Geosyntec consultants

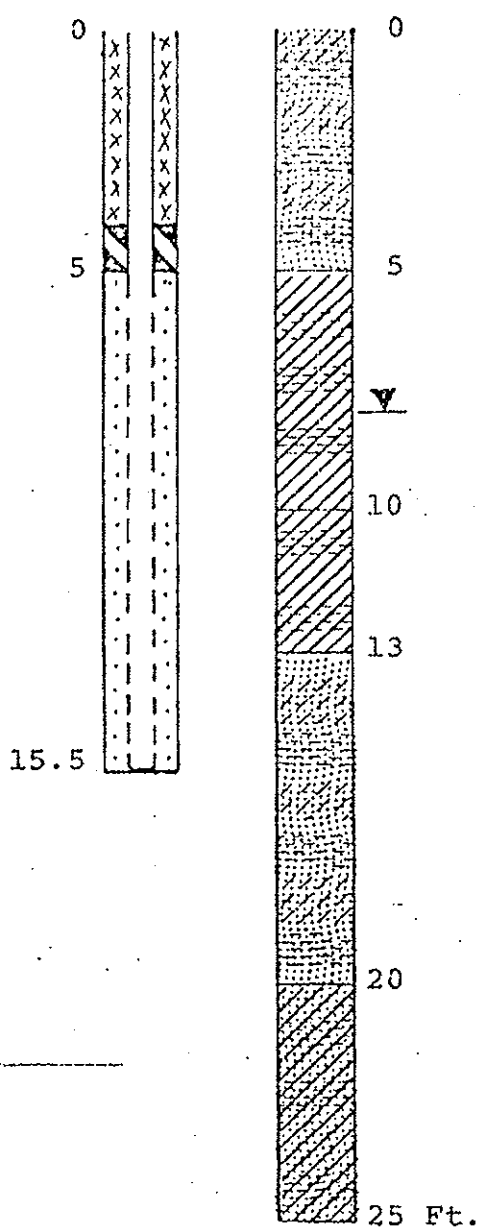
APPENDIX A

BORING LOGS AND WELL CONSTRUCTION DIAGRAMS

Ecology and Environment Monitoring Wells Completed in 1982 (AW-1 through AW-8)

(Ecology and Environment, 1983)

Construction Diagram and Lithologic Log
of ASCON Monitoring Well # 1



Silty, clayey sand, grayish brown

silty clay, grayish brown.
patches of red iron rust in the c

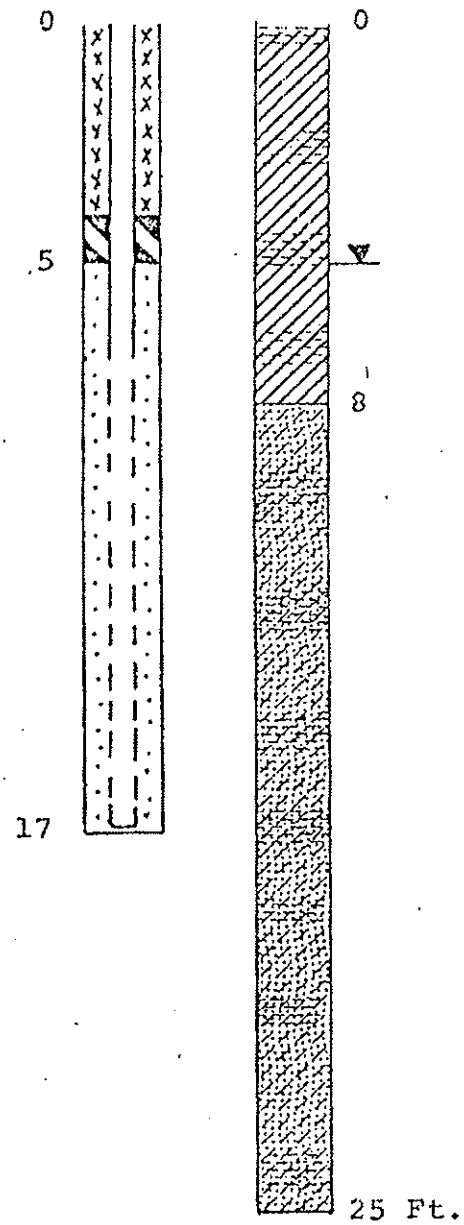
silty clay, dark greenish gray
saturated. Bad odors, smells lik
acids

silty, clayey sand, fine to mediu
grained

silty, sandy clay, greenish gray
strong odors.

Figure 3.3

Construction Diagram and Lithologic Log
of ASCON Monitoring Well # 2

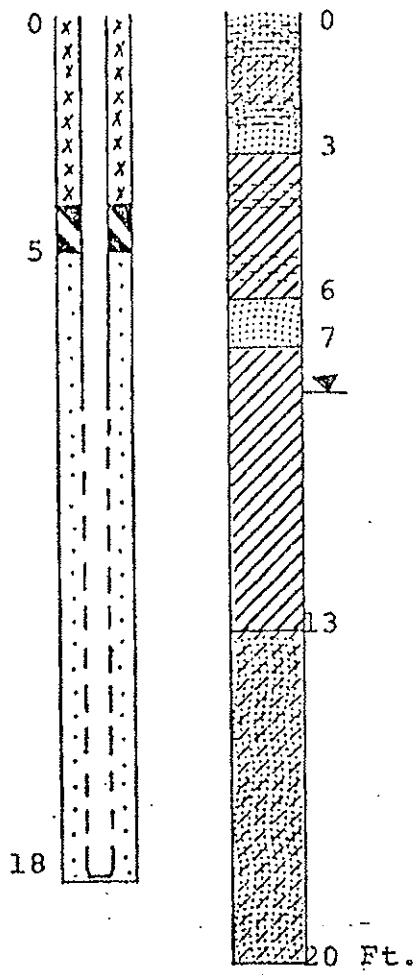


silty clay, stiff, micaceous dark grayish brown.

silty sandy clay to fine sand micaceous, dark gray, bad odors

Figure 3.4

Construction Diagram and Lithologic Log
of ASCON Monitoring Well # 3



silty, clayey sand, tan-brown

silty clay, stiff, black to dark gray

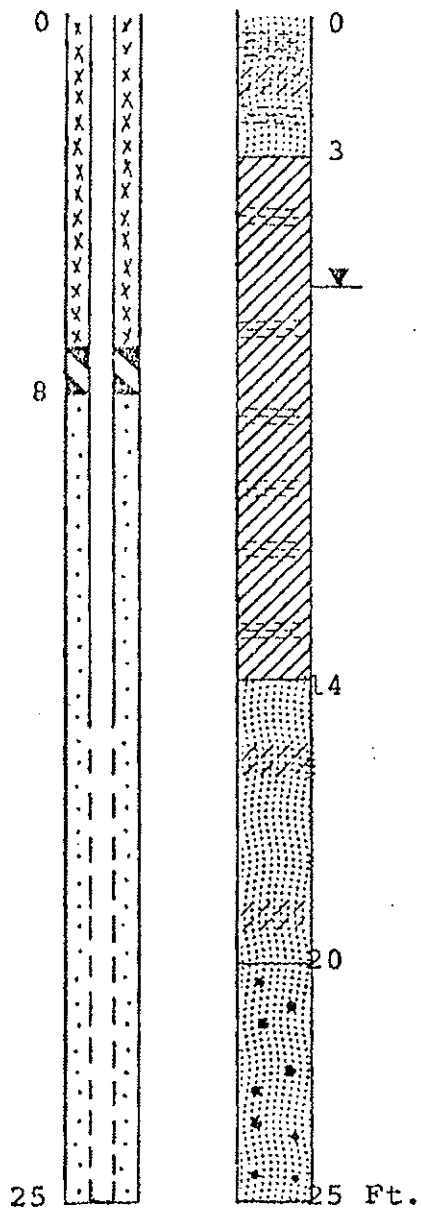
fine grained sand, dark gray

clay, stiff, dark gray

sandy clay, to clayey sand micaceous, beach shells, dark grey to black

Figure 3.5

Construction Diagram and Lithologic Log
of ASCON Monitoring Well # 4



silty, clayey sand, grayish-brown

silty clay, stiff, dark gray to black

clayey sand, fine grained, black

sand medium grained, black to dar gray, some 1/4" gravels, beach shells

Figure 3.6

Construction Diagram and Lithologic Log
of ASCON Monitoring Well # 5

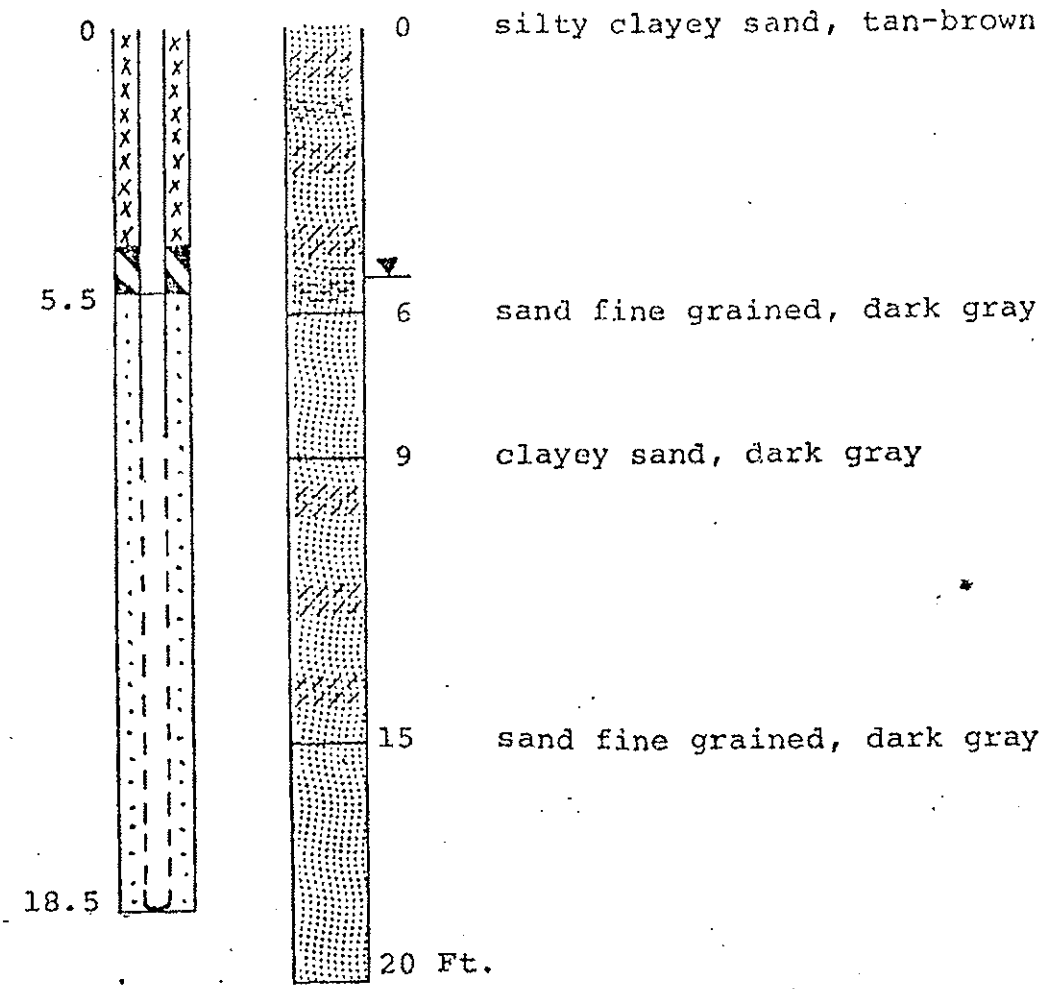


Figure 3.7

Construction Diagram and Lithologic Log
of ASCON Monitoring Well # 6

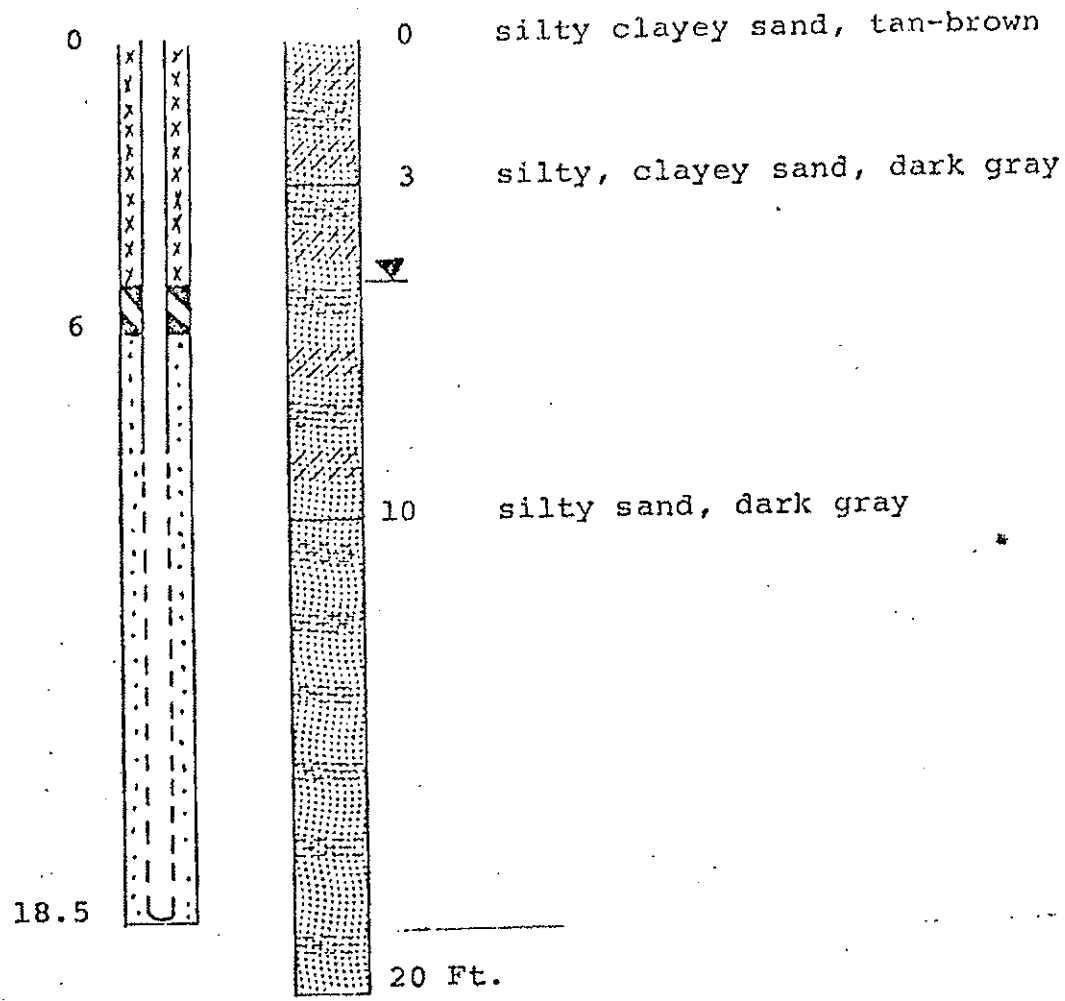


Figure 3.8

Construction Diagram and Lithologic Log
of ASCON Monitoring Well # 7

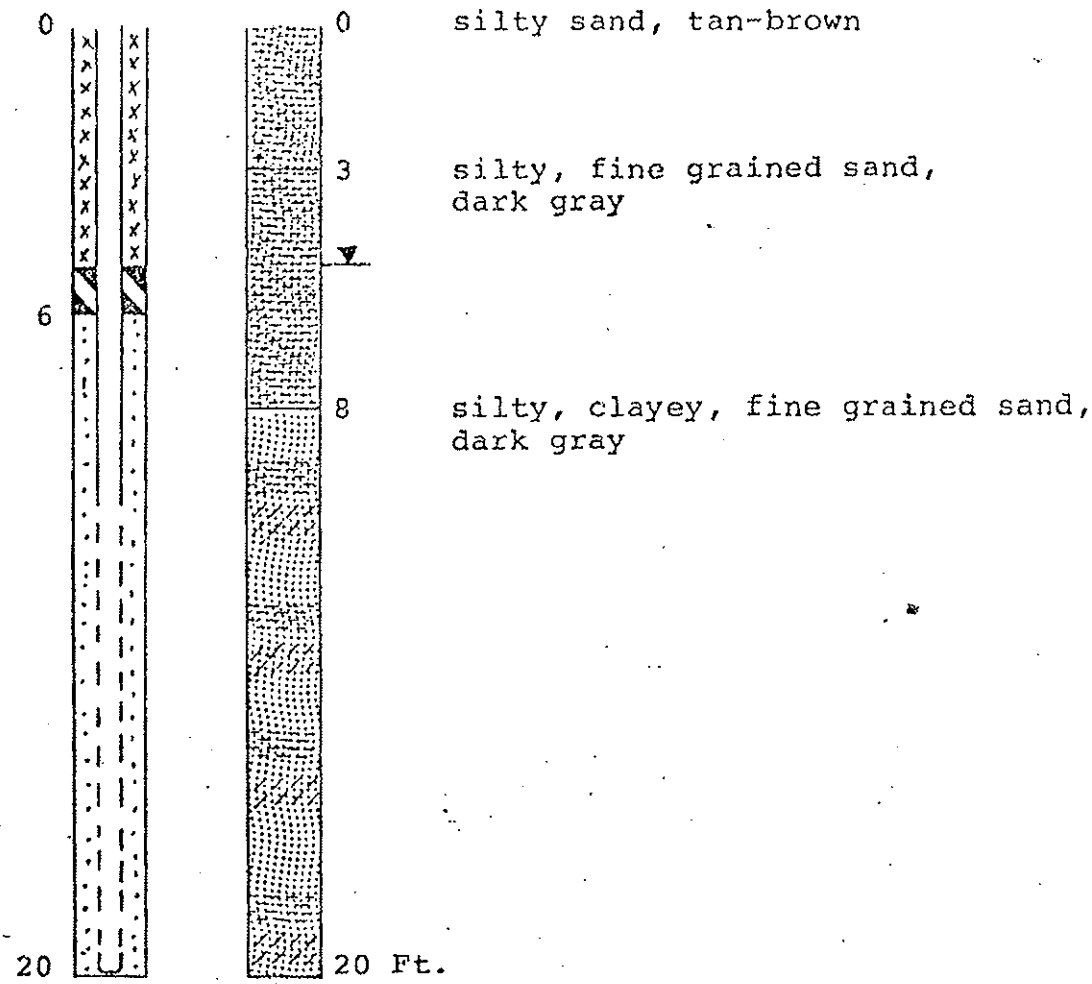


Figure 3.9

Construction Diagram and Lithologic Log
of ASCON Monitoring Well # 8

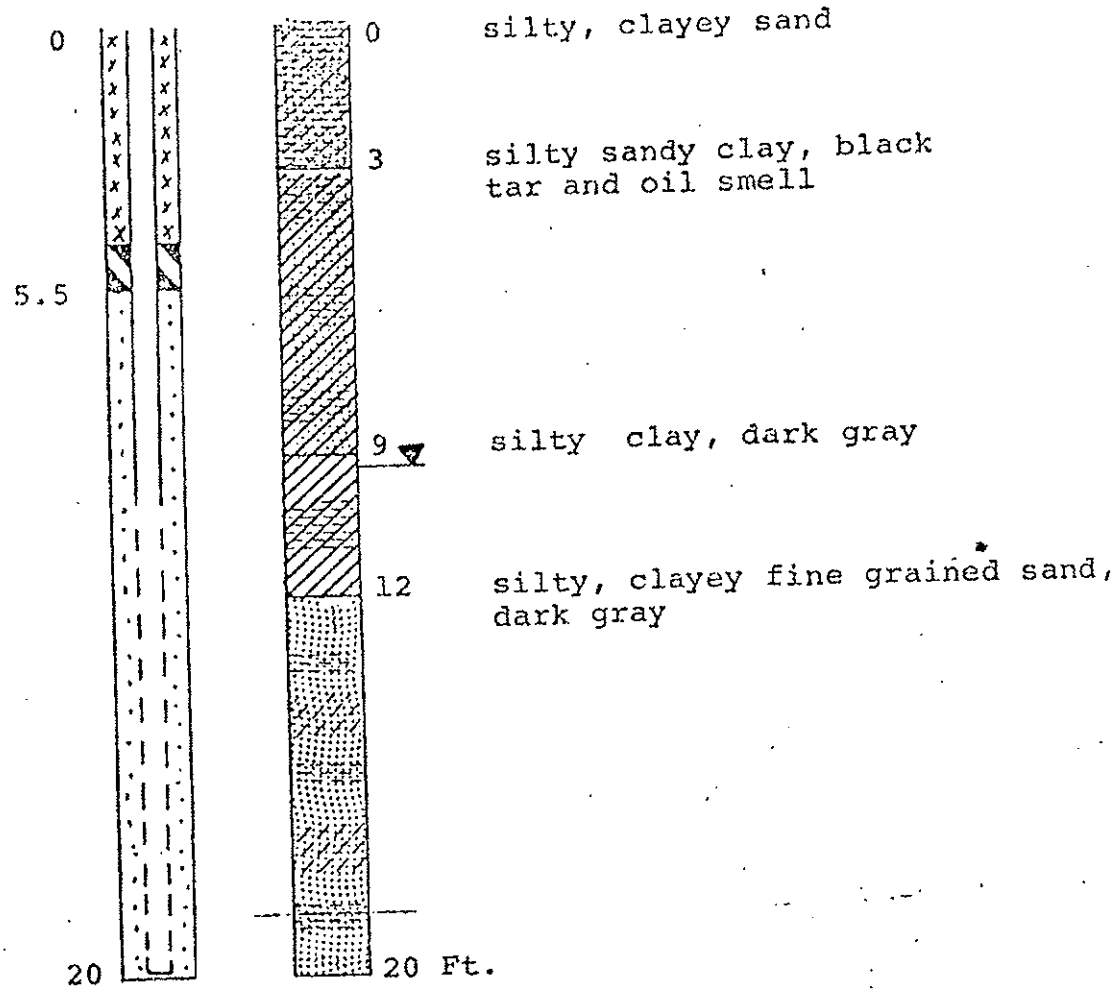


Figure 3.10

Explanation to Well Construction
and Lithologic Symbols

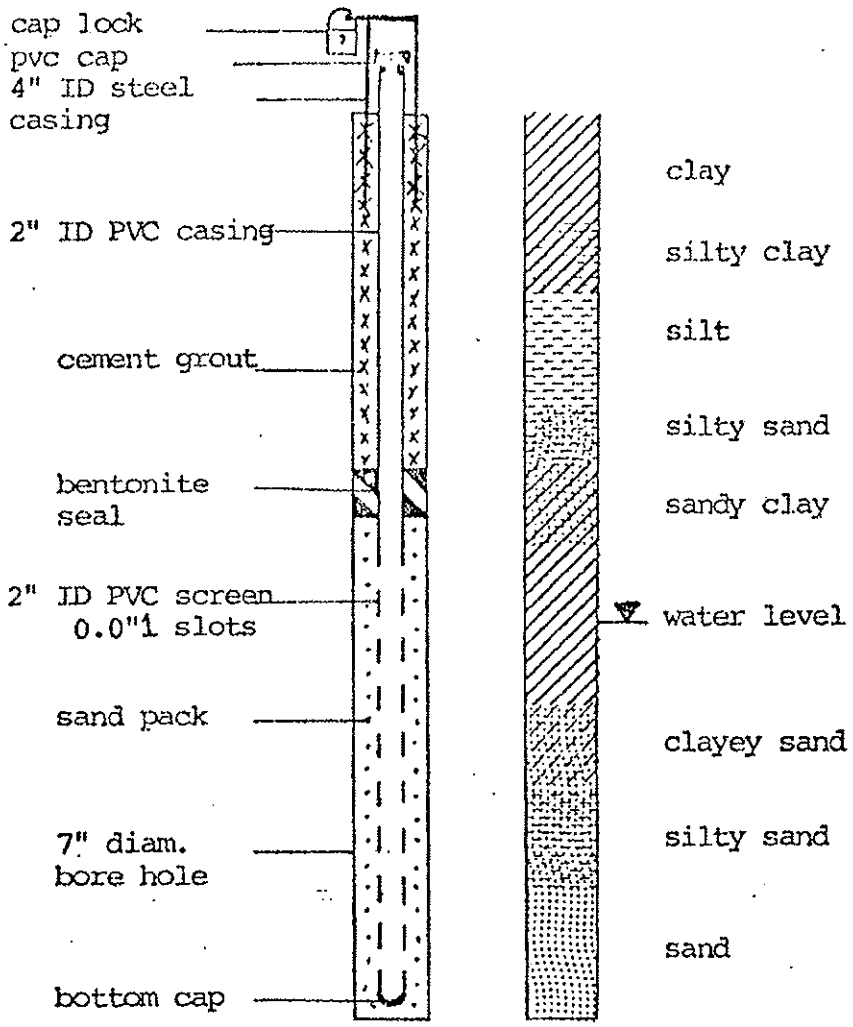


Figure 3.2

Woodward Clyde Consultants Monitoring Wells Completed in 1983 (B-2 and B-4 through B-7)

(Woodward Clyde Consultants, 1983)

BORING LOG

Project Name: RYAN

Project No. 41664 — Field Log of Boring No. B-2 — Sheet 1 of 2

BORING LOCATION	Southeast Corner of Proposed Plant	ELEVATION AND DATUM	Approximately 23.3 feet — M.S.L.
DRILLING AGENCY	Cal. Testing Laboratories	DRILLER	Dudley Ziedeman
DATE STARTED	10 May 1983	DATE FINISHED	11 May 1983
DRILLING EQUIPMENT	Mobile B-61, 10-inch O.D. Hollow Stem Auger and Rotary 5 7/8-inch O.D. Tricone Bit	COMPLETION DEPTH (FT)	77.0
ROCK DEPTH (FT)	—		
DIAMETER AND TYPE OF WELL CASING	2-inch I.D. Teflon Screen, 2-inch I.D. Stainless Steel	NO. OF SAMPLES: DIST.	16
UNDIST.	4	CORE	—
TYPE OF PERFORATION	0.03 inch wide, 1.5 inches long, 208 slots/foot	WATER DEPTH (FT): FIRST	29.3
COMPL.	4	24 HRS.	16.9
TYPE OF PERFORATION BACKFILL	No.2 Monterey Sand	LOGGED BY:	Hector Reyes
CHECKED BY:	Jon Lovegreen		
TYPE OF SEAL	Bentonite Pellets		

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	GRAPHIC LOG: Observation Well	OVA (ppm)	SAMPLES No.	SAMPLES Type	SAMPLES Blow Count	SAMPLES Drilling Rate/Time	REMARKS
	Dense, moist, dark yellowish brown to black, SILTY SAND (SM), fine grained, micaceous, with debris				1		32	1010	Gas vapor detected. Respirator needed. Stopped drilling for 10 minutes
	Color change to black, petroliferous odor. Moderate to strong								
5	Very soft, wet, black SILTY CLAY (CL), oil-soaked, very strong oil odor and stain				2		push 12 in 2/6 in.	1037	
10					3		push 15 in 3/3 in.	1104	Gas vapor detected at 1107 hrs: Stopped drilling to call drilling company. 1138 hrs: Resumed dri'
15	Continued SILTY CLAY (CH), olive brown with oil stains. Strong petroliferous odor				4		push 12 in 2/6 in.	1147	
20	Base of Fill				5		push 12 in 8/6 in.	1205	
	Medium dense, very moist, olive, SANDY SILT (ML), with organics, strong chemical odor								
25	Medium stiff, very moist, dark olive gray, SILTY CLAY (CH), trace of organics, slight chemical odor				6		14	1220	
30	Medium dense, very moist, gray SILTY SAND (SM), fine grained, micaceous, abundant shell fragments				7			1245	18-inch recovery
					8		13	1253	1314 hrs. — water start coming into hole, beg conversion to rotary
35	Wet, gray, SAND (SP), fine to very fine grained, micaceous, abundant shell fragments				9			1620	18-inch recovery
					10		41	1632	

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Project Name RYAN

Project No. 41664 Field Log of Boring No. B-2 Sheet 2 of 2

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	GRAPHIC LOG: Observation Well	OVA (ppm)	SAMPLES: No.	SAMPLES: Type	SAMPLES: Blow Count	SAMPLES: Drilling Rate/Time	REMARKS
	SAND (SP) (continued)								
40	Wet, gray SILTY SAND (SM–SP), micaceous, shell fragments				11			1700	18-inch recovery
					12		39		1715 hrs: Stopped drilling on May 10, 1983
									0750 hrs: Started drilling on 11 May 1983 Fluid level in hole is 16.9 feet, fluid is black and appears to be pure oil.
45	Becomes denser				13			0845	
					14		100/3 in.		15-inch recovery for sample 13
50	3-inch thick layer of shell fragments				15		100/3 in.	1010	
55	Very dense, wet, gray, SILTY SAND (SM), fine-grained, micaceous with shell fragments. No observed chemical odor.				16		100/4 in.	1045	
60	Becomes less silty				17		164	1125	
65	Becomes less dense, more silty				18		76	1240	
70	Very dense, wet, gray, SAND (SP–SM), some silt, fine-grained, micaceous, no observed chemical odor.				19		180	1320	
75	More CLAY (CH)				20		73	1350	
	Bottom of Boring at 77.0 feet								
80									

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Figure A-3a

BORING LOG

Project Name: RYAN

Project No. 41664 — Field Log of Boring No. B-4 — Sheet 1 of 2

BORING LOCATION	Approximately 200 feet South of Proposed Plant	ELEVATION AND DATUM	Approximately 17.5 feet – M.S.L.
DRILLING AGENCY	Cal. Testing Laboratories	DRILLER	Dudley Ziedeman
DATE STARTED	12 May 1983	DATE FINISHED	12 May 1983
DRILLING EQUIPMENT	Mobile B-61, 10-inch O.D. Hollow Stem Auger and Rotary 5 7/8-inch O.D. Tricone Bit	COMPLETION DEPTH (FT)	47.5
ROCK DEPTH (FT)	–	DIAMETER AND TYPE OF WELL CASING	2-inch I.D. Teflon Screen, 2-inch I.D. Stainless Steel
NO. OF SAMPLES	DIST. 10 / UNDIST. 3 / CORE –	TYPE OF PERFORATION	0.03-inch wide, 1.5-inches long, 208 slots/foot
WATER DEPTH (FT)	FIRST 22.3 / COMPL. – / 24 HRS. 15.3	TYPE OF PERFORATION BACKFILL	No. 2 Monterey Sand
LOGGED BY:	Hector Reyes	CHECKED BY:	Jon Lovegreen
TYPE OF SEAL	Bentonite Pellets		

DEPTH (FEET)	DESCRIPTION	SAMPLE No.	Type	Blow Count	Drilling Rate/Time	REMARKS
	Medium dense, moist, dark yellowish brown SILTY SAND (SM), fine-grained	1		37	1014	1000 hours – started drilling 12 May 1983
	Stiff, moist, very dark gray, SANDY SILT (ML), micaceous, no chemical odor					
5		2		15	1022	
	Soft to very soft, wet, brown and black SILTY CLAY (CH), (Oil soaked drilling mud)					
10	More sands	3		11	1040	
15	Base of Fill	4		38	1100	
	Dense, damp, light gray, SAND (SP), fine to medium grained, micaceous					
20		5			1110	
	Medium stiff, moist, olive brown SILTY CLAY (CH), micaceous with shell fragments, strong chemical odor	6		16	1117	
25	Medium dense, very moist, very dark gray SILTY SAND (SM), fine grained, with small shell fragments, strong chemical odor	7			1124	No Recovery
		8		20	1130	At 30 feet difficulty in sampling was encountered, sand rose to a depth of 20 feet inside the auger
30	Medium dense, wet, gray, SILTY SAND (SM), medium grained, micaceous	9			1135	No Recovery
		10		44	1200	Water bearing strata at 22.3 feet
35	Becomes coarse grained with abundant shell fragments	11			1509	Converted to rotary from 1315 to 1450 hours Resumed drilling
		12		61		

GRAPHIC LOG: Lithology; Observation Well; OVA (ppm)

FILL

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Project Name RYAN

Project No. 41664 Field Log of Boring No. B-4 Sheet 2 of 2

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	Observation Well	OVA (ppm)	SAMPLES: No.	Type	Blow Count	Drilling Rate/Time	REMARKS
	SILTY SAND (SM) (continued)								
40					13			1543	14-inch drive, no recovery
					14		137	1550	
									Water level reading at 15.3 feet obtained on 13 May 1983 at 0753 hours
45					15			1630	18-inch drive, 18-inch recovery
					16		100/5 in.	1647	
	Bottom of Boring at 47.4 feet								
50									
55									
60									
65									
70									
75									
80									

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Figure A-6a

BORING LOG

Project Name RYAN

Project No. 41664 Field Log of Boring No. B-5 Sheet 1 of 2

BORING LOCATION	On Dike Between Two Ponds	ELEVATION AND DATUM	Approximately 23.5 feet – M.S.L.
DRILLING AGENCY	Cal. Testing Laboratories	DRILLER Dudley Ziedeman	DATE STARTED 13 May 1983 / DATE FINISHED 13 May 1983
DRILLING EQUIPMENT	Mobile B-61, 10-inch O.D. Hollow Stem Auger and Rotary 5 7/8-inch O.D. Tricone Bit	COMPLETION DEPTH (FT) 45	ROCK DEPTH (FT) –
DIAMETER AND TYPE OF WELL CASING	2-inch I.D. Teflon Screen, 2-inch I.D. Stainless Steel	NO. OF SAMPLES: DIST. 9	UNDIST. – / CORE –
TYPE OF PERFORATION	0.03-inch wide, 1.5-inch long, 208 slots/foot	WATER DEPTH (FT): FIRST 29.5	COMPL. – / 24 HRS. –
TYPE OF PERFORATION BACKFILL	No. 2 Monterey Sand	LOGGED BY: Hector Reyes	CHECKED BY: Jon Lovegreen
TYPE OF SEAL	Bentonite Pellets		

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	Observation Well	OVA (ppm)	SAMPLES: No.	Type	Blow Count	Drilling Rate/Time	REMARKS
	Loose, damp, dark yellowish brown SILTY SAND (SM), fine to medium grained, with pieces of asphalt				1		7	1212	1212 hours – Started drilling on 13 May 1983
5					2		22	1225	
10	Soft to medium stiff, very moist, very dark grayish brown to black SILTY CLAY (CH), strong chemical odor (drilling mud?)				3		8	1231	
	Becomes very soft, black								1237 hours – Stopped for gas vapor dissipation
15					4			1252	1249 hours – Resumed drilling at 15 feet depth NOTE: Sample pushed hydraulically, recovered 3 inches for Montgomery Engineers. No sample was obtained for engineering purposes.
20	Base of Fill				5		18	1305	
	Medium stiff, very moist, very dark gray SILTY CLAY (CH), with thin lenses of very fine-grained sand, micaceous, strong chemical odor.								
25	Organics present – peat				6		13	1320	
30					7		10	1330	
	Loose to medium dense, very moist, dark gray SILTY SAND (SM), very fine grained, micaceous abundant shell fragments								
35					8		5	1340	Water came in boring to a depth of 29.5 feet
	Loose, wet, dark gray SAND (SP), medium-grained								

