.30	50.3	3.28	6.5	0.247	0.000	48.2	96.4	4.005	-9999.0	-9999.0	10.0
4.43	1.35	52.0	3.13	6.0	0.256	0.000	49.8	98.3	4.137	-9999.0	-9999.0	10.0
4.59	1.40	204.6	4.25	2.1	0.266	0.000	49.0	95.0	-104.410	95.0	50.0	-9999.0
4.76	1.45	283.0	5.64	2.0	0.276	0.000	67.8	129.1	-104.410	95.0	50.0	-9999.0
4.92	1.50	295.9	6.24	2.1	0.285	0.000	70.9	132.6	-104.410	95.0	50.0	-9999.0
5.09	1.55	292.3	5.97	2.0	0.295	0.000	70.0	128.8	-104.410	95.0	50.0	-9999.0
5.25	1.60	299.5	5.41	1.8	0.305	0.000	71.7	129.8	-104.410	95.0	50.0	-9999.0
5.41	1.65	295.5	5.38	1.8	0.315	0.000	70.7	126.0	-104.410	95.0	50.0	-9999.0
5.58	1.70	321.0	5.65	1.8	0.325	0.000	76.9	134.8	-104.410	95.0	50.0	-9999.0
5.74	1.75	422.0	4.54	1.1	0.335	0.000	80.8	139.6	-104.410	95.0	50.0	-9999.0
5.91	1.80	506.2	5.11	1.0	0.345	0.000	97.0	165.0	-104.410	95.0	50.0	-9999.0
6.07	1.85	539.9	5.22	1.0	0.356	0.000	86.2	144.5	-104.410	95.0	50.0	-9999.0
6.23	1.90	556.0	6.38	1.1	0.366	0.000	106.5	176.1	-104.410	95.0	50.0	-9999.0
6.40	1.95	580.6	7.17	1.2	0.376	0.000	111.2	181.3	-104.410	95.0	50.0	-9999.0
6.56	2.00	574.2	7.32	1.3	0.386	0.000	110.0	176.9	-104.410	95.0	50.0	-9999.0
6.73	2.05	542.9	7.51	1.4	0.397	0.000	104.0	165.2	-104.410	95.0	50.0	-9999.0
6.89	2.10	483.0	7.95	1.6	0.407	0.000	92.5	145.1	-104.410	95.0	50.0	-9999.0
7.05	2.15	417.7	7.29	1.7	0.417	0.000	100.0	154.9	-104.410	95.0	50.0	-9999.0
7.22	2.20	354.4	6.36	1.8	0.427	0.000	84.9	129.9	-104.410	95.0	50.0	-9999.0
7.38	2.25	319.0	4.72	1.5	0.437	0.000	61.1	92.4	-104.410	95.0	50.0	-9999.0
7.55	2.30	298.6	3.99	1.3	0.447	0.000	57.2	85.6	-104.410	95.0	50.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	262.0	3.60	1.4	0.457	0.000	50.2	74.2	-104.410	95.0	50.0	-9999.0
7.87	2.40	215.3	3.14	1.5	0.467	0.000	51.5	75.4	-104.410	95.0	48.0	-9999.0
8.04	2.45	150.6	3.10	2.1	0.477	0.000	48.1	69.6	-104.410	89.0	46.0	-9999.0
8.20	2.50	86.0	2.86	3.3	0.486	0.000	32.9	47.2	6.839	72.7	44.0	10.0
8.37	2.55	60.4	2.14	3.5	0.496	0.000	28.9	41.0	4.789	-9999.0	-9999.0	10.0
8.53	2.60	120.9	1.63	1.4	0.506	0.000	28.9	40.7	-104.410	81.9	46.0	-9999.0
8.69	2.65	123.2	1.37	1.1	0.515	0.000	29.5	41.1	-104.410	82.1	46.0	-9999.0
8.86	2.70	106.2	0.86	0.8	0.525	0.000	25.4	35.1	-104.410	77.6	46.0	-9999.0
9.02	2.75	93.4	0.41	0.4	0.535	0.000	17.9	24.4	-104.410	73.6	44.0	-9999.0
9.19	2.80	84.5	0.36	0.4	0.545	0.000	20.2	27.4	-104.410	70.5	44.0	-9999.0
9.35	2.85	73.3	0.34	0.5	0.555	0.000	17.5	23.5	-104.410	66.2	44.0	-9999.0
9.51	2.90	68.7	0.32	0.5	0.565	0.000	16.5	21.9	-104.410	64.1	42.0	-9999.0
9.68	2.95	60.5	0.33	0.5	0.575	0.000	14.5	19.1	-104.410	60.2	42.0	-9999.0
9.84	3.00	53.1	0.38	0.7	0.585	0.000	12.7	16.6	-104.410	56.2	42.0	-9999.0
10.01	3.05	43.5	0.52	1.2	0.595	0.000	13.9	18.0	-104.410	50.3	40.0	-9999.0
10.17	3.10	35.2	0.58	1.6	0.604	0.000	13.5	17.4	2.772	44.0	40.0	10.0
10.33	3.15	39.3	0.55	1.4	0.614	0.000	12.5	16.0	-104.410	46.9	40.0	-9999.0
10.50	3.20	50.3	0.48	1.0	0.624	0.000	16.0	20.3	-104.410	53.7	42.0	-9999.0
10.66	3.25	54.9	0.33	0.6	0.633	0.000	13.1	16.5	-104.410	56.0	42.0	-9999.0
10.83	3.30	55.0	0.26	0.5	0.643	0.000	13.2	16.4	-104.410	55.9	42.0	-9999.0
10.99	3.35	58.9	0.26	0.4	0.653	0.000	14.1	17.4	-104.410	57.6	42.0	-9999.0
11.15	3.40	51.1	0.30	0.6	0.663	0.000	12.2	15.0	-104.410	53.3	40.0	-9999.0
11.32	3.45	41.0	0.31	0.8	0.673	0.000	13.1	16.0	-104.410	46.8	40.0	-9999.0
11.48	3.50	32.2	0.35	1.1	0.683	0.000	10.3	12.4	-104.410	39.6	38.0	-9999.0
11.65	3.55	29.5	0.32	1.1	0.692	0.000	9.4	11.3	-104.410	36.9	38.0	-9999.0
11.81	3.60	35.6	0.29	0.8	0.702	0.000	11.4	13.6	-104.410	42.1	38.0	-9999.0
11.97	3.65	41.4	0.24	0.6	0.712	0.000	13.2	15.7	-104.410	46.2	40.0	-9999.0
12.14	3.70	49.5	0.22	0.4	0.721	0.000	11.9	14.0	-104.410	51.2	40.0	-9999.0
12.30	3.75	59.2	0.18	0.3	0.731	0.000	14.2	16.6	-104.410	56.1	42.0	-9999.0
12.47	3.80	60.1	0.24	0.4	0.741	0.000	14.4	16.7	-104.410	56.4	42.0	-9999.0
12.63	3.85	54.8	0.26	0.5	0.751	0.000	13.1	15.1	-104.410	53.5	40.0	-9999.0
12.80	3.90	53.4	0.24	0.5	0.761	0.000	12.8	14.7	-104.410	52.6	40.0	-9999.0
12.96	3.95	53.1	0.27	0.5	0.771	0.000	12.7	14.5	-104.410	52.2	40.0	-9999.0
13.12	4.00	51.0	0.26	0.5	0.781	0.000	12.2	13.8	-104.410	50.9	40.0	-9999.0
13.29	4.05	48.9	0.26	0.5	0.791	0.000	11.7	13.2	-104.410	49.5	40.0	-9999.0
13.45	4.10	50.1	0.26	0.5	0.801	0.000	12.0	13.4	-104.410	50.0	40.0	-9999.0
13.62	4.15	53.1	0.26	0.5	0.811	0.000	12.7	14.1	-104.410	51.5	40.0	-9999.0
13.78	4.20	56.1	0.29	0.5	0.821	0.000	13.4	14.8	-104.410	52.9	40.0	-9999.0
13.94	4.25	55.1	0.30	0.5	0.831	0.000	13.2	14.5	-104.410	52.2	40.0	-9999.0
14.11	4.30	50.5	0.30	0.6	0.840	0.000	12.1	13.2	-104.410	49.6	40.0	-9999.0
14.27	4.35	46.2	0.28	0.6	0.850	0.000	11.1	12.0	-104.410	46.8	40.0	-9999.0
14.44	4.40	45.0	0.27	0.6	0.860	0.000	10.8	11.6	-104.410	45.9	38.0	-9999.0
14.60	4.45	43.8	0.26	0.6	0.870	0.000	10.5	11.2	-104.410	45.0	38.0	-9999.0
14.76	4.50	40.2	0.33	0.8	0.880	0.000	12.8	13.7	-104.410	42.3	38.0	-9999.0
14.93	4.55	32.4	0.37	1.1	0.890	0.000	10.4	11.0	-104.410	36.1	38.0	-9999.0
15.09	4.60	22.9	0.41	1.8	0.896	0.003	8.8	9.3	1.757	30.0	34.0	10.0
15.26	4.65	26.5	0.45	1.7	0.901	0.008	10.2	10.7	2.048	30.1	36.0	10.0
15.42	4.70	23.4	0.62	2.7	0.905	0.013	11.2	11.8	1.802	-9999.0	-9999.0	10.0
15.58	4.75	16.4	0.13	0.8	0.909	0.018	6.3	6.6	1.239	30.0	32.0	7.3
15.75	4.80	23.8	0.31	1.3	0.913	0.023	9.1	9.5	1.831	30.0	34.0	10.0
15.91	4.85	24.9	0.42	1.7	0.918	0.028	9.5	10.0	1.918	30.0	34.0	10.0
16.08	4.90	16.2	0.35	2.2	0.922	0.034	7.8	8.1	1.222	-9999.0	-9999.0	7.0
16.24	4.95	13.5	0.32	2.4	0.926	0.039	6.5	6.7	1.007	-9999.0	-9999.0	5.2
16.40	5.00	17.5	0.35	2.0	0.931	0.044	6.7	6.9	1.318	30.0	32.0	7.8
16.57	5.05	16.2	0.35	2.2	0.935	0.049	7.8	8.0	1.220	-9999.0	-9999.0	6.9
16.73	5.10	14.8	0.33	2.2	0.939	0.054	7.1	7.3	1.103	-9999.0	-9999.0	5.8
16.90	5.15	13.6	0.27	2.0	0.943	0.059	6.5	6.7	1.005	-9999.0	-9999.0	5.0
17.06	5.20	12.6	0.15	1.2	0.948	0.064	4.8	5.0	0.928	30.0	30.0	4.4
17.22	5.25	11.8	0.13	1.1	0.952	0.069	4.5	4.6	0.861	30.0	30.0	3.9
17.39	5.30	11.3	0.10	0.9	0.956	0.075	4.3	4.4	0.820	30.0	30.0	3.6
17.55	5.35	11.0	0.10	0.9	0.960	0.080	4.2	4.3	0.793	30.0	30.0	3.4
17.72	5.40	10.3	0.08	0.8	0.965	0.085	4.0	4.0	0.741	30.0	30.0	3.1
17.88	5.45	10.6	0.08	0.8	0.969	0.090	4.0	4.1	0.761	30.0	30.0	3.2
18.04	5.50	13.2	0.24	1.8	0.973	0.095	6.3	6.4	0.970	-9999.0	-9999.0	4.5

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	15.4	0.32	2.1	0.978	0.100	7.4	7.5	1.148	-9999.0	-9999.0	5.8
18.37	5.60	35.0	0.32	0.9	0.982	0.105	11.2	11.3	-104.410	36.9	36.0	-9999.0
18.54	5.65	42.0	0.33	0.8	0.987	0.110	13.4	13.5	-104.410	42.0	38.0	-9999.0
18.70	5.70	40.6	0.25	0.6	0.991	0.116	13.0	13.0	-104.410	40.9	38.0	-9999.0
18.86	5.75	40.6	0.16	0.4	0.996	0.121	9.7	9.7	-104.410	40.9	38.0	-9999.0
19.03	5.80	40.8	0.18	0.4	1.001	0.126	9.8	9.8	-104.410	40.9	38.0	-9999.0
19.19	5.85	38.4	0.21	0.5	1.005	0.131	12.3	12.2	-104.410	39.2	38.0	-9999.0
19.36	5.90	39.1	0.22	0.6	1.010	0.136	12.5	12.4	-104.410	39.6	38.0	-9999.0
19.52	5.95	40.7	0.24	0.6	1.014	0.141	13.0	12.9	-104.410	40.7	38.0	-9999.0
19.68	6.00	43.4	0.25	0.6	1.019	0.146	10.4	10.3	-104.410	42.5	38.0	-9999.0
19.85	6.05	44.7	0.24	0.5	1.024	0.151	10.7	10.6	-104.410	43.3	38.0	-9999.0
20.01	6.10	43.4	0.23	0.5	1.029	0.157	10.4	10.3	-104.410	42.4	38.0	-9999.0
20.18	6.15	42.2	0.24	0.6	1.033	0.162	13.5	13.3	-104.410	41.5	38.0	-9999.0
20.34	6.20	41.0	0.25	0.6	1.038	0.167	13.1	12.8	-104.410	40.5	38.0	-9999.0
20.50	6.25	40.2	0.24	0.6	1.042	0.172	12.8	12.6	-104.410	39.9	38.0	-9999.0
20.67	6.30	39.9	0.24	0.6	1.047	0.177	12.8	12.5	-104.410	39.7	38.0	-9999.0
20.83	6.35	39.0	0.24	0.6	1.051	0.182	12.5	12.2	-104.410	39.0	38.0	-9999.0
21.00	6.40	40.4	0.25	0.6	1.056	0.187	12.9	12.5	-104.410	39.9	38.0	-9999.0
21.16	6.45	41.7	0.24	0.6	1.060	0.192	13.3	12.9	-104.410	40.8	38.0	-9999.0
21.33	6.50	39.9	0.23	0.6	1.065	0.197	12.7	12.3	-104.410	39.4	38.0	-9999.0
21.49	6.55	43.1	0.22	0.5	1.070	0.203	10.3	10.0	-104.410	41.6	38.0	-9999.0
21.65	6.60	47.7	0.24	0.5	1.074	0.208	11.4	11.0	-104.410	44.4	38.0	-9999.0
21.82	6.65	47.2	0.27	0.6	1.079	0.213	11.3	10.9	-104.410	44.0	38.0	-9999.0
21.98	6.70	40.9	0.32	0.8	1.084	0.218	13.1	12.5	-104.410	39.9	38.0	-9999.0
22.15	6.75	30.2	0.30	1.0	1.088	0.223	9.6	9.2	-104.410	31.1	36.0	-9999.0
22.31	6.80	20.8	0.35	1.7	1.093	0.228	8.0	7.6	1.556	30.0	32.0	7.9
22.47	6.85	20.2	0.27	1.3	1.097	0.233	7.7	7.4	1.510	30.0	32.0	7.4
22.64	6.90	17.6	0.25	1.4	1.101	0.238	6.8	6.4	1.304	30.0	32.0	5.9
22.80	6.95	18.4	0.23	1.3	1.106	0.244	7.1	6.7	1.365	30.0	32.0	6.3
22.97	7.00	26.6	0.22	0.8	1.110	0.249	8.5	8.1	-104.410	30.0	34.0	-9999.0
23.13	7.05	27.5	0.40	1.5	1.114	0.254	10.5	10.0	2.089	30.0	34.0	10.0
23.29	7.10	26.3	0.44	1.7	1.119	0.259	10.1	9.5	1.997	30.0	34.0	10.0
23.46	7.15	41.5	0.41	1.0	1.123	0.264	13.3	12.5	-104.410	39.8	38.0	-9999.0
23.62	7.20	45.1	0.30	0.7	1.128	0.269	14.4	13.5	-104.410	42.1	38.0	-9999.0
23.79	7.25	47.2	0.21	0.4	1.132	0.274	11.3	10.6	-104.410	43.3	38.0	-9999.0
23.95	7.30	46.1	0.24	0.5	1.137	0.279	11.0	10.3	-104.410	42.6	38.0	-9999.0
24.11	7.35	43.3	0.23	0.5	1.142	0.285	10.4	9.7	-104.410	40.7	38.0	-9999.0
24.28	7.40	43.3	0.22	0.5	1.147	0.290	10.4	9.7	-104.410	40.7	38.0	-9999.0
24.44	7.45	39.4	0.21	0.5	1.151	0.295	12.6	11.7	-104.410	37.9	36.0	-9999.0
24.61	7.50	36.7	0.20	0.5	1.156	0.300	11.7	10.9	-104.410	35.8	36.0	-9999.0
24.77	7.55	39.2	0.19	0.5	1.160	0.305	12.5	11.6	-104.410	37.7	36.0	-9999.0
24.93	7.60	40.8	0.17	0.4	1.165	0.310	9.8	9.0	-104.410	38.8	36.0	-9999.0
25.10	7.65	40.7	0.18	0.4	1.170	0.315	9.7	9.0	-104.410	38.6	36.0	-9999.0
25.26	7.70	40.0	0.19	0.5	1.175	0.320	12.8	11.8	-104.410	38.1	36.0	-9999.0
25.43	7.75	39.8	0.16	0.4	1.179	0.326	9.5	8.8	-104.410	37.9	36.0	-9999.0
25.59	7.80	41.9	0.19	0.5	1.184	0.331	10.0	9.2	-104.410	39.3	36.0	-9999.0
25.75	7.85	46.3	0.21	0.5	1.189	0.336	11.1	10.2	-104.410	42.1	38.0	-9999.0
25.92	7.90	49.2	0.23	0.5	1.194	0.341	11.8	10.8	-104.410	43.8	38.0	-9999.0
26.08	7.95	51.1	0.27	0.5	1.198	0.346	12.2	11.2	-104.410	44.8	38.0	-9999.0
26.25	8.00	51.6	0.28	0.5	1.203	0.351	12.4	11.3	-104.410	45.1	38.0	-9999.0
26.41	8.05	49.9	0.29	0.6	1.208	0.356	12.0	10.9	-104.410	44.0	38.0	-9999.0
26.57	8.10	48.3	0.29	0.6	1.213	0.361	11.6	10.5	-104.410	43.0	38.0	-9999.0
26.74	8.15	46.2	0.27	0.6	1.218	0.367	11.1	10.0	-104.410	41.7	38.0	-9999.0
26.90	8.20	44.0	0.25	0.6	1.222	0.372	10.5	9.5	-104.410	40.2	38.0	-9999.0
27.07	8.25	41.7	0.24	0.6	1.227	0.377	13.3	12.0	-104.410	38.7	36.0	-9999.0
27.23	8.30	40.8	0.24	0.6	1.232	0.382	13.0	11.7	-104.410	38.0	36.0	-9999.0
27.39	8.35	40.0	0.23	0.6	1.236	0.387	12.8	11.5	-104.410	37.3	36.0	-9999.0
27.56	8.40	40.7	0.21	0.5	1.241	0.392	13.0	11.7	-104.410	37.8	36.0	-9999.0
27.72	8.45	42.7	0.22	0.5	1.245	0.397	10.2	9.2	-104.410	39.1	36.0	-9999.0
27.89	8.50	44.5	0.24	0.5	1.250	0.402	10.7	9.5	-104.410	40.2	36.0	-9999.0
28.05	8.55	46.8	0.24	0.5	1.255	0.407	11.2	10.0	-104.410	41.6	38.0	-9999.0
28.21	8.60	48.1	0.26	0.5	1.260	0.413	11.5	10.3	-104.410	42.4	38.0	-9999.0
28.38	8.65	49.7	0.26	0.5	1.265	0.418	11.9	10.6	-104.410	43.3	38.0	-9999.0
28.54	8.70	50.6	0.28	0.6	1.269	0.423	12.1	10.8	-104.410	43.7	38.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
28.71	8.75	52.2	0.23	0.4	1.274	0.428	12.5	11.1	-104.410	44.5	38.0	-9999.0
28.87	8.80	53.3	0.27	0.5	1.279	0.433	12.7	11.3	-104.410	45.1	38.0	-9999.0
29.04	8.85	51.8	0.27	0.5	1.284	0.438	12.4	11.0	-104.410	44.2	38.0	-9999.0
29.20	8.90	50.0	0.28	0.6	1.289	0.443	12.0	10.5	-104.410	43.2	38.0	-9999.0
29.36	8.95	48.0	0.28	0.6	1.293	0.448	11.5	10.1	-104.410	41.9	38.0	-9999.0
29.53	9.00	49.2	0.27	0.5	1.298	0.454	11.8	10.3	-104.410	42.6	38.0	-9999.0
29.69	9.05	51.4	0.28	0.5	1.303	0.459	12.3	10.8	-104.410	43.8	38.0	-9999.0
29.86	9.10	53.3	0.30	0.6	1.308	0.464	12.8	11.2	-104.410	44.8	38.0	-9999.0
30.02	9.15	57.2	0.33	0.6	1.313	0.469	13.7	11.9	-104.410	46.7	38.0	-9999.0
30.18	9.20	61.1	0.32	0.5	1.317	0.474	14.6	12.8	-104.410	48.6	38.0	-9999.0
30.35	9.25	66.7	0.34	0.5	1.322	0.479	16.0	13.9	-104.410	51.0	38.0	-9999.0
30.51	9.30	71.7	0.38	0.5	1.327	0.484	17.2	14.9	-104.410	53.1	40.0	-9999.0
30.68	9.35	72.8	0.43	0.6	1.332	0.489	17.4	15.1	-104.410	53.4	40.0	-9999.0
30.84	9.40	72.2	0.53	0.7	1.337	0.495	17.3	15.0	-104.410	53.2	40.0	-9999.0
31.00	9.45	59.3	0.86	1.5	1.341	0.500	18.9	16.3	-104.410	47.5	38.0	-9999.0
31.17	9.50	39.0	1.06	2.7	1.346	0.505	14.9	12.9	2.974	35.4	36.0	10.0
31.33	9.55	39.0	0.87	2.2	1.350	0.510	14.9	12.9	2.973	35.4	36.0	10.0
31.50	9.60	37.8	1.18	3.1	1.354	0.515	18.1	15.6	2.876	-9999.0	-9999.0	10.0
31.66	9.65	26.6	0.97	3.6	1.358	0.520	12.8	10.9	1.981	-9999.0	-9999.0	8.2
31.82	9.70	24.7	0.75	3.0	1.363	0.525	11.8	10.1	1.822	-9999.0	-9999.0	7.1
31.99	9.75	21.2	0.60	2.8	1.367	0.530	10.1	8.7	1.541	-9999.0	-9999.0	5.5
32.15	9.80	18.7	0.54	2.9	1.371	0.536	9.0	7.7	1.347	-9999.0	-9999.0	4.4
32.32	9.85	19.8	0.49	2.5	1.376	0.541	9.5	8.1	1.431	-9999.0	-9999.0	4.8
32.48	9.90	20.7	0.43	2.1	1.380	0.546	7.9	6.7	1.499	30.0	32.0	5.2
32.64	9.95	20.4	0.37	1.8	1.384	0.551	7.8	6.7	1.480	30.0	32.0	5.0
32.81	10.00	20.0	0.41	2.1	1.388	0.556	7.6	6.5	1.442	30.0	32.0	4.8
32.97	10.05	20.4	0.40	2.0	1.393	0.561	7.8	6.6	1.473	30.0	32.0	5.0
33.14	10.10	19.3	0.39	2.0	1.397	0.566	7.4	6.3	1.387	30.0	30.0	4.5
33.30	10.15	18.4	0.38	2.1	1.401	0.571	7.0	5.9	1.311	30.0	30.0	4.1
33.46	10.20	17.9	0.37	2.1	1.406	0.577	8.6	7.2	1.271	-9999.0	-9999.0	3.9
33.63	10.25	17.1	0.35	2.1	1.410	0.582	8.2	6.9	1.206	-9999.0	-9999.0	3.6
33.79	10.30	17.3	0.34	2.0	1.414	0.587	6.6	5.6	1.228	30.0	30.0	3.7
33.96	10.35	17.6	0.54	3.1	1.418	0.592	8.4	7.1	1.244	-9999.0	-9999.0	3.7
34.12	10.40	17.1	0.53	3.1	1.423	0.597	8.2	6.9	1.205	-9999.0	-9999.0	3.6
34.28	10.45	19.1	0.49	2.6	1.427	0.602	9.2	7.7	1.368	-9999.0	-9999.0	4.3
34.45	10.50	17.9	0.42	2.3	1.431	0.607	8.6	7.2	1.272	-9999.0	-9999.0	3.8
34.61	10.55	16.7	0.34	2.0	1.435	0.612	8.0	6.7	1.176	-9999.0	-9999.0	3.4
34.78	10.60	15.7	0.30	1.9	1.440	0.617	7.5	6.3	1.089	-9999.0	-9999.0	3.0
34.94	10.65	14.8	0.24	1.6	1.444	0.623	5.7	4.7	1.018	30.0	30.0	2.7
35.10	10.70	14.6	0.19	1.3	1.448	0.628	5.6	4.6	1.002	30.0	30.0	2.7
35.27	10.75	14.6	0.24	1.7	1.453	0.633	5.6	4.6	0.998	30.0	30.0	2.6
35.43	10.80	16.4	0.31	1.9	1.457	0.638	6.3	5.2	1.143	30.0	30.0	3.2
35.60	10.85	17.1	0.33	1.9	1.461	0.643	6.5	5.4	1.196	30.0	30.0	3.4
35.76	10.90	18.1	0.36	2.0	1.465	0.648	6.9	5.7	1.276	30.0	30.0	3.7
35.92	10.95	18.1	0.35	1.9	1.470	0.653	6.9	5.7	1.281	30.0	30.0	3.7
36.09	11.00	18.2	0.37	2.0	1.474	0.658	7.0	5.7	1.285	30.0	30.0	3.7
36.25	11.05	18.0	0.37	2.1	1.478	0.664	6.9	5.7	1.272	30.0	30.0	3.6
36.42	11.10	17.2	0.37	2.2	1.482	0.669	8.2	6.8	1.202	-9999.0	-9999.0	3.3
36.58	11.15	16.2	0.36	2.2	1.487	0.674	7.8	6.4	1.123	-9999.0	-9999.0	3.0
36.74	11.20	16.1	0.37	2.3	1.491	0.679	7.7	6.3	1.113	-9999.0	-9999.0	3.0
36.91	11.25	16.2	0.39	2.4	1.495	0.684	7.7	6.3	1.118	-9999.0	-9999.0	3.0
37.07	11.30	18.6	0.40	2.2	1.500	0.689	8.9	7.3	1.315	-9999.0	-9999.0	3.7
37.24	11.35	17.6	0.39	2.2	1.504	0.694	8.4	6.9	1.232	-9999.0	-9999.0	3.4
37.40	11.40	14.3	0.36	2.5	1.508	0.699	6.8	5.6	0.965	-9999.0	-9999.0	2.4
37.57	11.45	11.4	0.26	2.3	1.512	0.705	5.4	4.4	0.733	-9999.0	-9999.0	1.7
37.73	11.50	10.4	0.18	1.7	1.517	0.710	5.0	4.0	0.654	-9999.0	-9999.0	1.5
37.89	11.55	14.1	0.17	1.2	1.521	0.715	5.4	4.4	0.952	30.0	30.0	2.3
38.06	11.60	25.9	0.21	0.8	1.525	0.720	8.3	6.7	-104.410	30.0	32.0	-9999.0
38.22	11.65	34.8	0.24	0.7	1.530	0.725	11.1	9.0	-104.410	30.3	34.0	-9999.0
38.39	11.70	39.7	0.21	0.5	1.534	0.730	12.7	10.2	-104.410	34.1	34.0	-9999.0
38.55	11.75	40.9	0.19	0.5	1.539	0.735	9.8	7.9	-104.410	34.8	34.0	-9999.0
38.71	11.80	46.8	0.29	0.6	1.544	0.740	11.2	9.0	-104.410	38.7	36.0	-9999.0
38.88	11.85	59.7	0.33	0.6	1.549	0.746	14.3	11.5	-104.410	45.6	38.0	-9999.0
39.04	11.90	69.5	0.30	0.4	1.554	0.751	16.6	13.4	-104.410	49.9	38.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
39.21	11.95	69.7	0.32	0.5	1.558	0.756	16.7	13.4	-104.410	49.9	38.0	-9999.0
39.37	12.00	55.0	0.49	0.9	1.563	0.761	13.2	10.5	-104.410	43.1	36.0	-9999.0
39.53	12.05	32.5	0.53	1.6	1.568	0.766	12.4	9.9	2.411	30.0	32.0	8.9
39.70	12.10	18.5	0.40	2.2	1.572	0.771	8.8	7.1	1.291	-9999.0	-9999.0	3.4
39.86	12.15	16.3	0.22	1.4	1.576	0.776	6.3	5.0	1.118	30.0	30.0	2.8
40.03	12.20	14.3	0.15	1.0	1.580	0.781	5.5	4.4	0.959	30.0	30.0	2.2
40.19	12.25	14.6	0.15	1.0	1.585	0.786	5.6	4.4	0.979	30.0	30.0	2.3
40.35	12.30	15.4	0.16	1.0	1.589	0.792	5.9	4.7	1.040	30.0	30.0	2.5
40.52	12.35	15.5	0.27	1.7	1.593	0.797	5.9	4.7	1.050	30.0	30.0	2.5
40.68	12.40	16.0	0.28	1.8	1.598	0.802	6.1	4.8	1.085	30.0	30.0	2.6
40.85	12.45	22.6	0.27	1.2	1.602	0.807	8.6	6.8	1.612	30.0	30.0	4.6
41.01	12.50	41.3	0.23	0.6	1.606	0.812	13.2	10.4	-104.410	34.5	34.0	-9999.0
41.17	12.55	59.7	0.20	0.3	1.611	0.817	14.3	11.3	-104.410	45.0	38.0	-9999.0
41.34	12.60	67.2	0.28	0.4	1.616	0.822	16.1	12.7	-104.410	48.4	38.0	-9999.0
41.50	12.65	72.8	0.43	0.6	1.621	0.827	17.4	13.7	-104.410	50.6	38.0	-9999.0
41.67	12.70	78.0	0.60	0.8	1.625	0.833	18.7	14.6	-104.410	52.6	38.0	-9999.0
41.83	12.75	83.9	0.50	0.6	1.630	0.838	20.1	15.7	-104.410	54.6	38.0	-9999.0
41.99	12.80	98.5	0.60	0.6	1.635	0.843	18.9	14.8	-104.410	59.2	40.0	-9999.0
42.16	12.85	108.1	0.66	0.6	1.640	0.848	20.7	16.2	-104.410	61.8	40.0	-9999.0
42.32	12.90	114.0	0.64	0.6	1.645	0.853	21.8	17.0	-104.410	63.3	40.0	-9999.0
42.49	12.95	104.6	0.65	0.6	1.650	0.858	20.0	15.6	-104.410	60.8	40.0	-9999.0
42.65	13.00	86.9	0.67	0.8	1.655	0.863	20.8	16.2	-104.410	55.4	38.0	-9999.0
42.81	13.05	72.3	0.64	0.9	1.660	0.868	17.3	13.4	-104.410	50.1	38.0	-9999.0
42.98	13.10	67.8	0.66	1.0	1.665	0.874	16.2	12.6	-104.410	48.2	38.0	-9999.0
43.14	13.15	70.2	0.77	1.1	1.670	0.879	16.8	13.0	-104.410	49.2	38.0	-9999.0
43.31	13.20	73.7	0.86	1.2	1.674	0.884	17.7	13.6	-104.410	50.5	38.0	-9999.0
43.47	13.25	85.7	0.90	1.1	1.679	0.889	20.5	15.8	-104.410	54.8	38.0	-9999.0
43.63	13.30	94.1	0.81	0.9	1.684	0.894	22.5	17.4	-104.410	57.4	40.0	-9999.0
43.80	13.35	94.4	0.66	0.7	1.689	0.899	22.6	17.4	-104.410	57.5	40.0	-9999.0
43.96	13.40	91.3	0.51	0.6	1.694	0.904	21.9	16.8	-104.410	56.5	40.0	-9999.0
44.13	13.45	85.9	0.45	0.5	1.698	0.909	20.6	15.8	-104.410	54.7	38.0	-9999.0
44.29	13.50	81.8	0.43	0.5	1.703	0.915	19.6	15.0	-104.410	53.3	38.0	-9999.0
44.45	13.55	77.7	0.43	0.6	1.708	0.920	18.6	14.2	-104.410	51.8	38.0	-9999.0
44.62	13.60	69.1	0.48	0.7	1.713	0.925	16.5	12.6	-104.410	48.3	38.0	-9999.0
44.78	13.65	55.5	0.63	1.1	1.717	0.930	17.7	13.5	-104.410	42.0	36.0	-9999.0
44.95	13.70	41.9	0.88	2.1	1.722	0.935	16.1	12.2	3.142	34.0	34.0	10.0
45.11	13.75	44.2	0.65	1.5	1.726	0.940	14.1	10.8	-104.410	35.5	34.0	-9999.0
45.28	13.80	63.9	0.52	0.8	1.731	0.945	15.3	11.6	-104.410	46.0	38.0	-9999.0
45.44	13.85	84.0	0.49	0.6	1.736	0.950	20.1	15.3	-104.410	53.7	38.0	-9999.0
45.60	13.90	99.0	0.55	0.6	1.741	0.956	19.0	14.4	-104.410	58.4	40.0	-9999.0
45.77	13.95	120.5	0.73	0.6	1.746	0.961	23.1	17.5	-104.410	64.0	40.0	-9999.0
45.93	14.00	139.7	0.88	0.6	1.751	0.966	26.8	20.2	-104.410	68.2	42.0	-9999.0
46.10	14.05	154.4	0.96	0.6	1.756	0.971	29.6	22.3	-104.410	71.0	42.0	-9999.0
46.26	14.10	161.5	1.09	0.7	1.761	0.976	30.9	23.3	-104.410	72.3	42.0	-9999.0
46.42	14.15	163.8	1.19	0.7	1.766	0.981	31.4	23.6	-104.410	72.6	42.0	-9999.0
46.59	14.20	167.7	1.27	0.8	1.771	0.986	32.1	24.1	-104.410	73.3	42.0	-9999.0
46.75	14.25	170.6	1.36	0.8	1.776	0.991	32.7	24.5	-104.410	73.7	42.0	-9999.0
46.92	14.30	171.8	1.40	0.8	1.781	0.996	32.9	24.7	-104.410	73.9	42.0	-9999.0
47.08	14.35	174.0	1.45	0.8	1.786	1.002	33.3	24.9	-104.410	74.2	42.0	-9999.0
47.24	14.40	175.9	1.41	0.8	1.791	1.007	33.7	25.2	-104.410	74.5	42.0	-9999.0
47.41	14.45	176.7	1.38	0.8	1.796	1.012	33.8	25.3	-104.410	74.6	42.0	-9999.0
47.57	14.50	172.9	1.42	0.8	1.801	1.017	33.1	24.7	-104.410	73.9	42.0	-9999.0
47.74	14.55	167.5	1.40	0.8	1.806	1.022	32.1	23.9	-104.410	73.0	42.0	-9999.0
47.90	14.60	167.2	1.36	0.8	1.811	1.027	32.0	23.8	-104.410	72.9	42.0	-9999.0
48.06	14.65	158.2	1.31	0.8	1.816	1.032	30.3	22.5	-104.410	71.3	42.0	-9999.0
48.23	14.70	142.2	1.31	0.9	1.822	1.037	27.2	20.2	-104.410	68.2	40.0	-9999.0
48.39	14.75	139.1	0.98	0.7	1.827	1.043	26.6	19.7	-104.410	67.5	40.0	-9999.0
48.56	14.80	147.4	0.92	0.6	1.832	1.048	28.2	20.9	-104.410	69.1	42.0	-9999.0
48.72	14.85	149.4	0.90	0.6	1.837	1.053	28.6	21.1	-104.410	69.4	42.0	-9999.0
48.88	14.90	155.9	0.98	0.6	1.842	1.058	29.9	22.0	-104.410	70.6	42.0	-9999.0
49.05	14.95	158.1	1.12	0.7	1.847	1.063	30.3	22.3	-104.410	71.0	42.0	-9999.0
49.21	15.00	148.8	1.20	0.8	1.852	1.068	28.5	20.9	-104.410	69.2	42.0	-9999.0
49.38	15.05	129.4	1.19	0.9	1.857	1.073	24.8	18.2	-104.410	65.2	40.0	-9999.0
49.54	15.10	113.5	1.06	0.9	1.862	1.078	27.2	19.9	-104.410	61.4	40.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
49.70	15.15	83.4	0.92	1.1	1.867	1.084	20.0	14.6	-104.410	52.5	38.0	-9999.0
49.87	15.20	47.9	0.90	1.9	1.871	1.089	15.3	11.2	-104.410	36.6	34.0	-9999.0
50.03	15.25	25.4	0.77	3.0	1.876	1.094	12.2	8.9	1.795	-9999.0	-9999.0	4.3
50.20	15.30	16.4	0.47	2.9	1.880	1.099	7.9	5.7	1.073	-9999.0	-9999.0	2.1
50.36	15.35	13.0	0.20	1.5	1.884	1.104	6.2	4.5	0.802	-9999.0	-9999.0	1.4
50.52	15.40	13.7	0.12	0.9	1.889	1.109	5.3	3.8	0.858	30.0	30.0	1.5
50.69	15.45	16.6	0.14	0.8	1.893	1.114	6.4	4.6	1.088	30.0	30.0	2.1
50.85	15.50	24.1	0.17	0.7	1.897	1.119	7.7	5.6	-104.410	30.0	30.0	-9999.0
51.02	15.55	20.6	0.11	0.5	1.902	1.125	6.6	4.8	-104.410	30.0	30.0	-9999.0
51.18	15.60	15.7	0.19	1.2	1.906	1.130	6.0	4.3	1.010	30.0	30.0	1.9
51.34	15.65	16.4	0.65	4.0	1.911	1.135	10.5	7.6	1.070	-9999.0	-9999.0	2.0
51.51	15.70	21.5	1.51	7.1	1.915	1.140	20.6	14.9	1.473	-9999.0	-9999.0	3.1
51.67	15.75	57.8	1.89	3.3	1.919	1.145	22.1	16.0	4.376	41.6	36.0	10.0
51.84	15.80	157.6	3.10	2.0	1.923	1.150	50.3	36.3	-104.410	70.3	42.0	-9999.0
52.00	15.85	168.0	3.19	1.9	1.928	1.155	40.2	29.0	-104.410	72.1	42.0	-9999.0
52.16	15.90	77.9	2.90	3.7	1.932	1.160	37.3	26.8	5.984	-9999.0	-9999.0	10.0
52.33	15.95	40.0	1.86	4.7	1.937	1.166	25.5	18.3	2.951	-9999.0	-9999.0	8.7
52.49	16.00	24.7	0.91	3.7	1.941	1.171	11.8	8.5	1.728	-9999.0	-9999.0	3.8
52.66	16.05	18.4	0.56	3.1	1.945	1.176	8.8	6.3	1.223	-9999.0	-9999.0	2.3
52.82	16.10	16.5	0.45	2.7	1.950	1.181	7.9	5.7	1.068	-9999.0	-9999.0	2.0
52.98	16.15	30.2	0.43	1.4	1.954	1.186	11.6	8.3	2.161	30.0	32.0	5.3
53.15	16.20	54.0	0.34	0.6	1.958	1.191	12.9	9.2	-104.410	39.4	36.0	-9999.0
53.31	16.25	61.5	0.28	0.5	1.963	1.196	14.7	10.5	-104.410	43.1	36.0	-9999.0
53.48	16.30	45.7	0.38	0.8	1.968	1.201	14.6	10.4	-104.410	34.5	34.0	-9999.0
53.64	16.35	29.6	0.32	1.1	1.972	1.206	9.4	6.7	-104.410	30.0	32.0	-9999.0
53.81	16.40	22.5	0.27	1.2	1.977	1.212	8.6	6.1	1.543	30.0	30.0	3.2
53.97	16.45	20.6	0.25	1.2	1.981	1.217	7.9	5.6	1.390	30.0	30.0	2.7
54.13	16.50	21.7	0.53	2.5	1.985	1.222	10.4	7.4	1.476	-9999.0	-9999.0	3.0
54.30	16.55	23.6	0.55	2.3	1.990	1.227	9.1	6.4	1.634	30.0	30.0	3.4
54.46	16.60	23.2	0.67	2.9	1.994	1.232	11.1	7.9	1.598	-9999.0	-9999.0	3.3
54.63	16.65	21.2	0.65	3.1	1.998	1.237	10.1	7.2	1.434	-9999.0	-9999.0	2.8
54.79	16.70	20.1	0.54	2.7	2.002	1.242	9.6	6.8	1.346	-9999.0	-9999.0	2.6
54.95	16.75	20.8	0.66	3.2	2.007	1.247	9.9	7.0	1.401	-9999.0	-9999.0	2.7
55.12	16.80	21.5	1.09	5.1	2.011	1.253	20.6	14.5	1.462	-9999.0	-9999.0	2.9
55.28	16.85	25.8	1.26	4.9	2.015	1.258	24.7	17.4	1.801	-9999.0	-9999.0	3.9
55.45	16.90	23.2	0.97	4.2	2.019	1.263	14.8	10.4	1.597	-9999.0	-9999.0	3.2
55.61	16.95	22.9	0.67	2.9	2.023	1.268	10.9	7.7	1.565	-9999.0	-9999.0	3.1
55.77	17.00	19.5	0.61	3.1	2.028	1.273	9.3	6.5	1.294	-9999.0	-9999.0	2.4
55.94	17.05	20.7	0.60	2.9	2.032	1.278	9.9	7.0	1.390	-9999.0	-9999.0	2.6
56.10	17.10	21.9	0.61	2.8	2.036	1.283	10.5	7.4	1.487	-9999.0	-9999.0	2.9
56.27	17.15	24.8	0.81	3.3	2.040	1.288	11.9	8.3	1.716	-9999.0	-9999.0	3.5
56.43	17.20	25.7	0.83	3.2	2.045	1.294	12.3	8.6	1.792	-9999.0	-9999.0	3.7
56.59	17.25	30.0	1.03	3.4	2.049	1.299	14.4	10.0	2.134	-9999.0	-9999.0	4.8
56.76	17.30	31.0	1.13	3.7	2.053	1.304	14.8	10.4	2.210	-9999.0	-9999.0	5.1
56.92	17.35	45.5	1.25	2.8	2.057	1.309	17.4	12.1	3.370	33.7	34.0	9.8
57.09	17.40	60.6	1.51	2.5	2.062	1.314	23.2	16.2	4.575	41.9	36.0	10.0
57.25	17.45	60.4	1.78	3.0	2.066	1.319	23.1	16.1	4.558	41.8	36.0	10.0
57.41	17.50	60.2	2.03	3.4	2.070	1.324	23.0	16.0	4.541	41.7	36.0	10.0
57.58	17.55	53.1	2.13	4.0	2.075	1.329	25.4	17.7	3.978	-9999.0	-9999.0	10.0
57.74	17.60	38.6	1.78	4.6	2.079	1.335	24.7	17.1	2.816	-9999.0	-9999.0	7.3
57.91	17.65	32.8	1.35	4.1	2.083	1.340	20.9	14.5	2.350	-9999.0	-9999.0	5.5
58.07	17.70	32.7	1.20	3.7	2.087	1.345	15.7	10.9	2.344	-9999.0	-9999.0	5.4
58.23	17.75	29.6	1.13	3.8	2.092	1.350	14.2	9.8	2.094	-9999.0	-9999.0	4.6
58.40	17.80	36.1	1.39	3.9	2.096	1.355	17.3	12.0	2.614	-9999.0	-9999.0	6.4
58.56	17.85	32.6	1.28	3.9	2.100	1.360	15.6	10.8	2.333	-9999.0	-9999.0	5.3
58.73	17.90	24.1	0.95	4.0	2.104	1.365	15.4	10.6	1.648	-9999.0	-9999.0	3.2
58.89	17.95	20.6	0.61	3.0	2.109	1.370	9.9	6.8	1.371	-9999.0	-9999.0	2.5
59.05	18.00	21.0	0.53	2.5	2.113	1.376	10.1	6.9	1.401	-9999.0	-9999.0	2.5
59.22	18.05	22.2	0.65	2.9	2.117	1.381	10.6	7.3	1.493	-9999.0	-9999.0	2.7
59.38	18.10	24.8	0.64	2.6	2.122	1.386	11.9	8.1	1.702	-9999.0	-9999.0	3.3
59.55	18.15	26.4	0.91	3.4	2.126	1.391	12.7	8.7	1.834	-9999.0	-9999.0	3.7
59.71	18.20	25.7	1.17	4.6	2.130	1.396	16.4	11.3	1.777	-9999.0	-9999.0	3.5
59.87	18.25	26.5	1.42	5.4	2.134	1.401	25.4	17.4	1.838	-9999.0	-9999.0	3.6
60.04	18.30	27.2	1.14	4.2	2.138	1.406	17.4	11.9	1.894	-9999.0	-9999.0	3.8

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
60.20	18.35	29.7	1.01	3.4	2.143	1.411	14.2	9.7	2.088	-9999.0	-9999.0	4.4
60.37	18.40	29.8	0.76	2.6	2.147	1.416	11.4	7.8	2.102	30.0	30.0	4.4
60.53	18.45	32.0	1.07	3.4	2.151	1.422	15.3	10.4	2.270	-9999.0	-9999.0	4.9
60.69	18.50	34.6	1.40	4.1	2.156	1.427	16.6	11.3	2.479	-9999.0	-9999.0	5.6
60.86	18.55	39.2	1.67	4.3	2.160	1.432	25.0	17.0	2.847	-9999.0	-9999.0	7.0
61.02	18.60	100.6	1.79	1.8	2.164	1.437	32.1	21.8	-104.410	55.7	38.0	-9999.0
61.19	18.65	222.6	2.04	0.9	2.169	1.442	42.6	28.9	-104.410	78.5	42.0	-9999.0
61.35	18.70	251.2	1.99	0.8	2.174	1.447	48.1	32.6	-104.410	81.9	42.0	-9999.0
61.51	18.75	263.2	1.54	0.6	2.179	1.452	50.4	34.2	-104.410	83.2	42.0	-9999.0
61.68	18.80	303.7	1.74	0.6	2.184	1.457	48.5	32.8	-104.410	87.3	44.0	-9999.0
61.84	18.85	281.2	1.95	0.7	2.190	1.463	53.9	36.4	-104.410	85.1	44.0	-9999.0
62.01	18.90	233.8	1.89	0.8	2.195	1.468	44.8	30.2	-104.410	79.7	42.0	-9999.0
62.17	18.95	161.4	1.65	1.0	2.200	1.473	30.9	20.8	-104.410	69.1	40.0	-9999.0
62.34	19.00	92.4	1.90	2.1	2.204	1.478	29.5	19.9	-104.410	53.1	38.0	-9999.0
62.50	19.05	68.8	1.65	2.4	2.209	1.483	26.4	17.7	5.210	44.6	36.0	10.0
62.66	19.10	56.0	1.39	2.5	2.213	1.488	21.5	14.4	4.187	38.7	34.0	10.0
62.83	19.15	51.3	1.07	2.1	2.217	1.493	19.7	13.2	3.810	36.1	34.0	10.0
62.99	19.20	54.2	0.97	1.8	2.222	1.498	17.3	11.6	-104.410	37.6	34.0	-9999.0
63.16	19.25	55.7	1.08	1.9	2.226	1.504	17.8	11.9	-104.410	38.4	34.0	-9999.0
63.32	19.30	56.4	1.18	2.1	2.231	1.509	18.0	12.0	-104.410	38.7	34.0	-9999.0
63.48	19.35	56.6	1.31	2.3	2.235	1.514	21.7	14.5	4.227	38.8	34.0	10.0
63.65	19.40	60.9	1.34	2.2	2.240	1.519	19.4	13.0	-104.410	40.9	34.0	-9999.0
63.81	19.45	117.4	1.79	1.5	2.244	1.524	28.1	18.8	-104.410	59.7	38.0	-9999.0
63.98	19.50	102.5	2.64	2.6	2.249	1.529	32.7	21.8	-104.410	55.8	38.0	-9999.0
64.14	19.55	77.9	3.13	4.0	2.253	1.534	37.3	24.8	5.926	-9999.0	-9999.0	10.0
64.30	19.60	68.9	3.31	4.8	2.258	1.539	66.0	43.9	-104.410	44.3	36.0	-9999.0
64.47	19.65	74.7	3.47	4.6	2.264	1.545	71.5	47.5	-104.410	46.6	36.0	-9999.0
64.63	19.70	84.9	3.87	4.6	2.270	1.550	81.3	54.0	-104.410	50.2	38.0	-9999.0
64.80	19.75	81.1	4.98	6.1	2.275	1.555	77.7	51.5	-104.410	48.9	36.0	-9999.0
64.96	19.80	79.1	4.92	6.2	2.281	1.560	75.7	50.1	-104.410	48.1	36.0	-9999.0
65.12	19.85	78.9	4.47	5.7	2.286	1.565	75.5	50.0	-104.410	48.0	36.0	-9999.0
65.29	19.90	87.1	4.35	5.0	2.292	1.570	83.4	55.1	-104.410	50.8	38.0	-9999.0
65.45	19.95	91.0	4.59	5.0	2.297	1.575	87.1	57.5	-104.410	52.0	38.0	-9999.0
65.62	20.00	100.3	5.27	5.3	2.303	1.580	96.0	63.3	-104.410	54.8	38.0	-9999.0
65.78	20.05	111.8	6.19	5.5	2.309	1.585	107.1	70.5	-104.410	57.9	38.0	-9999.0
65.94	20.10	114.5	6.67	5.8	2.314	1.591	109.7	72.1	-104.410	58.5	38.0	-9999.0
66.11	20.15	117.5	7.08	6.0	2.320	1.596	112.6	73.9	-104.410	59.2	38.0	-9999.0
66.27	20.20	116.8	6.87	5.9	2.325	1.601	111.8	73.3	-104.410	59.0	38.0	-9999.0
66.44	20.25	123.5	7.14	5.8	2.331	1.606	118.2	77.4	-104.410	60.6	38.0	-9999.0
66.60	20.30	128.9	7.09	5.5	2.336	1.611	123.5	80.8	-104.410	61.8	40.0	-9999.0
66.76	20.35	123.9	6.96	5.6	2.342	1.616	118.6	77.5	-104.410	60.6	38.0	-9999.0
66.93	20.40	135.2	6.68	4.9	2.348	1.621	129.5	84.5	-104.410	63.1	40.0	-9999.0
67.09	20.45	145.6	6.07	4.2	2.353	1.626	139.5	90.9	-104.410	65.2	40.0	-9999.0
67.26	20.50	146.4	6.47	4.4	2.359	1.632	140.2	91.3	-104.410	65.3	40.0	-9999.0
67.42	20.55	129.7	6.50	5.0	2.364	1.637	124.2	80.8	-104.410	61.8	40.0	-9999.0
67.58	20.60	152.5	6.87	4.5	2.370	1.642	146.0	94.9	-104.410	66.4	40.0	-9999.0
67.75	20.65	160.5	7.20	4.5	2.376	1.647	153.7	99.8	-104.410	67.8	40.0	-9999.0
67.91	20.70	209.6	7.40	3.5	2.381	1.652	100.3	65.0	-104.410	75.4	42.0	-9999.0
68.08	20.75	300.1	7.40	2.5	2.385	1.657	95.8	62.0	-104.410	85.7	42.0	-9999.0
68.24	20.80	304.7	7.40	2.4	2.390	1.662	97.3	62.9	-104.410	86.1	44.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1753-2096
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-23
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/17/08
CPT Time: 16:15
CPT File: 390CP23.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 3.05 (ft): 10.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	2.0	0.02	1.0	0.009	0.000	1.0	1.9	0.158	-9999.0	-9999.0	10.0
0.33	0.10	14.7	0.02	0.1	0.018	0.000	5.6	11.2	1.171	68.9	50.0	10.0
0.49	0.15	9.8	0.02	0.2	0.028	0.000	4.7	9.3	0.778	-9999.0	-9999.0	10.0
0.66	0.20	25.1	0.04	0.2	0.037	0.000	8.0	16.0	-104.410	74.2	50.0	-9999.0
0.82	0.25	100.4	0.17	0.2	0.047	0.000	19.2	38.5	-104.410	95.0	50.0	-9999.0
0.98	0.30	146.9	0.48	0.3	0.057	0.000	28.1	56.3	-104.410	95.0	50.0	-9999.0
1.15	0.35	117.7	0.82	0.7	0.067	0.000	22.5	45.1	-104.410	95.0	50.0	-9999.0
1.31	0.40	99.8	1.13	1.1	0.077	0.000	23.9	47.8	-104.410	95.0	50.0	-9999.0
1.48	0.45	89.1	1.00	1.1	0.087	0.000	21.3	42.7	-104.410	95.0	50.0	-9999.0
1.64	0.50	66.1	0.90	1.4	0.097	0.000	21.1	42.2	-104.410	88.2	50.0	-9999.0
1.80	0.55	37.6	0.92	2.5	0.107	0.000	14.4	28.8	2.997	70.7	48.0	10.0
1.97	0.60	32.0	0.87	2.7	0.116	0.000	12.3	24.5	2.551	64.9	46.0	10.0
2.13	0.65	35.4	0.86	2.4	0.125	0.000	13.6	27.1	2.820	66.6	46.0	10.0
2.30	0.70	33.6	0.87	2.6	0.135	0.000	12.9	25.8	2.680	64.1	46.0	10.0
2.46	0.75	29.8	0.78	2.6	0.144	0.000	11.4	22.9	2.375	59.7	46.0	10.0
2.62	0.80	26.5	0.80	3.0	0.154	0.000	12.7	25.4	2.109	-9999.0	-9999.0	10.0
2.79	0.85	28.5	0.73	2.6	0.163	0.000	10.9	21.9	2.270	56.7	44.0	10.0
2.95	0.90	37.1	0.82	2.2	0.172	0.000	14.2	28.4	2.955	63.4	46.0	10.0
3.12	0.95	69.7	1.12	1.6	0.182	0.000	22.2	44.5	-104.410	80.7	48.0	-9999.0
3.28	1.00	65.1	1.53	2.4	0.191	0.000	25.0	49.9	5.196	78.1	48.0	10.0
3.44	1.05	63.3	1.98	3.1	0.201	0.000	24.2	48.5	5.048	76.6	46.0	10.0
3.61	1.10	68.8	2.10	3.0	0.210	0.000	26.4	52.7	5.487	78.3	48.0	10.0
3.77	1.15	59.6	1.74	2.9	0.220	0.000	22.8	45.7	4.751	73.5	46.0	10.0
3.94	1.20	51.2	1.47	2.9	0.229	0.000	19.6	39.2	4.080	68.6	46.0	10.0
4.10	1.25	45.5	1.32	2.9	0.238	0.000	17.4	34.8	3.619	64.6	44.0	10.0
4.27	1.30	45.5	1.42	3.1	0.248	0.000	17.4	34.8	3.618	64.1	44.0	10.0
4.43	1.35	38.4	1.40	3.7	0.257	0.000	18.4	36.3	3.051	-9999.0	-9999.0	10.0
4.59	1.40	40.2	1.55	3.9	0.267	0.000	19.2	37.3	3.194	-9999.0	-9999.0	10.0
4.76	1.45	45.2	1.83	4.1	0.276	0.000	21.6	41.2	3.591	-9999.0	-9999.0	10.0
4.92	1.50	138.0	1.96	1.4	0.286	0.000	33.0	61.8	-104.410	93.8	48.0	-9999.0
5.09	1.55	203.8	2.49	1.2	0.296	0.000	39.0	71.8	-104.410	95.0	50.0	-9999.0
5.25	1.60	203.2	2.99	1.5	0.306	0.000	48.7	88.0	-104.410	95.0	50.0	-9999.0
5.41	1.65	162.2	3.71	2.3	0.316	0.000	51.8	92.2	-104.410	95.0	48.0	-9999.0
5.58	1.70	145.8	3.96	2.7	0.325	0.000	46.6	81.6	-104.410	93.6	48.0	-9999.0
5.74	1.75	96.6	3.23	3.3	0.335	0.000	37.0	64.0	7.701	81.3	46.0	10.0
5.91	1.80	72.7	3.13	4.3	0.344	0.000	34.8	59.3	5.789	-9999.0	-9999.0	10.0
6.07	1.85	69.4	3.08	4.4	0.354	0.000	33.3	55.9	5.527	-9999.0	-9999.0	10.0
6.23	1.90	65.8	2.79	4.2	0.363	0.000	31.5	52.3	5.235	-9999.0	-9999.0	10.0
6.40	1.95	70.5	2.69	3.8	0.372	0.000	33.8	55.4	5.614	-9999.0	-9999.0	10.0
6.56	2.00	101.1	2.70	2.7	0.382	0.000	32.3	52.2	-104.410	80.8	46.0	-9999.0
6.73	2.05	148.9	3.51	2.4	0.392	0.000	47.5	76.0	-104.410	91.5	48.0	-9999.0
6.89	2.10	160.7	4.28	2.7	0.401	0.000	51.3	81.0	-104.410	93.3	48.0	-9999.0
7.05	2.15	175.1	5.14	2.9	0.411	0.000	55.9	87.2	-104.410	95.0	48.0	-9999.0
7.22	2.20	166.4	5.43	3.3	0.420	0.000	63.8	98.3	13.282	93.7	48.0	10.0
7.38	2.25	158.9	4.72	3.0	0.430	0.000	50.7	77.3	-104.410	92.0	48.0	-9999.0
7.55	2.30	159.3	4.50	2.8	0.440	0.000	50.9	76.7	-104.410	91.8	48.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	131.8	3.90	3.0	0.449	0.000	50.5	75.3	10.508	86.0	46.0	10.0
7.87	2.40	115.6	3.77	3.3	0.459	0.000	44.3	65.4	9.213	82.0	46.0	10.0
8.04	2.45	98.9	3.28	3.3	0.468	0.000	37.9	55.4	7.873	77.2	46.0	10.0
8.20	2.50	93.3	3.01	3.2	0.477	0.000	35.7	51.7	7.427	75.3	44.0	10.0
8.37	2.55	86.9	2.42	2.8	0.487	0.000	33.3	47.7	6.912	72.9	44.0	10.0
8.53	2.60	88.0	2.08	2.4	0.496	0.000	28.1	39.9	-104.410	73.0	44.0	-9999.0
8.69	2.65	77.3	1.68	2.2	0.506	0.000	24.7	34.7	-104.410	69.0	44.0	-9999.0
8.86	2.70	72.4	1.60	2.2	0.516	0.000	23.1	32.2	-104.410	66.9	44.0	-9999.0
9.02	2.75	70.6	1.15	1.6	0.525	0.000	22.6	31.1	-104.410	65.9	44.0	-9999.0
9.19	2.80	65.4	1.22	1.9	0.535	0.000	20.9	28.6	-104.410	63.5	42.0	-9999.0
9.35	2.85	56.4	1.17	2.1	0.545	0.000	18.0	24.4	-104.410	59.0	42.0	-9999.0
9.51	2.90	53.0	1.00	1.9	0.554	0.000	16.9	22.7	-104.410	56.9	42.0	-9999.0
9.68	2.95	50.4	0.82	1.6	0.564	0.000	16.1	21.4	-104.410	55.2	42.0	-9999.0
9.84	3.00	48.5	0.57	1.2	0.574	0.000	15.5	20.4	-104.410	53.9	42.0	-9999.0
10.01	3.05	45.1	0.50	1.1	0.583	0.000	14.4	18.9	-104.410	51.6	40.0	-9999.0
10.17	3.10	43.4	0.50	1.2	0.588	0.005	13.8	18.1	-104.410	50.3	40.0	-9999.0
10.33	3.15	42.2	0.54	1.3	0.592	0.010	13.5	17.5	-104.410	49.5	40.0	-9999.0
10.50	3.20	41.8	0.53	1.3	0.597	0.016	13.3	17.3	-104.410	49.0	40.0	-9999.0
10.66	3.25	42.5	0.51	1.2	0.601	0.021	13.6	17.5	-104.410	49.5	40.0	-9999.0
10.83	3.30	43.4	0.49	1.1	0.606	0.026	13.9	17.8	-104.410	49.9	40.0	-9999.0
10.99	3.35	43.0	0.51	1.2	0.610	0.031	13.7	17.6	-104.410	49.5	40.0	-9999.0
11.15	3.40	42.1	0.52	1.2	0.615	0.036	13.4	17.1	-104.410	48.8	40.0	-9999.0
11.32	3.45	42.4	0.56	1.3	0.619	0.041	13.5	17.2	-104.410	48.9	40.0	-9999.0
11.48	3.50	39.8	0.63	1.6	0.624	0.046	12.7	16.1	-104.410	47.0	40.0	-9999.0
11.65	3.55	34.2	0.64	1.9	0.628	0.051	13.1	16.5	2.679	42.5	40.0	10.0
11.81	3.60	30.7	0.56	1.8	0.633	0.057	11.7	14.8	2.398	39.3	38.0	10.0
11.97	3.65	29.1	0.50	1.7	0.637	0.062	11.1	14.0	2.270	37.7	38.0	10.0
12.14	3.70	24.8	0.47	1.9	0.641	0.067	9.5	11.9	1.931	33.1	38.0	10.0
12.30	3.75	18.3	0.35	1.9	0.645	0.072	7.0	8.7	1.405	30.0	36.0	10.0
12.47	3.80	12.9	0.35	2.7	0.650	0.077	6.2	7.6	0.971	-9999.0	-9999.0	8.5
12.63	3.85	7.6	0.25	3.3	0.654	0.082	7.3	9.0	0.550	-9999.0	-9999.0	3.5
12.80	3.90	4.8	0.16	3.4	0.658	0.087	4.6	5.6	0.323	-9999.0	-9999.0	1.7
12.96	3.95	4.3	0.11	2.5	0.662	0.092	4.1	5.1	0.286	-9999.0	-9999.0	1.5
13.12	4.00	3.9	0.08	2.0	0.666	0.098	3.8	4.6	0.254	-9999.0	-9999.0	1.3
13.29	4.05	4.1	0.07	1.7	0.670	0.103	2.0	2.4	0.269	-9999.0	-9999.0	1.3
13.45	4.10	4.0	0.07	1.8	0.674	0.108	1.9	2.3	0.257	-9999.0	-9999.0	1.3
13.62	4.15	4.1	0.07	1.7	0.678	0.113	1.9	2.4	0.261	-9999.0	-9999.0	1.3
13.78	4.20	4.4	0.07	1.6	0.682	0.118	2.1	2.5	0.286	-9999.0	-9999.0	1.4
13.94	4.25	4.4	0.08	1.8	0.686	0.123	2.1	2.6	0.291	-9999.0	-9999.0	1.4
14.11	4.30	4.5	0.08	1.8	0.690	0.128	2.2	2.6	0.295	-9999.0	-9999.0	1.4
14.27	4.35	4.6	0.07	1.5	0.694	0.133	2.2	2.7	0.305	-9999.0	-9999.0	1.5
14.44	4.40	5.1	0.08	1.6	0.698	0.138	2.5	3.0	0.345	-9999.0	-9999.0	1.7
14.60	4.45	5.5	0.11	2.0	0.702	0.144	3.5	4.2	0.370	-9999.0	-9999.0	1.9
14.76	4.50	6.6	0.16	2.4	0.706	0.149	4.2	5.0	0.456	-9999.0	-9999.0	2.4
14.93	4.55	8.1	0.24	3.0	0.711	0.154	5.2	6.1	0.578	-9999.0	-9999.0	3.4
15.09	4.60	16.7	0.35	2.1	0.715	0.159	8.0	9.5	1.269	-9999.0	-9999.0	10.0
15.26	4.65	28.6	0.39	1.4	0.719	0.164	11.0	12.9	2.220	35.5	38.0	10.0
15.42	4.70	36.2	0.48	1.3	0.724	0.169	11.6	13.6	-104.410	42.2	38.0	-9999.0
15.58	4.75	40.4	0.38	0.9	0.728	0.174	12.9	15.1	-104.410	45.2	40.0	-9999.0
15.75	4.80	43.2	0.43	1.0	0.733	0.179	13.8	16.1	-104.410	47.1	40.0	-9999.0
15.91	4.85	47.3	0.39	0.8	0.737	0.185	15.1	17.6	-104.410	49.6	40.0	-9999.0
16.08	4.90	42.8	0.43	1.0	0.742	0.190	13.7	15.9	-104.410	46.6	40.0	-9999.0
16.24	4.95	38.0	0.57	1.5	0.746	0.195	12.1	14.0	-104.410	43.1	38.0	-9999.0
16.40	5.00	32.1	0.61	1.9	0.751	0.200	12.3	14.2	2.490	38.2	38.0	10.0
16.57	5.05	24.6	0.51	2.1	0.755	0.205	9.4	10.8	1.891	30.5	36.0	10.0
16.73	5.10	19.0	0.41	2.2	0.759	0.210	9.1	10.4	1.442	-9999.0	-9999.0	10.0
16.90	5.15	13.6	0.34	2.5	0.763	0.215	6.5	7.4	1.006	-9999.0	-9999.0	7.0
17.06	5.20	9.5	0.30	3.2	0.768	0.220	6.1	6.9	0.684	-9999.0	-9999.0	3.8
17.22	5.25	8.3	0.27	3.3	0.772	0.226	7.9	9.0	0.580	-9999.0	-9999.0	3.0
17.39	5.30	9.0	0.24	2.7	0.776	0.231	5.7	6.5	0.636	-9999.0	-9999.0	3.4
17.55	5.35	13.0	0.26	2.0	0.780	0.236	6.2	7.0	0.957	-9999.0	-9999.0	6.2
17.72	5.40	16.6	0.26	1.6	0.785	0.241	6.4	7.2	1.247	30.0	34.0	9.3
17.88	5.45	17.9	0.23	1.3	0.789	0.246	6.9	7.7	1.348	30.0	34.0	10.0
18.04	5.50	16.0	0.20	1.2	0.793	0.251	6.1	6.9	1.200	30.0	32.0	8.6

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	14.2	0.16	1.1	0.797	0.256	5.4	6.1	1.051	30.0	32.0	7.0
18.37	5.60	16.6	0.19	1.1	0.802	0.261	6.3	7.1	1.240	30.0	32.0	9.0
18.54	5.65	21.0	0.21	1.0	0.806	0.267	8.1	9.0	1.598	30.0	34.0	10.0
18.70	5.70	23.1	0.26	1.1	0.810	0.272	8.8	9.8	1.761	30.0	36.0	10.0
18.86	5.75	21.9	0.38	1.7	0.815	0.277	8.4	9.3	1.669	30.0	34.0	10.0
19.03	5.80	21.4	0.48	2.3	0.819	0.282	8.2	9.0	1.622	30.0	34.0	10.0
19.19	5.85	24.8	0.48	1.9	0.823	0.287	9.5	10.5	1.897	30.0	36.0	10.0
19.36	5.90	24.1	0.48	2.0	0.827	0.292	9.2	10.1	1.835	30.0	36.0	10.0
19.52	5.95	18.9	0.33	1.8	0.832	0.297	7.2	7.9	1.421	30.0	34.0	10.0
19.68	6.00	12.8	0.14	1.1	0.836	0.302	4.9	5.3	0.929	30.0	32.0	5.3
19.85	6.05	11.9	0.10	0.8	0.840	0.308	4.5	5.0	0.857	30.0	30.0	4.7
20.01	6.10	11.5	0.08	0.7	0.844	0.313	4.4	4.8	0.831	30.0	30.0	4.4
20.18	6.15	9.8	0.07	0.7	0.849	0.318	3.8	4.1	0.692	30.0	30.0	3.4
20.34	6.20	8.8	0.10	1.1	0.853	0.323	4.2	4.6	0.609	-9999.0	-9999.0	2.8
20.50	6.25	12.8	0.15	1.2	0.857	0.328	4.9	5.3	0.925	30.0	32.0	5.1
20.67	6.30	13.3	0.31	2.3	0.862	0.333	6.4	6.9	0.971	-9999.0	-9999.0	5.5
20.83	6.35	17.0	0.72	4.2	0.866	0.338	16.3	17.5	1.267	-9999.0	-9999.0	8.2
21.00	6.40	21.1	1.16	5.5	0.870	0.343	20.2	21.7	1.593	-9999.0	-9999.0	10.0
21.16	6.45	25.7	1.47	5.7	0.874	0.348	24.6	26.3	1.954	-9999.0	-9999.0	10.0
21.33	6.50	25.8	1.55	6.0	0.878	0.354	24.7	26.4	1.964	-9999.0	-9999.0	10.0
21.49	6.55	23.9	1.40	5.9	0.882	0.359	22.9	24.4	1.815	-9999.0	-9999.0	10.0
21.65	6.60	23.6	1.23	5.2	0.886	0.364	22.6	24.0	1.784	-9999.0	-9999.0	10.0
21.82	6.65	21.9	1.30	6.0	0.890	0.369	21.0	22.2	1.651	-9999.0	-9999.0	10.0
21.98	6.70	19.5	1.29	6.6	0.894	0.374	18.6	19.7	1.456	-9999.0	-9999.0	9.7
22.15	6.75	17.3	0.96	5.6	0.898	0.379	16.6	17.5	1.282	-9999.0	-9999.0	7.9
22.31	6.80	16.8	0.94	5.6	0.902	0.384	16.1	16.9	1.240	-9999.0	-9999.0	7.4
22.47	6.85	21.1	0.96	4.6	0.906	0.389	20.2	21.2	1.583	-9999.0	-9999.0	10.0
22.64	6.90	27.0	0.84	3.1	0.910	0.395	12.9	13.6	2.058	-9999.0	-9999.0	10.0
22.80	6.95	42.4	0.89	2.1	0.914	0.400	16.2	17.0	3.288	43.4	38.0	10.0
22.97	7.00	64.8	0.87	1.3	0.919	0.405	20.7	21.6	-104.410	55.5	40.0	-9999.0
23.13	7.05	95.6	1.00	1.0	0.923	0.410	22.9	23.8	-104.410	66.5	42.0	-9999.0
23.29	7.10	104.1	1.18	1.1	0.928	0.415	24.9	25.9	-104.410	68.9	42.0	-9999.0
23.46	7.15	112.9	1.19	1.1	0.933	0.420	27.0	28.0	-104.410	71.1	42.0	-9999.0
23.62	7.20	128.2	1.14	0.9	0.938	0.425	24.6	25.4	-104.410	74.7	44.0	-9999.0
23.79	7.25	117.8	0.99	0.8	0.943	0.430	22.6	23.2	-104.410	72.2	42.0	-9999.0
23.95	7.30	107.7	0.56	0.5	0.948	0.436	20.6	21.2	-104.410	69.6	42.0	-9999.0
24.11	7.35	100.4	0.63	0.6	0.953	0.441	19.2	19.7	-104.410	67.5	42.0	-9999.0
24.28	7.40	94.3	0.71	0.8	0.958	0.446	22.6	23.1	-104.410	65.6	42.0	-9999.0
24.44	7.45	91.4	0.88	1.0	0.963	0.451	21.9	22.3	-104.410	64.6	42.0	-9999.0
24.61	7.50	93.4	1.02	1.1	0.968	0.456	22.4	22.7	-104.410	65.2	42.0	-9999.0
24.77	7.55	117.4	1.38	1.2	0.972	0.461	28.1	28.5	-104.410	71.7	42.0	-9999.0
24.93	7.60	196.7	1.39	0.7	0.977	0.466	37.7	38.1	-104.410	86.4	46.0	-9999.0
25.10	7.65	324.3	2.14	0.7	0.983	0.471	51.8	52.2	-104.410	95.0	48.0	-9999.0
25.26	7.70	297.2	3.04	1.0	0.988	0.477	56.9	57.3	-104.410	95.0	46.0	-9999.0
25.43	7.75	223.0	2.08	0.9	0.993	0.482	42.7	42.9	-104.410	89.7	46.0	-9999.0
25.59	7.80	207.5	1.96	0.9	0.998	0.487	39.7	39.8	-104.410	87.6	46.0	-9999.0
25.75	7.85	180.4	1.91	1.1	1.003	0.492	34.6	34.5	-104.410	83.5	44.0	-9999.0
25.92	7.90	191.6	1.81	0.9	1.008	0.497	36.7	36.6	-104.410	85.2	44.0	-9999.0
26.08	7.95	193.9	2.23	1.1	1.013	0.502	37.1	36.9	-104.410	85.4	44.0	-9999.0
26.25	8.00	217.8	2.63	1.2	1.018	0.507	41.7	41.4	-104.410	88.7	46.0	-9999.0
26.41	8.05	257.5	2.62	1.0	1.023	0.512	49.3	48.8	-104.410	93.4	46.0	-9999.0
26.57	8.10	327.3	3.13	1.0	1.028	0.518	62.7	61.8	-104.410	95.0	46.0	-9999.0
26.74	8.15	370.8	3.88	1.0	1.033	0.523	71.0	69.9	-104.410	95.0	48.0	-9999.0
26.90	8.20	378.7	3.11	0.8	1.038	0.528	60.5	59.3	-104.410	95.0	48.0	-9999.0
27.07	8.25	352.5	2.69	0.8	1.044	0.533	56.3	55.1	-104.410	95.0	48.0	-9999.0
27.23	8.30	362.5	2.73	0.8	1.049	0.538	57.9	56.5	-104.410	95.0	48.0	-9999.0
27.39	8.35	402.3	2.80	0.7	1.054	0.543	64.2	62.5	-104.410	95.0	48.0	-9999.0
27.56	8.40	436.6	2.80	0.6	1.060	0.548	69.7	67.7	-104.410	95.0	48.0	-9999.0
27.72	8.45	448.2	2.80	0.6	1.065	0.553	71.5	69.3	-104.410	95.0	48.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output ~ Release 1.22A
Run No: 04-0909-1753-2239
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-24
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/19/08
CPT Time: 13:54
CPT File: 390CP24.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 3.05 (ft): 10.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	56.9	0.02	0.0	0.010	0.000	13.6	27.3	-104.410	95.0	50.0	-9999.0
0.33	0.10	64.3	0.02	0.0	0.020	0.000	15.4	30.8	-104.410	95.0	50.0	-9999.0
0.49	0.15	99.5	0.20	0.2	0.030	0.000	19.1	38.1	-104.410	95.0	50.0	-9999.0
0.66	0.20	114.8	0.30	0.3	0.040	0.000	22.0	44.0	-104.410	95.0	50.0	-9999.0
0.82	0.25	127.5	0.29	0.2	0.050	0.000	24.4	48.8	-104.410	95.0	50.0	-9999.0
0.98	0.30	150.0	0.32	0.2	0.060	0.000	28.7	57.4	-104.410	95.0	50.0	-9999.0
1.15	0.35	158.0	0.39	0.2	0.071	0.000	30.3	60.5	-104.410	95.0	50.0	-9999.0
1.31	0.40	176.6	0.67	0.4	0.081	0.000	33.8	67.7	-104.410	95.0	50.0	-9999.0
1.48	0.45	181.6	0.85	0.5	0.091	0.000	34.8	69.6	-104.410	95.0	50.0	-9999.0
1.64	0.50	172.3	0.94	0.5	0.101	0.000	33.0	66.0	-104.410	95.0	50.0	-9999.0
1.80	0.55	164.3	0.99	0.6	0.111	0.000	31.5	62.9	-104.410	95.0	50.0	-9999.0
1.97	0.60	147.4	0.99	0.7	0.122	0.000	28.2	56.5	-104.410	95.0	50.0	-9999.0
2.13	0.65	124.4	1.08	0.9	0.132	0.000	23.8	47.6	-104.410	95.0	50.0	-9999.0
2.30	0.70	114.5	1.06	0.9	0.142	0.000	27.4	54.8	-104.410	95.0	50.0	-9999.0
2.46	0.75	97.9	0.91	0.9	0.152	0.000	23.4	46.9	-104.410	93.1	50.0	-9999.0
2.62	0.80	95.4	0.98	1.0	0.162	0.000	22.8	45.7	-104.410	91.4	50.0	-9999.0
2.79	0.85	95.3	1.02	1.1	0.172	0.000	22.8	45.6	-104.410	90.6	50.0	-9999.0
2.95	0.90	96.0	1.05	1.1	0.181	0.000	23.0	46.0	-104.410	89.9	48.0	-9999.0
3.12	0.95	105.7	0.91	0.9	0.191	0.000	25.3	50.6	-104.410	91.9	50.0	-9999.0
3.28	1.00	123.4	0.86	0.7	0.201	0.000	23.6	47.3	-104.410	95.0	50.0	-9999.0
3.44	1.05	142.5	1.03	0.7	0.212	0.000	27.3	54.6	-104.410	95.0	50.0	-9999.0
3.61	1.10	144.9	1.24	0.9	0.222	0.000	27.8	55.5	-104.410	95.0	50.0	-9999.0
3.77	1.15	126.2	1.77	1.4	0.232	0.000	30.2	60.4	-104.410	94.3	50.0	-9999.0
3.94	1.20	97.0	2.04	2.1	0.242	0.000	31.0	62.0	-104.410	86.2	48.0	-9999.0
4.10	1.25	65.9	1.91	2.9	0.251	0.000	25.3	50.4	5.254	74.5	46.0	10.0
4.27	1.30	36.9	1.30	3.5	0.261	0.000	17.6	34.6	2.928	-9999.0	-9999.0	10.0
4.43	1.35	28.3	0.72	2.6	0.270	0.000	10.8	20.9	2.242	49.2	42.0	10.0
4.59	1.40	23.2	0.47	2.0	0.279	0.000	8.9	16.8	1.832	43.0	42.0	10.0
4.76	1.45	21.7	0.44	2.0	0.289	0.000	8.3	15.4	1.709	40.6	40.0	10.0
4.92	1.50	21.1	0.46	2.2	0.298	0.000	8.1	14.8	1.662	39.4	40.0	10.0
5.09	1.55	22.5	0.49	2.2	0.308	0.000	8.6	15.5	1.774	40.8	40.0	10.0
5.25	1.60	26.2	0.52	2.0	0.317	0.000	10.0	17.8	2.070	44.7	42.0	10.0
5.41	1.65	31.7	0.44	1.4	0.326	0.000	10.1	17.7	-104.410	49.8	42.0	-9999.0
5.58	1.70	39.0	0.37	1.0	0.336	0.000	12.4	21.5	-104.410	55.3	42.0	-9999.0
5.74	1.75	41.9	0.35	0.8	0.346	0.000	13.4	22.7	-104.410	56.9	42.0	-9999.0
5.91	1.80	62.9	0.39	0.6	0.356	0.000	15.1	25.2	-104.410	68.2	44.0	-9999.0
6.07	1.85	72.2	0.43	0.6	0.365	0.000	17.3	28.6	-104.410	71.8	46.0	-9999.0
6.23	1.90	71.6	0.44	0.6	0.375	0.000	17.1	28.0	-104.410	71.1	44.0	-9999.0
6.40	1.95	74.7	0.45	0.6	0.385	0.000	17.9	28.8	-104.410	72.0	44.0	-9999.0
6.56	2.00	74.5	0.43	0.6	0.395	0.000	17.8	28.4	-104.410	71.5	44.0	-9999.0
6.73	2.05	72.8	0.44	0.6	0.405	0.000	17.4	27.4	-104.410	70.5	44.0	-9999.0
6.89	2.10	69.4	0.41	0.6	0.415	0.000	16.6	25.8	-104.410	68.8	44.0	-9999.0
7.05	2.15	65.3	0.40	0.6	0.425	0.000	15.6	24.0	-104.410	66.7	44.0	-9999.0
7.22	2.20	60.4	0.39	0.6	0.435	0.000	14.5	21.9	-104.410	64.1	44.0	-9999.0
7.38	2.25	54.0	0.33	0.6	0.445	0.000	12.9	19.4	-104.410	60.6	42.0	-9999.0
7.55	2.30	45.5	0.29	0.6	0.455	0.000	10.9	16.2	-104.410	55.4	42.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	38.3	0.26	0.7	0.465	0.000	12.2	18.0	-104.410	50.2	42.0	-9999.0
7.87	2.40	38.1	0.25	0.7	0.474	0.000	12.2	17.7	-104.410	49.7	42.0	-9999.0
8.04	2.45	39.7	0.26	0.7	0.484	0.000	12.7	18.2	-104.410	50.6	42.0	-9999.0
8.20	2.50	43.0	0.24	0.6	0.494	0.000	10.3	14.7	-104.410	52.6	42.0	-9999.0
8.37	2.55	41.6	0.22	0.5	0.503	0.000	13.3	18.7	-104.410	51.3	42.0	-9999.0
8.53	2.60	42.7	0.24	0.6	0.513	0.000	10.2	14.3	-104.410	51.8	42.0	-9999.0
8.69	2.65	37.8	0.26	0.7	0.523	0.000	12.1	16.7	-104.410	48.1	40.0	-9999.0
8.86	2.70	33.6	0.16	0.5	0.533	0.000	10.7	14.7	-104.410	44.4	40.0	-9999.0
9.02	2.75	29.1	0.19	0.7	0.542	0.000	9.3	12.6	-104.410	40.1	38.0	-9999.0
9.19	2.80	17.6	0.20	1.1	0.552	0.000	6.7	9.1	1.361	30.0	36.0	10.0
9.35	2.85	11.9	0.17	1.4	0.561	0.000	5.7	7.6	0.911	-9999.0	-9999.0	9.7
9.51	2.90	9.3	0.12	1.3	0.571	0.000	4.5	5.9	0.700	-9999.0	-9999.0	6.2
9.68	2.95	8.9	0.15	1.7	0.580	0.000	4.3	5.6	0.664	-9999.0	-9999.0	5.6
9.84	3.00	8.6	0.14	1.6	0.589	0.000	4.1	5.4	0.643	-9999.0	-9999.0	5.2
10.01	3.05	7.9	0.22	2.8	0.599	0.000	5.0	6.5	0.582	-9999.0	-9999.0	4.4
10.17	3.10	8.3	0.24	2.9	0.603	0.005	5.3	6.8	0.617	-9999.0	-9999.0	4.7
10.33	3.15	9.0	0.31	3.5	0.607	0.010	8.6	11.0	0.667	-9999.0	-9999.0	5.3
10.50	3.20	9.0	0.29	3.2	0.611	0.016	5.7	7.3	0.667	-9999.0	-9999.0	5.2
10.66	3.25	11.1	0.23	2.1	0.615	0.021	5.3	6.8	0.834	-9999.0	-9999.0	7.3
10.83	3.30	17.4	0.13	0.7	0.620	0.026	6.7	8.5	1.339	30.0	36.0	10.0
10.99	3.35	24.0	0.05	0.2	0.624	0.031	7.7	9.7	-104.410	32.5	38.0	-9999.0
11.15	3.40	28.6	0.52	1.8	0.629	0.036	11.0	13.8	2.236	37.4	38.0	10.0
11.32	3.45	35.3	0.19	0.5	0.633	0.041	11.3	14.1	-104.410	43.3	40.0	-9999.0
11.48	3.50	38.9	0.24	0.6	0.638	0.046	12.4	15.6	-104.410	46.0	40.0	-9999.0
11.65	3.55	37.0	0.24	0.6	0.642	0.051	11.8	14.8	-104.410	44.5	40.0	-9999.0
11.81	3.60	29.8	0.28	0.9	0.647	0.057	9.5	11.8	-104.410	38.2	38.0	-9999.0
11.97	3.65	31.4	0.10	0.3	0.651	0.062	10.0	12.4	-104.410	39.6	38.0	-9999.0
12.14	3.70	30.9	0.07	0.2	0.656	0.067	9.8	12.2	-104.410	39.0	38.0	-9999.0
12.30	3.75	28.8	0.07	0.2	0.660	0.072	9.2	11.3	-104.410	36.9	38.0	-9999.0
12.47	3.80	25.7	0.09	0.4	0.665	0.077	8.2	10.1	-104.410	33.5	38.0	-9999.0
12.63	3.85	23.3	0.10	0.4	0.669	0.082	7.4	9.1	-104.410	30.7	36.0	-9999.0
12.80	3.90	19.3	0.08	0.4	0.674	0.087	6.2	7.5	-104.410	30.0	36.0	-9999.0
12.96	3.95	15.5	0.08	0.5	0.678	0.092	6.0	7.2	1.181	30.0	34.0	10.0
13.12	4.00	11.4	0.09	0.8	0.683	0.098	4.4	5.3	0.849	30.0	32.0	6.4
13.29	4.05	12.3	0.08	0.7	0.687	0.103	4.7	5.7	0.919	30.0	32.0	7.1
13.45	4.10	15.0	0.09	0.6	0.691	0.108	5.8	6.9	1.138	30.0	34.0	9.9
13.62	4.15	12.8	0.13	1.0	0.695	0.113	4.9	5.9	0.963	30.0	32.0	7.5
13.78	4.20	11.0	0.20	1.8	0.700	0.118	5.3	6.3	0.818	-9999.0	-9999.0	5.8
13.94	4.25	10.2	0.28	2.8	0.704	0.123	6.5	7.8	0.750	-9999.0	-9999.0	5.0
14.11	4.30	11.3	0.32	2.8	0.708	0.128	7.2	8.6	0.835	-9999.0	-9999.0	5.9
14.27	4.35	11.0	0.32	2.9	0.712	0.133	7.0	8.3	0.809	-9999.0	-9999.0	5.5
14.44	4.40	10.5	0.25	2.4	0.717	0.138	5.0	5.9	0.768	-9999.0	-9999.0	5.1
14.60	4.45	7.9	0.22	2.8	0.721	0.144	5.0	5.9	0.562	-9999.0	-9999.0	3.2
14.76	4.50	4.7	0.17	3.6	0.725	0.149	4.5	5.3	0.307	-9999.0	-9999.0	1.4
14.93	4.55	3.2	0.13	4.1	0.729	0.154	3.1	3.6	0.186	-9999.0	-9999.0	0.9
15.09	4.60	3.1	0.11	3.5	0.733	0.159	3.0	3.5	0.180	-9999.0	-9999.0	0.8
15.26	4.65	4.3	0.06	1.4	0.737	0.164	2.1	2.4	0.271	-9999.0	-9999.0	1.2
15.42	4.70	4.5	0.04	0.9	0.741	0.169	2.2	2.5	0.291	-9999.0	-9999.0	1.3
15.58	4.75	3.9	0.06	1.5	0.745	0.174	1.9	2.2	0.239	-9999.0	-9999.0	1.1
15.75	4.80	4.0	0.07	1.7	0.749	0.179	1.9	2.2	0.249	-9999.0	-9999.0	1.1
15.91	4.85	4.0	0.10	2.5	0.753	0.185	3.8	4.4	0.243	-9999.0	-9999.0	1.1
16.08	4.90	5.9	0.10	1.7	0.757	0.190	3.8	4.3	0.395	-9999.0	-9999.0	1.8
16.24	4.95	6.0	0.10	1.7	0.762	0.195	3.8	4.4	0.405	-9999.0	-9999.0	1.9
16.40	5.00	4.7	0.11	2.3	0.766	0.200	4.5	5.2	0.302	-9999.0	-9999.0	1.3
16.57	5.05	4.5	0.09	2.0	0.770	0.205	2.9	3.3	0.285	-9999.0	-9999.0	1.2
16.73	5.10	5.6	0.12	2.1	0.774	0.210	3.6	4.1	0.372	-9999.0	-9999.0	1.7
16.90	5.15	7.9	0.11	1.4	0.779	0.215	3.8	4.3	0.555	-9999.0	-9999.0	2.8
17.06	5.20	20.3	0.10	0.5	0.783	0.220	6.5	7.3	-104.410	30.0	34.0	-9999.0
17.22	5.25	31.1	0.12	0.4	0.787	0.226	9.9	11.2	-104.410	36.6	38.0	-9999.0
17.39	5.30	26.3	0.48	1.8	0.792	0.231	10.1	11.3	2.024	31.7	36.0	10.0
17.55	5.35	24.9	0.45	1.8	0.796	0.236	9.5	10.7	1.906	30.0	36.0	10.0
17.72	5.40	65.7	0.28	0.4	0.801	0.241	15.7	17.6	-104.410	57.8	42.0	-9999.0
17.88	5.45	76.5	0.20	0.3	0.805	0.246	18.3	20.4	-104.410	62.1	42.0	-9999.0
18.04	5.50	55.2	0.23	0.4	0.810	0.251	13.2	14.7	-104.410	52.6	40.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	47.9	0.28	0.6	0.815	0.256	11.5	12.7	-104.410	48.5	40.0	-9999.0
18.37	5.60	39.4	0.34	0.9	0.820	0.261	12.6	13.9	-104.410	42.8	38.0	-9999.0
18.54	5.65	45.7	0.31	0.7	0.824	0.267	14.6	16.1	-104.410	47.0	40.0	-9999.0
18.70	5.70	38.8	0.12	0.3	0.829	0.272	9.3	10.2	-104.410	42.2	38.0	-9999.0
18.86	5.75	40.1	0.29	0.7	0.834	0.277	12.8	14.0	-104.410	43.0	38.0	-9999.0
19.03	5.80	47.6	0.11	0.2	0.838	0.282	11.4	12.4	-104.410	47.9	40.0	-9999.0
19.19	5.85	33.6	0.12	0.4	0.843	0.287	10.7	11.7	-104.410	37.9	38.0	-9999.0
19.36	5.90	34.5	0.14	0.4	0.847	0.292	11.0	12.0	-104.410	38.6	38.0	-9999.0
19.52	5.95	42.8	0.19	0.4	0.852	0.297	10.2	11.1	-104.410	44.6	38.0	-9999.0
19.68	6.00	53.8	0.16	0.3	0.857	0.302	12.9	13.9	-104.410	51.1	40.0	-9999.0
19.85	6.05	53.8	0.12	0.2	0.862	0.308	12.9	13.9	-104.410	51.0	40.0	-9999.0
20.01	6.10	57.1	0.18	0.3	0.867	0.313	13.7	14.7	-104.410	52.7	40.0	-9999.0
20.18	6.15	75.2	0.27	0.4	0.871	0.318	18.0	19.3	-104.410	60.5	42.0	-9999.0
20.34	6.20	104.0	0.24	0.2	0.876	0.323	19.9	21.3	-104.410	69.7	42.0	-9999.0
20.50	6.25	122.7	0.33	0.3	0.881	0.328	23.5	25.0	-104.410	74.3	44.0	-9999.0
20.67	6.30	107.2	0.30	0.3	0.886	0.333	20.5	21.8	-104.410	70.4	42.0	-9999.0
20.83	6.35	100.1	0.21	0.2	0.891	0.338	19.2	20.3	-104.410	68.3	42.0	-9999.0
21.00	6.40	105.0	0.30	0.3	0.896	0.343	20.1	21.2	-104.410	69.6	42.0	-9999.0
21.16	6.45	100.4	0.59	0.6	0.902	0.348	19.2	20.3	-104.410	68.3	42.0	-9999.0
21.33	6.50	80.2	0.83	1.0	0.906	0.354	19.2	20.2	-104.410	61.7	42.0	-9999.0
21.49	6.55	81.2	0.90	1.1	0.911	0.359	19.4	20.4	-104.410	62.0	42.0	-9999.0
21.65	6.60	78.2	0.97	1.2	0.916	0.364	18.7	19.6	-104.410	60.8	42.0	-9999.0
21.82	6.65	67.2	1.01	1.5	0.921	0.369	21.4	22.3	-104.410	56.4	40.0	-9999.0
21.98	6.70	62.0	0.66	1.1	0.925	0.374	14.8	15.4	-104.410	54.1	40.0	-9999.0
22.15	6.75	66.3	0.76	1.1	0.930	0.379	15.9	16.5	-104.410	55.9	40.0	-9999.0
22.31	6.80	64.7	0.88	1.4	0.935	0.384	20.7	21.4	-104.410	55.2	40.0	-9999.0
22.47	6.85	66.2	1.26	1.9	0.939	0.389	21.1	21.8	-104.410	55.7	40.0	-9999.0
22.64	6.90	53.8	1.50	2.8	0.944	0.395	20.6	21.2	4.198	49.7	40.0	10.0
22.80	6.95	43.8	1.59	3.6	0.948	0.400	21.0	21.5	3.395	-9999.0	-9999.0	10.0
22.97	7.00	45.9	1.44	3.1	0.952	0.405	17.6	18.0	3.564	45.0	38.0	10.0
23.13	7.05	59.0	1.34	2.3	0.957	0.410	22.6	23.1	4.610	52.2	40.0	10.0
23.29	7.10	62.3	1.34	2.2	0.961	0.415	19.9	20.3	-104.410	53.7	40.0	-9999.0
23.46	7.15	64.4	1.23	1.9	0.966	0.420	20.6	20.9	-104.410	54.6	40.0	-9999.0
23.62	7.20	68.6	1.47	2.1	0.970	0.425	21.9	22.2	-104.410	56.3	40.0	-9999.0
23.79	7.25	56.2	1.17	2.1	0.975	0.430	18.0	18.2	-104.410	50.5	40.0	-9999.0
23.95	7.30	40.9	1.17	2.9	0.979	0.436	15.7	15.8	3.160	41.3	38.0	10.0
24.11	7.35	45.9	1.12	2.4	0.983	0.441	17.6	17.7	3.555	44.5	38.0	10.0
24.28	7.40	58.2	1.21	2.1	0.988	0.446	18.6	18.7	-104.410	51.3	40.0	-9999.0
24.44	7.45	60.4	1.33	2.2	0.992	0.451	19.3	19.4	-104.410	52.3	40.0	-9999.0
24.61	7.50	52.6	1.34	2.6	0.997	0.456	20.1	20.2	4.088	48.3	38.0	10.0
24.77	7.55	48.0	1.29	2.7	1.001	0.461	18.4	18.4	3.719	45.6	38.0	10.0
24.93	7.60	56.8	1.42	2.5	1.005	0.466	21.7	21.7	4.424	50.4	40.0	10.0
25.10	7.65	63.8	1.69	2.7	1.010	0.471	24.4	24.3	4.986	53.6	40.0	10.0
25.26	7.70	62.8	1.29	2.1	1.014	0.477	20.1	19.9	-104.410	53.1	40.0	-9999.0
25.43	7.75	69.6	1.40	2.0	1.018	0.482	22.2	22.0	-104.410	56.0	40.0	-9999.0
25.59	7.80	93.0	1.49	1.6	1.023	0.487	29.7	29.4	-104.410	64.2	42.0	-9999.0
25.75	7.85	98.8	1.72	1.7	1.028	0.492	31.5	31.1	-104.410	65.9	42.0	-9999.0
25.92	7.90	102.3	1.98	1.9	1.032	0.497	32.7	32.2	-104.410	66.9	42.0	-9999.0
26.08	7.95	113.6	2.13	1.9	1.037	0.502	36.3	35.6	-104.410	69.8	42.0	-9999.0
26.25	8.00	149.2	1.81	1.2	1.041	0.507	35.7	35.0	-104.410	77.5	44.0	-9999.0
26.41	8.05	190.3	1.90	1.0	1.046	0.512	36.4	35.6	-104.410	84.4	44.0	-9999.0
26.57	8.10	244.1	2.25	0.9	1.051	0.518	46.7	45.6	-104.410	91.5	46.0	-9999.0
26.74	8.15	293.6	3.83	1.3	1.056	0.523	56.2	54.7	-104.410	95.0	46.0	-9999.0
26.90	8.20	296.8	4.57	1.5	1.061	0.528	71.1	69.0	-104.410	95.0	46.0	-9999.0
27.07	8.25	322.0	4.76	1.5	1.066	0.533	61.7	59.7	-104.410	95.0	46.0	-9999.0
27.23	8.30	326.4	5.71	1.8	1.071	0.538	78.2	75.5	-104.410	95.0	46.0	-9999.0
27.39	8.35	306.4	9.07	3.0	1.076	0.543	146.7	141.4	-104.410	95.0	46.0	-9999.0
27.56	8.40	245.2	8.41	3.4	1.081	0.548	117.4	112.9	-104.410	91.2	46.0	-9999.0
27.72	8.45	308.1	8.41	2.7	1.086	0.553	147.5	141.6	-104.410	95.0	46.0	-9999.0
27.89	8.50	413.1	8.41	2.0	1.090	0.558	98.9	94.7	-104.410	95.0	48.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1753-2387
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-25
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/19/08
CPT Time: 12:59
CPT File: 390CP25.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 15.24 (ft): 50.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	4.7	0.02	0.4	0.009	0.000	2.2	4.5	0.372	-9999.0	-9999.0	10.0
0.33	0.10	40.5	0.02	0.0	0.019	0.000	9.7	19.4	-104.410	95.0	50.0	-9999.0
0.49	0.15	63.2	0.02	0.0	0.029	0.000	15.1	30.3	-104.410	95.0	50.0	-9999.0
0.66	0.20	44.6	0.21	0.5	0.039	0.000	10.7	21.4	-104.410	90.2	50.0	-9999.0
0.82	0.25	41.0	0.42	1.0	0.048	0.000	13.1	26.2	-104.410	84.5	50.0	-9999.0
0.98	0.30	50.3	0.57	1.1	0.058	0.000	16.1	32.1	-104.410	87.8	50.0	-9999.0
1.15	0.35	44.7	0.68	1.5	0.068	0.000	14.3	28.5	-104.410	82.2	50.0	-9999.0
1.31	0.40	30.5	0.77	2.5	0.077	0.000	11.7	23.4	2.437	69.4	48.0	10.0
1.48	0.45	24.3	0.80	3.3	0.087	0.000	11.6	23.2	1.935	-9999.0	-9999.0	10.0
1.64	0.50	103.2	1.00	1.0	0.096	0.000	24.7	49.4	-104.410	95.0	50.0	-9999.0
1.80	0.55	145.9	1.37	0.9	0.106	0.000	27.9	55.9	-104.410	95.0	50.0	-9999.0
1.97	0.60	168.3	1.58	0.9	0.116	0.000	32.2	64.5	-104.410	95.0	50.0	-9999.0
2.13	0.65	155.9	1.58	1.0	0.127	0.000	29.9	59.7	-104.410	95.0	50.0	-9999.0
2.30	0.70	135.7	1.42	1.0	0.137	0.000	32.5	65.0	-104.410	95.0	50.0	-9999.0
2.46	0.75	112.3	1.60	1.4	0.147	0.000	26.9	53.8	-104.410	95.0	50.0	-9999.0
2.62	0.80	93.2	1.90	2.0	0.156	0.000	29.8	59.5	-104.410	91.2	50.0	-9999.0
2.79	0.85	127.8	1.98	1.6	0.166	0.000	30.6	61.2	-104.410	95.0	50.0	-9999.0
2.95	0.90	128.9	1.77	1.4	0.176	0.000	30.9	61.7	-104.410	95.0	50.0	-9999.0
3.12	0.95	106.9	1.53	1.4	0.186	0.000	25.6	51.2	-104.410	92.7	50.0	-9999.0
3.28	1.00	89.5	1.37	1.5	0.196	0.000	28.6	57.1	-104.410	86.8	48.0	-9999.0
3.44	1.05	100.2	1.43	1.4	0.206	0.000	24.0	48.0	-104.410	89.4	48.0	-9999.0
3.61	1.10	112.4	1.47	1.3	0.215	0.000	26.9	53.8	-104.410	92.0	48.0	-9999.0
3.77	1.15	132.2	1.75	1.3	0.225	0.000	31.6	63.3	-104.410	95.0	50.0	-9999.0
3.94	1.20	114.4	2.18	1.9	0.235	0.000	36.5	73.0	-104.410	91.3	48.0	-9999.0
4.10	1.25	98.6	2.14	2.2	0.245	0.000	31.5	62.9	-104.410	86.4	48.0	-9999.0
4.27	1.30	94.0	2.34	2.5	0.255	0.000	30.0	59.5	-104.410	84.5	48.0	-9999.0
4.43	1.35	123.6	2.59	2.1	0.264	0.000	39.4	76.8	-104.410	91.8	48.0	-9999.0
4.59	1.40	207.8	3.01	1.4	0.274	0.000	49.8	95.1	-104.410	95.0	50.0	-9999.0
4.76	1.45	219.1	3.86	1.8	0.284	0.000	52.5	98.5	-104.410	95.0	50.0	-9999.0
4.92	1.50	201.4	4.66	2.3	0.294	0.000	64.3	118.7	-104.410	95.0	50.0	-9999.0
5.09	1.55	175.8	5.35	3.0	0.303	0.000	56.1	101.9	-104.410	95.0	50.0	-9999.0
5.25	1.60	181.6	5.90	3.3	0.313	0.000	69.6	124.4	14.500	95.0	50.0	10.0
5.41	1.65	191.2	6.26	3.3	0.322	0.000	73.2	129.0	15.271	95.0	50.0	10.0
5.58	1.70	194.2	4.75	2.4	0.332	0.000	62.0	107.6	-104.410	95.0	50.0	-9999.0
5.74	1.75	185.5	5.06	2.7	0.341	0.000	59.2	101.4	-104.410	95.0	50.0	-9999.0
5.91	1.80	212.4	4.91	2.3	0.351	0.000	67.8	114.4	-104.410	95.0	50.0	-9999.0
6.07	1.85	161.8	4.69	2.9	0.361	0.000	51.7	86.0	-104.410	95.0	48.0	-9999.0
6.23	1.90	139.7	3.93	2.8	0.370	0.000	44.6	73.3	-104.410	90.5	48.0	-9999.0
6.40	1.95	121.5	4.00	3.3	0.380	0.000	46.5	75.5	9.691	86.1	46.0	10.0
6.56	2.00	108.2	3.79	3.5	0.389	0.000	41.4	66.4	8.622	82.4	46.0	10.0
6.73	2.05	104.4	3.35	3.2	0.399	0.000	40.0	63.3	8.320	81.1	46.0	10.0
6.89	2.10	93.0	2.84	3.1	0.408	0.000	35.6	55.7	7.404	77.4	46.0	10.0
7.05	2.15	79.8	2.19	2.7	0.418	0.000	30.6	47.3	6.350	72.7	44.0	10.0
7.22	2.20	58.0	1.86	3.2	0.427	0.000	22.2	34.0	4.607	63.2	44.0	10.0
7.38	2.25	61.9	1.57	2.5	0.436	0.000	23.7	35.9	4.918	64.8	44.0	10.0
7.55	2.30	55.7	1.34	2.4	0.446	0.000	21.3	32.0	4.422	61.5	42.0	10.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	44.0	1.11	2.5	0.455	0.000	16.8	25.0	3.480	54.4	42.0	10.0
7.87	2.40	36.0	1.13	3.1	0.465	0.000	17.3	25.3	2.846	-9999.0	-9999.0	10.0
8.04	2.45	34.1	1.00	2.9	0.474	0.000	16.3	23.7	2.687	-9999.0	-9999.0	10.0
8.20	2.50	31.7	0.72	2.3	0.483	0.000	12.1	17.5	2.497	44.1	40.0	10.0
8.37	2.55	30.5	0.47	1.5	0.493	0.000	11.7	16.6	2.399	42.7	40.0	10.0
8.53	2.60	27.7	0.34	1.2	0.502	0.000	8.8	12.5	-104.410	39.7	40.0	-9999.0
8.69	2.65	26.7	0.28	1.1	0.512	0.000	8.5	11.9	-104.410	38.4	38.0	-9999.0
8.86	2.70	24.3	0.14	0.6	0.522	0.000	7.8	10.8	-104.410	35.5	38.0	-9999.0
9.02	2.75	23.1	0.15	0.7	0.531	0.000	7.4	10.1	-104.410	33.8	38.0	-9999.0
9.19	2.80	21.7	0.18	0.8	0.541	0.000	6.9	9.4	-104.410	31.7	38.0	-9999.0
9.35	2.85	21.1	0.20	1.0	0.550	0.000	8.1	10.9	1.643	30.6	38.0	10.0
9.51	2.90	22.4	0.24	1.1	0.560	0.000	8.6	11.4	1.744	32.0	38.0	10.0
9.68	2.95	24.5	0.24	1.0	0.569	0.000	7.8	10.4	-104.410	34.4	38.0	-9999.0
9.84	3.00	25.3	0.27	1.1	0.579	0.000	8.1	10.6	-104.410	35.1	38.0	-9999.0
10.01	3.05	24.3	0.30	1.2	0.589	0.000	9.3	12.2	1.900	33.8	38.0	10.0
10.17	3.10	23.1	0.32	1.4	0.598	0.000	8.9	11.5	1.803	32.1	38.0	10.0
10.33	3.15	22.3	0.38	1.7	0.607	0.000	8.5	11.0	1.735	30.8	38.0	10.0
10.50	3.20	19.5	0.42	2.2	0.617	0.000	7.5	9.5	1.510	30.0	36.0	10.0
10.66	3.25	14.2	0.38	2.7	0.626	0.000	6.8	8.6	1.090	-9999.0	-9999.0	10.0
10.83	3.30	11.7	0.36	3.1	0.636	0.000	7.5	9.4	0.885	-9999.0	-9999.0	7.6
10.99	3.35	12.7	0.33	2.6	0.645	0.000	6.1	7.6	0.966	-9999.0	-9999.0	8.5
11.15	3.40	13.3	0.25	1.9	0.654	0.000	6.4	7.9	1.011	-9999.0	-9999.0	8.9
11.32	3.45	12.8	0.12	0.9	0.664	0.000	4.9	6.0	0.970	30.0	32.0	8.2
11.48	3.50	10.2	0.11	1.1	0.673	0.000	4.9	5.9	0.759	-9999.0	-9999.0	5.5
11.65	3.55	9.5	0.14	1.5	0.683	0.000	4.6	5.5	0.708	-9999.0	-9999.0	4.8
11.81	3.60	13.8	0.17	1.2	0.692	0.000	5.3	6.4	1.049	30.0	32.0	8.7
11.97	3.65	13.4	0.25	1.9	0.701	0.000	6.4	7.6	1.013	-9999.0	-9999.0	8.0
12.14	3.70	14.3	0.27	1.9	0.711	0.000	6.9	8.1	1.088	-9999.0	-9999.0	8.8
12.30	3.75	22.4	0.32	1.4	0.720	0.000	8.6	10.1	1.731	30.0	36.0	10.0
12.47	3.80	36.2	0.50	1.4	0.730	0.000	11.6	13.5	-104.410	42.1	38.0	-9999.0
12.63	3.85	24.0	0.48	2.0	0.739	0.000	9.2	10.7	1.858	30.0	36.0	10.0
12.80	3.90	10.6	0.43	4.1	0.748	0.000	10.2	11.8	0.789	-9999.0	-9999.0	4.9
12.96	3.95	9.1	0.34	3.7	0.758	0.000	8.8	10.1	0.671	-9999.0	-9999.0	3.8
13.12	4.00	8.8	0.25	2.8	0.767	0.000	5.6	6.4	0.644	-9999.0	-9999.0	3.5
13.29	4.05	8.3	0.34	4.1	0.776	0.000	8.0	9.0	0.603	-9999.0	-9999.0	3.1
13.45	4.10	11.3	0.47	4.2	0.785	0.000	10.8	12.2	0.843	-9999.0	-9999.0	5.1
13.62	4.15	20.3	0.64	3.2	0.795	0.000	9.7	10.9	1.557	-9999.0	-9999.0	10.0
13.78	4.20	33.8	0.85	2.5	0.804	0.000	12.9	14.4	2.640	38.7	38.0	10.0
13.94	4.25	40.8	1.04	2.6	0.813	0.000	15.6	17.3	3.197	43.9	38.0	10.0
14.11	4.30	44.1	1.03	2.3	0.823	0.000	16.9	18.6	3.461	46.0	38.0	10.0
14.27	4.35	60.7	1.06	1.8	0.832	0.000	19.4	21.2	-104.410	55.0	40.0	-9999.0
14.44	4.40	93.0	1.28	1.4	0.842	0.000	22.3	24.3	-104.410	67.0	42.0	-9999.0
14.60	4.45	84.2	1.49	1.8	0.852	0.000	26.9	29.1	-104.410	64.0	42.0	-9999.0
14.76	4.50	66.1	1.48	2.2	0.861	0.000	21.1	22.7	-104.410	56.9	40.0	-9999.0
14.93	4.55	35.7	1.35	3.8	0.871	0.000	17.1	18.3	2.788	-9999.0	-9999.0	10.0
15.09	4.60	22.4	1.07	4.8	0.880	0.000	21.5	22.9	1.724	-9999.0	-9999.0	10.0
15.26	4.65	19.1	1.22	6.4	0.889	0.000	18.3	19.4	1.457	-9999.0	-9999.0	9.8
15.42	4.70	31.6	1.39	4.4	0.899	0.000	20.2	21.3	2.454	-9999.0	-9999.0	10.0
15.58	4.75	44.0	2.16	4.9	0.908	0.000	28.1	29.5	3.450	-9999.0	-9999.0	10.0
15.75	4.80	60.5	2.81	4.6	0.917	0.000	38.6	40.3	4.768	-9999.0	-9999.0	10.0
15.91	4.85	71.9	3.40	4.7	0.928	0.000	68.9	71.6	-104.410	58.3	40.0	-9999.0
16.08	4.90	77.8	3.62	4.6	0.938	0.000	74.5	77.0	-104.410	60.4	42.0	-9999.0
16.24	4.95	76.5	3.69	4.8	0.949	0.000	73.2	75.2	-104.410	59.7	42.0	-9999.0
16.40	5.00	65.8	3.79	5.8	0.960	0.000	63.0	64.3	-104.410	55.3	40.0	-9999.0
16.57	5.05	60.0	3.62	6.0	0.970	0.000	57.5	58.3	-104.410	52.4	40.0	-9999.0
16.73	5.10	57.7	3.33	5.8	0.980	0.000	55.3	55.8	4.538	-9999.0	-9999.0	10.0
16.90	5.15	62.7	3.22	5.1	0.990	0.000	60.0	60.3	-104.410	53.4	40.0	-9999.0
17.06	5.20	56.7	3.19	5.6	1.000	0.000	54.3	54.3	4.455	-9999.0	-9999.0	10.0
17.22	5.25	65.8	3.22	4.9	1.010	0.000	63.0	62.7	-104.410	54.5	40.0	-9999.0
17.39	5.30	78.0	3.12	4.0	1.020	0.000	37.4	37.0	6.160	-9999.0	-9999.0	10.0
17.55	5.35	81.3	3.21	3.9	1.029	0.000	38.9	38.4	6.424	-9999.0	-9999.0	10.0
17.72	5.40	80.9	3.42	4.2	1.039	0.000	38.7	38.0	6.388	-9999.0	-9999.0	10.0
17.88	5.45	68.5	3.45	5.0	1.049	0.000	65.6	64.1	-104.410	55.1	40.0	-9999.0
18.04	5.50	57.7	3.34	5.8	1.059	0.000	55.3	53.7	4.532	-9999.0	-9999.0	10.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
18.21	5.55	52.3	3.19	6.1	1.068	0.000	50.1	48.5	4.101	-9999.0	-9999.0	10.0
18.37	5.60	51.6	3.09	6.0	1.077	0.000	49.4	47.6	4.044	-9999.0	-9999.0	10.0
18.54	5.65	59.2	3.14	5.3	1.087	0.000	56.7	54.4	-104.410	50.4	40.0	-9999.0
18.70	5.70	60.4	3.11	5.1	1.098	0.000	57.8	55.2	-104.410	50.9	40.0	-9999.0
18.86	5.75	57.8	3.37	5.8	1.108	0.000	55.3	52.6	4.533	-9999.0	-9999.0	10.0
19.03	5.80	52.5	3.22	6.1	1.117	0.000	50.2	47.5	4.108	-9999.0	-9999.0	10.0
19.19	5.85	52.6	3.10	5.9	1.126	0.000	50.4	47.5	4.117	-9999.0	-9999.0	10.0
19.36	5.90	52.3	3.06	5.8	1.135	0.000	50.1	47.0	4.091	-9999.0	-9999.0	10.0
19.52	5.95	52.7	3.16	6.0	1.144	0.000	50.5	47.2	4.126	-9999.0	-9999.0	10.0
19.68	6.00	54.7	3.37	6.2	1.153	0.000	52.4	48.8	4.284	-9999.0	-9999.0	10.0
19.85	6.05	57.8	3.54	6.1	1.162	0.000	55.3	51.3	4.528	-9999.0	-9999.0	10.0
20.01	6.10	57.1	3.58	6.3	1.172	0.000	54.7	50.5	4.476	-9999.0	-9999.0	10.0
20.18	6.15	53.8	3.50	6.5	1.181	0.000	51.5	47.4	4.210	-9999.0	-9999.0	10.0
20.34	6.20	53.7	3.35	6.2	1.190	0.000	51.4	47.1	4.199	-9999.0	-9999.0	10.0
20.50	6.25	52.0	3.36	6.5	1.199	0.000	49.8	45.4	4.060	-9999.0	-9999.0	10.0
20.67	6.30	50.1	3.29	6.6	1.208	0.000	48.0	43.7	3.911	-9999.0	-9999.0	10.0
20.83	6.35	49.1	3.10	6.3	1.217	0.000	47.0	42.6	3.829	-9999.0	-9999.0	10.0
21.00	6.40	46.5	3.04	6.5	1.226	0.000	44.5	40.2	3.619	-9999.0	-9999.0	10.0
21.16	6.45	46.8	3.05	6.5	1.236	0.000	44.8	40.3	3.644	-9999.0	-9999.0	10.0
21.33	6.50	48.5	3.09	6.4	1.245	0.000	46.5	41.6	3.781	-9999.0	-9999.0	10.0
21.49	6.55	48.6	3.25	6.7	1.254	0.000	46.6	41.6	3.790	-9999.0	-9999.0	10.0
21.65	6.60	49.7	3.23	6.5	1.263	0.000	47.6	42.4	3.876	-9999.0	-9999.0	10.0
21.82	6.65	50.2	3.25	6.5	1.272	0.000	48.1	42.7	3.916	-9999.0	-9999.0	10.0
21.98	6.70	51.0	3.03	5.9	1.281	0.000	48.8	43.1	3.977	-9999.0	-9999.0	10.0
22.15	6.75	52.4	3.19	6.1	1.290	0.000	50.2	44.2	4.089	-9999.0	-9999.0	10.0
22.31	6.80	53.0	3.35	6.3	1.300	0.000	50.8	44.6	4.139	-9999.0	-9999.0	10.0
22.47	6.85	53.2	3.49	6.6	1.309	0.000	50.9	44.5	4.149	-9999.0	-9999.0	10.0
22.64	6.90	53.5	3.59	6.7	1.318	0.000	51.2	44.6	4.174	-9999.0	-9999.0	10.0
22.80	6.95	53.2	3.52	6.6	1.327	0.000	51.0	44.3	4.152	-9999.0	-9999.0	10.0
22.97	7.00	53.9	3.34	6.2	1.336	0.000	51.7	44.7	4.208	-9999.0	-9999.0	10.0
23.13	7.05	55.2	3.23	5.9	1.345	0.000	52.8	45.5	4.305	-9999.0	-9999.0	10.0
23.29	7.10	56.6	3.15	5.6	1.354	0.000	54.2	46.5	4.416	-9999.0	-9999.0	10.0
23.46	7.15	57.6	3.26	5.7	1.363	0.000	55.1	47.2	4.497	-9999.0	-9999.0	10.0
23.62	7.20	59.9	3.32	5.5	1.373	0.000	57.3	48.9	-104.410	47.4	38.0	-9999.0
23.79	7.25	56.7	3.36	5.9	1.383	0.000	54.3	46.2	4.424	-9999.0	-9999.0	10.0
23.95	7.30	60.6	3.36	5.5	1.393	0.000	58.1	49.2	-104.410	47.6	38.0	-9999.0
24.11	7.35	54.1	3.21	5.9	1.403	0.000	51.8	43.8	4.218	-9999.0	-9999.0	10.0
24.28	7.40	49.8	2.96	5.9	1.412	0.000	47.7	40.2	3.875	-9999.0	-9999.0	10.0
24.44	7.45	51.1	2.94	5.8	1.421	0.000	48.9	41.0	3.971	-9999.0	-9999.0	10.0
24.61	7.50	56.7	3.09	5.4	1.431	0.000	54.3	45.4	4.420	-9999.0	-9999.0	10.0
24.77	7.55	64.3	3.17	4.9	1.440	0.000	61.6	51.3	-104.410	48.8	38.0	-9999.0
24.93	7.60	72.5	3.35	4.6	1.451	0.000	69.5	57.7	-104.410	52.1	38.0	-9999.0
25.10	7.65	64.9	3.69	5.7	1.462	0.000	62.2	51.4	-104.410	48.8	38.0	-9999.0
25.26	7.70	65.2	3.69	5.7	1.473	0.000	62.5	51.5	-104.410	48.9	38.0	-9999.0
25.43	7.75	62.7	3.69	5.9	1.483	0.000	60.0	49.3	-104.410	47.6	38.0	-9999.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.22A
Run No: 04-0909-1753-2535
Job No: 04-390
Client: Maxim Technologies
Project: Ambrosia Lake Tailings Impoundment
Site: CPT-25A
Location: AMBROSIA LAKE
Cone: 20 Ton St 146
CPT Date: 04/19/08
CPT Time: 13:25
CPT File: 390CP25A.COR
Northing (m): 0.000000
Easting (m): 0.000000
Elevation (m): 0.000000

Water Table (m): 15.24 (ft): 50.0
Unit Weight of Water (default): 62.40 pcf
Averaging Increment (m): 0.0 (Every Data Point)
Su Nkt used: 12.50 Su/P' (nc): 0.30
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

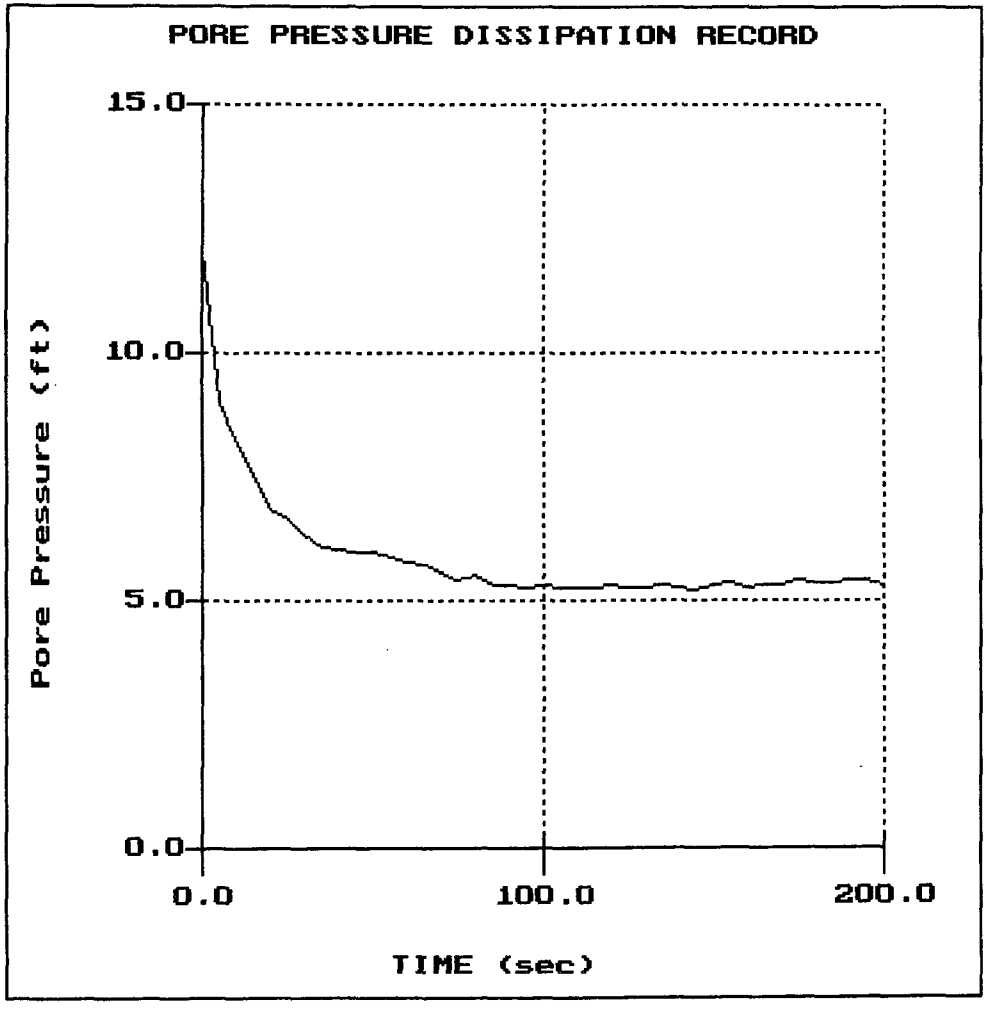
Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
0.16	0.05	17.6	0.02	0.1	0.010	0.000	5.6	11.2	-104.410	83.3	50.0	-9999.0
0.33	0.10	42.6	0.17	0.4	0.019	0.000	10.2	20.4	-104.410	95.0	50.0	-9999.0
0.49	0.15	44.7	0.46	1.0	0.029	0.000	14.3	28.6	-104.410	94.2	50.0	-9999.0
0.66	0.20	38.9	0.76	2.0	0.039	0.000	14.9	29.8	3.109	86.2	50.0	10.0
0.82	0.25	33.7	1.22	3.6	0.048	0.000	16.1	32.2	2.689	-9999.0	-9999.0	10.0
0.98	0.30	46.6	1.32	2.8	0.058	0.000	17.9	35.7	3.726	85.7	50.0	10.0
1.15	0.35	146.8	1.35	0.9	0.067	0.000	28.1	56.2	-104.410	95.0	50.0	-9999.0
1.31	0.40	196.8	1.54	0.8	0.078	0.000	37.7	75.4	-104.410	95.0	50.0	-9999.0
1.48	0.45	192.9	1.77	0.9	0.088	0.000	36.9	73.9	-104.410	95.0	50.0	-9999.0
1.64	0.50	197.6	2.28	1.2	0.098	0.000	37.8	75.7	-104.410	95.0	50.0	-9999.0
1.80	0.55	186.5	2.37	1.3	0.108	0.000	35.7	71.5	-104.410	95.0	50.0	-9999.0
1.97	0.60	160.8	2.20	1.4	0.118	0.000	38.5	77.0	-104.410	95.0	50.0	-9999.0
2.13	0.65	153.8	1.72	1.1	0.128	0.000	29.5	58.9	-104.410	95.0	50.0	-9999.0
2.30	0.70	129.8	1.42	1.1	0.138	0.000	31.1	62.2	-104.410	95.0	50.0	-9999.0
2.46	0.75	98.1	1.19	1.2	0.148	0.000	23.5	47.0	-104.410	93.5	50.0	-9999.0
2.62	0.80	67.9	1.21	1.8	0.158	0.000	21.7	43.4	-104.410	82.0	48.0	-9999.0
2.79	0.85	66.7	1.42	2.1	0.168	0.000	21.3	42.6	-104.410	80.6	48.0	-9999.0
2.95	0.90	85.0	1.45	1.7	0.177	0.000	27.1	54.2	-104.410	86.8	48.0	-9999.0
3.12	0.95	95.1	1.46	1.5	0.187	0.000	30.3	60.7	-104.410	89.2	48.0	-9999.0
3.28	1.00	98.4	1.55	1.6	0.197	0.000	31.4	62.8	-104.410	89.5	48.0	-9999.0
3.44	1.05	91.3	2.16	2.4	0.206	0.000	29.2	58.3	-104.410	86.7	48.0	-9999.0
3.61	1.10	71.2	2.20	3.1	0.216	0.000	27.3	54.5	5.675	78.9	48.0	10.0
3.77	1.15	82.3	2.66	3.2	0.225	0.000	31.5	63.0	6.564	82.4	48.0	10.0
3.94	1.20	118.1	3.30	2.8	0.235	0.000	37.7	75.4	-104.410	92.2	48.0	-9999.0
4.10	1.25	175.8	3.76	2.1	0.244	0.000	56.1	112.2	-104.410	95.0	50.0	-9999.0
4.27	1.30	259.6	4.52	1.7	0.254	0.000	62.1	123.3	-104.410	95.0	50.0	-9999.0
4.43	1.35	269.6	5.63	2.1	0.264	0.000	64.5	125.6	-104.410	95.0	50.0	-9999.0
4.59	1.40	231.7	6.65	2.9	0.274	0.000	73.9	141.3	-104.410	95.0	50.0	-9999.0
4.76	1.45	208.1	7.33	3.5	0.284	0.000	99.6	187.1	-104.410	95.0	50.0	-9999.0
4.92	1.50	169.5	7.06	4.2	0.294	0.000	162.3	299.4	-104.410	95.0	50.0	-9999.0
5.09	1.55	177.2	5.86	3.3	0.304	0.000	67.9	123.2	14.155	95.0	50.0	10.0
5.25	1.60	175.6	4.86	2.8	0.314	0.000	56.0	100.1	-104.410	95.0	50.0	-9999.0
5.41	1.65	160.6	4.14	2.6	0.323	0.000	51.3	90.2	-104.410	95.0	48.0	-9999.0
5.58	1.70	142.8	3.47	2.4	0.333	0.000	45.6	79.0	-104.410	92.6	48.0	-9999.0
5.74	1.75	133.7	2.30	1.7	0.343	0.000	32.0	54.7	-104.410	90.3	48.0	-9999.0
5.91	1.80	122.6	1.79	1.5	0.353	0.000	29.4	49.4	-104.410	87.4	48.0	-9999.0
6.07	1.85	97.0	1.35	1.4	0.362	0.000	23.2	38.6	-104.410	80.3	46.0	-9999.0
6.23	1.90	85.0	1.04	1.2	0.372	0.000	20.3	33.3	-104.410	76.1	46.0	-9999.0
6.40	1.95	72.5	0.97	1.3	0.382	0.000	23.1	37.5	-104.410	71.2	44.0	-9999.0
6.56	2.00	68.6	0.94	1.4	0.392	0.000	21.9	35.0	-104.410	69.3	44.0	-9999.0
6.73	2.05	66.4	0.86	1.3	0.401	0.000	21.2	33.4	-104.410	68.0	44.0	-9999.0
6.89	2.10	68.8	0.82	1.2	0.411	0.000	16.5	25.7	-104.410	68.6	44.0	-9999.0
7.05	2.15	66.3	0.89	1.3	0.421	0.000	21.2	32.6	-104.410	67.3	44.0	-9999.0
7.22	2.20	62.6	1.10	1.8	0.431	0.000	20.0	30.5	-104.410	65.3	44.0	-9999.0
7.38	2.25	57.2	1.13	2.0	0.440	0.000	18.3	27.5	-104.410	62.4	44.0	-9999.0
7.55	2.30	63.0	1.10	1.8	0.450	0.000	20.1	30.0	-104.410	64.9	44.0	-9999.0

Depth (ft)	Depth (m)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	E.Stress (tsf)	Hyd. Pr. (tsf)	N60 (blows/ft)	(N1)60	Su (tsf)	Dr (%)	Phi (deg.)	OCR (ratio)
7.71	2.35	59.9	0.80	1.3	0.460	0.000	19.1	28.2	-104.410	63.1	44.0	-9999.0
7.87	2.40	54.1	0.53	1.0	0.469	0.000	17.3	25.2	-104.410	59.9	42.0	-9999.0
8.04	2.45	46.4	0.45	1.0	0.479	0.000	14.8	21.4	-104.410	55.2	42.0	-9999.0
8.20	2.50	39.0	0.55	1.4	0.489	0.000	12.4	17.8	-104.410	49.9	42.0	-9999.0
8.37	2.55	25.8	0.58	2.3	0.498	0.000	9.9	14.0	2.020	37.8	38.0	10.0
8.53	2.60	23.7	0.68	2.9	0.508	0.000	11.4	15.9	1.856	-9999.0	-9999.0	10.0
8.69	2.65	27.6	0.59	2.1	0.517	0.000	10.6	14.7	2.167	39.2	38.0	10.0
8.86	2.70	25.1	0.61	2.4	0.526	0.000	9.6	13.3	1.967	36.2	38.0	10.0
9.02	2.75	21.5	0.34	1.6	0.536	0.000	8.2	11.2	1.675	31.5	38.0	10.0
9.19	2.80	18.5	0.43	2.3	0.545	0.000	8.9	12.0	1.439	-9999.0	-9999.0	10.0
9.35	2.85	22.3	0.53	2.4	0.555	0.000	8.5	11.4	1.736	32.0	38.0	10.0
9.51	2.90	17.8	0.35	2.0	0.564	0.000	6.8	9.1	1.382	30.0	36.0	10.0
9.68	2.95	13.7	0.12	0.9	0.573	0.000	5.2	6.9	1.050	30.0	34.0	10.0
9.84	3.00	12.3	0.21	1.7	0.583	0.000	5.9	7.7	0.941	-9999.0	-9999.0	9.6
10.01	3.05	18.0	0.70	3.9	0.592	0.000	11.5	14.9	1.391	-9999.0	-9999.0	10.0
10.17	3.10	51.8	1.24	2.4	0.602	0.000	19.8	25.6	4.093	55.1	42.0	10.0
10.33	3.15	124.7	2.03	1.6	0.611	0.000	29.8	38.2	-104.410	80.0	46.0	-9999.0
10.50	3.20	186.2	4.34	2.3	0.621	0.000	59.4	75.4	-104.410	91.3	46.0	-9999.0
10.66	3.25	253.9	4.93	1.9	0.631	0.000	60.8	76.6	-104.410	95.0	48.0	-9999.0
10.83	3.30	297.4	4.46	1.5	0.641	0.000	57.0	71.2	-104.410	95.0	48.0	-9999.0
10.99	3.35	220.5	3.84	1.7	0.651	0.000	52.8	65.5	-104.410	95.0	48.0	-9999.0
11.15	3.40	172.2	3.26	1.9	0.661	0.000	41.2	50.7	-104.410	88.2	46.0	-9999.0
11.32	3.45	131.7	3.03	2.3	0.671	0.000	42.0	51.3	-104.410	80.3	44.0	-9999.0
11.48	3.50	77.7	2.47	3.2	0.680	0.000	29.8	36.1	6.162	64.9	42.0	10.0
11.65	3.55	57.6	1.59	2.8	0.690	0.000	22.1	26.6	4.556	56.2	42.0	10.0
11.81	3.60	34.7	1.15	3.3	0.699	0.000	16.6	19.9	2.721	-9999.0	-9999.0	10.0
11.97	3.65	23.5	1.04	4.4	0.708	0.000	15.0	17.8	1.826	-9999.0	-9999.0	10.0
12.14	3.70	65.6	1.59	2.4	0.718	0.000	25.1	29.7	5.193	59.3	42.0	10.0
12.30	3.75	76.4	1.53	2.0	0.727	0.000	24.4	28.6	-104.410	63.5	42.0	-9999.0
12.47	3.80	83.7	1.42	1.7	0.737	0.000	26.7	31.1	-104.410	65.9	42.0	-9999.0
12.63	3.85	100.3	1.46	1.5	0.747	0.000	24.0	27.8	-104.410	70.9	44.0	-9999.0
12.80	3.90	96.2	2.12	2.2	0.757	0.000	30.7	35.3	-104.410	69.5	44.0	-9999.0
12.96	3.95	98.5	2.89	2.9	0.766	0.000	37.7	43.1	7.821	70.0	44.0	10.0
13.12	4.00	75.3	3.30	4.4	0.775	0.000	36.0	40.9	5.960	-9999.0	-9999.0	10.0
13.29	4.05	47.4	2.83	6.0	0.785	0.000	45.4	51.3	3.731	-9999.0	-9999.0	10.0
13.45	4.10	42.9	2.49	5.8	0.794	0.000	41.1	46.2	3.372	-9999.0	-9999.0	10.0
13.62	4.15	72.0	2.01	2.8	0.803	0.000	27.6	30.8	5.692	60.4	42.0	10.0
13.78	4.20	109.0	1.93	1.8	0.813	0.000	34.8	38.6	-104.410	72.1	44.0	-9999.0
13.94	4.25	153.4	1.65	1.1	0.823	0.000	29.4	32.4	-104.410	81.7	44.0	-9999.0
14.11	4.30	112.8	2.00	1.8	0.832	0.000	36.0	39.5	-104.410	72.7	44.0	-9999.0
14.27	4.35	80.2	1.65	2.1	0.842	0.000	25.6	27.9	-104.410	62.8	42.0	-9999.0
14.44	4.40	49.2	1.87	3.8	0.852	0.000	23.5	25.5	3.864	-9999.0	-9999.0	10.0
14.60	4.45	52.8	1.19	2.3	0.861	0.000	20.2	21.8	4.154	50.5	40.0	10.0
14.76	4.50	64.9	1.38	2.1	0.871	0.000	20.7	22.2	-104.410	56.3	40.0	-9999.0
14.93	4.55	100.8	2.16	2.1	0.880	0.000	32.2	34.3	-104.410	68.7	42.0	-9999.0
15.09	4.60	77.3	3.04	3.9	0.890	0.000	37.0	39.2	6.110	-9999.0	-9999.0	10.0
15.26	4.65	66.7	3.43	5.1	0.900	0.000	63.8	67.3	-104.410	56.5	40.0	-9999.0
15.42	4.70	75.0	3.84	5.1	0.911	0.000	71.8	75.2	-104.410	59.7	42.0	-9999.0
15.58	4.75	75.5	3.63	4.8	0.921	0.000	72.3	75.3	-104.410	59.8	42.0	-9999.0
15.75	4.80	96.6	4.34	4.5	0.932	0.000	92.5	95.8	-104.410	66.7	42.0	-9999.0
15.91	4.85	96.6	4.69	4.9	0.943	0.000	92.5	95.3	-104.410	66.5	42.0	-9999.0
16.08	4.90	89.5	4.80	5.4	0.953	0.000	85.7	87.8	-104.410	64.2	42.0	-9999.0
16.24	4.95	128.4	6.07	4.7	0.964	0.000	122.9	125.2	-104.410	74.3	44.0	-9999.0
16.40	5.00	228.5	6.94	3.0	0.974	0.000	109.4	110.8	-104.410	90.7	46.0	-9999.0
16.57	5.05	303.6	6.95	2.3	0.984	0.000	72.7	73.3	-104.410	95.0	46.0	-9999.0
16.73	5.10	335.0	6.95	2.1	0.994	0.000	80.2	80.4	-104.410	95.0	48.0	-9999.0
16.90	5.15	334.2	6.95	2.1	1.004	0.000	80.0	79.9	-104.410	95.0	48.0	-9999.0

