



Appendix G

Site Geology and Boring Logs

DRAFT



LEGEND:

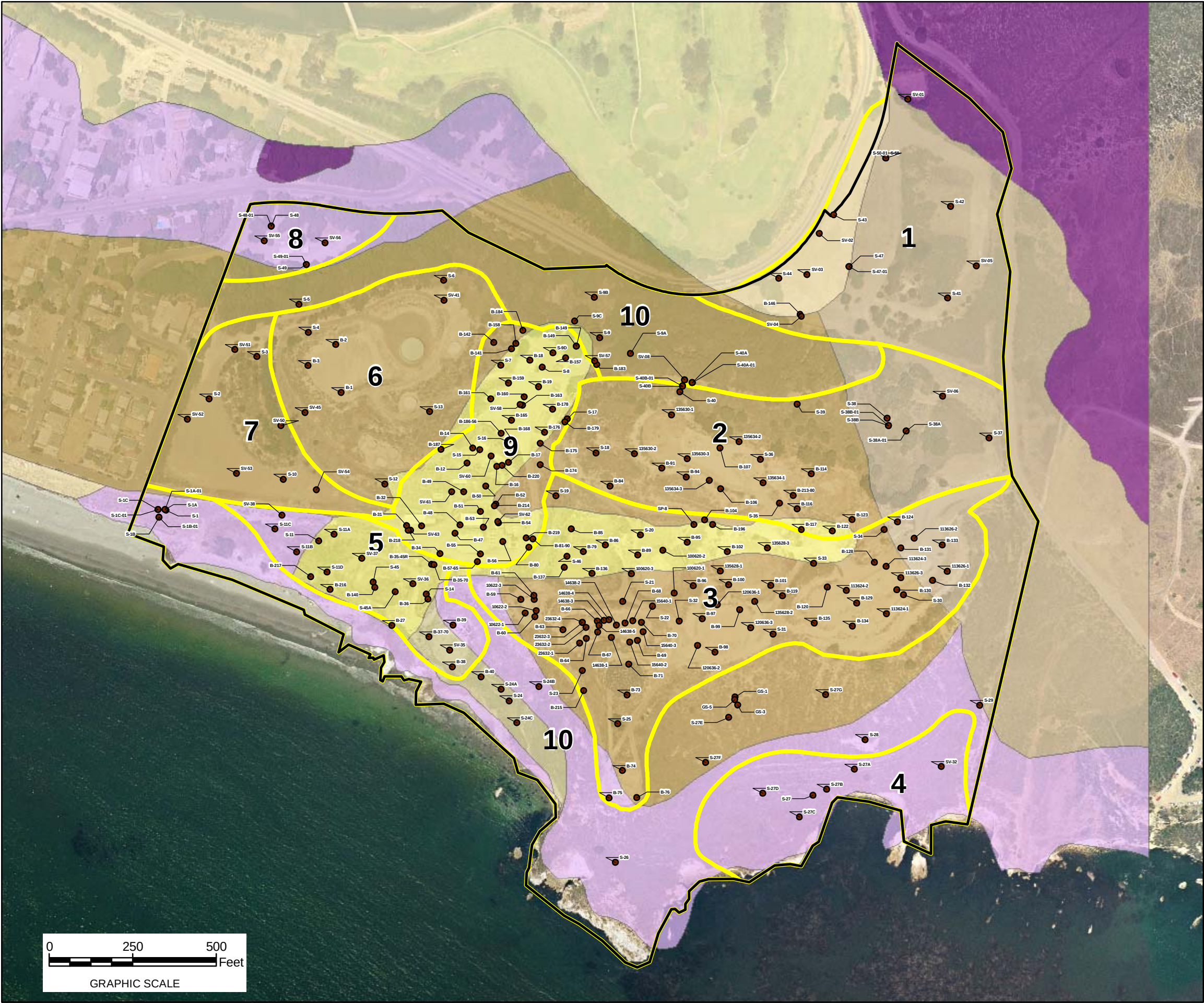
- SOIL SAMPLES
- ▭ SITE BOUNDARY
- ▭ INITIAL EVALUATION AREA
- Qal - Alluvium
- Qcol - Colluvium
- Qt - Terrace Deposit
- Tppg - Gragg Member, Pismo Formation
- Tmo - Obispo Formation, Tuffaceous Sandstone
- Tmod - Obispo Formation, Diabase
- Tmmb - Monterey Formation, Siltone

FORMER CHEVRON AVILA TANK FARM
SAN LUIS OBISPO, CALIFORNIA
RISK MANAGEMENT PLAN

SITE SOIL PROFILE

ARCADIS

FIGURE
J-1



Boring Location Boring Depth: _____ Depth Ground Water Encountered: _____ Casing Depth/Diameter: _____ / _____							PN: 1190.002		Client: Chevron-Avila Beach		Boring No. SV-17						
							Drilling Method ☐ Hand Auger ☐ Hollow-Stem ☐ Air Rotary ☐ Mud Rotary ☒ Geoprobe ☐ Other: _____		Sampling Method ☐ Glass Jar ☐ 2x6" Sampler ☐ Split Spoon 1.5" x 18" 2" x 18" 3" x 12" ☐ Other: _____		Sampling Interval ☐ 2.5 feet ☐ 5 feet ☐ 10 feet ☐ Contin. Core ☐ Other: _____						
							Diameter: 2"		Location Avila Beach, CA		Sheet 1 of 1						
									Start Time 14:30 Date 7/13/07		Finish Time 15:20 Date 7/13/07						
Contractor: OEC							Foreman: Reich		Logged By: mrl								
							Well Construction Summary										
OVM (ppm)	Sample I.D.	Time	Blow Count	Well		Depth in Feet	USCS Designation	Depth (feet)		Casing		Depth (feet)		Annulus		Surface Completion:	
				Casing	Annulus			_____ to _____	_____ to _____	_____ to _____	_____ to _____	_____ to _____	_____ to _____				
								Color	Soil Type	Description							
						0	mrl	dark grayish	SILT	sl. moist / loose some fine							
						1		Brown (10YR 4/2)		grained sand, trace fine							
						2		weathered contact		sub-angular gravel.							
						3	Trpy	Pale Brown	SANDSTONE	sl. moist / indurated / fractured							
4.2			3.5			4	SILTSTONE			well sorted, fine grained,							
						5	SS			Pale Brown siltstone, indurated, fractured							
						6				interbedded siltstone & sandstone							
						7				blebs of hydrocarbon hydrocarbon odor.							
18.0						8											
						9											
						10	SS										
						1											
						2	Silt & fine	Pale Brown	siltstone	blebs of hydrocarbon							
						3	SS	Sandstone									
						4											
						5	Siltstone	blueish gray	SILTSTONE	moist, hard, fills fine grained							
						6	TD	(6.5Y2.5/1)		sand, mottled w/ hydrocarbon							
						7				mottled w/ hydrocarbon							
						8											
						9											
						0											

Boring Location								PN: 1190.002		Client: Chevron-Avila Beach		Boring No. SV-26			
								Drilling Method		Sampling Method		Sampling Interval		Location Avila Beach, CA	
								☐ Hand Auger ☐ Hollow-Stem ☐ Air Rotary ☐ Mud Rotary ☒ Geoprobe ☐ Other:		☐ Glass Jar ☐ 2x6" Sampler ☐ Split Spoon 1.5" x 18" 2" x 18" 3" x 12" ☐ Other:		☐ 2.5 feet ☐ 5 feet ☐ 10 feet ☐ Contin. Core ☐ Other:		Sheet of	
								Diameter: 2" 5-footer						Time Start 16:15 Time Finish 16:55 Date 7/13/07 Date 7/13/07	
Boring Depth: _____ Depth Ground Water Encountered: _____ Casing Depth/Diameter: _____ 1								Foreman: Reid		Logged By: MRL					
Contractor: OEC								Well Construction Summary							
OVM (ppm)	Sample I.D.	Time	Blow Count	Well		Depth in Feet	USCS Designation	Depth (feet)	Casing	Depth (feet)	Annulus	Surface Completion:			
				Casing	Annulus			_____ to _____	SG P	_____ to _____	_____ to _____				
						0	ML	Short grass	few bushes						
0.8	No Soil Samples					1		dark grayish	SLT	sl. moist, loose, some fine grained					
						2		Brown (10YR 4/2)		Sand, few fine sub angular gravel					
						3									
						4									
						5									
						6									
						7									
						8									
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Refusal attempts to install failed.
set R footer - R drill

Boring Location							PN: 1190.002		Client: Chevron-Avila Beach		Boring No. SV-33			
							Drilling Method		Sampling Method		Sampling Interval		Location Avila Beach, CA	
							☐ Hand Auger ☐ Hollow-Stem ☐ Air Rotary ☐ Mud Rotary ☒ Geoprobe ☐ Other:		☐ Glass Jar ☐ 2x6" Sampler ☐ Split Spoon 1.5" x 18" 2" x 18" 3" x 12" ☐ Other:		☐ 2.5 feet ☐ 5 feet ☐ 10 feet ☐ Contin. Core ☐ Other:		Sheet of	
							Diameter: 2"						Time 8:50	
Boring Depth:														
Depth Ground Water Encountered:														
Casing Depth/Diameter:														
Contractor: OEC							Foreman: Reich		Logged By: mcl					
							Well Construction Summary							
OVM (ppm)	Sample I.D.	Time	Blow Count	Well		Depth in Feet	USCS Designation	Depth (feet)		Casing	Depth (feet)		Annulus	Surface Completion:
				Casing	Annulus			to	to	to	to			
								Color	Soil Type		Description			
						0	ml	Ice Plant	Brush		Poison Oak.			
						1		Brown (10YR 5/3)	SILT		moist, loose little v. fine grained sand, rootlets. No more			
1.2						2	Sm	Dark Brown (10YR)	Sandy SILT		moist, firm p. graded, very fine grained sand, no color			
						3								
						4								
						5								
						6								
						7								
						8								
						9	ml	Very dark Brown (10YR 2/2)	Clayey SILT		moist, hard, plastic little fine-grained sand, No more.			
						10	Sm	Very dark gray (3/1)	silty SAND		moist, v. dense mod well graded fine grained some sub rounded coarse grained (black) sand.			
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						12								
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Boring Location							PN: 1190.002		Client: Chevron-Avila Beach			Boring No. SV-34		
							Drilling Method		Sampling Method		Sampling Interval		Location	
							Avila Beach, CA		Sheet		of			
							Start		Finish					
Boring Depth:							Time		Time		Time			
Depth Ground Water Encountered:							10:20		11:00		11:00			
Casing Depth/Diameter:							Date		Date		Date			
Contractor: OEC							Foreman: Reid		Logged By: MRL		Date			
Well Construction Summary							Depth (feet)		Casing		Depth (feet)			
Annulus							to		to		to			
Surface Completion:							to		to		to			
Color							Soil Type		Description		Description			
0							Brush		Brown		St. moist, firm, some v. fine			
1							10 YR 5/3		SILT		grained sand. No more.			
2														
3														
4														
5							Very Dark CLAYEY SILT, moist, hard, st. plastic.		Brown (10YR 2/2)					
6														
7														
8							Dark Brown		Silty Clayey SAND, moist, dense, st. plastic					
9							(10YR 3/3)		p. graded, v. fine grained to fine					
10							few coarse grained		pale Brown sand (Tpy? Fine?)					
1														
2														
3							Dark Brown		Silty SAND		moist, dense, p. graded			
4							(10YR 3/3)		v. fine to fine grained, little clay,					
5									trace coarse grained pale Brown					
6									sand (Tpy? Fine?)					
7														
8														
9														
0														