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Figure A-7

Project Name RYAN

Project No. 41664 Field Log of Boring No. B-5 Sheet 2 of 2

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	GRAPHIC LOG: Observation Well	GRAPHIC LOG: OVA (ppm)	SAMPLES: No.	SAMPLES: Type	SAMPLES: Blow Count	SAMPLES: Drilling Rate/Time	REMARKS
	SAND (SP) (continued)								
40					9		70	1410	
									1700 hours – Stopped drilling on 13 May 1983
45	Bottom of Boring at 45.0 feet								NOTE: Drilled to 45 feet to set screened interval from 45 feet to 35 feet. Hole caved to 37 feet
50									
55									
60									
65									
70									
75									
80									

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Figure A-7a

BORING LOG

Project Name RYAN

Project No. 41664 Field Log of Boring No. B-6 Sheet 1 of 1

BORING LOCATION	North Side of "Acid" Pit	ELEVATION AND DATUM	Approximately 7.0 feet – M.S.L.
DRILLING AGENCY	Cal. Test Laboratories	DRILLER	
DATE STARTED	16 May 1983	DATE FINISHED	16 May 1983
DRILLING EQUIPMENT	Mobile B-61, 10-inch O.D., Hollow Stem Auger	COMPLETION DEPTH (FT)	35.0
ROCK DEPTH (FT)	–	DIAMETER AND TYPE OF WELL CASING	2-inch I.D. Teflon Screen, 2-inch I.D. Stainless Steel
NO. OF SAMPLES: DIST.	7	UNDIST. –	CORE –
TYPE OF PERFORATION	0.03-inch wide, 1.5-inches long, 208 slots/foot	WATER DEPTH (FT): FIRST	14.2
COMPL. –	24 HRS. –	TYPE OF PERFORATION BACKFILL	No. 2 Monterey Sand
LOGGED BY:	Hector Reyes	CHECKED BY:	Jon Lovegreen
TYPE OF SEAL	Bentonite Pellets		

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	GRAPHIC LOG: Observation Well	OVA (ppm)	SAMPLES: No.	SAMPLES: Type	SAMPLES: Blow Count	SAMPLES: Drilling Rate/Time	REMARKS
	Dense to very dense, damp to moist, dark yellowish brown SILTY SAND (SP)				1		59	0909	Started drilling on 16 May 1983
	Stiff, moist, dark yellowish brown SANDY SILT (ML)								
5	Medium stiff, very moist, brownish gray SILTY CLAY (CH), with fractures filled with glue-like substance, strong chemical odor				2		16	0920	
10	Soft, very moist, brownish gray SILT (ML), with very fine grained sand, micaceous, strong chemical odor				3		10	0930	
	Medium dense, very moist, gray, very fine grained SILTY SAND (SM), micaceous, strong chemical odor								
15									Water at 14.2 feet
	Grading towards SAND (SP) Abundant shell fragments				4		16	0945	
20	Dense to very dense, wet, gray, medium grained SAND (SP), strong chemical odor				5		44	0959	
25					6		20	1006	
	Dense to very dense, wet, gray, fine grained SILTY SAND (SM–SP), micaceous, slight chemical odor								
30					7		69	1020	
35	Bottom of Boring at 35.0 feet							1145	

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Project Name RYAN

Project No. 41664 Field Log of Boring No. B-7 Sheet 1 of 1

BORING LOCATION	South Side of "Acid" Pit	ELEVATION AND DATUM	Approximately 13.0 feet – M.S.L.
DRILLING AGENCY	Cal. Test Laboratories / DRILLER	DATE STARTED 16 May 1983	DATE FINISHED 16 May 1983
DRILLING EQUIPMENT	Mobile B-61, 10-inch O.D., Hollow Stem Auger	COMPLETION DEPTH (FT) 37.0	ROCK DEPTH (FT) –
DIAMETER AND TYPE OF WELL CASING	2-inch I.D. Teflon Screen, 2-inch I.D. Stainless Steel	NO. OF SAMPLES: DIST. 8	UNDIST. – / CORE –
TYPE OF PERFORATION	0.03-inch wide, 1.5-inches long, 208 slots/foot	WATER DEPTH (FT): FIRST 22.8	COMPL. – / 24 HRS. –
TYPE OF PERFORATION BACKFILL	No. 2 Monterey Sand	LOGGED BY: Hector Reyes	CHECKED BY: Jon Lovegreen
TYPE OF SEAL	Bentonite Pellets		

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	Observation Well	OVA (ppm)	SAMPLES: No.	Type	Blow Count	Drilling Rate/Time	REMARKS
	Dense, dry to damp, dark yellowish brown SILTY SAND (SM)				1		61	1305	1301 – Hours started drilling on 16 May 1983
	Dense, moist, black CLAYEY SAND (SC–CL), oil saturated								
5	Very loose, damp, dark yellowish brown, fine grained SILTY SAND (SM) with small ¼-inch diameter gravel, petroliferous odor				2		4	1353	
10	Very soft, wet, gray, fine grained SANDY CLAY (CL) with strong chemical odor				3		4	1402	No recovery
15	Very soft, wet to very moist, grayish brown SANDY SILT (ML–CL), with strong chemical odor and some oil stains, micaceous				4		2	1410	
20	Medium dense, very moist to wet, gray, very fine grained SILTY SAND (SM), with abundant shell fragments, strong chemical odor				5		17	1420	Note: measured for water, none in hole
					6		5	1435	Water came in at 22.8 feet, after 5 minutes water rose to 21.1 feet
25	Very loose, wet, gray, fine grained SAND (SP), with shell fragments, micaceous, strong chemical odor								
30					7		28	1505	
35	Becomes very dense				8		134	1530	
	Bottom of Boring at 37.0 feet								

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Woodward-Clyde Consultants

Radian Monitoring Wells
Completed in 1988 (MW-4, MW-9, MW-13, MW-14, and MW-15)

(Radian, 1988)

Note: Radian (1988) indicates borings 4, 9, 13, 14, and 15 were converted to monitoring wells MW-4, MW-9, MW-13, MW-14 and MW-15, respectively. MW-4 well construction diagram not available. Radian (1988) reported that MW-4 was screened from approximately 31.1 feet to 46.1 feet below the top of casing (i.e., reference survey point).

PROJECT NAME: ASCON
LOCATION: HUNTINGTON BEACH
GEOLOGIST: SAA,RMH
AMBIENT OVA: 3
OVA ID #: 08
AMBIENT HNU: 0
HNU ID #: 07

SITE: ASCON
BOREHOLE NUMBER: 4 (MW-4)
STARTING DATE/TIME: 9/15/88
FINISHING DATE/TIME: 9/15/88
DRILLING COMPANY: DATON EXPLORATION
DRILLERS NAMES: JEFF,JIM
DRILLING METHOD: HOLLOW STEM AUGERS

SAMPLE TYPE	SAMPLE NUMBER	OVA/HNU READING	DOWN HOLE FLUX READING	BLOW COUNTS/ PERCENT RECOVER	Feet	Visual Classification
					20.0	
					1	(ML) SURFACE: SANDY SILT W/ABUNDANT GRAVEL, LT. BRN., DRY
					2	
					3	
					16.6 4	(MH) CLAYEY SILT, DK. BRN TO GRAY, SLT. MOIST
				6,(3,14)		
1.5'	B4-5A,B	8/0		100	5	CLAYEY SILT, MED. BRN. W/IRON STAINING, DRY TO SLT. MOIST
					6	
					7	
					8	DEBRIS; COULDN'T GET DOWN, PULLED AUGER AND REDRILLED
					9	
					10	DEBRIS
						COULDN'T SAMPLE
					11	DEBRIS 3.6
					9.6 12	(CL) SILTY CLAY W/MINOR GRAVEL, DK. BRN, MOIST
					13	
					14	4.6
				4,4,6	5.6 15	(MH) CLAYEY SILT W/CLAY INTERLAYERS, MED. GRAY/GREEN, MOIST
1.5'				10		STRONG ODORS
					16	
					17	
					18	AVE: 28
					19	
					20	NO SAMPLE, ROCK AT 20'
					21	

Log Continued on Next Page

PROJECT NAME: ASCON
LOCATION: HUNTINGTON BEACH
GEOLOGIST: SAA,RMB
AMBIENT OVA: 3
OVA ID #: 08
AMBIENT HNU: 0
HNU ID #: 07

SITE: ASCON
BOREHOLE NUMBER: 4
STARTING DATE/TIME: 9/15/88
FINISHING DATE/TIME: 9/15/88
DRILLING COMPANY: DATUM EXPLORATION
DRILLERS NAMES: JEFF,JIM
DRILLING METHOD: HOLLOW STEM AUGERS

SAMPLE TYPE	SAMPLE NUMBER	OVA/HNU READING	DOWN HOLE FLOX READING	BLOW COUNTS/ PERCENT RECOVER	Feet	Visual Classification
					22	
					23	76
					24	
				5,8,7	25	[CL] SILTY CLAY, MED. BRN/SLT. GRN., MOIST, SOFT/FIRM, SHELLS
					26	
					27	BECOMING SILTIER
					28	V. SILTY CLAY
					29	
				43,25, 33/5	30	[SM] SILTY SAND W/MOD. CLAY, FINE, MED. GRAY, WET
					31	
					32	
					33	
					34	
				100	35	SAND W/LESS SILT,F. TO MED. GRAINED, LT. GRAY, WET
					36	
					37	
					38	
					39	
					40	
					41	
					42	
					43	

Log Continued on Next Page

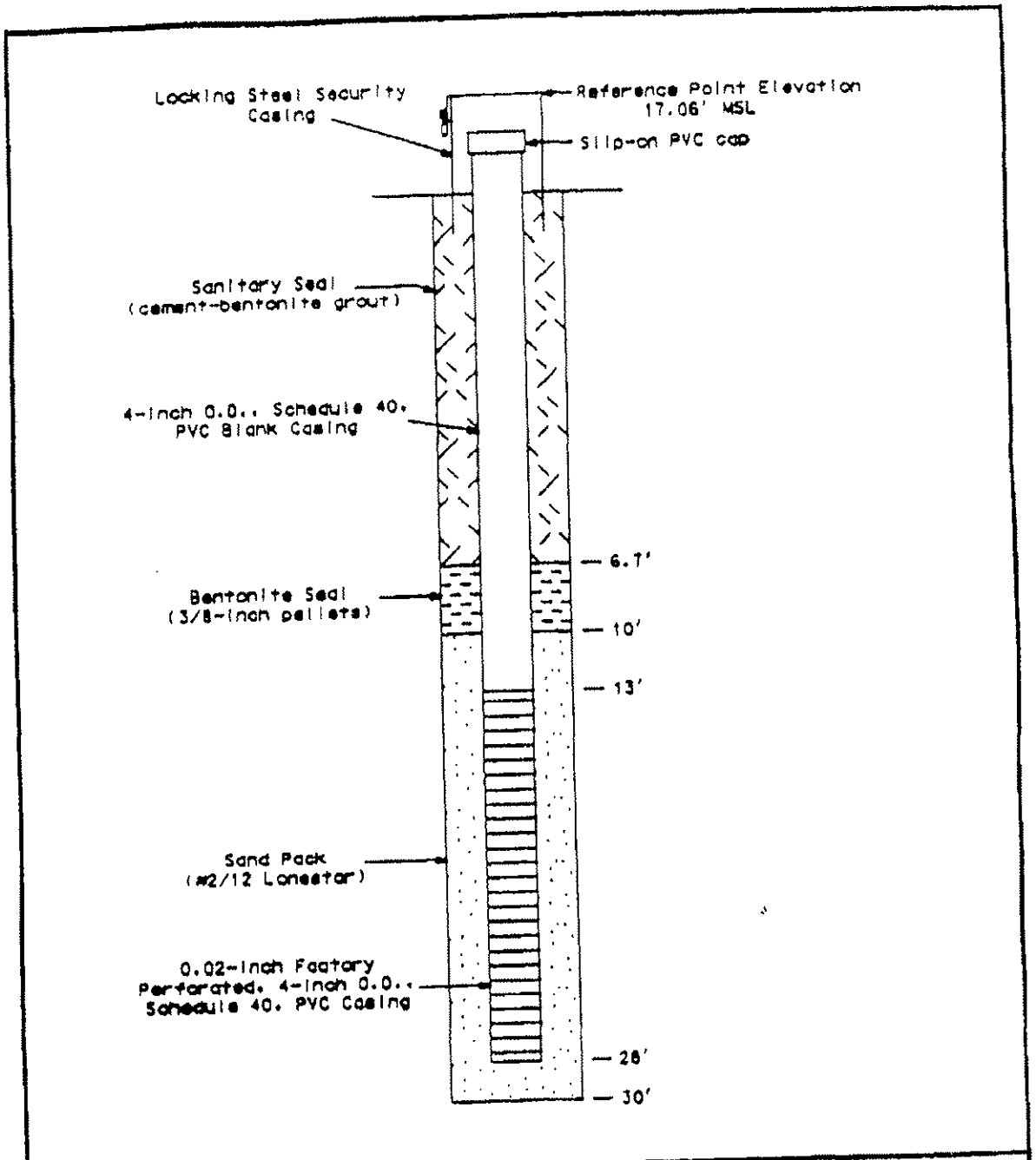
PROJECT NAME: ASCON
LOCATION: HUNTINGTON BEACH
GEOLOGIST: SAA,RMH
AMBIENT OVA: 3
OVA ID #: 08
AMBIENT HNU: 0
HNU ID #: 07

SITE: ASCON
BOREHOLE NUMBER: 4
STARTING DATE/TIME: 9/15/88
FINISHING DATE/TIME: 9/15/88
DRILLING COMPANY: DATUM EXPLORATION
DRILLERS NAMES: JEFF,JIM
DRILLING METHOD: HOLLOW STEM AUGERS

SAMPLE TYPE	SAMPLE NUMBER	OVA/HNU READING	DOWN HOLE FLUX READING	BLOW COUNTS/ PERCENT RECOVER	Feet	Visual Classification
					44	TOTAL DEPTH = 44 BLS.
					-24	

14.1

RADIAN CORPORATION



Well Construction Diagram for MW-9, Constructed 8/23/88.

PROJECT NAME: ASCON
LOCATION: HUNTINGTON BEACH, CO.
GEOLOGIST: RRH,SAA
AMBIENT OVA: 0 ppmv
OVA ID #: 07, RAS-SAC
AMBIENT HNU: 0 ppmv
HNU ID #: 19, RAS-SAC

SITE: ASCON
BOREHOLE NUMBER: 9 (MW-9)
STARTING DATE/TIME: 8-23-88/10:10
FINISHING DATE/TIME: 8-23-88/12:30
DRILLING COMPANY: DATUM EXPLORATION
DRILLERS NAMES: JAK,REG
DRILLING METHOD: HOLLOW STEM AUGERS

SAMPLE TYPE	SAMPLE NUMBER	OVA/HNU READING	DOME HOLE FLUX READING	BLOW COUNTS/ PERCENT RECOVER	Feet	Visual Classification
			NA		1	[ML] SURFACE: SDY. SLT., LT. BRN., V.F. TP C. GR., SOME GRAVEL. SDY. SLT., M. BRN., V.F. TO C. GR., LHC ODOR, MOIST.
					2	SAME AS ABOVE, DK. BRN.
					3	SAME AS ABOVE, ABUNDANT CONCRETE RUBBLE.
					4	SAME AS ABOVE.
SS	B9-5-A, B, BIT.	480/10		6,3,7 /90%	5	[CL] SLTY. CLAY, BLACK, LHC SATURATED AND LHC ODOR, MOIST.
					6	SAME AS ABOVE.
					7	SAME AS ABOVE, LESS SILT.
					8	SAME AS ABOVE.
					9	SAME AS ABOVE.
SS	B9-10-A, B, BIT	1000+/4		4,4,5 /70%	10	SAME AS ABOVE, W/WOOD CHIPS, INCREASED FILL PARTICLES.
					11	[ML] SAME AS ABOVE.
					12	SLTY CLAY, BLACK, MOIST.
					13	SAME AS ABOVE.
					14	SAME AS ABOVE.
SS	B9-15-A, B,C,D	0/0.5		4,5,10 /30%	15	SAME AS ABOVE, COLLECTED FIELD DUPLICATE.
					16	[SM] SLTY. SD., BLACK, F. TO M. GR., COMMON BEACH SHELLS, WET. SAME AS ABOVE.
					17	SAME AS ABOVE.
					18	SAME AS ABOVE.
					19	SAME AS ABOVE.
SS	B9-20-A, B, BIT	0/0		5,5,6 /75%	20	SAME AS ABOVE.
					21	SAME AS ABOVE.

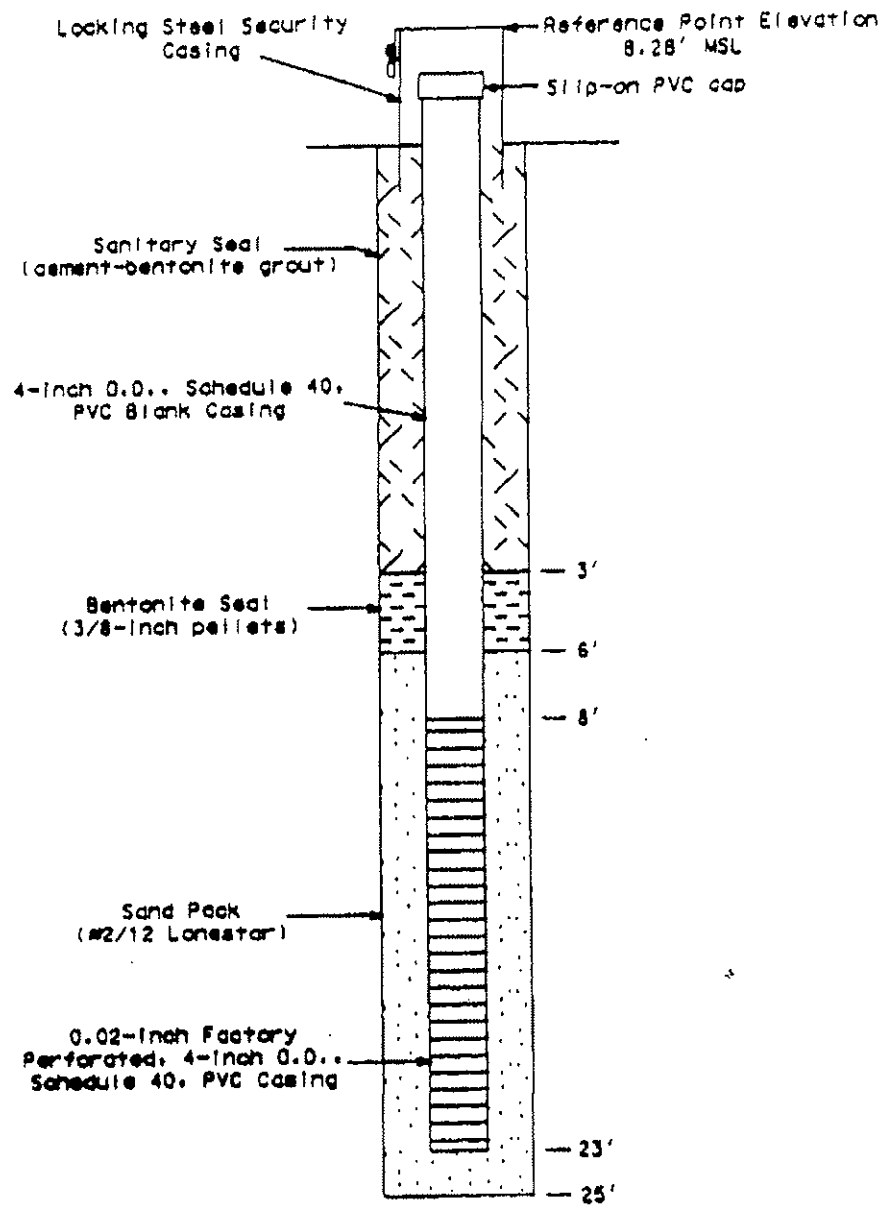
Log Continued on Next Page

PROJECT NAME: ASCON
LOCATION: HUNTINGTON BEACH, CO.
GEOLOGIST: RMM,SAA
AMBIENT OVA: 0 ppmv
OVA ID #: 07, RAS-SAC
AMBIENT HNU: 0 ppmv
HNU ID #: 19, RAS-SAC

SITE: ASCON
BOREHOLE NUMBER: 9
STARTING DATE/TIME: 8-23-88/10:10
FINISHING DATE/TIME: 8-23-88/12:30
DRILLING COMPANY: DATUM EXPLORATION
DRILLERS NAMES: JAK,REG
DRILLING METHOD: HOLLOW STEM AUGERS

SAMPLE TYPE	SAMPLE NUMBER	OVA/HNU READING	DOWN HOLE FLUX READING	BLOW COUNTS/ PERCENT RECOVER	Feet	Visual Classification
					22	SAME AS ABOVE.
					23	SAME AS ABOVE.
					24	SAME AS ABOVE.
SS		0/0		21,29, 35/70%	25	SLTY. SD., F. TO M. GR., WHITE GRAINS, BLACK DISCOLORIZATION, WET.
					26	SAME AS ABOVE.
					27	SAME AS ABOVE.
					28	SAME AS ABOVE.
					29	SAME AS ABOVE.
SS		0/0		12, 17,10	30	SAME AS ABOVE, TOTAL DEPTH = 30 FEET BLS.

-13.6
7.8
-14.6
8.1
-18.7
27
9.4
Dec 34



Well Construction Diagram for MW-13, Constructed 8/24/88.

PROJECT NAME: ASCON
LOCATION: HUNTINGTON BEACH, CO.
GEOLOGIST: RMM,SAA
AMBIENT OVA: 0 ppmv
OVA ID #: 07, RAS-SAC
AMBIENT HNU: 0 ppmv
HNU ID #: 19, RAS-SAC

SITE: ASCON
BOREHOLE NUMBER: 13 (MW-13)
STARTING DATE/TIME: 8-24-88/08:30
FINISHING DATE/TIME: 8-24-88/10:25
DRILLING COMPANY: DATON EXPLORATION
DRILLERS NAMES: JAK,ZEG
DRILLING METHOD: HOLLOW STEM AUGERS

SAMPLE TYPE	SAMPLE NUMBER	OVA/HNU READING	DOWN HOLE FLUX READING	BLOW COUNTS/ PERCENT RECOVER	Feet	Visual Classification
			NA		1	[ML] SURFACE: SDY. SLT., LT. GRY. BRN., DRY, LT. BRN., SOME GRAVEL.
					2	M. BRN., MOIST.
					3	
					4	SOME M. BRN. CLAY.
SS	B13-5-A B, BIT	0/5		3,3,5 /90%	5	[CL] SLTY. CLAY, M. BRN., MOIST, SOME BLACK AND RED BRN. STREAKS, SOME GRAVEL. SAME AS ABOVE.
					6	
					7	
					8	
					9	
SS	B13-10-A,B,BIT	0/0		3,2,7 /90%	10	SDY. SLTY. CLAY, DK. GRY., MOIST.
					11	SLTY. CLAY, DK. GRY., MOIST.
					12	
					13	
					14	
SS	B13-15-A,B,BIT	0/0		7,8,8 /80%	15	[SM] SLTY SD., DK. GRY., VF. TO F. GR., WET, SLIGHT CLAY, COMMON BEACH SHELLS.
					16	
					17	
					18	
					19	
SS		0/0		21,37, 35/ 80%	20	F. TO M. GR.
					21	

Log Continued on Next Page

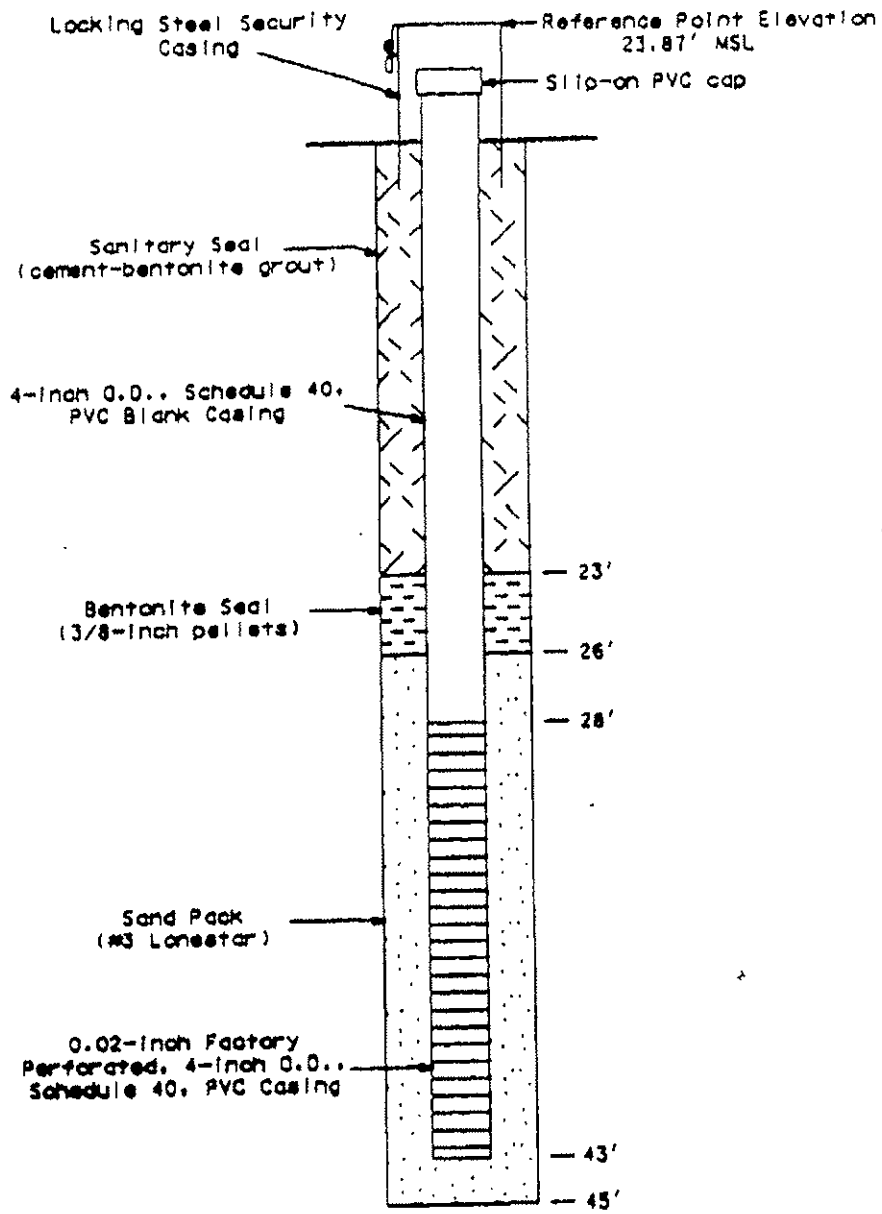
PROJECT NAME: ASCOM
LOCATION: HUNTINGTON BEACH, CO.
GEOLOGIST: RMM,SAA
AMBIENT OVA: 0 ppmv
OVA ID #: 07, RAS-SAC
AMBIENT HNU: 0 ppmv
HNU ID #: 19, RAS-SAC

SITE: ASCOM
BOREHOLE NUMBER: 13
STARTING DATE/TIME: 8-24-88/08:30
FINISHING DATE/TIME: 8-24-88/10:25
DRILLING COMPANY: DATUM EXPLORATION
DRILLERS NAMES: JAK,REG
DRILLING METHOD: HOLLOW STEM AUGERS

SAMPLE TYPE	SAMPLE NUMBER	OVA/HNU READING	DOWN HOLE FLUX READING	BLOW COUNTS/ PERCENT RECOVERY	Feet	Visual Classification
					22	
					23	
					24	
SS		0/0		4,18,23 /80%	25	TOTAL DEPTH = 25 FEET BLS.

A1
-18.9

7.9



Well Construction Diagram for MW-14, Constructed 9/16/88.

PROJECT NAME: ASCOM
LOCATION: HUNTINGTON BEACH
GEOLOGIST: SAA,RMM
AMBIENT OVA: 3
OVA ID #: 08
AMBIENT HNU: 0
HNU ID #: 07

SITE: ASCOM
BOREHOLE NUMBER: 14 (MW-14)
STARTING DATE/TIME: 9/16/88
FINISHING DATE/TIME: 9/16/88
DRILLING COMPANY: DATUM EXPORATION
DRILLERS NAMES: JEFF,JIM
DRILLING METHOD: HOLLOW STEM AUGERS

SAMPLE TYPE	SAMPLE NUMBER	OVA/HNU READING	DOWN HOLE FLUX READING	BLOW COUNTS/ PERCENT RECOVER	Feet	Visual Classification
					1	(ML) SURFACE: SANDY SILT W/ABUNDANT GRAVEL, LT. BRN., DRY
				15,18, 22	2	SANDY SILT, MED. TO DK. BRN, ABUN. GRAVEL & CONCRETE DEBRIS COMMON CLAY
					3	DARDER BRN. TO GRAY, SOME CLAY, LHC ODOR, MOIST
					4	
					5	SANDY SILT, DK. BRN. TO GRAY BLACK, COMMON CLAY, HC ODOR MOIST
					6	
					7	DEBRIS, HAD TO MOVE HOLE
					8	
					9	
					10	CONCRETE DEBRIS, NO SAMPLE
					11	
					12	(CL) SILTY CLAY, GRAY BLACK, STRONG ODOR
					13	
					14	
					15	
					16	SILTY CLAY, SOME SAND & GRAVEL, GRAY BLACK, MOIST FIELD DUPLICATE COLLECTED AT 16' BLS
					17	
					18	
					19	
					20	SAME, SAND LAYER AT APPROX. 19 FEET BLS
					21	

Log Continued on Next Page

PROJECT NAME: ASCON
LOCATION: HUNTINGTON BEACH
GEOLOGIST: SAA,RMR
AMBIENT OVA: 3
OVA ID #: 08
AMBIENT HNU: 0
HNU ID #: 07

SITE: ASCON
BOREHOLE NUMBER: 14
STARTING DATE/TIME: 9/16/88
FINISHING DATE/TIME: 9/16/88
DRILLING COMPANY: DATUM EXPORATION
DRILLERS NAMES: JEFF,JIM
DRILLING METHOD: HOLLOW STEM AUGERS

SAMPLE TYPE	SAMPLE NUMBER	OVA/HNU READING	DOWN HOLE FLUX READING	BLOW COUNTS/ PERCENT RECOVER	Feet	Visual Classification
					22	SAME, LESS SILT, SAND & GRAVEL, STRONG LHC ODOR
				-2.90 -3.1	23	7.3
					24	
SS	25A,B	20/15		3,6,10	25	SILT CLAY, GRAY BLACK, SLIGHT F.C. SD., MOIST, LHC ODOR
					26	
					27	BECOMING V. SILTY
					28	
					29	
SS		T/0		6,19,21	30	9.3 [SM] SILTY SAND, GRAY BLACK, WET; (LOST SPLIT SPOON SAMPLE)
				-9.1	31	
					32	
					33	
					34	
					35	SAME, (CUTTINGS)
					36	
					37	
					38	
					39	
					40	SAME, (CUTTINGS)
					41	
					42	
					43	

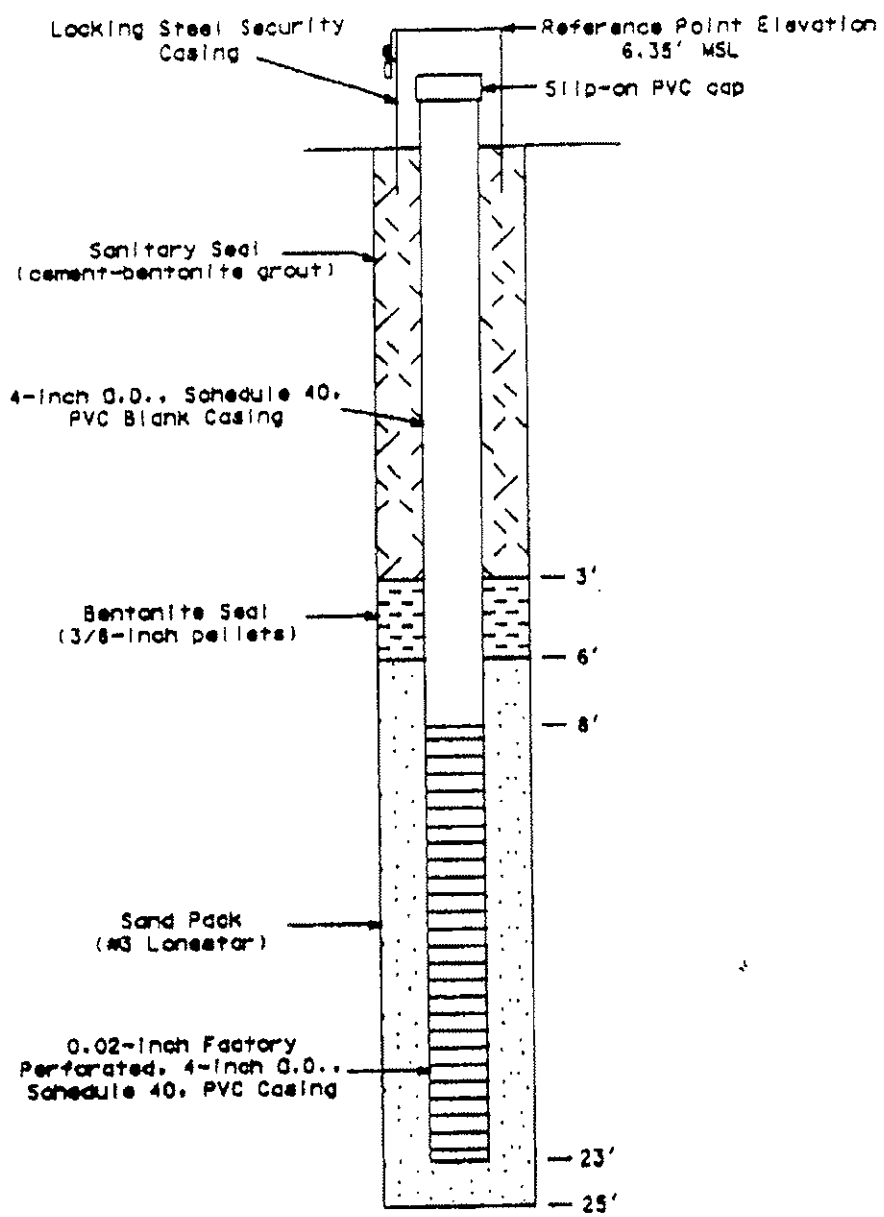
Log Continued on Next Page

PROJECT NAME: ASCOM
LOCATION: HUNTINGTON BEACH
GEOLOGIST: SAA,RMM
AMBIENT OVA: 3
OVA ID #: 08
AMBIENT HNU: 0
HNU ID #: 07

SITE: ASCOM
BOREHOLE NUMBER: 14
STARTING DATE/TIME: 9/16/88
FINISHING DATE/TIME: 9/16/88
DRILLING COMPANY: DATUM EXPORATION
DRILLERS NAMES: JEFF,JIM
DRILLING METHOD: HOLLOW STEM AUGERS

SAMPLE TYPE	SAMPLE NUMBER	OVA/HNU READING	DOWN HOLE FLUX READING	BLOW COUNTS/ PERCENT RECOVER	Feet	Visual Classification
					44	
					45	SILTY SAND, GRAY BLACK, WET TOTAL DEPTH = 45' BLS.
					-25	

14.4



Well Construction Diagram for MW-15, Constructed 9/19/88.