Maxim Technologies

Hole:CPT-02
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 10:22

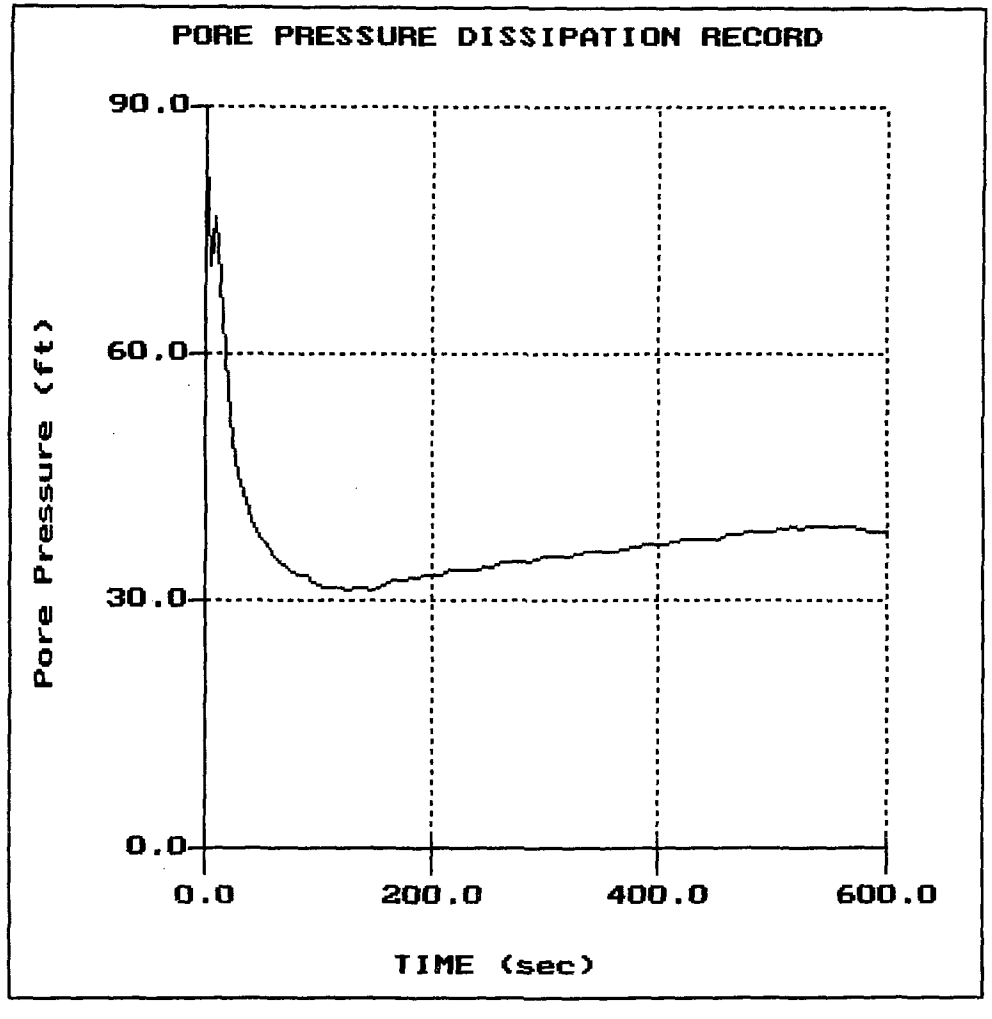


File: 390CP02.PPD
Depth (m): 8.00
(ft): 26.25
Duration : 200.0s
U-min: 5.21 145.0s
U-max: 12.06 0.0s

Maxim Technologies

Hole:CPT-04
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 12:00

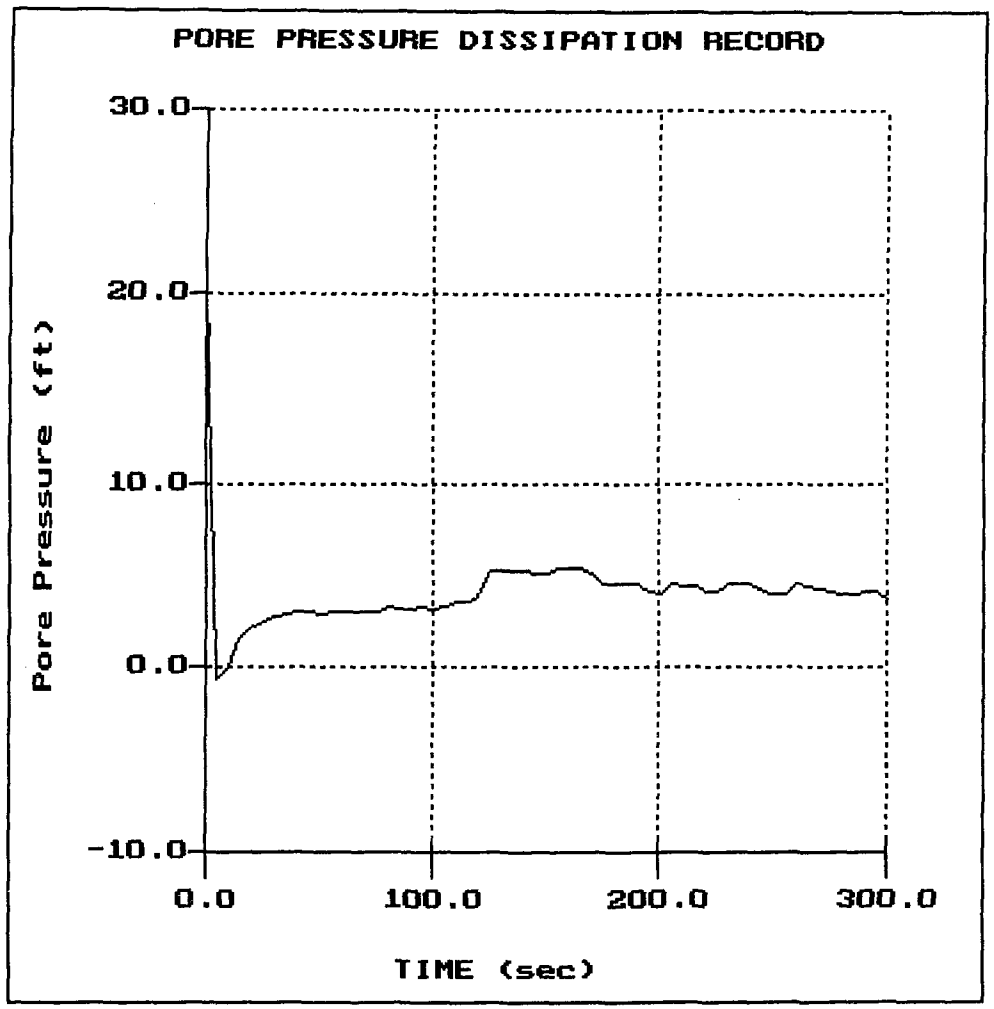


File: 390CP04.PPD
Depth (m): 9.50
(ft): 31.17
Duration : 600.0s
U-min: 31.25 125.0s
U-max: 84.94 0.0s

Maxim Technologies

Hole:CPT-05
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 11:26

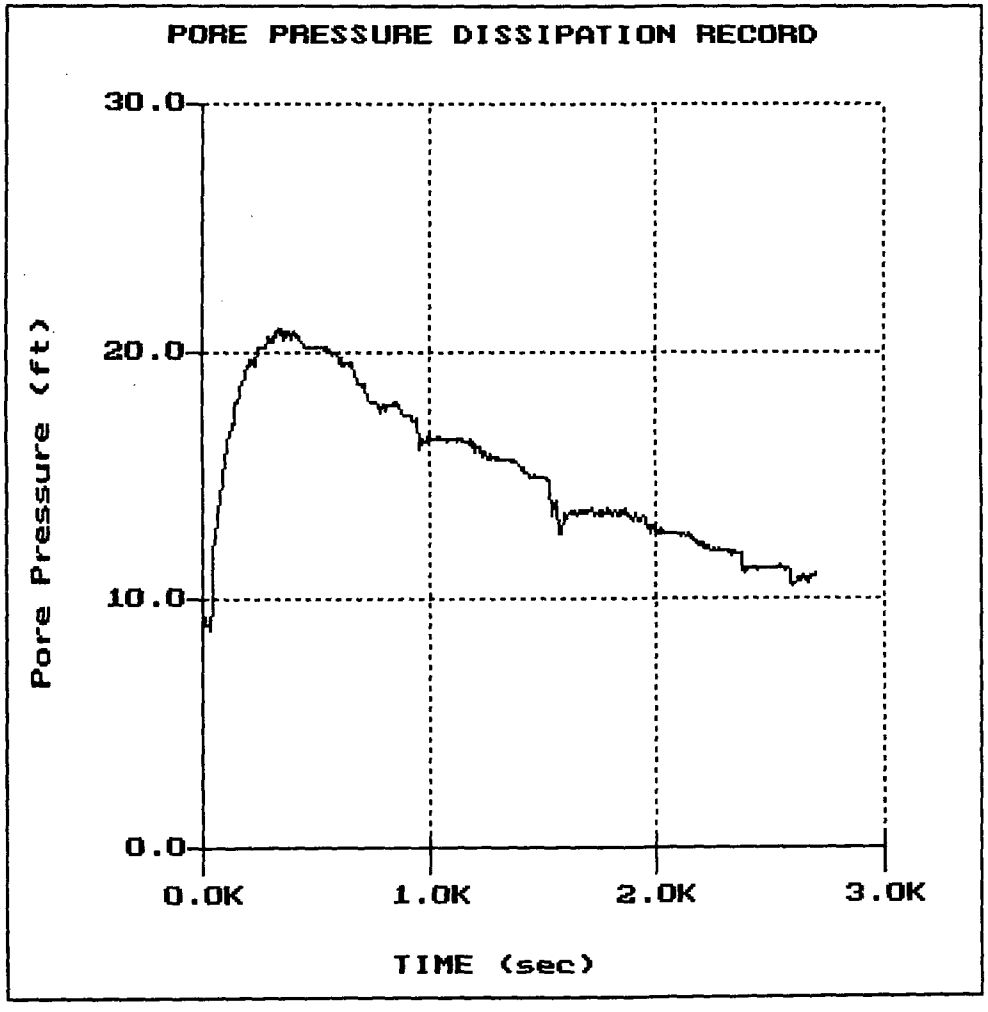


File: 390CP05.PPD
Depth (m): 4.55
(ft): 14.93
Duration : 300.0s
U-min: -0.75 5.0s
U-max: 21.07 0.0s

Maxim Technologies

Hole:CPT-07
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 08:47

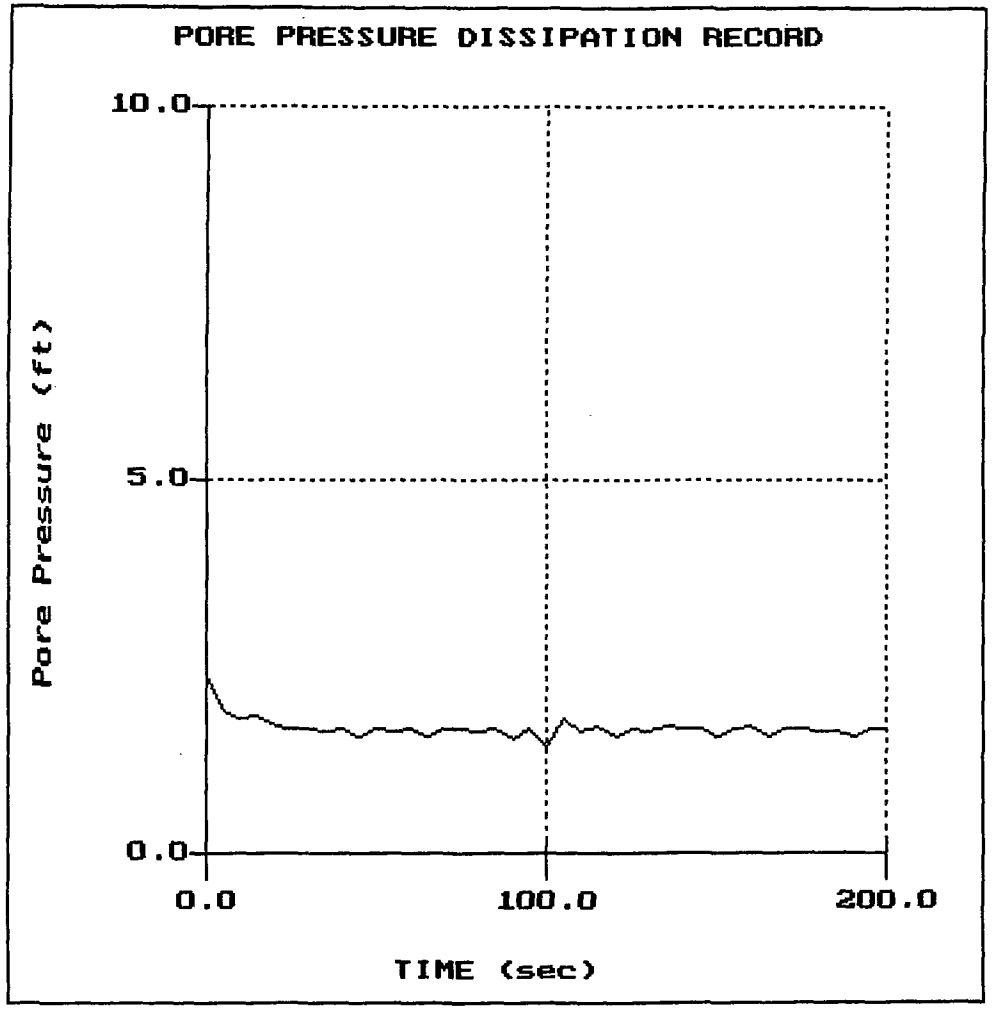


File: 390CP07.PPD
Depth (m): 5.15
(ft): 16.90
Duration : 2700.0s
U-min: 8.78 30.0s
U-max: 20.93 350.0s

Maxim Technologies

Hole:CPT-08
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 11:42

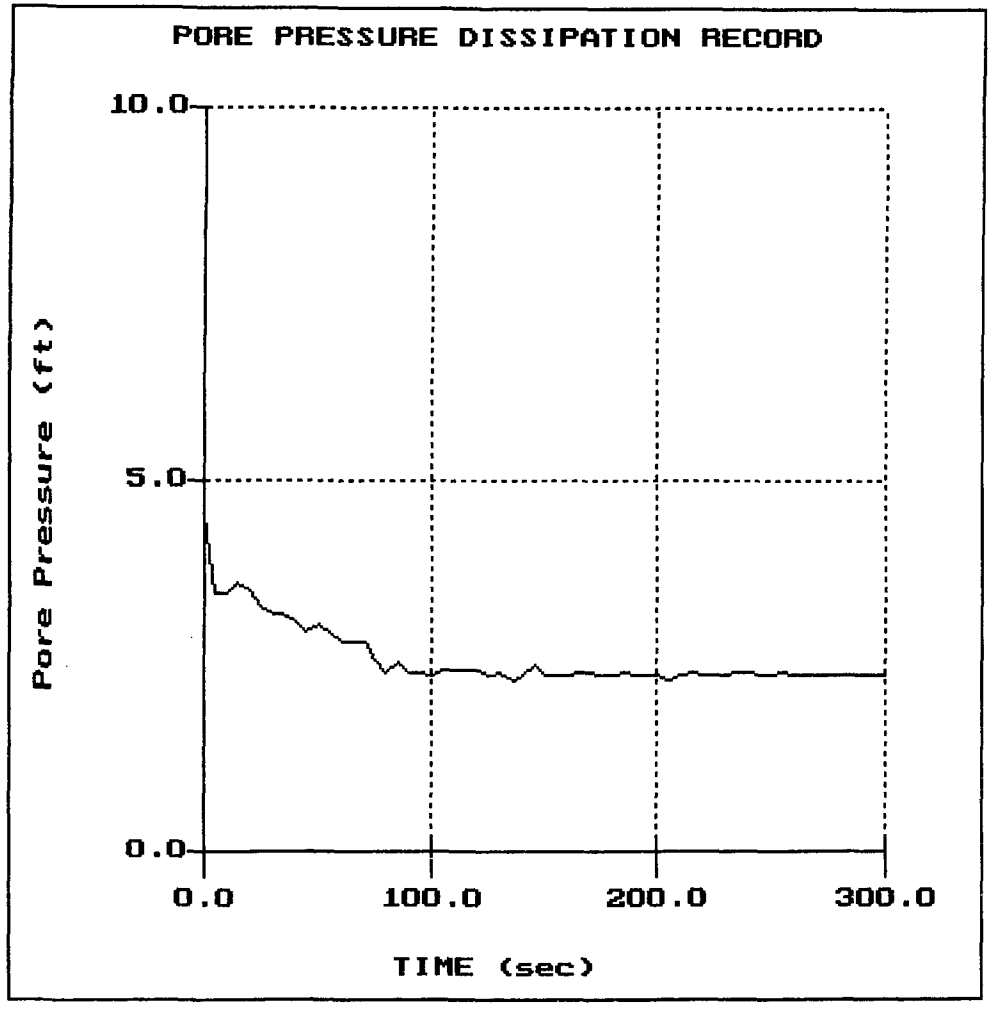


File: 390CP08.PPD
Depth (m): 5.75
(ft): 18.86
Duration : 200.0s
U-min: 1.36 100.0s
U-max: 2.30 0.0s

Maxim Technologies

Hole:CPT-09
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 12:49

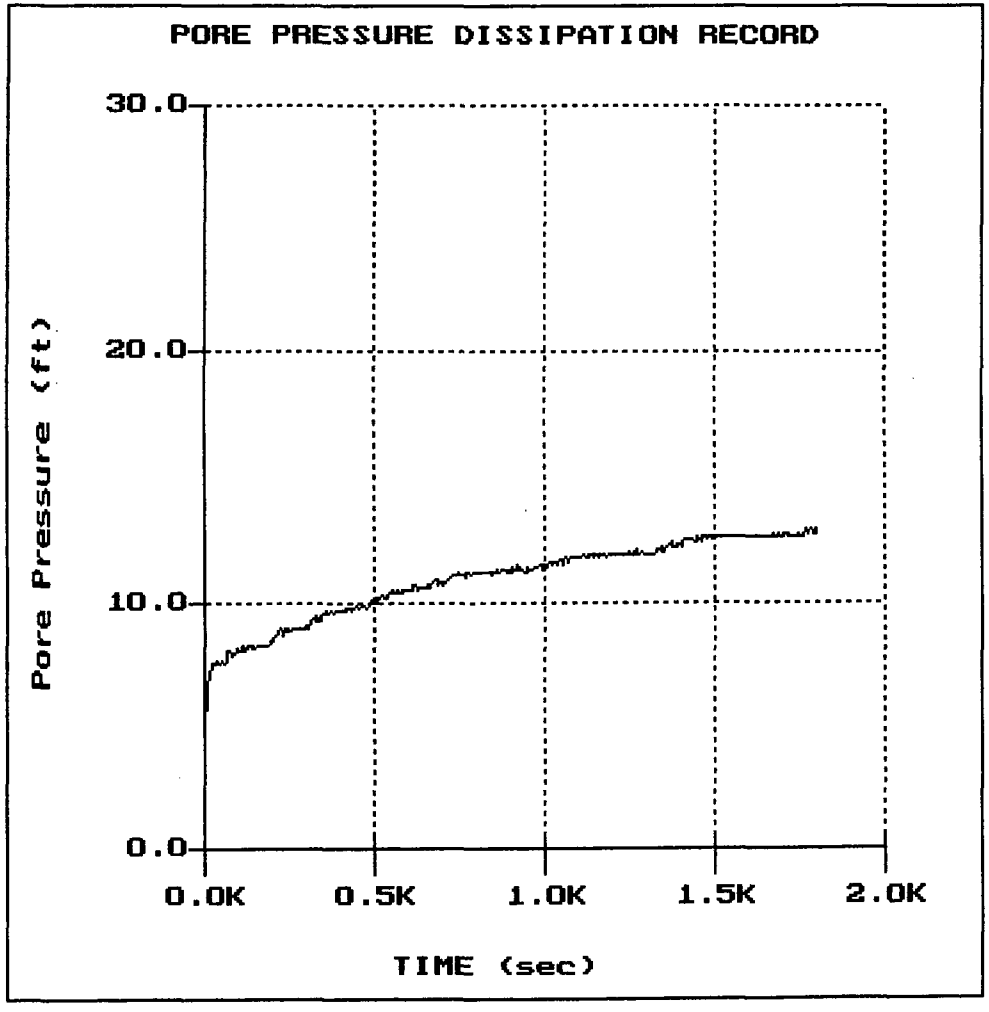


File: 390CP09.PPD
Depth (m): 7.80
(ft): 25.59
Duration : 300.0s
U-min: 2.30 205.0s
U-max: 4.55 0.0s

Maxim Technologies

Hole:CPT-11
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 12:37

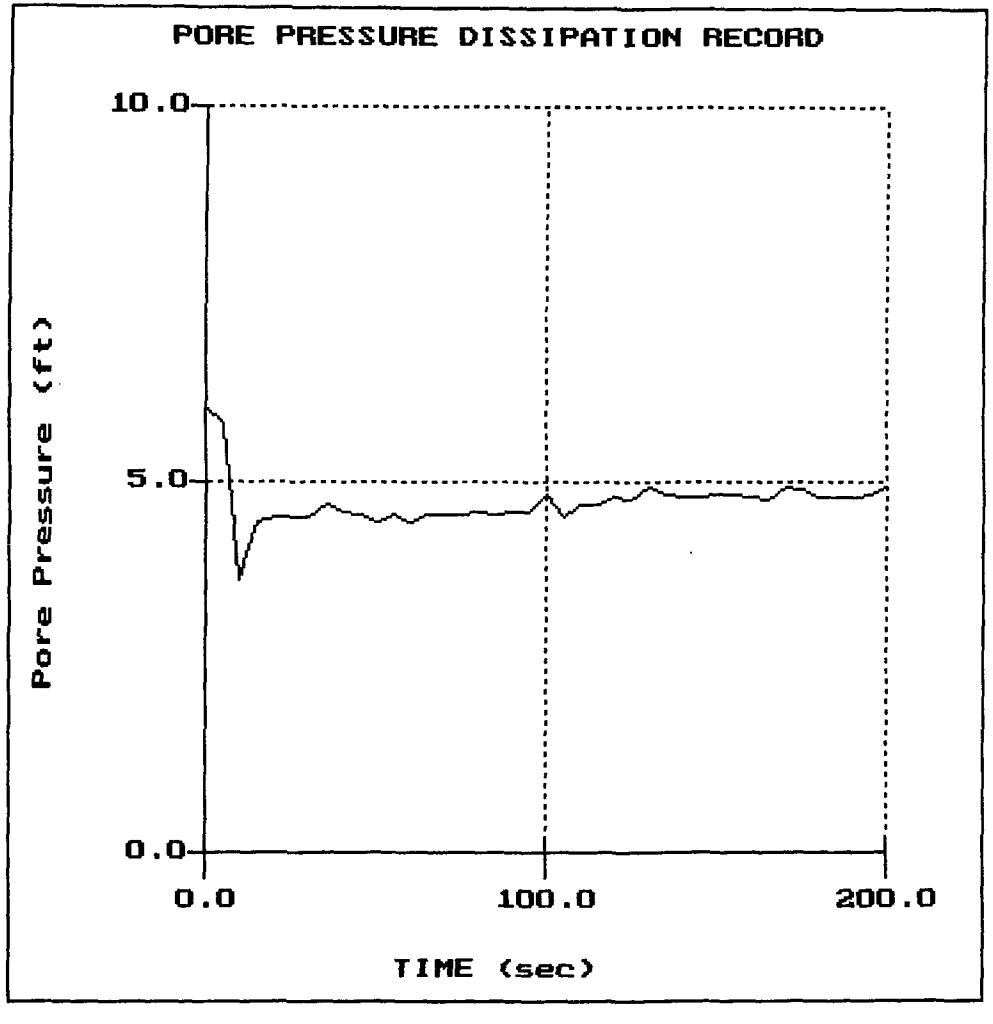


File: 390CP11.PPD
Depth (m): 4.85
(ft): 15.91
Duration : 1800.0s
U-min: 5.30 0.0s
U-max: 13.00 1800.0s

Maxim Technologies

Hole:CPT-11
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 12:37

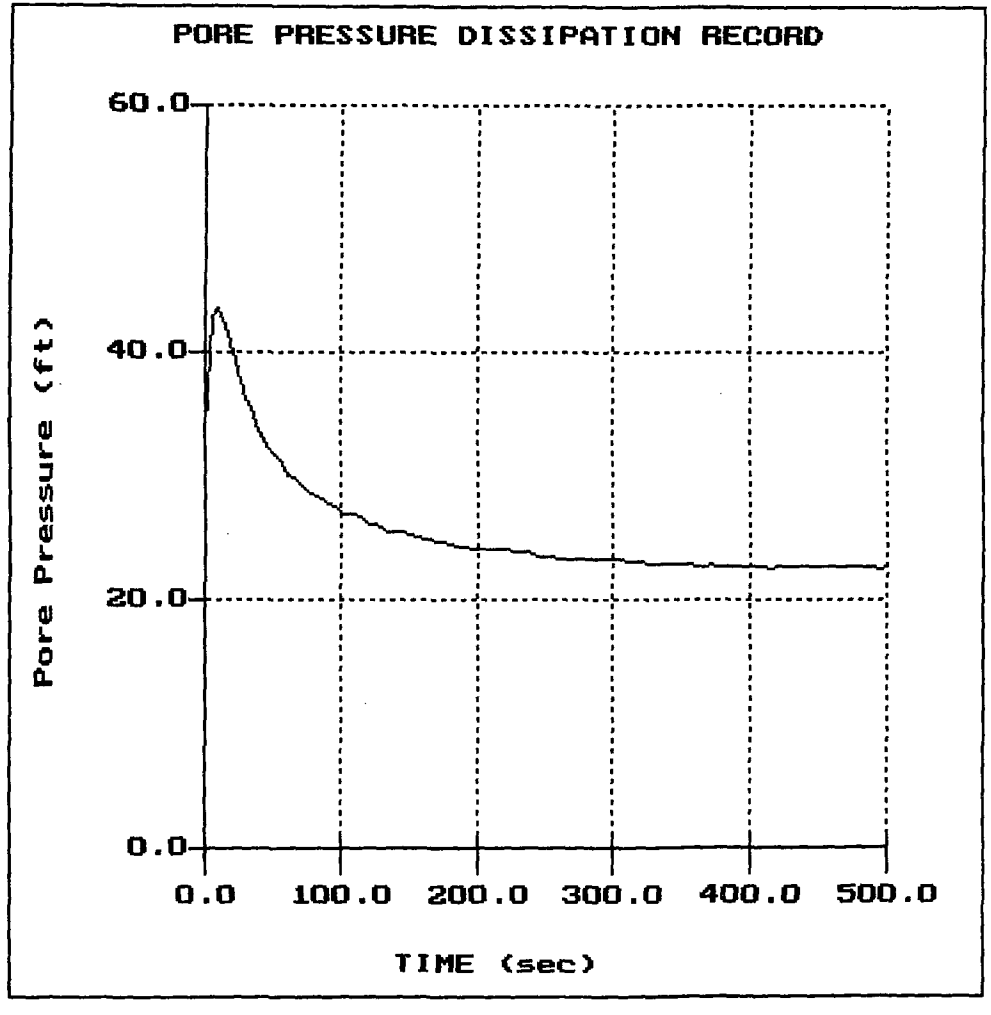


File: 390CP11.PPD
Depth (m): 5.85
(ft): 19.19
Duration : 200.0s
U-min: 3.66 10.0s
U-max: 5.96 0.0s

Maxim Technologies

Hole:CPT-12
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 13:48

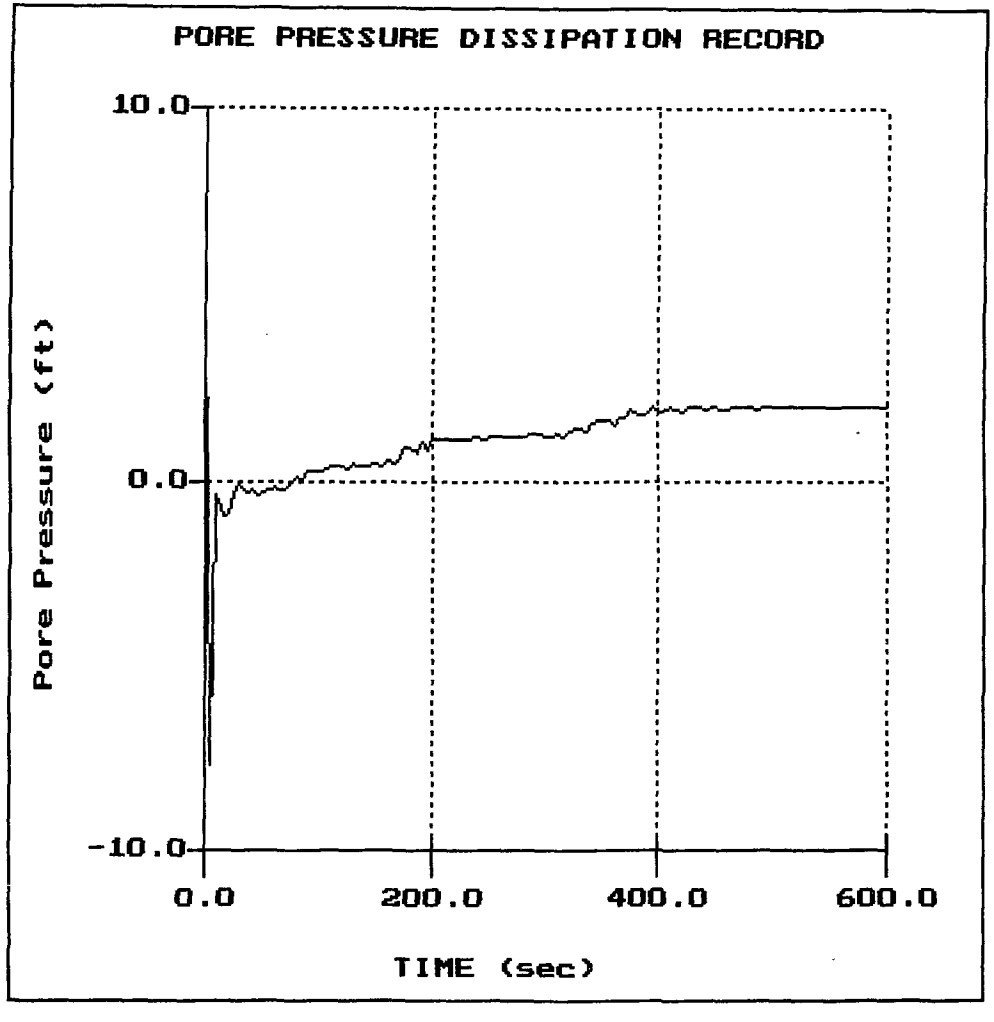


File: 390CP12.PPD
Depth (m): 6.40
(ft): 21.00
Duration : 500.0s
U-min: 22.57 495.0s
U-max: 43.64 10.0s

Maxim Technologies

Hole:CPT-14
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 13:54

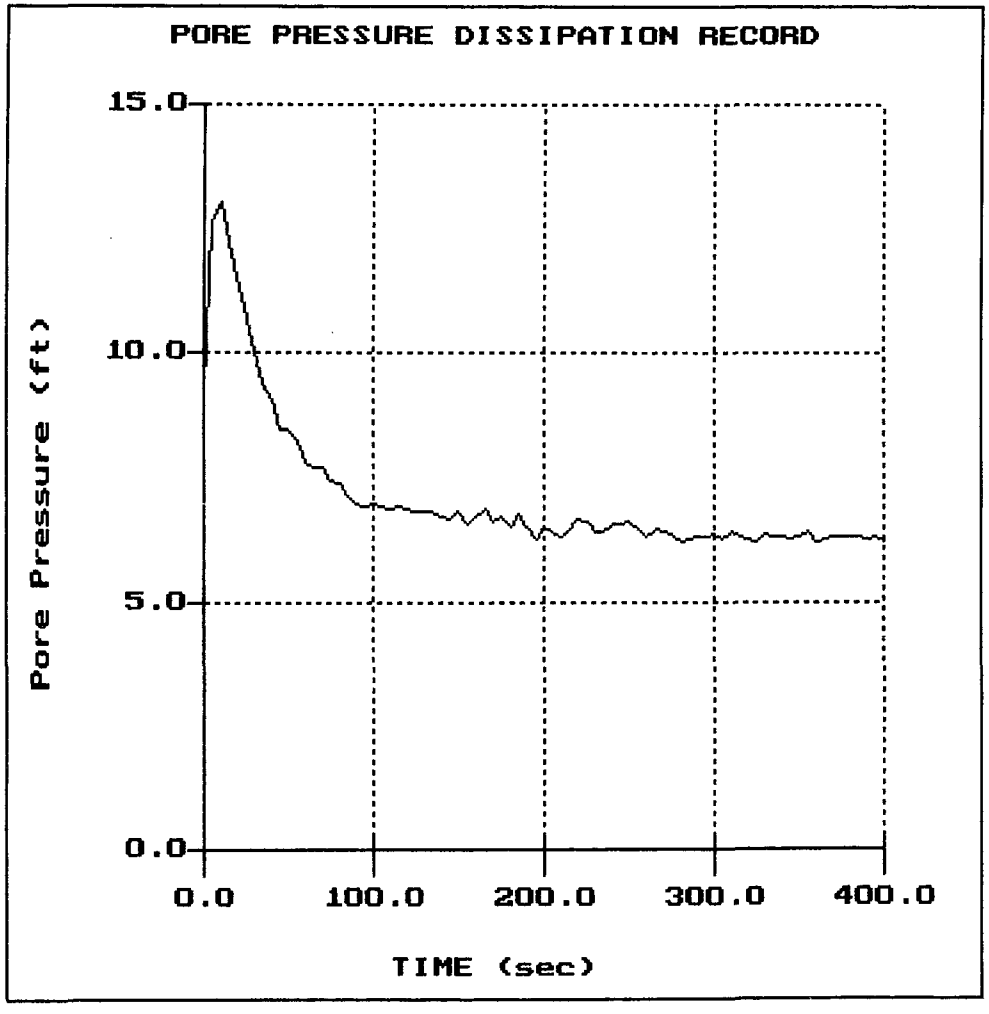


File: 390CP14.PPD
Depth (m): 3.10
(ft): 10.17
Duration : 600.0s
U-min: -7.70 5.0s
U-max: 5.49 0.0s

Maxim Technologies

Hole:CPT-17
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 14:30

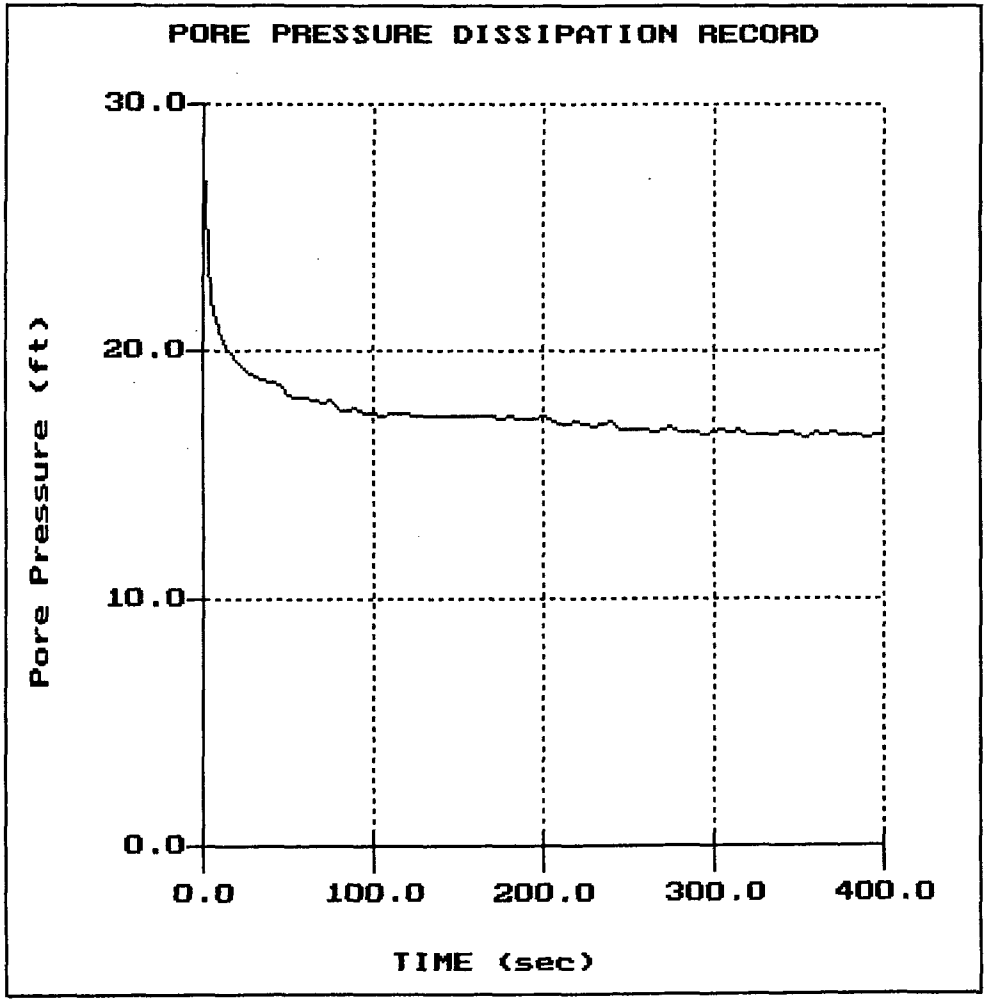


File: 390CP17.PPD
Depth (m): 6.75
(ft): 22.15
Duration : 400.0s
U-min: 6.24 400.0s
U-max: 13.00 10.0s

Maxim Technologies

Hole:CPT-19
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:19:04 12:02

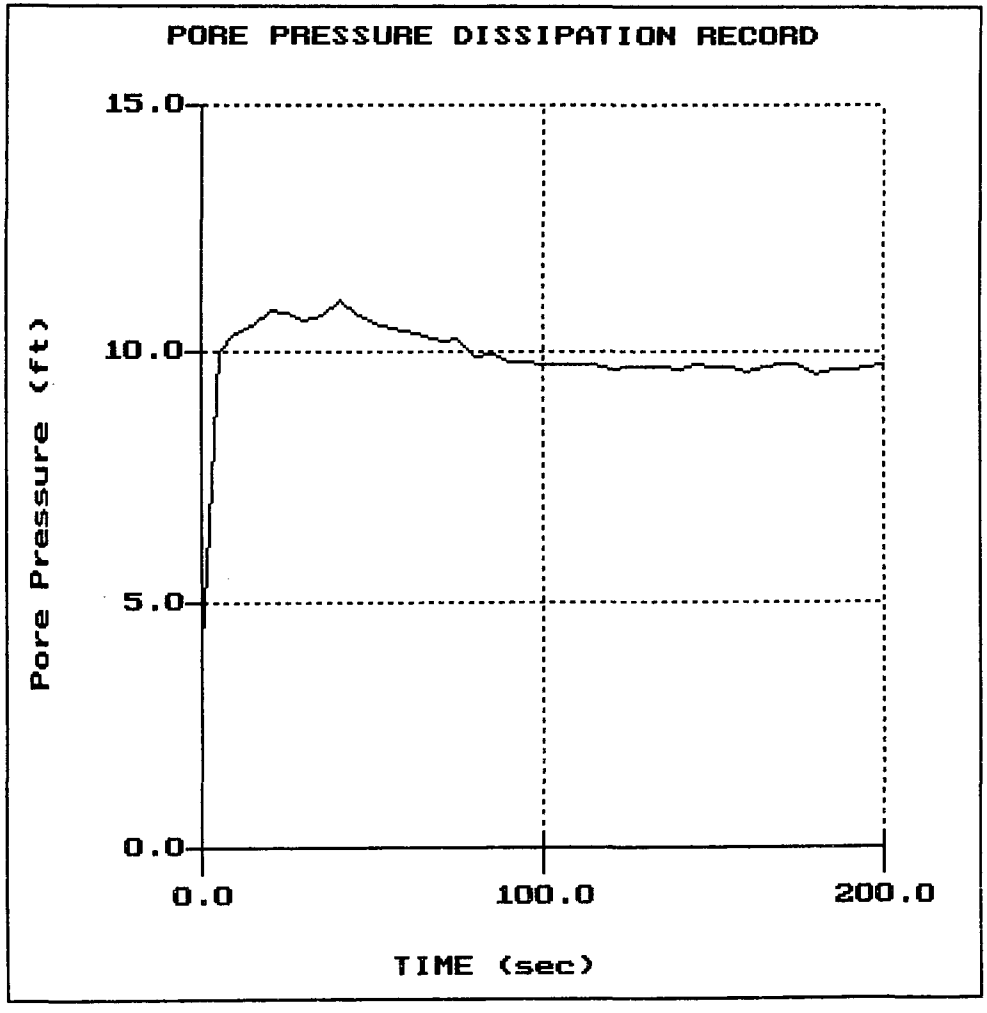


File: 390CP19.PPD
Depth (m): 11.75
(ft): 38.55
Duration : 400.0s
U-min: 16.57 390.0s
U-max: 27.88 0.0s

Maxim Technologies

Hole:CPT-20
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 15:20

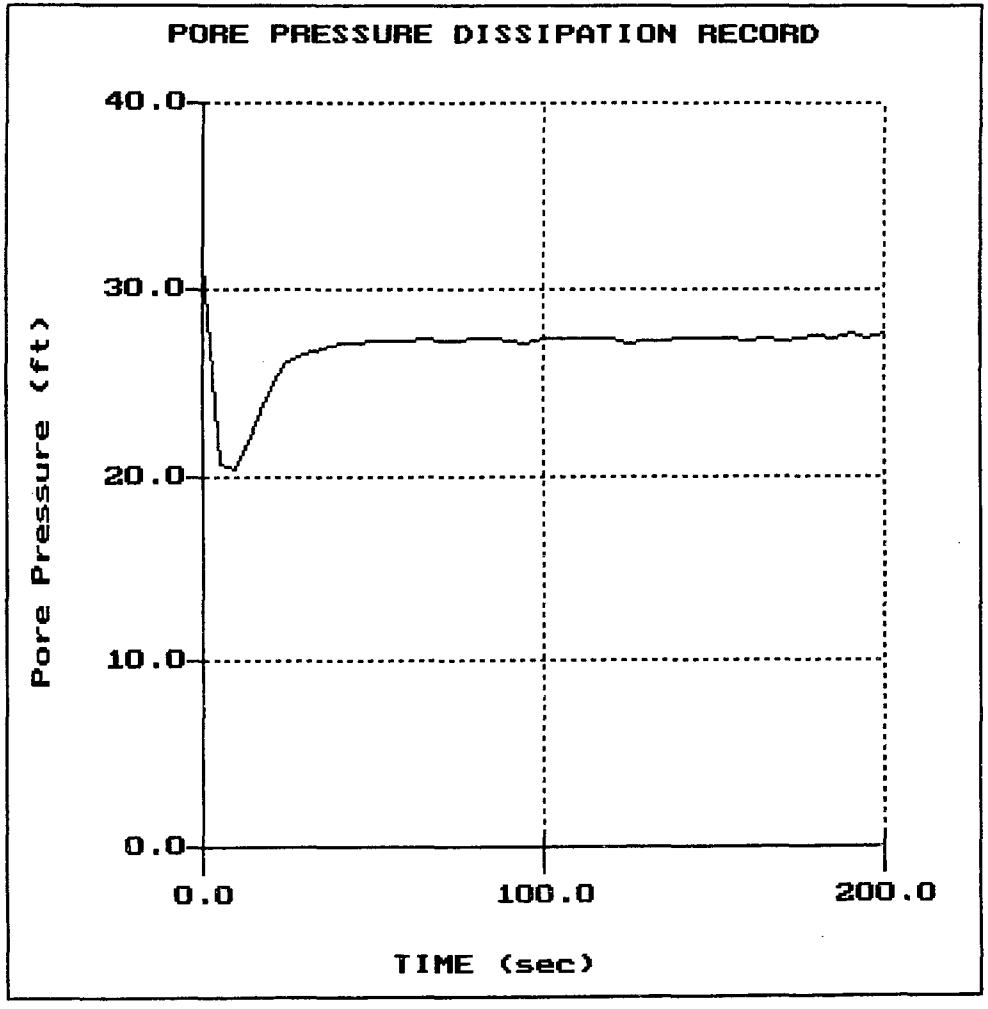


File: 390CP20.PPD
Depth (m): 5.80
(ft): 19.03
Duration : 200.0s
U-min: 4.08 0.0s
U-max: 11.03 40.0s

Maxim Technologies

Hole:CPT-20
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 15:20

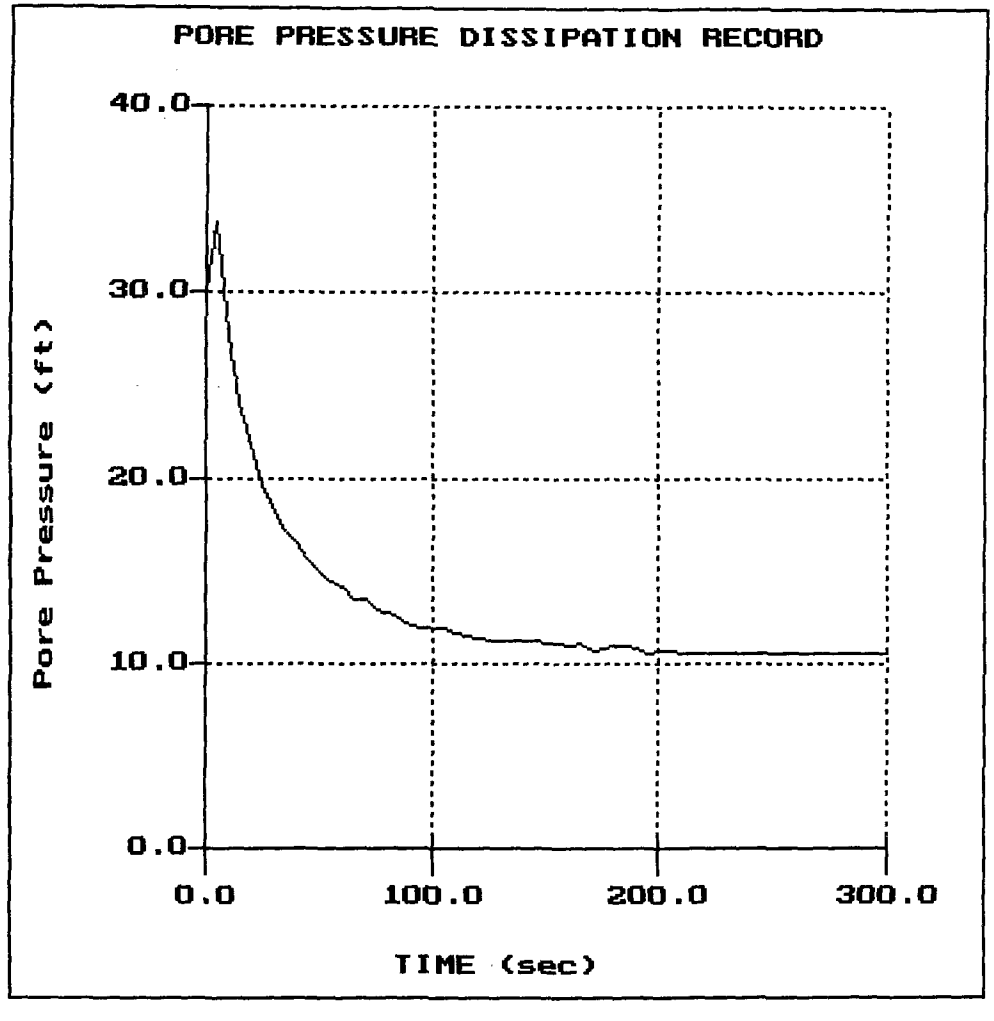


File: 390CP20.PPD
Depth (m): 14.05
(ft): 46.10
Duration : 200.0s
U-min: 20.46 10.0s
U-max: 31.49 0.0s

Maxim Technologies

Hole:CPT-21
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:19:04 07:32

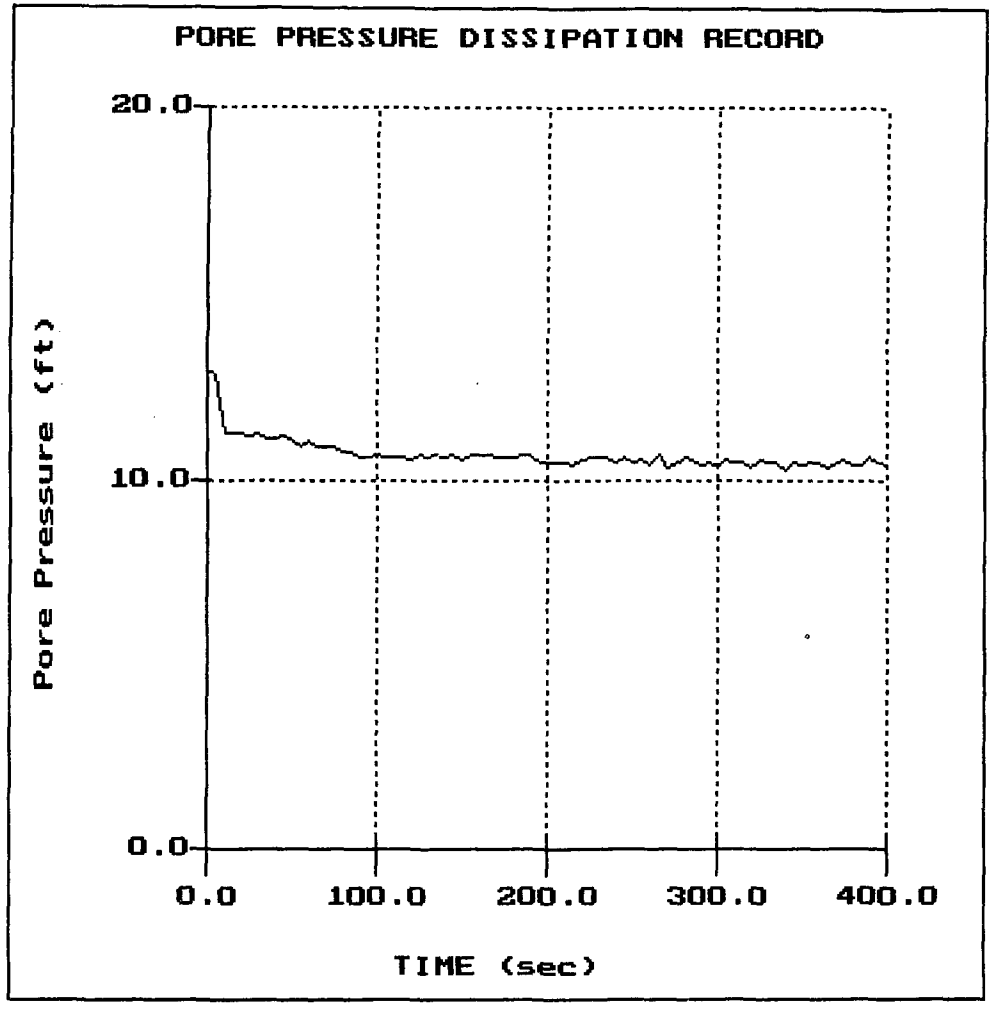


File: 390CP21.PPD
Depth (m): 5.80
(ft): 19.03
Duration : 300.0s
U-min: 10.51 300.0s
U-max: 33.79 5.0s

Maxim Technologies

Hole:CPT-22
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:19:04 09:15

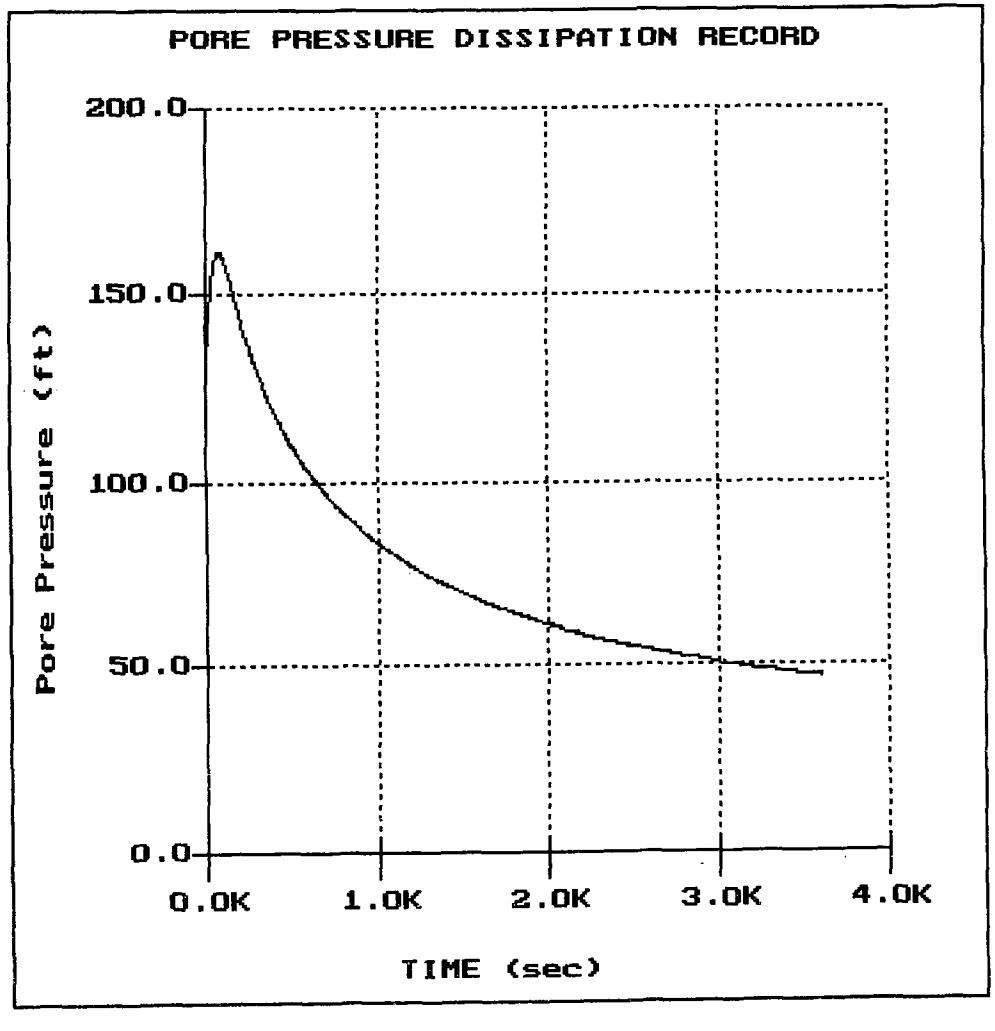


File: 390CP22.PPD
Depth (m): 9.25
(ft): 30.35
Duration : 400.0s
U-min: 10.28 340.0s
U-max: 12.91 0.0s

Maxim Technologies

Hole:CPT-22
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:19:04 09:15

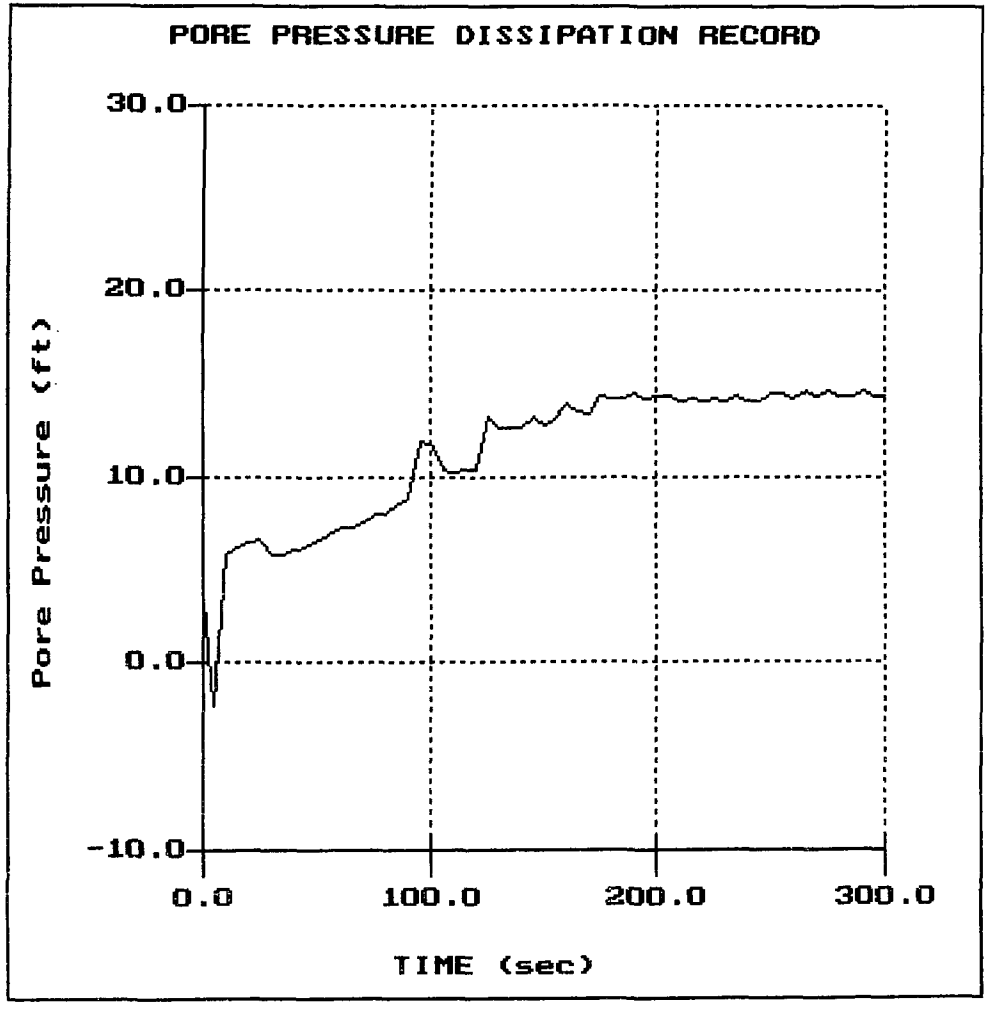


File: 390CP22.PPD
Depth (m): 10.40
(ft): 34.12
Duration : 3600.0s
U-min: 46.74 3595.0s
U-max: 161.39 70.0s

Maxim Technologies

Hole:CPT-23
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 16:15



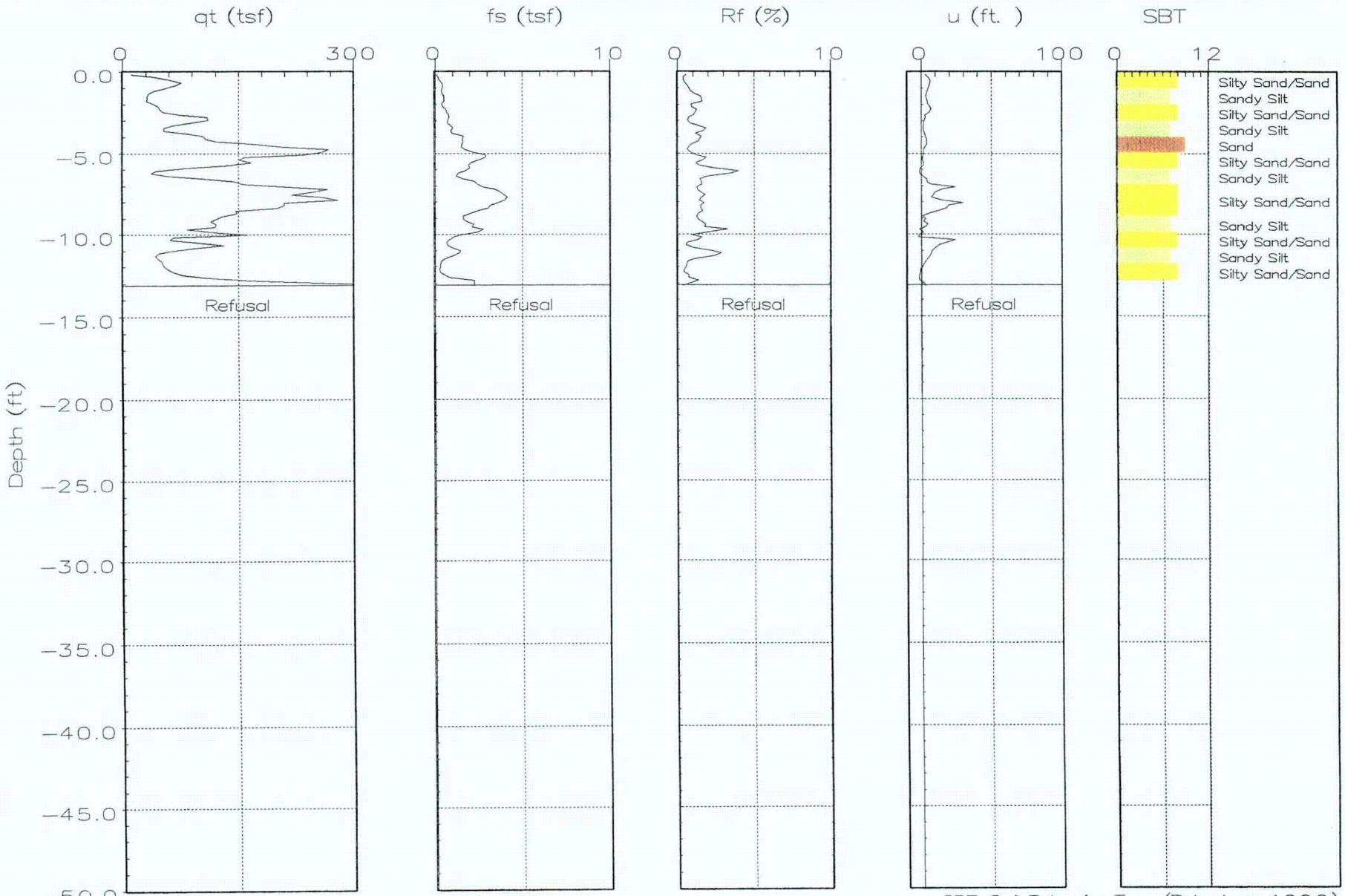
File: 390CP23.PPD
Depth (m): 7.35
(ft): 24.11
Duration : 300.0s
U-min: -2.30 5.0s
U-max: 14.64 265.0s

CONETEC

Maxim Technologies

Hole No.:CPT-01
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 07:46



Max. Depth: 13.12 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

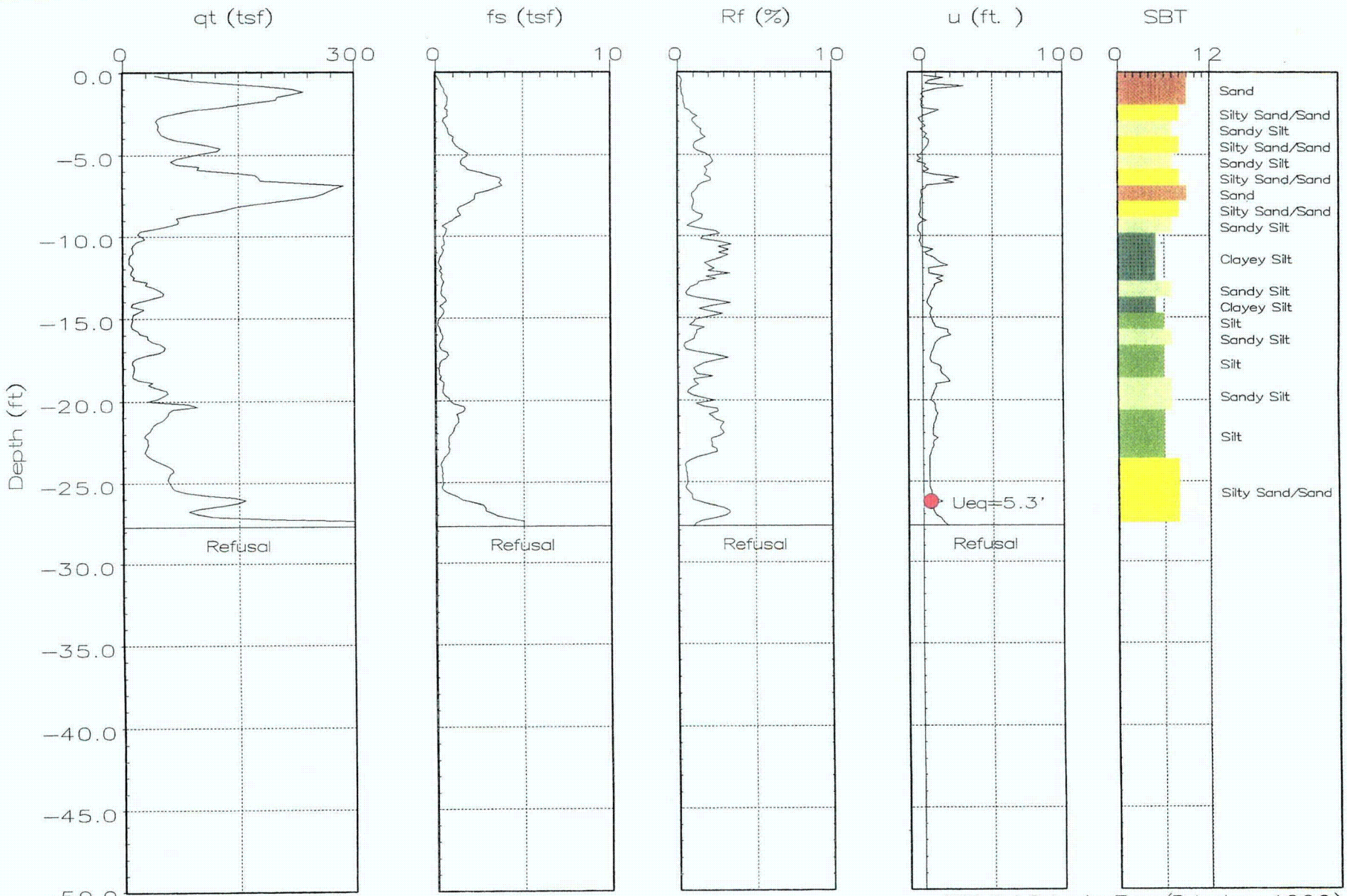
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-02
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 10:22



Max. Depth: 27.72 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

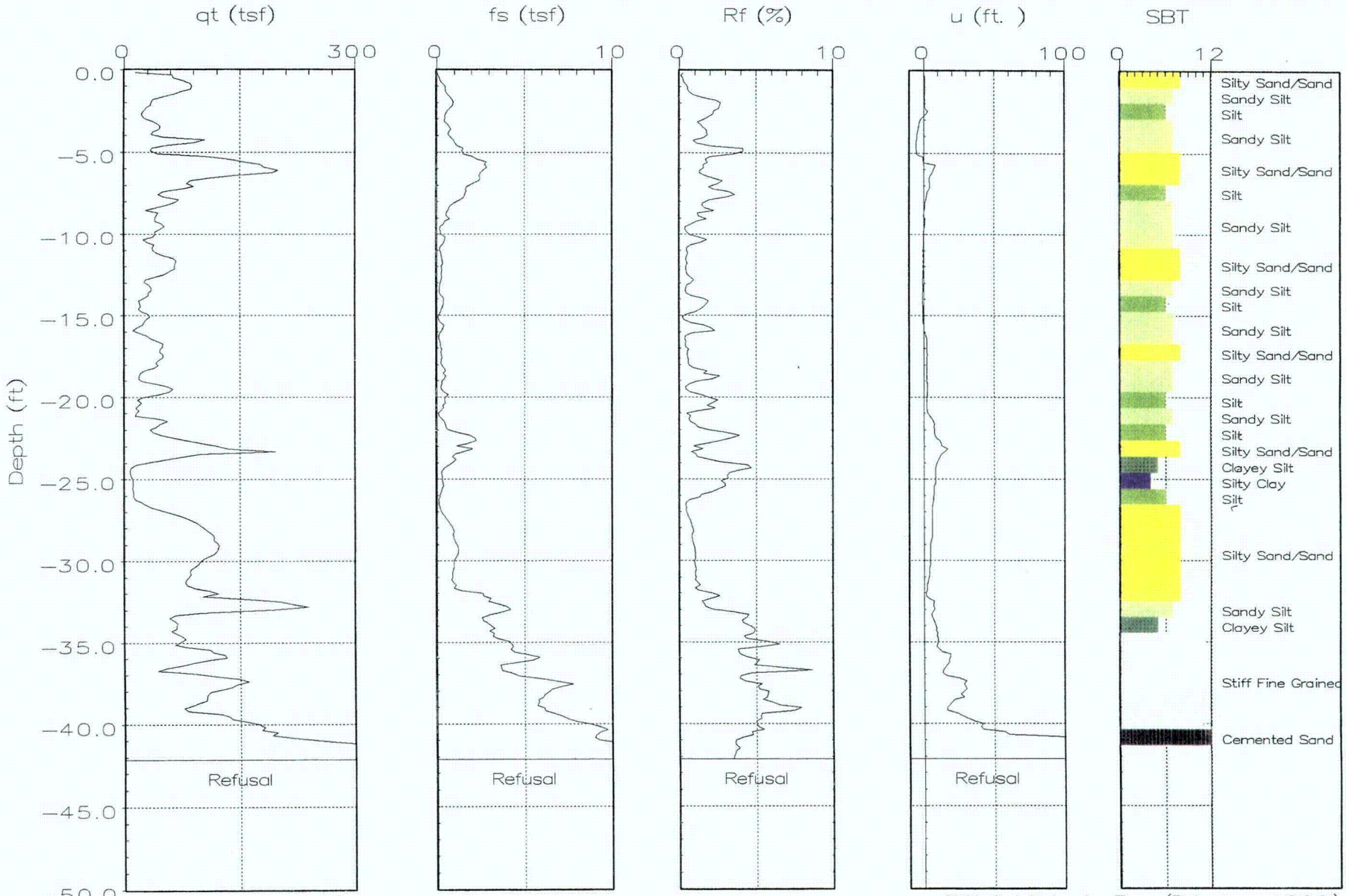
Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-03
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 10:48



Max. Depth: 42.16 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

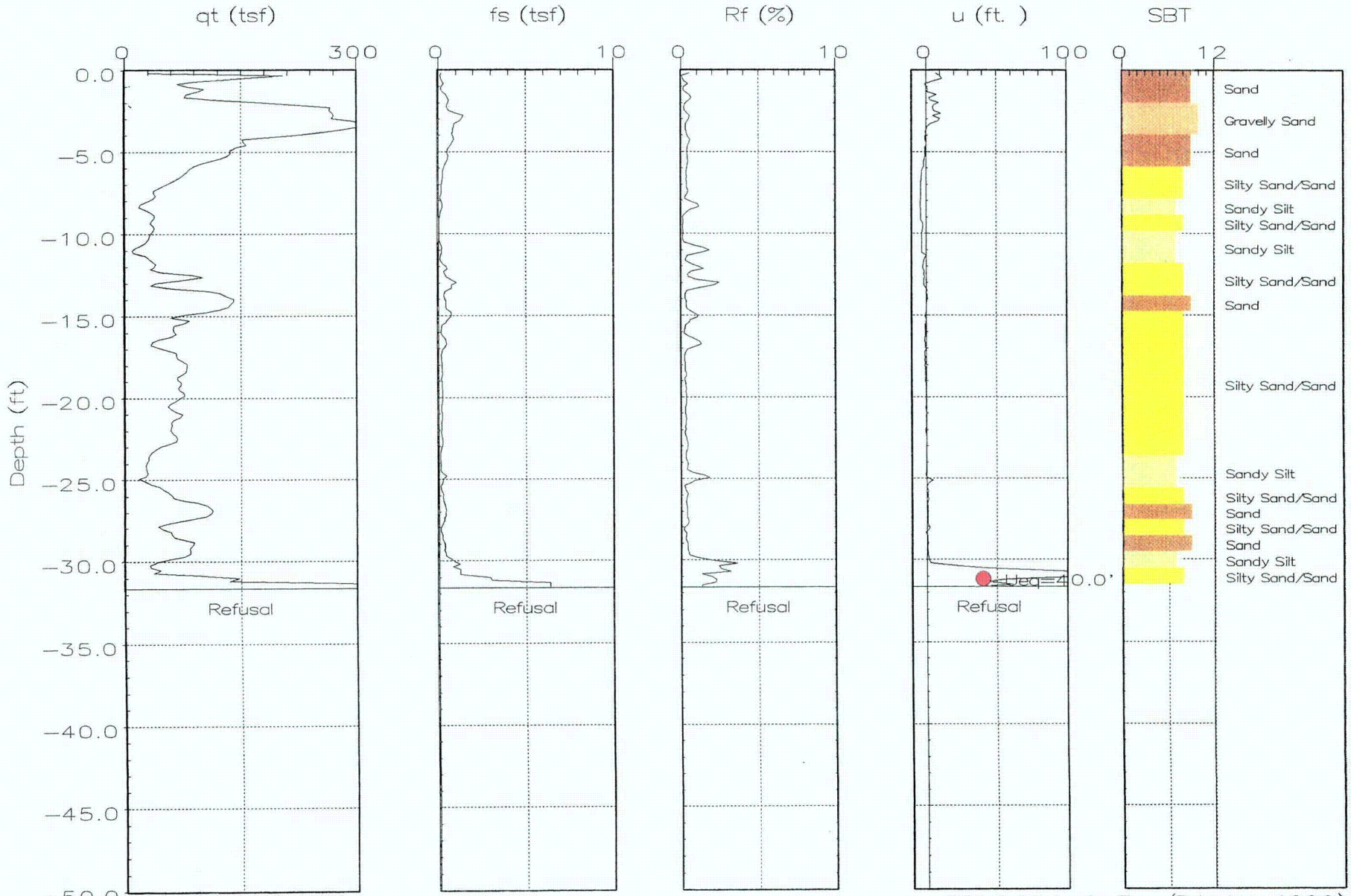
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-04
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 12:00



Max. Depth: 31.66 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

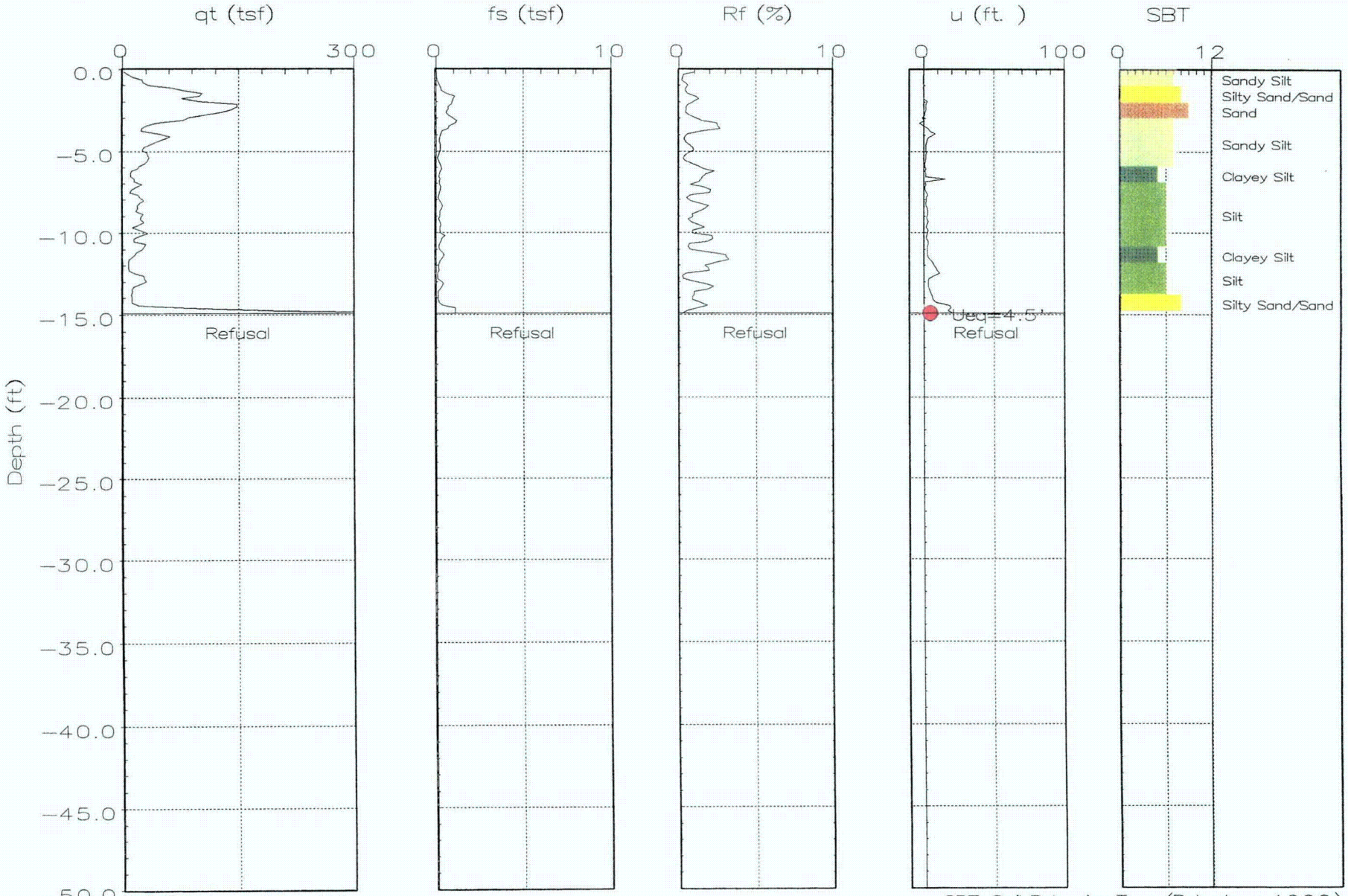
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-05
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 11:26



Max. Depth: 14.93 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

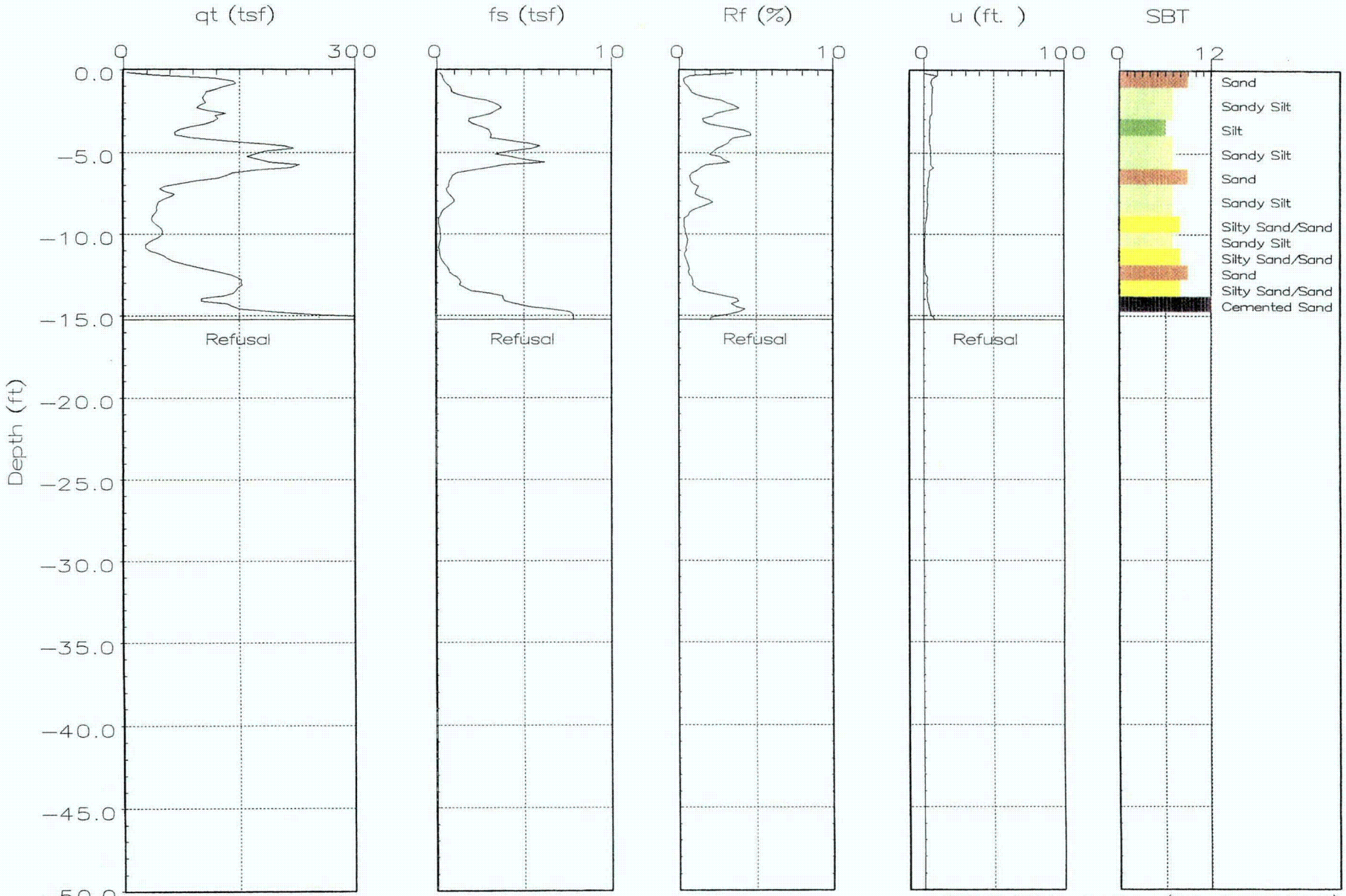
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-06
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 08:12



Max. Depth: 15.26 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

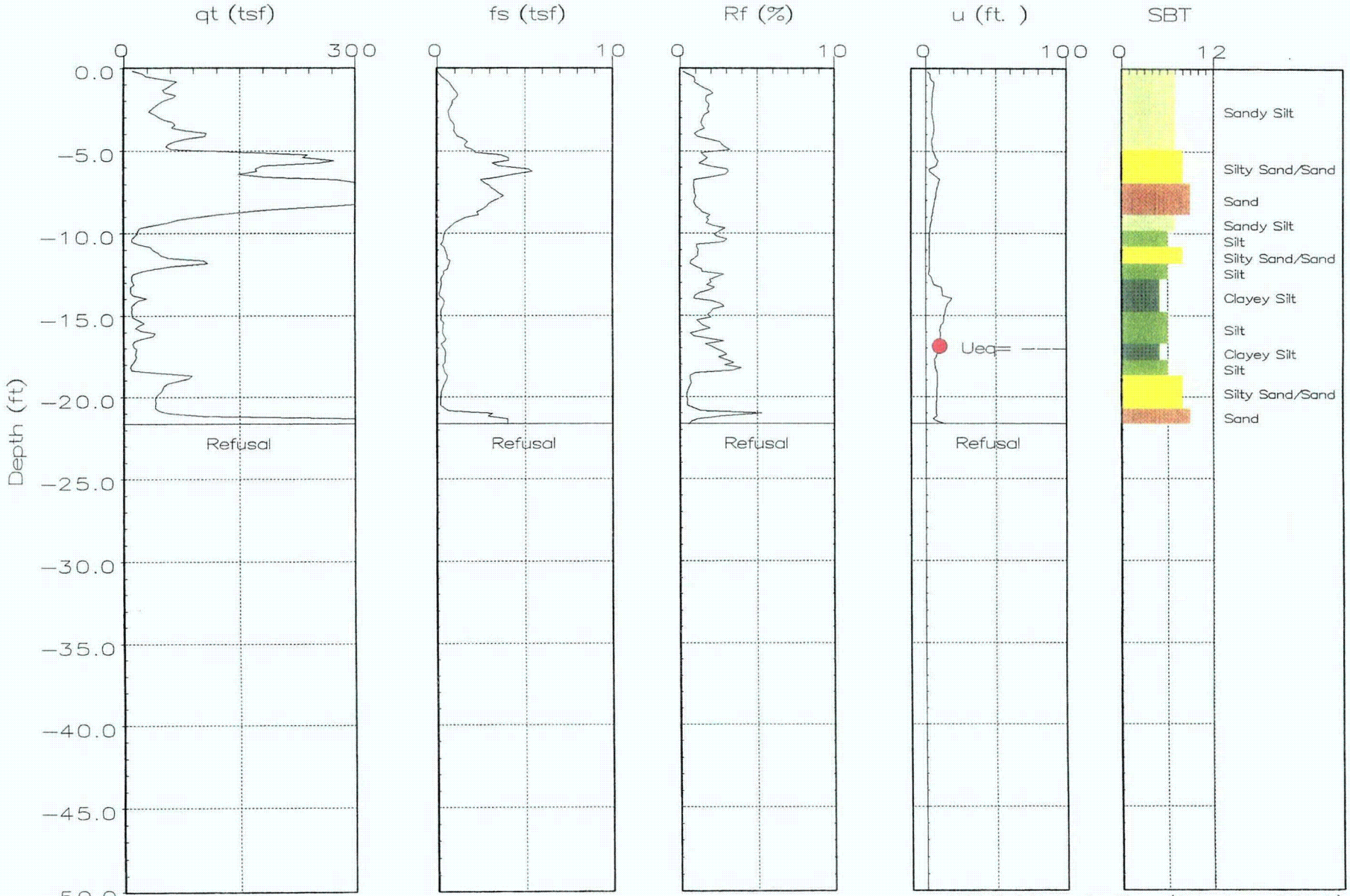
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-07
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 08:47



Max. Depth: 21.65 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

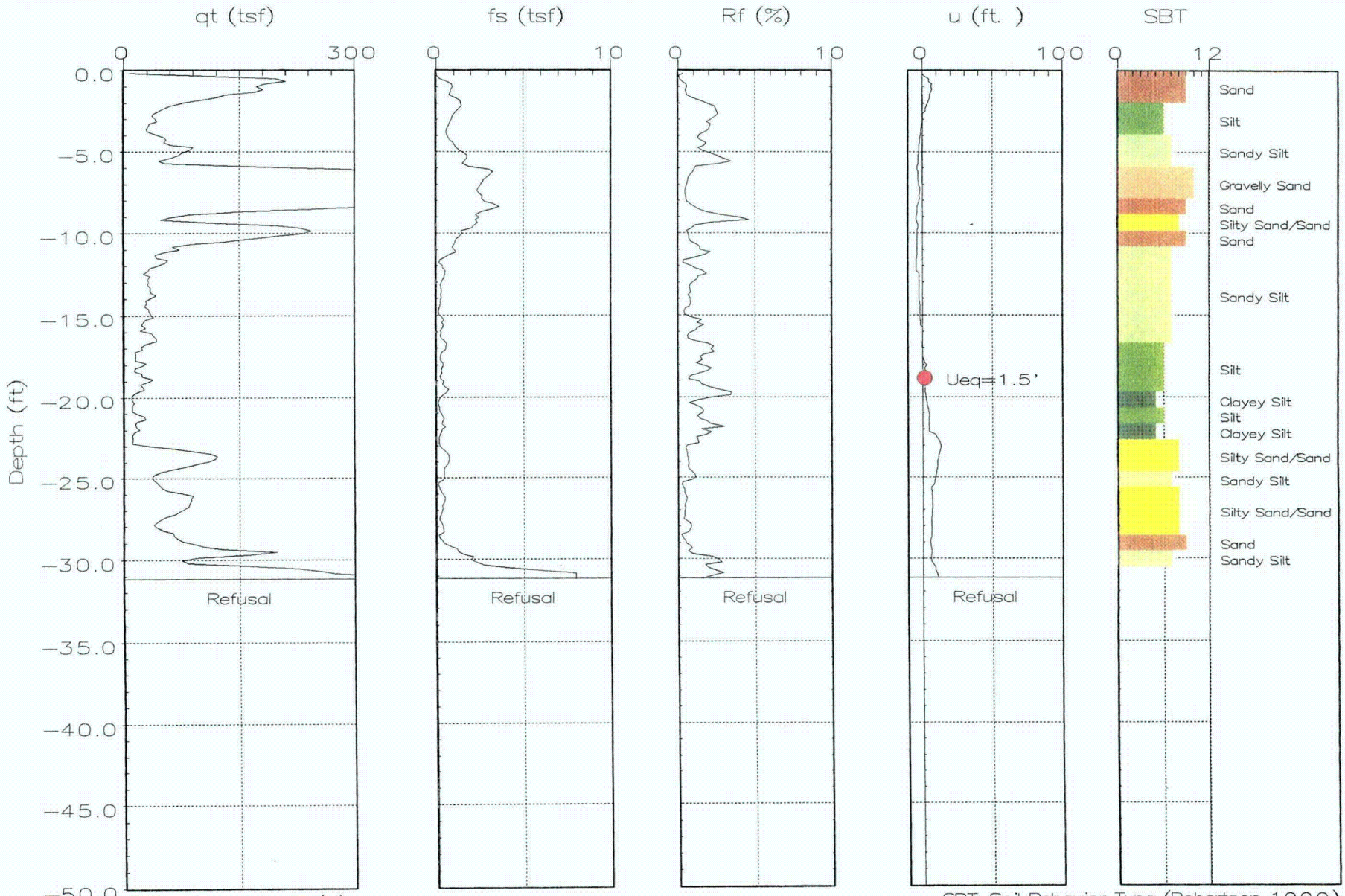
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-08
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 11:42



Max. Depth: 31.17 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

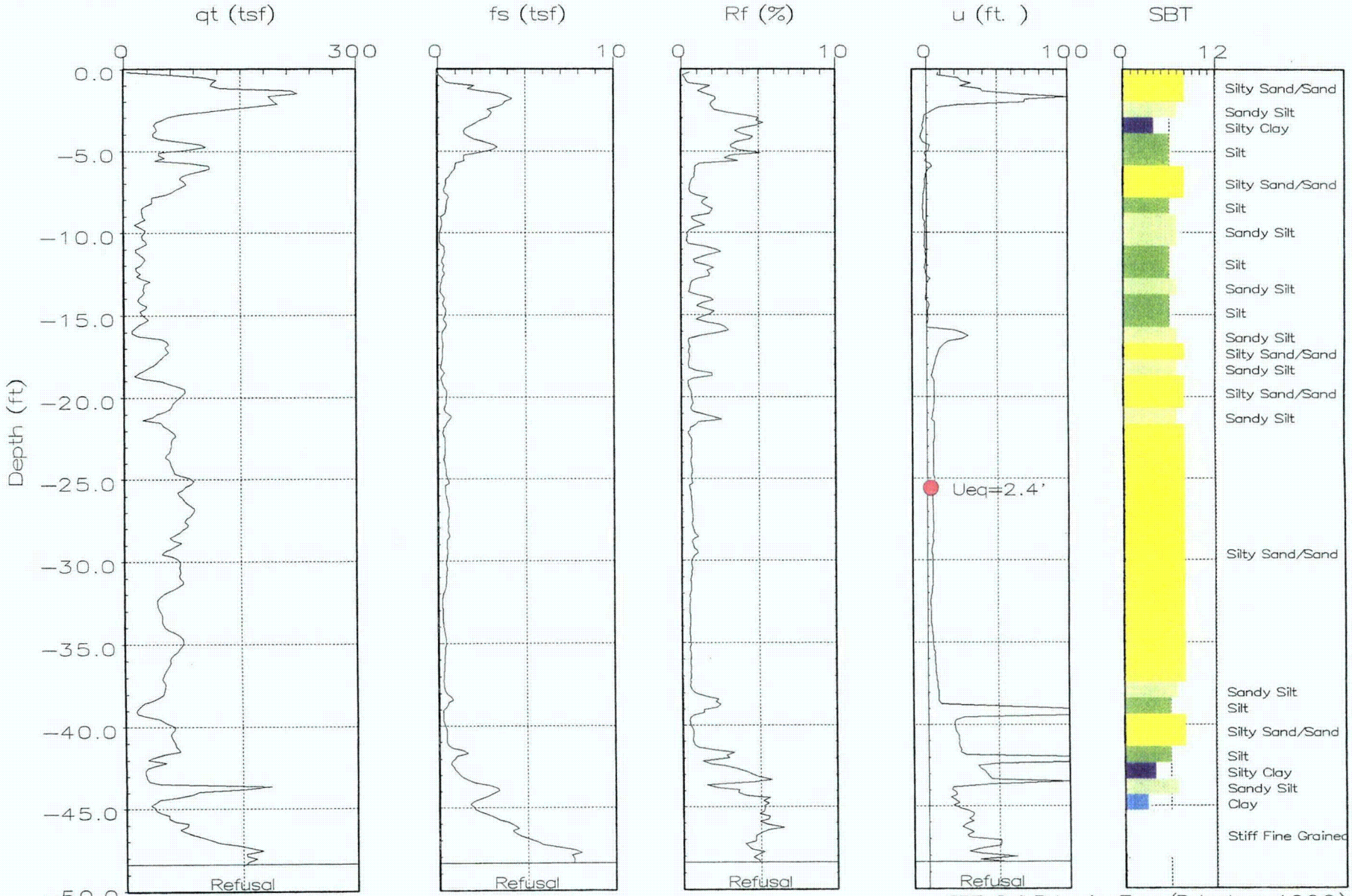
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-09
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 12:49



Max. Depth: 48.39 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

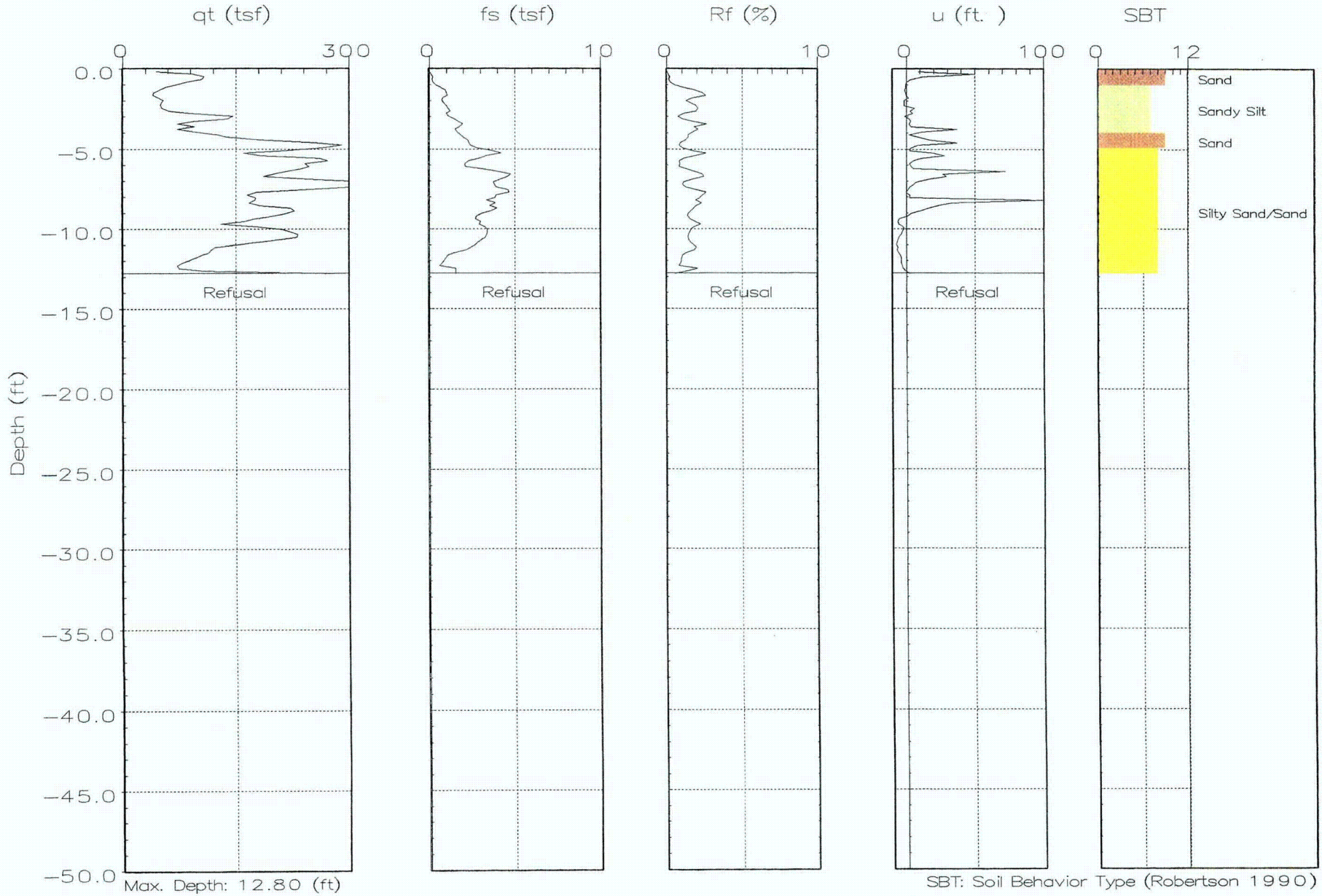
Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-10
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 15:24



Max. Depth: 12.80 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

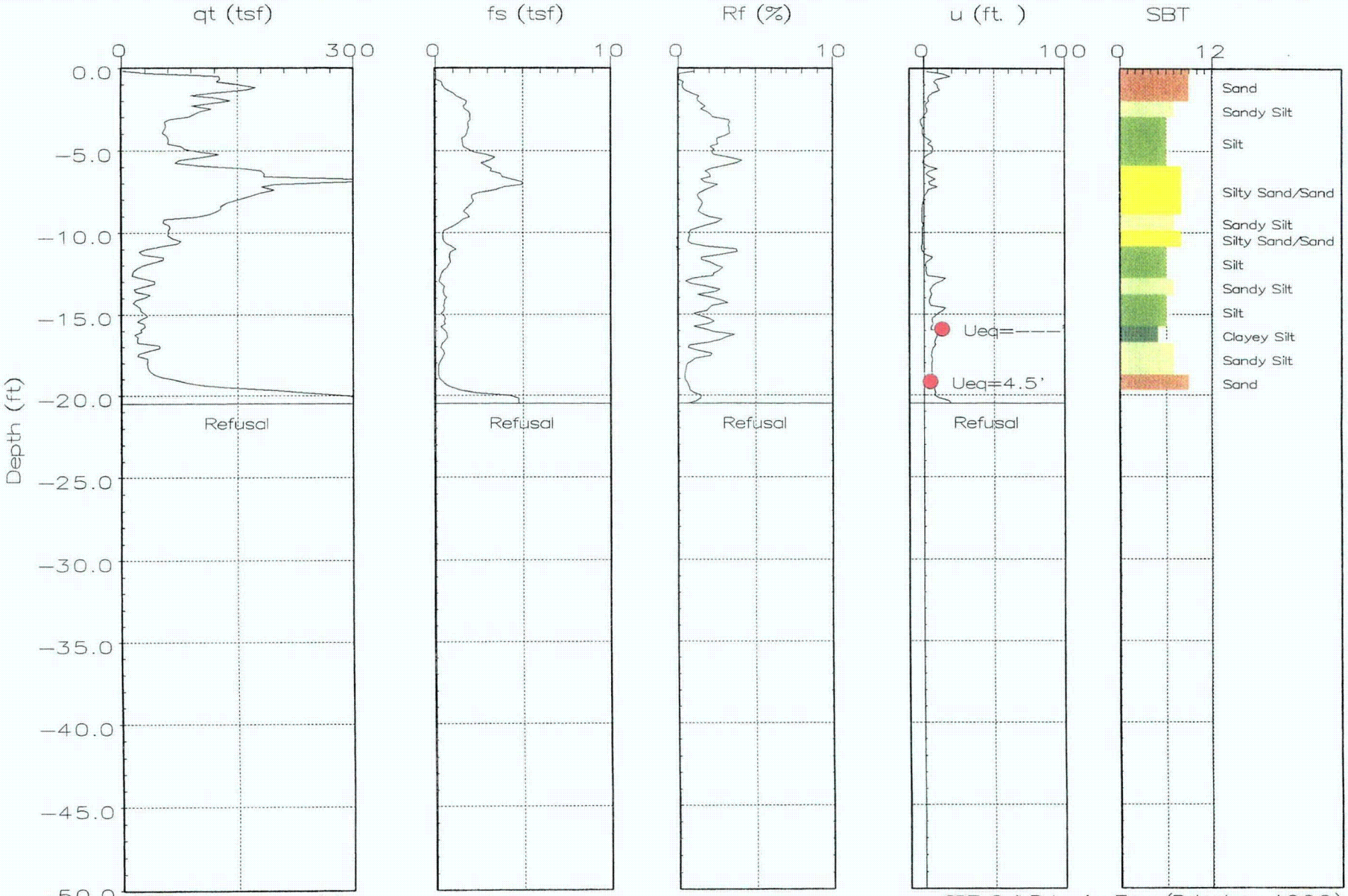
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-11
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 12:37



Max. Depth: 20.51 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

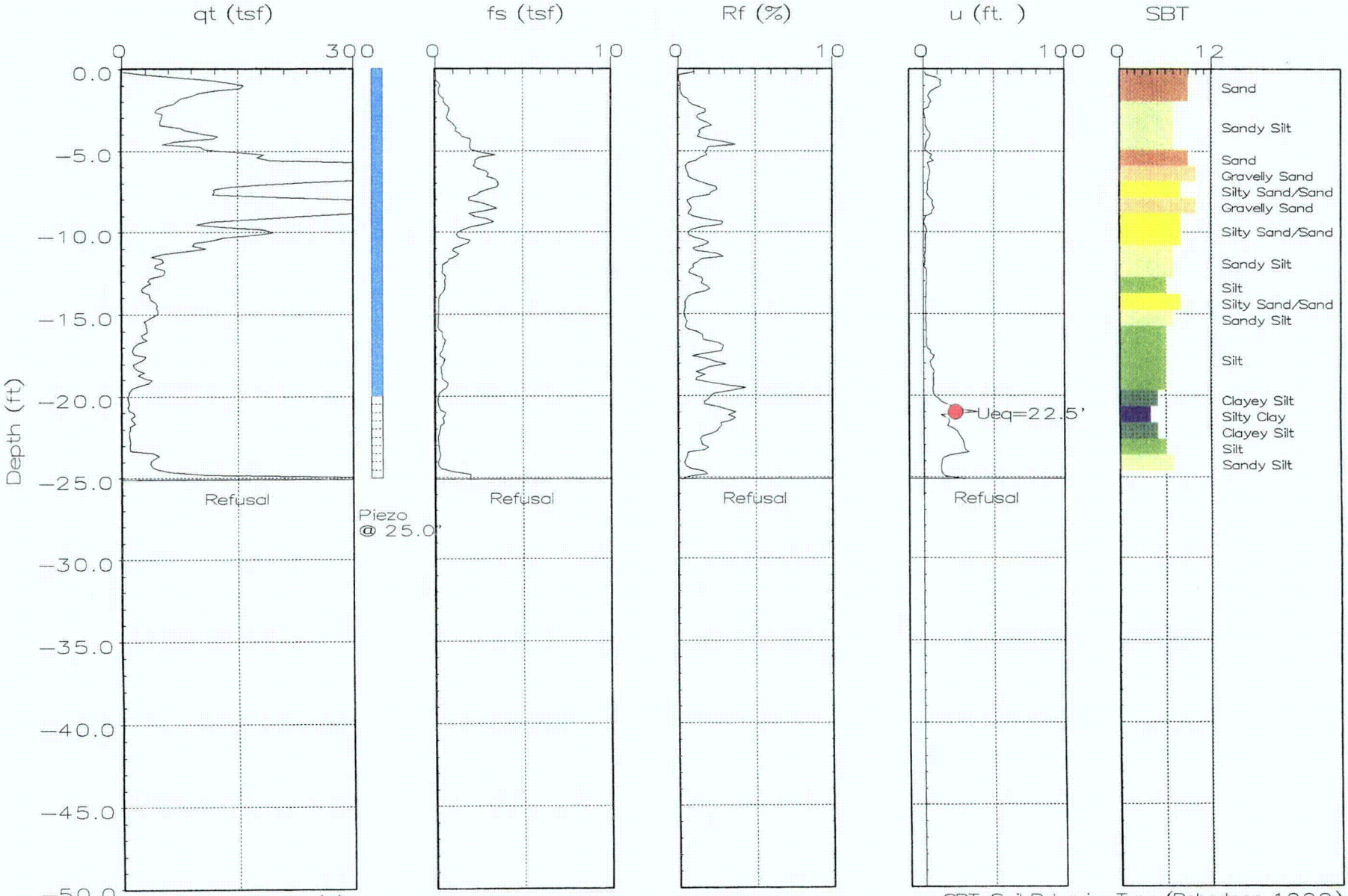
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-12
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 13:48



Max. Depth: 25.10 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

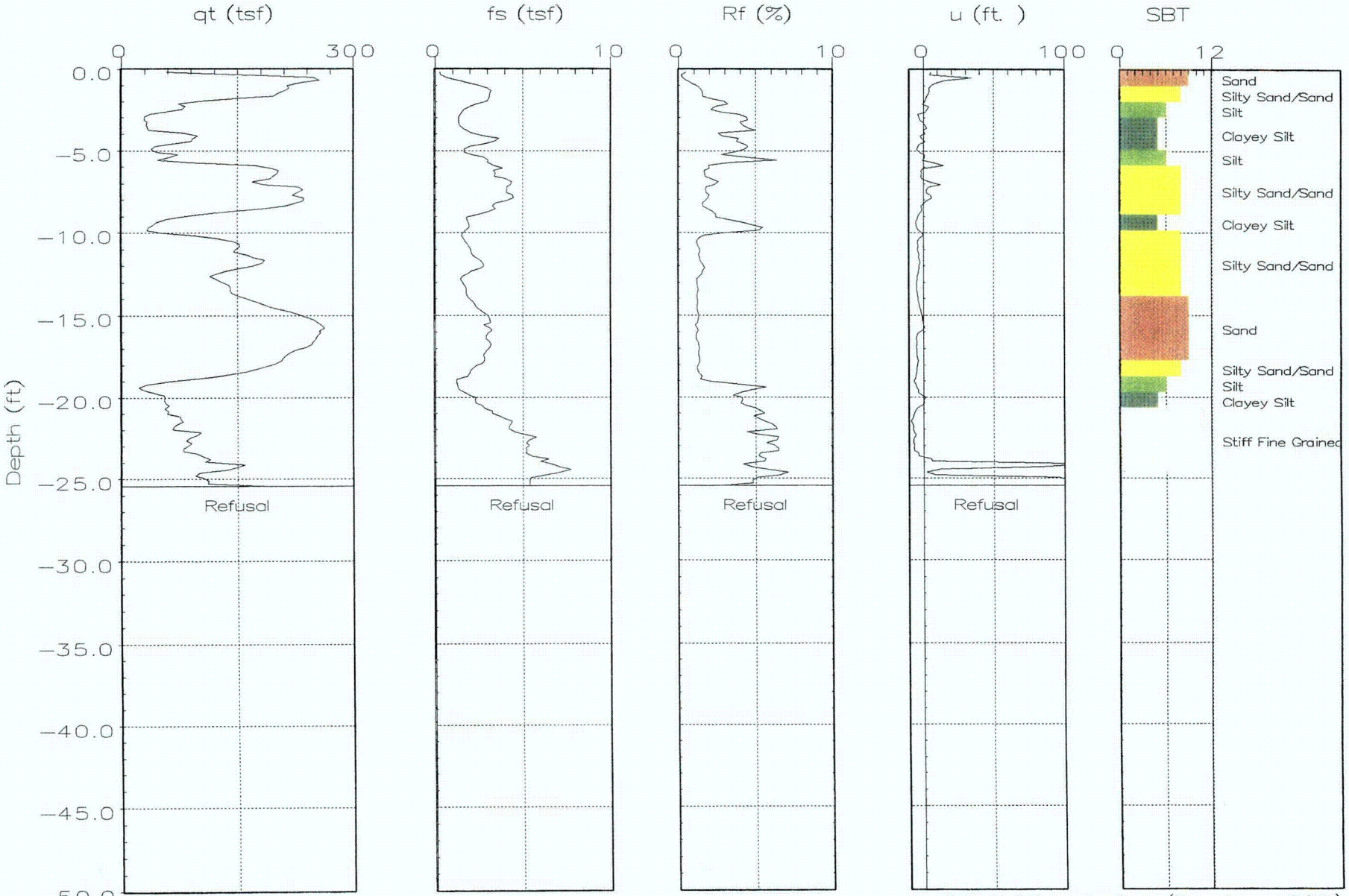
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-13
Location:AMBROSIA LAKE

Cone: 10 Ton St 146
Date:08:19:04 14:56



Max. Depth: 25.43 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

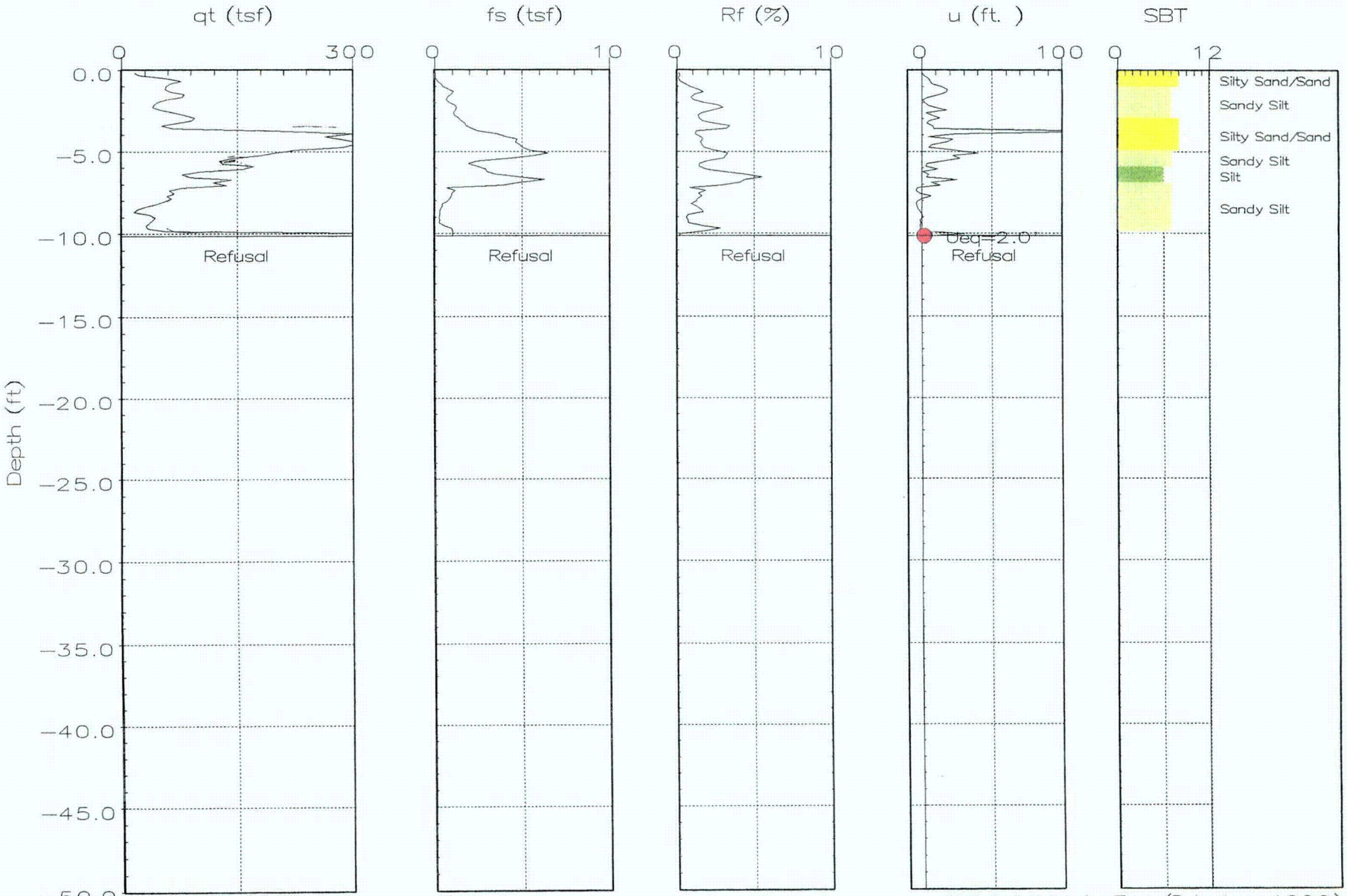
Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-14
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 13:54



Max. Depth: 10.17 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

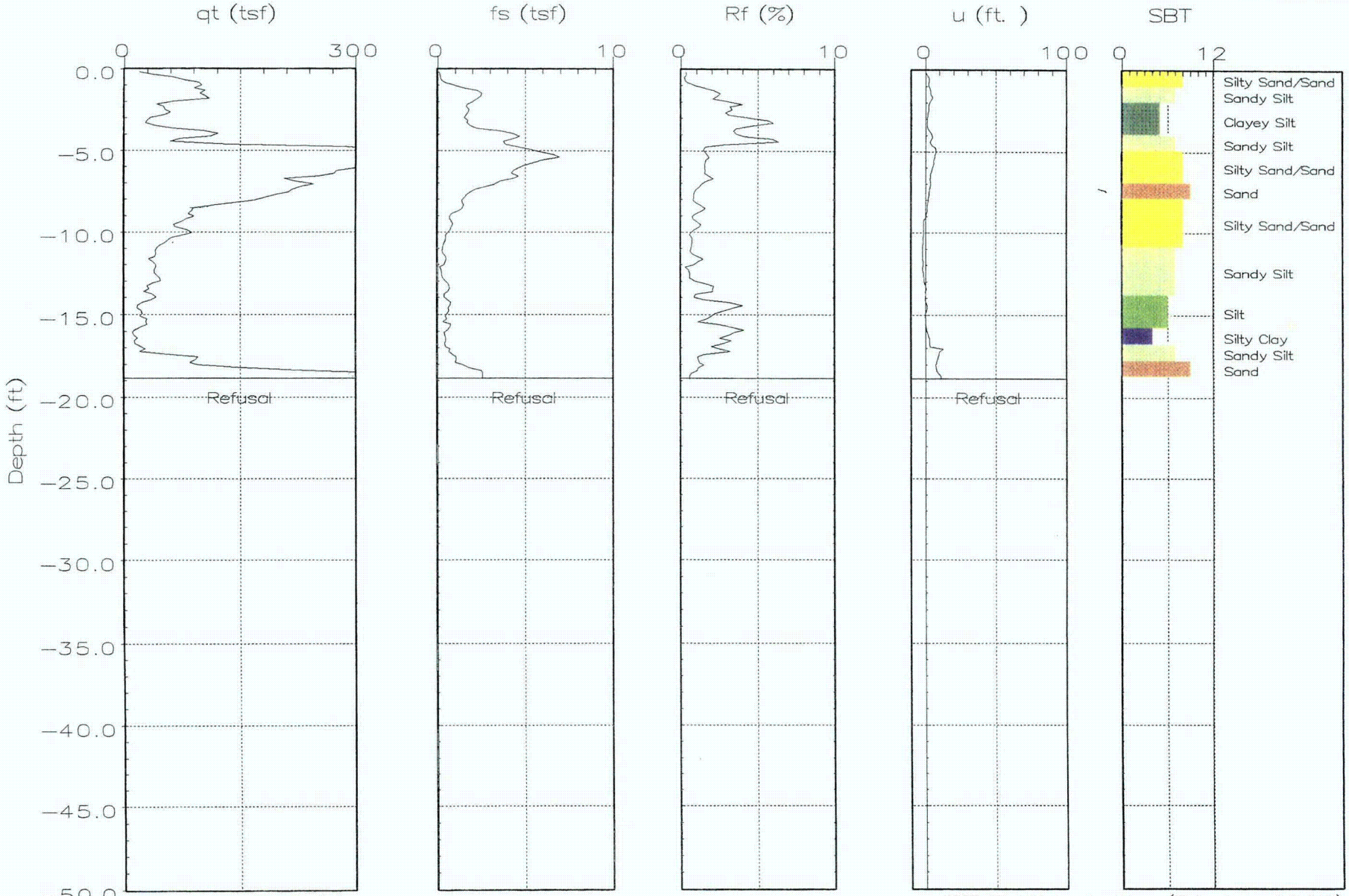
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-15
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 15:52



Max. Depth: 18.86 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

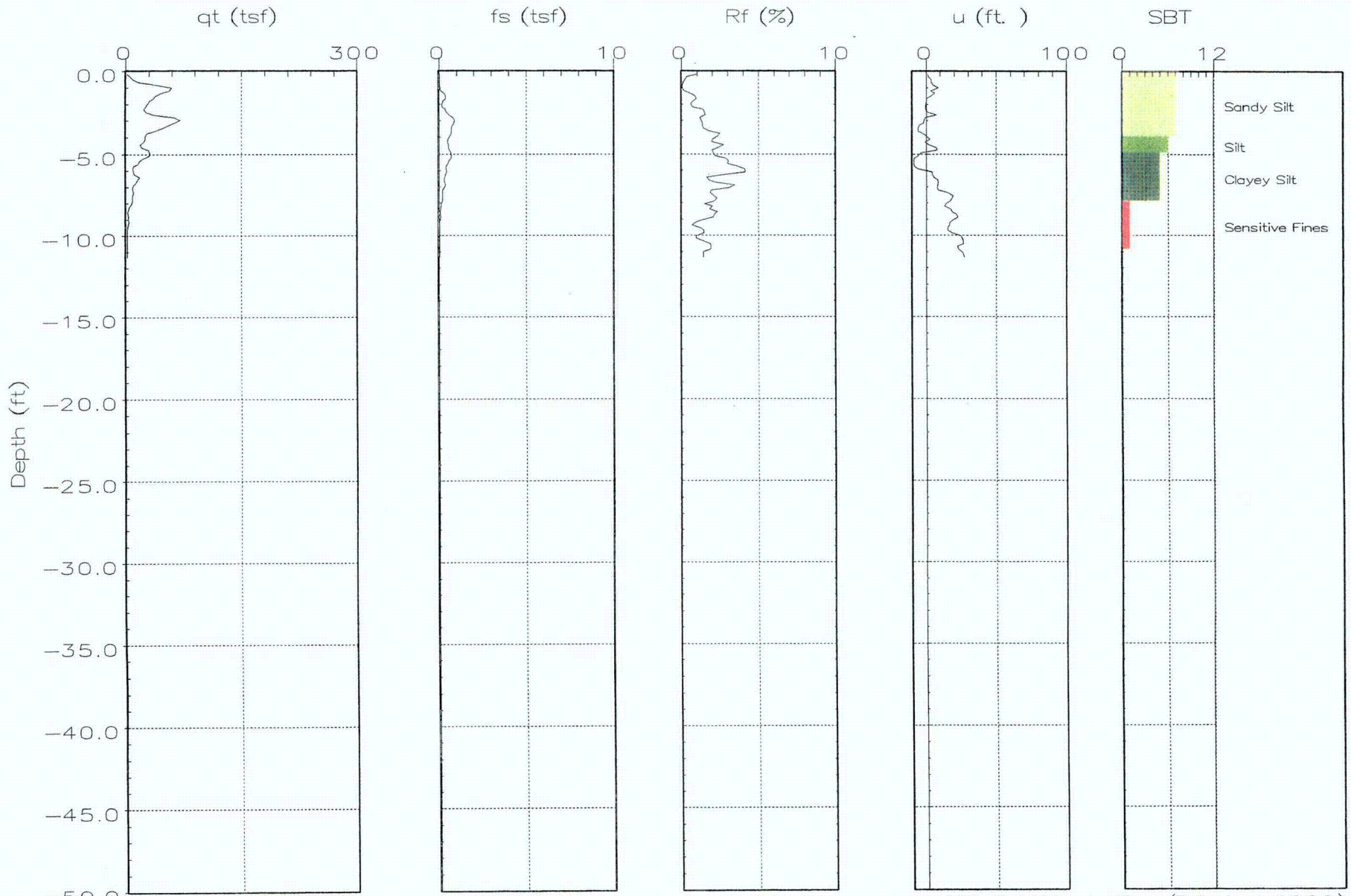
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-16
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 11:01



Max. Depth: 11.32 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

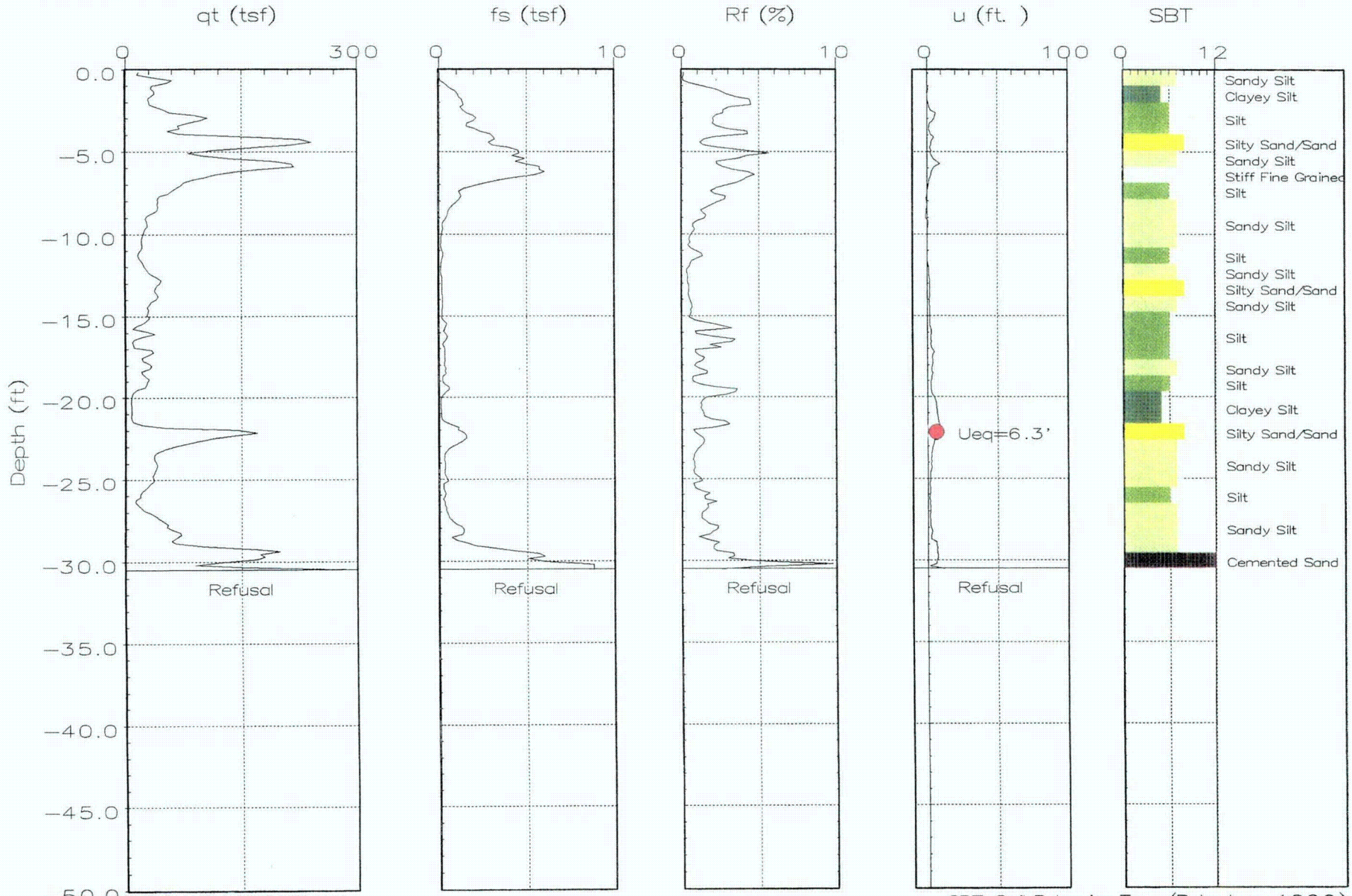
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-17
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 14:30



Max. Depth: 30.51 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

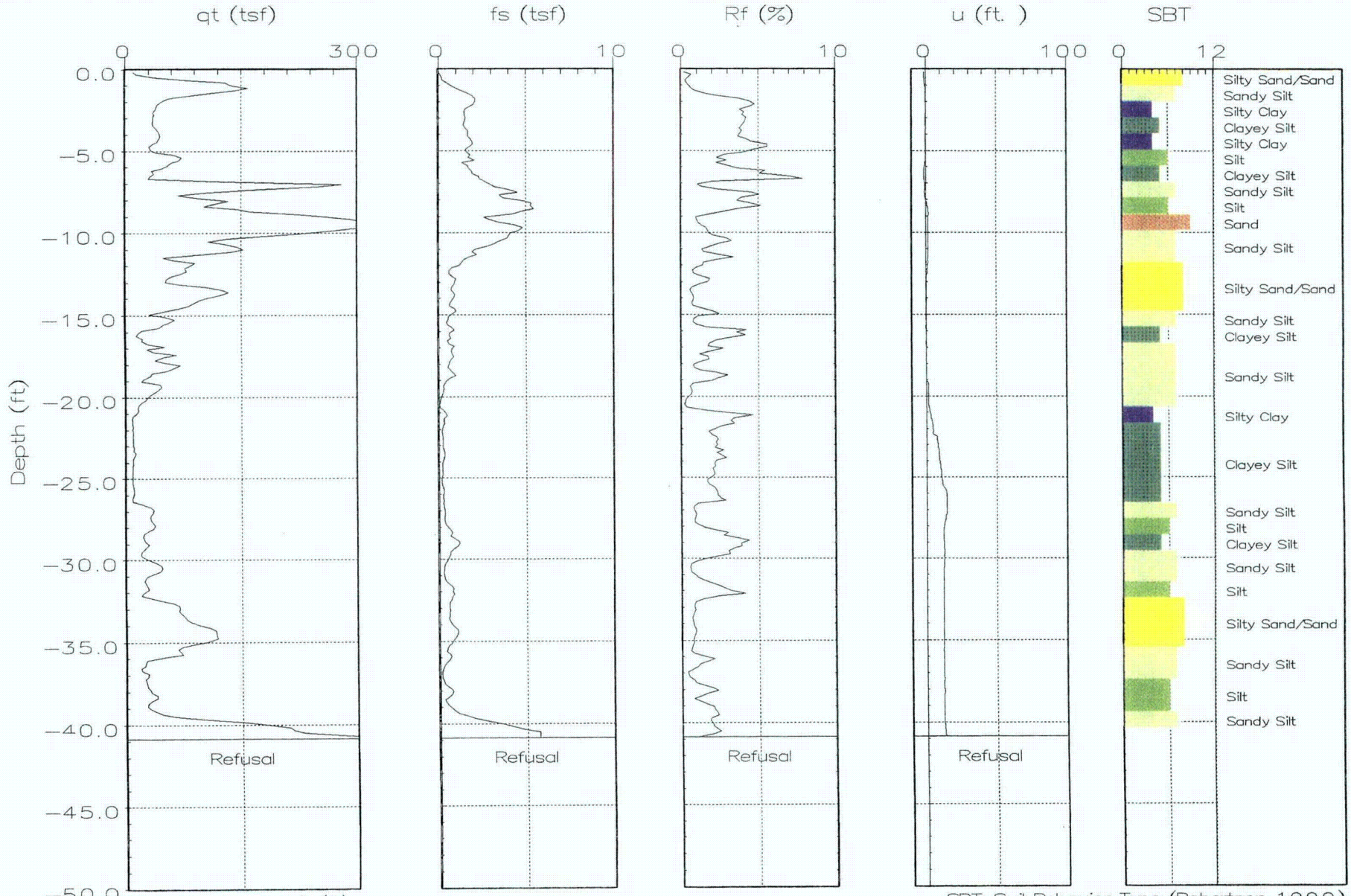
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-18
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 16:17