Boring Location								PN: 1190.002		Client: Chevron-Avila Beach		Boring No. SV-39			
								Drilling Method		Sampling Method		Sampling Interval		Location	
								☐ Hand Auger ☒ Hollow-Stem ☐ Air Rotary ☐ Mud Rotary ☐ Geoprobe ☐ Other:		☐ Glass Jar ☐ 2x6" Sampler ☒ Split Spoon 1.5" x 18" 2" x 18" 3" x 12" ☐ Other:		☒ 2.5 feet ☒ 5 feet ☐ 10 feet ☐ Contin. Core ☐ Other:		Sheet 1 of 1 Start Time 14:25 Date 7-13-07	
								Avila Beach, CA Finish Time 16:18 Date 7-13-07							
Boring Depth: 15' Depth Ground Water Encountered: Casing Depth/Diameter: 1								Diameter: 8"							
Contractor: Rest America								Foreman: John		Logged By: DML					
								Well Construction Summary							
OVM (ppm)	Sample I.D.	Time	Blow Count	Well		Depth in Feet	USCS Designation	Depth (feet)	Casing	Depth (feet)	Annulus	Surface Completion:			
				Casing	Annulus			to	to	to					
								SGP	6' + 15'						
								Color	Soil Type	Description					
						0			Asphalt Surface	3"					
10.5						1	SC	greenish	clayey	moist to wet					
						2		black	SAND						
						3		olive black	sandstone	wet					
72.4						4		wt. clayey	wt. clayey						
						5		yellow fine	sand						
						6		olive black							
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[illegible]

Boring Location								PN: 1190.002		Client: Chevron-Avila Beach		Boring No. SV-58			
								Drilling Method		Sampling Method		Sampling Interval		Location Avila Beach, CA	
								☐ Hand Auger ☐ Hollow-Stem ☐ Air Rotary ☐ Mud Rotary ☒ Geoprobe ☐ Other:		☐ Glass Jar ☐ 2x6" Sampler ☐ Split Spoon 1.5" x 18" 2" x 18" 3" x 12" ☐ Other:		☐ 2.5 feet ☐ 5 feet ☐ 10 feet ☐ Contin. Core ☐ Other:		Sheet 1 of _____ Start Finish	
								Diameter: 2"				Time 8:45 Date 7/10/07		Time 10:00 Date 7/10/07	
Boring Depth: _____ Depth Ground Water Encountered: _____ Casing Depth/Diameter: 1								Foreman: MRL		Logged By: MRL					
Contractor: OEC								Well Construction Summary							
OVM (ppm)	Sample I.D.	Time	Blow Count	Well		Depth in Feet	USCS Designation	Depth (feet)	Casing	Depth (feet)	Annulus	Surface Completion:			
				Casing	Annulus			_____ to _____	_____ to _____	_____ to _____	_____ to _____	_____ to _____			
								Color	Soil Type	Description					
						0	<i>As above</i>	<i>As</i>	<i>Sandy Gravel</i>	<i>fine angular granitic gravel fine sand</i>					
						1	<i>concrete</i>								
						2	<i>COBBLES w/ sand - conb</i>			<i>not sample</i>					
<i>0.2</i>	<i>SV-58-02</i>	<i>9:20</i>				2	<i>SP</i>	<i>light brownish</i>	<i>SAND</i>	<i>sl. moist, med dense, poorly graded, fine grained, some fatty oil globules.</i>					
						3		<i>gray (10YR 6/2)</i>							
						4									
<i>0.4</i>	<i>SV-58-05</i>	<i>9:30</i>				5		<i>As Above - oil soaked - no free oil.</i>							
						5		<i>very dark grayish brown (10YR 3/2)</i>							
						6									
						7									
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Boring Location							PN: 1190.002		Client: Chevron-Avila Beach			Boring No. SV-60			
							Drilling Method		Sampling Method		Sampling Interval		Location Avila Beach, CA		
							☐ Hand Auger ☐ Hollow-Stem ☐ Air Rotary ☐ Mud Rotary ☒ Geoprobe ☐ Other:		☐ Glass Jar ☐ 2x6" Sampler ☐ Split Spoon 1.5" x 18" 2" x 18" 3" x 12" ☐ Other:		☐ 2.5 feet ☐ 5 feet ☐ 10 feet ☐ Contin. Core ☐ Other:		Sheet 1 of 1 Start Finish Time 11:00 12:15 Date 7/10/07 7/10/07		
							Diameter: 2"								
Boring Depth:															
Depth Ground Water Encountered:															
Casing Depth/Diameter:							1								
Contractor: OEC							Foreman: MRL			Logged By: MRL					
							Well Construction Summary								
OVM (ppm)	Sample I.D.	Time	Blow Count	Well		Depth in Feet	USCS Designation	Depth (feet)		Casing	Depth (feet)		Annulus	Surface Completion:	
				Casing	Annulus			to	to	to	to				
						0									
232	SV-60-01	11:05				01	X MCL			SGP					
						2									
868						3									
						4									
1013	SV-60-05	11:20				05	X MCL								
						6									
						7									
						8									
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						10									
						1									
						2									
						3									
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						9									
						0									

Boring Location								PN: 1190.002		Client: Chevron-Avila Beach		Boring No. SV-61			
								Drilling Method		Sampling Method		Sampling Interval		Location Avila Beach, CA	
								☐ Hand Auger ☐ Hollow-Stem ☐ Air Rotary ☐ Mud Rotary ☒ Geoprobe ☐ Other:		☐ Glass Jar ☐ 2x6" Sampler ☐ Split Spoon 1.5" x 18" 2" x 18" 3" x 12" ☐ Other:		☐ 2.5 feet ☐ 5 feet ☐ 10 feet ☐ Contin. Core ☐ Other:		Sheet _____ of _____	
								Diameter: 1 1/2"						Start _____ Finish _____ Time 15:15 16:15 Date _____ 7/10/00	
Boring Depth: _____ Depth Ground Water Encountered: _____ Casing Depth/Diameter: _____								Contractor: OEC		Foreman: MRL		Logged By: MRL			
Well Construction Summary															
OVM (ppm)	Sample I.D.	Time	Blow Count	Well		Depth in Feet	USCS Designation	Depth (feet)	Casing	Depth (feet)	Annulus	Surface Completion:			
				Casing	Annulus			_____ to _____	SGP	_____ to _____					
								Color	Soil Type	Description					
						0	ml	Asphalt	By Hailer	sl. moist, firm, some fine-grained sand slight hydrocarbon odor.					
37.2	SV-61-01	15:25			1	Dark grey		SILT							
						Brown (10 YR 4/2)									
					2										
					3	ml		Black	Clayey SILT	moist, firm to stiff plastic + sticky some fine grained sand strong hydrocarbon odor.					
					4			(10 YR 2/2)							
2862															
					5										
					6										
					7										
					8										
					9										
					0										
					1			Breathing Space		16:45	2.4 ppm				
					2										
					3										
					4										
					5										
					6										
					7										
					8										
					9										
					0										

Boring Location							PN: 1190.002		Client: Chevron-Avila Beach		Boring No. SV-62			
							Drilling Method		Sampling Method		Sampling Interval		Location	
							☐ Hand Auger ☐ Hollow-Stem ☐ Air Rotary ☐ Mud Rotary ☒ Geoprobe ☐ Other:		☐ Glass Jar ☐ 2x6" Sampler ☐ Split Spoon 1.5" x 18" 2" x 18" 3" x 12" ☐ Other:		☐ 2.5 feet ☐ 5 feet ☐ 10 feet ☐ Contin. Core ☐ Other:		Avila Beach, CA	
							Diameter: 2" ~ 1 1/2"						Sheet 1 of 1	
Boring Depth:											Time 13:20			
Depth Ground Water Encountered:											Time 14:30			
Casing Depth/Diameter:											Date 7/10/07			
Contractor: OEC							Foreman: MRL		Logged By: MRL		Date 7/10/07			
							Well Construction Summary							
OVM (ppm)	Sample I.D.	Time	Blow Count	Well		Depth in Feet	USCS Designation	Depth (feet)	Casing	Depth (feet)	Annulus	Surface Completion:		
				Casing	Annulus			_____ to _____	_____ to _____	_____ to _____	_____ to _____			
								Color	Soil Type	Description				
						0	Af ² ML	Brown (10YR 5/3)	Sandy Gravel, fine grained, fine sub angular granitic gravel - Af.					
9.8	SV-62-01	13:35			1	Black		CLAYEY SILT w/ gravel, sticky, stiff, few fine						
					2	10YR 2/1		gravel, plastic (NC)						
					3	Dark Brown		ST CLAY	moist, firm, some fine					
					4	10YR 2/2			grained sand, oil staining throughout. Heavy hydrocarbon odor.					
					5									
					6									
					7									
					8									
					9									
					0									
					1			BREATHING SPACE		2.8 ppm	13:40			
					2					1.7 ppm	13:50			
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					9									
					0									

Boring Location SV-63 <i>Head Space/Breathing Space 0.0 @ 10:00</i>							PN: 1190.002		Client: Chevron-Avila Beach		Boring No. SV-63	
							Drilling Method ☐ Hand Auger ☐ Hollow-Stem ☐ Air Rotary ☐ Mud Rotary ☒ Geoprobe ☐ Other:		Sampling Method ☐ Glass Jar ☐ 2x6" Sampler ☐ Split Spoon 1.5" x 18" 2" x 18" 3" x 12" ☐ Other:		Sampling Interval ☐ 2.5 feet ☐ 5 feet ☐ 10 feet ☐ Contin. Core ☐ Other:	
Boring Depth: _____							Diameter: <i>2 1/2"</i>		Sheet 1 of 1		Start	
Depth Ground Water Encountered: _____							Foreman: <i>M. Lewis</i>		Logged By: <i>D. Lichenman / M. Lewis</i>		Time 10:40	
Casing Depth/Diameter: _____							Well Construction Summary		Date 7-9-07		Finish	
Contractor: <i>OEC</i>							Depth (feet) _____ to _____ _____ to _____ _____ to _____		Casing SGP 5' ± 14.5'		Depth (feet) _____ to _____ _____ to _____ _____ to _____	
Well							Annulus		Surface Completion:			
OVM (ppm)	Sample I.D.	Time	Blow Count	Casing	Annulus	Depth in Feet	USCS Designation	Color	Soil Type	Description		
						0	<i>ML</i>		<i>A</i>			
<i>51.8</i>	<i>SV-63-01</i>	<i>10:50</i>				1	<i>SW</i>	<i>NI</i> <i>BLACK</i>	<i>GRAVELLY SAND</i>	<i>fine grained gravel in fine to coarse grained sand. Hydrocarbon odor, very heavy staining</i>		
						2						
						3	<i>ML</i>	<i>NI</i> <i>Black</i>	<i>SILT</i>			
						4						
<i>21.6</i>	<i>SV63-05</i>	<i>11:05</i>				5	<i>CL</i>	<i>SYR 0/0</i> <i>Brownish Black</i> <i>oil stained</i>	<i>CLAY</i>	<i>SILTY CLAY, Hydrocarbon odor heavy staining, few small gravel (1ppg)</i>		
						6						
						7		<i>gray (2.5Y 4/1)</i>	<i>SAND</i>	<i>p. graded, sl. moist hard, well sorted, fine grained, oil saturated in mottled pattern</i>		
						8			<i>SANDSTONE?</i>			
						9		<i>free oil</i>				
						10						
						11						
						12		<i>olive gray (5Y 4/2)</i> <i>oil</i>	<i>SANDSTONE</i>	<i>moist to wet, sl. indurated well sorted, fine to v. fine grained oil staining throughout, oil saturated in</i>		
						13						
						14		<i>oil</i>				
						15						
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						95						
						96						
						97						
						98						
						99						
						100						

TD = 15 feet installed SGP @ ~14.5 feet + 5 feet.