PROJECT NAME: ASCON
LOCATION: HUNTINGTON BEACH
GEOLOGIST: S&A,RMH
AMBIENT OVA: 1.5
OVA ID #: 08
AMBIENT HNU: 8.4
HNU ID #: 07

SITE: ASCON
BOREHOLE NUMBER: 15 (mw-15)
STARTING DATE/TIME: 9/19/88
FINISHING DATE/TIME: 9/19/88
DRILLING COMPANY: DATUM EXPORATION
DRILLERS NAMES: JIFF,JIM
DRILLING METHOD: HOLLOW STEM AUGERS

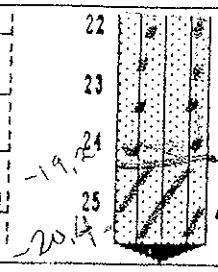
SAMPLE TYPE	SAMPLE NUMBER	OVA/HNU READING	DOWN HOLE FLOW READING	BLOW COUNTS/ PERCENT RECOVER	Feet	Visual Classification
					1	(ML) SURFACE: SANDY SILT W/SOME GRAVEL, MED. BRN., DRY
					2	
SS	3A,B	1.5/7		4,5,4 100	3	(CL) SILTY CLAY W/MINOR SAND/GRAVEL, LT. BRN., MOIST CHUNKS OF ASPHALT-LIKE MATERIAL
					4	
					5	CLAY, SAME
					6	
SS	7A,B	5/1.5		5,3,2 100	7	SILTY CLAY, GRAY WITH BRN. OXIDATION, V. MOIST TO WET
					8	(SM) SILTY SAND, V. FINE TO FINE, MED. GRAY, WET
					9	
SS	10A,B	1.5/4.5		9,10,13 100	10	SILTY SAND, V. FINE TO FINE, MED. GRAY, WET, COMMON SHELLS
					11	
					12	
					13	
					14	
SS	15A,B	1.5/4.5		N/A 100	15	SAME
					16	
					17	
					18	
					19	
SS	20A,B	1.5/6		7,17,21 100	20	SAME, FINE GRAINED, LT. GRAY, LESS SILT
					21	

Log Continued on Next Page

PROJECT NAME: ASCON
LOCATION: HUNTINGTON BEACH
GEOLOGIST: SAA,RHH
AMBIENT OVA: 1.5
OVA ID #: 08
AMBIENT HNU: 8.4
HNU ID #: 07

SITE: ASCON
BOREHOLE NUMBER: 15
STARTING DATE/TIME: 9/19/88
FINISHING DATE/TIME: 9/19/88
DRILLING COMPANY: DATUM EXPORATION
DRILLERS NAMES: JEFF,JIM
DRILLING METHOD: HOLLOW STEM AUGERS

SAMPLE TYPE	SAMPLE NUMBER	OVA/HNU READING	DOWN HOLE FLOW READING	BLOW COUNTS/ PERCENT RECOVER	Feet	Visual Classification
					22	
					23	
					24	
STD PN		1.5/2.5		100	25	SAME, BECOMING COARSER GR., FINE TO MED. LT. GRAY, SHELLS TOTAL DEPTH = 25' BLS.

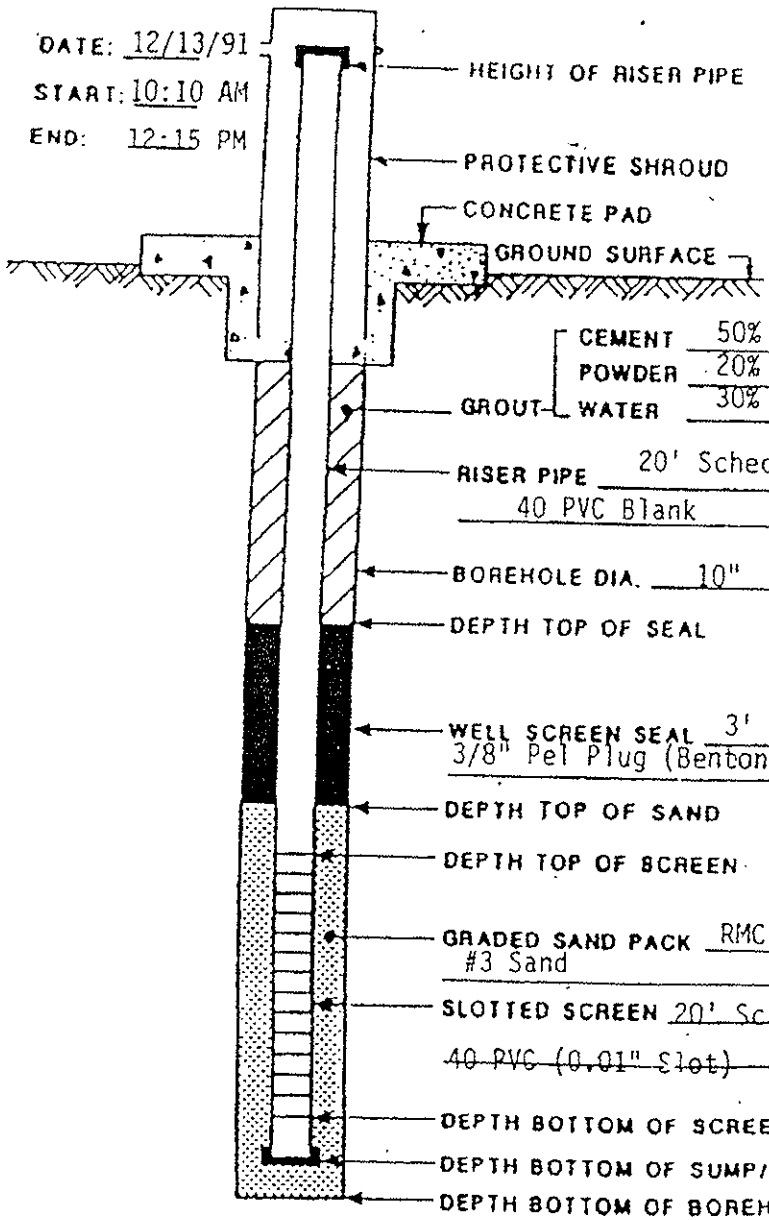


-19.7
7.6
SW-SP
-20.4
8.0

ISCO/ITARA Monitoring Wells
Completed in 1991 (NMW-1 and NMW-2)

ISCO/ITARA (1992)

DATE: 12/13/91
START: 10:10 AM
END: 12:15 PM



HEIGHT OF RISER PIPE 1' - 6"

PROTECTIVE SHROUD

CONCRETE PAD

GROUND SURFACE 0

GROUT: CEMENT 50%, POWDER 20%, WATER 30%

RISER PIPE 20' Schedule 40 PVC Blank

BOREHOLE DIA. 10"

DEPTH TOP OF SEAL 13' - 5"

WELL SCREEN SEAL 3' of 3/8" Pel Plug (Bentonite Pellets)

DEPTH TOP OF SAND 16' - 8"

DEPTH TOP OF SCREEN 19'

GRADED SAND PACK RMC Lone Star #3 Sand

SLOTTED SCREEN 20' Schedule ~~40 PVC (0.01" Slot)~~

DEPTH BOTTOM OF SCREEN 38' - 8"

DEPTH BOTTOM OF SUMP/CAP 39'

DEPTH BOTTOM OF BOREHOLE ~~39' - 4"~~

WELL LOCATION: MW #1

BORING NO.: LOC 51

WELL NO.:

PVC PIPE: 20' , Ø , Ø , 20'

SCREEN: 20' , Ø , Ø , 20'

SUMP: 4" PVC cap , 4" wood Plug 4"

PVC LENGTH: 20' Blank + 20' screen 40'

CASING DEPTH: 21' " Conductor Casing

CENTRALIZERS: None

DRILLING METHOD: 18" Bucket Auger for Condutor Casing Hollow Stem for Well

DRILLING FLUID: None

WELL DEVELOPMENT: Bailer Sample revealed No quick recovery well to be developed ~~12/16/91~~

WELL YIELD:

REMARKS

On 12/11/ using an 18" Bucket Auger a 21'-6" hole was completed. A 10" steel conductor casing was set in the hole and grouted in place. A Bentonite Plug (2' Minimum) was placed in the bottom of the hole.
On 12/13/91 The PVC pipe was set. The screen ~~had the sand placed around it @ 11:40,~~ the Bentonite Pellets were placed and at 12:00 the grouting was completed.
See Borehole Log.

PROJECT NAME: NESI ENG./GEO.: J. STAPLETON DATE: 12/13/91

PROJECT NO.: 203533 CHECKED BY: W. IBRAHIM DATE: 12/13/91

INTERNATIONAL TECHNOLOGY CORPORATION

FIELD LOG OF BORING 51 - MW 1

PROJECT NUMBER: 203533	PROJECT NAME: NESI	SHEET 1 OF 3
ENGINEER/GEOLOGIST: J. STAPLETON	COORDINATES:	
GROUND SURF. ELEV.:	GWL Depth / Date/Time	DATE STARTED: 12/11/91
TOP OF CASING ELEV.:	GWL Depth / Date/Time	DATE COMPLETED: 12/13/91

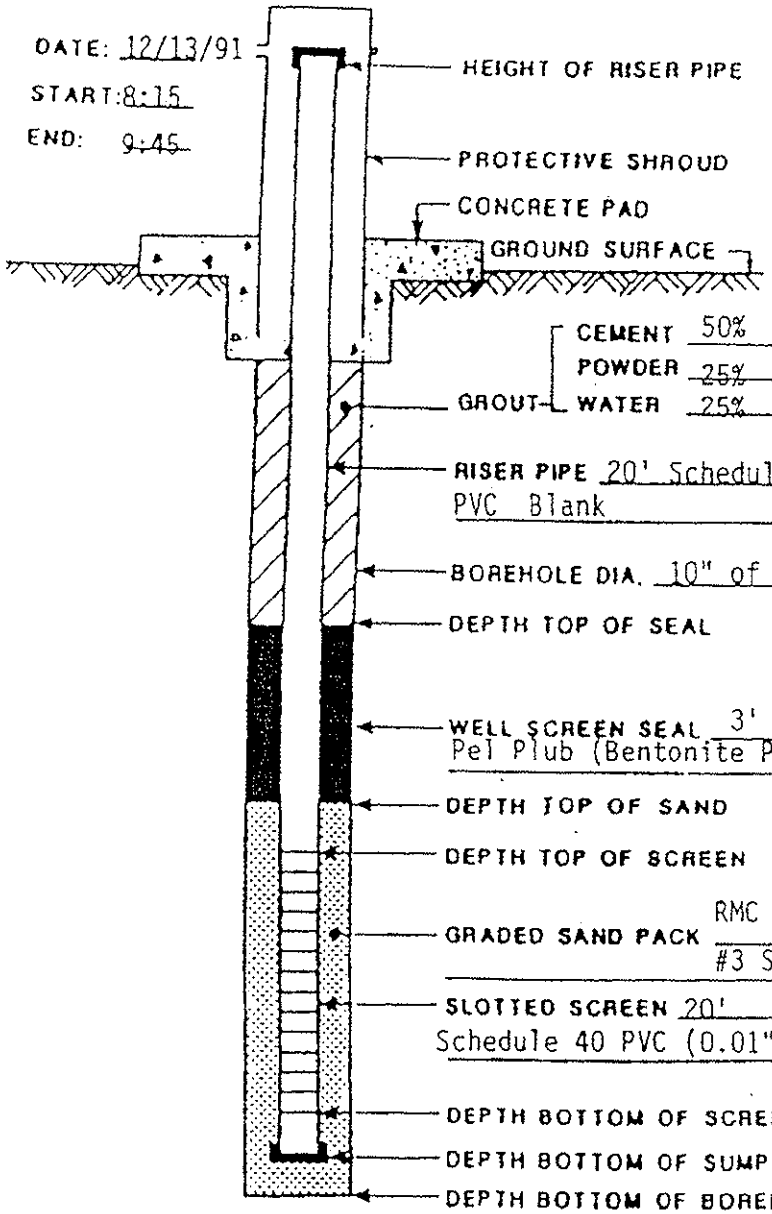
DEPTH, FT.	BLOWS/FOOT	SAMPLE TYPE AND NO.	USCS	MEASURED CONSISTENCY TSF	RECOVERY	RINGS SAVED/ OVA READINGS	WELL CASING	WELL BACKFILL	Consistency/Color/Minor Material/Major Material/Moisture/Additional Descript.
									Hole drilled with an 18" Bucket Auger to a depth of 21' - 6". 10" Steel conductor casing set with a 2' Bentonite plug at the bottom of the hole and cement grout around the casing, in preparation for putting in monitor well, MW #1
20.0									
			SP						0' - 3' Brown Gravelly Sand Organic Material
7.0									3' - 7' Fine Grained Brown Sand Strong Solvent Odor Drill Crew on 1/2 Fave Respirator
5			SP						
									7' - 17' Grey Black Oily Clay pH - 14
13.0			ML						
10									
*			ML						Sample Collected From Auger Grey Black Oily Clay
15									
			SC						17'- 20' Grey Black Fine Grained Sand Solvent Odor Present Stained by Oil
20			ML						20'-21' 6" Grey Black Silty Clay No Odor

FIELD LOG OF BORING 51 - MW 1

OJECT NUMBER: 203533	PROJECT NAME: NESI	SHEET 2 OF 3
NEER/GEOLOGIST: J. STAPLETON	COORDINATES:	
GROUND SURF. ELEV.:	GWL Depth Date/Time	DATE STARTED: 12/11/91
TOP OF CASING ELEV.:	GWL Depth Date/Time	DATE COMPLETED: 12/13/91

DEPTH, FT.	BLOWS/FOOT	SAMPLE TYPE AND NO.	USCS	MEASURED CONSISTENCY TSF	RECOVERY	RINGS SAVED/ OVA READINGS	WELL CASING	WELL BACKFILL	Consistency/Color/Minor Material/Major Material/Moisture/Additional Descript.
21			ML						21'-6"- 25' Grey Black Silty Clay Moist Stopped Using Bucket Auger @ 21'-6" Set 10" Steel Conductor Casing in Hole With A 2' Bentonite Plug At The Bottom and Cement Grout Around The Casing, Thereby Isolating The Contamination.
-5.0 25			SM						25'- TD Grey Black Fine Grained Sand Moist Sea Shells
									12/13/91 Resumed Drilling Borehole with Hollow Stem Auger. Set 4" PVC Well Pipe. See Well Diagram for Information.
30									
35									
19.0									
40									TD @ 39'-4"

DATE: 12/13/91
START: 8:15
END: 9:45



WELL LOCATION: MW #2

BORING NO.: LOC 52

WELL NO.: MW 2

PVC PIPE: 20' · Ø · Ø · 20'

SCREEN: 20 · Ø · Ø · 20'

SUMP: cap 4"PVC · plug 4"WOOD 8"

PVC LENGTH: 20'Blank 20'screenØ · 40'

CASING DEPTH: 23'-6"-10" steel conductor casing

CENTRALIZERS: none

DRILLING METHOD: ~~18" Bucket for casing-~~ Hollow stem Auger for Monitor Well

DRILLING FLUID: None

WELL DEVELOPMENT: Surged well prior to grouting Well developed on 12/16/91

WELL YIELD:

REMARKS

On 12/11/91 using an 18" Bucket Auger to a depth of 23'-6" a hole was drilled. A 10" steel ~~conductor casing was set with a 2' Bentonite plug at the bottom of the hole and cement~~ grout ~~around the casing. On 12/13/91 the PVC~~ well pipe ~~was set and at 9:45 the Bentonite pellets~~ were placed above the screen and grout placed at 12:25. See Borehole logs.

PROJECT NAME: NESI ENG./GEO.: J. Stapleton DATE: 12/13/91

PROJECT NO.: 203533 CHECKED BY: W. Ibrahim DATE: 12/13/91

INTERNATIONAL TECHNOLOGY CORPORATION

FIELD LOG OF BORING 52 - MW2

PROJECT NUMBER: 203533	PROJECT NAME: NESI		SHEET 1 OF 3
ENGINEER/GEOLOGIST: J. STAPLETON	COORDINATES:		
GROUND SURF. ELEV.:	GWL Depth	Date/Time	DATE STARTED: 12/11/91
TOP OF CASING ELEV.:	GWL Depth	Date/Time	DATE COMPLETED: 12/13/91

Hole drilled with an 18" Bucket Anuger to a depth of 23'-6'
A 10" steel conductor casing set with a 2' Bentonite Plug at the bottom of the hole and cement grout around the casing in preparation for putting in monitor well #2.

DEPTH, FT.	BLOWS/FOOT	SAMPLE TYPE AND NO.	USCS	MEASURED CONSISTENCY TSF	RECOVERY	RINGS SAVED/ OVA READINGS	WELL CASING	WELL BACKFILL	Consistency/Color/Minor Material/Major Material/Moisture/Additional Descript.
10.0									
			SP						0' - 3' Brown Gravelly Sand Organic Material
7.0			CL						3' - 10' Grey Black Silty Sandy Clay Gooey Oily Strong Odor Interbedded Sand Lenses
5									
10			CL						10' - 14' Grey Black Clay Strong Odor Oily
1.0			SM						14' - 20' Grey Black Fine Grained Sand No Odor
15									
20			CL						20'-23'6" Grey Black Fine Grained Silty Clay No Odor

FIELD LOG OF BORING 52 MW 2

PROJECT NUMBER: 203533	PROJECT NAME: NESI	SHEET 2 OF 3
INEER/GEOLOGIST: J. STAPLETON	COORDINATES:	
GROUND SURF. ELEV.:	GWL Depth / Date/Time	DATE STARTED: 12/11/91
TOP OF CASING ELEV.:	GWL Depth / Date/Time	DATE COMPLETED: 12/13/91

DEPTH, FT.	BLOWS/FOOT	SAMPLE TYPE AND NO.	USCS	MEASURED CONSISTENCY TSF	RECOVERY	RINGS SAVED/ OVA READINGS	WELL CASING	WELL BACKFILL	Consistency/Color/Minor Material/Major Material/Moisture/Additional Descript.
			SM						23'-6" - TD Grey Black Silty Fine Grained Sand Very Moist Sea Shells Stopped using Bucket Auger at 23'-6" Set steel conductor casing in hole with a 2' Bentonite plug at the bottom and cement grout around the casing thereby isolating contamination.
25									12/13/91 Resumed drilling borehole with Hollow stem Auger. Set 4" PVC Well Pipe See Well Diagram for Information.
30									
35									
40									TD @ 38' - 4"

PNL Monitoring Wells, Piezometers, and Geoprobe Wells Completed in 2002 (MW-16 through MW-18, P-1 through P-10, and GP-1 through GP-2)

(PNL, 2002a and PNL, 2003)

BORING NO. MW-16

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Split Spoon AND DIMENSION 18-inch

FIELD ENGINEER J. Russo

EDITED BY

CHECKED BY

COORDINATES N 2[illegible]84734.5505 E 6[illegible]7550.1556

DATE BEGAN 7/31/02

DATE FINISHED 7/31/02

GROUND SURFACE EL. 9.47' T.O.C.

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)	SAMPLE NO. AND TYPE	U.S.C.S.	PROFILE/ LITHOLOGY	DESCRIPTION
0						Grass ground surface. Hand augered for utility clearance to 5 feet bgs. Commenced drilling pilot boring for MW-16 at 10:00 on 7/31/02.
5	0	5 6 4	SS	SP		Poorly Graded Sand (SP); Brown (10YR, 5/3); fine to medium grained sand (95%); subrounded; fine sand and silt (5%); moist; loose; no HC staining; no HC odor.
				ML		Clayey Silt (ML); Dark Gray (10YR, 4/1); medium plasticity; firm; moist; no HC staining; no HC odor.
10	0	6 7 7	SS	SP-SM		Poorly Graded Sand with Silt (SP-SM);
				ML		Sandy Silt (ML); Very Dark Grayish Brown (10YR, 3/2); silt (80%); medium grained sand (20%); subrounded; abundant shells; firm; non-plastic; very moist; no HC staining; no HC odor.
15	0	7 9 10	SS	ML		
				SP		Poorly Graded Sand (SP); Very Dark Grayish Brown (10YR, 3/2); medium grained sand (95%); fine sand and silt (5%); subrounded to angular; saturated; predominant quartz (95%), with occassional biotite micas (5%); no HC staining; no HC odor.
20						Bottom of well 22 feet
						Bottom of pilot boring 22 feet
25						
30						
35						
40						
45						

Notes: Set bottom of well at 22.00 feet. Set 4-inch diameter Schedule 40 PVC perforated (0.02-inch) casing 7 to 22 feet; followed by 10 feet of blank schedule 40 PVC casing; followed by 7½-50 lbs bags of #2/12 Monterey Sand from 5 to 22 feet; followed by ½ of 50 lb bag of #60 Transition sand from 4 to 5 feet; followed by hydrated bentonite seal (pellets) from 1 to 4 feet. Introduced approximately 25 gallons of potable water to suppress heaving sands. Measurements of well construction materials based on top of ground surface.

Example Field Boring Log

Figure 4

TM No. 1
Ascon Site, Huntington Beach, California

July 10, 2002

PROJECT NAVIGATOR, LTD.

BORING NO. MW-17 SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling
SAMPLER TYPE Split Spoon
AND DIMENSION 18-inches
FIELD ENGINEER J. Russo
EDITED BY
CHECKED BY

COORDINATES N 2184740.1220 E 6036674.168
DATE BEGAN 7/31/02
DATE FINISHED 7/31/02
GROUND SURFACE EL. 7.63 T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)	SAMPLE NO. AND TYPE	U.S.C.S.	PROFILE/ LITHOLOGY	DESCRIPTION
0						Grass ground surface. Hand augered for utility clearance to 5 feet bgs. Commenced drilling pilot boring for MW-17 at 07:40 on 7/31/02.
5	0	4 4 6	07:43	SM ML		Silty Sand (SM); Brown (10YR, 5/3); fine to medium grained (80%); silt (20%), angular; loose; non-cemented; slightly cohesive; moist, no HC staining; no HC odor. Clayey Silt (ML); Dark Grayish Brown (10YR, 4/2); silt (80%); clay (20%); medium plasticity; moist; no HC staining; no HC odor.
10	0	4 5 6	07:47	ML		Sandy Silt (ML); Very Dark Grayish Brown (10YR, 3/2); silt (80%); medium grained sand (20%); firm; low plasticity; very moist; no HC staining; No HC odor. Static water at 11.45 feet on 8/9/02
15	0	7 10 11	07:51	SP		Poorly Graded Sand (SP); Gray (10YR, 5/1); fine to medium grained sand (95%), fine sand and silt (5%); subrounded; medium dense; saturated; predomant quartz (95%), with occasional biotite mica (5%); no HC staining; no HC odor.
20						Bottom of well 22 feet from top of ground surface.
						Bottom of pilot boring 24 feet
25						
30						
35						
40						
45						

Notes: Set bottom of well at 22 feet. Set 4-inch diameter Schedule 40 PVC perforated (0.02-inch) casing 7 to 22 feet; followed by 10 feet of blank schedule 40 PVC casing; followed by 7½-50lb bags of #2½ Monterey Sand from 5 to 22 feet; followed by ½ of 50 lb bag of #60 Transition sand from 4 to 5 feet; followed by hydrated bentonite seal (pellets) from 1 to 4 feet. Introduced approximately 20 gallons of potable water to suppress heaving sands. Measurements of well construction materials based on top of ground surface.

Example Field Boring Log		Figure 4
TM No.1 Ascon Site, Huntington Beach, California	July 10, 2002	PROJECT NAVIGATOR, LTD.

BORING NO. MW-18 | SHEET 1 OF 1

DRILLING CO./RIG: West Hazmat Drilling
SAMPLER TYPE AND DIMENSION: Split Spoon, 18-inch
FIELD ENGINEER: J. Russo
EDITED BY:
CHECKED BY:

COORDINATES: N 2183742.8466, E 6038641.6375
DATE BEGAN: 7/31/02
DATE FINISHED: 7/31/02
~~GROUND~~ SURFACE EL.: 9.14' T.O.C.

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)	SAMPLE NO. AND TYPE	U.S.C.S.	PROFILE/ LITHOLOGY	DESCRIPTION
0						3-inch thick asphalt paved surface. Hand augered for utility clearance to 5 feet bgs. Commenced drilling pilot boring for MW-18 at 13:06 on 7/31/02.
5	0	4 5 6	SS	ML / SP		Sandy Silt (ML): Very Dark Gray (10YR, 3/1); S. (80%); fine to medium grained sand (20%); subrounded; few sea shells; firm; non-plastic; moist; no HC staining; no HC odor. Poorly Graded Sand (SP): Very Dark Grayish Brown (10YR, 3/2); fine to medium grained sand (95%); fine sand and silt (5%); subrounded to angular; loose; saturated; some sea shells; predominant quartz (95%), with occassional biotite micas (5%); no HC staining; no HC odor.
10	0	6 6 7	SS	SP		
15	0	6 7 7	SS	SP		Poorly Graded Sand (SP): Gray (10YR, 5/1); same as above. Static water encountered at 9 feet.
20						Bottom of well. Bottom of pilot boring
25						
30						
35						
40						
45						

Notes: Set bottom of well at 20.00 feet. 4-inch diameter Schedule 40 PVC perforated (0.020-inch) Casing 5 to 20 feet; followed by 5 feet of blank schedule 40 PVC casing; followed by 7½ bags of #2/12 Monterey Sand from 4 to 20 feet; followed by #60 Transition Sand from 3½ to 4 feet; followed by hydrated bentonite seal (pellets) from 6-inches to 3½ feet. Introduced approximately 20 gallons of potable water to suppress heaving sands. Measurements of well construction materials based on top of surface.

Example Field Boring Log — Figure 4

TM No. 1
Ascon Site, Huntington Beach, California — July 10, 2002 — PROJECT NAVIGATOR, LTD.

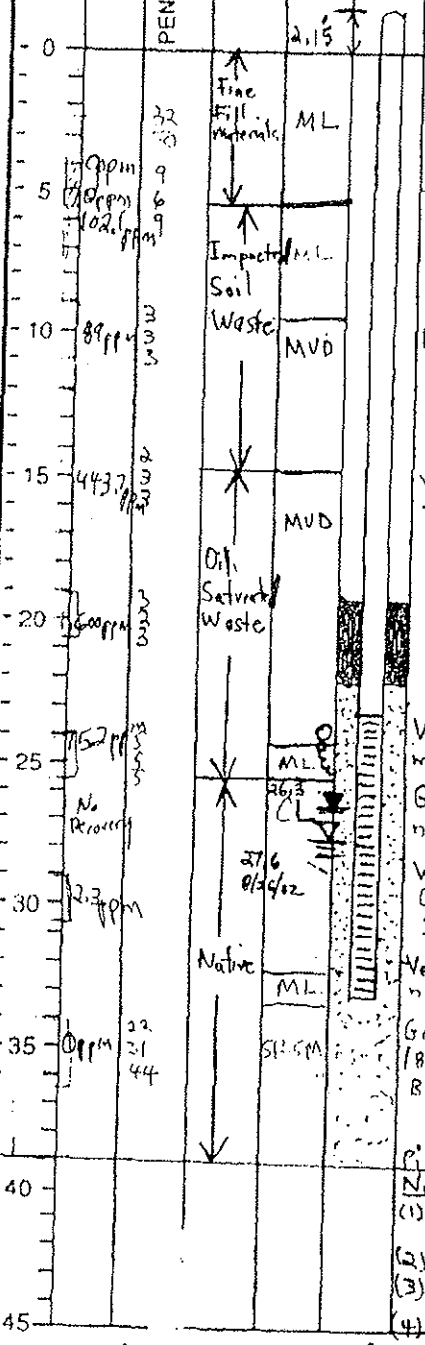
BORING NO. P-1

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling
SAMPLER TYPE 4-foot core barrel
AND DIMENSION
FIELD ENGINEER J. Russo
EDITED BY J. Russo
CHECKED BY R. Puga

COORDINATES N 2184478.1548
E 6036948.9052

DATE BEGAN 8/26/02
DATE FINISHED 8/26/02
GROUND SURFACE EL. 25.27' 27.42' T.O.C.



DESCRIPTION

Ice Ivy Ground Cover.

Pale Brown (10YR, 6/3); SANDY SILT (ML); surface to 5 feet; silt (90%); fine grained sand (10%); low plasticity; damp; no HC staining; no HC odor.
Oil Waste Starts at 5 feet bgs.

Very Dark Gray (10YR, 3/1); SILT (ML); 5 to 9 feet; silt (100%); trace gravel; firm; non-plastic; moist; HC staining; HC odor.

Dark Gray (10YR, 4/1); DRILLING MUD; 9 to 15 feet; trace clay; HC staining; HC odor.

Very Dark Gray (10YR, 3/1); DRILLING MUD WITH OIL SATURATED ZONES; 15 to 24 feet; trace clay; HC staining; HC odor.

Very Dark Gray (10YR, 3/1); SILT (ML); 24 to 25½ feet; silt (~100%) low plasticity; very moist; HC staining; HC odor.

Gray (10YR, 5/1); CLAY (CL); 25½ to 32 feet; medium plasticity; stiff; moist; no HC staining; no HC odor.

Waste terminates at 25½ feet
Groundwater encountered at 27½ feet inside of auger.
Static water level at 14:00 hours on 8/26 is 26.3 feet bgs

Very Dark Grayish Brown (10YR, 3/2); SILT (ML); 32 to 33 feet; low plasticity; very moist; no HC staining; no HC odor.

Gray (10YR, 5/1); POORLY GRADED SAND WITH SILT (SP-SM); 33 to 39 feet; fine grain sand (80%); silt (20%); seashells; wet; no HC staining; no HC odor
Bottom of Well at 33 feet.

Pilot boring terminates at 39 feet.

Notes:
(1) Used 2-inch diameter California Split Spoon Sampler.
(2) HC - Hydrocarbon
(3) Oil waste consists of black free-phase hydrocarbons.
(4) Commenced drilling P-1 at 08:14 on 8/26/02.

Groundwater at time of drilling
Groundwater measured after well completed
Water Seepage

Notes: Used 8-inch O.D. augers for pilot boring for lithologic sampling. Reamed pilot boring with 12-inch O.D. augers to set 6-inch diameter PVC casing. Set bottom of well at 33 feet. Set well screen (0.02-inch) from 23 to 33 feet. Used 6 – 100 lb bags of #2/12 sand from 22 to 39 feet bgs; 2 – 50 lb bags of bentonite chips (hydrated with approximately 5 gallons of water) from 19 to 22 feet bgs; 80 gallons of bentonite slurry from surface to 19 feet bgs. PVC stickup is 2.15 feet tall; with PVC slip caps.

Example Field Boring Log

Figure 4

TM No 1
Ascon Site, Huntington Beach, California

July 10, 2002

PROJECT NAVIGATOR, LTD.

BORING NO. P-2

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling
SAMPLER TYPE 4-foot core barrel
AND DIMENSION
FIELD ENGINEER J. Russo
EDITED BY J. Russo
CHECKED BY R. Puga

COORDINATES N 2184615.2694
E 6037430.8672
DATE BEGAN 8/26/02
DATE FINISHED 8/26/02
GROUND SURFACE EL. 22.16' 24.36' T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) (1)	Profile	U.S.C.S	Well As-built	DESCRIPTION
0				2.20		Gravel and sediment ground surface.
		37				
		23		SM		Pale Brown (10YR, 6/3); SILTY SAND (SM); surface to 2 feet; fine to medium grained Sand (~80%); Dense; non-cohesive; dry; no HC staining; no HC odor.
		41				
		36				
		19				
5	0ppm	39	Fine Fill Materials	ML		Dark Brown (10YR, 3/3); SANDY SILT (ML); 2 to 13 feet; silt (~90%); fine grained sand (~10%); non-plastic; damp; no HC staining; no HC odor.
		10				
		10				
		16				
	16.2ppm					Encountered Oil waste from 12 to 25½ feet
10		5				
		6				
		7				Sample I.D.: Ascon-P2-15'. Sample collected in 2-stainless steel sleeves; 3-Encore Containers; 2-4oz jars; for analysis for 8260B, 8015M, 8270C and 6010B, for VOCs, TPH, SVOC and STLC, respectively.
	1026ppm			Mud		Dark Gray (10YR, 4/1); DRILLING MUD; 13 to 19 feet; trace clay; HC staining; strong HC odor; oily saturated drilling mud.
15		2	Oil Saturated Waste			
		2				
20	1,787ppm	4		ML		Very Dark Grayish Brown (10YR, 3/2); SILT (ML); 19 to 20½ feet; silt (~100%); non-plastic; firm; moist; HC staining; HC odor.
		5				
		8				
	8/27/02			CL		Dark Grayish Brown (10YR, 4/2); SILTY CLAY (CL); 20½ to 26 feet; medium plasticity; firm; moist; HC staining; HC odor.
	28.8					(8/26/02) First encountered groundwater in Core 29½ feet; static water in auger at 32.6 feet
25	2317ppm	4				
		4				
		5				
				ML		Dark Grayish Brown (10YR, 4/2); SANDY SILT (ML); 26 to 30½ feet; silt (~90%); fine grained sand (~10%); non-plastic; firm; moist; no HC staining; slight HC odor.
	0ppm (4)					
30			31.6 Native	SP-SM		Groundwater Seepage 29½ feet. Water level at 31.0 feet after 1 hour wait. Gray (10YR, 5/1); POORLY GRADED SAND WITH SILT (SP-SM); 30½ to 36 feet; fine grained sand (~80%); silt (~20%); abundant sea shells; wet; no HC staining; no HC odor.
	0ppm (4)					Pilot boring terminated at 34 feet bgs
35						Total depth of well 36 feet bgs
40						
45						

Notes:
(1) Used 2-inch diameter California Split Spoon Sampler
(2) HC - Hydrocarbon
(3) Oil waste consists of black free-phase hydrocarbons.
(4) No blow counts recorded.
(5) Commenced drilling P-2 at 14:30 on 8/26/02.

Groundwater at time of drilling
Groundwater measured after well completed
Water Seepage

Notes: Used 8-inch O.D. auger for pilot boring for lithologic sampling. Reamed pilot boring with 12-inch O.D. augers to set 6-inch diameter PVC casing. Set bottom of well at 36 feet. Set well screen (0.020-inch) from 26 to 36 feet. Used 7-100 lb bags of #2/12 Sand from 25 to 36 feet bgs; 2-50 lb bags of bentonite chips (hydrated) from 22 to 25 feet bgs; 80 gallons of bentonite slurry from surface to 23 feet bgs. PVC stickup is 2.20 feet tall; with PVC slip cap.

Example Field Boring Log

Figure 4

TM No. 1
Ascon Site, Huntington Beach, California

July 10, 2002

PROJECT NAVIGATOR, LTD.