Max. Depth: 40.85 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

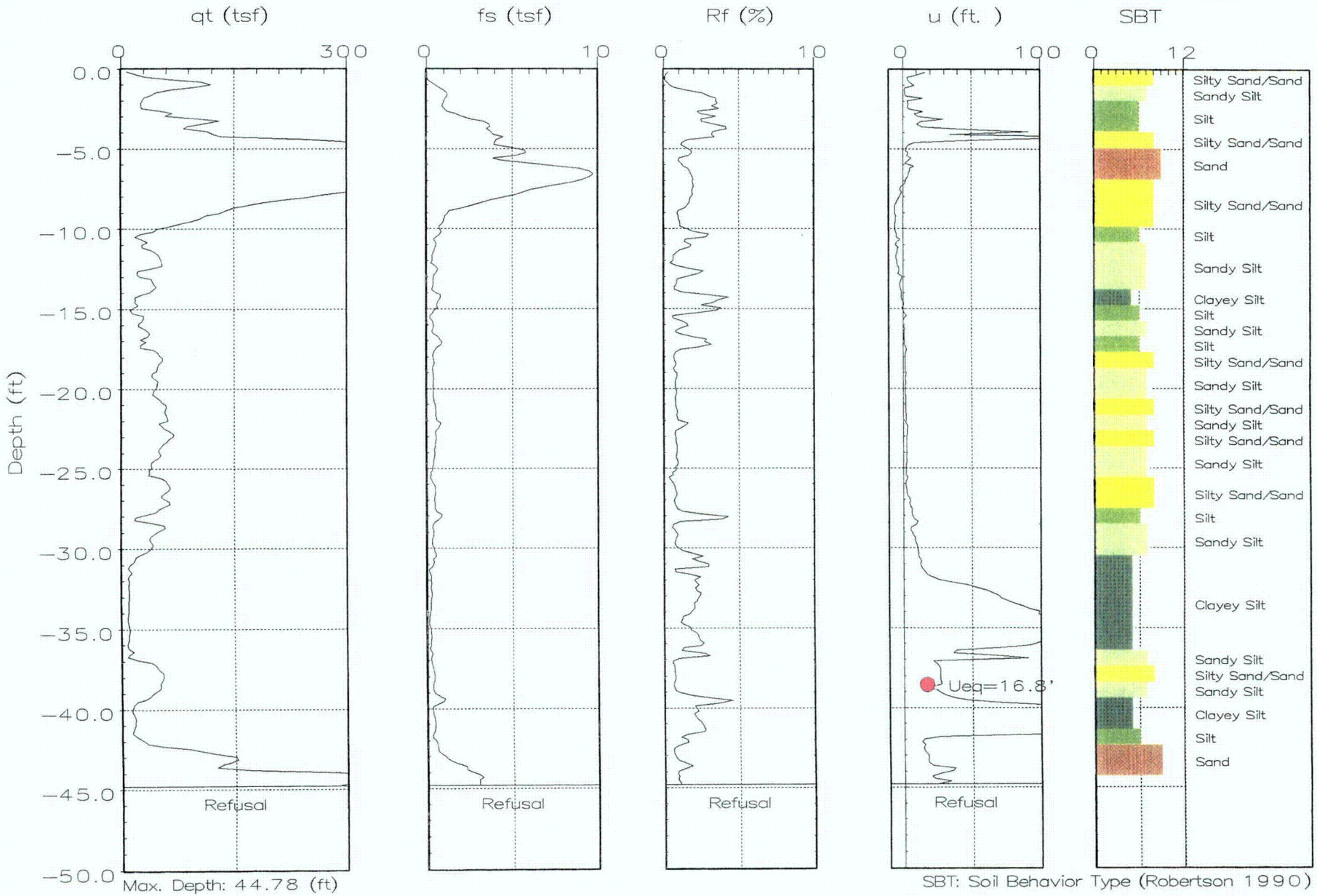
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-19
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:19:04 12:02



Max. Depth: 44.78 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

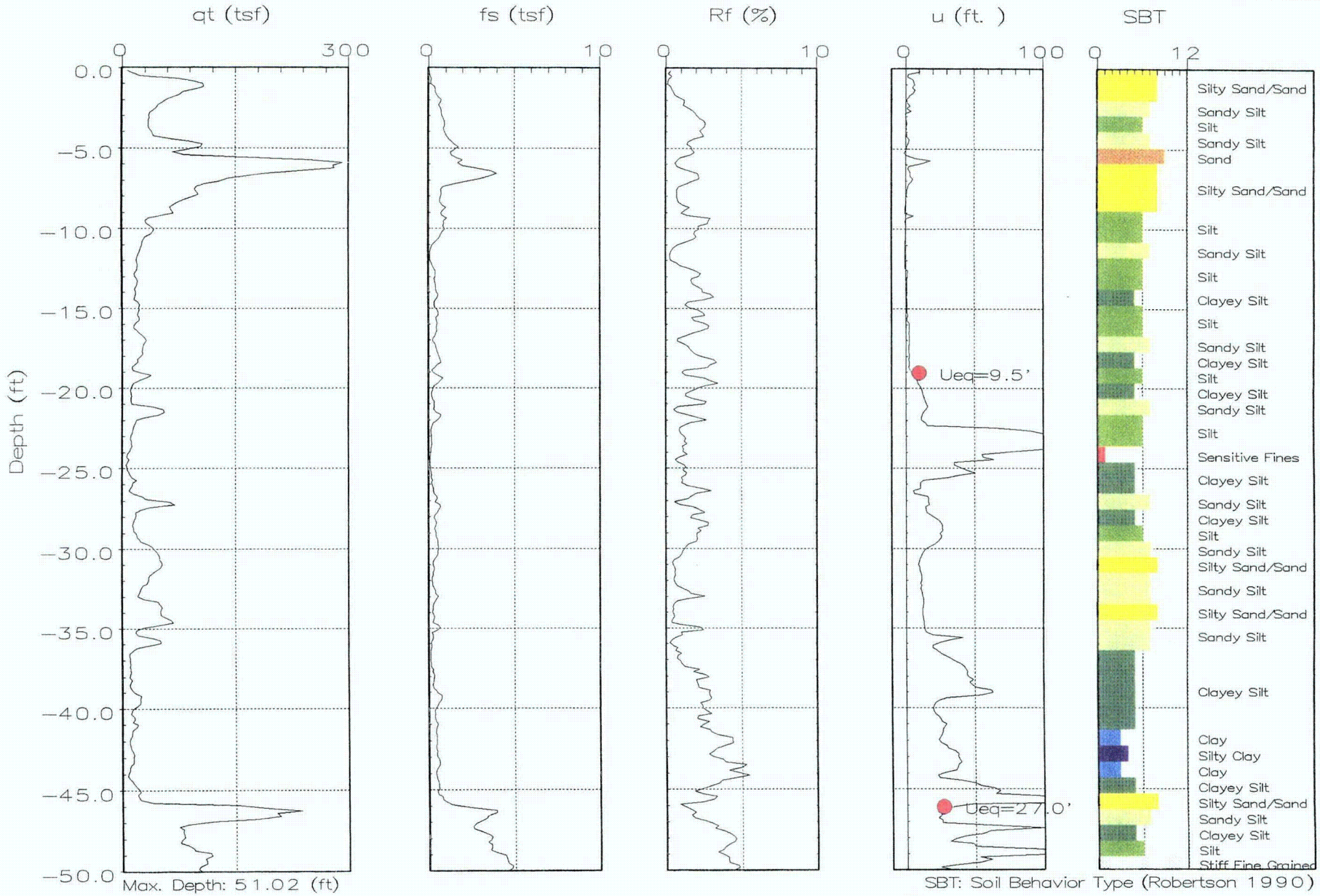
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-20
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 15:20



Max. Depth: 51.02 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

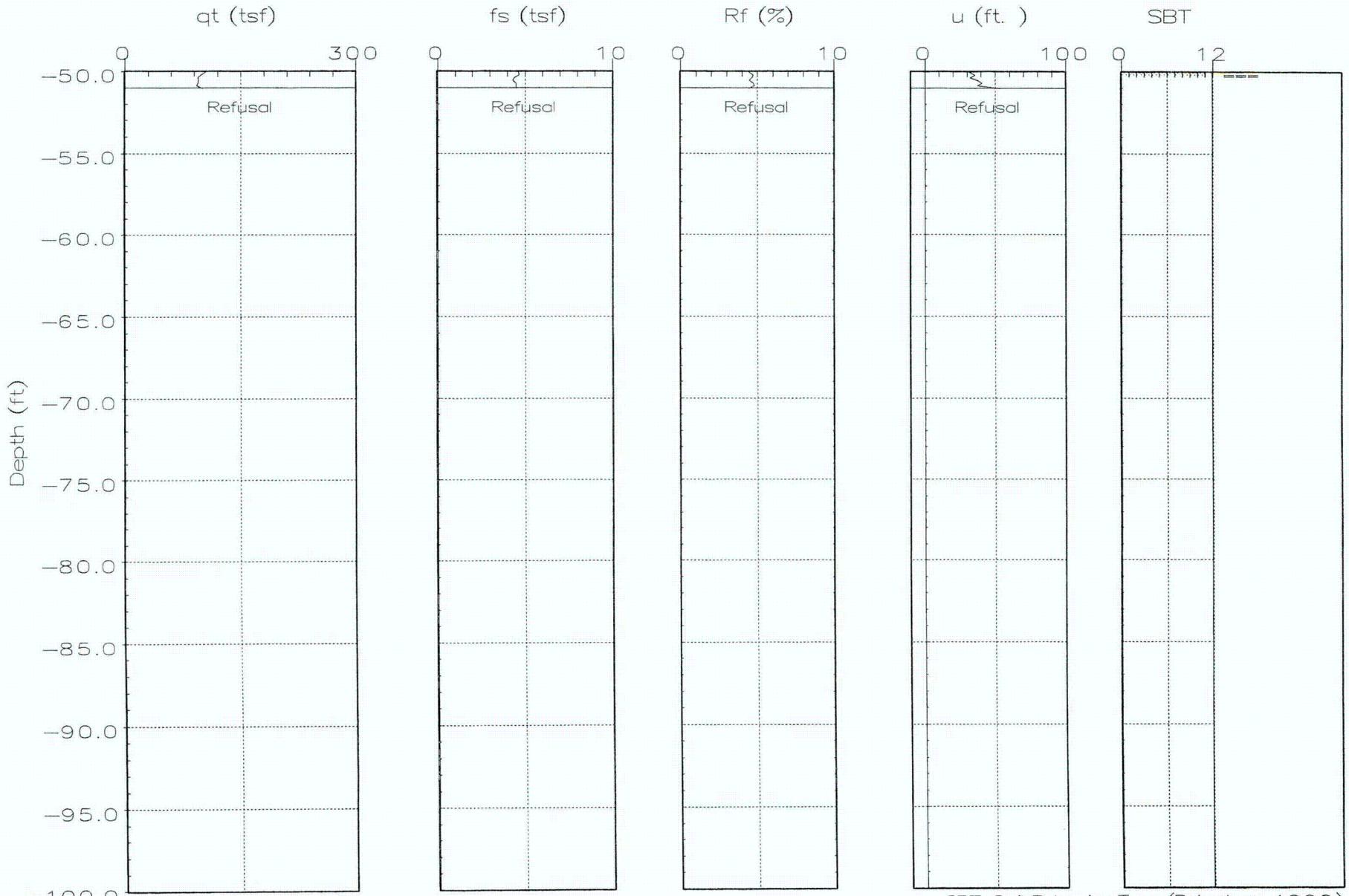
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-20
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 15:20



Max. Depth: 51.02 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

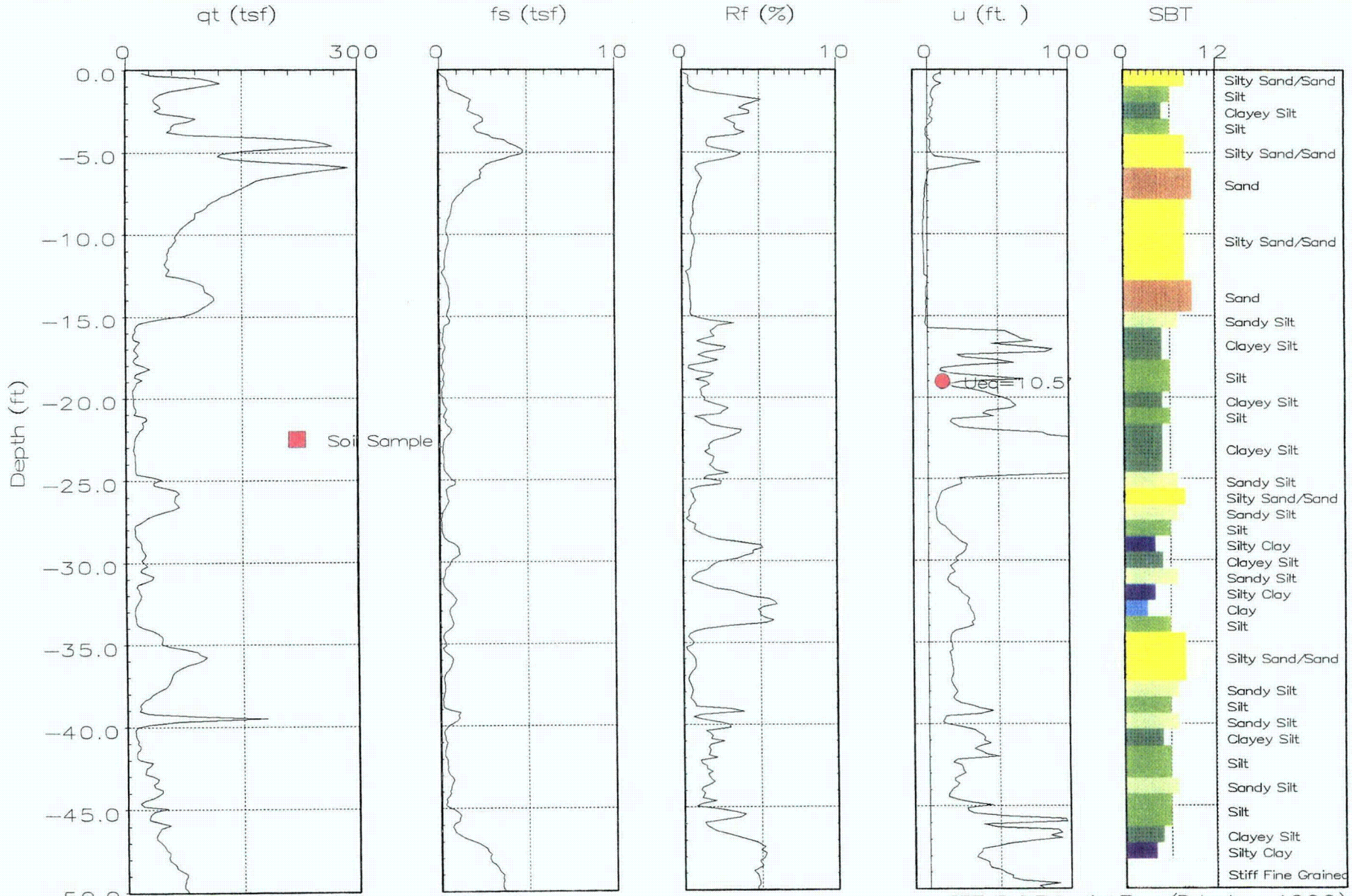
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-21
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:19:04 07:32



Max. Depth: 58.40 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

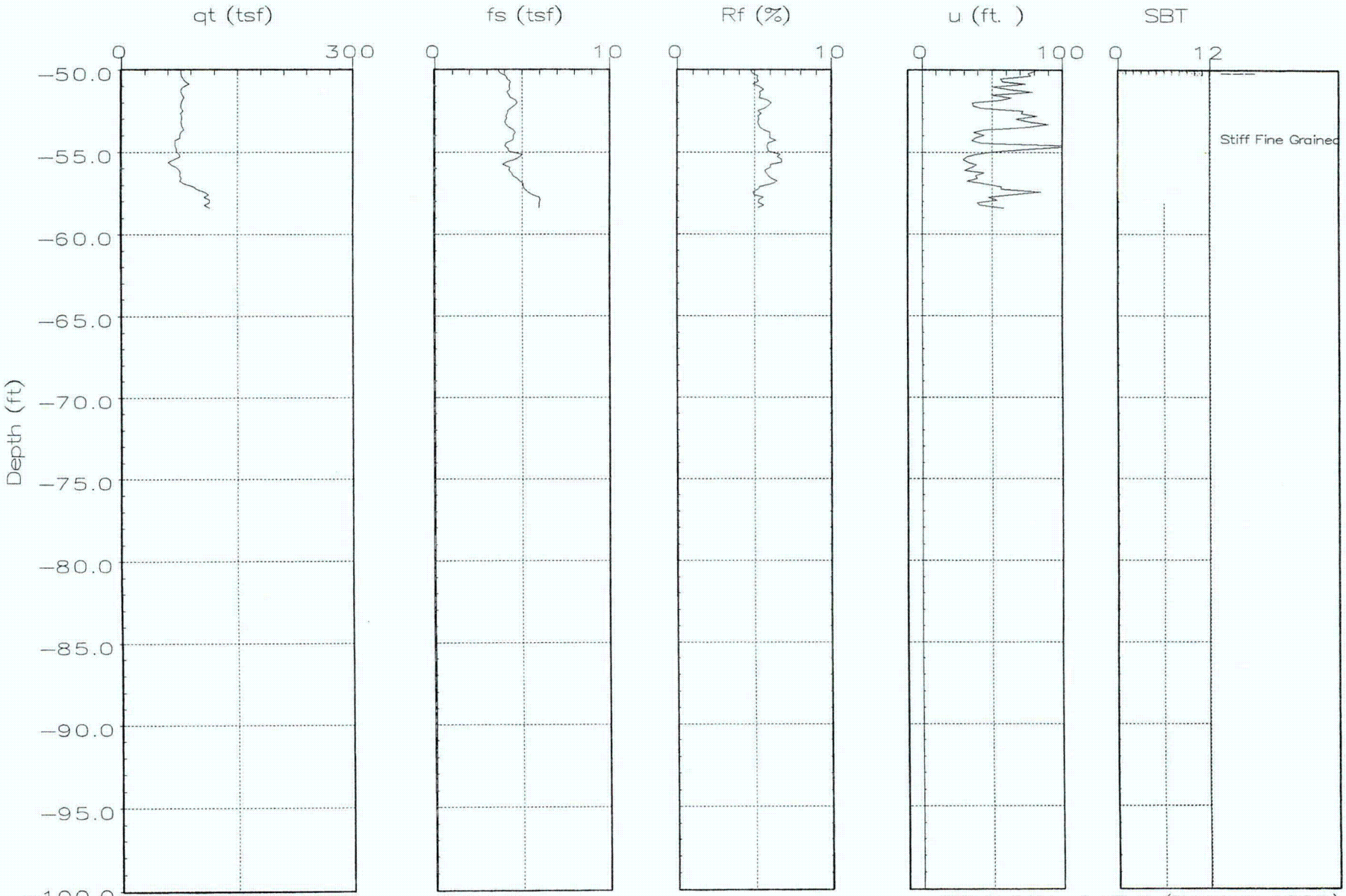
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-21
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:19:04 07:32



Max. Depth: 58.40 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

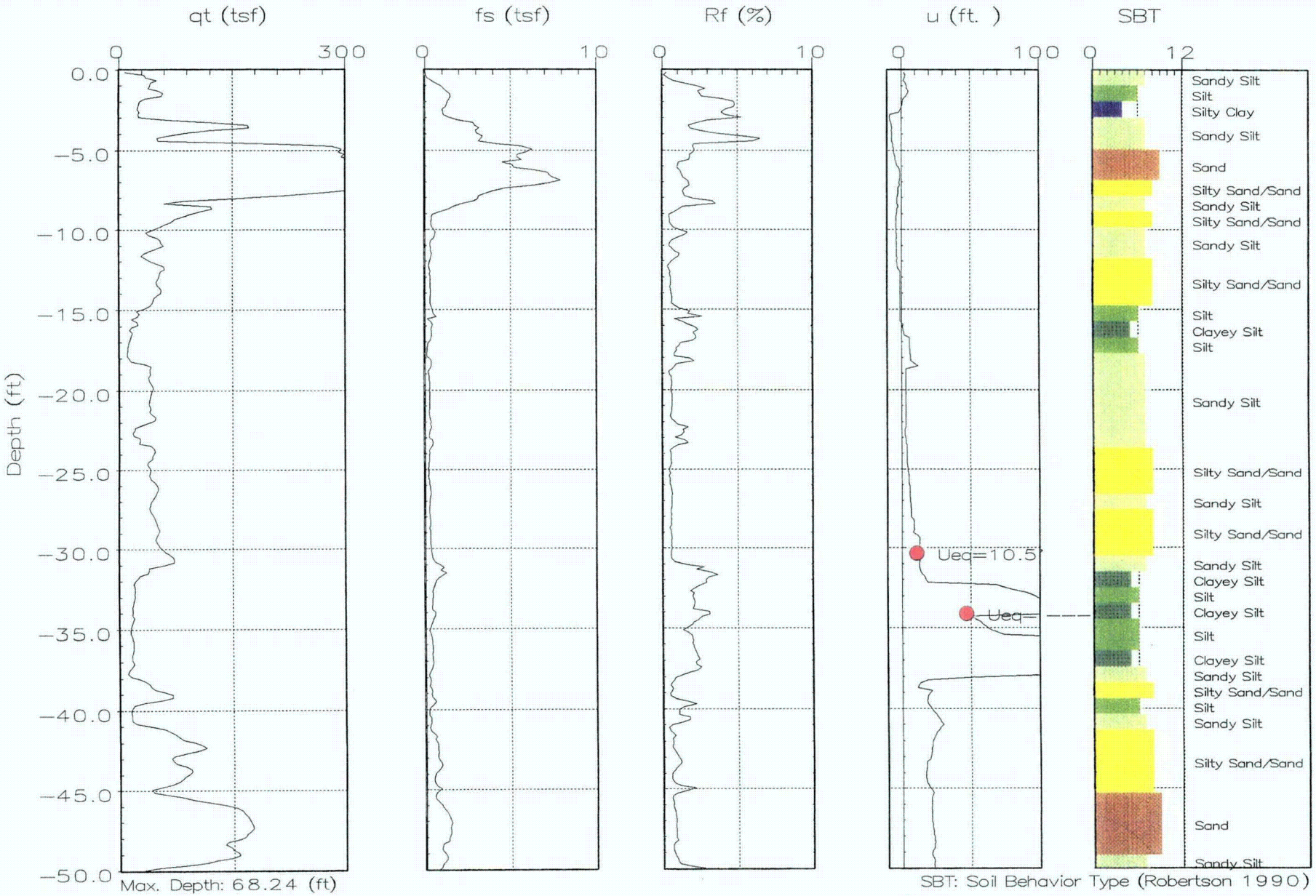
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-22
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:19:04 09:15



Max. Depth: 68.24 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

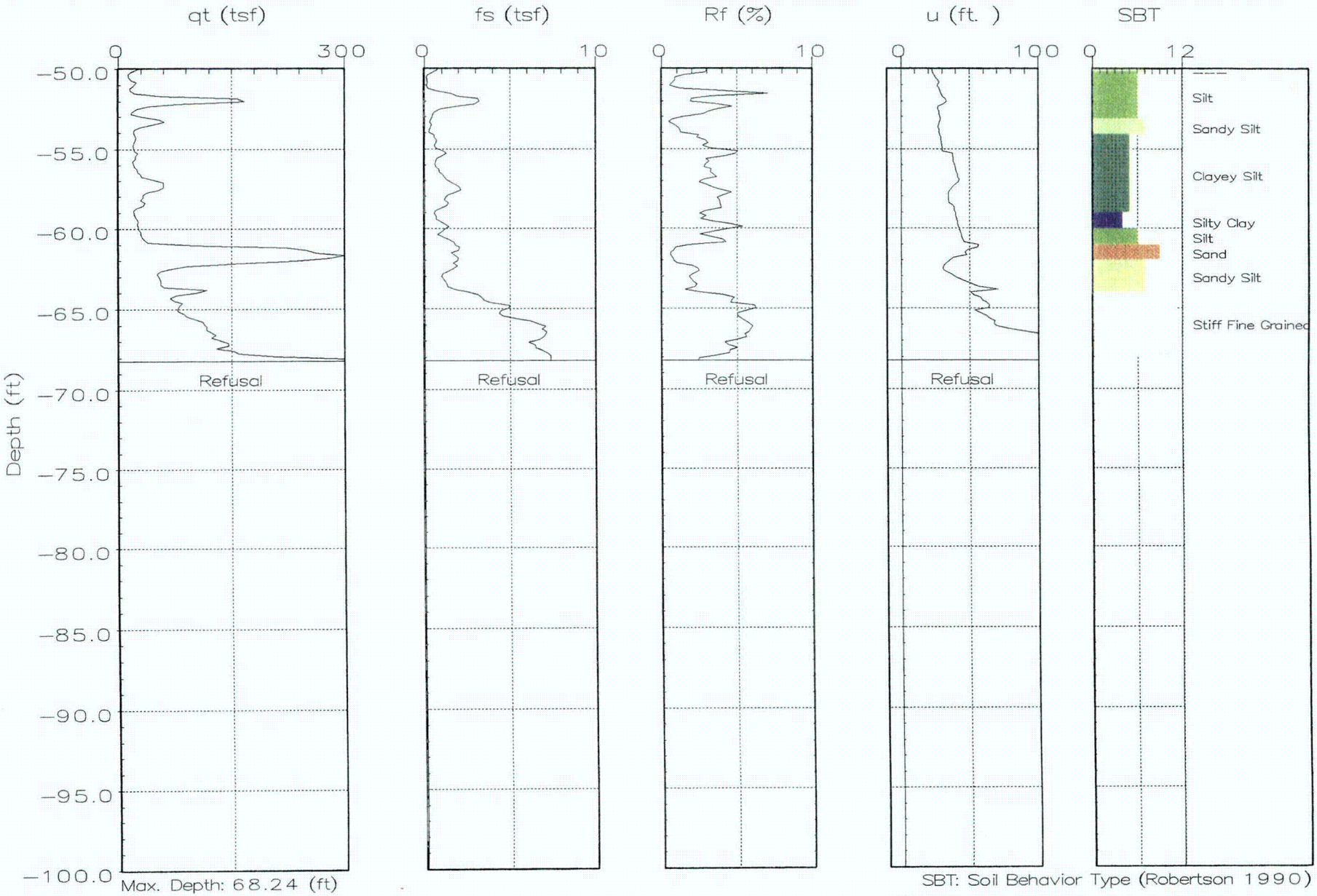
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-22
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:19:04 09:15



Max. Depth: 68.24 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

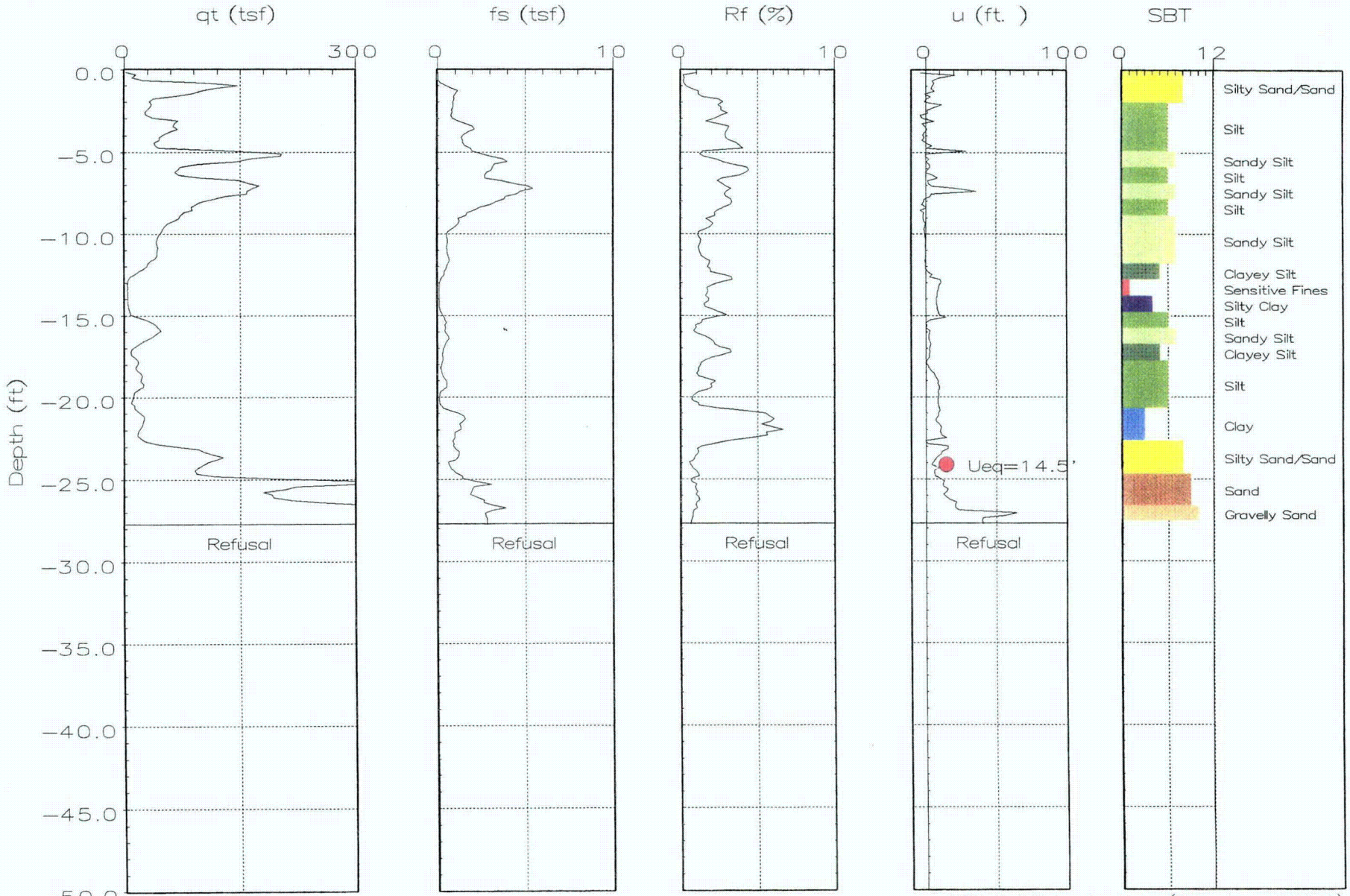
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-23
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 16:15



Max. Depth: 27.72 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

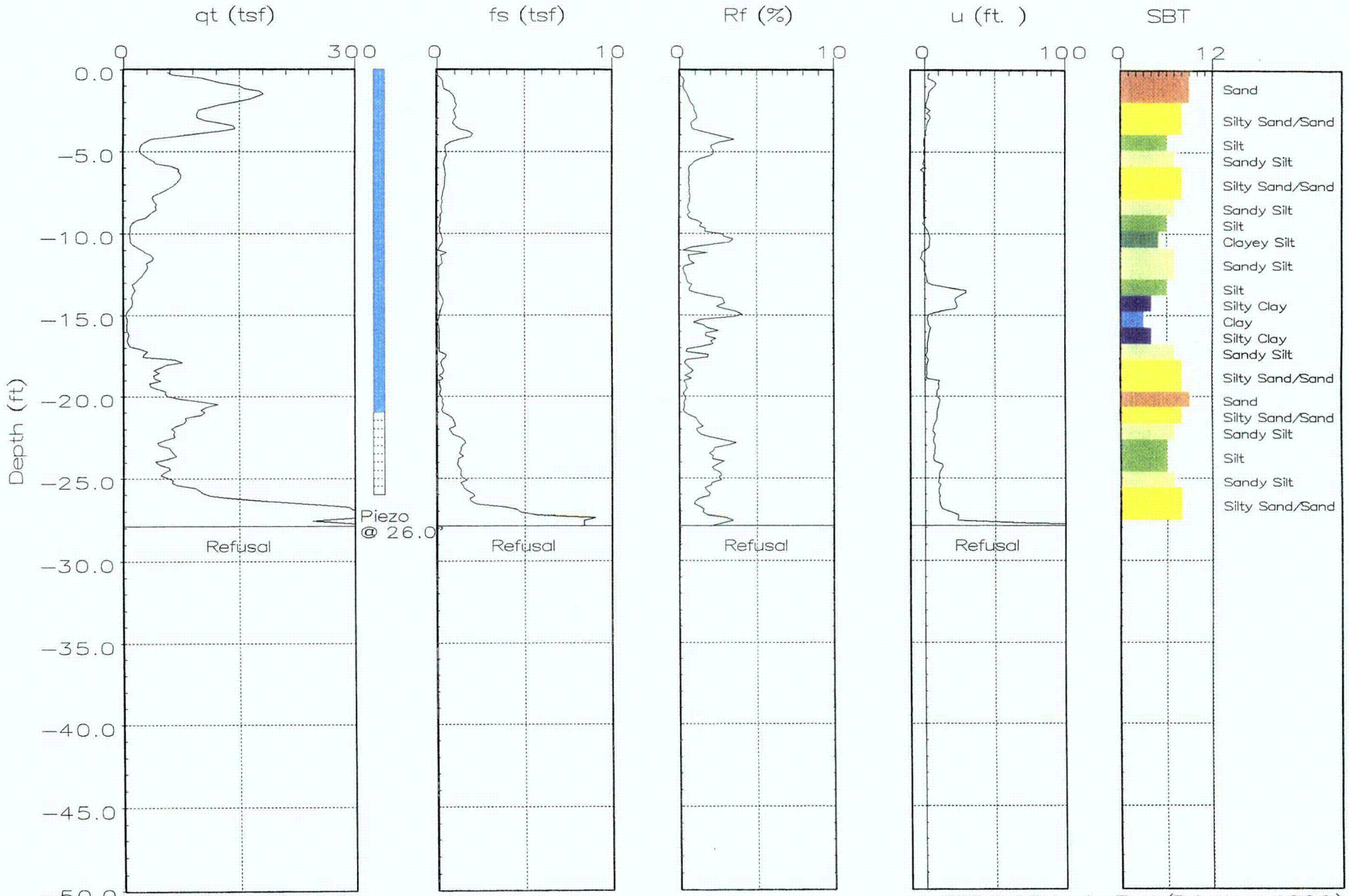
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-24
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:19:04 13:54



Max. Depth: 27.89 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

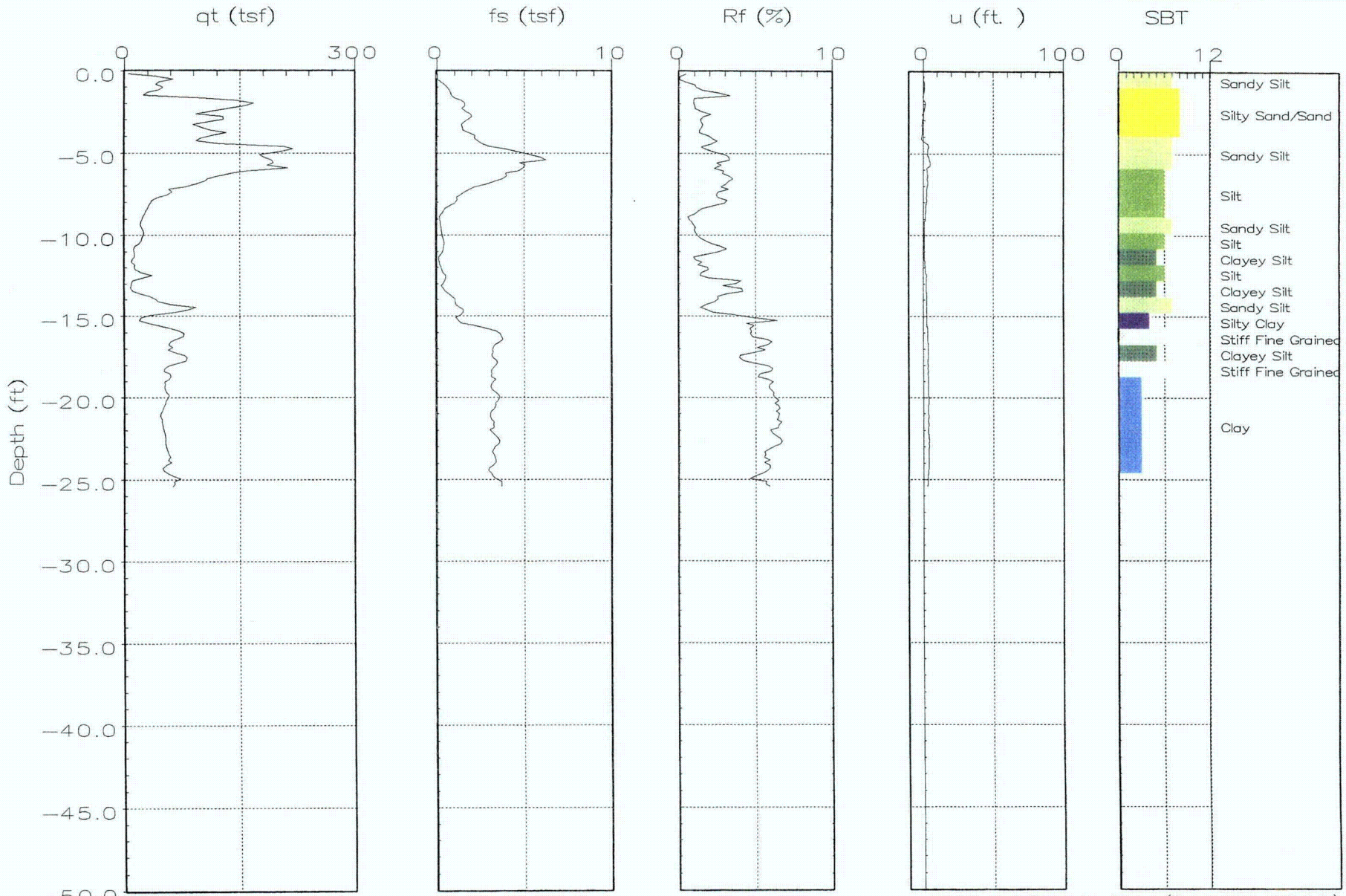
● Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-25
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:19:04 12:59



Max. Depth: 25.43 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

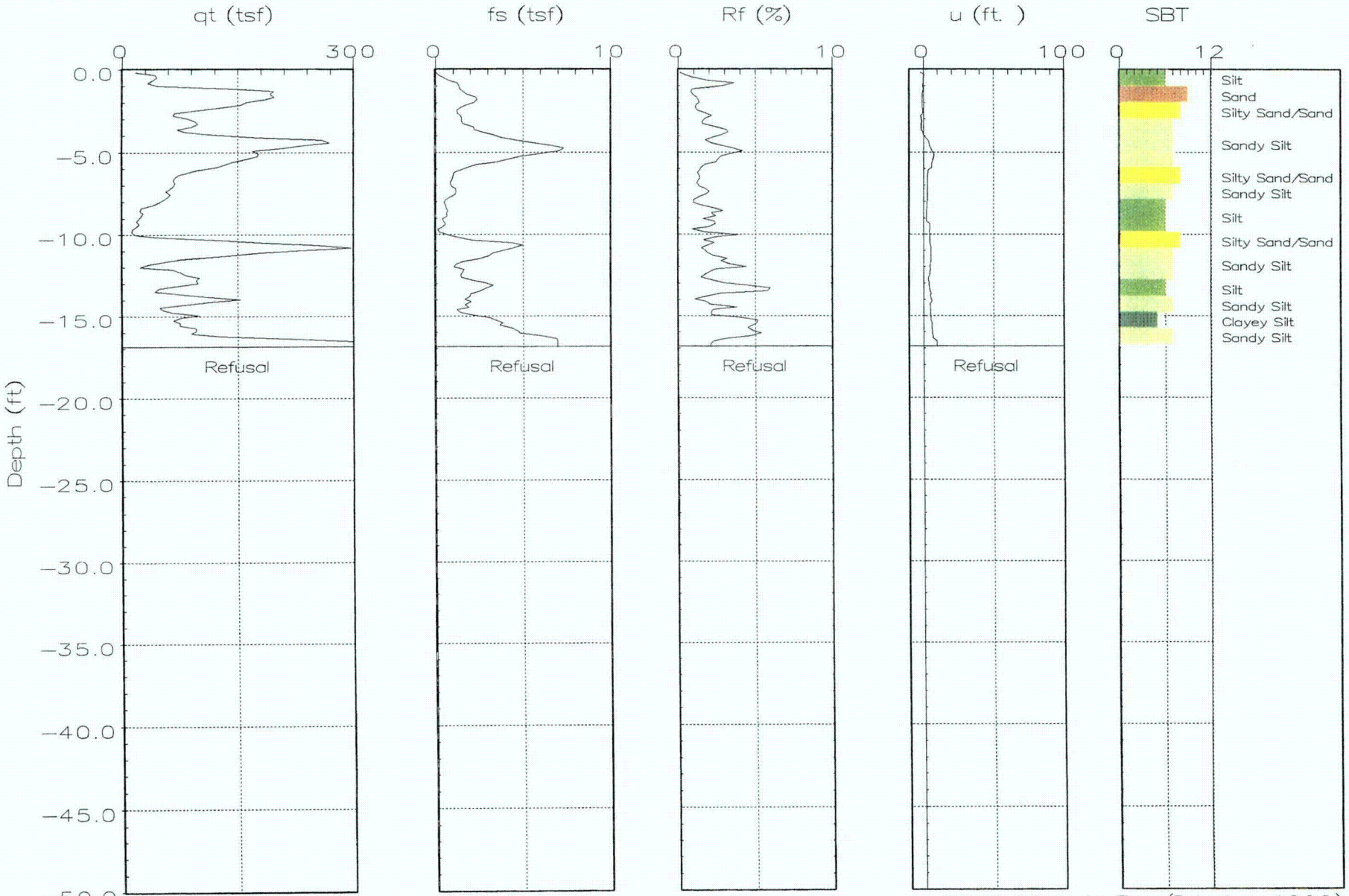
Equilibrium Pore Pressure from Dissipation

CONETEC

Maxim Technologies

Hole No.:CPT-25A
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:19:04 13:25



Max. Depth: 16.90 (ft)
Depth Inc.: 0.164 (ft)

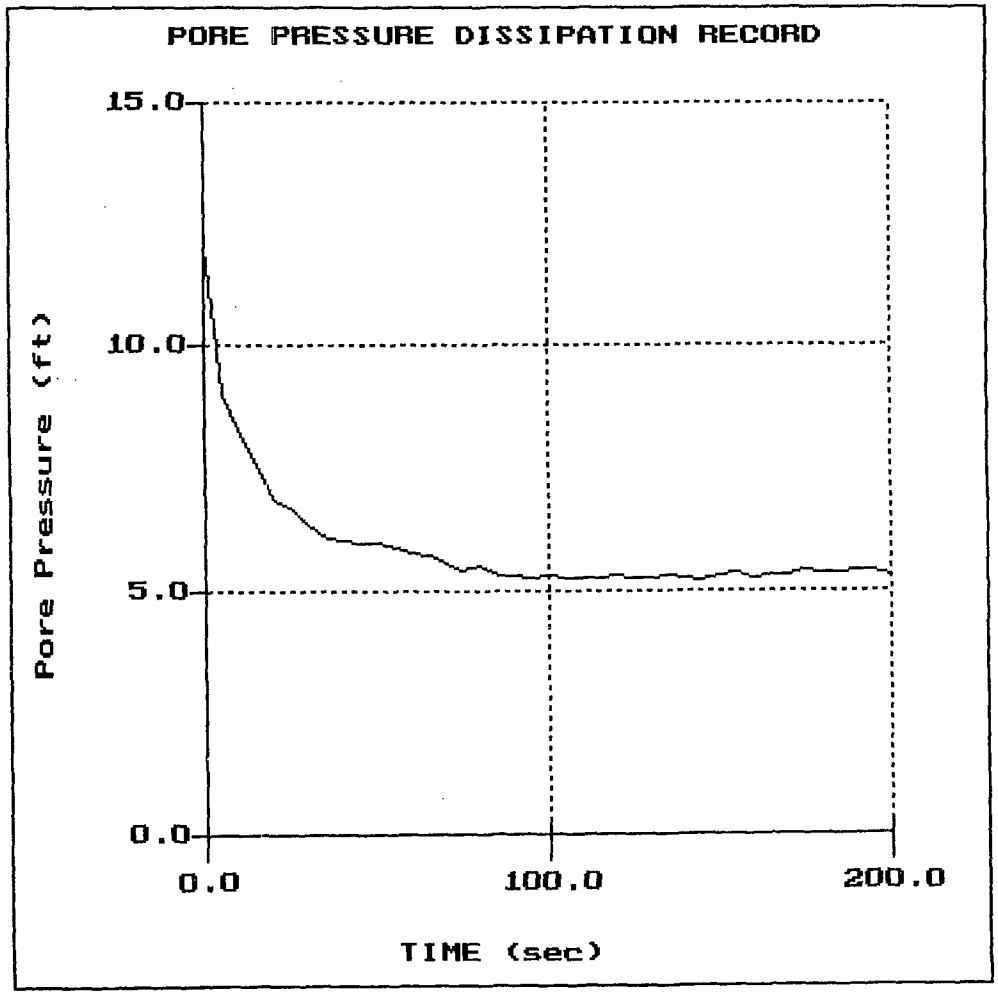
SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium Pore Pressure from Dissipation

Maxim Technologies

Hole:CPT-02
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 10:22

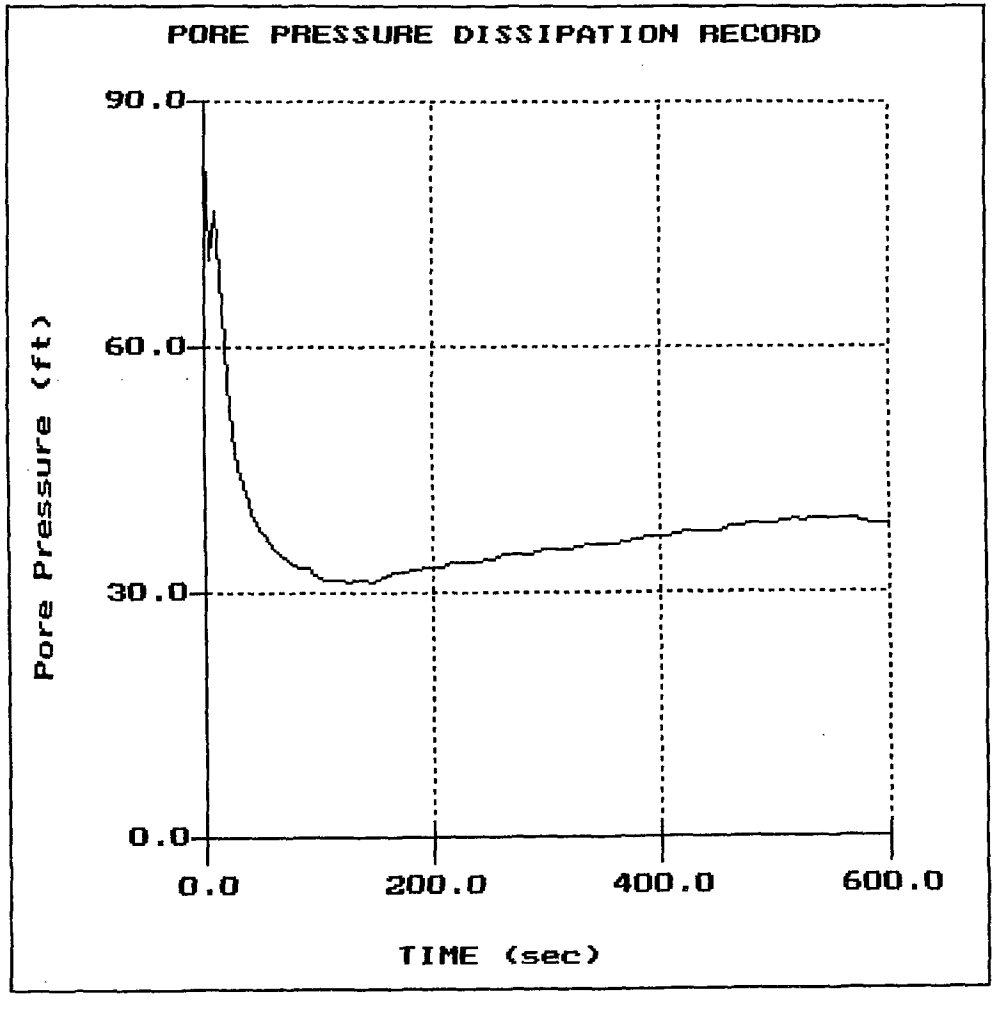


File: 390CP02.PPD
Depth (m): 8.00
(ft): 26.25
Duration : 200.0s
U-min: 5.21 145.0s
U-max: 12.06 0.0s

Maxim Technologies

Hole:CPT-04
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 12:00

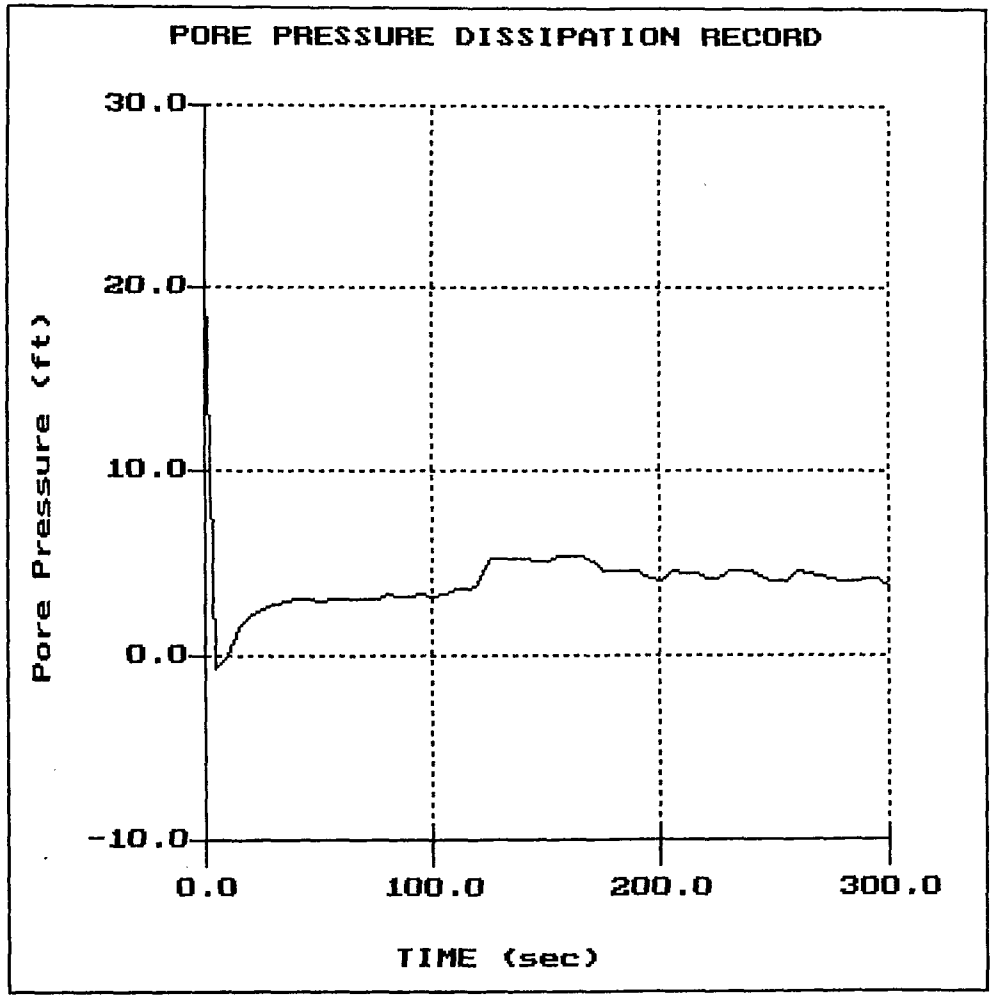


File: 390CP04.PPD
Depth (m): 9.50
(ft): 31.17
Duration : 600.0s
U-min: 31.25 125.0s
U-max: 84.94 0.0s

Maxim Technologies

Hole:CPT-05
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 11:26

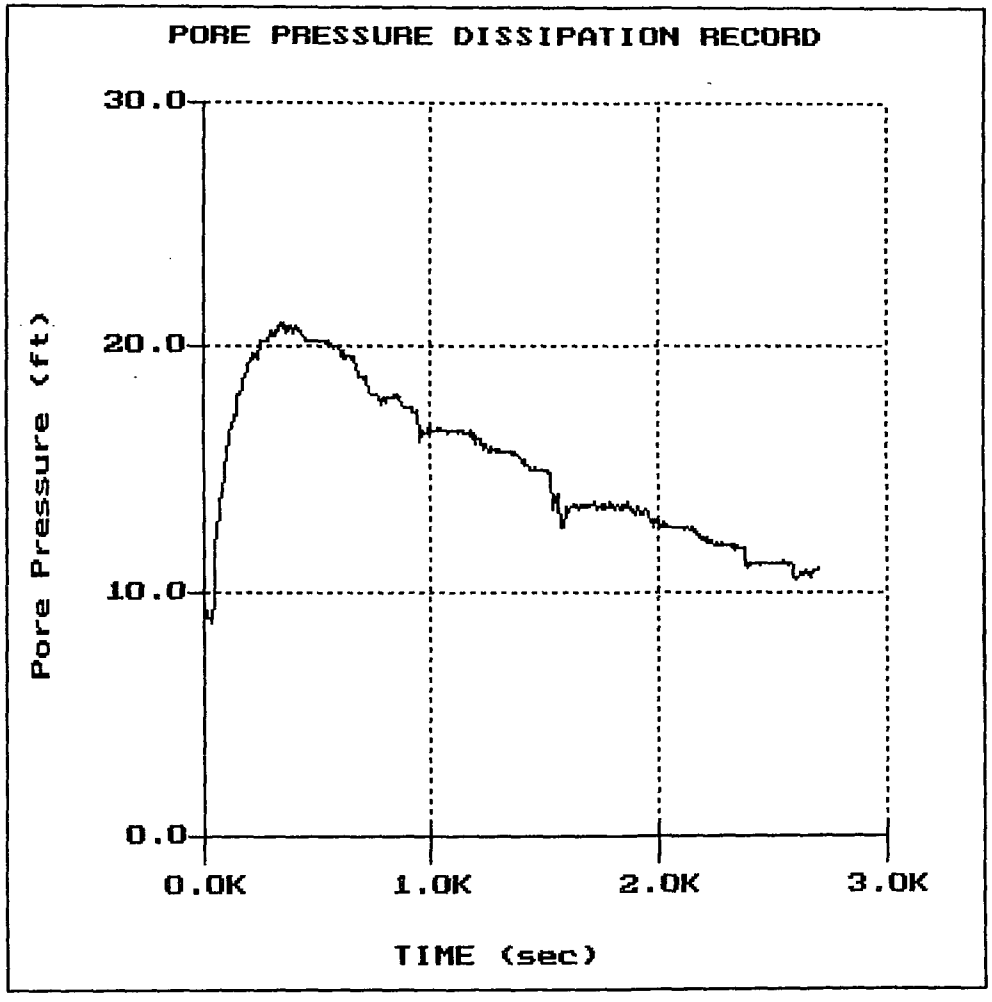


File: 390CP05.PPD
Depth (m): 4.55
(ft): 14.93
Duration : 300.0s
U-min: -0.75 5.0s
U-max: 21.07 0.0s

Maxim Technologies

Hole:CPT-07
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 08:47

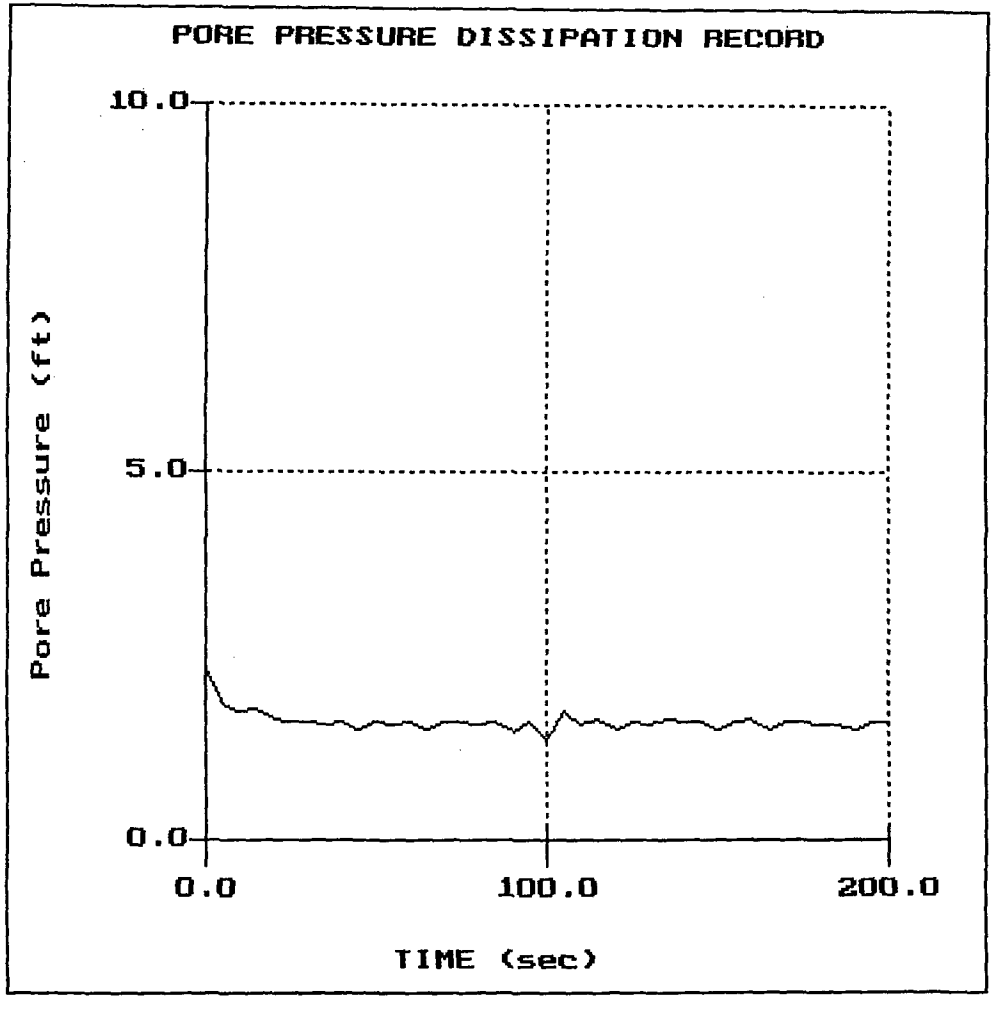


File: 390CP07.PPD
Depth (m): 5.15
(ft): 16.90
Duration : 2700.0s
U-min: 8.78 30.0s
U-max: 20.93 350.0s

Maxim Technologies

Hole:CPT-08
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 11:42

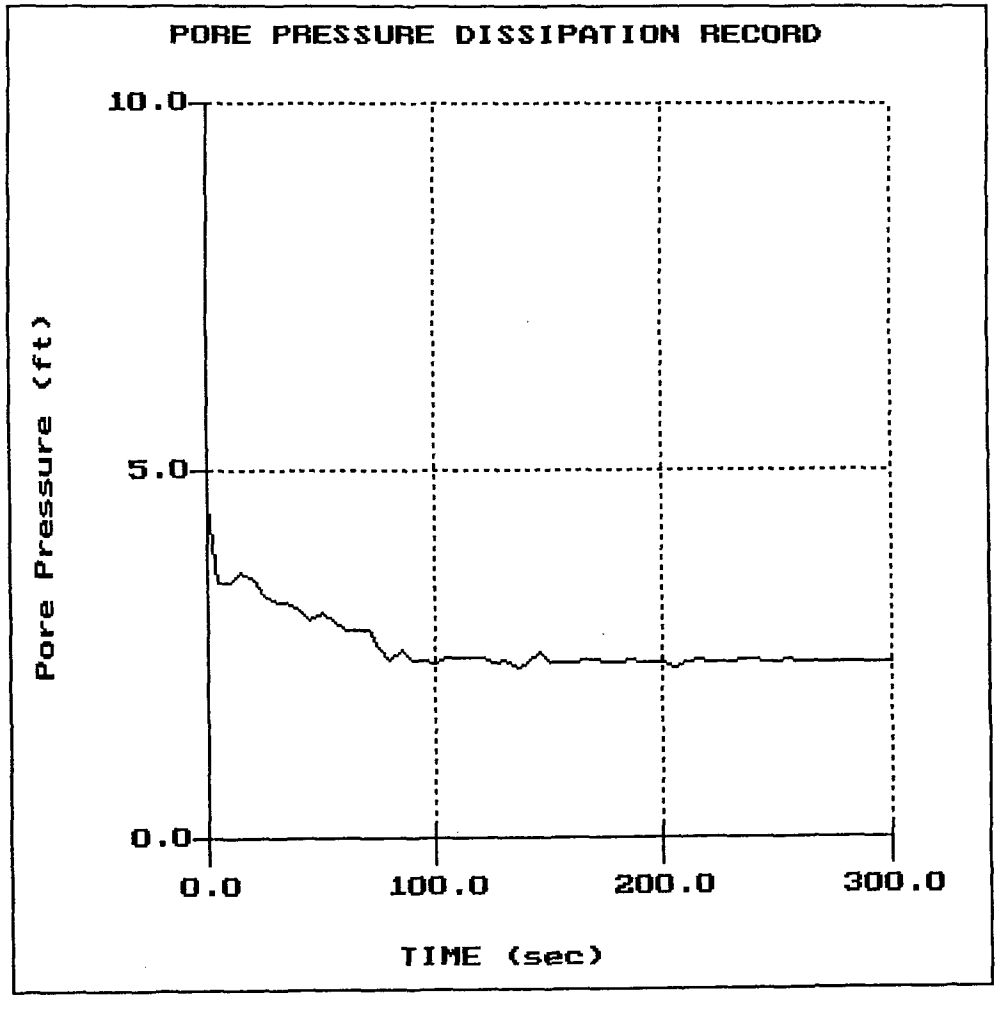


File: 390CP08.PPD
Depth (m): 5.75
(ft): 18.86
Duration : 200.0s
U-min: 1.36 100.0s
U-max: 2.30 0.0s

Maxim Technologies

Hole:CPT-09
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 12:49

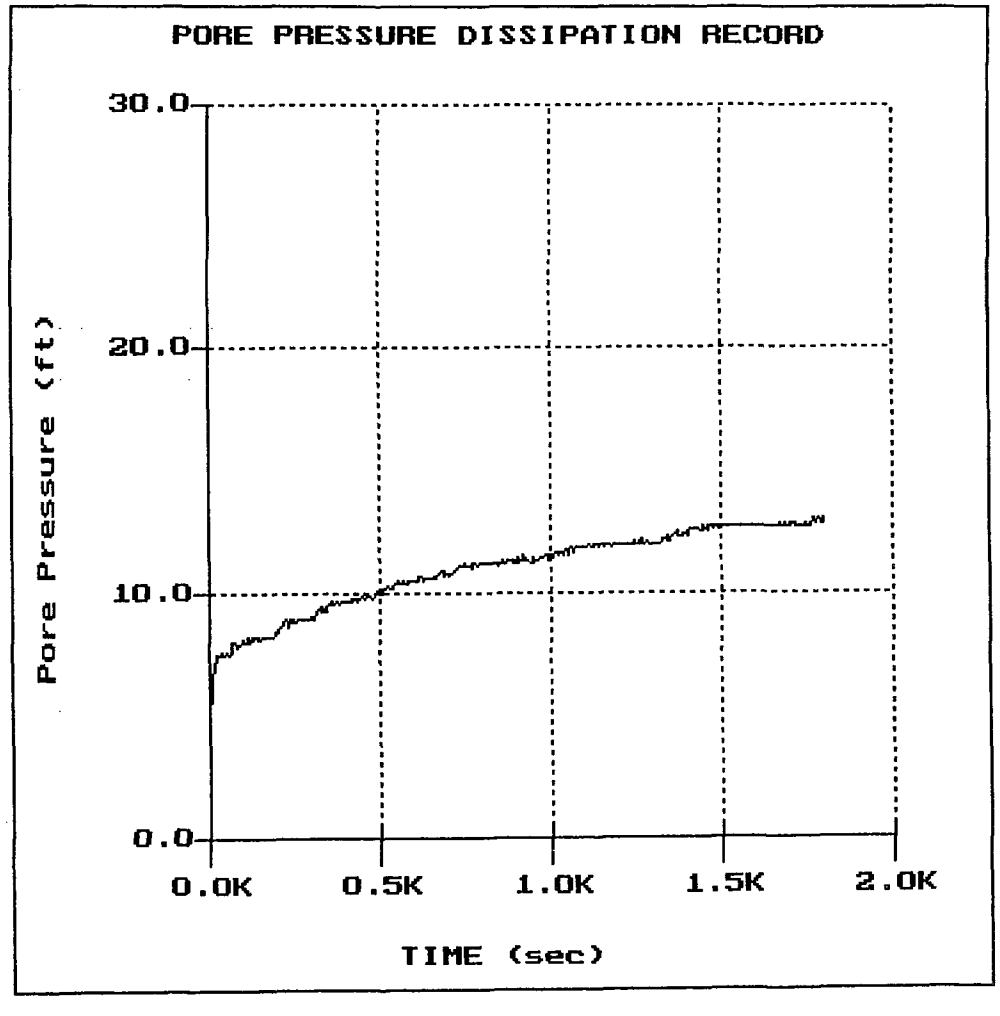


File: 390CP09.PPD
Depth (m): 7.80
(ft): 25.59
Duration : 300.0s
U-min: 2.30 205.0s
U-max: 4.55 0.0s

Maxim Technologies

Hole:CPT-11
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 12:37

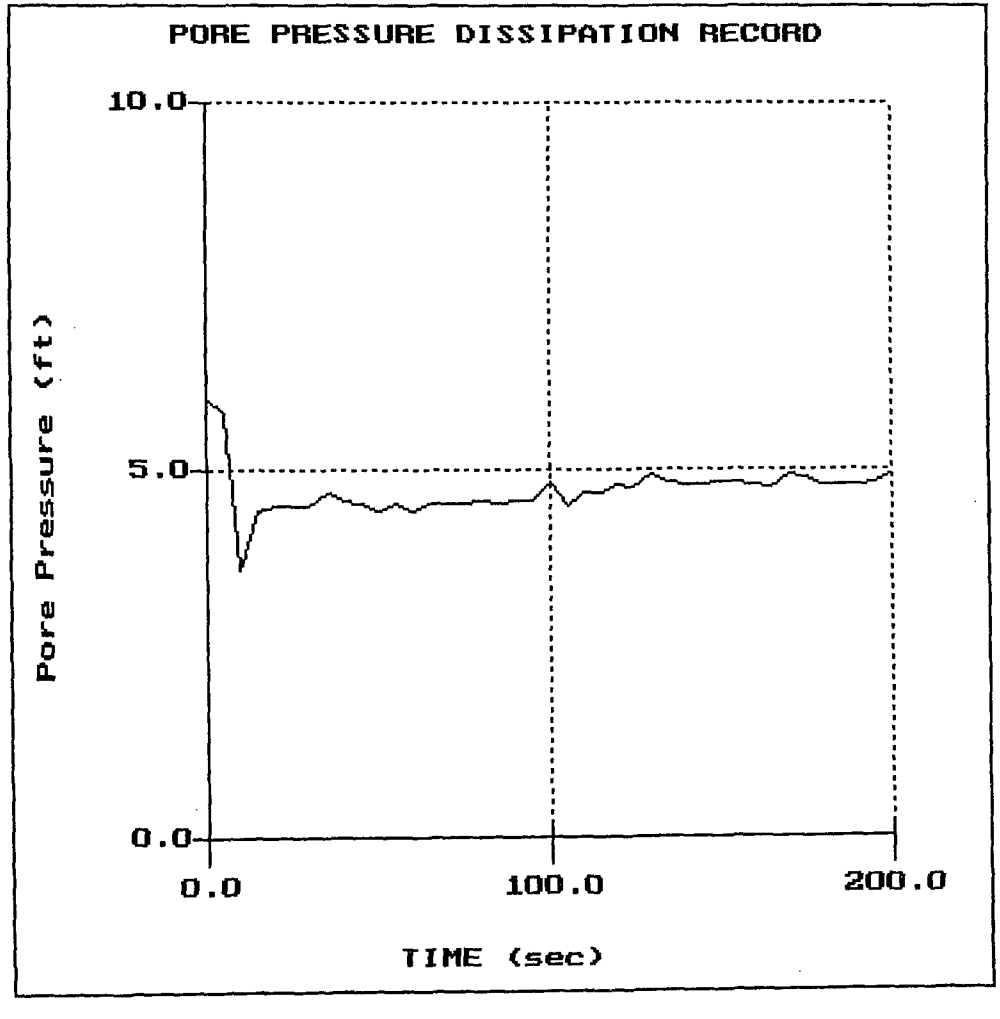


File: 390CP11.PPD
Depth (m): 4.85
(ft): 15.91
Duration : 1800.0s
U-min: 5.30 0.0s
U-max: 13.00 1800.0s

Maxim Technologies

Hole:CPT-11
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 12:37

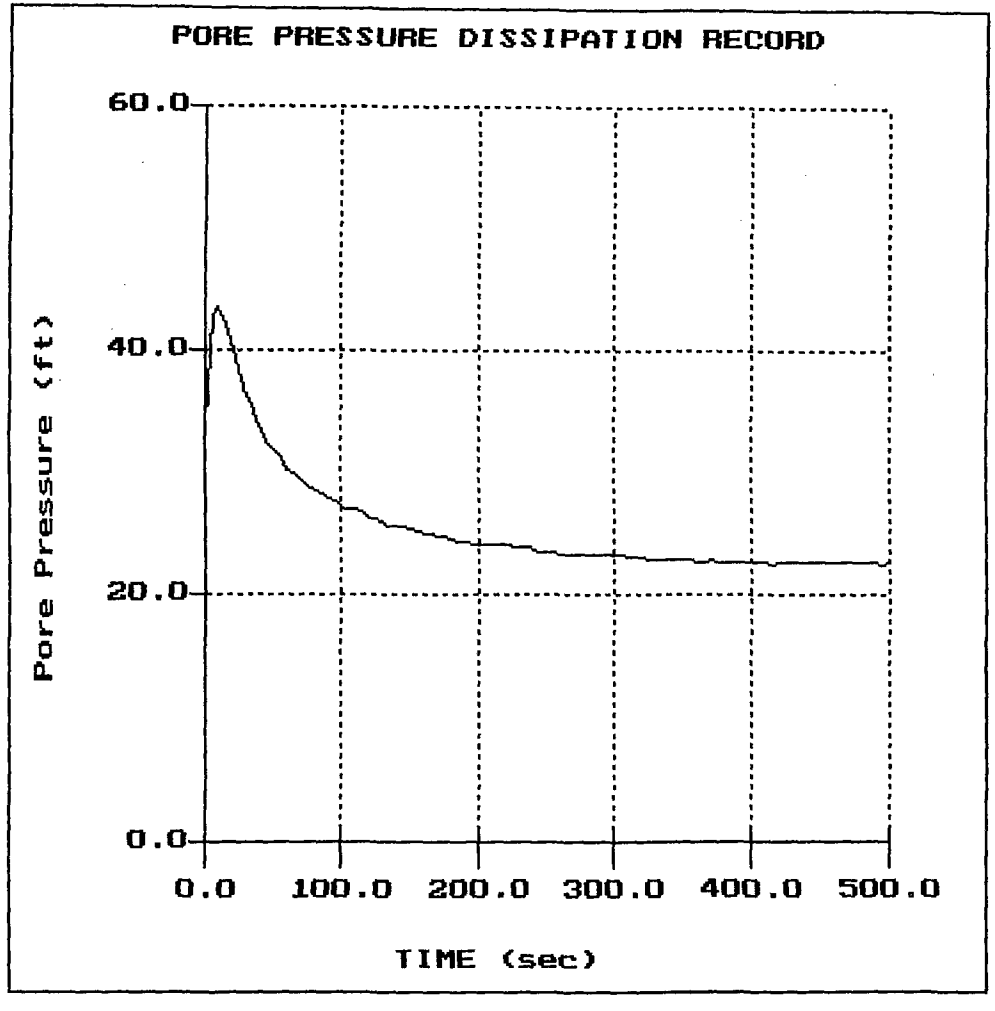


File: 390CP11.PPD
Depth (m): 5.85
(ft): 19.19
Duration : 200.0s
U-min: 3.66 10.0s
U-max: 5.96 0.0s

Maxim Technologies

Hole:CPT-12
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:18:04 13:48

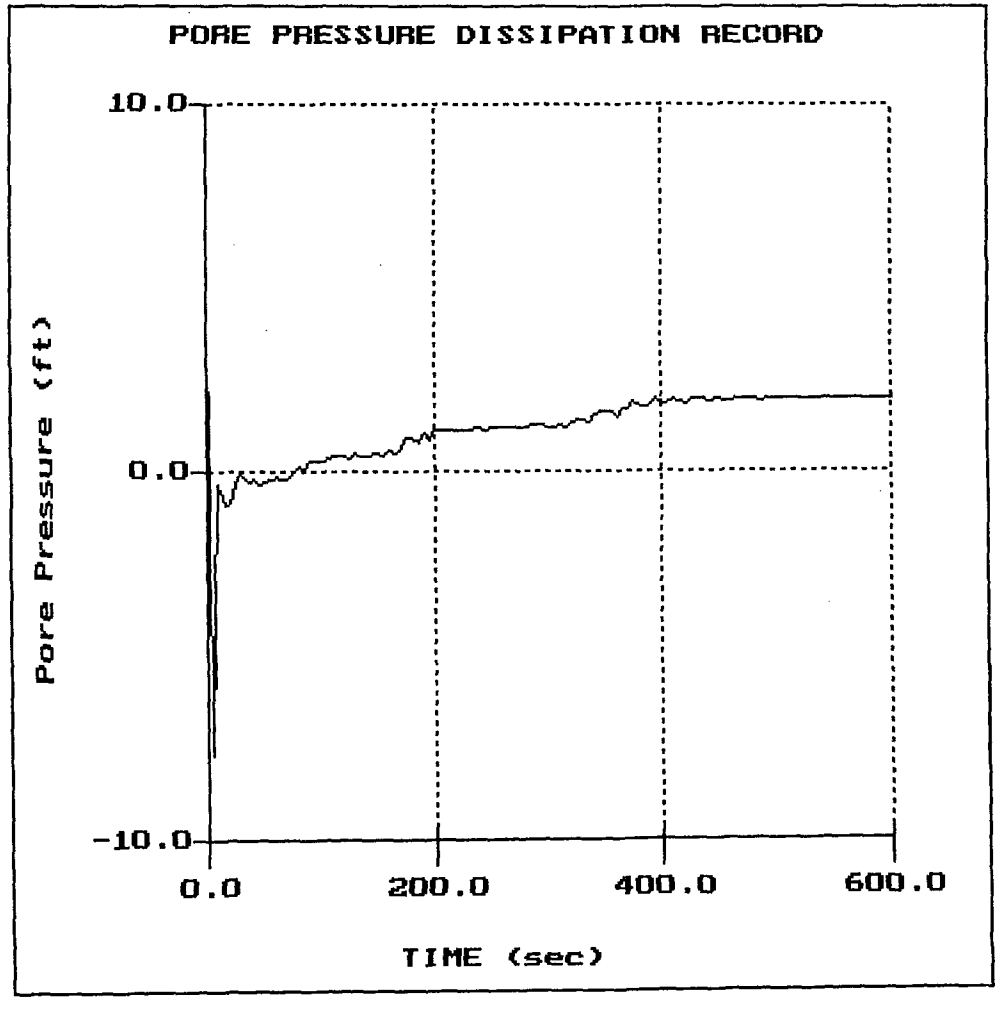


File: 390CP12.PPD
Depth (m): 6.40
(ft): 21.00
Duration : 500.0s
U-min: 22.57 495.0s
U-max: 43.64 10.0s

Maxim Technologies

Hole:CPT-14
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 13:54

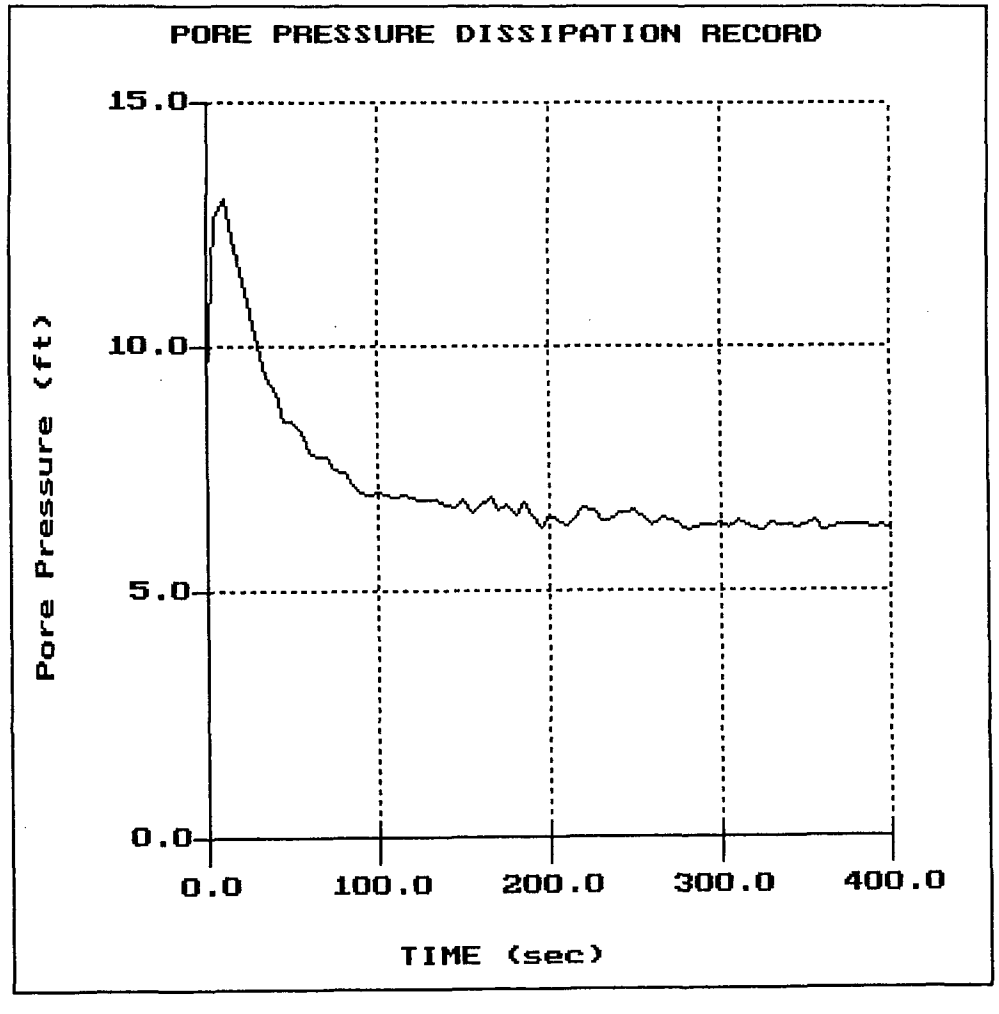


File: 390CP14.PPD
Depth (m): 3.10
(ft): 10.17
Duration : 600.0s
U-min: -7.70 5.0s
U-max: 5.49 0.0s

Maxim Technologies

Hole:CPT-17
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 14:30

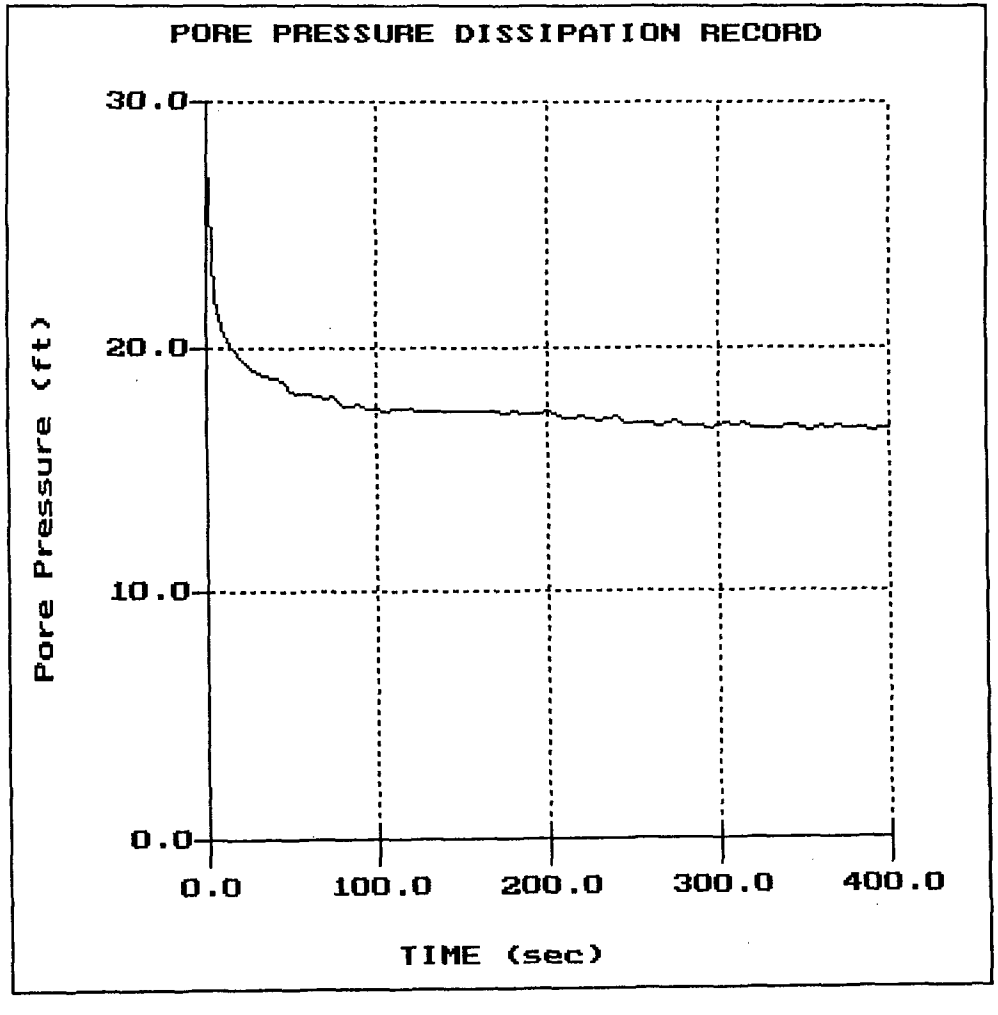


File: 390CP17.PPD
Depth (m): 6.75
(ft): 22.15
Duration : 400.0s
U-min: 6.24 400.0s
U-max: 13.00 10.0s

Maxim Technologies

Hole:CPT-19
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:19:04 12:02

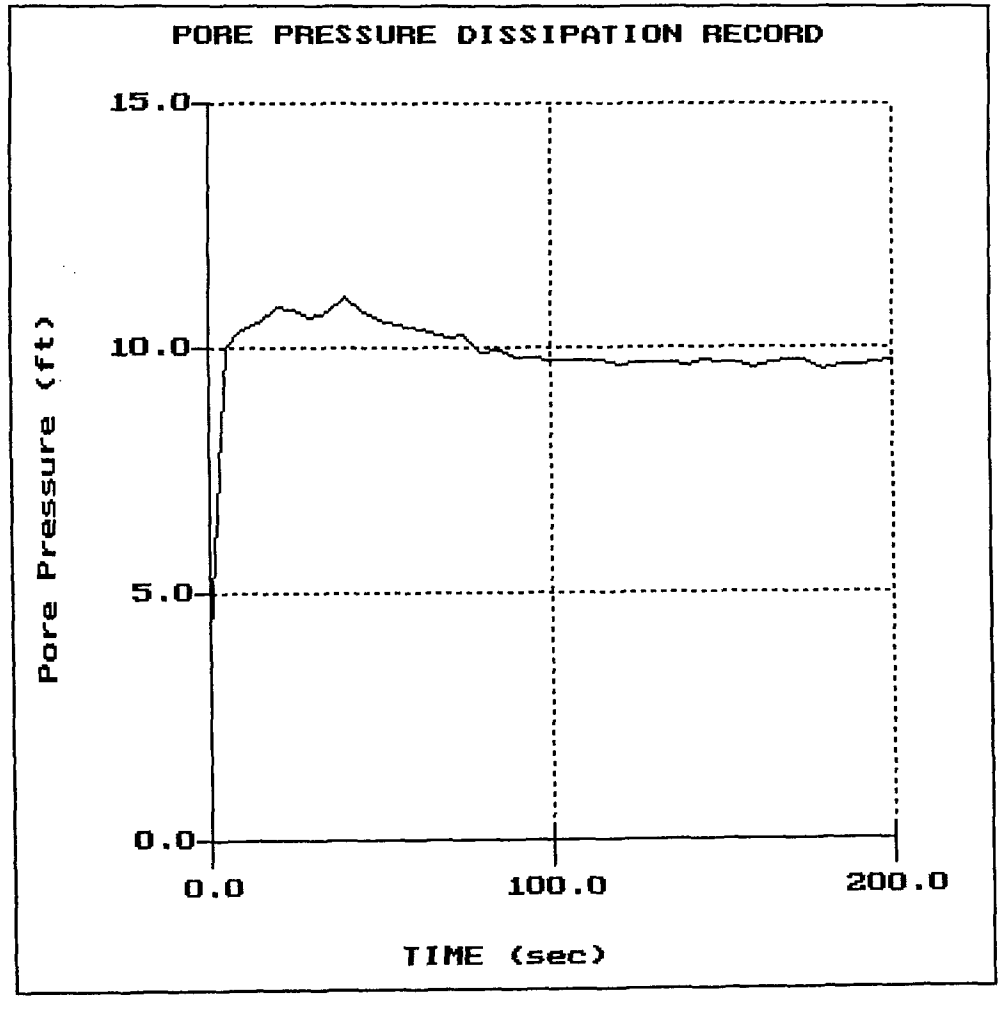


File: 390CP19.PPD
Depth (m): 11.75
(ft): 38.55
Duration : 400.0s
U-min: 16.57 390.0s
U-max: 27.88 0.0s

Maxim Technologies

Hole:CPT-20
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 15:20

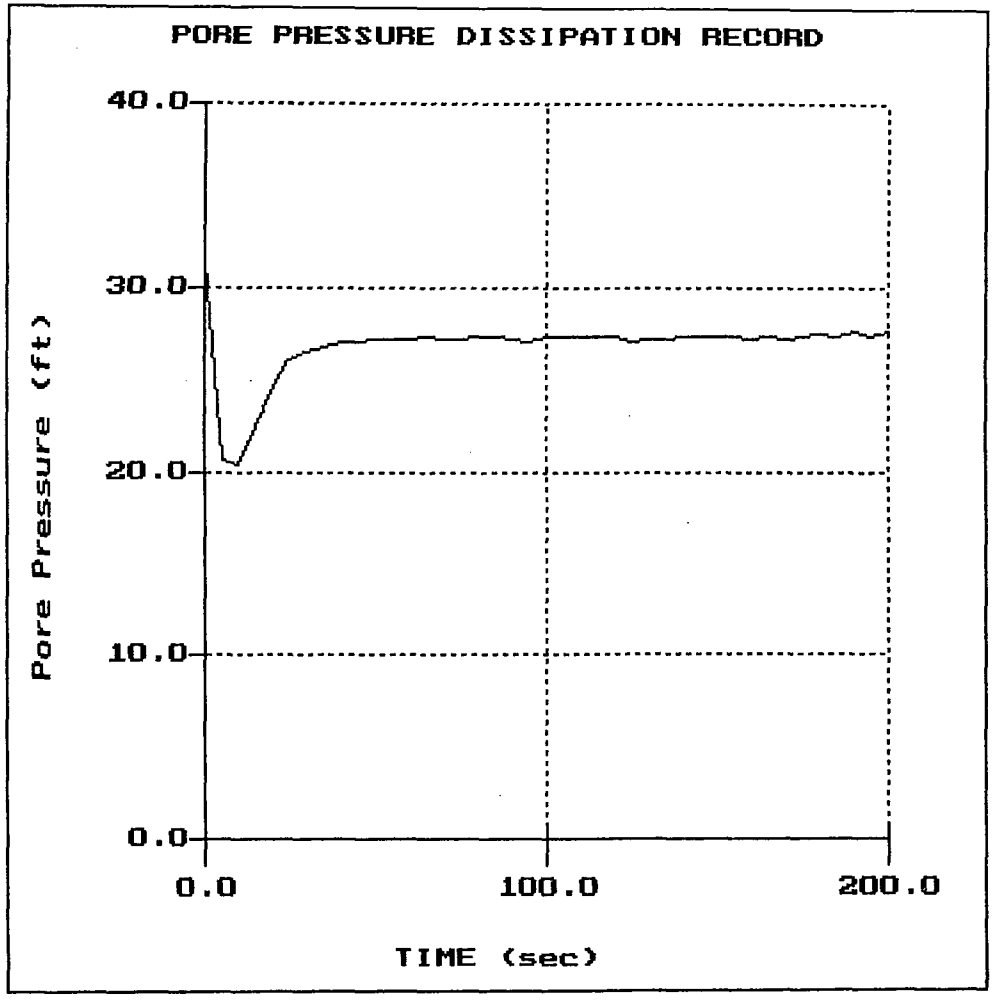


File: 390CP20.PPD
Depth (m): 5.80
(ft): 19.03
Duration : 200.0s
U-min: 4.08 0.0s
U-max: 11.03 40.0s

Maxim Technologies

Hole:CPT-20
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:17:04 15:20

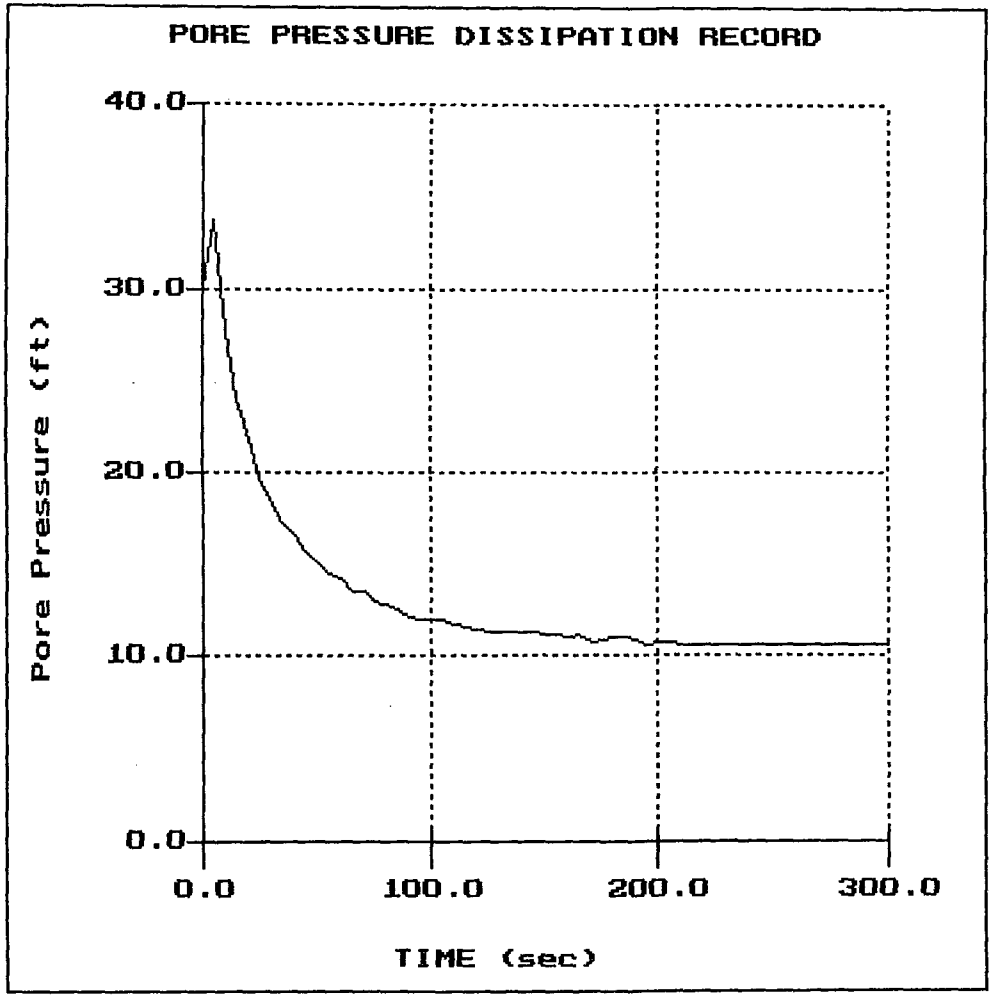


File: 390CP20.PPD
Depth (m): 14.05
(ft): 46.10
Duration : 200.0s
U-min: 20.46 10.0s
U-max: 31.49 0.0s

Maxim Technologies

Hole:CPT-21
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:19:04 07:32

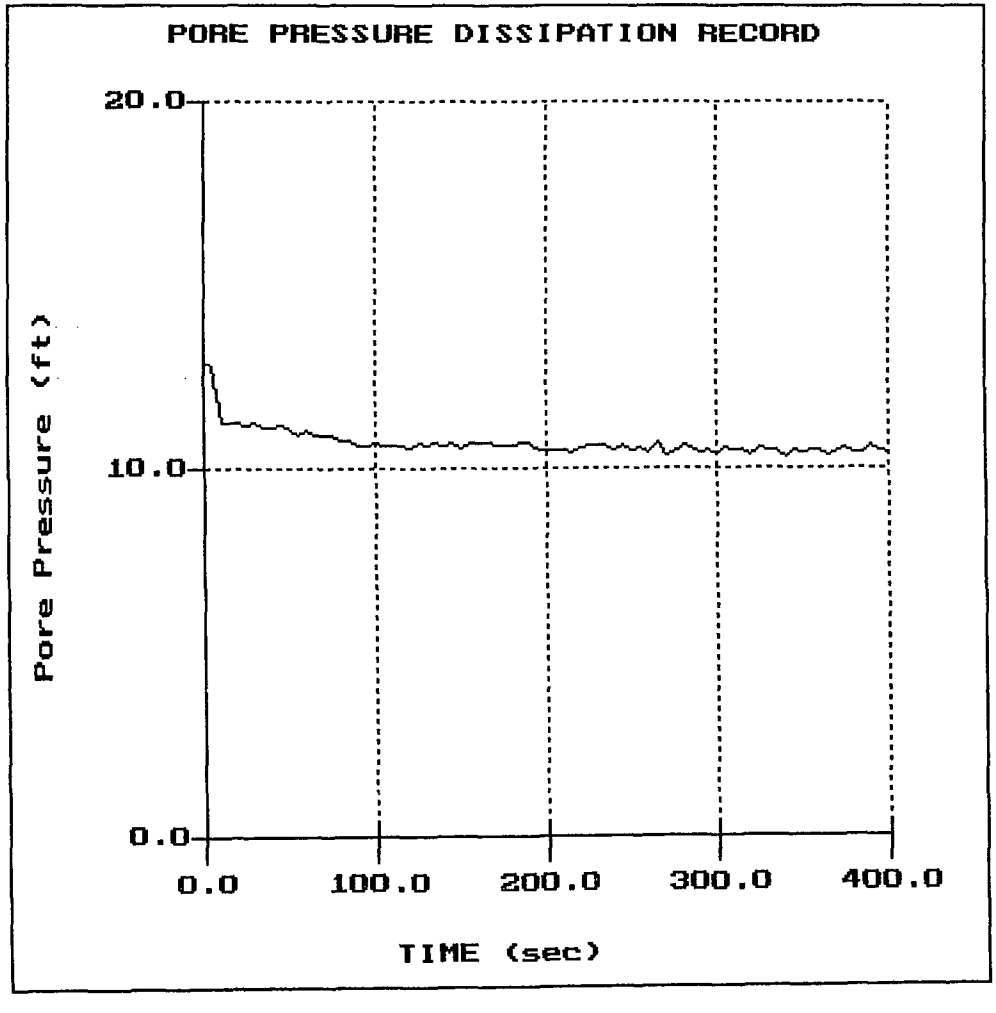


File: 390CP21.PPD
Depth (m): 5.80
(ft): 19.03
Duration : 300.0s
U-min: 10.51 300.0s
U-max: 33.79 5.0s

Maxim Technologies

Hole:CPT-22
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:19:04 09:15

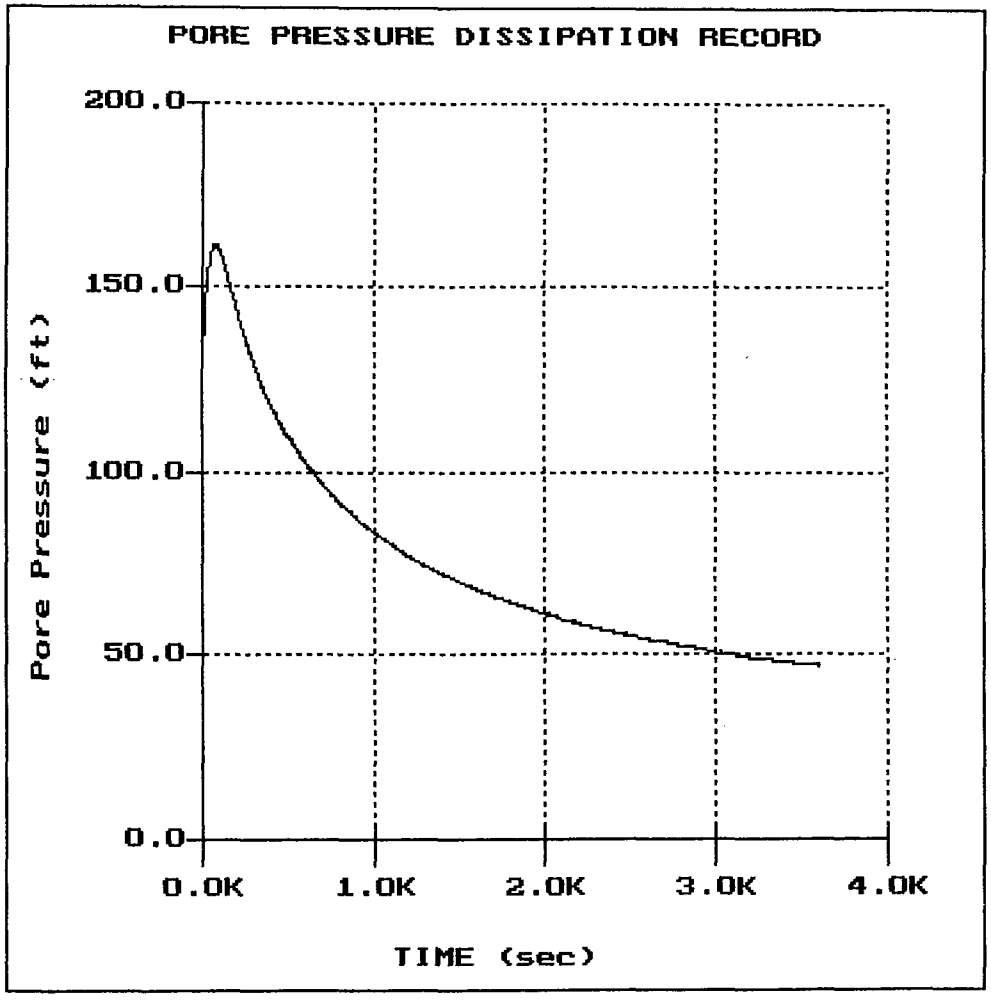


File: 390CP22.PPD
Depth (m): 9.25
(ft): 30.35
Duration : 400.0s
U-min: 10.28 340.0s
U-max: 12.91 0.0s

Maxim Technologies

Hole:CPT-22
Location:AMBROSIA LAKE

Cone: 20 Ton St 146
Date:08:19:04 09:15



File: 390CP22.PPD
Depth (m): 10.40
(ft): 34.12
Duration : 3600.0s
U-min: 46.74 3595.0s
U-max: 161.39 70.0s

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Client: Rio Algom Mining, LLC.
PO Box 218
Grants, NM 87020-

Attn: John McBee

Project Name: Evaporation Pond Sediment Testing

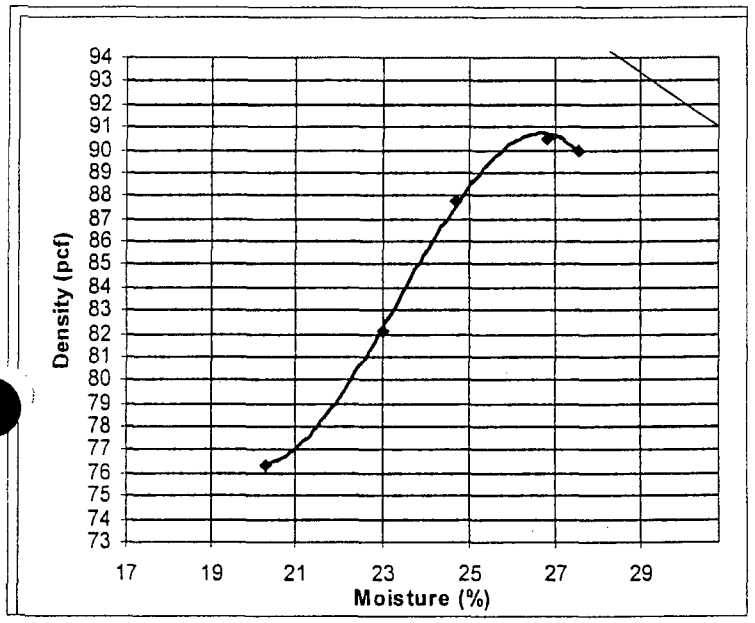
Report Date: November 30, 2004

Project #: 3-519-002701
Work Order #: 6
Lab #: 4-1310-03B
Sampled By: Client
Date Sampled:
Visual Description of Material: Pond 11, Bucket 1 & 2
Sample Source: Composite Mix 25% By volume, Berm soil

SOILS / AGGREGATES

Sieve Analaysis (ASTM C117/C136)

Sieve Size	Passing	Specifications Min	Specifications Max
3/8in.	100%		
#4	100%		
#8	99%		
#10	99%		
#16	99%		
#30	98%		
#40	97%		
#50	94%		
#100	85%		
#200	57%		



Moisture Density Relationship: (ASTM D1557) Method:
Preparation Method: Dry Rammer Type: Mechanical
Specific Gravity: 2.651 Assumed
Maximum Density: 90.5
Optimum Moisture: 27.0

Plasticity Index (ASTM D4318)
Liquid Limit: 25
Plastic Limit: 18
Plasticity Index: 7
Preperation Method: Dry Liquid Limit Method: A
Soil Clasification (ASTM D2487) CL-ML

Reviewed By: _____
HG

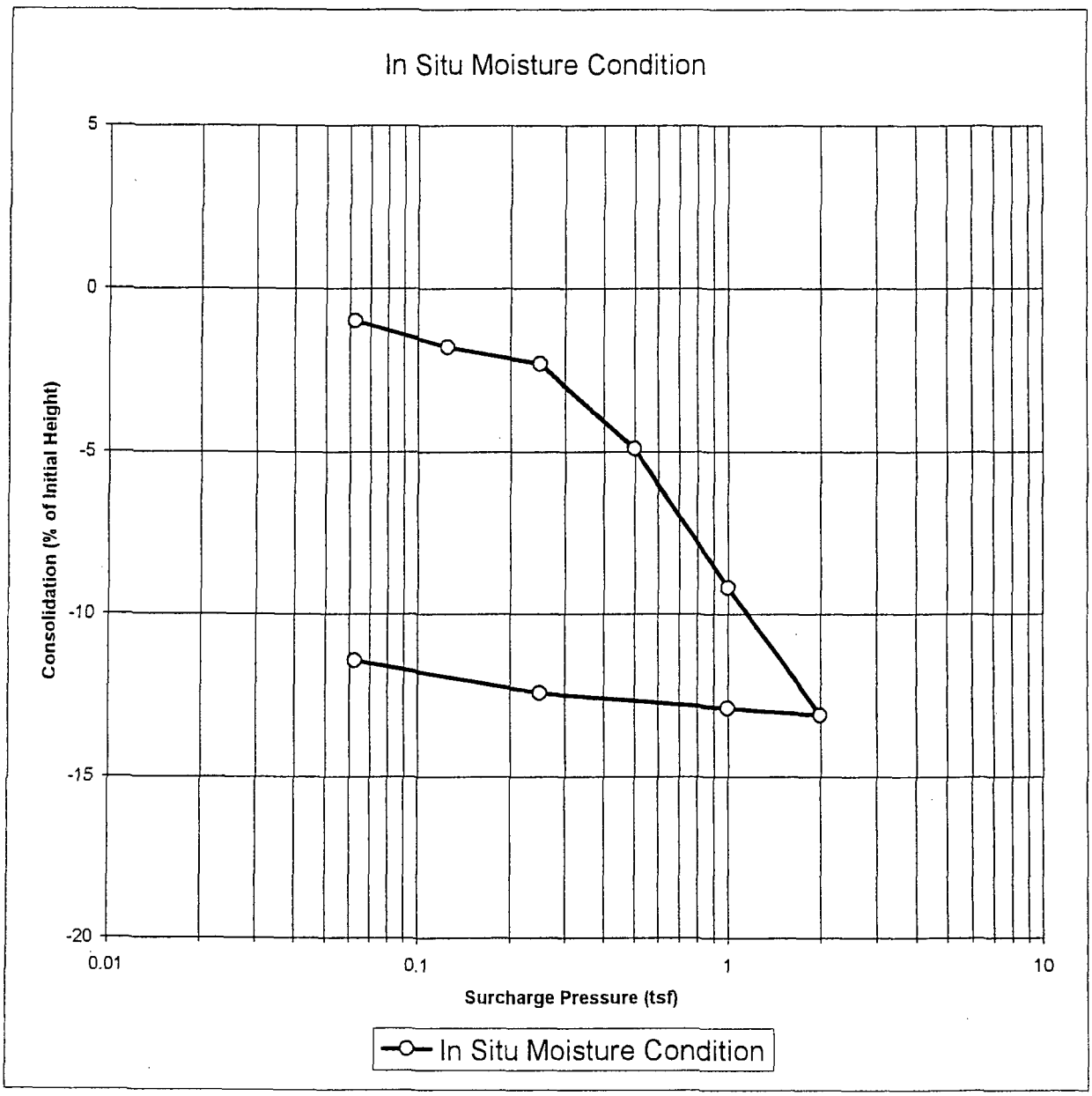
Distribution: Client: ☑ File: ☑ Supplier: ☑ Other: Addressee (2)

AMEC Earth Environmental, Inc.
8519 Jefferson NE
Albuquerque, NM 87113
Tel 5058211801
Fax 5058217371
www.amec.com

PROJECT:	Evaporation Pond Sediment	**JOB NO:**	3-519-002701
CLIENT:	Rio Algom Mining, LLC	**WORK ORDER NO:**	6
MATERIAL:	Pond 11, Buckets 1 & 2	**LAB NO:**	4-1310-03B
SAMPLE SOURCE:	Composite Mix: 25%, By Volume, Berm Soil	**DATE SAMPLED:**	
SAMPLE PREP.:	Remolded to near 90% D698 Proctor maximum	**SAMPLED BY:**	Client

MEASUREMENT OF COLLAPSE POTENTIAL OF SOILS (ASTM D5333)

INITIAL VOLUME (cu.in)	4.60	FINAL VOLUME (cu.in)	4.12
INITIAL MOISTURE CONTENT	33.4%	FINAL MOISTURE CONTENT	32.4%
INITIAL DRY DENSITY(pcf)	77.5	FINAL DRY DENSITY(pcf)	86.1
INITIAL DEGREE OF SATURATION	78%	FINAL DEGREE OF SATURATION	93%
INITIAL VOID RATIO	1.1	FINAL VOID RATIO	0.9
ESTIMATED SPECIFIC GRAVITY	2.651	SATURATED AT	Not Saturated



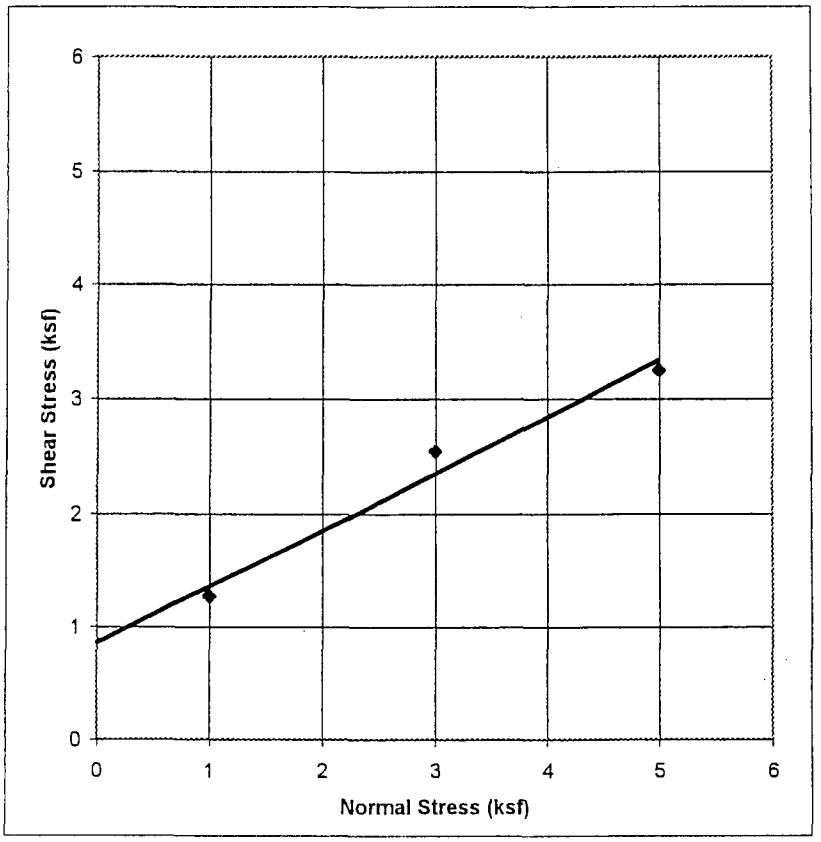
AMEC Earth Environmental, Inc.
8519 Jefferson NE
Albuquerque, NM 87113
Tel (505) 821-1801

PROJECT:	*Evaporation Pond Sediment Testing*		
CLIENT:	Rio Algom Mining, LLC	**PROJECT NO:**	4-519-002701
MATERIAL:	Pond 11, Buckets 1 & 2	**LAB NO:**	4-1310-03B
SAMPLE SOURCE:	Composite Mix: 25%, By Volume, Berm Soil	**DATE SAMPLED:**	
SAMPLE PREPARATION:	Remolded to near 90% D698 maximum near optimum moisture	**Reviewed By:**	

DIRECT SHEAR TEST OF SOILS UNDER CONSOLIDATED DRAINED CONDITIONS(ASTM D3080)

Initial thickness of specimen (in):	1.00		
Initial diameter of specimen (in):	2.42		
Shearing device used:	Geomatic Direct Shear Apparatus, Model 8914		
Rate of displacement (in/min):	0.006		
Direct shear point:	1	2	3
Dry mass of specimen (g):	96.6	97.2	97.9
Initial Moisture Content:	29.2%	28.2%	28.0%
Initial Wet Density (lb/ft^3):	103.6	103.4	104.1
Initial Dry Density (lb/ft^3):	80.2	80.7	81.3
Final Moisture Content (g/g):	28.1%	26.3%	26.7%
Final Wet Density (lb/ft^3):	104.2	108.7	110.8
Final Dry Density (lb/ft^3):	81.4	86.1	87.4
Normal Stress (kips/ft^2):	1.00	3.00	5.00
Maximum Shearing Stress (kips/ft^2):	1.3	2.5	3.2
Vertical Deformation @ Max Shear (in):	0.015	0.013	0.014
Horizontal Deformation @ Max Shear (in):	0.128	0.250	0.234
Internal Friction Angle ϕ	26.3°		
Cohesion (kips/ft^2)	0.8590		

Notes:



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8519 Jefferson NE
Albuquerque, NM 87113
Tel (505) 821-1801

Direct Shear Consolidation Information
Pond 11 composite with 25% berm soil

1000 psf		3000 psf		5000 psf	
Time (min)	Displacement	Time (min)	Displacement	Time (min)	Displacement
0	-0.0021	0	0	0	0
0.1	-0.008625	0.1	-0.0339	0.1	-0.0437
0.25	-0.009825	0.5	-0.0393	0.25	-0.0478
0.5	-0.011025	1	-0.0421	0.5	-0.0511
1	-0.012175	2	-0.0453	1	-0.0546
2	-0.013625	4	-0.0487	2	-0.0587
4	-0.015075	8	-0.0525	4	-0.063
8	-0.016775	15	-0.0558	8	-0.0677
15	-0.018475	30	-0.0597	19.5	-0.0738
30	-0.020525	60	-0.0638	30	-0.0769
60	-0.022625	118	-0.0677	60	-0.0817
122	-0.024625	178	-0.0724	118	-0.0863
180	-0.026925	1136	-0.0755	175	-0.0922
1138	-0.028925			1133	-0.0969

amec

Client: Rio Algom Mining, LLC.
PO Box 218
Grants, NM 87020-

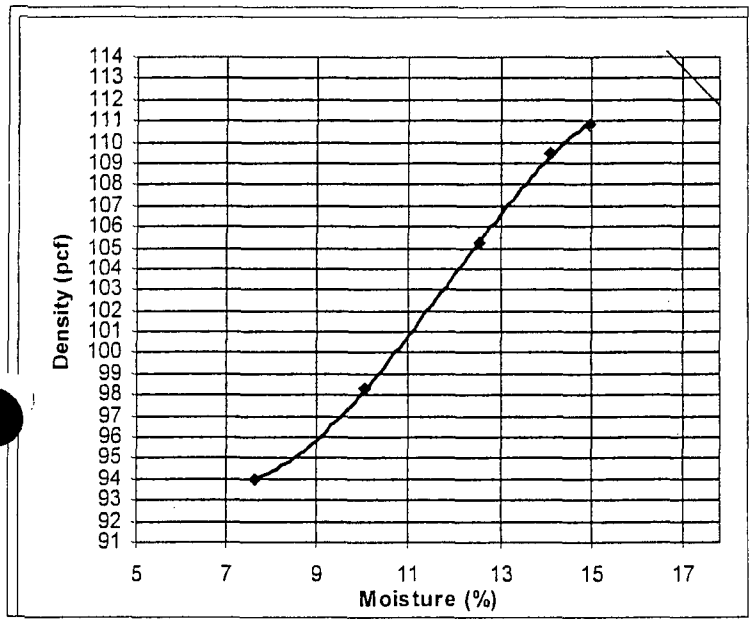
Attn: John McBee

Project Name: Evaporation Pond Sediment Testing

Report Date: November 30, 2004

Project #: 3-519-002701
Work Order #: 6
Lab #: 4-1310-03C
Sampled By: Client
Date Sampled:
Visual Description of Material: Pond 11, Bucket 1 & 2
Sample Source: Composite Mix 75% By volume, Berm soil

SOILS / AGGREGATES



Sieve Analaysis (ASTM C117/C136)

Sieve Size	Passing	Specifications Min	Specifications Max
3/8in.	100%		
#4	99%		
#8	99%		
#10	99%		
#16	99%		
#30	98%		
#40	97%		
#50	93%		
#100	63%		
#200	38%		

Moisture Density Relationship: (ASTM D1557) Method:
Preparation Method: Dry Rammer Type: Mechanical
Specific Gravity: 2.651 Assumed
Maximum Density: 112.0
Optimum Moisture: 16.5

Plasticity Index (ASTM D4318)
Liquid Limit: 22
Plastic Limit: 15
Plasticity Index: 7
Preperation Method: Dry Liquid Limit Method: A
Soil Clasification (ASTM D2487) SC-SM

Reviewed By: _____
HG

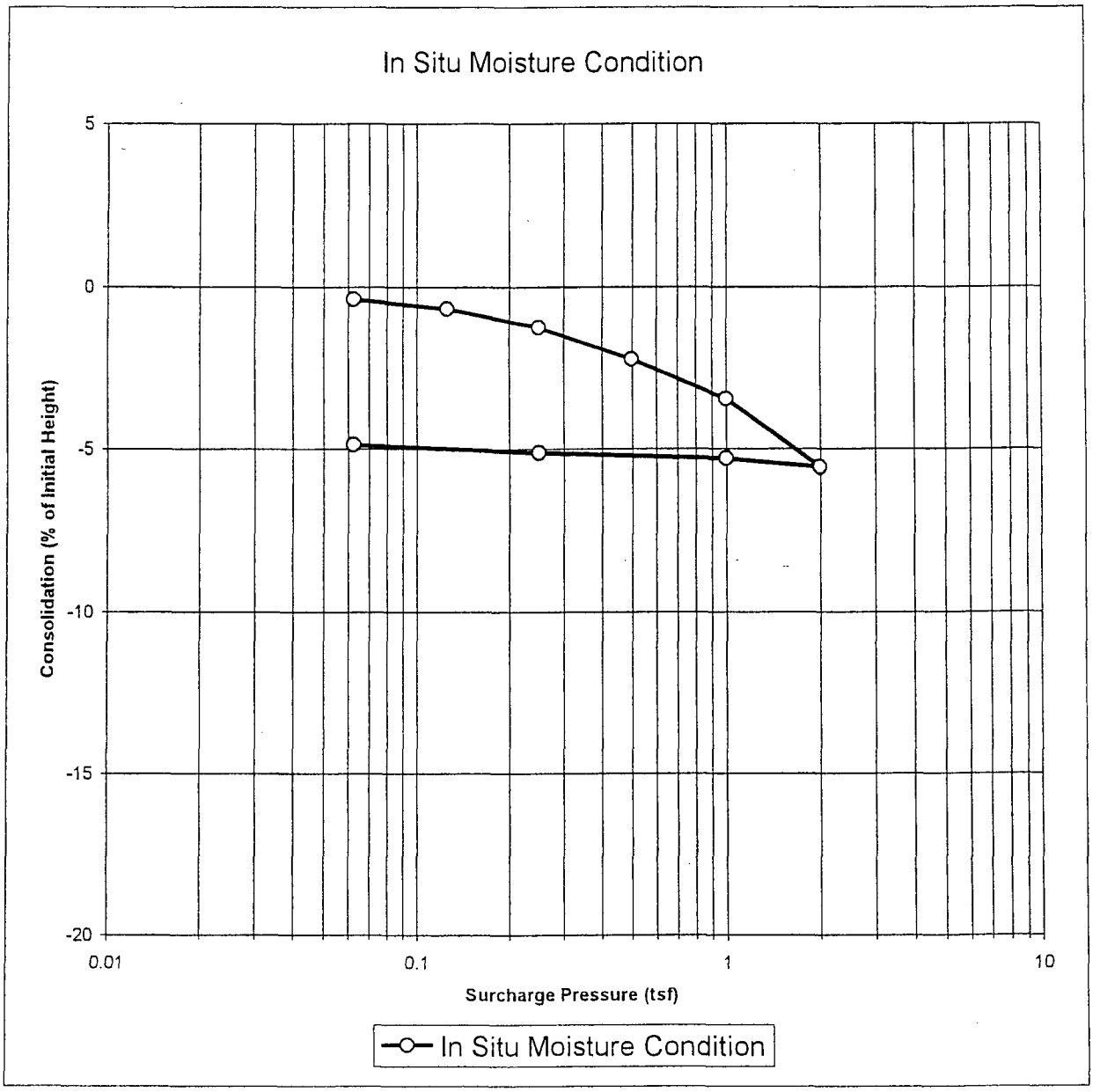
Distribution: Client: ☑ File: ☑ Supplier: ☑ Other: Addressee (2)

AMEC Earth Environmental, Inc.
8519 Jefferson NE
Albuquerque, NM 87113
Tel 5058211801
Fax 5058217371
www.amec.com

PROJECT:	*Evaporation Pond Sediment*	**JOB NO:**	3-519-002701
CLIENT:	Rio Algom Mining, LLC	**WORK ORDER NO:**	6
MATERIAL:	Pond 11, Buckets 1 & 2	**LAB NO:**	4-1310-03C
SAMPLE SOURCE:	Composite Mix: 75%, By Volume, Berm Soil	**DATE SAMPLED:**	
SAMPLE PREP.:	*Remolded to near 90% D698 Proctor maximum*	**SAMPLED BY:**	Client

MEASUREMENT OF COLLAPSE POTENTIAL OF SOILS (ASTM D5333)

INITIAL VOLUME (cu.in)	4.60	FINAL VOLUME (cu.in)	4.40
INITIAL MOISTURE CONTENT	15.4%	FINAL MOISTURE CONTENT	14.9%
INITIAL DRY DENSITY(pcf)	99.1	FINAL DRY DENSITY(pcf)	103.2
INITIAL DEGREE OF SATURATION	61%	FINAL DEGREE OF SATURATION	66%
INITIAL VOID RATIO	0.7	FINAL VOID RATIO	0.6
ESTIMATED SPECIFIC GRAVITY	2.651	SATURATED AT	Not Saturated



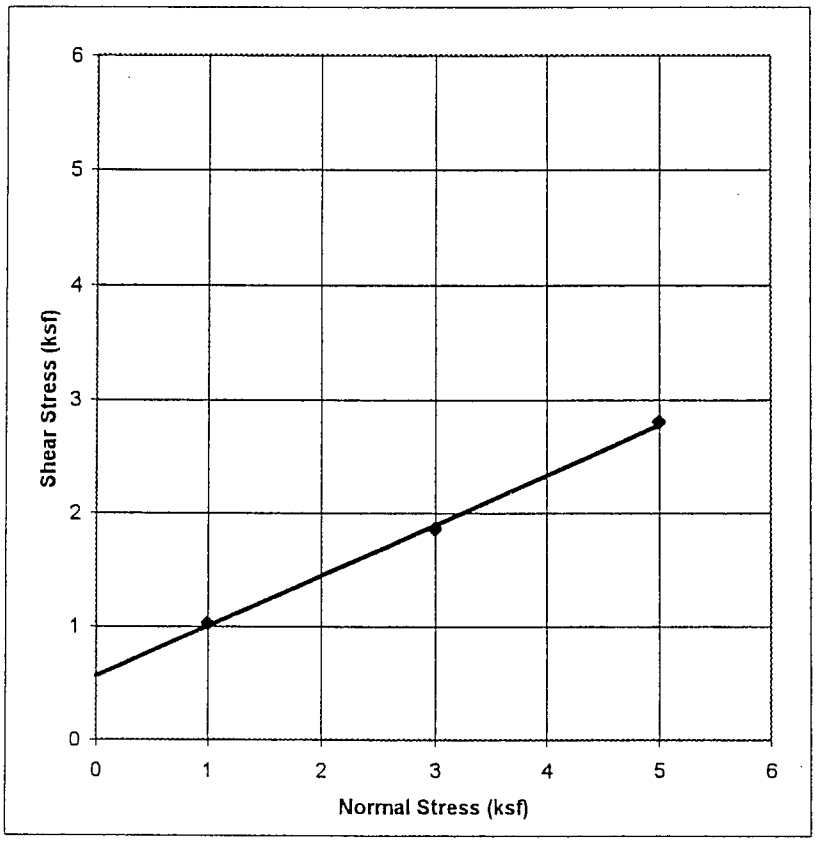
AMEC Earth Environmental, Inc.
8519 Jefferson NE
Albuquerque, NM 87113
Tel (505) 821-1801

PROJECT:	Evaporation Pond Sediment Testing		
CLIENT:	Rio Algom LLC	**PROJECT NO:**	4-519-002701
MATERIAL:	Pond sludge and 75% berm soil by volume	**LAB NO:**	4-1310-03C
SAMPLE SOURCE:	Pond 11 Composite	**DATE SAMPLED:**	10/10/04
SAMPLE PREPARATION:	Remolded to near 90% D698 maximum near optimum moisture	**Reviewed By:**	

DIRECT SHEAR TEST OF SOILS UNDER CONSOLIDATED DRAINED CONDITIONS(ASTM D3080)

Initial thickness of specimen (in):	1.00		
Initial diameter of specimen (in):	2.42		
Shearing device used:	Geomatic Direct Shear Apparatus, Model 8914		
Rate of displacement (in/min):	0.006		
Direct shear point:	1	2	3
Dry mass of specimen (g):	119.6	119.8	119.5
Initial Moisture Content:	15.1%	15.3%	15.3%
Initial Wet Density (lb/ft^3):	114.4	114.7	114.4
Initial Dry Density (lb/ft^3):	99.4	99.5	99.2
Final Moisture Content (g/g):	14.9%	15.6%	14.7%
Final Wet Density (lb/ft^3):	114.0	118.4	122.4
Final Dry Density (lb/ft^3):	99.2	102.4	106.7
Normal Stress (kips/ft^2):	1.00	3.00	5.00
Maximum Shearing Stress (kips/ft^2):	1.0	1.8	2.8
Vertical Deformation @ Max Shear (in):	0.010	0.001	-0.003
Horizontal Deformation @ Max Shear (in):	0.114	0.156	0.086
Internal Friction Angle ϕ	23.9°		
Cohesion (kips/ft^2)	0.5560		

Notes:



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8519 Jefferson NE
Albuquerque, NM 87113
Tel (505) 821-1801

Direct Shear Consolidation Information
Pond 11 composite with 75% berm soil

1000 psf		3000 psf		5000 psf	
Time (min)	Displacement	Time (min)	Displacement	Time (min)	Displacement
0	0	0	0	0	0
0.1	-0.000725	0.1	-0.008	0.1	-0.0565
0.25	-0.001425	0.25	-0.0089	0.25	-0.0595
0.5	-0.002025	0.5	-0.01	0.5	-0.0613
1	-0.002675	2	-0.0109	1	-0.0632
2	-0.003425	2	-0.0119	2	-0.0649
4	-0.004125	4	-0.013	4	-0.0667
8	-0.004925	8	-0.014	8	-0.0683
15	-0.005625	15	-0.015	15	-0.0698
32	-0.006525	31	-0.0161	30	-0.0714
70	-0.007375	68	-0.0175	65	-0.0732
1358	-0.009725	1356	-0.0242	1353	-0.0794
2518	-0.010075	2516	-0.0248	2513	-0.0803

amec

Client: Rio Algom Mining, LLC.
PO Box 218
Grants, NM 87020-

Attn: John McBee

Project Name: Evaporation Pond Sediment Testing

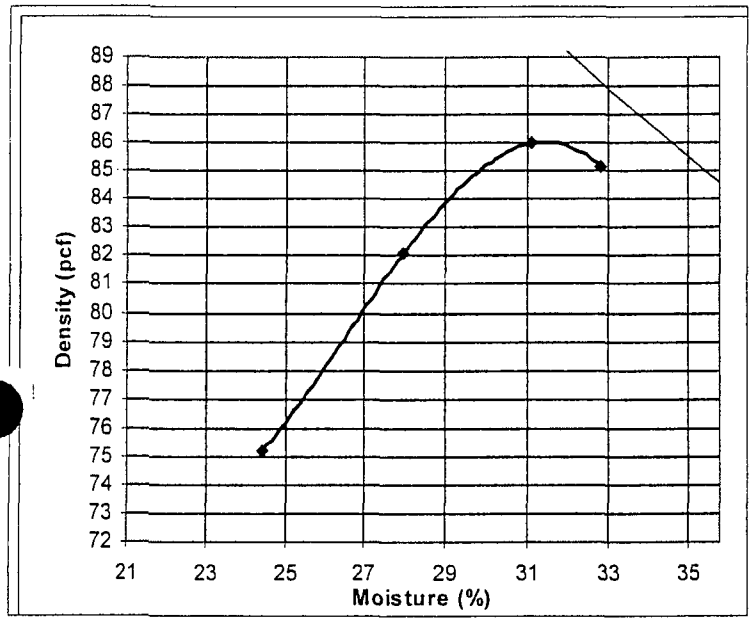
Report Date: October 26, 2004

Project #: 3-519-002701
Work Order #: 6
Lab #: 4-1310-04B
Sampled By: Client
Date Sampled:
Visual Description of Material: Pond 14, Bucket 1
Sample Source: Composite Mix 10% By volume, Berm soil

SOILS / AGGREGATES

Sieve Analaysis (ASTM C117/C136)

Sieve Size	Passing	Specifications Min	Specifications Max
#10	100%		
#16	99%		
#30	99%		
#40	98%		
#50	95%		
#100	78%		
#200	62%		



Moisture Density Relationship: (ASTM D698) Method: A
Preparation Method: Dry Rammer Type: Mechanical
Specific Gravity: 2.651 Assumed
Maximum Density: 86.0
Optimum Moisture: 31.6

Plasticity Index (ASTM D4318)
Liquid Limit: NV
Plastic Limit: NV
Plasticity Index: NP
Preperation Method: Dry Liquid Limit Method: A
Soil Clasification (ASTM D2487) ML