Boring Location							PN: 1190.002		Client: Chevron-Avila Beach		Boring No. SV-66			
							Drilling Method		Sampling Method		Sampling Interval		Location Avila Beach, CA	
							☐ Hand Auger ☐ Hollow-Stem ☐ Air Rotary ☐ Mud Rotary ☒ Geoprobe ☐ Other:		☐ Glass Jar ☐ 2x6" Sampler ☐ Split Spoon 1.5" x 18" 2" x 18" 3" x 12" ☐ Other:		☐ 2.5 feet ☐ 5 feet ☐ 10 feet ☐ Contin. Core ☐ Other:		Sheet _____ of _____	
							Diameter: 1 1/2"						Start Time: 7:40 Date: 7/12/07	
Boring Depth: _____ Depth Ground Water Encountered: _____ Casing Depth/Diameter: _____							Foreman: MRL Reid		Logged By: MRL					
Contractor: OEC							Well Construction Summary							
OVM (ppm)	Sample I.D.	Time	Blow Count	Well		Depth in Feet	USCS Designation	Depth (feet)	Casing	Depth (feet)	Annulus	Surface Completion:		
				Casing	Annulus			_____ to _____	_____ to _____	_____ to _____	_____ to _____			
78.2	No Soil Sampling					0	ML T _{mo}	dark grayish brown (10YR 4/2)	SILT	31. moist, dense 1/16 fine grained sand, some fine sub-angular gravel. Hydrocarbon ODDR				
						1								
						2								
						3		light gray (10YR 7/1)	weathered T _{mo}	cherty angular fractured rock with fine grained micaceous				
						4		Refused	Sampler @ 3 feet					
						5								
						6								
						7								
						8								
						9								
						10								
						1								
						2								
						3								
						4								
						5								
						6								
						7								
						8								
						9								
						0								

Field Geologist : Deborah Fischer
 Checked By : Mike Rendina
 Drilling Company : West Hazmat
 Drilling Foreman : Doug Worley
 Drilling Method : CME-75
 : 8" Hollow Stem Auger
 Sampling Method : 1.5"x18" Split Spoon
 : 2.5"x5" Core Barrel
 Sampling Interval : 5 feet/ Continuous Core

Date Started : 3/3/01
 Date Completed : 3/3/01
 Northing : 2261834.592
 Easting : 6747061.248
 Elevation : 153.673
 Depth Ground Water :
 Encountered : NA
 Boring Depth : 50.5 feet

LOG OF BORING SP-6

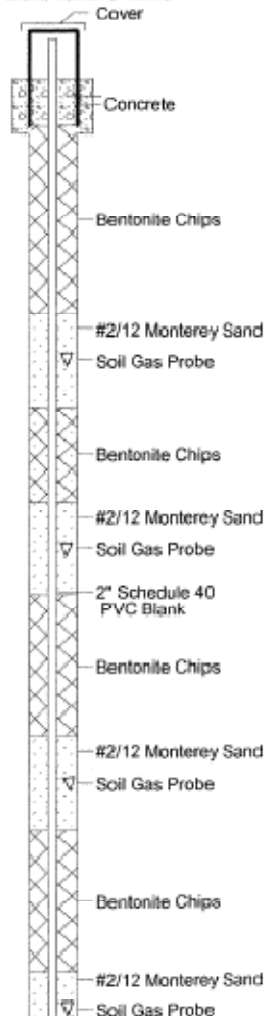
(Page 1 of 3)

Unocal Avila Pump Station
 Avila Beach, Ca

Project No. 526.001

Depth (ft)	Sample No.	Sample Depth	Blow Count (per foot)	OM (ppm)	Graphic Log	Soil Classification (USCS)	DESCRIPTION
0							Pismo Formation, Gragg Member (Tppg)
5	SP-6-5	62					Dark yellowish gray, SILTSTONE, slightly moist, soft, weathered, some orange iron oxidation, no odor. Yellowish gray, SILTSTONE, slightly moist, very soft, some hackly fracturing, poorly cemented, moderately weathered.
10	SP-6-10	79					Light to moderate yellow, SILTY SANDSTONE, slightly moist, very soft, friable, trace clay infilling of fractures, (clay is dusky yellowish brown), moderately weathered, some zones of cementation, trace iron staining, no odor. Yellowish gray, SANDSTONE, slightly moist, soft, very fine to fine-grained, poorly cemented, highly fractured, moderately weathered, spots of orange iron oxidation.
15	SP-6-15	50					Dark grayish yellow, SILTSTONE, slightly moist, soft, poorly cemented, horizontal fractures (fissile), areas of orange iron oxidation. Same as above, more hackly fracturing than fissile. Clay infilling fractures decreases below 19 feet, disappears below 23 feet, increase in orange iron oxidation from 23 to 25 feet.
20	SP-6-20	76					

Well: SP-6
 Elev.: 153.673 ft amsl



06-12-2001 N:\BORING LOGS\526.001\SP-6.BOR

ENGLAND
 GEOSYSTEM

Field Geologist : Jean Bolduc
 Checked By : Mike Rendina
 Drilling Company : West Hazmat
 Drilling Foreman : Steve Molera
 Drilling Method : CME 75
 : 8" Hollow Stem Auger
 Sampling Method : 1.5"x18" Split Spoon
 : 2.5"x5" Core Barrel
 Sampling Interval : 5 feet/ Continuous Core

Date Started : 3/4/01
 Date Completed : 3/4/01
 Northing : 2282231.911
 Easting : 5747385.538
 Elevation : 217.541 ft amsl
 Depth Ground Water :
 Encountered : NA
 Boring Depth : 125 feet

LOG OF BORING SP-7

(Page 1 of 1)

Unocal Avila Pump Station
 Avila Beach, CA

Project No. 526.001

Depth (ft)	Sample No.	Sample Depth	Blow Count (per foot)	OVMM (ppm)	Graphic Log	Soil Classification (USCS)	DESCRIPTION
0							Pismo Formation, Gragg Member (Tppg)
5	SP-7-5		87	0			Dusky yellow, SILTSTONE, moist, some very fine-grained sand, massive, no stain, no odor.
10	SP-7-10.5		91	0			Dusky yellow, SANDSTONE, moist, soft, friable, very fine- to fine-grained, some silt, massive, iron oxidized, no odor.
15	SP-7-15		89	0			Dusky yellow, SANDSTONE, moist, soft, very fine- to fine-grained, some silt, fissile, iron oxidized, no odor.
20	SP-7-20		50/ 6"	0			Dusky yellow, SANDSTONE, moist, soft, very fine-grained sand lenses, silty, poorly bedded, iron oxidized throughout, no odor. Hackly fracturing.
25	SP-7-25		89	0			Dusky yellow, SANDSTONE, moist, soft to moderate, very fine-grained sand, massive, iron oxidized, no odor.
30	SP-7-30		88	0			Grayish green interbed (1 foot thick). 0.5 foot thick fissile zone with liquid phase hydrocarbons. Dusky yellow, SANDSTONE, moist, soft, massive, some hard clasts (siltstone), no stain, no odor. Fissile zone with sheen after soaking in rain water, moderate hydrocarbon odor.
35	SP-7-35		99	0			Sharp color change. Grayish green, SILTSTONE, moist, soft, some very fine-grained sand, massive, no stain, no odor.
40	SP-7-40		89	0			Same as above.
45							Note: SP-7 terminated at 40 ft and backfilled with grout due to flooding inside tank berm caused by heavy rain. Relocated boring (SP-7A) on top of adjacent berm (approximately 5 ft higher in elevation) and drilled to 50 ft. Began sampling and coring SP-7A at 50 ft.

06-12-2001 N:\BORING LOGS\526.001\SP-7-7A.BOR

**ENGLAND
GEOSYSTEM**

Field Geologist : Jean Bolduc
 Checked By : Mike Rendina
 Drilling Company : West Hazmat
 Drilling Foreman : Steve Molera
 Drilling Method : CME 75
 : 8" Hollow Stem Auger
 Sampling Method : 1.5"x18" Split Spoon
 : 2.5"x5" Core Barrel
 Sampling Interval : 5 feet/ Continuous Core

Date Started : 3/4/01
 Date Completed : 3/5/01
 Northing : 2252231.911
 Easting : 5747385.538
 Elevation : 217.541 ft amsl
 Depth Ground Water :
 Encountered : NA
 Boring Depth : 125 feet

LOG OF BORING SP-7A

(Page 1 of 4)

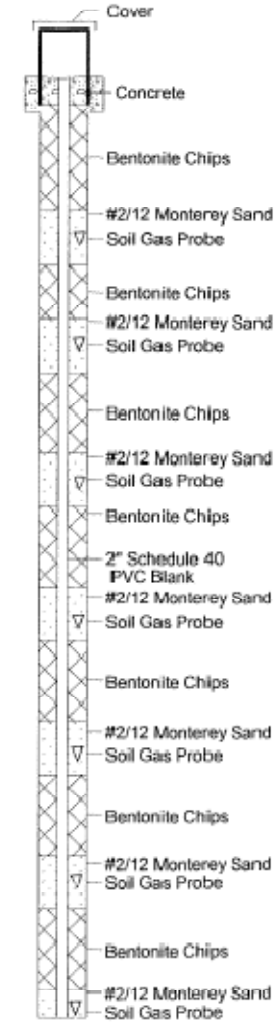
Unocal Avila Pump Station
 Avila Beach, CA

Project No. 526.001

Depth (ft)	Sample No.	Sample Depth	Blow Count (per foot)	Q/M (ppm)	Graphic Log	Soil Classification (USCS)	DESCRIPTION
0							Note: Began Continuous core at 50 feet. See log SP-7 for lithologic descriptions to 40 feet.
5							
10							
15							
20							
25							
30							
35							

Well: SP-7A

Elev.: 217.541 ft amsl



06-12-2001 N:\BORING LOGS\526.001\SP-7A.BOR

ENGLAND
 GEOSYSTEM

Field Geologist : Deborah Fischer
 Checked By : Mike Rendina
 Drilling Company : West Hazmet
 Drilling Foreman : Doug Worley
 Drilling Method : CME-75
 : 8" Hollow Stem Auger
 Sampling Method : 1.5"x18" Split Spoon
 : 2.5"x5" Core Barrel
 Sampling Interval : 5 feet
 : Continuous Core

Date Started : 3/5/01
 Date Completed : 3/5/01
 Northing : 2261815.113
 Easting : 5748044.32
 Elevation : 223.528 ft amsl
 Depth Ground Water :
 Encountered : 5.5 feet
 Boring Depth : 115.5 feet

LOG OF BORING SP-9

(Page 1 of 6)

Unocal Avila Pump Station
 Avila Beach, CA

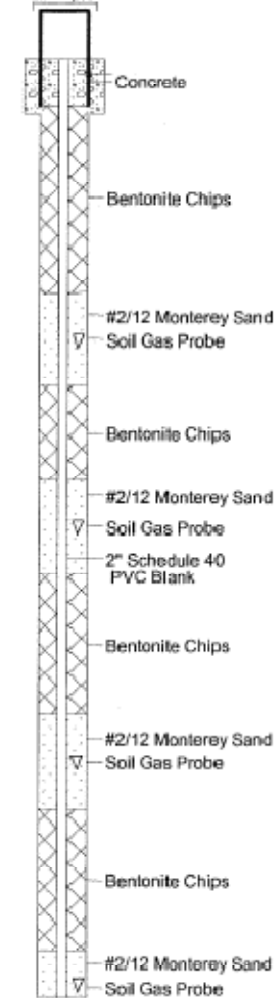
Project No. 526.001

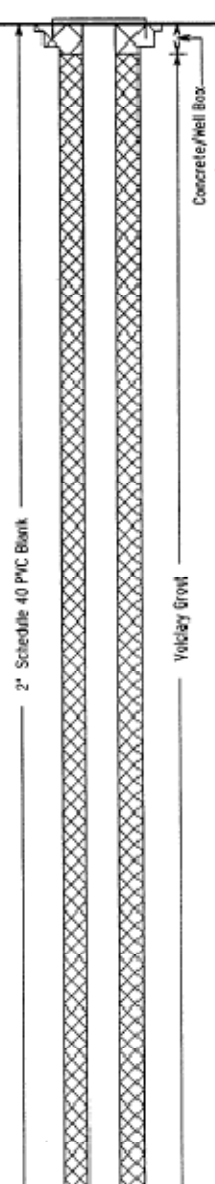
Depth (ft)	Sample No.	Sample Depth	Blow Count (per foot)	OWM (ppm)	Graphic Log	Soil Classification (USCS)	DESCRIPTION
0							Asphalt pavement.
							Pismo Formation, Gragg Member (Tpgg)
5	SP-9-5		72	0			Yellowish gray, SILTY SANDSTONE, slightly moist, very soft to soft, friable, very fine-grained, trace orange iron oxidation, no odor. Less friable, more fissile below 6.5 feet.
10	SP-9-10		72	0			Moderate yellow to yellowish gray, SILTY SANDSTONE, slightly moist, soft, very fine-grained, fissile with well cemented zones, some orange iron oxidation along fractures, petroleum odor. Less orange iron oxidation below 11.5 feet. Trace brown iron oxidation from 12 to 13 feet, trace brown clay infilling fractures from 13 to 13.5 feet and 14.5 to 15 feet.
15	SP-9-15		50	0			Same as above, more friable below 16 feet, slight petroleum odor.
20	SP-9-20		50	0			Same as above, zones of moderate orange iron oxidation.