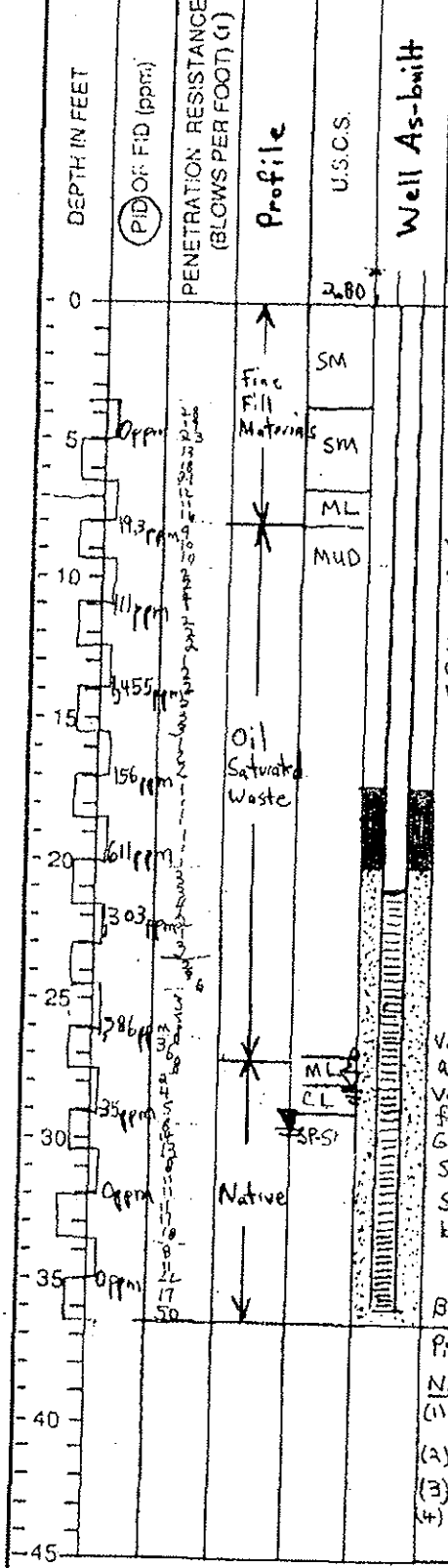
BORING NO. P-3

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling
SAMPLER TYPE Split Spoon Sampler
AND DIMENSION 18-inch 2-inch dia
FIELD ENGINEER J. Russo
EDITED BY J. Russo
CHECKED BY R. Puga

COORDINATES N 2184124.3182 E 6037092.7077

DATE BEGAN 8/29/02
DATE FINISHED 8/29/02
GROUND SURFACE EL. 26.26' 29.06' T.O.C



DESCRIPTION

Concrete debris and gravel ground surface.
No sample recovery from surface to 3½ feet due to concrete debris. Logged lithology from open trench approximately 25 feet north.
Pale Brown (10YR, 6/3); SILTY SAND (SM); 3½ to 6½ feet; fine to medium grained sand (~80%); Silt (~20%); non-cohesive; dense; damp; no HC staining; no HC odor.

Dark Brown (10YR, 3/3); SILT (ML); 6½ to 8 feet; silt (~100%); non-plastic; damp; no HC staining; no HC odor.

Very Dark Grayish Brown (10YR, 3/2); DRILLING MUD; 8 to 27 feet; slightly clayey silt consistency; oil saturated; HC staining; HC odor.
Oil Saturated Drilling Mud from 8 to 27 feet.

Sample I.D.: Ascon-P3-12'. Collected sample in 2-sleeves; 2-4oz. jars and 3-Encore containers for analysis for 8260B, 8015M, 8270C and 6010B for VOCs, TPH, SVOCs and STLC, respectively.

Very Dark Gray (10YR, 3/1); SILT (ML); 27 to 28 feet; medium plasticity; soft; abundant shells; moist; no HC staining; no HC odor.
Very Dark Grayish Brown (10YR, 3/2); CLAY (CL); 28 to 29 feet; medium plasticity; moist; firm; no HC staining; no HC odor.
Gray (10YR, 5/1); POORLY GRADED SAND WITH SILT (SP-SM); 29 to 36½ feet; fine grained sand; Silt (~10%); abundant shells; wet; no HC staining; no HC odor.
Sounded static water relative to ground surface 1 hour after total depth of pilot boring, at 28.3 feet bgs.

Bottom of well at 36 feet

Pilot boring terminated at 36½ feet.

Notes:
(1) Used 2½-inch diameter California Split Spoon Sampler.
(2) HC - Hydrocarbon
(3) Commenced drilling P-3 at 09:20 on 8/29/02.
(4) Oil waste consists of black free-phase hydrocarbons.

Groundwater at time of drilling
Groundwater measured after well completed
Water Seepage

Notes: Used 8-inch O.D. auger for pilot boring for lithologic sampling. Reamed pilot boring with 12-inch O.D augers to set 6-inch dia. PVC casing. Set bottom of well at 36 feet. Set well screen (0.02-inch) from 21 to 36 feet. Used 8-100 lb. bags of #2/12 sand from 20 to 36 feet bgs; 2-50 lb bags of bentonite chips from 17 to 20 feet bgs; 75 gallons of bentonite slurry from surface to 17 feet bgs. PVC stick up is 2.80 feet tall; with PVC slip cap.

Example Field Boring Log		Figure 4
TM No. 1 Ascon Site, Huntington Beach, California	July 10, 2002	PROJECT NAVIGATOR, LTD.

BORING NO. P-4

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Split Spoon Sampler AND DIMENSION 18-inch 2½-inch Dia.

COORDINATES N 2184282.1807 E 6037547.6451

FIELD ENGINEER J. Russo

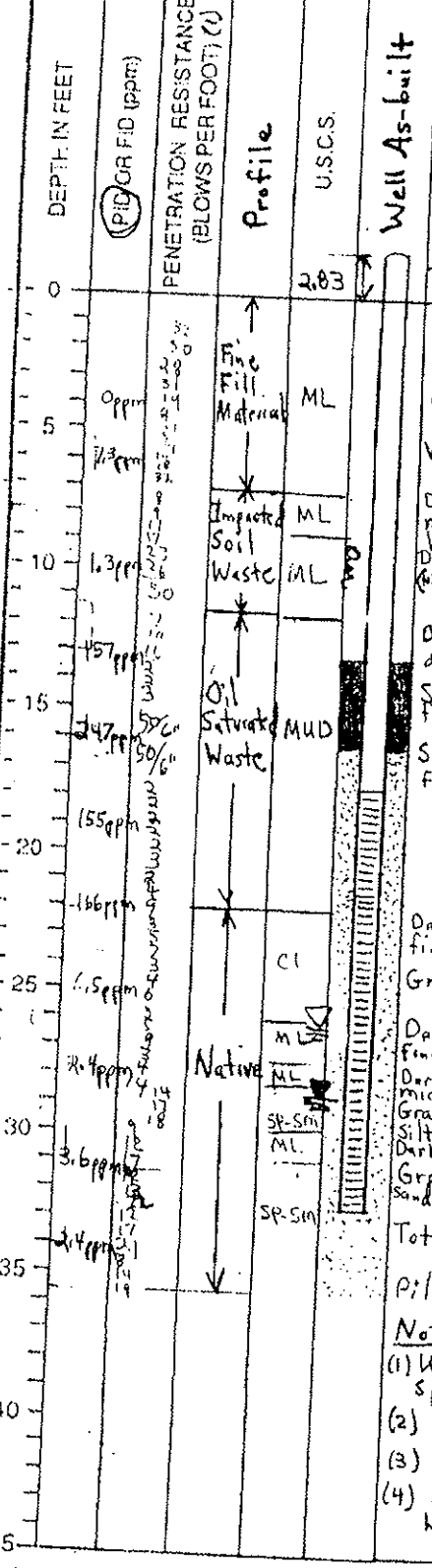
DATE BEGAN 9/9/02

EDITED BY J. Russo

DATE FINISHED 9/9/02

CHECKED BY R. Puga

GROUND SURFACE EL. 24.81' 27.64' TOIC



DESCRIPTION

Brush & gravel, ground surface

Dark Brown (10YR, 3/3); SANDY SILT (ML); Surface to 7 feet; silt (75%), fine grained sand (25%); firm; non-plastic; weakly to moderately cemented; damp; no HC staining; no HC odor.

Waste from 7 to 22 feet.

Dark Brown (10YR, 3/3); CLAYEY SILT (ML); 7 to 8.5 feet; low to medium plasticity; slightly micaceous; no HC staining; slight HC odor.
Water seepage at 8 feet bgs

Dark Grayish Brown (10YR, 4/3); SANDY SILT (ML); 8.5 to 11.5 feet; silt (75%); fine grained sand (25%); firm; low plasticity; non-cemented; wet; HC staining; HC odor.

Dark Gray (10YR, 4/1); DRILLING MUD; 11.5 to 22 feet; slightly silty; oily saturated drilling mud; HC staining; HC odor.
Sample I.D.: Ascon-P4-12', Sample collected in 2-4oz. jars and 3-Encore containers for analysis for 8270C and 8260B for SVOCs and VOCs, respectively.
Sample I.D.: Ascon-P4-13.5, Sample collected in 1-stainless steel sleeve container for analysis for 8015M and 6010B for TPH and STLC, respectively.

Dark Grayish Brown (10YR, 4/2); SILTY CLAY (CL); 22 to 26 feet; medium plasticity; firm; moist; slight HC staining; faint HC odor.
Groundwater at time of drilling 28.8 feet bgs, with auger pulled up to 25 feet bgs.

Dark Grayish Brown (10YR, 4/2); SANDY SILT (ML); 26 to 27 feet; non-plastic; silt (60%); fine grained sand (40%); very moist; no HC staining; no HC odor.
Dark Grayish Brown (10YR, 4/2); CLAYEY SILT (ML); 27 to 28 feet; medium plasticity; slightly micaceous; no HC staining; slight HC odor.
Gray (10YR, 5/1); POORLY GRADED SAND WITH SILT (SP-SM); 28 to 29.5 feet; fine grained sand (80%); silt (20%); abundant shells; wet; no HC staining; no HC odor.
Dark Grayish Brown (10YR, 4/2); SILT (ML); 29.5 to 31 feet; silt (100%); micaceous; no HC odor.
Gray (10YR, 5/1); POORLY GRADED SAND WITH SILT (SP-SM); 31 to 35.5 feet; fine grained sand (80%); silt (20%); abundant sea shells; wet; no HC staining; no HC odor.
Total depth of well 32.5 feet bgs

Pilot Boring terminated at 35.5 feet bgs

Notes:

(1) Used 2½-inch diameter California Split Spoon Sampler.
(2) HC – Hydrocarbons
(3) Commenced drilling P-4 at 08:03 on 9/9/02.
(4) Oil waste consists of black free-phase hydrocarbons.

▽ Groundwater at time of drilling

▼ Groundwater measured after Well completed

Water Seepage

Notes: Used [illegible] O.D. augers for pilot boring for lithologic sampling. Reamed pilot boring with 12-inch O.D. augers to set 6-inch diameter PVC casings. Set bottom of well at 32.5 feet. Set well screen (0.02-inch) from 17½ to 32½ feet. Used 10 – 100 lb bags of #2/12 S[illegible] from 16 to 35.5 feet. Used 2 – 50 lb bags of bentonite chips (hydrated with 5 gallons of water) from 13 to 16 feet bgs; 60 gallons of bentonite slurry from surface to 13 feet bgs. PVC stick up is 2.83 feet tall; with PVC slip cap.

TM No. 1
Ascon Site, Huntington Beach, California

PROJECT NAVIGATOR, LTD.

BORING NO. P-5

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling
SAMPLER TYPE Split Spoon Sampler
AND DIMENSION 18-inches
FIELD ENGINEER J. Russo
EDITED BY J. Russo
CHECKED BY R. Puga

COORDINATES N 2183980.6235 E 6037066.6771

DATE BEGAN 8/28/02
DATE FINISHED 8/28/02
GROUND SURFACE EL. 26.91' 30.01 T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) (J)	Profile	U.S.C.S.	Well As-built	DESCRIPTION
0				3.10		Concrete debris and gravel groundsurface
5	0ppm	27 35 36 28 28	Fine & Trace Coarse Fill Materials	SM		Pale Brown (10YR, 6/3); SILTY SAND WITH GRAVEL (SM); surface to 5 feet; fine to medium grained sand (~75%); silt (20%); trace gravel; non-cohesive; dense; dry; no HC staining no HC odor.
5	0ppm	28 28		ML		Dark Brown (10YR, 3/3); SILT (ML); 5 to 13½ feet; silt (100%); non-plastic; firm; trace gravel; damp; no HC staining; no HC odor.
10	0ppm	13 13				
10	0ppm	5 5				Water seepage at 12 feet.
15	344ppm	26	Oil Saturated Waste	MVD		Very Dark Grayish Brown (10YR, 3/2); DRILLING MUD; 13½ to 23½ feet; trace clay; oil saturated; HC staining; HC odor. Oil Waste starts at 13½ feet and terminates at 23½ feet.
20	814ppm					Sample I.D.: Ascon-P5-19. Sample collected in 2-Sleeves, 2-4 oz. jars and 3 Encore containers for analysis for 8260B, 8015M, 8270C, and 6010B for VOCs, TPH, SVOCs and STLC, respectively.
20	225ppm					
25	0ppm			ML		Very Dark Gray (10YR, 3/1); SILT (ML); 23½ to 26 feet; silt (100%); non-plastic; highly micaceous; firm; moist; no HC staining; no HC odor.
25	0ppm			OH		Very Dark Grayish Brown (10YR, 3/2); ORGANIC SILT (OH); 26 to 28 feet; high plasticity; soft; moist; no HC staining; no HC odor.
30	0ppm		Native	ML		Very Dark Grayish Brown (10YR 3/2); SILT (ML); 28 to 29½ feet; medium plasticity; soft micaceous; abundant shells; moist; no HC staining; no HC odor.
30				CL		Very Dark Grayish Brown (10YR, 3/2); CLAY (CL); 29½ to 31 feet; medium plasticity; moist; stiff; no HC staining; no HC odor.
35	0ppm	13 16 23		SP-SM		Gray (10YR, 5/1); POORLY GRADED SAND WITH SILT (SP-SM); 31 to 37 feet; fine grained sand (~90%) silt (10%); abundant shells; wet; no HC staining; no HC odor. Groundwater seepage at 30 feet. Sounded static water relative to groundsurface 1 hour after total depth, at 29.6 feet.
35	0ppm					Total Depth of Well at 37 feet.
40						Pilot boring terminated at 37 feet.
45						

Notes:
(1) Used 2½-inch diameter California Split Spoon Sampler
(2) HC - Hydrocarbons
(3) Commenced drilling P-5 at 13:15 on 8/28/02
(4) Oil waste consists of black free-phase hydrocarbons.

Groundwater at time of drilling
Groundwater measured after well completed.
Water Seepage

Notes: Used 8-inch O.D. auger for pilot boring for lithologic sampling. Reamed pilot boring with 12-inch O.D. augers to set 6-inch dia well casing. Set bottom of well at 37 feet. Set well screen (0.02-inch) from 22 to 37 feet. Used 8-100 lb bags of #2/12 Sand from 21 to 37 feet bgs; 2-50 lb bags of bentonite chips from 17 to 21 feet bgs; 75 gallons of bentonite slurry from surface to 17 feet bgs. PVC stick up is 3.10 feet tall; with PVC Slip Cap.

Example Field Boring Log

Figure 4

TM No.1
Ascon Site, Huntington Beach, California

July 10, 2002

PROJECT NAVIGATOR, LTD.

BORING NO. P-6

SHEET 1 OF 1

DRILLING CO/RIG West Hazmat Drilling

SAMPLER TYPE Split Spoon Sampler AND DIMENSION 18-inch 2½-inch dia.

COORDINATES N 2183881.9790 E 6037468.6935

FIELD ENGINEER J. Russo

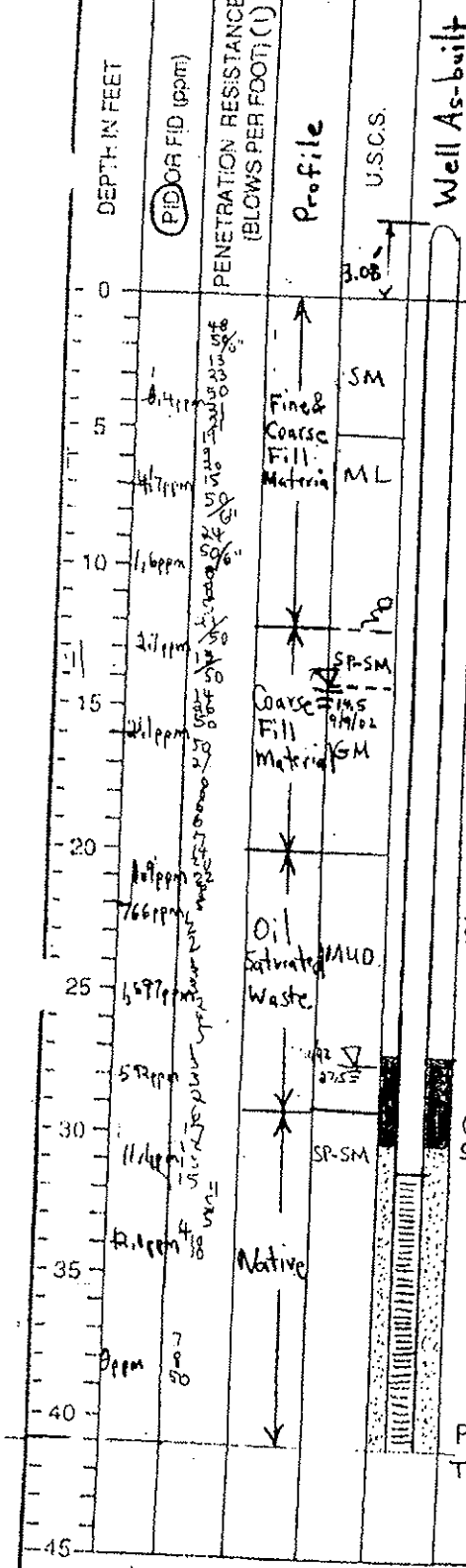
DATE BEGAN 9/9/02

EDITED BY J. Russo

DATE FINISHED 9/10/02

CHECKED BY R. Puga

GROUND SURFACE EL. 26.54' 29.62 T.O.C



DESCRIPTION

Brush & gravel around surface

Pale Brown (10YR,6/3); SILTY SAND (SM); Surface to 5 feet; fine to medium grained Sand (~80%); silt (~20%); dense; moderately cemented; damp; no HC staining; no HC odor.

Dark Grayish Brown (10YR,4/2); SANDY SILT WITH GRAVEL (ML); 5 to approximately 12 feet; silt (~70%); fine grained sand (~20%); coarse gravel (~10%); moist; no HC staining; no HC odor.

No recovery from 7 to 10 feet.

Water Seepage at 11 feet bgs.

Dark Grayish Brown (10YR,3/2); POORLY GRADED SAND WITH SILT (SP-SM); Approximately 12 to 14 feet; fine grained sand (~80%); silt (~20%); wet; non-cemented.

Dark Grayish Brown (10YR,3/2); SILTY GRAVEL WITH SAND (GM); Approximately 14 to 20 feet; medium to coarse gravel; dense; wet; no HC staining; no HC odor.

No recovery from 16 to 20 feet

Dark Gray (10YR,4/1); DRILLING MUD; from 20 to 29 feet; slightly silty; oil saturated drilling mud; HC staining; HC odor.

Sample I.D.s: Ascon-P6-20.5; Ascon-P6-21; Ascon-P6-21.5; Ascon-P6-23.5. Sample collected in 4-stainless steel sleeves and 3-Encore containers for analysis for 8015M, 8260B, 8270C, 6010B and 6010B for TPH, VOCs, SVOCs, STLC and TCLP, respectively.

Gray (10YR,4/1); POORLY GRADED SAND WITH SILT (SP-SM); 29 to 41 feet; fine grained Sand (~80%); silt (~20%); abundant seashells; wet; no HC staining; no HC odor.

Notes:

(1) Used 2½-inch diameter California Split Spoon Sampler

(2) HC - Hydrocarbons

(3) Commenced drilling P-6 at 14:50 on 9/9/02

(4) Oil waste consists of black free-phase hydrocarbons.

Pilot Boring Terminates at 40 feet bgs

Total depth of well 41 feet bgs

Groundwater at time of drilling

Groundwater measured after well completed

Water Seepage

Notes: Used 8-inch O.D. augers for pilot boring for lithologic samplings. Reamed pilot boring with 12-inch O.D. augers to set 6-inch diameter PVC casing. Set bottom of well at 41 feet bgs. Set well screen (0.02-inch) from 31 to 41 feet bgs. Used 6 - 100 lb bags of #2/12 Sand from 30 to 41 feet bgs. Used 2 - 50 lb bags of bentonite Chips (hydrated with water) from 27 to 30 feet bgs; 85 gallons of bentonite slurry from surface to 27 feet bgs. PVC stick up is 3.08 feet tall; with PVC slip cap.

TM No. 1
Ascon Site, Huntington Beach, California

PROJECT NAVIGATOR, LTD.

BORING NO. P-7

SHEET 1 OF 1

DRILLING CO./RIG: West Hazmat Drilling

SAMPLER TYPE AND DIMENSION: Split Spoon Sampler 18 inch by 2½-inch dia

COORDINATES: N 2183902.4081 E 6037666.1032

FIELD ENGINEER: J. Russo

DATE BEGAN: 8/30/02

EDITED BY: J. Russo

DATE FINISHED: 8/31/02

CHECKED BY: R. Puga

GROUND SURFACE EL.: 19.69' 21.19' T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) (1)	Profile	U.S.C.S.	Well As-built	DESCRIPTION
0				1.50		Grass and gravel ground surface.
0–5	0ppm, 0ppm, 0	23, 28	Fine & Coarse Fill Material	SM		Pale Brown (10YR, 6/3); SILTY SAND (SM); surface to 4 feet; fine to medium grained sand (~80%) Silt (~20%); non-cohesive; very dense; damp; no HC staining; no HC odor.
5–10	0ppm, 0ppm, 0ppm, 0ppm	10, 17, 27, 38, 16, 7, 6		ML		Dark Brown (10YR 3/3); SANDY SILT WITH CONCRETE DEBRIS (ML); 4 to 7 feet; Silt (60%); fine grained sand (40%); low plasticity; moist; no HC staining; no HC odor. Appears to be a concrete slab at 5 feet bgs. This assumption is based on concrete debris piled at surface.
				SP		Black (10YR 2/1); POORLY GRADED SAND WITH GRAVEL (SP); 7 to 11½ feet; fine to medium grained (~90%); gravel (~15%); non-cohesive; dense; wet; HC staining; HC odor.
				9.2		Oil Waste starts at 11½ feet.
10–15	19.8 ppm, 8 ppm, 305 ppm, 536 ppm, 87 ppm, 2.3 ppm	24, 36, 12, 11, 5, 3, 5, 8, 8, 6	Oil Saturated Waste	10.5 / MUD		Very Dark Gray (10YR, 3/1); DRILLING MUD; 11½ to 17 feet; trace clay; oil saturated; HC staining; HC odor. Water and oil came out of split spoon sampler at 12-13½ feet. Sample I.D.: Ascon-P7-13&14.5415. Collected sample in 2-sleeves and 3-Encore containers for analysis for 8260B, 8015M, 8270C and 6010B for VOCs, TPH, SVOCs and STLC, respectively.
15–19			Native	CL		Very Dark Grayish Brown (10YR, 3/2); CLAY (CL); 17 to 19½ feet; medium plasticity; moist; stiff; no HC staining; no HC odor.
19						Bottom of well at 19 feet bgs
20						Pilot boring terminates at 19.5 feet bgs
25						
30						
35						
40						
45						

▽ Groundwater at time of drilling

▼ Groundwater measured after well completed

ξ Water Seepage

Notes:
(1) Used 2½-inch diameter California Split Spoon Sampler.
(2) HC – Hydrocarbons
(3) Commenced drilling P-7 at 08:33 on 8/30/02
(4) Oil waste consists of black free-phase hydrocarbons.

Notes: Used 8-inch O.D. auger for pilot boring for lithologic sampling. Reamed pilot boring with 12-inch O.D. augers to set 6-inch diameter casing. Set bottom of well at 19 feet. Set well screen (0.02-inch) from 4 to 19 feet. Used 9-100lb bags of #2/12 Sand from 3 to 19 feet bgs; 2-50lb bags of bentonite chips (hydrated with 5 gallons of water) from surface grade to 3 feet bgs. PVC stick up is 1.50 feet tall; with PVC slip cap.

Example Field Boring Log		Figure 4
TM No 1 Ascon Site, Huntington Beach, California	July 10, 2002	PROJECT NAVIGATOR, LTD.

BORING NO. P-8

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling
SAMPLER TYPE Split Spoon Sampler
AND DIMENSION 18-inches
FIELD ENGINEER J. Russo
EDITED BY J. Russo
CHECKED BY R. Puga

COORDINATES N 2183709.3009 E 6036972.3626
DATE BEGAN 8/28/02
DATE FINISHED 8/28/02
GROUND SURFACE EL. 20.88' 24.45' TOC

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)(1)	Profile	U.S.C.S.	Well As-built	DESCRIPTION
0				3.57		Gravel and Sediment ground surface
5	0ppm, 0ppm		Fine Fill Materials	ML, ML		Dark Grayish Brown (10YR, 4/2); SANDY SILT (ML); surface to 4 feet; silt (85%); fine grained Sand (15%); trace gravel; damp; non-plastic; no HC staining; no HC odor. Dark Brown (10YR, 3/3); CLAYEY SILT (ML); 4 to 6½ feet; medium plasticity; firm; moist; no HC staining; no HC odor.
10	56.4ppm, 0ppm		Impacted Soil Waste	MUD		Very Dark Grayish Brown (10YR, 3/2); DRILLING MUD; 6½ to 13½ feet; trace clay consistency; HC staining; HC odor. Waste from 6½ to 13½ feet.
15	14.4ppm, 3.3ppm			ML		Very Dark Grayish Brown (10YR, 3/2); CLAYEY SILT (ML); 13½ to 18 feet; low plasticity; slightly micaceous; moist; HC staining; HC odor.
20	11.7ppm, 0ppm		Native	CL, ML, CL	21.8 8/28/02	Water Seepage at 18 feet bgs. Very Dark Gray (10YR, 3/1); CLAY (CL); 18 to 22½ feet; medium plasticity; firm; moist; no HC staining; no HC odor. Static groundwater at 23 feet bgs; measured from inside of augers. Dark Gray (10YR, 4/1); SILT WITH SHELLS (ML); 22½ to 23 feet; low plasticity; slightly micaceous; wet; no HC staining; no HC odor. Dark Grayish Brown (10YR, 4/2); CLAY (CL); 23 to 25½ feet; medium plasticity; firm; moist; no HC staining; no HC odor.
25	0ppm			SP-SM		Gray (10YR, 5/1); POORLY GRADED SAND WITH SILT (SP-SM); 25½ to 27 feet; fine grained sand (80%); Silt (20%); abundant Seashells; wet; no HC staining; no HC odor. Bottom of well at 27 feet
30						Pilot boring terminates at 27 feet.
35						
40						
45						

▽ Groundwater at time of drilling

▼ Groundwater measured after well completion.

Water Seepage

Notes:
(1) Used 2½-inch diameter California Split Spoon Sampler
(2) HC - Hydrocarbons
(3) Commenced drilling P-8 at 07:30 on 8/28/02
(4) Oil waste consists of black free-phase hydrocarbons.

Notes: Used 8-inch O.D. auger for pilot boring for lithologic sampling. Reamed pilot boring with 12-inch O.D. augers to Set 6-inch dia. casing. Set bottom of well at 27 feet. Set well screen (0.02-inch) from 17 to 27 feet. Used 7-100lb bags of # 2/12 Sand from 16 to to 27 feet; 2-50lb bags of bentonite chips from 9 to 12 feet bgs; 60 gallons of bentonite slurry from surface to 9 feet bgs. PVC stick up is 3.57 feet tall; with PVC slip cap.

Example Field Boring Log		Figure 4
TM No. I Ascon Site, Huntington Beach, California	July 10, 2002	PROJECT NAVIGATOR, LTD.

BORING NO. P-9

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling
SAMPLER TYPE California SSS
AND DIMENSION 18-inches
FIELD ENGINEER J. Russo
EDITED BY J. Russo
CHECKED BY R. Puga

COORDINATES N 2183416.2403
E 6037187.6558

DATE BEGAN 8/27/02
DATE FINISHED 8/27/02
GROUND SURFACE EL. 16.02' 16.90' T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) (1)	Profile	U.S.C.S.	Well As-built
0		25, 50/4	Coarse Fill Material	SM	0.88
5	0 ppm	35, 50/6			
		30, 22, 11	Constructio Waste	DEBRIS	
10	0 ppm		Non-Impacted Soil	SC	
	28.6 ppm	16, 17, 20	Oil Saturated Waste	MVD	
15	187 ppm	2.3, 1.8, 4			
	347 ppm	5, 6, 7			
	No Recovery	13, 13			
20	9.7 ppm	8, 9		ML	
	83.1 ppm	16, 7, 14	Native	SP-SM	
25					
30					
35					
40					
45					

DESCRIPTION

Gravel and sediment ground surface.

Pale Brown (10YR, 6/3); SILTY SAND WITH GRAVEL (SM); Surface to 6 feet; fine to medium Sand (~80%); gravel (~10%); silt (~10%); very dense; dry; no HC staining; no HC odor.

Black (10YR, 2/1) and Light Gray (10YR, 7/1); ASPHALT AND CONCRETE DEBRIS; 6 to 8 feet; with thin lenses of SILTY SAND WITH GRAVEL; thin lenses of free-phase hydrocarbon at 8 feet only; no HC staining; no HC odor. Water Seepage at 8 feet. Refusal at 8 feet. Moved over 5 feet.

Dark Grayish Brown (10YR, 3/2); CLAYEY SAND (SC); 8 to 10 feet; fine to medium grained sand (~80%); with clay lenses; medium plasticity; very moist; No HC staining; no HC odor.

Very Dark Gray (10YR, 3/1); DRILLING MUD; 10 to 18 feet; trace clay; HC staining; HC odor.

Very Dark Grayish Brown (10YR, 3/2); SANDY SILT (ML); 18-21 feet; silt (90%) fine grained sand (10%); Slightly micaceous; firm; non-plastic; wet; HC staining; HC odor.

Gray (10YR, 5/1); POORLY GRADED SAND WITH SILT (SP-SM); 21 to 23 feet; fine grained Sand (80%); silt (20%); seashells; wet; no HC staining; faint HC odor.

Bottom of Well 23 feet bgs

Pilot boring terminates at 23 feet bgs.

▽ Groundwater at time of drilling.

▼ Groundwater measured after well completed

Water Seepage

Notes:
(1) Used 2½-inch diameter California Split Spoon Sampler.
(2) HC - Hydrocarbons.
(3) Commenced drilling P-9 at 09:15 on 8/27/02
(4) Oil waste consists of black free-phase hydrocarbons.

Notes. Used 8-inch O.D. auger for pilot boring for lithologic sampling. Reamed pilot boring with 12-inch O.D. augers to set 6-inch dia. casing. Set bottom of well at 23 feet. Set well screen (0.02-inch) from 13 to 23 feet. Used 6 - 100 lb bags of #2/12 Sand from 12 to 23 feet bgs; 2 - 50 lb bags of bentonite chips from 9 to 12 feet bgs; 60 gallons of bentonite slurry from surface to 12 feet bgs. PVC stick up is 0.88 feet tall, with PVC Slip Cap.

Example Field Boring Log

Figure 4

TM No. 1
Ascon Site, Huntington Beach, California

July 10 2002

PROJECT NAVIGATOR, LTD.

BORING NO. P-10

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Split Spoon Sampler AND DIMENSION 18-inches 2½-inch dia

COORDINATES N 2183763.8023 E 6037852.5920

FIELD ENGINEER J. Russo

DATE BEGAN 9/10/02

EDITED BY J. Russo

DATE FINISHED 9/11/02

CHECKED BY R. Puga

GROUND SURFACE EL. 7.32' 7.64' T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)(1)	Profile	U.S.C.S.	Well As-built	DESCRIPTION
0.32						Gravel Ground surface
0	0ppm	24 27 22	Fine Fill Material	SM		Pale Brown (10YR 6/3); SILTY SAND (SM); surface to 3 feet; fine to medium grained sand (80%) silt (~20%); weakly cemented, non-cohesive, damp; no Styrene staining; no styrene odor.
5	0.4ppm, 0.5ppm, .4ppm	13		ML		Dark Grayish Brown (10YR, 4/2); SILT (ML); 3 to 6'6"; low plasticity; slightly micaceous; moist; no Styrene staining; no styrene odor. Styrene Waste from 6' to 16 feet
10	51ppm, 101ppm	3 4	Styrene Impacted Waste	CL		Dark Grayish Brown (10YR, 4/2); CLAY (CL); 6'6" to 9 feet; medium plasticity; moist; no Styrene staining; Strong Styrene odor.
15	137ppm, 330ppm, 12.2ppm	12		SP-SM		Gray (10YR, 5/1); POORLY GRADED SAND WITH SILT (SP-SM); 9 to 15.5 feet; fine grained sand (80%); silt (20%); abundant sea shells; wet; Styrene staining; Very strong styrene odor.
						Total depth of well 15 feet bgs
						Pilot boring terminates at 16 feet bgs
20						
25						
30						
35						
40						
45						

▽ Groundwater at time of drilling

▼ Groundwater measured after well completed

ξ Water Seepage

Notes:

(1) Used 2½-inch diameter California Split Spoon Sampler

(2) HC- Hydrocarbons

(3) Commenced drilling P-10 at 15:25 on 9/10/02.

(4) Styrene waste consists of a light tan, taffy-like, gluey material.

Notes: Used 8-inch O.D. augers for pilot boring for lithologic sampling. Reamed pilot boring with 12-inch O.D. augers to set 6-inch diameter PVC casing. Set bottom of well at 15 feet bgs. Set well screen (0.02-inch) from 5 to 15 feet bgs. Used 4-100 lb bags of #2/12 Sand from 4 to 15 feet bgs. Used 2-50 lb bags of bentonite chips (hydrated with approx. 15 gallons of water) from surface to 4 feet bgs. PVC stick up is 0.32 feet tall; with PVC slip cap.