Reviewed By: _____
jb

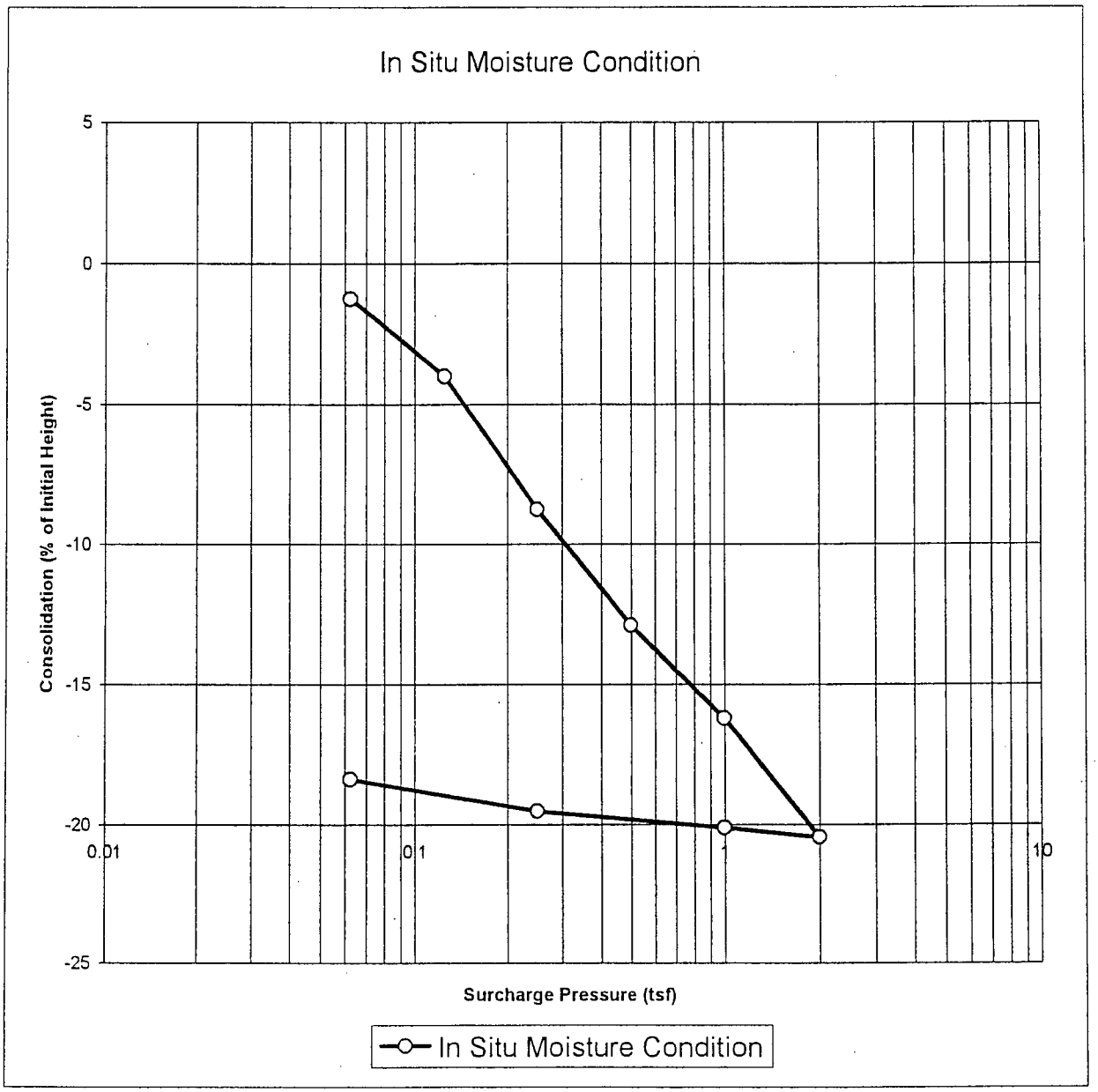
Distribution: Client: ☑ File: ☑ Supplier: ☑ Other: Addressee (2)

AMEC Earth .Environmental, Inc.
8519 Jefferson NE
Albuquerque, NM 87113
Tel 5058211801
Fax 5058217371
www.amec.com

PROJECT:	Evaporation Pond Sediment	**JOB NO:**	3-519-002701
CLIENT:	Rio Algom Mining, LLC	**WORK ORDER NO:**	6
MATERIAL:	Pond 14, Bucket 1	**LAB NO:**	4-1310-04B
SAMPLE SOURCE:	Composite Mix: 10% By Volume, Berm Soil	**DATE SAMPLED:**	
SAMPLE PREP.:	Remolded to near 90% D698 Proctor maximum	**SAMPLED BY:**	Client

MEASUREMENT OF COLLAPSE POTENTIAL OF SOILS (ASTM D5333)

INITIAL VOLUME (cu.in)	4.60	FINAL VOLUME (cu.in)	3.82
INITIAL MOISTURE CONTENT	52.3%	FINAL MOISTURE CONTENT	37.5%
INITIAL DRY DENSITY(pcf)	67.0	FINAL DRY DENSITY(pcf)	80.5
INITIAL DEGREE OF SATURATION	94%	FINAL DEGREE OF SATURATION	94%
INITIAL VOID RATIO	1.5	FINAL VOID RATIO	1.1
ESTIMATED SPECIFIC GRAVITY	2.651	SATURATED AT	Not Saturated



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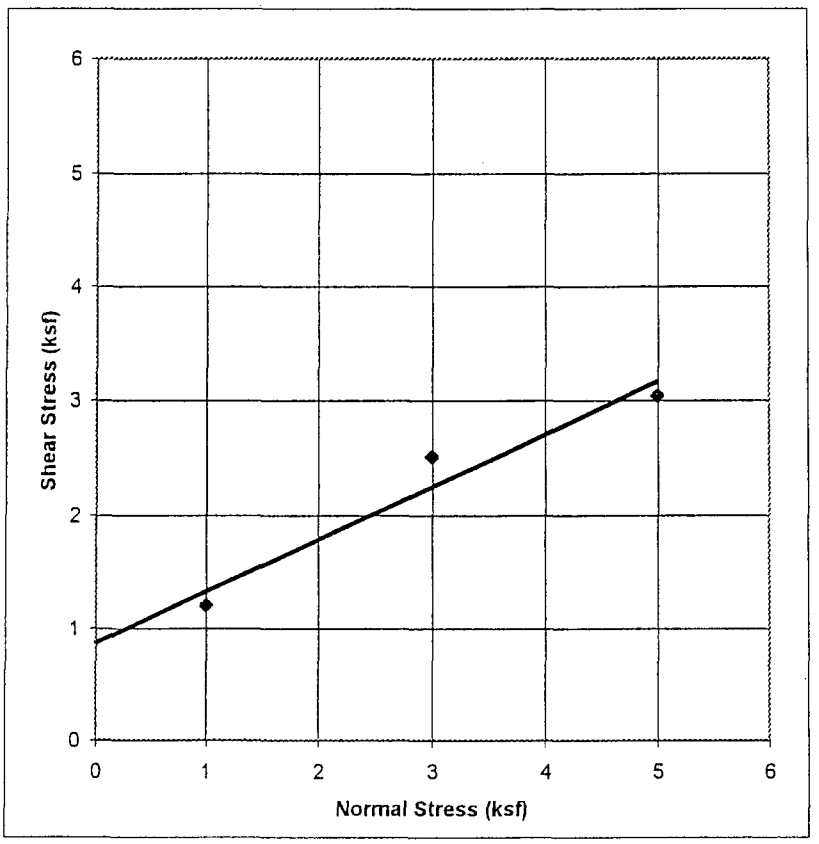
8519 Jefferson NE
Albuquerque, NM 87113
Tel (505) 821-1801

PROJECT:	Evaporation Pond Sediment Testing		
CLIENT:	Rio Algom Mining, LLC	**PROJECT NO:**	4-519-002701
MATERIAL:	Pond 14, Bucket 1 (sandy)	**LAB NO:**	4-1310-04B
SAMPLE SOURCE:	Composite Mix: 10%, By Volume, Berm Soil	**DATE SAMPLED:**	
SAMPLE PREPARATION:	Remolded to near 90% D698 maximum near optimum moisture	**Reviewed By:**	

DIRECT SHEAR TEST OF SOILS UNDER CONSOLIDATED DRAINED CONDITIONS(ASTM D3080)

Initial thickness of specimen (in):	1.00		
Initial diameter of specimen (in):	2.42		
Shearing device used:	Geomatic Direct Shear Apparatus, Model 8914		
Rate of displacement (in/min):	0.006		
Direct shear point:	1	2	3
Dry mass of specimen (g):	92.9	93.3	93.7
Initial Moisture Content:	32.3%	31.5%	31.1%
Initial Wet Density (lb/ft^3):	102.1	102.0	102.0
Initial Dry Density (lb/ft^3):	77.2	77.5	77.8
Final Moisture Content (g/g):	31.5%	30.4%	29.9%
Final Wet Density (lb/ft^3):	102.8	107.6	114.3
Final Dry Density (lb/ft^3):	78.1	82.5	88.0
Normal Stress (kips/ft^2):	1.00	3.00	5.00
Maximum Shearing Stress (kips/ft^2):	1.2	2.5	3.0
Vertical Deformation @ Max Shear (in):	0.013	0.010	0.009
Horizontal Deformation @ Max Shear (in):	0.122	0.248	0.236
Internal Friction Angle ϕ	24.7°		
Cohesion (kips/ft^2)	0.8710		

Notes:



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Direct Shear Consolidation Information
Pond 14 Bucket 1 composite with 10% berm soil

1000 psf		3000 psf		5000 psf	
Time (min)	Displacement	Time (min)	Displacement	Time (min)	Displacement
0	0	0	0	0	0
0.1	-0.010475	0.1	-0.0282	0.1	-0.05495
0.25	-0.011525	0.25	-0.0307	0.25	-0.05945
0.5	-0.012525	0.5	-0.0329	0.5	-0.06255
1	-0.013325	1	-0.0352	1	-0.06505
2	-0.014425	2	-0.0377	3	-0.07155
4	-0.015625	4	-0.0408	4	-0.07295
8	-0.016925	8	-0.0443	8	-0.07675
15	-0.018175	15	-0.0467	15	-0.08055
30	-0.019625	30	-0.0502	30	-0.08425
60	-0.021075	60	-0.0537	60	-0.08835
155	-0.022825	152	-0.0579	145	-0.09325
230	-0.023725	227	-0.0603	220	-0.09605
1400	-0.027225	1398	-0.0705	1390	-0.10855

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Client: Rio Algom Mining, LLC.
PO Box 218
Grants, NM 87020-

Attn: John McBee

Project Name: Evaporation Pond Sediment Testing

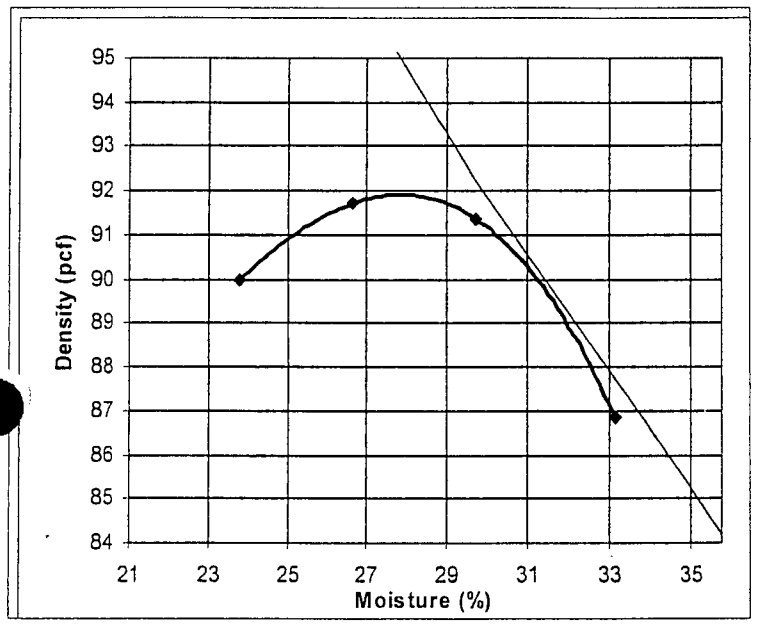
Report Date: October 26, 2004

Project #: 3-519-002701
Work Order #: 6
Lab #: 4-1310-04C
Sampled By: Client
Date Sampled:
Visual Description of Material: Pond 14, Bucket 1
Sample Source: Composite Mix 25% By volume, Berm soil

SOILS / AGGREGATES

Sieve Analaysis (ASTM C117/C136)

Sieve Size	Passing	Specifications Min	Specifications Max
#16	100%		
#30	99%		
#40	98%		
#50	94%		
#100	72%		
#200	53%		



Moisture Density Relationship: (ASTM D698) Method: A
Preparation Method: Dry Rammer Type: Mechanical
Specific Gravity: 2.651 Assumed
Maximum Density: 91.9
Optimum Moisture: 28.0

Plasticity Index (ASTM D4318)
Liquid Limit: 27
Plastic Limit: 21
Plasticity Index: 6
Preperation Method: Dry Liquid Limit Method: A
Soil Clasification (ASTM D2487) CL-ML

Reviewed By: _____
jb

Distribution: Client: ☑ File: ☑ Supplier: ☑ Other: Addressee (2)

AMEC Earth Environmental, Inc.
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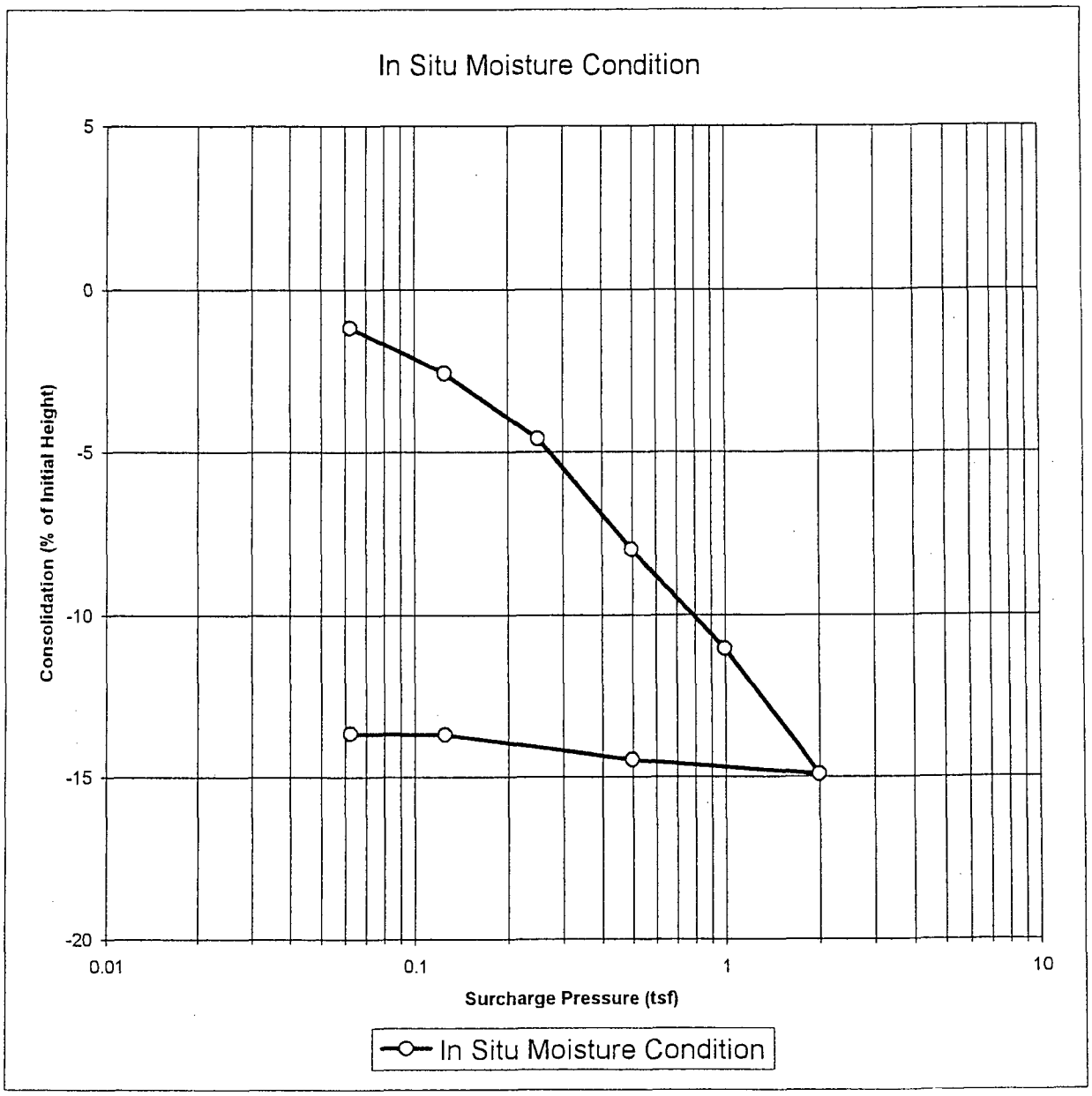
PROJECT:	Evaporation Pond Sediment	**JOB NO:**	3-519-002701
CLIENT:	Rio Algom Mining, LLC	**WORK ORDER NO:**	6
MATERIAL:	Pond 14 Bucket 1	**LAB NO:**	4-1310-04C
SAMPLE SOURCE:	Composite Mix:25%, By Volume, Berm Soil	**DATE SAMPLED:**	
SAMPLE PREP.:	Remolded to near 90% D698 Proctor maximum	**SAMPLED BY:**	Client

MEASUREMENT OF COLLAPSE POTENTIAL OF SOILS (ASTM D5333)

INITIAL VOLUME (cu.in)	4.60	FINAL VOLUME (cu.in)	4.03
INITIAL MOISTURE CONTENT	29.1%	FINAL MOISTURE CONTENT	26.4%
INITIAL DRY DENSITY(pcf)	81.9	FINAL DRY DENSITY(pcf)	93.1
INITIAL DEGREE OF SATURATION	76%	FINAL DEGREE OF SATURATION	90%
INITIAL VOID RATIO	1.0	FINAL VOID RATIO	0.8
ESTIMATED SPECIFIC GRAVITY	2.651	SATURATED AT	Not Saturated



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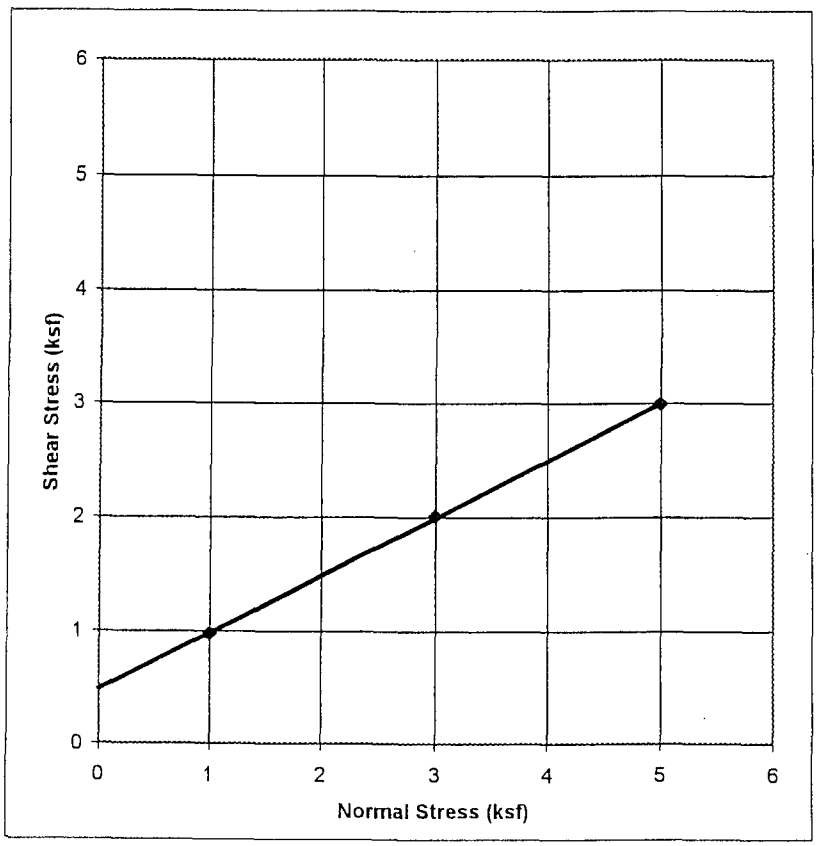
Albuquerque, NM 87113
Tel (505) 821-1801

PROJECT:	*Evaporation Pond Sediment Testing*		
CLIENT:	Rio Algom Mining, LLC	**PROJECT NO:**	4-519-002701
MATERIAL:	Pond 14, Bucket 1 (sandy)	**LAB NO:**	4-1310-04C
SAMPLE SOURCE:	Composite Mix: 25%, By Volume, Berm Soil	**DATE SAMPLED:**	
SAMPLE PREPARATION:	Remolded to near 90% D698 maximum near optimum moisture	**Reviewed By:**	

DIRECT SHEAR TEST OF SOILS UNDER CONSOLIDATED DRAINED CONDITIONS(ASTM D3080)

Initial thickness of specimen (in):	1.00		
Initial diameter of specimen (in):	2.42		
Shearing device used:	Geomatic Direct Shear Apparatus, Model 8914		
Rate of displacement (in/min):	0.006		
Direct shear point:	1	2	3
Dry mass of specimen (g):	99.9	100.0	101.3
Initial Moisture Content:	27.4%	27.3%	29.0%
Initial Wet Density (lb/ft^3):	105.7	105.7	108.5
Initial Dry Density (lb/ft^3):	83.0	83.0	84.1
Final Moisture Content (g/g):	26.8%	26.1%	25.6%
Final Wet Density (lb/ft^3):	107.7	111.3	118.3
Final Dry Density (lb/ft^3):	85.0	88.3	94.2
Normal Stress (kips/ft^2):	1.00	3.00	5.00
Maximum Shearing Stress (kips/ft^2):	1.0	2.0	3.0
Vertical Deformation @ Max Shear (in):	0.005	0.005	-0.011
Horizontal Deformation @ Max Shear (in):	0.148	0.216	0.248
Internal Friction Angle ϕ	26.7°		
Cohesion (kips/ft^2)	0.4760		

Notes:



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Direct Shear Consolidation Information
Pond 14 Bucket 1 composite with 25% berm soil

1000 psf		3000 psf		5000 psf	
Time (min)	Displacement (in)	Time (min)	Displacement (in)	Time (min)	Displacement (in)
0	0	0	0	0	0
0.1	-0.010325	0.1	-0.0301	0.1	-0.05905
0.25	-0.011475	0.25	-0.0334	0.25	-0.06185
0.5	-0.012575	0.5	-0.0354	0.5	-0.06365
1	-0.013775	1	-0.0379	1	-0.06625
2	-0.015075	2	-0.0402	2	-0.06945
4	-0.016825	3	-0.0418	4	-0.07255
8	-0.018425	5	-0.0439	10	-0.07735
22	-0.022425	28	-0.0518	20	-0.08125
68	-0.024375	62	-0.0553	32	-0.08385
93	-0.025275	87	-0.0569	57	-0.08725
150	-0.026475	185	-0.0589	115	-0.09085
232	-0.027425	266	-0.0604	196	-0.09305
414	-0.028625	413	-0.0624	378	-0.09565
583	-0.029025	517	-0.0644	622	-0.09825

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Client: Rio Algom Mining, LLC.
PO Box 218
Grants, NM 87020-

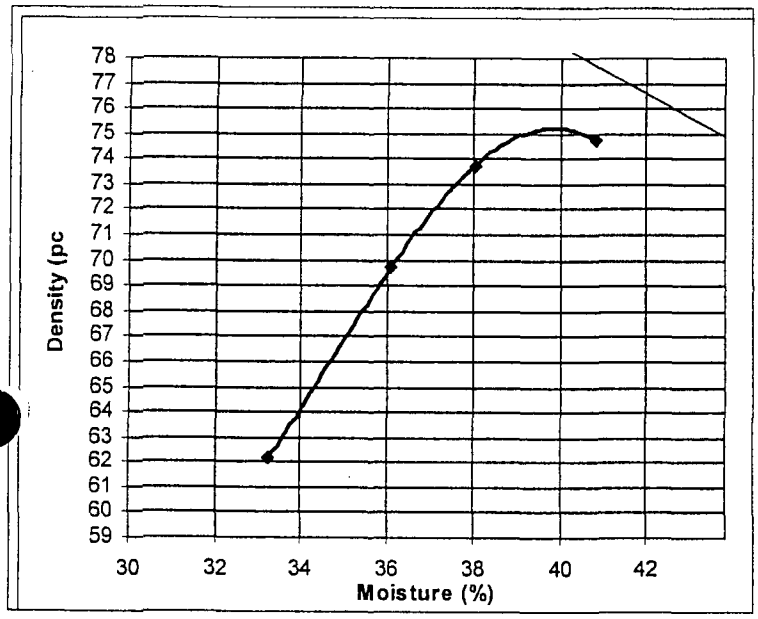
Attn: John McBee

Project Name: Evaporation Pond Sediment Testing

Report Date: October 29, 2004

Project #: 3-519-002701
Work Order #: 6
Lab #: 4-1310-05B
Sampled By: Client
Date Sampled:
Visual Description of Material: Pond 14, Bucket 2
Sample Source: Composite Mix 10% By volume, Berm soil

SOILS / AGGREGATES



Sieve Analaysis (ASTM C117/C136)

Sieve Size	Passing	Specifications Min	Specifications Max
3/8in.	100%		
#4	99%		
#8	98%		
#10	98%		
#16	97%		
#30	96%		
#40	95%		
#50	91%		
#100	74%		
#200	61%		

Moisture Density Relationship: (ASTM D1557) **Method:** A
Preparation Method: Dry **Rammer Type:** Mechanical
Specific Gravity: 2.551 **Assumed**
Maximum Density: 75.0
Optimum Moisture: 40.0

Plasticity Index (ASTM D4318)
Liquid Limit: 32
Plastic Limit: 20
Plasticity Index: 12
Preperation Method: Dry **Liquid Limit Method:** A
Soil Clasification (ASTM D2487) CL

Reviewed By: _____
jb

Distribution: Client: ☑ File: ☑ Supplier: ☑ Other: Addressee (2)

AMEC Earth Environmental, Inc.
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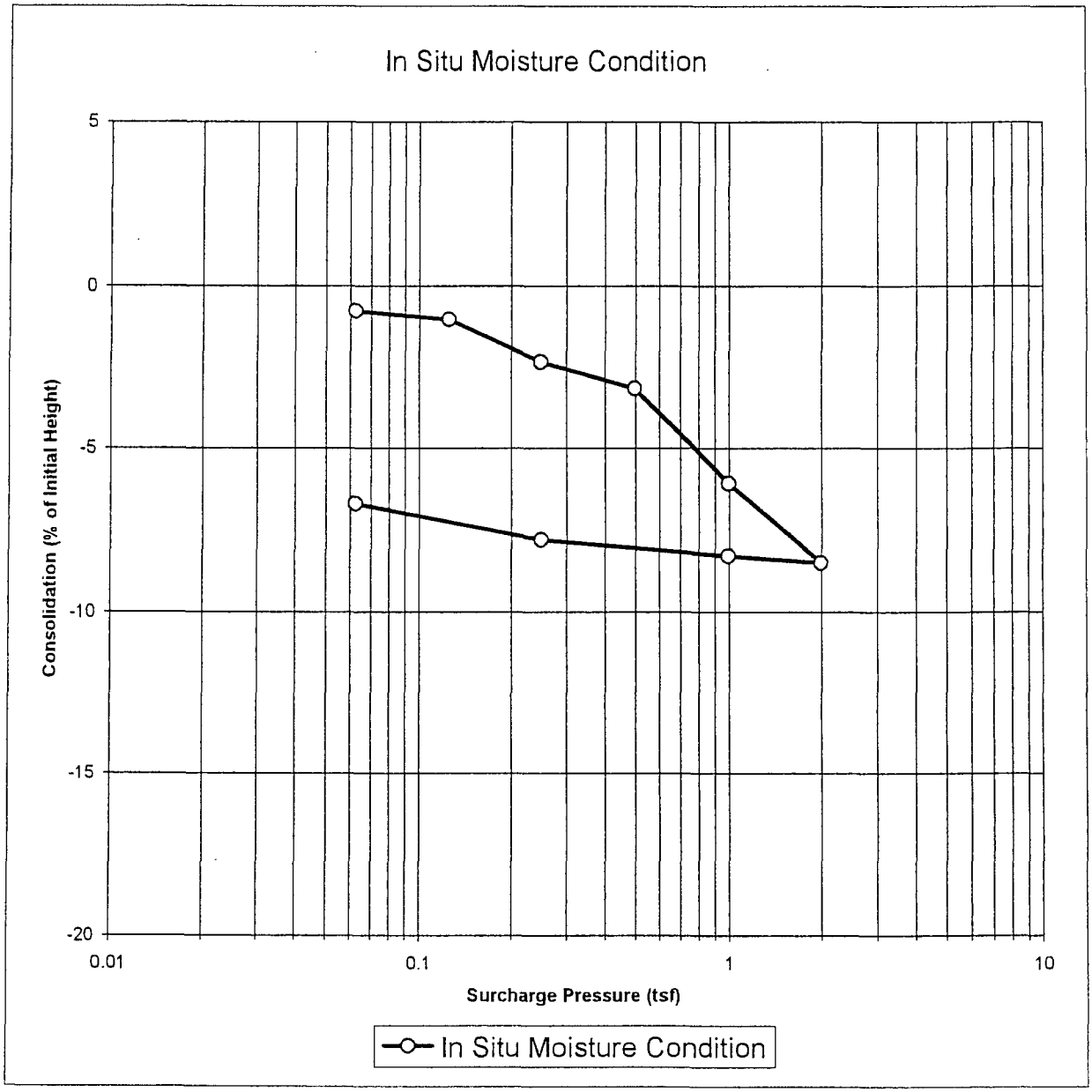
PROJECT:	Evaporation Pond Sediment	**JOB NO:**	3-519-002701
CLIENT:	Rio Algom Mining, LLC	**WORK ORDER NO:**	6
MATERIAL:	Pond 14, Bucket 2	**LAB NO:**	4-1310-05B
SAMPLE SOURCE:	Composite Mix:10%, By Volume, Berm Soil	**DATE SAMPLED:**	
SAMPLE PREP.:	Remolded to near 90% D698 Proctor maximum	**SAMPLED BY:**	Client

MEASUREMENT OF COLLAPSE POTENTIAL OF SOILS (ASTM D5333)

INITIAL VOLUME (cu.in)	4.60	FINAL VOLUME (cu.in)	4.33
INITIAL MOISTURE CONTENT	42.8%	FINAL MOISTURE CONTENT	38.5%
INITIAL DRY DENSITY(pcf)	73.0	FINAL DRY DENSITY(pcf)	77.3
INITIAL DEGREE OF SATURATION	90%	FINAL DEGREE OF SATURATION	90%
INITIAL VOID RATIO	1.3	FINAL VOID RATIO	1.1
ESTIMATED SPECIFIC GRAVITY	2.651	SATURATED AT	Not Saturated



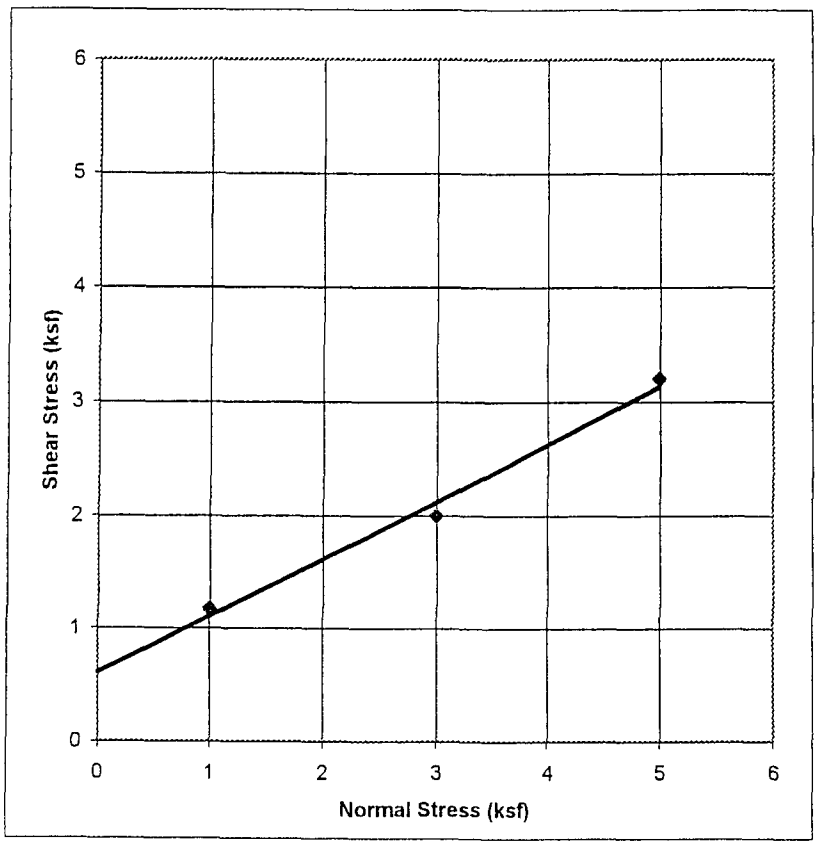
AMEC Earth Environmental, Inc.
8519 Jefferson NE
Albuquerque, NM 87113
Tel (505) 821-1801

PROJECT:	Evaporation Pond Sediment Testing		
CLIENT:	Rio Algom Mining, LLC	**PROJECT NO:**	4-519-002701
MATERIAL:	Pond 14, Bucket 2	**LAB NO:**	4-1310-05B
SAMPLE SOURCE:	*Composite Mix: 10% By Volume, Berm Soil*	**DATE SAMPLED:**	
SAMPLE PREPARATION:	Remolded to near 90% D698 maximum near optimum moisture	**Reviewed By:**	

DIRECT SHEAR TEST OF SOILS UNDER CONSOLIDATED DRAINED CONDITIONS(ASTM D3080)

Initial thickness of specimen (in):	1.00		
Initial diameter of specimen (in):	2.42		
Shearing device used:	Geomatic Direct Shear Apparatus, Model 8914		
Rate of displacement (in/min):	0.006		
Direct shear point:	1	2	3
Dry mass of specimen (g):	-54.0	86.0	84.9
Initial Moisture Content:	-334.2%	46.7%	48.4%
Initial Wet Density (lb/ft^3):	105.0	104.8	104.6
Initial Dry Density (lb/ft^3):	-44.8	71.4	70.5
Final Moisture Content (g/g):	-330.4%	42.7%	40.9%
Final Wet Density (lb/ft^3):	103.3	106.3	105.0
Final Dry Density (lb/ft^3):	-44.9	74.5	74.5
Normal Stress (kips/ft^2):	1.00	3.00	5.00
Maximum Shearing Stress (kips/ft^2):	1.2	2.0	3.2
Vertical Deformation @ Max Shear (in):	0.018	0.015	0.005
Horizontal Deformation @ Max Shear (in):	0.194	0.198	0.218
Internal Friction Angle ϕ	26.9°		
Cohesion (kips/ft^2)	0.5950		

Notes:



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Albuquerque, NM 87113
Tel (505) 821-1801

Direct Shear Consolidation Information
Pond 14 Bucket 2 composite with 10% berm soil

1000 psf		3000 psf		5000 psf	
Time (min)	Displacement	Time (min)	Displacement	Time (min)	Displacement
0	0	0	0	0	0
0.1	-0.006375	0.1	-0.0163	0.1	-0.0576
0.25	-0.007725	0.25	-0.0181	0.25	-0.0593
0.5	-0.008925	0.5	-0.0214	0.5	-0.061
1	-0.010625	1	-0.0226	1	-0.0631
2.5	-0.012725	2	-0.0249	2	-0.0656
4	-0.014125	4	-0.0278	4	-0.0688
8	-0.016625	8	-0.0312	8	-0.0729
15	-0.019325	15	-0.0351	15	-0.0778
30	-0.022825	30	-0.04	30	-0.0847
60	-0.026625	60	-0.0458	115	-0.093
948	-0.037625	946	-0.0635	943	-0.1144
		970	-0.064	967	-0.1152
					-0.0812

amec

Client: Rio Algom Mining, LLC.
PO Box 218
Grants, NM 87020-

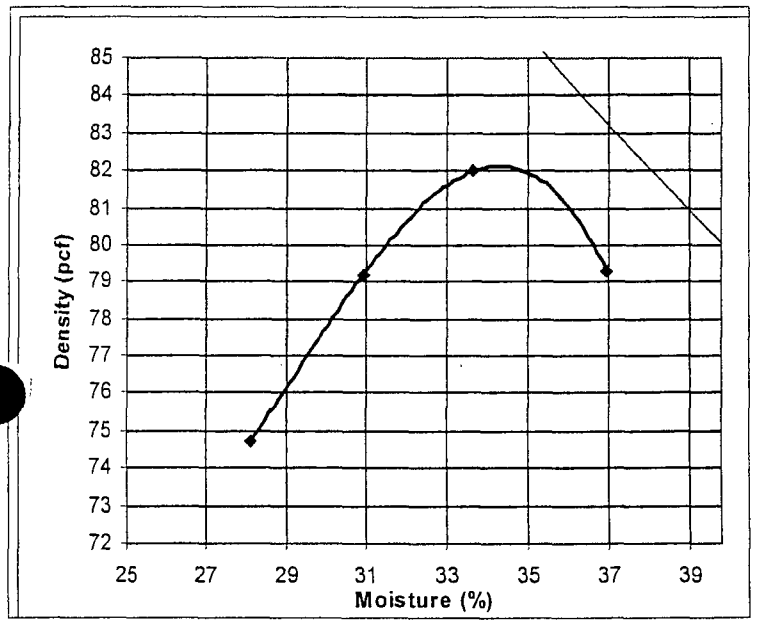
Attn: John McBee

Project Name: Evaporation Pond Sediment Testing

Report Date: October 29, 2004

Project #: 3-519-002701
Work Order #: 6
Lab #: 4-1310-05C
Sampled By: Client
Date Sampled:
Visual Description of Material: Pond 14, Bucket 2
Sample Source: Composite Mix 25% By volume, Berm soil

SOILS / AGGREGATES



Sieve Analaysis (ASTM C117/C136)

Sieve Size	Passing	Specifications Min	Specifications Max
1/2in.	100%		
3/8in.	99%		
#4	99%		
#8	98%		
#10	98%		
#16	98%		
#30	71%		
#40	96%		
#50	93%		
#100	74%		
#200	55%		

Moisture Density Relationship: (ASTM D1557) Method: A
Preparation Method: Dry Rammer Type: Mechanical
Specific Gravity: 2.651 Assumed
Maximum Density: 82.0
Optimum Moisture: 34.5

Plasticity Index (ASTM D4318)
Liquid Limit: 28
Plastic Limit: 21
Plasticity Index: 7
Preperation Method: Dry Liquid Limit Method: A
Soil Clasification (ASTM D2487) CL-ML

Reviewed By: _____
jb

Distribution: Client: ☑ File: ☑ Supplier: ☑ Other: Addressee (2)

AMEC Earth Environmental, Inc.
8519 Jefferson NE
Albuquerque, NM 87113
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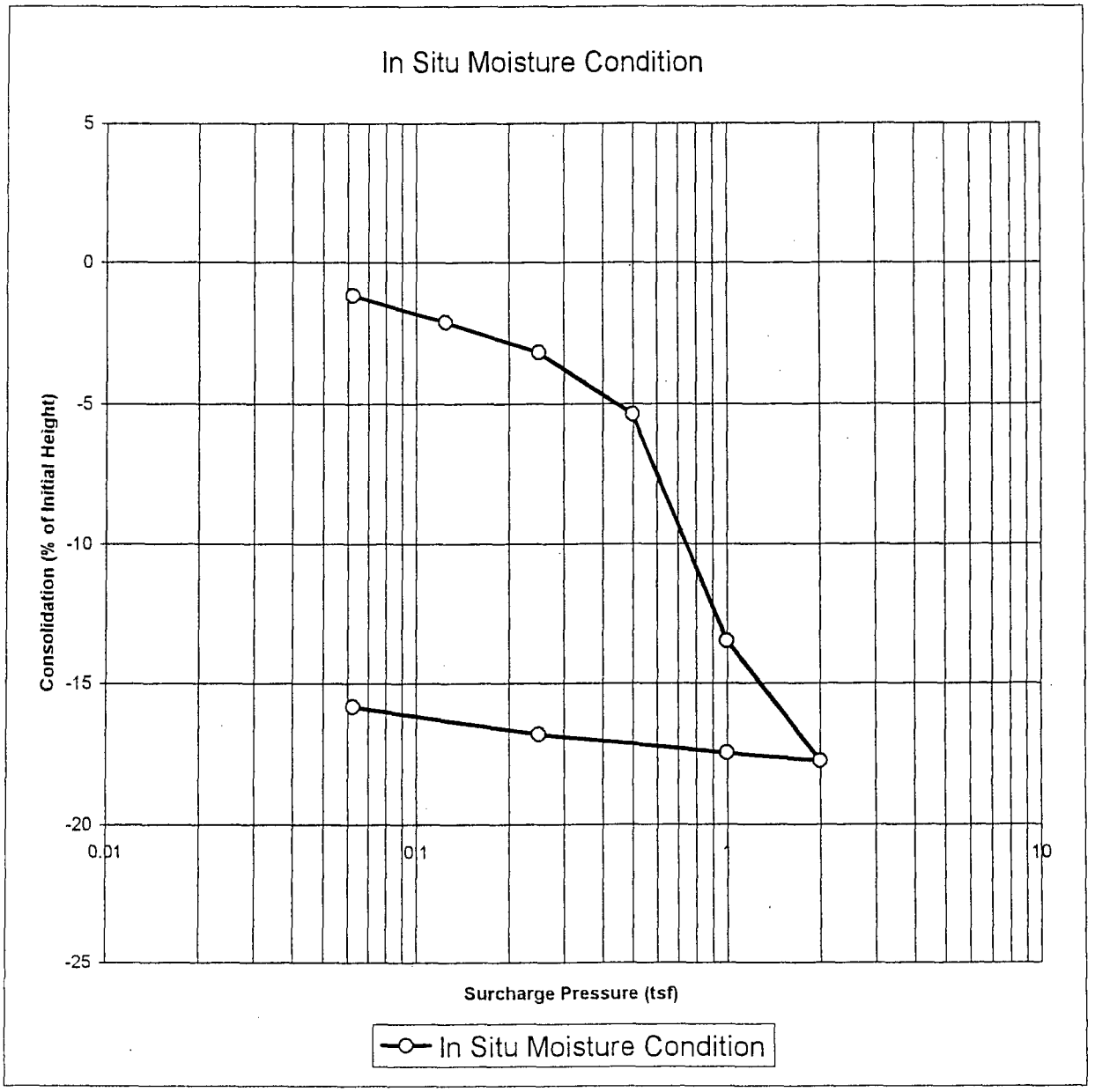
www.amec.com

PROJECT:	Evaporation Pond Sediment	**JOB NO:**	3-519-002701
CLIENT:	Rio Algom Mining LLC	**WORK ORDER NO:**	6
MATERIAL:	Pond 14, Bucket 2	**LAB NO:**	4-1310-05C
SAMPLE SOURCE:	Composite Mix: 25% By Volume, Berm Soil	**DATE SAMPLED:**	
SAMPLE PREP.:	Remolded to near 90% D698 Proctor maximum	**SAMPLED BY:**	Client

MEASUREMENT OF COLLAPSE POTENTIAL OF SOILS (ASTM D5333)

INITIAL VOLUME (cu.in)	4.60	FINAL VOLUME (cu.in)	3.93
INITIAL MOISTURE CONTENT	41.4%	FINAL MOISTURE CONTENT	35.2%
INITIAL DRY DENSITY(pcf)	70.2	FINAL DRY DENSITY(pcf)	81.9
INITIAL DEGREE OF SATURATION	81%	FINAL DEGREE OF SATURATION	92%
INITIAL VOID RATIO	1.4	FINAL VOID RATIO	1.0
ESTIMATED SPECIFIC GRAVITY	2.651	SATURATED AT	Not Saturated



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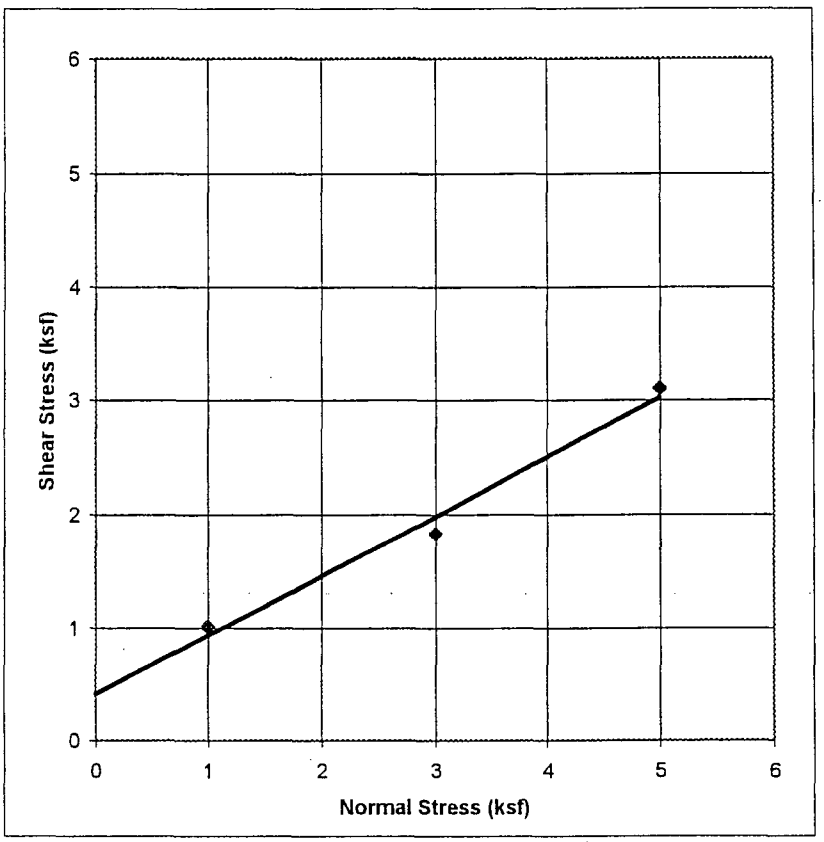
8519 Jefferson NE
Albuquerque, NM 87113

PROJECT:	Evaporation Pond Sediment Testing		
CLIENT:	Rio Algom Mining LLC	**PROJECT NO:**	4-519-002701
MATERIAL:	Pond 14, Bucket 2	**LAB NO:**	4-1310-05C
SAMPLE SOURCE:	Composite Mix: 25% By Volume, Berm Soil	**DATE SAMPLED:**	
SAMPLE PREPARATION:	Remolded to near 90% D698 maximum near optimum moisture	**Reviewed By:**	

DIRECT SHEAR TEST OF SOILS UNDER CONSOLIDATED DRAINED CONDITIONS(ASTM D3080)

Initial thickness of specimen (in):	1.00		
Initial diameter of specimen (in):	2.42		
Shearing device used:	Geomatic Direct Shear Apparatus, Model 8914		
Rate of displacement (in/min):	0.006		
Direct shear point:	1	2	3
Dry mass of specimen (g):	88.0	88.4	88.6
Initial Moisture Content:	35.3%	35.3%	34.6%
Initial Wet Density (lb/ft^3):	98.9	99.3	99.0
Initial Dry Density (lb/ft^3):	73.1	73.4	73.6
Final Moisture Content (g/g):	34.3%	34.2%	30.8%
Final Wet Density (lb/ft^3):	100.1	108.5	108.5
Final Dry Density (lb/ft^3):	74.5	80.9	82.9
Normal Stress (kips/ft^2):	1.00	3.00	5.00
Maximum Shearing Stress (kips/ft^2):	1.0	1.8	3.1
Vertical Deformation @ Max Shear (in):	0.010	0.001	0.011
Horizontal Deformation @ Max Shear (in):	0.154	0.248	0.228
Internal Friction Angle ϕ	27.6°		
Cohesion (kips/ft^2)	0.4100		

Notes:



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Tel (505) 821-1801

Direct Shear Consolidation Information
Pond 14 Bucket 2 composite with 25% berm soil

1000 psf		3000 psf		5000 psf	
Time (min)	Displacement	Time (min)	Displacement	Time (min)	Displacement
0	0	0	0	0	0
0.1	-0.008775	0.1	-0.0437	0.1	-0.05635
0.25	-0.174425	0.25	-0.0469	0.25	-0.06055
0.5	-0.010625	0.5	-0.0487	0.5	-0.06415
1	-0.011625	1	-0.0519	1	-0.06755
2	-0.012925	2	-0.0564	2	-0.07175
4	-0.014225	4	-0.0577	4	-0.07645
8	-0.015825	8	-0.0616	8	-0.08135
15	-0.017425	15	-0.0656	15	-0.08725
30	-0.019325	30	-0.0698	30	-0.09135
60	-0.021375	60	-0.0743	115	-0.10315
125	-0.023675	122	-0.0792	210	-0.10895
220	-0.025725	217	-0.0835	240	-0.11055
250	-0.026225	247	-0.0847	435	-0.11755
445	-0.028625	442	-0.0896	822	-0.12115
832	-0.029925	829	-0.0925	1140	-0.12235

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ent: Rio Algom Mining, LLC.
PO Box 218
Grants, NM 87020-

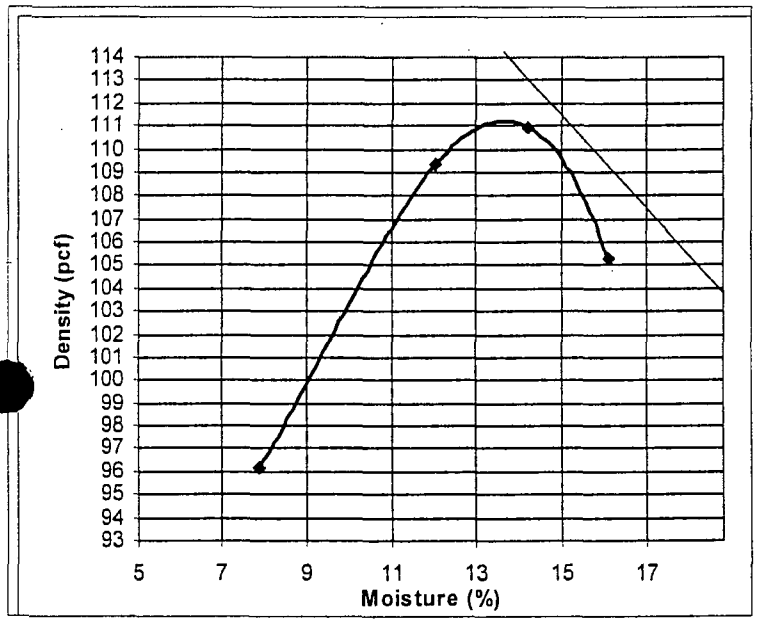
Attn: John McBee

Project Name: Evaporation Pond Sediment Testing

Report Date: October 26, 2004

Project #: 3-519-002701
Work Order #: 6
Lab #: 4-1310-05D
Sampled By: Client
Date Sampled:
Visual Description of Material: Pond 14, Bucket 2
Sample Source: Composite Mix 75% By volume, Berm soil

SOILS / AGGREGATES



Sieve Analaysis (ASTM C117/C136)

Sieve Size	Passing	Specifications Min	Specifications Max
1/2in.	100%		
3/8in.	99%		
#4	99%		
#8	98%		
#10	98%		
#16	98%		
#30	97%		
#40	96%		
#50	90%		
#100	56%		
#200	30%		

Moisture Density Relationship: (ASTM D698) Method: A
Preparation Method: Dry Rammer Type: Mechanical
Specific Gravity: 2.451 Assumed
Maximum Density: 111.2
Optimum Moisture: 13.8

Plasticity Index (ASTM D4318)
Liquid Limit: 18
Plastic Limit: 16
Plasticity Index: 2
Preperation Method: Dry Liquid Limit Method: A
Soil Clasification (ASTM D2487) SM

Reviewed By: _____
jb

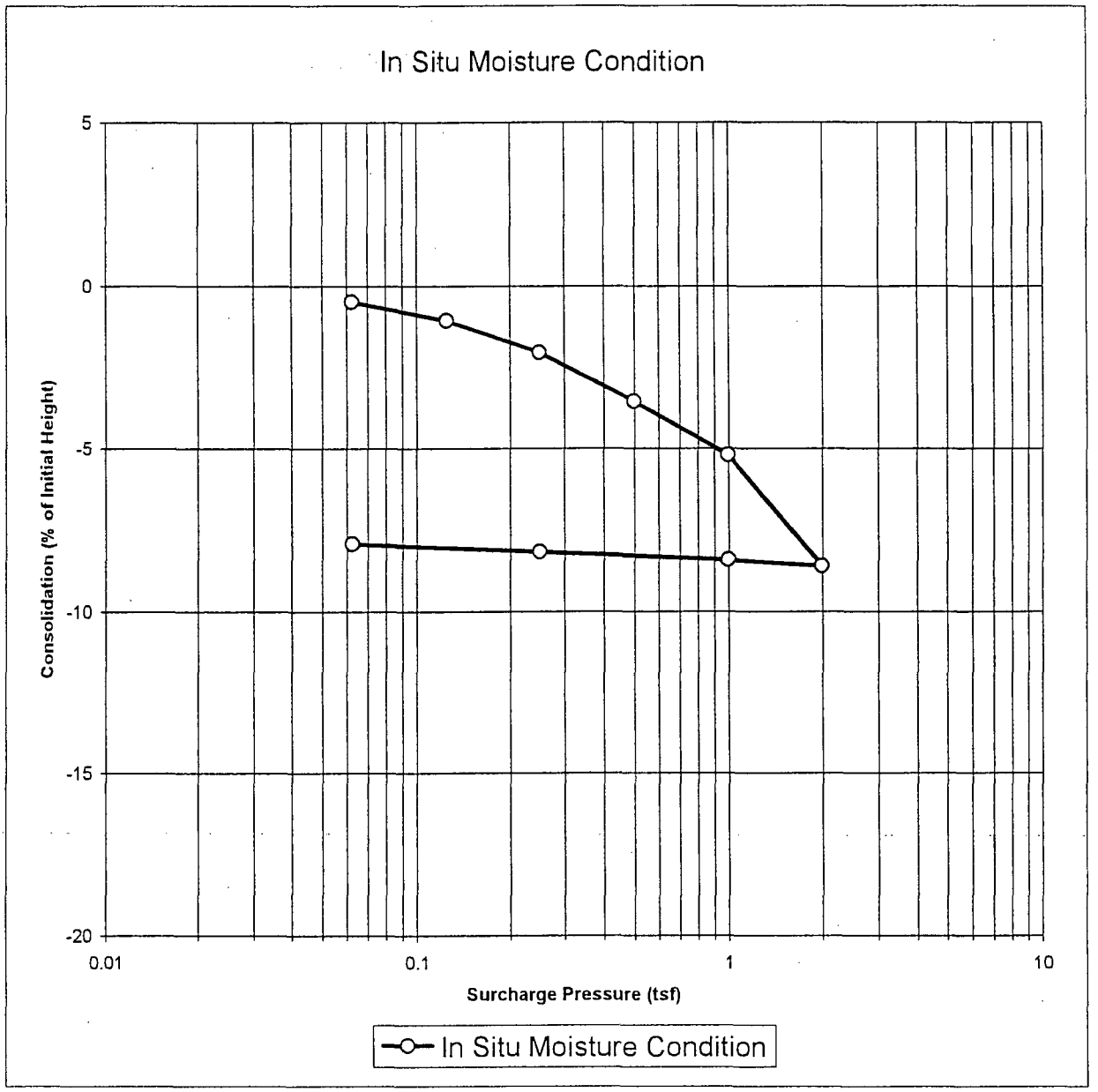
Distribution: Client: ☑ File: ☑ Supplier: ☑ Other: Addressee (2)

AMEC Earth Environmental, Inc.
8519 Jefferson NE
Albuquerque, NM 87113
Tel 5058211801
Fax 5058217371
www.amec.com

PROJECT:	Evaporation Pond Sediment	**JOB NO:**	3-519-002701
CLIENT:	Rio Algom Mining, LLC	**WORK ORDER NO:**	6
MATERIAL:	Pond 14, Bucket 2	**LAB NO:**	4-1310-05D
SAMPLE SOURCE:	Composite Mix: 75% by Volume, Berm Soil	**DATE SAMPLED:**	
SAMPLE PREP.:	Remolded to near 90% D698 Proctor maximum	**SAMPLED BY:**	Client

MEASUREMENT OF COLLAPSE POTENTIAL OF SOILS (ASTM D5333)

INITIAL VOLUME (cu.in)	4.60	FINAL VOLUME (cu.in)	4.26
INITIAL MOISTURE CONTENT	14.9%	FINAL MOISTURE CONTENT	14.7%
INITIAL DRY DENSITY(pcf)	99.9	FINAL DRY DENSITY(pcf)	107.4
INITIAL DEGREE OF SATURATION	60%	FINAL DEGREE OF SATURATION	72%
INITIAL VOID RATIO	0.7	FINAL VOID RATIO	0.5
ESTIMATED SPECIFIC GRAVITY	2.651	SATURATED AT	Not Saturated



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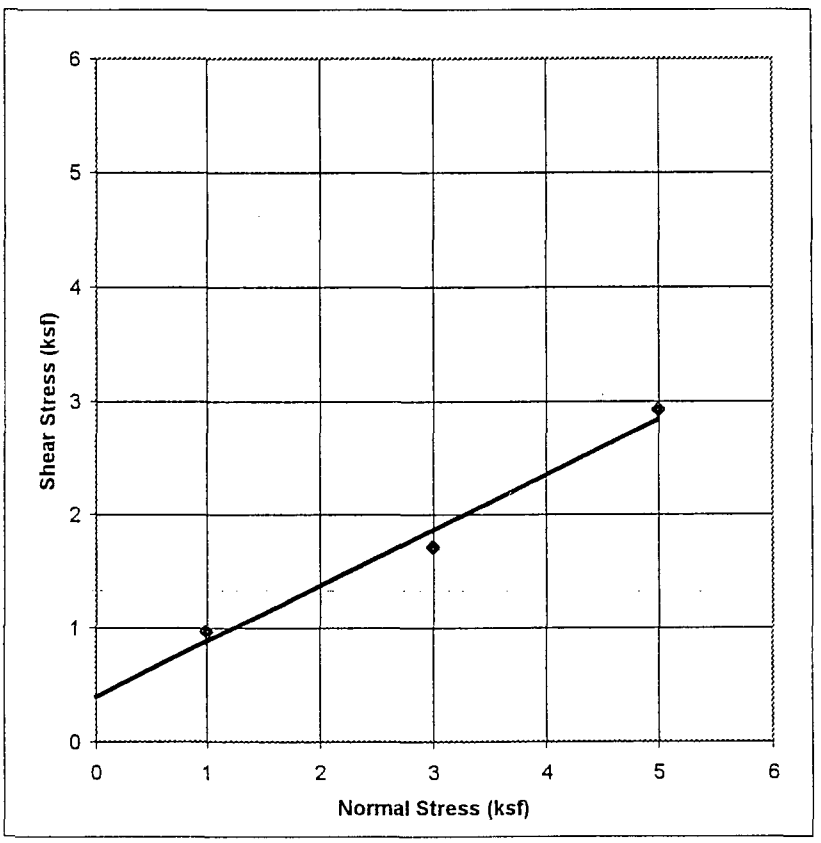
8519 Jefferson NE
Albuquerque, NM 87113
Tel (505) 821-1801

PROJECT:	*Evaporation Pond Sediment Testing*		
CLIENT:	Rio Algom Mining, LLC	**PROJECT NO:**	4-519-002701
MATERIAL:	Pond 14, Bucket 2	**LAB NO:**	4-1310-05D
SAMPLE SOURCE:	Composite Mix: 75% by Volume, Berm Soil	**DATE SAMPLED:**	
SAMPLE PREPARATION:	Remolded to near 90% D698 maximum near optimum moisture	**Reviewed By:**	

DIRECT SHEAR TEST OF SOILS UNDER CONSOLIDATED DRAINED CONDITIONS(ASTM D3080)

Initial thickness of specimen (in):	1.00		
Initial diameter of specimen (in):	2.42		
Shearing device used:	Geomatic Direct Shear Apparatus, Model 8914		
Rate of displacement (in/min):	0.006		
Direct shear point:	1	2	3
Dry mass of specimen (g):	117.7	118.6	119.7
Initial Moisture Content:	16.3%	15.4%	15.1%
Initial Wet Density (lb/ft^3):	113.7	113.7	114.4
Initial Dry Density (lb/ft^3):	97.8	98.5	99.4
Final Moisture Content (g/g):	15.6%	14.7%	14.4%
Final Wet Density (lb/ft^3):	113.6	120.4	122.4
Final Dry Density (lb/ft^3):	98.3	104.9	107.0
Normal Stress (kips/ft^2):	1.00	3.00	5.00
Maximum Shearing Stress (kips/ft^2):	1.0	1.7	2.9
Vertical Deformation @ Max Shear (in):	0.014	-0.005	-0.012
Horizontal Deformation @ Max Shear (in):	0.226	0.240	0.240
Internal Friction Angle ϕ	26.1°		
Cohesion (kips/ft^2)	0.3930		

Notes:



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Direct Shear Consolidation Information
Pond 14 Bucket 2 composite with 75% berm soil

1000 psf		3000 psf		5000 psf	
Time (min)	Displacement	Time (min)	Displacement	Time (min)	Displacement
0	0	0	0	0	0
0.1	-0.004825	0.1	-0.037	0.1	-0.0516
0.25	-0.005775	0.25	-0.0384	0.25	-0.0552
0.5	-0.006425	0.5	-0.0397	0.5	-0.0562
1	-0.007225	1.5	-0.0419	1	-0.0576
2.5	-0.008875	2	-0.0424	2	-0.059
4	-0.009025	4	-0.0439	4	-0.0602
8	-0.010125	8	-0.0452	8	-0.0621
15	-0.011125	15	-0.0466	15	-0.0635
30	-0.012425	31	-0.0482	30	-0.0651
60	-0.013425	60	-0.0497	115	-0.067
895	-0.017025	893	-0.0553	889	-0.073
				954	-0.0732
				1020	-0.0733

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Client: Rio Algom Mining, LLC.
PO Box 218
Grants, NM 87020-

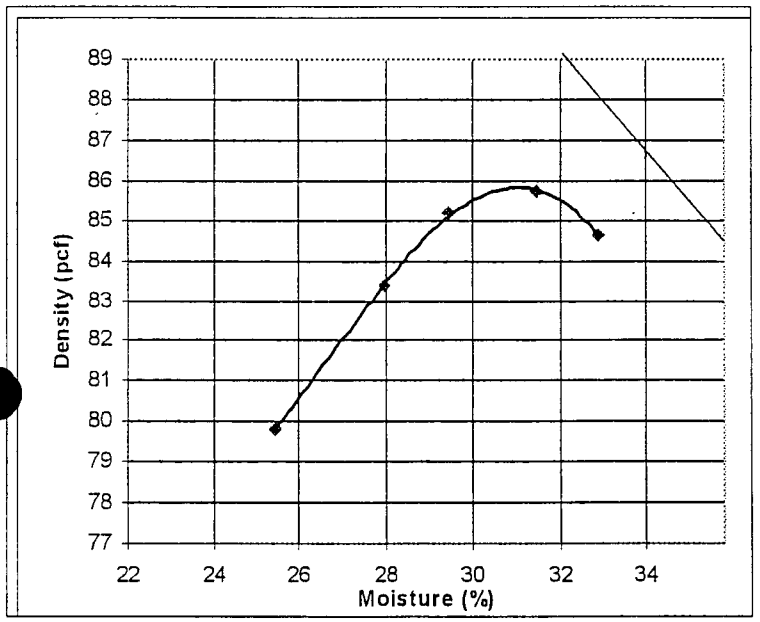
Attn: John McBee

Project Name: Evaporation Pond Sediment Testing

Report Date: November 30, 2004

Project #: 3-519-002701
Work Order #: 6
Lab #: 4-1310-03A
Sampled By: Client
Date Sampled:
Visual Description of Material: Pond 11, Bucket 1 & 2
Sample Source: Composite Mix 10% By volume, Berm soil

SOILS / AGGREGATES



Sieve Analaysis (ASTM C117/C136)

Sieve Size	Passing	Specifications Min	Specifications Max
1/4in.	100%		
#4	100%		
#8	100%		
#10	99%		
#16	99%		
#30	98%		
#40	98%		
#50	95%		
#100	78%		
#200	61%		

Moisture Density Relationship: (ASTM D1557) **Method:** A
Preparation Method: Dry **Rammer Type:** Mechanical
Specific Gravity: 2.651 **Assumed**
Maximum Density: 86.0
Optimum Moisture: 31.0

Plasticity Index (ASTM D4318)
Liquid Limit: 26
Plastic Limit: 23
Plasticity Index: 3
Preperation Method: Dry **Liquid Limit Method:** A
Soil Clasification (ASTM D2487) ML

Reviewed By: HG

Distribution: **Client:** ☑ **File:** ☑ **Supplier:** ☑ **Other:** Addressee (2)

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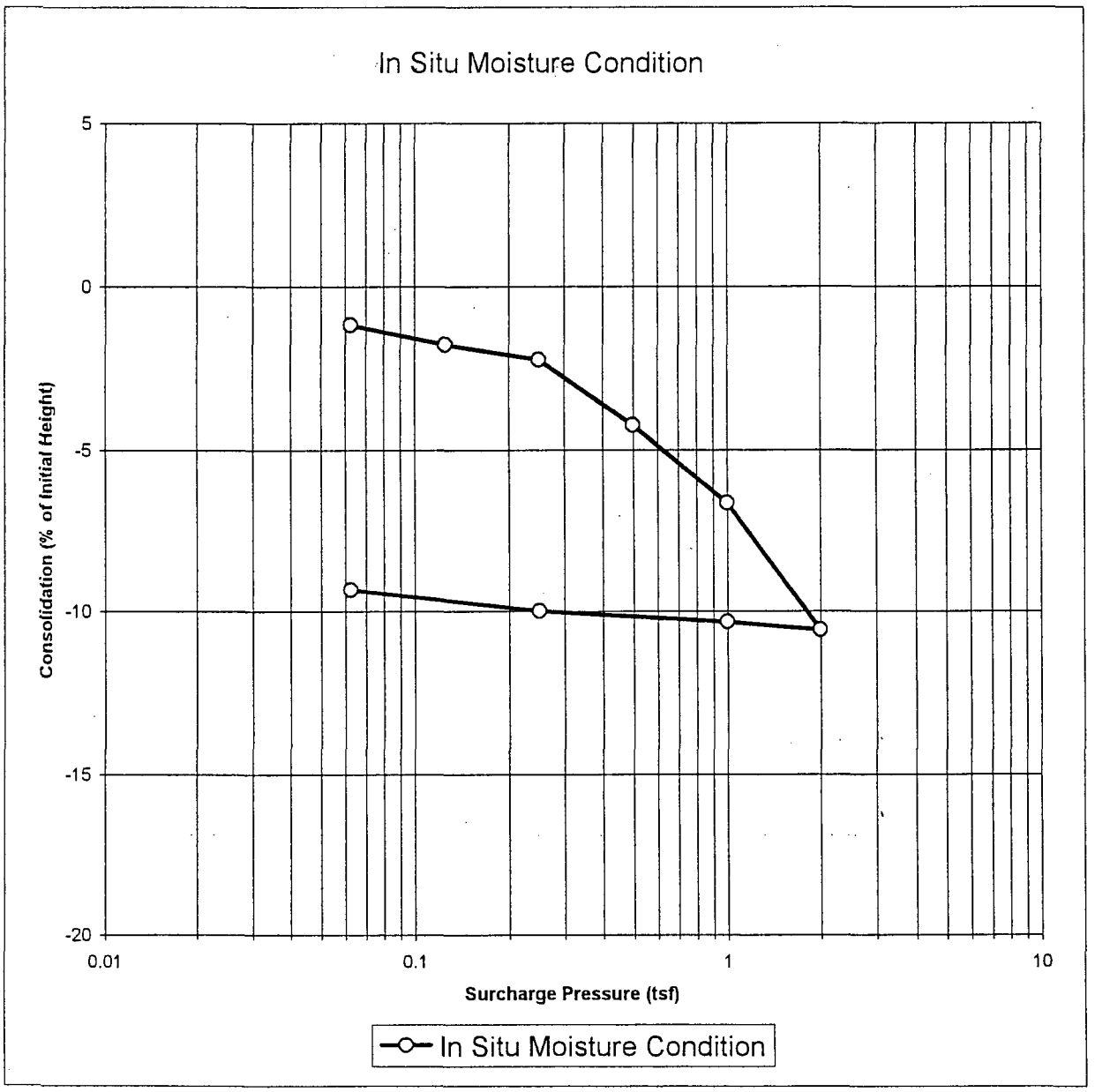
PROJECT:	Evaporation Pond Sediment Testing	**JOB NO:**	3-519-002701
CLIENT:	Rio Algom	**WORK ORDER NO:**	6
MATERIAL:	Pond 11, Buckets 1 & 2 Composite	**LAB NO:**	4-1310-03A
SAMPLE SOURCE:	Composite Mix 10% by Volume Berm Soil	**DATE SAMPLED:**	
SAMPLE PREP.:	Remolded to near 90% D698 Proctor maximum	**SAMPLED BY:**	Client

MEASUREMENT OF COLLAPSE POTENTIAL OF SOILS (ASTM D5333)

INITIAL VOLUME (cu.in)	4.60	FINAL VOLUME (cu.in)	4.23
INITIAL MOISTURE CONTENT	31.5%	FINAL MOISTURE CONTENT	32.2%
INITIAL DRY DENSITY(pcf)	77.1	FINAL DRY DENSITY(pcf)	83.6
INITIAL DEGREE OF SATURATION	73%	FINAL DEGREE OF SATURATION	87%
INITIAL VOID RATIO	1.2	FINAL VOID RATIO	1.0
ESTIMATED SPECIFIC GRAVITY	2.651	SATURATED AT	Not Saturated



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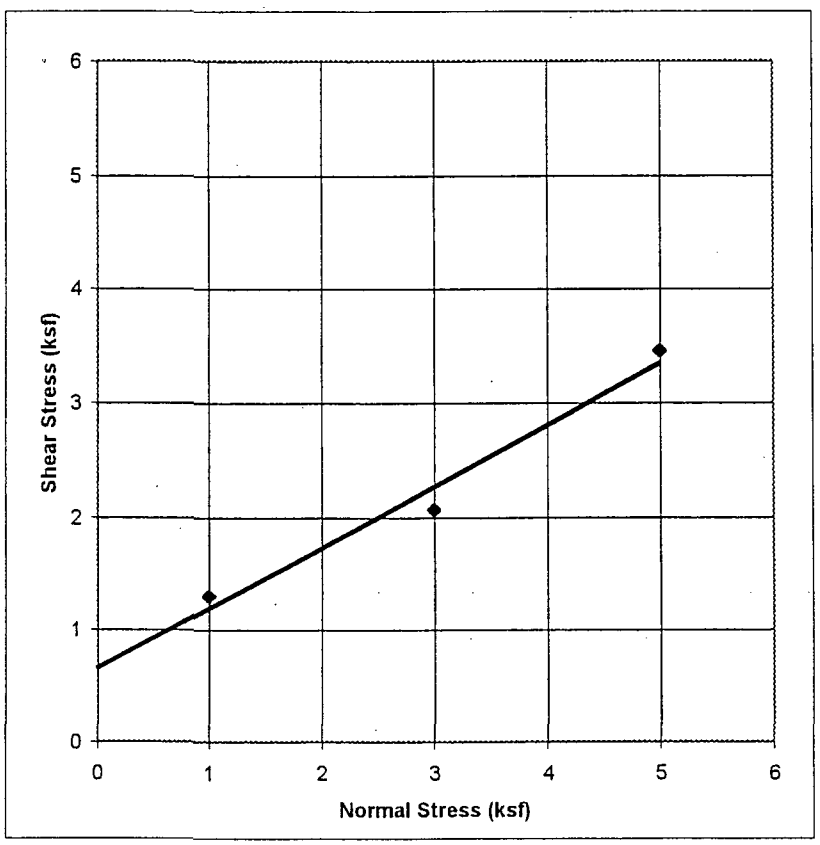
PROJECT:	Evaporation Pond Sediment Testing		
CLIENT:	Rio Algom LLC	**PROJECT NO:**	4-519-002701
MATERIAL:	Pond sludge and 10% berm soil by volume	**LAB NO:**	4-1310-03A
SAMPLE SOURCE:	Pond 11 Composite	**DATE SAMPLED:**	10/10/04
SAMPLE PREPARATION:	Remolded to near 90% D698 maximum near optimum moisture	**Reviewed By:**	

DIRECT SHEAR TEST OF SOILS UNDER CONSOLIDATED DRAINED CONDITIONS(ASTM D3080)

Initial thickness of specimen (in):	1.00		
Initial diameter of specimen (in):	2.42		
Shearing device used:	Geomatic Direct Shear Apparatus, Model 8914		
Rate of displacement (in/min):	0.008		
Direct shear point:	1	2	3
Dry mass of specimen (g):	92.8	93.1	92.3
Initial Moisture Content:	31.0%	31.1%	32.0%
Initial Wet Density (lb/ft^3):	101.0	101.4	101.3
Initial Dry Density (lb/ft^3):	77.1	77.3	76.7
Final Moisture Content (g/g):	30.2%	30.1%	29.6%
Final Wet Density (lb/ft^3):	101.2	107.3	108.2
Final Dry Density (lb/ft^3):	77.7	82.5	83.4
Normal Stress (kips/ft^2):	1.00	3.00	5.00
Maximum Shearing Stress (kips/ft^2):	1.3	2.1	3.5
Vertical Deformation @ Max Shear (in):	0.021	0.014	0.004
Horizontal Deformation @ Max Shear (in):	0.124	0.148	0.248
Internal Friction Angle ϕ	28.3°		
Cohesion (kips/ft^2)	0.6545		

Notes:



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Direct Shear Consolidation Information
Pond 11 composite with 10% berm soil

1000 psf		3000 psf		5000 psf	
Time (min)	Displacement	Time (min)	Displacement	Time (min)	Displacement
0	0	0	0	0	0
0.1	-0.006475	0.1	-0.0269	0.1	-0.0652
0.25	-0.007725	0.25	-0.0307	0.25	-0.0725
0.5	-0.008475	0.5	-0.0336	0.5	-0.0772
1	0.026825	1	-0.0371	1	-0.0832
2	-0.010825	2	-0.0408	2	-0.0883
4	-0.012125	4	-0.0449	4	-0.0942
8	-0.013575	8	-0.0491	8	-0.0999
15	-0.015025	15	-0.0542	15	-0.1049
30	-0.016625	30	-0.0572	30	-0.1097
60	-0.018125	60	-0.0612	60	-0.1141
120	-0.019475	120	-0.065	116	-0.118
266	-0.020575	264	-0.0677	259	-0.121
1120	-0.023175	1118	-0.0748	1114	-0.1295
				1178	-0.13

PROJECT: Evaporation Pond Sediment Testing
CLIENT: Rio Algom Mining, LLC
MATERIAL: Pond Sludge Samples

JOB NO: 3-519-002701
WORK ORDER NO: 6
DATE SAMPLED:
SAMPLED BY: Client

Reviewed By:

Moisture and Density of Virgin Sludge Samples

LAB NO.	SAMPLE SOURCE	Moisture (%)	Wet Density (pcf)	Dry Density (pcf)
4-1310-01	Pond 11, Bucket 1	59.1	113.8	71.5
4-1310-02	Pond 11, Bucket 2	99.8	105.7	52.9
4-1310-04A	Pond 14, Bucket 1	126.3	100.8	44.5
4-1310-05A	Pond 14, Bucket 2	120.2	107.8	49.0

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Albuquerque, NM 87113
Phone: (505) 821-1801

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Client: Rio Algom Mining, LLC.
PO Box 218
Grants, NM 87020-

Attn: Bill Ferdinand

Project Name: Evaporation Pond Sediment Testing

Report Date: March 09, 2004

Project #: 3-519-002701
Work Order #: 2
Sampled By:
Date Sampled: 03/02/2004

SOILS / AGGREGATES

Lab #	Color & Type of Material	Sample Source	Wet Weight (g)	Dry Weight (g)	Moisture (%)	Dry Density (pcf)
4-0236-01	Sample 1	Pond 11 - DRY	118.4	84.4	40.3%	
4-0236-02	Sample 2	13/14 Berm	120.8	113.3	6.6%	
4-0236-03	Sample 3	Pond 13 - DRY	100.6	51.0	97.3%	
4-0236-04	Sample 4	Pond 15	123.2	79.8	54.4%	
4-0236-05	Sample 5	15/16 Berm (1)	89.1	74.6	19.4%	
4-0236-06	Sample 6	15/16 Berm (2)	121.8	104.2	16.9%	
4-0236-07	Sample 7	Pond 18 (1)	99.1	51.2	93.6%	
4-0236-08	Sample 8	Pond 18 (2)	112.2	80.3	39.7%	
4-0236-09	Sample 9	20 Berm	129.5	116.9	10.8%	
4-0236-10	Sample 10	20 Berm NE	120.0	109.0	10.1%	
4-0236-11	Sample 11	Pond 21 - DRY	116.7	75.4	54.8%	
4-0236-12	Sample 12	21 Berm (w)	124.5	111.2	12.0%	

Reviewed By:_____

Distribution: Client: ☑ File: ☑ Supplier: ☑ Other: Addressee (2)

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Client: Rio Algom Mining, LLC.
PO Box 218
Grants, NM 87020-

Attention: Bill Ferdinand

Project Name: Evaporation Pond Sediment Testing

Report Date: March 09, 2004

Project #: 3-519-002701
Work Order #: 2
Sampled By:
Date Sampled: 03/02/2004

Sieve Analaysis (ASTM C117/C136)
Plasticity Index (ASTM D4318)
Soil Classification (ASTM D2487)

SOILS / AGGREGATES

Sample Location	Soil Class.	L.L.	P.I.	#200	#100	#50	#40	#30	#16	#10	#8	#4	1/4"	3/8"	1/2"	3/4'	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	6"	12"	Lab Number
13/14 Berm				39	71		99			100															4-0236-02
15/16 Berm (1)				63	83		99			100															4-0236-05
15/16 Berm (2)				53	79		98			100															4-0236-06
20 Berm				40	69		99			100															4-0236-09
20 Berm NE				46	76		99			100															4-0236-10
21 Berm (w)				56	78		97			100															4-0236-12

Reviewed By:_____

Distribution: Client: ☑ File: ☑ Supplier: ☑ Other: Addressee (2)

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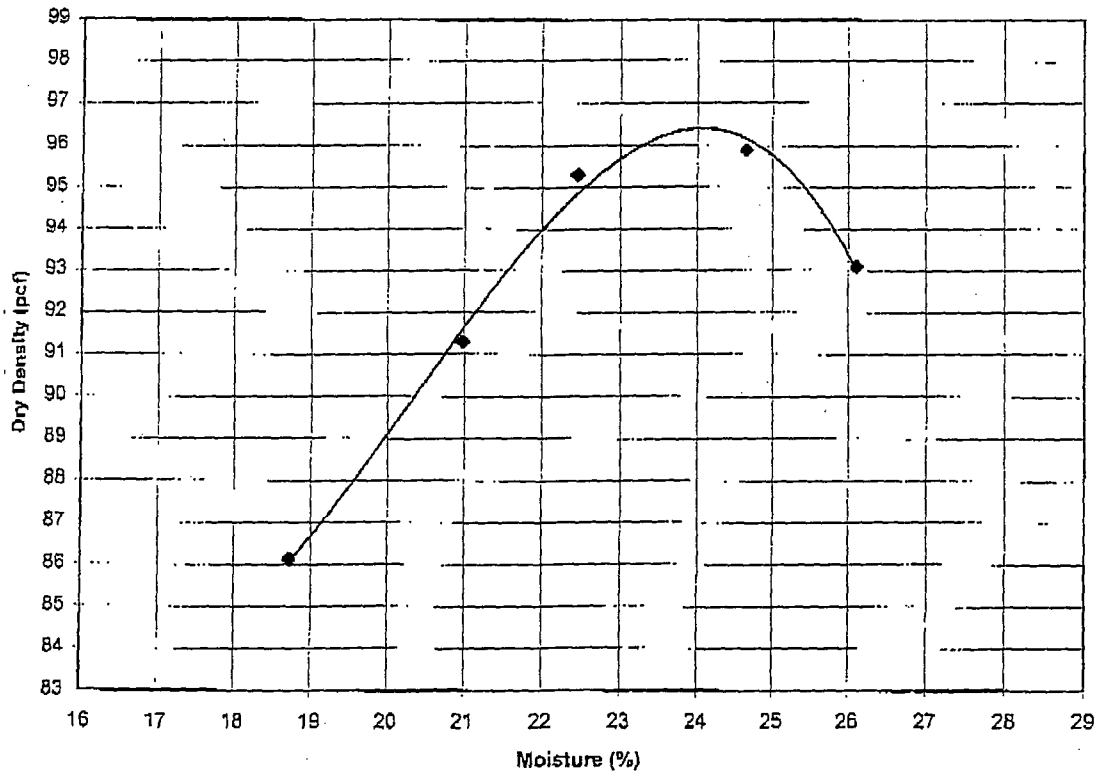
PROJECT:	Evaporation Pond Sediment	JOB NO:	3-519-002701
CLIENT:	Rio Algom	WORK ORDER NO:	
COLOR/TYPE MATERIAL:	Mixture of 1 Part Pond 21 to 1.2 Parts Berm 20 Soil	LAB NO:	4-0297-08
SAMPLE SOURCE:	Mixture of 1 Part Pond 21 to 1.2 Parts Berm 20 Soil	SAMPLED BY:	Client
		DATE SAMPLED:	

LABORATORY COMPACTION CHARACTERISTICS OF SOILS USING STANDARD EFFORTS (12,400ft-lb-ft/cu.ft) (ASTMD698A)

Type of Rammer: Manual



Point No:	#1	#2	#3	#4	#5
Dry Density(lbs/ft3):	86.1	91.3	95.3	95.9	93.1
Moisture Content (%):	18.7	21.0	22.5	24.7	26.1

MAXIMUM DRY DENSITY (pcf):	96.4
OPTIMUM MOISTURE (%):	24.1

NOTE: THE ZERO AIR VOIDS CURVE REPRESENTS A SPECIFIC GRAVITY OF: 2.651 ASSUMED.

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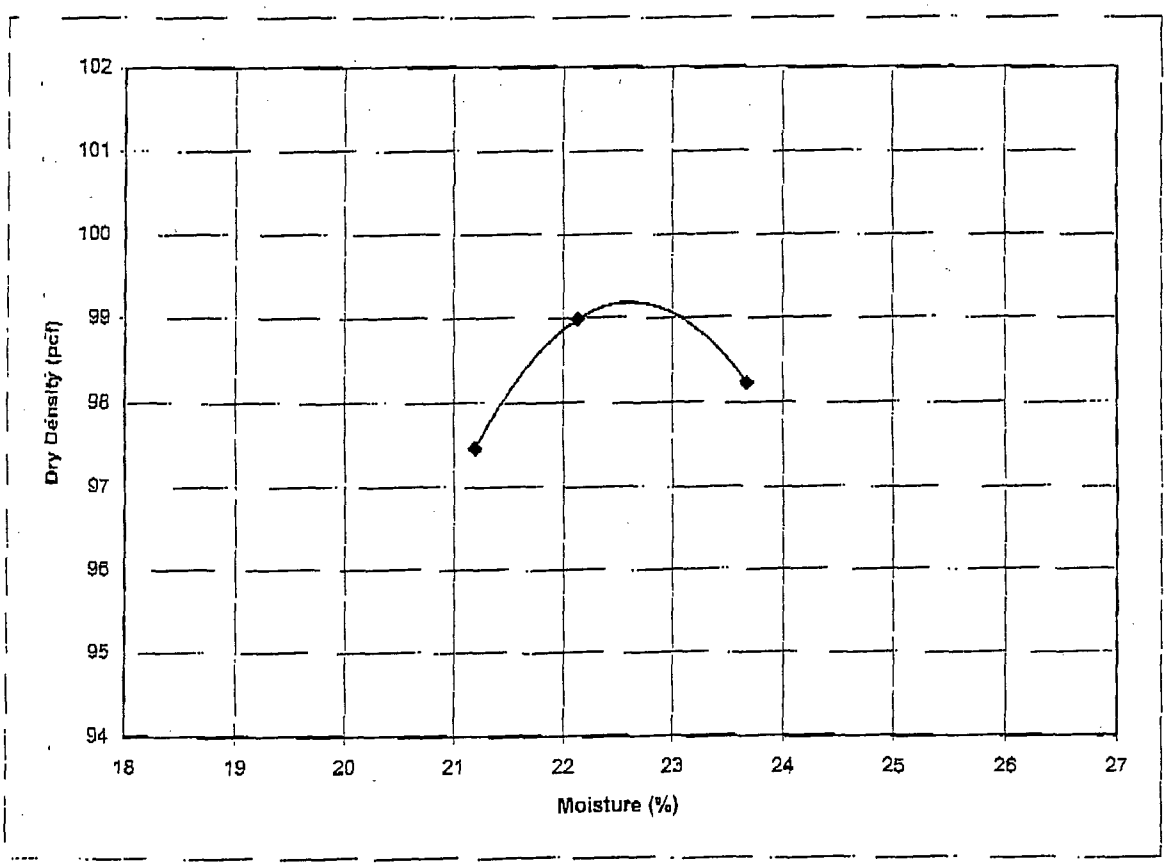
Reviewed By: _____

PROJECT:	Evaporation Pond Sediment	**JOB NO:**	3-519-002701
CLIENT:	Rio Algom	**WORK ORDER NO:**	
COLOR/TYPE MATERIAL:	Mixture of 1 Part Pond 21 to 1.7 Parts Berm 20 Soil	**LAB NO:**	4-0298-07
SAMPLE SOURCE:	Mixture of 1 Part Pond 21 to 1.7 Parts Berm 20 Soil	**SAMPLED BY:**	Client
		DATE SAMPLED:	

LABORATORY COMPACTION CHARACTERISTICS OF SOILS USING STANDARD EFFORTS (12,400ft-lb-ft/cu.ft) (ASTMD698A)

Type of Rammer: Manual



Point No:	#1	#2	#3	#4	
Dry Density(lbs/ft3):	96.1	97.5	99.0	98.2	
Moisture Content (%):	18.4	21.2	22.1	23.7	

MAXIMUM DRY DENSITY (pcf):	99.4
OPTIMUM MOISTURE (%):	22.8

NOTE: THE ZERO AIR VOIDS CURVE REPRESENTS A SPECIFIC GRAVITY OF: 2.651 ASSUMED.

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8519 Jefferson NW
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Reviewed By: _____

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Client: Rio Algom Mining, LLC.
PO Box 218
Grants, NM 87020-

Attn: Bill Ferdinand

Project Name: Evaporation Pond Sediment Testing

Report Date: March 09, 2004

Project #: 3-519-002701
Work Order #: 2
Sampled By:
Date Sampled: 03/02/2004

SOILS / AGGREGATES

Lab #	Color & Type of Material	Sample Source	Wet Weight (g)	Dry Weight (g)	Moisture (%)	Dry Density (pcf)
4-0236-01	Sample 1	Pond 11	118.4	84.4	40.3%	
4-0236-02	Sample 2	13/14 Berm	120.8	113.3	6.6%	
4-0236-03	Sample 3	Pond 13	100.6	51.0	97.3%	
4-0236-04	Sample 4	Pond 15	123.2	79.8	54.4%	
4-0236-05	Sample 5	15/16 Berm (1)	89.1	74.6	19.4%	
4-0236-06	Sample 6	15/16 Berm (2)	121.8	104.2	16.9%	
4-0236-07	Sample 7	Pond 18 (1)	99.1	51.2	93.6%	
4-0236-08	Sample 8	Pond 18 (2)	112.2	80.3	39.7%	
4-0236-09	Sample 9	20 Berm	129.5	116.9	10.8%	
4-0236-10	Sample 10	20 Berm NE	120.0	109.0	10.1%	
4-0236-11	Sample 11	Pond 21	116.7	75.4	54.8%	
4-0236-12	Sample 12	21 Berm (w)	124.5	111.2	12.0%	

Reviewed By:_____

Distribution: **Client:** ☑ **File:** ☑ **Supplier:** ☑ **Other:** Addressee (2)

AMEC Earth Environmental, Inc.
8519 Jefferson NE
Albuquerque, NM 87113
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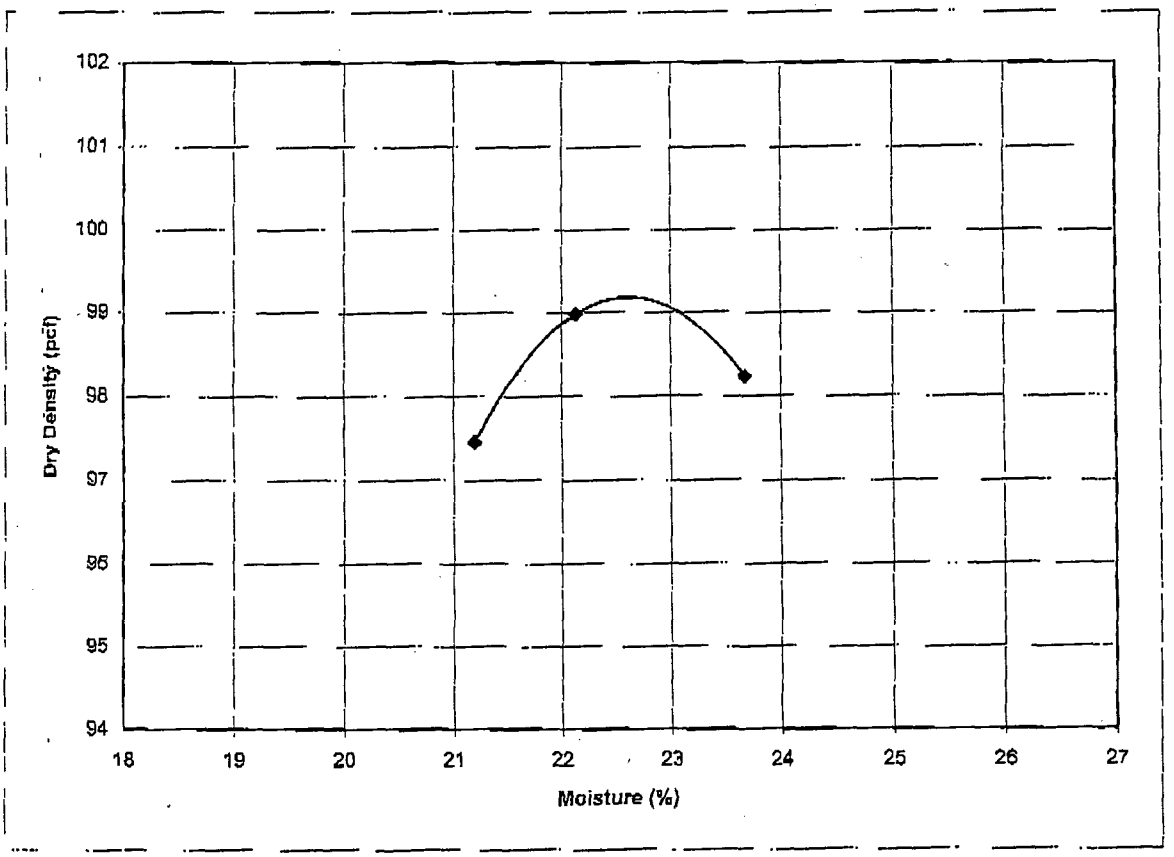
PROJECT:	Evaporation Pond Sediment	**JOB NO:**	3-519-002701
CLIENT:	Rio Algom	**WORK ORDER NO:**	
COLOR/TYPE MATERIAL:	Mixture of 1 Part Pond 21 to 1.7 Parts Berm 20 Soil	**LAB NO:**	4-0298-07
SAMPLE SOURCE:	Mixture of 1 Part Pond 21 to 1.7 Parts Berm 20 Soil	**SAMPLED BY:**	Client
		DATE SAMPLED:	

LABORATORY COMPACTION CHARACTERISTICS OF SOILS USING STANDARD EFFORTS (12,400ft-lb-ft/cu.ft) (ASTMD698A)

Type of Rammer: Manual



Point No:	#1	#2	#3	#4	
Dry Density(lbs/ft3):	96.1	97.5	99.0	98.2	
Moisture Content (%):	18.4	21.2	22.1	23.7	

MAXIMUM DRY DENSITY (pcf):	99.4
OPTIMUM MOISTURE (%):	22.8

NOTE: THE ZERO AIR VOIDS CURVE REPRESENTS A SPECIFIC GRAVITY OF: 2.651 ASSUMED.

Reviewed By: _____

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Albuquerque, NM 87113
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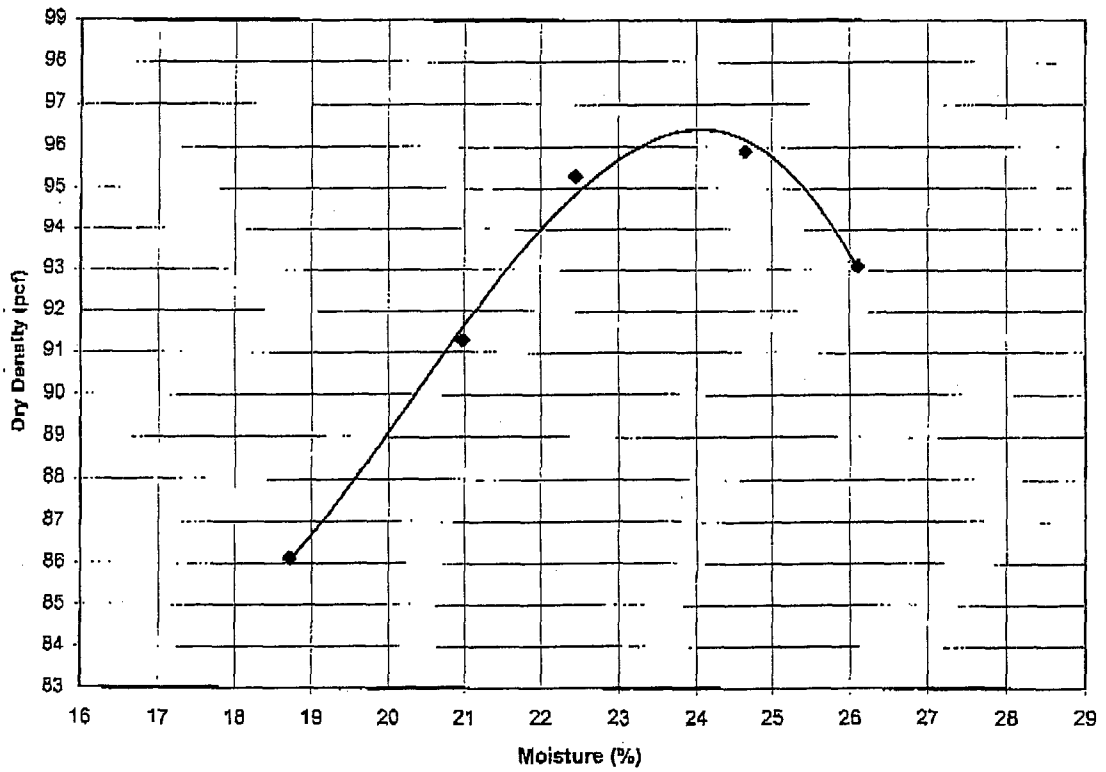
PROJECT:	Evaporation Pond Sediment	**JOB NO:**	3-519-002701
CLIENT:	Rio Algom	**WORK ORDER NO:**	
COLOR/TYPE MATERIAL:	Mixture of 1 Part Pond 21 to 1.2 Parts Berm 20 Soil	**LAB NO:**	4-0297-08
SAMPLE SOURCE:	Mixture of 1 Part Pond 21 to 1.2 Parts Berm 20 Soil	**SAMPLED BY:**	Client
		DATE SAMPLED:	

LABORATORY COMPACTION CHARACTERISTICS OF SOILS USING STANDARD EFFORTS (12,400ft-lb-ft/cu.ft) (ASTMD698A)

Type of Rammer: Manual



Point No:	#1	#2	#3	#4	#5
Dry Density(lbs/ft3):	86.1	91.3	95.3	95.9	93.1
Moisture Content (%):	18.7	21.0	22.5	24.7	26.1

MAXIMUM DRY DENSITY (pcf):	96.4
OPTIMUM MOISTURE (%):	24.1

NOTE: THE ZERO AIR VOIDS CURVE REPRESENTS A SPECIFIC GRAVITY OF: 2.651 ASSUMED.

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Sample	Wet density (pcf)	Moisture (%)	Dry Density (pcf)
18 Gel	98.4	187.9	34.2
Pond 21 Combo	111.5	70.5	65.4
Pond 21 Mixture	112.4	84.1	61.1

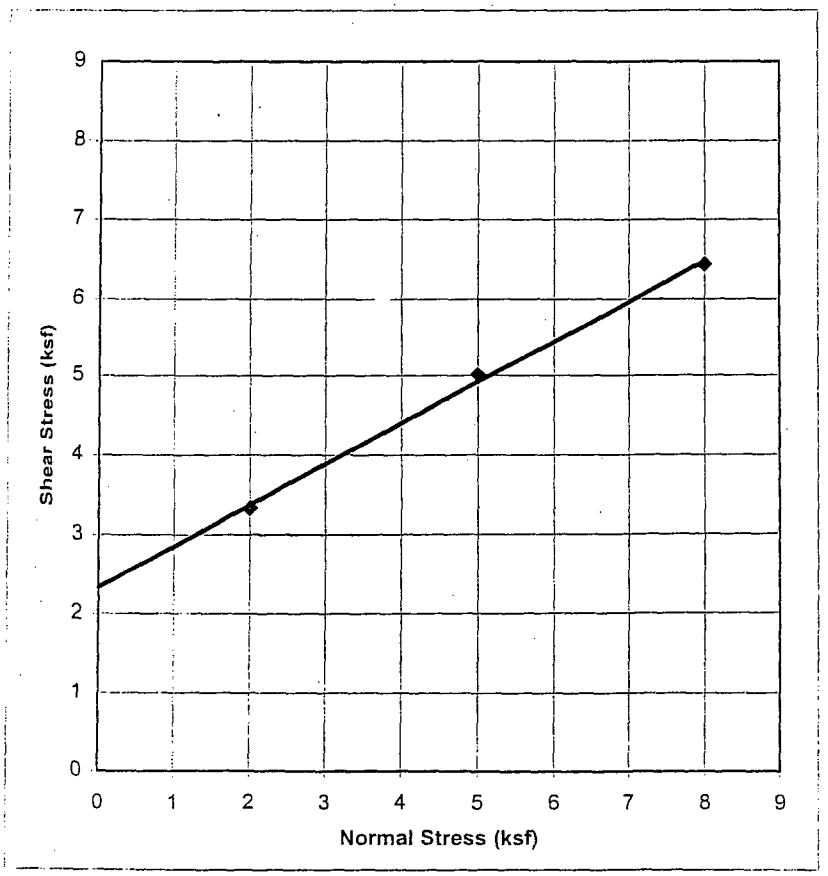
PROJECT:	Evaporation Pond Sediment Testing		
LOCATION:	Grants, NM	PROJECT NO:	3-519-002701
MATERIAL:	Berm Backfill	LAB NO:	4-0236-10A
SAMPLE SOURCE:	20 Berm NE	DATE SAMPLED:	03/04/04
SAMPLE PREPARATION:	Remolded to 95% of client-specified density		

Reviewed By: _____

DIRECT SHEAR TEST OF SOILS UNDER CONSOLIDATED DRAINED CONDITIONS(ASTM D3080)

Initial thickness of specimen (in):	1.00		
Initial diameter of specimen (in):	2.42		
Shearing device used:	Geomatic Direct Shear Apparatus, Model 8914		
Rate of displacement (in/min):	0.008		
Direct shear point:	1	2	3
Dry mass of specimen (g):	164.4	145.4	144.9
Initial Moisture Content:	10.6%	10.6%	10.6%
Initial Wet Density (lb/ft^3):	127.2	126.8	126.5
Initial Dry Density (lb/ft^3):	115.0	114.6	114.5
Final Moisture Content (g/g):	10.2%	10.6%	10.2%
Final Wet Density (lb/ft^3):	124.6	126.8	128.0
Final Dry Density (lb/ft^3):	113.1	114.6	116.2
Normal Stress (kips/ft^2):	2.00	5.00	8.00
Maximum Shearing Stress (kips/ft^2):	3.3	5.0	6.4
Vertical Deformation @ Max Shear (in):	0.020	0.009	0.005
Horizontal Deformation @ Max Shear (in):	0.082	0.090	0.120
Internal Friction Angle ϕ	27.4°		
Cohesion (kips/ft^2)	2.3335		

Notes:



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REPORT of AGGREGATE PHYSICAL PROPERTIES

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Rio Algom Mining LLC.
SUA-1473
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Project: Evaporation Pond Sediment
Client: Rio Algom
Material Tested: AMRL 5-16-03, 5/0/G/S/G EP.11
Source:
Product Code:
Specifications:

Project No: 3-519-002701
Lab No.: 3-0523-1
Sample Date: 05/23/2003
Report Date: 06/20/2003 Amended:
Reviewed by:

SIEVE ANALYSIS

ASTM C136	AASHTO T27	
Sieve Size	Accum. % Passing	Specifications
375 mm (15")		
300 mm (12")		
250 mm (10")		
225 mm (9")		
200 mm (8")		
150 mm (6")		
125 mm (5")		
100 mm (4")		
75.0 mm (3")		
63.0 mm (2-1/2")		
50.0 mm (2")		
37.5 mm (1-1/2")		
31.5 mm (1-1/4")		
25.0 mm (1")		
19.0 mm (3/4")		
12.5 mm (1/2")		
9.5 mm (3/8")		
6.3 mm (1/4")	100	
4.75mm (No. 4)		
2.36 mm (No. 8)		
2.00 mm (No. 10)	100	
1.18mm (No.16)		
0.600 mm (No.30)		
0.425mm (No. 40)	100	
0.300mm (No. 50)		
0.150mm (No.100)	100	
0.075mm (No. 200)	98	
ASTM C117 / AASHTO T11		
Soil Classification	CL-ML	
Moisture Content, % ASTM C566 AASHTO T255		
Fractured Face, % 2 faces		
Fineness Modulus ASTM C136 AASHTO T27		

TEST RESULTS

Standard	PHYSICAL PROPERTIES		Results	Specification
ASTM C 29 AASHTO T 19	Unit Weight & Voids	Unit Weight, lbs./cu.ft=		
		Voids, %=		
		☐ Jigged ☐ Loose ☑ Rodded		
ASTM C 127 AASHTO T 85	Coarse Specific Gravity & Absorption	Bulk Specific Gravity (dry)=		
		Bulk Specific Gravity, SSD=		
		Apparent Specific Gravity=		
		Absorption, %=		
ASTM C 128 AASHTO T 84	Fine Specific Gravity & Absorption	Bulk Specific Gravity (dry)=		
		Bulk Specific Gravity, SSD=		
		Apparent Specific Gravity=		
		Absorption, %=		
ASTM D 2419 AASHTO T 176	Sand Equivalent	Sand Equivalent, %=		
ASTM D 4791	Flat & Elongated	Flat & Elongated, %=		
		Ratio=		
ASTM C 131 AASHTO T 96	L. A. Abrasion	Small Coarse Loss, %=		
		Grading/ Revs.=		
ASTM C 535	L. A. Abrasion	Large Coarse Loss, %=		
		Grading/ Revs.=		
ASTM C 88 AASHTO T 104	Soundness	Coarse Soundness Loss, %=		
		Magnesium No. of Cycles=		
	Soundness	Fine Soundness Loss, %=		
		Magnesium No. of Cycles=		
ASTM C 142 AASHTO T 112	Clay/Friable Particles	Coarse Aggregate, %=		
		Fine Aggregate, %=		
ASTM 2974 AASHTO T267	Organic Matter	% Organic Matter=	18.1	
ASTM C 123 AASHTO T 113	Lightweight Pieces	Coarse Aggregate, %=		
		Fine Aggregate, %=		
ASTM C 1252 AASHTO T 304	Fine Aggregate Angularity	Uncompacted Voids,%=		
		Method C (as received material		
ASTM D698 AASHTO T99	Compaction Standard Efforts	Optimum Moisture, %=	40.3	
		Max. Density, lbs./cu.ft.=	74.2	
ASTM D 4318 AASHTO T 89/90	Liquid Limit, Plastic Limit & Plasticity Index	Liquid Limit=	24	
		Plastic Limit=	20	
		Plasticity Index=	4	

REPORT of AGGREGATE PHYSICAL PROPERTIES

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Rio Algom Mining LLC.
SUA-1473
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Project: Evaporation Pond Sediment
Client: Rio Algom
Material Tested: AMRL 5-16-03, 5/0/G/S/G EP-13
Source:
Product Code:
Specifications:

Project No: 3-519-002701
Lab No.: 3-0523-2
Sample Date: 05/23/2003
Report Date: 06/20/2003 Amended:
Reviewed by:

SIEVE ANALYSIS

ASTM C136 AASHTO T27

Sieve Size	Accum. % Passing	Specifications
375 mm (15")		
300 mm (12")		
250 mm (10")		
225 mm (9")		
200 mm (8")		
150 mm (6")		
125 mm (5")		
100 mm (4")		
75.0 mm (3")		
63.0 mm (2-1/2")		
50.0 mm (2")		
37.5 mm (1-1/2")		
31.5 mm (1-1/4")		
25.0 mm (1")		
19.0 mm (3/4")	100	
12.5 mm (1/2")	100	
9.5 mm (3/8")	100	
6.3 mm (1/4")	100	
4.75mm (No. 4)	99	
2.36 mm (No. 8)		
2.00 mm (No. 10)	99	
1.18mm (No.16)		
0.600 mm (No.30)		
0.425mm (No. 40)	99	
0.300mm (No. 50)		
0.150mm (No.100)	91	
0.075mm (No. 200)	85	
ASTM C117 / AASHTO T11 Soil Classification	ML	
Moisture Content, % ASTM C566 AASHTO T255		
Fractured Face, % 2 faces		
Fineness Modulus ASTM C136 AASHTO T27		

TEST RESULTS

Standard	PHYSICAL PROPERTIES		Results	Specification
ASTM C 29 AASHTO T 19	Unit Weight & Voids	Unit Weight, lbs./cu.ft=		
		Voids, %=		
		☐ Jigged ☐ Loose ☑ Rodded		
ASTM C 127 AASHTO T 85	Coarse Specific Gravity & Absorption	Bulk Specific Gravity (dry)=		
		Bulk Specific Gravity, SSD=		
		Apparent Specific Gravity=		
		Absorption, %=		
ASTM C 128 AASHTO T 84	Fine Specific Gravity & Absorption	Bulk Specific Gravity (dry)=		
		Bulk Specific Gravity, SSD=		
		Apparent Specific Gravity=		
		Absorption, %=		
ASTM D 2419 AASHTO T 176	Sand Equivalent	Sand Equivalent, %=		
ASTM D 4791	Flat & Elongated	Flat & Elongated, %=		
		Ratio=		
ASTM C 131 AASHTO T 96	L. A. Abrasion	Small Coarse Loss, %=		
		Grading/ Revs.=		
ASTM C 535	L. A. Abrasion	Large Coarse Loss, %=		
		Grading/ Revs.=		
ASTM C 88 AASHTO T 104	Soundness	Coarse Soundness Loss, %=		
		Magnesium No. of Cycles=		
	Soundness	Fine Soundness Loss, %=		
		Magnesium No. of Cycles=		
ASTM C 142 AASHTO T 112	Clay/Friable Particles	Coarse Aggregate, %=		
		Fine Aggregate, %=		
ASTM 2974 AASHTO T267	Organic Matter	% Organic Matter=	14.0	
ASTM C 123 AASHTO T 113	Lightweight Pieces	Coarse Aggregate, %=		
		Fine Aggregate, %=		
ASTM C 1252 AASHTO T 304	Fine Aggregate Angularity	Uncompacted Voids,%=		
		Method C (as received material		
ASTM D698 AASHTO T99	Compaction Standard Efforts	Optimum Moisture, %=	40.5	
		Max. Density, lbs./cu.ft.=	74.8	
ASTM D 4318 AASHTO T 89/90	Liquid Limit, Plastic Limit & Plasticity Index	Liquid Limit=	NV	
		Plastic Limit=	NV	
		Plasticity Index=	NP	

REPORT of AGGREGATE PHYSICAL PROPERTIES

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Rio Algom Mining LLC.
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Project: Evaporation Pond Sediment
Client: Rio Algom
Material Tested: AMRL 5-16-03, 5/0/G/S/G EP-15
Source:
Product Code:
Specifications:

Project No: 3-519-002701
Lab No.: 3-0523-3
Sample Date: 05/23/2003
Report Date: 06/20/2003 Amended:
Reviewed by:

SIEVE ANALYSIS

ASTM C136 AASHTO T27

Sieve Size	Accum. % Passing	Specifications
375 mm (15")		
300 mm (12")		
250 mm (10")		
225 mm (9")		
200 mm (8")		
150 mm (6")		
125 mm (5")		
100 mm (4")		
75.0 mm (3")		
63.0 mm (2-1/2")		
50.0 mm (2")		
37.5 mm (1-1/2")		
31.5 mm (1-1/4")		
25.0 mm (1")		
19.0 mm (3/4")		
12.5 mm (1/2")		
9.5 mm (3/8")	100	
6.3 mm (1/4")		
4.75mm (No. 4)	100	
2.36 mm (No. 8)		
2.00 mm (No. 10)	99	
1.18mm (No.16)		
0.600 mm (No.30)		
0.425mm (No. 40)	98	
0.300mm (No. 50)		
0.150mm (No.100)	78	
0.075mm (No. 200)	54	
ASTM C117 / AASHTO T11		
Soil Classification	ML	
Moisture Content, % ASTM C566 AASHTO T255		
Fractured Face, % 2 faces		
Fineness Modulus ASTM C136 AASHTO T27		

TEST RESULTS

Standard	PHYSICAL PROPERTIES		Results	Specification
ASTM C 29 AASHTO T 19	Unit Weight & Voids	Unit Weight, lbs./cu.ft=		
		Voids, %=		
		☐ Jigged ☐ Loose ☑ Rodded		
ASTM C 127 AASHTO T 85	Coarse Specific Gravity & Absorption	Bulk Specific Gravity (dry)=		
		Bulk Specific Gravity, SSD=		
		Apparent Specific Gravity=		
		Absorption, %=		
ASTM C 128 AASHTO T 84	Fine Specific Gravity & Absorption	Bulk Specific Gravity (dry)=		
		Bulk Specific Gravity, SSD=		
		Apparent Specific Gravity=		
		Absorption, %=		
ASTM D 2419 AASHTO T 176	Sand Equivalent	Sand Equivalent, %=		
ASTM D 4791	Flat & Elongated	Flat & Elongated, %=		
		Ratio=		
ASTM C 131 AASHTO T 96	L. A. Abrasion	Small Coarse Loss, %=		
		Grading/ Revs.=		
ASTM C 535	L. A. Abrasion	Large Coarse Loss, %=		
		Grading/ Revs.=		
ASTM C 88 AASHTO T 104	Soundness	Coarse Soundness Loss, %=		
		Magnesium No. of Cycles=		
	Soundness	Fine Soundness Loss, %=		
		Magnesium No. of Cycles=		
ASTM C 142 AASHTO T 112	Clay/Friable Particles	Coarse Aggregate, %=		
		Fine Aggregate, %=		
ASTM 2974 AASHTO T267	Organic Matter	% Organic Matter=	6.9	
ASTM C 123 AASHTO T 113	Lightweight Pieces	Coarse Aggregate, %=		
		Fine Aggregate, %=		
ASTM C 1252 AASHTO T 304	Fine Aggregate Angularity	Uncompacted Voids,%=		
		Method C (as received material)		
ASTM D698 AASHTO T99	Compaction Standard Efforts	Optimum Moisture, %=	22.7	
		Max. Density, lbs./cu.ft.=	96.9	
ASTM D 4318 AASHTO T 89/90	Liquid Limit, Plastic Limit & Plasticity Index	Liquid Limit=	27	
		Plastic Limit=	22	
		Plasticity Index=	5	

REPORT of AGGREGATE PHYSICAL PROPERTIES

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Rio Algom Mining LLC.
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Project: Evaporation Pond Sediment
Client: Rio Algom
Material Tested: AMRL 5-16-03, 5/0/G/S/G EP-17
Source:
Product Code:
Specifications:

Project No: 3-519-002701
Lab No.: 3-0523-4
Sample Date: 05/23/2003
Report Date: 06/20/2003 Amended:
Reviewed by:

SIEVE ANALYSIS

ASTM C136	AASHTO T27	
Sieve Size	Accum. % Passing	Specifications
375 mm (15")		
300 mm (12")		
250 mm (10")		
225 mm (9")		
200 mm (8")		
150 mm (6")		
125 mm (5")		
100 mm (4")		
75.0 mm (3")		
63.0 mm (2-1/2")		
50.0 mm (2")		
37.5 mm (1-1/2")		
31.5 mm (1-1/4")		
25.0 mm (1")		
19.0 mm (3/4")		
12.5 mm (1/2")		
9.5 mm (3/8")	100	
6.3 mm (1/4")		
4.75mm (No. 4)	100	
2.36 mm (No. 8)		
2.00 mm (No. 10)	100	
1.18mm (No.16)		
0.600 mm (No.30)		
0.425mm (No. 40)	99	
0.300mm (No. 50)		
0.150mm (No.100)	85	
0.075mm (No. 200)	64	
ASTM C117 / AASHTO T11		
Soil Classification	ML	
Moisture Content, %		
ASTM C566 AASHTO T255		
Fractured Face, %		
2 faces		
Fineness Modulus		
ASTM C136 AASHTO T27		

TEST RESULTS

Standard	PHYSICAL PROPERTIES		Results	Specification
ASTM C 29	Unit Weight	Unit Weight, lbs./cu.ft=		
AASHTO T 19	& Voids	Voids, %=		
		☐ Jigged ☐ Loose ☑ Rodded		
	Coarse	Bulk Specific Gravity (dry)=		
ASTM C 127	Specific	Bulk Specific Gravity, SSD=		
AASHTO T 85	Gravity &	Apparent Specific Gravity=		
	Absorption	Absorption, %=		
	Fine	Bulk Specific Gravity (dry)=		
ASTM C 128	Specific	Bulk Specific Gravity, SSD=		
AASHTO T 84	Gravity &	Apparent Specific Gravity=		
	Absorption	Absorption, %=		
ASTM D 2419	Sand	Sand Equivalent, %=		
AASHTO T 176	Equivalent			
ASTM D 4791	Flat &	Flat & Elongated, %=		
	Elongated	Ratio=		
ASTM C 131	L. A.	Small Coarse Loss, %=		
AASHTO T 96	Abrasion	Grading/ Revs.=		
ASTM C 535	L. A.	Large Coarse Loss, %=		
	Abrasion	Grading/ Revs.=		
	Soundness	Coarse Soundness Loss, %=		
ASTM C 88		Magnesium No. of Cycles=		
AASHTO T 104	Soundness	Fine Soundness Loss, %=		
		Magnesium No. of Cycles=		
ASTM C 142	Clay/Friable	Coarse Aggregate, %=		
AASHTO T 112	Particles	Fine Aggregate, %=		
ASTM 2974	Organic	% Organic Matter=	9.4	
AASHTO T267	Matter			
ASTM C 123	Lightweight	Coarse Aggregate, %=		
AASHTO T 113	Pieces	Fine Aggregate, %=		
ASTM C 1252	Fine Aggregate	Uncompacted Voids,%=		
AASHTO T 304	Angularity	Method C (as received material		
ASTM D698	Compaction	Optimum Moisture, %=	19.4	
AASHTO T99	Standard Efforts	Max. Density, lbs./cu.ft.=	104.0	
ASTM D 4318	Liquid Limit,	Liquid Limit=	23	
AASHTO T 89/90	Plastic Limit &	Plastic Limit=	20	
	Plasticity Index	Plasticity Index=	3	

REPORT of AGGREGATE PHYSICAL PROPERTIES

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Rio Algom Mining LLC.
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Project: Evaporation Pond Sediment
Client: Rio Algom
Material Tested: AMRL 5-16-03, 5/0/G/S/G EP-19
Source:
Product Code:
Specifications:

Project No: 3-519-002701
Lab No.: 3-0523-5
Sample Date: 05/23/2003
Report Date: 06/20/2003 Amended:
Reviewed by:

SIEVE ANALYSIS

ASTM C136	AASHTO T27	
Sieve Size	Accum. % Passing	Specifications
375 mm (15")		
300 mm (12")		
250 mm (10")		
225 mm (9")		
200 mm (8")		
150 mm (6")		
125 mm (5")		
100 mm (4")		
75.0 mm (3")		
63.0 mm (2-1/2")		
50.0 mm (2")		
37.5 mm (1-1/2")		
31.5 mm (1-1/4")		
25.0 mm (1")		
19.0 mm (3/4")		
12.5 mm (1/2")		
9.5 mm (3/8")		
6.3 mm (1/4")		
4.75mm (No. 4)	100	
2.36 mm (No. 8)		
2.00 mm (No. 10)	100	
1.18mm (No.16)		
0.600 mm (No.30)		
0.425mm (No. 40)	99	
0.300mm (No. 50)		
0.150mm (No.100)	79	
0.075mm (No. 200)	55	
ASTM C117 / AASHTO T11		
Soil Classification	ML	
Moisture Content, %		
ASTM C566 AASHTO T255		
Fractured Face, %		
2 faces		
Fineness Modulus		
ASTM C136 AASHTO T27		

TEST RESULTS

Standard	PHYSICAL PROPERTIES		Results	Specification
ASTM C 29	Unit Weight	Unit Weight, lbs./cu.ft=		
AASHTO T 19	& Voids	Voids, %=		
		☐ Jigged ☐ Loose ☑ Rodded		
	Coarse	Bulk Specific Gravity (dry)=		
ASTM C 127	Specific	Bulk Specific Gravity, SSD=		
AASHTO T 85	Gravity &	Apparent Specific Gravity=		
	Absorption	Absorption, %=		
	Fine	Bulk Specific Gravity (dry)=		
ASTM C 128	Specific	Bulk Specific Gravity, SSD=		
AASHTO T 84	Gravity &	Apparent Specific Gravity=		
	Absorption	Absorption, %=		
ASTM D 2419	Sand	Sand Equivalent, %=		
AASHTO T 176	Equivalent			
ASTM D 4791	Flat &	Flat & Elongated, %=		
	Elongated	Ratio=		
ASTM C 131	L. A.	Small Coarse Loss, %=		
AASHTO T 96	Abrasion	Grading/ Revs.=		
ASTM C 535	L. A.	Large Coarse Loss, %=		
	Abrasion	Grading/ Revs.=		
	Soundness	Coarse Soundness Loss, %=		
ASTM C 88		Magnesium No. of Cycles=		
AASHTO T 104	Soundness	Fine Soundness Loss, %=		
		Magnesium No. of Cycles=		
ASTM C 142	Clay/Friable	Coarse Aggregate, %=		
AASHTO T 112	Particles	Fine Aggregate, %=		
ASTM 2974	Organic	% Organic Matter=	5.5	
AASHTO T267	Matter			
ASTM C 123	Lightweight	Coarse Aggregate, %=		
AASHTO T 113	Pieces	Fine Aggregate, %=		
ASTM C 1252	Fine Aggregate	Uncompacted Voids,%=		
AASHTO T 304	Angularity	Method C (as received material		
ASTM D698	Compaction	Optimum Moisture, %=	19.7	
AASHTO T99	Standard Efforts	Max. Density, lbs./cu.ft.=	104.1	
ASTM D 4318	Liquid Limit,	Liquid Limit=	NV	
AASHTO T 89/90	Plastic Limit &	Plastic Limit=	NV	
	Plasticity Index	Plasticity Index=	NP	

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Rio Algom Mining LLC.
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PROJECT:	Evaporation Pond Sediment	JOB NO:	3-519-0027(
CLIENT:	Rio Algom	WORK ORDER NO:	
MATERIAL:		LAB NO:	3-0523-1
SAMPLE SOURCE:	AMRL 5-16-03, 5/0/6/3/9 EP.11	SAMPLED BY:	Client
		DATE SAMPLED:	

PARTICLE-SIZE ANALYSIS OF SOILS (ASTM D422)

WEIGHT OF SAMPLE DISPERSEI	46.20	SPECIFIC GRAVITY OF SOILS (ASTM D854)	3.21
PERCENT PASSING #10 SIEVE	100.0		

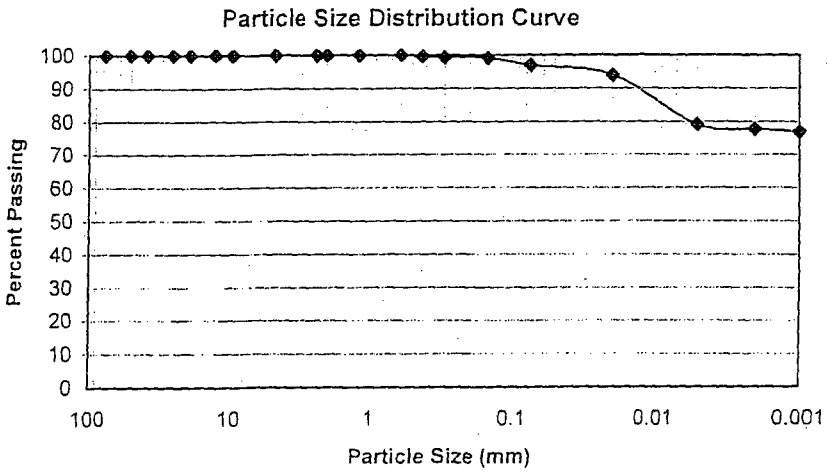
HYDROMETER RESULTS (% PASSING)

PARTICLE SIZE (DIA. mm)	0.0223	0.0144	0.0088	0.0062	0.0044	0.0032	0.0022	0.0009
PERCENT SAMPLE TESTED	95.1	91.3	79.7	79.7	78.8	77.8	77.8	76.9
PERCENT TOTAL SAMPLE	95.1	91.3	79.7	79.7	78.8	77.8	77.8	76.9

SIEVE ANALYSIS (AASHTO T27/T11) (% PASSING)

Size Classification	Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt	Clay	Colloids
Percent	0.0	0.0	0.6	5.4	16.3	77.7	76.9

3"	100.0
2"	100.0
1 1/2"	100.0
1"	100.0
3/4"	100.0
1/2"	100.0
3/8"	100.0
#4	100.0
#8	100.0
#10	100.0
#16	100.0
#30	100.0
#40	99.6
#50	99.4
#100	99.1
#200	97.0
0.02 mm	94.0
0.005 mm	79.1
0.002 mm	77.7
0.001 mm	76.9



PROJECT:	Evaporation Pond Sediment	JOB NO:	3-519-002701
CLIENT:	Rio Algom	WORK ORDER NO:	
MATERIAL:		LAB NO:	3-0523-2
SAMPLE SOURCE:	AMRL 5-16-03, 5/0/6/3/9 EP-13	SAMPLED BY:	Client
		DATE SAMPLED:	

PARTICLE-SIZE ANALYSIS OF SOILS (ASTM D422)

WEIGHT OF SAMPLE DISPERSEI	50.00	SPECIFIC GRAVITY OF SOILS (ASTM D854)	3.08
PERCENT PASSING #10 SIEVE	100.0		

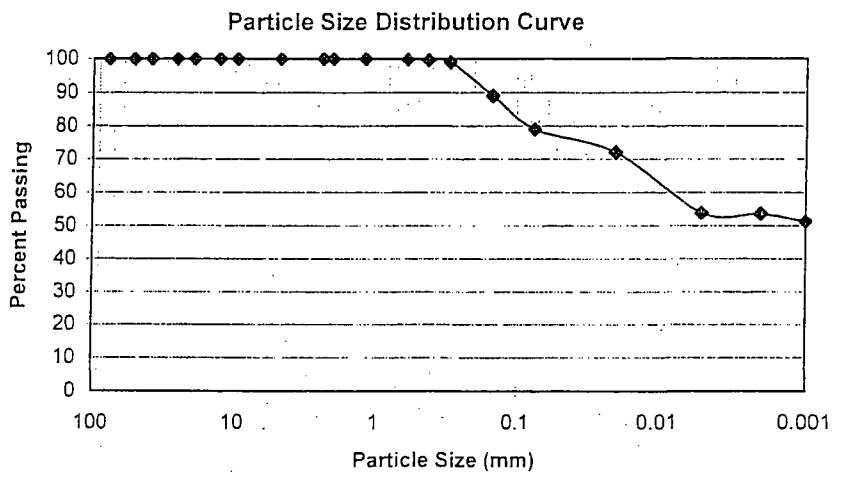
HYDROMETER RESULTS (% PASSING)

PARTICLE SIZE (DIA. mm)	0.0248	0.0164	0.0099	0.0071	0.0050	0.0036	0.0025	0.0010
PERCENT SAMPLE TESTED	76.8	68.5	58.5	56.7	53.9	53.9	53.9	53.0
PERCENT TOTAL SAMPLE	76.8	68.5	58.5	56.7	53.9	53.9	53.9	53.0

SIEVE ANALYSIS (AASHTO T27/T11) (% PASSING)

3"	100.0
2"	100.0
1 1/2"	100.0
1"	100.0
3/4"	100.0
1/2"	100.0
3/8"	100.0
#4	100.0
#8	100.0
#10	100.0
#16	100.0
#30	99.8
#40	99.6
#50	99.0
#100	89.0
#200	79.0
0.02 mm	72.1
0.005 mm	53.9
0.002 mm	53.6
0.001 mm	51.3

Size Classification	Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt	Clay	Colloids
Percent	0.0	0.0	1.0	26.9	18.5	53.6	51.3



AMEC Earth Environmental, Inc.
8519 Jefferson NW
Albuquerque, NM 87113

Rio Algom Mining LLC.
SUA-1473
Docket 40-8905

PROJECT:	Evaporation Pond Sediment	JOB NO:	3-519-002701
CLIENT:	Rio Algom	WORK ORDER NO:	
MATERIAL:		LAB NO:	3-0523-3
SAMPLE SOURCE:	AMRL 5-16-03, 5/0/6/3/9 EP-15	SAMPLED BY:	Client
		DATE SAMPLED:	

PARTICLE-SIZE ANALYSIS OF SOILS (ASTM D422)

WEIGHT OF SAMPLE DISPERSEI	56.97	SPECIFIC GRAVITY OF SOILS (ASTM D854)	2.78
PERCENT PASSING #10 SIEVE	100.0		

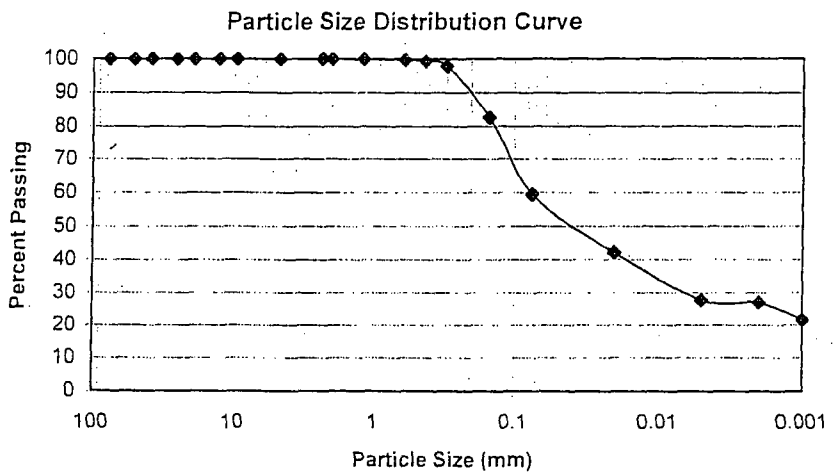
HYDROMETER RESULTS (% PASSING)

PARTICLE SIZE (DIA. mm)	0.0301	0.0196	0.0119	0.0084	0.0060	0.0042	0.0029	0.0012
PERCENT SAMPLE TESTED	48.8	41.9	29.9	29.1	28.2	27.4	27.4	26.5
PERCENT TOTAL SAMPLE	48.8	41.9	29.9	29.1	28.2	27.4	27.4	26.5

SIEVE ANALYSIS (AASHTO T27/T11) (% PASSING)

3"	100.0
2"	100.0
1 1/2"	100.0
1"	100.0
3/4"	100.0
1/2"	100.0
3/8"	100.0
#4	100.0
#8	100.0
#10	100.0
#16	99.9
#30	99.7
#40	99.3
#50	97.8
#100	82.6
#200	59.5
0.02 mm	42.2
0.005 mm	27.8
0.002 mm	26.9
0.001 mm	21.6

Size Classification	Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt	Clay	Colloids
Percent	0.0	0.1	2.1	55.7	15.3	26.9	21.6



AMEC Earth Environmental, Inc.
8519 Jefferson NW
Albuquerque, NM 87113
Phone. (505) 821-1801

Rio Algom Mining LLC.
SUA-1473
Docket 40-8905

PROJECT:	Evaporation Pond Sediment	JOB NO:	3-519-002701
CLIENT:	Rio Algom	WORK ORDER NO:	
MATERIAL:		LAB NO:	3-0523-4
SAMPLE SOURCE:	AMRL 5-16-03, 5/0/6/3/9 EP-17	SAMPLED BY:	Client
		DATE SAMPLED:	

PARTICLE-SIZE ANALYSIS OF SOILS (ASTM D422)

WEIGHT OF SAMPLE DISPERSED	56.70	SPECIFIC GRAVITY OF SOILS (ASTM D854)	2.91
PERCENT PASSING #10 SIEVE	100.0		

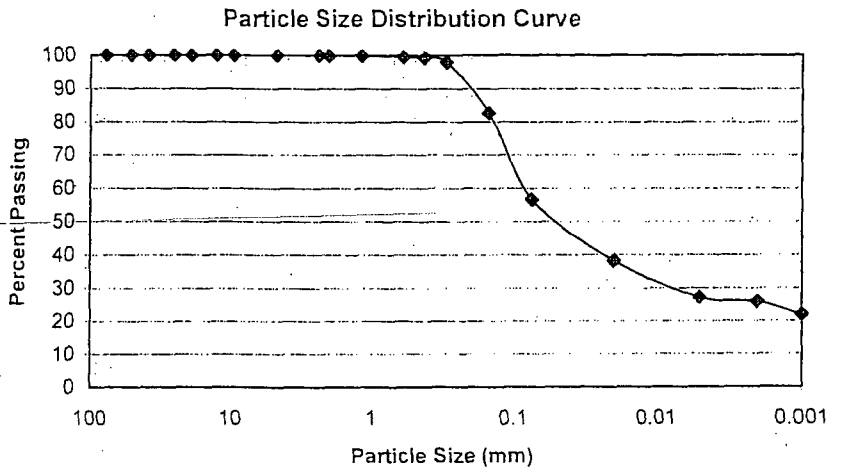
HYDROMETER RESULTS (% PASSING)