Well: SP-9

Elev.: 223.528 ft amsl

Cover



FIELD GEOLOGIST: <i>Michael Rendina</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>11/25/97</i> FINISHED: <i>11/25/97</i> DRILLING COMPANY/FOREMAN: <i>J</i> DRILLING METHOD: <i>CME-95</i> SAMPLING METHOD: <i>Continuous</i> BORING DEPTH: <i>90 feet b.g.s.</i>					BORING NO: <i>B-149</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach, California</i> ELEVATION: <i>139.13 feet A.M.S.L.</i> EASTING: <i>5747187.125</i> NORTHING: <i>2262583.899</i>		
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	QVA (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION	WELL DIAGRAM
5	B-149-5				ss	Artificial Fill (Af) :poor recovery 10% Dark yellowish brown, SILTY SAND, moist, medium dense, fine- to medium-grained sand with silt, scattered fine gravel, porous, abundant rootlets, no staining, no odor.	
10	B-149-10					:~25% recovery Pale yellowish brown, SILTY SAND, dry to slightly moist, medium dense, fine-grained sand and silt, scattered cobble to boulder-sized fragments of Pismo sandstone, very porous, scattered nodules locally stained by asphalt, no odor.	
15	B-149-15					<u>Coluvium</u> (Qco) :~90% recovery Moderate yellowish brown, SILTY SAND, slightly moist, dense, fine-grained sand and silt, scattered coarse sand to fine gravel, very porous, no staining, no odor.	
20	B-149-20					Dark brownish black, SILTY SAND/SANDY SILT, moist, medium dense, very porous, fine sand and silt with scattered fine gravel, stained with black solid material (asphalt?), no odor. :scattered clasts of Pismo Formation	
25	B-149-25					<u>Gravel Member Pismo Formation</u> (Tpgg) Grayish yellow, SILTY SANDSTONE/SANDY SILTSTONE, slightly moist, hard, very fine-grained sand and silt, poorly bedded, fractured, no staining, no odor.	
30	B-149-30					:as above, fractured with dark brown clay coating and filling fractures, no staining, no odor.	
35	B-149-35					Grayish yellow, SANDY SILTSTONE, moist, hard, very fine-grained sand and silt, massive, highly fractured, brecciated with open fractures and/or pulverized material filling voids, highly weathered, no staining, no odor. :locally sheared	

FORM/FILE NAME: G:/NEO/LOGS/526-A/B149.LOG

ENGLAND &
ASSOCIATES

FIELD GEOLOGIST: <i>Raul Briones</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>8/28/97</i> FINISHED: <i>8/28/97</i> DRILLING COMPANY/FOREMAN: <i>Cascade Drilling/Travis Barrow</i> DRILLING METHOD: <i>CME 75 8" Hollow-Stem Auger</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>20 feet b.g.s.</i>					BORING NO: <i>B-124</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>225.72 feet A.M.S.L.</i> EASTING: <i>5748148.582</i> NORTHING: <i>2282059.239</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	QVM (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
5	B-124-5	28	13		ml	Dusky brown, CLAY/CLAYEY SILT, moist, firm to hard, moderately to highly plastic, micaceous, trace to some fine sand, slight hydrocarbon odor, hydrocarbon stain not discernable
10	B-124-10	48	0			Dusky brown to black, CLAY/CLAYEY SILT, as above, with inclusions of weathered diabase as oxidized nodules, no discernable stain, slight hydrocarbon odor.
15	B-124-15	48/8"	0			weathered bedrock (Diabase) Yellow to light tan, DIABASE BEDROCK, highly oxidized, highly weathered, fine- to coarse-grained, mottled with MnO or bitumen on fractures, no odor.
20	B-124-20	80/8"	0			as above Notes: Total depth 20 feet. No ground water encountered. Boring backfilled with Volclay grout.
25						
30						
35						
40						

FIELD GEOLOGIST: <i>Raul Briones</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>8/26/97</i> FINISHED: <i>8/27/97</i> DRILLING COMPANY/FOREMAN: <i>Cascade Drilling/Travis Barrow</i> DRILLING METHOD: <i>CME 75 8" Hollow-Stem Auger</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>25 feet b.g.s.</i>					BORING NO: <i>B-122</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>218.60 feet A.M.S.L.</i> EASTING: <i>5747954.041</i> NORTHING: <i>2262032.570</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	DVM (psi)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
5	B-122-5	12	540		cl	Artificial Fill Dusky brown, SANDY CLAY, very moist, soft, highly plastic, porous, strong petroleum odor. Dusky brown to black, SANDY CLAY, wet, soft, trace coarse sand and fine gravel, very strong petroleum odor.
10	B-122-10	50	270		SC	Dusky brown, CLAYEY SAND, moist, dense, fine-grained, trace fine gravel, porous, coarse medium size siltstone and sandstone clasts, moderate petroleum odor.
15	B-122-15	71	0			Grage Member, Plano Formation (Tppg) Light yellowish brown, SILTY SANDSTONE, slightly moist, moderately hard, very fine-grained, no/very light petroleum staining along fracture surface, moderate petroleum odor. Light yellowish to olive-brown, SILTY SANDSTONE, slightly moist, soft, breaks easily along irregular horizontal planes, very fine-grained, poorly graded, trace iron staining, some dark colored staining along fractures, MnO (?) speckles scattered throughout, no odor.
20	B-122-20	80	0			Light olive-brown, SILTY FINE SANDSTONE as above, iron oxide staining prominent throughout along fractures and pores, dusky brown clay seam along paper thin fractures, dusky brown to black bituminous or MnO inclusions, no odor or petroleum staining.
25	B-122-25	50	0			Light olive-brown, SILTY SANDSTONE as above, fine-grained, iron oxidized, no odor. Note: poor sample recovery, little slough from above in top of sample tube.
30						Notes: Total depth 25 feet. No ground water encountered. Boring backfilled with Volclay grout.
35						
40						

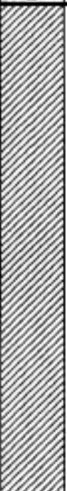
FIELD GEOLOGIST: <i>Raul Briones</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>8/29/97</i> FINISHED: <i>8/29/97</i> DRILLING COMPANY/FOREMAN: <i>Cascade Drilling/Travis Barrow</i> DRILLING METHOD: <i>CME 75 8" Hollow-Stem Auger</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>45 feet b.g.s.</i>					BORING NO: <i>B-117</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>209.11 feet A.M.S.L.</i> EASTING: <i>5747861202</i> NORTHING: <i>2262036.603</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	QVM (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
5	B-117-5	60	204		cl	<u>Coluvium (Gcol)</u> Dark gray-brown to black, SANDY CLAY, very moist, stiff to hard, plastic, fine to medium sand, visible free oil, strong petroleum odor. Black, CLAY as above, strong petroleum odor.
10	B-117-10	73	50			<u>Grigg Member Pismo Formation (Topg)</u> Light brown to tan, SANDY SILTSTONE, slightly moist, soft, poorly bedded, very fine-grained, little iron staining, faint petroleum odor. Light brown, SANDY SILTSTONE, slightly moist, soft, trace mica, poorly bedded, no iron oxidation observed, slight petroleum odor.
15	B-117-15	78	13			
20	B-117-20	80	0			Very light gray-brown to light grayish white, SILTY SANDSTONE, slightly moist, soft, very fine-grained, micaceous, porous, slight to no petroleum odor.
25	B-117-25	77	288			Gray, SANDY SILTSTONE, moist, very soft, easily crumbles, massive, trace petroleum odor. Light grayish brown, SILTSTONE, moist, micaceous, some very fine sand, trace iron banding, no bedding of internal structure, little dusky brown stain on fractured surface, slight petroleum odor. as above, no staining.
30	B-117-30	80	100			
35	B-117-35	87	0			Grayish green, SILTY SANDSTONE, interbed, unknown thickness. Greenish brown mottled, SANDSTONE, iron stained. Gray, SILTY SANDSTONE, slightly moist to moist, very soft, very fine-grained, poorly graded, poorly bedded, loose, no odor. Green, SANDY SILTY CLAY, wet in cuttings, no odor.
40						

FIELD GEOLOGIST: <i>Raul Briones</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>8/27/97</i> FINISHED: <i>8/27/97</i> DRILLING COMPANY/FOREMAN: <i>Cascade Drilling/Travis Barrow</i> DRILLING METHOD: <i>CME 75 8" Hollow-Stem Auger 20" Angle</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>55 feet b.g.s.</i>					BORING NO: <i>B-116</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>217.93 feet A.M.S.L.</i> EASTING: <i>5747848.238</i> NORTHING: <i>2262098.909</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	GVN (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
					sm	<u>Columbia (Gcol)</u> Gray-brown, SILTY SAND, dry, loose, trace fine gravel, no odor.
5	B-116-5	48	100		cl	Dusky brown to black, CLAY with very fine sand, very moist, soft, porous, petroleum stained, strong petroleum odor.
10	B-116-10	80	128			<u>Grage Member Pismo Formation (Tppg)</u> Light olive-brown, SILTY SANDSTONE, slightly moist, soft, iron stained mottling and petroleum stained mottling throughout, heaviest along fracture surface, moderate petroleum odor.
15	B-116-15	75	0			Olive-brown, SANDSTONE, slightly moist, soft, very fine-grained, poorly graded, micaceous, trace dusky brown to black inclusions scattered throughout, no petroleum odor.
20	B-116-20	50/5"	0			Olive-brown, SANDSTONE as above, fissile, micaceous, trace dusky brown inclusions throughout (spotty or speckled), no petroleum odor.
25	B-116-25	78	0			Light olive-brown, SILTY SANDSTONE, damp, very dense, poorly indurated, poorly graded, micaceous, slight, iron oxidized staining throughout, no odor.
30	B-116-30	77	0			Light olive to yellowish brown, SANDSTONE, slightly moist, soft, poorly graded, dusky brown stains less than 1/4-inch diameter throughout (petroleum?), no petroleum odor, little iron staining.
35	B-116-35	50	40			Light olive-brown, SANDSTONE as above, iron stained, no odor. Grayish green, SILTY SANDSTONE, slightly moist, soft, very fine-grained, poorly graded, very strong petroleum odor.

FIELD GEOLOGIST: <i>Zachary Dickson</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>9/17/97</i> FINISHED: <i>9/17/97</i> DRILLING COMPANY/FOREMAN: <i>/</i> DRILLING METHOD: <i>CME 85 Hollow-Stem Auger</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>40 feet b.g.s.</i>					BORING NO: <i>B-104</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>187.36 feet A.M.S.L.</i> EASTING: <i>5747571.105</i> NORTHING: <i>2262065.381</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	OVM (opm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
					ml	Dusky brown, CLAYEY SANDY SILT, moist, slightly plastic to firm, fine to coarse sand throughout, strong petroleum odor.
5	B-104-5	25	513			Dusky brown, SANDY CLAYEY SILT, as above, visible macro pores, sporadically saturated with petroleum, strong odor.
10	B-104-10	25	33			Gray Member Pismo Formation (Top) Gray to light brown, CLAYEY SILTSTONE, moist, dense, highly fractured siltstone, trace fine sand, petroleum staining wet, in fractures, strong petroleum odor.
15	B-104-15	32	60			as above, gray to light brown, SILTSTONE.
20	B-104-20	27	65			Light gray to light brown, SANDY SILTSTONE, moist, very dense, trace to some very fine sand, fractured, visible petroleum staining and locally wet on fractures, strong odor.
25	B-104-25	45	33			Light olive-gray to light olive-brown, SILTSTONE, moist, very dense, trace to very fine sand, highly fractured, minor petroleum staining on fractures, notable decrease from above, petroleum staining and odor.
30	B-104-30	50/6"	37			Light olive gray, SANDSTONE, moist, dense to very dense, very fine- to medium-grained, poorly graded, no visible petroleum, possible slight odor.
35	B-104-35	50/6"	0			Light olive, SANDSTONE, moist, dense to very dense, very fine- to medium-grained, poorly graded, no visible petroleum staining, no odor. as above, light olive, SANDSTONE.
40	B-104-40	55	101			Notes: Total depth 40 feet. No ground water encountered. Boring backfilled with Volclay grout.