TM No. 1
Ascon Site, Huntington Beach, California

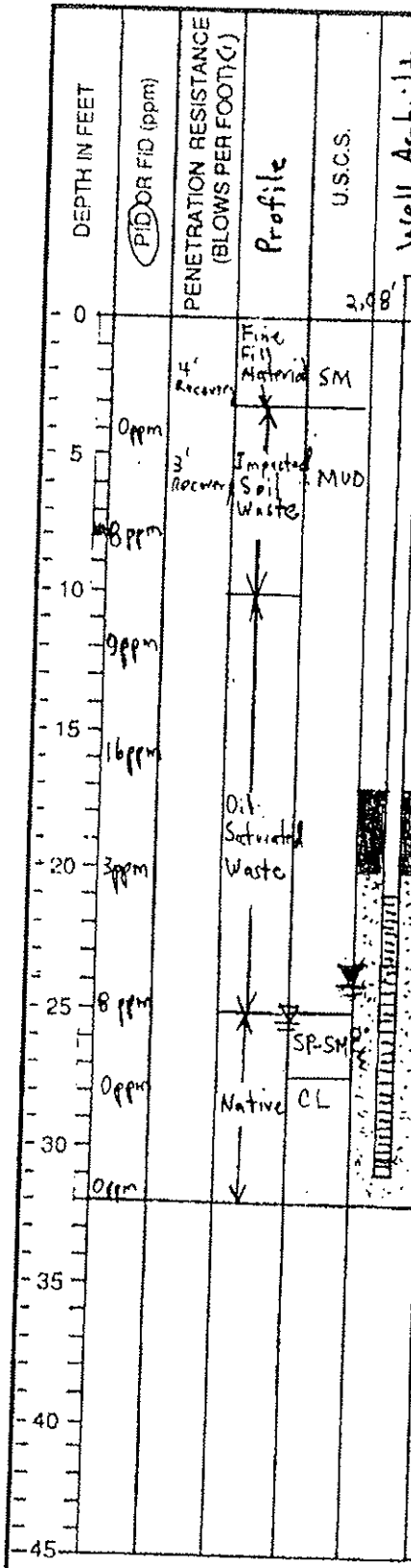
PROJECT NAVIGATOR, LTD.

BORING NO. GP-1

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling
SAMPLER TYPE Acetate Liner
AND DIMENSION 4-foot 1½-inch
FIELD ENGINEER J. Russo
EDITED BY J. Russo
CHECKED BY R. Puga

COORDINATES N 2184470.6965 E 6036797.8874
DATE BEGAN 8/14/02
DATE FINISHED 8/15/02
GROUND SURFACE EL. 22.09 24.17' T.O.C.



DESCRIPTION

Grass Ground Surface cover.

Commenced drilling GP-1 at 10:00 on 8/14/02

Pale Brown (10YR,6/3); SILTY SAND (SM); Surface to 3 feet; fine to medium grained sand (85%); silt (15%); loose; damp; no HC staining; no HC odor.

Fill from surface to 3 feet bgs

Very Dark Grayish Brown (10YR,3/2); DRILLING MUD; from 3 to 25 feet; medium plasticity; firm; HC staining; HC odor

Sample I.D.: Ascon-GP1-8'. Sample collected in 2-4oz. jars; 1-acetate sleeve; 2-Encore Containers for analysis for VOCs, SVOCs, and TPH by EPA Methods 8260B, 8270C and 8015M, respectively.

Encountered Oily saturated drilling mud from 10 to 25 feet

Very Dark Grayish Brown (10YR,3/2); DRILLING MUD; medium plasticity; oil saturated; very strong HC odor.

Gray (10YR,4/1); POORLY GRADED SAND WITH SILT (SP-SM); 25 to 27 feet; fine to medium grained sand (85%); silt (15%); micaceous; no HC staining; no HC odor.

Very Dark Grayish Brown (10YR,3/2); CLAY (CL); 27 to 32 feet; medium plasticity; stiff no HC staining; no HC odor.

Bottom of well at 31 feet

Pilot boring terminates at 32 feet bgs

Notes:

(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.
(2) HC- Hydrocarbon
(3) Oil waste consists of black free-phase hydrocarbons.
(4) Commenced drilling GP-1 at 10:00 on 8/14/02.

▽ Groundwater at time of drilling
▼ Groundwater measured after Well completed
ξ Water Seepage

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 31 feet. Set well screen (0.02-inch) from 21 to 31 feet. Used 1-100lb bag of #2/12 Sand from 20 to 32 feet bgs; ½-50 lb bag of bentonite chips (hydrated) from 17 to 20 feet bgs; 10 gallons of bentonite grout from surface to 17 feet. PVC stick up is 2.08 feet tall; with PVC slip cap.

Example Field Boring Log

Figure 4

TM No. 1
Ascon Site, Huntington Beach, California

July 10, 2002

PROJECT NAVIGATOR, LTD.

BORING NO. GP-2

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Acetate liner, AND DIMENSION 4-foot 1½-inch

COORDINATES N 2184345.3168 E 6036949.5283

FIELD ENGINEER J. Russo

DATE BEGAN 8/15/02

EDITED BY J. Russo

DATE FINISHED 8/15/02

CHECKED BY R. Puga

GROUND SURFACE EL. 24.44' 26.49' T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) (1)	Profile	U.S.C.S.	Well As-built	DESCRIPTION
0				2.05		Grass Ground Surface
		N/A	Fine & Coarse Fill Material	SM		Pale Brown (10YR, 6/3); SILTY SAND (SM); surface to 2½ feet; no HC staining; no HC odor. Oil waste starts at 2'6".
5	1.1ppm			SP		Black (10YR, 2/1); POORLY GRADED SAND WITH GRAVEL (SP); 2½ to 7 feet; fine to medium grained sand (85%); loose; HC staining; very strong HC odor.
	204ppm			MUD		Very Dark Grayish Brown (10YR, 3/2); DRILLING MUD; 7 to 27 feet; clayey silt consistency; very soft; oil saturated; HC staining; HC odor. Oil saturated Drilling Mud waste from 7 to 27 feet
10	332ppm					Sample I.D.: Ascon-GP2-12'. Sample collected in 2-4oz jars; 1-acetate sleeve, and 3-Encore containers for analysis for VOCs, SVOCs and TPH by EPA Methods 8260B, 8270C and 8015M, respectively.
15	236ppm		Oil Saturated Waste Material			PID measurements not taken due to instrument problems.
20	158ppm					
25	123ppm			26.3		
	242ppm		Impacted Soil Waste	ML		Dark Gray Brown (10YR, 3/3); SANDY SILT (ML); 27 to 29 feet; not oil saturated; HC staining HC odor
30			Native	CL		Dark Grayish Brown (10YR, 3/3); SILTY CLAY (CL); 29 to 31.5 feet;
	2ppm			SP-SM		Light Gray (10YR, 4/1); POORLY GRADED SAND WITH SILT (SP-SM); 31.5 to 32 feet micaceous; No HC staining, no HC odor. Bottom of well at 31 feet bgs
35						Pilot boring terminates at 32 feet bgs
40						
45						

Notes:
(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.
(2) HC - Hydrocarbon
(3) Oil waste consists of black free-phase hydrocarbons.
(4) Commenced drilling GP-2 at 10:30 on 8/15/02.

Groundwater at time of drilling

Groundwater measured after well completed.

Water seepage

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rod to set 1-inch diameter casing. Set bottom of well at 31 feet. Set well screen (0.02-inch) from 21 to 31 feet bgs. Used 1-100 lb bag of #2/12 Sand from 20 to 32 feet bgs; ½-50 lb bag of bentonite granular (hydrated) from 17 to 20 feet bgs; 10 gallons of bentonite grout from surface to 17 feet bgs. PVC stick up is 2.05 feet tall; with PVC slip cap.

Example Field Boring Log		Figure 4
TM No.1 Ascon Site, Huntington Beach, California	July 10, 2002	PROJECT NAVIGATOR, LTD.

BORING NO. GP-3

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling
SAMPLER TYPE Acetate Liner
AND DIMENSION 4-feet 1½-inch
FIELD ENGINEER J. Russo
EDITED BY J. Russo
CHECKED BY R. Puga

COORDINATES N 2184052.0806
E 6036835.9042
DATE BEGAN 8/15/02
DATE FINISHED 8/15/02
GROUND SURFACE EL. 20.44' 22.47'T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) (1)	Profile	U.S.C.S.	Well As-built	DESCRIPTION
0					2.03	Grass Ground Surface.
5	0 ppm		Fine & Coarse Fill Material	SM		Pale Brown (10YR, 6/3); SILTY SAND WITH GRAVEL (SM); surface to 7 feet; fine to medium grained sand (~10%); silt (~10%); gravel (~10%); loose; non-cemented; damp; no HC staining; no HC odor.
						Oil saturated drilling mud and sands from 7 to 23 feet
	32 ppm			SM		Dark Gray (10YR, 4/2); SILTY SAND (SM); 7 to 10 feet; fine to medium grained sand; HC staining; HC odor.
10				MUD		Dark Grayish Brown (10YR, 3/2); DRILLING MUD; 10 to 11½ feet; trace clay consistency.
				ML		Light Gray (10YR, 4/1); CLAYEY SILT (ML); 11½ to 12 feet; low plasticity; soft; no HC staining; HC odor.
	293 ppm		Oil Saturated Waste	MUD		Black (10YR, 2/1); DRILLING MUD; 12 to 23 feet; high HC odor.
15	813 ppm					Sample I.D.: Ascon-GP3-16'. Sample collected in 2-4oz. jars; 1-acetate sleeve; and 3-Encore containers for analysis for VOCs, SVOCs and TPH by EPA Methods 8260B, 8270C and 8015M, respectively.
20	386 ppm		8/15 9/10/02 20.19			Gray (10YR, 4/1) and Black (10YR, 2/1) alternating layers.
25	6 ppm		Native	ML		Light Gray (10YR, 4/1); CLAYEY SILT (ML); 23 to 25 feet; low plasticity; very moist; no HC staining; no HC odor.
						Pilot boring terminates at 24 feet bgs. Bottom of well at 25 feet bgs
30						
35						
40						
45						

Notes:
(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.
(2) HC - Hydrocarbon
(3) Oil waste consists of black free-phase hydrocarbons.
(4) Commenced drilling GP-3 at 14:45 on 8/15/02.

Groundwater at time of drilling
Groundwater measured after well completed
Water Seepage

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rod to set 1-inch diameter casing. Set bottom of well at 25 feet. Set well screen (0.02-inch) from 15 to 25 feet bgs. Used 1-100 lb bag of #2/12 sand from 14 to 25 feet bgs; ½-50 lb bag of bentonite granular (hydrated) from 11 to 14 feet bgs; 10 gallons of bentonite grout from surface to 11 feet bgs. PVC stick up is 2.03 feet tall, with PVC slip cap.

Example Field Boring Log — Figure 4

TM No. 1
Ascon Site, Huntington Beach, California — July 10, 2002 — PROJECT NAVIGATOR, LTD.

BORING NO. GP-4

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Acetate Liner AND DIMENSION 4-foot 1½-inch

COORDINATES N 2183869.7582 E 6036891.3414

FIELD ENGINEER J. Russo

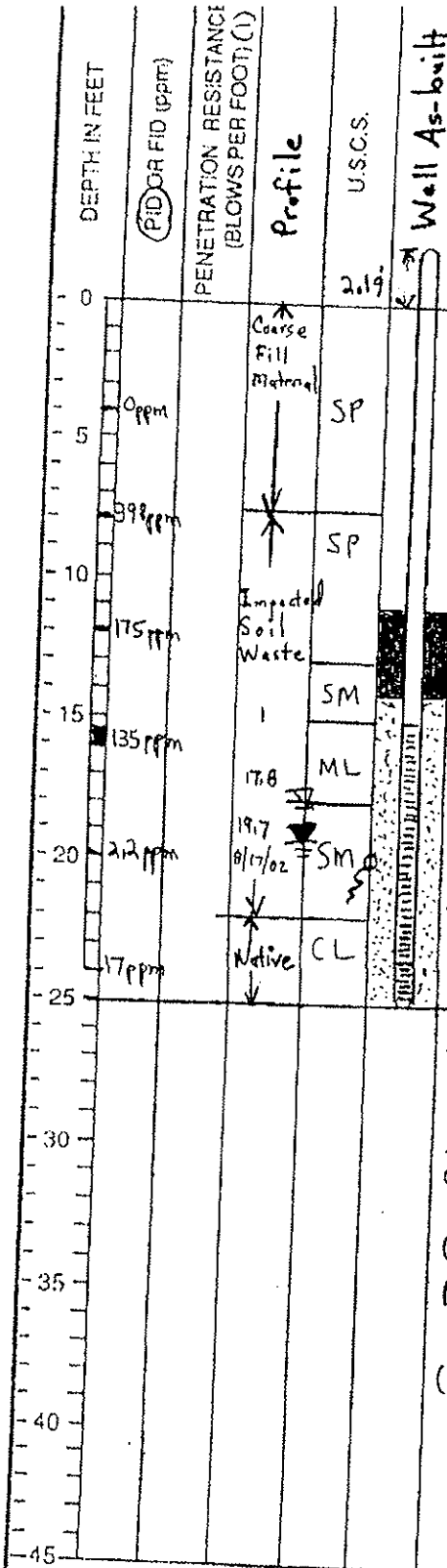
DATE BEGAN 8/16/02

EDITED BY J. Russo

DATE FINISHED 8/16/02

CHECKED BY R. Puga

GROUND SURFACE EL. 18.91' 21.10 T.O.C



DESCRIPTION

Sediment Ground Surface
Commenced drilling GP-4 at 07:45 on 8/16/02

Dark Grayish Brown (10YR, 4/2); POORLY GRADED SAND (SP); surface to 7½ feet; fine to medium grained sand (85%); silt (15%); loose; non-cemented; moist; no HC odor.

Oil waste from 7½ to 22 feet.

Black (10YR, 2/1); POORLY GRADED SAND WITH GRAVEL (SP); 7½ to 13 feet; fine to medium grained sand (75%); gravel (15%); silt (5%); HC staining; HC odor.

Dark Grayish Brown (10YR, 4/2); SILTY SAND (SM); 13 to 15 feet; same as above; loose; non-cemented; moist; HC staining; HC odor.

Black (10YR, 2/1); SILT (ML); 15 to 18 feet; very moist; HC staining; HC odor.

Sample I.D.: Ascon-GP4-16. Samples collected in 2-4 oz jars; 1-acetate sleeve; and 3-Encore containers for analysis for VOCs, SVOCs, and TPH by EPA Methods 8260B, 8270C and 8015M, respectively.

Dark Grayish Brown (10YR, 4/2); SILTY SAND (SM); 18 to 22 feet; fine to medium grained; cohesive; HC staining; HC odor.

Very Dark Gray (10YR, 3/1); CLAY (CL); 22 to 25 feet; medium plasticity; moist; HC odor.

Pilot boring terminates at 24 feet bgs.
Total depth of well at 25 feet bgs.

Notes:
(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.
(2) HC - Hydrocarbon
(3) Oil waste consists of black free-phase hydrocarbons.
(4) Commenced drilling GP-4 at 07:45 on 8/16/02.

Groundwater at time of drilling

Groundwater measured after well completed.

Water Seepage

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 25 feet. Set PVC well screen (0.02-inch) from 15 to 25 feet bgs. Used 1-100lb bag of #2/12 sand from 14 to 25 feet bgs; ½-50lb bag of bentonite granular (hydrated) from 11 to 14 feet bgs; 10 gallons of bentonite grout from surface to 11 feet bgs. PVC stickup is 2.19 feet tall; with PVC slip cap.

TM No. 1
Ascon Site, Huntington Beach, California

PROJECT NAVIGATOR, LTD.

BORING NO. GP-5

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling
SAMPLER TYPE Acetate Liner
AND DIMENSION 4-Feet 1½-inch
FIELD ENGINEER J. Russo
EDITED BY J. Russo
CHECKED BY R. Puga

COORDINATES N 2183578.6672
E 6036869.2582
DATE BEGAN 8/16/02
DATE FINISHED 8/16/02
GROUND SURFACE EL. 17.12' 19.25' T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) (1)	Profile	U.S.C.S.	Well As-built	DESCRIPTION
0			Coarse Fill	2.13 GP		Gravel ground surface
5	43 ppm			GP		Encountered oil waste material at 2 feet bgs, Pale Brown (10YR, 6/3); POORLY GRADED SAND WITH GRAVEL (GP); surface to 2 feet; no HC staining; no HC odor. Black (10YR, 3/1); POORLY GRADED SAND WITH GRAVEL (GP); 2 to 7½ feet; fine to medium grained sand (60%); gravel (40%); loose; with fragments of asphalt; HC staining; HC odor. Some asphalt debris at 4 feet bgs.
10	82 ppm		Impacted Soil Waste	SC		Dark Grayish Brown (10YR, 3/2); CLAYEY SAND (SC); 7½ to 12 feet; fine to medium grained (80%); with clay lenses; medium plasticity; very moist; HC staining; HC odor. First groundwater at 11 feet bgs. Sample I.D.: Ascon-GP5-12. Sample collected in 2-4oz. jars; 1-acetate sleeve; and 3-Encore containers for analysis for VOCs, SVOCs and TPH by EPA Methods 8260B, 8270C and 8015M, respectively.
15	45 ppm			NR		No sample recovery from 12 to 16 feet bgs. Total depth of well at 17 feet bgs. Pilot boring terminates at 16 feet bgs
20						
25						
30						
35						
40						
45						

Notes:
(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.
(2) HC- Hydrocarbon
(3) Oil Waste Consists of black free-phase Hydrocarbons.
(4) Commenced drilling GP-5 at 11:25 on 8/16/02.

▽ Groundwater at time of drilling

▼ Groundwater measured after well completed

Water Seepage

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 17 feet. Set PVC well screen (0.02-inch) from 7 to 17 feet bgs. Used 1-100 lb bag of #2/12 Sand from 6 to 17 feet bgs; ½-50 lb bag of bentonite granular (hydrated) from 3 to 6 feet bgs; 5 gallons of bentonite grout from Surface to 3 feet bgs. PVC stick up is 2.13 feet tall; with PVC Slip Cap.

TM No. 1
Ascon Site, Huntington Beach, California

PROJECT NAVIGATOR, LTD.

BORING NO. GP-6

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling
SAMPLER TYPE Acetate Liner
AND DIMENSION 4-feet 1½-inch dia.
FIELD ENGINEER J. Russo
EDITED BY J. Russo
CHECKED BY R. Puga

COORDINATES N 2183415.9109
E 6036855.1811

DATE BEGAN 8/16/02
DATE FINISHED 8/16/02
GROUND SURFACE EL. 16.89' 17.58' T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)	Profile	U.S.C.S.	Well As-built	DESCRIPTION
0					0.69	Ground Surface. Commenced drilling GP6 at 13:25 on 8/16/02.
			Fine Fill Material	SM		Pale Brown (10YR, 6/3); SILTY SAND (SM); surface to 3 feet; fine to medium grained Sand (85%); Silt (15%); non-cohesive; damp; cemented; no HC staining; no HC odor.
5	14.9 ppm			ML		Pale Brown (10YR, 6/3); SILT (ML); 3 to 5 feet bgs; non-plastic; dry; loose; no HC odor; no HC staining.
				SP		Oil waste starts at 5 feet bgs
	10.1 ppm		(8/19/02) 9.82 10.55	GP		Black (10YR, 2/1); SANDY SILT WITH GRAVEL (SM); 5 to 7 feet; fine to medium grained Sand.
10						Very Dark Grayish Brown (10YR, 3/2); POORLY GRADED SAND WITH GRAVEL (GP); 7 to 16 feet; fine to medium grained (70%); Silt (20%); gravel (10%); HC staining; HC odor.
	162 ppm		Oil Saturated Waste			Sample I.D.: Ascon-GP6-11; Sample collected in 2-4oz jars; 1-acetate sleeve; and 3-Encore Containers for analysis by VOCs, SVOCs and TPH by EPA methods 8260B, 8270C and 8015M, respectively.
15	109 ppm					Total depth of well 16 feet bgs
						Pilot boring terminates at 16 feet bgs
20						
25						
30						
35						
40						
45						

Groundwater at time of drilling

Groundwater measured after well Completed.

Water Seepage

Notes:
(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.
(2) HC- Hydrocarbon.
(3) Oil Waste consists of black free-phase Hydrocarbons.
(4) Commenced drilling GP-6 at 13:25 on 8/16/02.

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 16 feet. Set PVC well screen (0.02-inch) from 6 to 16 feet bgs. Used 1-100lb bag of #2/12 sand from 5 to 16 feet bgs; ½-50lb bag of bentonite granular (hydrated with water) from 2 to 5 feet bgs; 5-gallons of bentonite grout from surface to 2 feet bgs. PVC stick up is 0.69 feet tall; with PVC slip cap.

TM No.1
Ascon Site, Huntington Beach, California

PROJECT NAVIGATOR, LTD.

BORING NO. GP-7

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling
SAMPLER TYPE Acetate Liner
AND DIMENSION 4-Foot 1½-inch dia
FIELD ENGINEER J. Russo
EDITED BY J. Russo
CHECKED BY R. Puga

COORDINATES N 2183413.1286
E 6037078.6586
DATE BEGAN 8/16/02
DATE FINISHED 8/16/02
GROUND SURFACE EL. 16.29' 18.29' T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) (1)	Profile	U.S.C.S.	Well As-built	DESCRIPTION
0					2.00	Ground Surface
5	0 ppm		Fine Fill Material	SM		Pale Brown (10YR, 6/3); SILTY SAND (SM); surface to 7 feet; fine to medium grained (90%); gravel (10%); loose; damp; no HC staining; no HC odor.
						Oil waste starts at 7 feet
10	36.6 ppm		Oil Saturated Waste	MUD		Black (10YR, 2/1); DRILLING MUD; 7 to 11 feet; trace clay; HC staining; HC odor.
						Sample I.D.: Ascon-GP7-8'. Sample collected in 2-4oz. jars; 1-acetate sleeve; and 3-Encore containers for analysis by VOCs, SVOCs and TPH by EPA Methods 8260B, 8270C and 8015M, respectively.
15	70.2 ppm 130 ppm		8/16/02 Impacted Soil Waste	GP		Dark Grayish Brown (10YR, 3/2); POORLY GRADED SAND WITH GRAVEL & ASPHALT (GP) 11 to 18 feet; fine to medium grained; coarse gravel; wet; HC staining; HC odor.
						Total depth of well at 18 feet bgs
20						Pilot boring terminates at 18 feet bgs
25						
30						
35						
40						
45						

Groundwater at time of drilling

Groundwater measured after well completed.

Water Seepage

Notes:
(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.
(2) HC- Hydrocarbon
(3) Oil waste consists of black free-phase Hydrocarbon.
(4) Commenced drilling GP-7 at 14:45 on 8/16/02.

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 18 feet. Set PVC well Screen (0.02-inch) from 8 to 18 feet bgs. Used 1-100 lb bag of #2/12 sand from 7 to 18 feet bgs; ½-50 lb bag of bentonite granular (hydrated with water) from 4 to 7 feet bgs; 5-gallons of bentonite grout from surface to 4 feet bgs. PVC stick up is 2.00 feet tall; with PVC slip Cap.

TM No.1
Ascon Site, Huntington Beach, California

PROJECT NAVIGATOR, LTD.

BORING NO. GP-8

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling
SAMPLER TYPE Acetate Liner
AND DIMENSION 4-Foot 1½-inch dia
FIELD ENGINEER J. Russo
EDITED BY J. Russo
CHECKED BY R. Puga

COORDINATES N 2183437.8717
E 6037337.6047

DATE BEGAN 8/19/02
DATE FINISHED 8/19/02
GROUND SURFACE EL. 16.09' 17.01' T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) (1)	Profile	U.S.C.S.	Well As-built	DESCRIPTION
0				0.9		Ground surface.
			Fine Fill Material	SM		Pale Brown (10YR, 6/3); SILTY SAND (SM); Surface to 3½ feet; fine to medium grained sand (~80%); silt (~15%); gravel (~5%); loose; no HC staining; no HC odor. Oil waste starts at 3½ feet
5	33.9 ppm			MUD		Black (10YR, 2/1); DRILLING MUD; 3½ to 14 feet; sandy silt consistency; with gravel and asphalt debris; HC staining; HC odor. Sample I.D.: Ascon-GP8-8'. Sample collected in 2-4 oz jars; 1-acetate sleeve; and 3-Encore Containers for analysis by VOCs, SVOCs, and TPH by EPA Methods 8260B, 8270C and 8015M, respectively.
10	7.0 ppm		Oily Saturated Waste 7.3' 8/21/02			
	14.1 ppm		11.57' (8/19/02)			Total depth of well at 14 feet bgs
15						Pilot boring terminates at 14 feet bgs
20						
25						
30						
35						
40						
45						

Groundwater at time of drilling

Groundwater measured after well completed

Water Seepage

Notes:

(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.

(2) HC - Hydrocarbon

(3) Oil waste consists of black free-phase Hydrocarbon.

(4) Commenced drilling GP-8 at 07:45 on 8/19/02.

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 14 feet. Set PVC well screen (0.02-inch) from 4 to 14 feet bgs. Used 1-100 lb bag of #2/12 sand from 3 to 14 feet bgs; ½-50 lb bag of bentonite granular (hydrated with water) from surface to 3 feet bgs. PVC stick up is 0.92 feet tall; with PVC slip cap.

TM No. 1
Ascon Site, Huntington Beach, California

PROJECT NAVIGATOR, LTD.

BORING NO. GP-9

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling
SAMPLER TYPE Acetate Liner
AND DIMENSION 4-foot 1½-inch
FIELD ENGINEER J. Russo
EDITED BY J. Russo
CHECKED BY R. Puga

COORDINATES N 2183448.5013
E 6037539.9374
DATE BEGAN 8/19/02
DATE FINISHED 8/19/02
GROUND SURFACE EL. 16.10' 18.15' T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)	Profile	U.S.C.S.	Well As-built
0				2.05	
5	0ppm	2' Recover	Coarse Fill Material	SM	
				ML	
10	0ppm	2' Recover	8.25 (8/19/02)	MUD	
15	34.5ppm	2' Recover	Oily Saturated Waste	12.15 8/19/02	

DESCRIPTION

Asphalt and rock ground surface

Pale Brown (10YR, 6/3); SILTY SAND WITH GRAVEL (SM); surface to 3 feet; fine to medium grained sand (~80%); silt (10%); gravel (~10%); loose; damp; no HC staining; no HC odor.

Dark Grayish Brown (10YR, 3/2); SANDY SILT WITH GRAVEL (ML); 3' to 8 feet; silt (80%); fine to medium grained sand (10%); gravel (10%); no HC staining; no HC odor.

Oil Waste starts at 8 feet

Black (10YR, 2/1); DRILLING MUD; 8 to 18 feet; sandy silt consistency; with asphalt fragments; HC staining; HC odor.

Sample I.D.: Ascon-GP9-8'; Sample collected in 2-4 oz. jars; 1-acetate sleeve and 3-Encore containers for analysis by VOCs, SVOCs, and TPH by EPA Methods 8260B, 8270C and 8015M.

Total depth of well at 18 feet bgs

Pilot boring terminates at 18 feet bgs

Groundwater at time of drilling

Groundwater measured after well completed

Water Seepage

Notes:

(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.
(2) HC - Hydrocarbon
(3) Oil waste consists of black free-phase Hydrocarbon.
(4) Commenced drilling GP-9 at 09:05 on 8/19/02.

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 18 feet. Set PVC well screen (0.02-inch) from 8 to 18 feet bgs. Used 1-100 lb bag of #2/12 sand from 7 to 18 feet bgs; ½-50 lb bag of bentonite granular (hydrated with water) from surface to 4 feet bgs; 5-gallons of bentonite grout from surface to 4 feet bgs. PVC stick up is 2.05 feet tall; with PVC slip cap.

TM No. 1
Ascon Site, Huntington Beach, California

PROJECT NAVIGATOR, LTD.

BORING NO. GP-10

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Acetate liner AND DIMENSION 4 feet long; 1½ inch dia.

COORDINATES N 2183442.6211 E 6037659.6968

FIELD ENGINEER J. Russo

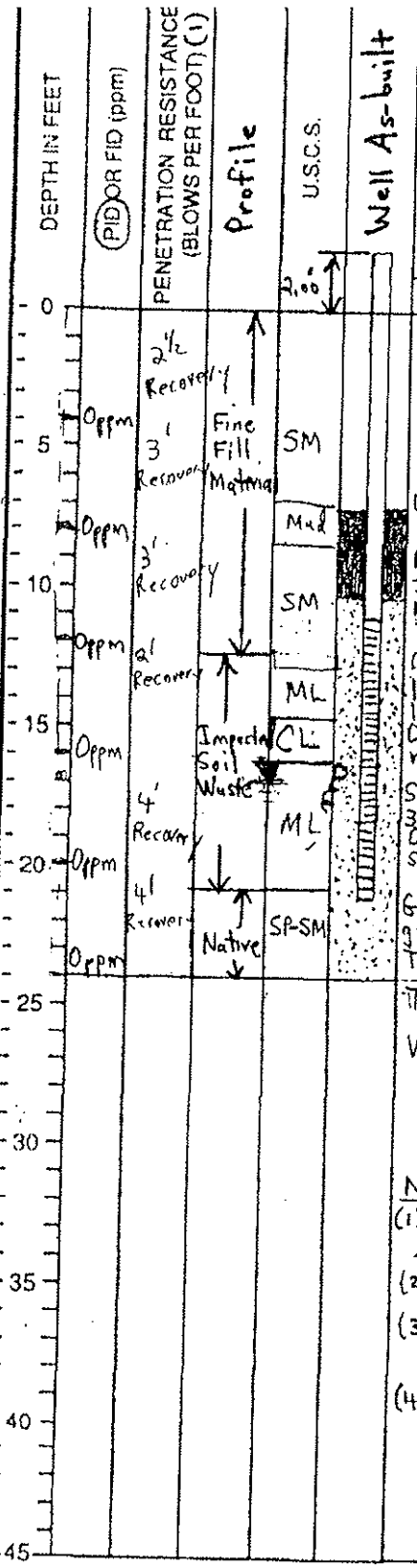
DATE BEGAN 8/23/02

EDITED BY J. Russo

DATE FINISHED 8/23/02

CHECKED BY R. Puga

GROUND SURFACE EL. 15.52' 17.52' T.O.C



DESCRIPTION

Grass Ground surface cover

Pale Brown (10YR, 6/3), SILTY SAND (SM); surface to 7 feet; fine to medium grained sand (~80%); silt (~20%); trace gravel; loose; non-cemented; no HC staining; no HC odor.

Dark Grey (10YR, 4/1); DRILLING MUD & ASPHALT; from 7 to 8½ feet;

Pale Brown (10YR, 6/3) and Dark Grayish Brown (10YR, 4/2); SILTY SAND (SM) from 8½ to 12½ feet; fine to medium grained sand (~80%); silt (~20%); slightly cemented; no HC staining no HC odor.

Dark Grayish Brown (10YR, 4/2); CLAYEY SILT WITH ASPHALT DEBRIS & TAR; from 12½ to 14½ feet; silt (70%); clay lenses (20%); low plasticity; with asphalt and lenses of free-phase hydrocarbon; HC odor only from free-phase hydrocarbon.

Dark Grayish Brown (10YR, 4/2); CLAY (CL); 14½ to 16 feet; medium plasticity; moist; no HC staining; no HC odor.

Sample I.D.: Ascon-GP10-17. Sample collected in 1-acetate liner; 2-4oz. jars and 3 Encore Containers for VOCs by 8260B, SVOCs by 8270C and TPH by 8015M.

Dark Grayish Brown (10YR, 4/3); SILT (ML); 16 to 21 feet; silt (100%); non-plastic; slightly micaceous; lenses of drilling mud.

Gray (5YR, N5); POORLY GRADED SAND WITH SILT (SP-SM); 21 to 24 feet; fine grained sand (80%) silt (20%); wet; non-cemented; No HC staining; no HC odor.

Total depth of well 21 feet bgs

Terminated pilot boring at 24 feet bgs

Waste from 17 to 19 feet; only lenses of drill mud waste.

Notes:
(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.
(2) HC- Hydrocarbon
(3) Oil waste consists of black free-phase Hydrocarbon.
(4) Commenced drilling GP-10 at 13:40 on 8/23/02.

▽ Groundwater at time of drilling

▼ Groundwater measured after well completed

Water Seepage

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 21 feet. Set PVC well screen (0.020-inch) from 11 to 21 feet bgs. Used 1-100 lb bag of #2/12 sand from 10 to 21 feet bgs; ½-50 lb bag of bentonite granular (hydrated with water) from 7 to 10 feet bgs; 10-gallons of bentonite grout from surface to 7 feet bgs. PVC stick up is 2.00 feet tall; with PVC slip cap.

Example Field Boring Log		Figure 4
TM No.1 Ascon Site, Huntington Beach, California	July 10, 2002	PROJECT NAVIGATOR, LTD.

BORING NO. GP-11

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Acetate Liner

AND DIMENSION 4-foot long 1½-inch dia.

FIELD ENGINEER J. Russo

EDITED BY J. Russo

CHECKED BY R. Puga

COORDINATES N 2183579.8082 E 6037664.0504

DATE BEGAN 8/19/02

DATE FINISHED 8/19/02

GROUND SURFACE EL. 15.34' 17.29' T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)(1)	Profile	U.S.C.S.	Well As-built
0					1.95
5	0ppm	2' Recovery	Fine Fill Material	SM	
		2' Recovery			
10	0ppm		9.0	MUD	
			9.2 Impacted Soil Waste		
15	0ppm				
20					
25					
30					
35					
40					
45					

DESCRIPTION

Grass Ground Surface

Commenced drilling GP-11 at 16:07 on 8/19/02

Pale Brown (10YR, 6/3); SILTY SAND WITH GRAVEL (SM); Surface to 7'9"; fine to medium grained sand (~80%); silt (~10%); gravel (~10%); damp; no HC staining; no HC odor.

Oil waste and construction debris encountered at 7'9".

Black (10YR, 2/1); DRILLING MUD WITH CONSTRUCTION DEBRIS; 7'9" to 16 feet; trace clay; brick fragments; moist; HC staining; HC odor.

Sample I.D.: Ascon-GP11-12'. Sample collected in 1-acetate sleeve; 2-4 oz. jars; and 3-Entore containers for analysis by VOCs, SVOCs and TPH by EPA Methods 8260B, 8270C and 8015M, respectively.

Total depth of well at 14 feet bgs.

Terminated pilot boring at 16 feet bgs.

▽ Groundwater at time of drilling

▼ Groundwater measured after well completed.

Water Seepage

Notes:

(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.

(2) HC- Hydrocarbon

(3) Oil waste consists of black free-phase Hydrocarbons.

(4) Commenced drilling GP-11 at 16:07 on 8/19/02.

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic Sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 14 feet bgs. Set PVC Screen (0.02-inch) from 4 to 14 feet bgs. Used 1-100lb bag of #2/12 Sand from 3 to 14 feet bgs; ½-50lb bag of bentonite granular (hydrated with water) from surface to 3 feet bgs. PVC stick up is 1.95 feet tall; with PVC slip Cap.

TM No.1
Ascon Site, Huntington Beach, California

PROJECT NAVIGATOR, LTD.

BORING NO. GP-12

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Acetate Liner AND DIMENSION 4-feet 1½-inch dia.