PARTICLE SIZE (DIA. mm)	0.0293	0.0192	0.0115	0.0081	0.0058	0.0041	0.0028	0.0012
PERCENT SAMPLE TESTED	46.0	37.6	29.3	28.4	27.6	26.7	25.9	25.9
PERCENT TOTAL SAMPLE	46.0	37.6	29.2	28.4	27.6	26.7	25.9	25.9

Size Classification	Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt	Clay	Colloids
Percent	0.0	0.1	1.9	59.7	12.4	25.9	21.8

SIEVE ANALYSIS (AASHTO T27/T11) (% PASSING)

3"	100.0
2"	100.0
1 1/2"	100.0
1"	100.0
3/4"	100.0
1/2"	100.0
3/8"	100.0
#4	100.0
#8	100.0
#10	100.0
#16	99.9
#30	99.5
#40	99.2
#50	98.0
#100	82.7
#200	56.7
0.02 mm	38.3
0.005 mm	27.2
0.002 mm	25.9
0.001 mm	21.8



Rio Algom Mining LLC.
SUA-1473
Docket 40-8905

AMEC Earth Environmental, Inc.
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Phone: (505) 821-1801

PROJECT:	Evaporation Pond Sediment	JOB NO:	3-519-002701
CLIENT:	Rio Algom	WORK ORDER NO:	
MATERIAL:		LAB NO:	3-0523-5
SAMPLE SOURCE:	AMRL 5-16-03, 5/0/6/3/9 EP-19	SAMPLED BY:	Client
		DATE SAMPLED:	

PARTICLE-SIZE ANALYSIS OF SOILS (ASTM D422)

WEIGHT OF SAMPLE DISPERSED	52.62	SPECIFIC GRAVITY OF SOILS (ASTM D854)	2.83
PERCENT PASSING #10 SIEVE	100.0		

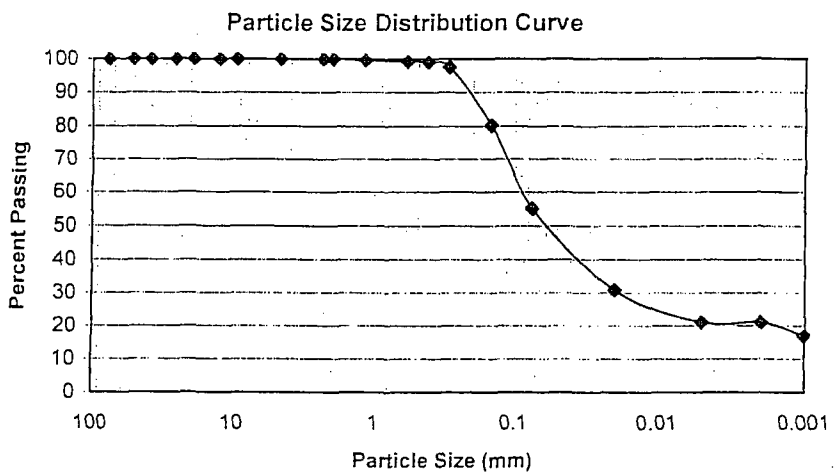
HYDROMETER RESULTS (% PASSING)

PARTICLE SIZE (DIA. mm)	0.0307	0.0204	0.0121	0.0086	0.0061	0.0043	0.0030	0.0012
PERCENT SAMPLE TESTED	44.0	31.2	23.8	21.1	21.1	21.1	21.1	21.1
PERCENT TOTAL SAMPLE	44.0	31.2	23.8	21.1	21.1	21.1	21.1	21.1

SIEVE ANALYSIS (AASHTO T27/T11) (% PASSING)

3"	100.0
2"	100.0
1 1/2"	100.0
1"	100.0
3/4"	100.0
1/2"	100.0
3/8"	100.0
#4	100.0
#8	100.0
#10	100.0
#16	99.6
#30	99.2
#40	99.0
#50	97.5
#100	80.2
#200	55.1
0.02 mm	30.8
0.005 mm	21.1
0.002 mm	21.1
0.001 mm	17.0

Size Classification	Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt	Clay	Colloids
Percent	0.0	0.4	2.1	66.7	9.8	21.1	17.0



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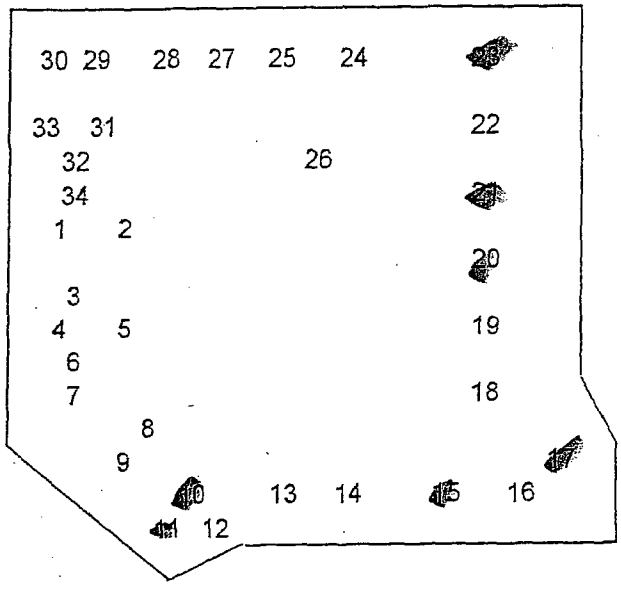
Phone: (505) 821-1801

Pond 9 Sediment Volume

Sample Point	Depth of Sediment (inches)
1	24
2	24
3	18
4	10
5	8
6	27
7	20
8	23
9	32
10	43
11	48
12	36
13	36
14	37
15	63
16	17
17	64
18	34
19	25
20	49
21	44
22	36
23	45
24	31
25	15
26	10
27	25
28	24
29	30
30	27
31	30
32	35
33	18
34	20
Average	30.2

Pond 9
Sample Locations (not to scale)



Area of Pond (acres)	24.44
Average Depth (ft)	2.5
Volume A (yd3)	99348
Volume B (yd3)	81780

Notes:

Sediment depths only obtained along shoreline (within 50 feet of edge)
Depths do not include water above the sediment (assume evaporation will remove)
Shallow measurements correspond to points where liner has raised up within pond (whales)
Volume A is based on staright average depth
Volume B is based on average depth excluding values above 40 inches (excludes 7 of 34 samples)

REPORT of AGGREGATE PHYSICAL PROPERTIES

amec

Project: Evaporation Pond Sediment Testing
Client: Rio Algom Mining, LLC.
Material Tested: Sediment
Source: P1
Product Code:
Specifications:

Project No: 3-519-002701
Lab No.: 4-0101
Sample Date: 10/31/2003
Report Date: 02/17/2004 Amended:
Reviewed by:

SIEVE ANALYSIS

ASTM C136 AASHTO T27

Sieve Size	Accum. % Passing	Specifications
300 mm (12")		
250 mm (10")		
225 mm (9")		
200 mm (8")		
150 mm (6")		
125 mm (5")		
100 mm (4")		
75.0 mm (3")		
63.0 mm (2-1/2")		
50.0 mm (2")		
37.5 mm (1-1/2")		
31.5 mm (1-1/4")		
25.0 mm (1")		
19.0 mm (3/4")		
12.5 mm (1/2")		
9.5 mm (3/8")		
6.3 mm (1/4")		
4.75mm (No. 4)		
2.36 mm (No. 8)		
2.00 mm (No. 10)	100	
1.18mm (No.16)	99	
0.600 mm (No.30)	98	
0.425mm (No. 40)	97	
0.300mm (No. 50)	94	
0.180mm (No. 80)		
0.150mm (No.100)	88	
0.075mm (No. 200)	77	
ASTM C117 / AASHTO T11		
Soil Classification	MH	
Moisture Content, %		
ASTM C566 AASHTO T255		
Fract. 1 Face, %		
Fract. 2 Face, %		
Fineness Modulus		
ASTM C136 AASHTO T27		

TEST RESULTS

Standard	PHYSICAL PROPERTIES		Results	Specification
ASTM C 29	Unit Weight	Unit Weight, lbs./cu.ft=		
AASHTO T 19	& Voids	Voids, %=		
		☐ Jigged ☐ Loose ☑ Rodded		
	Coarse	Bulk Specific Gravity (dry)=		
ASTM C 127	Specific	Bulk Specific Gravity, SSD=		
AASHTO T 85	Gravity &	Apparent Specific Gravity=		
	Absorption	Absorption, %=		
	Fine	Bulk Specific Gravity (dry)=		
ASTM C 128	Specific	Bulk Specific Gravity, SSD=		
AASHTO T 84	Gravity &	Apparent Specific Gravity=		
	Absorption	Absorption, %=		
ASTM D 2419	Sand	Sand Equivalent, %=		
AASHTO T 176	Equivalent			
ASTM D 4791	Flat &	Flat & Elongated, %=		
	Elongated	Ratio=		
ASTM C 131	L. A.	Small Coarse Loss, %=		
AASHTO T 96	Abrasion	Grading/ Revs.=		
ASTM C 535	L. A.	Large Coarse Loss, %=		
	Abrasion	Grading/ Revs.=		
	Soundness	Coarse Soundness Loss, %=		
ASTM C 88		Magnesium No. of Cycles=		
AASHTO T 104	Soundness	Fine Soundness Loss, %=		
		Magnesium No. of Cycles=		
ASTM C 142	Clay/Friable	Coarse Aggregate, %=		
AASHTO T 112	Particles	Fine Aggregate, %=		
ASTM 2974	Organic	Organic Matter % =	6.7	
AASHTO T267	Matter	Ash Content % =:	93.3	
ASTM C 123	Lightweight	Coarse Aggregate, %=		
AASHTO T 113	Pieces	Fine Aggregate, %=		
ASTM C 1252	Fine Aggregate	Uncompacted Voids,%=		
AASHTO T 304	Angularity	Method C (as received material		
ASTM D698	Compaction	Optimum Moisture, %=	30.3	
AASHTO T99	Standard Efforts	Max. Density, lbs./cu.ft.=	89.2	
ASTM D 4318	Liquid Limit,	Liquid Limit=	50	
AASHTO T 89/90	Plastic Limit &	Plastic Limit=	29	
	Plasticity Index	Plasticity Index=	21	

PROJECT:	Evaporation Pond Sediment Testing	JOB NO:	3-519-002701
CLIENT:	Rio Algom Mining, LLC.	WORK ORDER NO:	1
MATERIAL:	Sediment	LAB NO:	4-0101
SAMPLE SOURCE:	P1	SAMPLED BY:	Client
		DATE SAMPLED:	10/31/2003

PARTICLE-SIZE ANALYSIS OF SOILS (ASTM D422)

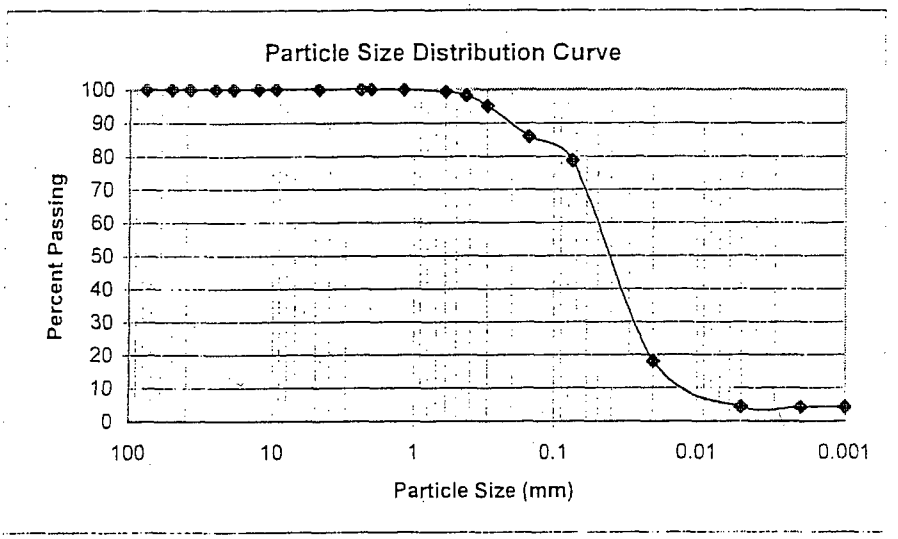
WEIGHT OF SAMPLE DISPERSED	56.43	SPECIFIC GRAVITY OF SOILS (ASTM D854)	2.83
PERCENT PASSING #10 SIEVE	100.0		

HYDROMETER RESULTS (% PASSING)

PARTICLE SIZE DIAMETER (mm)	0.0291	0.0209	0.0126	0.0089	0.0063	0.0031	0.0013	0.0009
PERCENT OF TEST SAMPLE	50.4	19.7	7.7	6.0	4.3	4.3	4.3	4.3
PERCENT OF TOTAL SAMPLE	50.4	19.7	7.7	6.0	4.3	4.3	4.3	4.3

Size Classification	Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt	Clay	Colloids
Percent	0.0	0.1	4.8	77.1	13.8	4.3	4.3

SIEVE ANALYSIS (AASHTO T27/T11) (% PASSING)	
3"	100.0
2"	100.0
1 1/2"	100.0
1"	100.0
3/4"	100.0
1/2"	100.0
3/8"	100.0
#4	100.0
#8	100.0
#10	100.0
#16	99.9
#30	99.3
#40	98.2
#50	95.2
#100	85.9
#200	78.7
0.02 mm	18.1
0.005 mm	4.3
0.002 mm	4.3
0.001 mm	4.3



AMEC Earth Environmental, Inc.
8519 Jefferson NW
Albuquerque, NM 87113

REPORT of AGGREGATE PHYSICAL PROPERTIES

amec

Project:	Evaporation Pond Sediment Testing	Project No:	3-519-002701
Client:	Rio Algom Mining, LLC.	Lab No.:	4-0102
Material Tested:	Sediment	Sample Date:	10/31/2003
Source:	P2	Report Date:	02/17/2004 Amended:
Product Code:			
Specifications:		Reviewed by:	

SIEVE ANALYSIS

ASTM C136 AASHTO T27

Sieve Size	Accum. % Passing	Specifications
300 mm (12")		
250 mm (10")		
225 mm (9")		
200 mm (8")		
150 mm (6")		
125 mm (5")		
100 mm (4")		
75.0 mm (3")		
63.0 mm (2-1/2")		
50.0 mm (2")		
37.5 mm (1-1/2")		
31.5 mm (1-1/4")		
25.0 mm (1")		
19.0 mm (3/4")		
12.5 mm (1/2")		
9.5 mm (3/8")		
6.3 mm (1/4")		
4.75mm (No. 4)		
2.36 mm (No. 8)		
2.00 mm (No. 10)		
1.18mm (No.16)	100	
0.600 mm (No.30)	99	
0.425mm (No. 40)	99	
0.300mm (No. 50)	96	
0.180mm (No. 80)		
0.150mm (No.100)	83	
0.075mm (No. 200)	65	
ASTM C117 / AASHTO T11		
Soil Classification	CL	
Moisture Content, %		
ASTM C566 AASHTO T255		
Fract. 1 Face, %		
Fract. 2 Face, %		
Fineness Modulus		
ASTM C136 AASHTO T27		

TEST RESULTS

Standard	PHYSICAL PROPERTIES		Results	Specification
ASTM C 29	Unit Weight	Unit Weight, lbs./cu.ft=		
AASHTO T 19	& Voids	Voids, %=		
		☐ Jigged ☐ Loose ☑ Rodded		
	Coarse	Bulk Specific Gravity (dry)=		
ASTM C 127	Specific	Bulk Specific Gravity, SSD=		
AASHTO T 85	Gravity &	Apparent Specific Gravity=		
	Absorption	Absorption, %=		
	Fine	Bulk Specific Gravity (dry)=		
ASTM C 128	Specific	Bulk Specific Gravity, SSD=		
AASHTO T 84	Gravity &	Apparent Specific Gravity=		
	Absorption	Absorption, %=		
ASTM D 2419	Sand	Sand Equivalent, %=		
AASHTO T 176	Equivalent			
ASTM D 4791	Flat &	Flat & Elongated, %=		
	Elongated	Ratio=		
ASTM C 131	L. A.	Small Coarse Loss, %=		
AASHTO T 96	Abrasion	Grading/ Revs.=		
ASTM C 535	L. A.	Large Coarse Loss, %=		
	Abrasion	Grading/ Revs.=		
	Soundness	Coarse Soundness Loss, %=		
ASTM C 88		Magnesium No. of Cycles=		
AASHTO T 104	Soundness	Fine Soundness Loss, %=		
		Magnesium No. of Cycles=		
ASTM C 142	Clay/Friable	Coarse Aggregate, %=		
AASHTO T 112	Particles	Fine Aggregate, %=		
ASTM 2974	Organic	Organic Matter % =	6.5	
AASHTO T267	Matter	Ash Content % =:	93.5	
ASTM C 123	Lightweight	Coarse Aggregate, %=		
AASHTO T 113	Pieces	Fine Aggregate, %=		
ASTM C 1252	Fine Aggregate	Uncompacted Voids,%=		
AASHTO T 304	Angularity	Method C (as received material		
ASTM D698	Compaction	Optimum Moisture, %=	22.0	
AASHTO T99	Standard Efforts	Max. Density, lbs./cu.ft.=	94.6	
ASTM D 4318	Liquid Limit,	Liquid Limit=	35	
AASHTO T 89/90	Plastic Limit &	Plastic Limit=	22	
	Plasticity Index	Plasticity Index=	13	

PROJECT:	Evaporation Pond Sediment Testing	JOB NO:	3-519-002701
CLIENT:	Rio Algom Mining, LLC.	WORK ORDER NO:	1
MATERIAL:	Sediment	LAB NO:	4-0102
SAMPLE SOURCE:	P2	SAMPLED BY:	Client
		DATE SAMPLED:	10/31/2003

PARTICLE-SIZE ANALYSIS OF SOILS (ASTM D422)

WEIGHT OF SAMPLE DISPERSED	51.48	SPECIFIC GRAVITY OF SOILS (ASTM D854)	2.85
PERCENT PASSING #10 SIEVE	100.0		

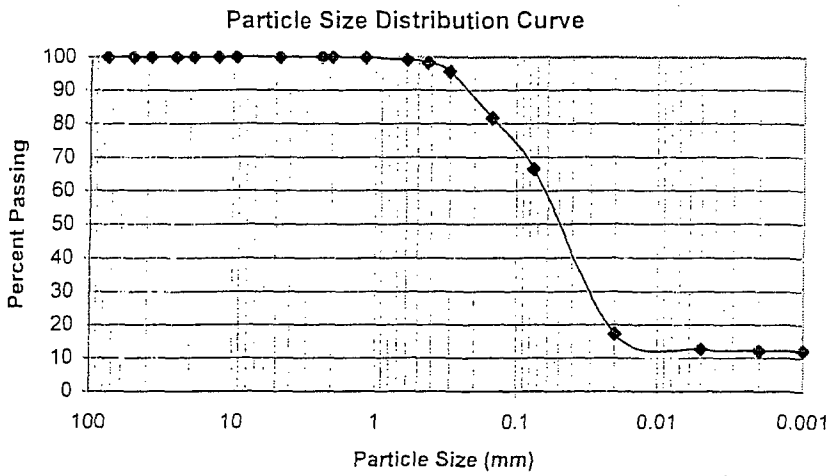
HYDROMETER RESULTS (% PASSING)

PARTICLE SIZE DIAMETER (mm)	0.0297	0.0208	0.0121	0.0086	0.0061	0.0030	0.0012	0.0009
PERCENT OF TEST SAMPLE	45.7	17.7	14.9	14.0	13.0	12.1	12.1	12.1
PERCENT OF TOTAL SAMPLE	45.7	17.7	14.9	14.0	13.0	12.1	12.1	12.1

SIEVE ANALYSIS (AASHTO T27/T11) (% PASSING)

3"	100.0
2"	100.0
1 1/2"	100.0
1"	100.0
3/4"	100.0
1/2"	100.0
3/8"	100.0
#4	100.0
#8	100.0
#10	100.0
#16	99.8
#30	99.1
#40	98.3
#50	95.6
#100	81.6
#200	66.6
0.02 mm	17.3
0.005 mm	12.7
0.002 mm	12.1
0.001 mm	12.1

Size Classification	Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt	Clay	Colloids
Percent	0.0	0.2	4.2	78.3	5.2	12.1	12.1



AMEC Earth Environmental, Inc.
8519 Jefferson NW
Albuquerque, NM 87113

REPORT of AGGREGATE PHYSICAL PROPERTIES

amec

Project: Evaporation Pond Sediment Testing
Client: Rio Algom Mining, LLC.
Material Tested: Sediment
Source: P3 IT-1
Product Code:
Specifications:

Project No: 3-519-002701
Lab No.: 4-0103
Sample Date: 10/31/2003
Report Date: 02/17/2004 Amended:
Reviewed by:

SIEVE ANALYSIS

ASTM C136 AASHTO T27

Sieve Size	Accum. % Passing	Specifications
300 mm (12")		
250 mm (10")		
225 mm (9")		
200 mm (8")		
150 mm (6")		
125 mm (5")		
100 mm (4")		
75.0 mm (3")		
63.0 mm (2-1/2")		
50.0 mm (2")		
37.5 mm (1-1/2")		
31.5 mm (1-1/4")		
25.0 mm (1")		
19.0 mm (3/4")		
12.5 mm (1/2")		
9.5 mm (3/8")		
6.3 mm (1/4")		
4.75mm (No. 4)		
2.36 mm (No. 8)		
2.00 mm (No. 10)	100	
1.18mm (No.16)	99	
0.600 mm (No.30)	96	
0.425mm (No. 40)	94	
0.300mm (No. 50)	91	
0.180mm (No. 80)		
0.150mm (No.100)	79	
0.075mm (No. 200)	58	
ASTM C117 / AASHTO T11		
Soil Classification	ML	
Moisture Content, %		
ASTM C566 AASHTO T255		
Fract. 1 Face, %		
Fract. 2 Face, %		
Fineness Modulus		
ASTM C136 AASHTO T27		

TEST RESULTS

Standard	PHYSICAL PROPERTIES		Results	Specification
ASTM C 29	Unit Weight	Unit Weight, lbs./cu.ft=		
AASHTO T 19	& Voids	Voids, %=		
		☐ Jigged ☐ Loose ☑ Rodded		
	Coarse	Bulk Specific Gravity (dry)=		
ASTM C 127	Specific	Bulk Specific Gravity, SSD=		
AASHTO T 85	Gravity &	Apparent Specific Gravity=		
	Absorption	Absorption, %=		
	Fine	Bulk Specific Gravity (dry)=		
ASTM C 128	Specific	Bulk Specific Gravity, SSD=		
AASHTO T 84	Gravity &	Apparent Specific Gravity=		
	Absorption	Absorption, %=		
ASTM D 2419	Sand	Sand Equivalent, %=		
AASHTO T 176	Equivalent			
ASTM D 4791	Flat &	Flat & Elongated, %=		
	Elongated	Ratio=		
ASTM C 131	L. A.	Small Coarse Loss, %=		
AASHTO T 96	Abrasion	Grading/ Revs.=		
ASTM C 535	L. A.	Large Coarse Loss, %=		
	Abrasion	Grading/ Revs.=		
	Soundness	Coarse Soundness Loss, %=		
ASTM C 88		Magnesium No. of Cycles=		
AASHTO T 104	Soundness	Fine Soundness Loss, %=		
		Magnesium No. of Cycles=		
ASTM C 142	Clay/Friable	Coarse Aggregate, %=		
AASHTO T 112	Particles	Fine Aggregate, %=		
ASTM 2974	Organic	Organic Matter % =	4.2	
AASHTO T267	Matter	Ash Content % =	95.8	
ASTM C 123	Lightweight	Coarse Aggregate, %=		
AASHTO T 113	Pieces	Fine Aggregate, %=		
ASTM C 1252.	Fine Aggregate	Uncompacted Voids,%=		
AASHTO T 304	Angularity	Method C (as received material		
ASTM D698	Compaction	Optimum Moisture, %=	21.9	
AASHTO T99	Standard Efforts	Max. Density, lbs./cu.ft.=	100.2	
ASTM D 4318	Liquid Limit,	Liquid Limit=	46	
AASHTO T 89/90	Plastic Limit &	Plastic Limit=	29	
	Plasticity Index	Plasticity Index=	17	

AMEC Earth Environmental, Inc.
8519 Jefferson NE

PROJECT:	Evaporation Pond Sediment Testing	JOB NO:	3-519-002701
CLIENT:	Rio Algom Mining, LLC.	WORK ORDER NO:	1
MATERIAL:	Sediment	LAB NO:	4-0103
SAMPLE SOURCE:	P3	SAMPLED BY:	Client
		DATE SAMPLED:	10/31/2003

PARTICLE-SIZE ANALYSIS OF SOILS (ASTM D422)

WEIGHT OF SAMPLE DISPERSED	57.92	SPECIFIC GRAVITY OF SOILS (ASTM D854)	2.81
PERCENT PASSING #10 SIEVE	100.0		

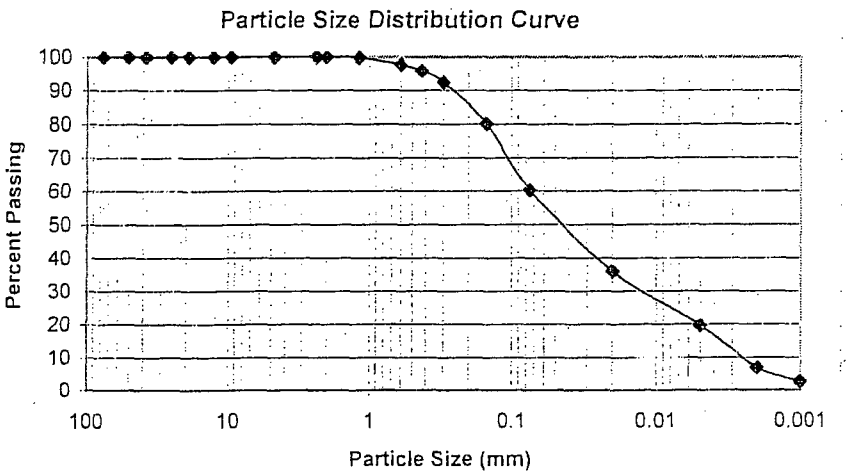
HYDROMETER RESULTS (% PASSING)

PARTICLE SIZE DIAMETER (mm)	0.0302	0.0197	0.0116	0.0084	0.0060	0.0030	0.0013	0.0009
PERCENT OF TEST SAMPLE	42.6	35.9	30.1	25.9	23.4	12.5	3.3	2.5
PERCENT OF TOTAL SAMPLE	42.6	35.9	30.1	25.9	23.4	12.5	3.3	2.5

Size Classification	Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt	Clay	Colloids
Percent	0.0	0.2	7.3	56.4	29.1	6.9	2.6

SIEVE ANALYSIS (AASHTO T27/T11) (% PASSING)

3"	100.0
2"	100.0
1 1/2"	100.0
1"	100.0
3/4"	100.0
1/2"	100.0
3/8"	100.0
#4	100.0
#8	100.0
#10	100.0
#16	99.8
#30	97.6
#40	95.8
#50	92.4
#100	80.0
#200	60.3
0.02 mm	36.0
0.005 mm	19.6
0.002 mm	6.9
0.001 mm	2.6



AMEC Earth Environmental, Inc.
8519 Jefferson NW
Albuquerque, NM 87113

REPORT of AGGREGATE PHYSICAL PROPERTIES

amec

Project: Evaporation Pond Sediment Testing
Client: Rio Algom Mining, LLC.
Material Tested: Sediment
Source: P4 17-2
Product Code:
Specifications:

Project No: 3-519-002701
Lab No.: 4-0104
Sample Date: 10/31/2003
Report Date: 02/17/2004 Amended:
Reviewed by:

SIEVE ANALYSIS

ASTM C136 AASHTO T27

Sieve Size	Accum. % Passing	Specifications
300 mm (12")		
250 mm (10")		
225 mm (9")		
200 mm (8")		
150 mm (6")		
125 mm (5")		
100 mm (4")		
75.0 mm (3")		
63.0 mm (2-1/2")		
50.0 mm (2")		
37.5 mm (1-1/2")		
31.5 mm (1-1/4")		
25.0 mm (1")		
19.0 mm (3/4")		
12.5 mm (1/2")		
9.5 mm (3/8")		
6.3 mm (1/4")		
4.75mm (No. 4)		
2.36 mm (No. 8)		
2.00 mm (No. 10)	100	
1.18mm (No.16)	99	
0.600 mm (No.30)	99	
0.425mm (No. 40)	98	
0.300mm (No. 50)	96	
0.180mm (No. 80)		
0.150mm (No.100)	89	
0.075mm (No. 200)	78	
ASTM C117 / AASHTO T11		
Soil Classification	CL	
Moisture Content, %		
ASTM C566 AASHTO T255		
Fract. 1 Face, %		
Fract. 2 Face, %		
Fineness Modulus		
ASTM C136 AASHTO T27		

TEST RESULTS

Standard	PHYSICAL PROPERTIES		Results	Specification
ASTM C 29 AASHTO T 19	Unit Weight & Voids	Unit Weight, lbs./cu.ft=		
		Voids, %=		
		☐ Jigged ☐ Loose ☑ Rodded		
ASTM C 127 AASHTO T 85	Coarse Specific Gravity & Absorption	Bulk Specific Gravity (dry)=		
		Bulk Specific Gravity, SSD=		
		Apparent Specific Gravity=		
		Absorption, %=		
ASTM C 128 AASHTO T 84	Fine Specific Gravity & Absorption	Bulk Specific Gravity (dry)=		
		Bulk Specific Gravity, SSD=		
		Apparent Specific Gravity=		
		Absorption, %=		
ASTM D 2419 AASHTO T 176	Sand Equivalent	Sand Equivalent, %=		
ASTM D 4791	Flat & Elongated	Flat & Elongated, %=		
		Ratio=		
ASTM C 131 AASHTO T 96	L. A. Abrasion	Small Coarse Loss, %=		
		Grading/ Revs.=		
ASTM C 535	L. A. Abrasion	Large Coarse Loss, %=		
		Grading/ Revs.=		
ASTM C 88 AASHTO T 104	Soundness	Coarse Soundness Loss, %=		
		Magnesium No. of Cycles=		
	Soundness	Fine Soundness Loss, %=		
		Magnesium No. of Cycles=		
ASTM C 142 AASHTO T 112	Clay/Friable Particles	Coarse Aggregate, %=		
		Fine Aggregate, %=		
ASTM 2974 AASHTO T267	Organic Matter	Organic Matter % =	3.9	
		Ash Content % =:	96.1	
ASTM C 123 AASHTO T 113	Lightweight Pieces	Coarse Aggregate, %=		
		Fine Aggregate, %=		
ASTM C 1252 AASHTO T 304	Fine Aggregate Angularity	Uncompacted Voids,%=		
		Method C (as received material		
ASTM D698 AASHTO T99	Compaction Standard Efforts	Optimum Moisture, %=	16.7	
		Max. Density, lbs./cu.ft.=	110.6	
ASTM D 4318 AASHTO T 89/90	Liquid Limit, Plastic Limit & Plasticity Index	Liquid Limit=	35	
		Plastic Limit=	21	
		Plasticity Index=	14	

AMEC Earth Environmental, Inc.
8519 Jefferson NE

PROJECT:	Evaporation Pond Sediment Testing	JOB NO:	3-519-002701
CLIENT:	Rio Algom Mining, LLC.	WORK ORDER NO:	1
MATERIAL:	Sediment	LAB NO:	4-0104
SAMPLE SOURCE:	P4	SAMPLED BY:	Client
		DATE SAMPLED:	10/31/2003

PARTICLE-SIZE ANALYSIS OF SOILS (ASTM D422)

WEIGHT OF SAMPLE DISPERSED	63.88	SPECIFIC GRAVITY OF SOILS (ASTM D854)	2.77
PERCENT PASSING #10 SIEVE	100.0		

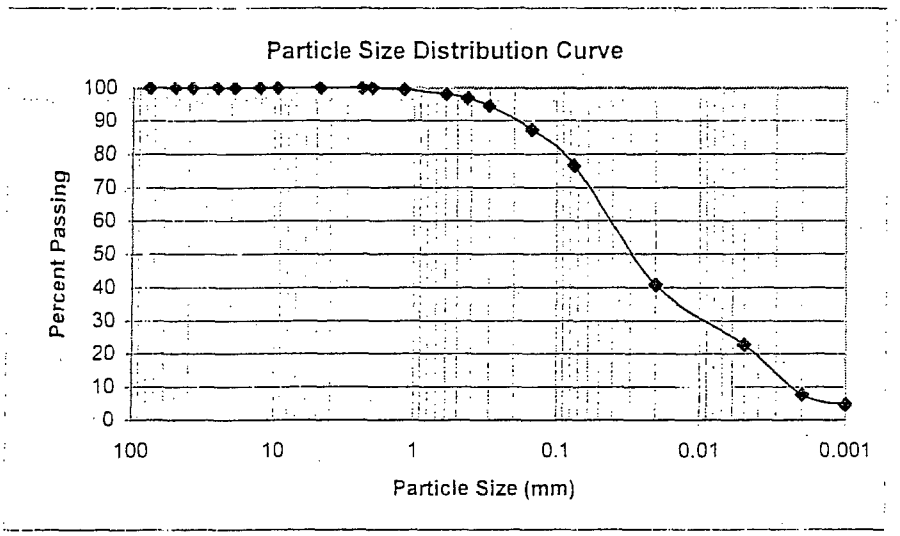
HYDROMETER RESULTS (% PASSING)

PARTICLE SIZE DIAMETER (mm)	0.0290	0.0189	0.0112	0.0080	0.0058	0.0030	0.0013	0.0009
PERCENT OF TEST SAMPLE	46.6	40.5	35.1	32.8	28.2	11.5	5.3	4.6
PERCENT OF TOTAL SAMPLE	46.6	40.5	35.1	32.8	28.2	11.5	5.3	4.6

SIEVE ANALYSIS (AASHTO T27/T11) (% PASSING)

3"	100.0
2"	100.0
1 1/2"	100.0
1"	100.0
3/4"	100.0
1/2"	100.0
3/8"	100.0
#4	100.0
#8	100.0
#10	100.0
#16	99.5
#30	98.1
#40	96.9
#50	94.6
#100	87.3
#200	76.6
0.02 mm	40.8
0.005 mm	22.8
0.002 mm	7.7
0.001 mm	4.7

Size Classification	Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt	Clay	Colloids
Percent	0.0	0.5	4.9	53.8	33.2	7.7	4.7



AMEC Earth Environmental, Inc.
8519 Jefferson NW
Albuquerque, NM 87113

REPORT of AGGREGATE PHYSICAL PROPERTIES

amec

Project: Evaporation Pond Sediment Testing
Client: Rio Algom Mining, LLC.
Material Tested: Sediment
Source: P5 IT-3
Product Code:
Specifications:

Project No: 3-519-002701
Lab No.: 4-0105
Sample Date: 10/31/2003
Report Date: 02/17/2004 Amended:
Reviewed by:

SIEVE ANALYSIS

ASTM C136	AASHTO T27	
Sieve Size	Accum. % Passing	Specifications
300 mm (12")		
250 mm (10")		
225 mm (9")		
200 mm (8")		
150 mm (6")		
125 mm (5")		
100 mm (4")		
75.0 mm (3")		
63.0 mm (2-1/2")		
50.0 mm (2")		
37.5 mm (1-1/2")		
31.5 mm (1-1/4")		
25.0 mm (1")		
19.0 mm (3/4")		
12.5 mm (1/2")		
9.5 mm (3/8")		
6.3 mm (1/4")		
4.75mm (No. 4)		
2.36 mm (No. 8)		
2.00 mm (No. 10)		
1.18mm (No.16)		
0.600 mm (No.30)	100	
0.425mm (No. 40)	99	
0.300mm (No. 50)	97	
0.180mm (No. 80)		
0.150mm (No.100)	75	
0.075mm (No. 200)	43	
ASTM C117 / AASHTO T11		
Soil Classification	SC-SM	
Moisture Content, %		
ASTM C566 AASHTO T255		
Fract. 1 Face, %		
Fract. 2 Face, %		
Fineness Modulus		
ASTM C136 AASHTO T27		

TEST RESULTS

Standard	PHYSICAL PROPERTIES		Results	Specification
ASTM C 29	Unit Weight	Unit Weight, lbs./cu.ft=		
AASHTO T 19	& Voids	Voids, %=		
		☐ Jigged ☐ Loose ☑ Rodded		
	Coarse	Bulk Specific Gravity (dry)=		
ASTM C 127	Specific	Bulk Specific Gravity, SSD=		
AASHTO T 85	Gravity &	Apparent Specific Gravity=		
	Absorption	Absorption, %=		
	Fine	Bulk Specific Gravity (dry)=		
ASTM C 128	Specific	Bulk Specific Gravity, SSD=		
AASHTO T 84	Gravity &	Apparent Specific Gravity=		
	Absorption	Absorption, %=		
ASTM D 2419	Sand	Sand Equivalent, %=		
AASHTO T 176	Equivalent			
ASTM D 4791	Flat &	Flat & Elongated, %=		
	Elongated	Ratio=		
ASTM C 131	L. A.	Small Coarse Loss, %=		
AASHTO T 96	Abrasion	Grading/ Revs.=		
ASTM C 535	L. A.	Large Coarse Loss, %=		
	Abrasion	Grading/ Revs.=		
	Soundness	Coarse Soundness Loss, %=		
ASTM C 88		Magnesium No. of Cycles=		
AASHTO T 104	Soundness	Fine Soundness Loss, %=		
		Magnesium No. of Cycles=		
ASTM C 142	Clay/Friable	Coarse Aggregate, %=		
AASHTO T 112	Particles	Fine Aggregate, %=		
ASTM 2974	Organic	Organic Matter % =	1.6	
AASHTO T267	Matter	Ash Content % =:	98.4	
ASTM C 123	Lightweight	Coarse Aggregate, %=		
AASHTO T 113	Pieces	Fine Aggregate, %=		
ASTM C 1252,	Fine Aggregate	Uncompacted Voids,%=		
AASHTO T 304	Angularity	Method C (as received material		
ASTM D698	Compaction	Optimum Moisture, %=	16.5	
AASHTO T99	Standard Efforts	Max. Density, lbs./cu.ft.=	110.8	
ASTM D 4318	Liquid Limit,	Liquid Limit=	26	
AASHTO T 89/90	Plastic Limit &	Plastic Limit=	19	
	Plasticity Index	Plasticity Index=	7	

PROJECT:	Evaporation Pond Sediment Testing	JOB NO:	3-519-002701
CLIENT:	Rio Algom Mining, LLC.	WORK ORDER NO:	1
MATERIAL:	Sediment	LAB NO:	4-0105
SAMPLE SOURCE:	P5	SAMPLED BY:	Client
		DATE SAMPLED:	10/31/2003

PARTICLE-SIZE ANALYSIS OF SOILS (ASTM D422)

WEIGHT OF SAMPLE DISPERSED	52.47	SPECIFIC GRAVITY OF SOILS (ASTM D854)	2.72
PERCENT PASSING #10 SIEVE	100.0		

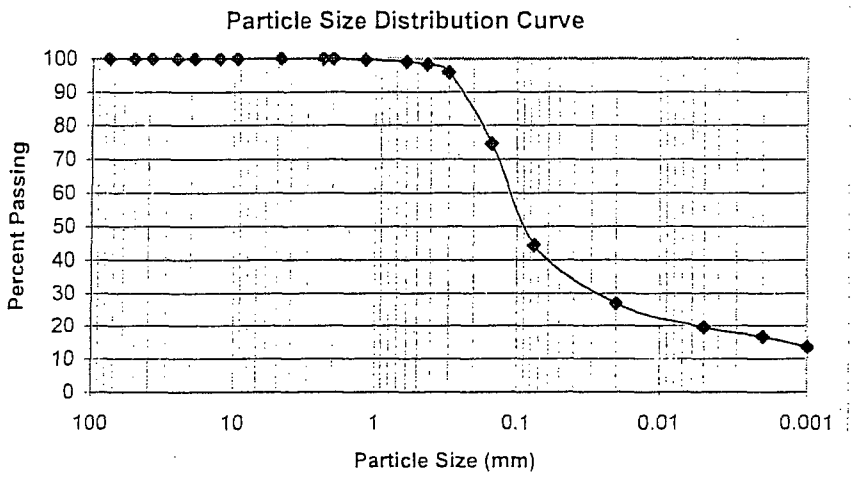
HYDROMETER RESULTS (% PASSING)

PARTICLE SIZE DIAMETER (mm)	0.0327	0.0208	0.0121	0.0086	0.0061	0.0030	0.0013	0.0009
PERCENT OF TEST SAMPLE	29.1	27.2	24.4	22.5	20.7	17.8	16.0	13.1
PERCENT OF TOTAL SAMPLE	29.1	27.2	24.4	22.5	20.7	17.8	16.0	13.1

SIEVE ANALYSIS (AASHTO T27/T11) (% PASSING)

3"	100.0
2"	100.0
1 1/2"	100.0
1"	100.0
3/4"	100.0
1/2"	100.0
3/8"	100.0
#4	100.0
#8	100.0
#10	100.0
#16	99.8
#30	99.0
#40	98.2
#50	95.9
#100	74.6
#200	44.4
0.02 mm	26.8
0.005 mm	19.5
0.002 mm	16.7
0.001 mm	13.7

Size Classification	Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt	Clay	Colloids
Percent	0.0	0.2	3.9	69.1	10.1	16.7	13.7



AMEC Earth Environmental, Inc.
8519 Jefferson NW
Albuquerque, NM 87113

APPENDIX B

APPENDIX B-1

ROCK QUALITY TESTING

bhpbilliton Rio Algom Mining LLC

August 26, 2003

Mr. John Lusher
Fuel Cycle Licensing Branch, NMSS
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Re: **License SUA-1473**
Docket No. 40-8905

Dear Mr. Lusher,

Please find enclosed information associated with re-qualification of the erosion protection rock Rio Algom will use for reclamation activities at the Ambrosia Lake facility. This information was requested by NRC in letters dated February 25, 2002, and November 27, 2002. Laboratory results along with an engineering overdesign of 4% indicates that the Tinaja Pit rock is of sufficient grade to assure protection for the 1000 year design requirement specified in Criterion 6 of 10 CFR Part 40, Appendix A.

Please contact Terry Fletcher at(505) 287-8851, extension 200, if you have any questions.

Regards,

Peter Luthiger
Supervisor, Radiation Safety
and Environmental Affairs

xc: T. Fletcher
P. Goranson
USNRC- MD (J. Caverly)
File

P.O. Box 218, Grants, NM USA 87020 - Tel: 505.287.8851 - Fax: 505.285.5550

RIO ALGOM MINING LLC
AMBROSIA LAKE FACILITY

License SUA-1473 Docket No. 40-8905

TINAJA PIT EROSION PROTECTION QUALIFICATION RESULTS

August 26, 2003

bhpbilliton

Rio Algom Mining LLC - Ambrosia Lake Mill
Erosion Protection Durability Test Results

In response to US Nuclear Regulatory Commission requests dated February 25, 2002 and November 27, 2002, Rio Algom submits the following information that demonstrates the erosion protection obtained from the Tinaja Pit is of sufficient grade and quality for use on some components of the site reclamation project. Regulatory requirements establish a 1000 year design criteria for erosion protection.

Rio Algom, along with other uranium mill sites in the area, previously acquired all erosion protection materials from a quarry that produced basalt rock. Subsequent closure of this basalt pit precluded its use and alternative rock sources were investigated.

Rio Algom previously conducted qualification tests for the Tinaja Pit rock source in 2001, which indicated acceptable rock (Table 1). Laboratory reports from Western Technologies, Inc., are contained in Appendix 1. Petrographic analysis of the Tinaja Pit rock was performed by American Petrographic Services, Inc., in 2001 with the results indicating that the rock is a massive calcitic dolomite (Appendix 2).

Table 1

Tinaja Pit Rock - 2001
Erosion Protection Materials Testing Scoring Results

Lab ID	Date	Computed Score	Rock Quality Rating[1]
01-2	11/15/01	314.8	76.8
1L0465	12/4/01	315.4	76.9
01-1	12/14/01	313.3	76.4
		Average Score	76.7

1. - NUREG-1623, "Design of Erosion Protection for Long-Term Stabilization," Table F-2.

Based on these preliminary results for the Tinaja Pit rock, all engineering design work incorporated a 4% overdesign factor to meet the NRC scoring design criteria in NUREG-1623.

With the development of additional erosion protection design elements at Rio's Ambrosia lake facility, NRC requested Rio to requalify the Tinaja Pit rock source to determine whether the rock quality has changed since the preliminary testing that was conducted in 2001.

Updated rock qualification tests were conducted during the 1st half of 2003, which confirmed that the Tinaja Pit rock continues to be acceptable for use. Table 2 provides the summary of the 2003 test results. Appendix 3 contains the laboratory reports. The petrographic analysis of the rock performed in June 2003 resulted in similar observations/findings as the 2001 petrographic tests (Appendix 4).

Table 2

Tinaja Pit Rock - 2003
Erosion Protection Materials Testing Scoring Results

Lab ID	Date	Computed Score	Rock Quality Rating[1]
3L276-A	7/7/03	359.5	87.7
3L276-B	7/7/03	330.3	80.6
3L127	5/23/03	332.2	81.0
		Average Score	83.1

1. - NUREG-1623, "Design of Erosion Protection for Long-Term Stabilization," Table F-2.

Based on the two series of tests, the Tinaja Pit rock quality has improved over time. This, combined with the 4% overdesign within the engineering, will ensure that the erosion protection planned for use on the Rio Algom reclamation project meets the 1000 year design criteria for erosion protection.

APPENDIX 1

Tinaja Pit Rock Lab Results
2001

Western Technologies Inc.
The Quality People
Since 1955

505 Washington Place, N.E.
Albuquerque, New Mexico 87113
(505) 823-4488 • fax 821-2963

November 26, 2001

C & E Concrete, Inc.
Post Office Box 2547
Milan, New Mexico 87020

Attn: Mr. Walter Lee Meech

Re: Erosion Protection Material Testing — Ref. No: 3241JT019
Rock Quality Scoring — Invoice No: 32410555

As you requested, we have performed the laboratory testing in accordance with the NUREG-1632 specification. The purpose of the laboratory testing was to determine the overall rock quality as presented in Table D-1, Scoring Criteria for Determining Rock Quality.

If you have any questions regarding our findings, please contact us at (505) 823-4488.

Respectfully yours,
WESTERN TECHNOLOGIES INC.

Andrew L. Cuaderes
Managing Director

alph E. Crockett, P.E.
irector of Engineering

RALPH E. CROCKETT
NEW MEXICO
#10867
REGISTERED PROFESSIONAL ENGINEER

1st Test 314.8/410 76.8%

use 53 SH Test 324.8/410 79.2%

Rio Algom Mining LLC.
SUA-1473
Docket 40-8905
Appendix C-6 - Page 5

Western Technologies Inc.
The Quality People
Since 1955

8305 Washington Place, N.E.
Albuquerque, New Mexico 87113
(505) 823-4488 • fax 821-2963

LABORATORY REPORT ON AGGREGATES

Date of Report 01/04/02
Job No. 3241JT014
Event / Invoice No. 32410565 Lab No. 01-1
Authorized By W. MEECH Date 12/14/01
Sampled By CLIENT Date 12/14/01
Submitted By CLIENT Date 12/14/01

Client C & E CONCRETE
POST OFFICE BOX 2547
MILAN, NEW MEXICO 87021

Project EROSION PROTECTION MATERIAL TESTING
Location ALBUQUERQUE LABORATORY
Contractor C & E CONCRETE
Arch. / Engr. UNKNOWN
Type / Use of Aggregate COARSE AGGREGATE
Supplier / Source C & E CONCRETE
Sample Source / Location TINAJA PIT
Source / Location Desig. By W.MEECH Date 12/14/01
Reference: SOUNDNESS: ☐ ASTM C88 ☒ AASHTO T104 ☒ SODIUM SULFATE ☐ MAGNESIUM SULFATE
ABRASION RESISTANCE: ☐ ASTM C131 ☒ AASHTO T96 ☐ ASTM C535
Special Instructions:

TEST RESULTS

SIEVE SIZE	GRADING OF ORIGINAL SAMPLE %	WEIGHT OF TEST FRACTIONS BEFORE TEST GRAMS	PASSING DESIGNATED SIEVE AFTER TEST %	WEIGHTED PERCENTAGE LOSS	ALLOWABLE PERCENTAGE LOSS SODIUM	ALLOWABLE PERCENTAGE LOSS MAGNESIUM
SOUNDNESS TEST OF FINE AGGREGATE		SOLUTION CONDITION: ☐ NEW ☐ USED			NO. OF CYCLES	
MINUS NO. 100						
NO. 50 TO NO. 100						
NO. 30 TO NO. 50						
NO. 16 TO NO. 30						
NO. 8 TO NO. 16						
NO. 4 TO NO. 8						
3/8 IN. TO NO. 4						
TOTAL						
SOUNDNESS TEST OF COARSE AGGREGATE		SOLUTION CONDITION: ☒ NEW ☐ USED			NO. OF CYCLES 5	
2 1/2 IN. TO 1 1/2 IN.						
1 1/2 IN. TO 3/4 IN.	27.7	501.6	1.1	0.3		
3/4 IN. TO 3/8 IN.	55.6	1004.6	0.9	0.5		
3/8 IN. TO NO. 4	16.7	301.5	4.2	0.7		
TOTAL	100			1.5		

QUALITATIVE EXAMINATION OF COARSE SIZE PARTICLES EXHIBITING DISTRESS

SIEVE SIZE	SPLITTING NO.	SPLITTING %	CRUMBLING NO.	CRUMBLING %	CRACKING NO.	CRACKING %	FLAKING NO.	FLAKING %	TOTAL NO. PARTICLES BEFORE TEST
2 1/2 IN. TO 1 1/2 IN.									
1 1/2 IN. TO 3/4 IN.									

RESISTANCE TO DEGRADATION BY L.A. MACHINE		% LOSS	SPECIFICATION
SMALL COARSE AGGREGATE - GRADING B	100 REV. →	6	
	500 REV. →		
LARGE COARSE AGGREGATE - GRADING	200 REV. →		
	1000 REV. →		

Comments:

Copies To: (3) CLIENT

THE SERVICES REFERRED TO HEREIN WERE PERFORMED IN ACCORDANCE WITH THE STANDARD OF CARE PRACTICED LOCALLY FOR THE REFERENCED METHOD(S) AND RELATE ONLY TO THE CONDITION(S) OF SAMPLE(S) TESTED AS STATED HEREIN. WESTERN TECHNOLOGIES INC. MAKES NO OTHER WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED, AND HAS NOT CONFIRMED INFORMATION INCLUDING SOURCE OF MATERIALS SUBMITTED BY OTHERS.

Rio Algom Mining LLC.
SUA-1473
Docket 40-8905
Appendix C-6 - Page 7

Western Technologies Inc.
The Quality People
Since 1955

8305 Washington Place, N.E.
Albuquerque, New Mexico 87113
(505) 823-4488 • fax 821-2963

FIELD REPORT ON PORTLAND CEMENT CONCRETE

Date of Report 01/04/02
Job No. 3241JT014
Event / Invoice No. 32410565 — Lab No. 01-1
Authorized By W.MEECH — Date 12/14/01
Test Calc. By M.ROYBAL — Date 12/14/01

Client C & E CONCRETE
POST OFFICE BOX 2547
MILAN, NEW MEXICO 87021

Project EROSION PROTECTION MATERIAL TESTING
Contractor C & E CONCRETE
Type / Use of Concrete LARGE COARSE AGGREGATE
Sample Source / Location TINAJA PIT
Reference: REBOUND NUMBER OF HARDENED CONCRETE ☒ ASTM C805 ☐
Special Instructions:

Location ALBUQUERQUE LABORATORY
Arch./Engr. UNKNOWN
Supplier / Source C & E CONCRETE
Source / Location Desig. By W.MEECH — Date 12/14/01

MATERIAL DATA

DESIGN STRENGTH OF CONCRETE, PSI — AGE — HAMMER TYPE — SERIAL NO.
COMPOSITION OF CONCRETE:
CURING / UNUSUAL CONDITIONS RELATED TO TEST AREA:

OBSERVATIONS & TEST RESULTS

TEST NO.	LOCATION OF TEST AREA IN STRUCTURE	SURFACE DESCRIPTION: FORM TYPE	SURFACE DESCRIPTION: FINISH	AVERAGE REBOUND READING	INDICATED COMPRESSIVE STRENGTH, PSI
1				50.9	
2				51.5	
	AVERAGE:			51.2	

CAUTION: THIS TEST METHOD IS NOT INTENDED AS AN ALTERNATIVE FOR THE STRENGTH DETERMINATION OF CONCRETE. REBOUND NUMBERS SHOULD BE USED ONLY AS A GUIDE IN THE DEVELOPMENT OF CONCRETE COMPRESSIVE STRENGTH ESTIMATES AND MUST NOT BE INFERRED TO BE ABSOLUTE VALUES. OPTIMALLY, REBOUND NUMBERS ARE CORROBORATED BY CORE TEST DATA. IN THE ABSENCE OF SUCH DATA, THE INDICATED STRENGTHS PROVIDED SHOULD BE USED DISCRETIONARY AS THEY ARE BASED ON PREVIOUS RESEARCH AND CORRELATIONS WHICH MIGHT NOT BE REPRESENTATIVE OF THE CONCRETE BEING EXAMINED.

Comments:

Copies To:

(3) CLIENT

THE SERVICES REFERRED TO HEREIN WERE PERFORMED IN ACCORDANCE WITH THE STANDARD OF CARE PRACTICED LOCALLY FOR THE REFERENCED METHOD(S) AND RELATE ONLY TO THE CONDITION(S) OR SAMPLE(S) TESTED AS STATED HEREIN. WESTERN TECHNOLOGIES INC. MAKES NO OTHER WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED, AND HAS NOT CONFIRMED INFORMATION INCLUDING SOURCE OF MATERIALS SUBMITTED BY OTHERS.

Western Technologies Inc.
The Quality People
Since 1955

8305 Washington Place, N.E.
Albuquerque, New Mexico 87113
(505) 823-4488 • fax 821-2963

PHYSICAL PROPERTIES OF AGGREGATES

Date of Report 01/04/02
Job No. 3241JT014
Event / Invoice No. 32410565 Lab No. 01-1
Authorized By W.MEECH Date 12/14/01
Sampled By CLIENT Date 12/14/01
Submitted By W.MEECH Date 12/14/01

Client C & E CONCRETE
POST OFFICE BOX 2547
MILAN, NEW MEXICO 87021

Project EROSION PROTECTION MATERIAL TESTING
Location ALBUQUERQUE LABORATORY
Contractor C & E CONCRETE
Arch./Engr. UNKNOWN
Type / Use of Aggregate COARSE AGGREGATE
Supplier / Source C & E CONCRETE
Sample Source / Location TINAJA PIT
Source / Location Desig. By W.MEECH Date 12/14/01
Special Instructions:

TEST RESULTS

SIEVE ANALYSIS ☐ ASTM C136 ☐ AASHTO T27

SIEVE SIZE U.S. - MM	ACCUMULATIVE % PASSING	SPECIFICATION
6 IN. - 150.0		
3 - 75.0		
1 1/2 - 37.5		
1 1/8 - 28.1		
1 - 25.0		
3/4 - 19.0		
1/2 - 12.5		
3/8 - 9.5		
1/4 - 6.3		
NO. 4 - 4.75		
8 - 2.36		
10 - 2.00		
16 - 1.18		
30 - .600		
40 - .425		
50 - .300		
100 - .150		
FINER THAN NO. 200 ☐ ASTM C117 ☐ AASHTO T11		

FINENESS MODULUS, ASTM C125 →

LIQUID & PLASTIC PROPERTIES ☐ ASTM D4318 ☐ AASHTO T89 & T90
METHOD ☐ A ☐ B RESULT SPECIFICATION
LIQUID LIMIT
PLASTIC LIMIT
PLASTICITY INDEX
SAMPLE AIR DRIED ☐ YES ☐ NO

CLEANNESS VALUE CA227 →

ORGANIC IMPURITIES ☐ ASTM C40 ☐ AASHTO T21
ORGANIC PLATE NO. →

CARBONATES IN AGGREGATE
☐ AZ 238 ☐ ASTM 9042 % →

PHYSICAL PROPERTIES			TEST RESULTS	SPECIFICATION
UNIT WEIGHT & VOIDS ☐ ASTM C29 ☐ AASHTO T19 ☐ RODDING ☐ JIGGING ☐ LOOSE	FINE AGGREGATE	UNIT WEIGHT, PCF →		
		VOIDS, % →		
	COARSE AGGREGATE	UNIT WEIGHT, PCF →		
		VOIDS, % →		
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE ☐ ASTM C128 ☐ AASHTO T84 AGGREGATE DRIED ☐ YES ☐ NO	BULK SPECIFIC GRAVITY →		
		BULK SPECIFIC GRAVITY (SSD) →		
		APPARENT SPECIFIC GRAVITY →		
		ABSORPTION, % →		
	COARSE AGGREGATE ☒ ASTM C127 ☐ AASHTO T85 AGGREGATE DRIED ☒ YES ☐ NO	BULK SPECIFIC GRAVITY →	2.645	
		BULK SPECIFIC GRAVITY (SSD) →	2.668	
		APPARENT SPECIFIC GRAVITY →	2.679	
		ABSORPTION, % →	0.48	
SAND EQUIVALENT VALUE ☐ ASTM D2419 ☐ AASHTO T176 % →				
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE ☐ ASTM C131 ☐ AASHTO T96 GRADING	100 REV., % LOSS →		
		500 REV., % LOSS →		
	LARGE COARSE AGGREGATE ☐ ASTM C535 GRADING	200 REV., % LOSS →		
		1000 REV., % LOSS →		
LIGHTWEIGHT PIECES ☐ ASTM C123 ☐ AASHTO T113		FINE AGGREGATE, % →		
		COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES ☐ ASTM C142 ☐ AASHTO T112		FINE AGGREGATE, % →		
		COARSE AGGREGATE, % →		
FRACTURED FACES COARSE AGGREGATE BY WEIGHT ☐ AZ 212 ☐ FLH TS07 ☐ FAA		ONE OR MORE FACES, % →		
		TWO OR MORE FACES, % →		
DURABILITY INDEX ☐ ASTM D3744 ☐ AASHTO T210 PROCEDURE: A ☐ COARSE B ☐ FINE C ☐ COARSE & FINE		D_f →		
UNCOMPACTED VOID CONTENT ☐ AZ 247 ☐ ASTM C1252 METHOD % →				
FLAT & ELONGATED PARTICLES ☐ ASTM D4791 ☐ DIMENSIONAL RATIO USED ☐ 1:2 ☐ 1:3 ☐ 1:5 ☐		BY WEIGHT, % →		
		BY NUMBER, % →		

Comments:

Copies To: (3) CLIENT

THE SERVICES REFERRED TO HEREIN WERE PERFORMED IN ACCORDANCE WITH THE STANDARD OF CARE PRACTICED LOCALLY FOR THE REFERENCED METHOD(S) AND RELATE ONLY TO THE CONDITION(S) OR SAMPLE(S) TESTED AS STATED HEREIN. WESTERN TECHNOLOGIES INC. MAKES NO OTHER WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED, AND HAS NOT CONFIRMED INFORMATION INCLUDING SOURCE OF MATERIALS SUBMITTED BY OTHERS.

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Albuquerque, New Mexico 87113
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PHYSICAL PROPERTIES OF AGGREGATES

Date of Report 01/04/02
Job No. 3241JT014
Event / Invoice No. 32410565 Lab No. 01-1
Authorized By W.MEECH Date 12/14/01
Sampled By CLIENT Date 12/14/01
Submitted By W.MEECH Date 12/14/01

Client C & E CONCRETE
POST OFFICE BOX 2547
MILAN, NEW MEXICO 87021

Project EROSION PROTECTION MATERIAL TESTING
Contractor C & E CONCRETE
Type / Use of Aggregate COARSE AGGREGATE
Sample Source / Location TINAJA PIT
Special Instructions:

Location ALBUQUERQUE LABORATORY
Arch./Engr. UNKNOWN
Supplier / Source C & E CONCRETE
Source / Location Desig. By W.MEECH Date 12/14/01

TEST RESULTS

SIEVE ANALYSIS ☐ ASTM C136 ☐ AASHTO T27

SIEVE SIZE U.S. - MM	ACCUMULATIVE % PASSING	SPECIFICATION
4 IN. - 100.0		
3 - 75.0		
1 1/2 - 37.5		
1 1/8 - 28.1		
1 - 25.0		
3/4 - 19.0		
1/2 - 12.5		
3/8 - 9.5		
1/4 - 6.3		
NO. 4 - 4.75		
8 - 2.36		
10 - 2.00		
16 - 1.18		
30 - .600		
40 - .425		
50 - .300		
100 - .150		
FINER THAN NO. 200 ☐ ASTM C117 ☐ AASHTO T11		

FINENESS MODULUS, ASTM C125 →

LIQUID & PLASTIC PROPERTIES
☐ ASTM D4318 ☐ AASHTO T89 & T90
METHOD ☐ A ☐ B RESULT SPECIFICATION
LIQUID LIMIT
PLASTIC LIMIT
PLASTICITY INDEX
SAMPLE AIR DRIED ☐ YES ☐ NO

CLEANNESS VALUE CA227 →

ORGANIC IMPURITIES ☐ ASTM C40 ☐ AASHTO T21
ORGANIC PLATE NO. →

CARBONATES IN AGGREGATE
☐ AZ 238 ☐ ASTM 3042 % →

PHYSICAL PROPERTIES			TEST RESULTS	SPECIFICATION
UNIT WEIGHT & VOIDS ☐ ASTM C29 ☐ AASHTO T19 ☐ RODDING ☐ JIGGING ☐ LOOSE	FINE AGGREGATE	UNIT WEIGHT, PCF →		
		VOIDS, % →		
	COARSE AGGREGATE	UNIT WEIGHT, PCF →		
		VOIDS, % →		
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE ☐ ASTM C128 ☐ AASHTO T84 AGGREGATE DRIED ☐ YES ☐ NO	BULK SPECIFIC GRAVITY →		
		BULK SPECIFIC GRAVITY (SSD) →		
		APPARENT SPECIFIC GRAVITY →		
		ABSORPTION, % →		
	COARSE AGGREGATE ☒ ASTM C127 ☐ AASHTO T85 AGGREGATE DRIED ☒ YES ☐ NO	BULK SPECIFIC GRAVITY →	2.646	
		BULK SPECIFIC GRAVITY (SSD) →	2.658	
		APPARENT SPECIFIC GRAVITY →	2.678	
		ABSORPTION, % →	0.48	
SAND EQUIVALENT VALUE ☐ ASTM D2419 ☐ AASHTO T176		% →		
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE ☐ ASTM C131 ☐ AASHTO T96 GRADING	100 REV., % LOSS →		
		500 REV., % LOSS →		
	LARGE COARSE AGGREGATE ☐ ASTM C535 GRADING	200 REV., % LOSS →		
		1000 REV., % LOSS →		
LIGHTWEIGHT PIECES ☐ ASTM C123 ☐ AASHTO T113		FINE AGGREGATE, % →		
		COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES ☐ ASTM C142 ☐ AASHTO T112		FINE AGGREGATE, % →		
		COARSE AGGREGATE, % →		
FRACTURED FACES ☐ AZ 212 ☐ FLH TS07 ☐ FAA	COARSE AGGREGATE BY WEIGHT	ONE OR MORE FACES, % →		
		TWO OR MORE FACES, % →		
DURABILITY INDEX ☐ ASTM D3744 ☐ AASHTO T210 PROCEDURE: A ☐ COARSE B ☐ FINE C ☐ COARSE & FINE		D_c →		
		D_f →		
UNCOMPACTED VOID CONTENT ☐ AZ 247 ☐ ASTM C1252 METHOD		% →		
FLAT & ELONGATED PARTICLES ☐ ASTM D4791 ☐ DIMENSIONAL RATIO USED ☐ 1:2 ☐ 1:3 ☐ 1:5 ☐		BY WEIGHT, % →		
		BY NUMBER, % →		

Comments:

Copies To: (3) CLIENT

THE SERVICES REFERRED TO HEREIN WERE PERFORMED IN ACCORDANCE WITH THE STANDARD OF CARE PRACTICED LOCALLY FOR THE REFERENCED METHOD(S) AND RELATE ONLY TO THE CONDITION(S) OR SAMPLE(S) TESTED AS STATED HEREIN. WESTERN TECHNOLOGIES INC. MAKES NO OTHER WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED, AND HAS NOT CONFIRMED INFORMATION INCLUDING SOURCE OF MATERIALS SUBMITTED BY OTHERS.

C and E Concrete

EROSION PROTECTION MATERIALS TESTING

December 14, 2001

Pre Qual.

LAB I.D. - 01-1

Rock Quality Scoring Tabulation

Test	Weighting Factor	Test Value	Score	Computed Score
Specific Gravity	12	2.645	7.9	94.8
Absorption, %	13	0.48	8.1	105.3
Sodium Sulfate, %	4	1.5	9.8	39.2
L/A Abrasion(100 rev), %	1	6	1.4	1.4
Schimdl Hammer	11	51.2	6.6	72.6
			Total Score	313.3

/410

76.4

Limestone - Tinaja Pit

WESTERN TECHNOLGIES INC.

Rio Algom Mining LLC.
SUA-1473
Docket 40-8905
Appendix C-6 - Page 10

Western Technologies Inc.
The Quality People
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Albuquerque, New Mexico 87113
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FIELD REPORT ON PORTLAND CEMENT CONCRETE

Client C & E CONCRETE
P O BOX 2547
MILAN, NEW MEXICO 87021

Date of Report 11/26/01
Job No. 3241JT014
Event / Invoice No. 32410555
Authorized By CLIENT
Test Calc. By CLIENT

Lab No. 01-2
Date 11/15/01
Date 11/15/01

Project EROSION PROTECTION MATERIAL TESTING
Contractor C & E CONCRETE
Type / Use of Concrete NON-CONCRETE
Sample Source / Location TINAJA PIT

Location ALBUQUERQUE LABORATORY
Arch. / Engr. UNKNOWN
Supplier / Source TINAJA PIT
Source / Location Desig. By CLIENT

Date 11/15/01

Reference: REBOUND NUMBER OF HARDENED CONCRETE ☒ ASTM C805 ☐
Special Instructions:

MATERIAL DATA

DESIGN STRENGTH OF CONCRETE, PSI N/A AGE N/A HAMMER TYPE LR-3 SERIAL NO. 7109
COMPOSITION OF CONCRETE: N/A
CURING / UNUSUAL CONDITIONS RELATED TO TEST AREA: N/A

OBSERVATIONS & TEST RESULTS

TEST NO.	LOCATION OF TEST AREA IN STRUCTURE	SURFACE DESCRIPTION		AVERAGE REBOUND READING	INDICATED COMPRESSIVE STRENGTH, PSI
		FORM TYPE	FINISH		
1	AGGREGATE EROSION PROTECTION MATERIAL TESTING TOTAL AVERAGE OF 20 TESTS	-	-	43.2	

CAUTION: THIS TEST METHOD IS NOT INTENDED AS AN ALTERNATIVE FOR THE STRENGTH DETERMINATION OF CONCRETE. REBOUND NUMBERS SHOULD BE USED ONLY AS A GUIDE IN THE DEVELOPMENT OF CONCRETE COMPRESSIVE STRENGTH ESTIMATES AND MUST NOT BE INFERRED TO BE ABSOLUTE VALUES. OPTIMALLY, REBOUND NUMBERS ARE CORROBORATED BY CORE TEST DATA. IN THE ABSENCE OF SUCH DATA, THE INDICATED STRENGTHS PROVIDED SHOULD BE USED JUDICIOUSLY AS THEY ARE BASED ON PREVIOUS RESEARCH AND CORRELATIONS WHICH MIGHT NOT BE REPRESENTATIVE OF THE CONCRETE BEING EXAMINED.

Comments: REBOUND TESTING ON LARGE AGGERGATE.

Copies To: (3) CLIENT

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VTI

Western Technologies Inc.
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LA. ON AGGREGATES

Date of Report 11/26/01
Job No. 3241JT014
Event / Invoice No. 32410555 Lab No. 01-Z
Authorized By CLIENT Date 11/15/01
Sampled By CLIENT Date 11/15/01
Submitted By CLIENT Date 11/15/01

Client C & E CONCRETE
P O BOX 2547
MILAN, NEW MEXICO 87021

Project EROSION PROTECTION MATERIAL TESTING
Location ALBUQUERQUE LABORATORY
Contractor C & E CONCRETE
Arch. / Engr. UNKNOWN
Type / Use of Aggregate TINAJA PIT
Supplier / Source C & E CONCRETE
Sample Source / Location TINAJA PIT
Source / Location Desig. By CLIENT Date 11/15/01

Reference: SOUNDNESS: [X] ASTM C88 [ ] AASHTO T104 [X] SODIUM SULFATE [ ] MAGNESIUM SULFATE
ABRASION RESISTANCE: [ ] ASTM C131 [ ] AASHTO T96 [ ] ASTM C535

Special Instructions:

TEST RESULTS

SIEVE SIZE	GRADING OF ORIGINAL SAMPLE %	WEIGHT OF TEST FRACTIONS BEFORE TEST GRAMS	PASSING DESIGNATED SIEVE AFTER TEST %	WEIGHTED PERCENTAGE LOSS	ALLOWABLE PERCENTAGE LOSS SODIUM	ALLOWABLE PERCENTAGE LOSS MAGNESIUM
SOUNDNESS TEST OF FINE AGGREGATE		SOLUTION CONDITION: [ ] NEW [ ] USED			NO. OF CYCLES	
MINUS NO. 100						
NO. 50 TO NO. 100						
NO. 30 TO NO. 50						
NO. 16 TO NO. 30						
NO. 8 TO NO. 16						
NO. 4 TO NO. 8						
3/8 IN. TO NO. 4						
TOTAL						
SOUNDNESS TEST OF COARSE AGGREGATE		SOLUTION CONDITION: [X] NEW [ ] USED			NO. OF CYCLES 5	
2 1/2 IN. TO 1 1/2 IN.	66.7	5026.4	.598	.4		
1 1/2 IN. TO 3/4 IN.	20.1	1512.1	2.01	.4		
3/4 IN. TO 3/8 IN.	13.2	998.6	6.06	.8		
3/8 IN. TO NO. 4						
TOTAL	100			1.6		

QUALITATIVE EXAMINATION OF COARSE SIZE PARTICLES EXHIBITING DISTRESS

SIEVE SIZE	SPLITTING NO.	SPLITTING %	CRUMBLING NO.	CRUMBLING %	CRACKING NO.	CRACKING %	FLAKING NO.	FLAKING %	TOTAL NO. PARTICLES BEFORE TEST
2 1/2 IN. TO 1 1/2 IN.									
1 1/2 IN. TO 3/4 IN.									

RESISTANCE TO DEGRADATION BY L.A. MACHINE		% LOSS	SPECIFICATION
SMALL COARSE AGGREGATE - GRADING A	100 REV. →	7	
	500 REV. →		
LARGE COARSE AGGREGATE - GRADING	200 REV. →		
	1000 REV. →		

Comments:

Copies To: (3) CLIENT

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The Quality People
Since 1955

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Albuquerque, New Mexico 87113
(505) 823-4488 • fax 821-2963

PHYSICAL PROPERTIES OF AGGREGATES

Date of Report 11/26/01
Job No. 3241JT014
Event / Invoice No. 32410555 — Lab No. 01-2
Authorized By CLIENT — Date 11/15/01
Sampled By CLIENT — Date 11/15/01
Submitted By CLIENT — Date 11/15/01

Client C & E CONCRETE
P.O. BOX 2547
MILAN, NM 87021

Project EROSION PROTECTION MATERIAL TESTING
Contractor C & E CONCRETE
Type / Use of Aggregate TINAJA PIT
Sample Source / Location TINAJA PIT
Special Instructions:

Location ALBUQUERQUE LABORATORY
Arch. / Engr. UNKNOWN
Supplier / Source C & E CONCRETE
Source / Location Desig. By CLIENT — Date 11/15/01

TEST RESULTS

SIEVE ANALYSIS ☐ ASTM C136 ☐ AASHTO T27

SIEVE SIZE U.S. - MM	ACCUMULATIVE % PASSING	SPECIFICATION
4 IN. - 100.0		
3 - 75.0		
1 1/2 - 37.5		
1 1/8 - 28.1		
1 - 25.0		
3/4 - 19.0		
1/2 - 12.5		
3/8 - 9.5		
1/4 - 6.3		
NO. 4 - 4.75		
8 - 2.36		
10 - 2.00		
16 - 1.18		
30 - .600		
40 - .425		
50 - .300		
100 - .150		
FINER THAN NO. 200 ☐ ASTM C117 ☐ AASHTO T11		

FINENESS MODULUS, ASTM C125 →

LIQUID & PLASTIC PROPERTIES
☐ ASTM D4318 ☐ AASHTO T89 & T90
METHOD ☐ A ☐ B — RESULT — SPECIFICATION
LIQUID LIMIT
PLASTIC LIMIT
PLASTICITY INDEX
SAMPLE AIR DRIED ☐ YES ☐ NO

CLEANNESS VALUE CA227 →

ORGANIC IMPURITIES ☐ ASTM C40 ☐ AASHTO T21
ORGANIC PLATE NO. →

CARBONATES IN AGGREGATE
☐ AZ 238 ☐ ASTM 3042 % →

PHYSICAL PROPERTIES			TEST RESULTS	SPECIFICATION
UNIT WEIGHT & VOIDS ☐ ASTM C29 ☐ AASHTO T19 ☐ RODDING ☐ JIGGING ☐ LOOSE	FINE AGGREGATE	UNIT WEIGHT, PCF →		
		VOIDS, % →		
	COARSE AGGREGATE	UNIT WEIGHT, PCF →		
		VOIDS, % →		
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE ☐ ASTM C128 ☐ AASHTO T84 AGGREGATE DRIED ☐ YES ☐ NO	BULK SPECIFIC GRAVITY →		
		BULK SPECIFIC GRAVITY (SSD) →		
		APPARENT SPECIFIC GRAVITY →		
		ABSORPTION, % →		
	COARSE AGGREGATE ☒ ASTM C127 ☐ AASHTO T85 AGGREGATE DRIED ☒ YES ☐ NO	BULK SPECIFIC GRAVITY →	2.669	
		BULK SPECIFIC GRAVITY (SSD) →	2.684	
		APPARENT SPECIFIC GRAVITY →	2.711	
		ABSORPTION, % →	0.58	
SAND EQUIVALENT VALUE ☐ ASTM D2419 ☐ AASHTO T176		% →		
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE ☒ ASTM C131 ☐ AASHTO T96 GRADING A	100 REV., % LOSS →	7	
		500 REV., % LOSS →		
	LARGE COARSE AGGREGATE ☐ ASTM C535 GRADING	200 REV., % LOSS →		
		1000 REV., % LOSS →		
LIGHTWEIGHT PIECES ☐ ASTM C123 ☐ AASHTO T113		FINE AGGREGATE, % →		
		COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES ☐ ASTM C142 ☐ AASHTO T112		FINE AGGREGATE, % →		
		COARSE AGGREGATE, % →		
FRACTURED FACES ☐ AZ 212 ☐ FLH T507 ☐ FAA	COARSE AGGREGATE BY WEIGHT	ONE OR MORE FACES, % →		
		TWO OR MORE FACES, % →		
DURABILITY INDEX ☐ ASTM D3744 ☐ AASHTO T210 PROCEDURE: A ☐ COARSE B ☐ FINE C ☐ COARSE & FINE		D_c →		
		D_f →		
UNCOMPACTED VOID CONTENT ☐ AZ 247 ☐ ASTM C1252 METHOD		% →		
FLAT & ELONGATED PARTICLES ☐ ASTM D4791 ☐ DIMENSIONAL RATIO USED ☐ 1:2 ☐ 1:3 ☐ 1:5 ☐		BY WEIGHT, % →		
		BY NUMBER, % →		

Comments:

Copies To:

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LAb I.D - 01-2

Rock Quality Scoring Tabulation

Test	Weighting Factor	Test Value	Score	Computed Score
Specific Gravity	12	2.669	8.9	106.8
Absorption, %	13	0.58	7.8	101.4
Sodium Sulfate, %	4	1.6	9.8	39.2
L/A Abrasion(100 rev), %	1	7	6.9	6.9
Schimdt Hammer	11	43.2	5.5	60.5
			Total Score	314.8

Limestone - Tinaja Pit

Rio Algom Mining LLC.
SUA-1473
Docket 40-8905
Appendix C-6 - Page 14

Western Technologies Inc.
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Since 1955

8305 Washington Place, N.E.
Albuquerque, New Mexico 87113
(505) 823-4488 • fax 821-2963

LAB... ON AGGREGATES

Client C & E CONCRETE
POST OFFICE BOX 2547
MILAN, NEW MEXICO 87021

Date of Report 01/04/02
Job No. 3241JT014
Event / Invoice No. 32410565 — Lab No. 1L0465
Authorized By W. MEECH — Date 12/04/01
Sampled By CLIENT — Date 12/04/01
Submitted By CLIENT — Date 12/04/01

Project EROSION PROTECTION MATERIAL TESTING
Contractor C & E CONCRETE
Type / Use of Aggregate COARSE AGGREGATE
Sample Source / Location TINAJA PIT

Location ALBUQUERQUE LABORATORY
Arch. / Engr. UNKNOWN
Supplier / Source C & E CONCRETE
Source / Location Design. By W.MEECH — Date 12/04/01

Reference: SOUNDNESS: ☐ ASTM C88 ☒ AASHTO T104 ☒ SODIUM SULFATE ☐ MAGNESIUM SULFATE
ABRASION RESISTANCE: ☐ ASTM C131 ☒ AASHTO T96 ☐ ASTM C535

Special Instructions:

TEST RESULTS

SIEVE SIZE	GRADING OF ORIGINAL SAMPLE %	WEIGHT OF TEST FRACTIONS BEFORE TEST GRAMS	PASSING DESIGNATED SIEVE AFTER TEST %	WEIGHTED PERCENTAGE LOSS	ALLOWABLE PERCENTAGE LOSS SODIUM	ALLOWABLE PERCENTAGE LOSS MAGNESIUM
SOUNDNESS TEST OF FINE AGGREGATE		SOLUTION CONDITION: ☐ NEW ☐ USED			NO. OF CYCLES	
MINUS NO. 100						
NO. 50 TO NO. 100						
NO. 30 TO NO. 50						
NO. 16 TO NO. 30						
NO. 8 TO NO. 16						
NO. 4 TO NO. 8						
3/8 IN. TO NO. 4						
TOTAL						
SOUNDNESS TEST OF COARSE AGGREGATE		SOLUTION CONDITION: ☒ NEW ☐ USED			NO. OF CYCLES 5	
2 1/2 IN. TO 1 1/2 IN.						
1 1/2 IN. TO 3/4 IN.	27.7	498.6	1.1	0.3		
3/4 IN. TO 3/8 IN.	55.6	1000.1	0.5	0.3		
3/8 IN. TO NO. 4	16.7	299.9	3.0	0.5		
TOTAL	100			1.1		

QUALITATIVE EXAMINATION OF COARSE SIZE PARTICLES EXHIBITING DISTRESS

SIEVE SIZE	SPLITTING NO.	SPLITTING %	CRUMBLING NO.	CRUMBLING %	CRACKING NO.	CRACKING %	FLAKING NO.	FLAKING %	TOTAL NO. PARTICLES BEFORE TEST
2 1/2 IN. TO 1 1/2 IN.									
1 1/2 IN. TO 3/4 IN.									

RESISTANCE TO DEGRADATION BY L.A. MACHINE		% LOSS	SPECIFICATION
SMALL COARSE AGGREGATE - GRADING B	100 REV. →	7	
	500 REV. →		
LARGE COARSE AGGREGATE - GRADING	200 REV. →		
	1000 REV. →		

Comments:

Copies To: (3) CLIENT

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20.0

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The Quality People
Since 1956

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Albuquerque, New Mexico 87113
(505) 823-4488 • fax 821-2963

PHYSICAL PROPERTIES OF AGGREGATES

Date of Report 01/04/02
Job No. 3241JT014
Event / Invoice No. 3241056E
Authorized By W.MEECH
Sampled By CLIENT
Submitted By W.MEECH

Lab No. 1L0465
Date 12/04/01
Date 12/04/01
Date 12/04/01

Client C & E CONCRETE
POST OFFICE BOX 2547
MILAN, NEW MEXICO 87021

Project EROSION PROTECTION MATERIAL TESTING
Contractor C & E CONCRETE
Type / Use of Aggregate COARSE AGGREGATE
Sample Source / Location TINAJA PIT
Special Instructions:

Location ALBUQUERQUE LABORATORY
Arch. / Engr. UNKNOWN
Supplier / Source C & E CONCRETE
Source / Location Desig. By W.MEECH — Date 12/04/01

TEST RESULTS

SIEVE ANALYSIS ☐ ASTM C136 ☐ AASHTO T27

SIEVE SIZE U.S. - MM	ACCUMULATIVE % PASSING	SPECIFICATION
4 IN. - 100.0		
3 - 75.0		
1 1/2 - 37.5		
1 1/8 - 28.1		
1 - 25.0		
3/4 - 19.0		
1/2 - 12.5		
3/8 - 9.5		
1/4 - 6.3		
NO. 4 - 4.75		
8 - 2.36		
10 - 2.00		
16 - 1.18		
30 - .600		
40 - .425		
60 - .300		
100 - .150		
FINER THAN NO. 200 ☐ ASTM C117 ☐ AASHTO T11		

FINENESS MODULUS, ASTM C125 →

LIQUID & PLASTIC PROPERTIES
☐ ASTM D4318 ☐ AASHTO T89 & T90
METHOD ☐ A ☐ B — RESULT — SPECIFICATION
LIQUID LIMIT
PLASTIC LIMIT
PLASTICITY INDEX
SAMPLE AIR DRIED ☐ YES ☐ NO

CLEANNESS VALUE CA227 →

ORGANIC IMPURITIES ☐ ASTM C40 ☐ AASHTO T21
ORGANIC PLATE NO. →

CARBONATES IN AGGREGATE
☐ AZ 233 ☐ ASTM 3042 % →

PHYSICAL PROPERTIES			TEST RESULTS	SPECIFICATION
UNIT WEIGHT & VOIDS ☐ ASTM C29 ☐ AASHTO T19 ☐ RODDING ☐ JIGGING ☐ LOOSE	FINE AGGREGATE	UNIT WEIGHT, PCF →		
		VOIDS, % →		
	COARSE AGGREGATE	UNIT WEIGHT, PCF →		
		VOIDS, % →		
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE ☐ ASTM C128 ☐ AASHTO T84 AGGREGATE DRIED ☐ YES ☐ NO	BULK SPECIFIC GRAVITY →		
		BULK SPECIFIC GRAVITY (SSD) →		
		APPARENT SPECIFIC GRAVITY →		
		ABSORPTION, % →		
	COARSE AGGREGATE ☒ ASTM C127 ☐ AASHTO T85 AGGREGATE DRIED ☒ YES ☐ NO	BULK SPECIFIC GRAVITY →	2.628	
		BULK SPECIFIC GRAVITY (SSD) →	2.641	
		APPARENT SPECIFIC GRAVITY →	2.664	
		ABSORPTION, % →	0.54	
SAND EQUIVALENT VALUE ☐ ASTM D2419 ☐ AASHTO T176		% →		
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE ☐ ASTM C131 ☐ AASHTO T96 GRADING	100 REV., % LOSS →		
		500 REV., % LOSS →		
	LARGE COARSE AGGREGATE ☐ ASTM C535 GRADING	200 REV., % LOSS →		
		1000 REV., % LOSS →		
LIGHTWEIGHT PIECES ☐ ASTM C123 ☐ AASHTO T113		FINE AGGREGATE, % →		
		COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES ☐ ASTM C142 ☐ AASHTO T112		FINE AGGREGATE, % →		
		COARSE AGGREGATE, % →		
FRACTURED FACES ☐ AZ 212 ☐ FLH T507 ☐ FAA	COARSE AGGREGATE BY WEIGHT	ONE OR MORE FACES, % →		
		TWO OR MORE FACES, % →		
DURABILITY INDEX ☐ ASTM D3744 ☐ AASHTO T210 PROCEDURE: A ☐ COARSE B ☐ FINE C ☐ COARSE & FINE		D_c →		
		D_f →		
UNCOMPACTED VOID CONTENT ☐ AZ 247 ☐ ASTM C1252 METHOD		% →		
FLAT & ELONGATED PARTICLES ☐ ASTM D4791 ☐ DIMENSIONAL RATIO USED ☐ 1:2 ☐ 1:3 ☐ 1:5 ☐		BY WEIGHT, % →		
		BY NUMBER, % →		

Comments:

Copies To: (3) CLIENT

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SGB

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Albuquerque, New Mexico 87113
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PORTLAND CEMENT CONCRETE

Date of Report 01/04/02
Job No. 3241JT014
Event / Invoice No. 32410565
Authorized By W.MEECH
Test Calc. By M.ROYBAL

Lab No. 120465
Date 12/04/01
Date 12/04/01

Client C & E CONCRETE
POST OFFICE BOX 2647
MILAN, NEW MEXICO 87021

Project EROSION PROTECTION MATERIAL TESTING
Contractor C & E CONCRETE
Type / Use of Concrete LARGE COARSE AGGREGATE
Sample Source / Location TINAJA PIT

Location ALBUQUERQUE LABORATORY
Arch. / Engr. UNKNOWN
Supplier / Source C & E CONCRETE
Source / Location Desig. By W.MEECH — Date 12/04/01

Reference: REBOUND NUMBER OF HARDENED CONCRETE ☒ ASTM C805 ☐
Special Instructions:

MATERIAL DATA

DESIGN STRENGTH OF CONCRETE, PSI — AGE — HAMMER TYPE — SERIAL NO.
COMPOSITION OF CONCRETE:
CURING / UNUSUAL CONDITIONS RELATED TO TEST AREA:

OBSERVATIONS & TEST RESULTS

TEST NO.	LOCATION OF TEST AREA IN STRUCTURE	SURFACE DESCRIPTION		AVERAGE REBOUND READING	INDICATED COMPRESSIVE STRENGTH, PSI
		FORM TYPE	FINISH		
1				49.8	
2				48.8	
	AVERAGE:			49.3	

CAUTION: THIS TEST METHOD IS NOT INTENDED AS AN ALTERNATIVE FOR THE STRENGTH DETERMINATION OF CONCRETE. REBOUND NUMBERS SHOULD BE USED ONLY AS A GUIDE IN THE DEVELOPMENT OF CONCRETE COMPRESSIVE STRENGTH ESTIMATES AND MUST NOT BE INFERRED TO BE ABSOLUTE VALUES. OPTIMALLY REBOUND NUMBERS ARE CORROBORATED BY CORE TEST DATA. IN THE ABSENCE OF SUCH DATA, THE INDICATED STRENGTHS PROVIDED SHOULD BE USED JUDICIOUSLY AS THEY ARE BASED ON PREVIOUS RESEARCH AND CORRELATIONS WHICH MIGHT NOT BE REPRESENTATIVE OF THE CONCRETE BEING EXAMINED

Comments:

Copies To:

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C and E Concrete

EROSION PROTECTION MATERIALS TESTING

January 7, 2001

LAB ID - 1L0465

Rock Quality Scoring Tabulation

Test	Weighting Factor	Test Value	Score	Computed Score
Specific Gravity	12	2.664	8.3	99.6
Absorption, %	13	0.54	7.7	100.1
Sodium Sulfate, %	4	1.1	9.9	39.6
L/A Abrasion(100 rev), %	1	7	6.8	6.8
Schlmdt Hammer	11	49.3	6.3	69.3
			Total Score	315.4

Limestone - Thaja Pit

Use 53 SH Test

76.9

319.1/410

77.8%

WESTERN TECHNOLGIES INC.

Rio Algom Mining LLC.
SUA-1473
Docket 40-8905
Appendix C-6 - Page 18

PREQUALIFYING TEST FOR TINAJA PIT ROCK

January 07, 2001	76.9%	retest 77.8%
November 26, 2001	76.8%	
December 14, 2001	76.4%	

Design based upon 4% oversize

APPENDIX 2

Tinaja Pit Rock Petrographic Results
2001

AMERICAN PETROGRAPHIC SERVICES, INC.

December 26, 2001

Mr. Matthew Roybal
Western Technologies, Inc.
8305 Washington Place, NE
Albuquerque, NM 87113-1670

Re: Western Technologies Job No. 3241JT014
APS Job No. 10-01883

Mr. Roybal :

This report presents the results of our review of a core of carbonate rock. The sample were submitted to our laboratory by yourself on November 21, 2001. The scope of our work was limited to performing petrographic testing on the sample to determine its composition.

Conclusions

Based on the work performed and previous experience, our observations and opinions are as follows:

1. The 74mm diameter by 118mm long core is of a massive, pink, fossiliferous, calcitic dolomite. The pink coloration is produced by corrosion of pyrite grains, finely disseminated in the rock

2. The carbonate is well indurated. However, dolomitization has produced some fine porosity. Also, a single planar, pressure solution structure (stylolites) follows the length of the core. A few other discontinuous stylolites were present.

Procedures

Our work was performed on December 12, 2001 and subsequent dates. The analysis was completed through the use of hand sample and thin section work. Observations were made in thin section under an Olympus polarizing-light microscope with magnification up to 1000x and in hand sample under an Olympus stereozoom microscope with magnification up to 130x. The analysis included reviewing the thin sections of the material under plane and cross polarized light conditions. Testing was performed in accordance with APS Standard Operating Procedure 00 LAB 004, "Petrographic Examination of Aggregates for Concrete, ASTM:C295".

Remarks

The test sample will be retained for at least 30 days from the date of our report. If no further instructions are received by that time, the samples may be discarded. The petrographic services for this project have been conducted in a manner consistent with that level of care and skill exercised by members of the profession currently practicing in this area under similar budget and time constraints. No warranty, express or implied, is made.

It has been a pleasure to serve you on this project. Should you have any questions on this report, please do not hesitate to call.

Respectfully,

Gerard Moulzolf, PG
Vice President/Geologist/Petrographer
MN License #30023

00 LAB 004

PETROGRAPHIC EXAMINATION OF AGGREGATES FOR CONCRETE, ASTM:C295

APS JOB NO: 10-01883 DATE: December 26, 2001

SAMPLE NO: 1 PETROGRAPHER: Gerard Moulzolf

HAND SPECIMEN DESCRIPTION:

A massive, pink, fossiliferous, calcitic dolomite. Euhedral to subhedral dolomite grains, generally <25μm in size, mostly replace a coarser, anhedral, calcite matrix. The dolomitization has produced small pore spaces. Calcite fossil fragments, made up of mostly brachiopods with some rugose corals, are mostly retained. Very fine sand-sized (<0.125mm), detrital quartz grains are scattered throughout. Bedding was not discernable. Concentrations of 0.125mm sized, corroded, isometric, pyrite grains occur near or within coarser calcite mosaics and drusy, sparry calcite vug fillings. Many others are finely disseminated in the matrix, giving the rock its pink coloration. "Books"of white clay infill several vugs or pores scattered in the sample. The quartz sand grains, corroded pyrites, and clays, i.e. insoluble residue, concentrate within a few discontinuous, and a single continuous, sutured stylolite occurring in the core sample.

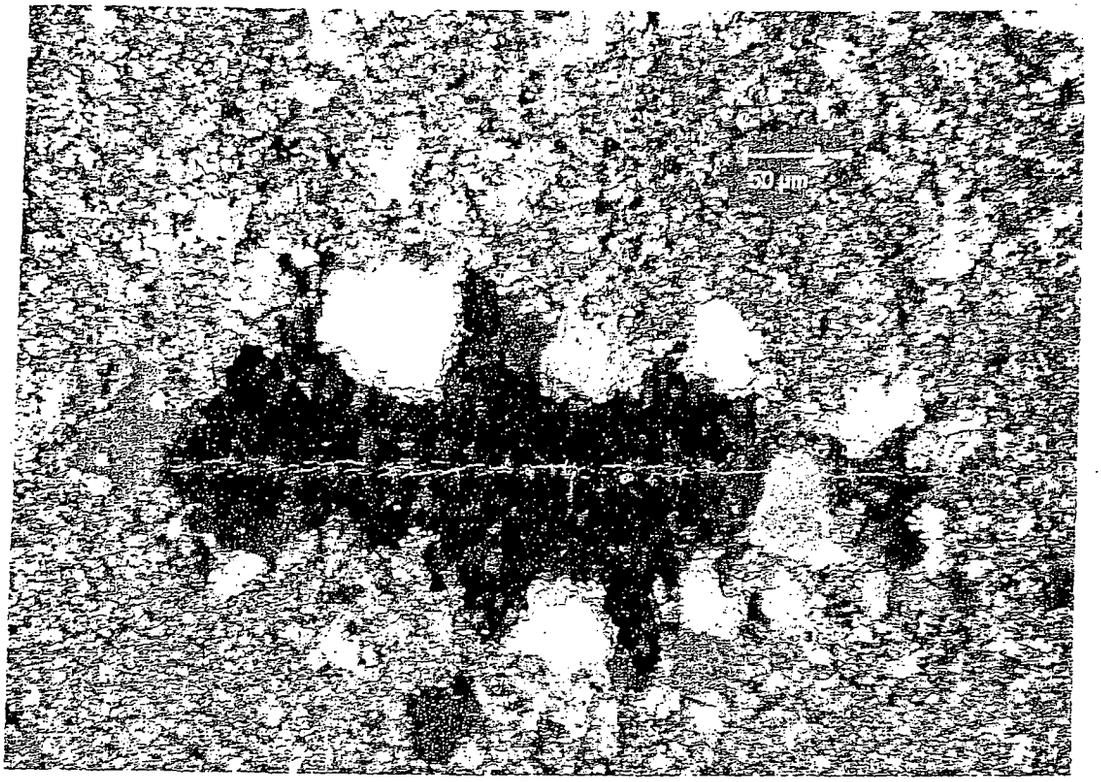
MINERALOGY: OPTICAL PROPERTIES:

MINERALS	VOL	COLOR	BIREFRINGENCE	RELIEF	HABIT, OTHER
dolomite	55	colorless	high 3rd to 4th order	varies	relief changes w/rotation, euhedral to subhedral, generally less than 25μm
calcite	40	colorless	high 3rd to 4th order	varies	relief changes w/ rotation, anhedral
quartz	3	colorless	low 1st order grays	low	detrital grains, very fine sand-sized
iron oxide	1	rust	-	moderate	corroded, isometric relics of pyrites
clay	<1	colorless	low 1st order grays	low	white in reflected light, "books", vug and pore fillings

APS# 10-01883

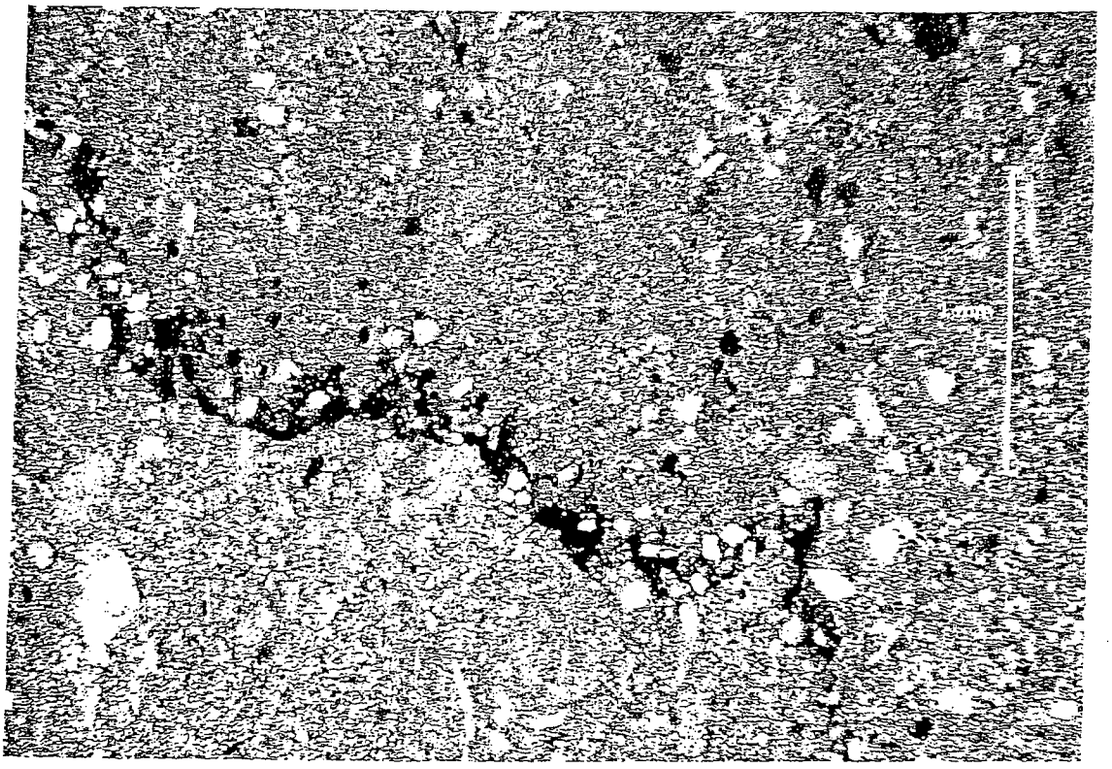
PROJECT: Western Technologies Job No. 3241JT014

DATE: DECEMBER 26, 2001



SAMPLE ID: 1 DESCRIPTION: Low 1st order grays exhibited by "books" of clay in vug; in thin section under cross polarized light.

MAG: 200x



SAMPLE ID: 1 DESCRIPTION: Insoluble residue (quartz grains, corroded pyrites, and clay) concentrates within sutured stylolite, in thin section under cross polarized light.

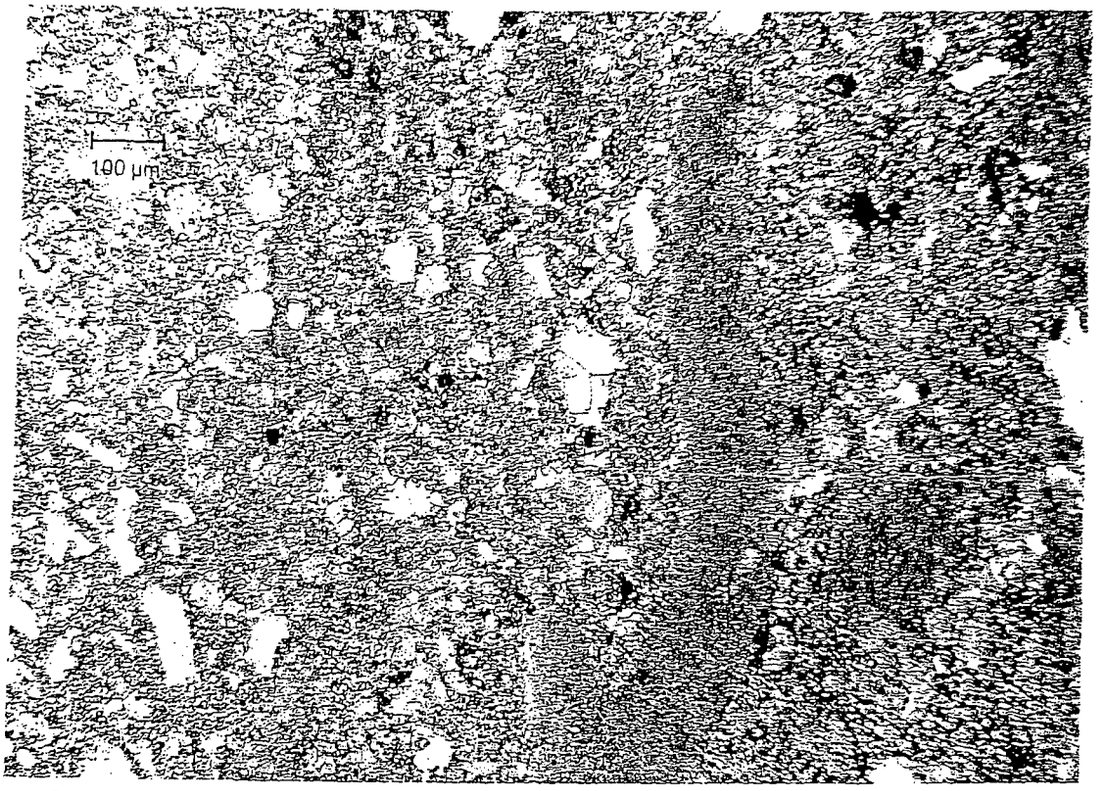
MAG: 40x

Rio Algom Mining LLC.
SUA-1473
Docket 40-8905
Appendix C-6 – Page 24

APS# 10-01883

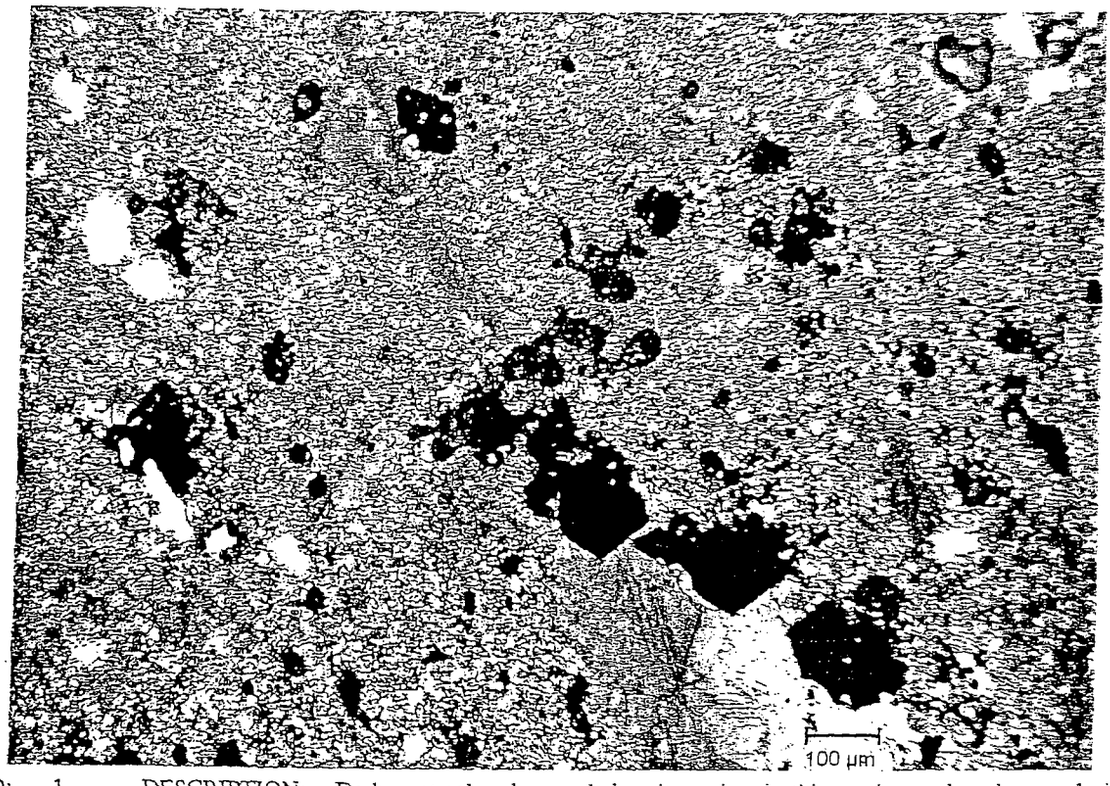
PROJECT: Western Technologies Job No. 3241JT014

DATE: DECEMBER 26, 2001



SAMPLE ID: 1 DESCRIPTION: Calcite fossil fragments and matrixare stained red; calcitic dolomite in thin section under plane polarized light.

MAG.: 100x



SAMPLE ID: 1 DESCRIPTION: Dark, rust colored, corroded pyrite grains, in thin section under plane polarized light.

MAG.: 100x

Rio Algom Mining LLC.
SUA-1473
Docket 40-8905
Appendix C-6 – Page 25

APPENDIX 3

Tinaja Pit Rock Lab Results
2003

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Albuquerque, New Mexico 87113
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LABORATORY REPORT ON AGGREGATES

Date of Report 06-12-03
Job No. 3243JA112
Event / Invoice No. 32430194 Lab No. 3L127
Authorized By WALTER MEECH Date 05-23-03
Sampled By WALTER MEECH Date 05-23-03
Submitted By WALTER MEECH Date 05-23-03

Client C&E CONCRETE
PO BOX 2547
MILAN, NEW MEXICO 87021

Project RIO ALGOM MINING COMPANY - EROSION PROTECTION
Location ALBUQUERQUE LABORATORY
Contractor C&E CONCRETE
Arch. / Engr. UNKNOWN
Type / Use of Aggregate EROSION PROTECTION
Supplier / Source TINAJA PIT
Sample Source / Location TINAJA PIT
Source / Location Desig. By WALTER MEECH Date 05-23-03

Reference: SOUNDNESS: ☒ ASTM C88 ☐ AASHTO T104 ☒ SODIUM SULFATE ☐ MAGNESIUM SULFATE
ABRASION RESISTANCE: ☒ ASTM C131 ☐ AASHTO T96 ☐ ASTM C535

Special Instructions:

TEST RESULTS

SIEVE SIZE	GRADING OF ORIGINAL SAMPLE %	WEIGHT OF TEST FRACTIONS BEFORE TEST GRAMS	PASSING DESIGNATED SIEVE AFTER TEST %	WEIGHTED PERCENTAGE LOSS	ALLOWABLE PERCENTAGE LOSS SODIUM	ALLOWABLE PERCENTAGE LOSS MAGNESIUM
SOUNDNESS TEST OF FINE AGGREGATE		SOLUTION CONDITION: ☐ NEW ☐ USED			NO. OF CYCLES	
MINUS NO. 100						
NO. 50 TO NO. 100						
NO. 30 TO NO. 50						
NO. 16 TO NO. 30						
NO. 8 TO NO. 16						
NO. 4 TO NO. 8						
3/8 IN. TO NO. 4						
TOTAL						
SOUNDNESS TEST OF COARSE AGGREGATE		SOLUTION CONDITION: ☒ NEW ☐ USED			NO. OF CYCLES 5	
2 1/2 IN. TO 1 1/2 IN.	45	1917.6	0.1	0.1		
1 1/2 IN. TO 3/4 IN.	25	1501.2	0.2	0.1		
3/4 IN. TO 3/8 IN.	15	1001.0	1.0	0.2		
3/8 IN. TO NO. 4	15	300.1	5.7	0.9		
TOTAL				1.3		

QUALITATIVE EXAMINATION OF COARSE SIZE PARTICLES EXHIBITING DISTRESS

SIEVE SIZE	SPLITTING NO.	SPLITTING %	CRUMBLING NO.	CRUMBLING %	CRACKING NO.	CRACKING %	FLAKING NO.	FLAKING %	TOTAL NO. PARTICLES BEFORE TEST
2 1/2 IN. TO 1 1/2 IN.									
1 1/2 IN. TO 3/4 IN.									

RESISTANCE TO DEGRADATION BY L.A. MACHINE		% LOSS	SPECIFICATION
SMALL COARSE AGGREGATE - GRADING A	100 REV. →	7	
	500 REV. →		
LARGE COARSE AGGREGATE - GRADING	200 REV. →		
	1000 REV. →		

Comments:

Copies To: (3) CLIENT

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PHYSICAL PROPERTIES OF AGGREGATES

Date of Report 06-12-03
Job No. 3243JA112
Event / Invoice No. 32430194 Lab No. 3L127
Authorized By WALTER MEECH Date 05-23-03
Sampled By WALTER MEECH Date 05-23-03
Submitted By WALTER MEECH Date 05-23-03

Client C&E CONCRETE
PO BOX 2547
MILAN, NEW MEXICO 87021

Project RIO ALGOM MINING COMPANY – EROSION PROTECTION
Location ALBUQUERQUE LABORATORY
Contractor C&E CONCRETE
Arch. / Engr. UNKNOWN
Type / Use of Aggregate EROSION PROTECTION
Supplier / Source TINAJA PIT
Sample Source / Location TINAJA PIT
Source / Location Desig. By WALTER MEECH Date 05-23-03
Special Instructions:

TEST RESULTS

SIEVE ANALYSIS ☐ ASTM C136 ☐ AASHTO T27

SIEVE SIZE U.S. - MM	ACCUMULATIVE % PASSING	SPECIFICATION
4 IN. - 100.0		
3 - 75.0		
2 - 50.0		
1 1/2 - 37.5		
1 1/4 - 31.5		
1 - 25.0		
3/4 - 19.0		
1/2 - 12.5		
3/8 - 9.5		
1/4 - 6.3		
NO. 4 - 4.75		
8 - 2.36		
10 - 2.00		
16 - 1.18		
30 - .600		
40 - .425		
50 - .300		
100 - .150		
FINER THAN NO. 200 ☐ ASTM C117 ☐ AASHTO T11		

FINENESS MODULUS, ASTM C125 →

LIQUID & PLASTIC PROPERTIES
☐ ASTM D4318 ☐ AASHTO T89 & T90

METHOD ☐ A ☐ B	RESULT	SPECIFICATION
LIQUID LIMIT		
PLASTIC LIMIT		
PLASTICITY INDEX		
SAMPLE AIR DRIED ☐ YES ☐ NO		

CLEANNESS VALUE CA227 →

ORGANIC IMPURITIES ☐ ASTM C40 ☐ AASHTO T21
ORGANIC PLATE NO. →

CARBONATES IN AGGREGATE
☐ AZ 238 ☐ ASTM D3042 % →

PHYSICAL PROPERTIES			TEST RESULTS	SPECIFICATION
UNIT WEIGHT & VOIDS ☐ ASTM C29 ☐ AASHTO T19 ☐ RODDING ☐ JIGGING ☐ LOOSE	FINE AGGREGATE	UNIT WEIGHT, PCF →		
		VOIDS, % →		
	COARSE AGGREGATE	UNIT WEIGHT, PCF →		
		VOIDS, % →		
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE ☐ ASTM C128 ☐ AASHTO T84 AGGREGATE DRIED ☐ YES ☐ NO	BULK SPECIFIC GRAVITY →		
		BULK SPECIFIC GRAVITY (SSD) →		
		APPARENT SPECIFIC GRAVITY →		
		ABSORPTION, % →		
	COARSE AGGREGATE ☒ ASTM C127 ☐ AASHTO T85 AGGREGATE DRIED ☒ YES ☐ NO	BULK SPECIFIC GRAVITY →	2.621	
		BULK SPECIFIC GRAVITY (SSD) →	2.641	
		APPARENT SPECIFIC GRAVITY →	2.654	
		ABSORPTION, % →	0.48	
SAND EQUIVALENT VALUE ☐ ASTM D2419 ☐ AASHTO T176		% →		
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE ☐ ASTM C131 ☐ AASHTO T96 GRADING	100 REV., % LOSS →		
		500 REV., % LOSS →		
	LARGE COARSE AGGREGATE ☐ ASTM C535 GRADING	200 REV., % LOSS →		
		1000 REV., % LOSS →		
LIGHTWEIGHT PIECES ☐ ASTM C123 ☐ AASHTO T113		FINE AGGREGATE, % →		
		COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES ☐ ASTM C142 ☐ AASHTO T112		FINE AGGREGATE, % →		
		COARSE AGGREGATE, % →		
FRACTURED FACES ☐ AZ 212 ☐ FLH T507 ☐ FAA	COARSE AGGREGATE BY WEIGHT	ONE OR MORE FACES, % →		
		TWO OR MORE FACES, % →		
DURABILITY INDEX ☐ ASTM D3744 ☐ AASHTO T210 PROCEDURE: A ☐ COARSE B ☐ FINE C ☐ COARSE & FINE		D_c →		
		D_f →		
UNCOMPACTED VOID CONTENT ☐ AZ 247 ☐ ASTM C1252 METHOD		% →		
FLAT & ELONGATED PARTICLES ☐ ASTM D4791 ☐ DIMENSIONAL RATIO USED ☐ 1:2 ☐ 1:3 ☐ 1:5 ☐		BY WEIGHT, % →		
		BY NUMBER, % →		

Comments: ASTM C 805 – SCHMIDT HAMMER AVERAGE = 59.3

Copies To: (3) CLIENT

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Rock Quality Scoring Tabulation

Test	Weighting Factor	Test Value	Score	Computed Score
Specific Gravity	12	2.621	7.8	93.6
Absorption, %	13	0.48	8.1	105.3
Sodium Sulfate, %	4	1.3	9.9	39.6
L/A Abrasion(100 rev), %	1	7	6.8	6.8
Schimdt Hammer	11	59.3	7.9	86.9
			Total Score	**332.2**

Limestone - Tinaja Pit

Rio Algom Mining LLC.
SUA-1473
Docket 40-8905
Appendix C-6 - Page 29

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Orig
C

PHYSICAL PROPERTIES OF AGGREGATES

Date of Report 07/29/03
Job No. 3243JA014
Event / Invoice No. 32430270 Lab No. 3L276-A
Authorized By WALTER MEECH Date 07/07/03
Sampled By WALTER MEECH Date 07/07/03
Submitted By WALTER MEECH Date 07/07/03

Client C&E CONCRETE
PO BOX 2547
MILAN, NEW MEXICO 87021

Project RIO ALGOM MINING COMPANY
Contractor C&E CONCRETE
Type / Use of Aggregate EROSION PROTECTION
Sample Source / Location TINAJA PIT
Special Instructions: 12" Pipe Pipe

Location ALBUQUERQUE LABORATORY
Arch. / Engr. UNKNOWN
Supplier / Source TINAJA PIT
Source / Location Desig. By WALTER MEECH Date 07/07/03

TEST RESULTS

SIEVE ANALYSIS ☐ ASTM C136 ☐ AASHTO T27

SIEVE SIZE U.S. - MM	ACCUMULATIVE % PASSING	SPECIFICATION
4 IN. - 100.0		
3 - 75.0		
2 - 50.0		
1 1/2 - 37.5		
1 1/4 - 31.5		
1 - 25.0		
3/4 - 19.0		
1/2 - 12.5		
3/8 - 9.5		
1/4 - 6.3		
NO. 4 - 4.75		
8 - 2.36		
10 - 2.00		
16 - 1.18		
30 - .600		
40 - .425		
50 - .300		
100 - .150		
FINER THAN NO. 200 ☐ ASTM C117 ☐ AASHTO T11		

FINENESS MODULUS, ASTM C125 →

LIQUID & PLASTIC PROPERTIES
☐ ASTM D4318 ☐ AASHTO T89 & T90
METHOD ☐ A ☐ B RESULT SPECIFICATION
LIQUID LIMIT
PLASTIC LIMIT
PLASTICITY INDEX
SAMPLE AIR DRIED ☐ YES ☐ NO

CLEANNESS VALUE CA227 →

ORGANIC IMPURITIES ☐ ASTM C40 ☐ AASHTO T21
ORGANIC PLATE NO. →

CARBONATES IN AGGREGATE
☐ AZ 238 ☐ ASTM D3042 % →

PHYSICAL PROPERTIES			TEST RESULTS	SPECIFICATION
UNIT WEIGHT & VOIDS ☐ ASTM C29 ☐ AASHTO T19 ☐ RODDING ☐ JIGGING ☐ LOOSE	FINE AGGREGATE	UNIT WEIGHT, PCF →		
		VOIDS, % →		
	COARSE AGGREGATE	UNIT WEIGHT, PCF →		
		VOIDS, % →		
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE ☐ ASTM C128 ☐ AASHTO T84 AGGREGATE DRIED ☐ YES ☐ NO	BULK SPECIFIC GRAVITY →		
		BULK SPECIFIC GRAVITY (SSD) →		
		APPARENT SPECIFIC GRAVITY →		
		ABSORPTION, % →		
	COARSE AGGREGATE ☒ ASTM C127 ☐ AASHTO T85 AGGREGATE DRIED ☒ YES ☐ NO	BULK SPECIFIC GRAVITY →	2.693	
		BULK SPECIFIC GRAVITY (SSD) →	2.698	
		APPARENT SPECIFIC GRAVITY →	2.706	
		ABSORPTION, % →	0.17	
SAND EQUIVALENT VALUE ☐ ASTM D2419 ☐ AASHTO T176		% →		
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE ☐ ASTM C131 ☐ AASHTO T96 GRADING	100 REV., % LOSS →		
		500 REV., % LOSS →		
	LARGE COARSE AGGREGATE ☐ ASTM C535 GRADING	200 REV., % LOSS →		
		1000 REV., % LOSS →		
LIGHTWEIGHT PIECES ☐ ASTM C123 ☐ AASHTO T113		FINE AGGREGATE, % →		
		COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES ☐ ASTM C142 ☐ AASHTO T112		FINE AGGREGATE, % →		
		COARSE AGGREGATE, % →		
FRACTURED FACES COARSE AGGREGATE BY WEIGHT ☐ AZ 212 ☐ FLH T507 ☐ FAA		ONE OR MORE FACES, % →		
		TWO OR MORE FACES, % →		
DURABILITY INDEX ☐ ASTM D3744 ☐ AASHTO T210 PROCEDURE: A ☐ COARSE B ☐ FINE C ☐ COARSE & FINE		D_c →		
		D_f →		
UNCOMPACTED VOID CONTENT ☐ AZ 247 ☐ ASTM C1252 METHOD		% →		
FLAT & ELONGATED PARTICLES ☐ ASTM D4791 ☐ DIMENSIONAL RATIO USED ☐ 1:2 ☐ 1:3 ☐ 1:5 ☐		BY WEIGHT, % →		
		BY NUMBER, % →		

Comments: ASTM C 805 - SCHMIDT HAMMER AVERAGE - 61.4

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LABORATORY REPORT ON AGGREGATES

Date of Report 07/29/03
Job No. 3243JA014
Event / Invoice No. 32430270 Lab No. 3L276-A
Authorized By WALTER MEECH Date 07/07/03
Sampled By WALTER MEECH Date 07/07/03
Submitted By WALTER MEECH Date 07/07/03

Client C&E CONCRETE
PO BOX 2547
MILAN, NEW MEXICO 87021

Project RIO ALGOM MINING COMPANY-EROSION PROTECTION
Location ALBUQUERQUE LABORATORY
Contractor C&E CONCRETE
Arch. / Engr. UNKNOWN
Type / Use of Aggregate EROSION PROTECTION
Supplier / Source TINAJA PIT
Sample Source / Location TINAJA PIT
Source / Location Desig. By WALTER MEECH Date 07/07/03

Reference: SOUNDNESS: [X] ASTM C88 [ ] AASHTO T104 [X] SODIUM SULFATE [ ] MAGNESIUM SULFATE
ABRASION RESISTANCE: [X] ASTM C131 [ ] AASHTO T96 [ ] ASTM C535

Special Instructions:

TEST RESULTS

SIEVE SIZE	GRADING OF ORIGINAL SAMPLE %	WEIGHT OF TEST FRACTIONS BEFORE TEST GRAMS	PASSING DESIGNATED SIEVE AFTER TEST %	WEIGHTED PERCENTAGE LOSS	ALLOWABLE PERCENTAGE LOSS SODIUM	ALLOWABLE PERCENTAGE LOSS MAGNESIUM
SOUNDNESS TEST OF FINE AGGREGATE		SOLUTION CONDITION: [ ] NEW [ ] USED			NO. OF CYCLES	
MINUS NO. 100						
NO. 50 TO NO. 100						
NO. 30 TO NO. 50						
NO. 16 TO NO. 30						
NO. 8 TO NO. 16						
NO. 4 TO NO. 8						
3/8 IN. TO NO. 4						
TOTAL						
SOUNDNESS TEST OF COARSE AGGREGATE		SOLUTION CONDITION: [X] NEW [ ] USED			NO. OF CYCLES 5	
2 1/2 IN. TO 1 1/2 IN.						
1 1/2 IN. TO 3/4 IN.	25	501.8	7.0	1.8		
3/4 IN. TO 3/8 IN.	50	1001.4	3.1	1.6		
3/8 IN. TO NO. 4	25	300.3	2.4	.6		
TOTAL	100			4.0		

QUALITATIVE EXAMINATION OF COARSE SIZE PARTICLES EXHIBITING DISTRESS

SIEVE SIZE	SPLITTING NO.	SPLITTING %	CRUMBLING NO.	CRUMBLING %	CRACKING NO.	CRACKING %	FLAKING NO.	FLAKING %	TOTAL NO. PARTICLES BEFORE TEST
2 1/2 IN. TO 1 1/2 IN.									
1 1/2 IN. TO 3/4 IN.									

RESISTANCE TO DEGRADATION BY L.A. MACHINE		% LOSS	SPECIFICATION
SMALL COARSE AGGREGATE - GRADING A	100 REV. →	6.2	
	500 REV. →		
LARGE COARSE AGGREGATE - GRADING	200 REV. →		
	1000 REV. →		

Comments:

Copies To: (3) CLIENT

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Rock Quality Scoring Tabulation

Test	Weighting Factor	Test Value	Score	Computed Score
Specific Gravity	12	2.693	8.8	105.6
Absorption, %	13	0.17	9.5	123.5
Sodium Sulfate, %	4	4	8.5	34
L/A Abrasion(100 rev), %	1	6.2	7.3	7.3
Schimdt Hammer	11	61.4	8.1	89.1
			Total Score	**359.5**

Limestone - Tinaja Pit

Sample 3L276-A
Sample on July 7, 2003

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PHYSICAL PROPERTIES OF AGGREGATES

Date of Report 07/29/03
Job No. 3243JA014
Event / Invoice No. 32430270 Lab No. 3L276-B
Authorized By WALTER MEECH Date 07/07/03
Sampled By WALTER MEECH Date 07/07/03
Submitted By WALTER MEECH Date 07/07/03

Client C&E CONCRETE
PO BOX 2547
MILAN, NEW MEXICO 87021

Project RIO ALGOM MINING COMPANY
Contractor C&E CONCRETE
Type / Use of Aggregate EROSION PROTECTION
Sample Source / Location TINAJA PIT
Special Instructions: 7.5" start

Location ALBUQUERQUE LABORATORY
Arch. / Engr. UNKNOWN
Supplier / Source TINAJA PIT
Source / Location Desig. By WALTER MEECH Date 07/07/03

TEST RESULTS

SIEVE ANALYSIS ☐ ASTM C136 ☐ AASHTO T27

SIEVE SIZE U.S. - MM	ACCUMULATIVE % PASSING	SPECIFICATION
4 IN. -100.0		
3 - 75.0		
2 - 50.0		
1 1/2 - 37.5		
1 1/4 - 31.5		
1 - 25.0		
3/4 - 19.0		
1/2 - 12.5		
3/8 - 9.5		
1/4 - 6.3		
NO. 4 - 4.75		
8 - 2.36		
10 - 2.00		
16 - 1.18		
30 - .600		
40 - .425		
50 - .300		
100 - .150		
FINER THAN NO. 200 ☐ ASTM C117 ☐ AASHTO T11		

FINENESS MODULUS, ASTM C125 →

LIQUID & PLASTIC PROPERTIES
☐ ASTM D4318 ☐ AASHTO T89 & T90
METHOD ☐ A ☐ B RESULT SPECIFICATION
LIQUID LIMIT
PLASTIC LIMIT
PLASTICITY INDEX
SAMPLE AIR DRIED ☐ YES ☐ NO

CLEANNESS VALUE CA227 →

ORGANIC IMPURITIES ☐ ASTM C40 ☐ AASHTO T21
ORGANIC PLATE NO. →

CARBONATES IN AGGREGATE
☐ AZ 238 ☐ ASTM D3042 % →

PHYSICAL PROPERTIES			TEST RESULTS	SPECIFICATION
UNIT WEIGHT & VOIDS ☐ ASTM C29 ☐ AASHTO T19 ☐ RODDING ☐ JIGGING ☐ LOOSE	FINE AGGREGATE	UNIT WEIGHT, PCF →		
		VOIDS, % →		
	COARSE AGGREGATE	UNIT WEIGHT, PCF →		
		VOIDS, % →		
SPECIFIC GRAVITY & ABSORPTION	FINE AGGREGATE ☐ ASTM C128 ☐ AASHTO T84 AGGREGATE DRIED ☐ YES ☐ NO	BULK SPECIFIC GRAVITY →		
		BULK SPECIFIC GRAVITY (SSD) →		
		APPARENT SPECIFIC GRAVITY →		
		ABSORPTION, % →		
	COARSE AGGREGATE ☒ ASTM C127 ☐ AASHTO T85 AGGREGATE DRIED ☒ YES ☐ NO	BULK SPECIFIC GRAVITY →	2.625	
		BULK SPECIFIC GRAVITY (SSD) →	2.641	
		APPARENT SPECIFIC GRAVITY →	2.668	
		ABSORPTION, % →	0.62	
SAND EQUIVALENT VALUE ☐ ASTM D2419 ☐ AASHTO T176		% →		
RESISTANCE TO DEGRADATION	SMALL COARSE AGGREGATE ☐ ASTM C131 ☐ AASHTO T96 GRADING	100 REV., % LOSS →		
		500 REV., % LOSS →		
	LARGE COARSE AGGREGATE ☐ ASTM C535 GRADING	200 REV., % LOSS →		
		1000 REV., % LOSS →		
LIGHTWEIGHT PIECES ☐ ASTM C123 ☐ AASHTO T113		FINE AGGREGATE, % →		
		COARSE AGGREGATE, % →		
CLAY LUMPS & FRIABLE PARTICLES ☐ ASTM C142 ☐ AASHTO T112		FINE AGGREGATE, % →		
		COARSE AGGREGATE, % →		
FRACTURED FACES COARSE AGGREGATE BY WEIGHT ☐ AZ 212 ☐ FLH T507 ☐ FAA		ONE OR MORE FACES, % →		
		TWO OR MORE FACES, % →		
DURABILITY INDEX ☐ ASTM D3744 ☐ AASHTO T210 PROCEDURE: A ☐ COARSE B ☐ FINE C ☐ COARSE & FINE		D_c →		
		D_f →		
UNCOMPACTED VOID CONTENT ☐ AZ 247 ☐ ASTM C1252 METHOD		% →		
FLAT & ELONGATED PARTICLES ☐ ASTM D4791 ☐ DIMENSIONAL RATIO USED ☐ 1:2 ☐ 1:3 ☐ 1:5 ☐		BY WEIGHT, % →		
		BY NUMBER, % →		

Comments: ASTM C 805 - SCHMIDT HAMMER AVERAGE - 65.2

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LABORATORY REPORT ON AGGREGATES

Date of Report 07/29/03
Job No. 3243JA014
Event / Invoice No. 32430270 Lab No. 3L276-B
Authorized By WALTER MEECH Date 07/07/03
Sampled By WALTER MEECH Date 07/07/03
Submitted By WALTER MEECH Date 07/07/03

Client C&E CONCRETE
PO BOX 2547
MILAN, NEW MEXICO 87021

Project RIO ALGOM MINING COMPANY-EROSION PROTECTION
Location ALBUQUERQUE LABORATORY
Contractor C&E CONCRETE
Arch. / Engr. UNKNOWN
Type / Use of Aggregate EROSION PROTECTION
Supplier / Source TINAJA PIT
Sample Source / Location TINAJA PIT
Source / Location Desig. By WALTER MEECH Date 07/07/03

Reference: SOUNDNESS: ☒ ASTM C88 ☐ AASHTO T104 ☒ SODIUM SULFATE ☐ MAGNESIUM SULFATE
ABRASION RESISTANCE: ☒ ASTM C131 ☐ AASHTO T96 ☐ ASTM C535

Special Instructions:

TEST RESULTS

SIEVE SIZE	GRADING OF ORIGINAL SAMPLE %	WEIGHT OF TEST FRACTIONS BEFORE TEST GRAMS	PASSING DESIGNATED SIEVE AFTER TEST %	WEIGHTED PERCENTAGE LOSS	ALLOWABLE PERCENTAGE LOSS SODIUM	ALLOWABLE PERCENTAGE LOSS MAGNESIUM
SOUNDNESS TEST OF FINE AGGREGATE		SOLUTION CONDITION: ☐ NEW ☐ USED			NO. OF CYCLES	
MINUS NO. 100						
NO. 50 TO NO. 100						
NO. 30 TO NO. 50						
NO. 16 TO NO. 30						
NO. 8 TO NO. 16						
NO. 4 TO NO. 8						
3/8 IN. TO NO. 4						
TOTAL						
SOUNDNESS TEST OF COARSE AGGREGATE		SOLUTION CONDITION: ☒ NEW ☐ USED			NO. OF CYCLES 5	
2 1/2 IN. TO 1 1/2 IN.						
1 1/2 IN. TO 3/4 IN.	25	501.7	6.8	0.2		
3/4 IN. TO 3/8 IN.	50	1000.2	1.3	0.7		
3/8 IN. TO NO. 4	25	300.0	5.4	1.4		
TOTAL	100			2.3		

QUALITATIVE EXAMINATION OF COARSE SIZE PARTICLES EXHIBITING DISTRESS

SIEVE SIZE	SPLITTING NO.	SPLITTING %	CRUMBLING NO.	CRUMBLING %	CRACKING NO.	CRACKING %	FLAKING NO.	FLAKING %	TOTAL NO. PARTICLES BEFORE TEST
2 1/2 IN. TO 1 1/2 IN.									
1 1/2 IN. TO 3/4 IN.									

RESISTANCE TO DEGRADATION BY L.A. MACHINE		% LOSS	SPECIFICATION
SMALL COARSE AGGREGATE - GRADING A	100 REV. →	7	
	500 REV. →		
LARGE COARSE AGGREGATE - GRADING	200 REV. →		
	1000 REV. →		

Comments:

Copies To: (3) CLIENT

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Rock Quality Scoring Tabulation

Test	Weighting Factor	Test Value	Score	Computed Score
Specific Gravity	12	2.625	7.5	90
Absorption, %	13	0.62	7.3	94.9
Sodium Sulfate, %	4	2.3	9.5	38
L/A Abrasion(100 rev), %	1	6.2	7.3	7.3
Schimdt Hammer	11	65.2	9.1	100.1
			Total Score	**330.3**

Limestone - Tinaja Pit

80.5

Sample 3L276-B
Sample on July 7, 2003

Rio Algom Mining LLC.
SUA-1473
Docket 40-8905
Appendix C-6 - Page 36

APPENDIX 4

Tinaja Pit Rock Lab Results
2003

JUL 09 2003

AMERICAN PETROGRAPHIC SERVICES, INC.