FIELD GEOLOGIST: <i>Raul Briones</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>9/11/97</i> FINISHED: <i>9/11/97</i> DRILLING COMPANY/FOREMAN: <i>Cascade Drilling/Daryl</i> DRILLING METHOD: <i>8" Hollow-Stem Auger</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>65 feet b.g.s.</i>					BORING NO: <i>B-96</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>183.80 feet A.M.S.L.</i> EASTING: <i>5747536.951</i> NORTHING: <i>2261868.738</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	QVM (cpm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
5	B-96-5	54	30		SM	Colloidal (Bcol) Grayish brown, SILTY SAND, dry, loose, fine- to medium-grained, no odor.
					cl	Very hard, very dusky brown to black, siltstone clasts, dry, oil stained, very slight odor. Pale brown, SILTY SAND, slightly moist, dense, fine-grained, no odor.
						Dusky brown, SANDY CLAY, moist, hard, porous, plastic, sandstone clasts throughout, slight petroleum odor.
10	B-96-10	-	5			Grain Member Pisao Formation (Tppg) Pale brown, SILTY SANDSTONE, slightly moist, soft, fine- grained, moderately weathered, slight petroleum odor.
						Pale yellowish to olive-brown, SANDY SILTSTONE, moderately hard, very fine-grained, iron oxide staining, slight petroleum odor.
15	B-96-15	80	7			Light yellowish brown, SILTY SANDSTONE, slightly moist, very soft, fine-grained, iron stained veinlets throughout, porous, very slight petroleum odor.
20	B-96-20	150	130			Light olive-brown, SILTY SANDSTONE, iron stained fractured, dusky brown oil stained. Pale green, SILTY FINE SANDSTONE, slightly moist, very dense, very fine-grained, dusky brown mottling (oil staining) has petroleum odor.
25	B-96-25	150	4			Moderate olive-brown, SILTY SANDSTONE, slightly moist, soft, very fine-grained, iron oxide staining, sheared fracture surface, scattered dusky brown stains (very few), slight to moderate petroleum odor.
30	B-96-30	105	15			Pale green, SANDSTONE, moist, soft, very fine-grained, poorly graded, iron oxide stained, few scattered dusky brown stains, very slight odor.
35	B-96-35	90/6"	6			Moderate olive-brown, SILTY SANDSTONE, moist, soft, very fine-grained, porous, iron oxidized grains and pores throughout, trace dusky brown bituminous stains, very faint petroleum odor.

FIELD GEOLOGIST: Zachary Dickson CHECKED BY: Raul Briones DATE STARTED: 9/18/97 FINISHED: 9/18/97 DRILLING COMPANY/FOREMAN: / DRILLING METHOD: CME 85 Hollow-Stem Auger SAMPLING METHOD: 2x18" Split-Spoon, 5' Intervals BORING DEPTH: 60 feet b.g.s.					BORING NO: B-95 PROJECT NUMBER: 526-A PROJECT NAME: Avila Station LOCATION: Avila Beach ELEVATION: 175.40 feet A.M.S.L. EASTING: 5747519.432 NORTHING: 2261998.257	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	QVM (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
					ml	<u>Colluvium (Gcol)</u> Dusky brown, SANDY SILT, moist, slightly plastic, fine- to medium-grained, poorly graded sand in silty matrix, at approximately 3-feet, heavily stained soil with strong petroleum odor. Dusky brown, SANDY SILT, as above, strong petroleum staining and strong petroleum odor.
5	B-95-5	30	<100			
10	B-95-10	45	131			Dusky brown, SILTY SAND/SANDY SILT, moist, stiff, slightly plastic, very fine- to medium sand in silty matrix, clasts of sandstone throughout, fractured sandstone in show, clay matrix fills sandstone fractures, strong petroleum staining and odor.
15	B-95-15	45	117			<u>Grage Member Pismo Formation (Topol)</u> Light gray to olive-gray, SANDSTONE, slightly moist, soft, very fine- to fine-grained, poorly graded, massive, petroleum staining on fractures, occasional oxidized zones (orange), strong petroleum odor.
20	B-95-20	60	220			Pale olive to light gray, SILTY SANDSTONE, moist, soft, very fine- to fine-grained, poorly graded sand, silty, massive, fractured, no visible petroleum staining, moderate petroleum odor.
25	B-95-25	50	95			Pale olive to light olive-gray, SANDSTONE, moist, soft, fine- to fine-grained, poorly graded, trace silt, massive, fractured, no visible petroleum staining, slight odor?
30	B-95-30	55	18			Light olive-gray to light olive, SANDSTONE, moist, soft, fine- to medium-grained, poorly graded, oxidized nodules (orange) throughout, highly fractured, trace silt, no discernable staining, slight petroleum odor.
35	B-95-35	38	44			Light olive-gray, SANDSTONE, as above, some discernable bedding, no visible petroleum staining, no odor.
40						

FIELD GEOLOGIST: <i>Raul Briones</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>9/4/97</i> FINISHED: <i>9/4/97</i> DRILLING COMPANY/FOREMAN: <i>Cascade Drilling/Travis</i> DRILLING METHOD: <i>8" Hollow-Stem Auger</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>65 feet b.g.s.</i>					BORING NO: <i>B-89</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>161.51 feet A.M.S.L.</i> EASTING: <i>5747370.729</i> NORTHING: <i>2261960.086</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	OVN (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
	B-89-1	77	0		cl	<u>Colton (Gcol)</u> Dusky brown, SILTY CLAY, with some coarse sand, dry, hard, porous, abundant rootlets throughout, no odor. Dusky brown, SILTY CLAY, very moist, stiff, trace fine sand, moderate petroleum odor.
5	B-89-5	37	30		Dusky brown, SILTY CLAY, as above, very porous, stiff to hard, trace oil in pores, moderate petroleum odor.	
10	B-89-10	30	180		Dusky brown, SILTY CLAY, very moist to wet, firm, plastic, some very fine sand, porous, strong petroleum odor.	
15	B-89-15	51	20		Dusky brown, SANDY CLAY, very moist to wet, firm, plastic, very fine sand, porous, moderate petroleum odor.	
20	B-89-20	72	5		sm	Dusky brown, SILTY SAND, very moist, dense, friable, poorly graded, some dark brown to black siltstone clasts, moderate petroleum odor.
25	B-89-25	82	50		Dusky brown, SILTY CLAYEY SAND, as above, moderate odor.	
30	B-89-30	80	520			<u>Gragg Member Pismo Formation (Tppg)</u> Yellowish and olive-brown mottled, SILTY SANDSTONE, weathered contact with Pismo Formation, very fine-grained, slight odor.
35	B-89-35	74	190		Pale brown, SILTY SANDSTONE, moist, very soft, fine-grained, iron stained, some medium brown mottling, moderate petroleum odor. seconding, fracture about 1/2-inch thick infilled with dark green sandy clay gouge (?) approximately 600 from vertical, moderate petroleum odor.	
40						Light olive-brown, SILTSTONE, slightly moist, moderately hard, black bituminous material scattered throughout, slight odor.
					Yellowish brown, SILTY SANDSTONE, slightly moist, very soft, iron stained pores, fine-grained, poorly graded, slight petroleum odor.	

FIELD GEOLOGIST: <i>Zachary Dickson</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>9/19/97</i> FINISHED: <i>9/19/97</i> DRILLING COMPANY/FOREMAN: <i>Cascade Drilling/Joseph Ticajen</i> DRILLING METHOD: <i>Mobile B-61 8" CME 85 Hollow-Stem Auger</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>64 feet b.g.s.</i>					BORING NO: <i>B-88</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>150.83 feet A.M.S.L.</i> EASTING: <i>5747273.792</i> NORTHING: <i>2261989.946</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	QVM (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
5	B-88-5	25	282		ml	<u>Colluvium (Qcol)</u> Dusky brown, SANDY SILT, moist, loose to medium dense, very fine- to medium-grained, no visible petroleum staining, moderate petroleum odor.
10	B-88-10	40	21			Dusky brown, SANDY SILT, moist, medium dense, very fine to medium sand in silty matrix, occasional macro pores and rootlets, locally wet zones of petroleum, some petroleum staining, strong petroleum odor.
15	B-88-15	35	91			Dusky brown, SANDY SILT, moist, medium dense, very fine to medium sand in silt matrix, large Pismo sandstone clasts in matrix, no discernable petroleum staining, moderate petroleum odor.
20	B-88-20	50/6"	25			;begin harder drilling <u>Grain Member Pismo Formation (Tppg)</u> Light gray, SANDSTONE, moist, soft, fine- to very fine-grained, poorly graded, well bedded, slightly oxidized (orange) throughout, occasional black grains noted, no petroleum stains, slight petroleum odor. ;note slightly fractured with silty clay infilling
25	B-88-25	50/6"	110			Light gray to light olive, SANDSTONE, moist, soft, very fine- to fine-grained, poorly graded, highly oxidized (orange) throughout, fractured, no petroleum staining, slight petroleum odor.
30	B-88-30	50/6"	92			Light olive-gray, SANDSTONE, as above, no discernable petroleum staining, slight petroleum odor.
35	B-88-35	50/6"	263			Light olive-brown, SANDSTONE, as above, moist, soft, very fine- to fine-grained, poorly graded, fractured, massive, trace visible petroleum along fractures, slight odor.

FIELD GEOLOGIST: <i>Raul Briones</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>9/10/97</i> FINISHED: <i>9/11/97</i> DRILLING COMPANY/FOREMAN: <i>Cascade Drilling/Daryl</i> DRILLING METHOD: <i>8" Hollow-Stem Auger</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>65 feet b.g.s.</i>					BORING NO: <i>B-84</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>180.26 feet A.M.S.L.</i> EASTING: <i>5747287.924</i> NORTHING: <i>2262166.007</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	OVM (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
					SM	<u>Colevum (Gco)</u> Dusky brown, SILTY SAND, slightly moist, very dense, fine-grained with gravel sandstone clasts, some coarse sand, moderate petroleum odor.
5	B-84-5	100/4"	38			<u>Grage Member Pismo Formation (Tppg)</u> Pale brown, SANDY SILTSTONE, slightly moist, moderately hard, very fine-grained, iron oxidized laminations, dusky brown silty clayey soil lined fracture surfaces, no odor.
10	B-84-10	150	110			Light olive-brown, SILTSTONE, slightly moist, hard, porous, iron oxide stained pores, dark orange brown iron oxide stained surface, very slight petroleum odor (?).
15	B-84-15	-	450			Light olive, CLAYEY SILTSTONE, slightly moist, moderately hard, iron oxide staining along fractures, scattered well indurated siltstone clasts, shoe is light green, moderate petroleum odor.
20	B-84-20	-	>1000			Light olive-brown, CLAYEY SILTSTONE, as above, moderately hard, slight to moderate petroleum odor.
25	B-84-25	60/4"	>1000			Light olive-brown, SILTY CLAYSTONE, slightly moist, moderately hard, fissile, iron oxide staining, dusky brown stained fracture surfaces, moderate petroleum odor.
30	B-84-30	-	120			Dusky yellow-green, CLAYEY SILTSTONE, slightly moist, moderately hard, trace very fine sand, iron oxide stained fracture surfaces, trace oil on fracture surface, slight petroleum odor.
35	B-84-35	80	800			Dusky yellow-green, CLAYEY SILTSTONE, as above, no visible oil, slight to moderate petroleum odor.