COORDINATES N 2183706.9218 E 6037686.7567

FIELD ENGINEER J. Russo

DATE BEGAN 8/21/02

EDITED BY J. Russo

DATE FINISHED 8/21/02

CHECKED BY R. Puga

GROUND SURFACE EL. 16.60' 18.69' TOIC

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) (1)	Profile	U.S.C.S.	Well As-built	DESCRIPTION
0					2.09	Gravel and sediment ground surface.
5	0ppm	2½ Rec	Fine Fill Material	ML		Brown (10YR, 4/3), SILT WITH GRAVEL (ML); surface to 2 feet; silt (85%); gravel (15%); non-cemented; non-plastic; moist; no HC staining; no HC odor.
		3' Rec		ML		Dark Brown (10YR, 3/3); SILT (ML); 2 to 5 feet; silt (100%); non-plastic; moist; no HC staining; no HC odor.
10	2ppm	4' Rec	Impacted Soil Waste	ML		Dark Gray (10YR, 4/1); SANDY SILT (ML); 5 to 14'9" feet; silt (20%); fine grained sand (80%); non-plastic; non-cemented; HC staining; HC odor. Waste from 5 to 14'9" Sample I.D.: Ascon-GP12-8'; Sample collected in 1-acetate sleeve; 2-4oz jars and 3-Encore Containers for VOCs by 8260B; SVOCs by 8270C and TPH by 8015M.
	0ppm	4' Rec				Very Dark Gray (10YR, 3/1); Clay (CL); 14'9" to 17'9" feet; medium plastic; moist; stiff; no HC staining; no HC odor.
15	0ppm	4' Rec		CL		Dark Gray (10YR, 4/1); POORLY GRADED SAND WITH SILT (SP-SM); 17'9" to 19'; fine grained sand; silt (40%); slightly micaceous; very moist; non-plastic; no HC staining; no HC odor. Dark Gray (10YR, 4/1); CLAY (CL); 19 to 21'; medium plastic; very moist; firm; no HC staining; no HC odor.
			18.43 8/22/02	SP-SM		Dark Gray (10YR, 4/1); POORLY GRADED SAND WITH SILT (SP-SM); 21 to 28'; fine grained sand (55%); silt (45%); abundant sea shells; wet; no HC staining; no HC odor.
20	0ppm	4' Rec		CL		First encounter of groundwater after 15-minutes of terminating boring 17 feet.
			Native	SP-SM		Bottom of Well 22 feet bgs
25	0ppm	4' Rec				
	0ppm					Terminated Pilot Boring at 28 feet bgs
30						
35						
40						
45						

Notes:

(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.

(2) HC – Hydrocarbon

(3) Oil waste consists of black free-phase Hydrocarbons.

(4) Commenced drilling GP-12 at 07:50 on 8/21/02.

▽ Groundwater at time of drilling

▼ Groundwater measured after well completed

Water Seepage

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 22 feet bgs. Set PVC schedule 40 PVC screen (0.02-inch) from 12 to 22 feet bgs. Used 1-100 lb bag of #2/12 Sand from 11 to 28 feet bgs; ½-50 lb bag of bentonite granular (hydrated with water) from 8 to 11 feet bgs; 10-gallons of bentonite grout from surface to 8 feet bgs. PVC stick up is 2.09 feet tall; with PVC slip cap.

Example Field Boring Log		Figure 4
TM No. 1 Ascon Site, Huntington Beach, California	July 10, 2002	PROJECT NAVIGATOR, LTD.

BORING NO. GP-13

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Acetate Liner AND DIMENSION 4-foot 1½-inch dia.

COORDINATES N 2183629.3644 E 6037340.7945

FIELD ENGINEER J. Russo

DATE BEGAN 8/21/02

EDITED BY J. Russo

DATE FINISHED 8/21/02

CHECKED BY R. Puga

GROUND SURFACE EL. 21.16' 23.86' T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) (1)	Profile	U.S.C.S.	Well As-built
0				2.70	
5	0ppm	2½ Rec	Fine Fill Material	SM	
		3' Rec			
10	0ppm	4' Rec		ML	
	0ppm	4' Rec	Impacted Soil Waste		
15	0ppm	4' Rec			
20	0ppm	4' Rec			
25	0ppm				
30					
35					
40					
45					

DESCRIPTION

Gravel and sediment ground surface

Commenced drilling GP-13 at 09:57 on 8/21/02

Yellowish Brown (10YR, 5/4); SILTY SAND WITH GRAVEL (SM); Surface to 7½ feet; fine grained sand (40%); silt (20%); gravel (40%); non-cemented; loose; no HC staining; no HC odor

Oil waste start at 7½ feet

Dark Gray (10YR, 4/2); SANDY SILT (ML); from 7½ to 24 feet; silt (75%); fine grained sand (25%); micaceous; non-cemented; firm; moist; HC staining; fair HC odor.

Sample I.D.: Ascon-GP13-11'. Sample collected in 1-acetate sleeve, 2-4oz jars; and 3 Encore Containers for VOCs by 8260B, SVOCs by 8270C and TPH by 8015M.

Very wet at 17 feet

Bottom of Well at 22 feet bgs

Terminated Pilot Boring at 24-feet bgs

Notes:

(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.

(2) HC - Hydrocarbon

(3) Oil waste consists of black free-phase Hydrocarbons.

(4) Commenced drilling GP-13 at 09:57 on 8/21/02.

Groundwater at time of drilling

Groundwater measured after well completed.

Water Seepage

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 22 feet bgs. Set PVC Schedule 40 PVC screen (0.02-inch) from 12 to 22 feet bgs. Used 1-100 lb bag of #2/12 Sand from 11 to 24 feet bgs; ½-50 lb bag of bentonite granular (hydrated with water) from 8 to 11 feet bgs; 10-gallons of bentonite grout from surface to 8 feet bgs. PVC stick up is 2.70 feet tall; with PVC slip cap.

TM No.1
Ascon Site, Huntington Beach, California

PROJECT NAVIGATOR, LTD.

BORING NO. GP-14

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Acetate Liner, AND DIMENSION 4-foot 1½ inch dia.

COORDINATES N 2183833.6608 E 6037463.8821

FIELD ENGINEER J. Russo

DATE BEGAN 8/22/02

EDITED BY J. Russo

DATE FINISHED 8/22/02

CHECKED BY R. Puga

GROUND SURFACE EL. 26.16' 27.66' T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) (1)	Profile	U.S.C.S.	Well As-built	DESCRIPTION
0				1.50		Ice Ivy plant ground surface cover.
5	0ppm	3' Recovery	Fine Fill Material	SM		Pale Brown (10YR, 6/3), SILTY SAND (SM); Surface to 6½ feet; fine to medium grained sand (100%); loose; non-cemented; damp; No HC staining; no HC odor.
	0ppm	3½ Recovery		SM		Dark Grayish Brown (10YR, 4/2); SILTY SAND WITH GRAVEL (SM); 6½ to 9½ feet; fine to medium grained sand (~80%); silt (15%); gravel (45%); non-cemented; asphalt debris; no HC staining; no HC odor. Refusal at 9 feet move boring over 10 feet. Debris from 9½ to 10 feet.
10	0ppm	4' Recovery	8/22/02	Debris ML SM		Dark Gray (10YR, 4/1); SANDY SILT (ML); 10 to 11'3" feet; silt (90%); fine grained sand (10%); low plasticity; moist; No HC staining; No HC odor. Waste starts at 10 feet.
	0ppm	2' Recovery	11.35 Impacted Soil Waste	SP-SM SM		Pale Brown (10YR, 6/3), SILTY SAND (SM) from 11'3" to 11'6". Dark Grayish Brown (10YR, 3/2) POORLY GRADED SAND WITH SILT (SP-SM); from 11'6" to 14'0"; fine grained sand (80%); silt (15%); moist; non-cemented; no HC staining; no HC odor.
15	0ppm	4' Recovery		ML		Pale Brown (10YR, 6/3); SILTY SAND (SM) from 14 to 14'6"; fine to medium grained; no HC staining. Dark Grayish Brown (10YR, 3/2); SILT (ML) from 14'6" to 19 feet; silt and drilling mud.
20	47ppm	4' Recovery		SP-SC		Dark Gray (10YR, 4/1); POORLY GRADED SAND WITH CLAY (SP-SC) from 19 to 23 feet; HC staining HC odor. Sample I.D.: Ascon-GP14-24. Sample collected in 1-acetate sleeve, 1-4 oz jar and 3-Encore Containers for VOCs by 8260B, SVOCs by 8270C and TPH by 8015M.
	416.8ppm			ML		Black (10YR, 2/1); SILT (ML) 23 to 24 feet; silt (100%) with trace medium to coarse sand; HC staining; Strong HC odor.
25						Bottom of well 23 feet bgs. Terminated Pilot boring at 24 feet bgs.
30						
35						
40						
45						

Notes:

(1) Used 1½ inch diameter, 4-foot long Acetate lined rod.

(2) HC - Hydrocarbon

(3) Oil Waste consists of black free-phase hydrocarbons.

(4) Commenced drilling GP-14 at 07:30 on 8/22/02.

▽ Groundwater at time of drilling

▼ Groundwater measured after well Completed

Water Seepage

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 23 feet bgs. Set PVC Schedule 40 PVC screen (0.02-inch) from 13 to 23 feet bgs. Used 1-100 lb bag of #2/12 sand from 12 to 24 feet bgs; ½-50 lb bag of bentonite granular (hydrated with water) from 9 to 12 feet bgs; 10-gallons of bentonite grout from surface to 9 feet bgs. PVC stick up is 1.50 feet tall; with PVC slip cap.

Example Field Boring Log		Figure 4
TM No.1 Ascon Site, Huntington Beach, California	July 10, 2002	PROJECT NAVIGATOR, LTD.

BORING NO. GP-15

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Acetate Liner AND DIMENSION 4-Foot 1½-inch dia.

COORDINATES N 2183806.1425 E 6037671.6339

FIELD ENGINEER J. Russo

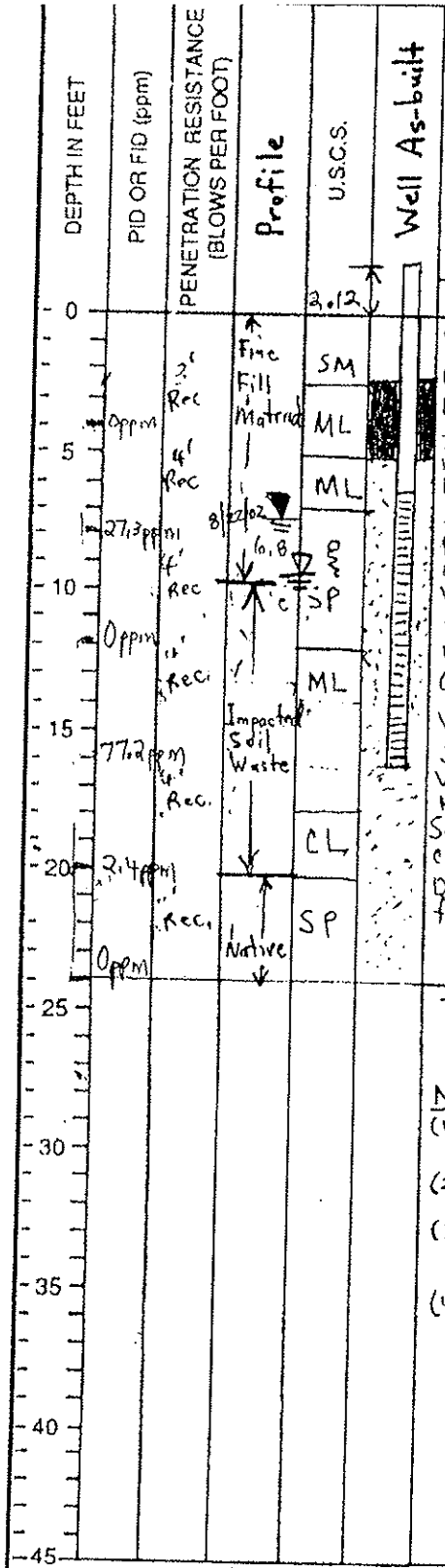
DATE BEGAN 8/15/02

EDITED BY J. Russo

DATE FINISHED 8/15/02

CHECKED BY R. Puga

GROUND SURFACE EL. 17.78' 19.90' T.O.C.



DESCRIPTION

Gravel and sediment ground surface

Commenced drilling GP-15 at 14:40 on 8/21/02

Dark Yellowish Brown (10YR, 5/4); SILTY SAND (SM); Surface to 2½ feet; fine to medium grained sand (~80%); silt (~20%); loose; non-cemented; no HC staining; no HC odor.

Dark Grayish Brown (10YR, 4/2); SILT (ML); 2½ to 5 feet; silt (90%); trace fine grained sand; non-plastic; slightly micaceous; moist; no HC staining; no HC odor.

Brown (10YR, 5/3); SANDY SILT (ML); 5 to 6'9"; silt (70%); fine grained sand (30%); non-plastic; non-cemented; no HC staining; no HC odor.

Very Dark Gray (10YR, 3/1); POORLY GRADED SAND WITH GRAVEL (SP); from 6'9" to 12 feet; fine to medium grained sand (100%); non-cohesive; loose; non-cemented; wet; no HC odor.

Oil waste starts at 9½ feet. Perched water at 8 to 9½ feet.

Very Dark Gray (10YR, 3/1); SILT (ML); 12 to 18 feet; silt (100%); non-plastic; slightly micaceous, wet; HC staining, HC odor.

Very Dark Gray (10YR, 3/1); CLAY (CL); 18 to 20 feet; plastic; stiff; HC staining; HC odor. Perched zone from 13 to 15 feet.

Sample I.D.: Ascon-GP15-16. Sample collected in 1-acetate; 2-4oz jars and 3-Encore containers for VOCs by 8260B, SVOCs by 8270C and TPH by 8015M.

Dark Grayish Brown (10YR, 4/2); POORLY GRADED SAND (SP); from 20 to 24 feet; fine grained sand (90%); silt (10%); non-cohesive; no HC staining; no HC odor.

Bottom of well at 16 feet bgs.

Terminated pilot boring at 24 feet bgs.

Notes:

(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.

(2) HC - Hydrocarbon

(3) Oil waste consists of black free-phase hydrocarbons

(4) Commenced drilling GP-15 at 14:40 on 8/21/02.

▽ Groundwater at time of drilling

▼ Groundwater measured after well completed

Water Seepage

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 16 feet bgs. Set PVC Schedule 40 PVC screen (0.02-inch) from 6 to 16 feet bgs. Used 1-100 lb bag of #2/12 sand from 5 to 24 feet bgs; ½-50 lb bag of bentonite granular (hydrated with water) from 2 to 5 feet bgs; 5-gallons of bentonite grout from surface to 5 feet bgs. PVC stick up is 2.12 feet tall; with PVC slip cap.

Example Field Boring Log		Figure 4
TM No. 1 Ascon Site, Huntington Beach, California	July 10, 2002	PROJECT NAVIGATOR, LTD.

BORING NO. GP-16

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Acetate Liner AND DIMENSION 4-feet long 1½-inch dia.

COORDINATES N 2184057.5870 E 6037789.1430

FIELD ENGINEER J. Russo

DATE BEGAN 8/23/02

EDITED BY J. Russo

DATE FINISHED 8/23/02

CHECKED BY R. Puga

GROUND SURFACE EL. 20.98' 23.01' T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)(1)	Profile	U.S.C.S.	Well As-built	DESCRIPTION
0				2.03		Sediment and gravel ground surface. Commenced drilling GP16 at 10:08 on 8/22/02. Refusal at 10 feet moved 5 feet over.
5	0ppm	2½' Recovery	Fine & Coarse Fill Material	SM		Pale Brown (10YR, 6/3); SILTY SAND (SM); Surface to 3½ feet; fine to medium grained Sand (100%); loose; non-cemented; damp; no HC staining; no HC odor.
	0ppm	4' Recovery		GM		Dark Grayish Brown (10YR, 4/2); SILTY GRAVEL WITH SAND (GM); 3½ to 7 feet, medium to coarse gravel; dense; moist; No HC staining; no HC odor.
				SM		Pale Brown (10YR, 6/3); SILTY SAND (SM); 7 to 7'3"; fine to medium grained sand
10		2' Recovery		ML		Dark Grayish Brown (10YR, 4/2); SANDY SILT (ML); 7'3" to 10 feet; Silt (85%); fine grained sand (15%); no HC staining; no HC odor.
	0ppm			ML		Dark Gray (10YR, 4/1); SILT (ML); 10 to 12½ feet; Silt (100%); lenses of drilling mud; very moist; soft; no HC staining; no HC odor.
15	259ppm	2' Recovery 4' Recovery	Impacted Soil Waste	15.7 GM		Dark Grayish Brown (10YR, 4/2); SILTY GRAVEL WITH SAND (GM); 12½ to 18 feet medium to coarse gravel; dense; wet; HC staining; HC odor. Waste starts at 14 feet and terminates at 22 feet. Bottom of well at 16 feet bgs
20	316ppm	4' Recovery	Oily Saturated Waste	Mud		Dark Gray (10YR, 4/1); DRILLING MUD; 18 to 22 feet; HC staining; HC odor. Sample I.D.: Ascon-GP16-20'. Sample collected in 1-acetate sleeve; 2-4oz jars and 3-Encore Containers for VOCs by 8260B; SVOCs by 8270C and TPH by 8015M.
25	0ppm	4' Recovery	Native	SP-SM		Gray (5YR, N5); POORLY GRADED SAND WITH SILT (SP-SM); 22 to 28 feet fine grained sand (80%); Silt (20%); wet; non-cemented; No HC staining; no HC odor.
	0ppm					Terminated pilot boring at 28 feet bgs
30						
35						
40						
45						

Notes:
(1) Used 1½-inch diameter 4-foot long Acetate lined rod.
(2) HC- Hydrocarbon
(3) Oil waste consists of black free-phase hydrocarbons.
(4) Commenced drilling GP-16 at 10:08 on 8/22/02.

Groundwater at time of drilling

Groundwater measured after well completed

Water Seepage

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 16 feet bgs. Set PVC Schedule 40 PVC screen (0.02-inch) from 6 to 16 feet bgs. Used 1-100 lb bag of #2/12 sand from 5 to 28 feet bgs, ½-50 lb bag of bentonite granular (hydrated with water) from 2 to 5 feet bgs; 5-gallons of bentonite grout from surface to 5 feet bgs. PVC stick up is 2.03 feet tall; with PVC slip cap.

Example Field Boring Log		Figure 4
TM No. 1 Ascon Site, Huntington Beach, California	July 10, 2002	PROJECT NAVIGATOR, LTD.

BORING NO. GP-17

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Acetate Liner AND DIMENSION 4-foot 1½-inch dia.

COORDINATES N 2183976.8784 E 6037656.6008

FIELD ENGINEER J. Russo

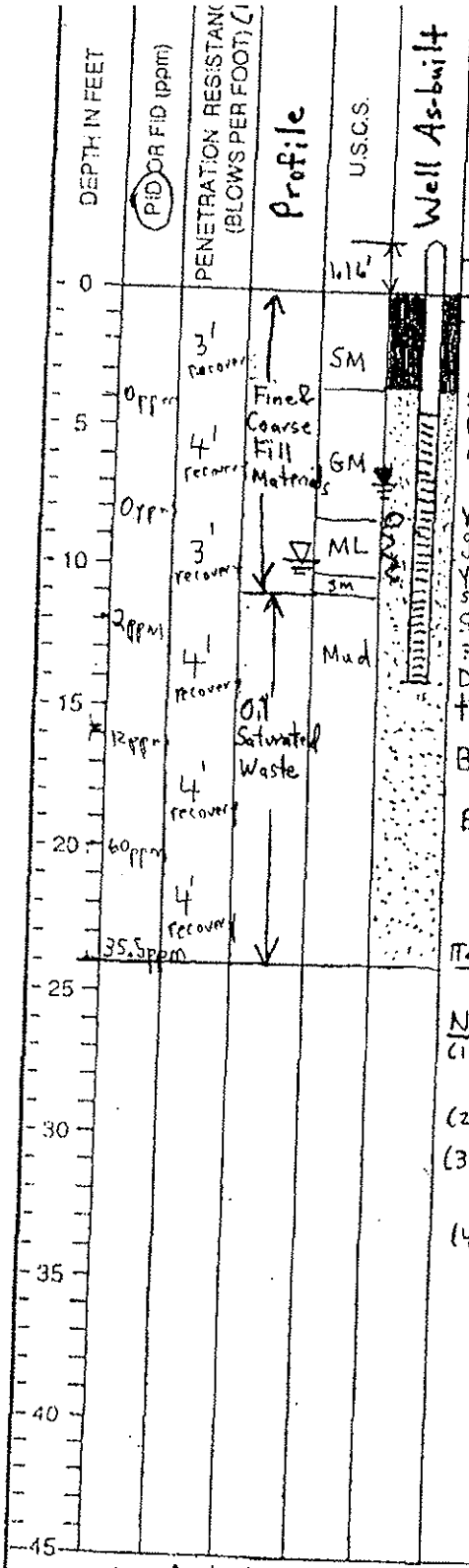
DATE BEGAN 8/23/02

EDITED BY J. Russo

DATE FINISHED 8/23/02

CHECKED BY R. Puga

GROUND SURFACE EL. 21.79', 23.95' T.O.C



DESCRIPTION

Sediment and gravel ground surface.

Pale Brown (10YR, 6/3); SILTY SAND (SM); surface to 3 feet; fine to medium grained Sand (~80%); silt (~20%); non-cemented; loose; no HC staining; no HC odor.

Dark Grayish Brown (10YR, 4/2); SILTY GRAVEL WITH SAND (GM); 3 to 8 feet; silt (70%); medium to coarse gravel; dense; moist; No HC staining; No HC odor.

Very Dark Gray (10YR, 3/1); SANDY SILT (ML); from 8 to 10 feet; silt (60%); fine grained sand (~35%); non-cemented; non-plastic; very moist; no HC staining; no HC odor.

Yellowish Brown (10YR, 5/6); SILTY SAND (SM); from 10'0" to 10'3"; fine to medium grained sand.

Sample I.D.: Ascon-GP17-12'. Sample collected in Acetate sleeve; 2-4 oz. jars and 3-Encore Containers for VOCs by 8260B, SVOCs by 8270C and TPH by 8015M.

Dark Grayish Brown (10YR, 4/2) to Black (10YR, 2/1); DRILLING MUD; from 10'3" to 24'0"; trace clay; drilling mud; HC staining; HC odor.

Bottom of well at 14 feet

Bottom of waste not determined.

Terminated Pilot boring at 24 feet.

Notes:

(1) Used 1½-inch diameter 4-foot long Acetate lined rod.

(2) HC - Hydrocarbon

(3) Oil Waste consists of black free-phase hydrocarbons.

(4) Commenced drilling GP-17 at 08:45 on 8/22/02.

Ground water at time of drilling

Groundwater measured after Well completed.

Water Seepage

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 14 feet bgs. Set PVC Schedule 40 PVC screen (0.02-inch) from 4 to 14 feet bgs. Used 1-100 lb bag of #2/12 sand from 3 to 24 feet bgs; ½-50 lb bag of bentonite granular (hydrated with water) from surface to 3 feet bgs. PVC Stick up is 1.16 feet tall; with PVC Slip Cap.

TM No.1
Ascon Site, Huntington Beach, California

PROJECT NAVIGATOR, LTD.

BORING NO. GP-18

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Acetate Liner AND DIMENSION 4-feet 1½-inch dia.

COORDINATES N 2183957.6542 E 6037441.6974

FIELD ENGINEER J. Russo

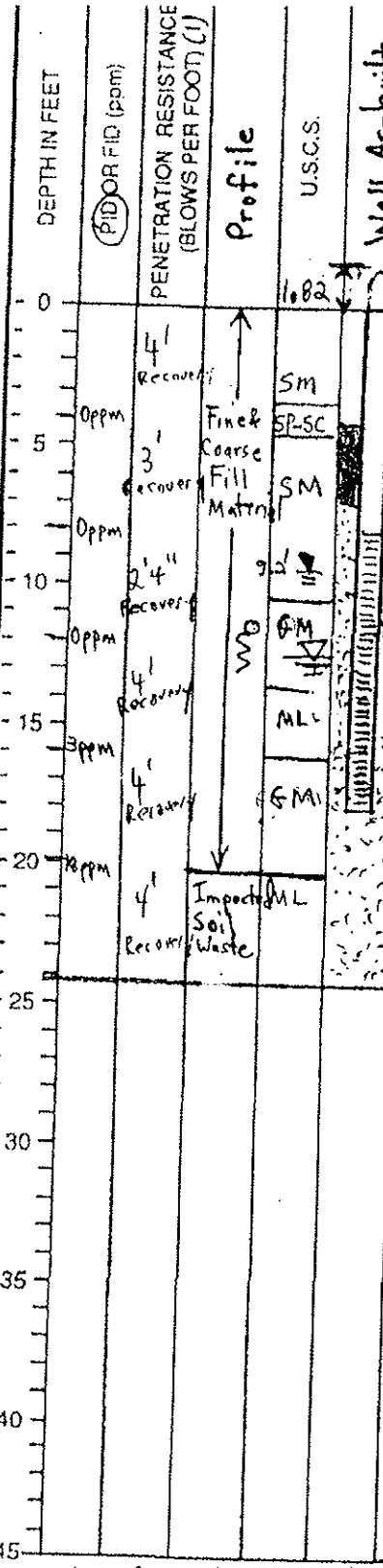
DATE BEGAN 8/22/02

EDITED BY J. Russo

DATE FINISHED 8/22/02

CHECKED BY R. Puga

GROUND SURFACE EL. 25.90' 27.72' T.O.C.



DESCRIPTION

Sediment and gravel ground surface

Pale Brown (10YR, 6/3); SILTY SAND (SM); Surface to 3 feet; fine to medium grained sand (100%); loose; non-cemented; dry; no HC staining; no HC odor.

Dark Grayish Brown (10YR, 4/2); POORLY GRADED SAND WITH CLAY (SP-SC); 3 to 4 feet; No HC Staining; No HC odor.

Pale Brown (10YR, 6/3); SILTY SAND (SM); 4 to 6 feet; no HC staining; no HC odor. Color changes to Dark Grayish Brown (10YR, 4/2), 6 to 8 feet; change to Pale Brown (10YR, 6/3); 8 to 10'6". Tar lense at 4 feet.

Waste starts at 20 feet.

Dark Grayish Brown (10YR, 4/2); SILTY GRAVEL WITH SAND (GM); from 10'6" to 13'6" feet; Silt (70%); medium to coarse gravel; firm; moist; no HC staining; no HC odor. First water at 12 to 13 feet.

Dark Grayish Brown (10YR, 4/2); CLAYEY SILT (ML); 13'6" to 16 feet; plastic; moist; no HC staining; no HC odor.

Dark Grayish Brown (10YR, 4/2); SILTY GRAVEL WITH SAND (GM) from 16 to 20 feet; Silt (70%); medium to coarse gravel (~30%); wet; no HC staining; no HC odor.

Sample I.D.: Ascon-GP18-20'. Sample collected in 1-acetate sleeve, 2-4 ozjars, and 3-Encore containers for VOCs by EPA 8260B, SVOCs by 8270C and 8015M.

Black (10YR, 2/1); SILT (ML); 20 to 24 feet; silt (~100%) with trace medium to coarse sand; drilling mud; HC staining; HC odor

Bottom of well at 18 feet bgs

Terminated Pilot boring at 24 feet bgs

Notes:
(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.
(2) HC- Hydrocarbon
(3) Oil Waste consists of black free-phase hydrocarbons.
(4) Commenced drilling GP-18 at 10:30 on 8/22/02.

Groundwater at time of drilling

Groundwater measured after well completed.

Water Seepage

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 18 feet bgs. Set PVC Schedule 40 PVC screen (0.02-inch) from 8 to 18 feet bgs. Used 1-100 lb bag of #2/12 sand from 7 to 24 feet bgs; ½-50 lb bag of bentonite granular (hydrated with water) from 4 to 7 feet bgs; 5-gallons of bentonite grout from surface to 4 feet bgs. PVC stick up is 1.82 feet tall; with PVC slip cap.

Example Field Boring Log		Figure 4
TM No. 1 Ascon Site, Huntington Beach, California	July 10, 2002	PROJECT NAVIGATOR, LTD.

BORING NO. GP-19

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Acetate Liner AND DIMENSION 4-feet 1½-inch dia.

COORDINATES N 2184051.7143 E 6037419.5546

FIELD ENGINEER J. Russo

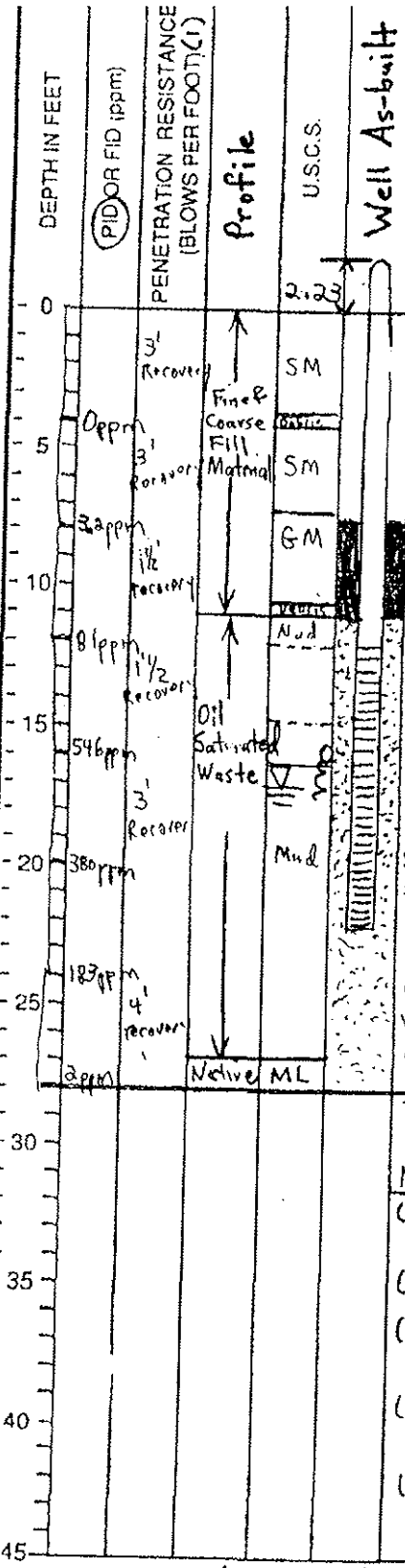
DATE BEGAN 8/22/02

EDITED BY J. Russo

DATE FINISHED 8/22/02

CHECKED BY R. Puga

GROUND SURFACE EL. 25.95' 28.18' T.O.C.



DESCRIPTION

Ice Ivy ground surface cover.

Pale Brown (10YR,6/3); SILTY SAND (SM); surface to 3½ feet; fine to medium grained sand (~80%); silt (~20%); loose; non-cemented; damp; no HC staining) no HC odor. White; Concrete Debris from 3½ to 4 feet.

Pale Brown (10YR,6/3); SILTY SAND (SM); 4 to 7 feet; fine to medium grained sand (100%); loose; non-cemented; damp; no HC staining; no HC odor.

Dark Grayish Brown (10YR,4/2); SILTY GRAVEL WITH SAND (GM); 7 to ~11 feet; silt (~10%); medium to coarse gravel; firm; moist; no HC staining; no HC odor.

Asphalt Debris 11'4 to 11'2"

Black (10YR,2/1); DRILLING MUD; 11 to 12 feet; HC staining; HC odor. Oil Mud waste starts at 11 feet

Black (10YR,2/1); DRILLING MUD; 16 to 27 feet; silt and slightly micaceous.

First water at 17 to 18 feet bgs

Sample I.D.: Ascon-GP19-2d. Sample collected in 1-acetate sleeve, 2-4 oz jars and 3-Encore Containers for VOCs by 8260B, SVOCs by 8270C and TPH by 8015M.

Bottom of well at 22 feet bgs

Oil waste terminates at 27 feet

Very Dark Grayish Brown (10YR 3/2) CLAYEY SILT (ML); from 27 to 28 feet; low plasticity; moist; No HC staining; faint HC odor.

Terminated Pilot boring at 28 feet bgs

Notes:

(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.

(2) HC Hydrocarbon

(3) Oil waste consists of black free-phase hydrocarbons.

(4) Commenced drilling GP-19 at 14:12 on 8/22/02.

(5) Dry Well

▽ Groundwater at time of drilling

▼ Groundwater measured after well completed.

Water Seepage

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 22 feet bgs. Set PVC Schedule 40 PVC screen (0.02-inch) from 12 to 22 feet bgs. Used 1-100 lb bag of #2/12 sand from 11 to 28 feet bgs; ½-50 lb bag of bentonite granular (hydrated with water) from 8 to 11 feet bgs; 10-gallons of bentonite grout from surface to 8 feet bgs. PVC stick up is 2.23 feet tall; with PVC slip cap.

Example Field Boring Log		Figure 4
TM No. 1 Ascon Site, Huntington Beach, California	July 10, 2002	PROJECT NAVIGATOR, LTD.

BORING NO. GP-20

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Acetate Liner AND DIMENSION 4 feet 1½-inch dia.

COORDINATES N 2184073.5822 E 6037685.9528

FIELD ENGINEER J. Russo

DATE BEGAN 8/22/02

EDITED BY J. Russo

DATE FINISHED 8/23/02

CHECKED BY R. Puga

GROUND SURFACE EL. 23.46' 23.66' T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) (1)	Profile	U.S.C.S.	Well As-built	DESCRIPTION
0					1.20	Sediment and gravel ground surface.
5	0ppm	2' Rec.	Fine & Coarse Fill Material	SM		Light Brown (10YR, 6/3); SILTY SAND (SM); Surface to 6'3"; fine to medium grained Sand (100%); loose; non-cemented; damp; no HC staining; no HC odor. Water level at 7 feet measured at 07:30 on 8/23/02.
	0ppm	2½' Rec.		GM	6.66	Dark Grayish Brown (10YR, 4/2); SILTY GRAVEL WITH SAND (GM); 6'3" to 10'0" feet; silt (30%); medium to coarse gravel; firm; wet; no HC staining; no HC odor. (43%)
10	0ppm	2' Rec.		ML		Very Dark Gray (10YR, 3/1); SILT (ML); 10'0" to 12' feet; silt (95%); drilling mud (5%); slightly micaceous; wet; No HC staining; no HC odor. First Water at 12' to 13 feet
	0ppm	4' Rec.		Mud		Dark Grayish Brown (10YR, 4/2); DRILLING MUD from 12 to 18'; mud (50%); silt (50%); very wet; HC staining; HC odor; liquid free-phase hydrocarbon at shoe of sampler. Oil waste starts at 15 feet.
15	1,093ppm	4' Rec.	Oily Saturated Waste			Sample I.D.: Ascon-GP20-16'; Sample collected in 1-acetate sleeve; 2-4oz. jars, 3-Encore containers for VOCs by 8260B, SVOCs by 8270C and TPH by 8015M.
20	1,008ppm	4' Rec		GP		Dark Grayish Brown (10YR, 4/2), POORLY GRADED SAND WITH GRAVEL (GP); 18 to 22.5 feet; silt (20%); medium to coarse gravel; dense; wet; HC staining; HC odor
	28ppm			ML		Very Dark Grayish Brown (10YR, 3/2) to Black (10YR, 2/1); CLAYEY SILT (ML); 22.5 to 24 feet; low to medium plasticity; wet; HC staining; HC odor
						Bottom of well at 14 feet bgs
25						Terminated pilot boring at 24 feet bgs
30						
35						
40						
45						

Notes:

(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.

(2) HC- Hydrocarbon

(3) Oil Waste consists of black free-phase hydrocarbons.

(4) Commenced drilling GP-20 at 16:15 on 8/22/02.