PETROGRAPHIC ANALYSIS OF AGGREGATE

PROJECT:

C & E CONCRETE
RIO ALGOM MINING COMPANY
EROSION PROTECTION ROCK

REPORTED TO:

WESTERN TECHNOLOGIES, INC.
8305 WASHINGTON PLACE, N.E.
ALBUQUERQUE, NM 87113-1670

ATTN: ANDREW CUADERES

APS JOB NO: 10-02627

DATE: JUNE 25, 2003

INTRODUCTION

This report presents the results of laboratory work performed by our firm on one sample of crushed carbonate submitted to us by Ms. Deborah Hammer of Western Technologies, Inc. on May 28, 2003. The scope of our work was limited to performing petrographic analysis testing on the aggregate sample to provide a geological description of the material as well as identify any potentially deleterious properties when it is used for erosion control.

SAMPLE IDENTIFICATION

Sample Identification:	Tineja Pit, #3L127
Sample Type:	Crushed Carbonate
Original Sample size, lbs:	14.8

TEST RESULTS

Our complete petrographic analysis test results appear on the attached data sheets. A summary of our analysis and opinions are as follows:

1. The angular, crushed particles ranged from equidimensional to flat and elongate. The material was relatively clean of rock flour.

2. The material ranged from a pinkish-brown limestone to a pinkish-tan dolomitic limestone. The material contained equal amounts of both lithologies. Fossil fragments observed in both fossiliferous carbonates include echinoderms, brachiopods, and bivalves.

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SUA-1473
Docket 40-8905

4. In general, the rock was judged to be hard, sound, and appeared durable. However, the dolomitic limestone contains significantly more fine pore space, produced by the dolomitization process, than the limestone.

5. We believe the carbonate material to be a good candidate for erosion control under moderate exposure conditions.

TEST PROCEDURES

Laboratory testing was performed on June 10, 2003 and subsequent dates. The petrographic analysis was performed on representative hand samples and in thin section. A total of six thin sections were produced from selected lithologies. Observations were made using an Olympus polarizing-light microscope with magnification up to 1000x and an Olympus stereozoom microscope with magnification up to 130x. Testing was performed in accordance with APS Standard Operating Procedure 00 LAB 004, "Petrographic Examination of Aggregates for Concrete, ASTM:C295."

Photographs are included to illustrate our work and conclusions.

REMARKS

The test sample will be retained for a period of at least thirty days from the date of this report. Unless further instructions are received by that time, the sample may be discarded. Potential reactivity testing can be performed in our laboratories. The geologic services for this project have been conducted in a manner consistent with that level of care and skill exercised by members of the profession currently practicing in this area under similar budget and time constraints. No warranty, express or implied, is made.

If we can be of further assistance to you, please contact Gerard Moulzolf at (651) 659-1346 or Scott Wolter at (651) 659-1345.

Report Prepared by:

Gerard Moulzolf, PG
Vice President/Geologist/Petrographer
MN License #30023

Report Reviewed by:

Scott F. Wolter, PG
President
MN License #30024

00 LAB 004

PETROGRAPHIC EXAMINATION OF AGGREGATES FOR CONCRETE, ASTM:C295

APS JOB NO:	10-02627	DATE:	June 25, 2003
SAMPLE NO:	Thin Sections 1, 2, and 3	PETROGRAPHER:	C. Tillema/G.Moulzolf

DESCRIPTION: Pinkish-tan biosparite; a fossiliferous, dolomitic limestone. The carbonate consists of partially obscured echinoderm, brachiopods, and bivalve fossils with medium to coarse calcite spar in a matrix of dolomite microspar (4μm-10μm, #3), pseudospar (10μm-50μm, #2) and a mixture of both (#1). Very fine grained, well disseminated iron oxide grains were observed throughout the dolomitized matrix. Dolomitization has produced fine porespace throughout the dolomite -rich matrix. A trace of silicification was observed in a few microfossil cores.

A small amount of very fine sand to coarse silt-sized, detrital quartz and feldspar grains were observed in all thin sections. Thin, crosscutting, clear to orange-red stained calcite veinlets were observed in the hand samples 1 and 2. A vein of coarse, white calcite was observed on the outer surface of hand sample 1. Orange-red iron oxide staining was observed within the calcite vein and many veinlets.

MINERALOGY: OPTICAL PROPERTIES:

MINERALS	VOL*	COLOR	BIREFRINGENCE	RELIEF	HABIT, OTHER
calcite	49%	colorless	high 3rd to 4th order	varies	relief changes with rotation
dolomite	48%	colorless	high 3rd to 4th order	varies	relief changes with rotation
quartz	2%	colorless	1st order grays	low	detrital sand grains, clean, unit extinction
feldspar	1%	colorless	1st order grays	low	detrital sand grains, alteration to sericite
chalcedony	trace	colorless	1st order grays	low	spherulitic growth of fibrous quartz
iron oxide	trace	opaque to red	-	-	red to orange-red in reflected light

*visual estimation of thin section 3 (stained with alizarin red)

00 LAB 004

PETROGRAPHIC EXAMINATION OF AGGREGATES FOR CONCRETE. ASTM:C295

APS JOB NO:	10-02627	DATE:	June 25, 2003
SAMPLE NO:	Thin Sections 4, 5, and 6	PETROGRAPHER:	C. Tillema/G.Moulzolf

DESCRIPTION: Pinkish-brown calcite biosparite; a fossiliferous limestone. The carbonate consists of partially obscured echinoderm, brachiopods, and bivalve microfossils with few ooids in a porphyrotopic matrix of calcite. Fine grained, well disseminated iron oxide grains were observed throughout the matrix.

A small amount of coarse silt-sized, detrital quartz and feldspar grains were observed in all thin sections. Thin, clear sparry calcite veinlets were observed in the thin section 6. A stylolite, a sutured pressure solution structure, was observed in hand sample 6. The pink coloration of the stylolite is most likely due to the concentration of iron oxide.

Chalcedony (chert) nodules, up to a few mm in size, occur in the cores of several microfossil grains.

MINERALOGY: OPTICAL PROPERTIES:

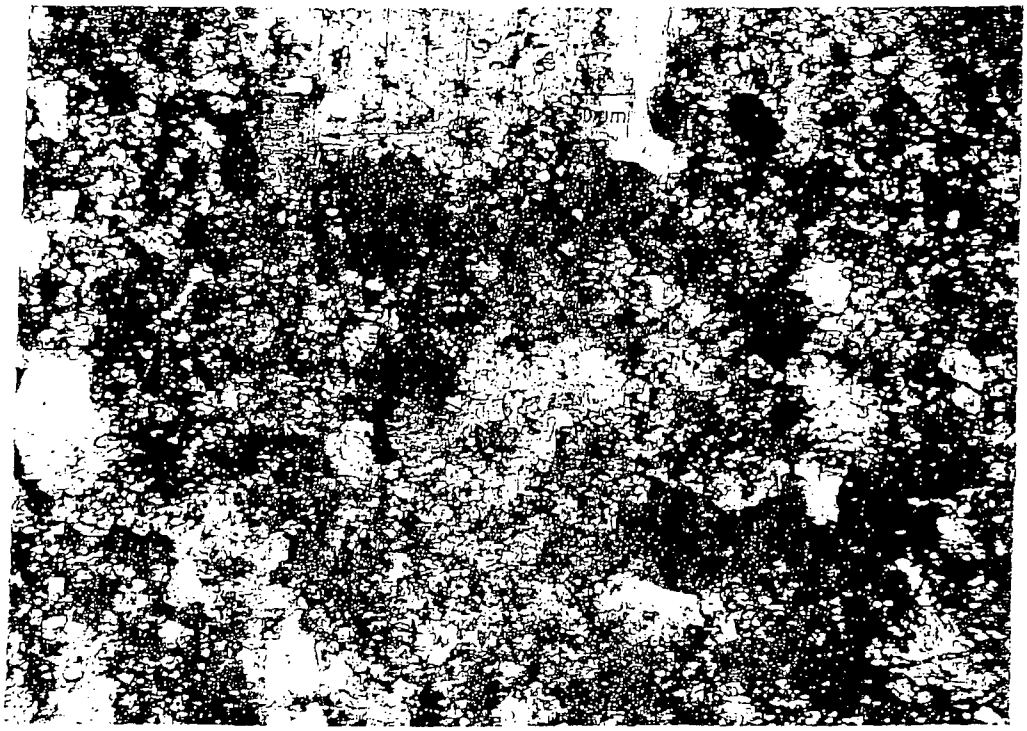
MINERALS	VOL*	COLOR	BIREFRINGENCE	RELIEF	HABIT, OTHER
calcite	97%	colorless	high 3rd to 4th order	varies	relief changes with rotation
chalcedony	3%	colorless	1st order grays	low	spherulitic growth of fibrous quartz, occurring in microfossil cores
quartz	1%	colorless	1st order grays	low	detrital sand grains, unit extinction,
feldspar	<1%	colorless	1st order grays	low	detrital sand grains, alteration to sericite
iron oxide	trace	opaque to red	-	-	red to orange-red in reflected light

*visual estimation of thin section 6 (stained with alizarin red)

Rio Algom Mining LLC.
SUA-1473
Docket 40-8905

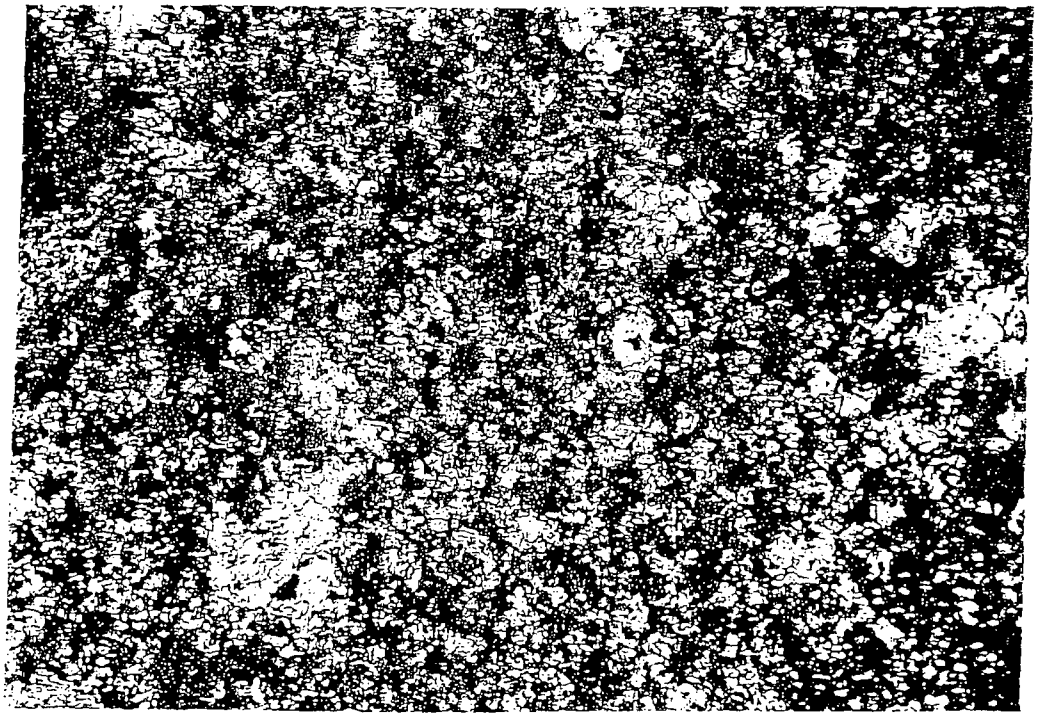
APS# 10-02627
PROJECT: C & E CONCRETE
RIO ALGOM MINING CO. - EROSION PROTECTION ROCK

DATE: JUNE 25, 2003



SAMPLE ID: Thin Section 1 DESCRIPTION: Gray, very fine sand to coarse silt-sized, detrital quartz grains in thin section of fossiliferous, dolomitic limestone under cross polarized light.

MAG: 200x



SAMPLE ID: Thin Section 2 DESCRIPTION: Porosity (black) in fine, dolomite-rich matrix; thin section of dolomitic limestone under cross polarized light.

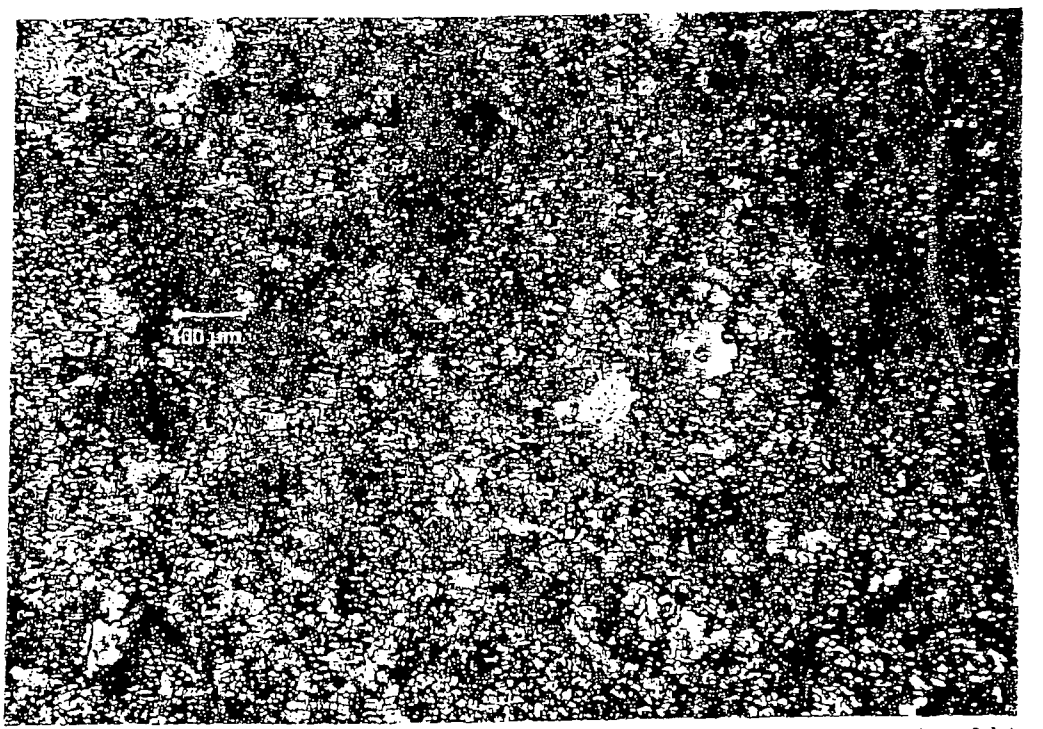
MAG: 200x

APS# 10-02627
PROJECT: C & E CONCRETE
RIO ALGOM MINING CO. - EROSION PROTECTION ROCK

DATE: JUNE 25 2003

SAMPLE ID: Thin Section 2 DESCRIPTION: White to black chalcedony nodule in core of microfossil grain; in thin section of fossiliferous, dolomitic limestone under cross polarized light.

MAG: 100x

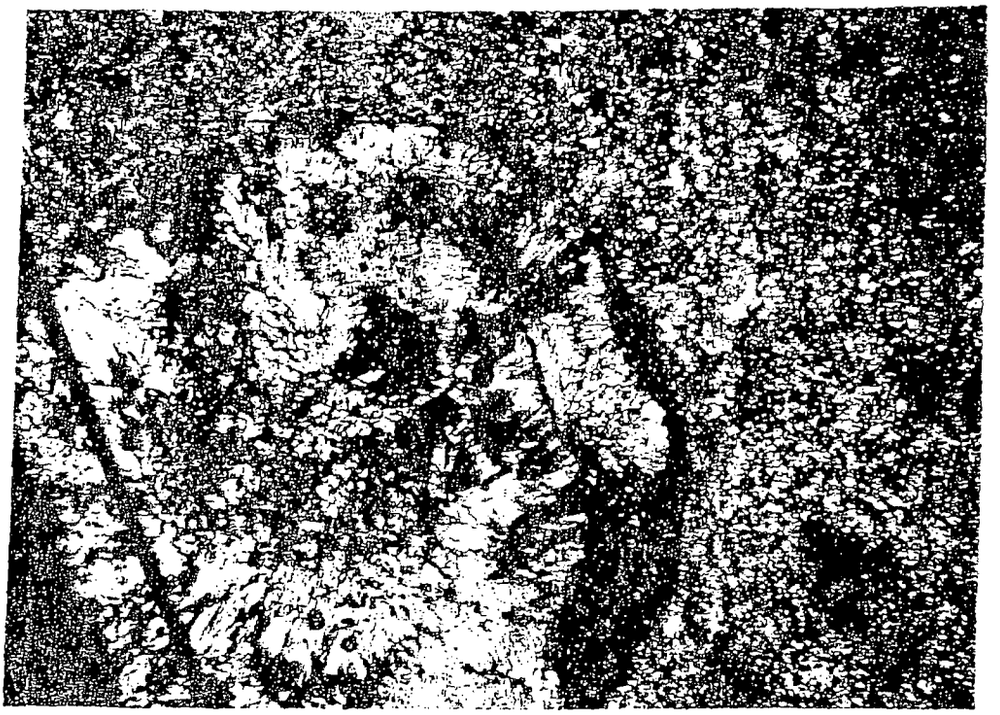


SAMPLE ID: Thin Section 3 DESCRIPTION: Pink stained calcite and unstained dolomite in thin section of dolomitic limestone under plane polarized light.

MAG: 100x

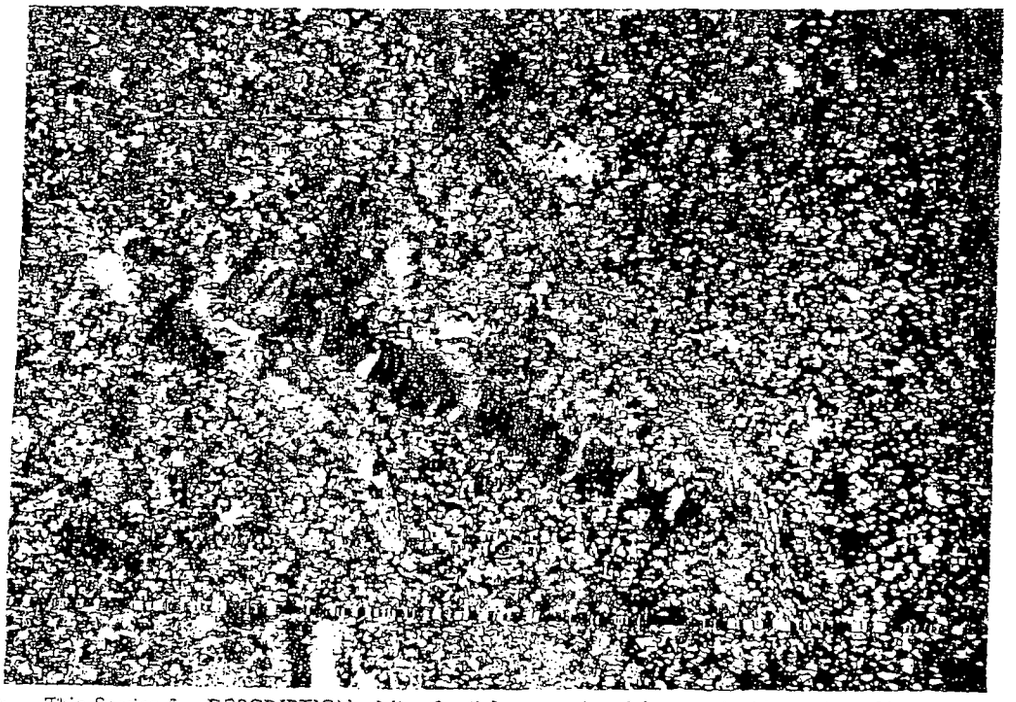
APS# 10-02627
PROJECT: C & E CONCRETE
RIO ALGOM MINING CO. - EROSION PROTECTION ROCK

DATE: JUNE 23, 2003



SAMPLE ID: Thin Section 4 DESCRIPTION: White to black chalcedony nodule mostly replaces core of echinoderm micro-fossil grain; in thin section of fossiliferous limestone under cross polarized light.

MAG: 40x



SAMPLE ID: Thin Section 5 DESCRIPTION: Microfossil fragments in calcite spar; in thin section of limestone under cross polarized light.

MAG: 40x

RIO ALGOM MINING COMPANY, LLC
Rock Gradations - Erosion Protection Rock
March 10, 2003

DESCRIPTION D_{50}	SIEVE SIZE (inches)	Percent Passing %
17 inch	28	100
Oversize 17.7"	18	45-70
	15	20-52
	11	0-16
12 inch	20	100
Oversize 12.5"	16	72-94
	12	62-32
9.2 inch	15	100
Oversize 9.6"	12	70-90
	9	33-50
	6	0-10
7.5 inch	12	100
Oversize 7.8"	9	60-85
	6	5-30
	4	0-5
3.2 inch	6	100
Oversize: See Note Below	5	78-100
	4	35-100
	3	12-45
	2	0-20
2.2 inch	5	100
Oversize 2.3"	4	82-97
	3	43-84
	2	13-50
	1	0-7
1 inch	3	100
Oversize: See Note Below	2	80-90
	3/4	20-70
	3/8	10-30
	No. 4	0-10
Filter Sand	No. 4	100
No Oversize Required	No. 10	80-100
	No. 20	36-76
	No. 40	10-20
	No. 100	0-10

Note: Oversize of gradation did not affect the individual rock size range

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

July 31, 1997

orig - File -
KM, Amb. Lake
NRC Incoming
cc: T. Fletcher
P. Cothliger
B. Ferdinand
Tech Reclamation Plan

Mr. Marvin Freeman, Vice President
Quivira Mining Company
6305 Waterford Bldg., Suite 325
Oklahoma City, Oklahoma 73118

SUBJECT: SEISMIC EVALUATION OF AMBROSIA LAKE TAILINGS IMPOUNDMENTS

Dear Mr. Freeman:

The U.S. Nuclear Regulatory Commission staff has completed its re-evaluation of the seismic design aspects of the previously approved reclamation plan for Quivira Mining Company's (QMC's) Ambrosia Lake, New Mexico, uranium mill and tailings site. The seismic design re-evaluation is documented in the enclosed Technical Evaluation Report (TER). The staff has concluded that QMC's design is acceptable, and the seismic design evaluation issue is closed.

If you have any questions concerning this letter or the enclosed TER, please contact the NRC Project Manager for the Ambrosia Lake site, Ken Hooks, at (301) 415-7777.

Sincerely,

Joseph J. Holonich, Chief
Uranium Recovery Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Docket No. 40-8905
License No. SUA-1473

Enclosure: Technical Evaluation Report

cc: J. Virgona, DOE GJPO
R. Ohrbom, NMED

TECHNICAL EVALUATION REPORT

DATE:	July 03. 1997	
DOCKET NO.:	40-8905	LICENSE NO. SUA-1473
LICENSEE:	Quivira Mining Company	
FACILITY:	Ambrosia Lake	
PROJECT MANAGER:	Kenneth Hooks	
TECHNICAL REVIEWERS:	Banad Jagannath, NRC Simon Hsiung, CNWRA	

BACKGROUND AND CONCLUSIONS:

The staff recently concluded that, based on the Atlas seismic review experience, there might be other sites for which the seismic stability analysis needed to be reassessed. As a first step in this effort, the Lawrence Livermore National Laboratory (LLNL) was contracted to look at the seismic characteristics associated with all the licensed tailings sites and provide information on recommended ground acceleration values.

In its review of the Quivira Mining Company (QMC) Ambrosia Lake site, the staff and its contractors used the reclamation plan submitted by QMC on September 25, 1986 and the seismic reevaluation submittal on August 9, 1990. The reclamation plan described the reclamation activities and provided drawings. The seismic stability of the critical slopes were evaluated using shear strength parameters provided in the licensee's report and considering the LLNL suggested peak ground acceleration (PGA). A PGA of 0.22g was used. Based on the results of the analyses, it is concluded that the design of the site is sufficient to withstand the PGA associated with the maximum credible earthquake. Therefore, the site appears to meet criterion 4(e) of Appendix A to 10 CFR Part 40. No additional information from the Licensee is required at this time.

EVALUATION:

Seismic slope stability is a function of several factors including: 1) critical slope geometry, 2) subsurface stratigraphy, 3) soil strength parameters, and 4) PGA. This reevaluation considered all of these factors, and is discussed below.

Critical Slope Geometry

The steepest gradient of the slopes are 4.75H:1V for Pond 1 and 2.33H:1V for Pond 2. The stability of these steep slopes of the retention dams were evaluated.

Subsurface Stratigraphy

The site was modelled considering three soil types: 1) the tailings embankment fill soils, 2) the foundation soils, and 3) the stabilized tailings. For simplification, it was assumed that the tailings cover system and the armored slope at the toe were similar to the embankment fill. This assumption results in conservative strength parameters. Slope geometry, soil properties, and piezometric surface location were adopted from QMC 1990 submittal on seismic evaluation of slopes. These were previously reviewed and accepted by NRC to be reasonable.

Soil Parameters

Soil parameters used in the slope stability analysis include dry and wet unit weight, friction angle, and cohesion. These were from QMC 1990 report and were deemed reasonable.

Peak Ground Acceleration

The seismic coefficient selected for the site was based on LLNL's report "Seismic Hazard Analysis of Title II Reclamation Plans" dated June 26, 1994. A PGA of 0.22g was recommended for this site in the LLNL report. Since literature indicates that pseudo-static analyses are valid for PGA values less than 0.3g, and the slope is relatively flat, a horizontal seismic coefficient equal to two-thirds (i.e., .147) of a PGA of 0.22g was used in the pseudo-static stability analysis.

Method of Analysis

The computer code PCSTABL5M was used to calculate the seismic factor of safety. A pseudo-static approach was used wherein the ground acceleration is modeled as a horizontal force. Regulatory Guide 3.11 defines the minimum acceptable factor of safety for seismic analyses as 1.0. A circular failure search mode was used in the staff's analysis. The analyses yielded a minimum factor of safety of 1.64 for Pond 1 slope and 1.11 for Pond 2 slope. The factor of safety represents the ratio of the forces resisting failure to the forces tending to cause failure. Therefore, a factor of safety greater than 1.0 indicates a stable configuration and condition. Because actual seismically induced forces occur over a relatively short period, a pseudo-statically calculated seismic factor of safety slightly less than 1.0 does not always result in excess slope deformations.

Based on the results of the analyses, the staff concludes that the design of the site is sufficient to withstand the peak ground acceleration associated with the maximum credible earthquake. Therefore, the site meets criterion 4(e) of Appendix A to 10 CFR Part 40.

APPENDIX C

APPENDIX C-1

HYDROLOGY & ROCK SIZE CALCULATIONS

MAXIM TECHNOLOGIES
A DIVISION OF TETRA TECH, INC.

BY MTB DATE 3-16-07

JOB TITLE Rio Algom Mining JOB NUMBER

SUBJECT PMP Calculation - Local Storm - Cell 2 SHEET 1 / 21

PER Approved Design Report:

"Design Report
Pond 3 Erosion Protection and
Erosion Protection for the Area
North of Pond 1, Ambrosia Lake Mill,
New Mexico, April 22, 2002"

Section 1.0 - Methods

- PMP previous calculation = 9.6 inches
- MAX calculation = 9.5 inches

Determination: Use PMP Rainfall Depth = 9.6"

Recheck: See Fig 1.1 (Sht 3) - Regions covered by generalized PMP studies to use following reference for Cell 2

Reference — Hydrometeorological Report No. 55A (HMR 55A)
U.S. Dept. of Commerce
NOAA, June 1988

Section 14.3 - Stepwise procedure, Local Storm
(See Sheets 4-7)

1. Index 1-hr 1-mi² PMP estimate at 5000 ft elevation

See Plate VI c: Drainage Average Index = 10.6 inches
(See Sheet 8)

2. Adjustment for mean elevation of drainage

Mean elev. of Cell #2 = 7000 ft.

From Fig 4.11 - Maximum persisting 12-hr 1000-mb
(Sheet 9) Dew Point for July = 76.6 °F

From Fig 14.3 Adjustment for elevation
(Sheet 5) at 76.6 °F = 0.90

3. Index 1-hr 1-mi² PMP estimate at mean elev. of site

0.90 x 10.6 inches = 9.54 inches ≈ 9.6 inches

MAXIM TECHNOLOGIES
A DIVISION OF TETRA TECH, INC.

BY MJB DATE 3-16-07

JOB TITLE RIO ALGOM MINING JOB NUMBER

SUBJECT PMP CALCULATION LOCAL STORM SHEET 2/21

4. DEPTH - DURATION CURVE FOR 1 MI.^{2}

FROM TABLE 12.4 (SHEET 10)

DURATION (HR)	% OF 1 HR	PMP 1-MI^2 INDEXES UP TO 6 HR
1/4	0.68	6.53 INCHES
1/2	0.86	8.26
3/4	0.94	9.02
1	1.00	9.60
2	1.16	11.14
3	1.23	11.81
4	1.28	12.29
5	1.32	12.67
6	1.35	12.96

FOR DURATION 0 TO 60 MIN (SEE SHEETS 17-15)
FOR DURATION 1 TO 6 HR (SEE SHEETS 16-17)

5. AREAL REDUCTION FACTORS

FROM FIG. 12.12 (SHEET 18)

AREAL REDUCTION FOR 1 MI^2 OR LESS = 100% FACTOR

∴ NO AREAL REDUCTION USED FOR CELL #2

SUMMARY

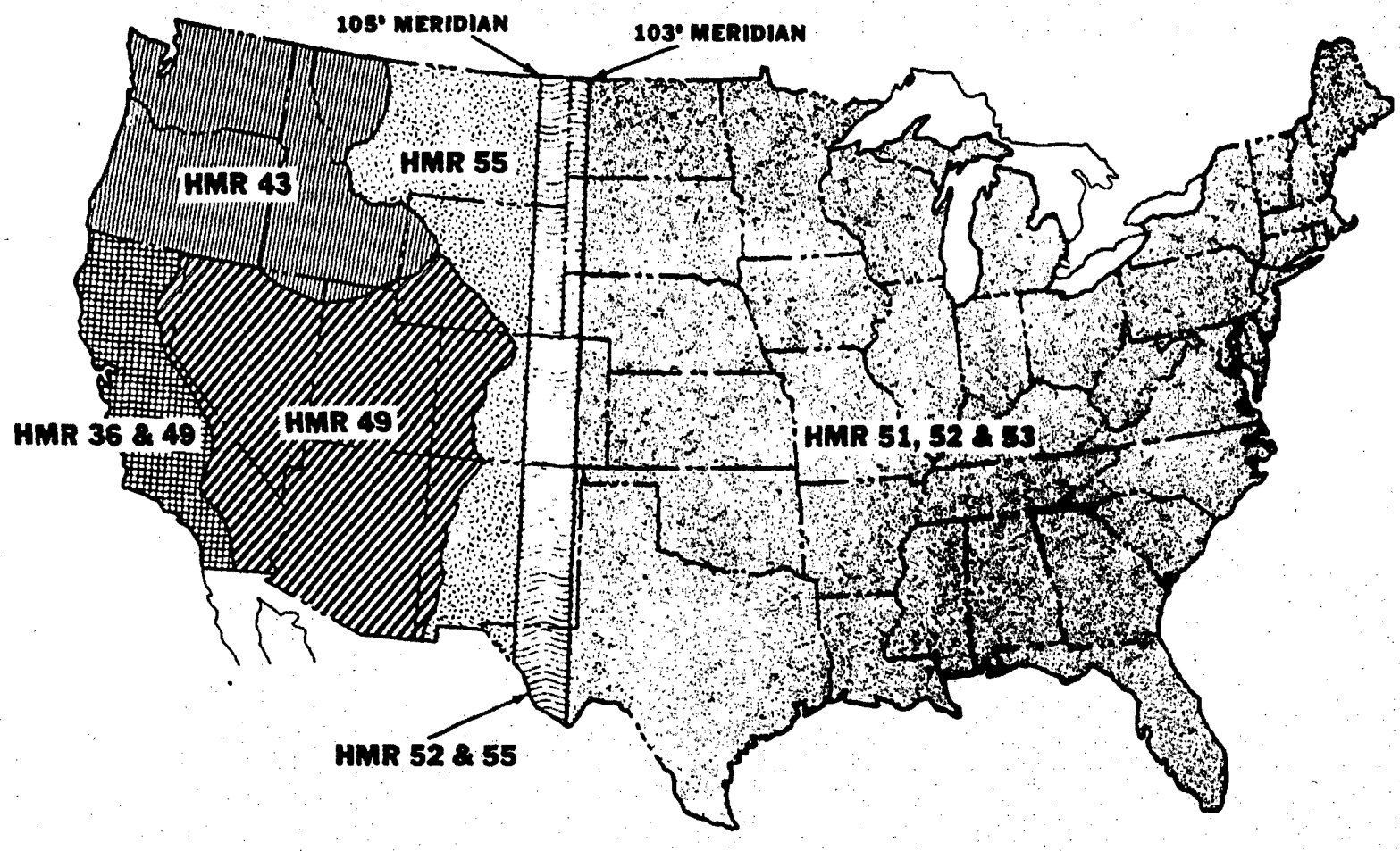
1HR - 1 MI^2 PMP (LOCAL) = 9.6 INCHES ← USE

6. PMP ESTIMATES FOR BASIN

MULTIPLY 100% FACTOR (STEP 5) BY INDEX PMP AMOUNTS (STEP 4)
∴ NO CHANGE IN VALUES

7. INCREMENTAL PMP AMOUNTS

TEMPORAL SEQUENCES ACCORDING TO TABLES 12.5 + 12.6 (SHT 19)
SEE SHEETS 20-21 AS APPLIED TO CELL 2



REGIONS COVERED BY GENERALIZED PMP STUDIES

Figure 1.1.—Regions of the conterminous United States for which PMP estimates are provided in indicated Hydrometeorological Reports. See Appendix A for description of geographical region covered and scope of each report.

SHEET 3/21
HMR 55A

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
HMR 55A[1] PMP LOCAL STORM CALCULATION

Procedure Step #	Item Description	Units	Results
1	Index 1-hr 1-mi^2 PMP Estimate at 5000 ft elevation	inches	See Plate Vic (HMR 55A)
2	Adjustment for Mean Elevation of Drainage	%	See Fig 4.11 and Fig. 14.3 (HMR 55A)
3	Index 1-hr 1-mi2 PMP Estimate at 7000 ft elevation of Site	inches	Step #1 times Step #2
4	Depth-Duration Curve for 1 mi^2	inches	From Table 12.4 (HMR 55A)
5	Areal Reduction Factors	%	(HMR 55A)
6	PMP Estimates for Basin	inches	Step #4 times Step #5
7	Incremental PMP Amounts	see temporal sequence	See Tables 12.5 & 12.6 (HMR 55A)

[1] Hydrometeorological Report No. 55A, U.S. Dept. of Commerce, NOAA, June 1988

14.3 Stepwise Procedure, Local Storm

1. Index 1-hr 1-mi^2 PMP estimate at 5,000-ft elevation

Locate the drainage in Plate VI a-c, and determine the drainage average index 1-mi^2 1-hr PMP in inches at 5,000 ft. This is readily accomplished by eye because of the smooth gradient, and linear interpolation is assumed to apply.

2. Adjustment for mean elevation of drainage

Determine the mean drainage elevation to the nearest 100 ft. An adjustment needs to be determined and applied to the depth from step 1 if this elevation differs from 5,000 ft by more than 1,000 ft. If the mean terrain elevation of the drainage is greater than 6,000 ft or less than 4,000 ft, the correct vertical adjustment factor can be obtained by reference to figure 14.3. This is a nomogram of vertical elevation adjustments as discussed in section 12.3.2.4. To use the nomogram, enter the horizontal scale (abscissa) at the maximum persisting 12-hr 1000-mb dew point obtained from figure 4.11 for the location of the drainage. Move vertically in the figure to intersect the mean elevation of the drainage (to the nearest 100 ft) and read off the adjustment factor on the vertical scale (ordinate).

As an example of this determination, take a drainage that has a mean elevation of 7,800 ft and a maximum persisting 12-hr dew point of 70°F. Entering figure 14.3 at 70° on the abscissa and moving vertically to 7,800 ft, an adjustment factor of 0.82 is read from the ordinate.

3. Index 1-hr 1-mi^2 PMP estimate at mean elevation of drainage

Multiply the adjustment factor determined in step 2, if needed, by the index 1-mi^2 1-hr depth from step 1 to obtain a representative surface adjusted index PMP estimate.

4. Depth-duration curve for 1 mi^2

Refer to table 12.4 to obtain the 1-mi^2 factors for durations up to 6 hr. Multiply these factors by the estimate from step 3. These can be plotted on linear graph paper and a smooth curve drawn to obtain intermediate durational amounts if these are needed for the 1-mi^2 area.

5. Areal reduction factors

To obtain areal reduction factors, use the relations provided in figure 12.20. Find the drainage area on the abscissa and read the corresponding reduction factors as percent of the 1-mi^2 PMP.

SHEET 6/21
HMR 55A

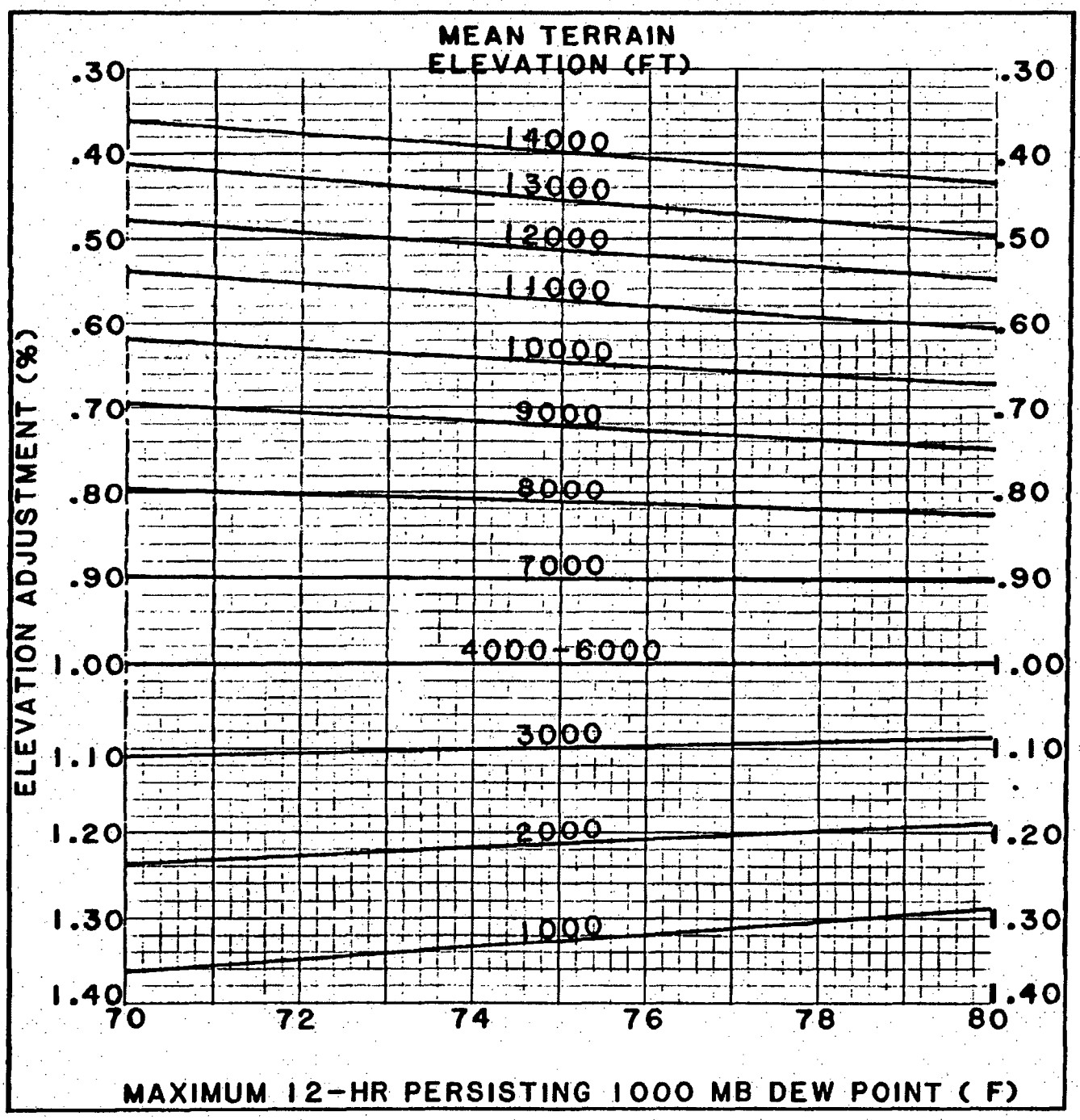


Figure 14.3.—Adjustment for elevation for local-storm PMP based on procedures developed in the report and maximum persisting 12-hr 1000-mb dew point (F).

SHEET 7/21
HMR 55A

6. PMP estimates for basin

Multiply percentages of step 5 by the index PMP amounts from step 4. These values should be plotted on linear graph paper and a smooth curve drawn through the points. Values for the intermediate durations may be determined from this curve.

7. Incremental PMP amounts

If needed, local-storm PMP incremental amounts obtained through subtraction of adjacent amounts in step 6 may be arranged in temporal sequences recommended in tables 12.5 and 12.6.

No example is believed necessary for local-storm PMP determination, as the adjustment for elevation is the only complex element in the determination, and an example calculation of this factor is given in step 2.

15. FUTURE STUDIES

There are several problems involved in the development of design estimates that should be resolved. The purpose of this chapter is to briefly discuss these needed future studies.

15.1 Seasonal Variation

In the present study, it has been possible to develop only all-season PMP estimates. Although no attempt has been made to define the season of occurrence, some observations are possible. In the northern portion of the study region among the more important storms are Gibson Dam, MT (75), June 6-8, 1964; Warrick, MT (10), June 6-8, 1906; Springbrook, MT (32), June 17-21, 1921; and Savageton, WY (38), September 27-October 1, 1923. Through the central portion of the study region, Cherry Creek (47) and Hale (101), CO, May 30-31, 1935, Plum Creek (76), CO, June 13-20, 1965, Big Elk Meadow (77), CO May 4-8, 1969, and Big Thompson, July 31, 1976 are important in determining PMP estimates. In the extreme southern part of the study region, tropical storms or their remnants will be the causative mechanism for the longer duration PMP event. Such storms as Rancho Grande (60), NM, August 26-September 1, 1942, and Meek (27), NM, September 15-17, 1919 are typical of these events. Shorter duration storms similar to that at White Sands, NM, August 19, 1978 are important in this region. These storm dates suggest that the all-season PMP event will occur from early summer through fall. In those portions of the study region where snowmelt can be a critical factor, the probable maximum flood (PMF) may be the result of the lesser magnitude spring PMP event and accompanying snowmelt. The definition of the seasonal variation of PMP is, therefore, a necessary addition to the present report.

15.2 Permissible Snowpack With PMP and Snowmelt Criteria

To adequately evaluate the spring PMF, two additional factors are required. The first is an evaluation of the snowpack that could exist prior to the PMP event. The question to be answered is the depth and extent of the snow cover. Could, for example, the probable maximum snowpack (PMSP) occur just prior to the

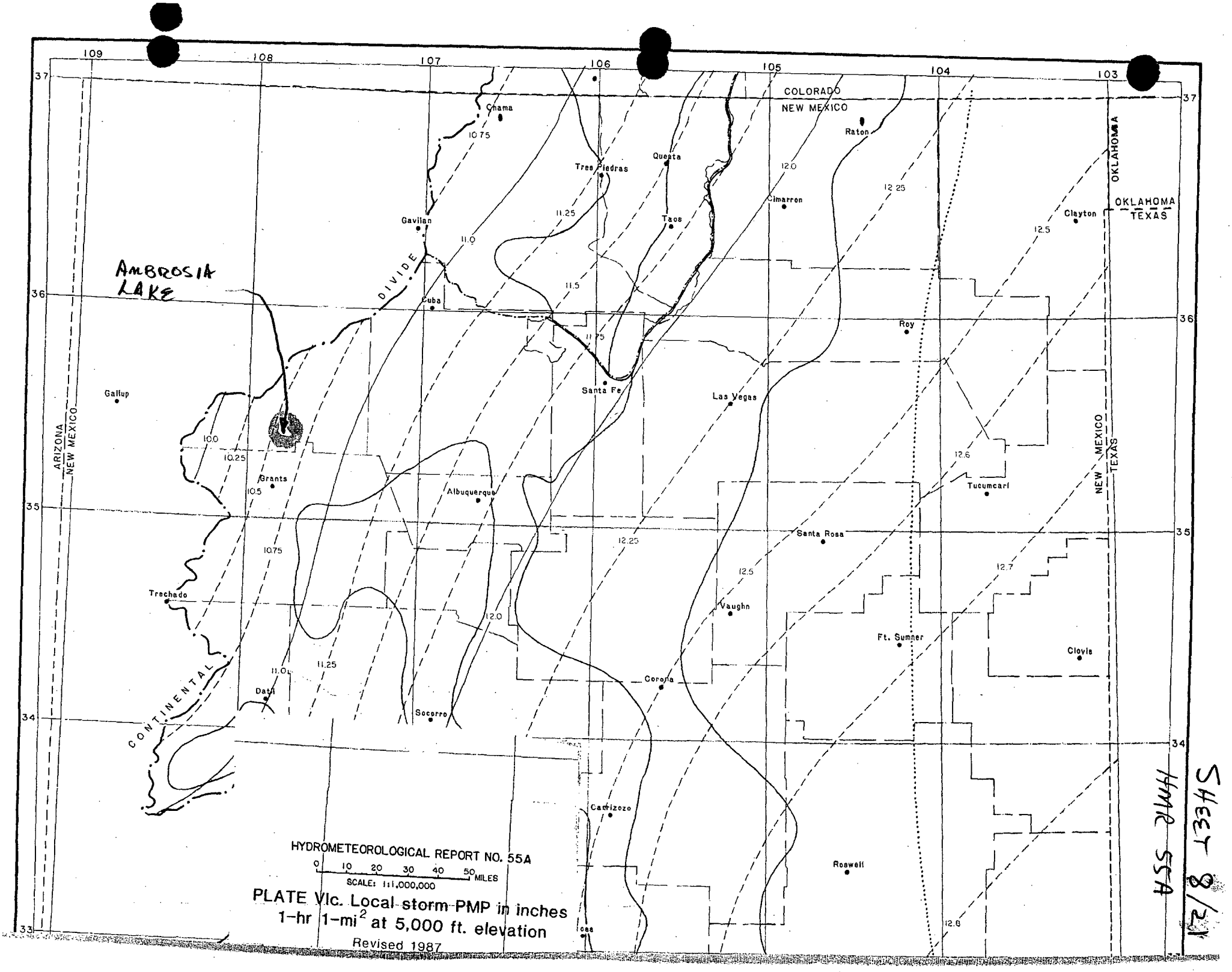


PLATE VIc. Local storm PMP in inches
1-hr 1-mi^2 at 5,000 ft. elevation
Revised 1987

SHEET 8/21
HMR 55A

SHEET 9/21
HMR 55A

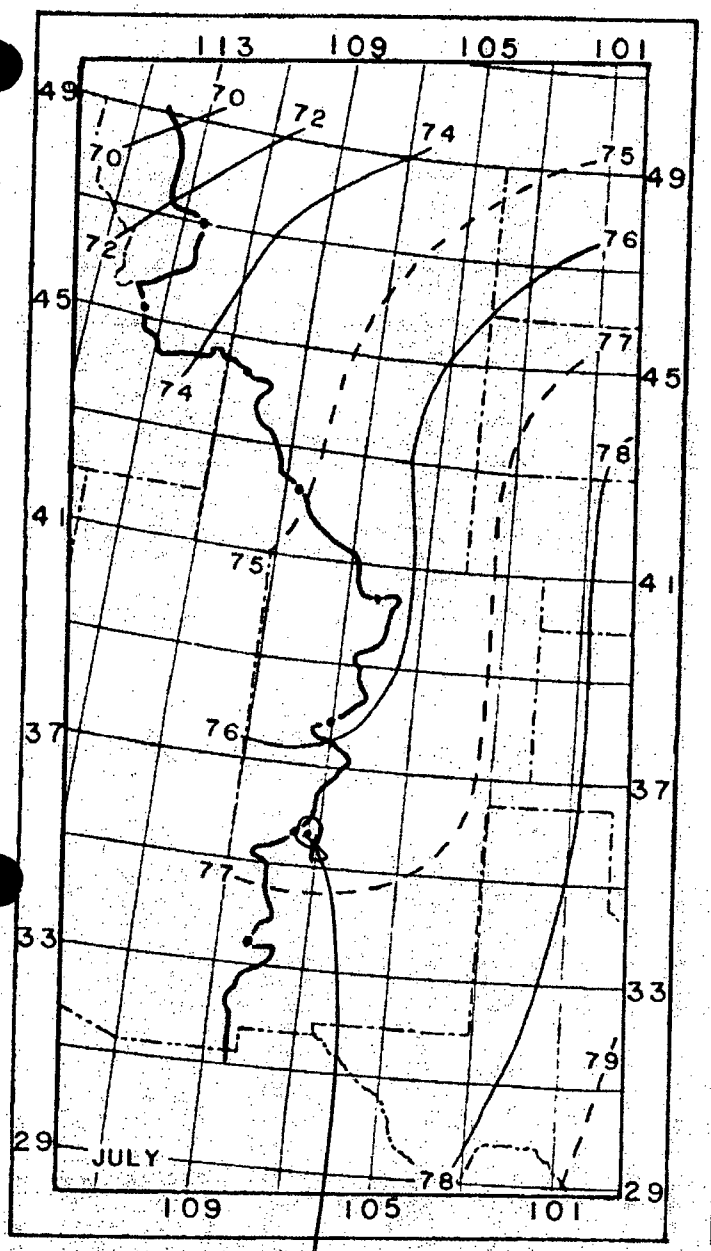


Figure 4.11.--Maximum persisting 12-hr 1000-mb dew points (°F) for July.

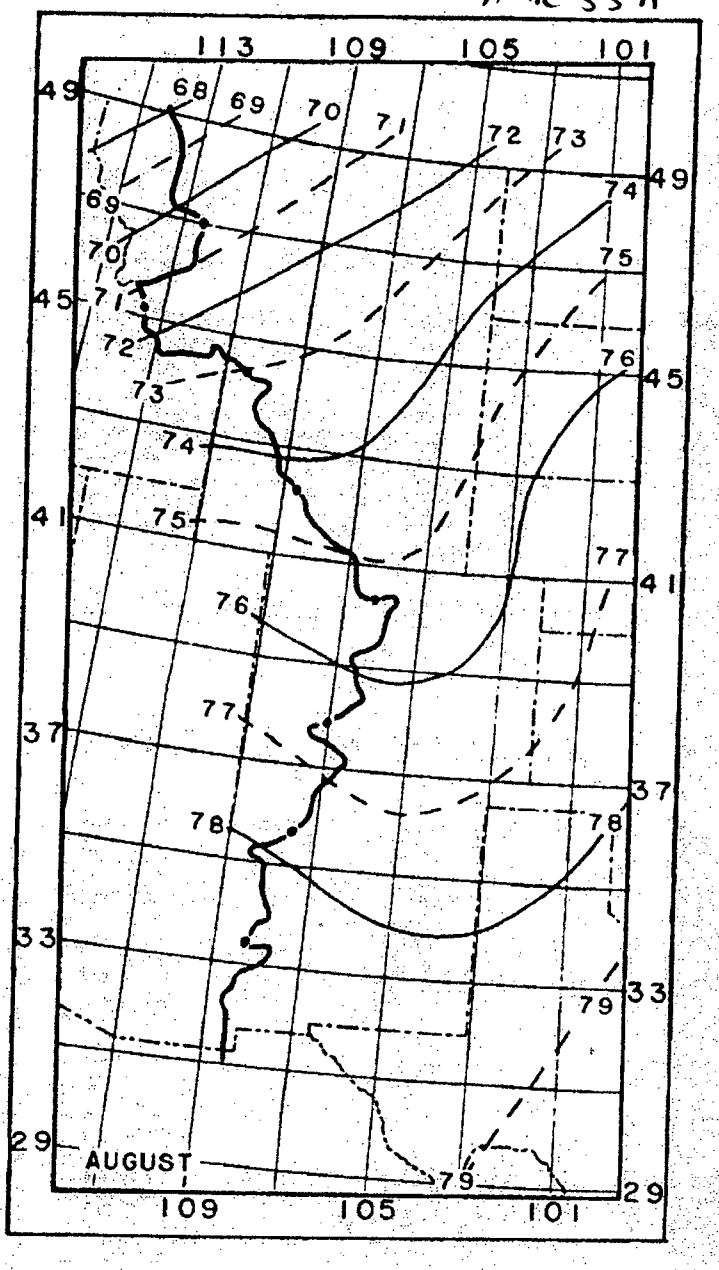


Figure 4.12.--Maximum persisting 12-hr 1000-mb dew points (°F) for August.

AMBROSIA LAKE

SHEET 18/21
HMR 55A

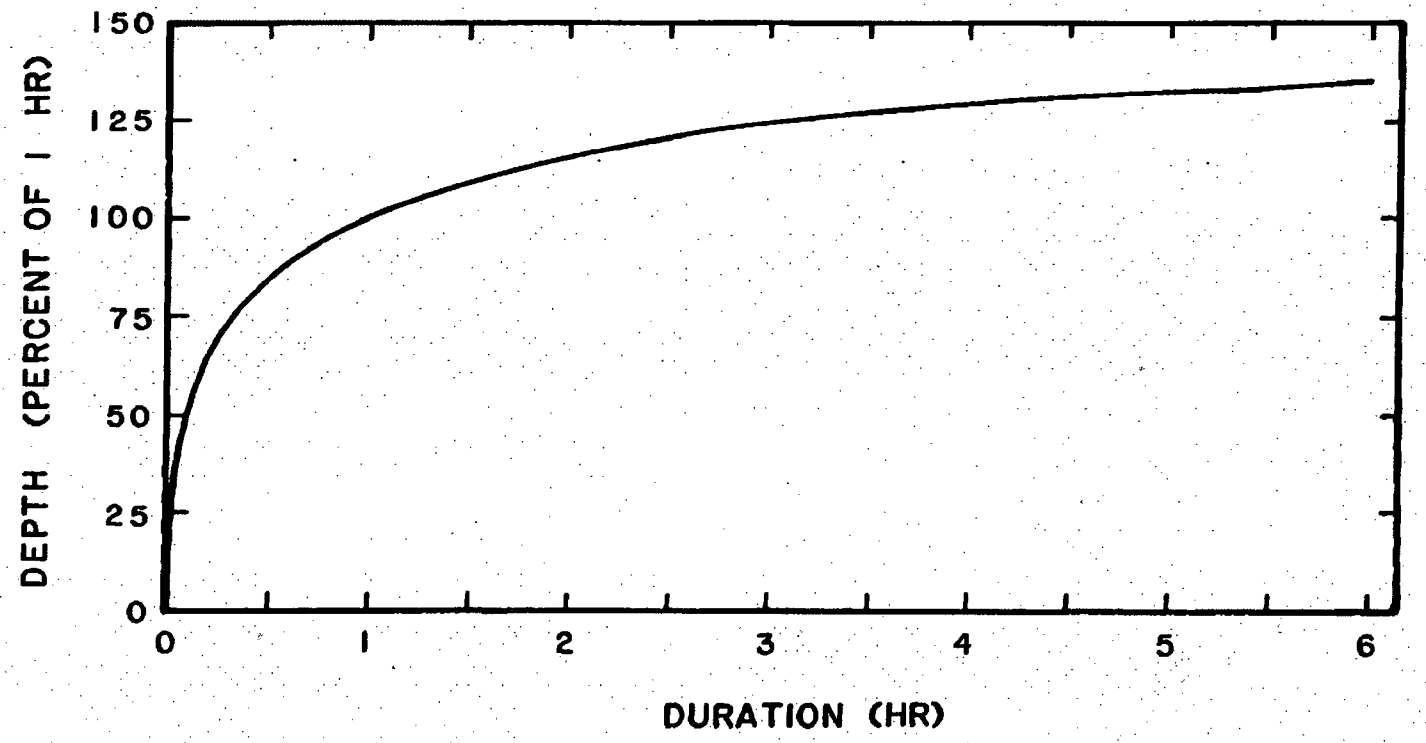
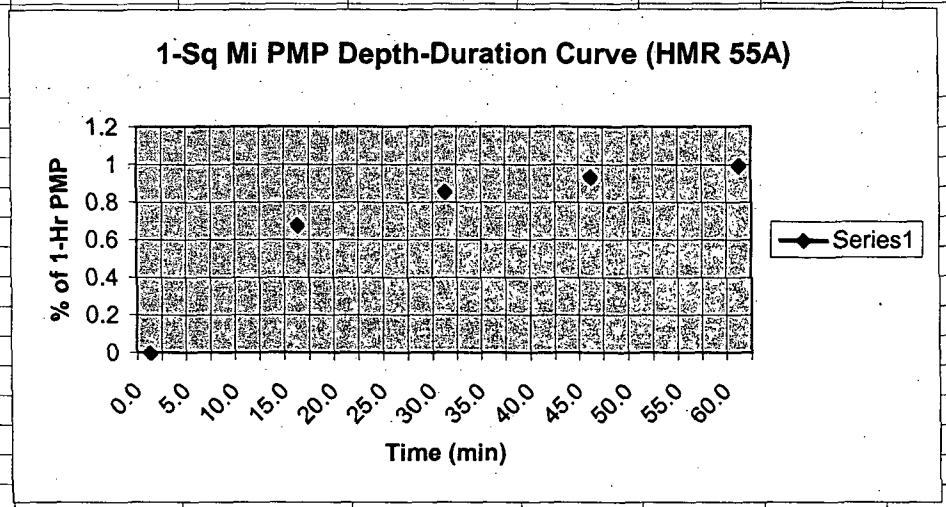


Figure 12.10.—Depth-duration curve for 6-/1-hr ratio of 1.35.

Table 12.4.—Percent of 1-hr local-storm PMP for selected durations for 6-/1-hr ratio of 1.35 (HMR No. 49)

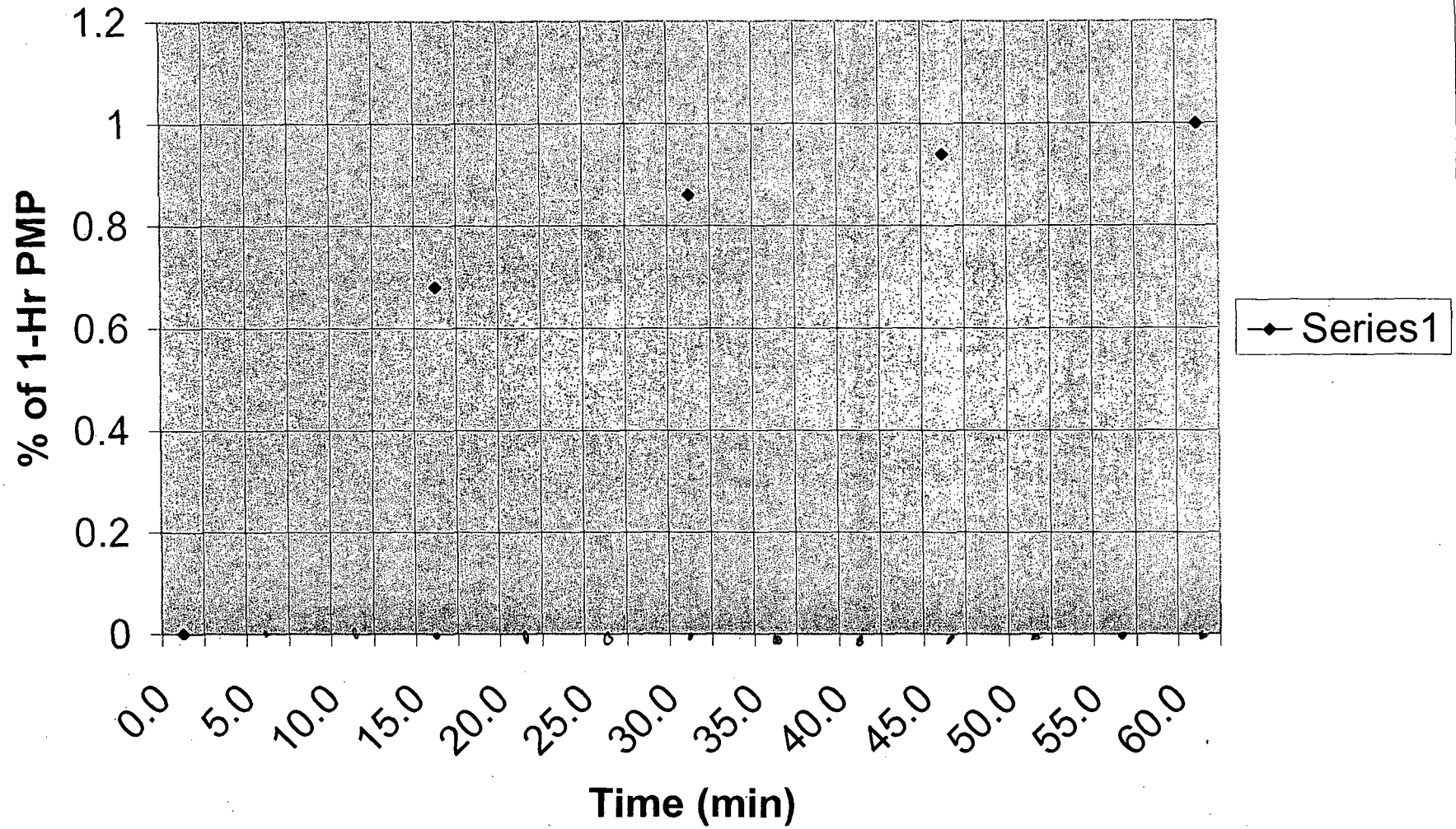
Duration (hr)	Percent of 1 hr
1/4	.68
1/2	.86
3/4	.94
1	1.00
2	1.16
3	1.23
4	1.28
5	1.32
6	1.35

Duration (hr)	Percent of 1-hr PMP	1-hr 1-mi^2 PMP (inches)	PMP 1-hr Indexes up to 6 hr
0.0	0	9.6	0.00
2.5			
5.0			
7.5			
10.0			
12.5			
15.0	68%	9.6	6.53
17.5			
20.0			
22.5			
25.0			
27.5			
30.0	86%	9.6	8.26
32.5			
35.0			
37.5			
40.0			
42.5			
45.0	94%	9.6	9.02
47.5			
50.0			
52.5			
55.0			
57.5			
60.0	100%	9.6	9.60

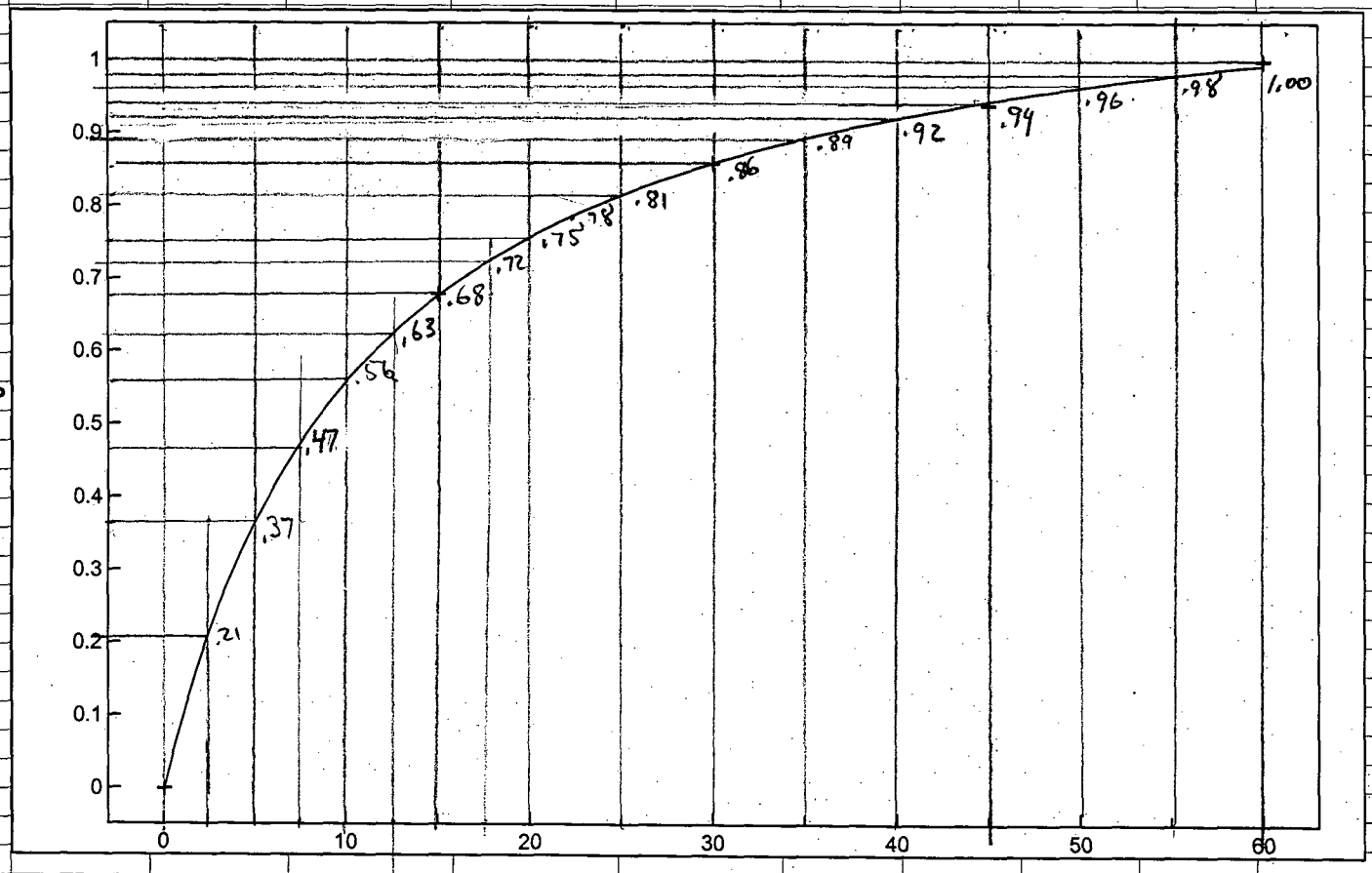


SHEET 11/21

1-Sq Mi PMP Depth-Duration Curve



Sheet 12/21



Time (min)

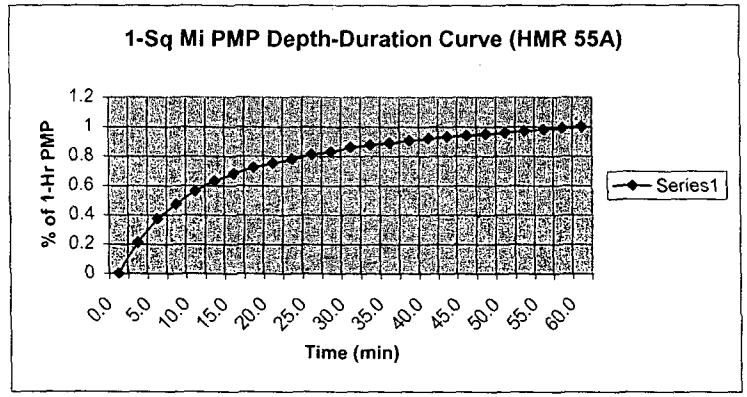
1-Sq Mi PMP Depth-Duration Curve Up to 60 Minutes
Interpreted from HMR 55A Data from Table 12.4

SHEET 13/21

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION

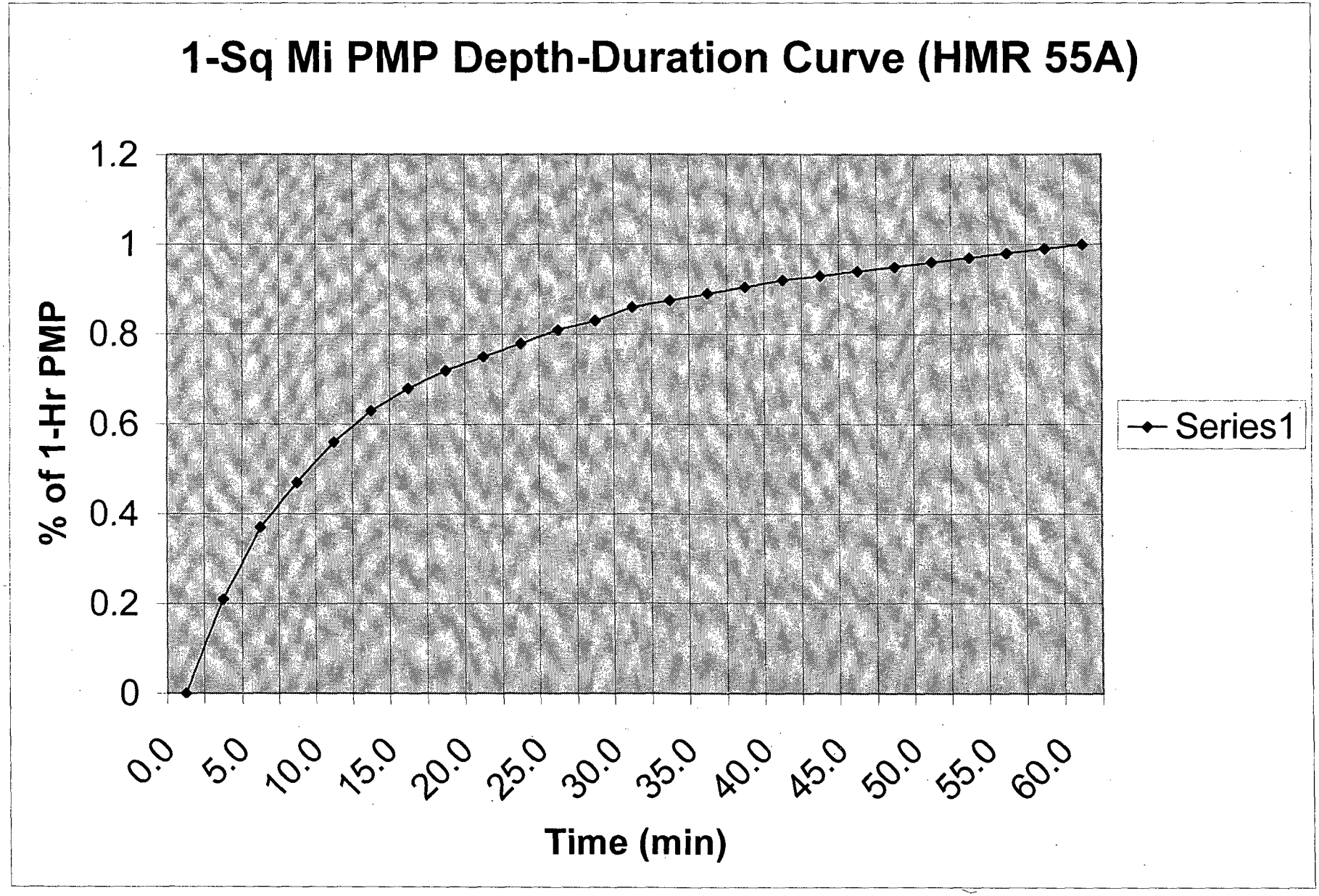
1-HOUR PMP DEPTH-DURATION CURVE

Duration (hr)	Percent of 1-hr PMP	1-hr 1-mi^2 PMP (inches)	PMP 1-hr Indexes up to 6 hr
0.0	0	9.6	0.00
2.5	0:21	9.6	2:02
5.0	0:37	9.6	3:55
7.5	0:47	9.6	4:51
10.0	0:56	9.6	5:38
12.5	0:63	9.6	6:05
15.0	68%	9.6	6.53
17.5	0:72	9.6	6:91
20.0	0:75	9.6	7:20
22.5	0:78	9.6	7:49
25.0	0:81	9.6	7:78
27.5	0:83	9.6	7:97
30.0	86%	9.6	8.26
32.5	0:88	9.6	8:40
35.0	0:89	9.6	8:54
37.5	0:91	9.6	8:69
40.0	0:92	9.6	8:83
42.5	0:93	9.6	8:93
45.0	94%	9.6	9.02
47.5	0:95	9.6	9:12
50.0	0:96	9.6	9:22
52.5	0:97	9.6	9:31
55.0	0:98	9.6	9:41
57.5	0:99	9.6	9:50
60.0	100%	9.6	9.60



Interpolated Values

SHEET 14/21

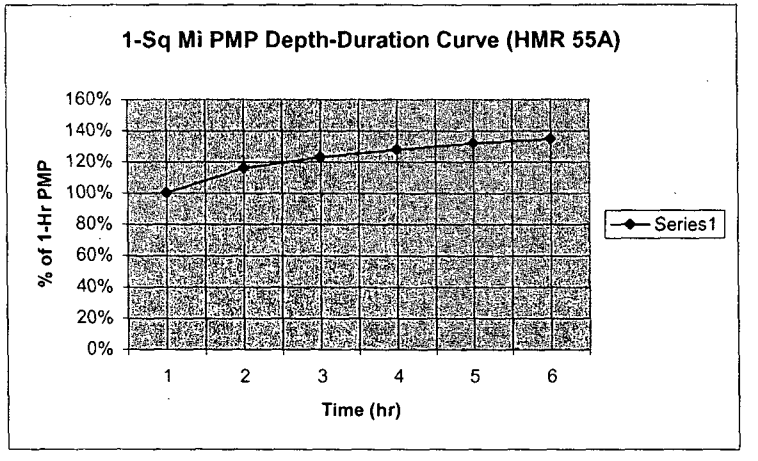

1-Sq Mi PMP Depth-Duration Curve (HMR 55A)
% of 1-Hr PMP
1.2
1
0.8
0.6
0.4
0.2
0
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
55.0
60.0
Time (min)
Series1

SHEET 15/21

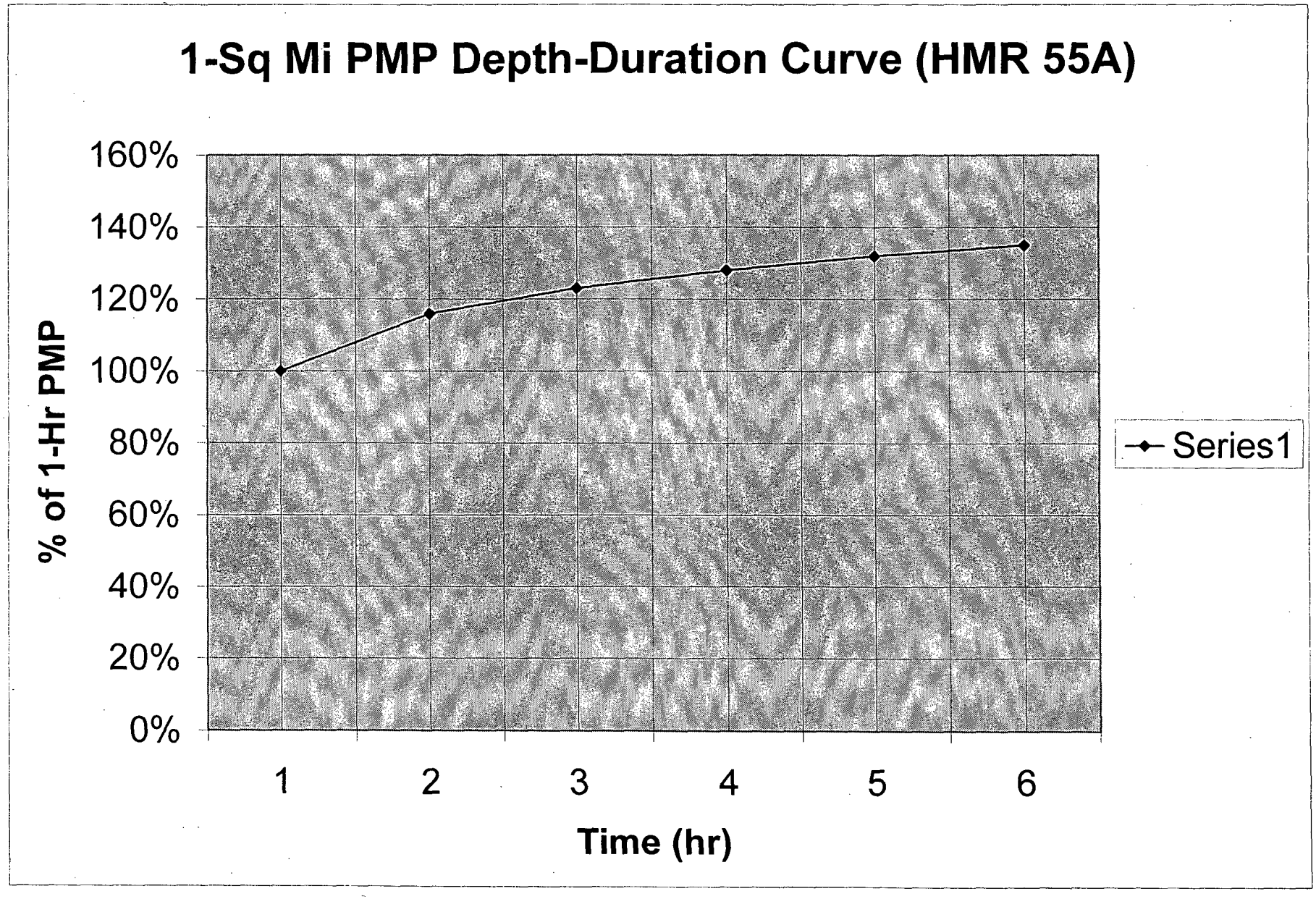
RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION

6-HOUR PMP DEPTH-DURATION CURVE

Duration (hr)	Percent of 1-hr PMP	1-hr 1-mi² PMP (inches)	PMP 1-hr Indexes up to 6 hr
1	100%	9.6	9.60
2	116%	9.6	11.14
3	123%	9.6	11.81
4	128%	9.6	12.29
5	132%	9.6	12.67
6	135%	9.6	12.96



SHEET 16/21


1-Sq Mi PMP Depth-Duration Curve (HMR 55A)
% of 1-Hr PMP
160%
140%
120%
100%
80%
60%
40%
20%
0%
1
2
3
4
5
6
Time (hr)
Series1

Sheet 17/21

SHEET 18/21
HMR 55A

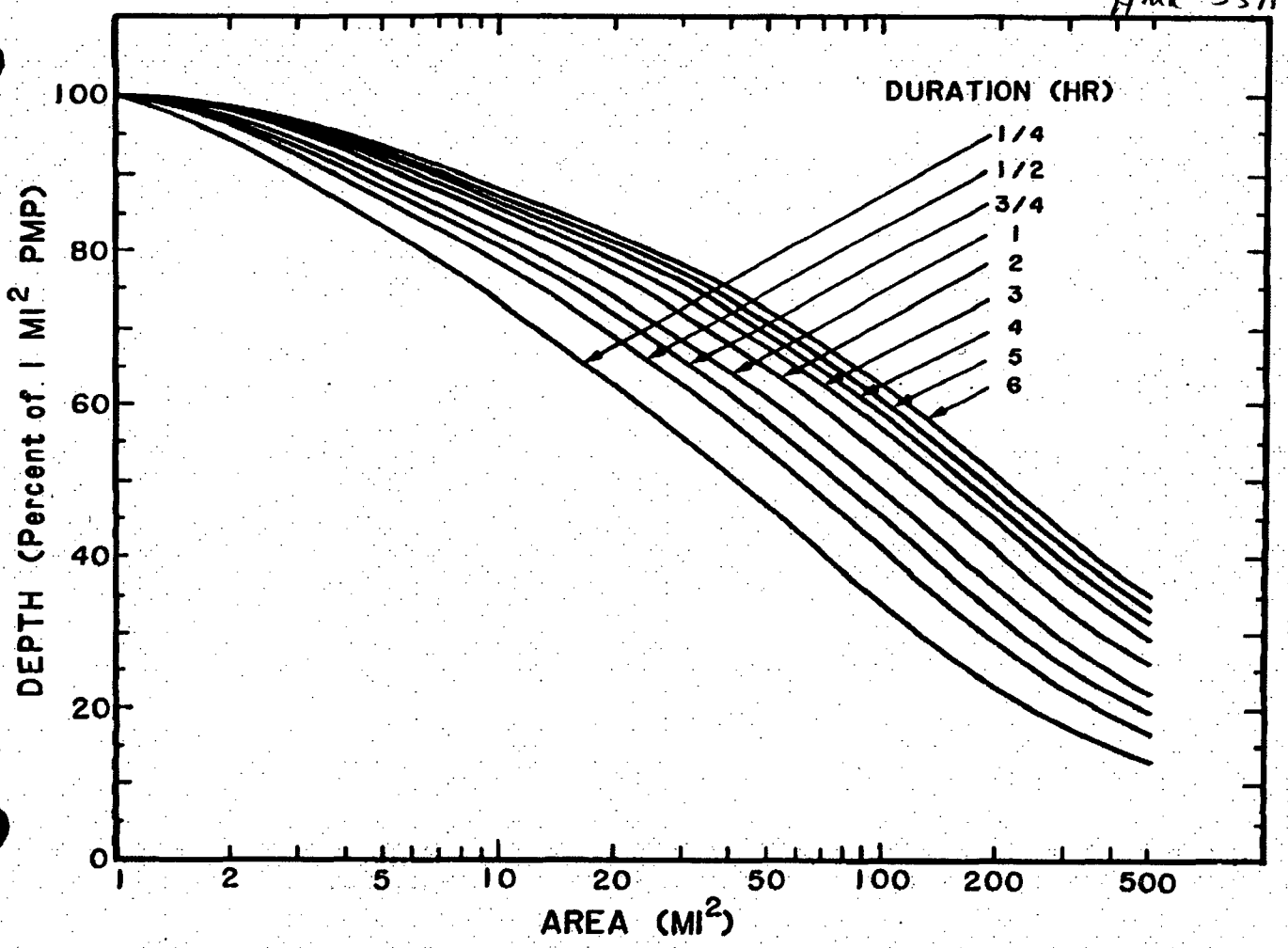


Figure 12.12.—Depth-area relations adopted for local-storm PMP in the CD-103 region (Hansen et al. 1977).

the storm in figure 12.9 that was constructed from a written account of the storm. The sequence of the hourly incremental rainfall for the storm shows that the storm decreased each succeeding hour after the first hour. However, meaningful conclusions cannot be drawn from this one example.

To supplement the lack of available data in the CD-103 region, data from HMR No. 49 was utilized. These data are presented in table 12.5 and include time distribution measurements from 6-hr storms, as utilized by the U.S. Weather Bureau (1947) and by the U.S. Army Corps of Engineers (1965). The choice of which of the two to apply is left to the user, as one sequence may be more critical than the other in a specific case.

There were no data available for the extreme local storms in the CD-103 region from which to determine the sequence of 15-min increments in the 1-hr storm. The 15-min incremental sequence taken from HMR No. 49 is, therefore, recommended. This incremental sequence appears in table 12.6. It is the result of percentages of total rainfall for thunderstorm rainfall determined by the U.S. Weather Bureau (1947).

SHEET 19/21
HMR 55A

Table 12.5.—Recommended chronological distribution of 1-hr incremental rainfall amounts for 6-hr local-storm PMP (Hansen et al. 1977)

Increment	Sequence position	
	HMR No. 5*	EM1110-2-1411#
Largest hourly increment	third	fourth
Second largest	fourth	third
Third largest	second	fifth
Fourth largest	fifth	second
Fifth largest	last	last
Least	first	first

* U.S. Weather Bureau 1947

\# U.S. Corps of Engineers, Standard Project Flood Determinations, March 1952, revised March 1965

12.8 Seasonal Distribution

A brief analysis was undertaken to determine the season of occurrence of the local storm in the CD-103 region. The analysis took the form of recording the maximum 1-hr event at recorder stations throughout the CD-103 region (sec. 12.5.1). The period of record totaled 31 years (1948-78); however, many stations had fewer years than this maximum period of record. It was decided to use only stations that had 20 or more years of precipitation record. This removed stations whose data may not have been representative of the true conditions at the station because of an insufficient period of record.

Table 12.7 shows the seasonal distribution of the maximum 1-hr events at selected stations in the CD-103 region. Most of the maxima occur in the summer months of June, July, and August. These months represent the months of greatest potential moisture influx into the region, as shown by the maximum persisting 12-hr 1000-mb dew-point charts of chapter 4. The months of May and September show fewer recorded maximum 1-hr events, while April and October show the least. No other months in the year produced maximum 1-hr events of record for this period. These results are not unlike those found in HMR No. 49.

Table 12.6.—Recommended chronological distribution of 15-min incremental rainfall amounts for 1-hr local-storm PMP (Hansen et al. 1977)

Increment	Sequence position
Largest 15-min increment	first
Second largest	second
Third largest	third
Fourth largest	fourth

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION

CHRONOLOGICAL DISTRIBUTION OF 15-MINUTE INCREMENTAL RAINFALL AMOUNTS FOR 1-HOUR LOCAL-STORM PMP

Duration (hr)	Percent of 1 hr PMP	1-hr 1-mi^2 PMP (inches)	PMP 1-hr Indexes	Incremental PMP Amounts (inches)	Size of Increment	HMR 5 & 49[1]	
0.00	0.00	9.60	0.00	0.00		Sequence Position	Increment Amount
15.00	0.68	9.60	6.53	6.53	Largest 15-min increment	First	6.53
30.00	0.86	9.60	8.26	1.73	2nd largest	Second	1.73
45.00	0.94	9.60	9.02	0.77	Third Largest	Third	0.77
60.00	1.00	9.60	9.60	0.58	Fourth Largest	Fourth	0.58

[1] HMR 5 (U.S. Weather Bureau, 1947); and HMR 49 (U.S. Weather Bureau, 1977, Reprinted 1984)

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
CHRONOLOGICAL DISTRIBUTION OF 1-HOUR INCREMENTAL RAINFALL AMOUNTS FOR 6-HOUR LOCAL-STORM PMP

Duration (hr)	Percent of 1 hr PMP	1-hr 1-mi^2 PMP (inches)	PMP 1-hr Indexes up to 6 hr	Incremental PMP Amounts (inches)	Size of Increment	HMR 5 & 49[1]		EM1110-2-1411[2]	
0.00	0.00	9.60	0.00	0.00		Sequence Position	Increment Amount	Sequence Position	Increment Amount
1.00	1.00	9.60	9.60	9.60	Largest hourly increment	Third	0.67	Fourth	0.48
2.00	1.16	9.60	11.14	1.54	2nd largest	Fourth	0.48	Third	0.67
3.00	1.23	9.60	11.81	0.67	Third largest	Second	1.54	Fifth	0.38
4.00	1.28	9.60	12.29	0.48	Fourth largest	Fifth	0.38	Second	1.54
5.00	1.32	9.60	12.67	0.38	Fifth largest	Last	0.29	Last	0.29
6.00	1.35	9.60	12.96	0.29	Least	First	9.60	First	9.60

[1] HMR 5 (U.S. Weather Bureau, 1947); and HMR 49 (U.S. Weather Bureau, 1977, Reprinted 1984)
[2] EM1110-2-1411 (U.S. Corps of Engineers, Standard Project Flood Determinations, March 1952, revised March 1965

MAXIM TECHNOLOGIES
A DIVISION OF TETRA TECH, INC.

BY MJB DATE 4-1-07

JOB TITLE Rio Algom Mining JOB NUMBER

SUBJECT Design Flowrates & Erosion Prot. - Cell #2 SHEET 1 /49

Design Approach - Catchment Areas, Cell #2

* Design Flowrates - Utilize Rational Method w/ Unitwidth Approach per NUREG/CR-4620 (See Sheet 13 for Summary of Steps)

** D50 Rock Sizing per NUREG 1623

1. A = Area (Acres) — See Sheet 4 for Areas from Fig 7.1A - Option A, Fig 7.1B Option B

2. L = Maximum Flow Length (Feet)

3. H_1 = Upper Elevation of Slope (Feet)

4. H_2 = Lower Elevation of Slope (Feet)

5. S = Slope (Ft/Ft)

6. T_c = Time of Concentration (Min)

$$T_c = \frac{.0078 (L)^{0.77}}{(S)^{.385}} \text{ in Minutes}$$

(Equation from NUREG/CR-4620, P.65 See Sheet 5)

7. Interpolation % PMP Values from Depth-Duration Curve shown on Sheet 12 of 18 (PMP Calculation) taken from Table 12.4 (HMR 55A) shown on Sheet 9 of 18 (PMP Calculation)

See Sheets 6 & 7 for additional interpolated values for % of 1-hr PMP up to 1 hr.

8. D = Rainfall Depth (Inches) = % PMP (1 hr Inch PMP)

9. i = Rainfall Intensity (Inches/Hr) = $\frac{D(60)}{T_c}$

(Equation from NUREG/CR-4620 P. 17, See Sheet 8)

10. USE RATIONAL METHOD

$Q = CiA$ (EQUATION FROM NUREG/CR-4620 P. 64, SHEET 9)

Q = MAXIMUM DESIGN FLOW DISCHARGE (CFS)

11. C = RUNOFF COEFFICIENT

USE C = 1.0 — RECOMMENDED FOR PMF APPLICATIONS IN VERY SMALL WATERSHEDS (SEE SHEET 5)

12. UNIT WIDTH APPROACH

$q = CiA_w$ (SEE SHEET 9)

A_w = SLOPE LENGTH (L) TIMES UNIT WIDTH

SUMMARY

SEE SHEETS 10 (FIG. 7.1.A - OPTION A) AND SHEET 11 (FIG 7.1.B - OPTION B) FOR THE CATCHMENT AREAS OF TAILINGS CELL #2 AND THE CALCULATION OF CATCHMENT AREA PARAMETERS.

FOR THE SUMMARY OF DESIGN FLOWRATES (OPTION A) AND ROCK SIZES FOR TOPSLOPE, SIDE SLOPE AND TOE OF SLOPE SEE SHEETS 12 & 13.

FOR THE SUMMARY OF DESIGN FLOWRATES (OPTION B) AND ROCKSIZES FOR TOPSLOPE, SIDE SLOPE AND TOE OF SLOPE SEE SHEETS 14 & 15.

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
HYDROLOGY[1]

Procedure Step #	Item Description	Item Variable ID	Units	Results
1	Catchment Areas	A	acres	See Design Report Fig 7.1.A & 7.1.B
2	Maximum Flow Length	L	feet	See Design Report Fig 7.1.A & 7.1.B
3	Upper Elevation of Cell #2 Catchment Area	H_1	feet	See Design Report Fig 7.1.A & 7.1.B
4	Lower Elevation of Cell #2 Catchment Area	H_2	feet	See Design Report Fig 7.1.A & 7.1.B
5	Slope of Cell #2 Catchment Area	S	ft/ft	$(H_1 - H_2)/L$
6	Time of Concentration	T_c	min	NUREG/CR-4620, Equation 4.44
7	% PMP Values from Depth Duration Curve (HMR 55A)	% PMP	%	See curve developed in PMP Local Storm calculation
8	PMP Rainfall Depth	D	inches	% PMP x (PMP)
9	Rainfall Intensity	*i*	in/hr	$60D/T_c$
10	Maximum Design Flowrate	Q	cfs	Rational Method: Q = CiA
11	Runoff Coefficient	C	coefficient	C = 1.0 recommended for PMF applications (NUREG/CR-4620)
12	Unit Width Maximum Design Flowrate	q	cfs	$q = CiA_w = L \times (1 \text{ ft width})$

[1] NUREG/CR-4620, Methodologies for Evaluating Long-Term Stabilization Designs of Uranium Mill Tailings Impoundments, June 1986

SHEET 4/49
AREAS

Subj: **Section 7**
Date: 5/23/2007 10:36:47 P.M. Mountain Daylight Time
From: ed@cadsultant.com
To: Mboneglobal@aol.com, jmcbee@maximusa.com

Hey guys,
This should be the full set of Section 7, plus Figure 4.8.

Also, here are the areas for the Catchments:

Catchment 1: 678877.5364 sq.ft / 15.58482 ac.
Catchment 2: 386980.0421 sq.ft. / 8.883804 ac.
Catchment 3: 314468.3454 sq.ft. / 7.219171 ac.
Catchment 4: 216018.4677 sq.ft. / 4.959082 ac.
Catchment 5: 895131.1800 sq.ft. / 20.5493 ac.
Catchment 6: 129914.1034 sq.ft. / 2.982406 ac.
Catchment 7: 35832.4666 sq.ft. / 0.822597 ac.
Catchment 8: 115400.9868 sq.ft. / 2.649232 ac.
Catchment 9: 249747.7873 sq.ft. / 5.733397 ac.

Catchment 1A: 250278.4344 / 5.745579 ac.
Catchment 1B: 428599.1020 / 9.839242 ac.

Other figures will follow...

Ed

that a conservative value of C be applied for PMF estimation since infiltration and storage comprise a low percentage of the runoff. Furthermore, the C values presented were derived for storms of 5-100 year frequencies. Therefore, less frequent, higher intensity storms will require the use of a higher C value (Chow, 1964). It is recommended that a runoff coefficient of 1.0 be used for PMF applications in very small watersheds since the effects of localized storage and infiltration will be small.

Table 4.5. Values of C for Use in Rational Formula.

Soil Type	Watershed Cover		
	Cultivated	Pasture	Woodlands
With above-average infiltration rates; usually sandy or gravelly	0.20	0.15	0.10
With average infiltration rates; no clay pans; loams and similar soils	0.40	0.35	0.30
With below-average infiltration rates; heavy clay soils or soils with a clay pan near the surface; shallow soils above impervious rock	0.50	0.45	0.40

Source: Chow, 1964.

4.8.2 Rainfall Intensity

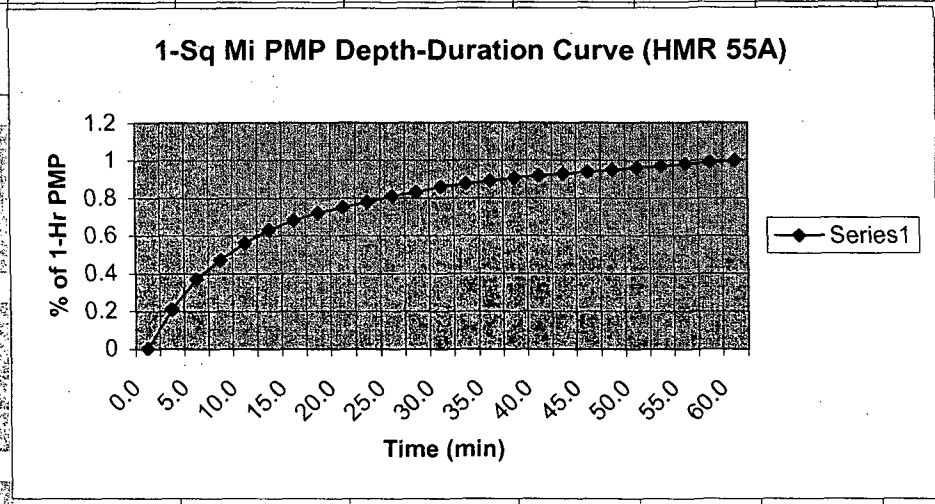
In order to determine the rainfall intensity, i, the time of concentration, t_c must be estimated. The time of concentration can be approximated by:

(a) Applying one of the many accepted empirical formulae such as

$$t_c = 0.00013 \frac{L^{0.77}}{S^{0.385}} \qquad (4.44)$$

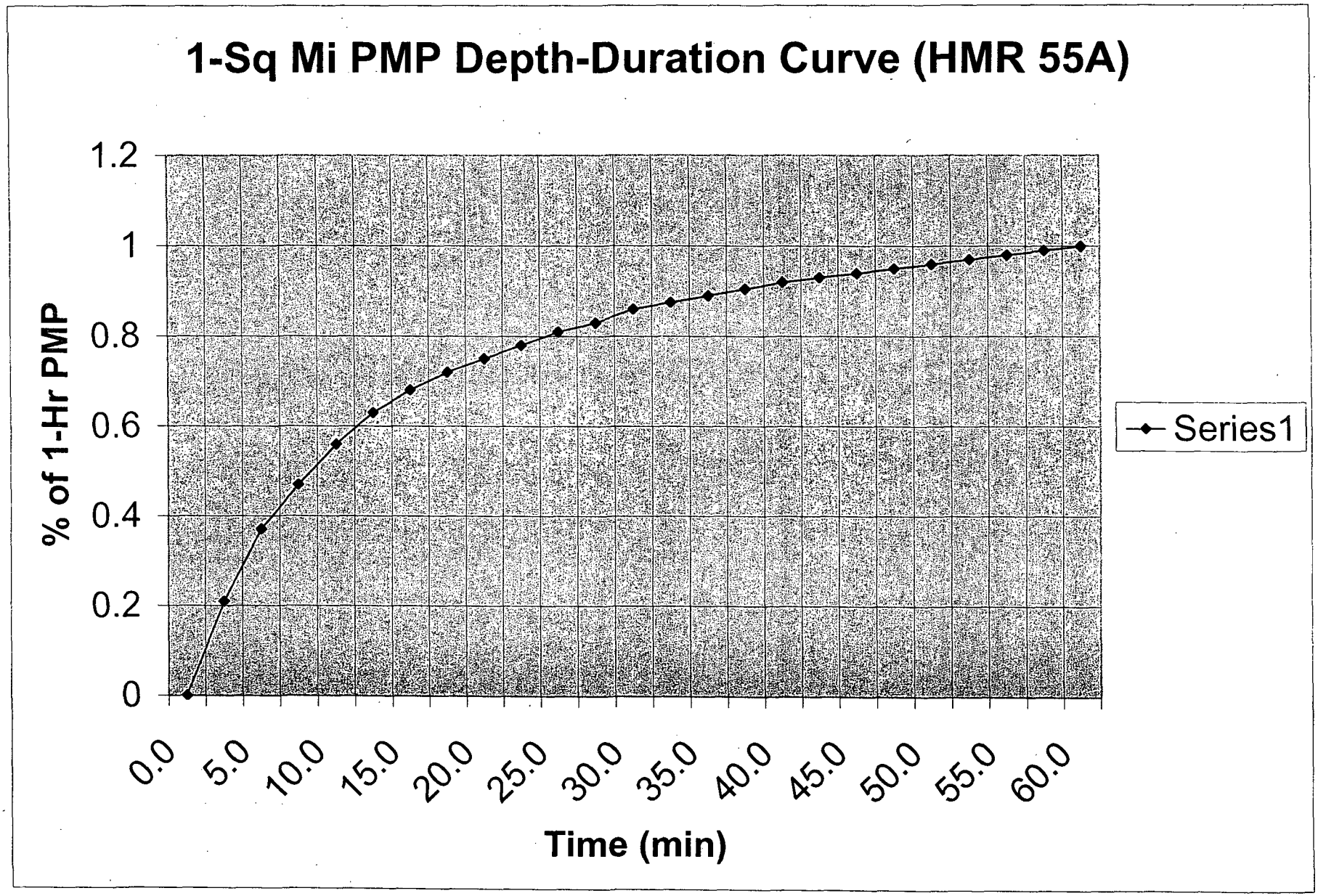
where L is the length of the basin in feet measured along the watercourse from the upper end of the watercourse to the drainage basin outlet and S is the average slope of the basin. Time of concentration is expressed in hours. This procedure is not applicable to rock covered slopes. This expression was

Duration (hr)	Percent of 1-hr PMP	1-hr 1-mi^2 PMP (inches)	PMP 1-hr Indexes up to 6 hr
0.0	0	9.6	0.00
2.5	21%	9.6	2.02
5.0	37%	9.6	3.55
7.5	47%	9.6	4.51
10.0	56%	9.6	5.38
12.5	63%	9.6	6.05
15.0	68%	9.6	6.53
17.5	72%	9.6	6.91
20.0	75%	9.6	7.20
22.5	78%	9.6	7.49
25.0	81%	9.6	7.78
27.5	83%	9.6	7.97
30.0	86%	9.6	8.26
32.5	88%	9.6	8.40
35.0	89%	9.6	8.54
37.5	91%	9.6	8.69
40.0	92%	9.6	8.83
42.5	93%	9.6	8.93
45.0	94%	9.6	9.02
47.5	95%	9.6	9.12
50.0	96%	9.6	9.22
52.5	97%	9.6	9.31
55.0	98%	9.6	9.41
57.5	99%	9.6	9.50
60.0	100%	9.6	9.60



Interpolated Values

Sheet 6 / 49


1-Sq Mi PMP Depth-Duration Curve (HMR 55A)
% of 1-Hr PMP
1.2
1
0.8
0.6
0.4
0.2
0
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
55.0
60.0
Time (min)
Series1

SHEET 12/49

The rainfall depth for a specific site is estimated by determining the rainfall duration and/or appropriate time of concentration. The resulting rainfall depth in inches, is

$$\text{PMP rainfall depth} = (\%\ \text{PMP}) \times (\text{PMP}) \tag{2.1}$$

where the percent PMP is obtained from Table 2.1 and the PMP is obtained from the appropriate PMP design storm presented in Section 2.1.1.

The rainfall intensity, i, in inches per hour can be computed as

$$i = \text{rainfall depth (inches)} \times \frac{60}{\text{rainfall duration (minutes)}} \tag{2.2}$$

The rainfall intensity determined from Equation 2.2 is generally a conservative value and represents the peak rainfall intensity of the design storm.

To compute the rainfall intensity for any rainfall duration, it is recommended that a rainfall intensity versus rainfall duration curve be plotted on semilogarithmic paper. Because of the extremely conservative rainfall intensity values obtained for short durations, it is recommended that the minimum rainfall duration be 2.5 minutes. Rainfall depths should be extracted from the appropriate Hydrometeorological Report.

2.2 PMP COMPARISON STORMS

A comparison of estimates of the PMP with greatest observed rainfall and estimates of the 100-year events for areas both east and west of the 105° meridian was prepared (NWS, 1980). Information from 6500 precipitation reporting stations in the eastern U.S. and about 2100 stations in the west was used. Including storm durations of 6 to 72 hours, the study indicated that 177 separate storm events have been recorded in which the rainfall was greater than or equal to 50 percent of the PMP for stations east of the 105° meridian. Only 66 separate storm events were recorded west of the 105° meridian where rainfalls were greater than or equal to 50 percent of the PMP.

The National Weather Service also reported the number of storm events which met or exceeded the 100-year rainfall values and compared them with the regional PMP values (NWS, 1980). Table 2.2 summarizes these rainfall events for 6 and 24-hour storms occurring over a 10 square mile area. It is interesting to note that a storm has not been officially recorded west of the Continental Divide that exceeds 90% of the PMP value. However, it is evident that a number of storms approach the PMP values, thereby substantiating that the prescribed PMP values are not extremely conservative.

(b) Applying the Rational Method for tributary areas that are less than approximately one square mile in area.

The Rational formula is commonly expressed as

$$Q = CiA \tag{4.42}$$

where Q is the maximum or design discharge in cfs, C is a runoff coefficient dependent upon the characterization of the drainage basin, i is the rainfall intensity expressed in inches per hour and A is the tributary area expressed in acres. When a unit width approach is taken, the area A_W is the slope(s) length times the unit width. Therefore, Equation 4.42 would be presented as

$$q = CiA_W \tag{4.43}$$

for a unit width analysis.

4.8.1 Runoff Coefficient

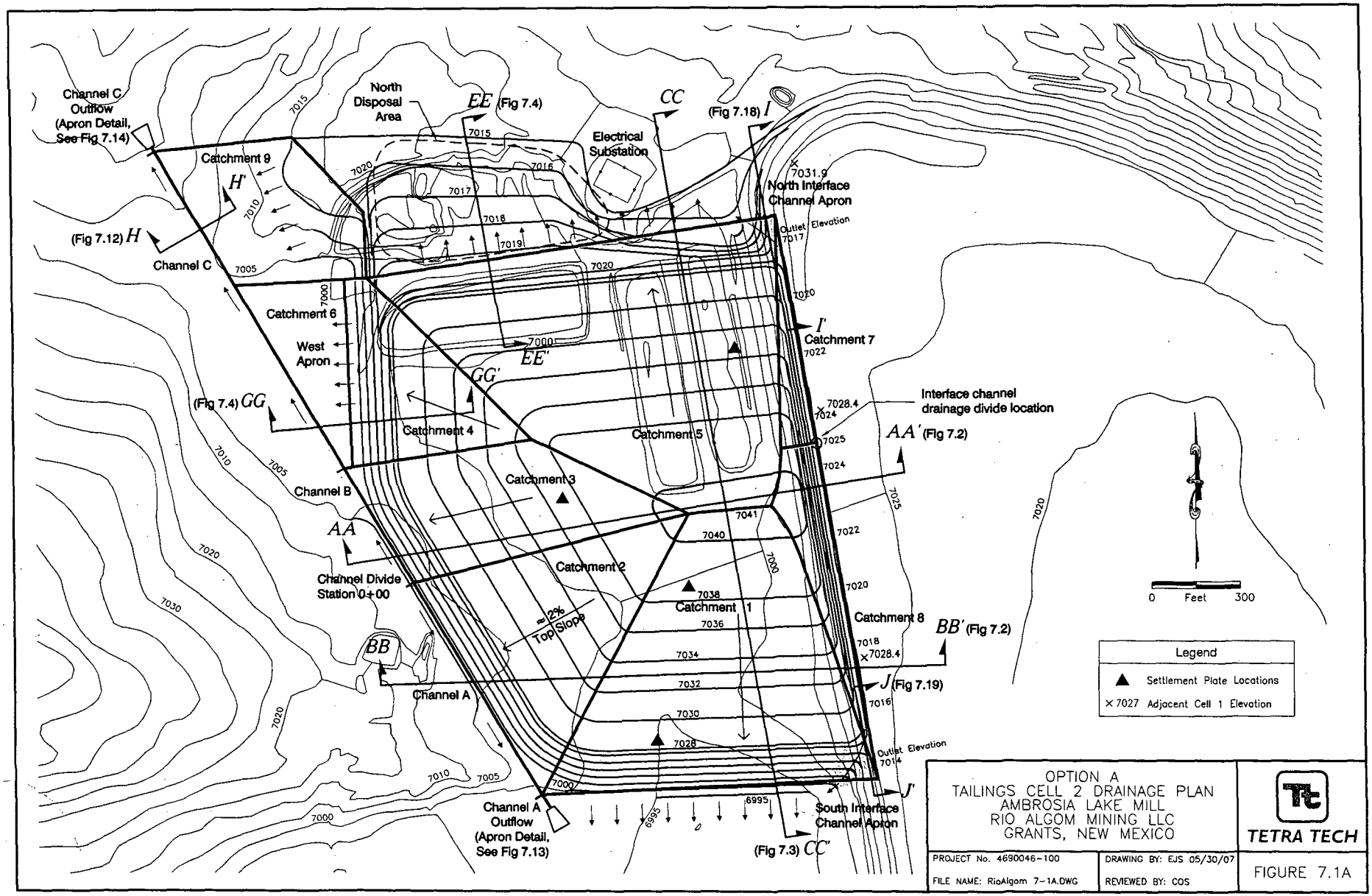
The runoff coefficient, C, is related to the climatic conditions and type of terrain characteristic of the watershed including soil materials, permeability and storage potential. Values of the coefficient C are presented in Table 4.4 (Lindsley et al., 1958), Table 4.5 (Chow, 1964), and Table 4.6 (ASCE, 1970 and Seelye, 1960).

Table 4.4. Values of Coefficient C.

Type Area	Value of C
Flat cultivated land, open sandy soil	0.20
Rolling cultivated land, clay-loam soil	0.50
Hill land, forested, clay loam soil	0.50
Steep, impervious slope	0.95

Source: Lindsley, et al, 1958.

The selection of a coefficient value requires considerable judgment as it is a tangible aspect of using the rational formula. It is recommended



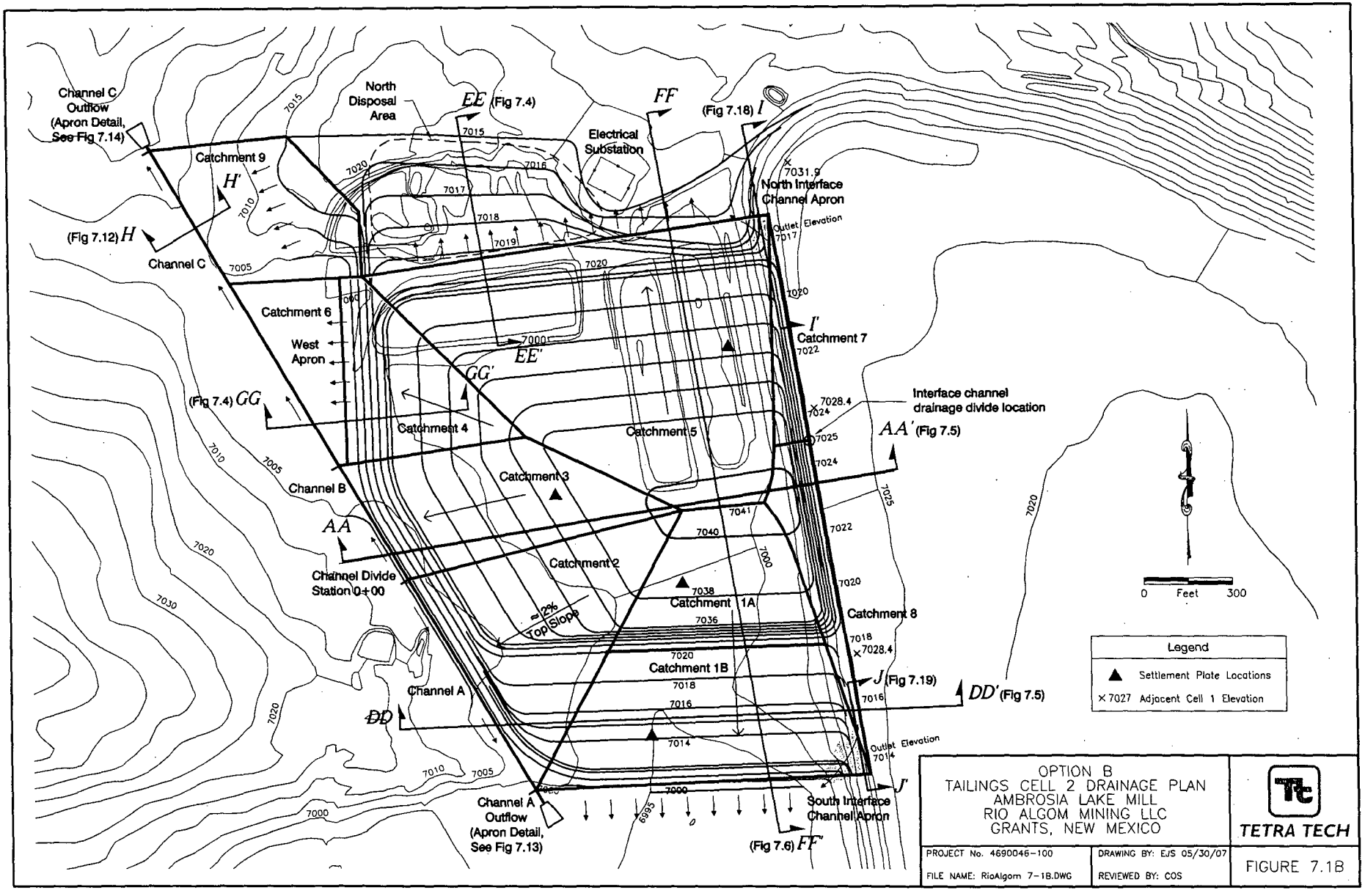
OPTION A
TAILINGS CELL 2 DRAINAGE PLAN
AMBROSIA LAKE MILL
RIO ALGOM MINING LLC
GRANTS, NEW MEXICO

TETRA TECH

PROJECT No. 4690046-100	DRAWING BY: EJS 05/30/07
FILE NAME: RioAlgom 7-1A.DWG	REVIEWED BY: COS

FIGURE 7.1A

SHEET 10/49



OPTION B
TAILINGS CELL 2 DRAINAGE PLAN
AMBROSIA LAKE MILL
RIO ALGOM MINING LLC
GRANTS, NEW MEXICO

TETRA TECH

PROJECT No. 4690046-100	DRAWING BY: EJS 05/30/07	FIGURE 7.1B
FILE NAME: RioAlgom 7-1B.DWG	REVIEWED BY: COS	

SHEET 11/49

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION - OPTION A
DESIGN FLOWRATES - RATIONAL METHOD, AND ROCK SIZING [2, 3]

Catchment Drainage Area No.	A = Area [1] (acres)	PMP = Local 1-Hr 1-Mi² PMP Depth (inches)	Type of Slope	H_1 = Higher Elevation (feet)	H_2 = Lower Elevation (feet)	H1 - H2	S = Slope (ft/ft)	L = Maximum Slope Length (feet)	A_W = Unit Width Area [1] (acres)	A (subtotal area by ratio of total) (acrea)	Specific Area Time of Concentration T_c= (0.0078 * ($L^{0.77}$))/ ($S^{0.385}$) (min)	Cumulative Area Time of Concentration T_c (min)	% of PMP Index
1	15.59	9.60	Top 1%	7041.00	7038.00	3.00	0.010	300.00	0.0069	4.96	3.71	3.71	28.7%
			Top 2%	7038.00	7028.00	10.00	0.020	500.00	0.0184	13.26	4.21	7.92	48.5%
			Side 20%	7028.00	7000.00	28.00	0.200	140.00	0.0216	15.59	0.65	8.57	50.9%
					Average Total	41.00	0.04	940.00	0.0215	15.59	5.07	5.07	37.3%
2	8.88	9.60	Top 1%	7041.00	7038.00	3.00	0.010	300.00	0.0069	2.83	3.71	3.71	28.7%
			Top 2%	7038.00	7028.00	10.00	0.020	500.00	0.0184	7.56	4.21	7.92	48.5%
			Side 20%	7028.00	7000.00	28.00	0.200	140.00	0.0216	8.88	0.65	8.57	50.9%
					Average Total	41.00	0.04	940.00	0.0215	8.88	5.07	5.07	37.3%
3	7.22	9.60	Top 1%	7041.00	7038.00	3.00	0.010	300.00	0.0069	2.36	3.71	3.71	28.7%
			Top 2%	7038.00	7028.00	10.00	0.020	500.00	0.0184	6.31	4.21	7.92	48.5%
			Side 20%	7028.00	7005.00	23.00	0.200	115.00	0.0210	7.22	0.56	8.48	50.5%
					Average Total	36.00	0.04	915.00	0.0210	7.22	5.17	5.17	37.7%
4	4.96	9.60	Top 2%	7037.00	7028.00	9.00	0.020	450.00	0.0103	3.94	3.88	3.88	29.9%
			Side 20%	7028.00	7005.00	23.00	0.200	115.00	0.0130	4.96	0.56	4.44	33.4%
					Average Total	32.00	0.06	565.00	0.0129	4.96	3.10	3.10	24.8%
5	20.55	9.60	Top 1%	7041.00	7038.00	3.00	0.010	300.00	0.0069	6.54	3.71	3.71	28.7%
			Top 2%	7038.00	7028.00	10.00	0.020	500.00	0.0184	17.49	4.21	7.92	48.5%
			Side 20%	7028.00	7000.00	28.00	0.200	140.00	0.0216	20.55	0.65	8.57	50.9%
					Average Total	41.00	0.04	940.00	0.0215	20.55	5.07	5.07	37.3%
6	2.98	9.60	Base 0.5%	7005.00	7002.50	2.50	0.005	500.00	0.0115	2.98	7.18	7.18	45.7%
					Average Total	2.50	0.01	500.00	0.0115	2.98	7.18	7.18	45.7%
7	0.82	9.60	Top 1%	7039.00	7038.00	1.00	0.010	100.00	0.0023	0.50	1.59	1.59	13.4%
			Side 20%	7038.00	7025.00	13.00	0.200	65.00	0.0038	0.82	0.36	1.95	16.4%
					Average Total	14.00	0.08	165.00	0.0038	0.82	1.03	1.03	8.6%
8	2.65	9.60	Top 1%	7041.00	7038.00	3.00	0.010	300.00	0.0069	2.12	3.71	3.71	28.7%
			Side 20%	7038.00	7023.00	15.00	0.200	75.00	0.0086	2.65	0.40	4.11	31.3%
					Average Total	18.00	0.05	375.00	0.0086	2.65	2.41	2.41	20.2%
9	5.73	9.60	Base 0.5%	7005.00	7002.50	2.50	0.005	500.00	0.0115	5.73	7.18	7.18	45.7%
					Average Total	2.50	0.01	500.00	0.0115	5.73	7.18	7.18	45.7%

[1] Figure 7.1.A or 7.1.B

[2] NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

[3] Abt, S.R., Johnson, T.L., Thornton, C.I. and Trabant, S.C., Riprap Sizing at the Toe of Embankment Slopes, J. of Hydr. Engr., ASCE, 1998.

SHEET 12/49

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION - OPTION A
DESIGN FLOWRATES - RATIONAL METHOD, AND ROCK SIZING [2, 3]

Catchment Drainage Area No.	A = Area [1] (acres)	D = Rainfall Depth = %PMPxPMP (inches)	i = Rainfall Intensity = D*60/T_c = (inches/hr)	Q = Peak Discharge = CiA (cfs)	q_d = Design Unit Width Peak Discharge = CiA_W (cfs/ft)	D_{50} Top & Side Slopes[2]	Oversize 4%	D_{50} Summary Size to Use		D_{50} Toe of Slope[3]	Oversize 4%	D_{50} Summary Size to Use	
								Location	Size (inches)			Location	Size (inches)
1	15.59	2.76	44.62	221.50	0.31	0.37	0.39						
		4.66	35.28	467.92	0.65	0.76	0.79	Topslopes	1.0				
		4.88	34.17	532.59	0.74	2.21	2.30	Sideslopes	3.2	8.83	9.18	Toe of Slopes	9.2
		3.58	42.35	659.99	0.91	1.29	1.34			5.17	5.37		
2	8.88	2.76	44.62	396.27	0.31	0.37	0.39						
		4.66	35.28	313.27	0.65	0.76	0.79	Topslopes	1.0				
		4.88	34.17	303.46	0.74	2.21	2.30	Sideslopes	3.2	8.83	9.18	Toe of Slopes	9.2
		3.58	42.35	376.05	0.91	1.29	1.34			5.17	5.37		
3	7.22	2.76	44.62	322.19	0.31	0.37	0.39						
		4.66	35.28	254.70	0.65	0.76	0.79	Topslopes	1.0				
		4.85	34.32	247.78	0.72	2.18	2.27	Sideslopes	3.2	8.72	9.07	Toe of Slopes	9.2
		3.62	41.99	303.14	0.88	1.21	1.26			4.85	5.04		
4	4.96	2.87	44.28	219.63	0.46	0.63	0.65	Topslopes	1.0				
		3.21	43.35	215.00	0.56	1.90	1.97	Sideslopes	3.2	7.59	7.89	Toe of Slopes	9.2
		2.38	46.16	228.94	0.60	1.14	1.19			4.56	4.74		
5	20.55	2.76	44.62	917.04	0.31	0.37	0.39						
		4.66	35.28	724.96	0.65	0.76	0.79	Topslopes	1.0				
		4.88	34.17	702.26	0.74	2.21	2.30	Sideslopes	3.2	8.83	9.18	Toe of Slopes	9.2
		3.58	42.35	870.25	0.91	1.29	1.34			5.17	5.37		
6	2.98	4.39	36.68	109.37	0.42	0.33	0.34	N/A - Flowrate used for Channel B/C design				N/A - Flowrate used for Channel B/C design	
		4.39	36.68	109.37	0.42	0.33	0.34						
7	0.82	1.28	48.38	39.82	0.11	0.21	0.22	Topslopes	1.0				
		1.58	48.38	39.82	0.18	1.01	1.05	Sideslopes	3.2			N/A - Flowrate used for Channel 7 design	
		0.83	48.38	39.82	0.18	0.70	0.73			2.80	2.91		
8	2.65	2.76	44.62	118.26	0.31	0.37	0.39	Topslopes	1.0				
		3.01	43.87	116.24	0.38	1.52	1.58	Sideslopes	3.2			N/A - Flowrate used for Channel 8 design	
		1.94	48.38	128.22	0.42	0.87	0.90			3.47	3.61		
9	5.73	4.39	36.68	109.37	0.42	0.33	0.34	N/A - Flowrate used for Channel C design				N/A - Flowrate used for Channel C design	
		4.39	36.68	109.37	0.42	0.33	0.34						

1 Figure 7.1.A or 7.1.B

2 NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

3 Abt, S.R., Johnson, T.L., Thornton, C.I. and Trabant, S.C., Riprap Sizing at the Toe of Embankment Slopes, J. of Hydr. Engr., ASCE, 1998.

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION - OPTION B

DESIGN FLOWRATES - RATIONAL METHOD, AND ROCK SIZING [2, 3]

Catchment Drainage Area No.	A = Area [1] (acres)	PMP = Local 1-Hr 1-Mi² PMP Depth (inches)	Type of Slope	H_1 = Higher Elevation (feet)	H_2 = Lower Elevation (feet)	H1 - H2	S = Slope (ft/ft)	L = Maximum Slope Length (feet)	A_W = Unit Width Area [1] (acres)	A (subtotal area by ratio of total) (acrea)	Specific Area Time of Concentration $T_c = (0.0078 * (L^{0.77})) / (S^{0.385})$ (min)	Cumulative Area Time of Concentration T_c (min)	% of PMP Index
1A	5.75	9.60	Top 1%	7041.00	7038.00	3.00	0.010	300.00	0.0069	3.59	3.71	3.71	28.7%
			Top 2%	7038.00	7036.00	2.00	0.020	100.00	0.0092	4.79	1.22	4.93	37.7%
			Side 20%	7036.00	7020.00	16.00	0.200	80.00	0.0110	5.75	0.42	5.35	39.3%
					Average Total	21.00	0.044	480.00	0.0110	5.75	3.02	3.02	29.1%
1B	9.84	9.60	Top 2%	7020.00	7012.00	8.00	0.020	400.00	0.0202	9.21	3.55	8.90	52.0%
			Side 20%	7012.00	7000.00	12.00	0.200	60.00	0.0216	9.84	0.34	9.24	53.3%
					Average Total	20.00	0.043	460.00	0.0105	9.84	2.93	2.93	23.7%
2	8.88	9.60	Top 1%	7041.00	7038.00	3.00	0.010	300.00	0.0069	2.83	3.71	3.71	28.7%
			Top 2%	7038.00	7028.00	10.00	0.020	500.00	0.0184	7.56	4.21	7.92	48.5%
			Side 20%	7028.00	7000.00	28.00	0.200	140.00	0.0216	8.88	0.65	8.57	50.9%
					Average Total	41.00	0.04	940.00	0.0215	8.88	5.07	5.07	37.3%
3	7.22	9.60	Top 1%	7041.00	7038.00	3.00	0.010	300.00	0.0069	2.36	3.71	3.71	28.7%
			Top 2%	7038.00	7028.00	10.00	0.020	500.00	0.0184	6.31	4.21	7.92	48.5%
			Side 20%	7028.00	7005.00	23.00	0.200	115.00	0.0210	7.22	0.56	8.48	50.5%
					Average Total	36.00	0.04	915.00	0.0210	7.22	5.17	5.17	37.7%
4	4.96	9.60	Top 2%	7037.00	7028.00	9.00	0.020	450.00	0.0103	3.94	3.88	3.88	29.9%
			Side 20%	7028.00	7005.00	23.00	0.200	115.00	0.0130	4.96	0.56	4.44	33.4%
					Average Total	32.00	0.06	565.00	0.0129	4.96	3.10	3.10	24.8%
5	20.55	9.60	Top 1%	7041.00	7038.00	3.00	0.010	300.00	0.0069	6.54	3.71	3.71	28.7%
			Top 2%	7038.00	7028.00	10.00	0.020	500.00	0.0184	17.49	4.21	7.92	48.5%
			Side 20%	7028.00	7000.00	28.00	0.200	140.00	0.0216	20.55	0.65	8.57	50.9%
					Average Total	41.00	0.04	940.00	0.0215	20.55	5.07	5.07	37.3%
6	2.98	9.60	Base 0.5%	7005.00	7002.50	2.50	0.005	500.00	0.0115	2.98	7.18	7.18	45.7%
					Average Total	2.50	0.01	500.00	0.0115	2.98	7.18	7.18	45.7%
7	0.82	9.60	Top 1%	7039.00	7038.00	1.00	0.010	100.00	0.0023	0.50	1.59	1.59	13.4%
			Side 20%	7038.00	7025.00	13.00	0.200	65.00	0.0038	0.82	0.36	1.95	16.4%
					Average Total	14.00	0.08	165.00	0.0038	0.82	1.03	1.03	8.6%
8	2.65	9.60	Top 1%	7041.00	7038.00	3.00	0.010	300.00	0.0069	2.12	3.71	3.71	28.7%
			Side 20%	7038.00	7023.00	15.00	0.200	75.00	0.0086	2.65	0.40	4.11	31.3%
					Average Total	18.00	0.05	375.00	0.0086	2.65	2.41	2.41	20.2%
9	5.73	9.60	Base 0.5%	7005.00	7002.50	2.50	0.005	500.00	0.0115	5.73	7.18	7.18	45.7%
					Average Total	2.50	0.01	500.00	0.0115	5.73	7.18	7.18	45.7%

[1] Figure 7.1

[2] NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

[3] Abt, S.R., Johnson, T.L., Thornton, C.I. and Trabant, S.C., Riprap Sizing at the Toe of Embankment Slopes, J. of Hydr. Engr., ASCE, 1998.

SHEET 14/49

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION - OPTION B
DESIGN FLOWRATES - RATIONAL METHOD, AND ROCK SIZING [2, 3]

Catchment Drainage Area No.	A = Area [1] (acres)	D = Rainfall Depth = %PMPxPMP (inches)	i = Rainfall Intensity = D*60/T_c = (inches/hr)	Q = Peak Discharge = CiA (cfs)	q_d = Design Unit Width Peak Discharge = CiA_W (cfs/ft)	D_{50} Top & Side Slopes	Oversize 4%	D_{50} Summary Size to Use		D_{50} Toe of Slope	Oversize 4%	D_{50} Summary Size to Use	
								Location	Size (inches			Location	Size (inches)
1A	5.75	2.76	44.62	160.04	0.31	0.37	0.39						
		3.62	44.10	211.32	0.40	0.59	0.61	Topslopes	1.0				
		3.77	42.25	242.96	0.47	1.71	1.77	Sideslopes	3.2	6.82	7.10	Toe of Slopes	9.2
		2.79	55.47	318.97	0.61	1.03	1.07			4.13	4.30		
1B	9.84	5.00	33.68	310.10	0.68	0.78	0.82	Topslopes	1.0				
		5.11	33.20	326.57	0.72	2.17	2.26	Sideslopes	3.2	8.69	9.04	Toe of Slopes	9.2
		2.28	46.70	459.27	0.49	0.91	0.95			3.65	3.80		
2	8.88	2.76	44.62	126.21	0.31	0.37	0.39						
		4.66	35.28	266.61	0.65	0.76	0.79	Topslopes	1.0				
		4.88	34.17	303.46	0.74	2.21	2.30	Sideslopes	3.2	8.83	9.18	Toe of Slopes	9.2
		3.58	42.35	376.05	0.91	1.29	1.34			5.17	5.37		
3	7.22	2.76	44.62	105.42	0.31	0.37	0.39						
		4.66	35.28	222.69	0.65	0.76	0.79	Topslopes	1.0				
		4.85	34.32	247.78	0.72	2.18	2.27	Sideslopes	3.2	8.72	9.07	Toe of Slopes	9.2
		3.62	41.99	303.14	0.88	1.21	1.26			4.85	5.04		
4	4.96	2.87	44.28	174.57	0.46	0.63	0.65	Topslopes	1.0				
		3.21	43.35	215.00	0.56	1.90	1.97	Sideslopes	3.2	7.59	7.89	Toe of Slopes	9.2
		2.38	46.16	228.94	0.60	1.14	1.19			4.56	4.74		
5	20.55	2.76	44.62	292.07	0.31	0.37	0.39						
		4.66	35.28	616.98	0.65	0.76	0.79	Topslopes	1.0				
		4.88	34.17	702.26	0.74	2.21	2.30	Sideslopes	3.2	8.83	9.18	Toe of Slopes	9.2
		3.58	42.35	870.25	0.91	1.29	1.34			5.17	5.37		
6	2.98	4.39	36.68	109.37	0.42	0.33	0.34	N/A - Flowrate used for Channel B/C design				N/A - Flowrate used for Channel B/C design	
		4.39	36.68	109.37	0.42	0.33	0.34						
7	0.82	1.28	48.38	24.08	0.11	0.21	0.22	Topslopes	1.0				
		1.58	48.38	39.82	0.18	1.01	1.05	Sideslopes	3.2			N/A - Flowrate used for Channel 7 design	
		0.83	48.38	39.82	0.18	0.70	0.73			2.80	2.91		
8	2.65	2.76	44.62	94.41	0.31	0.37	0.39	Topslopes	1.0				
		3.01	43.87	116.24	0.38	1.52	1.58	Sideslopes	3.2			N/A - Flowrate used for Channel 8 design	
		1.94	48.38	128.22	0.42	0.87	0.90			3.47	3.61		
9	5.73	4.39	36.68	210.26	0.42	0.33	0.34	N/A - Flowrate used for Channel C design				N/A - Flowrate used for Channel C design	
		4.39	36.68	210.26	0.42	0.33	0.34						

1 Figure 7.1

2 NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

3 Abt, S.R., Johnson, T.L., Thornton, C.I. and Trabant, S.C., Riprap Sizing at the Toe of Embankment Slopes, J. of Hydr. Engr., ASCE, 1998.