FIELD GEOLOGIST: <i>Raul Briones</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>9/3/97</i> FINISHED: <i>9/3/97</i> DRILLING COMPANY/FOREMAN: <i>Cascade Drilling/Travis Barrow</i> DRILLING METHOD: <i>CME 75 8" Hollow-Stem Auger</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>45 feet b.g.s.</i>					BORING NO: <i>B-76</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>202.62 feet A.M.S.L.</i> EASTING: <i>5747367.776</i> NORTHING: <i>2261235.110</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	QVM (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
	B-76-1	-	0			<u>Obispo Formation (Two)</u> Orange, TUFFACEOUS SANDSTONE, highly weathered, fractured, disturbed sample, very hard, highly iron oxidized, fine- to coarse-grained, no odor.
5	B-76-5	64	31		sc	Dark yellowish orange, TUFFACEOUS SANDSTONE, as above. Moderate olive brown, SILTY SANDSTONE interbed, soft, very fine-grained, moderate petroleum odor.
10	B-76-10	50	13			Dusky brown, SILTSTONE, slightly moist, very fractured, moderately hard, subparallel nearly vertical fracturing, strong petroleum odor.
15	B-76-15	50	77			Dusky brown, SILTSTONE, slightly moist, hard, subparallel nearly vertical fracturing, strong petroleum odor - fault gouge?
20	B-76-20	-	77			no recovery - slough in sampler.
25	B-76-25	60	90			Moderate brown, SILTSTONE, slightly moist, hard, some very fine sand, iron oxidized layers about 1/4-inch thick, slight to moderate petroleum odor.
30	B-76-30	65	35			Dusky to moderate brown, SILTSTONE, as above, iron stained pin-pores throughout, slight odor. Moderate yellowish brown to green mottled, SANDY SILTSTONE, slightly moist, soft, very fine-grained, iron stained, slight petroleum odor.
35	B-76-35	60	0			White, orange iron stained, TUFFACEOUS SANDSTONE, slightly moist, very hard, fine-grained, laminated, iron oxidized bedding, no odor. White and orange iron oxidized (mottled) BRECCIATED TUFF, clayey to silty matrix with angular to subangular coarse-grained tuffaceous sandstone clasts, no odor.
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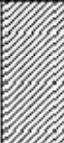
FIELD GEOLOGIST: <i>Raul Briones</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>9/4/97</i> FINISHED: <i>9/4/97</i> DRILLING COMPANY/FOREMAN: <i>Cascade Drilling/Travis Barrow</i> DRILLING METHOD: <i>CME 75 8" Hollow-Stem Auger</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>60 feet b.g.s.</i>					BORING NO: <i>B-67</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>176.50 feet A.M.S.L.</i> EASTING: <i>5747251.482</i> NORTHING: <i>2261730.555</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	OWM (opm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
	B-67-1	40	0		SM	Column (60') Dusky brown, SILTY SAND, slightly moist, dense, gravel size sandstone clasts abundant, well graded, fine to coarse sand, slightly plastic, porous, no odor. Grain Member Phase Formation (Top) Moderate yellow brown, SILTY SANDSTONE, strong gasoline odor at 3-feet. Pale yellowish brown, SANDSTONE, slightly moist, soft, fine-grained, poorly graded, iron stained pores throughout, some silt, moderate gasoline odor.
5	B-67-5	50	22			
10	B-67-10	50	131			Pale yellowish brown, SILTY SANDSTONE, slightly moist, moderately hard, fine-grained, some iron staining, porous, dark brown very moist clay film along fracture surfaces, moderate gasoline odor.
15	B-67-15	76	40			Pale olive to pale yellowish brown, SILTY SANDSTONE, slightly moist, hard, porous, little to iron oxidation, some yellow staining, little gasoline odor.
20	B-67-20	82	480			Pale yellowish brown, SANDY SILTSTONE, slightly moist, soft to hard interbedded zones, very fine-grained, porous, some iron stained pores mottling in second ring, slight gasoline odor.
25	B-67-25	78	95			Pale yellowish brown, SANDSTONE, moist, soft, yellow stained mottling throughout, some iron oxidation, very fine-grained, very slight petroleum odor.
30	B-67-30	50	50			Light brownish gray, SANDSTONE, slightly moist, moderately hard, some dark specks (bituminous?) scattered throughout, porous, some iron oxidized staining, slight odor to no odor. Greenish gray, SANDSTONE, as above, with slight to moderate petroleum odor.
35	B-67-35	81	40			Pale yellowish brown, SANDY SILTSTONE, slightly moist, very hard, very fine-grained, iron oxidized fractured surfaces, very slight petroleum odor.
40						

FIELD GEOLOGIST: <i>Raul Briones</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>9/4/97</i> FINISHED: <i>9/4/97</i> DRILLING COMPANY/FOREMAN: <i>Cascade Drilling/Travis Barrow</i> DRILLING METHOD: <i>CME 75 8" Hollow-Stem Auger</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>50 feet b.g.s.</i>					BORING NO: <i>B-66</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>175.98 feet A.M.S.L.</i> EASTING: <i>5747250.040</i> NORTHING: <i>2261763.193</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	QVM (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
	B-66-1	38	700		ml	<u>Colluvium (Gcol)</u> Brownish black, SANDY SILT, moist, firm, very fine sand, impacted with petroleum, very strong petroleum odor.
5	B-66-5	30	32		cl	Brownish black, SANDY SILTY CLAY, very moist, stiff, abundant sandstone clasts, very strong petroleum odor.
10	B-66-10	71	220			<u>Grage Member Pismo Formation (Tppg)</u> Pale yellowish brown, SILTY SANDSTONE, slightly moist, hard, fine-grained, poorly graded, porous, fractured, slight petroleum odor. Pale yellowish brown, SILTY SANDSTONE, slightly moist, soft, fine-grained, poorly graded, iron oxidation staining throughout, dark brown clay along fracture surfaces, moderate to strong gasoline odor.
15	B-66-15	77	25			Pale yellowish brown, SILTY FINE SANDSTONE, slightly moist, very dense, very fine-grained, poorly graded, iron oxidized clay filled fractures, slight to moderate petroleum odor.
20	B-66-20	93	18			Pale yellowish brown to light olive-brown, SILTY FINE SANDSTONE, as above, dark brown clay filled fracture (1/16-inch thick), dark brown stains (<1/16") throughout, possibly bituminous (?), very strong odor.
25	B-66-25	75	0			Light olive-brown, SILTY SANDSTONE, slightly moist, moderately hard fine-grained, poorly graded, breaks easily along horizontal bedding planes about 1/4-inch thick, iron stained pores and stringers throughout, slight petroleum odor. olive-brown, SANDY SILTSTONE, in shoe of sample, very slight odor.
30	B-66-30	89	15			Light olive-brown, SILTY SANDSTONE, as above, slight petroleum odor.
35	B-66-35	77	0			Light olive-brown, SILTY SANDSTONE, slightly moist, soft, very fine-grained, little iron staining, slight petroleum odor.
40						

FIELD GEOLOGIST: <i>Raul Briones</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>9/8/97</i> FINISHED: <i>9/8/97</i> DRILLING COMPANY/FOREMAN: <i>Cascade Drilling/Daryl Metzger</i> DRILLING METHOD: <i>CME 75 8" Hollow-Stem Auger, 20' Angle Boring</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>41.5 feet b.g.s.</i>					BORING NO: <i>B-55</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>116.68 feet A.M.S.L.</i> EASTING: <i>5746900.229</i> NORTHING: <i>2261963.475</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	DVM (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
					cl	Asphalt paved shoulder
						<u>Columbian (Gcol)</u> Dusky brown, SILTY CLAY, very moist, very stiff, plastic, trace very fine sand, wood fragments encountered during hand augering, moderate asphaltic hydrocarbon odor.
5	B-55-5	35	25			Brownish black, SILTY CLAY, as above, moderate asphaltic petroleum odor.
						Brownish black, SILTY CLAY, medium plasticity, moderate odor.
10	B-55-10	35	25			Dusky brown, SILTY CLAY, as above, high plasticity, moderate to strong petroleum odor.
						Brownish black, SILTY CLAY with very fine sand, very moist to wet, some black angular coarse sand granules scattered throughout, oily sheen observed on sample, strong petroleum odor.
15	B-55-15	58	0			
20	B-55-20	58	0			Dusky brown, SANDY CLAY, moist, stiff, plastic, very fine sand, slight petroleum odor. :yellowish brown sandstone clasts in shoe of sampler.
					sp	Dusky brown, SAND, moist, dense, poorly graded, fractured sandstone clasts throughout, slight to moderate petroleum odor.
25	B-55-25	80	0			<u>Grage Member Pismo Formation (Tppg)</u> Light olive-brown, SANDY SILTSTONE, moderately hard, very fine-grained, no odor. :ground water encountered at 27-29 feet.
30	B-55-30	73	0			Pale olive-green, fractured SILTSTONE, water filled fractures, moderately hard zones, soft interbeds are clayey, slight to moderate petroleum odor.
						Variegated dark green to yellowish green, SANDSTONE, very moist, soft, fine- to medium-grained, iron oxide staining throughout, no odor.
35	B-55-35	80	0			Crushed brown chert, mixed with slough at top of sampler, dusky yellow green variegated, SANDSTONE, moist, hard, poorly graded, fine-grained, iron stained, slight petroleum odor.

FIELD GEOLOGIST: <i>Raul Briones</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>9/10/97</i> FINISHED: <i>9/10/97</i> DRILLING COMPANY/FOREMAN: <i>Cascade Drilling/Daryl Metzger</i> DRILLING METHOD: <i>CME 850 8" Hollow-Stem Auger</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>30 feet b.g.s.</i>					BORING NO: <i>B-53</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>115.05 feet A.M.S.L.</i> EASTING: <i>5746909.357</i> NORTHING: <i>2262043.163</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	OVN (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
5	B-53-5	40	>1000		cl	Poorly paved asphalt surface. <u>Colluvium (Qcol)</u> Brownish black, SANDY CLAY, wet, soft, plastic, very fine-grained sand, moderate to strong petroleum odor. about 6-inches standing water in hand augered boring. Brownish black, LEAN CLAY, wet, firm, high plasticity, some very fine sand, scattered green siltstone clasts, strong petroleum odor.
10	B-53-10	100	350			<u>Grigg Member Pismo Formation (Tppg)</u> Pale olive, SILTSTONE, slightly moist, hard, trace very fine sand, dark brown soil filled fractures, little iron oxide staining, slight petroleum odor.
15	B-53-15	70	45			Grayish green, CLAYSTONE, slightly moist, hard, highly fractured, iron oxide staining throughout, heavy along fractures, visible free oil on some fracture surfaces, moderate petroleum odor.
20	B-53-20	100	100			Dusky green, SANDY SILTSTONE, very moist to wet, soft, very fine-grained, trace angular gravel clasts, free oil seeping from pores, little iron oxide staining, strong petroleum odor. ground water encountered at 21 feet, free oil and water in cuttings.
25	B-53-25	-	480			Dusky green, SILTY SANDSTONE, very moist to wet, soft, very fine-grained, well indurated sandstone clasts, little iron oxide staining, porous, trace oil in some pores, moderate to strong petroleum odor.
30	B-53-30	200	500			Grayish green, SANDSTONE, moist, very soft, fine-grained, poorly graded, friable, some dark olive-brown mottled staining, strong petroleum odor, trace free oil on coarse-grained clasts. Notes: Total depth 30 feet. Ground water encountered at ~21 feet. Boring backfilled with Volclay grout.
35						
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FIELD GEOLOGIST: <i>Zachary Dickson</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>9/25/97</i> FINISHED: <i>9/25/97</i> DRILLING COMPANY/FOREMAN: <i>Cascade Drilling/Joseph Ticajen</i> DRILLING METHOD: <i>Mobile B-61 8" CNE 85 Hollow-Stem Auger</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>30 feet b.g.s.</i>					BORING NO: <i>B-52</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>125.48 feet A.M.S.L.</i> EASTING: <i>5746946.554</i> NORTHING: <i>2262112.247</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	QVH (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
					gw	Artificial Fill (AF) Aggregate base to 1 to 2 feet.
					cl	SILTY SANDY CLAY to 3 feet. <u>Graco Member Pismo Formation (Tppg)</u>
5	B-52-5	15	87			Light olive-brown, SANDSTONE, moist, soft, very fine- to fine-grained, poorly graded, massive to poorly bedded, moderately fractured, moderate staining, moderate diesel odor.
10	B-52-10	50/6"	108			as above, moderate to strong petroleum staining, slight diesel odor.
15	B-52-15	50/6"	115			Pale olive, SANDSTONE, moist, soft, very fine- to fine-grained, poorly graded, highly fractured, well bedded, oxidized orange throughout, clay in-filling fractures, moderate to strong hydrocarbon staining, strong diesel odor.
20	B-52-20	50/6"	98			ground water encountered Light olive-brown, SANDSTONE, wet along fractures, soft, as above, moderate petroleum staining along fractures, slight diesel odor.
25	B-52-25	50/6"	42			several feet of water accumulated in bore hole. Light brown, SANDSTONE, wet along fractures, soft, very fine- to fine-grained, poorly graded, highly fractured, well bedded, very slight petroleum staining on fractures, no odor to very slight odor.
30	B-52-30	50/6"	48			Light brown, SANDSTONE, wet along fractures, soft, very fine- to fine-grained, poorly graded, well bedded, highly fractured, petroleum sheen and droplets on water and on sample and sampler, slight to moderate diesel odor.
35						Notes: Total depth 30 feet. Ground water encountered at 20 feet. Boring backfilled with Volclay grout