▽ Groundwater at time of drilling

▼ Groundwater measured after well completed.

Water Seepage

Notes: Used 1½-inch O.D. direct-push rod pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 14 feet bgs. Set PVC Schedule 40 PVC screen (0.020-inch) from 4 to 14 feet bgs. Used 1-100 lb bag of #2/12 sand from 3 to 24 feet bgs; ½-50 lb bag of bentonite granulow (hydrated with water) from surface to 3 feet bgs. PVC stick up is 1.20 feet tall; with PVC slip cap.

TM No.1
Ascon Site, Huntington Beach, California

PROJECT NAVIGATOR, LTD.

BORING NO. GP-21

SHEET 1 OF ____

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Acetate Liner AND DIMENSION 4-feet 1½-inch dia.

COORDINATES N 2183492.1346 E 6636834.8960

FIELD ENGINEER J. Russo

DATE BEGAN 9/12/02

EDITED BY J. Russo

DATE FINISHED 9/13/02

CHECKED BY R. Puga

GROUND SURFACE EL. 16.66' 18.76' T.O.C

DEPTH IN FEET	PID OR FID (ppm)	Profile (1)	SAMPLE NO. AND TYPE	U.S.C.S.	Well As-built	DESCRIPTION
0				2.10		Grass Ground Surface Commenced drilling GP-21 at 15:53 on 9/12/02
	0ppm	Fine & Coarse Fill	16:04	SM		Pale Brown (10YR, 6/3); SILTY SAND (SM); surface to 2 feet; fine to medium grained sand (85%); silt (15%); loose; no HC staining; no HC odor.
5				GP		Dark Grayish Brown (10YR, 4/2); POORLY GRADED SAND WITH GRAVEL (GP); 2 to 3 feet
	0ppm		16:12	ML		Very Dark Grayish Brown (10YR, 3/2); SILT (ML); 3 to 4½ feet; no HC odor
			16:19	GP		Dark Grayish Brown (10YR 4/2); POORLY GRADED SAND WITH GRAVEL (GP); 4½ to 11 feet; fine to medium grained sand (80%); gravel (20%); with fragments of asphalt debris; no HC staining; slight HC odor.
10	9.2ppm	Impacted Soil waste	17:05	Debris GP		Sample I.D.: Ascon-GP21-12'. Sample collected in 2-4 oz. jars; 1-acetate sleeve and 3-Encore containers for analysis for VOCs, SVOCs and TPH by EPA Methods 8260B, 8270C and 8015M, respectively. Black (10YR, 2/1); ASPHALT DEBRIS; 11 to 12 feet; HC odor.
15	0ppm		17:20	ML		Very Dark Grayish Brown (10YR, 3/2); POORLY GRADED SAND WITH GRAVEL (GP); 12 to 14 feet; fine to medium grained sand (80%); gravel (20%); no HC staining; slight HC odor. Dark Grayish Brown (10YR, 4/2); SILT (ML); 14 to 19½ feet; low plasticity; firm; no HC staining; no HC odor.
20	0ppm	Native	07:25	SP-SM		Gray (10YR, 4/1); POORLY GRADED SAND WITH SILT (SP-SM); 19½ to 28 feet; fine grained sand (80%); silt (20%); abundant sea shells; wet; no HC staining; no HC odor.
25	0ppm					
	0ppm					Total depth of well at 26 feet bgs
30						Pilot boring terminates at 26 feet bgs
35						
40						
45						

Notes:
(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.
(2) HC - Hydrocarbon
(3) Oil waste consists of black free-phase hydrocarbons.
(4) Commenced drilling GP-21 at 15:53 on 9/12/02.

▽ Groundwater at time of drilling

▼ Groundwater measured after well completed.

Water Seepage

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 2½-inch O.D. direct-push rods to set 1-inch diameter casing. Set bottom of well at 26 feet bgs. Set well screen (0.020-inch) from 16 to 26 feet bgs. Used 1-100 lb bag of #2/12 Sand from 15 to 28 feet bgs; 1-50 lb bag of bentonite chips (hydrated with 1 gallons of water) from 12 to 15 feet bgs; 10 gallons of bentonite grout from surface to 12 feet bgs. PVC stick up is 2.10 feet tall; with PVC slip cap.

TM No. 1
Ascon Site, Huntington Beach, California

PROJECT NAVIGATOR, LTD.

BORING NO. GP-22

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Acetate Liner AND DIMENSION 4-feet 1½-inch dia.

COORDINATES N 2183445.8280 E 6037467.5526

FIELD ENGINEER J. Russo

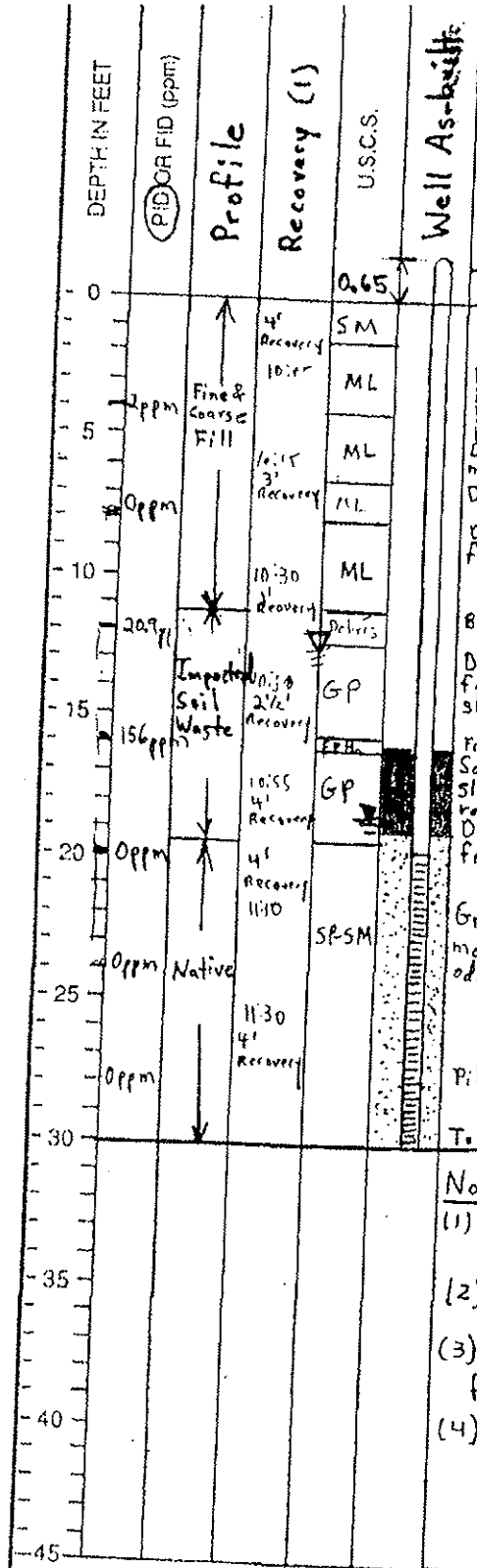
DATE BEGAN 9/13/02

EDITED BY J. Russo

DATE FINISHED 9/13/02

CHECKED BY R. Puga

GROUND SURFACE EL. 17.66' 18.31' T.O.C



DESCRIPTION

Grass ground surface cover.

Pale Brown (10YR,6/3); SILTY SAND (SM); Surface to ½ feet; fine to medium grained sand (~80%) silt (~20%); loose; dry; no HC staining; no HC odor.

Dark Grayish Brown (10YR,4/2); SANDY SILT (ML); 1½ to 4 feet; silt (85%); fine grained sand (15%); non-plastic; damp; no HC staining; no HC odor.

Dark Grayish Brown (10YR,4/2); SANDY SILT WITH GRAVEL (ML); 4 to 6 feet; silt (80%); fine to medium grained sand (10%); gravel (10%); moist; no HC staining; no HC odor.

Dark Brown (10YR,4/3); SILT (ML); 6 to 7½ feet; low plasticity; no HC staining; no HC odor.

Dark Grayish Brown (10YR,4/2); SANDY SILT WITH GRAVEL (ML); 7½ to 11 feet; silt (80%); fine to medium grained sand (10%); gravel (10%); very moist; no HC staining; no HC odor.

Black (10YR,2/1); ASHPALT DEBRIS; 11 to 12 feet; wet; no HC odor.

Dark Grayish Brown (10YR,4/2); POORLY GRADED SAND WITH GRAVEL (GP); 11 to 15½ feet; fine to medium grained sand (90%); gravel (10%); with fragments of asphalt; no HC staining; slight HC odor.

Free-Phase Hydrocarbon lense 15½ to 16 feet; tar like consistency; strong HC odor. Sample I.D.: Ascon-GP22-16. Sample collected in 2-4oz jars, 3-Encore containers and 1-acetate sleeve for analysis for VOCs, SVOCs and TPH by EPA Methods 8260B, 8270C and 8015M, respectively.

Dark Grayish Brown (10YR,4/2); POORLY GRADED SAND WITH GRAVEL (GP); 16 to 19½ feet; Sample as above; no HC staining; faint HC odor.

Gray (10YR,5/1); POORLY GRADED SAND WITH SILT (SP-SM); 19½ to 30 feet; fine to medium grained sand (80%); silt (20%); abundant sea shells; no HC staining; no HC odor.

Pilot boring terminates at 28 feet bgs

Total depth of well at 30 feet bgs

Notes:

(1) Used 1½-inch diameter, 4-foot long Acetate lined rod.

(2) HC - Hydrocarbon

(3) Oil waste consists of black free-phase hydrocarbons

(4) Commenced drilling GP-22 at 10:02 on 9/13/02.

▽ Groundwater at time of drilling

▼ Groundwater measured after well completed.

{ Water Seepage

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 8-inch O.D. direct-push rods to set 1-inch diameter PVC casing. Set bottom of well at feet bgs. Set well Screen (0.020-inch) from 20 to 30 feet bgs. Used 3 - 100lb bag of #2/12 sand from 19 to 30 feet bgs; 1 - 50 lb bag of bentonite chips (hydrated with 1 gallon of water) from 16 to 19 feet bgs; 100 gallons of bentonite grout from surface to 16 feet bgs. PVC stick up is 0.65 feet tall; with PVC slip cap.

TM No. 1
Ascon Site, Huntington Beach, California

PROJECT NAVIGATOR, LTD.

BORING NO. GP-23

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Split Spoon

AND DIMENSION 18-inch 2½-inch dia

FIELD ENGINEER J. Russo

EDITED BY J. Russo

CHECKED BY R. Puga

COORDINATES N 2184075.3285 E 6037567.2077

DATE BEGAN 9/13/02

DATE FINISHED 9/13/02

GROUND SURFACE EL. 25.06' 27.34' T.O.C

DEPTH IN FEET	(PID) OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) (1)	Profile	U.S.C.S.	Well As-built
0		26, 28, 26, 16	Fine Fill Material	2.28 Sand ML; Brick ML	
5	0.1 ppm; N/R; 1 ppm	3, 4, 3, 3, 3, 15, 24, 16, 7, 15, 9, 31, 50/4		SC	
10	1.2 ppm	4, 4, 15, 12, 27, 34, 14, 17, 30, 33, 28, 40, 50/6	Impacted Soil Waste	Debris	
15	17.2 ppm	3, 5, 5, 2, 2, 3, 12, 19, 30, 43, 7, 12, 4, 6, 87, 8	Oil Saturated Waste	GP; MUD	
20	424 ppm			SP-SM	
25	33 ppm			CL	
30	10.5 ppm	13, 23, 32, 14, 33, 33	Native	SP-SM	
35					
40					
45					

DESCRIPTION

Grass and concrete surface.

Commenced drilling GP-23 at 15:30 on 9/13/02

Pale Brown (10YR, 6/3); SANDY SILT (ML); surface to 2½ feet; silt (85%); fine grained sand (15%); damp; no HC staining; no HC odor.

Red (2.5YR, 4/6); BRICK DEBRIS; 2½ to 3 feet.

Pale Brown (10YR, 6/3); SANDY SILT (ML); 3 to 7 feet; silt (85%); fine grained sand (15%); with asphalt debris fragments; dry to damp; moderately cemented; no HC staining; no HC odor.

Dark Grayish Brown (10YR, 3/2); CLAYEY SAND (SC); 7 to 9½; fine to medium grained sand; with clay lenses; very moist; no HC staining; no HC odor.

Light Gray (10YR, 7/1); CONCRETE DEBRIS; 7½ to 13 feet; wet; no HC staining; no HC odor.

Oily saturated waste from 13 to 22 feet.

Very Dark Grayish Brown (10YR, 3/2); POORLY GRADED SAND WITH GRAVEL (GP); 13 to 17 feet; fine to medium grained sand (80%); gravel (20%); wet; HC staining; HC odor.

Sample I.D.: Ascon-GP23-16. Samples collected in 3-4 oz. jars and 3-Encores for analysis for 8260B, 8270C and 8015M for VOCs, SVOCs and TPH, respectively.

Dark Grayish Brown (10YR, 4/2); DRILLING MUD; 17 to 21½ feet; clayey silt consistency; oil saturated; HC staining; HC odor.

Gray (10YR, 5/1); POORLY GRADED SAND WITH SILT (SP-SM); 21½ to 24 feet; fine grained sand (80%); silt (20%); very moist; no HC staining; faint HC odor.

Dark Grayish Brown (10YR, 4/2); CLAY (CL); 24 to 26 feet; medium plasticity; firm; moist; no HC staining; no HC odor.

Gray (10YR, 5/1); POORLY GRADED SAND WITH SILT (SP-SM); 26 to 36 feet; fine grained sand (80%); silt (20%); abundant sea shells; wet; no HC staining; no HC odor.

Pilot boring terminates at 31 feet

Total depth of well 36 feet

Notes:

(1) Used 2½-inch diameter California Split Spoon Sampler.

(2) HC - Hydrocarbon

(3) Oil waste consists of black free-phase hydrocarbons

(4) Commenced drilling GP-23 at 15:30 on 9/13/02.

▽ Groundwater at time of drilling

▼ Groundwater measured after well completed

Water Seepage

Notes: Used 8-inch O.D. hollow stem augers for pilot boring for lithologic sampling. Set bottom of well at 36 feet bgs. Set well screen (0.020-inch) from 26 to 36 feet bgs. Used 3 - 100 lb bag of #2/12 sand from 25 to 36 feet bgs; 1 - 50 lb bag of bentonite chips (hydrated with 5 gallons of water) from 22 to 25 feet bgs; 100 gallons of bentonite grout from surface to 22 feet bgs. PVC stick up is 2.28 feet tall; with PVC slip cap.

TM No. 1
Ascon Site, Huntington Beach, California

PROJECT NAVIGATOR, LTD.

BORING NO. GP-24

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling

SAMPLER TYPE Split Spoon Sampler AND DIMENSION 18-inches 2½-inch dia

COORDINATES N 2184279.1412 E 6037350.0165

FIELD ENGINEER J. Russo

DATE BEGAN 9/16/02

EDITED BY J. Russo

DATE FINISHED 9/16/02

CHECKED BY R. Puga

GROUND SURFACE EL. 26.97' 28.78' T.O.C

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)(1)	Profile	U.S.C.S.	Well As-built
0				1.81'	
5	0ppm, 0.2ppm		Fine Fill Material	SM	
10	1ppm, 7ppm, 6ppm		Impacted Soil Waste	ML, ML DEBRIS	
15	1.9ppm, 20ppm		Oil Saturated Waste	MUD	
20	250ppm, 220ppm, 505ppm, 1328ppm				
25	6.9ppm, 12ppm, 3.3ppm		Native	ML, CL, ML, CL	
30	14ppm, 0ppm, 10ppm, 0ppm, 0ppm			SP-SM	
35					
40					
45					

DESCRIPTION

Gravel and grass ground surface

Pale Brown (10YR,6/3); SILTY SAND (SM); surface to 7 feet; fine to medium grained sand (~80%); silt (~20%); weakly to moderately cemented; damp; no HC staining; no HC odor.

Dark Brown (10YR,3/3); SANDY SILT (ML): 7 to 10 feet; silt (85%); fine grained sand (15%); damp; no HC staining; no HC odor.

Dark Brown (10YR,3/3) and Light Gray (10YR,7/1); SANDY SILT & CONCRETE DEBRIS; 10 to 14½ feet; silt (85%); fine grained sand (15%); moist; no HC staining, slight HC odor.

Dark Grayish Brown (10YR,4/2); DRILLING MUD; 14½ to 23 feet; clayey silt consistency oil saturated; HC staining; HC odor.

Sample I.D.: Ascon-GP24-17.5 and Ascon-GP24-18. Samples collected in 3-4oz jars and 3-Encore Containers for analysis for 8260B, 8270C and 8015M for VOCs, SVOCs and TPH, respectively.

Dark Grayish Brown (10YR,4/2); CLAYEY SILT (ML); 23 to 25 feet; silt (90%); clay fines; slightly micaceous;
Dark Grayish Brown (10YR,4/2); CLAY (CL); 25 to 26 feet; medium plasticity; moist; no HC staining; no HC odor.
Dark Grayish Brown (10YR,4/2); SANDY SILT (ML); 26 to 27 feet; silt (85%); fine grained sand (15%); slightly micaceous; few sea shells; no HC staining; no HC odor.
Gray (10YR,5/1); CLAY (CL); 27 to 29½ feet; medium plasticity; moist; no HC staining; no HC odor.

Gray (10YR,5/1); POORLY GRADED SAND WITH SILT (SP-SM); 29½ to 38½ feet; fine grained sand (80%); silt (20%); abundant sea shells; wet; no HC staining; no HC odor.

Total depth of well 35 feet bgs

Pilot boring terminates at 38½ feet bgs

Notes:
(1) Used 2½-inch diameter California Split Spoon Sampler
(2) HC - Hydrocarbon
(3) Oil Waste consists of black free-phase hydrocarbons
(4) Commenced drilling GP-24 at 08:07 on 9/16/02.

Groundwater at time of drilling
Groundwater measured after well completed
Water Seepage

Notes: Used 8-inch O.D. hollow stem augers for pilot boring for lithologic sampling. Set bottom of well at 35 feet bgs. Set well screen (0.020-inch) from 25 to 35 feet bgs. Used 3-100lb bag of #2/12 sand from 24 to 38½ feet; 1½-50lb bag of bentonite chips (hydrated with 5 gallons of water) from 21 to 24 feet bgs; 100 gallons of bentonite grout from surface to 21 feet bgs. PVC stick up is 1.81 feet tall; with PVC slip cap.

TM No.1
Ascon Site, Huntington Beach, California

PROJECT NAVIGATOR, LTD.

BORING NO. GP-25

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat Drilling
SAMPLER TYPE Acetate Liner AND DIMENSION 4 feet 1½-inch dia
FIELD ENGINEER J. Russo
EDITED BY J. Russo
CHECKED BY R. Puga

COORDINATES N 2184276.9950 E 6038811.8721
DATE BEGAN 9/12/02
DATE FINISHED 9/12/02
GROUND SURFACE EL. 21.82' 22.35' T.O.C.

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) (1)	Profile	U.S.C.S.	Well As-Built	DESCRIPTION
0				0.53		Grade Ground Surface. cover.
	0ppm	4' Rec	Fine Fill Material	SM / ML		Pale Brown (10YR, 6/3); SILTY SAND (SM); surface to 2 feet; fine to medium grained sand (100%); no HC staining; no HC odor. Dark Brown (10YR, 4/3); SANDY SILT (ML); 2 to 3 feet; Silt (80%); fine grained sand (20%); no HC staining no HC odor.
5		3' Rec		SM		White (10YR, 8/2); CONCRETE DEBRIS; 3 to 3.3 feet; no HC staining; no HC odor. Light Brownish Gray (10YR, 6/2); SILTY SAND (SM); 3.3 to 6 feet; fine to medium grained sand (100%); loose; damp; no HC staining; no HC odor.
	13ppm	3' Rec		MUD		Very Dark Grayish Brown (10YR, 3/2); DRILLING MUD; 6 to 8 feet; trace clay; very soft; oil saturated; HC staining; HC odor.
10				MUD		Dark Grayish Brown (10YR, 4/2); DRILLING MUD; 8 to 29½ feet; trace clay; very soft; oil saturated; HC staining; HC odor.
	261ppm	3' Rec	Oil Saturated Waste			Oil saturated Drilling Mud Waste from 6 to 29½ feet
15	1,902ppm	4' Rec.				
20	840.4ppm	4' Rec				Sample I.D.: Ascon-GP25-20. Sample collected in 2-4oz jars; 1-acetate sleeve; and 3-Encore Containers for analysis for VOCs, SVOCs and TPH by EPA Methods 8260B, 8270C and 8015M, respectively.
	370ppm	2½ Rec.				
25	16.6ppm			ML		Dark Grayish Brown (10YR, 4/2); SILT (ML); 27½ to 30 feet; Silt (100%); slightly micaceous; medium plasticity; very moist; HC staining; HC odor. Oily saturated into silt to 24½ feet.
30	13ppm	3½' Rec.	Native	CL / SP-SM		Dark Grayish Brown (10YR, 4/2); SILTY CLAY (CL); 30 to 31'10"; medium plasticity; very moist; no HC staining; no HC odor. Gray (10YR, 5/1); POORLY GRADED SAND WITH SILT (SP-SM); 31'10" to 40 feet; fine grained sand (80%); silt (20%); wet; no HC staining; no HC odor.
35	5.9ppm					
40						Total depth of well 40 feet bgs
45						Pilot boring terminates at 36 feet bgs

Notes:
(1) Used 1½-inch diameter, 4-foot long Acetate line rod.
(2) Commenced drilling GP-25 at 09:06 on 9/12/02.

Groundwater at time of drilling
Groundwater measured after well complete
Water Seepage

Notes: Used 1½-inch O.D. direct-push rod for pilot boring for lithologic sampling. Reamed pilot boring with 8-inch O.D. hollow stem augers to set 1-inch diameter PVC casing. Set bottom of well at 40 feet bgs. Set well Screen (0.02-inch) from 30 to 40 feet bgs. Used 3-100 lb bag of #2/12 Sand from 29 to 40 feet bgs; 2-50 lb bag of bentonite chips (hydrated with 1 gallon of water) from 26 to 29 feet bgs; 50 gallons of bentonite grout from surface to 26 feet bgs. PVC stick up is 0.53 feet tall; with PVC Slip Cap.

TM No. 1
Ascon Site, Huntington Beach, California

PROJECT NAVIGATOR, LTD.

GeoSyntec Consultants Monitoring Wells
Completed in 2004 (AW-1A, AW-4A, B-4A, MW-19, and MW-20)

(GeoSyntec, 2004e)

GEOSYNTEC CONSULTANTS
924 Anacapa Street, Suite 4A
Santa Barbara, CA 93101
(805) 897-3800

GS FORM: WELL BORE 01/04

BOREHOLE LOG

BORING	AW-1A		SHEET 1 OF 1
START DRILL DATE	Feb 24, 04	ELEVATION DATA:	
FINISH DRILL DATE	Feb 24, 04	GROUND SURF.	9.67 ft
LOCATION	Huntington Beach , CA	TOP OF CASING	12.46 ft
PROJECT	Ascon LF	DATUM	NAVD88
NUMBER	SB0202		

DESCRIPTION: 1) Unit/Formation, Mem. 2) Soil/Rock Name 3) Color 4) Moisture 5) Grain Size 6) Percentage 7) Plasticity 8) Density/Consistency 9) Structure 10) Other (Mineralization, Discoloration, Odor, etc.)

DEPTH (ft-bgs)	DESCRIPTION	ELEVATION (ft)	SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY (%)	PID READING (ppm)	TIME (00:00)	COMMENTS (1) Rig Behavior (2) Air Monitoring
	FILL	9							Began hand augering @ 07:39
		8							
		7							
	@3'-Sandy SILT (SM): light olive brown [2.5Y 5/4]; dry; silt with little fine sand; 30% shell fragments; trace plant fragments; trace fine gravels (TR,20,80); no: plasticity	6			6 8 9	100	0.0	07:42	
5		5							
		4							Began to drill @ 07:47
	@6'-Increase in fine sand (0,35,65); moderately moist	3				100	0.0	07:45	
	CLAY (CL):light brown [2.5Y 5/3] clay (TR,0,100); trace gravel; stiff; high plasticity	2							
		1							
	@9'-color change to dark greyish brown [2.5Y 4/2]; micaceous; mottled	0			4 5 6	30	0.0	07:48	Sampler plugged-low recovery.
10		-1							
		-2							
	SAND (SP):dark green grey [GLEY1 4/10Y] very moist; fine sand with very little silt(0,95,5); 30% shell fragments; micaceous; low plasticity; well sorted	-3			8 10 12	30	0.0	07:51	Sampler plugged-low recovery. @13'-Encountered groundwater. Drill stopped to wait for recovery. Resumed drilling @ 08:20.
		-4							
		-5							
15	@15'-becomes saturated	-6			5 9 12	100	0.0	08:26	
		-7							
		-8							
	@18'-Increase in grain size; fine- to medium- grained sand (0,100,TR); well sorted; trace of shell fragments; saturated	-9			18 12	100	0.0	08:30	
		-10							
20		-11							Terminated drilling; Total depth = 20'
		-12							
		-13							
		-14							
		-15							
25		-16							
		-17							
		-18							
		-19							
		-20							
30									

CONTRACTOR	West Hazmat	NORTHING	2183561.02
EQUIPMENT	CME 95	EASTING	6037899.81
DRILL MTHD	HSA	COORDINATE SYSTEM:	OCS Bechmark
DIAMETER	8.75 inches		
LOGGER	GTY	REVIEWER	JGZ

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

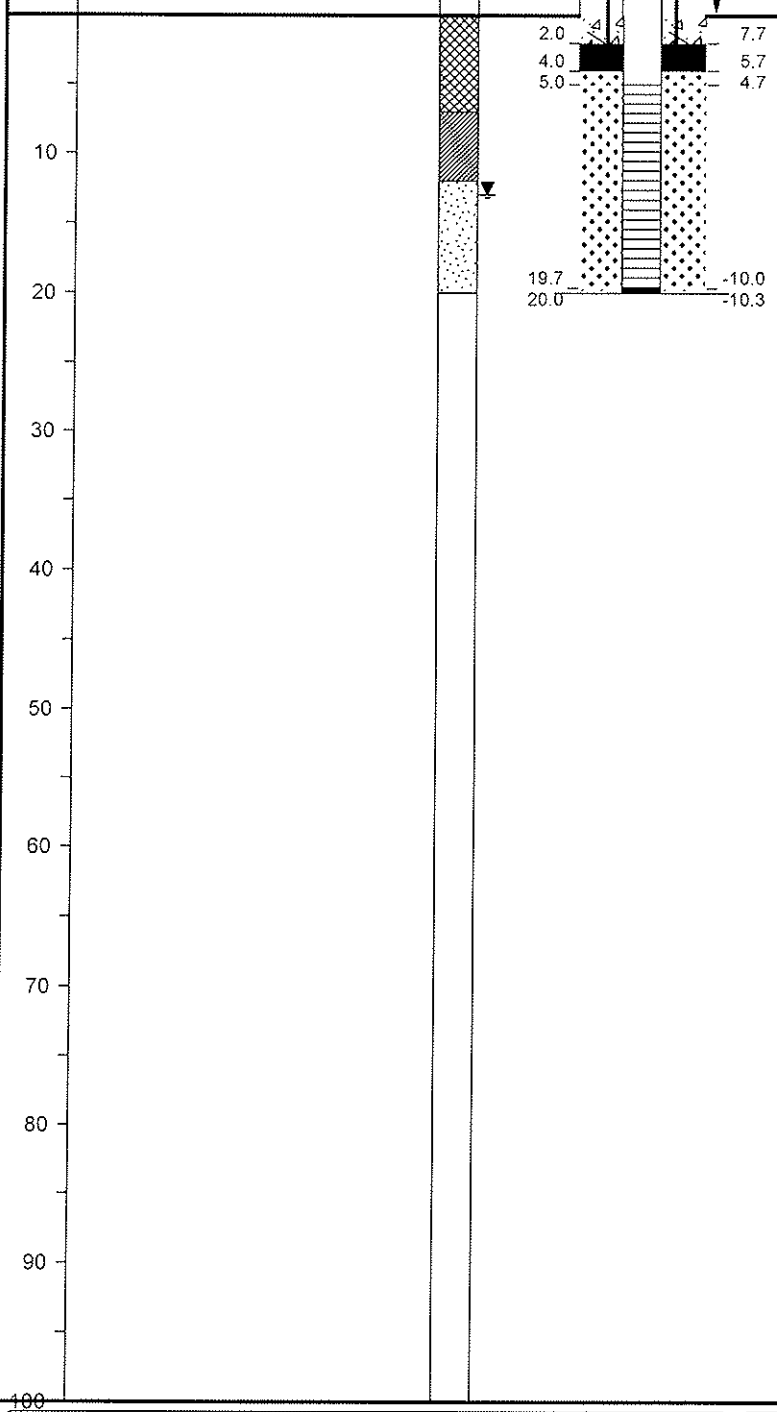
GEOSYNTEC CONSULTANTS
924 Anacapa Street, Suite 4A
Santa Barbara, CA 93101
(805) 897-3800

GS FORM: WELL COMP AG 01/04

WELL CONSTRUCTION LOG

BORING	AW-1A	SHEET 1 OF 1	
START DRILL DATE	Feb 24, 04	ELEVATION DATA:	
FINISH DRILL DATE	Feb 24, 04	GROUND SURF.	9.67 ft
LOCATION	Huntington Beach , CA	TOP OF CASING	12.46 ft
PROJECT	Ascon LF	DATUM	NAVD88
NUMBER	SB0202		

DEPTH (ft-bgs) | COMMENTS: 1) Groundwater 2) Surge Time 3) Dedicated Pump | GRAPHIC LOG | WELL MATERIAL DEPTH (FT-BGS)



SURFACE COMPLETION:

TYPE	10" Steel Monument
RISER HEIGHT	3.16 ft.
RISER DIAM.	8.5 in.
WELL CASING HEIGHT	2.79 ft.
CONCRETE PAD SIZE	

BORING DEPTH 20 ft-bgs
ORIGINAL BORING DIAMETER 8.75 in.
REAM BORING DIAMETER

WELL CONSTRUCTION

WELL CONSTRUCTION DATE Feb. 24, 2004
WELL DEPTH 20 ft-bgs
WELL CASING DIAMETER 2 in.
WELL CASING MATERIAL Sch40 PVC
SCREEN SLOT SIZE/DIRECTION 0.020 in.
TOP OF SCREEN 5 ft-bgs
BOTTOM OF SCREEN 20 ft-bgs
END CAP/SUMP LENGTH 0.35 ft

GROUT

TOP DEPTH Ground Surface
TYPE/BRAND Pre-mix concrete
QUANTITY USED 2 bags
VOLUME FLUID USED
PLACEMENT METHOD Poured into borehole

BENTONITE SEAL

TOP DEPTH 2 ft-bgs
TYPE/BRAND Envrioplug Med. Bent Chips
QUANTITY USED .75 bag
VOLUME FLUID USED 5 gallons of Distilled Water
SET-UP TIME
PLACEMENT METHOD Through Auger

TRANSITION SAND

TOP DEPTH -
TYPE/BRAND
QUANTITY USED
PLACEMENT METHOD

SAND/GRAVEL PACK

TOP DEPTH 4 ft-bgs
TYPE/BRAND RMC #2/12
QUANTITY USED 6 bags (6 ft^3)
PLACEMENT METHOD Through Auger

BOTTOM FILL

TOP DEPTH -
TYPE/BRAND
QUANTITY USED
PLACEMENT METHOD

CONTRACTOR	West Hazmat	NORTHING	2183561.02
EQUIPMENT	CME 95	EASTING	6037899.81
DRILL MTHD	HSA	COORDINATE SYSTEM:	OCS Bechmark
DIAMETER	8.75 inches		
LOGGER	GTY	REVIEWER	JGZ

DEDICATED PUMP SYSTEM:
TYPE/BRAND:
MODEL:
CONTROLLER TYPE:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GEOSYNTEC CONSULTANTS
924 Anacapa Street, Suite 4A
Santa Barbara, CA 93101
(805) 897-3800

GS FORM: WELL BORE 01/04

BOREHOLE LOG

BORING	AW-4A		SHEET 1 OF 1
START DRILL DATE	Feb 24, 04	ELEVATION DATA:	
FINISH DRILL DATE	Feb 24, 04	GROUND SURF.	6.88 ft
LOCATION	Huntington Beach , CA	TOP OF CASING	9.78 ft
PROJECT	Ascon LF	DATUM	NAVD88
NUMBER	SB0202		

DESCRIPTION: 1) Unit/Formation, Mem. 2) Soil/Rock Name 3) Color 4) Moisture 5) Grain Size 6) Percentage 7) Plasticity 8) Density/Consistency 9) Structure 10) Other (Mineralization, Discoloration, Odor, etc.)