SH 33 of 15/49

FINAL SUMMARY: CATCHMENT AREAS & PEAK DISCHARGES - SHEET 19

DESIGN METHODS FOR RIPRAP EROSION PROTECTION

A. SEE NUREG-1623, APPENDIX D FOR METHODS

B. SEE SHEETS 20, 21, & 22 FOR SUMMARY OF METHODS AND EQUATIONS.

C. ROCK SIZING METHODS FOR TOP SLOPES, SIDE SLOPES, AND APRONS FOR TOE OF EMBANKMENT SLOPES UTILIZE TWO STRAIGHT FORWARD EQUATIONS FROM THE ABT AND JOHNSON METHODS

Top Slopes + Side Slopes } $D_{50} = 5.23(S)^{0.43}(q_d)^{0.56}$

(NUREG-1623, D.2)

Toe of Embankment Slopes } $D_{50} = 10.46(S)^{0.43}(C_f\, q_d)^{0.56}$

(NUREG-1623, D.5) $C_f = 2.0$ = Flow Concentration Factor

D. ROCK SIZING FOR CHANNELS INVOLVES MANNING'S EQUATION TO DETERMINE DEPTH OF FLOW BY APPLICABLE EQUATION OR TRIAL & ERROR

ROCK SIZES CAN THEN BE DETERMINED BY FOUR DIFFERENT OPTIONS AND THEN AVERAGED.

① SAFETY FACTORS METHOD - PEAK SHEAR STRESS

$\tau = w_w y S$, $D_{50} = \tau / 4.1$

② ABT AND JOHNSON METHOD

$D_{50} = 5.23(S)^{0.43}(q_d)^{0.56}$

(3) USACE METHOD WITH EQUATION

$$D_{30} = S_p C_s C_v C_T d \left[\left(\frac{\gamma_w}{\gamma_s - \gamma_w} \right)^{1/2} \frac{V}{\sqrt{K_1 g d}} \right]^{2.5}$$

$$D_{50} = D_{30} \left(\frac{D_{85}}{D_{15}} \right)^{1/3} = 1.7\, D_{30}$$

(4) USACE METHOD USING GRAPH CHARTS BASED ON FORMULA STATED IN OPTION (3) ABOVE.

REF: EM 1110-2-1601 (USACE, 1994)

E. <u>ROCK SIZING FOR APRONS AT DIVERSION CHANNEL OUTLETS</u>

Rock Size: ABT AND JOHNSON: $D_{50} = 5.23 \left(S \right)^{0.43} \left(q_d \right)^{0.56}$

Scour Depth: USDOT HEC NO. 14 METHOD: $d_s = R_h C_s \left(\frac{\alpha}{\sigma^{1/3}} \right) \left(\frac{Q}{g^{1/2} R_h^{5/2}} \right)^{B} \left(\frac{t}{316} \right)^{\theta}$

MAXIM TECHNOLOGIES
A DIVISION OF TETRA TECH, INC.

BY MJB DATE 4-2-07

JOB TITLE Rio Algom Mining JOB NUMBER

SUBJECT Design Flowrates & Erosion Protection - Cell #2 SHEET 18/49

F. CHANNEL ROCK SIZE SUMMARIES

CHANNEL A - SHEETS 23 - 26

CHANNEL B - SHEETS 27 - 30

CHANNEL C - SHEETS 31 - 34

CHANNEL 7 - SHEETS 35 - 38

CHANNEL 8 - SHEETS 39 - 42

G. DISCHARGE APRONS

CHANNEL A - SHEETS 43-44

CHANNEL C - SHEETS 45-46

7. FINAL ROCK SIZE SUMMARY

SEE SHEET 47

8. FINAL SUMMARY OF EROSION PROTECTION AND RECLAMATION COVER VOLUMES

SEE SHEETS 48-49

RIO ALGOM MINING , LLC									
AMBROSIA LAKE, NEW MEXICO									
TAILINGS CELL 2 EXPANSION									
SUMMARY: CATCHMENT AREAS & PEAK DISCHARGES									
Catchment Drainage Area No.	Option	A = Area [1] (acres)			Time of Concentration (min)		q_d = Design Unit Discharge (cfs/ft)		Q = Peak Discharge = CiA (cfs)
		Total	Top Slope	Side Slope	Top Slope	Side Slope	Top Slope	Side Slope	
1	A	15.59	12.37	3.21	7.92	8.57	0.65	0.74	659.99
1A	B	5.75	4.56	1.19	4.93	5.35	0.40	0.47	318.97
1B	B	9.84	8.46	1.38	8.90	9.24	0.68	0.72	459.27
2	A or B	8.88	6.47	2.41	7.92	8.57	0.65	0.74	376.05
3	A or B	7.22	6.16	1.06	7.92	8.48	0.65	0.72	303.14
4	A or B	4.96	3.38	1.58	3.88	4.44	0.46	0.56	228.94
5	A or B	20.55	19.40	1.15	7.92	8.57	0.65	0.74	870.25
6	A or B	2.98	N/A	N/A	7.18	N/A	0.42	N/A	109.37
7	A or B	0.82	0.27	0.55	1.59	1.95	0.11	0.18	39.82
8	A or B	2.65	0.88	1.77	3.71	4.11	0.31	0.38	128.22
9	A or B	5.73	N/A	N/A	7.18	N/A	0.42	N/A	109.37
Channel A = 2	A or B	8.88							376.05
Channel B = 3	A or B	7.22							303.14
Channel C = 3, 4, 6, & 9	A or B	20.90							750.81

[1] Figure 7.1.A or 7.1.B

SHEET 19/49
AREA + Q_p

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION - OPTION B
DESIGN OF EROSION PROTECTION SUMMARY OF METHODS PER NUREG-1623

NUREG-1623[1] Section #	Item Description	Depth of Flow, Rock Sizing, & Scour Depth Methods	Depth of Flow and Rock Sizing Methods	Equations	Reference
D.2	Top Slopes	Depth of Flow - Rational Method	Abt and Johnson Method	D_{50} Rock Size : $D_{50} = 5.23 (S)^{0.43} (q_d)^{0.56}$	NUREG-1623[1]
D.2	Side Slopes	Depth of Flow - Rational Method	Abt and Johnson Method	D_{50} Rock Size : $D_{50} = 5.23 (S)^{0.43} (q_d)^{0.56}$	NUREG-1623[1]
D.3	Diversion Channels	Depth of Flow - Rational Method	Manning's n for steep slope and flow depth small relative to the riprap size	Manning's $n = 0.0456(D_{50} * S)^{0.159}$	NUREG/CR-4651[2]
			Manning's n for shallow slope and flow depth exceeding average size of riprap	Manning's $n = 0.0395(D_{50})^{1/6}$	NUREG/CR-4620[3]
			Manning's n for Open Channels	Manning's $n = R_h^{1/6}/(23.85+21.95Log_{10}(R/k))$	EM1110-2-1601[4]
			Manning's Equation to determine flow depth	Flow Depth: $Q = (1.486/n)AR^{2/3}S^{1/2}$	NUREG/CR-4620[3]
D.3	Diversion Channels	Option 1 - Rock Sizing	Safety Factors Method (peak shear stress)	Actual Shear Stress: $t = W_w yS$	NUREG-1623[1]
				D_{50} Rock Size: $D_{50} = (t)/(a(W_s - W_w)) = t / 4.1$, where $a = 0.04$, $W_s = 165$ pcf, $W_w = 62.4$ pcf	NUREG-1623[1]
D.3	Diversion Channels	Option 2 - Rock Sizing	Abt and Johnson Method	D_{50} Rock Size: $D_{50} = 5.23 (S)^{0.43} (q_d)^{0.56}$, where q_d = Q/(bottom width of trapezoidal channel)	NUREG-1623[1]
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]	D_{30} Rock Size: $D_{30} = S_f C_s C_V C_T d[(\gamma_w/(\gamma_s - \gamma_w))^{1/2}(V/((K_1 gd)^{1/2}))]^{2.5}$	EM1110-2-1601[4]
				D_{50} Rock Size: $D_{50} = D_{30} (D_{85}/D_{15})^{1/3} = 1.7$ to 5.2 [5]	
				or D_{50} Rock Size: use avg. D_{50} min from Table 3-1 [5]	

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION - OPTION B
DESIGN OF EROSION PROTECTION SUMMARY OF METHODS PER NUREG-1623

NUREG-1623[1] Section #	Item Description	Depth of Flow, Rock Sizing, & Scour Depth Methods	Depth of Flow and Rock Sizing Methods	Equations	Reference
D.3	Diversion Channels	Option 4 - Rock Sizing	USACE Method with Graph Charts	D_{30} Rock Size: use D_{30} from Plate B-37and correction C_2 for sideslope angle from Plate B-39	EM1110-2-1601[4]
				then D_{50} Rock Size: use avg. D_{50} min from Table 3-1[5]	
D.4	Aprons and Diversion Channel Outlets	Option 2 - Rock Sizing	Abt and Johnson Method	$D_{50} = 5.23\,(S)^{0.43}\,(q_d)^{0.56}$	NUREG-1623[1]
		Scour Depth - Discharge Apron Toe	USDOT HEC No. 14 Method	$d_s = R_h C_s(\alpha/\sigma^{1/3})(Q/(g^{1/2}R_h^{5/2})^{\beta}(t/316)^{\theta}$	TRR No. 1523[6], & HEC No. 14[7]
D.5	Flooding from Nearby Streams	HEC HMS	Manning's n for steep slope and flow depth small relative to the riprap size	Manning's n = $0.0456(D_{50} * S)^{0.159}$	NUREG/CR-4651[2]
			Manning's n for shallow slope and flow depth exceeding average size of riprap	Manning's n = $0.0395(D_{50})^{1/6}$	NUREG/CR-4620[3]
			Manning's n for Open Channels	Manning's n = $R_h^{1/6}/(23.85+21.95\mathrm{Log}_{10}(R/k))$	EM1110-2-1601[4]
			Manning's Equation to determine flow depth	Flow Depth: $Q = (1.486/n)AR^{2/3}S^{1/2}$	EM1110-2-1601[4]
D.5	Flooding from Nearby Streams	HEC HMS	Option 1: Safety Factors Method (peak shear stress)	Actual Shear Stress: $t = W_w yS$	NUREG-1623[1]
				D_{50} Rock Size: $D_{50} = (t)/(a(W_s - W_w)) = t / 4.1$, where a = 0.04, W_s = 165 pcf, W_w = 62.4 pcf	NUREG-1623[1]

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION - OPTION B
DESIGN OF EROSION PROTECTION SUMMARY OF METHODS PER NUREG-1623

NUREG-1623[1] Section #	Item Description	Depth of Flow, Rock Sizing, & Scour Depth Methods	Depth of Flow and Rock Sizing Methods	Equations	Reference
D.5	Flooding from Nearby Streams	HEC HMS	Option 2: Abt and Johnson Method	D_{50} Rock Size: $D_{50} = 5.23 (S)^{0.43} (q_d)^{0.56}$, where q_d = Q/(bottom width of trapezoidal channel)	NUREG-1623[1]
D.5	Flooding from Nearby Streams	HEC HMS	Option 3: USACE Method with Equation 3-3[5]	D_{30} Rock Size: $D_{30} = S_f C_s C_V C_T d[(\gamma_w/(\gamma_s-\gamma_w))^{1/2}(V/((K_1 gd)^{1/2}))]^{2.5}$	EM1110-2-1601[4]
				D_{50} Rock Size: $D_{50} = D_{30} (D_{85}/D_{15})^{1/3} = 1.7$ to 5.2 [5]	
				or D_{50} Rock Size: use avg. D_{50} min from Table 3-1 [5]	
D.5	Flooding from Nearby Streams	HEC HMS	Option 4: USACE Method with Graph Charts based on Equation 3-3[5]	D_{30} Rock Size: use D_{30} from Plate B-37and correction C_2 for sideslope angle from Plate B-39	EM1110-2-1601[4]
				then D_{50} Rock Size: use avg. D_{50} min from Table 3-1 [5]	
D.6	Toe of Embankment Slopes	Rational Method	Abt and Johnson Method	$D_{50} = 10.46 (S)^{0.43} (C_f * q_d)^{0.56}$	Abt et al. (1998)[5]

[1] NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

[2] NUREG/CR-4651, U.S. Nuclear Regulatory Commission (NRC), Development of Riprap Design Criteria by Riprap Testing in Flumes: Phase II, September 1988.

[3] NUREG/CR-4620, U.S. Nuclear Regulatory Commission (NRC), Methodologies for Evaluating Long-Term Stabilization Designs of Uranium Mill Tailings Impoundments, June 1986.

[4] EM1110-2-1601, U.S.Army Corps of Engineers (USACE), Hydraulic Design of Flood Control Channels, Office of the Chief of Engineers, Washington, DC, 1994

[5] Abt, S.R., Johnson, T.L., Thornton, C.I. and Trabant, S.C., Riprap Sizing at the Toe of Embankment Slopes, J. of Hydr. Engr., ASCE, 1998.

[6] Abt, S.R., Thompson, P.I., and Lewis, T.M., Enhancement of the Culvert Outlet Scour Estimation Equations, Geometric and Other General Design Issues, Transportation Research Record (TRR), No. 1523, pp. 178-184, 1996.

[7] U.S. Department of Transportation (USDOT), Hydraulic Design of Energy Dissipators for Culverts and Channels, Hydraulic Engineering Circular (HEC) No. 14, 1983.

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
ROCK SIZING - CHANNEL A

NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods	Method Equations	Reference	Summary of Results by Method					
D.3	Diversion Channels	Depth of Flow - Rational Method	Manning's n for shallow slope and flow depth exceeding average size of riprap					Assume D_{50} rock size (ft)	coefficient	$(D_{50})^{1/6}$	Manning's n = $0.0395(D_{50})^{1/6}$
				Manning's n = $0.0395(D_{50})^{1/6}$	NUREG/CR-4620[2]	n =	0.0368	0.65	0.0395	0.9307	0.0368
			Manning's Equation to determine flow depth					Design Flowrate Q_d (cfs)	Assume y depth (ft)	1.486/n	b = bottom width (ft)
				Flow Depth: $Q=(1.486/n)AR^{2/3}S^{1/2}$	NUREG/CR-4620[2]	y =	2.86	376.05	2.86	40.42	21.0
D.3	Diversion Channels	Option 1 - Rock Sizing	Safety Factors Method (peak shear stress)					W_w = unit weight of water (lb/ft^3)	y = depth (ft)	S = channel slope (ft/ft)	$t = W_w yS$ (shear sttres) (lb/ft^2)
				Actual Shear Stress: $t = W_w yS$	NUREG-1623[1]	t =	0.89	62.4	2.86	0.005	0.8923
								$t = W_w yS$ (shear sttres) (lb/ft^2)	a - coefficient	W_s = unit weight of rock (lb/ft^3)	W_w = unit weight of water (lb/ft^3)
				D_{50} Rock Size: $D_{50} = (t)/(a(W_s - W_w)) = t / 4.1$, where a = 0.04, W_s = 165 pcf, W_w = 62.4 pcf	NUREG-1623[1]	D_{50} =	2.61	0.8923	0.04	165	62.4
D.3	Diversion Channels	Option 2 - Rock Sizing	Abt and Johnson Method					coefficient	S = channel slope (ft/ft)	$S^{0.43}$	b = bottom width (ft)
				D_{50} Rock Size: $D_{50} = 5.23\,(S)^{0.43}\,(q_d)^{0.56}$, where q_d = Q/(bottom width of trapezoidal channel)	NUREG-1623[1]	D_{50} =	2.70	5.23	0.005	0.1025	21.0
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]					S_f	C_s	C_V	C_T
				D_{30} Rock Size: $D_{30} = S_f C_s C_V C_T d[(W_w/(W_s - W_w))^{1/2}(V/((K_1 gd)^{1/2}))]^{2.5}$	EM1110-2-1601[3]			1.1	0.3	1.0	1.0
								Φ	$\sin^2\theta$	$\sin^2\Phi$	$K_1 = (1-(\sin^2\theta/\sin^2\Phi))^{0.5}$ (side slope factor)[5] or Plate B-39[5]
					EM1110-2-1601[3]	D_{30} =	1.73	40.00	0.20	0.41	0.72

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CHANNEL A

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
ROCK SIZING - CHANNEL A

NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods	Method Equations	Reference	Summary of Results by Method					
								D_{30} (inches)	Use D_{85}/D_{15}	$D_{50} = D_{30}(D_{85}/D_{15})$ (inches)	D_{50} (ft)
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]	D_{50} Rock Size: $D_{50} = D_{30}(D_{85}/D_{15})^{1/3}$, with (D_{85}/D_{15})= 1.7 to 5.2 [5]	EM1110-2-1601[3]	D_{50} =	2.94	1.73	1.7	2.94	0.25
								D_{30} (ft)	D_{30} (ft) - Low Bracket	D_{30} (ft) - High Bracket	Ratio of Bracket Range
				or D_{50} Rock Size: use avg. D_{50} min from Table 3-1 [5], at specific weight = 165 pcf	EM1110-2-1601[3]	D_{50} =	3.79	0.14	0.00	0.37	0.39
D.3	Diversion Channels	Option 4 - Rock Sizing	USACE Method with Graph Charts					y = depth (ft)	V = Q/A (fps)	D_{30} from Plate B-37[5] (ft)	COT θ
				D_{30} Rock Size: use D_{30} from Plate B-37and correction C_2 for sideslope angle from Plate B-39	EM1110-2-1601[3]	D_{30} =	1.73	2.86	4.92	0.08	2
								D_{30} w/side slope correction (ft)	D_{30} (ft) - Low Bracket	D_{30} (ft) - High Bracket	Ratio of Bracket Range
				or D_{50} Rock Size: use avg. D_{50} min from Table 3-1 [5], at specific weight = 165 pcf		D_{50} =	3.79	0.14	0.00	0.37	0.39
D.3	Diversion Channels	Rock Size Average of Options				Avg D_{50} =	3.17		-		

1 NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

2 NUREG/CR-4620, U.S. Nuclear Regulatory Commission (NRC), Methodologies for Evaluating Long-Term Stabilization Designs of Uranium Mill Tailings Impoundments, June 1986.

3 EM1110-2-1601, U.S.Army Corps of Engineers (USACE), Hydraulic Design of Flood Control Channels, Office of the Chief of Engineers, Washington, DC, 1994

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CHANNEL A

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
ROCK SIZING - CHANNEL A

NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods									
D.3	Diversion Channels	Depth of Flow - Rational Method	Manning's n for shallow slope and flow depth exceeding average size of riprap									
			Manning's Equation to determine flow depth	sideslope H/V ratio	A = cross sectional area of flow (ft^2)	Wp = wetted perimeter of flow (ft)	R = A/Wp = hydraulic radius (ft)	$R^{2/3}$	S = channel slope (ft/ft)	$S^{1/2}$	Calculated Q (cfs)	
				2.0	76.4	33.8	2.3	1.7	0.005	0.07	376.3	
D.3	Diversion Channels	Option 1 - Rock Sizing	Safety Factors Method (peak shear stress)	$a(W_s-W_w)$	D_{50} = $t/(a(W_s-W_w))$ (ft)	D_{50} (inches)	D_{50} (ft)					
				4.1	0.22	2.61	0.22					
D.3	Diversion Channels	Option 2 - Rock Sizing	Abt and Johnson Method	Design Flowrate Q_d (cfs)	q_d = Design Unit Width Peak Discharge (cfs/ft)	$q_d^{0.56}$	$D_{50} = 5.23 (S)^{0.43} (q_d)^{0.56}$	D_{50} (ft)				
				376.05	17.91	5.0315	2.70	0.22				
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]	d = y = depth of flow (ft)	W_s = unit weight of rock (lb/ft^3)	W_w = unit weight of water (lb/ft^3)	$W_w/(W_s-W_w)$	$(W_w/(W_s-W_w))^{1/2}$	V = Q/A (fps)	sideslope H/V ratio	θ	
				2.86	165	62.4	0.608	0.780	4.92	2.0	26.57	
				g (ft/sec^2)	$(K_1gd)^{1/2}$	$D_{30} = 12S_fC_sC_vC_Td[(W_w/(W_s-W_w))^{1/2}(V/((K_1gd)^{1/2}))]^{2.5}$ (inches)						
				32.2	8.13	1.73						

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CHANNEL A

				RIO ALGOM MINING , LLC AMBROSIA LAKE, NEW MEXICO TAILINGS CELL 2 EXPANSION ROCK SIZING - CHANNEL A								
NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods									
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]									
				D_{50} min (lbs) Bracket Range	D_{50} min (lbs)	W_s = unit weight of rock (lb/ft^3)	V_{cf} =D_{50} min Volume (cf)	$V_{cu.in.}$ = D_{50} min Volume (cubic inches)	pi	r = $(V_{cu.in.}/((4/3)pi))^{1/3}$ = D_{50} radius (inches)	D_{50} =2r (inches)	D_{50} (ft)
				7.00	2.73	165	0.02	28.60	3.1414	1.90	3.79	0.32
D.3	Diversion Channels	Option 4 - Rock Sizing	USACE Method with Graph Charts	C_2 = side slope angle correction, Plate B-39[5]	Corrected D_{30} = $D_{30}(C_2)$ (ft)	Corrected D_{30} = $D_{30}(C_2)$ (inches)						
				1.8	0.144	1.73						
				D_{50} min (lbs) Bracket Range	D_{50} min (lbs)	W_s = unit weight of rock (lb/ft^3)	V_{cf} =D_{50} min Volume (cf)	$V_{cu.in.}$ = D_{50} min Volume (cubic inches)	pi	r = $(V_{cu.in.}/((4/3)pi))^{1/3}$ = D_{50} radius (inches)	D_{50} =2r (inches)	D_{50} (ft)
				7.00	2.72	165	0.02	28.53	3.1414	1.90	3.79	0.32
D.3	Diversion Channels	Rock Size Average of Options										

1 NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

2 NUREG/CR-4620, U.S. Nuclear Regulatory Commission (NRC), Methodologies for Evaluating Long-Term Stabilization Designs of Uranium Mill Tailings Impoundments, June 1986.

3 EM1110-2-1601, U.S.Army Corps of Engineers (USACE), Hydraulic Design of Flood Control Channels, Office of the Chief of Engineers, Washington, DC, 1994

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CHANNEL A

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
ROCK SIZING - CHANNEL B

NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods	Method Equations	Reference	Summary of Results by Method					
D.3	Diversion Channels	Depth of Flow - Rational Method	Manning's n for shallow slope and flow depth exceeding average size of riprap					Assume D_{50} rock size (ft)	coefficient	$(D_{50})^{1/6}$	Manning's n = $0.0395(D_{50})^{1/6}$
				Manning's n = $0.0395(D_{50})^{1/6}$	NUREG/CR-4620[2]	n =	0.0368	0.65	0.0395	0.9307	0.0368
			Manning's Equation to determine flow depth					Design Flowrate Q_d (cfs)	Assume y depth (ft)	1.486/n	b = bottom width (ft)
				Flow Depth: $Q=(1.486/n)AR^{2/3}S^{1/2}$	NUREG/CR-4620[2]	y =	2.74	303.14	2.74	40.42	18.0
D.3	Diversion Channels	Option 1 - Rock Sizing	Safety Factors Method (peak shear stress)					W_w = unit weight of water (lb/ft^3)	y = depth (ft)	S = channel slope (ft/ft)	$t = W_w yS$ (shear sttres) (lb/ft^2)
				Actual Shear Stress: $t = W_w yS$	NUREG-1623[1]	t =	0.85	62.4	2.74	0.005	0.8549
								$t = W_w yS$ (shear sttres) (lb/ft^2)	a - coefficient	W_s = unit weight of rock (lb/ft^3)	W_w = unit weight of water (lb/ft^3)
				D_{50} Rock Size: $D_{50} = (t)/(a(W_s - W_w)) = t / 4.1$, where a = 0.04, W_s = 165 pcf, W_w = 62.4 pcf	NUREG-1623[1]	D_{50} =	2.50	0.8549	0.04	165	62.4
D.3	Diversion Channels	Option 2 - Rock Sizing	Abt and Johnson Method					coefficient	S = channel slope (ft/ft)	$S^{0.43}$	b = bottom width (ft)
				D_{50} Rock Size: $D_{50} = 5.23\,(S)^{0.43}\,(q_d)^{0.56}$, where q_d = Q/(bottom width of trapezoidal channel)	NUREG-1623[1]	D_{50} =	2.61	5.23	0.005	0.1025	18.0
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]					S_f	C_s	C_V	C_T
				D_{30} Rock Size: $D_{30} = S_f C_s C_V C_T d[(W_w/(W_s - W_w))^{1/2}(V/((K_1 gd)^{1/2}))]^{2.5}$	EM1110-2-1601[3]			1.1	0.3	1.0	1.0
								Φ	$\sin^2\theta$	$\sin^2\Phi$	$K_1 = (1-(\sin^2\theta/\sin^2\Phi))^{0.5}$ (side slope factor)[5] or Plate B-39[5]
					EM1110-2-1601[3]	D_{30} =	1.57	40.00	0.20	0.41	0.72

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CHANNEL B

				RIO ALGOM MINING , LLC AMBROSIA LAKE, NEW MEXICO TAILINGS CELL 2 EXPANSION ROCK SIZING - CHANNEL B							
NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods	Method Equations	Reference	Summary of Results by Method					
								D_{30} (inches)	Use D_{85}/D_{15}	$D_{50} = D_{30}(D_{85}/D_{15})$ (inches)	D_{50} (ft)
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]	D_{50} Rock Size: $D_{50} = D_{30}(D_{85}/D_{15})^{1/3}$, with (D_{85}/D_{15})= 1.7 to 5.2 [5]	EM1110-2-1601[3]	D_{50} =	2.67	1.57	1.7	2.67	0.22
								D_{30} (ft)	D_{30} (ft) - Low Bracket	D_{30} (ft) - High Bracket	Ratio of Bracket Range
				or D_{50} Rock Size: use avg. D_{50} min from Table 3-1 [5], at specific weight = 165 pcf	EM1110-2-1601[3]	D_{50} =	3.67	0.13	0.00	0.37	0.35
								y = depth (ft)	V = Q/A (fps)	D_{30} from Plate B-37[5] (ft)	COT θ
D.3	Diversion Channels	Option 4 - Rock Sizing	USACE Method with Graph Charts	D_{30} Rock Size: use D_{30} from Plate B-37and correction C_2 for sideslope angle from Plate B-39	EM1110-2-1601[3]	D_{30} =	1.56	2.74	4.71	0.07	2
								D_{30} w/side slope correction (ft)	D_{30} (ft) - Low Bracket	D_{30} (ft) - High Bracket	Ratio of Bracket Range
				or D_{50} Rock Size: use avg. D_{50} min from Table 3-1 [5], at specific weight = 165 pcf		D_{50} =	3.66	0.13	0.00	0.37	0.35
D.3	Diversion Channels	Rock Size Average of Options				Avg D_{50} =	3.02				

[1] NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

[2] NUREG/CR-4620, U.S. Nuclear Regulatory Commission (NRC), Methodologies for Evaluating Long-Term Stabilization Designs of Uranium Mill Tailings Impoundments, June 1986.

[3] EM1110-2-1601, U.S.Army Corps of Engineers (USACE), Hydraulic Design of Flood Control Channels, Office of the Chief of Engineers, Washington, DC, 1994

SHEET 28/49
CHANNEL B

				RIO ALGOM MINING , LLC AMBROSIA LAKE, NEW MEXICO TAILINGS CELL 2 EXPANSION ROCK SIZING - CHANNEL B								
NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods									
D.3	Diversion Channels	Depth of Flow - Rational Method	Manning's n for shallow slope and flow depth exceeding average size of riprap									
			Manning's Equation to determine flow depth	sideslope H/V ratio	A = cross sectional area of flow (ft^2)	Wp = wetted perimeter of flow (ft)	R = A/Wp = hydraulic radius (ft)	$R^{2/3}$	S = channel slope (ft/ft)	$S^{1/2}$	Calculated Q (cfs)	
				2.0	64.3	30.3	2.1	1.7	0.005	0.07	304.1	
D.3	Diversion Channels	Option 1 - Rock Sizing	Safety Factors Method (peak shear stress)									
				$a(W_s-W_w)$	$D_{50} = t/(a(W_s-W_w))$ (ft)	D_{50} (inches)	D_{50} (ft)					
				4.1	0.21	2.50	0.21					
D.3	Diversion Channels	Option 2 - Rock Sizing	Abt and Johnson Method	Design Flowrate Q_d (cfs)	q_d = Design Unit Width Peak Discharge (cfs/ft)	$q_d^{0.56}$	$D_{50} = 5.23 (S)^{0.43} (q_d)^{0.56}$	D_{50} (ft)				
				303.14	16.84	4.8614	2.61	0.22				
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]	d = y = depth of flow (ft)	W_s = unit weight of rock (lb/ft^3)	W_w = unit weight of water (lb/ft^3)	$W_w/(W_s-W_w)$	$(W_w/(W_s-W_w))^{1/2}$	V = Q/A (fps)	sideslope H/V ratio	θ	
				2.74	165	62.4	0.608	0.780	4.71	2.0	26.57	
				g (ft/sec^2)	$(K_1gd)^{1/2}$	$D_{30} = 12S_fC_sC_VC_Td[(W_w/(W_s-W_w))^{1/2}(V/((K_1gd)^{1/2}))]^{2.5}$ (inches)						
				32.2	7.96	1.57						

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CHANNEL B

NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods	RIO ALGOM MINING , LLC AMBROSIA LAKE, NEW MEXICO TAILINGS CELL 2 EXPANSION ROCK SIZING - CHANNEL B								
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]									
				D_{50} min (lbs) Bracket Range	D_{50} min (lbs)	W_s = unit weight of rock (lb/ft^3)	V_{cf} =D_{50} min Volume (cf)	$V_{cu.in.}$ = D_{50} min Volume (cubic inches)	pi	r = $(V_{cu.in.}/((4/3)pi))^{1/3}$ = D_{50} radius (inches)	D_{50} =2r (inches)	D_{50} (ft)
				7.00	2.48	165	0.02	25.93	3.1414	1.84	3.67	0.31
D.3	Diversion Channels	Option 4 - Rock Sizing	USACE Method with Graph Charts	C_2 = side slope angle correction, Plate B-39[5]	Corrected D_{30} = $D_{30}(C_2)$ (ft)	Corrected D_{30} = $D_{30}(C_2)$ (inches)						
				1.8	0.1296	1.56						
				D_{50} min (lbs) Bracket Range	D_{50} min (lbs)	W_s = unit weight of rock (lb/ft^3)	V_{cf} =D_{50} min Volume (cf)	$V_{cu.in.}$ = D_{50} min Volume (cubic inches)	pi	r = $(V_{cu.in.}/((4/3)pi))^{1/3}$ = D_{50} radius (inches)	D_{50} =2r (inches)	D_{50} (ft)
				7.00	2.45	165	0.01	25.68	3.1414	1.83	3.66	0.31
D.3	Diversion Channels	Rock Size Average of Options										

1 NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

2 NUREG/CR-4620, U.S. Nuclear Regulatory Commission (NRC), Methodologies for Evaluating Long-Term Stabilization Designs of Uranium Mill Tailings Impoundments, June 1986.

3EM1110-2-1601, U.S.Army Corps of Engineers (USACE), Hydraulic Design of Flood Control Channels, Office of the Chief of Engineers, Washington, DC, 1994

SHEET 30/49
CHANNEL B

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
ROCK SIZING - CHANNEL C

NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods	Method Equations	Reference	Summary of Results by Method					
D.3	Diversion Channels	Depth of Flow - Rational Method	Manning's n for shallow slope and flow depth exceeding average size of riprap					Assume D_{50} rock size (ft)	coefficient	$(D_{50})^{1/6}$	Manning's n = $0.0395(D_{50})^{1/6}$
				Manning's n = $0.0395(D_{50})^{1/6}$	NUREG/CR-4620[2]	n =	0.0368	0.65	0.0395	0.9307	0.0368
			Manning's Equation to determine flow depth					Design Flowrate Q_d (cfs)	Assume y depth (ft)	1.486/n	b = bottom width (ft)
				Flow Depth: $Q=(1.486/n)AR^{2/3}S^{1/2}$	NUREG/CR-4620[2]	y =	4.11	750.81	4.11	40.42	22.0
D.3	Diversion Channels	Option 1 - Rock Sizing	Safety Factors Method (peak shear stress)					W_w = unit weight of water (lb/ft^3)	y = depth (ft)	S = channel slope (ft/ft)	$t = W_w yS$ (shear sttres) (lb/ft^2)
				Actual Shear Stress: $t = W_w yS$	NUREG-1623[1]	t =	1.28	62.4	4.11	0.005	1.2823
								$t = W_w yS$ (shear sttres) (lb/ft^2)	a - coefficient	W_s = unit weight of rock (lb/ft^3)	W_w = unit weight of water (lb/ft^3)
				D_{50} Rock Size: $D_{50} = (t)/(a(W_s - W_w)) = t / 4.1$, where a = 0.04, W_s = 165 pcf, W_w = 62.4 pcf	NUREG-1623[1]	D_{50} =	3.75	1.2823	0.04	165	62.4
D.3	Diversion Channels	Option 2 - Rock Sizing	Abt and Johnson Method					coefficient	S = channel slope (ft/ft)	$S^{0.43}$	b = bottom width (ft)
				D_{50} Rock Size: $D_{50} = 5.23\,(S)^{0.43}\,(q_d)^{0.56}$, where q_d = Q/(bottom width of trapezoidal channel)	NUREG-1623[1]	D_{50} =	3.87	5.23	0.005	0.1025	22.0
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]					S_f	C_s	C_V	C_T
					EM1110-2-1601[3]			1.1	0.3	1.0	1.0
				D_{30} Rock Size: $D_{30} = S_f C_s C_V C_T d[(W_w/(W_s - W_w))^{1/2}(V/((K_1 gd)^{1/2}))]^{2.5}$				Φ	$\sin^2\theta$	$\sin^2\Phi$	$K_1 = (1-(\sin^2\theta/\sin^2\Phi))^{0.5}$ (side slope factor)[5] or Plate B-39[5]
					EM1110-2-1601[3]	D_{30} =	2.65	40.00	0.20	0.41	0.72

SHEET 31/49
CHANNEL C

				RIO ALGOM MINING , LLC AMBROSIA LAKE, NEW MEXICO TAILINGS CELL 2 EXPANSION ROCK SIZING - CHANNEL C							
NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods	Method Equations	Reference	Summary of Results by Method					
								D_{30} (inches)	Use D_{85}/D_{15}	$D_{50} = D_{30}(D_{85}/D_{15})$ (inches)	D_{50} (ft)
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]	D_{50} Rock Size: $D_{50} = D_{30}(D_{85}/D_{15})^{1/3}$, with (D_{85}/D_{15})= 1.7 to 5.2 [5]	EM1110-2-1601[3]	D_{50} =	4.50	2.65	1.7	4.50	0.37
								D_{30} (ft)	D_{30} (ft) - Low Bracket	D_{30} (ft) - High Bracket	Ratio of Bracket Range
				or D_{50} Rock Size: use avg. D_{50} min from Table 3-1 [5], at specific weight = 165 pcf	EM1110-2-1601[3]	D_{50} =	4.37	0.22	0.00	0.37	0.60
								y = depth (ft)	V = Q/A (fps)	D_{30} from Plate B-37[5] (ft)	COT θ
D.3	Diversion Channels	Option 4 - Rock Sizing	USACE Method with Graph Charts	D_{30} Rock Size: use D_{30} from Plate B-37and correction C_2 for sideslope angle from Plate B-39	EM1110-2-1601[3]	D_{30}=	2.64	4.11	6.04	0.12	2
								D_{30} w/side slope correction (ft)	D_{30} (ft) - Low Bracket	D_{30} (ft) - High Bracket	Ratio of Bracket Range
				or D_{50} Rock Size: use avg. D_{50} min from Table 3-1 [5], at specific weight = 165 pcf		D_{50} =	4.36	0.22	0.00	0.37	0.59
D.3	Diversion Channels	Rock Size Average of Options				AVG D_{50} =	4.17				

[1] NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

[2] NUREG/CR-4620, U.S. Nuclear Regulatory Commission (NRC), Methodologies for Evaluating Long-Term Stabilization Designs of Uranium Mill Tailings Impoundments, June 1986.

[3] EM1110-2-1601, U.S.Army Corps of Engineers (USACE), Hydraulic Design of Flood Control Channels, Office of the Chief of Engineers, Washington, DC, 1994

SHEET 32/49
CHANNEL C

				RIO ALGOM MINING , LLC AMBROSIA LAKE, NEW MEXICO TAILINGS CELL 2 EXPANSION ROCK SIZING - CHANNEL C								
NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods									
D.3	Diversion Channels	Depth of Flow - Rational Method	Manning's n for shallow slope and flow depth exceeding average size of riprap									
			Manning's Equation to determine flow depth	sideslope H/V ratio	A = cross sectional area of flow (ft^2)	Wp = wetted perimeter of flow (ft)	R = A/Wp = hydraulic radius (ft)	$R^{2/3}$	S = channel slope (ft/ft)	$S^{1/2}$	Calculated Q (cfs)	
				2.0	124.2	40.4	3.1	2.1	0.005	0.07	750.8	
D.3	Diversion Channels	Option 1 - Rock Sizing	Safety Factors Method (peak shear stress)									
				$a(W_s-W_w)$	D_{50} = t/(a(W_s-W_w)) (ft)	D_{50} (inches)	D_{50} (ft)					
				4.1	0.31	3.75	0.31					
D.3	Diversion Channels	Option 2 - Rock Sizing	Abt and Johnson Method	Design Flowrate Q_d (cfs)	q_d = Design Unit Width Peak Discharge (cfs/ft)	$q_d^{0.56}$	$D_{50} = 5.23 (S)^{0.43} (q_d)^{0.56}$	D_{50} (ft)				
				750.81	34.13	7.2200	3.87	0.32				
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]	d = y = depth of flow (ft)	W_s = unit weight of rock (lb/ft^3)	W_w = unit weight of water (lb/ft^3)	$W_w/(W_s-W_w)$	$(W_w/(W_s-W_w))^{1/2}$	V = Q/A (fps)	sideslope H/V ratio	θ	
				4.11	165	62.4	0.608	0.780	6.04	2.0	26.57	
				g (ft/sec^2)	$(K_1gd)^{1/2}$	$D_{30} = 12S_fC_sC_vC_Td[(W_w/(W_s-W_w))^{1/2}(V/((K_1gd)^{1/2}))]^{2.5}$ (inches)						
				32.2	9.75	2.65						

SHEET 33/49
CHANNEL C

				RIO ALGOM MINING , LLC AMBROSIA LAKE, NEW MEXICO TAILINGS CELL 2 EXPANSION ROCK SIZING - CHANNEL C								
NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods									
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]									
				D_{50} min (lbs) Bracket Range	D_{50} min (lbs)	W_s = unit weight of rock (lb/ft^3)	V_{cf} =D_{50} min Volume (cf)	$V_{cu.in.}$ = D_{50} min Volume (cubic inches)	pi	r = $(V_{cu.in.}/((4/3)pi))^{1/3}$ = D_{50} radius (inches)	D_{50} =2r (inches)	D_{50} (ft)
				7.00	4.17	165	0.03	43.69	3.1414	2.18	4.37	0.36
D.3	Diversion Channels	Option 4 - Rock Sizing	USACE Method with Graph Charts	C_2 = side slope angle correction, Plate B-39[5]	Corrected D_{30} = $D_{30}(C_2)$ (ft)	Corrected D_{30} = $D_{30}(C_2)$ (inches)						
				1.8	0.2196	2.64						
				D_{50} min (lbs) Bracket Range	D_{50} min (lbs)	W_s = unit weight of rock (lb/ft^3)	V_{cf} =D_{50} min Volume (cf)	$V_{cu.in.}$ = D_{50} min Volume (cubic inches)	pi	r = $(V_{cu.in.}/((4/3)pi))^{1/3}$ = D_{50} radius (inches)	D_{50} =2r (inches)	D_{50} (ft)
				7.00	4.15	165	0.03	43.51	3.1414	2.18	4.36	0.36
D.3	Diversion Channels	Rock Size Average of Options										

[1] NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

[2] NUREG/CR-4620, U.S. Nuclear Regulatory Commission (NRC), Methodologies for Evaluating Long-Term Stabilization Designs of Uranium Mill Tailings Impoundments, June 1986.

[3] EM1110-2-1601, U.S.Army Corps of Engineers (USACE), Hydraulic Design of Flood Control Channels, Office of the Chief of Engineers, Washington, DC, 1994

SHEET 34/49
CHANNEL C

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
ROCK SIZING - CHANNEL 7

NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods	Method Equations	Reference	Summary of Results by Method							
D.3	Diversion Channels	Depth of Flow - Rational Method	Manning's n for steep slope and flow depth small relative to the riprap size					Assume D_{50} rock size (ft)	coefficient	S	$(D_{50} * S)^{0.159}$	Manning's n = $0.0456(D_{50}*S)^{0.159}$
				Manning's n = $0.0456(D_{50} * S)^{0.159}$	NUREG/CR-4651[4]	n =	0.0178	0.27	0.0456	0.01	0.3897	0.0178
			Manning's n for shallow slope and flow depth exceeding average size of riprap					Assume D_{50} rock size (ft)	coefficient	$(D_{50})^{1/6}$	Manning's n = $0.0395(D_{50})^{1/6}$	
				Manning's n = $0.0395(D_{50})^{1/6}$	NUREG/CR-4620[2]	n =	0.0317	0.27	0.0395	0.8023	0.0317	
			Manning's Equation to determine flow depth					Design Flowrate Q_d (cfs)	Assume y depth (ft)	Coefficient	n	b = bottom width (ft)
				Flow Depth: $Q=(1.486/n)AR^{2/3}S^{1/2}$	NUREG/CR-4620[2]	y =	0.82	39.82	0.82	1.49	0.0317	10.0
D.3	Diversion Channels	Option 1 - Rock Sizing	Safety Factors Method (peak shear stress)					W_w = unit weight of water (lb/ft^3)	y = depth (ft)	S = channel slope (ft/ft)	$t = W_w yS$ (shear sttres) (lb/ft^2)	
				Actual Shear Stress: $t = W_w yS$	NUREG-1623[1]	t =	0.51	62.4	0.82	0.010	0.5117	
								$t = W_w yS$ (shear sttres) (lb/ft^2)	a - coefficient	W_s = unit weight of rock (lb/ft^3)	W_w = unit weight of water (lb/ft^3)	$a(W_s-W_w)$
				D_{50} Rock Size: $D_{50} = (t)/(a(W_s - W_w)) = t / 4.1$, where a = 0.04, W_s = 165 pcf, W_w = 62.4 pcf	NUREG-1623[1]	D_{50} =	1.50	0.5117	0.04	165	62.4	4.1
D.3	Diversion Channels	Option 2 - Rock Sizing	Abt and Johnson Method					coefficient	S = channel slope (ft/ft)	$S^{0.43}$	b = bottom width (ft)	Design Flowrate Q_d (cfs)
				D_{50} Rock Size: $D_{50} = 5.23 (S)^{0.43} (q_d)^{0.56}$, where q_d = Q/(bottom width of trapezoidal channel)	NUREG-1623[1]	D_{50} =	1.57	5.23	0.010	0.1380	10.0	39.82
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]					S_f	C_s	C_V	C_T	d = y = depth of flow (ft)
				D_{30} Rock Size: $D_{30} = S_f C_s C_V C_T d[(W_w/(W_s-W_w))^{1/2}(V/((K_1 gd)^{1/2}))]^{2.5}$	EM1110-2-1601[3]			1.1	0.3	1.0	1.0	0.82
								Φ	$\sin^2\theta$	$\sin^2\Phi$	$K_1 = (1-(\sin^2\theta/\sin^2\Phi))^{0.5}$ (side slope factor)[5] or Plate B-39[5]	g (ft/sec^2)
					EM1110-2-1601[3]	D_{30} =	0.97	40.00	0.20	0.41	0.72	32.2

SHEET 35/49
CHANNEL 7

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
ROCK SIZING - CHANNEL 7

NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods	Method Equations	Reference	Summary of Results by Method						
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]					D_{30} (inches)	Use D_{85}/D_{15}	$D_{50} = D_{30}(D_{85}/D_{15})$ (inches)	D_{50} (ft)	
				D_{50} Rock Size: $D_{50} = D_{30}(D_{85}/D_{15})^{1/3}$, with (D_{85}/D_{15})= 1.7 to 5.2 [5]	EM1110-2-1601[3]	D_{50} =	1.65	0.97	1.7	1.65	0.14	
								D_{30} (ft)	D_{30} (ft) - Low Bracket	D_{30} (ft) - High Bracket	Ratio of Bracket Range	D_{50} min (lbs) Bracket Range
				or D_{50} Rock Size: use avg. D_{50} min from Table 3-1 [5], at specific weight = 165 pcf	EM1110-2-1601[3]	D_{50} =	3.13	0.08	0.00	0.37	0.22	7.00
D.3	Diversion Channels	Option 4 - Rock Sizing	USACE Method with Graph Charts					y = depth (ft)	V = Q/A (fps)	D_{30} from Plate B-37[5] (ft)	COT θ	C_2 = side slope angle correction, Plate B-39[5]
				D_{30} Rock Size: use D_{30} from Plate B-37and correction C_2 for sideslope angle from Plate B-39	EM1110-2-1601[3]	D_{30} =	0.97	0.82	3.44	0.05	2	1.8
								D_{30} w/side slope correction (ft)	D_{30} (ft) - Low Bracket	D_{30} (ft) - High Bracket	Ratio of Bracket Range	D_{50} min (lbs) Bracket Range
				or D_{50} Rock Size: use avg. D_{50} min from Table 3-1 [5], at specific weight = 165 pcf		D_{50} =	3.13	0.08	0.00	0.37	0.22	7.00
D.3	Diversion Channels	Rock Size Average of Options				Avg D_{50} (1% Slope) =	2.19					
D.4	Aprons and Diversion Channel Outlets	Option 2 - Rock Sizing	Abt and Johnson Method					Design Location	coefficient	S = channel slope (ft/ft)	$S^{0.43}$	b = bottom width (ft)
				$D_{50} = 5.23\,(S)^{0.43}\,(q)^{0.56}$	NUREG-1623[1]	D_{50} (20% Side Slope) =	2.30	Discharge Down Side Slope	5.23	0.200	0.5005	50.0

[1] NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

[2] NUREG/CR-4620, U.S. Nuclear Regulatory Commission (NRC), Methodologies for Evaluating Long-Term Stabilization Designs of Uranium Mill Tailings Impoundments, June 1986.

[3] EM1110-2-1601, U.S.Army Corps of Engineers (USACE), Hydraulic Design of Flood Control Channels, Office of the Chief of Engineers, Washington, DC, 1994

[4] NUREG/CR-4651, U.S. Nuclear Regulatory Commission (NRC), Development of Riprap Design Criteria by Riprap Testing in Flumes: Phase II, September 1988.

SHEET 36/49
CHANNEL 7

				RIO ALGOM MINING , LLC AMBROSIA LAKE, NEW MEXICO TAILINGS CELL 2 EXPANSION ROCK SIZING - CHANNEL 7							
NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods								
D.3	Diversion Channels	Depth of Flow - Rational Method	Manning's n for steep slope and flow depth small relative to the riprap size								
			Manning's n for shallow slope and flow depth exceeding average size of riprap								
			Manning's Equation to determine flow depth	sideslope H/V ratio	A = cross sectional area of flow (ft^2)	Wp = wetted perimeter of flow (ft)	R = A/Wp = hydraulic radius (ft)	$R^{2/3}$	S = channel slope (ft/ft)	$S^{1/2}$	Calculated Q = $(1.486/n)AR^{2/3}S^{1/2}$ (cfs)
				5.0	11.6	18.4	0.6	0.7	0.010	0.10	39.8
D.3	Diversion Channels	Option 1 - Rock Sizing	Safety Factors Method (peak shear stress)								
				D_{50} = t/(a(W_s-W_w)) (ft)	D_{50} (inches)	D_{50} (ft)					
				0.12	1.50	0.12					
D.3	Diversion Channels	Option 2 - Rock Sizing	Abt and Johnson Method	q_d = Design Unit Width Peak Discharge (cfs/ft)	$q_d^{0.56}$	$D_{50} = 5.23 (S)^{0.43} (q_d)^{0.56}$	D_{50} (ft)				
				3.98	2.1680	1.57	0.13				
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]	W_s = unit weight of rock (lb/ft^3)	W_w = unit weight of water (lb/ft^3)	$W_w/(W_s-W_w)$	$(W_w/(W_s-W_w))^{1/2}$	V = Q/A (fps)	sideslope H/V ratio	θ	
				165	62.4	0.608	0.780	3.44	2.0	26.57	
				$(K_1gd)^{1/2}$	$D_{30} = 12S_iC_sC_vC_Td[(W_w/(W_s-W_w))^{1/2}(V/((K_1gd)^{1/2}))]^{2.5}$ (inches)						
				4.35	0.97						

SHEET 37/49
CHANNEL 7

				RIO ALGOM MINING , LLC AMBROSIA LAKE, NEW MEXICO TAILINGS CELL 2 EXPANSION ROCK SIZING - CHANNEL 7							
NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods								
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]								
				D_{50} min (lbs)	W_s = unit weight of rock (lb/ft^3)	V_{cf} =D_{50} min Volume (cf)	$V_{cu.in.}$ = D_{50} min Volume (cubic inches)	pi	r = $(V_{cu.in.}/((4/3)pi))^{1/3}$ = D_{50} radius (inches)	D_{50} =2r (inches)	D_{50} (ft)
				1.53	165	0.01	16.02	3.1414	1.56	3.13	0.26
D.3	Diversion Channels	Option 4 - Rock Sizing	USACE Method with Graph Charts	Corrected D_{30} = $D_{30}(C_2)$ (ft)	Corrected D_{30} = $D_{30}(C_2)$ (inches)						
				0.081	0.97						
				D_{50} min (lbs)	W_s = unit weight of rock (lb/ft^3)	V_{cf} =D_{50} min Volume (cf)	$V_{cu.in.}$ = D_{50} min Volume (cubic inches)	pi	r = $(V_{cu.in.}/((4/3)pi))^{1/3}$ = D_{50} radius (inches)	D_{50} =2r (inches)	D_{50} (ft)
				1.53	165	0.01	16.05	3.1414	1.56	3.13	0.26
D.3	Diversion Channels	Rock Size Average of Options									
D.4	Aprons and Diversion Channel Outlets	Option 2 - Rock Sizing	Abt and Johnson Method	Design Flowrate Q_d (cfs)	q_d = Design Unit Width Peak Discharge (cfs/ft)	$q_d^{0.56}$	$D_{50} = 5.23\ (S)^{0.43}\ (q_d)^{0.56}$	D_{50} (ft)			
				39.82	0.80	0.8803	2.30	0.19			

[1] NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

[2] NUREG/CR-4620, U.S. Nuclear Regulatory Commission (NRC), Methodologies for Evaluating Long-Term Stabilization Designs of Uranium Mill Tailings Impoundments, June 1986.

[3] EM1110-2-1601, U.S.Army Corps of Engineers (USACE), Hydraulic Design of Flood Control Channels, Office of the Chief of Engineers, Washington, DC, 1994

[4] NUREG/CR-4651, U.S. Nuclear Regulatory Commission (NRC), Development of Riprap Design Criteria by Riprap Testing in Flumes: Phase II, September 1988.

SHEET 38/49
CHANNEL 7

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
ROCK SIZING - CHANNEL 8

NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods	Method Equations	Reference	Summary of Results by Method						
D.3	Diversion Channels	Depth of Flow - Rational Method	Manning's n for steep slope and flow depth small relative to the riprap size					Assume D_{50} rock size (ft)	coefficient	S	$(D_{50} * S)^{0.159}$	Manning's n = $0.0456(D_{50}*S)^{0.159}$
				Manning's n = $0.0456(D_{50} * S)^{0.159}$	NUREG/CR-4651[4]	n =	0.0205	0.65	0.0456	0.01	0.4490	0.0205
			Manning's n for shallow slope and flow depth exceeding average size of riprap					Assume D_{50} rock size (ft)	coefficient	$(D_{50})^{1/6}$	Manning's n = $0.0395(D_{50})^{1/6}$	
				Manning's n = $0.0395(D_{50})^{1/6}$	NUREG/CR-4620[2]	n =	0.0368	0.65	0.0395	0.9307	0.0368	
			Manning's Equation to determine flow depth					Design Flowrate Q_d (cfs)	Assume y depth (ft)	Coefficient	n	b = bottom width (ft)
				Flow Depth: $Q=(1.486/n)AR^{2/3}S^{1/2}$	NUREG/CR-4620[2]	y =	1.63	128.22	1.63	1.49	0.0368	10.0
D.3	Diversion Channels	Option 1 - Rock Sizing	Safety Factors Method (peak shear stress)					W_w = unit weight of water (lb/ft^3)	y = depth (ft)	S = channel slope (ft/ft)	$t = W_w yS$ (shear sttres) (lb/ft^2)	
				Actual Shear Stress: $t = W_w yS$	NUREG-1623[1]	t =	1.02	62.4	1.63	0.010	1.0171	
								$t = W_w yS$ (shear sttres) (lb/ft^2)	a - coefficient	W_s = unit weight of rock (lb/ft^3)	W_w = unit weight of water (lb/ft^3)	$a(W_s-W_w)$
				D_{50} Rock Size: $D_{50} = (t)/(a(W_s - W_w)) = t / 4.1$, where a = 0.04, W_s = 165 pcf, W_w = 62.4 pcf	NUREG-1623[1]	D_{50} =	2.97	1.0171	0.04	165	62.4	4.1
D.3	Diversion Channels	Option 2 - Rock Sizing	Abt and Johnson Method					coefficient	S = channel slope (ft/ft)	$S^{0.43}$	b = bottom width (ft)	Design Flowrate Q_d (cfs)
				D_{50} Rock Size: $D_{50} = 5.23 (S)^{0.43} (q_d)^{0.56}$, where q_d = Q/(bottom width of trapezoidal channel)	NUREG-1623[1]	D_{50} =	3.01	5.23	0.010	0.1380	10.0	128.22
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]					S_f	C_s	C_V	C_T	d = y = depth of flow (ft)
					EM1110-2-1601[3]			1.1	0.3	1.0	1.0	1.63
				D_{30} Rock Size: $D_{30} = S_f C_s C_V C_T d[(W_w/(W_s-W_w))^{1/2}(V/((K_1 gd)^{1/2}))]^{2.5}$				Φ	$\sin^2\theta$	$\sin^2\Phi$	$K_1 = (1-(\sin^2\theta/\sin^2\Phi))^{0.5}$ (side slope factor)[5] or Plate B-39[5]	g (ft/sec^2)
					EM1110-2-1601[3]	D_{30} =	1.45	40.00	0.20	0.41	0.72	32.2

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CHANNEL 8

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
ROCK SIZING - CHANNEL 8

NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods	Method Equations	Reference	Summary of Results by Method						
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]					D_{30} (inches)	Use D_{85}/D_{15}	$D_{50} = D_{30}(D_{85}/D_{15})$ (inches)	D_{50} (ft)	
				D_{50} Rock Size: $D_{50} = D_{30}(D_{85}/D_{15})^{1/3}$, with (D_{85}/D_{15})= 1.7 to 5.2 [5]	EM1110-2-1601[3]	D_{50} =	2.47	1.45	1.7	2.47	0.21	
								D_{30} (ft)	D_{30} (ft) - Low Bracket	D_{30} (ft) - High Bracket	Ratio of Bracket Range	D_{50} min (lbs) Bracket Range
				or D_{50} Rock Size: use avg. D_{50} min from Table 3-1 [5], at specific weight = 165 pcf	EM1110-2-1601[3]	D_{50} =	3.58	0.12	0.00	0.37	0.33	7.00
D.3	Diversion Channels	Option 4 - Rock Sizing	USACE Method with Graph Charts					y = depth (ft)	V = Q/A (fps)	D_{30} from Plate B-37[5] (ft)	COT θ	C_2 = side slope angle correction, Plate B-39[5]
				D_{30} Rock Size: use D_{30} from Plate B-37and correction C_2 for sideslope angle from Plate B-39	EM1110-2-1601[3]	D_{30} =	1.45	1.63	4.33	0.07	2	1.8
								D_{30} w/side slope correction (ft)	D_{30} (ft) - Low Bracket	D_{30} (ft) - High Bracket	Ratio of Bracket Range	D_{50} min (lbs) Bracket Range
				or D_{50} Rock Size: use avg. D_{50} min from Table 3-1 [5], at specific weight = 165 pcf		D_{50} =	3.57	0.12	0.00	0.37	0.33	7.00
D.3	Diversion Channels	Rock Size Average of Options				Avg D_{50} (1% Slope)	3.12					
D.4	Aprons and Diversion Channel Outlets	Option 2 - Rock Sizing	Abt and Johnson Method					Design Location	coefficient	S = channel slope (ft/ft)	$S^{0.43}$	b = bottom width (ft)
				$D_{50} = 5.23\,(S)^{0.43}\,(q)^{0.56}$	NUREG-1623[1]	D_{50} (20% Side Slope)	4.44	Discharge Down Side Slope	5.23	0.200	0.5005	50.0

[1] NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

[2] NUREG/CR-4620, U.S. Nuclear Regulatory Commission (NRC), Methodologies for Evaluating Long-Term Stabilization Designs of Uranium Mill Tailings Impoundments, June 1986.

[3] EM1110-2-1601, U.S.Army Corps of Engineers (USACE), Hydraulic Design of Flood Control Channels, Office of the Chief of Engineers, Washington, DC, 1994

[4] NUREG/CR-4651, U.S. Nuclear Regulatory Commission (NRC), Development of Riprap Design Criteria by Riprap Testing in Flumes: Phase II, September 1988.

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CHANNEL 8

				RIO ALGOM MINING , LLC AMBROSIA LAKE, NEW MEXICO TAILINGS CELL 2 EXPANSION ROCK SIZING - CHANNEL 8							
NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods								
D.3	Diversion Channels	Depth of Flow - Rational Method	Manning's n for steep slope and flow depth small relative to the riprap size								
			Manning's n for shallow slope and flow depth exceeding average size of riprap								
			Manning's Equation to determine flow depth	sideslope H/V ratio	A = cross sectional area of flow (ft^2)	Wp = wetted perimeter of flow (ft)	R = A/Wp = hydraulic radius (ft)	$R^{2/3}$	S = channel slope (ft/ft)	$S^{1/2}$	Calculated Q = $(1.486/n)AR^{2/3}S^{1/2}$ (cfs)
				5.0	29.6	26.6	1.1	1.1	0.010	0.10	128.3
D.3	Diversion Channels	Option 1 - Rock Sizing	Safety Factors Method (peak shear stress)								
				D_{50} = t/(a(W_s-W_w)) (ft)	D_{50} (inches)	D_{50} (ft)					
				0.25	2.97	0.25					
D.3	Diversion Channels	Option 2 - Rock Sizing	Abt and Johnson Method	q_d = Design Unit Width Peak Discharge (cfs/ft)	$q_d^{0.56}$	$D_{50} = 5.23 (S)^{0.43} (q_d)^{0.56}$	D_{50} (ft)				
				12.82	4.1730	3.01	0.25				
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]	W_s = unit weight of rock (lb/ft^3)	W_w = unit weight of water (lb/ft^3)	$W_w/(W_s-W_w)$	$(W_w/(W_s-W_w))^{1/2}$	V = Q/A (fps)	sideslope H/V ratio	θ	
				165	62.4	0.608	0.780	4.33	2.0	26.57	
				$(K_1gd)^{1/2}$	$D_{30} = 12S_iC_sC_vC_Td[(W_w/(W_s-W_w))^{1/2}(V/((K_1gd)^{1/2}))]^{2.5}$ (inches)						
				6.14	1.45						

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CHANNEL 8

				RIO ALGOM MINING , LLC AMBROSIA LAKE, NEW MEXICO TAILINGS CELL 2 EXPANSION ROCK SIZING - CHANNEL 8							
NUREG-1623[1] Section #	Item Description	Peak Flow Rate	Depth of Flow and Rock Sizing Methods								
D.3	Diversion Channels	Option 3 - Rock Sizing	USACE Method with Equation 3-3[5]								
				D_{50} min (lbs)	W_s = unit weight of rock (lb/ft^3)	V_{cf} =D_{50} min Volume (cf)	$V_{cu.in.}$ = D_{50} min Volume (cubic inches)	pi	r = $(V_{cu.in.}/((4/3)pi))^{1/3}$ = D_{50} radius (inches)	D_{50} =2r (inches)	D_{50} (ft)
				2.29	165	0.01	23.96	3.1414	1.79	3.58	0.30
D.3	Diversion Channels	Option 4 - Rock Sizing	USACE Method with Graph Charts	Corrected D_{30} = $D_{30}(C_2)$ (ft)	Corrected D_{30} = $D_{30}(C_2)$ (inches)						
				0.1206	1.45						
				D_{50} min (lbs)	W_s = unit weight of rock (lb/ft^3)	V_{cf} =D_{50} min Volume (cf)	$V_{cu.in.}$ = D_{50} min Volume (cubic inches)	pi	r = $(V_{cu.in.}/((4/3)pi))^{1/3}$ = D_{50} radius (inches)	D_{50} =2r (inches)	D_{50} (ft)
				2.28	165	0.01	23.89	3.1414	1.79	3.57	0.30
D.3	Diversion Channels	Rock Size Average of Options									
D.4	Aprons and Diversion Channel Outlets	Option 2 - Rock Sizing	Abt and Johnson Method	Design Flowrate Q_d (cfs)	q_d = Design Unit Width Peak Discharge (cfs/ft)	$q_d^{0.56}$	$D_{50} = 5.23\ (S)^{0.43}\ (q_d)^{0.56}$	D_{50} (ft)			
				128.22	2.56	1.6944	4.44	0.37			

[1] NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

[2] NUREG/CR-4620, U.S. Nuclear Regulatory Commission (NRC), Methodologies for Evaluating Long-Term Stabilization Designs of Uranium Mill Tailings Impoundments, June 1986.

[3] EM1110-2-1601, U.S.Army Corps of Engineers (USACE), Hydraulic Design of Flood Control Channels, Office of the Chief of Engineers, Washington, DC, 1994

[4] NUREG/CR-4651, U.S. Nuclear Regulatory Commission (NRC), Development of Riprap Design Criteria by Riprap Testing in Flumes: Phase II, September 1986.

SHEET 42/49
CHANNEL 8

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
ROCK SIZING AND SCOUR DEPTH - CHANNEL A DISCHARGE APRON

NUREG-1623[1] Section #	Item Description	Sub-Item	Depth of Flow and Rock Sizing Methods	Method Equations	Reference	Summary of Results by Method					
D.3	Diversion Channels	Depth of Flow - Rational Method	Manning's n for shallow slope and flow depth exceeding average size of riprap					Assume D_{50} rock size (ft)	coefficient	$(D_{50})^{1/6}$	Manning's n = $0.0395(D_{50})^{1/6}$
				Manning's n = $0.0395(D_{50})^{1/6}$	NUREG/CR-4620[2]	n =	0.0368	0.65	0.0395	0.9307	0.0368
			Manning's n for Open Channels					R_h = hydraulic radius = depth of flow (ft)	$R_h^{1/6}$	k = equivalent roughness height = rock size (ft)	R/k
				Manning's n = $R_h^{1/6}/(23.85+21.95\text{Log}_{10}(R/k))$	EM1110-2-1601[3]	n =	0.0336	1.51	1.0711	0.65	2.3231
			Manning's Equation to determine flow depth at Outlet					Q_d = Design Flowrate (cfs)	Assume y depth (ft)	1.486/n	b = bottom width (ft)
				Flow Depth: $Q=(1.486/n)AR^{2/3}S^{1/2}$	NUREG/CR-4620[2]	y =	1.51	376.05	1.51	44.24	60.0
D.4	Aprons and Diversion Channel Outlets	Option 2 - Rock Sizing	Abt and Johnson Method					Design Location	coefficient	S = channel slope (ft/ft)	$S^{0.43}$
				$D_{50} = 5.23\ (S)^{0.43}\ (q)^{0.56}$	NUREG-1623[1]	D_{50} =	2.63	Discharge Channel	5.23	0.005	0.1025
						D_{50} =	1.50	Discharge Apron	5.23	0.005	0.1025
						D_{50} =	7.32	Buried Discharge Apron Toe	5.23	0.200	0.5005
D.4	Aprons and Diversion Channel Outlets	Downstream Scour Depth - Discharge Apron Toe	USDOT HEC No. 14 Method[5]					R_h = hydraulic radius = depth of flow (ft)	C_s = slope correction coeeficient (Table 5.2[5])	α = coeeficient (Table 5.1[5])	σ = (D84/D16)0.5, material standard deviation
				$d_s = R_h C_s(\alpha/\sigma^{1/3})(Q/(g^{1/2}R_h^{5/2})^{\beta}(t/316)^{\theta}$	TRR No. 1523[4], & HEC No. 14[5]			1.51	1.0075	2.27	3.67
								β = coeeficient (Table 5.1[5])	$(Q/g^{1/2}R_h^{5/2})^{\beta}$	t = time (min)	θ = coeeficient (Table 5.1[5])
						d_s =	6.96	0.39	3.434	60	0.06

[1] NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

[2] NUREG/CR-4620, U.S. Nuclear Regulatory Commission (NRC), Methodologies for Evaluating Long-Term Stabilization Designs of Uranium Mill Tailings Impoundments. June 1986.

[3] EM1110-2-1601, U.S.Army Corps of Engineers (USACE), Hydraulic Design of Flood Control Channels, Office of the Chief of Engineers, Washington, DC, 1994

[4] Abt, S.R., Thompson, P.I., and Lewis, T.M., Enhancement of the Culvert Outlet Scour Estimation Equations, Geometric and Other General Design Issues, Transportation Research Record (TRR), No. 1523, pp. 178-184, 1996.

[5] U.S. Department of Transportation (USDOT), Hydraulic Design of Energy Dissipators for Culverts and Channels, Hydraulic Engineering Circular (HEC) No. 14, 1983.

SHEET 43/49
CHANNEL A-OUTLET

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
ROCK SIZING AND SCOUR DEPTH - CHANNEL A DISCHARGE APRON

NUREG-1623[1] Section #	Item Description	Sub-Item	Depth of Flow and Rock Sizing Methods									
D.3	Diversion Channels	Depth of Flow - Rational Method	Manning's n for shallow slope and flow depth exceeding average size of riprap									
			Manning's n for Open Channels	Manning's n = $R_h^{1/6}/(23.85+21.95\text{Log}_{10}(R/k))$								
				0.0336								
			Manning's Equation to determine flow depth at Outlet	sideslope H/V ratio	A = cross sectional area of flow (ft^2)	Wp = wetted perimeter of flow (ft)	R = A/Wp = hydraulic radius (ft)	$R^{2/3}$	S = channel slope (ft/ft)	$S^{1/2}$	Calculated Q (cfs)	
				2.0	95.2	66.8	1.4	1.3	0.005	0.07	377.0	
D.4	Aprons and Diversion Channel Outlets	Option 2 - Rock Sizing	Abt and Johnson Method	b = bottom width (ft)	Design Flowrate Q_d (cfs)	q_d = Design Unit Width Peak Discharge (cfs/ft)	$q_d^{0.56}$	$D_{50} = 5.23\,(S)^{0.43}\,(q_d)^{0.56}$	D_{50} (ft)			
				22.0	376.05	17.09	4.9021	2.63	0.22			
				60.0	376.05	6.27	2.7949	1.50	0.12			
				60.0	376.05	6.27	2.7949	7.32	0.61			
D.4	Aprons and Diversion Channel Outlets	Downstream Scour Depth - Discharge Apron Toe	USDOT HEC No. 14 Method[5]	$\sigma^{1/3}$	Q_d = Design Flowrate (cfs)	g (ft/sec^2)	$Q/g^{1/2}R_h^{5/2}$					
				1.54	376.05	32.2	23.652					
				$(t/316)^\theta$	$d_s = R_h C_s(\alpha/\sigma^{1/3})(Q/(g^{1/2}R_h^{5/2})^\beta(t/316)^\theta$			$d_s/3$				
				0.9051	6.96			2.32				

[1] NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

[2] NUREG/CR-4620. U.S. Nuclear Regulatory Commission (NRC), Methodologies for Evaluating Long-Term Stabilization Designs of Uranium Mill Tailings Impoundments, June 1986.

[3] EM1110-2-1601, U.S.Army Corps of Engineers (USACE), Hydraulic Design of Flood Control Channels, Office of the Chief of Engineers, Washington, DC, 1994

[4] Abt, S.R., Thompson, P.I., and Lewis, T.M., Enhancement of the Culvert Outlet Scour Estimation Equations, Geometric and Other General Design Issues, Transportation Research Record (TRR), No. 1523, pp. 178-184, 1996.

[5] U.S. Department of Transportation (USDOT), Hydraulic Design of Energy Dissipators for Culverts and Channels, Hydraulic Engineering Circular (HEC) No. 14, 1983.

SHEET 44/49
CHANNEL A - OUTLET

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
ROCK SIZING AND SCOUR DEPTH - CHANNEL C DISCHARGE APRON

NUREG-1623[1] Section #	Item Description	Sub-Item	Depth of Flow and Rock Sizing Methods	Method Equations	Reference	Summary of Results by Method					
D.3	Diversion Channels	Depth of Flow - Rational Method	Manning's n for shallow slope and flow depth exceeding average size of riprap					Assume D_{50} rock size (ft)	coefficient	$(D_{50})^{1/6}$	Manning's n = $0.0395(D_{50})^{1/6}$
				Manning's n = $0.0395(D_{50})^{1/6}$	NUREG/CR-4620[2]	n =	0.0368	0.65	0.0395	0.9307	0.0368
			Manning's n for Open Channels					R_h = hydraulic radius = depth of flow (ft)	$R_h^{1/6}$	k = equivalent roughness height = rock size (ft)	R/k
				Manning's n = $R_h^{1/6}/(23.85+21.95Log_{10}(R/k))$	EM1110-2-1601[3]	n =	0.0347	2.00	1.1226	0.82	2.4502
			Manning's Equation to determine flow depth at Outlet					Q_d = Design Flowrate (cfs)	Assume y depth (ft)	1.486/n	b = bottom width (ft)
				Flow Depth: $Q=(1.486/n)AR^{2/3}S^{1/2}$	NUREG/CR-4620[2]	y =	2.00	750.81	2.00	42.88	77.0
D.4	Aprons and Diversion Channel Outlets	Option 2 - Rock Sizing	Abt and Johnson Method					Design Location	coefficient	S = channel slope (ft/ft)	$S^{0.43}$
				$D_{50} = 5.23\ (S)^{0.43}\ (q)^{0.56}$	NUREG-1623[1]	D_{50} =	3.87	Discharge Channel	5.23	0.005	0.1025
						D_{50} =	1.82	Discharge Apron	5.23	0.005	0.1025
						D_{50} =	8.87	Buried Discharge Apron Toe	5.23	0.200	0.5005
D.4	Aprons and Diversion Channel Outlets	Downstream Scour Depth - Discharge Apron Toe	USDOT HEC No. 14 Method[5]					R_h = hydraulic radius = depth of flow (ft)	C_s = slope correction coeeficient (Table 5.2[5])	α = coeeficient (Table 5.1[5])	σ = (D84/D16)0.5, material standard deviation
				$d_s = R_hC_s(\alpha/\sigma^{1/3})(Q/(g^{1/2}R_h^{5/2})^{\beta}(t/316)^{\theta}$	TRR No. 1523[4], & HEC No. 14[5]			2.00	1.0075	2.27	3.67
								β = coeeficient (Table 5.1[5])	$(Q/g^{1/2}R_h^{5/2})^{\beta}$	t = time (min)	θ = coeeficient (Table 5.1[5])
						d_s =	9.18	0.39	3.418	60	0.06

[1] NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

[2] NUREG/CR-4620, U.S. Nuclear Regulatory Commission (NRC), Methodologies for Evaluating Long-Term Stabilization Designs of Uranium Mill Tailings Impoundments, June 1986.

[3] EM1110-2-1601, U.S.Army Corps of Engineers (USACE), Hydraulic Design of Flood Control Channels, Office of the Chief of Engineers, Washington, DC, 1994

[4] Abt, S.R., Thompson, P.I., and Lewis, T.M., Enhancement of the Culvert Outlet Scour Estimation Equations, Geometric and Other General Design Issues, Transportation Research Record (TRR), No. 1523, pp. 178-184, 1996.

[5] U.S. Department of Transportation (USDOT), Hydraulic Design of Energy Dissipators for Culverts and Channels, Hydraulic Engineering Circular (HEC) No. 14, 1983.

SHEET 45 / 49
CHANNEL C - OUTLET

				RIO ALGOM MINING , LLC AMBROSIA LAKE, NEW MEXICO TAILINGS CELL 2 EXPANSION ROCK SIZING AND SCOUR DEPTH - CHANNEL C DISCHARGE APRON								
NUREG-1623[1] Section #	Item Description	Sub-Item	Depth of Flow and Rock Sizing Methods									
D.3	Diversion Channels	Depth of Flow - Rational Method	Manning's n for shallow slope and flow depth exceeding average size of riprap									
			Manning's n for Open Channels	Manning's n = $R_h^{1/6}/(23.85+21.95Log_{10}(R/k))$								
				0.0347								
			Manning's Equation to determine flow depth at Outlet	sideslope H/V ratio	A = cross sectional area of flow (ft^2)	Wp = wetted perimeter of flow (ft)	R = A/Wp = hydraulic radius (ft)	$R^{2/3}$	S = channel slope (ft/ft)	$S^{1/2}$	Calculated Q (cfs)	
				2.0	162.1	85.9	1.9	1.5	0.005	0.07	750.2	
D.4	Aprons and Diversion Channel Outlets	Option 2 - Rock Sizing	Abt and Johnson Method	b = bottom width (ft)	Design Flowrate Q_d (cfs)	q_d = Design Unit Width Peak Discharge (cfs/ft)	$q_d^{0.56}$	$D_{50} = 5.23 (S)^{0.43} (q_d)^{0.56}$	D_{50} (ft)			
				22.0	750.81	34.13	7.2200	3.87	0.32			
				85.0	750.81	8.83	3.3871	1.82	0.15			
				85.0	750.81	8.83	3.3871	8.87	0.74			
D.4	Aprons and Diversion Channel Outlets	Downstream Scour Depth - Discharge Apron Toe	USDOT HEC No. 14 Method[5]	$\sigma^{1/3}$	Q_d = Design Flowrate (cfs)	g (ft/sec^2)	$Q/g^{1/2}R_h^{5/2}$					
				1.54	750.81	32.2	23.361					
				$(t/316)^\theta$	$d_s = R_h C_s(\alpha/\sigma^{1/3})(Q/(g^{1/2}R_h^{5/2})^\beta(t/316)^\theta$			$d_s/2$				
				0.9051	9.18			4.59				

[1] NUREG-1623, U.S. Nuclear Regulatory Commission (NRC), Design of Erosion Protection for Long-Term Stabilization, Final Report, September 2002.

[2] NUREG/CR-4620, U.S. Nuclear Regulatory Commission (NRC), Methodologies for Evaluating Long-Term Stabilization Designs of Uranium Mill Tailings Impoundments, June 1986.

[3] EM1110-2-1601, U.S.Army Corps of Engineers (USACE), Hydraulic Design of Flood Control Channels, Office of the Chief of Engineers, Washington, DC, 1994

[4] Abt, S.R., Thompson, P.I., and Lewis, T.M., Enhancement of the Culvert Outlet Scour Estimation Equations, Geometric and Other General Design Issues, Transportation Research Record (TRR), No. 1523, pp. 178-184, 1996.

[5] U.S. Department of Transportation (USDOT), Hydraulic Design of Energy Dissipators for Culverts and Channels, Hydraulic Engineering Circular (HEC) No. 14, 1983.

SHEET 76/77
CHANNEL C - OUTLET

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
SUMMARY: CATCHMENT AREAS & PEAK DISCHARGES
OPTION A OR B

Rock Placement Area[1]	Q = Maximum Design Flow Rate (cfs)	q_d = Maximum Design Unit Width Flow Rate (cfs/ft)	Min D_{50} Required (in)	Oversize Min D_{50} 4% (in)	D_{50} Available to Use (in)	Thickness = $2.0*D_{50}$ = Min Rock (in)	Design Thickness to Use (in)	Minimum Width = $15*D_{50}$ = (ft)	Maximum Scour Depth (ft)	Reduced Scour Depth to Use (ft)
Top Slope of Cell		0.65	0.76	0.79	1.0	2.00	3.0			
Side Slope of Cell		0.74	2.21	2.30	3.2	6.40	6.0			
Apron 1 or 1B		0.74	8.83	9.18	9.2	18.40	18.0	11.5		
Apron 1A		0.47	6.82	7.10	7.8	15.60	16.0	9.8		
Apron 4		0.56	7.59	7.89	9.2	18.40	18.0	11.5		
Apron 5		0.74	8.83	9.18	9.2	18.40	18.0	11.5		
Apron 7		0.18	2.30	2.40	3.2	6.40	6.0			
Apron 8		0.38	4.44	4.61	9.2	18.40	18.0			
Channel A	376.05	17.91	3.17	3.29	7.8	15.6	16.0			
Channel B	303.14	16.84	3.02	3.14	7.8	15.6	16.0			
Channel C	750.81	34.13	4.17	4.34	7.8	15.6	16.0			
Channel A Outlet Apron Toe	376.05	6.27	7.32	7.61	7.8	15.6	16.0	60	6.96	2.5
Channel C Outlet Apron Toe	750.81	8.83	8.87	9.22	9.2	18.4	18.0	85	9.18	4.5

[1] Figure 7.1.A or 7.1.B

SHEET 47/49
Rock Summary

SHEET 48/49
VOLUME SUMMARY

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
SUMMARY: EROSION PROTECTION LAYERS - VOLUME REQUIREMENTS

Material Size (in)	Rock Placement Area[1]		Surface Area (ft^2)	Cross-Sectional (ft^2)	Length (ft)	Volume (ft^3)	Volume (yd^3)	Total Volume Option	Total Volume (yd^3)
D_{50} = 1.0 inches	Rock Filter	Channel A	--	26.15	850	22228	823		
		Channel B	--	24.00	450	10800	400		
		Channel C	--	24.70	1200	29640	1098		
		Channel A Outflow	6070	--	--	3035	112		
		Channel C Outflow	10828	--	--	5414	201		
		Apron 1	--	5.75	1000	5750	213		
		Apron 1A		8.88	650	5768.75	214		
		Apron 1B		5.75	1000	5750	213		
		Apron 4	--	9.25	700	6475	240	A	3371
		Apron 5	--	6.15	1250	7687.5	285	B	3585
D_{50} = 1.0 inches	Top Slope of Tailings Cell 2	Catchment 1	538883	--	--	134721	4990		
		Catchment 1A	198470	--	--	49618	1838		
		Catchment 1B	368413	--	--	92103	3411		
		Catchment 2	281813	--	--	70453	2609		
		Catchment 3	268503	--	--	67126	2486		
		Catchment 4	147058	--	--	36764	1362		
		Catchment 5	845158	--	--	211290	7826		
		Catchment 7	11950	--	--	2987	111	A	19739
		Catchment 8	38478	--	--	9620	356	B	19999
D_{50} = 1.0 inches	Rock Filter - Side Slope of Tailings Cell 2	Catchment 1	140000	--	--	70000	2593		
		Catchment 1A	52000	--	--	26000	963		
		Catchment 1B	60000	--	--	30000	1111		
		Catchment 2	105000	--	--	52500	1944		
		Catchment 3	46000	--	--	23000	852		
		Catchment 4	69000	--	--	34500	1278		
		Catchment 5	50000	--	--	25000	926		
		Catchment 7	23900	--	--	11949.96	443	A	9460
		Catchment 8	76956	--	--	38478	1425	B	8942
D_{50} = 3.2 inches	Side Slope of Tailings Cell 2	Catchment 1	140000	--	--	70000	2593		
		Catchment 1A	52000	--	--	26000	963		
		Catchment 1B	60000	--	--	30000	1111		
		Catchment 2	105000	--	--	52500	1944		
		Catchment 3	46000	--	--	23000	852		
		Catchment 4	69000	--	--	34500	1278		
		Catchment 5	50000	--	--	25000	926		
		Catchment 7	23900	--	--	11949.96	443	A	9460
		Catchment 8	76956	--	--	38478	1425	B	8942

[1] Figure 7.1.A or 7.1.B

Summary of Volumes

D_{50} (inches)	Option A (yd^3)	Option B (yd^3)
1.0	32571	32525
3.2	9460	8942
7.8	6013	6577
9.2	3797	3797
Total Rock	52405	
Frost Protection Material	97878	97878
Radon Barrier Material	146817	146817

SHEET 49/49
VOLUME SUMMARY

RIO ALGOM MINING , LLC
AMBROSIA LAKE, NEW MEXICO
TAILINGS CELL 2 EXPANSION
SUMMARY: EROSION PROTECTION LAYERS - VOLUME REQUIREMENTS

Material Size (in)	Rock Placement Area[1]		Surface Area (ft^2)	Cross-Sectional (ft^2)	Length (ft)	Volume (ft^3)	Volume (yd^3)	Total Volume Option	Total Volume (yd^3)
D_{50} = 7.8	Channel A		--	63.73	850	54173	2006		
	Channel B		--	58.00	450	26100	967		
	Channel C		--	65.87	1200	79040	2927		
	Channel A Outflow		6070	--	--	3035	112	A	6013
	Apron 1A			23.45	650	15243	565	B	6577
D_{50} = 9.2 inches	Channel C Outflow		10828			5414	201		
	North Interface Channel (Apron 7)	N/A - D50=3.2 inch Side Slope Cover Adequate Protection	N/A			0	0		
	Sorth Interface Channel (Apron 8)		15000	--	--	22500	833		
	Apron 1		--	31.20	1000	31200	1156		
	Apron 1B			31.20	1000	31200	1156		
	Apron 4		--	19.04	700	13328	494	A	3797
	Apron 5		--	24.06	1250	30069	1114	B	3797
Frost Protection Layer	Catchment 1		678883	--	--	678883	25144		
	Catchment 1A		250470	--	--	250470	9277		
	Catchment 1B		428413	--	--	428413	15867		
	Catchment 2		386813	--	--	386813	14326		
	Catchment 3		314503	--	--	314503	11648		
	Catchment 4		216058	--	--	216058	8002		
	Catchment 5		895158	--	--	895158	33154		
	Catchment 7		35850	--	--	35850	1328	A	97878
	Catchment 8		115434	--	--	115434	4275	B	97878
Radon Barrier / Infiltration Layer	Catchment 1		678883	--	--	1018324	37716		
	Catchment 1A		250470	--	--	375705	13915		
	Catchment 1B		428413	--	--	642619	23801		
	Catchment 2		386813	--	--	580219	21490		
	Catchment 3		314503	--	--	471755	17472		
	Catchment 4		216058	--	--	324086	12003		
	Catchment 5		895158	--	--	1342737	49731		
	Catchment 7		35849.88	--	--	53775	1992	A	146817
	Catchment 8		115434	--	--	173151	6413	B	146817

[1] Figure 7.1.A or 7.1.B

MAXIM TECHNOLOGIES INC®

JOB NO. _____ JOB TITLE Rio Algom-Cell 2 DATE 11/26/04 BY CWS

SUBJECT Interstitial Cover Flow CHECKED _____ SHEET 1 OF 2

Calculate Flow at 1" D_{50} Rock/Alluvium interface

FROM NUREG CR-4620

Law except at extremely low gradients. The following design guideline for estimating flow through riprap rockfill closely conforms to the laws of turbulent flow.

Flow through granular material is dependent on the geometry, structure and flow properties of the porous media. Leps (1973) presented a basic equation for turbulent flow through rockfill as

$$V_v = Wm^{0.5} i^{0.54} \qquad (4.37)$$

where V_v is the average velocity of water (inches/sec) in the voids of the rockfill, W is an empirical constant for a specific riprap material, m is the hydraulic mean radius and i is the hydraulic gradient. Table 4.1 presents a series of empirically derived values for the hydraulic mean radius, m, and the $Wm^{0.5}$ parameter as presented by Leps.

Table 4.1. Empirically derived values for equation 4.37.

Rock size (inch)	m (inch)	$m^{0.5}$ (inch $^{1/2}$)	$Wm^{0.5}$ (inch/sec.)
3/4	0.09	0.30	10
2	0.24	0.49	16
6	0.75	0.87	28
8	0.96	0.98	32
24	3.11	1.76	58
48	6.43	2.54	84

Source: Leps, 1973.

The hydraulic gradient will range from 0 to 1.0. The dominant rock size for flow calculations was considered to be the 50% size, d_{50}. Although Equation 4.37 was derived for a uniformly graded rockfill, the procedure is considered applicable to well graded rockfill provided that the material smaller than one inch is less than 30%. Leps indicated that if more than 30% of the less than one inch material is present, the rockfill should be treated as earthfill. A series of tests were conducted at Colorado State University by Abt and Ruff (1985) and Equation 4.37 was found to be accurate within ± 15%.

MAXIM TECHNOLOGIES INC®

JOB NO. _____ JOB TITLE Rio Algom Cell 2 DATE 11/24/04 BY CDS

SUBJECT Interstitial Cover Flow CHECKED _____ SHEET 2 OF 2

FOR 20% SIDE Slope

D_{50} = 1" Filter Rock below 3" Cover Rock

$V_v = V_m^{0.5} \cdot i^{0.54}$ EQUATION 4.37

$V_m^{0.5}$ = 11.2 table 4.1

$i = 0.2$

$i^{0.54} = 0.4193$

$V_v = \frac{11.2}{12}(0.4193) = 0.39$ ft/sec

~~0.39 < 0.5 ft/sec~~

∴ ~~Filter @ (D_{50}=1) and Alluvium interface Not required~~

APPENDIX C-2

SETTLEMENT CALCULATIONS

MAXIM TECHNOLOGIES INC®
A TETRA TECH COMPANY

BY CDS DATE 11-22-04

JOB TITLE Rio Algom JOB NUMBER

SUBJECT Settlement Analysis - Pond #2 SHEET

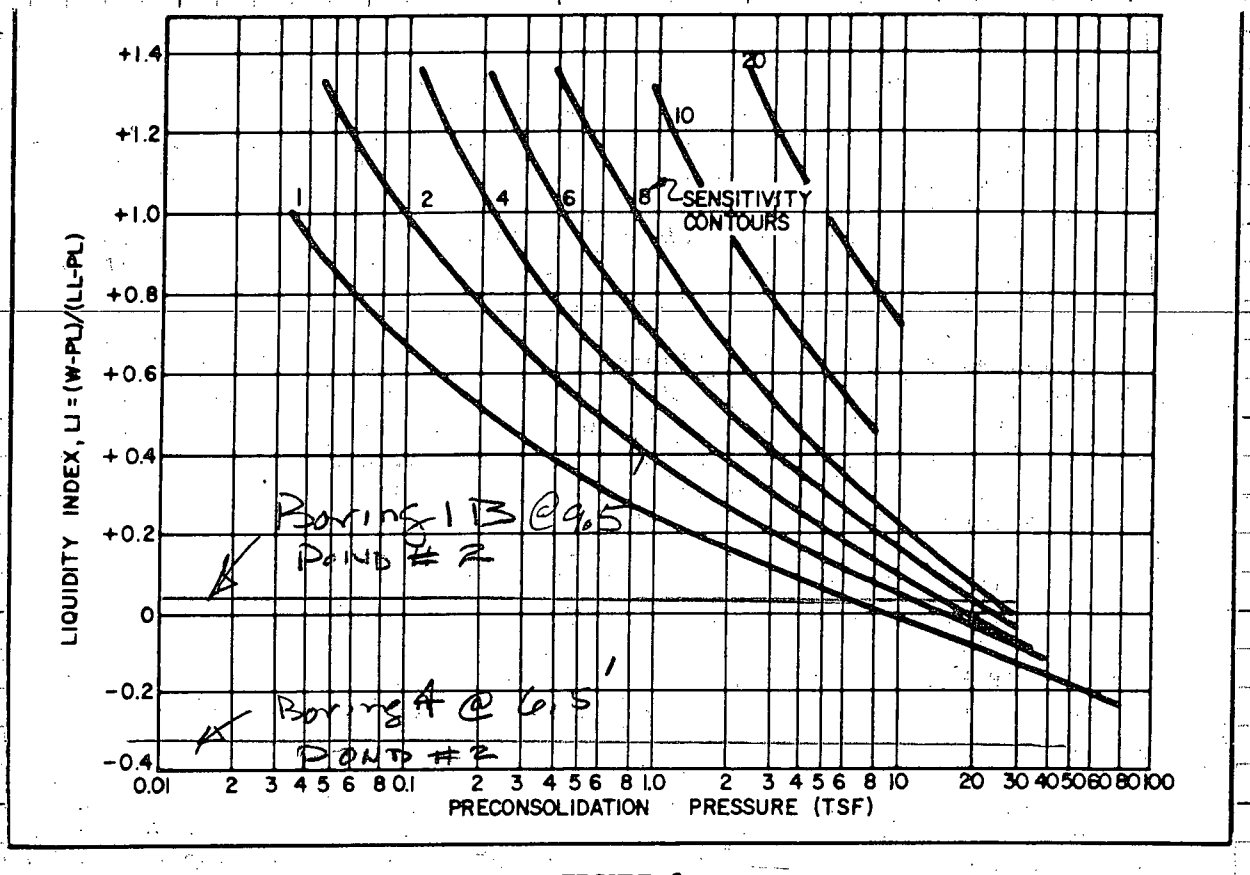


FIGURE 3
Preconsolidation Pressure vs. Liquidity Index

NAVFAC
Design Manual 7.1

MAXIM TECHNOLOGIES INC
A TETRA TECH COMPANY

BY COS DATE 11-22-04

JOB TITLE Rio Algom JOB NUMBER

SUBJECT Settlement Analysis – POND #2 SHEET

Data From Soil Investigation
SHEB – 10-25-82

Estimate P_c of Natural Soils & Bedrock

Boring 13 Clay Shale (CH)

– 9.5' $W_c = 17.7$

$DD = 108$ $LI = \frac{(W - PL)}{LL - PL} = \frac{17.7 - 17}{34}$

$LL = 51$

$PL = 17$ $LI = .02$

$PI = 34$

Boring No 4 @ 6.5' (SM-SC)

$W_c = 9.5$

$DD = 94$ $LI = \frac{9.5 - 14}{12} = -0.375$

$LL = 26$

$PL = 14$

$PI = 12$

From Fig 3 – NAVDOCS 7.01-142

Boring 1-B $P_c \sim 6-25$ TSF

Boring 4 $P_c > 60$ TSF

$\Delta\sigma'$ = Stress Due to Pile Weight

$\Delta\sigma' \sim \frac{3840}{2000} = 1.92$ TSF

∴ Elastic Compression only

MAXIM TECHNOLOGIES INC® A TETRA TECH COMPANY

BY CJS DATE 11-23-04

JOB TITLE Rio Algom JOB NUMBER

SUBJECT Settlement Analysis SHEET

Secondary Settlement Analysis
Tailings Slimes

b. Settlement Computation. Compute settlement from secondary compression following primary consolidation as follows:

$$H_{sec} = C_\alpha (H_t) \log \frac{t_{sec}}{t_p}$$

H_{sec} = settlement from secondary compression

C_α = coefficient of secondary compression expressed by the strain per log cycle of time (See Chapter 3)

H_t = thickness of the compressible stratum

t_{sec} = useful life of structure or time for which settlement is significant

t_p = time of completion of primary consolidation

From Fig 16 $C_\alpha = 0.003$

For 12' thick stratum

1000 yr Design Life

t_p = 105 days

then

$H_{sec} = 0.003(12) \log\left(\frac{1000}{0.288}\right)$

$H_{sec} = (0.003)(12) \log 3.476$

$H_{sec} = (0.003)(12)(3.54)$

$H_{sec} = 0.127$ feet or 1.53 inches

MAXIM TECHNOLOGIES INC®
A TETRA TECH COMPANY

BY COS DATE 11-23-04

JOB TITLE Rio Algom JOB NUMBER

SUBJECT Settlement Analysis SHEET

SECONDARY SETTLEMENT
ANALYSIS
Tailings Slimes
POND #2

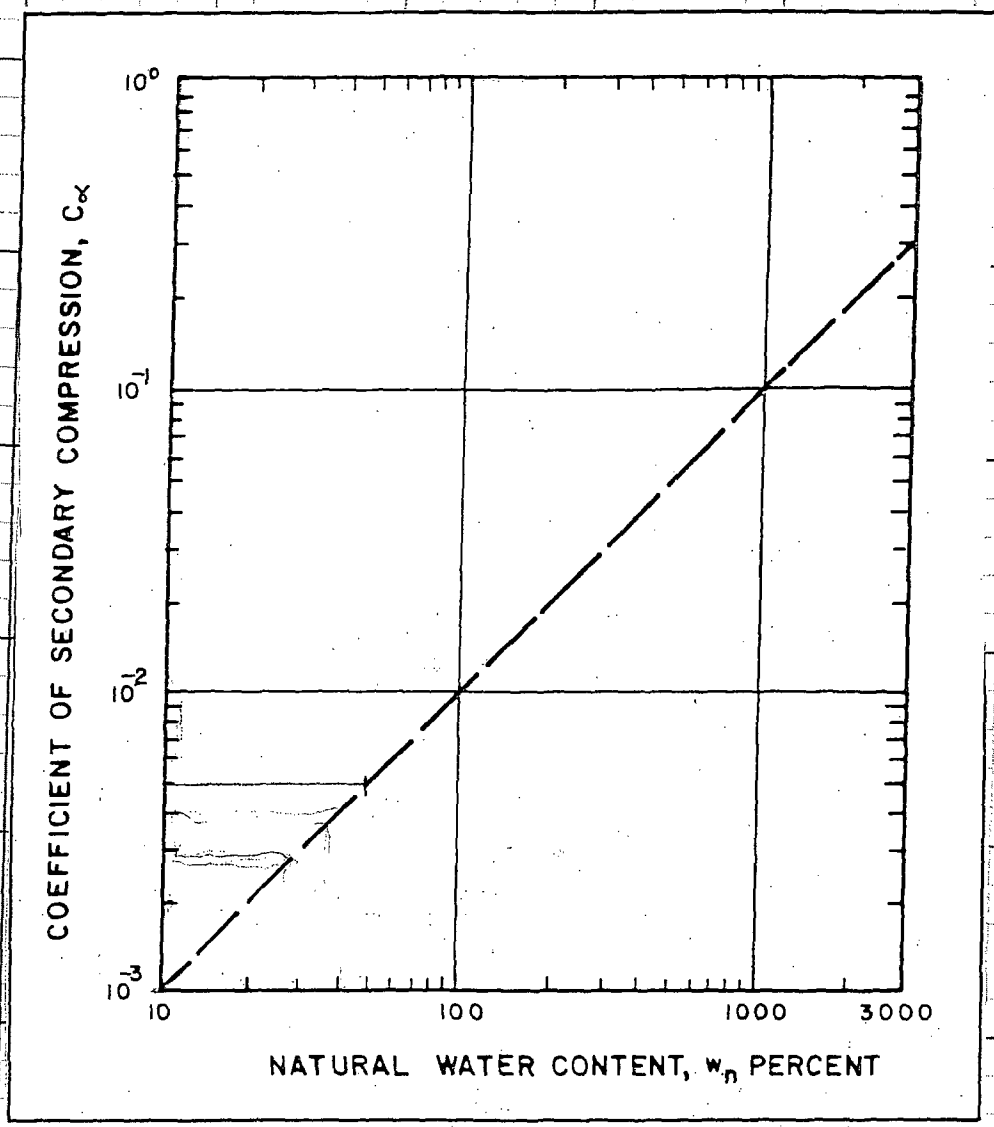


FIGURE 16
Coefficient of Secondary Compression as Related to Natural Water Content

MAXIM TECHNOLOGIES INC® A TETRA TECH COMPANY

BY COS DATE 11-23-04

JOB TITLE Rio Algom JOB NUMBER

SUBJECT Settlement Analysis - Existing Tailings SHEET

FOR SANDY TAILINGS

where $B \geq 40$ ft

$$\Delta H = \frac{2qB^2}{K_v (B+1)^2}$$

where: ΔH = settlement

q = UNIT LOAD IN TSF (1.77

B = Footing WIDTH

K_v = Modulus of vertical Subgrade Reaction

FOR Repository only (COMPACTED Sediments/Borrow Soils)

$$\Delta H = \frac{2(1.77)(1)}{35} \qquad \frac{B^2}{(B+1)^2} \sim 1$$

$\Rightarrow$ $\Delta H = 0.1$ ft $\qquad K_v = 35 \sim$ Loose SANDS

FOR weight of Cover 3×120 psf $= 360$

$$\Delta H = \frac{(2)\left(\frac{360}{2000}\right)(1)}{35}$$

$\Rightarrow$ $\Delta H = 0.01$ ft

MAXIM TECHNOLOGIES INC® A TETRA TECH COMPANY

BY _____ DATE 11-23-04

JOB TITLE Rio Algom JOB NUMBER _____

SUBJECT Settlement Analysis - Tailing Slimes SHEET _____

Instaneous settlement - Slimes

$$\delta_v = qB\left(\frac{1-\mu^2}{E_u}\right) I$$

$\mu = 0.5$

$E_u = 750$

$$\delta_v = \frac{(1.77)(1500)(1.05^2)(.04)}{750}$$

$\delta = .1$ foot

For 15' slimes

$\frac{10}{1500} \sim 0$

USE $I \sim 0.04$

≈ 0.08

NAW Docks

MAXIM TECHNOLOGIES INC®
A TETRA TECH COMPANY

BY CAS DATE 11-23-04

JOB TITLE _____ JOB NUMBER _____

SUBJECT Settlement Analysis - Slimes SHEET _____

Compute Time Rate of Settlement of Slimes Portion of Tailings -

GIVEN:

Slimes Thickness = 12'

Double drainage

$C_V = 0.2\ cm^2/min$ - FROM CPT Testing

FIND:

time for 90% Consolidation to occur

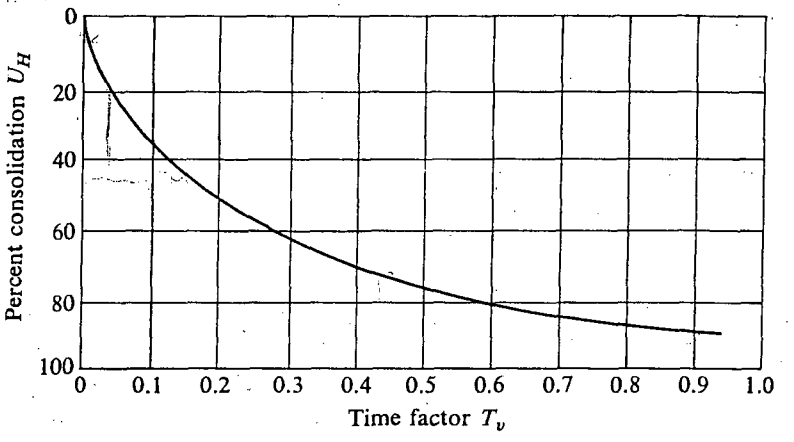


FIGURE 5.9 *Time-consolidation relationship.* [After Taylor (1948).]

$$t = \frac{H^2 T_V}{C_V}$$

Drainage Layer
$12/2 \times 30.48$
$= 182.9\ cm$

$$\Rightarrow t = \frac{(182.9)^2 (0.9)}{0.2} = 104.5 \text{ days}$$

MAXIM TECHNOLOGIES INC® A TETRA TECH COMPANY

BY CCS DATE 11-23-04

JOB TITLE Rio Algom JOB NUMBER

SUBJECT Settlement Analysis - Pond CPT #16 SHEET 2/2

Pond Area

Settlement with Drains or Wicks

$C_h = 0.6\ cm^2/min$

11' Depth - 1 way Drainage

6" Drain - Equiv. Dia -

USE Hansbo Eq. (1970

$$t = \frac{D^2}{8C_h}\left[\ln(D/d) - 0.75\right] \ln \frac{1}{1-U}$$

For 8' spacing $8 \times 1.05 = 8.4$

$x = 8.4 \times 30.48 = 243.8$

$$t = \frac{(243.8)^2}{(8)(.6)}\left[\ln\left(\frac{243.8}{15.24} - 0.75\right)\right]\left(\ln\frac{1}{.1}\right)$$

$$t = (12{,}383)(2.7)(2.3) = 76{,}984\ min$$

53 days

For 10' Spacing 3

$$t = \frac{(304.8)^2}{(8)(.6)} \ln\left(\frac{304.8}{15.24} - .75\right) \ln\left(\frac{1}{.1}\right)$$

2.3

$$t = \frac{133{,}548\ min}{1440} = 92.74\ days$$

∴ 10' Spacing OK

MAXIM TECHNOLOGIES INC®
A TETRA TECH COMPANY

BY CDS DATE 11-23-04

JOB TITLE Rio Algom JOB NUMBER

SUBJECT Settlement Analysis - POND CPT-16 SHEET 1/2

Compute Time Rate of Settlement-

12' Thickness - H

Lined POND - 1 WAY Drainage

$C_v = 0.2\ cm^2/MIN$

$C_h = 0.6\ cm^2/min$

Required Time for 90% Consolidation

To Occur

Time Factor = 0.9

$$t = \frac{H^2 T}{C_v}$$

$$t = \frac{(12 \times 30.48)^2 (0.9)}{.2} = 602{,}011 \text{ minutes}$$

$$t = \frac{602{,}011}{1440 \text{ min/DAY}} = 418 \text{ DAYS}$$

MAXIM TECHNOLOGIES INC® A TETRA TECH COMPANY

BY CGS DATE 11-21-04

JOB TITLE Rio Algom JOB NUMBER

SUBJECT Cover Cracking Analysis SHEET 1/1

PROCEEDINGS ASCE

HORIZONTAL MOVEMENTS Related to Subsidence

by Kenneth L. Lee & CK Shen, JANUARY 1969

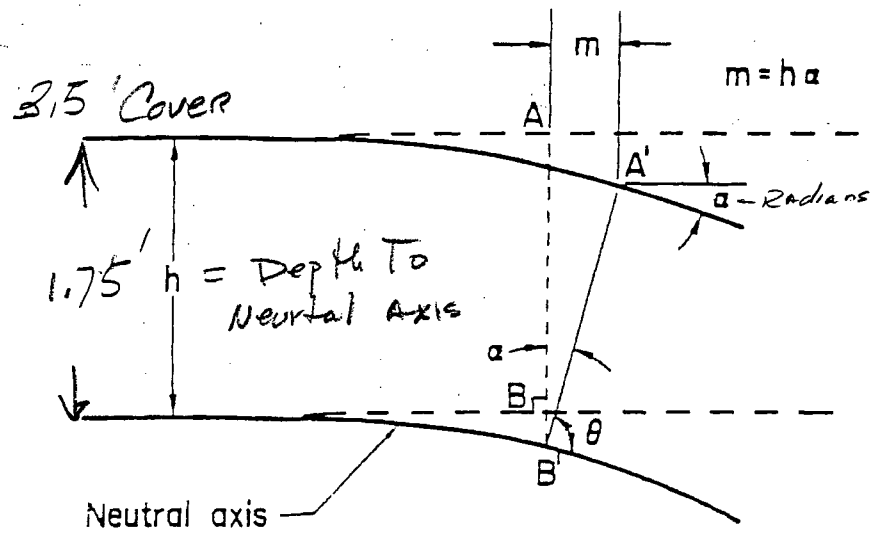


FIG. 2.—BEAM ANALOGY OF HORIZONTAL MOVEMENTS

$M = K H \alpha$

where M = Lateral MOVEMENT

K = Factor (0-1) USE 2/3

α = angle Cover Layer Deflects upon settling

For 1½ inches in 100'

$m = 2/3(1.75)(0.00125) = 0.00146$ ft

$m = 0.0176$ inch

For ½ 5" in 10'

$M = 2/3(1.75)(0.0125) = 0.01465$ ft

$m = .176$ inch

MAXIM TECHNOLOGIES INC®
A TETRA TECH COMPANY

BY COS DATE 10-29-04

JOB TITLE Rio Hondo JOB NUMBER

SUBJECT Primary Consol Analysis - Pond #2 SHEET 1/3

$$\Delta e = C_c \log\left(\frac{P_o + \Delta P}{P_o}\right)$$

where Δe = Change in Void Ratio

C_c = Coefficient of Consolidation = 0.4
(From Consol Testing)

P_o = In-Situ Avg Initial stress = (10×106)

ΔP = Increase in stress due to weight of pile

For Full weight of pile (Center)

$\Delta P = 34 \times 115\ pcf = 3{,}910\ psf$

then

$$\Delta e = 0.4 \log\left(\frac{1060+3910}{1060}\right) = 0.27$$

$\Delta e = 0.27$

For Mid slope of pile

$\Delta P = 17 \times 115\ pcf = 1{,}955\ psf$

$$\Delta e = 0.4 \log\left(\frac{1060+1955}{1060}\right)$$

$\Delta e = 0.18$

Near Toe of pile

$\Delta P = 8.5 \times 115\ pcf = 978\ psf$

$$\Delta e = 0.4 \log\left(\frac{1060+978}{1060}\right) = 0.11$$

$\Delta e = 0.11$

MAXIM TECHNOLOGIES INC® A TETRA TECH COMPANY

BY COS DATE 10-29-04

JOB TITLE Rio Algom JOB NUMBER

SUBJECT Primary Consol Analysis Pond #2 SHEET 2/3

CALCULATE SETTLEMENT
DUE TO CHANGE IN EFFECTIVE STRESS

$$\Delta H = \frac{H \Delta e}{1 + e_0}$$

where H = Total Slimes thickness

Δe = Change in Void Ratio, To Due weight of Pile

e_0 = In-Situ Initial Void Ratio From Consol Test (1.5)

for $\Delta e = 0.27$

$$\Delta H = \frac{H(ft)(12)(.27)}{2.5} = 1.30\,H \quad \text{(inches)}$$

Δ for $\Delta e = 0.18$

$$\Delta H = \frac{H(ft)(12)(.18)}{2.5} = 0.86\,H \text{ inches}$$

MAXIM TECHNOLOGIES INC®
A TETRA TECH COMPANY

BY COS DATE 10-29-04

JOB TITLE Rio Algom JOB NUMBER

SUBJECT Primary Consol Analysis Pond #2 SHEET 3/3

Settlement due To Primary Consolidation

CPT #	Σ Slimes Thickness	ΔP	Δe	ΔH (inches)
1	<1	1955	.18	<1
2	16	3910	.27	20.8
3	10	3910	.27	13.0
4	<1	3910	.27	<1
5	7 1/2	3910	.27	9.8
6	2	3910	.27	2.6
7	12	3910	.27	15.6
8	10	3910	.27	13.0
9	20	3910	.27	26.0
10	<1	1955	.18	<1
11	13	3910	.27	16.9
12	10	3910	.27	13.0
13	<1	1955	.18	<1
14	1 1/2	1955	.18	1.3
15	7	3910	.27	9.1
16	8	3910	.27	10.4

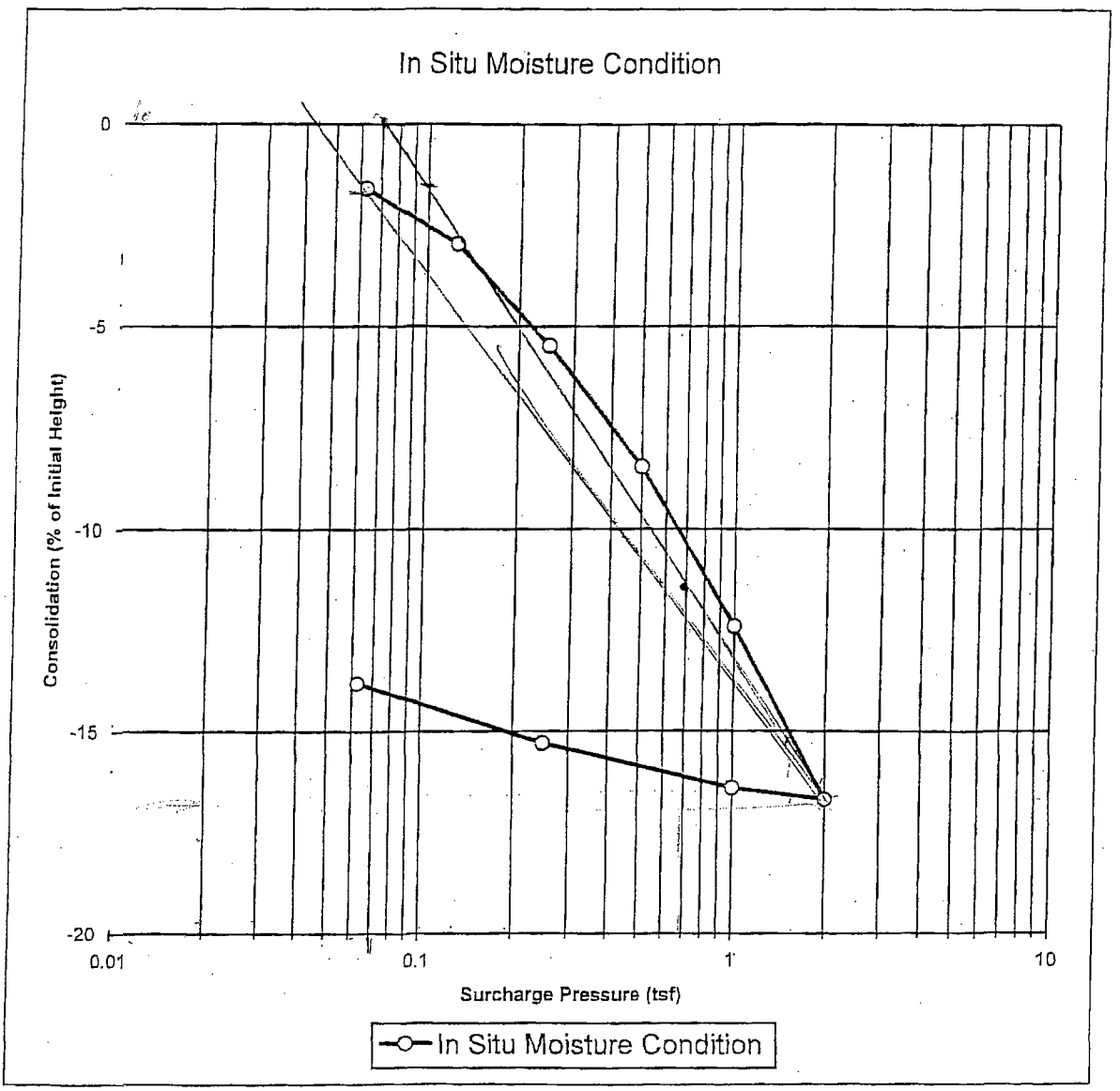
Worksheet

amec

PROJECT:	Evaporation Pond Sediment	JOB NO:	3-519-002701
CLIENT:	Rio Algom	WORK ORDER NO:	7
MATERIAL:		LAB NO:	4-1359-03
SAMPLE SOURCE:	CPT 21 @ 22.0-23.0'	DATE SAMPLED:	
SAMPLE PREP.:	In Situ	SAMPLED BY:	

MEASUREMENT OF COLLAPSE POTENTIAL OF SOILS (ASTM D5333)

INITIAL VOLUME (cu.in)	4.60	FINAL VOLUME (cu.in)	4.04
INITIAL MOISTURE CONTENT	58.3%	FINAL MOISTURE CONTENT	46.2%
INITIAL DRY DENSITY(pcf)	65.2	FINAL DRY DENSITY(pcf)	73.9
INITIAL DEGREE OF SATURATION	100%	FINAL DEGREE OF SATURATION	99%
INITIAL VOID RATIO	1.5	FINAL VOID RATIO	1.2
ESTIMATED SPECIFIC GRAVITY	2.651	SATURATED AT	1 tsf



Liquid Limit = 54, Plastic Limit = 28, Plasticity Index = 26 and -200 = 72%

AMEC Earth Environmental, Inc.
6519 Jefferson NE
Albuquerque, NM 87113
Tel (505) 821-1801
Fax (505) 821-7371 www.amec.com

Grid Volume Computations

Tue Jan 11 13:28:15 2005

Upper Surface

Grid File Name:	R:\share\Derskine\Rio Algom\Pond 2\AC2005111 Elev Water Settle.grd
Grid Size:	100 rows x 93 columns
X Minimum:	498550
X Maximum:	499800
X Spacing:	13.586956521739
Y Minimum:	1599000
Y Maximum:	1600350
Y Spacing:	13.636363636364
Z Minimum:	-0.31935123626905
Z Maximum:	2.1373514298897

Lower Surface

Level Surface defined by Z = 0

Volumes

Z Scale Factor:	1

Total Volumes by:

Trapezoidal Rule:	1282835.12165
Simpson's Rule:	1282884.9813293
Simpson's 3/8 Rule:	1282894.9968539

Cut & Fill Volumes

Positive Volume [Cut]:	1307967.8604697
Negative Volume [Fill]:	25114.449191687
Net Volume [Cut-Fill]:	1282853.411278

Areas

Planar Areas

Positive Planar Area [Cut]:	1516891.6185031
Negative Planar Area [Fill]:	170608.38149688
Blanked Planar Area:	0
Total Planar Area:	1687500

Surface Areas

Positive Surface Area [Cut]: 1516897.9982405
Negative Surface Area [Fill]: 170608.46210617

APPENDIX C-3

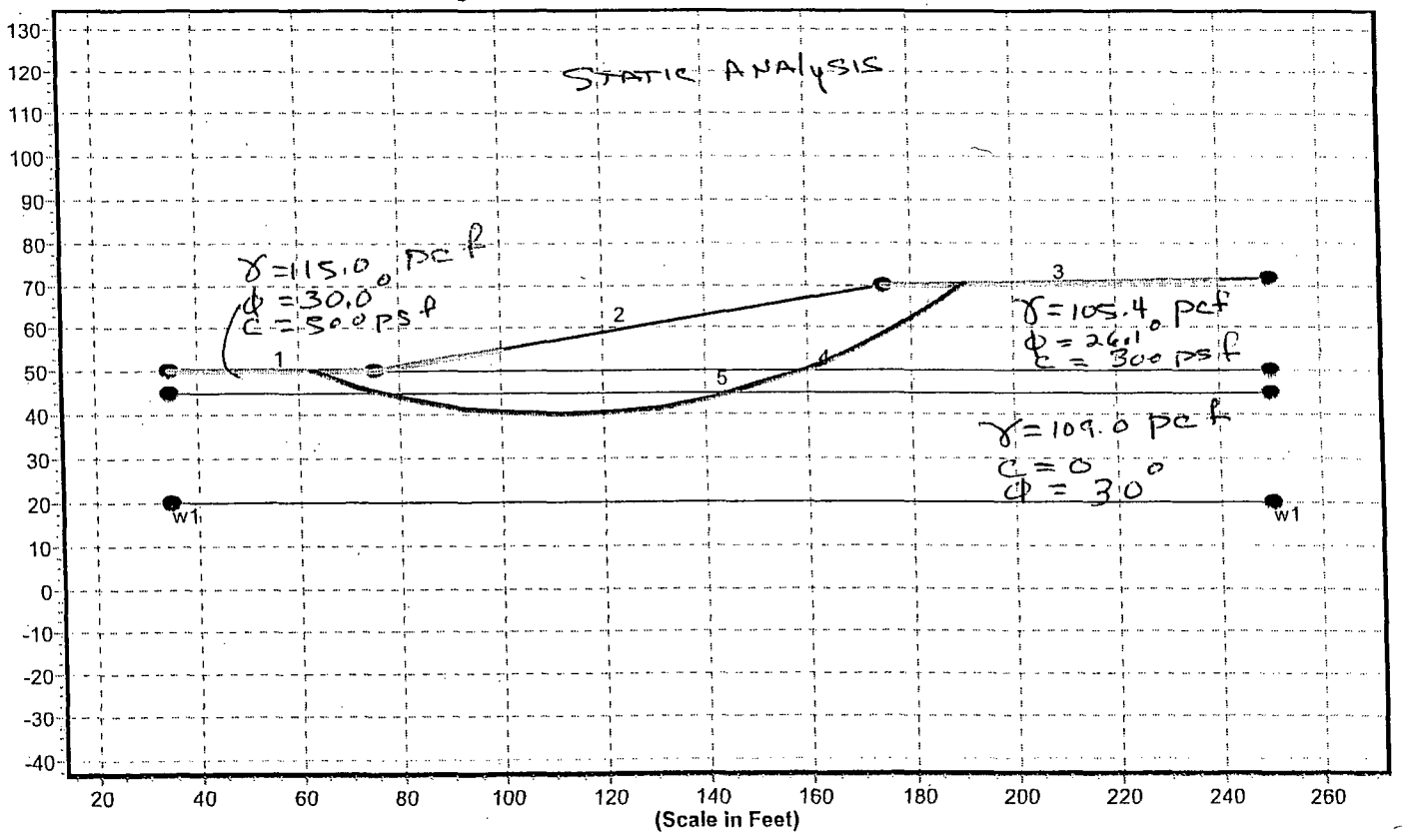
SLOPE STABILITY ANALYSIS

Material Parameters for Slope Stability Analyses

Material	Soil Unit	Unit Weight (pcf)	Cohesion (psf)	Angle of Internal Friction (degrees)
Pond Sediment / Berm Mixture	I	105.4	300	26.1
Existing Cover Soils	II	115.0	500	30.0
Tailings Sands	III	109.0	0	30.0
Tailings Slimes	IV	103.5	200	10.0

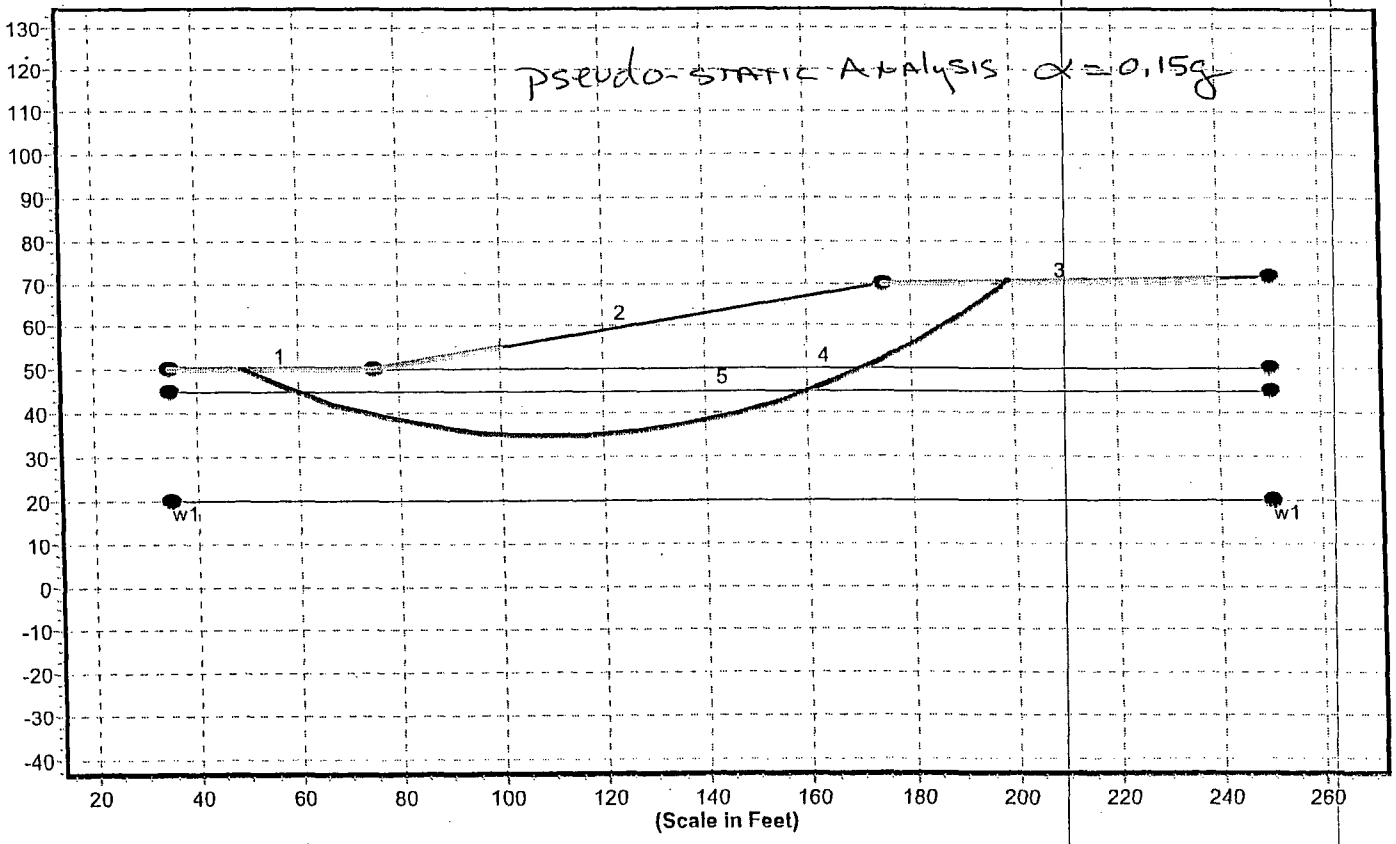
~~STATIC~~

Geometry and Boundary Conditions
Problem: Rio Algom Pond 2 Slope Stability -- CASE 1 - FS Min = 4.408



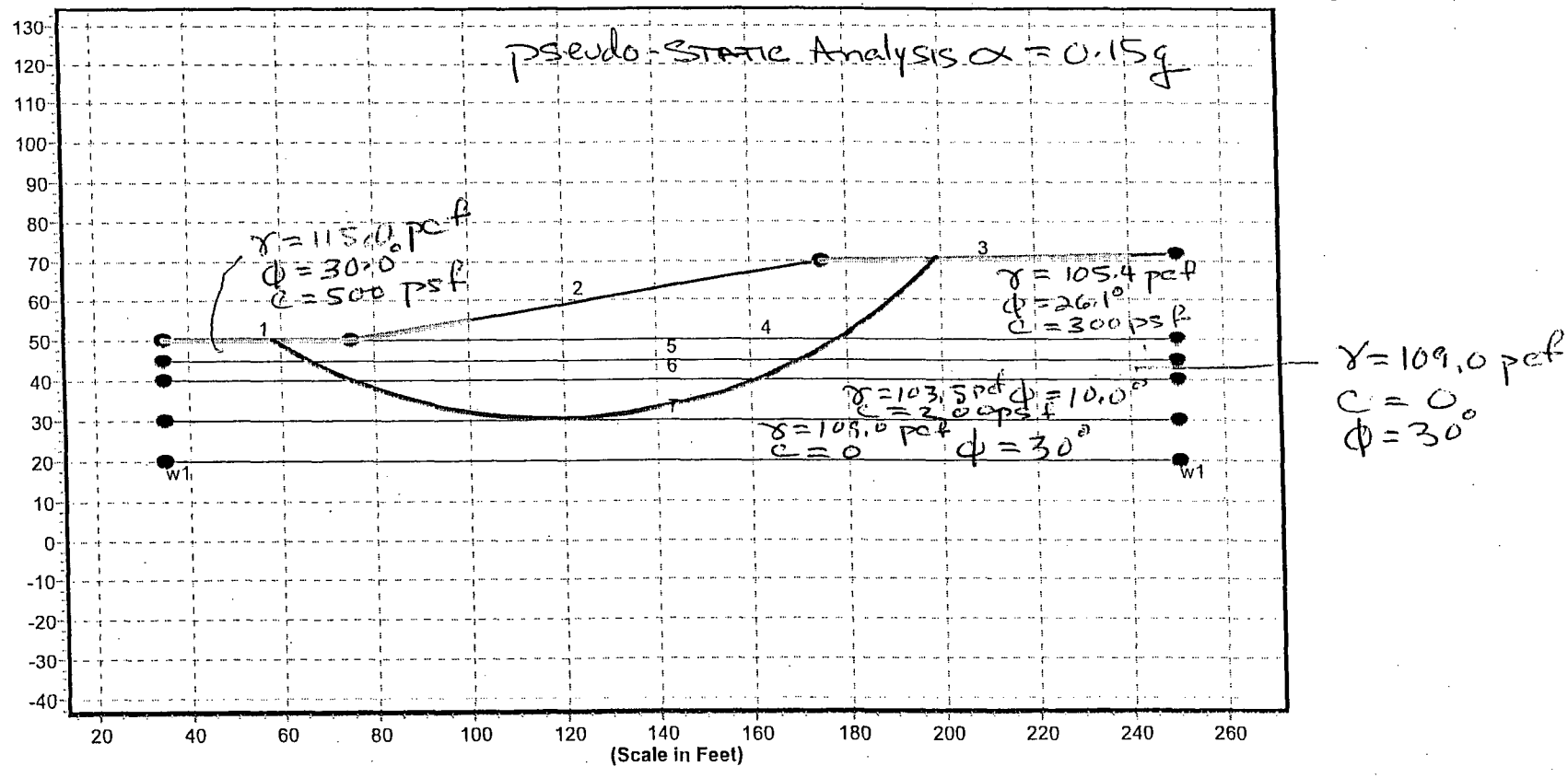
SEISMIC

Geometry and Boundary Conditions
Problem: Rio Algom Pond 2 Slope Stability -- CASE 1 - FS Min = 2.213



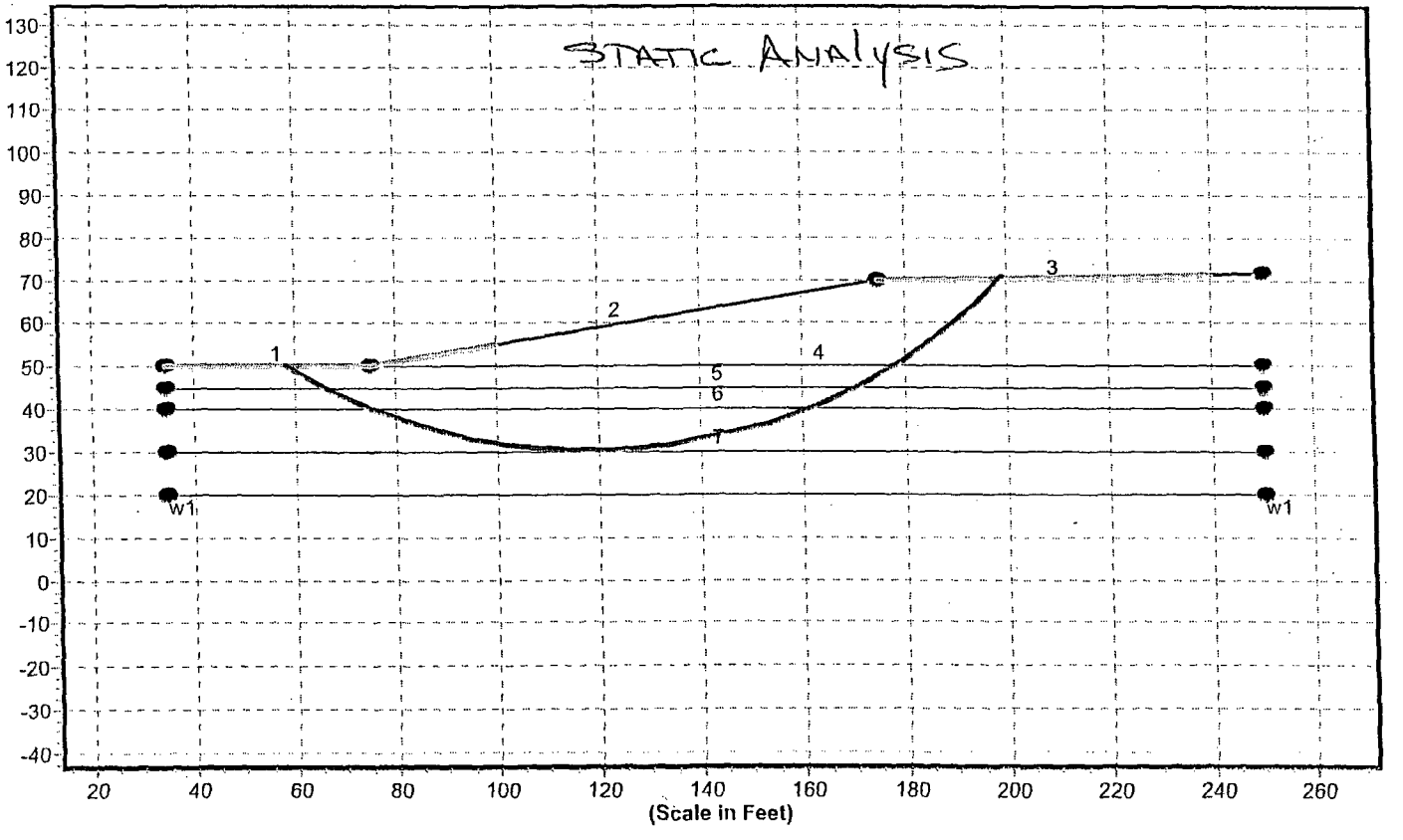
SEISMIC

Geometry and Boundary Conditions
Problem: Rio Algom Pond 2 Slope Stability -- CASE 2 - FS Min = 1.428



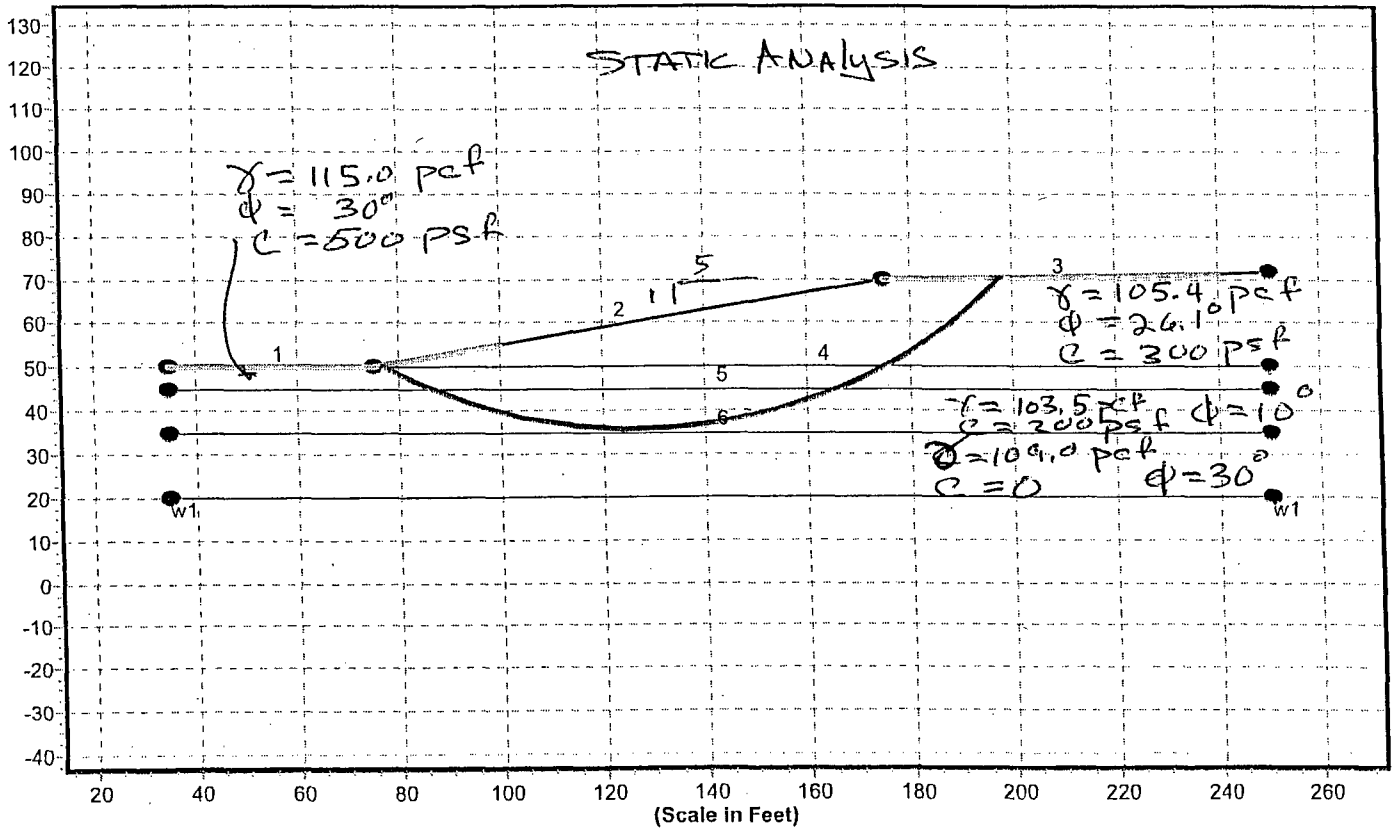
STATIC

Geometry and Boundary Conditions
Problem: Río Algom Pond 2 Slope Stability -- CASE 2 - FS Min = 2.815

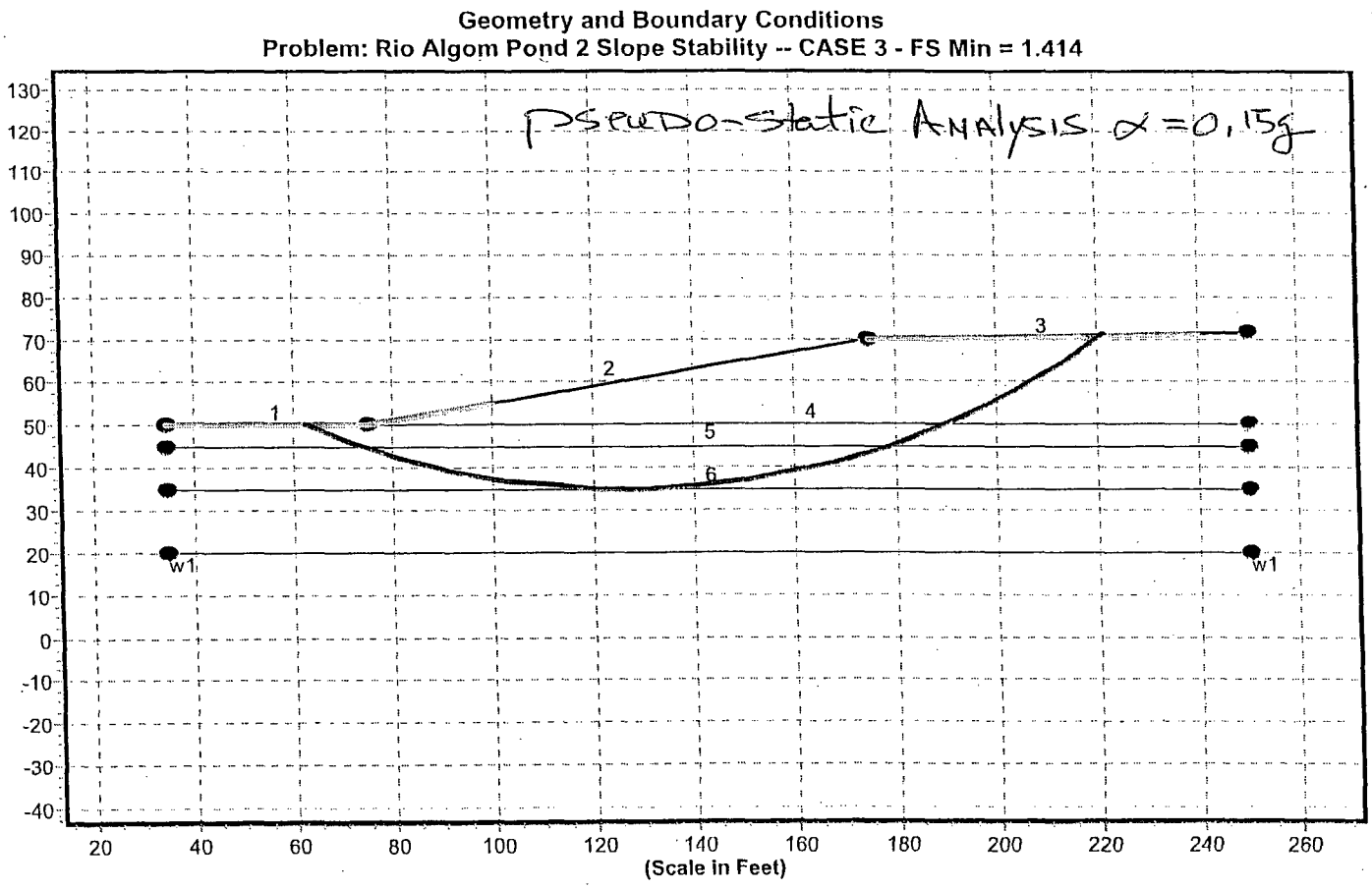


STATIC

Geometry and Boundary Conditions
Problem: Rio Algom Pond 2 Slope Stability -- CASE 3 - FS Min = 2.855

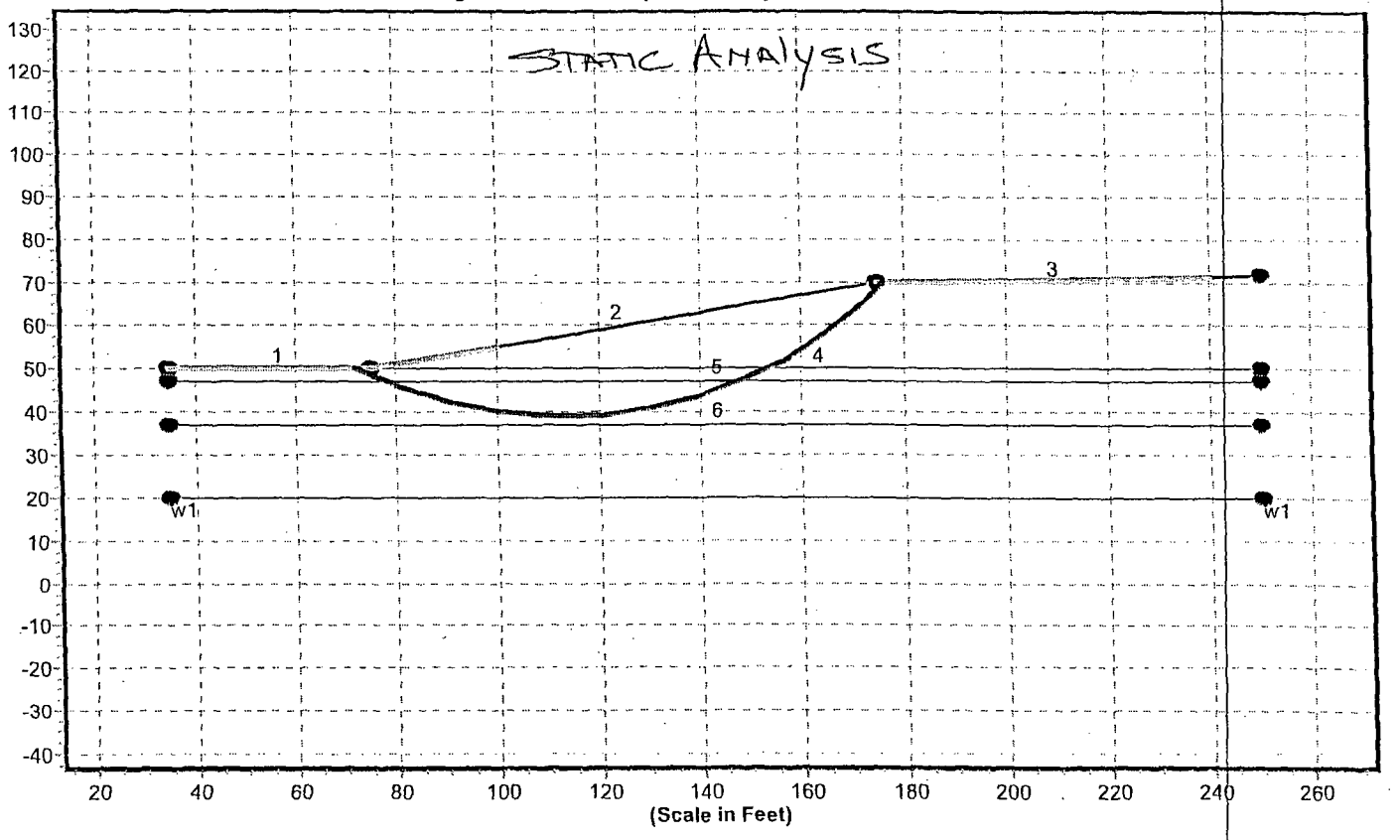


SEISMIC

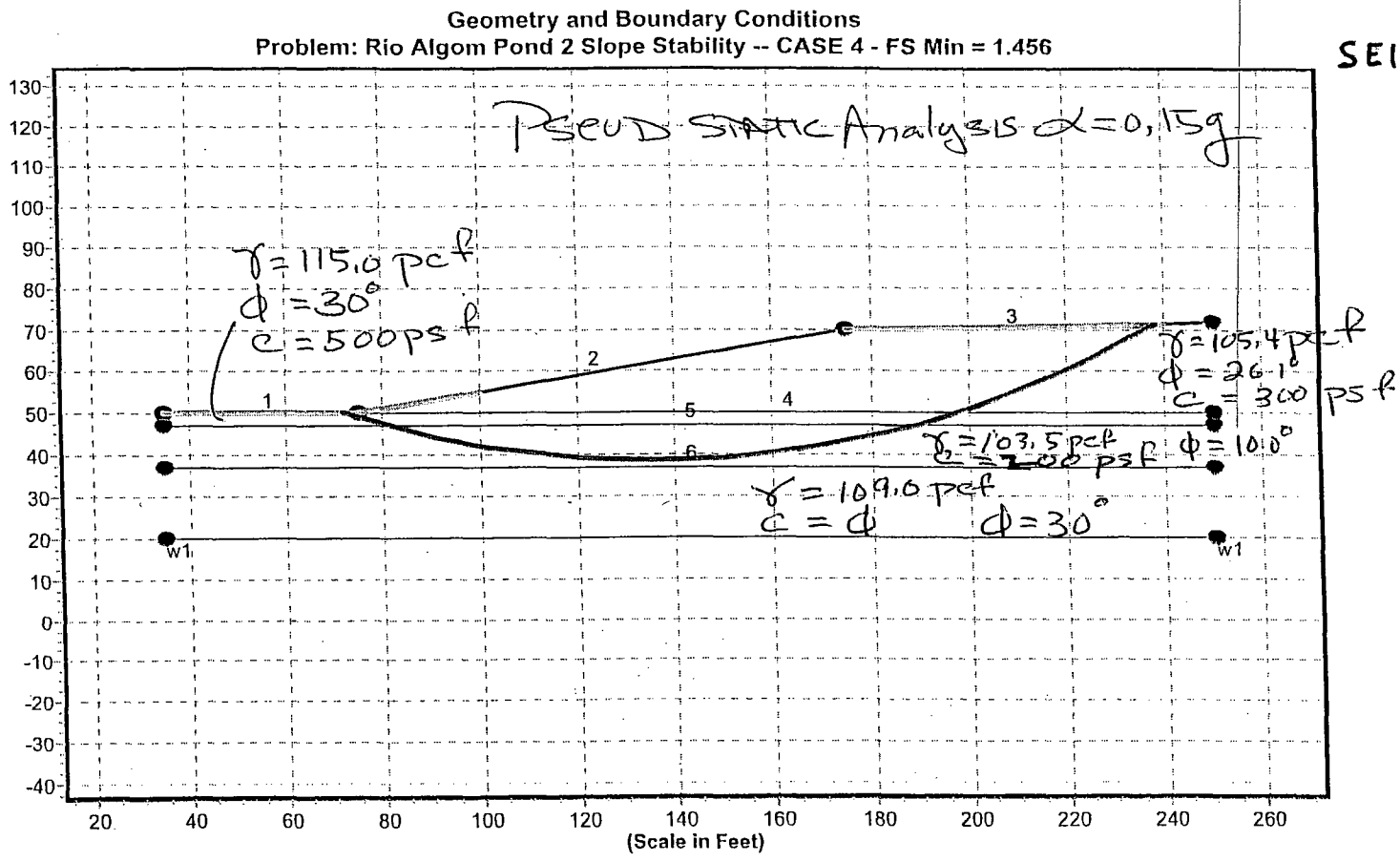

Geometry and Boundary Conditions
Problem: Rio Algom Pond 2 Slope Stability -- CASE 3 - FS Min = 1.414
Pseudo-Static Analysis α = 0.15g
1
2
3
4
5
6
w1
w1
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
20
40
60
80
100
120
140
160
180
200
220
240
260
(Scale in Feet)

STATIC

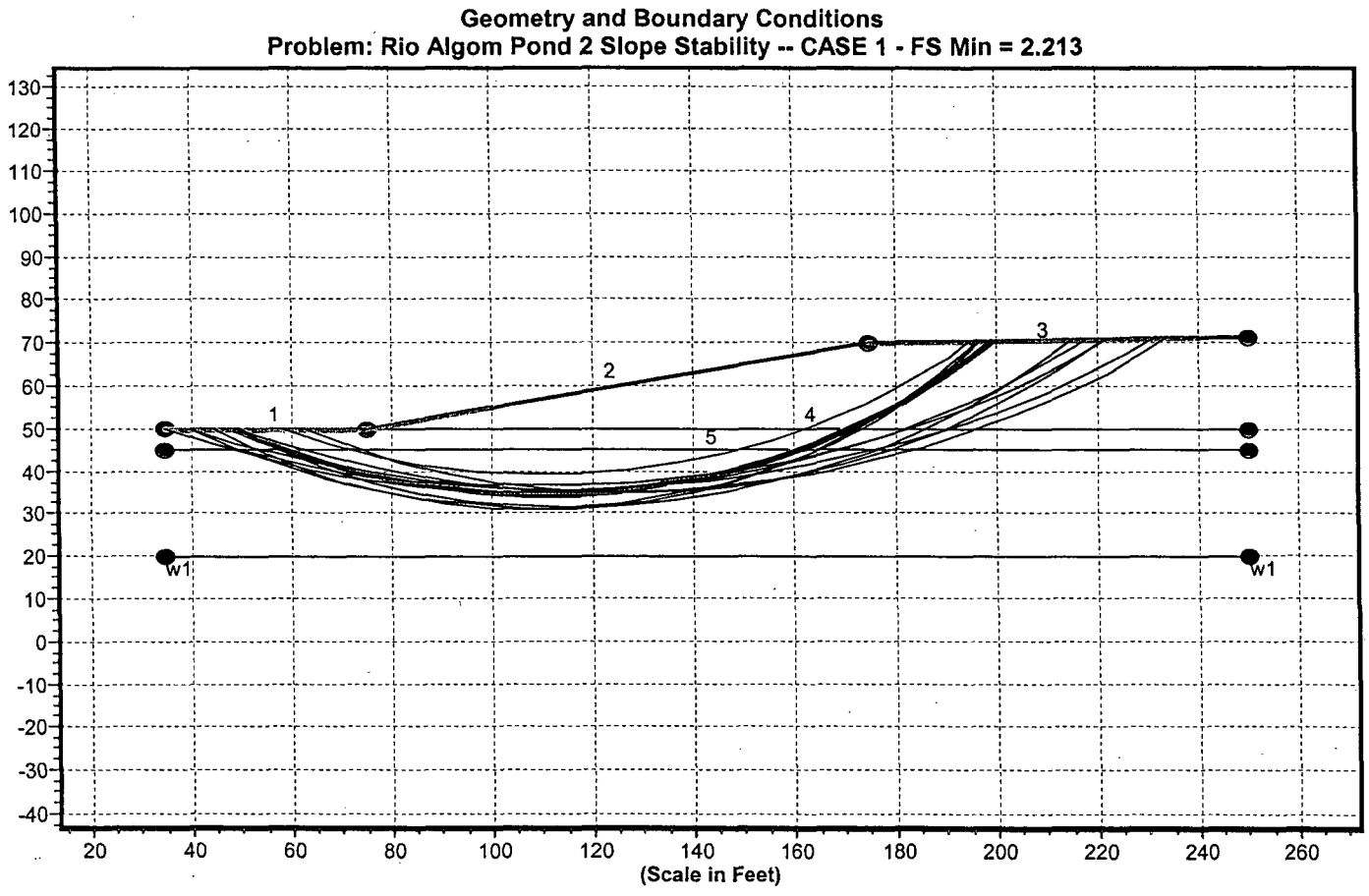
Geometry and Boundary Conditions
Problem: Rio Algom Pond 2 Slope Stability -- CASE 4 - FS Min = 2.762



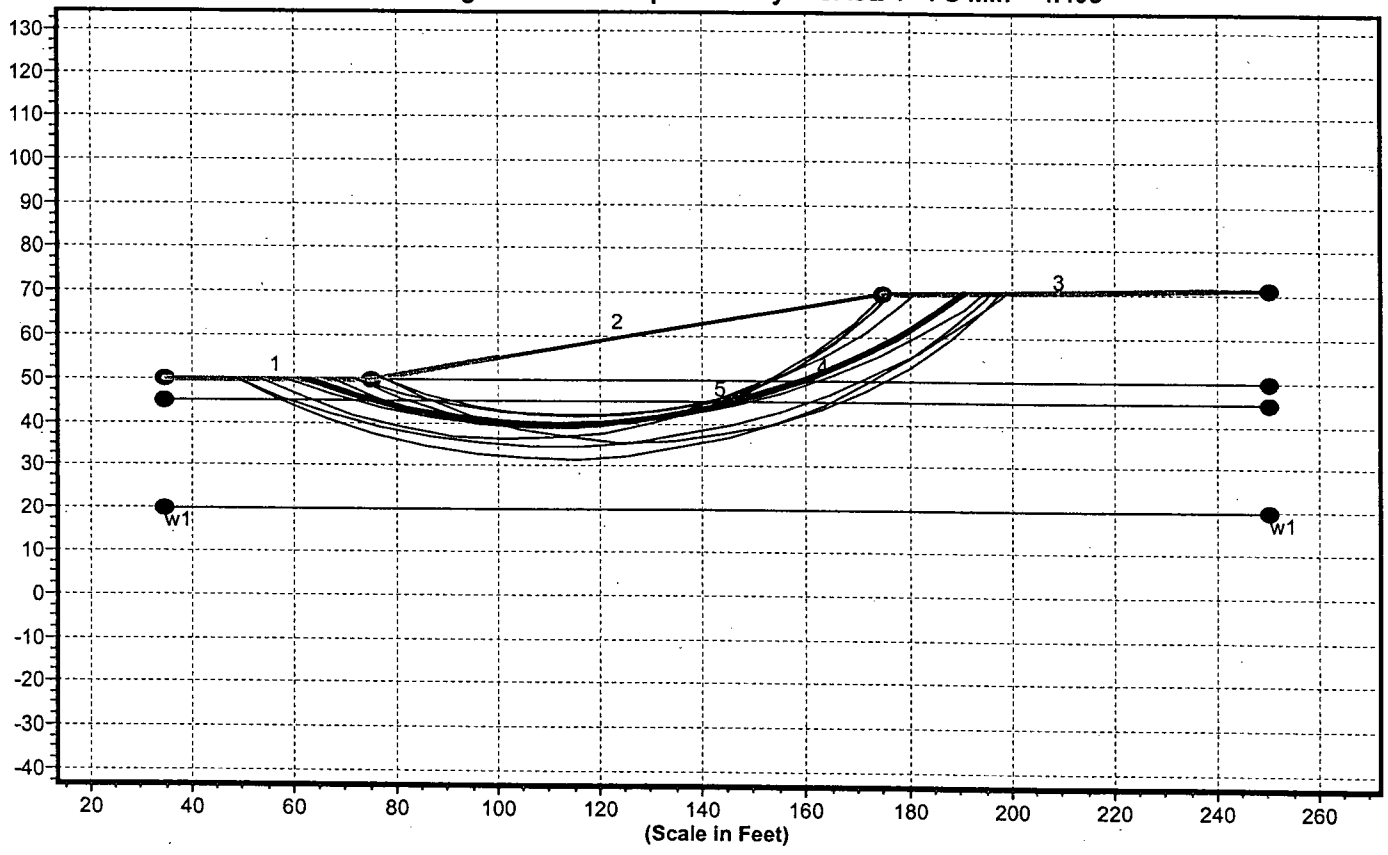
SEISMIC


Geometry and Boundary Conditions
Problem: Rio Algom Pond 2 Slope Stability -- CASE 4 - FS Min = 1.456
Pseud Static Analysis α=0.15g
γ=115.0 pcf
φ=30°
c=500psf
γ=105.4pcf
φ=26.1
c=300 psf
γ=103.5pcf
c=200 psf
φ=10.0°
γ=109.0 pcf
c=φ
φ=30°
1
2
3
4
5
6
W1
W1
(Scale in Feet)

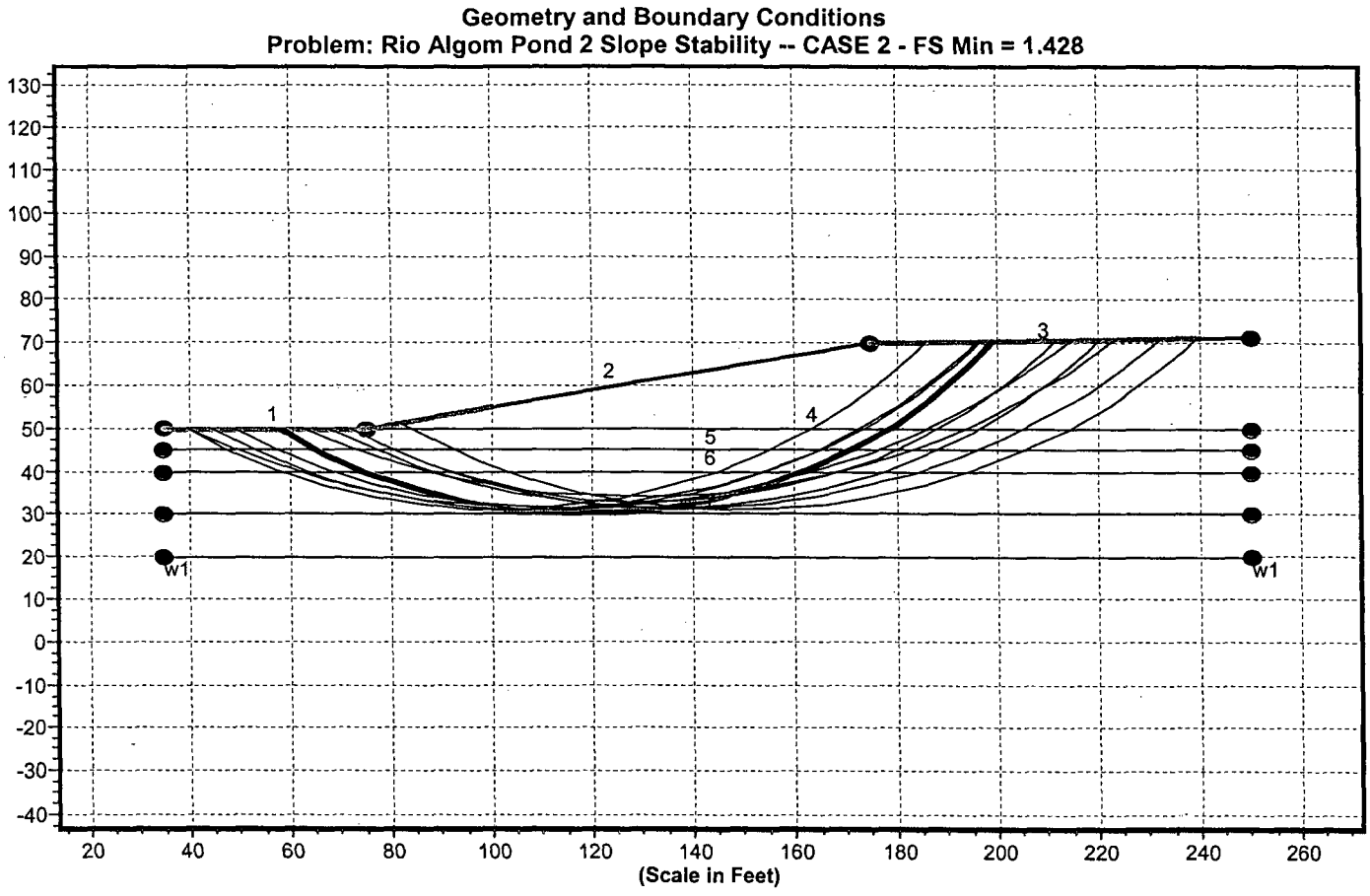
10 MOST CRITICAL SURFACES



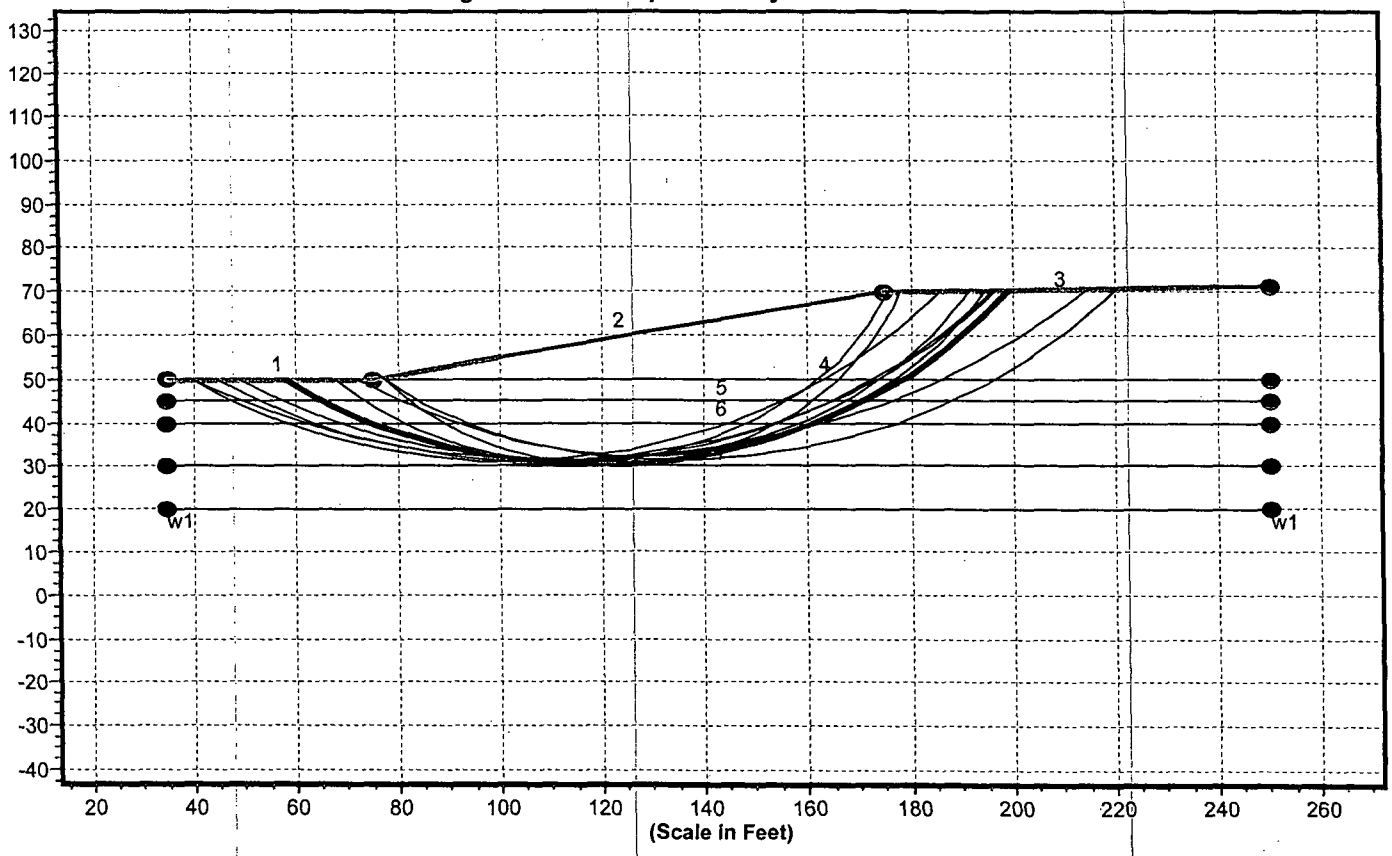
Geometry and Boundary Conditions
Problem: Rio Algom Pond 2 Slope Stability -- CASE 1 - FS Min = 4.408



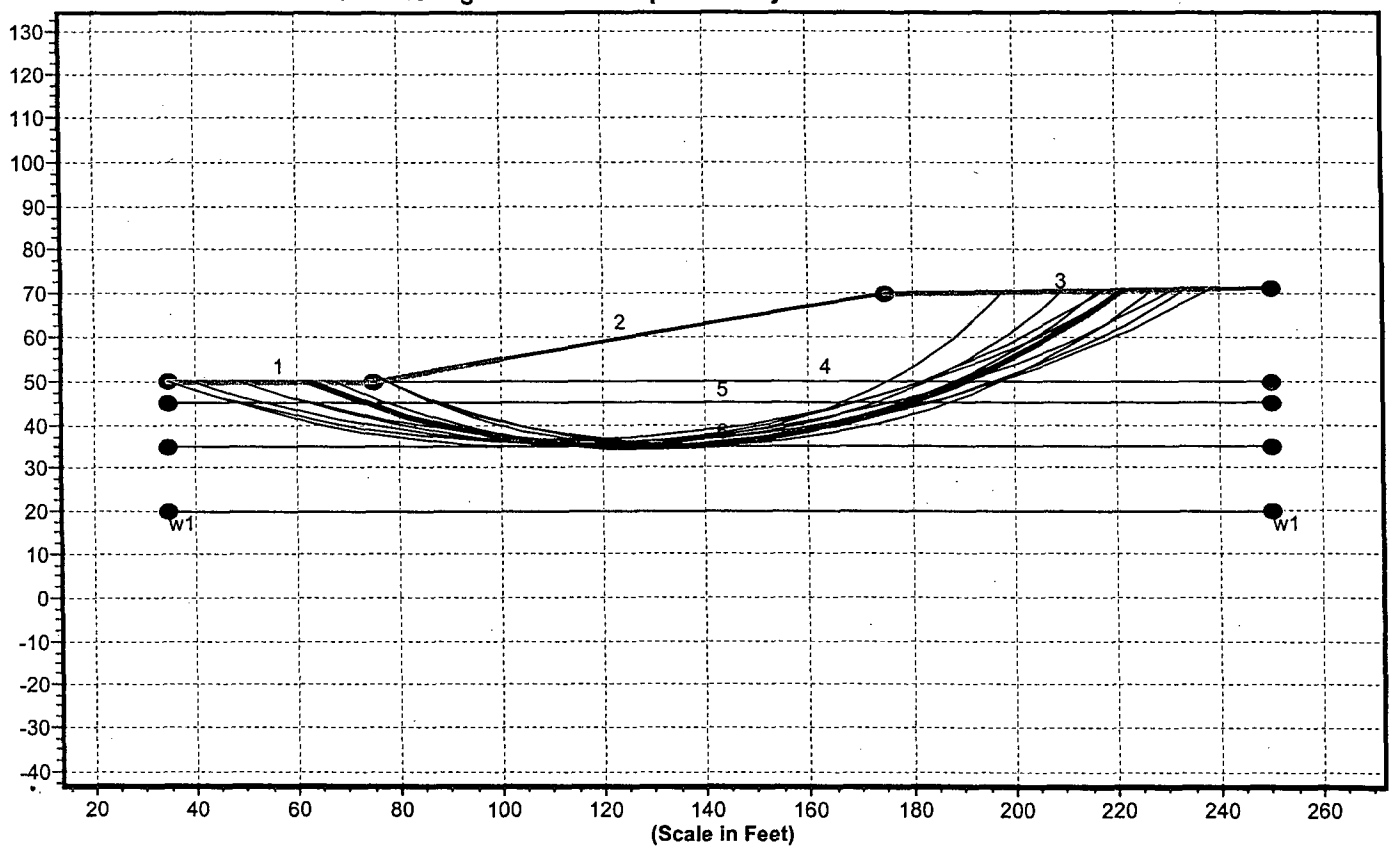
10 MOST CRITICAL SURFACES



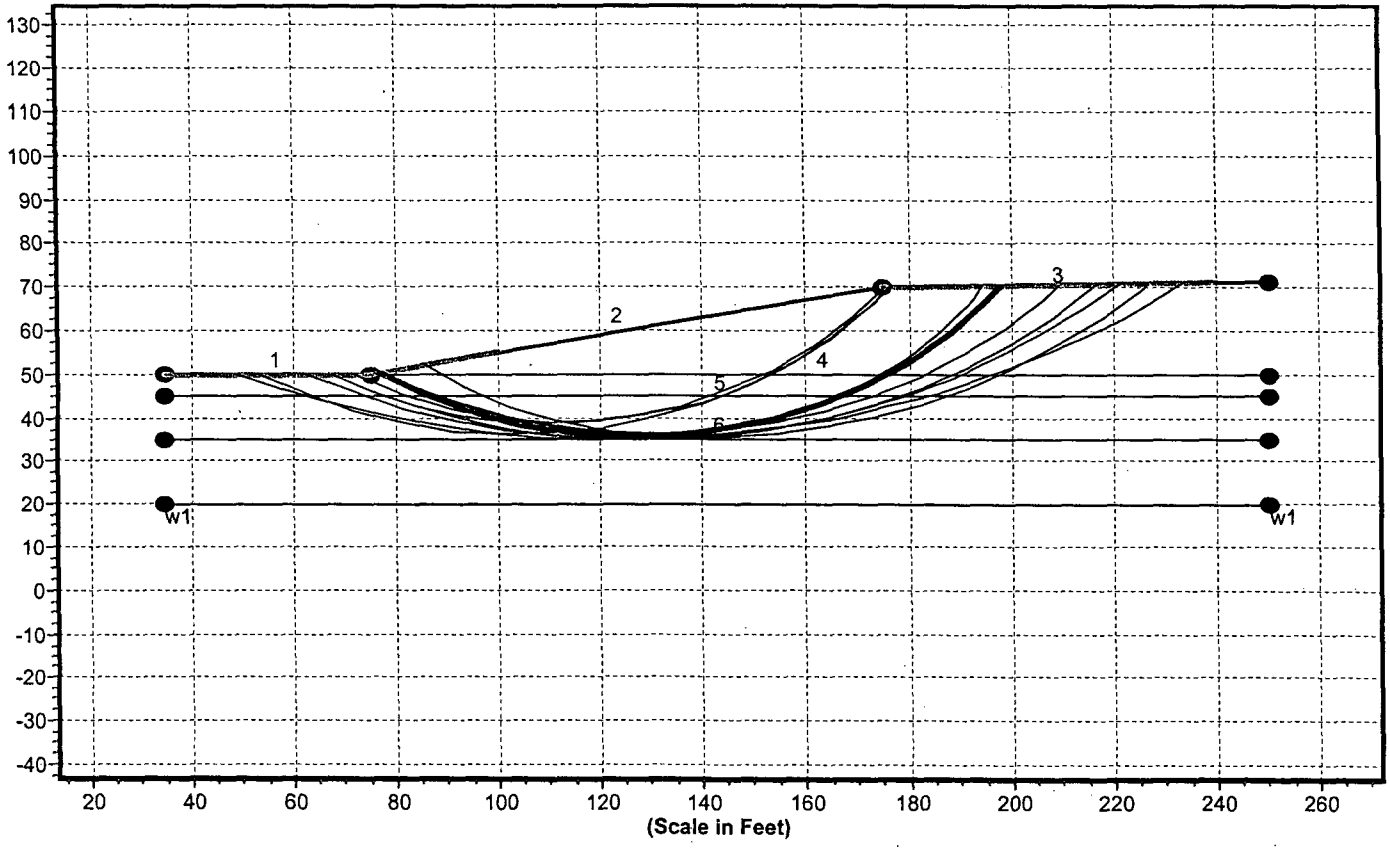
Geometry and Boundary Conditions
Problem: Rio Algom Pond 2 Slope Stability -- CASE 2 - FS Min = 2.815



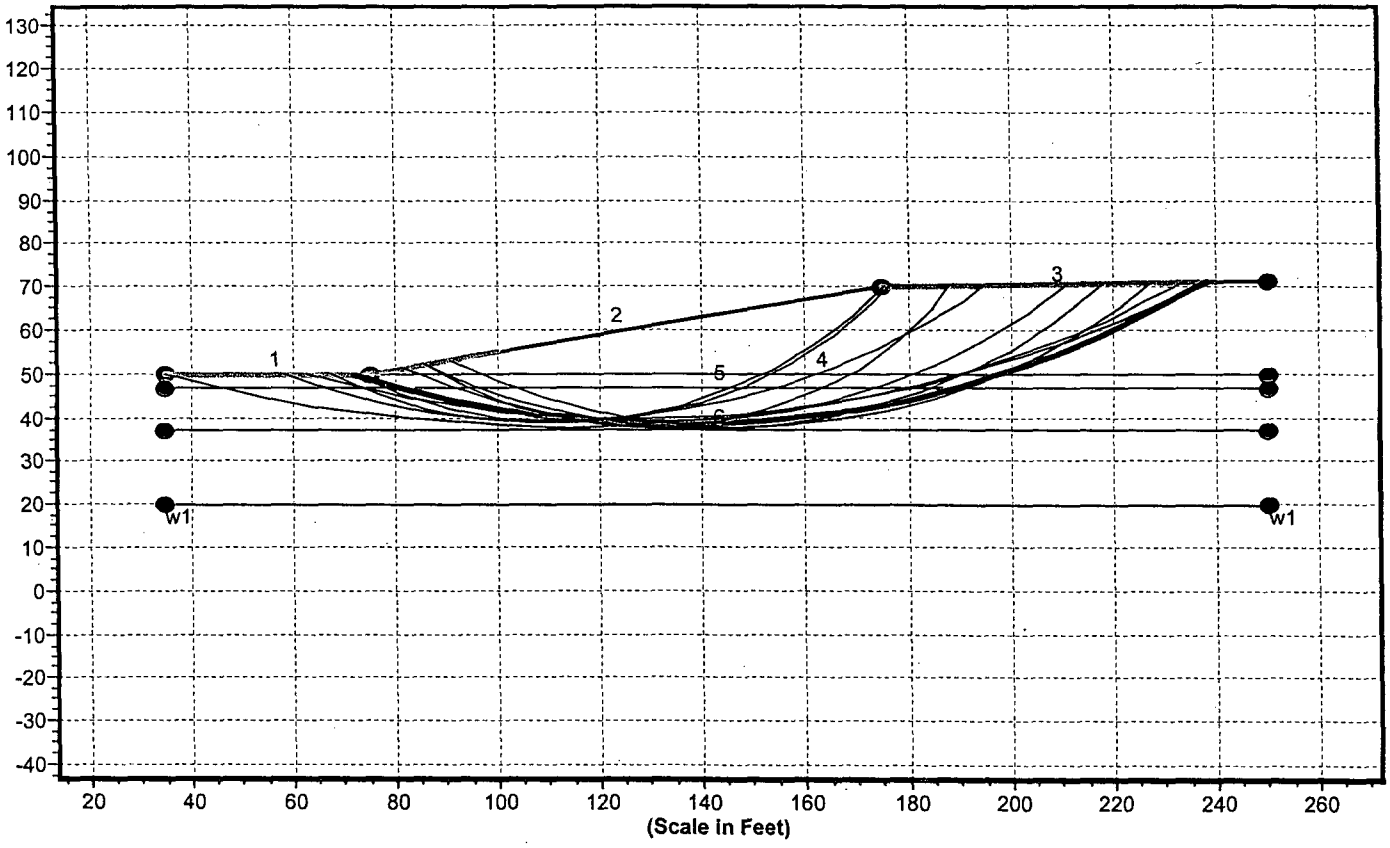
Geometry and Boundary Conditions
Problem: Rio Algom Pond 2 Slope Stability -- CASE 3 - FS Min = 1.414



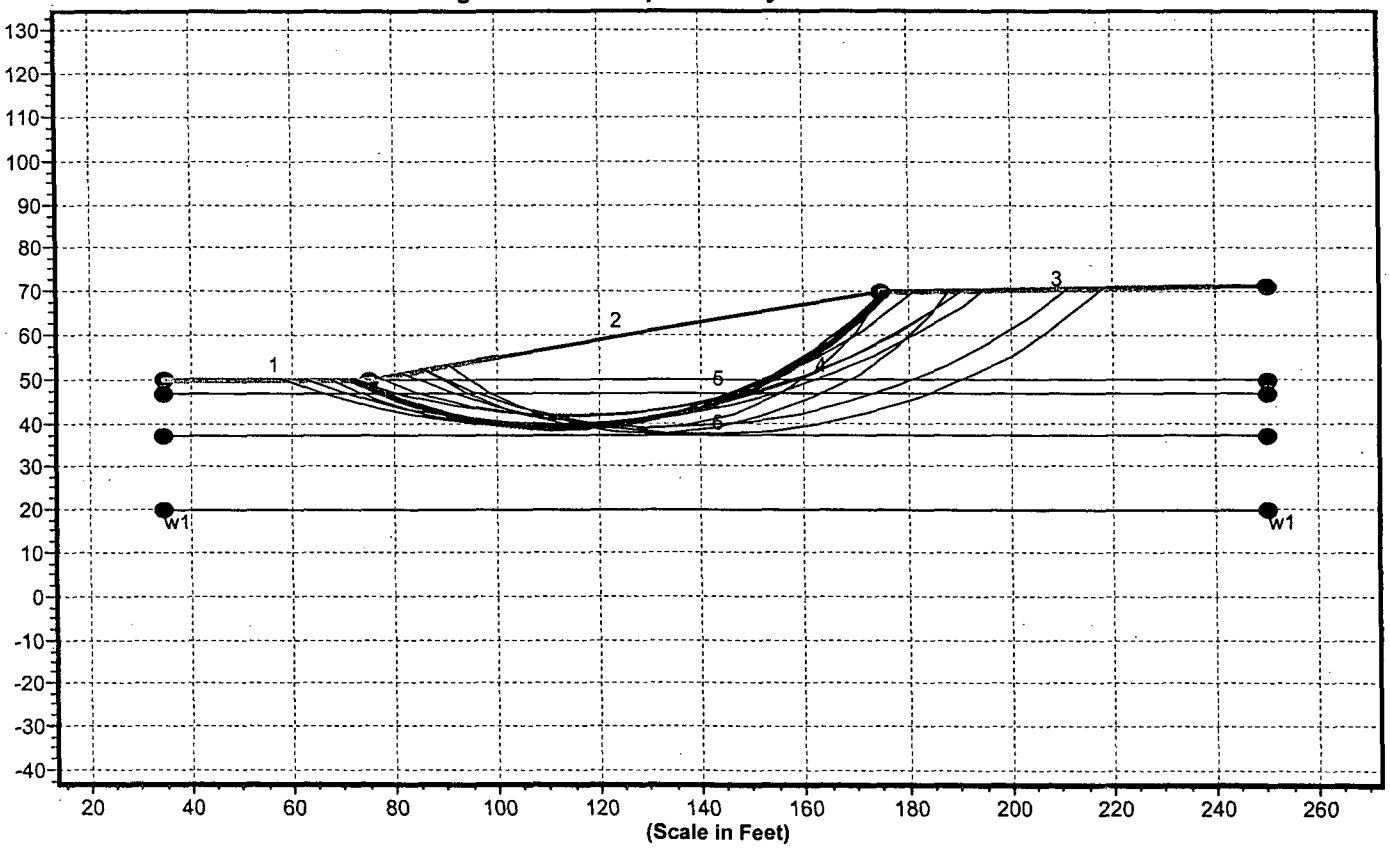
Geometry and Boundary Conditions
Problem: Rio Algom Pond 2 Slope Stability -- CASE 3 - FS Min = 2.855



Geometry and Boundary Conditions
Problem: Rio Algom Pond 2 Slope Stability -- CASE 4 - FS Min = 1.456

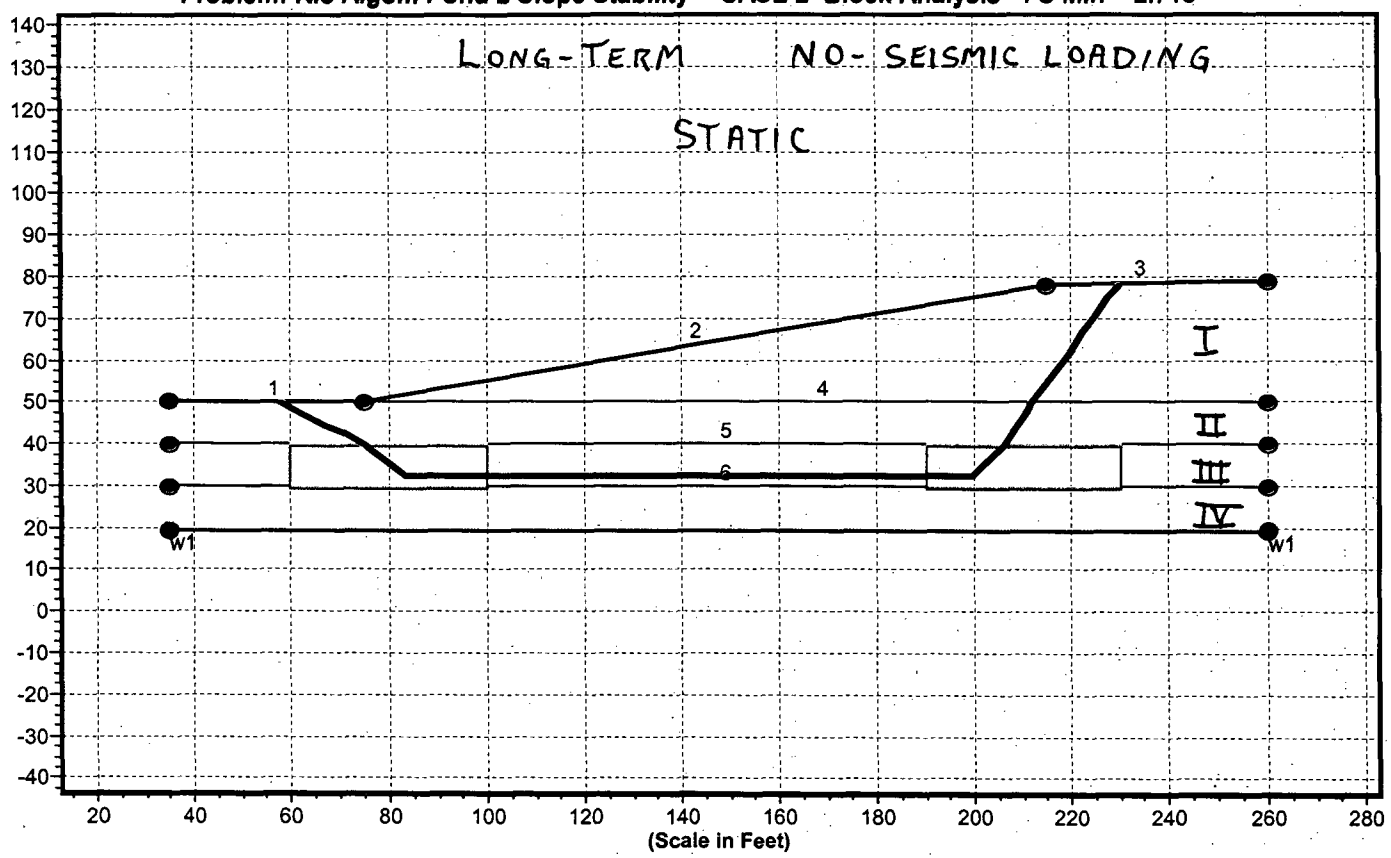


Geometry and Boundary Conditions
Problem: Rio Algom Pond 2 Slope Stability -- CASE 4 - FS Min = 2.762



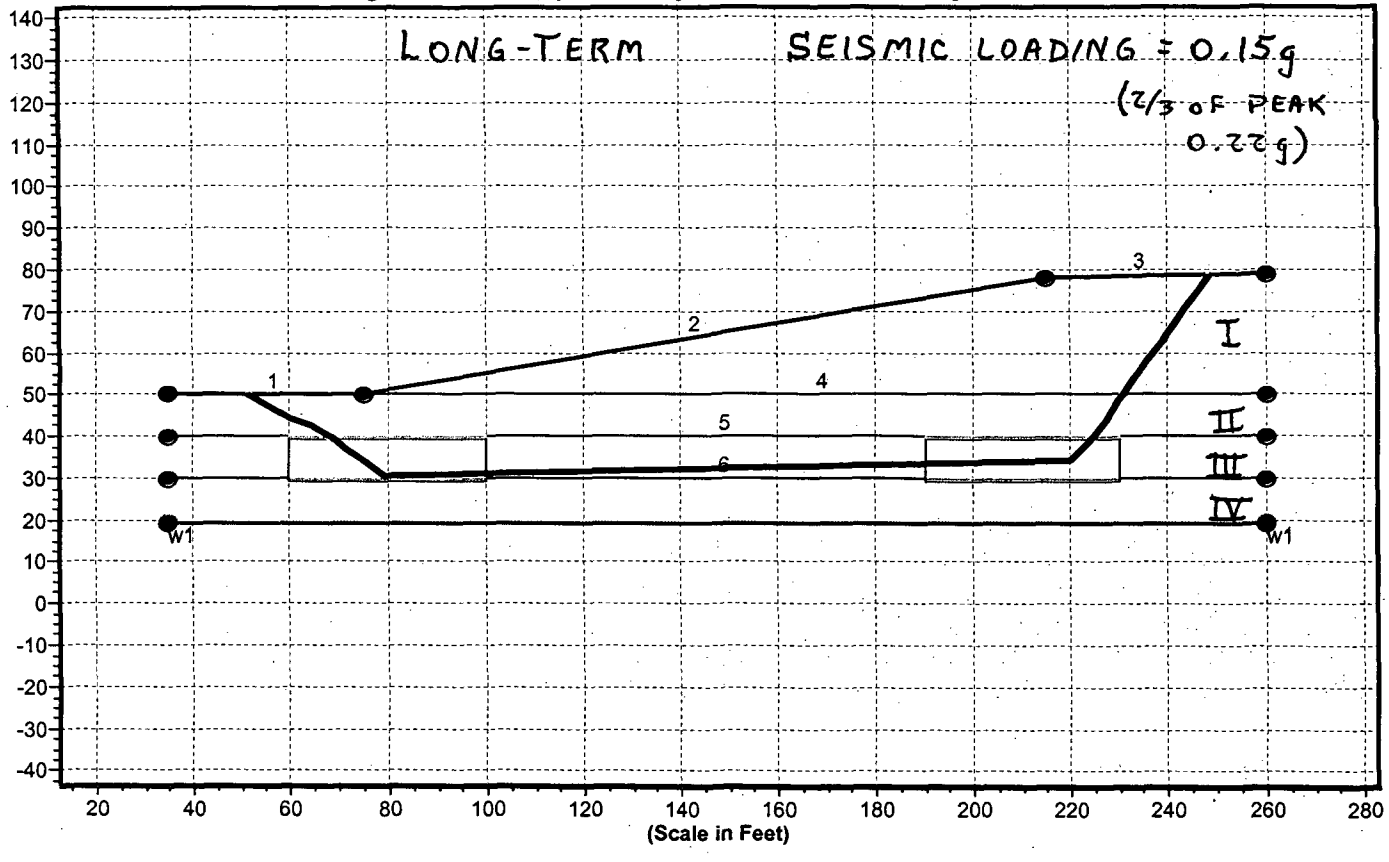
Geometry and Boundary Conditions

Problem: Rio Algom Pond 2 Slope Stability -- CASE 2 Block Analysis - FS Min = 2.718



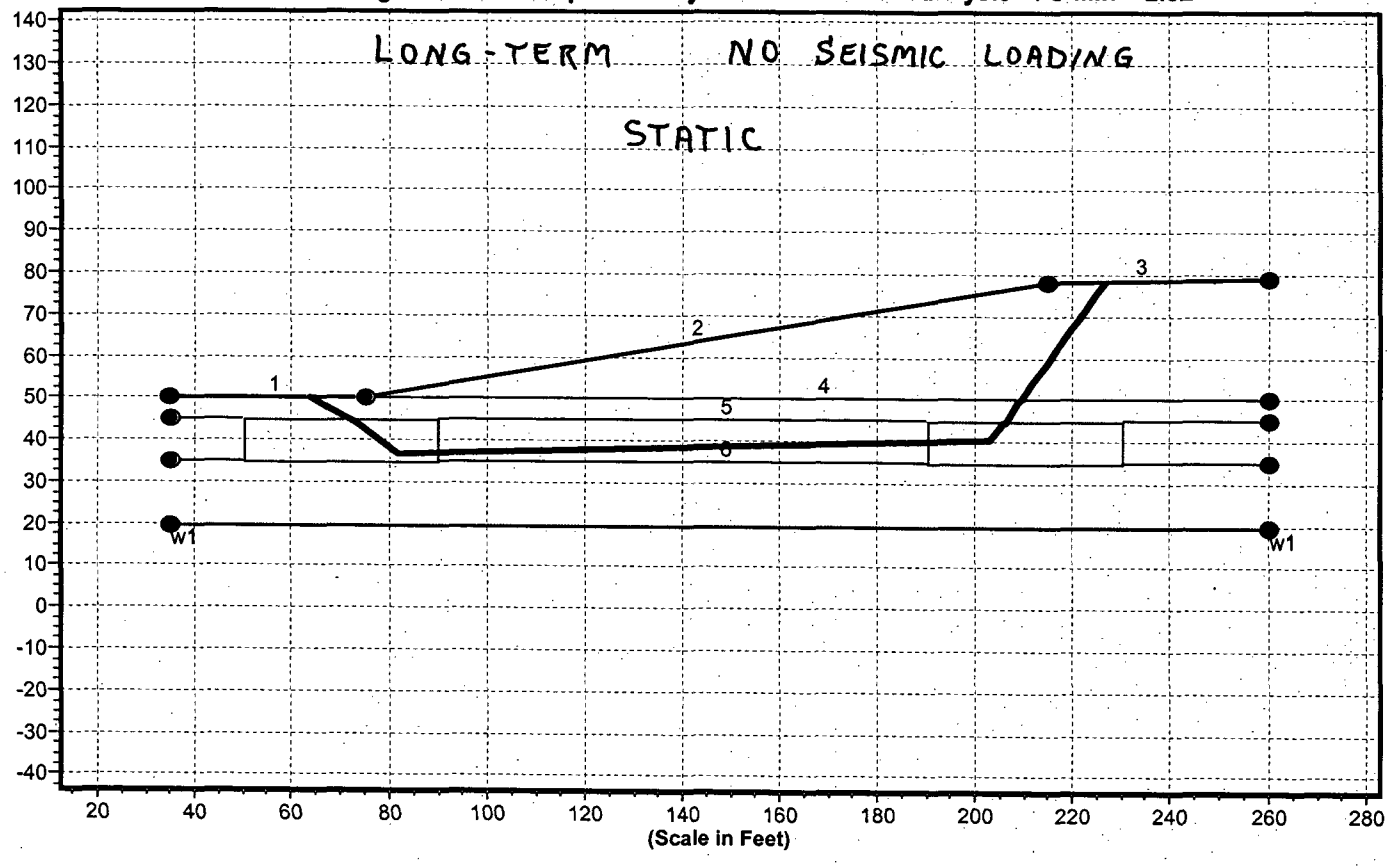
Geometry and Boundary Conditions

Problem: Rio Algom Pond 2 Slope Stability -- CASE 2 Block Analysis - FS Min = 1.329



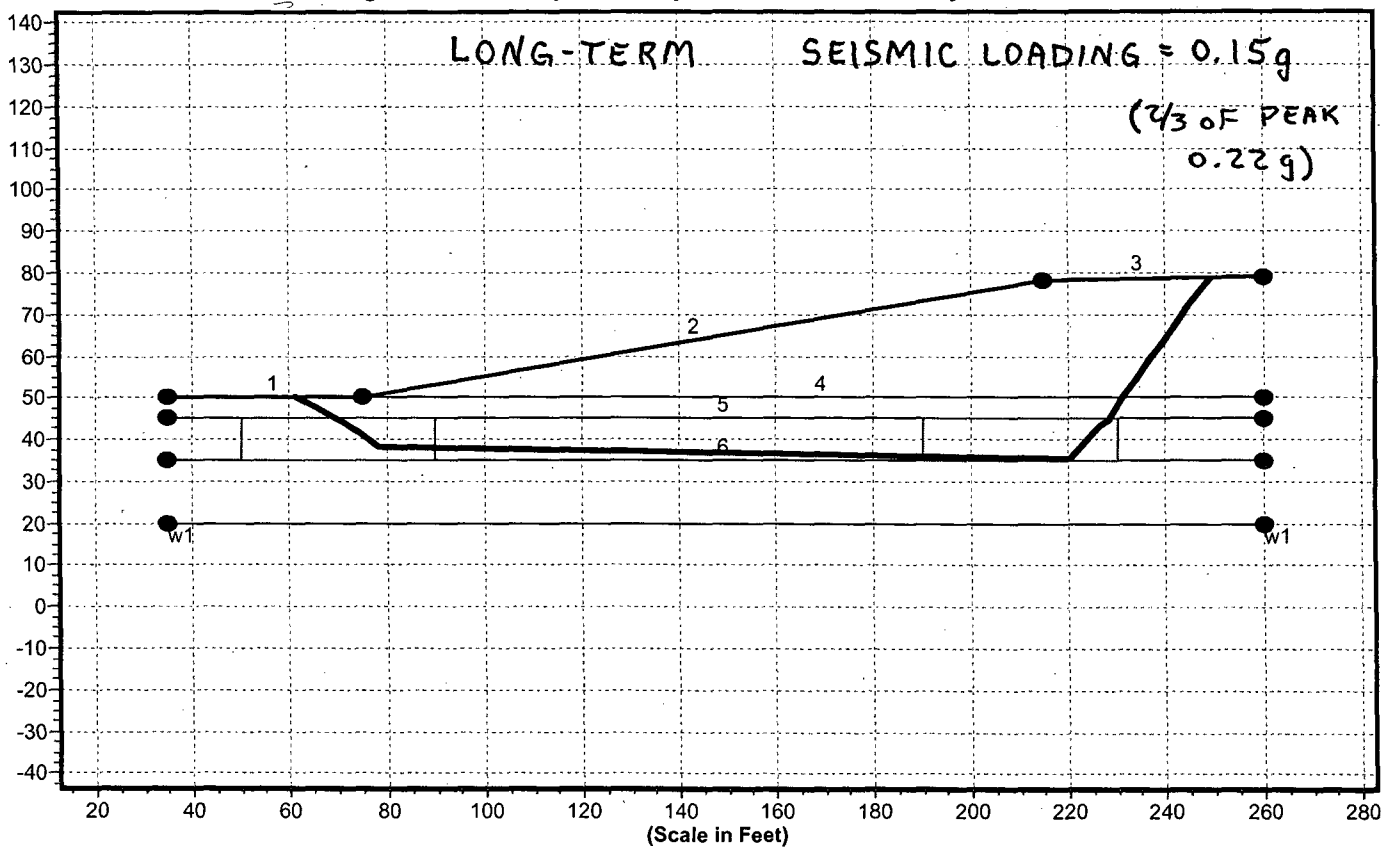
Geometry and Boundary Conditions

Problem: Rio Algom Pond 2 Slope Stability -- CASE 3 Block Analysis - FS Min = 2.52



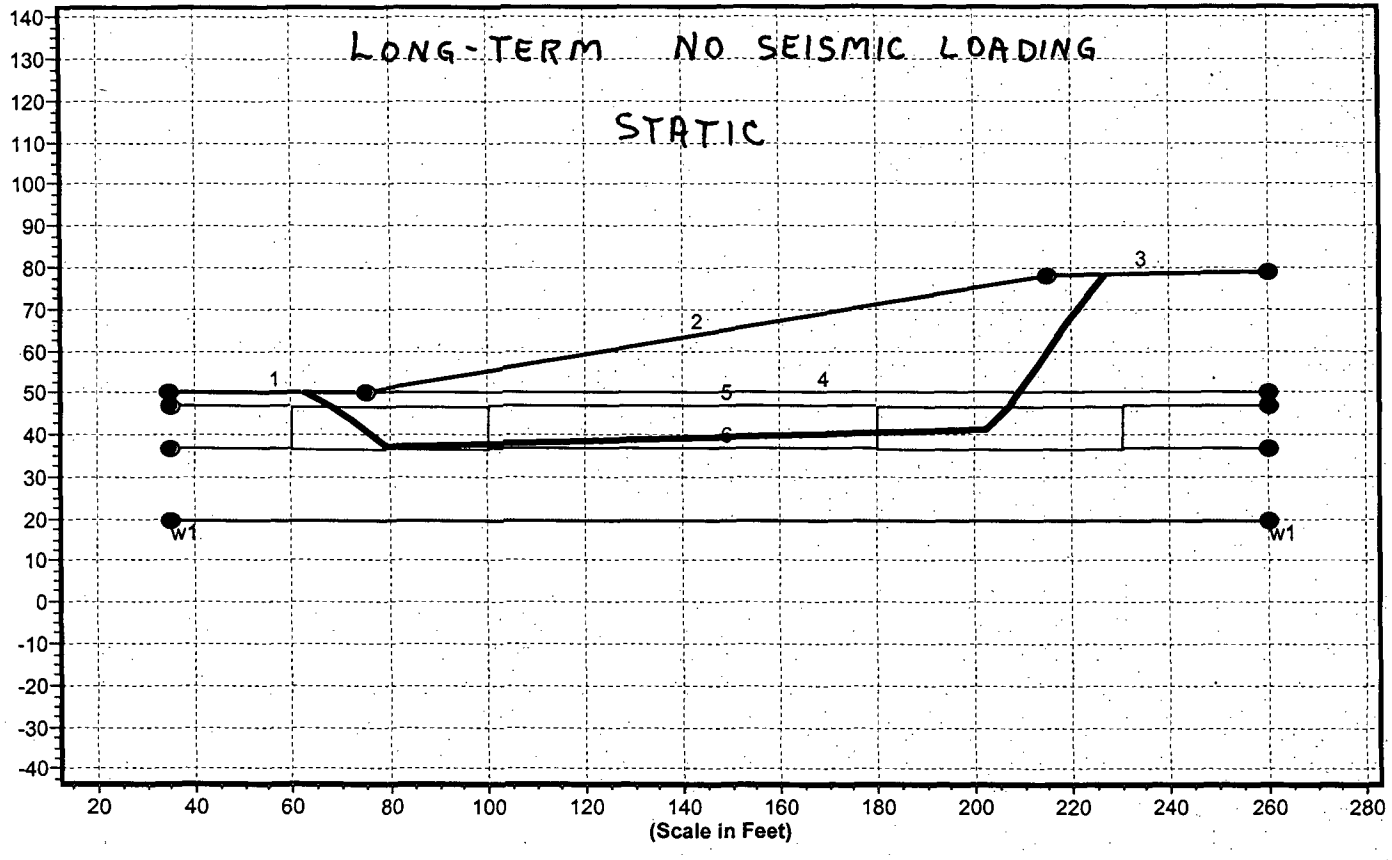
Geometry and Boundary Conditions

Problem: Rio Algom Pond 2 Slope Stability -- CASE 3 Block Analysis - FS Min = 1.253

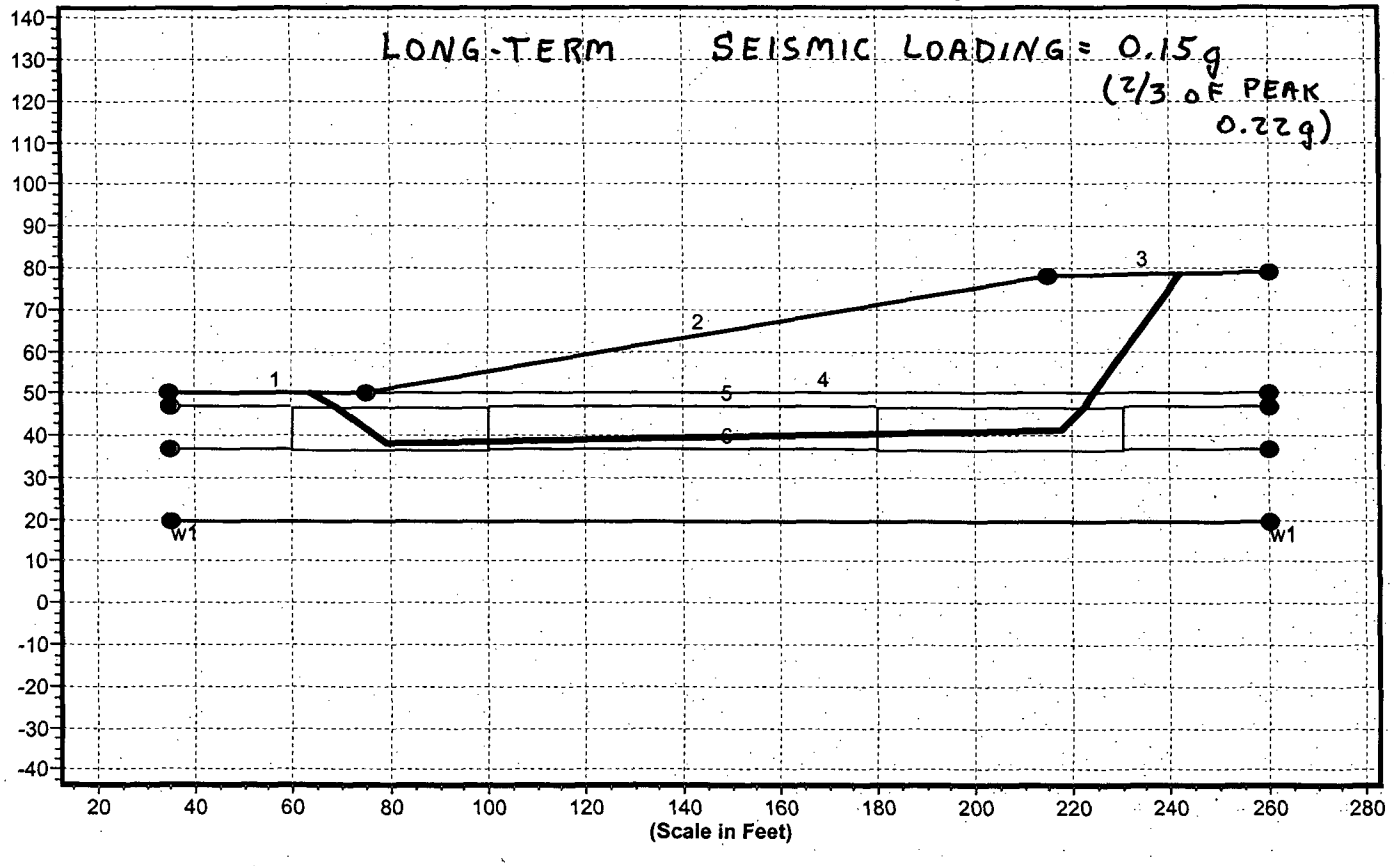


Geometry and Boundary Conditions

Problem: Rio Algom Pond 2 Slope Stability -- CASE 4 Block Analysis - FS Min = 2.403



Geometry and Boundary Conditions
Problem: Rio Algom Pond 2 Slope Stability -- CASE 4 Block Analysis - FS Min = 1.223



APPENDIX C-4

LIQUEFACTION ANALYSIS

MAXIM TECHNOLOGIES INC®
A TETRA TECH COMPANY

BY Cos DATE 11-29-04

JOB TITLE Rio Algom JOB NUMBER

SUBJECT Liquefaction Analysis - Cell 2 SHEET 3

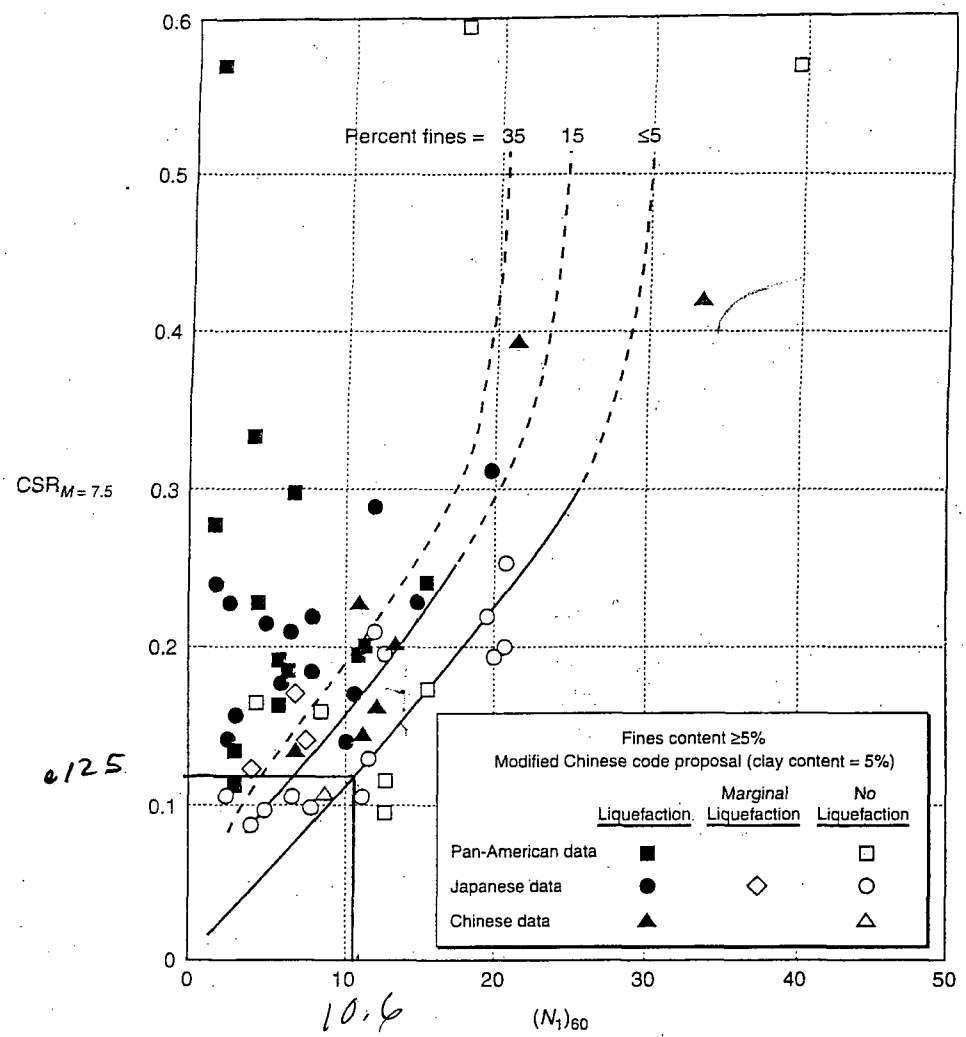


Figure 9.31 Relationship between cyclic stress ratios causing liquefaction and $(N_1)_{60}$ values for silty sands in $M = 7.5$ earthquakes. (After Seed et al. (1975). Influence of SPT procedures in soil liquefaction resistance evaluations, *Journal of Geotechnical Engineering*, Vol. 111, No. 12. Reprinted by permission of ASCE.)

Factors for Cyclic Stress Approach

Magnitude, M	$CSR_M/CSR_{M=7.5}$
$5\frac{1}{4}$	1.50
6	1.32
$6\frac{3}{4}$	1.13
$7\frac{1}{2}$	1.00
$8\frac{1}{2}$	0.89

MAXIM TECHNOLOGIES INC®
A TETRA TECH COMPANY

BY CCS DATE 11-29-04

JOB TITLE Rio Algom JOB NUMBER

SUBJECT Liquefaction Analysis SHEET 2 of 3

CPT- 2 WATER Table @ 21'

evaluate ~ $N_1 < 12$ WORST Case

Depth

22.15 ft

23.95 ft

1.8' Layer Avg N_1 ~ 10.6 Blows/ft

FROM CHART

$CRR_{M=7.5} = 0.125$

MAGNITUDE Scaling FACTOR = 1.27

For 6.2 Earthquake

$\alpha = 0.22g$

$$CSR = 0.65 \frac{\alpha_{max}}{g} \frac{\sigma_{vo}}{\sigma'_{vo}} R_d$$

Assume 31' pile

$\sigma_{vo} = 31 + 23 = 54 \times 106 = 5,724$ PSF

$\sigma'_{vo} = (31+21)(106) + 2'(106-62.4) = 5599$

$\frac{\sigma_{vo}}{\sigma'_{v}}$ ~ .98 $R_d = 1.0 - .00765Z$

R_d 1.0 - (.00765)(7)

$R_d = 1.0 - .05 = .95$

$CSR = (.65)(.22)(.98)(.95) = 0.133$

$$FS = \frac{CRR}{CSR} MSF = \frac{0.125}{0.133}(1.27) = \underline{1.19}$$

87

MAXIM TECHNOLOGIES INC®
A TETRA TECH COMPANY

BY COS DATE 11-29-04

JOB TITLE Rio Algom JOB NUMBER

SUBJECT Liquefaction Analysis SHEET 3 of 3

CPT-2 by Shear wave Velocity Method

$$V_{s1} = V_s \left(\frac{P_a}{\sigma'_{v0}}\right)^{.25}$$

Robertson et al 1992

$$V_{s1} = 251\left(\frac{1}{2.8}\right)^{.25}$$

$$\sigma'_{v0} = \frac{5599}{2000} = 2.8$$

$$V_{s1} = 251(.77)$$

$$V_{s1} = 194$$

FROM Table

CRR = .2

$$FS = \frac{CRR}{CSR} MSF$$

$$= \frac{.2}{.133}(1.27) \sim 1.9$$

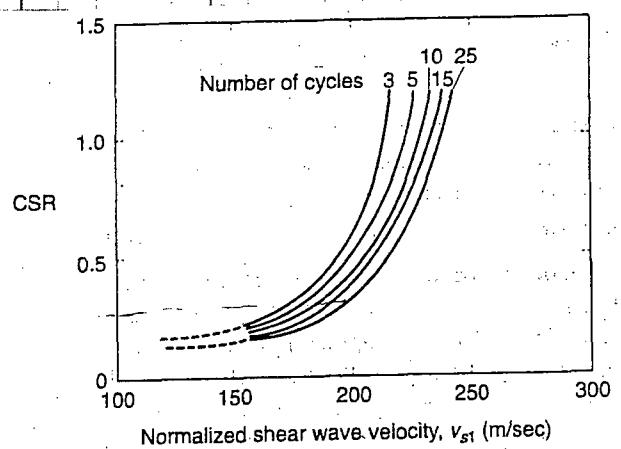


Figure 9.36 Correlations between cyclic stress ratio required to produce cyclic strain amplitude of 2.5% in clean sand and shear wave velocity. (After Tokimatsu et al., 1991.)

APPENDIX C-5

RADON FLUX CALCULATIONS AND SUPPORTING DATA

-----*****! RADON !*****-----

Version 1.2 - Feb. 2, 1989 - G.F. Birchard tel.# (301)492-7000
U.S. Nuclear Regulatory Commission Office of Research

RADON FLUX, CONCENTRATION AND TAILINGS COVER THICKNESS
ARE CALCULATED FOR MULTIPLE LAYERS

Pond 2 - 50/50 mix Curt's parameters 1.5 feet clay

CONSTANTS

RADON DECAY CONSTANT	.0000021	s^-1
RADON WATER/AIR PARTITION COEFFICIENT	.26	
SPECIFIC GRAVITY OF COVER & TAILINGS	2.65	

GENERAL INPUT PARAMETERS

LAYERS OF COVER AND TAILINGS	3	
DESIRED RADON FLUX LIMIT	20	pCi m^-2 s^-1
LAYER THICKNESS NOT OPTIMIZED		
DEFAULT SURFACE RADON CONCENTRATION	0	pCi l^-1
RADON FLUX INTO LAYER 1	0	pCi m^-2 s^-1
SURFACE FLUX PRECISION	.001	pCi m^-2 s^-1

LAYER INPUT PARAMETERS

LAYER 1

THICKNESS	500	cm
POROSITY	.47	
MEASURED MASS DENSITY	1.39	g cm^-3
MEASURED RADIUM ACTIVITY	154	pCi/g^-1
MEASURED EMANATION COEFFICIENT	.35	
CALCULATED SOURCE TERM CONCENTRATION	3.348D-04	pCi cm^-3 s^-1
WEIGHT % MOISTURE	15	%
MOISTURE SATURATION FRACTION	.444	
MEASURED DIFFUSION COEFFICIENT	.0164	cm^2 s^-1

LAYER 2

THICKNESS	46	cm
POROSITY	.389	
MEASURED MASS DENSITY	1.62	g cm^-3
MEASURED RADIUM ACTIVITY	0	pCi/g^-1
MEASURED EMANATION COEFFICIENT	.35	
CALCULATED SOURCE TERM CONCENTRATION	0.000D+00	pCi cm^-3 s^-1
WEIGHT % MOISTURE	17.13	%
MOISTURE SATURATION FRACTION	.713	
MEASURED DIFFUSION COEFFICIENT	.002967	cm^2 s^-1

LAYER 3

THICKNESS	30	cm
POROSITY	.31	
MEASURED MASS DENSITY	1.82	g cm^-3
MEASURED RADIUM ACTIVITY	0	pCi/g^-1
MEASURED EMANATION COEFFICIENT	.35	
CALCULATED SOURCE TERM CONCENTRATION	0.000D+00	pCi cm^-3 s^-1
WEIGHT % MOISTURE	8.31	%
MOISTURE SATURATION FRACTION	.488	
MEASURED DIFFUSION COEFFICIENT	.01074	cm^2 s^-1

BARE SOURCE FLUX FROM LAYER 1: 1.390D+02 pCi m^-2 s^-1

RESULTS OF THE RADON DIFFUSION CALCULATIONS

LAYER	THICKNESS (cm)	EXIT FLUX (pCi m^-2 s^-1)	EXIT CONC. (pCi l^-1)
1	5.000D+02	3.026D+01	1.247D+05
2	4.600D+01	1.409D+01	8.867D+03
3	3.000D+01	1.294D+01	0.000D+00

Rio Algom-Ambrosia Lake

Long Term Moisture Content -Section 4 sediment/soil mixture
Rawls & Brakensiek Method

Enter		Results	
Clay Content (%)	15	Volumetric water (%)	**10.89**
Organic Content (%)	0.5	Moisture by Weight (%)	**15.14**
Cover Density	1.39		
Water Density	1		

R
A
E

Rogers & Associates Engineering Corporation

Post Office Box 330
Salt Lake City, Utah 84110-0330
(801) 263-1600

August 19, 1991

Mr. Gordon T. Mossberg
Vinyard & Associates, Inc.
4415-D Hawkins, NE
Albuquerque, NM 87109

C9100/21

Dear Mr. Mossberg:

Enclosed are the results for diffusion coefficient, radon emanation coefficient, and Radium content analysis on the fifteen samples sent to our laboratory from Quivera Mining, New Mexico. The standard procedure (FBDU-315-1, May 1980) for measuring radon emanation is designed for uranium tailings, or at least high radium concentrations (Ra>15 pCi/g). Therefore, all of the emanation measurements, except sample U-8, have very high uncertainties.

We tested a developmental method for measuring emanation statistics with greater sensitivity on six of the samples. To further assist you, these results are reported in the last column of the report form. Your invoice will cover only the standard radium and emanation tests. It will not include the cost of the additional six measurements performed with the effluent method.

If we can be of further assistance, please contact us.

Sincerely yours,

Kirk K. Nielson /R

Kirk K. Nielson
Vice President

KKN/b

Rogers & Associates Engineering Corporation

REPORT OF RADON DIFFUSION COEFFICIENT MEASUREMENTS
(TIME-DEPENDENT DIFFUSION TEST METHOD RAE-SQAP-3.6)

REPORT DATE 8/8/91

CONTRACT C9100/21

BY BCR /VR

SAMPLE IDENTIFICATION Vinyard

SUBMITTED BY Rogers & Associates Engineering Corporation DATE RECEIVED

SAMPLE NUMBER	MOISTURE (DRY WT.%)	DENSITY (g/cm^3)	RADON DIFFUSION COEFF. (cm^2/s)	SATURATION[a] ($M\rho/P$)	COMMENTS
X-5	16.4 11.5	95.0 1.77 110.5	1.81E-03	0.85	
U-8	15.3 13.8	95.6 1.72 107.4	1.06E-03	0.72	
V-10	16.9 11.8	96.2 1.82 113.6	3.75E-05	0.96	
Y-2	16.9 12.3	96.6 1.79 111.7	4.16E-05	0.89	
Y-6	15.7 12.0	95.8 1.82 113.6	6.27E-05	0.88	
Y-8	13.9 12.6	95.7 1.81 113.6	1.14E-03	0.76	
Z-5	14.9 12.0	95.5 1.79 111.7	2.25E-03	0.79	
Z-7	14.2 14.6	95.1 1.74 108.6	3.40E-03	0.65	

[a] BASED ON A SPECIFIC GRAVITY OF 2.7 g/cm^3.

RAE

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SALT LAKE CITY • UTAH 84110
(801) 263-1600

Figure No.: 34

Rogers & Associates Engineering Corporation

REPORT OF RADIUM AND EMANATION COEFFICIENT MEASUREMENTS
(LAB PROCEDURE RAE-SQAP-3.1)

REPORT DATE Aug. 9, 1991

CONTRACT 9100/ 21

BY KKN

SAMPLE IDENTIFICATION Soils

SUBMITTED BY M.Vinyard & Awsoc DATE RECEIVED

SAMPLE NUMBER	MOISTURE (DRY WT. %)	RADON EMANATION COEFFICIENT [a]	RADIUM [a] (pCi/gram)	Rn Emanation Effluent Method
Z-5	8.9	0.12±.46	1.4±0.1	
Z-7	9.1	0.18±.83	1.0±0.1	0.16±0.02

[a] UNCERTAINTIES BASED ON GAMMA-RAY COUNTING STATISTICS ONLY.

RAE

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Rogers & Associates Engineering Corporation

REPORT OF RADIUM AND EMANATION COEFFICIENT MEASUREMENTS
(LAB PROCEDURE RAE-SQAP-3.1)

REPORT DATE Aug. 9, 1991

CONTRACT 9100/21

BY KKN

SAMPLE IDENTIFICATION Soils

SUBMITTED BY M.Vinyard & Assoc DATE RECEIVED

SAMPLE NUMBER	MOISTURE (DRY WT. %)	RADON EMANATION COEFFICIENT [a]	RADIUM [a] (pCi/gram)	Rn Emanation, Effluent Method
U-8	10.4	0.21±.02	19.9±0.3	0.21±0.004
V-7	10.7	0.19±.44	2.1±0.2	
V-9	9.4	0.16±1.00	1.8±0.1	
V-10	8.9	0.17±.98	1.3±0.1	
W-6	12.0	0.11±.31	1.6±0.1	
W-8	11.7	0.23±.20	2.3±0.1	
X-5	9.9	0.20±.37	1.7±0.1	
X-7	10.1	0.12±.43	1.6±0.1	0.20±0.02
X-9	10.7	0.17±.96	1.8±0.1	
Y-2	8.8	0.23±.31	1.3±0.1	0.20±0.02
Y-6	9.1	0.14±1.82	1.3±0.1	0.17±0.02
Y-8	9.2	0.26±.17	1.4±0.1	0.14±0.02
Z-3	9.5	0.20±.30	2.1±0.1	

[a] UNCERTAINTIES BASED ON GAMMA-RAY COUNTING STATISTICS ONLY.

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Rogers & Associates Engineering Corporation

REPORT OF RADON DIFFUSION COEFFICIENT MEASUREMENTS
(TIME-DEPENDENT DIFFUSION TEST METHOD RAE-SQAP-3.6)

REPORT DATE 8/8/91

CONTRACT C9100/27

BY BCR

SAMPLE IDENTIFICATION Vinyard

SUBMITTED BY Rogers & Associates Engineering Corp. DATE RECEIVED

SAMPLE NUMBER	MOISTURE (DRY WT.%)	DENSITY (g/cm^3)	RADON DIFFUSION COEFF. (cm^2/s)	SATURATION (Mp/P)	COMMENTS SPECIFIC GRAVITY *
W-6	19.2 11.8	96.4 1.83 114.2	8.59E-05	0.95	2.89g/cm^3 ÷
W-8	26.4 14.8	96.2 1.70 106.1	2.44E-05	0.95	3.24 "
X-7	23.1 13.3	96.1 1.78 111.1	5.85E-05	0.95	3.14 "
X-9	22.9 12.8	96.5 1.80 112.4	2.29E-05	0.95	3.21 "
V-7	21.9 13.[illegible]	96.0 1.78 111.1	2.80E-05	0.95	3.02 "
V-9	19.8 12.0	95.1 1.80 112.4	2.31E-05	0.95	2.88 "
Z-3	24.5 14.0	96.0 1.76 109.9	2.11E-05	0.95	3.23 "

*Due to excessive saturation, Specific Gravity was recalculated to 95%

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Figure No.: 35

Rogers & Associates Engineering Corporation

REPORT OF RADON DIFFUSION COEFFICIENT MEASUREMENTS
(TIME-DEPENDENT DIFFUSION TEST METHOD RAE-SQAP-3.6)

Report Date 5/6/93
Contract 9300/8
By LMN & TKR
Date Received 4/9/93

Sample Identification 19 Diffusion Tests
Submitted by Quivira Mining Company

Sample ID	Moisture (Dry Wt. %)	Density (g/cm^3)	Radon Diffusion Coefficient (cm^2/s)	Saturation (Mρ/P)	Specific Gravity
15-SH	17.19	1.60	4.3 E-03	0.68	2.7
16-SH	17.25	1.61	4.5 E-03	0.69	2.7
17-SH	15.75	1.66	4.6 E-03	0.68	2.7
18-SH	14.83	1.67	4.7 E-03	0.65	2.7
1-IM	9.30	1.76	1.3 E-02	0.47	2.7
2-IM	12.88	1.69	7.0 E-03	0.58	2.7
3-IM	13.13	1.73	5.9 E-03	0.63	2.7
4-IM	10.05	1.75	1.3 E-02	0.50	2.7
S-000	8.45	1.66	1.8 E-02	0.36	2.7
S-000	12.00	1.64	1.2 E-02	0.50	2.7
S-000	14.50	1.66	2.7 E-03	0.62	2.7
S-002	9.08	1.55	2.4 E-02	0.33	2.7
S-002	12.45	1.54	1.6 E-02	0.46	2.7
S-002	13.57	1.57	6.3 E-03	0.51	2.7
S-008	7.90	1.78	1.6 E-02	0.37	2.7
S-008	13.30	1.78	3.6 E-03	0.70	2.7
T-000	8.05	1.76	3.0 E-02	0.40	2.7
T-000	14.30	1.70	2.2 E-04	0.66	2.7
T-000	10.74	1.75	1.0 E-02	0.53	2.7

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REPORT OF RADON DIFFUSION COEFFICIENT MEASUREMENTS
(TIME-DEPENDENT DIFFUSION TEST METHOD RAE-SQAP-3.6)

Report Date 5/6/93
Contract 9300/8
By LMN & TKR
Date Received 4/9/93

Sample Identification 6 Diffusion Tests
Submitted by Quivira Mining Company

Sample ID	Moisture (Dry Wt. %)	Density (g/cm^3)	Radon Diffusion Coefficient (cm^2/s)	Saturation (Mρ/P)	Specific Gravity
T-003	6.26	1.80	1.0E-02	.34	2.7
T-008	5.74	1.76	7.9E-03	.29	2.7
U-002	6.37	1.85	8.3E-03	.37	2.7
W-008	5.82	1.79	5.8E-03	.31	2.7
AB-6	9.43	1.75	9.1E-03	.47	2.7
Y-7.5	9.49	1.73	6.0E-03	.45	2.7

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REPORT OF RADIUM AND EMANATION
COEFFICIENT MEASUREMENTS
(LAB PROCEDURE RAE-SQAP-3.1)

Report Date 6/28/93
Contract C9300/8
By LMN & TKR

Sample Identification 12 Radium and Emination
Submitted by Quiviria Mining Company Date Received 4/9/93

Sample Number	Moisture (Dry Wt. %)	Radon Emanation Coefficient	Radium (pCi/g)	Comments
15-SH	12.44	0.14 +/- 0.02	2.2 +/- 0.4	
16-SH	12.28	0.18 +/- 0.03	2.2 +/- 0.4	
17-SH	13.44	0.18 +/- 0.03	2.0 +/- 0.4	
18-SH	9.60	0.16 +/- 0.03	2.2 +/- 0.4	
1-IM	10.20	0.15 +/- 0.03	1.4 +/- 0.3	
2-IM	8.91	0.19 +/- 0.04	1.6 +/- 0.4	
3-IM	6.66	0.14 +/- 0.03	1.9 +/- 0.3	
4-IM	6.45	0.17 +/- 0.04	1.5 +/- 0.3	
S-000	39.15	0.22 +/- 0.06	1.5 +/- 0.4	
S-002	37.98	0.12 +/- 0.02	2.4 +/- 0.5	
S-008	7.59	0.13 +/- 0.02	1.6 +/- 0.3	
T-000	6.13	0.16 +/- 0.03	1.5 +/- 0.3	

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Rogers & Associates Engineering Corporation

REPORT OF RADIUM AND EMANATION
COEFFICIENT MEASUREMENTS
(LAB PROCEDURE RAE-SQAP-3.1)

Report Date 9/8/93
Contract C9300/14
By LMN & TKR

Sample Identification 6 Radium and Emination

Submitted by Quiviria Mining Company Date Received 8/1/93

Sample Number	Moisture (Dry Wt. %)	Radon Emanation Coefficient	Radium (pCi/g)	Comments
T-003	4.32	0.17 +/- 0.04	0.2 +/- 0.0	
T-008	5.76	0.19 +/- 0.08	0.2 +/- 0.1	
U-002	8.80	0.16 +/- 0.05	0.2 +/- 0.1	
W-008	7.82	0.22 +/- 0.05	0.2 +/- 0.1	
AB-6	6.86	0.05 +/- 0.02	0.1 +/- 0.0	
Y-7.5	8.99	0.17 +/- 0.05	0.2 +/- 0.1	

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1992 and 1993
POND 2 COVER SOILS
TEST DATA

PERMEABIITY TEST DATA
MANCOS SHALE PROCESSED SOILS

Filed under lift 2 - Cover

AMBROSIA LAKE RECLAMATION IN-PLACE PROCTOR AND SOIL CHARACTERISTICS			MATERIAL	PROCTOR			SOIL ANALYSIS						
			(C)OVER (T)AILINGS	Maximum Density (#/ft³)	95% Std. Proctor (#/ft³)	Optimum Moisture (%)	Soil Class	Plastic Index	% Passing 200 Mesh	Perm. (cm/sec)	Shrinkage (%)	SAR	15 Bar Moisture
SAMPLE #	DATE	LOCATION		Per 10,000 yd³			Per 10,000 yd³						
P2IM(I-J)	11-20-92	P#2 I-J	C	116.2	110.4	11.5	SC	10	41.5	2.7×10^{-6}	—	—	—
P2IM(J-K)	11-18-92	P#2 J-K	C	114.7	109.0	12.2	SC	9	45.3	2.4×10^{-6}	—	—	—
P2IM(K-L)	11-18-92	P#2 K-L	C	113.8	108.1	12.4	SC	13	47.1	1.3×10^{-5}	—	—	—
P2IM(L-M)	11-13-92	P#2 L-M	C	110.1	104.6	14.9	SC	14	36.5	2.0×10^{-5}	—	—	—
P2IM(M-N)	11-13-92	P#2 M-N	C	110.9	105.4	14.2	SC	12	48.4	1.2×10^{-6}	—	—	—
P2IM(N-O)	11-18-92	P#2 N-O	C	113.6	107.9	12.8	SM-SC	5	44.3	2.2×10^{-6}	—	—	—
P2IM(O-P)	11-20-92	P#2 O-P	C	115.1	109.3	13.4	SC	9	40.8	3.0×10^{-5}	—	—	—
P2IM(P-Q)	11-20-92	P#2 P-Q	C	116.0	110.2	12.0	SC	11	36.8	6.7×10^{-6}	—	—	—
P2IM(Q-R)	11-20-92	P#2 Q-R	C	113.1	107.4	13.0	SC	8	39.0	1.8×10^{-5}	—	—	—

AMBROSIA LAKE RECLAMATION PROCTOR AND SOIL CHARACTERISTICS Pond #2 LIFT 2			MATERIAL	PROCTOR			SOIL ANALYSIS						
			(C)OVER (T)AILINGS	Maximum Density (#/ft³)	95% Std. Proctor (#/ft³)	Optimum Moisture (%)	Soil Class	Plastic Index	% Passing 200 Mesh	Perm. (cm/sec)	Shrinkage (%)	SAR	15 Bar Moisture
SAMPLE #	DATE	LOCATION		Per 10,000 yd³			Per 10,000 yd³						
P2SH(I-J)	10-13-92	I-J		107.1	101.7	17.7	SC	31	41.6	5.6×10^{-7}			
P2SH(J-K)	10-16-92	J-K		108.8	103.4	16.2	CL	22	57.9	2.0×10^{-6}			
P2SH(K-L)	10-16-92	K-L		109.8	102.6	15.2	CL	24	60.8	8.4×10^{-7}			
P2SH(L-M)	7-15-92	L-M		108.5	103.1	17.3	CL	25.9	66.0	2.8×10^{-7}			
P2SH(M-N)	8-6-92	M-N		106.8	101.5	18.1	SC	23.1	47.8	4.7×10^{-7}			
P2SH(N-O)	8-6-92	N-O		108.1	102.7	15.4	SC	21.2	35.2	8.8×10^{-7}			
P2SH(O-P)		O-P		105.9	100.6	18.2	CL	17.0	71.4	7.0×10^{-8}			
P2SH(P-Q)	10-6-92	P-Q		107.2	101.7	16.3	SC	19.0	37.8	3.9×10^{-6}			
P2SH(Q-R)	10-13-92	Q-R		107.8	102.4	16.0	CL	23	56.5	4.5×10^{-7}			

Vinyard & Associates, Inc.

4415-D Hawkins, NE
Albuquerque, New Mexico 87109
(505) 345-1937

Geotechnical Engineering • Materials Testing • Environmental Engineering

March 10, 1993

Quivira Mining Company
WHSE, Sec. 31, Ambrosia Lake
P. O. Box 218
Grants, NM 87020
Attn: Mr. Garrett Ross

Subject: Sample No.'s P2SH (L-M)(O-P)(N-O)(M-N)
P. O. No.: 04401
Vinyard & Associates' Job No: 93-2-92

Gentlemen:

Attached are copies of the Permeability Test Results for the subject project.

Should you have any questions regarding this data, please do not hesitate to call.

Sincerely,
Vinyard & Associates, Inc.

Martin D. Vinyard, PE

MARTIN D. VINYARD
NEW MEXICO
8261
REGISTERED PROFESSIONAL ENGINEER

cc: Addressee (2)

Project: P2SH

Client: Quivira Mining Company

Project Number: 93-2-92

PERMEABILITY TEST RESULTS

Sample	Permeability (CM/SEC)
P2SH (L-M)	2.8×10^{-7}
P2SH (M-N)	4.7×10^{-7}
P2SH (N-O)	8.8×10^{-7}
P2SH (O-P)	7.0×10^{-8}

Client: Quivira Mining Company

PERMEABILITY TEST RESULTS*

Location	Permeability (CM/SEC)
P2IM-(L-M)	2.0×10^{-5}
P2IM-(M-N)	1.2×10^{-5}
P2IM-(J-K)	2.4×10^{-6}
P2IM-(K-L)	1.3×10^{-5}
P2IM-(N-O)	2.2×10^{-5}
P2IM-(O-P)	3.0×10^{-5}
P2IM-(P-Q)	6.9×10^{-6}
P2IM-(Q-R)	1.8×10^{-5}
P2IM-(I-J)	2.7×10^{-6}
P2SH-(P-Q)	3.9×10^{-6}
P2SH-(J-K)	2.0×10^{-6}
P2SH-(K-L)	8.4×10^{-7}
P2SH-(I-J)	5.6×10^{-7}
P2SH-(Q-R)	4.5×10^{-7}

* All samples remolded to 95% of maximum Proctor Density.

VINIHKD & HSSOC.. INC. TEL:505-345-7477 DEC 03 92 14:59 NO.002 P.15

Vinyard & Associates, Inc.

4415-D Hawkins, NE
Albuquerque, New Mexico 87109
(505) 345-1937

Geotechnical Engineering • Materials Testing • Environmental Engineering

October 16, 1992

Quivira Mining Co.
WHSE, Sec. 31 Ambrosia Lake
P.O. Box 218
Grants, NM 87020
Attn: Mr. Garrett Ross

Subject: Sample #P2SH (J-K) (K-L)
V & A Job No. 92-2-341

Dear Sir:

Attached are copies of the Proctor Test Results for the subject project.

Should you have any questions regarding this data, please do not hesitate to call.

Sincerely,
Vinyard & Associates, Inc

Martin D. Vinyard, P.E.

Attachment: Proctor No. 1 and 2

cc: Addressee (2)

2nd List of improperly matched on field ID

J-K	Vinyard	11-18-92	114.7	12.2	SC	9	24.1	2.4E-6	
J-K Resampled	Vinyard	12-04-92					45.3		
I-J	Vinyard	41-20-92	116.2	11.5	SC	10	41.5	2.7E-6	
I-J Resampled									
K-L	Vinyard	11-18-92	113.8	12.2	SM	NP	40.7	1.3E-5	
K-L Resampled	Vinyard	12-08-92				13	47.1	6.3E-6	
N-O	Vinyard	11-18-92	113.6	12.8	sc-sm	5	29.2	2.2E-5	
N-O Resampled	Vinyard	12-08-92					44.3		
N-O Retested	Vinyard	1-11-93	111.8	13.4	SC	10	42.6	1.1E-5	
N-O Resampled	Vinyard	1-11-93	111.6	14.8	SC	10	48.3	1.1E-6	
O-P	Vinyard	11-20-92	115.1	13.4	SC	9	40.8	3.0E-5	
O-P Re-test	Vinyard	1-11-93	114.6	13.0	sc-sm	4	41.0	9.9E-6	
O-P Resampled	Vinyard	1-11-[illegible]	116.7	12.9	SC	10	30.9	3.6E-6	
O-P Re-test	Stephens	1-21-93	117.4	12.2	SC	9	41.6	4.6E-6	
O-P Resampled	Stephens	1-21-93	117.4	12.7	SC	10	40.4	2.3E-5	
O-P Re-test	Stephens	2-10-93		13.7				2.8E-7*	
P-Q	Vinyard	11-20-92	116.0	12.0	SC	11	36.8	6.9E-6	
P-Q Re-test	Vinyard	1-11-93	110.5	13.3	SC	12	39.2	9.6E-6	
P-Q Resampled	Vinyard	1-11-93	113.6	13.0	SC	8	48.3	7.1E-7	
Q-R	Vinyard	11-20-92	113.1	13.0	SC	8	39.0	1.5E-5	
Q-R Re-test	Vinyard	1-11-93	114.8	12.4	SC	13	40.3	9.3E-6	
Q-R Resampled	Vinyard	1-11-93	113.8	12.7	SC	6	37.3	2.8E-5	
Q-R Resampled	Stephens	1-21-93	118.0	14.4	SC	9	41.2	3.7E-6	
Q-R Resampled	Vinyard	4-15-93	117.4	12.9	SC	13	44.5	4.3E-7	
L-M	Vinyard	11-30-92	110.1	14.9	SC	14	36.5	2.0E-5	
L-M Re-test	Vinyard	1-11-93	114.0	14.0	SC	14	49.0	4.9E-6	
L-M Resample	Vinyard	1-11-93	113.0	14.8	SC	12	48.1	3.4E-6	
M-N	Vinyard	11-30-92	110.9	14.4	SC	16	48.4	1.2E-5	
M-N Re-test	Vinyard	1-11-93	109.7	13.4	SC	16	41.5	4.7E-6	
M-N Resample	Vinyard	1-11-93	114.5	13.2	SC	12	47.0	6.3E-6	

Point 2 Verification \ List 7 \ Internal Comparison

... \ Internal Comparison 2

SUMMARY OF SATURATED HYDRAULIC CONDUCTIVITY TESTS

Sample Number	K_{sat} (cm/sec)	Method of Analysis	
		Constant Head	Falling Head
#1 - BRNSH	3.0×10^{-7}		X
#2 - BRNSH	1.2×10^{-7}		X
#3 - BRNSH	6.1×10^{-7}		X

amec

PROJECT:	Rio Algom 2007 Miscellaneous Laboratory Testing	**JOB NO:**	7-519-004450
CLIENT:	Rio Algom Mining	**LAB NO:**	7-0658-01
MATERIAL:	Mancos Shale	**DATE SAMPLED:**	04/17/2007
SAMPLE SOURCE:	NE Corner of Stockpile	**SAMPLED BY:**	Client

REVIEWED BY:

Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter (ASTM D5084)

SAMPLE PREPARATION: Remolded at ~95% of D698 Proctor near optimum moisture

METHOD OF COMPACTION: Remolded in 6 lifts

TESTING METHOD: Method F: Constant Volume Falling Head (by Mercury) Rising Tailwater

FIELD MOISTURE:	NA	LAB MOISTURE:	NA
INITIAL DIAMETER (cm):	6.13	FINAL DIAMETER	6.26
INITIAL LENGTH (cm):	7.61	FINAL LENGTH	7.78
INITIAL MOISTURE CONTENT (%):	19.0	FINAL MOISTURE CONTENT (%):	27.3

CONSOLIDATED? (Y/N):	N		
CELL PRESSURE (psi):	NA	POST CONSOLIDATION DIAMETER (cm):	NA
BACKPRESSURE (psi):	NA	POST CONSOLIDATION LENGTH (cm):	NA

INITIAL DRY BULK DENSITY (lb/ft^3):	101.8
% OF D698 COMPACTION:	95.5
FINAL DRY BULK DENSITY (lb/ft^3):	95.5

FINAL B PARAMETER READING:	0.98	FINAL BACKPRESSURE (psi):	85

AVERAGE K_{sat}* (cm/s):	**1.84E-08**	AVERAGE K_{sat}* (ft/day):	**5.20E-05**

MAXIMUM GRADIENT USED:	10.15
MINIMUM GRADIENT USED:	9.46

*Corrected to 20 °C

**N.B.: All final sample dimensions are subject to sample deformation caused by exsolution of air in pore water and handling during removal from cell.

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Albuquerque, NM 87110
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www.amec.com

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PROJECT:	Rio Algom 2007 Miscellaneous Laboratory Testing	JOB NO:	7-519-004450
CLIENT:	Rio Algom Mining	LAB NO:	7-0558-02
MATERIAL:	Mancos Shale	DATE SAMPLED:	04/17/2007
SAMPLE SOURCE:	SW Corner of Stockpile	SAMPLED BY:	Client

REVIEWED BY: [signature]

Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter (ASTM D5084)

SAMPLE PREPARATION: Remolded at ~95% of D698 Proctor near optimum moisture

METHOD OF COMPACTION: Remolded in 8 lifts

TESTING METHOD: Method F: Constant Volume Falling Head (by Mercury) Rising Tailwater

FIELD MOISTURE:	NA	LAB MOISTURE:	NA
INITIAL DIAMETER (cm):	6.13	FINAL DIAMETER	6.19
INITIAL LENGTH (cm):	7.61	FINAL LENGTH	7.61
INITIAL MOISTURE CONTENT (%):	19.3	FINAL MOISTURE CONTENT (%):	25.2

CONSOLIDATED? (Y/N):	N		
CELL PRESSURE (psi):	NA	POST CONSOLIDATION DIAMETER (cm):	NA
BACKPRESSURE (psi)	NA	POST CONSOLIDATION LENGTH (cm)	NA

INITIAL DRY BULK DENSITY (lb/ft^3):	101.5
% OF D698 COMPACTION:	95.3
FINAL DRY BULK DENSITY (lb/ft^3):	99.4
FINAL B PARAMETER READING:	0.98
FINAL BACKPRESSURE (psi):	85

AVERAGE K_{20}* (cm/s): **3.95E-07** AVERAGE K_{20}* (ft/day): **1.12E-03**

MAXIMUM GRADIENT USED: 11.35

MINIMUM GRADIENT USED: 10.65

*Corrected to 20 °C

**N.B.: All final sample dimensions are subject to sample deformation caused by exsolution of air in pore water and handling during removal from cell.

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Albuquerque, NM 87113
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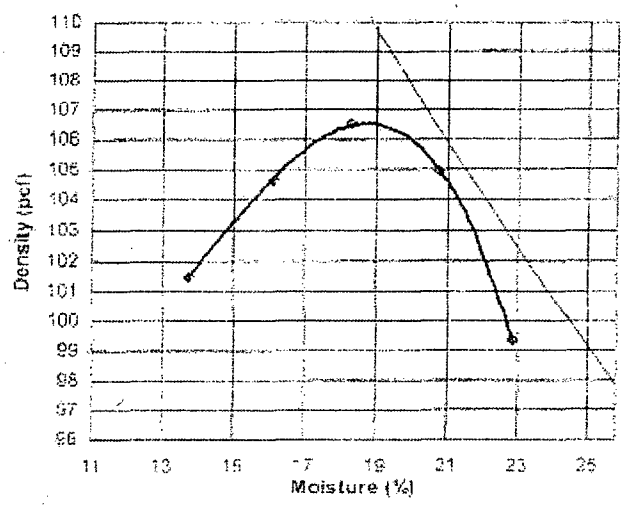
Client:	Rio Algom Mining, LLC PO Box 218 Grants, NM 87020	Report Date:	April 24, 2007
		Project #:	7-619-004452
		Work Order #:	1
Attn:	Peter Luthiger	Lab #:	7-0658-01
Project Name:	Rio Algom Mining 2007 Miscellaneous Testing Various Locations Grants, NM	Sampled By:	Client
		Date Sampled:	04/17/2007
		Visual Description of Material:	Shale
		Sample Source:	Mancos Shale Stock Pile - NE Co
Project Manager:	Herman Garcia		

SOILS / AGGREGATES

Sieve Analysis (ASTM C117/C136)

200 Wash Procedure: A

Sieve Size	Passing



Moisture Density Relationship: (ASTM D698) Method: B

Preparation Method: Dry Rammer Type: Manual

Specific Gravity: 2.651 Assumed

Maximum Density: 106.5

Optimum Moisture: 16.8

Reviewed By: _____
hg

Distribution: Client ✓ File: ✓ Supplier: ✓ Other: Addressee (2)
Email:

AMEC Earth Environmental, Inc.
6501 Jefferson NE
Albuquerque, NM 87109
Tel: 505.211.601
Fax: 505.217.071
www.amec.com

APPENDIX D-1

Alternate Test Methods for Determining Density and Shear Strength of Compacted Sediments

Test methods for Determining Shear Strength of Sediments placed in Cell 2

Standard Method

The sediments from the section 4 lined ponds will be placed and compacted in Cell 2 to produce a shear strength that meets or exceeds the shear strength parameters utilized in the design analysis.

The design analysis for this project has determined that Section 4 sediments placed and compacted to 90% of Standard Proctor dry density will provide the design shear strength of the material required for stability of the pile. In-place density testing to determine the degree of compaction of materials is an indirect method for determining shear strength of a compacted material mass. Consequently the testing for compaction of placed materials in Cell 2 will be routinely performed by standard procedures as follows:

- Laboratory compaction curves (moisture density relationships) will be performed (ASTM method D-698) on representative composite samples to determine the maximum dry density and optimum moisture content of the materials.
- Field testing will be performed on compacted layers in Cell 2 during placement to determine the dry density of the placed materials. This testing will be done in accordance with ASTM Method D-1556 (Sand Cone Method).
- The dry density of the in-place compacted material will be compared to the maximum dry density of the material determined in the laboratory. The ratio will be expressed as a percentage compaction. At least 90% compaction is required to achieve the design specifications.

Modifications to the Standard Method for Determining Degree of Compaction

Materials containing significant amounts of hydrated and crystalline structural water will dehydrate and give off a portion of the structural water when dried under the standard ASTM method temperature of 110° C. Consequently, for crystalline materials, the moisture content determined by this method could be erroneously high due to release of hydrated and structural water that is not part of the free or pore water in the material.

Because the dry density of the compacted material is calculated by dividing the moist density by the quantity (1+ moisture content of material mass), the resulting dry density and percent compaction would be erroneously low.

Where significant amounts of crystals are present in the compacted sediments, the in-place moist density will be determined by the Sand Cone Method and the moisture content will be determined by ASTM method D2216 modified as follows:

> The material will be dried at a temperature of 60° C instead of 110° C. This procedure insures that the majority of water measured as "moisture content" in the material will be free water or pore water. Hydrated and structural water will remain as part of the "solid" crystalline material and a more accurate value of the compacted dry density of the sediments will be obtained.

Alternate Test Method For Determining Shear Strength of Placed Material

Although in-place density tests provide a useful method for estimating soil shear strength under standard situations, cases will arise where a representative sediment compaction curve cannot be obtained and/or moisture content determinations would be questionable. Also, considerable judgment would be required to interpret the test results. To eliminate

the test variability for the above conditions, a direct determination of the placed strength of the material will be made as follows:

In-situ shear tests (vane shears) will be performed on the compacted material placed in the Cell. The testing will be performed using ASTM method D2573. The vane shear test results will provide a direct estimate of shear strength of placed material. Studies will be conducted to determine the correlation between field vane shear values, in-situ density of the material and laboratory shear strength test results. Once the correlation curves have been developed, an accurate shear strength value can be attained from the field tests. The in-situ sediment shear strength obtained by this method will be compared to the shear strength parameters utilized in the design stability analysis. Where the in-place shear strength of the placed sediments meets or exceeds the design shear strength, the compacted fill would be acceptable at the location of the test. This method provides a direct reading of undrained shear strength, and often offers a better estimate of the actual in-place strength of the sediment materials than in-place density tests.

This methodology is considered standard practice for determining undrained shear strength of in-place materials for geotechnical projects involving process wastes.

APPENDIX E-1

CONTRACTOR'S COST SUBMITTALS

TASK --> **Pond 2 Reclamation**

Costs associated with the Pond 2 closure have been provided through a contractor bid, which was executed within a signed contract between Rio Algom and contractor. The bid includes costs associated with construction of the final disposal cell, including erosion protection.

The prices are for discrete work elements as well as unit rates for other tasks. A copy of the cost schedule is included and is summarized below.

Fixed price	Item
550000	Geotechnical testing (QA/QC) of placed materials at Pond 2
550000	*Subtotal on fixed price elements*

	Item
2.50	Placement of radon barrier on Pond 2 ($/yd)
300000	Estimated quantity of radon barrier (yds)
750000	Cost to construct radon barrier
1.90	Placement of erosion protection ($/yd)
54000	Estimated quantity of erosion protection (yd)
102600	Cost to place erosion protection
852600	*Subtotal on unit cost elements*

TASK --> **Pre-construction activities**

Prior to placement of pond sediments at Pond 2, site preparation activities will be undertaken to facilitate cell construction and enhance design characteristics of the completed cell.

166,500	Drainage system network installation (contractor bid)
1569100	Total cost to perform contractor work elements

TASK -->	**Pond 2 - Radon Flux tetsting of radon barrier**
	Radiation surveys - radon flux measurements
100	Required Tests (minimum)
8	Number of tests per day
90	Cost per analysis
12.5	Number of days to perform required tests
5	Preparation/set-up time (days)
5	Report preparation time (days)
22.5	Total time to perform task (days)
1	Number of technicians to perform task
65	1 - lab technician hourly rate
50	Per diem for technician
21825	Cost to perform task

TASK --> **Erosion Protection for disposal cell**

Erosion protection required for this task will need to be purchased and delivered to the site. Quarry will provide rock and deliver to the site. Bid prices for making rock and price to deliver to site is attached.

Rock volumes based on consulting engineer's proposed design for the cell and associated erosion control structures.

Structure	Material	Length	Width	Thickness	Volume
Apron 1	sand	1200	11.5	0.5	256
	d50 1"	1200	18.5	0.5	411
	D50 9.2"	1200	21	1.5	1400
Channel A	sand	700	51	0.5	661
	d50 1"	700	51	0.5	661
	D50 7.8"	700	51	1.3	1763
outflow A	sand	75	63	0.5	88
	d50 1"	75	63	0.5	88
	D50 7.8"	75	63	1.33	233
outflow C	sand	75	63	0.5	88
	d50 1"	75	63	0.5	88
	D50 7.8"	75	63	1.33	233
Channel B	sand	550	46	0.5	469
	d50 1"	550	46	0.5	469
	D50 7.8"	550	46	1.33	1246
Apron 4 and	sand	1750	23	0.5	745
	d50 1"	1750	23	0.5	745
	D50 9.2"	1750	12	1.5	1167
Channel C	sand	1300	49	0.5	1180
	d50 1"	1300	49	0.5	1180
	D50 7.8"	1300	45	1.33	2882

Location	Material	acres	thickness	Volume
Side Slope	d50 1"	4.3	0.5	3469
	D50 3.2"	4.3	0.5	3469
Top	d50 1"	42.1	0.25	16980

TASK --> **Erosion Protection for disposal cell (continued)**

Totals	Volume	T/yd3	Tons	Unit cost	purchase Total cost	unit haul cost	delivery cost	Total cost
sand	3485	1.3	4531	5.95	26958	6.09	27592	54550
d50 1"	24090	1.3	31317	4.95	155017	6.09	190718	345736
d50 3.2"	3469	1.25	4336	4.95	21462	6.09	26405	47868
D50 7.8"	6356	1.25	7945	6.85	54427	7.25	57605	112031
D50 9.2"	2567	1.25	3208	6.85	21977	7.25	23260	45238

Cost to purchase all rock --> 279841

Cost to deliver all rock --> 325581

39967 <-- Total volume

Total cost for all rock (incl. Tax @ 7.2%) --> **649013**

Total Costs For Pond 2 Closure

Cost	Item
1569100	Total cost to perform contractor work elements (required elements)
21825	Radon flux testing on Pond 2
649013	Erosion protection purchase and delivery
2239938	Total Costs for section 4 related activities

MAXIM TECHNOLOGIES A DIVISION OF TETRA TECH, INC.

BY COS DATE 1-19-05

JOB TITLE Rio Algom - Pond #2 JOB NUMBER

SUBJECT Cost Estimate Wick/Horizontal Drains SHEET 1

Conversation with Josh Kolz / Alex Denver
303-766-2000

Approx Size Pond - 200 x 750

Gravel Blanket - Gravel 1½" max (Concrete Gravel)

$\frac{216 \times 760 \times 0.5}{27}$ = 2,955 say 3,000 @ 10/cy = $30,000

Vertical Wick Drains - Conservative estimate

1600 wicks @ 10' = 16,000 LF @ 2.00 = $32,000

Mobilization = $5,000

Truck Decontamination = $5,000

Subtotal $42,000

Horizontal Strip Drains

Approximate Area Requiring Strip Drains

1400 x 1400 @ 30' on Centers

1400/30 = 47 Rows ~ 50 Rows

50 Rows x 1400 Ft Length

70,000 LF Strip Drains needed

12" wide strip Drains ~ $1.35 LF installed

$70,000 x 1.35 = $94,500

Total Estimated Cost = $166,500

Appendix A

Scope of Work

Article I.

Contractor shall remove all fluids, sludge, slimes, sand, evaporate crystal, debris, and other materials above the liners and including the liners (the "Materials") from the eleven Section 4 ponds. In addition, Contractor shall remove contaminated berms (not to exceed 264,583 cy) and soil to an average depth (across all eleven Section 4 ponds) of six inches beneath the liners, not to exceed 206,500 cubic yards (the "Soil"). Contractor shall transport and deposit the Materials and the Soil to Pond 2. Contractor shall remove the Materials and the liner exposing at least 25% of the pond area below the liner. Company shall perform a visual inspection/radiation survey and direct Contractor whether or not to remove any Soil from below the liner. Company shall provide such direction within two working days of Contractor notifying Company that a pond excavation has progressed to the point that at least 25% of the pond area below the liner is exposed. In the event that the Company's inspection/radiation survey identifies contaminated material beneath the liners or within the berms, Contractor shall remove such material. In the event that Company directs Contractor to remove Soil below the liner, Company may direct Contractor to remove Soil to a depth of 6" or more below such liner. Contractor shall not be required to remove more than 264,583 cubic yards of berm material or more than 206,500 cubic yards of soil below the pond liners without additional compensation at the unit rates specified in Article II (3)(a) and (b); in the event that Company directs removal of fewer than 264,583 cubic yards of berm material or fewer than 206,500 cubic yards of soil, there shall be no downward price adjustment.

Prior to its transportation of the Materials and Soil to Pond 2, Contractor shall mix and consolidate the Materials and Soil to a consistency amenable to hauling without spillage enroute, and then haul the Materials and Soil in CAT 773 trucks or equivalent, subject to approval by the Company, which shall not be unreasonably withheld, from Section 4 across State Highway 509 via an under/overpass to the Pond 2 disposal area for placement and compaction. Contractor shall further consolidate the Materials and Soil at the Pond 2 location as necessary to meet the compaction specification. All materials placed onto Pond 2 shall be compacted in accordance with the specifications provided in Article II.(1)(c) and (d).

The locations of the Pond 2 disposal area and the proposed haul routes from Section 4 to the Pond 2 disposal area are all depicted in Appendix D. All traffic for the haul will be managed on dedicated haul roads and across State Highway 509 via an underpass or overpass as depicted on Appendix D. All traffic management will be coordinated between the Company and Contractor.

The Company estimates the capacity required for all Materials and Soil, together with additions thereto to be 1,600,000 cubic yards. The Company has estimated the overall capacity available in the uncovered portion at the north end of Pond 2 where the compacted Materials and Soil will be taken to be approximately 1,000,000 cubic yards. The Company has estimated additional capacity of 600,000 cubic yards to be available south of the unrocked portion of Pond 2 to the ridgeline. If the additional capacity is needed, Company shall remove the rock cover currently placed on this portion of Pond 2, and Contractor shall then place the Materials and Soil with additions thereto in the vacated area, and Contractor shall then replace the removed rock in accordance with Appendix F at the unit rate provided in Article II.(2)(b). If additional capacity, after evaporation and compaction, is required, Company shall remove the rock cover currently placed on the southern part of Pond 2, Contractor shall then place the Materials and Soil with additions thereto in the vacated area, and Contractor shall then replace the removed rock in accordance with Appendix F at the unit rate provided in Article II.(2)(b).

Contractor shall commence the foregoing operations on the Section 4 Ponds in a manner and sequence that controls traffic patterns and ensures that contamination is contained to prevent cross-contamination. Contractor shall conduct removal of evaporate and the liner at the Section 4 Ponds in a manner that prevents the release of any pond liquids into any unprotected surface area. Contractor shall conduct evaporate mixing with amendment materials in each Section 4 Pond ~~located on top of the PVC liner in a manner that prevents the release of amended materials onto~~ any uncontaminated surface area.

Contractor shall install a clay/soil cover on Pond 2 with Company provided material and shall compact the Company provided material in accordance with the specifications provided in Article (II)(1)(d) herein. The Company will make available to Contractor amendment material at a borrow area approximately one mile north east of Pond 2, and cover material at the clay borrow area adjacent and south of Pond 2. The Company will supply rock to Contractor at a location adjacent to Pond 2, which Contractor will then use to place the rock armor covering on the cover, apron, and drainage channels in accordance with NUREG-1623 Appendix F, Rock Placement Procedures for Erosion Protection, included as Appendix F to this Agreement.

Following soil verification by Company, Contractor shall grade the Section 4 Ponds' areas, pushing in the remaining uncontaminated berms to achieve positive drainage. Contractor shall provide surveying control, with support from a licensed surveyor to provide back up and check points at critical junctures, calculating the amount of Soil that has been removed below the pond liners, calculating the removal of impacted berm material, and for as-built survey and as-built drawing preparation support. Contractor shall also provide QA/QC technicians, under the oversight of Contractor's QA/QC engineer, who will perform their QA/QC tests in the field to meet the requirements of Article II(1)(d). Contractor shall also provide Health Physics (HP) support for the Company's radiological monitoring program. Contractor's HP support will be performed under the direction of the Company's Radiation Safety Officer.

Contractor shall complete the work described herein in accordance with the schedule provided in Appendix E herein, subject to adjustment as provided in this Agreement. This schedule is based on a Work Start Date of August 1, 2004 and to the extent the Work Start Date is extended later than August 1, 2004, all of the remaining interim dates and the final date shall be extended accordingly.

Article II. (1) Work for Fixed Price

(a) Mobilization and transportation of Contractor's equipment and personnel in connection with the Work. ($1,000,000)

(b) Construction of a highway crossing (either underpass or overpass) at the location depicted on the schematic attached hereto as Appendix D, which complies with applicable law and meets the standards of the New Mexico Department of Transportation (NMDT) on Highway 509 and removal of same. ($403,000)

(c) Removal of all Materials and Soil in the Section 4 Ponds, and haulage of same to Pond 2 where this material will be placed and compacted in one-foot lifts to meet 90% proctor at optimum moisture (±3%). Section 4 pond materials to include all materials above the liners (including the liners), a total of up to 264,583 cy of contaminated berm materials, and up to 206,500 cy of Soil below the liners ($7,500,000)

12.3.2

(d) Soil testing (QA/QC) on the compacted amended and cover material shall be performed every 1000 cy to verify that amended material was compacted to meet 90% proctor at optimum moisture (±3%), and cover material was compacted to meet 95% proctor at optimum moisture (±2%). ($550,000)

(f) Excavation, removal and transportation to Pond 2 of 8,150 linear feet of 8-inch PVC pipeline from the area depicted on the schematic attached hereto as Appendix D. Company shall perform a visual inspection and verification sampling and may direct Contractor to excavate contaminated soil at the unit price provided in Article (3)(a) herein. ($6,800)

(g) Restoring and reseeding of all disturbed areas including Section 4 ponds staging areas, haul roads, former pipeline location, borrow sites, and other infrastructure used by the contractor directly or in support of the contract work (estimated to be 450 acres). The restoring and reseeding shall be performed in accordance with the specifications included as Appendix G herein. ($230,000)

Subtotal Fixed Price	$9,689,800

(2) Cover Placement at Pond 2, of Company provided clay/soil material and rock:

12.3.3	(a) Cover placement on Pond 2[2]	300,000 cy [1]	$2.50/cy	$750,000
12.3.5	(b) Rock placement on Pond 2	54,000 cy [1]	$1.90/cy	$102,600
	Subtotal			$852,600

Total fixed price bid, plus estimated cover/rock replacement (excluding NM use tax)	$10.542.400

[1] Estimated quantities. Contractor will charge at its unit rates for clay and rock cover actually placed.

[2] Cover to be placed in 6-inch lifts

(3)Additional Work at Unit Rates:

	Unit Rate $/Bank Cu. Yd.
(a) Excavation and haulage to Pond 2 of berm material to the extent that contamination exceeds 264,583cy [1] [2]	3.50
(b) Hauling to Pond 2 of Soil in excess of 206,500 cubic yards below the Section 4 Pond liners, provided that Company excavates this material and places it in an agreed location [1] [2]	3.00
(c) Excavation and removal of Pond 9 materials, placement and compaction in Pond 2 or Pond 3 (disposal location to be decided by Company) [2]	2.00
(d) Strip the overburden from the clay borrow site south of Pond 2 and place in currently excavated area adjacent and west of clay borrow site.	1.00

[1] To the extent that the additional contaminated material (or part thereof) in 3(a) and (b) is required by Contractor in order to achieve a consistency amenable to hauling of Section 4 Pond materials this work will be done by contractor without charge.

[2] Material to be compacted to meet 90% proctor at optimum moisture (±3%).

C & E CONCRETE, INC.

P.O. Box 2547 · Milan, NM 87021 · Telephone (505) 287-2944 or (505) 287-2945

April 23, 2003

Mr. Terry Fletcher
Rio Algom
Quivira Mining Company
P.O. Box 218
Grants, NM 87020

Dear Terry,

We offer the following quote for your consideration:

D_{50} Inches	Cubic Yards	Conversion Tons per cubic yards	Tons	Price - Per Ton F.O.B. Tinaja Pit	Haul Rate per ton
17"	600	1.25	750	$6.85	$7.25
12"	36,500	1.25	45,625	$6.85	$7.25
9.2"	12,600	1.25	15,750	$6.85	$7.25
7.8"	21,800	1.25	27,250	$6.85	$7.25
3.2"	2,300	1.25	2,875	$4.95	$6.09
2.2"	10,600	1.3	13,780	$4.95	$6.09
1.0"	62,800	1.3	81,640	$4.95	$6.09
Sand	22,500	1.3	29,250	$5.95	$6.09

12, 3, 4

Above price is subject to Gross Receipt Sales Tax @ 6.8125%

If you need additional information please contact us.

Sincerely,

Walter L. Meech

Walter L. Meech
President

ERG Environmental Restoration Group, Inc.
12809 Arroyo de Vista NE
Albuquerque, New Mexico 87111
(505) 298-4224

March 4, 1997

Mr. Peter J. Luthiger
Quivira Mining Company
P. O. Box 218
Grants, New Mexico 87020

Dear Mr. Luthiger:

I have prepared the following estimate to perform a correlation study for your site. The estimate is based on :

1. Quivira will prepare a minimum of twenty test pads of 100 m^2 area by scraping the vegetation layer from the pad. These pads should have average surface Ra-226 ranging from 3 to 15 pCi/g.

2. ERG will conduct a gamma survey of the twenty or more pads using GPS-based equipment. A bare NaI detector and a collimated NaI detector will be used. Other detectors provided by Quivira will also be used to determine the average gamma levels for the pads. ERG SOPs will be used for ERG equipment. Quivira SOPs will be used for Quivira equipment.

3. Nine point composite soil samples will be taken, prepared, and analyzed for each plot by Quivira personnel using Quivira SOPs.

4. ERG will select 20-30 points within the scraped areas where additional correlation measurements will be made. A five-point soil sample will be taken at each of the points. Each detector will be used to make gamma measurements at each of the study points.

5. Quivira will prepare all soil samples for analysis using Quivira SOPs. Analysis of the soil samples will be the responsibility of Quivira.

6. ERG will perform the correlations and develop action levels for each detector configuration. An action level will be developed for the plots as well as for the points for each detector.

7. ERG will prepare for Quivira's review and approval a Soil Cleanup and Verification Plan that will be transmitted to the NRC as a license amendment. The correlations and action levels will form the basis of this new plan. We anticipate proposing that the GPS

data maps will be the only gamma measurements to be recorded. Proposed soil sampl requirements will be a maximum of three samples per 500-ft by 500-ft grid block.

Chuck Farr and I will be at the site for eight hours and will complete all ERG tasks as outlined above. This assumes that Quivira will have prepared the study plots prior to arrival. The total hours for mobilization, data analysis, and preparing the new Soil Cleanup and Verification Plan are estimated at 24 for Chuck Farr and 29 for myself. The hourly rates for Chuck and myself are $65 and $115, respectively. Other direct costs are invoiced at actual cost plus 31 cents/mile for vehicle use. Total costs are estimated at $5260 including NM gross receipts tax.

Please advise me if you need additional infomation.

Sincerely,

Kenneth R. Baker

Kenneth R. Baker, Ph.D.
Principal

ERG Environmental Restoration Group, Inc.
12809 Arroyo de Vista NE
Albuquerque, New Mexico 87111
(505) 298-4224

April 21, 1998

Mr. Peter J. Luthiger
Quivira Mining Company
P. O. Box 218
Grants, New Mexico 87020

Dear Mr. Luthiger:

As a follow up to our previous cost estimate for performing a windblown gamma correlation and verification cleanup and sampling plan (license amendment request) for your site, the unit rates for performing the radiological surveys and other support of the windblown tailings cleanup are provided and based on the assumptions as follows:

1. ERG will reserve all radiation detection equipment used in the correlation studies for use at your site. The equipment will be dedicated until the NRC approves the cleanup report.

2. ERG will provide computers, three GPS Rover units and one base station with the capability of measuring locations to sub-meter accuracy. One of the units will be used for setting flags or stakes at the boundaries of the contaminated zones as well as establishing the grid blocks to be sampled. No land surveying is required to support the soil cleanup and verification activities.

3. ERG will provide ArcView software, computer, color plotter, and plotter supplies for creating maps of the site.

4. ERG will provide a staff of two technicians and one Site Mgr/data processor at the site. Quivira will provide an office or other area suitable for data processing.

5. Quivira will provide a 4-wheel drive vehicle (e. g. pickup) for mounting two radiation detection/GPS receiver systems. Gasoline and maintenance for the truck will be provided by Quivira. ERG will provide the harness and all other equipment for the truck.

6. The unit rates for ERG services provided below are inclusive of all overhead and profit.

All GPS, radiological, and data processing and presentation equipment/associated supplies-$800/day of use (not charged for periods not used).

Technician Labor ($30.00 regular time; $41.25 overtime)
Per diem $50/day (one technician will require 7 days per week per diem; one technician has relative in Grants and will not require per diem; C Farr will require at most 4 days/week per diem).

Site Mgr./data processor $65.00 per hour (Chuck Farr)

Pin flags/marking paint, any other supplies-billed at actual cost.

K. Baker billing rate-$115/hour. Although serving as project manager, he will only bill time for specific client requests such as for presence during NRC audits, special written reports, etc.

We are pleased to be considered for this work. Please advise me if you need additional information.

Sincerely,

Kenneth R Baker

Kenneth R. Baker, Ph.D.
Principal