FIELD GEOLOGIST: <i>Raul Briones</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>9/25/97</i> FINISHED: <i>9/25/97</i> DRILLING COMPANY/FOREMAN: <i>West Hazmat/Henry Suffle</i> DRILLING METHOD: <i>CME 85 8" Hollow-Stem Auger</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>55 feet b.g.s.</i>					BORING NO: <i>B-49</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>122.91 feet A.M.S.L.</i> EASTING: <i>5748850.550</i> NORTHING: <i>2262149.816</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	QVM (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
					cl	2" Asphaltic concrete over 6" aggregate base <u>Coliseum (lscd)</u> Black, SILTY CLAY, moist, very stiff, high plasticity, trace fine sand and fine gravel, strong petroleum odor.
5	B-49-5	35	350			Black, SILTY CLAY as above, very moist, very stiff, plastic, trace coarse sand, porous, strong petroleum odor.
10	B-49-10	80	200			Dusky brown, SILTY CLAY with very fine sand, moist, very stiff, plastic, porous, trace well rounded pebbles, moderate petroleum odor.
15	B-49-15	-	215		sm	Dusky brown, SILTY SAND, slightly moist, very dense, fine-grained, some partially laminated zones, very porous, some black oily surfaces, gravel clasts with oily coating, strong petroleum odor.
20	B-49-20	50	100		ml	Dusky brown, SANDY SILT with CLAY, very moist, stiff, very fine-grained, porous, trace olive siltstone clasts, moderate petroleum odor.
25	B-49-25	50	50		sm	Dusky brown, SILTY SAND, moist, dense, very fine-grained, porous, trace siltstone clasts, moderate petroleum odor.
30	B-49-30	50	25		cl	Dusky brown, SANDY CLAY, moist, very stiff, very fine-grained, porous, angular siltstone clasts scattered throughout (flat pebbles), slight to moderate petroleum odor.
						ground water encountered
35	B-49-35	70	10			<u>Gragg Member Playa Formation (Topol)</u> Moderate green, SANDSTONE, very moist to wet, soft, fine-grained, poorly graded, some silt, little iron oxide staining, some dark brown bituminous (?) staining, black plastic clay film in fracture, slight petroleum odor.
40						

FIELD GEOLOGIST: <i>Zachary Dickson</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>9/25/97</i> FINISHED: <i>9/25/97</i> DRILLING COMPANY/FOREMAN: <i>Cascade Drilling/Joseph Ticajen</i> DRILLING METHOD: <i>Mobile B-61 8" Hollow-Stem Auger</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>20 feet b.g.s.</i>					BORING NO: <i>B-47</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>114.13 feet A.M.S.L.</i> EASTING: <i>5746824.051</i> NORTHING: <i>2262025.203</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	QVM (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
5	B-47-5	4			cl	<u>Colluvium (Dcol)</u> Dark brown, SANDY CLAY, soft, slightly plastic to highly plastic in zones, very fine to fine sand, poorly graded, silty, visible petroleum staining, strong petroleum odor.
10	B-47-10	13			SM	Dark brown, SILTY SAND, moist to wet, dense, very fine to medium sand, slightly plastic to friable, visible free petroleum, strong petroleum odor.
15	B-47-15	19				:ground water encountered. Dark brown, CLAYEY SAND, saturated, loose to medium dense, very fine- to medium-grained, poorly graded, silty, slightly to moderately plastic, visible petroleum on water and throughout sample, strong hydrocarbon odor.
20	B-47-20	40			cl	Dark brown, SANDY CLAY, moist to wet throughout, free water in fractures slightly to moderately plastic, visible petroleum staining, strong odor.
25						Notes: Total depth 20 feet. Ground water encountered at ~ 15 feet. Boring backfilled with Volclay grout.
30						
35						
40						

FIELD GEOLOGIST: <i>Michael Rendina</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>9/23/97</i> FINISHED: <i>9/23/97</i> DRILLING COMPANY/FOREMAN: <i>West Hazmat/Henry Sufite</i> DRILLING METHOD: <i>CNE #5 8" Hollow-Stem Auger</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>61 feet b.g.s.</i>						BORING NO: <i>B-36</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>91.02 feet A.M.S.L.</i> EASTING: <i>5746742.825</i> NORTHING: <i>2261825.439</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	QVM (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION	WELL DIAGRAM
						<i>Column (ft)</i>	
5	B-36-5	55	19			<i>Chico Formation (Two)</i> Mottled light gray and medium yellowish brown, TUFFACEOUS CLAYSTONE, slightly moist, soft, highly to completely weathered, clayey, no staining, no odor.	
10	B-36-10	52	112			Variegated light yellowish gray and reddish brown, TUFFACEOUS CLAYSTONE, moist, soft to moderately hard, highly weathered, sheared, very fine-grained, clayey, no staining, no odor.	
15	B-36-15	65	173			as above, no staining, no odor.	
20	B-36-20	85	16			Variegated olive-gray and yellowish brown, TUFFACEOUS SILTSTONE, slightly moist, moderately hard, thinly bedded, fissile, slightly weathered, slight staining, slight odor.	
25	B-36-25	90	-			Variegated medium gray and medium reddish brown, TUFFACEOUS SILTSTONE, moist, moderately hard, fine-grained, thinly bedded, locally fissile, fractured, no staining, no odor.	
30	B-36-30	100	-			Variegated medium gray and light brown, TUFFACEOUS SILTSTONE, moist, hard, fine-grained, silt with trace clay, highly fractured, blocky, poorly bedded, no staining, no odor.	
35	B-36-35	98	-			Variegated reddish brown and light gray, TUFFACEOUS SILTSTONE, moist, hard, more clayey, sheared, very disturbed, no staining, no odor.	

FORM/FILE NAME: G:/MED/LOGS/526-A/B36.LOG

ENGLAND &
ASSOCIATES

FIELD GEOLOGIST: <i>Raul Briones</i>				BORING NO: <i>B-34</i>		
CHECKED BY: <i>Raul Briones</i>				PROJECT NUMBER: <i>526-A</i>		
DATE STARTED: <i>9/25/97</i> FINISHED: <i>9/25/97</i>				PROJECT NAME: <i>Avila Station</i>		
DRILLING COMPANY/FOREMAN: <i>West Hazmat/Henry Suffle</i>				LOCATION: <i>Avila Beach</i>		
DRILLING METHOD: <i>CME 85 8" Hollow-Stem Auger</i>				ELEVATION: <i>111.54 feet A.M.S.L.</i>		
SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i>				EASTING: <i>5746779.459</i>		
BORING DEPTH: <i>60 feet b.g.s.</i>				NORTHING: <i>2261964.869</i>		
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	QVM (gpm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
					cl	Colored (fossil) Dusky brown, SANDY CLAY.
5	B-34-5	58	250		sm	Moderate brown, SILTY SAND, slightly moist, very dense, slight odor.
						Green, SANDY SILTSTONE, slightly moist, very dense, moderately indurated, fractured, oil stained fractures, trace free oil, very fine sand, moderate petroleum odor.
10	B-34-10	35	250		cl	Dusky brown, SILTY CLAY, very moist, stiff, plastic, porous, trace fine sand, moderate petroleum odor.
15	B-34-15	-	220		ml	Dusky brown, SANDY SILT, very moist to wet, slightly plastic, very fine-grained, porous, moderate petroleum odor.
20	B-34-20	48	180			Dusky brown, SILTY SAND/SANDY SILT, very moist to slightly wet, dense/stiff, slightly plastic, very fine-grained, moderate petroleum odor.
25	B-34-25	55	245			as above, sandier, very moist, very porous.
30	B-34-30	42	120		sm	Dusky brown, SILTY SAND, very moist to wet, dense, porous, trace fine gravel and some siltstone clasts scattered throughout, moderate petroleum odor.
35	B-34-35	52	50		cl	Grayish brown, SANDY CLAY, very moist, stiff, plastic, very fine sand, some siltstone clasts scattered throughout, slight to moderate petroleum odor.
40						

FIELD GEOLOGIST: <i>Raul Briones</i> CHECKED BY: <i>Raul Briones</i> DATE STARTED: <i>9/8/97</i> FINISHED: <i>9/8/97</i> DRILLING COMPANY/FOREMAN: <i>Cascade Drilling/Daryl Metzger</i> DRILLING METHOD: <i>GME 75 8" Hollow-Stem Auger, 20" Angle Boring</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>41 feet b.g.s.</i>					BORING NO: <i>B-32</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>11158 feet A.M.S.L.</i> EASTING: <i>5746724.217</i> NORTHING: <i>2262047.446</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	QVH (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
						4" Asphaltic concrete over 4" aggregate base
					cl	<i>Calistoga (Geol)</i> Black, CLAY, very moist, very stiff, plastic, trace very fine sand, at about 3-feet abundant green sandstone clasts in hand auger cuttings, strong petroleum odor.
5	B-32-5	75	140			<i>Crago Member Pismo Formation (Top)</i> Grayish green, SANDY SILTSTONE, slightly moist, soft, very fine-grained, flat siltstone/claystone (black) pebbles scattered throughout, very light grayish brown clay fragments, strong gasoline odor.
10	B-32-10	70	40			Grayish green, SANDY SILTSTONE, as above, slightly moist, moderately hard, dark brown clay filled fracture, strong petroleum odor.
						Grayish green, SANDSTONE, wet, soft, fine-grained, poorly graded, friable, strong petroleum odor.
15	B-32-15	70	0			Grayish green, SANDSTONE, wet (second ring) to moist (shoe), soft, fine-grained, but slightly coarser at 10 feet, poorly graded, dark brown to black clay filled fractures ~1/16-inch thick, strong petroleum odor.
20	B-32-20	-	0			Grayish green, friable, SANDSTONE, as above, well but not saturated, yellowish brown iron oxide staining throughout, trace subrounded black coarse sand granules, moderate petroleum odor.
25	B-32-25	60	0		cl	Moderate yellowish brown, SANDSTONE, slightly moist, moderately hard, fine-grained, iron oxide staining, subrounded to flat angular pebbles, moderate odor.
						<i>Obispo Formation (Trace)</i> Pale yellowish brown to olive-brown lean CLAY, greenish colored material is a highly plastic clay with resistant brown, black and dark green, fine-grained, crystals scattered throughout, yellowish colored material has a fine-grained granular appearance (weathered tuff - possible fault gouge) that is easily crushed into a clayey silt, slight to little petroleum odor, sheared surfaces.
30	B-32-30	-	0			Variegated greenish yellow, brown, TUFFACEOUS SANDSTONE, fine- to medium-grained, iron oxide staining throughout, glass shards (?) abundant throughout, no odor.
35	B-32-35	50/5"	0			Light blue green, ASH FLOW DEPOSIT, slightly moist, soft, fine-grained sand, poorly indurated, poorly graded, some yellow-brown oxide staining along fracture surface, weathers to a white grayish color, no odor.
						Medium gray, ASH FLOW, as above, slightly moist, soft, fine-grained sand, poorly graded, porous, bright orange iron oxide staining throughout, no odor.

FIELD GEOLOGIST: <i>Raul Briones</i>				BORING NO: <i>B-31</i>	
CHECKED BY: <i>Raul Briones</i>				PROJECT NUMBER: <i>526-A</i>	
DATE STARTED: <i>9/6/97</i> FINISHED: <i>9/6/97</i>				PROJECT NAME: <i>Avila Station</i>	
DRILLING COMPANY / FOREMAN: <i>Cascade Drilling/Daryl Metzger</i>				LOCATION: <i>Avila Beach</i>	
DRILLING METHOD: <i>CNE 75 8" Hollow-Stem Auger, 20" Angle Boring</i>				ELEVATION: <i>111.69 feet A.M.S.L.</i>	
SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i>				EASTING: <i>5746679.344</i>	
BORING DEPTH: <i>20 feet b.g.s.</i>				NORTHING: <i>2262048.619</i>	

DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	QVM (ppm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
						4" Asphaltic concrete over 4" aggregate base
						Collection (2col) Black, CLAY, hard, very moist, plastic, trace fine sand, some silt, strong asphaltic petroleum odor.
						Grayish green, SANDY SILTSTONE CLASTS, slightly moist, moderately indurated, very fine-grained.
5	B-31-5	30	580			Black, CLAY, as above, slight oily sheen noted in pores, strong odor.
						Grain Member Plana Formation (Top) Grayish green, SANDY SILTSTONE, very moist, soft, very fine-grained, porous, strong petroleum odor.
						ground water encountered at ~8 to 9 feet.
10	B-31-10	73	350			Grayish green, SILTY SANDSTONE, very moist to wet, soft, very fine-grained, poorly graded, poorly indurated, brown petroleum stained fracture surfaces, strong petroleum odor, sheen observed on water.
15	B-31-15	50	250			Grayish green, SANDSTONE, oil/water wet, soft, poorly indurated, fine-grained, poorly graded, visible free oil, strong petroleum odor.
20	B-31-20	50	-			Grayish green, SANDSTONE, as above, visible free oil throughout, strong petroleum odor.
						Notes: Total depth 20 feet. Ground water encountered at ~8 feet. Boring backfilled with Volclay grout.
25						
30						
35						
40						

FIELD GEOLOGIST: <i>Raw Briones</i> CHECKED BY: <i>Raw Briones</i> DATE STARTED: <i>9/28/97</i> FINISHED: <i>9/28/97</i> DRILLING COMPANY/FOREMAN: <i>Nest Hazmat/Henry Suffle</i> DRILLING METHOD: <i>CME 85 8" Hollow-Stem Auger</i> SAMPLING METHOD: <i>2x18" Split-Spoon, 5' Intervals</i> BORING DEPTH: <i>19 feet b.g.s.</i>					BORING NO: <i>B-27</i> PROJECT NUMBER: <i>526-A</i> PROJECT NAME: <i>Avila Station</i> LOCATION: <i>Avila Beach</i> ELEVATION: <i>81.41 feet A.M.S.L.</i> EASTING: <i>5746835.210</i> NORTHING: <i>2281750.180</i>	
DEPTH (FEET)	SAMPLE NUMBER	BLOW COUNT (BLOWS/FT.)	QVM (opm)	GRAPHIC LOG	SOIL CLASS (USCS)	DESCRIPTION
5	B-27-5	43	250		sm	<u>Column (Ocol)</u> Dusky brown, SILTY SAND with GRAVEL, damp, loose, friable, medium gravel composed of various rock types, chert, sandstone (Pinto), and Obispo Volcanics, no odor.
					cl	Dusky brown, SANDY CLAYEY SILT, slightly moist, slightly plastic, stiff, porous, trace coarse sand, slight petroleum odor.
10	B-27-10	20	300		cl	Dusky brown to black, SANDY CLAY, very moist, stiff, plastic, little oil in pores, strong petroleum odor.
					sp	Dusky brown to black, SANDY SILT with CLAY, very moist to wet firm to stiff, very fine sand, oil film coating scattered pebbles, little oil seepage from pores, strong petroleum odor.
15	B-27-15	60	>300		sp	drilling getting harder Black, SAND, oil wet, dense, friable, fine-grained, poorly graded, angular gravel throughout, strong petroleum odor.
					sp	<u>Obispo Formation (Two)</u> Dusky green to white, TUFFACEOUS SANDSTONE in shoe of sampler, very moist, very hard, strong odor. Grayish white, SILICIFIED TUFF, medium-grained, extremely hard, some iron oxidation, very difficult drilling.
20						Notes: Refusal at 19 feet. No ground water encountered. Boring backfilled with Volclay grout.
25						
30						
35						
40						

Field Geologist : Mike Rendina Checked By : Mike Rendina Drilling Company : West Hazmat Drilling Foreman : Doug Worley Drilling Method : CME 75 Sampling Method : 6.5" Hollow Stem Auger Sampling Interval : 1.5' x 18" Split Spoon Sampling Interval : 5 feet		Date Started : 2/28/01 Date Completed : 2/28/01 Northing : 2261932.033 Easting : 5746754.005 Elevation : 103.321 ft amsl Depth Ground Water : Encountered : 9 feet Boring Depth : 31 feet		LOG OF BORING B-35-45 R (Page 1 of 1) Unocal Avila Pump Station Avila Beach, CA Project No. 528.001	
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Depth (ft)	Sample No.	Sample Depth	Blow Count (per foot)	Q/M (ppm)	Graphic Log	Soil Classification (USCS)	DESCRIPTION
0							Alluvium (Qal)
5	B-35 45R-5	45	59			SM	Dark gray, SILTY SAND, very moist to wet, medium dense, fine-grained, trace to little silt, non-plastic, stained with moderate petroleum odor, localized areas of petroleum. Ground water encountered at approximately 9 feet.
10	B-35 45R-10	12	83				Dark gray, SILTY SAND, wet, loose, fine-grained, poorly-graded, massive, abundant petroleum, strong odor. *To PTS Laboratories for saturation tests*
15	B-35 45R-15	20	0			SP	Brownish gray, SAND, wet, loose to medium dense, fine-grained, poorly-graded, no visible oil, no odor.
20	B-35 45R-20	78	3			SC	Brownish gray, CLAYEY SAND, moist, dense, fine-grained, trace silt and clay, slightly plastic, localized staining, slight petroleum odor.
25	B-35 45R-25	25	3			CL	Brownish gray with yellowish gray and light greenish gray clasts, SANDY CLAY, moist, medium dense, fine-grained matrix with clasts of highly weathered Obispo Formation tuff, localized areas of petroleum, moderate odor.
30	B-35 45R-30	50/6"	9				Obispo Formation (Tmo) Dark yellowish orange, TUFFACEOUS SANDSTONE, very moist, dense, coarse-grained, massive, no hydrocarbon stain, no odor.
35							

Note: Total boring depth is 31 feet. Installed ground water monitoring well.

Well: B-35-45R
Elev.: 103.321 ft amsl

Cover
Bentonite Chips
4" Schedule 40 PVC Blank
#2/12 Monterey Sand
4" Schedule 40 PVC
0.02-in. Slotted Screen

Field Geologist : Jean Bolduc		Date Started : 3/5/01		LOG OF BORING B-214	
Checked By : Mike Rendina		Date Completed : 3/5/01			
Drilling Company : West Hazmat		Northing : NA		(Page 1 of 2)	
Drilling Foreman : Steve Molera		Easting : NA		Unocal Avila Pump Station Avila Beach, CA	
Drilling Method : CME 75		Elevation : NA			
Sampling Method : 8" Hollow Stem Auger		Ground Water : -		Project No. 526.001	
Sampling Interval : 1.5"x18" Split Spoon		Encountered : 17 feet			
Sampling Interval : Continuous Core		Boring Depth : 50.5 feet			

Depth	Sample No	Sample Depth	Blow Count (per foot)	C/M (ppm)	Graphic Log	Soil Classification (USCS)	Ground Water	DESCRIPTION
0								Asphalt pavement (1 foot thick).
								Aggregate base (1 foot thick).
						CL		Colluvium (Qcol) Dark gray, CLAY, moist to wet at bedrock contact, some very fine-grained sand, little clay slightly plastic, no stain, moderate hydrocarbon odor. (Crude oil in colluvium from 3 to 4 feet).
5	B-214-5	17						Pismo Formation, Gragg member (Tpgg) Pale olive, SANDSTONE, moist, soft, very fine-grained, little silt, no stain, no odor.
	B-214-5.5	20						
	B-214-6	30	0					
	B-214-6.5	31						
	B-214-7	50/5"						
	B-214-8	35						
	B-214-8.5	50/5"	0					
	B-214-9	40						Manganese and iron oxidized.
10	B-214-9.5	50/5"						Dusky yellowish green, SANDSTONE, moist, soft, very fine-grained, little silt, trace iron oxidation, light brown speckled stains, faint hydrocarbon odor.
	B-214-10	50/5"	0					
	B-214-11	39						
	B-214-11.5	50/5"	0					
	B-214-12	44						
	B-214-13	50/5"	0					Becomes dusky yellow.
	B-214-14	35						
	B-214-14.5	55	0					
15	B-214-15	37						Dusky yellow and dusky yellow-green, SANDSTONE, wet, soft to moderately hard, very fine-grained, little silt, manganese oxide staining, very faint hydrocarbon odor.
	B-214-16		0					Ground water encountered at 17 feet.
	B-214-17	37						
	B-214-17.5	50/5"	0					
	B-214-18	36						
	B-213-19	50/5"	0					Yellowish gray, SANDSTONE, wet, moderately hard, very fine-grained, some silt, trace iron oxide stain, very faint hydrocarbon odor.
20	B-214-20	40						
	B-214-20.5	50/5"	-					
	B-214-21	33						Iron oxidized throughout, wet.
	B-214-22	50/5"	0					Hydrocarbon staining along fracture.
	B-214-23	34						
	B-214-23.5	50/5"	4.5					Wet.
	B-214-24	50/5"						Hydrocarbon on water, hydrocarbon staining on fracture.
25	B-214-25	50/5"	4					Dusky yellow, SANDSTONE, wet, moderately hard, very fine-grained, little silt, massive, hydrocarbon stain in pores, iron oxidized throughout, faint hydrocarbon odor.
	B-214-26	36						
	B-214-26.5	50/5"	9.3					
	B-214-27	41						
	B-214-28	50/5"	975					
	B-214-29	48						
30	B-214-29.5	50/5"	0.4					Dusky yellow-green, SANDSTONE, wet, moderately hard, very fine- to fine-grained, little silt, no stain, moderate hydrocarbon odor.

ENGLAND
GEOSYSTEM

05-17-2001 N BORING LOGS FOR B-214 BOR

ENGLAND
GEOSYSTEM

Field Geologist : Deborah Fischer Checked By : Mike Rendina Drilling Company : West Hazmat Drilling Foreman : Doug Worley Drilling Method : CME-75 Sampling Method : 8" Hollow Stem Auger : 1.5"x18" Split Spoon : 2.5"x5" Core Barrel Sampling Interval : 5 feet : Continuous Core		Date Started : 3/6/01 Date Completed : 3/6/01 Northing : 2282051.277 Easting : 5747538.798 Elevation : 182.584 ft amsl Depth Ground Water : Encountered : 91 feet Boring Depth : 100.5 feet		LOG OF BORING SP-8 (Page 1 of 3) Unocal Avila Pump Station Avila Beach, CA Project No. 526.001	
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Depth (ft)	Sample No.	Sample Depth	Blow Count (per foot)	OCM (ppm)	Graphic Log	Soil Classification (USCS)	DESCRIPTION
0							Colluvium (Qco) Grayish brown, SANDY SILT, slightly moist, medium dense, fine-grained, slight petroleum odor.
5	SP-7-5	57	0			MIL	Grayish brown, SANDY SILT with scattered weathered yellowish gray, siltstone clasts throughout.
10	SP-7-10	31	0				Pismo Formation, Gragg Member (Tpgg) Yellowish gray, SILTSTONE, slightly moist, soft, blocky fractures infilled with clay, trace oil in fractures, petroleum odor.
15	SP-7-15	41	0				Same as above, some lithified zones at 18 feet. Orange iron oxidation in fractures, trace oil in fractures.
20	SP-7-20		0				Yellowish gray, SILTSTONE, slightly moist, soft, friable, trace orange iron oxidation, highly fractured, zones of cementation.
25	SP-7-25	50	0				Light dusky yellow, SILTY SANDSTONE, slightly moist, very soft, friable, very fine-grained, highly fractured, trace orange iron oxidation in fractures, trace clay infilling fractures, petroleum odor.
30	SP-7-30	50	0				Same as above, no petroleum odor.
35	SP-7-35	50	0				Same as above, no petroleum odor, increase in iron oxidation along fractures.

Well: SP-8
Elev.: 182.584 ft amsl

Diagram labels from top to bottom:
 Cover
 Concrete
 Bentonite Chips
 #2/12 Monterey Sand
 Soil Gas Probe
 Bentonite Chips
 #2/12 Monterey Sand
 Soil Gas Probe
 Bentonite Chips
 #2/12 Monterey Sand
 Soil Gas Probe
 Bentonite Chips
 2" Schedule 40 PVC Blank
 #2/12 Monterey Sand
 Soil Gas Probe
 Bentonite Chips
 #2/12 Monterey Sand
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