DEPTH (ft-bgs)	DESCRIPTION	GROUNDWATER OR STRUCTURE	ELEVATION (ft)	SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY (%)	PID READING (ppm)	TIME (00:00)	COMMENTS (1) Rig Behavior (2) Air Monitoring
	FILL		6							Began hand augering @ 10:25
			5							
			4							
	@3'-SAND (SP): light olive brown [2.5Y 5/6]; fine- to coarse-grained sand; angular to sub rounded sand with little fine to medium subangular to subrounded gravel (<75 mm); trace silt (5,95,TR)		3				100	0.0	10:34	Began drilling from 4' @ 10:36 Sampler plugged.
5			2							
			1							
	IMPACTED FILL @6'-Silty CLAY (ML-CL): black [2.5Y 2.5/1]; moist; clay with some silt (0,0,100); moderate stiff, moderate to high plasticity; hydrocarbon odor; staining		0			3 6 9	60	0.8	10:45	
			-1							
			-2							
	Silty SAND (SM):dark greenish grey [GLEY 4/10Y]; saturated; fine sand with little silt (0,85,15); micaceous; 5% shells; no hydrocarbon odor; well sorted sands		-3			6 7 8	60	0.0	10:50	@9'-Encountered groundwater. Sampler plugged.
10			-4							
			-5							
	SAND (SP):dark greenish grey [GLEY1 4/10Y]; saturated; fine sand; trace silt (0,100,TR); 5% shell fragments; no hydrocarbon odor; micaceous		-6			8 9 11	60	0.0	10:55	Sampler plugged.
			-7							
			-8							
15	@15'-Increase in grain size: fine- to medium-grained sand; trace shell fragments; trace coarse sand		-9			10 10 12	60		10:59	Sampler plugged.
			-10							
			-11							
			-12			13 14 15	100	0.0	11:04	
			-13							
20			-14							Drilled to 18' and sampled to 19.5'.
			-15							
			-16							
			-17							
25			-18							
			-19							
			-20							
			-21							
			-22							
30			-23							

CONTRACTOR	West Hazmat	NORTHING	2183435.73
EQUIPMENT	CME 95	EASTING	6036756.21
DRILL MTHD	HSA	COORDINATE SYSTEM:	OCS Bechmark
DIAMETER	8.75 inches		
LOGGER	GTY	REVIEWER	JGZ

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

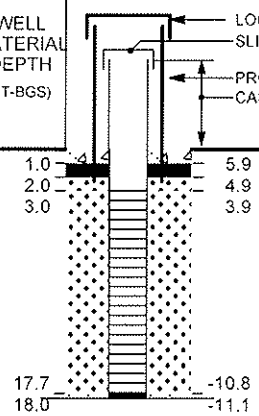
GEOSYNTEC CONSULTANTS
924 Anacapa Street, Suite 4A
Santa Barbara, CA 93101
(805) 897-3800

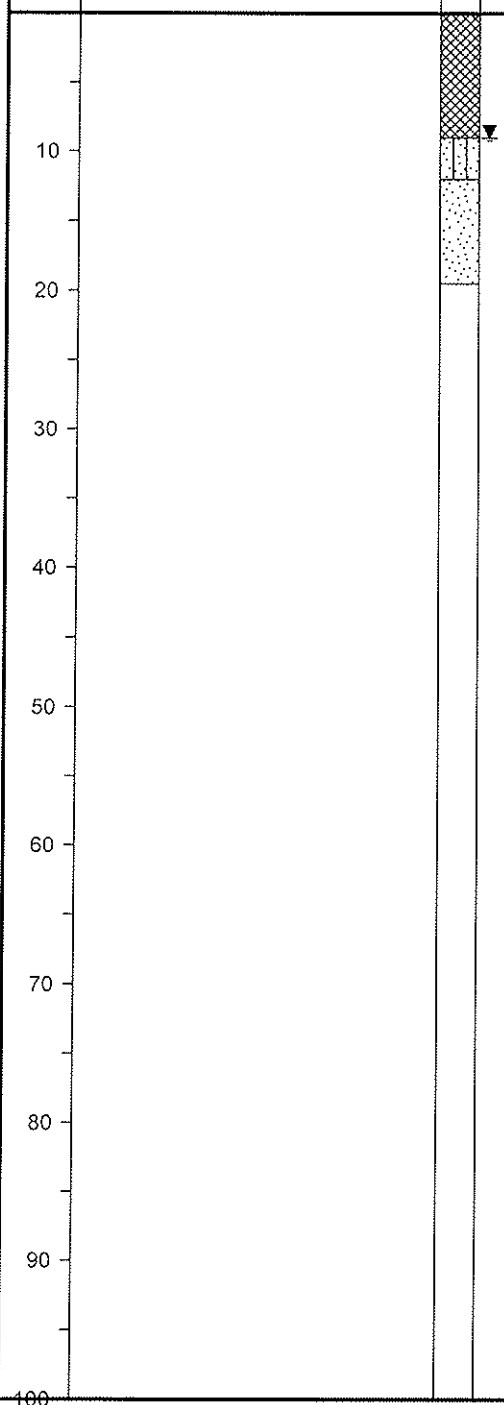
GS FORM: WELL COMP AG 01/04

WELL CONSTRUCTION LOG

BORING	AW-4A		SHEET 1 OF 1
START DRILL DATE	Feb 24, 04	ELEVATION DATA:	
FINISH DRILL DATE	Feb 24, 04	GROUND SURF.	6.88 ft
LOCATION	Huntington Beach , CA	TOP OF CASING	9.78 ft
PROJECT	Ascon LF	DATUM	NAVD88
NUMBER	SB0202		

DEPTH (ft-bgs) | COMMENTS: 1) Groundwater 2) Surge Time 3) Dedicated Pump | GRAPHIC LOG | WELL MATERIAL DEPTH (FT-BGS)





SURFACE COMPLETION:

TYPE	10" Steel Monument
RISER HEIGHT	3.38 ft.
RISER DIAM.	8.5 in.
WELL CASING HEIGHT	2.98 ft.
CONCRETE PAD SIZE	

BORING DEPTH 18 ft-bgs
ORIGINAL BORING DIAMETER 8.75 in.
REAM BORING DIAMETER

WELL CONSTRUCTION

WELL CONSTRUCTION DATE Feb. 24, 2004
WELL DEPTH 18 ft-bgs
WELL CASING DIAMETER 2 in.
WELL CASING MATERIAL Sch40 PVC
SCREEN SLOT SIZE/DIRECTION 0.020 in.
TOP OF SCREEN 3 ft-bgs
BOTTOM OF SCREEN 18 ft-bgs
END CAP/SUMP LENGTH 0.35 ft

GROUT

TOP DEPTH Ground Surface
TYPE/BRAND Pre-mix concrete
QUANTITY USED ~1 bag
VOLUME FLUID USED
PLACEMENT METHOD Poured into borehole

BENTONITE SEAL

TOP DEPTH 1 ft-bgs
TYPE/BRAND Enviroplug Med. Bent. Chips
QUANTITY USED < 1 bag
VOLUME FLUID USED ~3 gallons of Distilled Water
SET-UP TIME
PLACEMENT METHOD Poured into borehole

TRANSITION SAND

TOP DEPTH -
TYPE/BRAND
QUANTITY USED
PLACEMENT METHOD

SAND/GRAVEL PACK

TOP DEPTH 2 ft-bgs
TYPE/BRAND RMC #2/12
QUANTITY USED 4 bags (4 ft^3)
PLACEMENT METHOD Through Auger

BOTTOM FILL

TOP DEPTH -
TYPE/BRAND
QUANTITY USED
PLACEMENT METHOD

CONTRACTOR	West Hazmat	NORTHING	2183435.73
EQUIPMENT	CME 95	EASTING	6036756.21
DRILL MTHD	HSA	COORDINATE SYSTEM:	OCS Bechmark
DIAMETER	8.75 inches		
LOGGER	GTY	REVIEWER	JGZ

DEDICATED PUMP SYSTEM:
TYPE/BRAND:
MODEL:
CONTROLLER TYPE:

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GEOSYNTEC CONSULTANTS
924 Anacapa Street, Suite 4A
Santa Barbara, CA 93101
(805) 897-3800

GS FORM: WELL BORE 01/04

BOREHOLE LOG

BORING	B-4A		SHEET 1 OF 2
START DRILL DATE	Feb 24, 04	ELEVATION DATA:	
FINISH DRILL DATE	Feb 24, 04	GROUND SURF.	19.56 ft
LOCATION	Huntington Beach , CA	TOP OF CASING	22.16 ft
PROJECT	Ascon LF	DATUM	NAVD88
NUMBER	SB0202		

DESCRIPTION: 1) Unit/Formation, Mem. 2) Soil/Rock Name 3) Color 4) Moisture 5) Grain Size 6) Percentage 7) Plasticity 8) Density/Consistency 9) Structure 10) Other (Mineralization, Discoloration, Odor, etc.)

DEPTH (ft-bgs)	DESCRIPTION	GROUNDWATER OR STRUCTURE	ELEVATION (ft)	SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY (%)	PID READING (ppm)	TIME (00:00)	COMMENTS (1) Rig Behavior (2) Air Monitoring
	FILL		19							Began Hand augering @ 12:51
			18							
			17							
	@3'-Clayey SILT (CL-ML): grayish brown [2.5Y 5/2] with dark yellowish brown [2.5Y 4/6]; slightly moist; silt with clay (0,0,100); micaceous; low plastic; soft; trace shells		16				100	0.0	12:58	
5			15							Started drilling from 4' @ 13:27
			14							
	IMPACTED FILL @6'-color change to hydrocarbon staining black [2.5Y 2.5/1]; hydrocarbon odor		13			4 5 4	60	0.0	13:30	
			12							
			11							
10	**WASTE** @9'-becomes wet (oily); moderate stiffness; hyrdocarbon saturated; high plastic		10			4 3 4	100	76.0	13:35	
			9							
			8							
	@12'-SAND (SP): fine sand stringer (0,100,0); hydrocarbon saturated @12.5'-CLAY (CL): black [2.5Y 2.5/1]; moist; clay (0,0,100); high plasticity; moderate to highly stiff; hydrocarbon saturated; strong hydrocarbon odor		7			6 12 14	60	11.0	13:39	
			6							
			5							
15	**SAND (SP)**:greenish grey [GLEY1 5/5GY]; dry; fine to medium sand with trace of coarse sand and trace of fine gravel (<3mm) (TR, 100,0); strong hydrocarbon odor		4			15 18 19	60	15.0	13:42	
			3							
			2							
	Clayey SILT (CL-ML):black [2.5Y 2.5/1]; moist; silt with clay; soft to moderate stiffness; moderate plasticity; strong hydrocarbon odor		1			3 6 8	100	6.0	13:43	
20			0							
			-1							
	@21'-becomes very moist; trace shell fragments		-2			1 2 5	100	13.0	13:47	
			-3							
		▼	-4							
	Silty SAND (SM):very dark greenish grey [GLEY1 3/5GY]; wet; fine sand with silt (0,80,20); micaceous; 10% shell fragments; hydrocarbon odor; well sorted		-5			8 9 10	100	0.5	14:09	@23.5'-Encountered groundwater.
25			-6							
			-7							
	@27.5'-increased grain size to fine- to medium-grained sands; no shell fragments		-8			18 21 23	90	0.3	14:13	
			-9							
30			-10							

CONTRACTOR	West Hazmat	NORTHING	2183798.39
EQUIPMENT	CME 95	EASTING	6036903.70
DRILL MTHD	HSA	COORDINATE SYSTEM:	OCS Bechmark
DIAMETER	8.75 inches		
LOGGER	GTY	REVIEWER	JGZ

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GEOSYNTEC CONSULTANTS

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Santa Barbara, CA 93101
(805) 897-3800

GS FORM: WELL BORE 01/04

BOREHOLE LOG

BORING	B-4A		SHEET 2 OF 2
START DRILL DATE	Feb 24, 04	ELEVATION DATA:	
FINISH DRILL DATE	Feb 24, 04	GROUND SURF.	19.56 ft
LOCATION	Huntington Beach , CA	TOP OF CASING	22.16 ft
PROJECT	Ascon LF	DATUM	NAVD88
NUMBER	SB0202		

DESCRIPTION: 1) Unit/Formation, Mem. 2) Soil/Rock Name 3) Color 4) Moisture 5) Grain Size 6) Percentage 7) Plasticity 8) Density/Consistency 9) Structure 10) Other (Mineralization, Discoloration, Odor, etc.)

DEPTH (ft-bgs)	GRAPHIC LOG	WELL LOG	GROUNDWATER OR STRUCTURE	ELEVATION (ft)	SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY (%)	PID READING (ppm)	TIME (00:00)	COMMENTS (1) Rig Behavior 2) Air Monitoring
				-11			17 21 3	100	0.7	14:20	
				-12							Drilling stopped @ 31', total depth
				-13							
				-14							
				-15							
35				-16							
				-17							
				-18							
				-19							
				-20							
40				-21							
				-22							
				-23							
				-24							
				-25							
45				-26							
				-27							
				-28							
				-29							
				-30							
50				-31							
				-32							
				-33							
				-34							
				-35							
55				-36							
				-37							
				-38							
				-39							
				-40							
60											

CONTRACTOR	West Hazmat	NORTHING	2183798.39
EQUIPMENT	CME 95	EASTING	6036903.70
DRILL MTHD	HSA	COORDINATE SYSTEM:	OCS Bechmark
DIAMETER	8.75 inches		
LOGGER	GTY	REVIEWER	JGZ

NOTES:

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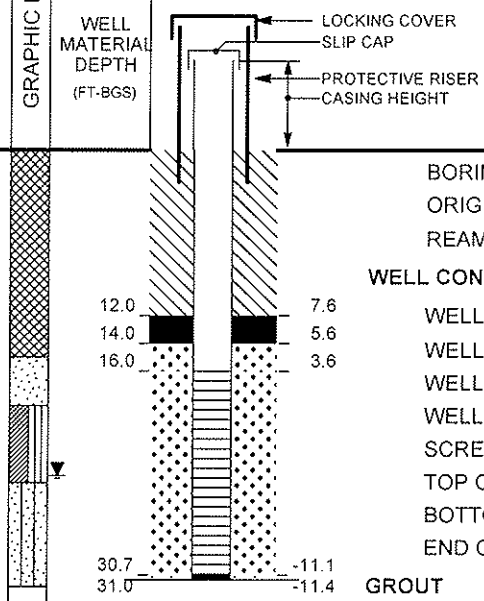
GEOSYNTEC CONSULTANTS
924 Anacapa Street, Suite 4A
Santa Barbara, CA 93101
(805) 897-3800

GS FORM: WELL COMP AG 01/04

WELL CONSTRUCTION LOG

BORING	B-4A		SHEET 1 OF 1
START DRILL DATE	Feb 24, 04	ELEVATION DATA:	
FINISH DRILL DATE	Feb 24, 04	GROUND SURF.	19.56 ft
LOCATION	Huntington Beach , CA	TOP OF CASING	22.16 ft
PROJECT	Ascon LF	DATUM	NAVD88
NUMBER	SB0202		

DEPTH (ft-bgs) | COMMENTS: 1) Groundwater 2) Surge Time 3) Dedicated Pump | GRAPHIC LOG | WELL MATERIAL DEPTH (FT-BGS)



SURFACE COMPLETION:

TYPE	10" Steel Monument
RISER HEIGHT	3.23 ft.
RISER DIAM.	8.5 in.
WELL CASING HEIGHT	2.59 ft.
CONCRETE PAD SIZE	

BORING DEPTH 31 ft-bgs
ORIGINAL BORING DIAMETER 8.75 in.
REAM BORING DIAMETER

WELL CONSTRUCTION

WELL CONSTRUCTION DATE Feb. 24, 2004
WELL DEPTH 31 ft-bgs
WELL CASING DIAMETER 2 in.
WELL CASING MATERIAL Sch40 PVC
SCREEN SLOT SIZE/DIRECTION 0.020 in.
TOP OF SCREEN 16 ft-bgs
BOTTOM OF SCREEN 31 ft-bgs
END CAP/SUMP LENGTH 0.35 ft

GROUT

TOP DEPTH Surface
TYPE/BRAND Portland Type I/II Hydrogel bentonite
QUANTITY USED 9 bags
VOLUME FLUID USED 35 gallons
PLACEMENT METHOD Through Auger

BENTONITE SEAL

TOP DEPTH 12 ft-bgs
TYPE/BRAND Enviroplug Med. STET
QUANTITY USED 1 bag
VOLUME FLUID USED 5 gallons of Distilled Water
SET-UP TIME
PLACEMENT METHOD Through Auger

TRANSITION SAND

TOP DEPTH -
TYPE/BRAND
QUANTITY USED
PLACEMENT METHOD

SAND/GRAVEL PACK

TOP DEPTH 14 ft-bgs
TYPE/BRAND RMC #2/12
QUANTITY USED 5 bags (5 ft^3)
PLACEMENT METHOD Through Auger

BOTTOM FILL

TOP DEPTH -
TYPE/BRAND
QUANTITY USED
PLACEMENT METHOD

CONTRACTOR	West Hazmat	NORTHING	2183798.39
EQUIPMENT	CME 95	EASTING	6036903.70
DRILL MTHD	HSA	COORDINATE SYSTEM:	OCS Bechmark
DIAMETER	8.75 inches		
LOGGER	GTY	REVIEWER	JGZ

DEDICATED PUMP SYSTEM:
TYPE/BRAND:
MODEL:
CONTROLLER TYPE:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GEOSYNTEC CONSULTANTS
924 Anacapa Street, Suite 4A
Santa Barbara, CA 93101
(805) 897-3800

GS FORM: WELL BORE 01/04

BOREHOLE LOG

BORING	MW-19		SHEET 1 OF 1
START DRILL DATE	Feb 27, 04	ELEVATION DATA:	
FINISH DRILL DATE	Feb 27, 04	GROUND SURF.	5.65 ft
LOCATION	Huntington Beach , CA	TOP OF CASING	5.20 ft
PROJECT	Ascon LF	DATUM	NAVD88
NUMBER	SB0202		

DESCRIPTION: 1) Unit/Formation, Mem. 2) Soil/Rock Name 3) Color 4) Moisture 5) Grain Size 6) Percentage 7) Plasticity 8) Density/Consistency 9) Structure 10) Other (Mineralization, Discoloration, Odor, etc.)

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG / WELL LOG	GROUNDWATER OR STRUCTURE	ELEVATION (ft)	SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY (%)	PID READING (ppm)	TIME (00:00)	COMMENTS (1) Rig Behavior 2) Air Monitoring
	FILL Asphalt and Road Base Fill @1'-very coarse gravel			5, 4, 3							Began hand augering at 09:41, observed water flowing in from South of boring hole through gravels. @1'-Perched water encountered.
	CLAY (CL):dark olive gray [5Y 3/2]; satuarated; clay (0,0,100); moderate to high stiffness; high plasticity			2				100	0.0	10:20	
5				1, 0							Began driving @ 10:23 from 4'.
	@6'-color change to dark greenish-grey [GLEY I 3/10Y]; very moist; micaceous; trace shell fragments; trace fine sand			-1, -2, -3				85	0.0	10:28	
	@9'- becomes saturated		▼	-4			5 6 9	90	0.0	10:30	@9'-Second encounter of groundwater.
10	**SAND (SP)**:dark greenish grey [GLEY1 3/10Y]; fine sand (0,90,10); well sorted; micaceous; some silt; trace of shell fragments; trace of coarse sand			-5, -6							
	@12'-increase in grain size from fine- to medium-grained sands; very micaceous			-7, -8			6 6 8	100	0.0	10:35	Battery on PID out.
15	@15'-40% shell fragments			-9, -10, -11			8 10 10	100		10:39	
	@18'-trace shell fragments			-12, -13, -14			10 10 13	100		10:52	
20				-15, -16, -17, -18, -19							Drilling terminated at a total depth of 19 ft-bgs on 27 February 2004 @ 10:52. Sampled to 19.5'.
25				-20, -21, -22, -23, -24							
30											

CONTRACTOR	West Hazmat	NORTHING	2183285.78
EQUIPMENT	CME 95	EASTING	6037947.94
DRILL MTHD	HSA	COORDINATE SYSTEM:	OCS Bechmark
DIAMETER	8.75 inches		
LOGGER	GTY	REVIEWER	JGZ

NOTES:

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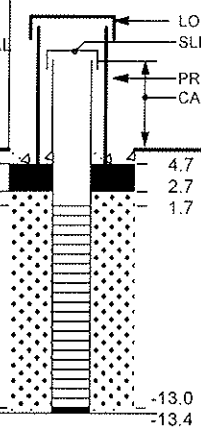
GEOSYNTEC CONSULTANTS
924 Anacapa Street, Suite 4A
Santa Barbara, CA 93101
(805) 897-3800

GS FORM: WELL COMP AG 01/04

WELL CONSTRUCTION LOG

BORING	MW-19		SHEET 1 OF 1
START DRILL DATE	Feb 27, 04	ELEVATION DATA:	
FINISH DRILL DATE	Feb 27, 04	GROUND SURF.	5.65 ft
LOCATION	Huntington Beach , CA	TOP OF CASING	5.20 ft
PROJECT	Ascon LF	DATUM	NAVD88
NUMBER	SB0202		

DEPTH (ft-bgs)	COMMENTS 1) Groundwater 2) Surge Time 3) Dedicated Pump	GRAPHIC LOG	WELL MATERIAL DEPTH (FT-BGS)
	Well installed in roadway. Traffic box installed at ground level at surface.		1.0 / 3.0 / 4.0 / 18.7 / 19.0
10			
20			
30			
40			
50			
60			
70			
80			
90			
100			



SURFACE COMPLETION:

TYPE	12" diameter, traffic box
RISER HEIGHT	-
RISER DIAM.	-
WELL CASING HEIGHT	-0.45 ft.
CONCRETE PAD SIZE	Rapid set concrete and sir mix

BORING DEPTH 19 ft-bgs
ORIGINAL BORING DIAMETER 8.75 in.
REAM BORING DIAMETER

WELL CONSTRUCTION

WELL CONSTRUCTION DATE Feb. 27, 2004
WELL DEPTH 19 ft-bgs
WELL CASING DIAMETER 2 in.
WELL CASING MATERIAL Sch40 PVC
SCREEN SLOT SIZE/DIRECTION 0.020 in.
TOP OF SCREEN 4 ft-bgs
BOTTOM OF SCREEN 19 ft-bgs
END CAP/SUMP LENGTH 0.35 ft

GROUT

TOP DEPTH -1/2 ft-bgs
TYPE/BRAND Pre-mix concrete
QUANTITY USED ~1 bag
VOLUME FLUID USED
PLACEMENT METHOD Poured into borehole

BENTONITE SEAL

TOP DEPTH Surface
TYPE/BRAND Sinclair 3/8" TR30 bent pellets
QUANTITY USED 1 bucket
VOLUME FLUID USED 5 gallons of Distilled Water
SET-UP TIME
PLACEMENT METHOD Poured into borehole

TRANSITION SAND

TOP DEPTH -
TYPE/BRAND
QUANTITY USED
PLACEMENT METHOD

SAND/GRAVEL PACK

TOP DEPTH 3 ft-bgs
TYPE/BRAND RMC #2/12
QUANTITY USED 4 bags (4 ft^3)
PLACEMENT METHOD Through Auger

BOTTOM FILL

TOP DEPTH -
TYPE/BRAND
QUANTITY USED
PLACEMENT METHOD

CONTRACTOR	West Hazmat	NORTHING	2183285.78
EQUIPMENT	CME 95	EASTING	6037947.94
DRILL MTHD	HSA	COORDINATE SYSTEM:	OCS Bechmark
DIAMETER	8.75 inches		
LOGGER	GTY	REVIEWER	JGZ

DEDICATED PUMP SYSTEM:
TYPE/BRAND:
MODEL:
CONTROLLER TYPE:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GEOSYNTEC CONSULTANTS
924 Anacapa Street, Suite 4A
Santa Barbara, CA 93101
(805) 897-3800

GS FORM: WELL BORE 01/04

BOREHOLE LOG

BORING	MW-20		SHEET 1 OF 3
START DRILL DATE	Feb 23, 04	ELEVATION DATA:	
FINISH DRILL DATE	Feb 25, 04	GROUND SURF.	24.94 ft
LOCATION	Huntington Beach , CA	TOP OF CASING	27.43 ft
PROJECT	Ascon LF	DATUM	NAVD88
NUMBER	SB0202		

DEPTH (ft-bgs) | DESCRIPTION (1) Unit/Formation, Mem. (2) Soil/Rock Name (3) Color (4) Moisture (5) Grain Size (6) Percentage (7) Plasticity (8) Density/Consistency (9) Structure (10) Other (Mineralization, Discoloration, Odor, etc.) | GRAPHIC LOG | WELL LOG | GROUNDWATER OR STRUCTURE | ELEVATION (ft)

SAMPLE: SAMPLE NO. | TYPE | BLOWS PER 6" | RECOVERY (%) | PID READING (ppm) | TIME (00:00)

COMMENTS (1) Rig Behavior (2) Air Monitoring

Depth (ft-bgs)	Description	Elevation (ft)	Sample No.	Type	Blows per 6"	Recovery (%)	PID Reading (ppm)	Time (00:00)	Comments
	FILL	24							Began hand augering @ 08:00.
		23							
		22							
	@3'-Sandy Silt (SM): brown [10YR 4/3];slightly moist; silt with 40% fine sand with trace subrounded fine- to medium-grained gravel (< 50 mm) (TR, 40, 60); low plasticity	21				100	0.0	08:12	
		20							
5		19			18 12	30		08:26	Began augering with rig @ 08:23 (slow).
		18							
		17							
		16							
		15							
10	**IMPACTED FILL** @10'-color change to black [2.5Y 2.5/1]; hydrocarbon saturated; hydrocarbon odor	14			12 18 22	100	1.1	08:45	
		13							
		12							Held drilling; driller said that possibly CO material wire found on auger.
		11							
		10							
15	**WASTE** @15'-CLAY (CL): very dark green [2.5Y 3/1]; very moist; clay; hydrocarbon odor; high plasticity; soft	9			5 3 1	100	2.3	09:00	
		8							
		7							
		6			1 1	100	65.0	09:07	No ring sample collected.
20		5							
		4							
		3			3 2 4	100	55	09:12	
		2							
		1							
25	**CLAY (CL):** black [2.5Y 2.5/1]; lower moisture; moderately stiff; high plasticity; trace shells; trace micaceous	0			4 5 6	100	0.4	09:23	
		-1							
		-2							
	Silty SAND (SP): black [2.5Y 2.5/1]; fine sand with silt (0, 70, 30); micaceous; 10% shell fragments; slight hydrocarbon odor; low plasticity; well sorted	-3			18 23 30		0.2	09:30	
30		-4							
		-5							

CONTRACTOR	West Hazmat	NORTHING	2148281.27
EQUIPMENT	CME 95	EASTING	6037557.55
DRILL MTHD	HSA	COORDINATE SYSTEM:	OCS Bechmark
DIAMETER	8 inches		
LOGGER	GTY	REVIEWER	JGZ

NOTES:

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GEOSYNTEC CONSULTANTS
924 Anacapa Street, Suite 4A
Santa Barbara, CA 93101
(805) 897-3800

GS FORM: WELL BORE 01/04

BOREHOLE LOG

BORING	**MW-20**		**SHEET 2 OF 3**
START DRILL DATE	Feb 23, 04	**ELEVATION DATA:**	
FINISH DRILL DATE	Feb 25, 04	**GROUND SURF.**	24.94 ft
LOCATION	Huntington Beach , CA	**TOP OF CASING**	27.43 ft
PROJECT	Ascon LF	**DATUM**	NAVD88
NUMBER	SB0202		

DEPTH (ft-bgs) | DESCRIPTION (1) Unit/Formation, Mem. (2) Soil/Rock Name (3) Color (4) Moisture (5) Grain Size (6) Percentage (7) Plasticity (8) Density/Consistency (9) Structure (10) Other (Mineralization, Discoloration, Odor, etc.) | GRAPHIC LOG | WELL LOG | GROUNDWATER OR STRUCTURE | ELEVATION (ft) | SAMPLE: SAMPLE NO. | TYPE | BLOWS PER 6" | RECOVERY (%) | PID READING (ppm) | TIME (00:00) | COMMENTS (1) Rig Behavior (2) Air Monitoring

Depth (ft-bgs)	Description	Elevation (ft)	Blows per 6"	Recovery (%)	PID Reading (ppm)	Time (00:00)	Comments
		-6	7 9 11	100	0.1	09:36	
		-7					
		-8					
		-9	15 23 34	100	0.0	09:40	
35	@33.5'-color change to dark greenish grey [GLEY1 4/10Y]; increase in grain size fine- to medium-grained sand (0, 80, 20); micaceous; 5% shell fragments	-10					
	@36'-becomes very moist or saturated	-11					@35.5'-Encountered groundwater.
		-12	18 26 33	100	0.0	09:46	
		-13					
		-14					
40		-15	19 23 29	100	0.0	09:50	Stopped drilling: prepared for reaming with 13". Resumed drilling @ 08:35 on 25 February 2004
		-16					
		-17					
		-18					
	SAND (SP): dark greenish grey [GLEY1 4/10Y]; wet; fine sand (0, 100, TR); 5% shell fragments; micaceous; trace silts	-19	18 21 23	100	0.0	08:42	
45		-20					
		-21					
	@46'-trace shell fragments; 5% fines (0, 95, 5)	-22	12 15 17	100	0.0	08:49	
		-23					
		-24					
50		-25	14 16 19	100	0.0	08:55	
		-26					
		-27					
	@52'-5% shell fragments; no hydrocarbon odor	-28	15 16 17	100	0.0	09:03	
		-29					
55		-30					
	@55'-trace shell fragments	-31	13 15 17	60	0.0	09:06	
		-32					
		-33					
	@58'Increase in grain size to fine- to medium-grained sand; trace silts	-34	17 19 23	100	0.0	09:13	
60		-35					

CONTRACTOR	West Hazmat	**NORTHING**	2148281.27
EQUIPMENT	CME 95	**EASTING**	6037557.55
DRILL MTHD	HSA	**COORDINATE SYSTEM:**	OCS Bechmark
DIAMETER	8 inches		
LOGGER	GTY	**REVIEWER**	JGZ

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GEOSYNTEC CONSULTANTS
924 Anacapa Street, Suite 4A
Santa Barbara, CA 93101
(805) 897-3800

GS FORM: WELL BORE 01/04

BOREHOLE LOG

BORING	**MW-20**		**SHEET 3 OF 3**
START DRILL DATE	Feb 23, 04	**ELEVATION DATA:**	
FINISH DRILL DATE	Feb 25, 04	**GROUND SURF.**	24.94 ft
LOCATION	Huntington Beach , CA	**TOP OF CASING**	27.43 ft
PROJECT	Ascon LF	**DATUM**	NAVD88
NUMBER	SB0202		

DESCRIPTION: 1) Unit/Formation, Mem. 2) Soil/Rock Name 3) Color 4) Moisture 5) Grain Size 6) Percentage 7) Plasticity 8) Density/Consistency 9) Structure 10) Other (Mineralization, Discoloration, Odor, etc.)

DEPTH (ft-bgs)	DESCRIPTION	ELEVATION (ft)	SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY (%)	PID READING (ppm)	TIME (00:00)	COMMENTS (1) Rig Behavior (2) Air Monitoring
		-36							
		-37				100	0.0	09:22	
	Clayey SILT (Cl-ML): dark greenish grey [GLEY1 4/10Y]; silt with clay (0, TR, 100); moderately stiff; moderate high plasticity; trace fine sand; micaceous	-38							
		-39							
	SAND (SP): dark greenish grey [GLEY1 4/10Y]; fine sand; trace silts (0, 100, TR); very micaceous; trace shell fragments	-40			12 14 16	100	0.0	09:28	
65		-41							
		-42							
	@67'-increase in silts (0, 95, 5); soft; low plasticity 5% shell fragments	-43			17 19 22	90	0.0	09:34	
		-44							
		-45							
70		-46			16 17 19	100	0.0	09:40	
	Silty SAND (SP-SM): dark greensih grey [GLEY1 4/10Y]; fine sand with silt (0, 75, 25); low plasticity; very micaceous; trace shell fragments	-47							
		-48							
	Sandy SILT (SM): dark greenish grey [GLEY1 4/10Y]; silt with some fine sand (0, 25, 75); micaceous; low plasticity	-49			10 12 18		0.0	10:05	
75		-50							Stopped drilling on 25 February 2004 @ 10:05. Total depth = 74.5'.
		-51							
		-52							
		-53							
		-54							
80		-55							
		-56							
		-57							
		-58							
		-59							
85		-60							
		-61							
		-62							
		-63							
		-64							
90		-65							

CONTRACTOR	West Hazmat	**NORTHING**	2148281.27
EQUIPMENT	CME 95	**EASTING**	6037557.55
DRILL MTHD	HSA	**COORDINATE SYSTEM:**	OCS Bechmark
DIAMETER	8 inches		
LOGGER	GTY	**REVIEWER**	JGZ

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GEOSYNTEC CONSULTANTS
924 Anacapa Street, Suite 4A
Santa Barbara, CA 93101
(805) 897-3800

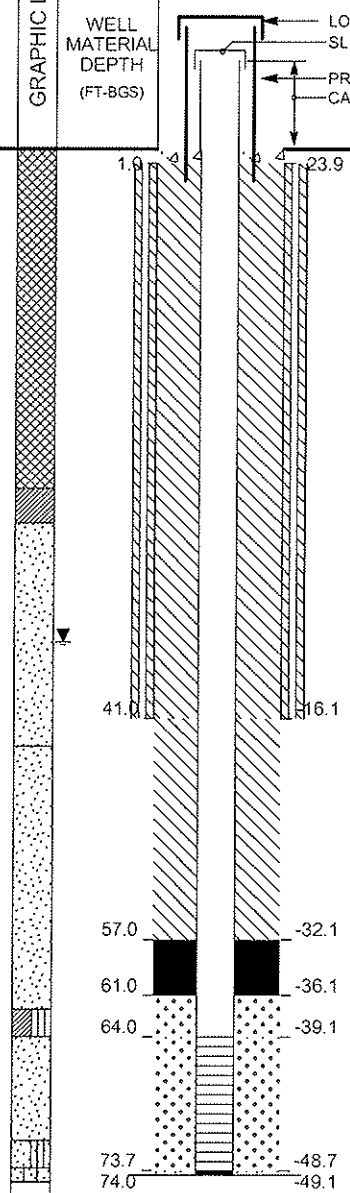
GS FORM: WELL COMP AG 01/04

WELL CONSTRUCTION LOG

BORING	MW-20		SHEET 1 OF 1
START DRILL DATE	Feb 23, 04	ELEVATION DATA:	
FINISH DRILL DATE	Feb 25, 04	GROUND SURF.	24.94 ft
LOCATION	Huntington Beach , CA	TOP OF CASING	27.43 ft
PROJECT	Ascon LF	DATUM	NAVD88
NUMBER	SB0202		

DEPTH (ft-bgs) | COMMENTS (1) Groundwater (2) Surge Time (3) Dedicated Pump | GRAPHIC LOG | WELL MATERIAL DEPTH (FT-BGS)

8 5/8-inch steel conductor casing installed from 1 ft-bgs to 41 ft-bgs.



SURFACE COMPLETION:

TYPE	10" Steel Monument
RISER HEIGHT	2.81 ft.
RISER DIAM.	8.5 in.
WELL CASING HEIGHT	2.42 ft.
CONCRETE PAD SIZE	

BORING DEPTH 74.5 ft-bgs
ORIGINAL BORING DIAMETER 15 in. (0'-41') 8 5/8 in. (41'-74.5')
REAM BORING DIAMETER

WELL CONSTRUCTION

WELL CONSTRUCTION DATE Feb. 23-25, 2004
WELL DEPTH 74.5 ft-bgs
WELL CASING DIAMETER 2 in.
WELL CASING MATERIAL Sch40 PVC
SCREEN SLOT SIZE/DIRECTION 0.020 in.
TOP OF SCREEN 64 ft-bgs
BOTTOM OF SCREEN 74 ft-bgs
END CAP/SUMP LENGTH 0.35 ft

GROUT

TOP DEPTH surface
TYPE/BRAND Portland Type I/II cement with ~3% Hydrogel Bentonit
QUANTITY USED 10 bags
VOLUME FLUID USED ~160 gallons of water
PLACEMENT METHOD Through Auger with tremie pipe

BENTONITE SEAL

TOP DEPTH 57 ft-bgs
TYPE/BRAND Sinclair 3/8" bent. pellets
QUANTITY USED 2.5 buckets
VOLUME FLUID USED -
SET-UP TIME
PLACEMENT METHOD Through Auger

TRANSITION SAND

TOP DEPTH -
TYPE/BRAND
QUANTITY USED
PLACEMENT METHOD

SAND/GRAVEL PACK

TOP DEPTH 61 ft-bgs
TYPE/BRAND RMC #2/12
QUANTITY USED 4 bags (4 ft^3)
PLACEMENT METHOD Through Auger

BOTTOM FILL

TOP DEPTH -
TYPE/BRAND
QUANTITY USED
PLACEMENT METHOD

CONTRACTOR	West Hazmat	NORTHING	2148281.27
EQUIPMENT	CME 95	EASTING	6037557.55
DRILL MTHD	HSA	COORDINATE SYSTEM:	OCS Bechmark
DIAMETER	8 inches		
LOGGER	GTY	REVIEWER	JGZ

DEDICATED PUMP SYSTEM:
TYPE/BRAND:
MODEL:
CONTROLLER TYPE:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS