Appendix A
Hydrogeologic Information

REGIONAL INFORMATION

West Coast Basin Regional Cross-Section Segments

Map showing location of West Coast Barrier

WELL INFORMATION FOR SITE AND THE FORMER ILM SITE

Summary of Well Construction Details

Well Location Maps

Borehole/Well Completion Logs

TRICO BOREHOLE LOGS

DEL AMO STUDY AREA

Well Location Map

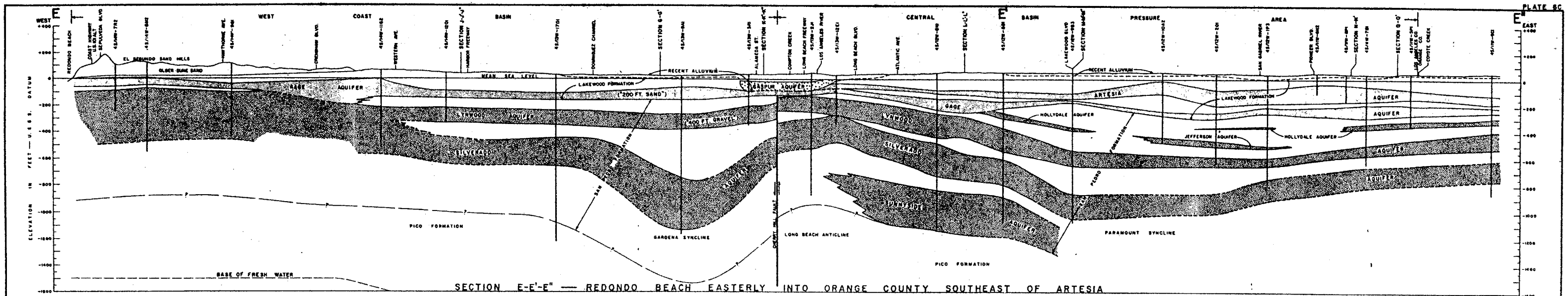
Structural Contour and Isopach Maps for Hydrostratigraphic Units

Comparison of Stratigraphic Nomenclature

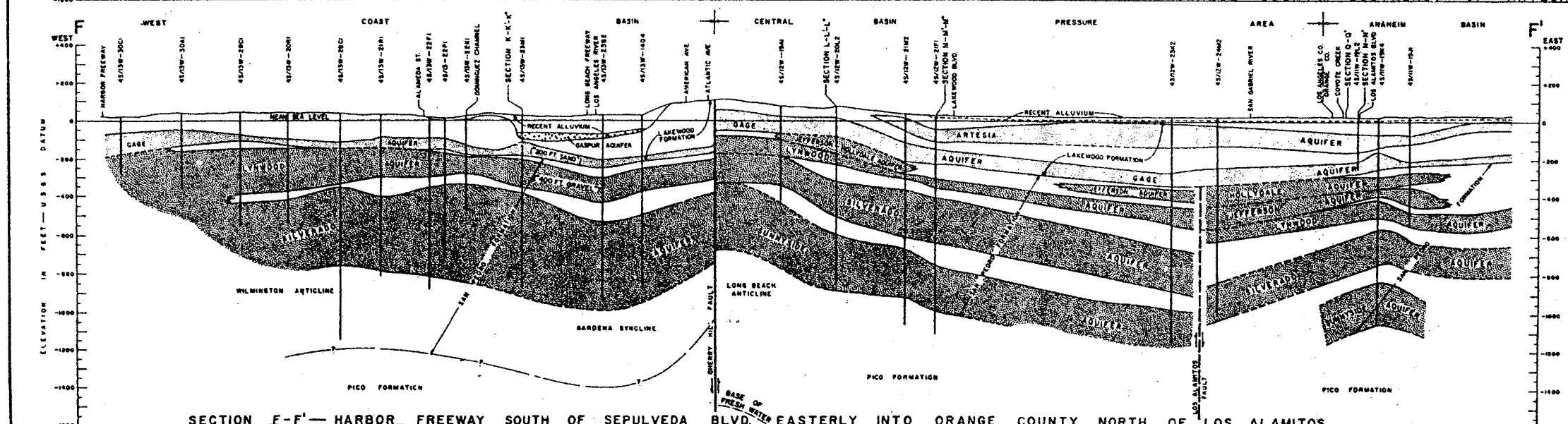
REGIONAL INFORMATION

West Coast Basin Regional Cross-Section Segments

BOE-C6-0210206



SECTION E-E'-E" — REDONDO BEACH EASTERLY INTO ORANGE COUNTY SOUTHEAST OF ARTESIA



SECTION F-F' — HARBOR FREEWAY SOUTH OF SEPULVEDA BLVD. EASTERLY INTO ORANGE COUNTY NORTH OF LOS ALAMITOS

LEGEND

- AQUICLUDES AND DEEPER UNDIFFERENTIATED FORMATIONS
- AQUIFERS IN RECENT ALLUVIUM (INCLUDES THE GASPUR AND BALLONA AQUIFERS)
- AQUIFERS IN LAKEWOOD FORMATION (INCLUDES THE ARTESIA, EXPOSITION, GAGE, AND GARDENA AQUIFERS)
- AQUIFERS IN SAN PEDRO FORMATION (INCLUDES THE HOLLYDALE, JEFFERSON, LYNWOOD, SILVERADO, AND FUNNYSIDE AQUIFERS)
- WATER WELLS
- OIL WELLS
- FAULTS

NOTE: LOCATIONS OF GEOLOGIC SECTIONS ARE SHOWN ON PLATE 3A AND 3B

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
SOUTHERN CALIFORNIA DISTRICT

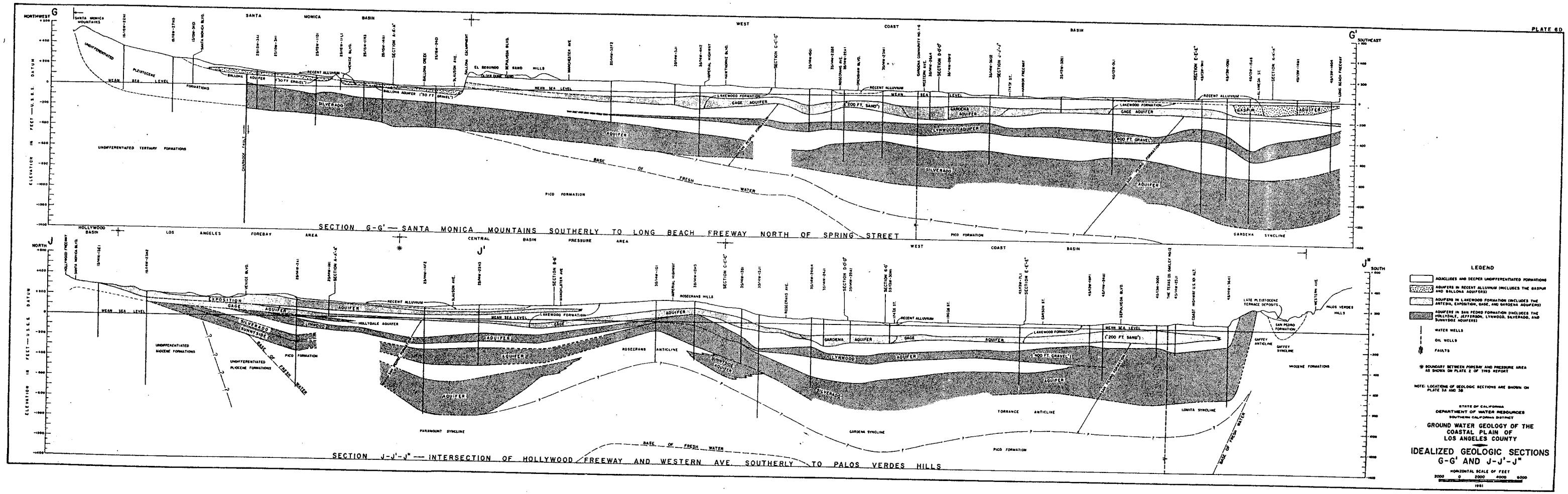
GROUND WATER GEOLOGY OF THE COASTAL PLAIN OF LOS ANGELES COUNTY

IDEALIZED GEOLOGIC SECTIONS
E-E'-E" AND F-F'-F"
1960

HORIZONTAL SCALE OF FEET
2000 0 2000 4000 6000

1961

BOE-C6-0210207



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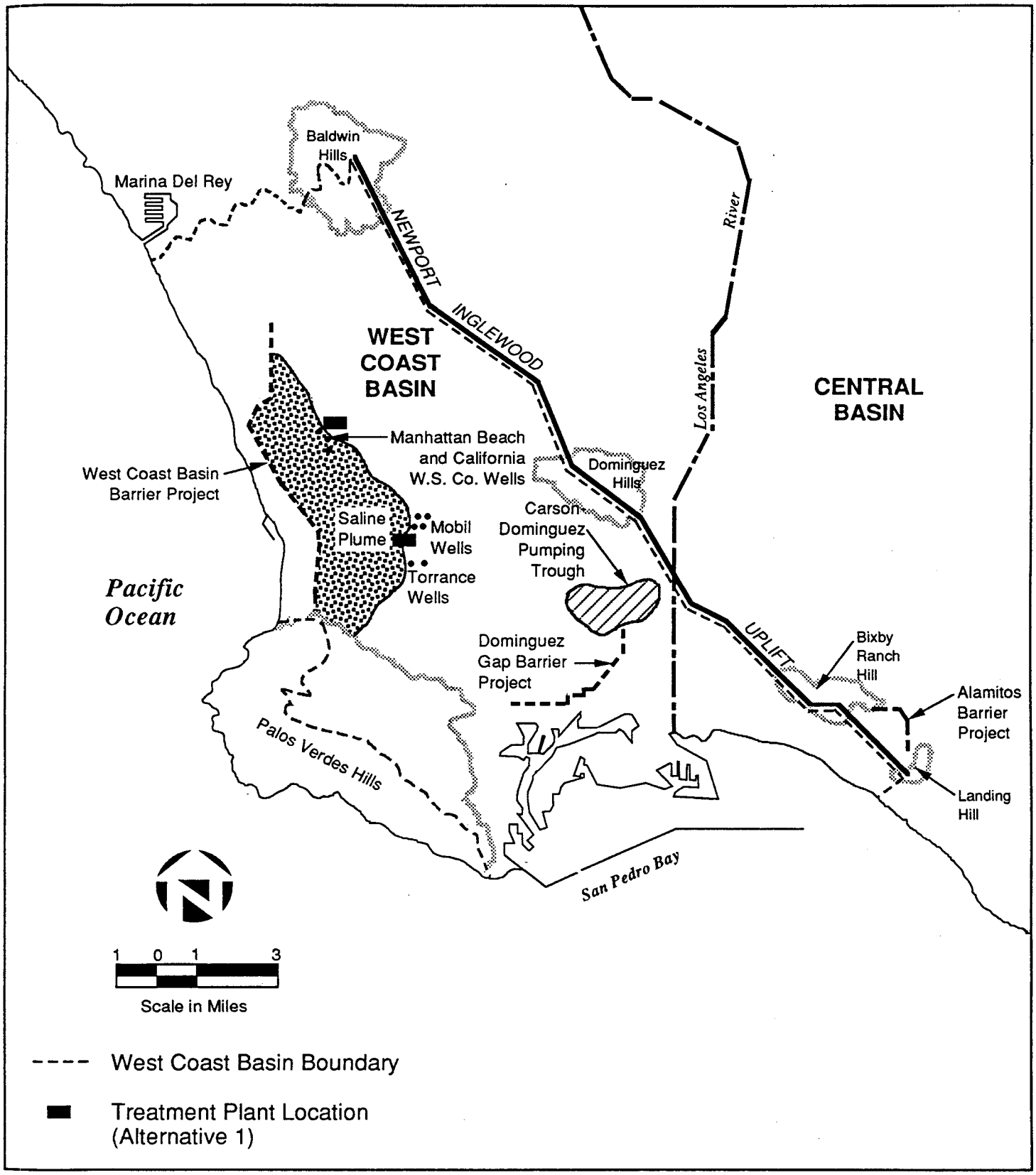
REGIONAL INFORMATION

Map showing location of West Coast Barrier



Location Map of the West Coast Basin
West Coast Basin Plume Mitigation Study
Executive Summary

JMM

WELL INFORMATION FOR THE SITE AND FORMER ILM SITE

Summary of Well Construction Details

TABLE 4.1

SUMMARY OF WELL CONSTRUCTION DETAILS
FORMER ILM FACILITY & BRC PROPERTY
LOCKHEED MARTIN CORPORATION
TORRANCE, CALIFORNIA

WELL ID	COMPLETION DATE	DRILLING METHOD	WELL INFORMATION														
			Borehole Diameter (inches O.D.)	Well Casing Diameter & Type	Measuring Point Evaluation (feet msl)	Borehole Depth (feet bgs)	Well Depth (feet)	Slotted Interval	Formation Slotted	Slot Size & Type (inches)	Filter Pack Material	Filter Pack Thickness (feet)	Seal Type	Seal Thickness (feet)	Pump System (dedicated/ nondedicated)	Type of Pump	Recent Depth to Water (feet bgs) [date]
P-1	8-16-94	HSA	10.5	4" Sch. 40, PVC	55.21	82.5	80.5	60.5-80.5	Lower Sand Unit	0.020	Lonestar #3 Sand	25	Bentonite Chips	3	nondedicated	2" Redi-Flo used for purging	68.14 [7/99]
P-2	8-18-94	HSA	10.5	4" Sch. 40, PVC	59.11	72	71	61-71	Lower Sand Unit	0.020	Lonestar #3 Sand	13	Bentonite Chips	3	nondedicated	2" Redi-Flo used for purging	67.35 [7/99]
P-3	8-18-94	HSA	10.5	4" Sch. 40, PVC	59.87	75	72	57-72	Lower Sand Unit	0.020	Lonestar #3 Sand	20	Bentonite Chips	3	nondedicated	2" Redi-Flo used for purging	70.71 [7/99]
P-4 (well abandoned 10/97)	8-16-94	HSA	10.5	4" Sch. 40, PVC	60.54	81	78	63-78	Lower Sand Unit	0.020	Lonestar #3 Sand	20	Bentonite Chips	4	nondedicated	2" Redi-Flo used for purging	74.04 [7/97]
P-5	8-17-94	HSA	10.5	4" Sch. 40, PVC	55.04	81	79	59-79	Lower Sand Unit	0.020	Lonestar #3 Sand	24	Bentonite Chips	3	nondedicated	2" Redi-Flo used for purging	67.02 [7/99]
P-6 (well abandoned 10/97)	3-1-95	HSA	10	4" Sch. 40, PVC	58.13	80	78	58 - 78	Lower Sand Unit	0.020	Lonestar #2/16 Sand	22.5	Bentonite Pellets	5	nondedicated	2" Redi-Flo used for purging	73.09 [7/97]
P-6B	11-24-97	HSA	10	4" Sch. 40, PVC	55.83	81	80	60-80	Lower Sand Unit	0.020	Lonestar #3 Sand	23	Bentonite Pellets	3	nondedicated	2" Redi-Flo used for purging	69.43 [7/99]
P-7	3-2-95	HSA	10	4" Sch. 40, PVC	53.92	84.5	82.5	62.5-82.5	Lower Sand Unit	0.020	Lonestar #2/16 Sand	22.5	Bentonite Chips	5	nondedicated	2" Redi-Flo used for purging	67.86 [7/99]
P-8 (well abandoned 8/96)	3-6-95	HSA	10	4" Sch. 40, PVC	56.32	95	90	65 - 90	Lower Sand Unit	0.020	Lonestar #2/16 Sand	32	Bentonite Chips	5	nondedicated	2" Redi-Flo used for purging	76.58 [7/96]
P-9 (well abandoned 10/97)	3-7-95	HSA	10	4" Sch. 40, PVC	60.48	86	83	63 - 83	Lower Sand Unit	0.020	Lonestar #2/16 Sand	22.5	Bentonite Chips	5 (56 - 61 ft) 2.5 (83.5 - 86 ft)	nondedicated	2" Redi-Flo used for purging	72.66 [7/97]
P-9B	10-7-97	HSA	10	4" Sch. 40, PVC	57.54	77	77	57-77	Lower Sand Unit	0.020	Lonestar #2/16 Sand	23	Bentonite Pellets	5	nondedicated	2" Redi-Flo used for purging	68.51 [7/99]
P-10	3-3-95	HSA	10	4" Sch. 40, PVC	57.64	78.5	76	61-76	Lower Sand Unit	0.020	Lonestar #2/16 Sand	17.5	Bentonite Chips	5	nondedicated	2" Redi-Flo used for purging	68.10 [7/99]
P-11 (well abandoned 10/97)	11-16-95	HSA	10	4" Sch. 40, PVC	63.83	74.5	74	59-74	Lower Sand Unit	0.020	Lonestar #2/16 Sand	17.5	Bentonite Chips	5	nondedicated	2" Redi-Flo used for purging	73.63 [7/97]
P-12 (well damaged 7/99)	11-20-95	HSA	10	4" Sch. 40, PVC	59.73	80.5	80	65-80	Lower Sand Unit	0.020	Lonestar #2/16 Sand	17.5	Bentonite Pellets	5	nondedicated	2" Redi-Flo used for purging	72.16 [3/99]

TRC

BOE-C6-0210212

TABLE 4.1

SUMMARY OF WELL CONSTRUCTION DETAILS
FORMER ILM FACILITY & BRC PROPERTY
LOCKHEED MARTIN CORPORATION
TORRANCE, CALIFORNIA
(Continued)

WELL ID	COMPLETION DATE	DRILLING METHOD	WELL INFORMATION														
			Borehole Diameter (inches O.D.)	Well Casing Diameter & Type	Measuring Point Evaluation (feet msl)	Borehole Depth (feet bgs)	Well Depth (feet)	Slotted Interval	Formation Slotted	Slot Size & Type (inches)	Filter Pack Material	Filter Pack Thickness (feet)	Seal Type	Seal Thickness (feet)	Pump System (dedicated/ nondedicated)	Type of Pump	Recent Depth to Water (feet bgs) [date]
P-13 (well abandoned 10/97)	11-17-95	HSA	10	4" Sch. 40, PVC	59.97	84	82	62-82	Lower Sand Unit	0.020	Lonestar #2/16 Sand	22	Bentonite Pellets	5 (55-60 ft.) 2 (82-84 ft.)	nondedicated	2" Redi-Flo used for purging	73.68 [7/97]
P-14 (well abandoned 10/97)	11-14-95	HSA	10	4" Sch. 40, PVC	63.71	85.3	85	65-85	Lower Sand Unit	0.020	Lonestar #2/16 Sand	22.3	Bentonite Pellets	5	nondedicated	2" Redi-Flo used for purging	77.95 [7/97]
P-15 (well abandoned 10/97)	11-22-95	HSA	10	4" Sch. 40, PVC	56.40	80	79.5	59.5-79.5	Lower Sand Unit	0.020	Lonestar #2/16 Sand	22.5	Bentonite Pellets	5	nondedicated	2" Redi-Flo used for purging	70.95 [7/97]
P-16A	11-29-95	HSA	10	4" Sch. 40, PVC	52.76	87	87	67-87	Lower Sand Unit	0.020	Lonestar #2/16 Sand	22	Bentonite Pellets	5	nondedicated	2" Redi-Flo used for purging	66.72 [7/99]
P-16B (well destroyed 8/96)	12-3-95	Rotosonic	8	4" Sch. 40, PVC	56.51	120	116.5	101.5-116.5	Lower Sand Unit	0.020	Lonestar #2/16 Sand	21.5	Bentonite Pellets	3	nondedicated	2" Redi-Flo used for purging	72.73 [6/96]
P-16C	8-7-96	HSA	10	4" Sch. 40, PVC	52.35	119	118	103-118	Lower Sand Unit	0.020	Lonestar #2/16 Sand	18	Bentonite Pellets	3	nondedicated	2" Redi-Flo used for purging	66.43 [7/99]
P-17	12-6-95	HSA	10	4" Sch. 40, PVC	54.83	120	85	65-85	Lower Sand Unit	0.020	Lonestar #2/16 Sand	23	Bentonite Pellets	5	nondedicated	2" Redi-Flo used for purging	68.50 [7/99]
P-18 (well abandoned 10/97)	12-5-95	HSA	10	4" Sch. 40, PVC	60.16	100	85	65-85	Lower Sand Unit	0.020	Lonestar #2/16 Sand	22	Bentonite Pellets	6	nondedicated	2" Redi-Flo used for purging	75.29 [7/97]
P-19 (well abandoned 10/97)	12-4-95	HSA	10	4" Sch. 40, PVC	62.85	100	85	65-85	Lower Sand Unit	0.020	Lonestar #2/16 Sand	22	Bentonite Chips	6	nondedicated	2" Redi-Flo used for purging	78.11 [7/97]
P-20	11-22-95	HSA	10	4" Sch. 40, PVC	55.30	80	78	58-78	Lower Sand Unit	0.020	Lonestar #2/16 Sand	24	Bentonite Pellets	5.8	nondedicated	2" Redi-Flo used for purging	68.37 [7/99]
P-21 (well abandoned 10/97)	11-30-95	HSA	10	4" Sch. 40, PVC	62.34	100	85	65-85	Lower Sand Unit	0.020	Lonestar #2/16 Sand	22	Bentonite Pellets	5	nondedicated	2" Redi-Flo used for purging	77.65 [7/97]
P-22	11-29-95	HSA	10	4" Sch. 40, PVC	54.49	108	87	67-87	Lower Sand Unit	0.020	Lonestar #2/16 Sand	22	Bentonite Pellets	5	nondedicated	2" Redi-Flo used for purging	68.64 [7/99]
P-23 (well abandoned 10/97)	11-17-95	HSA	10	4" Sch. 40, PVC	60.19	75.3	75	65-75	Lower Sand Unit	0.020	Lonestar #2/16 Sand	12.3	Bentonite Pellets	5	nondedicated	2" Redi-Flo used for purging	72.74 [7/97]
P-24	11-20-95	HSA	10	4" Sch. 40, PVC	59.89	75	75	65-75	Lower Sand Unit	0.020	Lonestar #2/16 Sand	12	Bentonite Pellets	5	nondedicated	2" Redi-Flo used for purging	72.00 [7/99]

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BOE-C6-0210213

TABLE 4.1

SUMMARY OF WELL CONSTRUCTION DETAILS
FORMER ILM FACILITY & BRC PROPERTY
LOCKHEED MARTIN CORPORATION
TORRANCE, CALIFORNIA
(Continued)

WELL ID	COMPLETION DATE	DRILLING METHOD	WELL INFORMATION														
			Borehole Diameter (inches O.D.)	Well Casing Diameter & Type	Measuring Point Evaluation (feet msl)	Borehole Depth (feet bgs)	Well Depth (feet)	Slotted Interval	Formation Slotted	Slot Size & Type (inches)	Filter Pack Material	Filter Pack Thickness (feet)	Seal Type	Seal Thickness (feet)	Pump System (dedicated/ nondedicated)	Type of Pump	Recent Depth to Water (feet bgs) [date]
P-25 (well abandoned 11/97)	11-27-95	HSA	10	4" Sch. 40, PVC	60.45	80	79.5	64.5-79.5	Lower Sand Unit	0.020	Lonestar #2/16 Sand	17.5	Bentonite Pellets	5	nondedicated	2" Redi-Flo used for purging	74.76 [7/97]
BL-1	2-2-99	HSA	8	2" Sch. 40, PVC	58.34	81.5	81.5	61.5-81.5	Lower Sand Unit	0.010	#2/12 RMC Lonestar	25	Bentonite Chips	2	nondedicated	2" Redi-Flo used for purging	70.72 [7/99]
BL-2	2-3-99	HSA	8	2" Sch. 40, PVC	58.15	82	81.5	61.5-81.5	Lower Sand Unit	0.010	#2/12 RMC Lonestar	24	Bentonite Chips	4	nondedicated	2" Redi-Flo used for purging	71.32 [7/99]
BL-3	2-8-99	HSA	8	2" Sch. 40, PVC	59.33	82	82	62-82	Lower Sand Unit	0.010	#2/12 RMC Lonestar	23.5	Bentonite Chips	6	nondedicated	2" Redi-Flo used for purging	73.16 [7/99]
BL-4	2-16-99	HSA	8	2" Sch. 40, PVC	55.04	79	78.5	58.5-78.5	Lower Sand Unit	0.010	#2/12 RMC Lonestar	24	Bentonite Chips	6	nondedicated	2" Redi-Flo used for purging	69.47 [7/99]
BL-5	2-4-99	HSA	8	2" Sch. 40, PVC	55.18	78.5	78	58-78	Lower Sand Unit	0.010	#2/12 RMC Lonestar	23.5	Bentonite Chips	5	nondedicated	2" Redi-Flo used for purging	67.71 [7/99]
BL-6	2-4-99	HSA	8	2" Sch. 40, PVC	54.7	78.5	78	58-76	Lower Sand Unit	0.010	#2/12 RMC Lonestar	23.5	Bentonite Chips	5	nondedicated	2" Redi-Flo used for purging	67.53 [7/99]
BL-7	2-8-99	HSA	8	2" Sch. 40, PVC	55.19	78.5	78	58-78	Lower Sand Unit	0.010	#2/12 RMC Lonestar	24.5	Bentonite Chips	5	nondedicated	2" Redi-Flo used for purging	68.63 [7/99]
BL-8	2-16-99	HSA	8	2" Sch. 40, PVC	57.13	81	80	60-80	Lower Sand Unit	0.010	#2/12 RMC Lonestar	24	Bentonite Chips	5	nondedicated	2" Redi-Flo used for purging	71.42 [7/99]

99-2(ILMRpts/DrGrWaRcFa (12/28/99/rm)

feet msl Feet above mean sea level
feet bgs Feet below ground surface
Inches O.D. Inches outer diameter
HSA Hollow-stem auger drill rig
NA Not available
PVC Polyvinyl chloride

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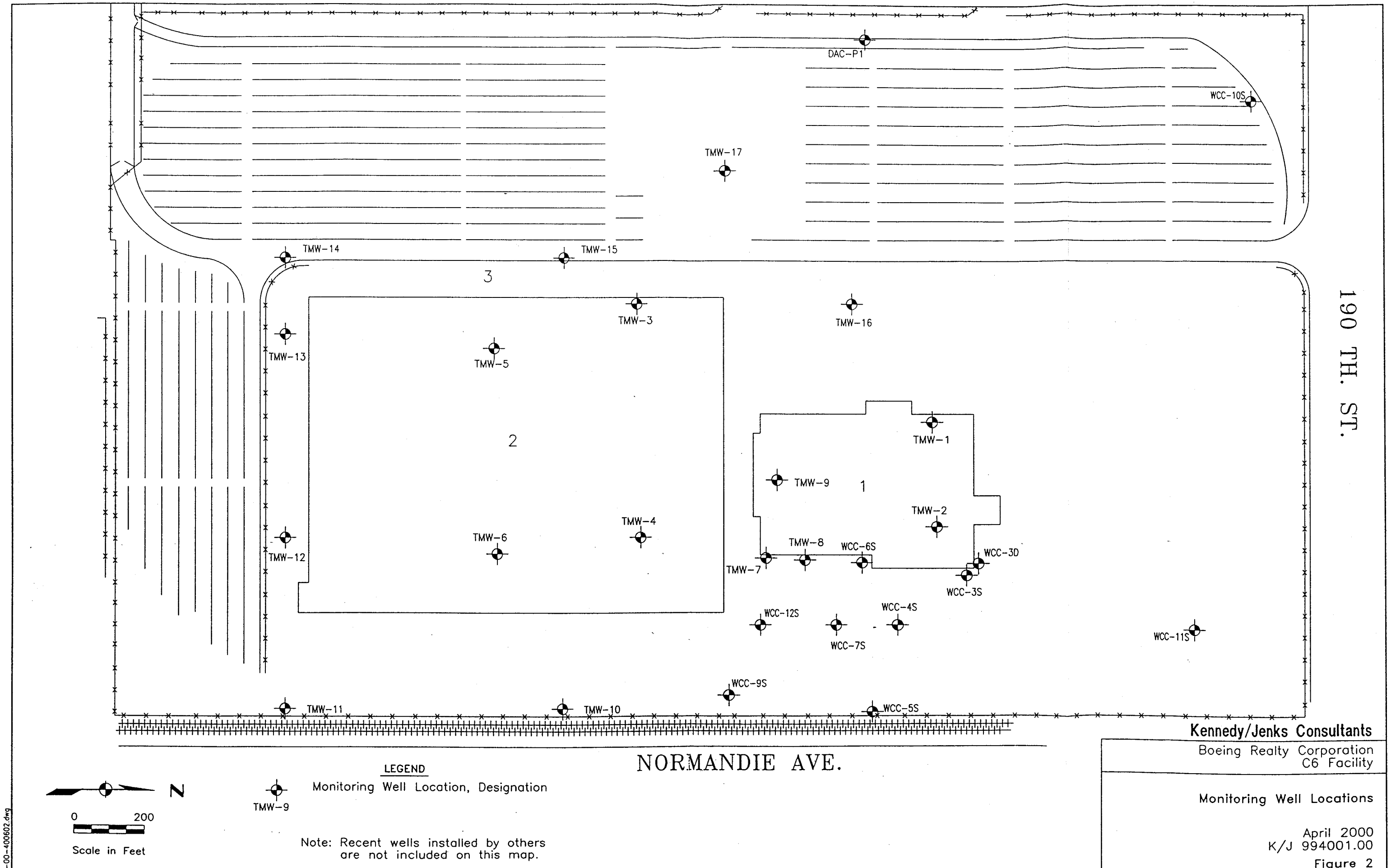
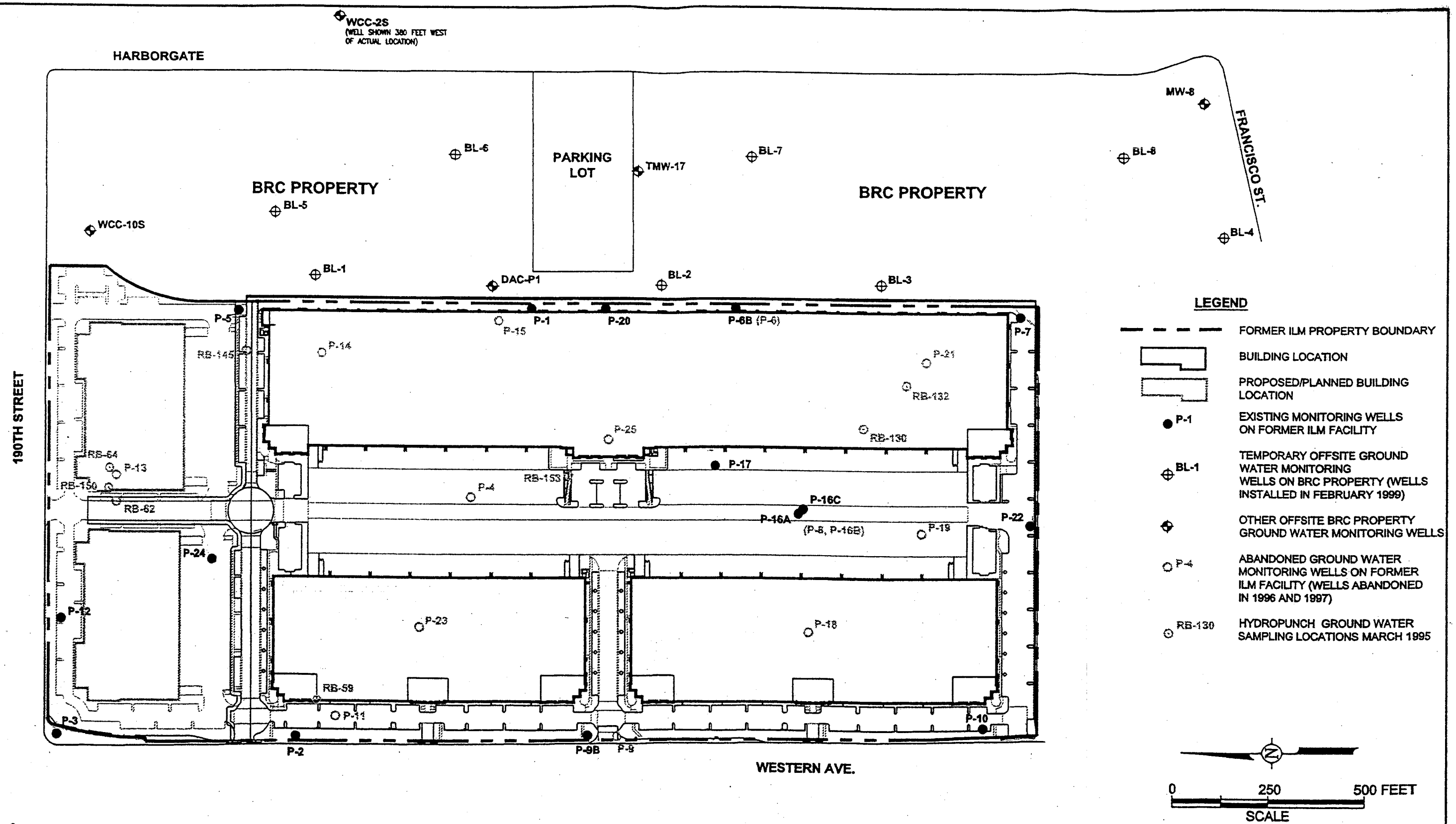
BOE-C6-0210214

BOEING C-6 AND ILM WELL INFORMATION

Well Location Maps Boeing and ILM


DAC-P1
WCC-10S
TMW-17
TMW-14
TMW-15
3
TMW-3
TMW-16
TMW-13
TMW-5
2
TMW-1
TMW-9
1
TMW-2
TMW-4
TMW-6
TMW-8
WCC-6S
WCC-3D
TMW-12
TMW-7
WCC-3S
WCC-4S
WCC-12S
WCC-7S
WCC-11S
WCC-9S
TMW-11
TMW-10
WCC-5S
190 TH. ST.
NORMANDIE AVE.
N
0
200
Scale in Feet
LEGEND
Monitoring Well Location, Designation
TMW-9
Note: Recent wells installed by others are not included on this map.
Kennedy/Jenks Consultants
Boeing Realty Corporation
C6 Facility
Monitoring Well Locations
April 2000
K/J 994001.00
Figure 2
4-00-400602.dwg

99-200GW-01 REV. 12/28/99



NOTES:

1. FIGURE SHOWS STATUS OF WELLS (e.g. EXISTING OR ABANDONED) AS OF NOVEMBER 1999. FORMER WELL P-6 WAS LOCATED AT THE PRESENT P-6B LOCATION. FORMER WELLS P-8 AND P-16B WERE LOCATED AT THE PRESENT P-16A AND P-16C LOCATIONS.

SOURCE: 1. FREEMONT ASSOCIATES, INC. / HILL PINCKERT ARCHITECTS BUILDING PLAN, AUGUST 1999.

GROUND WATER MONITORING WELL LOCATION MAP

FORMER INTERNATIONAL LIGHT METALS FACILITY
TORRANCE, CALIFORNIA

TRC

FIGURE 4.1

BOE-C6-0210217

WELL INFORMATION FOR THE SITE AND FORMER ILM SITE

Well Location Maps

WELL INFORMATION FOR THE SITE AND FORMER ILM SITE

Borehole/Well Completion Logs for P Wells and DB Borings

BORING AND WELL CONSTRUCTION LOG

FORMER ILM FACILITY BORING LOGS (Well I.D.)	McDONNELL DOUGLAS C-6 FACILITY (Well I.D.)	DOUGLAS AIRCRAFT CO. (Well I.D.)	BOEING REALTY CORPORATION (Well I.D.)
P1	WCC-01D	DAC-P1	BL-1
P2	WCC-01S		BL-2
P3	WCC-02S		BL-3
P4	WCC-03S		BL-4
P5	WCC-03D		BL-5
P6	WCC-04S		BL-6
P6B	WCC-05S		BL-7
P7	WCC-07S		BL-8
P8	WCC-10S		
P9	WCC-11S		
P9B	WCC-12S		
P10			
P11B			
P12			
P13B			
P14			
P15			
P16A			
P16B			
P16C			
P17			
P18			
P19			
P20			
P21			
P22			
P23			
P24			
P25			
DB-1			
DB-2			

GERAGHTY & MILLER, INC.

BORING LOG

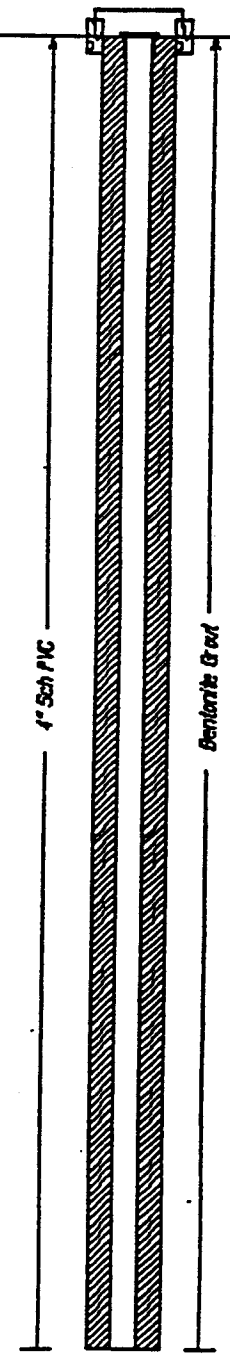
PROJECT International Light Metals
ATION 19200 S. Western
METHOD Hollow Stem Auger
ING METHOD CMSS
BOREHOLE DIAMETER 10.5 inches O.D.

PROJECT NO. CAO 217.012
LOGGED BY Derrick Willis
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER Dino Selders

BORING P-1
DATE STARTED 8/16/94
DATE COMPLETED 8/16/94
BORING DEPTH 82.5 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								8 inches conrete, 5 inches gravel
				7		GP		
						ML		SILT with fine Sand, some Clay, dark brown to black, stiff.
						SC		Clayey SAND, fine grained, brown, brittle.
				1				
						SP		SAND, fine grained, some Silt, tan. loose.
				0				
						ML		Clayey SILT, light olive brown (2.5Y, 5/4), semi-stiff, slightly moist.
					8			
				< 1	10			
	100 %		P1 @ 7a		17			
						CL		Silty CLAY, light olive brown (2.5Y, 5/4), semi-stiff, slighty moist.
10					11			
				< 1	12			
	100 %		P1 @ 10		15			
15								

WELL DIAGRAM



DEPTH (ft): 5, 10, 15

GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

r. .CT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-1

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
					8	CL		Sandy CLAY, sand is very fine grained, medium olive (5Y, 5/4), soft, slightly moist.		
				< 1	11					
	100 %		P1 @ 15		17					
						ML				
					14			Clayey SILT with minor very fine grained Sand, medium olive (5Y, 5/4), semi-stiff, slightly moist, clayey at top.		20
				2	20					
	100 %		P1 @ 20		32				4" Sch PVC / Bentonite Grout	
						SP				
25					10			SAND, very fine grained, with Silt, olive (5Y, 5/6), loose, slighty moist.		25
				1	16					
	100 %		P1 @ 25a		24					
30										30

GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-1

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
					14	SP		SAND, very fine grained, with minor Silt, olive yellow (5Y, 6/6), loose, slighty moist, abundant shell fragments, minor cementing.		
				< 1	14					
	100 %		P1 @ 30		25					
					26			SAND, very fine grained, pale olive (5Y, 6/4), loose, slightly moist, minor shell fragments at top 6 inches.		35
				1	30					
	100 %		P1 @ 35		40				1" Sch PVC / Bentonite Grout	
40					14			SAND, very fine grained to fine grained, pale olive (5Y, 6/4), loose, slightly moist, abundant shell fragments, minor cementing.		40
				2	14					
	100 %		P1 @ 40		15					
45										45

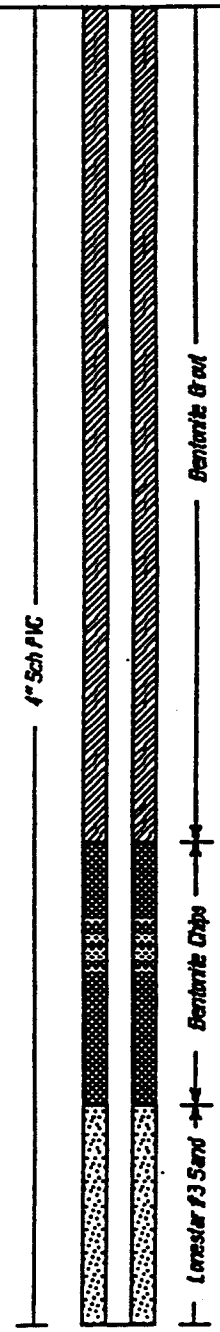
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-1

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
				3	17	SP		SAND, very fine grained, pale olive (5Y, 6/3), loose, slightly moist.
					23			
	100 %		P1 @ 45		25			
				4	15			SAND, very fine grained with Silt, pale olive (5Y, 6/3), loose, slightly moist.
					30			
	100 %		P1 @ 50a		42			
55				6	27			SAND with Silt, very fine grained, pale olive (5Y, 6/3), loose, slightly moist, iron staining and clayey at base (bottom 3 inches).
					42			
	100 %		P1 @ 55		50@3"			
60						SM		

WELL DIAGRAM



DEPTH (ft): 50, 55, 60

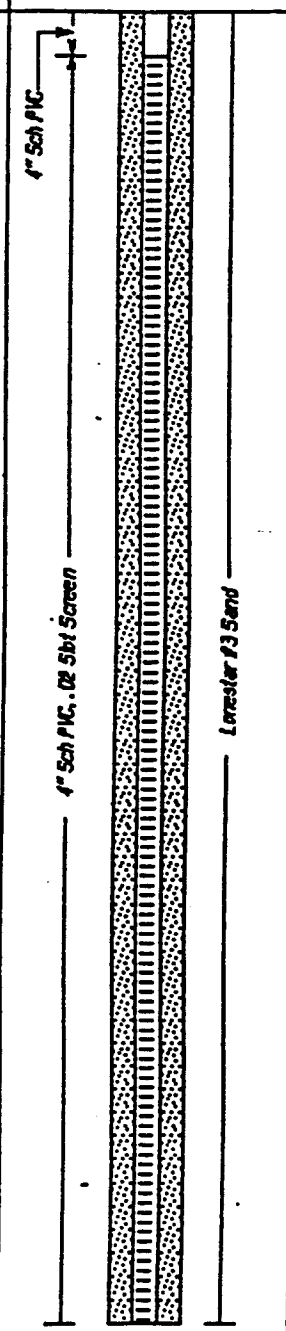
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

ECT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-1

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
					20	SM		Silty SAND, very fine grained, olive yellow (5Y, 6/6), loose, slightly moist.
				< 1	42			
	100 %		P1 @ 60		50@5"			
						SP		SAND, very fine to fine grained, olive (5Y, 5/4), loose, slightly moist, with reddish tinge at base.
				8	20			
	100 %		P1 @ 61.5		50@5"			
					19			SAND, very fine to fine grained, olive (5Y, 5/6), loose, slightly moist, with reddish tinge at base.
				9	46			
	100 %		P1 @ 63		50@4"			
								SAND, very fine grained, olive (5Y, 5/6), loose, moist, with orange tinge.
				5	29			
	100 %		P1 @ 64.5		50@3"			
					18			SAND, very fine grained, olive (5Y, 5/4), loose, moist, with orange tinge.
				7.5	37			
	100 %		P1 @ 66		50			
					20			SAND, very fine grained, light olive brown (2.5Y, 5/6), loose, moist, with orange tinge.
				7	46			
	100 %		P1 @ 67.5		50@3"			
								SAND, very fine grained, light olive brown (2.5Y, 5/6), loose, moist, slightly clayey at base, with orange tinge.
				4.3	30			
70	100 %		P1 @ 69		50@5"			
								SAND, very fine grained with minor Silt, light olive brown (2.5Y, 5/4), semi loose, wet.
				66	33			
	100 %		P1 @ 70.5		50@5"			
								SAND with Silt, very fine grained, light olive brown (2.5Y, 5/4), semi loose, water saturated.
				20	30			
	100 %		P1 @ 72		50@4"			
								SAND with minor Silt, very fine grained, light olive brown (2.5Y, 5/4), semi-loose, water saturated.
				50	42@3"			
75	100 %		P1 @ 73.5		50@3"			

WELL DIAGRAM



DEPTH (ft): 65, 70, 75

GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

_CT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-1

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
				85	46	SP		SAND, with minor Silt, very fine grained, light olive brown (2.5Y, 5/4), semi-loose, water saturated.		
	100 %		P1 @ 75.0		50@3"					
				60	23			SAND with Silt, very fine grained, light olive brown (2.5Y, 5/4), semi-soft, water saturated.		
	100 %		P1 @ 76.5		50@5"					
				60	20	SC		Clayey SAND, very fine grained, light olive brown, loose, water saturated.	4" Sch PVC, .02 Slot Screen; Lonestar #3 Sand	
					32					
	100 %		P1 @ 78.0		50@4"					
				70	20			Clayey SAND, very fine grained, with high clay content, light olive brown, loose, water saturated.		80
	100 %		P1 @ 79.5		50@4"					
				25	8	CL		CLAY, light olive brown (2.5Y, 5/4), stiff, slightly moist.		
					16					
	100 %		P1 @ 81		31					
								End of Boring @ 82.5 ft.		
85										85
90										90

This work was performed under my supervision and I concur with the findings.

Anthony C. Ward

Anthony C. Ward, CA R.G. #4782

GERAGHTY & MILLER, INC.

BORING LOG

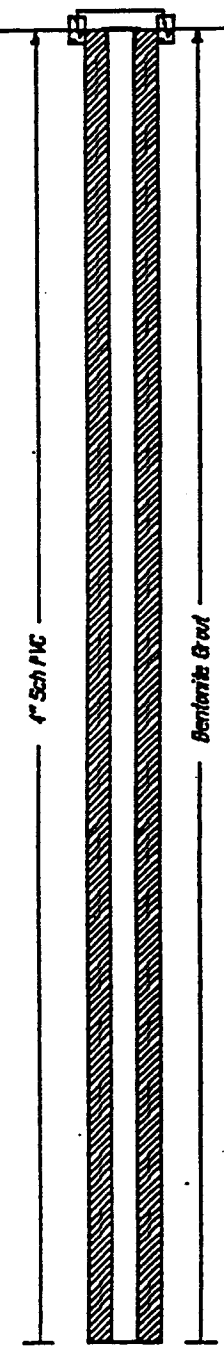
PROJECT: International Light Metals
LOCATION: 19200 S. Western
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: CNSS
BOREHOLE DIAMETER: 10.5 inches O.D.

PROJECT NO.: CAO 217.012
LOGGED BY: Lance King
DRILL CO.: Gregg Drilling and Testing, Inc.
RIG TYPE: B-61
DRILLER: Craig Winegarner

BORING: P-2
DATE STARTED: 8/18/94
DATE COMPLETED: 8/19/94
BORING DEPTH: 72.0 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						GW		3 inch asphalt, Gravel fill
						CL		Clay with Silt, dark brown, plastic to stiff.
				< 1				
						SP		
				< 1				SAND, fine grained, trace silt, tan, loose.
5				< 1				SAND, fine grained, trace silt, tan, loose.
						CL		
					9			CLAY with Silt, light olive brown (2.5Y, 5/4), stiff, slightly moist.
				< 1	13			
	100 %		P2 @ 7a		17			
10								
					7			Silty CLAY, light olive brown (2.5Y, 5/4), stiff, slightly moist.
				< 1	9			
	100 %		P2 @ 10		12			
15								
					7			Silty CLAY, light olive brown (2.5Y, 5/4), stiff, slightly moist.
				< 1	10			
	100 %		P2 @ 15		10			
20								

WELL DIAGRAM



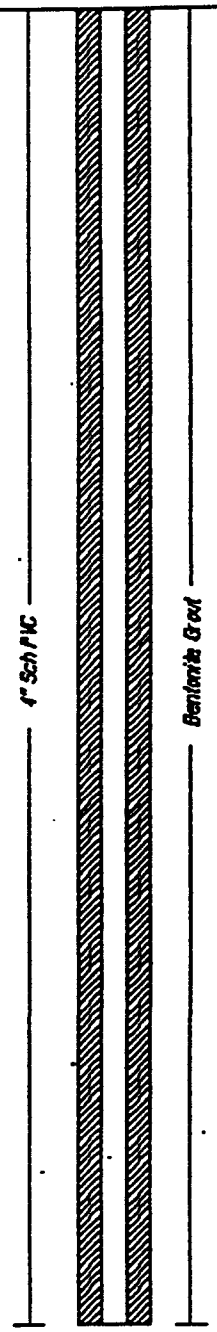
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-2

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
	100 %		P2 @ 20	< 1	6, 9, 10	CL		Silty CLAY, light olive brown (2.5Y, 5/4), stiff, slightly moist, some dark flecks (clay blebs).
25	100 %		P2 @ 25a	10	9, 16, 19	SP		SAND, very fine to fine grained, light olive brown (2.5Y, 5/6), loose slightly moist, shell fragments, trace clay blebs.
30	100 %		P2 @ 30	10	16, 22, 33			SAND, very fine grained, olive (5Y, 5/4), loose, slightly moist, shell fragments.
35	100 %		P2 @ 35	170	7, 10, 14			SAND, very fine to fine grained, light olive grey (5Y, 6/2), loose, slightly moist, abundant shell fragments.
40								Silty SAND, very fine grained, olive (5Y, 5/6), loose, slightly moist, mottled iron staining.

WELL DIAGRAM



DEPTH (ft): 25, 30, 35, 40

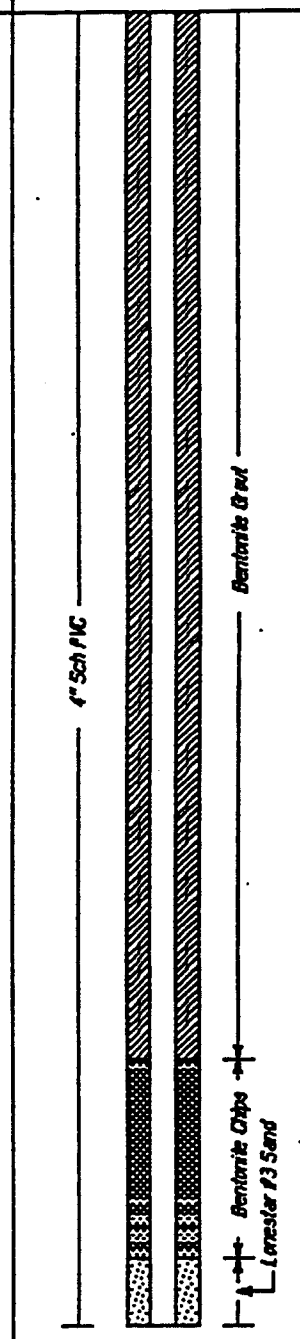
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-2

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
	100 %		P2 @ 40	4750	15, 18, 23	SP		SAND, very fine to fine grained, light olive grey (5Y, 6/2), loose, slightly moist.
45	100 %		P2 @ 45	6700	10, 16, 17			SAND, very fine to fine grained, light olive grey (5Y, 6/2), loose, slightly moist.
50	100 %		P2 @ 50a	4900	21, 28, 36			SAND, very fine to fine grained, olive yellow (2.5Y, 6/6), loose, slightly moist.
55	100 %		P2 @ 55	1000	22, 27, 31			SAND, very fine to fine grained, light olive brown (2.5Y, 5/6), loose, slightly moist, heavily iron stained, some mottled.
60								

WELL DIAGRAM



DEPTH (ft): 45, 50, 55, 60

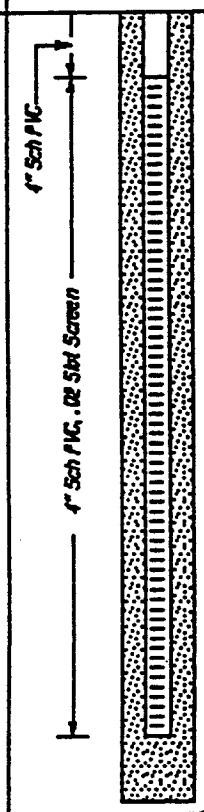
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-2

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
				4800	38	SP		SAND, very fine to fine grained, light yellowish brown (2.5Y, 6/4), loose, slightly moist, clay blebs (trace) at base, some clay lenses 1 mm thick in sample.
					50			
	100 %		P2 @ 60		> 50			
				5500	23			SAND, very fine grained with trace clay blebs, light yellowish brown (2.5Y, 6/4), loose, slightly moist, some iron staining, changes to olive yellow (2.5Y, 6/6) at 60.5 feet.
					28			
	100 %		P2 @ 61.5		31			
				5200	26			SAND, very fine grained, olive yellow (2.5Y, 6/6), loose, slightly moist, iron staining, trace clay blebs.
					31			
	100 %		P2 @ 63		37			
65				7500	27			SAND, very fine to fine grained, light olive brown (2.5Y, 5/6), loose, moist (wet in shoe), very minor clay blebs.
					33			
	100 %		P2 @ 64.5		39			
				260	17			SAND, very fine to fine grained, light olive brown (2.5Y, 5/6), loose, wet.
					23			
	100 %		P2 @ 66		29			
				15	14			SAND, very fine to fine grained, light olive brown (2.5Y, 5/4), loose, water saturated.
					15			
	100 %		P2 @ 67.5		19			
				125	8	SM		Clayey SAND, very fine grained, grades to CLAY over 2 inches, light olive brown to light browninsh grey (2.5Y, 5/6) to (2.5Y, 6/2), stiff to semi-plastic, water saturated to slightly moist, patches of iron staining in clay.
					12			
70	100 %		P2 @ 69		13			
				60	8	CL		CLAY with some Silt, light brownish grey (2.5Y, 6/2), semi-plastic, slightly moist, patches of iron staining.
					14			
	100 %		P2 @ 70.5		17			
75								End of Boring @ 72.0 feet
80								

WELL DIAGRAM



This work was performed under my supervision and I concur with the findings.

Anthony C. Ward

Anthony C. Ward, CA R.B. #4782

GERAGHTY & MILLER, INC.

BORING LOG

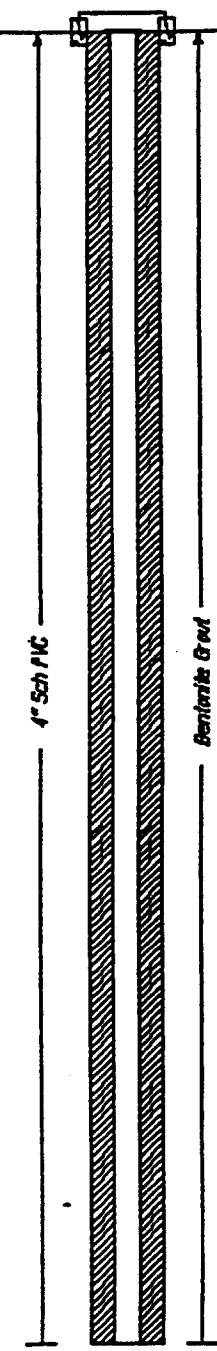
PROJECT International Light Metals
LOCATION 19200 S. Western
DRILLING METHOD Hollow Stem Auger
SAMPLING METHOD CMSS
BOREHOLE DIAMETER 10.5 inches O.D.

PROJECT NO. CAO 217.012
LOGGED BY Lance King
DRILL CO. Gregg
RIG TYPE B-61
DRILLER Craig Winegarner

BORING P-3
DATE STARTED 8/18/94
DATE COMPLETED 8/18/94
BORING DEPTH 75.0 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								6" concrete, 5" gravel
						SM		SILT with Clay, trace fine Sand, dark brown, stiff.
						ML		SILT, some clay, brown, stiff.
5						SP		SAND, fine grained, some Clay, tan, loose.
						CL		
					8			Silty CLAY, olive brown (2.5Y, 4/4), stiff, slightly moist.
				< 1	9			
	100 %		P3 @ 7a		12			
10					11			
				< 1	14			Silty CLAY, olive (5Y, 4/4), stiff, slightly moist.
	100 %		P3 @ 10		17			
15					4			
				< 1	7			Silty CLAY, olive (5Y, 4/3), stiff, slightly moist.
	100 %		P3 @ 15		8			
20								

WELL DIAGRAM



GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

ECT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-3

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
	100 %		P3 @ 20	< 1	11, 14, 9	CL		Silty CLAY, olive (5Y, 4/3), stiff, slightly moist, with white patches (shells).		
25	100 %		P3 @ 25	< 1	10, 13, 17			Silty CLAY, olive (5Y, 5/4), stiff, slightly moist.		25
						SM				
30	100 %		P3 @ 30	< 1	17, 12, 14			Silty SAND, very fine grained, with Clay, light brownish grey (2.5Y, 6/2), friable, slightly moist, olive (5Y, 5/4) where stained (iron staining), occasional pebbles, highly mottled, 60% stained, 40% grey in rough layers (interbedded), (5Y, 5/4).	4" Sch PVC; Bentonite Grout	30
						SC				
35	100 %		P3 @ 35	< 1	14, 18, 22			Clayey SAND, very fine grained, olive (5Y, 5/6), semi-loose, friable, slightly moist.		35
40						SP				40

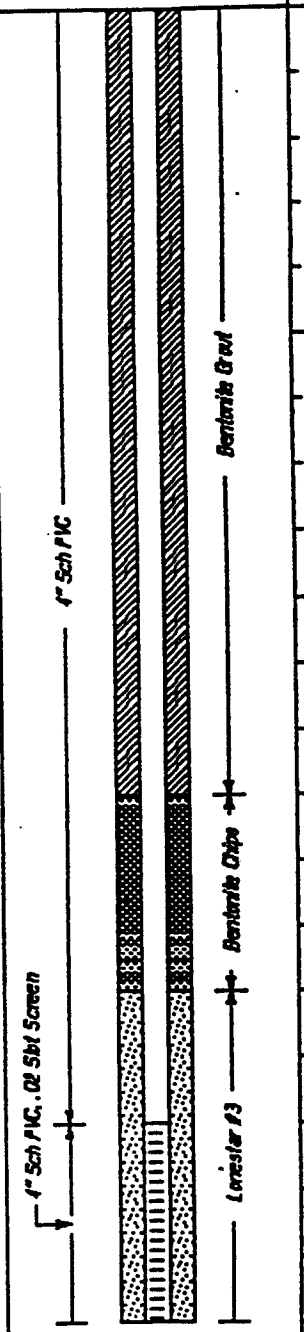
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-3

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
	100 %		P3 @ 40	1	10, 17, 26	SP		SAND, very fine grained with clay, olive (5Y, 5/3), semi-loose, slightly moist, with interbedded layers (1-3 mm thick) of orange (iron-stained) sand.
45	100 %		P3 @ 45	2	16, 18, 27			SAND, very fine grained with trace clay blebs, olive/orange, (5Y, 5/3), loose, slightly moist, (iron stained) interlayered 1-10 mm thick.
50	100 %		P3 @ 50	< 1	22, 27, 31			SAND, very fine grained, olive (5Y, 5/4), loose, slightly moist.
55	100 %		P3 @ 55	2	28, 30, 37	SC		SAND, very fine grained, olive (5Y, 5/4), loose, slightly moist. Clayey SAND, very fine grained, olive with orange, semi-loose, mottled, abundant clay blebs, (iron staining) throughout.
60						SP		

WELL DIAGRAM



DEPTH (ft): 45, 50, 55, 60

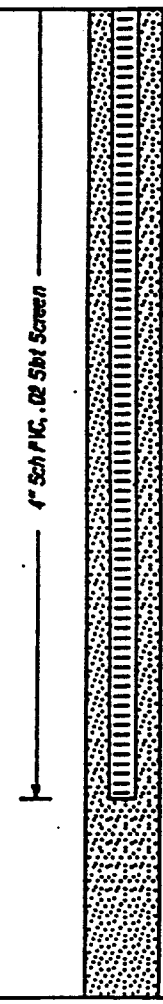
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-3

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
				15	33	SP		SAND, very fine-grained, pale olive (5Y, 6/3), loose, slightly moist.
					40			
	100 %		P3 @ 60		50			
				40	26			SAND, very fine grained, olive (5Y, 5/4), loose, slightly moist.
					33			
	100 %		P3 @ 61.5		39			
				20	28			SAND, very fine grained, light olive brown (2.5Y, 5/6), loose, slightly moist, with orange (iron stained) mottling.
					35			
	100 %		P3 @ 63		42			
65				20	28			SAND, very fine grained, light olive brown, (2.5Y, 5/6), loose, slightly moist, with orange (iron stained) mottling.
					40			
	100 %		P3 @ 64.5		44			
				10	34			SAND, very fine grained, pale olive yellow, (2.5Y, 6/6), loose, slightly moist, with occassional (10%) orange (iron stained) mottling.
					39			
	100 %		P3 @ 66		45			
				35	23			SAND, very fine grained, olive (5Y, 5/4), loose, moist, with occassional orange (iron stained) blebs and stringers.
					39			
	100 %		P3 @ 67.5		46			
				2	19			SAND, very fine grained, olive (5Y, 5/4), loose, wet, with occassional iron stained blebs.
					28			
70	100 %		P3 @ 69		33			
				1	18			SAND, very fine grained, olive with orange (5Y, 4/3), loose, water saturated, (iron stained) mottling.
					25			
	100 %		P3 @ 70.5		31			
				< 1	18	CL		CLAY with Silt, olive (5Y, 4/4), semi-stiff, slightly moist.
					31			
	100 %		P3 @ 72		40			
				< 1	37	CL		CLAY with minor Silt lenses, olive grey (5Y, 4/2), very stiff, slightly moist, with occassional orange (iron stained) silt lenses.
					60			
	100 %		P3 @ 73.5					
75								End of Boring @ 75.0 feet
								This work was performed under my supervision and I concur with the findings.
								Anthony C. Ward, CA R.G. #4782
80								

WELL DIAGRAM



DEPTH (ft): 65, 70, 75, 80

GERAGHTY & MILLER, INC.

BORING LOG

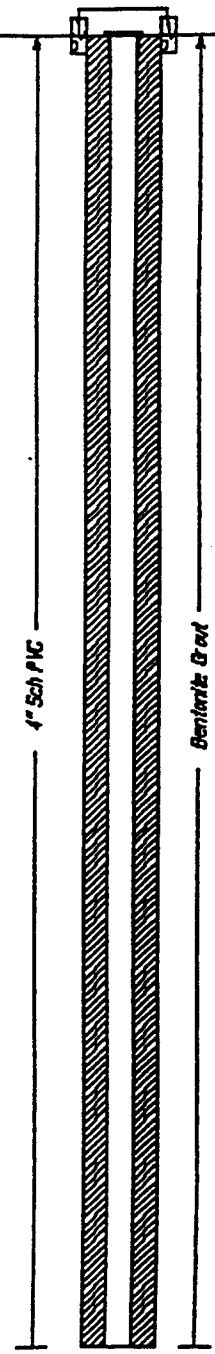
PROJECT: International Light Metals
LOCATION: 19200 S. Western
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: CMSS
BOREHOLE DIAMETER: 10.5 inches O.D.

PROJECT NO.: CAO 217.012
LOGGED BY: Derrick Willis
DRILL CO.: Gregg Drilling and Testing Inc.
RIG TYPE: B-81
DRILLER: Dino Selders

BORING: P-4
DATE STARTED: 8/16/94
DATE COMPLETED: 8/16/94
BORING DEPTH: 81.0 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
				0				6 inches conrete
				0		CL		CLAY, some Silt, dark brown, stiff.
				7		ML		Clayey SILT with Sand, dark brown, stiff, brittle.
						CL		CLAY, with Silt, dark brown, stiff, brittle.
				2	13 13 19			Silty CLAY, light olive brown (2.5Y, 5/4), slightly moist, stiff, with olive brown streaks.
	100 %		P4 @ 7a					
10				3	8 5 8	ML		Clayey SILT, light olive brown (2.5Y, 5/4), semi-loose, slightly moist.
	100 %		P4 @ 10					
15								

WELL DIAGRAM



DEPTH (ft): 5, 10, 15

GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

_CT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-4

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
				5	9	ML		Clayey SILT, light olive brown (2.5Y, 5/4), semi-stiff, slightly moist.	4" Sch PVC; Bentonite Grout	
					11					
	100 %		P4 @ 15		15					
				6	9			Clayey SILT with minor very fine grained Sand, olive brown (2.5Y, 4/4), semi-loose (crumbly), slightly moist.		20
					15					
	100 %		P4 @ 20		16					
25				5	12			SILT with Clay, light olive brown (2.5Y, 5/6), crumbly, slightly moist.		25
					15					
	100 %		P4 @ 25a		15					
						SM				
30										30

GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-4

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
				4	10	SM		Silty SAND, very fine grained, light olive brown (2.5Y, 5/6), loose, slightly moist, trace shell fragments.	4" Sch PVC; Bentonite Grout	
					21					
	100 %		P4 @ 30		30					
						CL				
										35
				11	13			Silty CLAY, olive (5Y, 5/4), semi-soft, slightly moist, with thin reddish orange very fine grained stringers.		
					27					
	100 %		P4 @ 35		32					
40				11	15			CLAY with very fine grained Sand, olive brown (2.5Y, 4/4), semi-soft, semi plastic, slightly moist, with orange (iron stained), sand stringers (roughly 1 mm – 5 mm thick) throughout.		40
					18					
	100 %		P4 @ 40		22					
						SP				
45										45

GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

ECT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-4

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
				6	15	SP		SAND, very fine grained with minor Silt, olive (5Y, 5/4), loose, slightly moist.		
					18					
	100 %		P4 @ 45		24					
				7	16			SAND, very fine grained with minor Silt, olive (5Y, 5/4), loose, slightly moist.		50
					25					
	100 %		P4 @ 50a		37					
55				22				SAND, very fine grained with minor Silt and minor Clay lenses, olive (5Y, 5/4), loose, slightly moist.		55
	100 %		P4 @ 55		NA					
80										80

WELL DIAGRAM: 4" Sch PVC; Bentonite Grout; Bentonite Chips

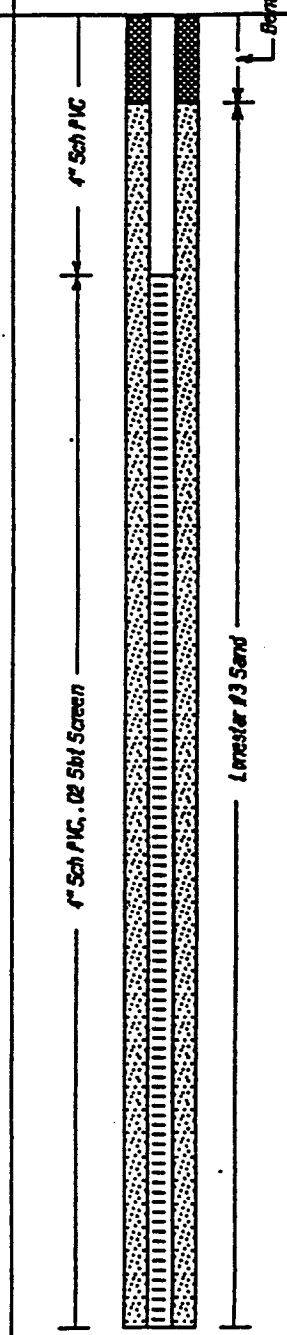
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

ECT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-4

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
				11	19	SP		SAND, very fine grained, olive (5Y, 5/4), loose, slightly moist, with trace of orange (iron stained) sand stringers.
	100 %		P4 @ 60		50@5"			
				5	39			SAND, very fine grained, olive (5Y, 5/6), loose, slightly moist, with trace of orange (iron stained) sand stringers.
	100 %		P4 @ 61.5		50@4"			
				15	25			SAND, very fine grained, olive yellow (5Y, 6/6), loose, slightly moist, with iron stained (mottled).
	100 %		P4 @ 63		50			
				6	22			SAND, very fine grained, pale olive (5Y, 6/4), loose, slightly moist, with minor iron stained (orange mottled).
	100 %		P4 @ 64.5		50@5"			
				12	11			SAND, very fine grained, pale olive (5Y, 6/4), loose, slightly moist, with minor iron stained (orange mottled).
	100 %		P4 @ 66		50			
				13	18			SAND, very fine grained, olive (5Y, 5/6), loose, slightly moist, orange iron stained.
	100 %		P4 @ 67.5		50@5"			
				2	47			SAND, very fine grained, olive (5Y, 5/6), loose, slightly moist, orange iron stained.
70	100 %		P4 @ 69		50@5"			
				10.5	15			SAND, very fine grained, olive (5Y, 5/6), loose, slightly moist, orange iron stained.
	100 %		P4 @ 70.5		50@5"			
				20	20			SAND, very fine grained, olive (5Y, 5/6), loose, moist to very moist at base, orange iron stained.
	100 %		P4 @ 72		50@3"			
				25	20			SAND, very fine grained, olive (5Y, 5/4), loose, water saturated, with orange mottled.
75	60 %		P4 @ 73.5		50@4"			

WELL DIAGRAM



DEPTH (ft): 85, 70, 75

GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

ECT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-4

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
				6	22	SP		SAND, very fine-grained, olive (5Y, 5/4), loose, water saturated, with orange mottled.	4" Sch PVC, .02 Slot Screen; Lonestar #3 Sand	
					45					
	100%		P4 @ 75		50@3"					
					18			SAND, very fine grained, Clay at base, olive (5Y, 5/4), loose, water saturated, with orange mottled.		
					25					
	100%		P4 @ 76.5		50@3"					
					22	CL		CLAY, olive (5Y, 5/4), soft, plastic, slightly moist at base.		
					46					
	NA		P4 @ 78		50@3"					
				6	9			CLAY, olive (5Y, 5/4), semi soft, plastic, slightly moist.		80
					10					
	100%		P4 @ 79.5		12					
								End of Boring @ 81.0 feet		
85										85
90										90

This work was performed under my supervision and I concur with the findings.

Anthony C. Ward

Anthony C. Ward, CA R.G. #4782

GERAGHTY & MILLER, INC.

BORING LOG

PROJECT: International Light Metals
LOCATION: 19200 S. Western
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: CMSS
BOREHOLE DIAMETER: 10.5 inches O.D.

PROJECT NO.: CAO 217.012
LOGGED BY: Derrick Willis
DRILL CO.: Gregg Drilling and Testing, Inc.
RIG TYPE: B-61
DRILLER: Dino Salders

BORING: P-5
DATE STARTED: 8/17/94
DATE COMPLETED: 8/17/94
BORING DEPTH: 81.0 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
				1		ML		SILT with Clay, some Sand, black, stiff, plastic.		
				0		SM		Silty SAND, fine grained, brown to tan.		
				0				SAND, some Silt, fine grained, tan, loose.		5
	100 %		P5 @ 7a	<1	9 14 14	CL		Silty CLAY, olive brown (2.5Y, 4/4), semi-stiff, slightly moist.	4" Sch PVC Bentonite Grout	
10	100 %		P5 @ 10	<1	9 10 10	ML		Clayey SILT, olive brown (2.5Y, 4/4), semi-loose, slightly moist.		10
15										15

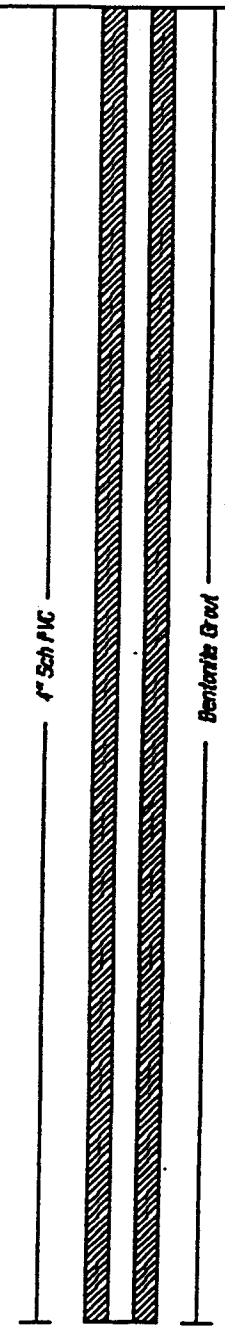
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-5

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
					6	ML		Clayey SILT, olive brown (2.5Y, 4/4), semi-loose, slightly moist.
				< 1	9			
	100 %		P5 @ 15		12			
						CL		
					4			CLAY with Silt, olive brown (2.5Y, 4/4), soft, semi-plastic, slightly moist to moist.
				< 1	5			
	100 %		P5 @ 20		7			
						ML		
25					7			Clayey SILT, light olive brown (2.5Y, 5/4), semi-stiff, crumbly, slightly moist.
				< 1	11			
	NA		P5 @ 25a		13			
						SP		
30								

WELL DIAGRAM



DEPTH (ft): 20, 25, 30

GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

:CT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-5

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
	NA		P5 @ 30	< 1	12, 14, 17	SP		SAND, very fine grained with Silt, light olive brown (2.5Y, 5/6), loose, slightly moist.	4" Sch PVC; Bentonite Grout	
35	100 %		P5 @ 35	< 1	12, 17, 27			SAND, very fine to fine grained, trace Silt, some Clay blebs, olive yellow (2.5Y, 6/6), loose, slightly moist, drill cuttings 35' to 40' – shell fragments.		35
40	100 %		P5 @ 40	< 1	19, 26, 31			SAND, very fine to fine grained with clay blebs, light yellowish brown (2.5Y, 6/4), loose, slightly moist, shell fragments (trace).		40
45										45

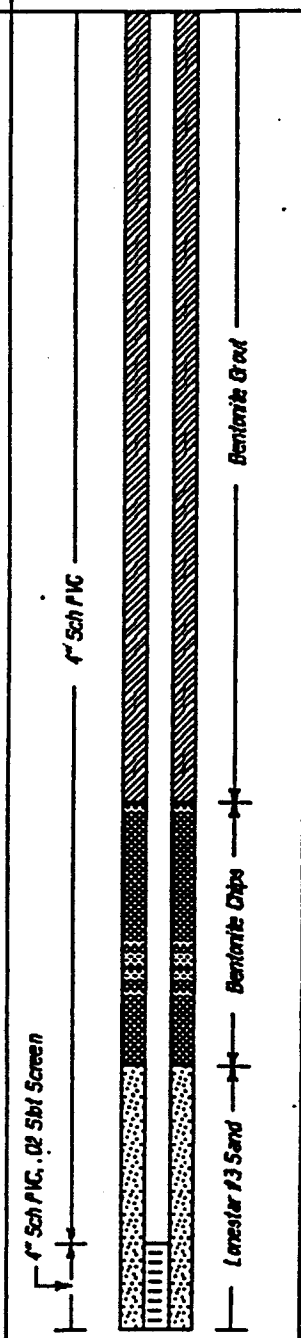
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

ECT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-5

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
					14	SP		SAND, very fine to fine grained, light olive brown (2.5Y, 5/4), loose, slightly moist, abundant shell fragments.
				< 1	19			
	100 %		P5 @ 45		25			
					19			SAND, very fine to fine grained with Clay, light olive brown (2.5Y, 5/4), loose, slightly moist, trace shell fragments.
				< 1	36			
	100 %		P5 @ 50a		38			
55					16			SAND, very fine to fine grained, light yellowish brown (2.5Y, 6/4), loose, slightly moist, some (2.5Y, 6/8) blebs.
				< 1	38			
	100 %		P5 @ 55		50			
60								

WELL DIAGRAM



DEPTH (ft): 50, 55, 60

GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

_CT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-5

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
					14	SP		SAND, very fine to fine grained, light yellowish brown (2.5Y, 6/4), loose, slightly moist, trace of highly broken shell fragments.		
				< 1	25					
	100 %		P5 @ 60		31					
					15			SAND, very fine to fine grained, light yellowish brown (2.5Y, 6/4), loose, slightly moist, trace of highly broken shell fragments.		
				< 1	32					
	100 %		P5 @ 61.5		39					
					18			SAND, very fine to fine grained, trace Clay blebs, light yellowish brown (2.5Y, 6/4), loose, slightly moist.		
				< 1	27					
	100 %		P5 @ 63		30					
					12			SAND, very fine to fine grained, trace (larger 1 cm) Clay blebs, light yellowish brown (2.5Y, 6/4), highly rounded, loose, slightly moist, more clay toward bottom, blebs, < 1 mm shell fragments (trace).		
				< 1	35					65
	100 %		P5 @ 64.5		40					
					16			SAND, very fine to fine grained, light yellowish brown (2.5Y, 6/4), loose, slightly moist to moist, fewer clay blebs (less than 5 cm), < 1 mm shell fragments, some calcite, cementing.		
				< 1	28					
	100 %		P5 @ 66		26					
					19			SAND, very fine to fine grained, light olive brown (2.5Y, 5/4), loose, moist, more cementing, up to 1.5 cm chunks, < 1 mm shell fragments.		
				< 1	22					
	100 %		P5 @ 67.5		25					
					15			SAND, fine grained, light brownish grey (2.5Y, 6/2), loose, moist, abundant, shell fragments up to 2 mm.		
				< 1	20					
70	100 %		P5 @ 69		20					70
					18			SAND, fine grained, greyish brown (2.5Y, 5/2), loose, water saturated, abundant shell fragments.		
				500	18					
	100 %		P5 @ 70.5		22			SAND, very dark grey (7.5YR, N3), loose, water saturated, abundant shell fragments, hydrocarbon stained.		
					6					
				1000	20			SAND, fine grained, very dark grey (7.5YR, N3), loose, water saturated, roughly 40% shell fragments.		
	100 %		P5 @ 72		17					
					9			SAND, very fine grianed to fine grained, abundant shell fragments roughly 10%, dark grey (2.5Y, N4), loose, water saturated, some clay at the bottom.		
					18					
	100 %		P5 @ 73.5		20					
75						ML				75

4" Sch PVC, .02 Slot Screen

Lonestar #3 Sand

GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

ECT International Light Metals PROJECT NO CAO 217.012 BORING NO. P-5

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
	100 %		P5 @ 75		NA	ML		Clayey SILT, 40% shell fragments, light brownish grey (2.5Y, 6/2), water saturated.	4" Sch PVC, .02 Slot Screen; Lonestar #3 Sand	
	100 %		P5 @ 76.5		10, 17, 21	SC		Clayey SAND, 30% shell fragments, light olive brown (2.5Y, 5/4), loose, water saturated.		
	100 %		P5 @ 78		5, 11, 12	SP		SAND, fine grained, roughly 40% shell fragments, light olive brown (2.5Y, 5/4), loose, plastic, turns to olive brown clay (2.5Y, 4/4).		
80	100 %		P5 @ 79.5		4, 7, 10	CL		CLAY, dark grey (2.5Y, N4), plastic, slightly moist, trace shell fragments.		80
								End of Boring @ 81.0 feet		
85										85
90										90

This work was performed under my supervision and I concur with the findings.

Anthony C. Ward

Anthony C. Ward, CA R.G. #4782

GERAGHTY & MILLER, INC.

BORING LOG

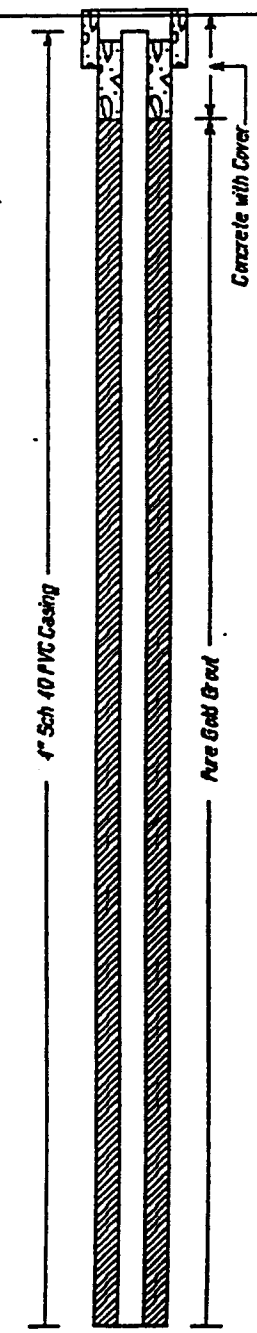
PROJECT International Light Metals
LOCATION 19200 S. Western, Torrance, CA
DRILLING METHOD Hollow Stem Auger
SAMPLING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.012.002
LOGGED BY M. Shipione
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER C. Winegarner

BORING P-6
DATE STARTED 3/1/95
DATE COMPLETED 3/1/95
BORING DEPTH 80 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Concrete (10")
								Asphalt (6")
						CL		CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
					7			CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
	100		P-6 @ 5D	0.8	9			
5	100		P-6 @ 5		13			
						ML		
					9			SILT, little fine grained Sand, trace Clay, dark yellowish brown (10YR, 4/4), non plastic, moist to slightly moist.
				0.8	9			
10	100		P-6 @ 10		14			
					7			SILT, little fine grained Sand, trace Clay, dark yellowish brown (10YR, 4/4), non plastic, moist to slightly moist.
				1.4	10			
15	100		P-6 @ 15		11			
					9			SILT, little fine grained Sand, trace Clay, dark yellowish brown (10YR, 4/4), non plastic, moist to slightly moist.
				3.2	10			
20	100		P-6 @ 20		16			
					9			SILT, some fine grained Sand, trace Clay, dark yellowish brown (10YR, 4/4), non plastic, moist to slightly moist.
	100		P-6 @ 25D	2.6	14			
25	100		P-6 @ 25		18			

WELL DIAGRAM



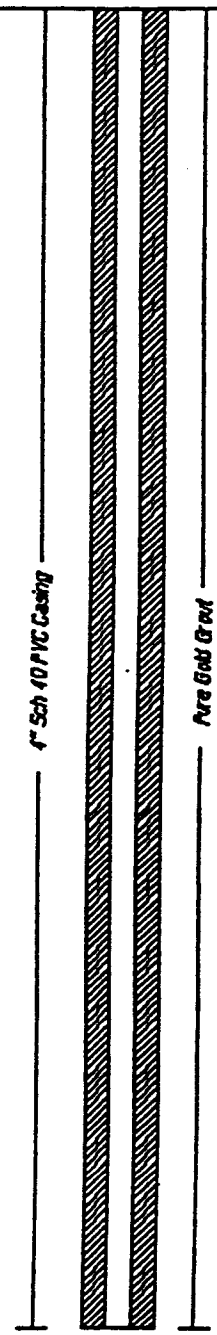
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

.CT International Light Metals PROJECT NO CAO 217.012.002 BORING NO. P-6

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						ML		
						SP		
				3.2	9 15 20			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), non plastic, moist.
30	100		P-6 @ 30					
				2.4	15 21 30			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), non plastic, moist, some shell fragments, slightly cemented.
35	100		P-6 @ 35					
				2.2	14 23 28			SAND, very fine to fine grained, little Silt, yellowish brown (10YR, 5/6), non plastic, moist, some shell fragments, slightly cemented.
40	100		P-6 @ 40					
						ML		
				3.9	20 26 33			SILT, some fine to very fine grained Sand, dark yellowish brown (10YR, 4/6), low plasticity, moist.
45	100		P-6 @ 45					
						SP		
	100		P-6 @ 500	2.5	21 31			SAND, very fine to fine grained, trace Silt, olive brown (2.5Y, 4/3), moist.
50	100		P-6 @ 50		36			

WELL DIAGRAM



DEPTH (ft): 30, 35, 40, 45, 50

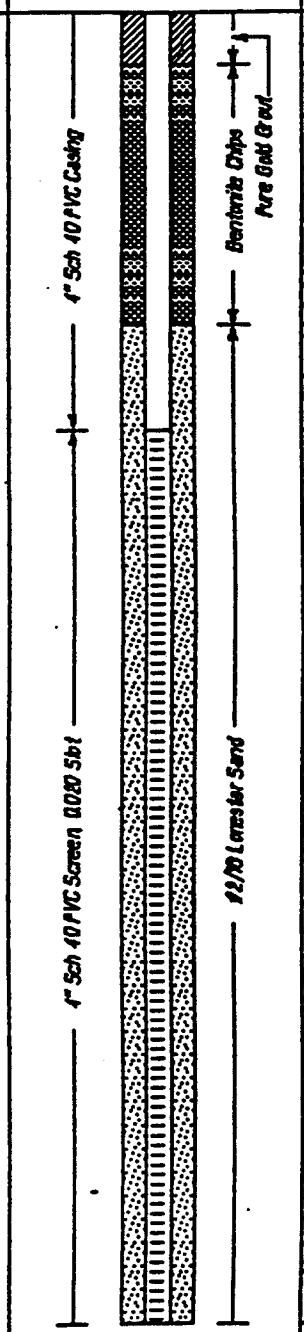
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

ECT International Light Metals PROJECT NO CAO 217.012.002 BORING NO. P-6

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
				3.1	19			SAND, very fine to fine grained, trace Silt, olive brown (2.5Y, 4/3), moist.
					26			
55	100		P-6 @ 55		41			
				2.9	22			SAND, very fine to fine grained, trace Silt, olive brown (2.5Y, 4/3), moist.
					39			
60	100		P-6 @ 60		49			
				2.1	23			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), moist.
					46			
65	100		P-6 @ 65		55			
				2.3	30			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), moist.
					34			
	100		P-6 @ 66.5		48			
				1.4	31			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), very moist.
					40			
	100		P-6 @ 68		56			
				1.2	28			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), very moist.
					36			
	100		P-6 @ 69.5		51			
70				6.8	26			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), water saturated, hit water at 70.5 ft.
					40			
	100		P-6 @ 71		48			
				4.8	25			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), water saturated.
					37			
	100		P-6 @ 72.5		47			
				3.9	40			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), water saturated.
					41			
	100		P-6 @ 74		58			
				4.1	31			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), water saturated.
75					40			

WELL DIAGRAM



DEPTH (ft): 55, 60, 65, 70, 75

GERAGHTY & MILLER, INC.

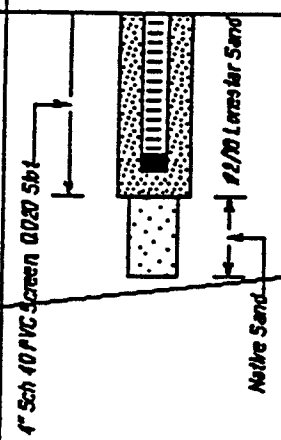
BORING LOG
(continuation)

ECT International Light Metals PROJECT NO CAO 217.012.002 BORING NO. P-6

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
	100		P-6 @ 75.5	4.1	52	SP		
				4.0	30	SM		SAND, very fine grained, some Silt, dark yellowish brown (10YR, 5/6), non plastic, water saturated.
					42			
	100		P-6 @ 77		50			
				3.8	32	ML		SILT, some very fine grained Sand, trace to little Clay, dark yellowish brown (10YR, 4/4), non to low plasticity, moist to wet.
					39			
	100		P-6 @ 78.5		46			
				3.9	28	CL		CLAY, some Silt, little to some very fine grained Sand, dark yellowish brown (10YR, 4/4), low to moderate plasticity, very moist.
					35			
80	100		P-6 @ 80		41			

End of Boring @ 80.0 ft. Set 4 inch well.

WELL DIAGRAM



DEPTH (ft): 80, 85, 90, 95, 100

This work was performed under my supervision and I concur with the findings.

Anthony C. Ward

Anthony C. Ward, CA R.G. #4782

GERAGHTY & MILLER, INC.

WELL LOG

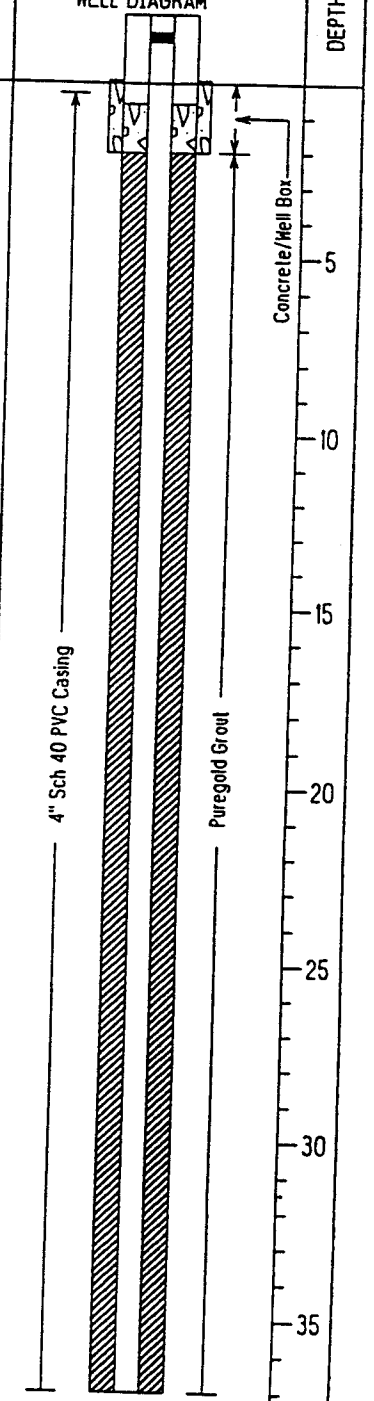
PROJECT International Light Metals
LOCATION 19200 S. Western Ave. Torrance, CA
DRILL METHOD Hollow Stem Auger
SAMPLING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CA0217.034.001
LOGGED BY Lara Urizar
DRILL CO. Gregg Drilling & Testing, Inc.
RIG TYPE CME 75
DRILLER Rick Hastings

BORING P-6B
DATE STARTED 11/24/97
DATE COMPLETED 11/24/97
BORING DEPTH 81.5 ft.

DEPTH (ft)	RECOVERY %	SAMP.INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						ML		Surface is soil, gravel and cobbles to 1 inch. SILT, low plasticity, Sand, fine grained, dark brown (10YR 3/3), silghty moist.
5								
10								Same as above.
						CL		CLAY, low plasticity, trace Sand, fine grained, dark brown (10YR 4/3), slighty moist.
15								
20								Silty CLAY, low plasticity, olive brown (2.5Y 4/4), slighty moist.
						SP		SAND, fine grained, olive yellow (2.5Y 6/6), loose, slighty moist.
25								
30								Same as above.
								Same as above.

WELL DIAGRAM



GERAGHTY & MILLER, INC.

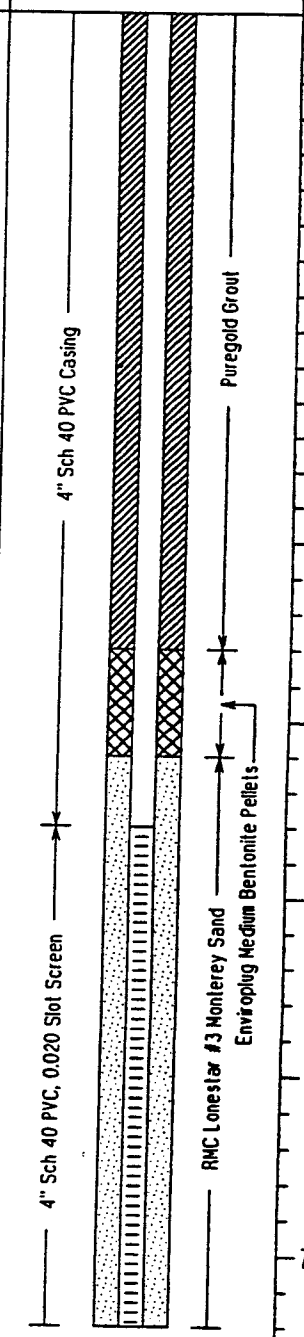
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CA0217.034.001 BORING NO. P-6B

DEPTH (ft)	RECOVERY %	SAMP.INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		SAND, fine grained, trace Silt, light olive brown (2.5Y 5/4), trace shell fragments, loose, slighty moist.
42								
								Same as above.
47						CL		CLAY with Silt and Sand, low plasticity, fine grained, olive brown (2.5Y 4/4), slighty moist.
52								
								Same as above.
57						SP		SAND, fine grained, trace Silt, trace clay, olive brown (2.5Y 4/4), loose, slighty moist.
62								
						SM		SAND, fine grained, pale olive (5Y 6/3), trace Silt, loose, slighty moist.
67			P-6B @ 66.5	NR	50/5			Silty SAND, fine grained, olive brown (2.5Y 4/4), loose, slighty moist.
			P-6B @ 68	NR	50/6			Same as above.
			P-6B @ 70	NR	30/6 50/4			Same as above, very moist at top of sampler.
72								Silty SAND, fine grained, light olive brown (2.5Y 5/4), saturated.

WELL DIAGRAM



DEPTH (ft): 42, 47, 52, 57, 62, 67, 72

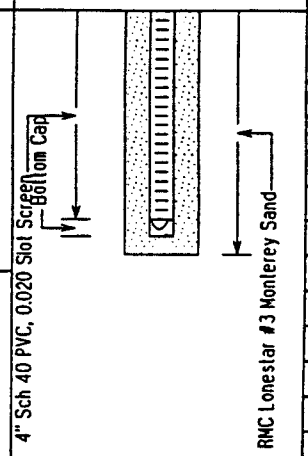
GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CA0217.034.001 BORING NO. P-6B

DEPTH (ft)	RECOVERY %	SAMP.INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
		X	P-6B @ 75	NR	50/6	SM		Same as above.		
		X	P-6B @ 76.5	NR	50/5			SILT with Sand, fine grained, olive (5Y 5/3), saturated.		
								Same as above.		
79						SC		Silty SAND, fine grained, olive (5Y 4/3), saturated.		79
								Sandy CLAY, fine grained, low to medium plasticity, olive (5Y 4/3), saturated.		
								Total Depth of Boring: 81.5 feet bgs.		
84										84
89										89
94										94
99										99
104										104
										109



GERAGHTY & MILLER, INC.

BORING LOG

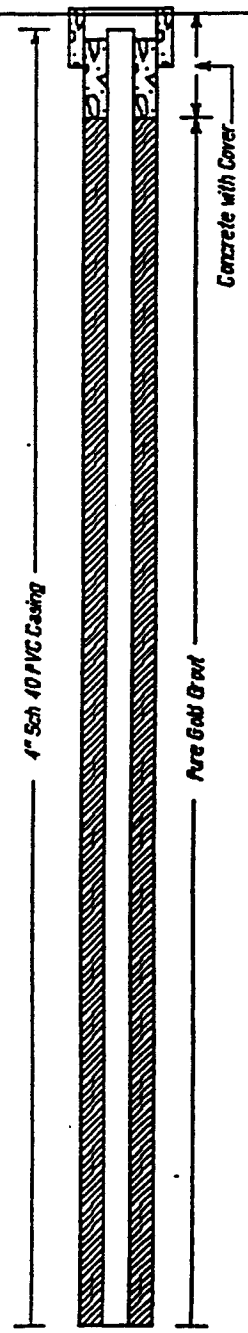
PROJECT International Light Metals
LOCATION 19200 S. Western, Torrance, CA
DRILLING METHOD Hollow Stem Auger
SAMPLING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.012.002
LOGGED BY N. Shipione
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER C. Winegarner

BORING P-7
DATE STARTED 3/2/95
DATE COMPLETED 3/2/95
BORING DEPTH 84.5 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Concrete (12")
								Asphalt (8")
						CL		CLAY, little Silt, little very fine grained Sand, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
					4			CLAY, little Silt, little very fine grained Sand, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
	100		P-7 @ 5D	2.1	7			
5	100		P-7 @ 5		6			
						ML		SILT, little fine grained Sand, trace Clay, dark yellowish brown (10YR, 4/4), non plastic, moist.
					8			SILT, little fine grained Sand, trace Clay, dark yellowish brown (10YR, 4/4), non plastic, moist.
				3.2	10			
10	100		P-7 @ 10		15			
					12			SILT, little fine grained Sand, trace Clay, dark yellowish brown (10YR, 4/4), non plastic, moist.
				10.4	16			
15	100		P-7 @ 15		20			
					9			SILT, little fine grained Sand, trace Clay, dark yellowish brown (10YR, 4/4), non plastic, moist.
				4.8	14			
20	100		P-7 @ 20		15			
						SM		SAND, very fine to fine grained, some Silt, yellowish brown (10YR, 5/6), non plastic, moist.
					9			
	100		P-7 @ 25D	7.9	12			
25	100		P-7 @ 25		15			

WELL DIAGRAM

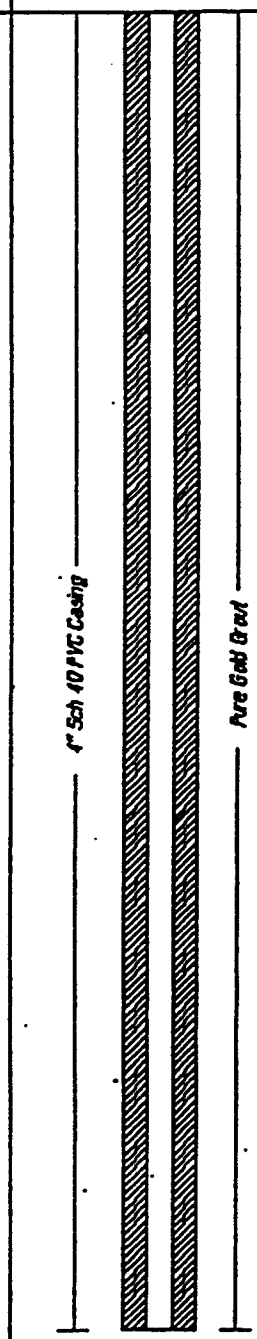


GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

ECT International Light Metals PROJECT NO CAO 217.012.002 BORING NO. P-7

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						SM				
						SP				
					10			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), moist.		
				9.2	10					
30	100		P-7 @ 30		9					30
					16			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), moist.		
				11.4	22					
35	100		P-7 @ 35		29					35
					21			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), moist.		
				17.2	26					
40	100		P-7 @ 40		30					40
					17			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), moist, some iron oxide staining.		
				4.6	23					
45	100		P-7 @ 45		29					45
					14			SAND, very fine to fine grained, trace Silt, pale brown (10YR, 6/3), moist.		
	100		P-7 @ 50D	6.9	26					
50	100		P-7 @ 50		33					50



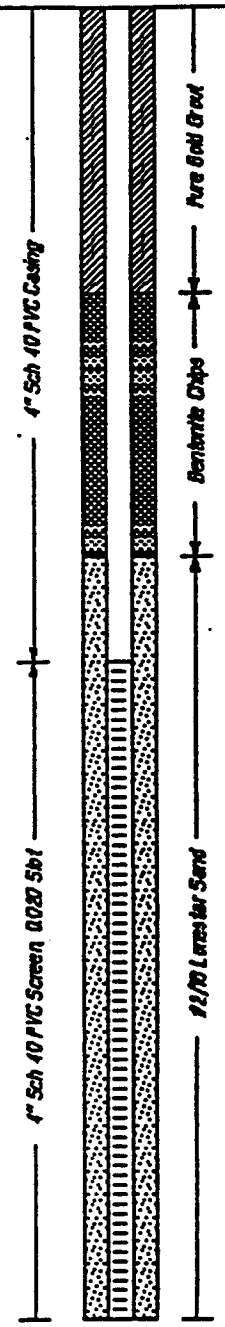
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

_CT International Light Metals PROJECT NO CAO 217.012.002 BORING NO. P-7

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
				8.8	32			SAND, very fine to fine grained, trace Silt, pale brown (10YR, 6/3), moist.
					50			
55	100		P-7 @ 55		56			
				7.3	29			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), moist.
					42			
80	100		P-7 @ 60		52			
85				3.9	34			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), moist.
					51			
	100		P-7 @ 66.5		56			
				4.8	31			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), very moist.
					56			
	100		P-7 @ 68		61			
				1.9	36			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), very moist.
					59			
	100		P-7 @ 69.5		67			
70				30.2	35			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), very moist to wet.
					56			
	100		P-7 @ 71		62			
				25.2	44			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), water saturated, hit water at 71.2 to 71.5 ft.
					52			
	100		P-7 @ 72.5		66			
				35.5	29			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), water saturated.
					36			
	10		P-7 @ 74		41			
				17.1	34			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), water saturated.
75					40			

WELL DIAGRAM



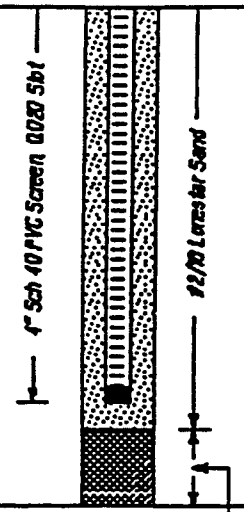
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.012.002 BORING NO. P-7

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
	100		P-7 @ 75.5	17.1	51	SP		SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), water saturated.
				15.2	27 35			
	100		P-7 @ 77		38			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), water saturated.
				19.4	25 36			
	100		P-7 @ 78.5		38			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), water saturated.
				13.6	24 29			
80	100		P-7 @ 80		35			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), water saturated.
				9.3	21 31			
	100		P-7 @ 81.5		33			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), water saturated.
				10.1	16 23			
	100		P-7 @ 83		27			
				4.1	18 25	CL		CLAY, pale olive (5Y, 6/3), high plasticity, stiff, very moist.
	100		P-7 @ 84.5		32			
85								End of Boring @ 84.5 ft. Set 4 inch well.
90								
95								
100								

WELL DIAGRAM



This work was performed under my supervision and I concur with the findings.

Anthony C. Ward

Anthony C. Ward, CA R.G. #4782

GERAGHTY & MILLER, INC.

BORING LOG

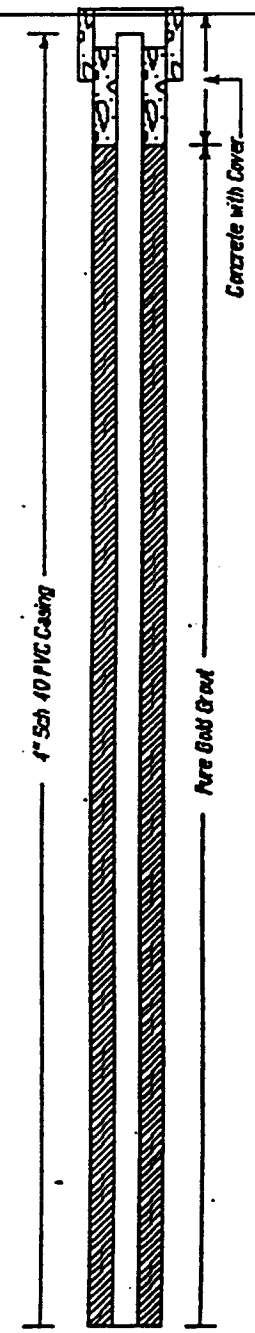
PROJECT International Light Metals
LOCATION 19200 S. Western, Torrance, CA
DRILLING METHOD Hollow Stem Auger
SAMPLING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.012.002
LOGGED BY M. Shiplone
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER C. Winegarner

BORING P-8
DATE STARTED 3/6/95
DATE COMPLETED 3/6/95
BORING DEPTH 95.0 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Concrete (12")
						SP		SAND, fine to medium grained, little Silt, yellowish red (5YR, 5/6), wet.
						CL		
					4			CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
	100		P-8 @ 5D	4.1	5			
5	100		P-8 @ 5		6			
						ML		
					7			SILT, little very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, slightly moist.
				1.3	6			
10	100		P-8 @ 10		11			
					9			SILT, little very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, slightly moist.
				5.5	15			
15	100		P-8 @ 15		19			
					11			SILT, little very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, slightly moist.
				3.1	12			
20	100		P-8 @ 20		16			

WELL DIAGRAM



DEPTH (ft): 5, 10, 15, 20

GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

:CT International Light Metals PROJECT NO CAO 217.012.002 BORING NO. P-8

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						ML				
					12			SILT, little very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, slightly moist, some iron oxide staining.		
	100		P-8 @ 25D	4.6	20					
	100		P-8 @ 25		22					
25										25
						SP				
					13			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), slightly moist.		
				19.2	18					
	100		P-8 @ 30		24					
30										30
					15			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), slightly moist.		
				2.1	19					
	100		P-8 @ 35		27					
35										35
					18			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), moist.		
				1.6	27					
	100		P-8 @ 40		36					
40										40

WELL DIAGRAM: 4" Sch 40 PVC Casing; Pure Bold Grout

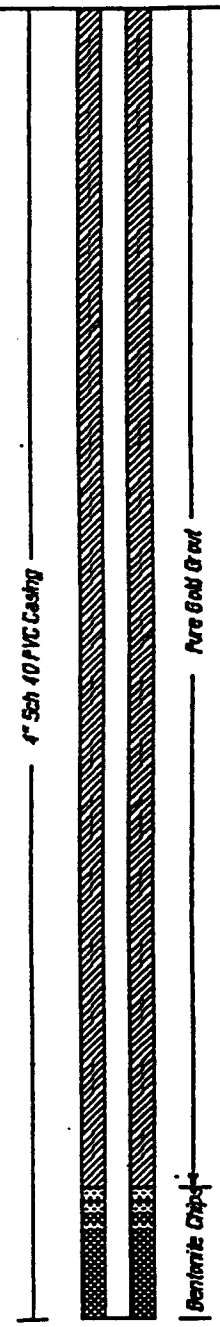
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

ECT International Light Metals PROJECT NO CAO 217.012.002 BORING NO. P-8

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
				3.6	26 30 41			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), moist.
45	100		P-8 @ 45					
				3.9	32 50 57			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), moist.
	100		P-8 @ 500					
50	100		P-8 @ 50					
				4.6	36 45 59			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), very moist.
55	100		P-8 @ 55					
				4.5	41 50 62			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), very moist.
60	100		P-8 @ 60					

WELL DIAGRAM



DEPTH (ft): 45, 50, 55, 60

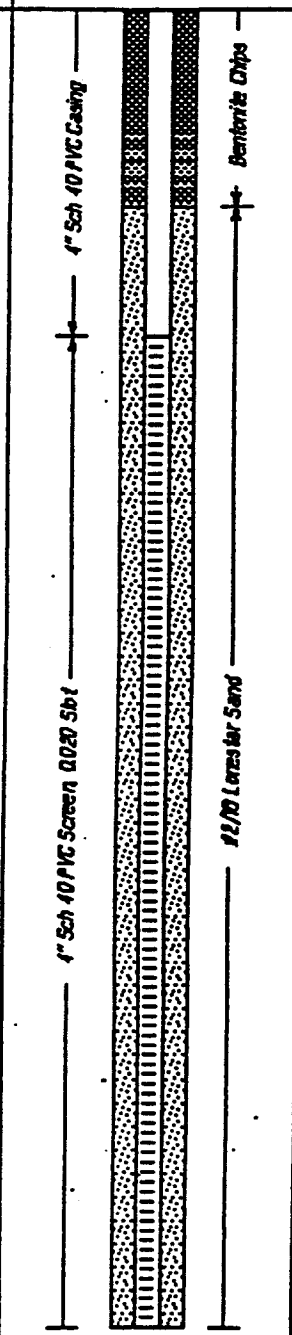
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

:CT International Light Metals PROJECT NO CAO 217.012.002 BORING NO. P-8

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
85					46			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/6), very moist.
				2.1	56			
	100		P-8 @ 66.5		62			
					100/4in			SAND, very fine grained, yellowish brown (10YR, 5/6), some rock fragments, well cemented, no sample taken.
70					100/2in			Sandstone, rock Cobble, will auger to 71 to 72 ft.
					83			SAND, very fine to fine grained, yellowish brown (10YR, 5/8), very moist, rock fragments in top ring.
				1.6	85			
	80		P-8 @ 73		100			
				11.2	68			SAND, very fine to fine grained, light yellowish brown (10YR, 6/4), very moist to wet, water encountered at 74.0 to 74.2 ft.
	75		P-8 @ 74		70			
				12.6	44			SAND, very fine to fine grained, light yellowish brown (10YR, 6/4), water saturated.
75					47			
	100		P-8 @ 75.5		61			
				19.6	40			SAND, very fine to fine grained, light yellowish brown (10YR, 6/4), water saturated.
					56			
	100		P-8 @ 77		65			
				12.6	38			SAND, very fine to fine grained, light yellowish brown (10YR, 6/4), water saturated.
					42			
	100		P-8 @ 78.5		47			
				11.1	32			SAND, very fine to fine grained, light yellowish brown (10YR, 6/4), water saturated.
					40			
80	100		P-8 @ 80		44			

WELL DIAGRAM



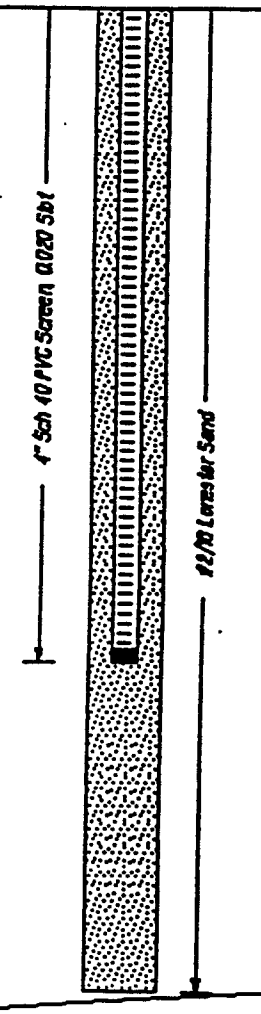
DEPTH (ft): 85, 70, 75, 80

GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

CT International Light Metals PROJECT NO CAO 217.012.002 BORING NO. P-8

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
				10.8	30 38 42	SP		SAND, very fine to fine grained, light yellowish brown (10YR, 6/4), water saturated.
	100		P-8 @ 81.5					
				11.9	28 34 36			SAND, very fine to fine grained, light yellowish brown (10YR, 6/4), water saturated.
	100		P-8 @ 83					
				14.5	22 30 37			SAND, very fine to fine grained, light yellowish brown (10YR, 6/4), water saturated.
	100		P-8 @ 84.5					
85				23.9	25 28 32			SAND, very fine to fine grained, light yellowish brown (10YR, 6/4), water saturated.
	100		P-8 @ 86					
				26.5	28 34 39			SAND, very fine to fine grained, light yellowish brown (10YR, 6/4), water saturated.
	100		P-8 @ 87.5					
				28.6	27 33 41			SAND, very fine to fine grained, light yellowish brown (10YR, 6/4), water saturated.
	100		P-8 @ 89.0					
90				22.5	30 39 45			SAND, very fine to fine grained, some medium grained Sand, light yellowish brown (10YR, 6/4), water saturated.
	100		P-8 @ 90.5					
				14.1	33 42 48			SAND, very fine to fine grained, some medium to coarse grained Sand, light yellowish brown (10YR, 6/4), water saturated.
	100		P-8 @ 92					
				13.3	33 41 45			SAND, very fine to fine grained, some medium to coarse grained Sand, light yellowish brown (2.5Y, 6/4), water saturated.
	100		P-8 @ 93.5					
95				11.2	35 43 47	SP CL		SAND, very fine to fine grained, some medium to coarse grained Sand, light yellowish brown (2.5Y, 6/4), water saturated, few thin (1-inch) clay sand interbeds.
	100		P-8 @ 95					
100								



End of Boring @ 95.0 ft. Set 4" well.

This work was performed under my supervision and I concur with the findings.

Anthony C. Ward

Anthony C. Ward, CA R.G. #4782

GERAGHTY & MILLER, INC.

BORING LOG

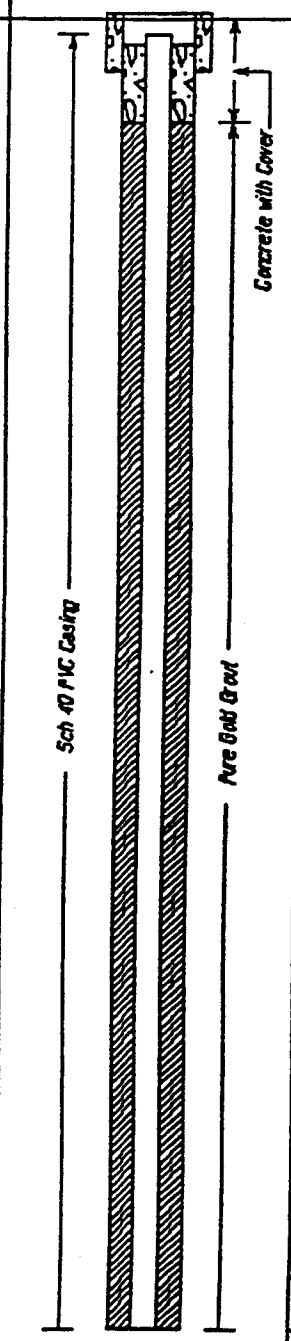
PROJECT International Light Metals
ATION 19200 S. Western, Torrance, CA
METHOD Hollow Stem Auger
ING METHOD CNSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.012.002
LOGGED BY M. Shipione
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER C. Winegarner

BORING P-9
DATE STARTED 3/7/95
DATE COMPLETED 3/7/95
BORING DEPTH 86.0 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Asphalt (12")
				0.4	3, 4	SP		Gravelly SAND, little Silt, little Clay, yellowish red (5YR, 5/8), low plasticity, moist.
	100		P-9 @ 2.5		4	CL		CLAY, little Silt, little very fine grained Sand, dark olive gray (5Y, 3/2), high plasticity, moist.
	100		P-9 @ 5.0	0.6	5, 7			CLAY, little Silt, little very fine grained Sand, dark olive gray (5Y, 3/2), high plasticity, moist.
5	100		P-9 @ 5		8			
						ML		
				1.1	7, 9			SILT, little very fine grained Sand, trace Clay, dark yellowish brown (10YR, 4/4), slightly moist to moist.
10	100		P-9 @ 10		13			
				1.0	5, 7			SILT, some very fine grained Sand, trace Clay, dark yellowish brown (10YR, 4/4), slightly moist to moist.
15	100		P-9 @ 15		8			
						SM		
				0.9	9, 10			SAND, little to some Silt, yellowish brown (10YR, 5/8), non plastic, moist.
20	100		P-9 @ 20		15			
						SP		
	.00		P-9 @ 25.0	1.0	7, 14			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), moist.
25	100		P-9 @ 25		18			

WELL DIAGRAM



GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

..CT International Light Metals PROJECT NO CAO 217.012.002 BORING NO. P-9

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						SP				
30	100		P-9 @ 30	1.1	11, 19, 25			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), moist.		30
35	100		P-9 @ 35	0.8	9, 20, 22			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), moist.		35
40	100		P-9 @ 40	0.7	14, 26, 31			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), moist.	Sch 40 PVC Casing; Pure Gold Grout	40
45	100		P-9 @ 45	1.2	20, 31, 38			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), moist.		45
50	100 100		P-9 @ 500 P-9 @ 50	0.6	29, 34, 37			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), moist.		50

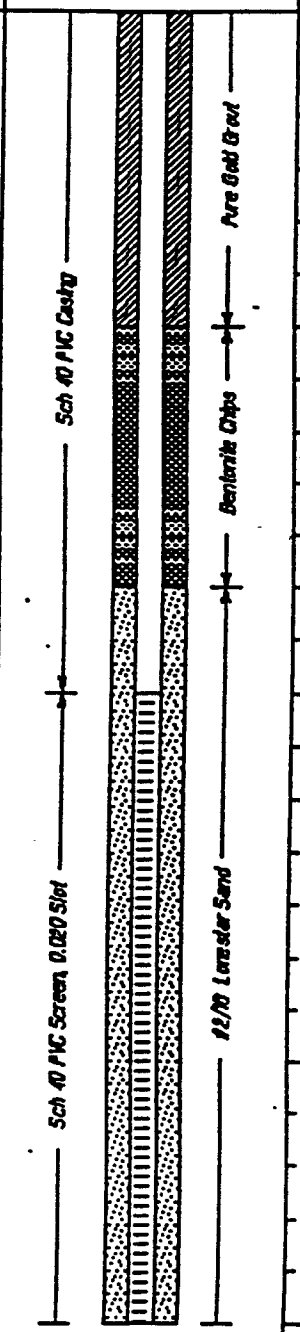
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

ECT International Light Metals PROJECT NO CAO 217.012.002 BORING NO. P-9

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
				0.9	19 26 40			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), very moist.
55	100		P-9 @ 55					
				0.8	21 27 34			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), very moist.
80	100		P-9 @ 60					
65				0.6	20 30 37			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), very moist.
	100		P-9 @ 66.5					
				1.7	23 32 39			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), very moist.
	100		P-9 @ 68					
				2.2	26 40 42			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), very moist to wet.
	100		P-9 @ 69.5					
70				3.0	14 19 26			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), water saturated, water encountered at 70 ft.
	100		P-9 @ 71					
				3.6	14 17 21			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), water saturated.
	100		P-9 @ 72.5					
				7.0	12 15 18			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), water saturated.
	00		P-9 @ 74					
75				6.2	18 23			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), water saturated.

WELL DIAGRAM



DEPTH (ft): 55, 60, 65, 70, 75

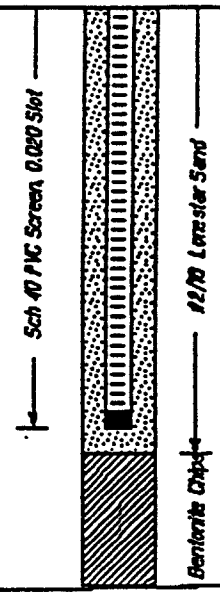
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

ECT International Light Metals PROJECT NO CAO 217.012.002 BORING NO. P-9

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
	100		P-9 @ 75.5	6.2	29	SP		SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/4), water saturated.
				6.7	19			
					30			
	100		P-9 @ 77		33			SAND, very fine to fine grained, little Silt, yellowish brown (10YR, 5/4), water saturated.
				3.5	17			
					28			
	100		P-9 @ 78.5		31			SAND, very fine grained, some Silt, dark yellowish brown (10YR, 5/4), non plastic, water saturated.
				3.1	14	SM		
					15			
	100		P-9 @ 80		19			SAND, very fine grained, some Silt, dark yellowish brown (10YR, 5/4), non plastic, water saturated.
80				3.0	13			
					16			
	100		P-9 @ 81.5		20			SAND, very fine grained, some Silt, trace Clay, dark yellowish brown (10YR, 5/4), non plastic, water saturated.
				1.5	15	SM ML		
					20			
	100		P-9 @ 83		27			Silty CLAY, olive (5Y, 5/3), high plasticity, stiff, moist.
				0.5	12	ML CL		
					14			
	100		P-9 @ 84.5		16			CLAY, some Silt, olive gray (5Y, 4/2), high plasticity, stiff, moist.
85				0.4	8	CL		
					11			
	100		P-9 @ 86		11			

WELL DIAGRAM



End of Boring @ 86.0 ft. Set 4 inch well.

This work was performed under my supervision and I concur with the findings.

Anthony C. Ward

Anthony C. Ward, CA R.G. #4782

GERAGHTY & MILLER, INC.

WELL LOG

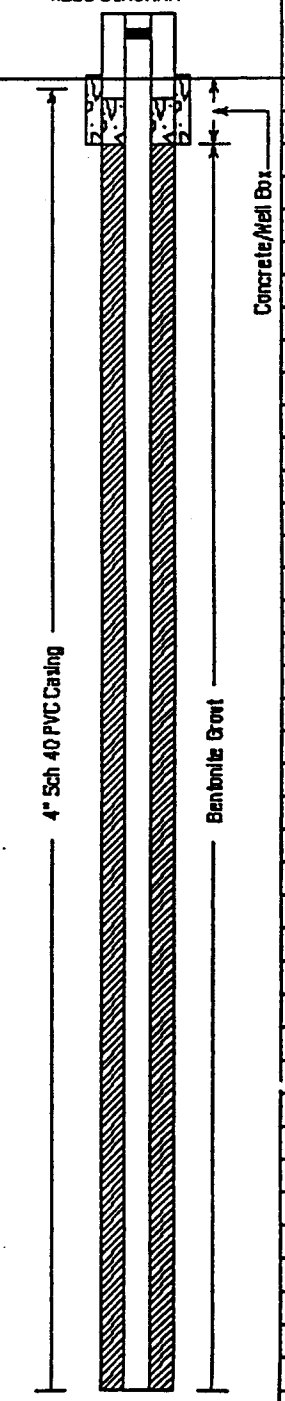
PROJECT: International Light Metals
LOCATION: 19200 S. Western Ave. Torrance, CA
DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: CMSS
BOREHOLE DIAMETER: 10 inches O.D.

PROJECT NO.: CA0217.034.001
LOGGED BY: Bettie Bechtel
DRILL CO.: Gregg Drilling & Testing, Inc.
RIG TYPE: Mobile B-53
DRILLER: Jeff

BORING: P-9B
DATE STARTED: 10/07/97
DATE COMPLETED: 10/07/97
BORING DEPTH: 77 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						ML		
5								
10		X						SILT.
15		X						SILT.
20		X						SILT with little Sand.
						SM		
25		X						SAND, very fine grained, little Silt.
						SP		
30		X						SAND, very fine grained.
35		X						Same as above.
40								

WELL DIAGRAM



GERAGHTY & MILLER, INC.

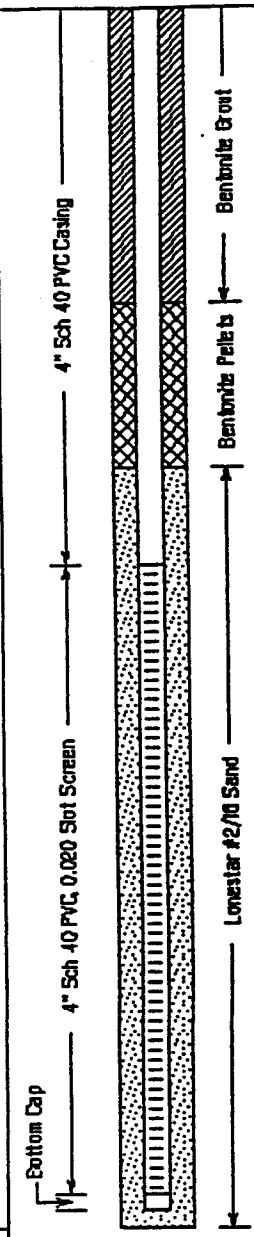
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CA0217.034.001 BORING NO. P-8B

DEPTH (ft)	RECOVERY %	SAMP.INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
		X				SP		Same as above.
45		X						Same as above.
50		X						Same as above.
55		X						Same as above.
60		X						Same as above.
	NR		P-8B @ 63.5	NR	NR			Same as above.
65		X						SAND, very fine grained, very wet.
	NR		P-8B @ 66.5	NR	NR			SAND, very fine grained, saturated.
70	NR	X	P-8B @ 70	NR	NR			Same as above.
75	NR	X	P-8B @ 75	NR	NR			Same as above.
						CL		CLAY.
80								Total Depth of Boring: 77 feet bgs.

WELL DIAGRAM



DEPTH (ft): 45, 50, 55, 60, 65, 70, 75, 80

GERAGHTY & MILLER, INC.

BORING LOG

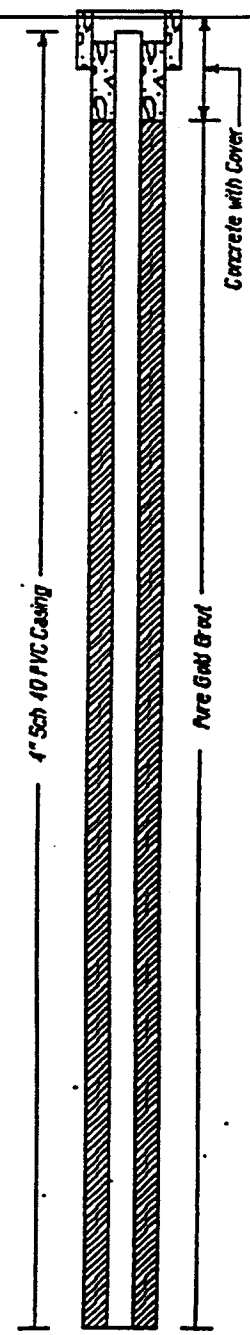
PROJECT International Light Metals
ATION 19200 S. Western, Torrance, CA
METHOD Hollow Stem Auger
ING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.012.002
LOGGED BY N. Shipione
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER C. Winegarner

BORING P-10
DATE STARTED 3/3/95
DATE COMPLETED 3/3/95
BORING DEPTH 78.5 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Asphalt (6")
				0.4	4, 4, 9	CL		CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
	100		P-10 @ 15					
	80		P-10 @ 50	0.4	100	ML, SM		SILT, some very fine grained Sand, trace Clay, dark yellowish brown (10YR, 4/4), non plastic, moist.
5	80		P-10 @ 5		150			SAND, very fine to fine grained, little to some Silt, yellowish brown (10YR, 5/6), well cemented, dry to slightly moist.
						SP		
				0.4	18, 24, 24			SAND, very fine grained, trace Silt, yellowish brown (10YR,5/6), poorly to moderately cemented, dry.
10	100		P-10 @ 10					
				0.4	14, 17, 22			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/8), non cemented, moist.
15	100		P-10 @ 15					
				0.4	19, 24, 26			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/8), non cemented, moist.
20	100		P-10 @ 20					
	.00		P-10 @ 250	0.4	15, 20, 24			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/8), non cemented, moist.
25	100		P-10 @ 25					

WELL DIAGRAM



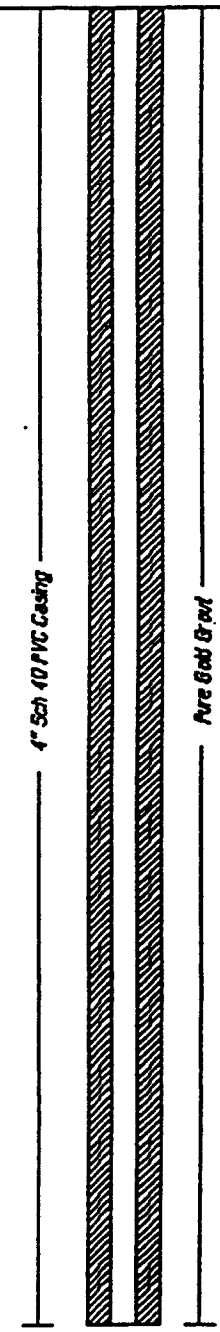
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

ECT International Light Metals PROJECT NO CAO 217.012.002 BORING NO. P-10

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
				0.4	19 25 29			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/8), non cemented, moist.
30	100		P-10 @ 30					
				0.4	18 26 31			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/8), non cemented, moist to very moist.
35	100		P-10 @ 35					
				0.4	24 30 35			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/8), non cemented, moist to very moist.
40	100		P-10 @ 40					
				0.4	16 28 37			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/8), non cemented, moist to very moist.
45	100		P-10 @ 45					
	100 100		P-10 @ 50D P-10 @ 50	0.4	21 27 37			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/8), non cemented, moist to very moist.
50								

WELL DIAGRAM



DEPTH (ft): 30, 35, 40, 45, 50

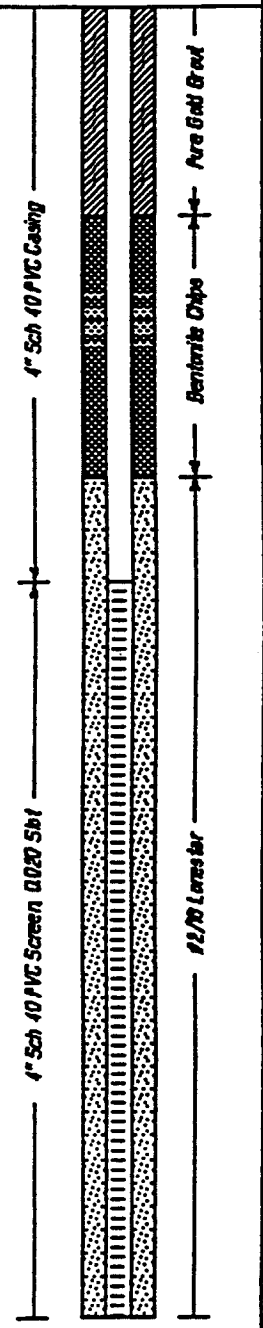
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.012.002 BORING NO. P-10

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
				0.4	17, 29, 40			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/8), non cemented, moist to very moist.
55	100		P-10 @ 55					
				0.4	30, 37, 48			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/8), non cemented, moist to very moist.
60	100		P-10 @ 60					
65				0.4	38, 53, 61			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/8), non cemented, moist to very moist.
	100		P-10 @ 66.5					
				0.4	27, 41, 56			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/8), non cemented, moist to very moist.
	100		P-10 @ 68					
				0.4	40, 46, 63			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/8), non cemented, water saturated, water at 68 ft.
	100		P-10 @ 69.5					
70				0.4	38, 48, 55			SAND, very fine to fine grained, trace Silt, yellowish brown (10YR, 5/8), non cemented, water saturated.
	100		P-10 @ 71					
				0.4	16, 22, 27			SAND, very fine to fine grained, dark yellowish brown (10YR, 4/6), water saturated.
	100		P-10 @ 72.5					
				0.4	13, 17, 20			SAND, very fine to fine grained, dark yellowish brown (10YR, 4/6), water saturated.
	30		P-10 @ 74					
				0.4	10, 15			SAND, very fine to fine grained, dark yellowish brown (10YR, 4/6), water saturated.
75								

WELL DIAGRAM



DEPTH (ft): 55, 60, 65, 70, 75

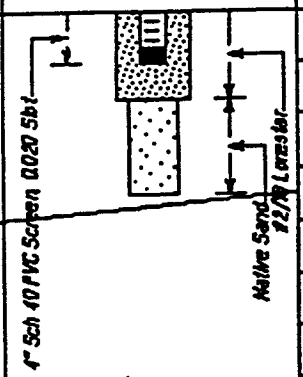
GERAGHTY & MILLER, INC.

BORING LOG
(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.012.002 BORING NO. P-10

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
	100		P-10 @ 75.5	0.4	19	SP		SAND, very fine to fine grained, dark yellowish brown (10YR, 4/6), water saturated.
				0.4	12			
					17			
	100		P-10 @ 77		29	CL		CLAY, little to some Silt, olive (5Y, 5/4), high plasticity, stiff, slightly moist to moist.
				0.4	19			
					25			CLAY, little to some Silt, olive (5Y, 5/4), high plasticity, stiff, slightly moist to moist.
	100		P-10 @ 78.5		30			
80								End of Boring @ 78.5 ft. Set 4 inch well.
85								
90								
95								
100								

WELL DIAGRAM



This work was performed under my supervision and I concur with the findings.

Anthony C. Ward

Anthony C. Ward, CA R.G. #4782

GERAGHTY & MILLER, INC.

WELL LOG

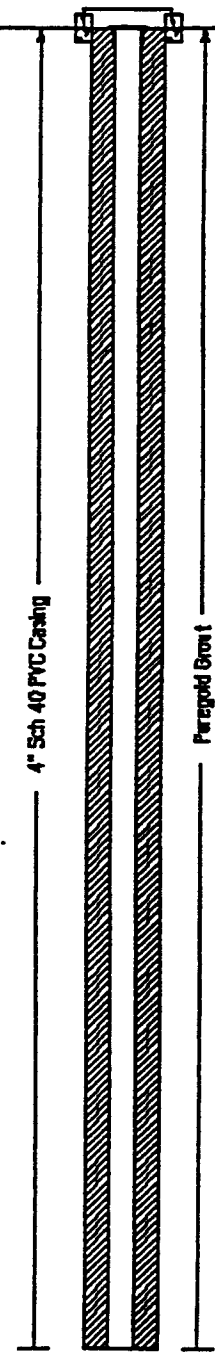
PROJECT International Light Metals
LOCATION 19200 S. Western, Torrance, CA
METHOD Hollow Stem Auger
DRILLING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.020.002
LOGGED BY M. Shiplone
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-81
DRILLER C. Winegarner

BORING P-11B
DATE STARTED 11/16/95
DATE COMPLETED 11/16/95
BORING DEPTH 74.5 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Concrete (8")
						CL		CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
						ML		
					4			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist.
				0.0	7			
5	100		P-11B @ 5		7			
					17			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist.
				0.0	26			
10	100		P-11B @ 10		33			
					10			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist.
				0.0	11			
15	100		P-11B @ 15		13			
						SM		
					13			Silty SAND, very fine grained, some Silt, brownish yellow (10YR, 6/6), moist.
				0.0	17			
20	100		P-11B @ 20		18			

WELL DIAGRAM



DEPTH (ft): 5, 10, 15, 20

GERAGHTY & MILLER, INC.

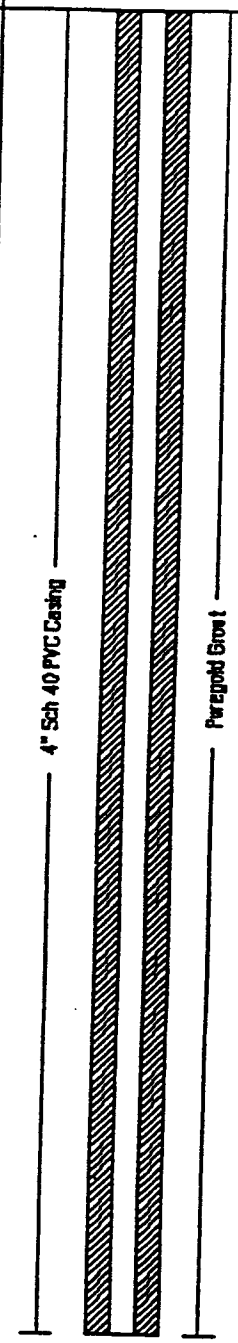
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-11B

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SM		
						SP		
				0.0	9 / 13 / 17			SAND, very fine grained, yellowish brown (10YR, 5/6), moist.
25	100		P-11B @ 25					
				0.0	16 / 22 / 27			SAND, very fine grained, yellowish brown (10YR, 5/6), moist.
30	100		P-11B @ 30					
				61.2	11 / 13 / 22			SAND, very fine grained, yellowish brown (10YR, 5/6), moist.
35	100		P-11B @ 35					
				12.3	13 / 18 / 24			SAND, very fine grained, yellowish brown (10YR, 5/6), moist.
40	100		P-11B @ 40					

WELL DIAGRAM



DEPTH (ft): 25, 30, 35, 40

GERAGHTY & MILLER, INC.

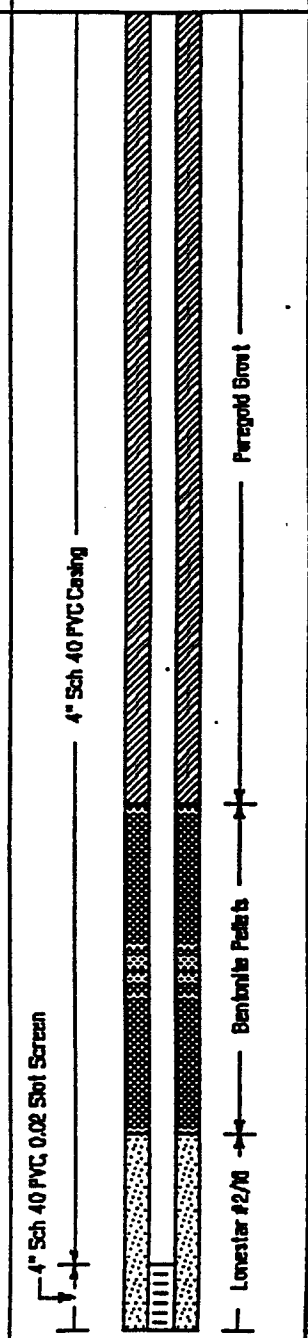
WELL LOG

(continuation)

_CT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-11B

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
				26.1	10 17 20			SAND, very fine grained, light gray (10YR, 7/1), moist.
45	100		P-11B @ 45					
				45.8	14 23 28			SAND, very fine grained, light gray (10YR, 7/1), moist.
50	100		P-11B @ 50					
				24.2	23 30 37			SAND, very fine grained, yellowish brown (10YR, 5/8), moist.
55	100		P-11B @ 55					
				28.7	17 23 28			SAND, very fine grained, yellowish brown (10YR, 5/8), moist.
60	100		P-11B @ 60					

WELL DIAGRAM



DEPTH (ft): 45, 50, 55, 60

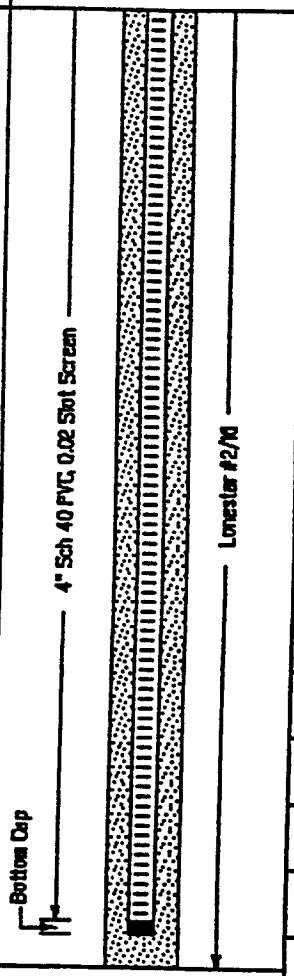
GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-11B

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						SP				
				48.1	11			SAND, very fine grained, yellowish brown (10YR, 5/8), wet.		
					21					
	100		P-11B @ 65		24					
65										65
								Water encountered at 68 ft.		
					14			SAND, very fine grained, yellowish brown (10YR, 5/8), water saturated.		
			P-11B @ 70	38.2	20					
	100				26					
70										70
					7					
				7.3	12	ML CL		SILT, little Clay, light olive brown (2.5Y, 5/3), moderate to high plasticity, moist.		
	100		P-11B @ 74		14					
75								End of Boring @ 74.5 ft. Set 4-inch groundwater monitoring well at 74 ft. COMMENTS: Location of monitoring well P-11.		75
								This work was performed under my supervision and I concur with the findings. Anthony C. Ward. Anthony C. Ward, CA R.G. #4782		
80										80



GERAGHTY & MILLER, INC.

WELL LOG

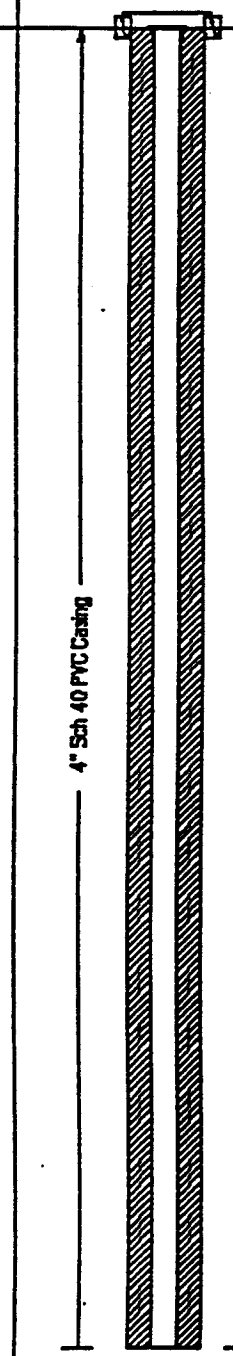
PROJECT International Light Metals
LOCATION 19200 S. Western, Torrance, CA
DRILLING METHOD Hollow Stem Auger
DRILLING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.020.002
LOGGED BY M. Shipione
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER C. Winegarner

BORING P-12
DATE STARTED 11/13/95
DATE COMPLETED 11/20/95
BORING DEPTH 80.5 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Concrete (8")
						SM		
					3			SAND, very fine grained, some Silt, strong brown (7.5YR, 4/6), low plasticity, moist.
				0.0	5			
5	100		P-12 @ 5		5			
						CL		CLAY, trace Silt, dark olive gray (7.5YR, 4/6), high plasticity, stiff, moist.
					11	ML		SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/6), non to low plasticity, moist.
				0.0	14			
10	100		P-12 @ 10		15			
					10			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/6), non to low plasticity, moist.
				0.0	13			
15	100		P-12 @ 15		16			
					10			SILT, trace Clay, increasing in fine grained Sand, dark yellowish brown (10YR, 4/6), non to low plasticity, moist.
				230	14			
20	100		P-12 @ 20		17			
						SM		
					7			Silty SAND, very fine grained, some Silt, yellowish brown (10YR, 5/6), non plastic, moist.
				618	8			
25	100		P-12 @ 25		12			

WELL DIAGRAM



GERAGHTY & MILLER, INC.

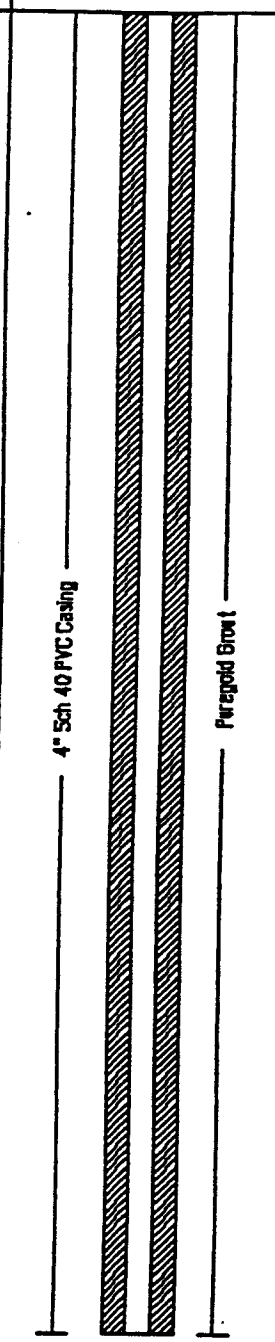
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-12

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SM		
						SM ML		
				1834	14 17 21			Silty SAND, very fine grained, increasing in Silt, yellowish brown (10YR, 5/6), non plastic, moist.
30	100		P-12 @ 30					
				>2500	16 20 27			Silty SAND, very fine grained, increasing in Silt, yellowish brown (10YR, 5/6), non plastic, moist.
35	100		P-12 @ 35					
						ML		
				>2500	16 24 30			SILT, some very fine grained Sand, olive brown (2.5Y, 4/3), non plastic, moist.
40	100		P-12 @ 40					
						SP		
				1483	17 20 28			SAND, very fine grained, trace Silt, light olive brown (2.5Y, 5/4), non plastic, moist.
45	100		P-12 @ 45					
						CL ML		
				>2500	20 28 31			CLAY, some Silt, olive (5Y, 5/4), low plasticity, slightly moist.
50	100		P-12 @ 50					

WELL DIAGRAM



DEPTH (ft): 30, 35, 40, 45, 50

GERAGHTY & MILLER, INC.

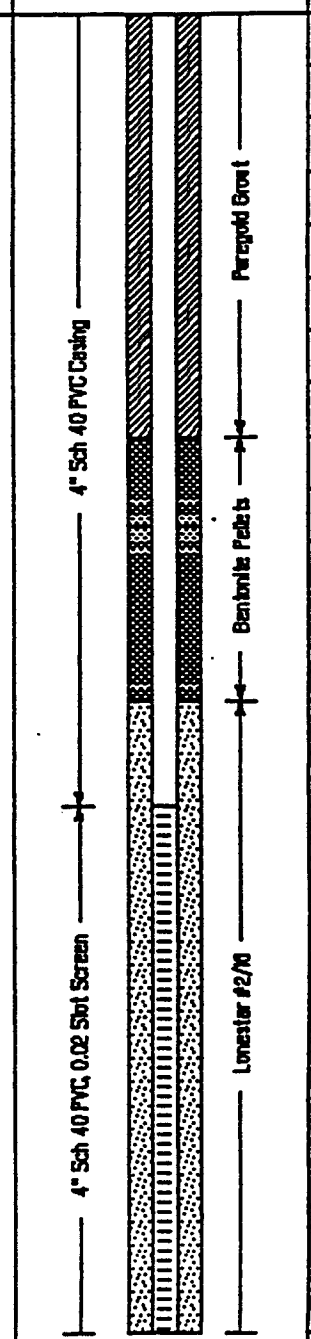
WELL LOG

(continuation)

CT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-12

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						CL ML		
						SP		
	100		P-12 @ 55	423	12, 17, 24			SAND, very fine grained, little Silt, olive (5Y, 5/3), moist.
55								
	100		P-12 @ 60	0.0	21, 27, 34			SAND, very fine grained, little Silt, olive (5Y, 5/3), moist.
60								
	100		P-12 @ 65	0.0	23, 30, 37			SAND, very fine grained, little Silt, light yellowish brown (10YR, 6/4), moist.
65								
	100		P-12 @ 70	461	26, 30, 38			SAND, very fine grained, little Silt, light yellowish brown (10YR, 6/4), very moist.
70								
	100		P-12 @ 75	173.4	14, 23, 28			SAND, very fine grained, little Silt, light yellowish brown (10YR, 6/4), water saturated, water encountered at 75 ft-bgs.
75								

WELL DIAGRAM



DEPTH (ft): 55, 60, 65, 70, 75

GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAD 217.020.002 BORING NO. P-12

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						SP				
				9.5	12					
80	100		P-12 @ 80		13 / 18	SP / ML		Clayey SILT, trace fine grained Sand, olive (5Y, 5/4), moderate plasticity, moist.	Slot Screen; Lonestar #2/10	80
								End of Boring @ 80.5 ft. Set 4-inch groundwater monitoring well at 80 ft.	4" Sch 40 PVC, 0.02 Bottom Cap	
85										85
90										90
95										95
100										100

This work was performed under my supervision and I concur with the findings.

Anthony C. Ward

Anthony C. Ward, CA R.G. #4782

GERAGHTY & MILLER, INC.

WELL LOG

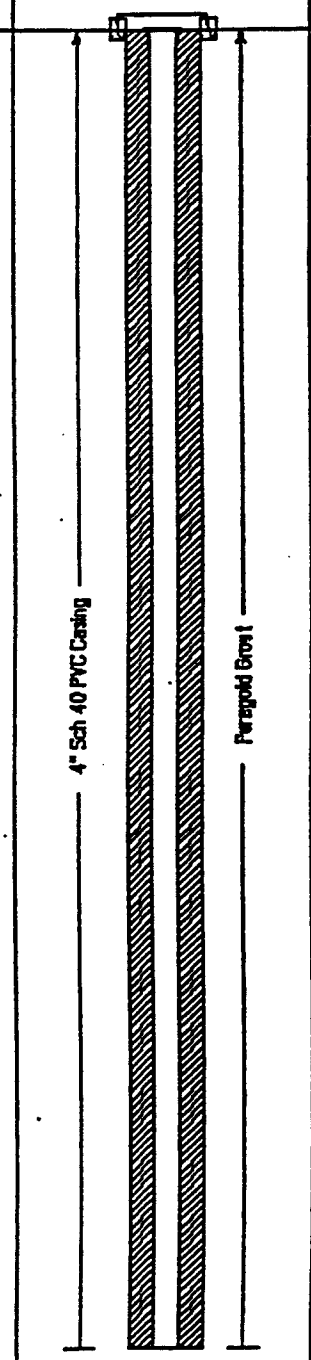
PROJECT International Light Metals
LOCATION 19200 S. Western, Torrance, CA
DRILLING METHOD Hollow Stem Auger
DRILLING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.020.002
LOGGED BY M. Shiplone
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER C. Winegarner

BORING P-13B
DATE STARTED 11/16/95
DATE COMPLETED 11/17/95
BORING DEPTH 84 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Concrete (8")
						CL		
				3.8	4, 8, 8			CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
5	100		P-13B @ 5					
						ML		
				2.1	7, 8, 10			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist.
10	100		P-13B @ 10					
				6.2	7, 14, 17			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist.
15	100		P-13B @ 15					
				8.8	6, 6, 8			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist.
20	100		P-13B @ 20					
				7.1	9, 11, 14			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist.
25	100		P-13B @ 25					

WELL DIAGRAM



GERAGHTY & MILLER, INC.

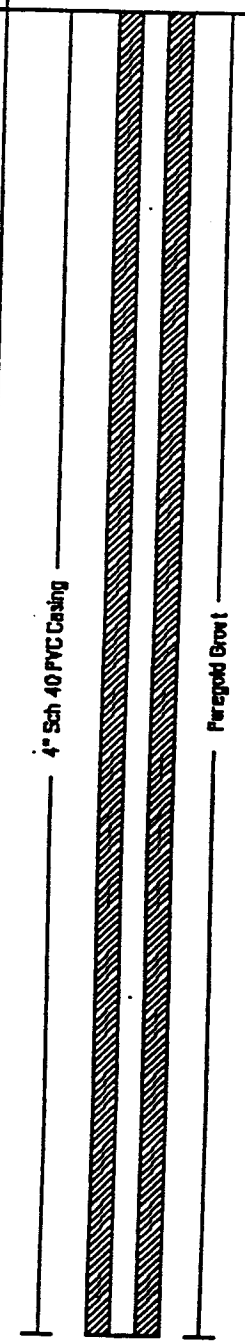
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-13B

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						ML		
						SP		
30	100		P-13B @ 30	1.8	12, 17, 26			SAND, very fine grained, trace to little Silt, yellowish brown (10YR, 5/6), moist.
35	100		P-13B @ 35	2.4	18, 27, 30			SAND, very fine grained, trace to little Silt, light olive brown (2.5Y, 5/4), moist.
40	100		P-13B @ 40	5.1	20, 29, 36			SAND, very fine grained, light olive brown (2.5Y, 5/4), moist.
45	100		P-13B @ 45	13.5	17, 25, 37			SAND, very fine grained, little Silt, light olive brown (2.5Y, 5/4), moist.
50	100		P-13B @ 50	13.4	13, 21, 26			SAND, very fine grained, little Silt, light olive brown (2.5Y, 5/4), very moist, some FeO_2 staining.

WELL DIAGRAM



DEPTH (ft): 30, 35, 40, 45, 50

GERAGHTY & MILLER, INC.

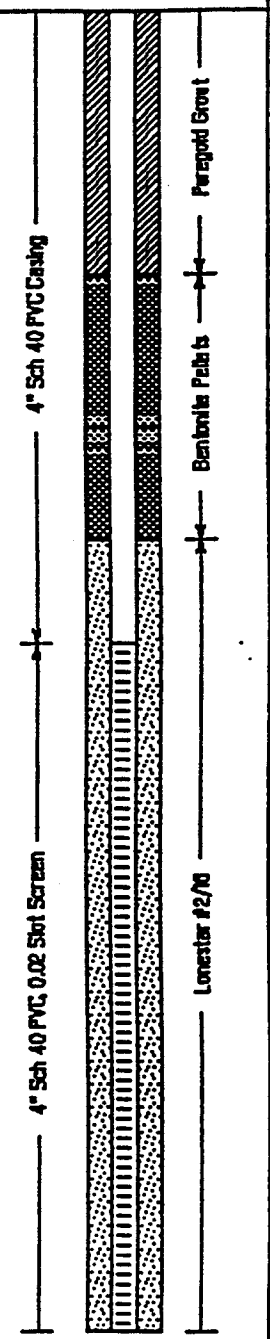
WELL LOG

(continuation)

CT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-13B

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
						SM		
				0.7	11 18 18			Silty SAND, very fine grained, some Silt, light olive brown (2.5Y, 5/4), very moist.
55	100		P-13B @ 55					
						ML		
			P-12B @ 60D	0.7	12 18			SILT, little very fine grained Sand, olive (5Y, 4/4), moderate plasticity, moist.
60	100		P-13B @ 60		21			
						SP		
				2.2	8 15			SAND, trace Silt, light yellowish brown (2.5Y, 6/4), moist.
65	100		P-13B @ 65		18			
			P-13B @ 70	0.0	11 18			SAND, trace Silt, light yellowish brown (2.5Y, 6/4), very moist.
70	100				21			
								Water encountered at 73 ft-bgs.
				0.8	8 13			SAND, trace Silt, light yellowish brown (2.5Y, 6/4), water saturated.
75	100		P-13B @ 75		17			

WELL DIAGRAM



DEPTH (ft): 55, 60, 65, 70, 75

GERAGHTY & MILLER, INC.

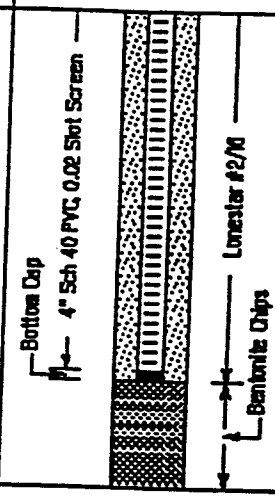
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-13B

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
						ML SM		
				0.0	10 13 17			Sandy SILT, very fine grained Sand, olive brown (2.5Y, 4/4), water saturated.
80	100		P-13B @ 80					
						ML		
				0.0	8 14 20			SILT, trace Clay, very fine grained Sand, olive (5Y, 4/3), very moist.
	100		P-13B @ 84					
85								End of Boring @ 84.0 ft. Set 4-inch groundwater monitoring well at 82 ft.
90								COMMENTS: * Location of monitoring well P-13.
95								
100								

WELL DIAGRAM



DEPTH (ft): 80, 85, 90, 95, 100

This work was performed under my supervision and I concur with the findings.

Anthony C. Ward

Anthony C. Ward, CA R.G. #4782

GERAGHTY & MILLER, INC.

WELL LOG

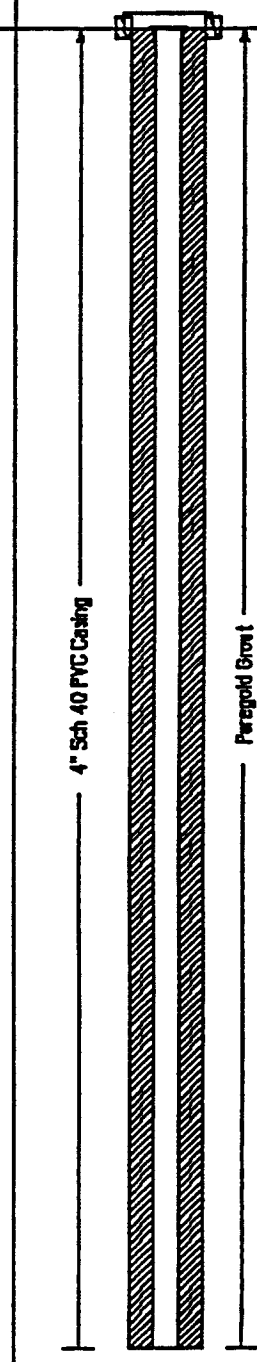
PROJECT International Light Metals
LOCATION 19200 S. Western, Torrance, CA
METHOD Hollow Stem Auger
DRILLING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.020.002
LOGGED BY M. Shipione
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER C. Winegarner

BORING P-14
DATE STARTED 11/14/95
DATE COMPLETED 11/14/95
BORING DEPTH 85.3 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Concrete (8")
						CL		
					7			CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
				0.0	7			
5	100		P-14 @ 5		10			
						ML		
					8			SILT, trace Clay, trace very fine grained Sand, yellowish brown (10YR, 5/6), non plastic, stiff, slightly moist.
				0.0	8			
10	100		P-14 @ 10		13			
						ML SM		
					7			SILT, trace Clay, increasing in very fine grained Sand, yellowish brown (10YR, 5/6), non plastic, stiff, slightly moist.
				0.0	11			
15	100		P-14 @ 15		12			
						ML		
					5			SILT, trace Clay, little very fine grained Sand, yellowish brown (10YR, 5/6), non plastic, stiff, slightly moist.
				0.0	8			
20	100		P-14 @ 20		8			
					5			SILT, trace Clay, trace very fine grained Sand, yellowish brown (10YR, 5/6), non plastic, stiff, slightly moist.
				0.0	6			
25	100		P-14 @ 25		11			

WELL DIAGRAM



DEPTH (ft): 5, 10, 15, 20, 25

GERAGHTY & MILLER, INC.

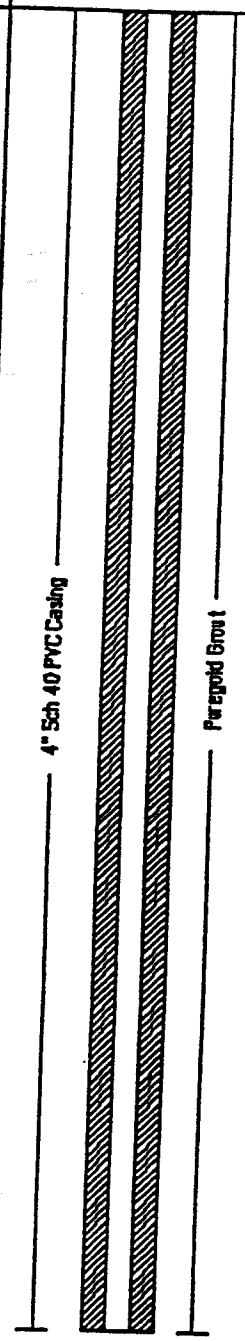
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-14

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						ML		
						SP		
30	100		P-14 @ 30	0.0	13, 15, 27			SAND, very fine grained, yellowish brown (10YR, 5/8), moist.
35	100		P-14 @ 35	0.0	8, 12, 17			SAND, very fine grained, yellowish brown (10YR, 5/8), moist.
40	100		P-14 @ 40	0.0	26, 30, 37			SAND, very fine grained, yellowish brown (10YR, 5/8), moist.
45	100		P-14 @ 45	0.0	20, 28, 31			SAND, very fine grained, yellowish brown (10YR, 5/8), moist.
						ML		
50	100		P-14 @ 50	0.0	12, 15, 18			SILT, little very fine grained Sand, olive (5Y, 5/3), moderate plasticity, moist.

WELL DIAGRAM



DEPTH (ft): 30, 35, 40, 45, 50

GERAGHTY & MILLER, INC.

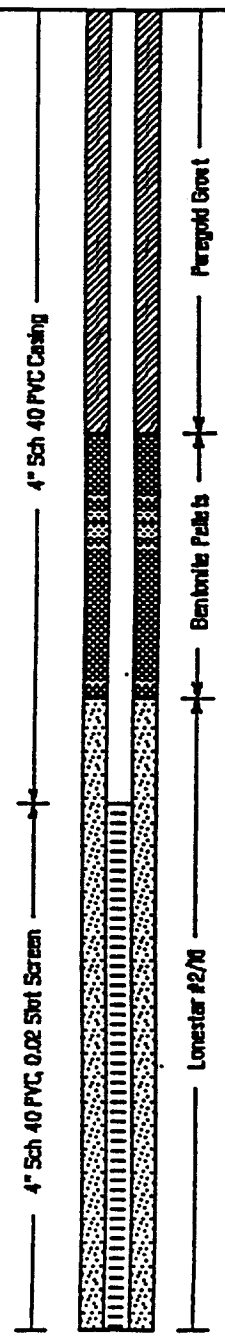
WELL LOG

(continuation)

.CT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-14

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						ML		
	100		P-14 @ 55	0.0	11, 16, 17			SILT, increasing in very fine grained Sand, olive (5Y, 5/3), moderate plasticity, moist.
55								
						SM		
	100		P-14 @ 60	0.0	10, 13, 18			Silty SAND, very fine grained, little to some Silt, very dark gray (5Y, 3/1), non plastic, very moist.
60								
						SP		
	100		P-14 @ 65	44.0	8, 14, 17			SAND, very fine grained, little Silt, dark yellowish brown (10YR, 4/4), moist to very moist.
65								
	100		P-14 @ 70	10.1	8, 15, 16			SAND, very fine grained, trace to no Silt, dark yellowish brown (10YR, 4/4), moist to very moist.
70								
								Water encounterd at 73.5 ft-bgs.
	100		P-14 @ 75	18.57	8, 13, 21			SAND, very fine grained, trace to no Silt, dark yellowish brown (10YR, 4/4), water saturated.
75								

WELL DIAGRAM



DEPTH (ft): 55, 60, 65, 70, 75

GERAGHTY & MILLER, INC.

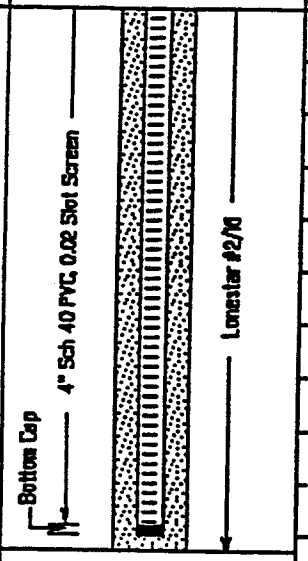
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAD 217.020.002 BORING NO. P-14

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
	100		P-14 @ 80	1206	12, 16, 17			SAND, little Silt, dark yellowish brown (10YR, 4/4), water saturated.
80								
	100		P-14 @ 83	1718	10, 13, 16			SAND, trace Silt, olive (10YR, 5/4), water saturated, numerous shell fragments.
	100		P-14 @ 84.5	431	8, 14, 19	CL		Silty CLAY, olive (10YR, 5/4), high plasticity, moist to water saturated.
85								End of Boring @ 85.3 ft. Set 4-inch groundwater monitoring well at 85 ft.
90								
95								
100								

WELL DIAGRAM



This work was performed under my supervision and I concur with the findings.

Anthony C. Ward

Anthony C. Ward, CA R.G. #4782

GERAGHTY & MILLER, INC.

WELL LOG

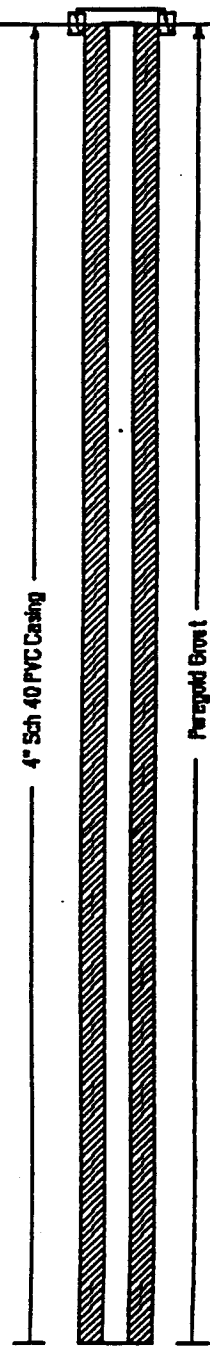
PROJECT International Light Metals
TION 19200 S. Western, Torrance, CA
METHOD Hollow Stem Auger
SAMPLING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.020.002
LOGGED BY M. Shipione
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER C. Winegarner

BORING P-15
DATE STARTED 11/21/95
DATE COMPLETED 11/22/95
BORING DEPTH 80 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Concrete (8")
						CL		CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
				2.0	4, 12, 13			CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
5	100		P-15 @ 5					
						ML		
				4.5	10, 16, 18			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), moderate plasticity, moist.
10	100		P-15 @ 10					
				8.0	7, 8, 10			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), moderate plasticity, moist.
15	100		P-15 @ 15					
				12.7	8, 8, 14			SILT, trace Clay, increasing in very fine grained Sand, dark yellowish brown (10YR, 4/4), moderate plasticity, moist.
20	100		P-15 @ 20					
						SP		
				28.8	10, 13, 17			SAND, very fine grained, little Silt, yellowish brown (10YR, 5/6), moist.
25	100		P-15 @ 25					

WELL DIAGRAM



DEPTH (ft)

GERAGHTY & MILLER, INC.

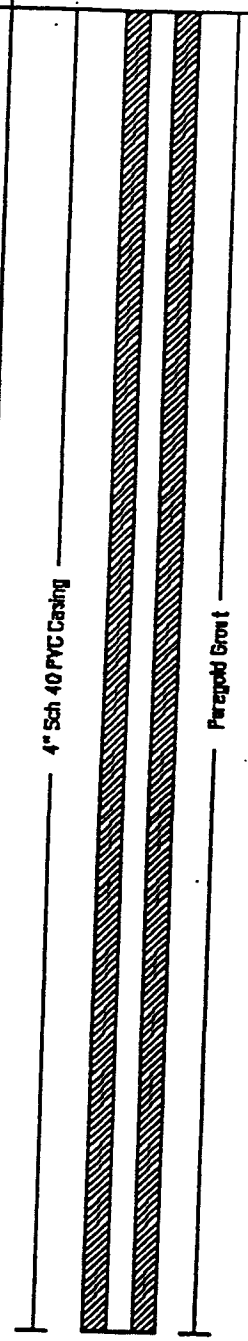
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-15

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
30	100		P-15 @ 30	8.4	13, 16, 20			SAND, very fine grained, little Silt, yellowish brown (10YR, 5/6), moist.
35	100		P-15 @ 35	3.4	15, 22, 26			SAND, very fine grained, little Silt, yellowish brown (10YR, 5/6), moist.
						SM		
40	100		P-15 @ 40	44.3	16, 23, 30			Silty SAND, very fine grained, some Silt, light olive brown (2.5Y, 5/3), moist.
						ML		
45	100		P-15 @ 45D, P-15 @ 45	56.2	8, 13, 18			SILT, little very fine grained Sand, light olive brown (2.5Y, 5/4), non to low plastictity, moist.
						SP		
50	100		P-15 @ 50	64.6	11, 14, 18			SAND, trace Silt, brownish yellow (10YR, 6/6), moist.

WELL DIAGRAM



DEPTH (ft): 30, 35, 40, 45, 50

GERAGHTY & MILLER, INC.

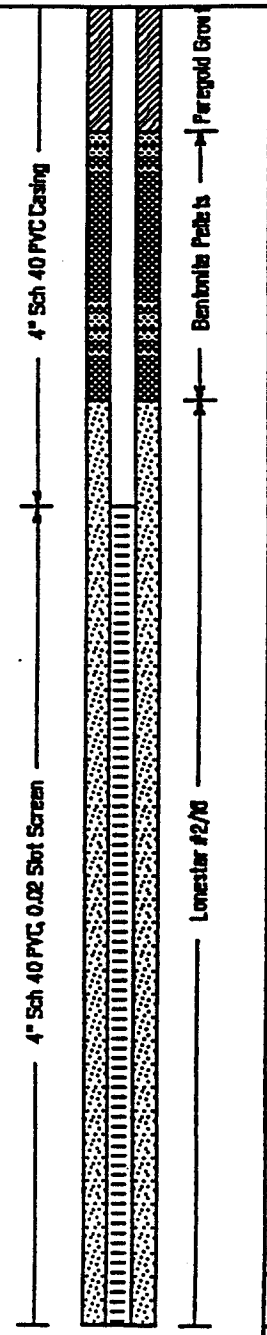
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-15

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
	100		P-15 @ 55	45.8	22, 36, 41			SAND, trace Silt, light yellowish brown (10YR, 6/4), very moist.
55								
	100		P-15 @ 60	8.8	37, 50			SAND, trace Silt, light yellowish brown (10YR, 6/4), very moist.
60								
	100		P-15 @ 65	38.0	28, 36, 39			SAND, trace Silt, light yellowish brown (10YR, 6/4), very moist.
65								
	100		P-15 @ 70	248	14, 22, 27			Water encountered at 68.5 to 69.0 ft-bgs. SAND, trace Silt, light yellowish brown (10YR, 6/4), water saturated.
70								
	100		P-15 @ 75	355	17, 22, 31			SAND, trace Silt, light yellowish brown (10YR, 6/4), water saturated.
75								

WELL DIAGRAM



DEPTH (ft): 55, 60, 65, 70, 75

GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-15

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						SP		SAND, trace Silt, light yellowish brown (10YR, 6/4), water saturated.		
					13					
				12	15	SP CL		Silty CLAY, olive (5Y, 5/3), high plasticity, stiff, moist.		
80	100		P-15 @ 80		16					80
								End of Boring @ 80.0 ft. Set 4-inch groundwater monitoring well at 84.5 ft.	4" Sch 40 PVC, 0.02 Slot Screen; Bottom Cap; Lonestar #2/16	
85										85
90										90
95										95
100										100

This work was performed under my supervision and I concur with the findings.

Anthony C. Ward

Anthony C. Ward, CA R.G. #4782

GERAGHTY & MILLER, INC.

WELL LOG

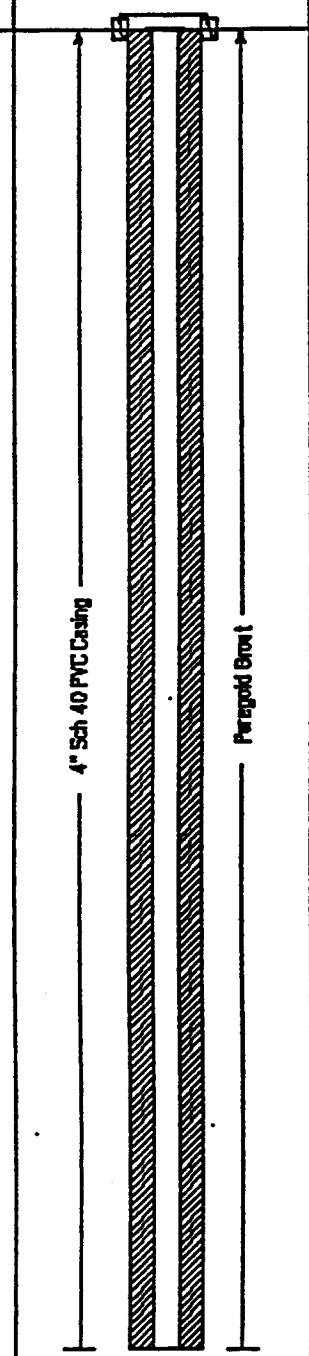
PROJECT International Light Metals
LOCATION 19200 S. Western, Torrance, CA
METHOD Hollow Stem Auger
DRILLING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.020.002
LOGGED BY M. Shiplone
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER T. Garver

BORING P-16A
DATE STARTED 11/29/95
DATE COMPLETED 11/29/95
BORING DEPTH 87 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Concrete (8")
						CL		
				0.0	7, 9, 12			CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
5	100		P-16A @ 5					
						ML		
				0.0	8, 12, 16			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist.
10	100		P-16A @ 10					
				0.0	9, 14, 21			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist.
15	100		P-16A @ 15					
				0.0	8, 16, 25			SILT, trace Clay, increasing in very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist.
20	100		P-16A @ 20					
				0.0	9, 14, 22			SILT, trace Clay, increasing in very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist.
25	100		P-16A @ 25					

WELL DIAGRAM



DEPTH (ft): 5, 10, 15, 20, 25

GERAGHTY & MILLER, INC.

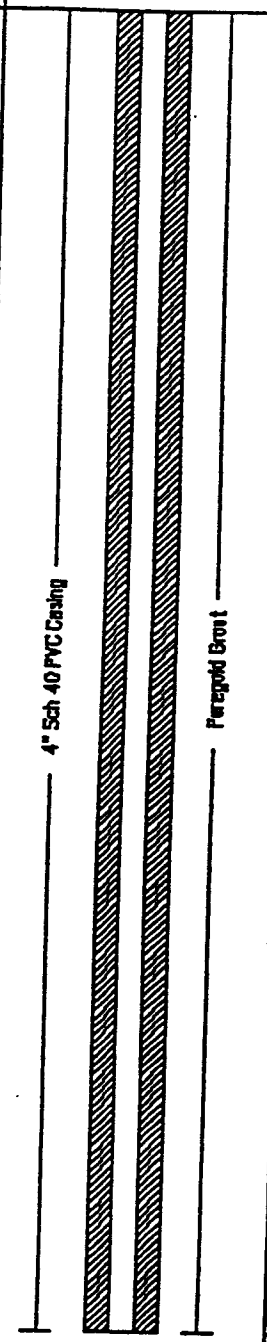
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-10A

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						ML		
						SP		
30	100		P-10A @ 30	0.0	18, 33, 45			SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist.
35	100		P-10A @ 35	0.0	10, 24, 38			SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist.
40	100		P-10A @ 40	0.0	13, 30, 50			SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist.
45	100		P-10A @ 45	0.0	30, 50/5			SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist.
50	100		P-10A @ 50	0.0	12, 30, 44			SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist.

WELL DIAGRAM



DEPTH (ft): 30, 35, 40, 45, 50

GERAGHTY & MILLER, INC.

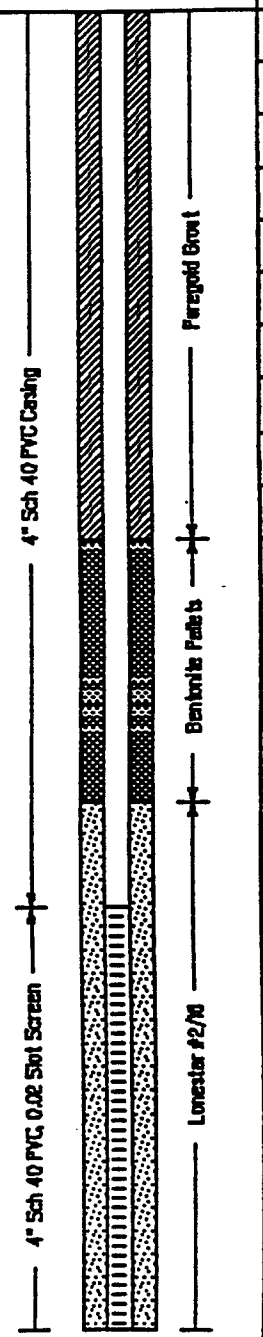
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-10A

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
	100		P-10A @ 55	0.0	18, 40, 50/5			SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist.
55								
	100		P-10A @ 60	0.0	34, 39, 50			SAND, very fine grained, yellowish brown (10YR, 5/8), moist.
60								
	100		P-10A @ 65	0.0	22, 30, 50			SAND, very fine grained, yellowish brown (10YR, 5/8), moist.
65								
	100		P-10A @ 70	0.0	18, 50/6			SAND, very fine grained, yellowish brown (10YR, 5/8), very moist.
70								
								Water encountered at 73.5 ft-bgs.
	100		P-10A @ 75	103	20, 50/6			SAND, very fine grained, yellowish brown (10YR, 5/8), water saturated.
75								

WELL DIAGRAM



DEPTH (ft): 55, 60, 65, 70, 75

GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-16A

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						SP				
				79.7	18 50/0			SAND, very fine grained, yellowish brown (10YR, 5/8), water saturated.		
80	100		P-16A @ 80							80
				48.6	12 39 50			SAND, very fine grained, yellowish brown (10YR, 5/8), water saturated.		
	100		P-16A @ 82							
				82.4	13 25 44			SAND, very fine grained, yellowish brown (10YR, 5/8), water saturated.		
85	100		P-16A @ 85							85
				82.7	16 30 46			SAND, very fine grained, yellowish brown (10YR, 5/8), water saturated.	Bottom Cap 4" Sch 40 PVC, 0.02 Slot Screen Lonestar #2/12	
	100		P-16A @ 87							
90								End of Boring @ 87.0 ft. Set 4-inch groundwater monitoring well at 87 ft.		90
95										95
100								This work was performed under my supervision and I concur with the findings. Anthony C. Ward Anthony C. Ward, CA R.G. #4782		100

GERAGHTY & MILLER, INC.

BORING LOG

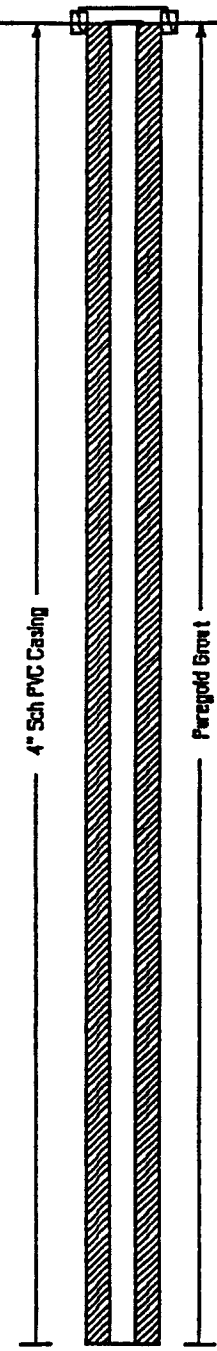
PROJECT International Light Metals
LOCATION 19200 S. Western, Torrance, CA
DRILLING METHOD Rotosonic
DRILLING METHOD Core Barrel
BOREHOLE DIAMETER 8 inches O.D.

PROJECT NO. CAO 217.020.002
LOGGED BY B. Bechtel/D. Willis
DRILL CO. Lang
RIG TYPE Rotosonic
DRILLER D. Casey

BORING P-16B
DATE STARTED 12/2/95
DATE COMPLETED 12/3/95
BORING DEPTH 120 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Concrete (8")
						CL		
				0.0	7, 9, 12			CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist. (*)
5	100		P-16A @ 5					
						ML		
				0.0	8, 12, 16			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist. (*)
10	100		P-16A @ 10					
				0.0	9, 14, 21			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist. (*)
15	100		P-16A @ 15					
				0.0	8, 16, 25			SILT, trace Clay, increasing in very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist. (*)
20	100		P-16A @ 20					
				0.0	9, 14, 22			SILT, trace Clay, increasing in very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist. (*)
25	100		P-16A @ 25					

WELL DIAGRAM



GERAGHTY & MILLER, INC.

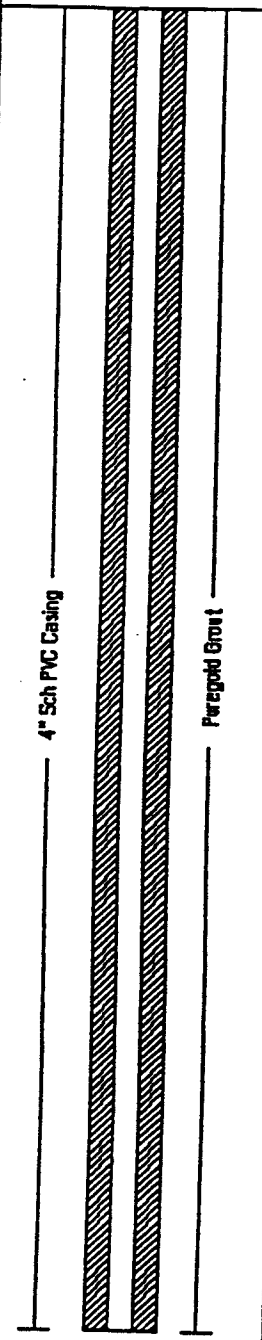
BORING LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-16B

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						ML		
						SP		
	100		P-16A @ 30	0.0	18, 33, 45			SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist. (*)
30								
	100		P-16A @ 35	0.0	10, 24, 38			SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist. (*)
35								
	100		P-16A @ 40	0.0	13, 30, 50			SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist. (*)
40								
	100		P-16A @ 45	0.0	30, 50/5			SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist. (*)
45								
	100		P-16A @ 50	0.0	12, 30, 44			SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist. (*)
50								

WELL DIAGRAM



DEPTH (ft): 30, 35, 40, 45, 50

GERAGHTY & MILLER, INC.

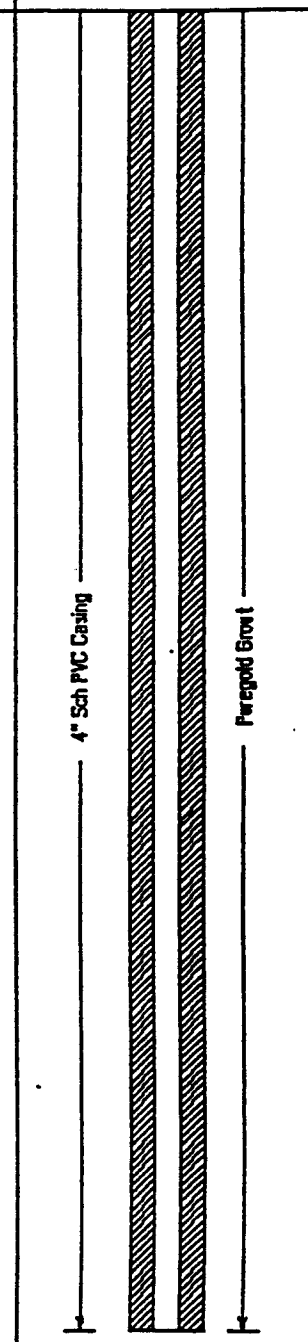
BORING LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-16B

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
	100		P-16A @ 55	0.0	18 40 50/5			SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist. (*)
55								
	100		P-16A @ 60	0.0	34 38 50			SAND, very fine grained, yellowish brown (10YR, 5/8), moist. (*)
60								
	100		P-16A @ 65	0.0	22 30 50			SAND, very fine grained, yellowish brown (10YR, 5/8), moist. (*)
65								
	100		P-16A @ 70	0.0	18 50/6			SAND, very fine grained, yellowish brown (10YR, 5/8), very moist. (*)
70								
								Water encountered at 73.5 ft-bgs. (*)
	100		P-16A @ 75	103	20 50/6			SAND, very fine grained, yellowish brown (10YR, 5/8), water saturated. (*)
75								

WELL DIAGRAM



DEPTH (ft): 55, 60, 65, 70, 75

GERAGHTY & MILLER, INC.

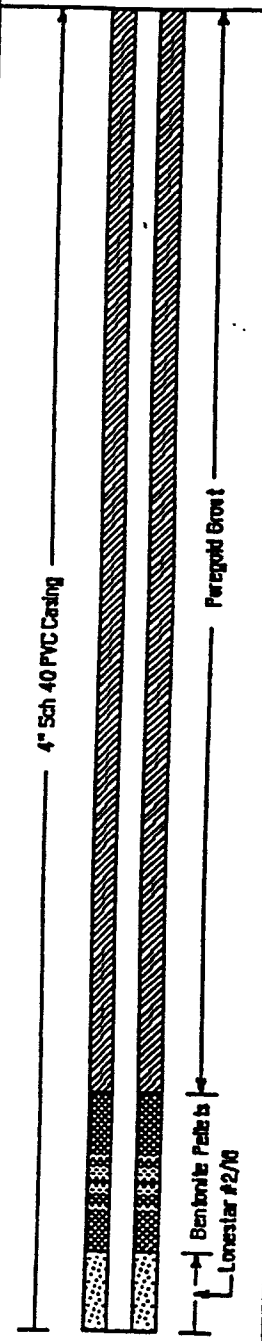
BORING LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-16B

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		(*) THE FIRST 80 FT OF LITHOLOGIC DESCRIPTION WAS TAKEN FROM BORING P-16A
80	NA	2.5-3	NA	NA	NA			SAND, very fine grained, minor Clay, light olive brown (2.5Y, 5/6), loose, wet to water saturated, homogeneous, 95% silica, 3-4% black grains, 1-2% feldspars, grains are subrounded.
85								SAND, very fine grained, minor Clay, light olive brown (2.5Y, 5/6), loose, water saturated, homogeneous, 95% silica, 3-4% black grains, 1-2% feldspars, grains are subrounded.
								Color change to yellowish brown (10YR, 5/6).
	NA	2.5-3	NA	NA	NA			Color change to light olive brown (2.5Y, 5/6), slightly more clay.
	NA	2.5-3	NA	NA	NA			SAND, very fine grained, few coarser grains, light olive brown (2.5Y, 5/4), water saturated, subrounded to subangular, more feldspar (3%).
90	NA	1-2.5	NA	NA	NA			
						SC		Clayey SAND, very fine grained, few coarser grains, light olive brown (2.5Y, 5/4), dense, iron staining in stringers.
	NA	0.5-2	NA	NA	NA	SW		
						SP		SAND, fine to medium grained, minor Clay, with gravel (1.5 - 6 cm), light yellowish brown (2.5Y, 6/4), water saturated, loose, some iron staining in stringers.
	NA	0.5-2.5	NA	NA	NA			
95	NA	0.5-2	NA	NA	NA			SAND, fine to medium grained, little Clay, light olive brown (2.5Y, 5/4), loose, water saturated, few blebs of clay.
	100	0.5-1.5	NA	< 1	NA	SW		SAND, fine to medium grained, few coarser grains, some Clay, yellowish brown (10YR, 5/6), loose, water saturated, homogeneous, 3-5% feldspar, 1-2% black grains.
100								SAND, fine to medium grained, trace Clay blebs, brownish yellow (2.5Y, 5/6), very loose, water saturated.

WELL DIAGRAM



DEPTH (ft): 80, 85, 90, 95, 100

GERAGHTY & MILLER, INC.

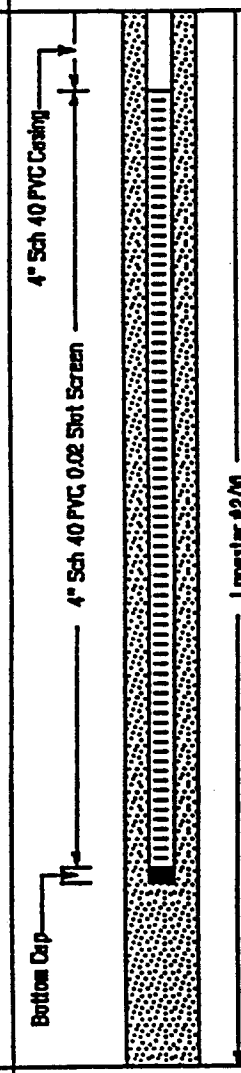
BORING LOG

(continuation)

_CT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-10B

DEPTH (ft)	RECOVERY %	WENT. SCALE	SAMPLE NO.	PID (ppm)	UNCND STRENGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SW		SAND, fine to medium grained, trace Clay blebs, brownish yellow (2.5Y, 5/6), very loose, water saturated.
						SP		SAND, fine to medium grained, trace Clay, brownish yellow (2.5Y, 5/6), very loose, water saturated, 1-2% elongated clay blebs 1-10 cm long and 0.5-3 cm thick.
105						SW		SAND, fine to medium grained, light olive brown (2.5Y, 5/6), very loose, water saturated, 95% silica, 3-4% feldspar, 1-2% black minerals, heavily Fe stained stringers 1-3 cm thick from 105-108 ft (orange).
	NA	0.5-1.5	P-10B @ 110	<1	NA			
110								
115								As above, with no Fe stained stringers and trace clay.
	NA	NA	NA	<1	>5	ML		Sandy, Clayey, SILT, olive (5Y, 5/3), very stiff, slightly moist, 20% sand, 20% clay, 60% silt, massive.
	NA	NA	P-10B @ 119	NA	0.5	CL		CLAY, dark gray (5Y, 4/1), plastic, soft, slightly moist, massive, fat.
120								End of Boring @ 120 ft. Set 4-inch groundwater monitoring well at 116.5 ft.
								This work was performed under my supervision and I concur with the findings. Anthony C. Ward. Anthony C. Ward, CA R.G. #4782
125								

WELL DIAGRAM



DEPTH (ft): 105, 110, 115, 120, 125

GERAGHTY & MILLER, INC.

WELL LOG

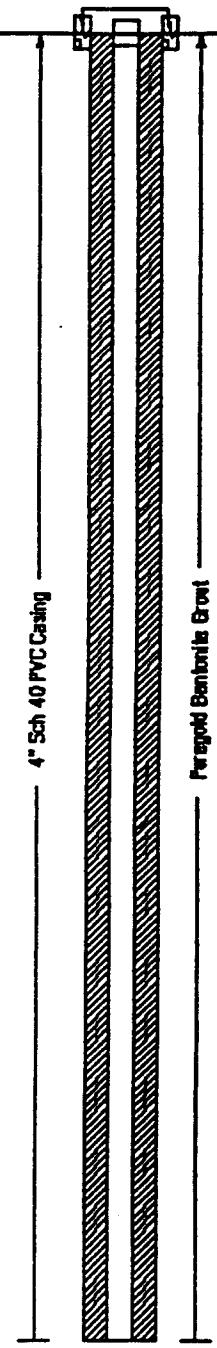
PROJECT International Light Metals
LOCATION 19200 S. Western, Torrance, CA
DRILL METHOD Hollow Stem Auger
SAMPLING METHOD CMSS
BOREHOLE DIAMETER 6 and 10 inches O.D.

PROJECT NO. CA0217.020
LOGGED BY Lara Urizar
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE M-12
DRILLER Dino Seldors

BORING P-16C
DATE STARTED 8/7/96
DATE COMPLETED 8/7/96
BORING DEPTH 120 ft.

DEPTH (ft)	RECOVERY %	SAMP.INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Concrete
						CL		CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
						ML		SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist.
10								SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist.

WELL DIAGRAM



DEPTH (ft): 5, 10, 15

GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CA0217.020 BORING NO. P-18C

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						ML		SILT, trace Clay, increasing in very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist.	4" Sch 40 PVC Casing; Paragold Bentonite Grout	
21										21
								SILT, trace Clay, increasing in very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, moist.		
26						SP				26
								SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist.		
31										31

GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

JJECT International Light Metals PROJECT NO CAD217.020 BORING NO. P-10C

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						SP		SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist.	4" Sch 40 PVC Casing; Peregold Bentonite Grout	
37										37
								SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist.		
42										42
								SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist.		
47										47

GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CA0217.020 BORING NO. P-16C

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						SP		SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist.		
53								SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist.	4" Sch 40 PVC Casing; Peregold Bentonite Grout	53
58								SAND, very fine grained, yellowish brown (10YR, 5/8), moist.		58
63								SAND, very fine grained, yellowish brown (10YR, 5/8), moist.		63

GERAGHTY & MILLER, INC.

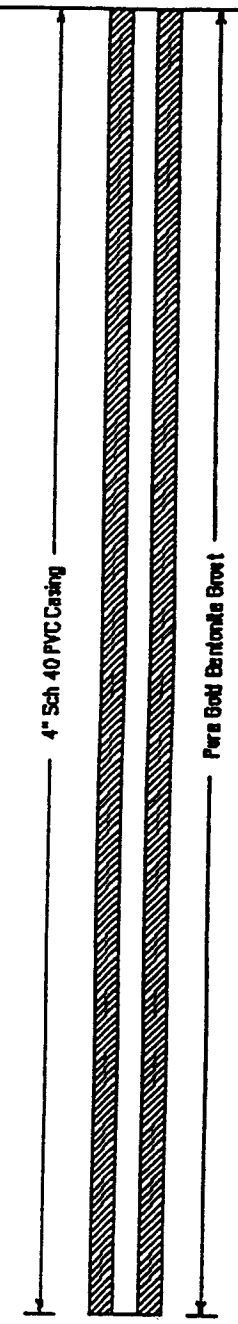
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CA0217.020 BORING NO. P-16C

DEPTH (ft)	RECOVERY %	SAMP.INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
	55		NA	0.0	10 10 27			SAND, very fine grained, light yellowish brown (10YR 6/4), loose, slightly moist.
	75		NA	0.0	16 33 40			SAND, very fine grained, trace silt laminae, yellowish brown (10YR 5/8), iron oxide staining, slightly orange near laminae, semi-loose, slightly moist.
	60		NA	0.0	12 28 40			SAND, trace silt, very fine grained, trace silt laminae, iron oxide staining, slightly orange near laminae, semi-loose, moist.
	75		NA	0.0	27 38 45			SAND, as above, silt laminae (friable siltstone), lenses of fine to medium grained sand, iron oxide staining, slightly orange, moist.
	80		NA	0.0	28 50 50			SAND, as above, trace silt, some iron oxide staining, semi-loose, wet. Groundwater at 72 feet, trace clay, slight partially lithified silt, iron oxide staining.
74	55		NA	0.0	10 24 36			SAND, trace silt, light brownish yellow (10 YR 6/4), loose, water saturated.

WELL DIAGRAM



DEPTH (ft): 69, 74, 79

GERAGHTY & MILLER, INC.

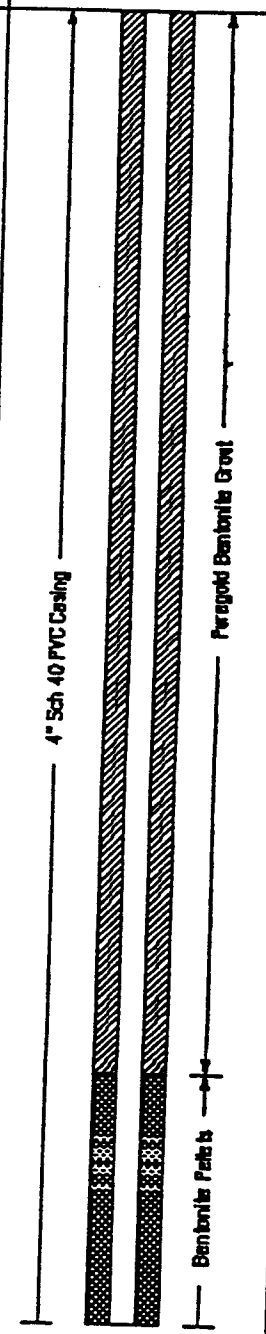
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CA0217.020 BORING NO. P-18C

DEPTH (ft)	RECOVERY %	SAMP.INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		SAND, very fine grained, minor Clay, light olive brown (2.5Y, 5/6), loose, wet to water saturated, homogeneous, 95% silica, 3-4% black grains, 1-2% feldspars, grains are subrounded.
85								SAND, very fine grained, minor Clay, light olive brown (2.5Y, 5/6), loose, water saturated, homogeneous, 95% silica, 3-4% black grains, 1-2% feldspars, grains are subrounded.
								Color change to yellowish brown (10YR, 5/6).
								Color change to light olive brown (2.5Y, 5/6), slightly more clay.
90								SAND, very fine grained, few coarser grains, light olive brown (2.5Y, 5/4), water saturated, subrounded to subangular, more feldspar (3%).
						SC		Clayey SAND, very fine grained, few coarser grains, light olive brown (2.5Y, 5/4), dense, iron staining in stringers.
						SW		SAND, fine to medium grained, minor Clay, with gravel (1.5 - 6 cm), light yellowish brown (2.5Y, 6/4), water saturated, loose, some iron staining in stringers.
						SP		SAND, fine to medium grained, little Clay, light olive brown (2.5Y, 5/4), loose, water saturated, few blebs of clay.
95								SAND, fine to medium grained, few coarser grains, some Clay, yellowish brown (10YR, 5/6), loose, water saturated, homogeneous, 3-5% feldspar, 1-2% black grains.
						SW		

WELL DIAGRAM



DEPTH (ft): 85, 90, 95

GERAGHTY & MILLER, INC.

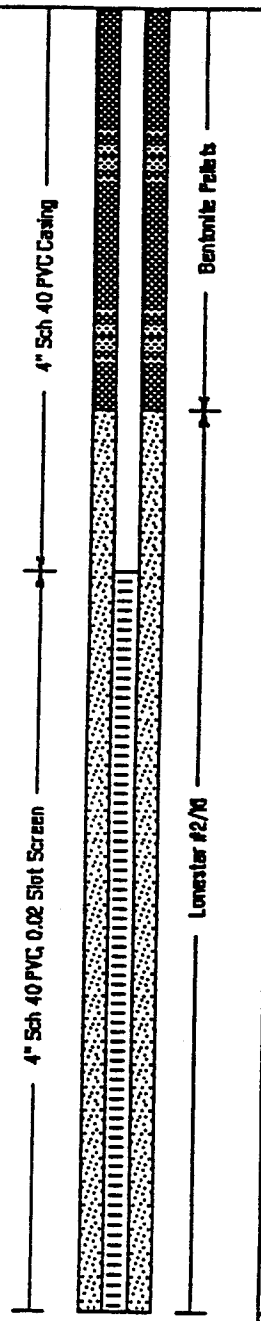
WELL LOG

(continuation)

JECT International Light Metals PROJECT NO CA0217.020 BORING NO. P-16C

DEPTH (ft)	RECOVERY %	SAMP.INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SW		SAND, fine to medium grained, trace Clay blebs, brownish yellow (2.5Y, 5/6), very loose, water saturated.
								SAND, fine to medium grained, trace Clay blebs, brownish yellow (2.5Y, 5/6), very loose, water saturated.
						SP		SAND, fine to medium grained, trace Clay, brownish yellow (2.5Y, 5/6), very loose, water saturated, 1-2% elongated clay blebs 1-10 cm long and 0.5-3 cm thick.
106						SW		SAND, fine to medium grained, light olive brown (2.5Y, 5/6), very loose, water saturated, 95% silica, 3-4% feldspar, 1-2% black minerals, heavily Fe stained stringers 1-3 cm thick from 105-108 ft (orange).
111								

WELL DIAGRAM



DEPTH (ft): 101, 106, 111

GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CA0217.020 BORING NO. P-16C

DEPTH (ft)	RECOVERY %	SAMP.INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						SW		As above, with no Fe stained stringers and trace clay.	Bottom Well Cap; 4" Sch 40 PVC, 0.02 Slot Screen; Lonestar #2/16	
117						ML		Sandy, Clayey, SILT, olive (5Y, 5/3), very stiff, slightly moist, 20% sand, 20% clay, 60% silt, massive.		117
						CL		CLAY, dark gray (5Y, 4/1), plastic, soft, slightly moist, massive, fat.		
122								End of Boring @ 120 ft. Set 4 inch groundwater monitoring well at 118 ft-bgs Comments: Drilled with a 8 in. auger to 74 ft-bgs. Pulled auger and drilled with 10 in. auger to 120 ft-bgs. Pulled auger out and redrilled to 118 ft-bgs. Lithologic information from P-16A was used to complete this log from 0-65 ft-bgs. Lithologic information from P-16B was used to complete this log from 74-120 ft-bgs.		122
127								This work was performed under my supervision and I concur with the findings. Anthony C. Ward Anthony C. Ward, CA R.G. #4782		127

GERAGHTY & MILLER, INC.

WELL LOG

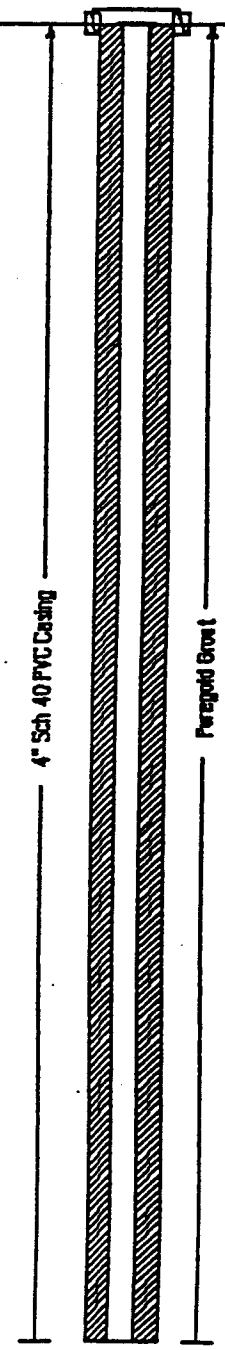
PROJECT International Light Metals
ATION 19200 S. Western, Torrance, CA
L METHOD Hollow Stem Auger
SAMPLING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.020.002
LOGGED BY B. Bechtel
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER C. Winegarner

BORING P-17
DATE STARTED 12/6/95
DATE COMPLETED 12/6/95
BORING DEPTH 120 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Concrete (12")
						CL		
	100		P-17 @ 5	4.1	7, 7, 8			CLAY, trace Silt, few coarse grained Sand, dark grayish brown (2.5Y, 4/2), moderate plasticity, slightly moist.
5								
						ML		
	100		P-17 @ 10	4.3	8, 9, 10			SILT, light olive brown (2.5Y, 5/4), non plastic, slightly moist.
10								
	100		P-17 @ 15	4.4	8, 8, 12			SILT, light olive brown (2.5Y, 5/4), non plastic, slightly moist, occassional pebbles approximately 1 cm diameter.
15								
	100		P-17 @ 20	5.3	6, 7, 11			SILT, trace Clay, light olive brown (2.5Y, 5/4), non plastic, slightly moist.
20								
	100		P-17 @ 25	5.5	13, 18, 20			SILT, little Clay, trace very fine grained Sand, light olive brown (2.5Y, 5/4), non plastic, contains yellow streaks and spots (2.5Y, 6/8).
25								

WELL DIAGRAM



DEPTH (ft): 5, 10, 15, 20, 25

GERAGHTY & MILLER, INC.

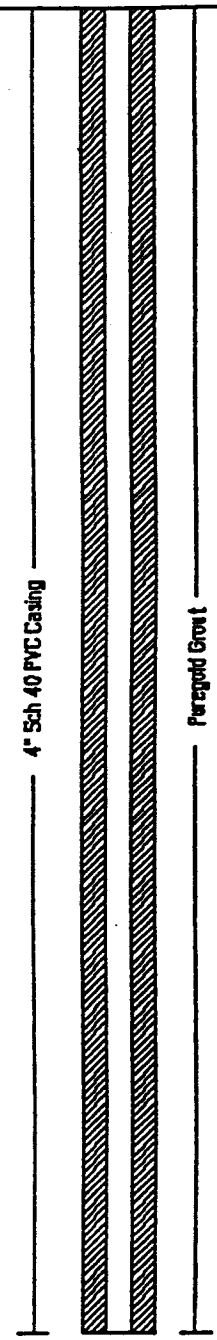
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-17

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						ML		
				14.3	12, 16, 24			SILT, some Clay, olive (5Y, 5/3), non plastic, slightly moist, heavy iron staining.
30	100		P-17 @ 30					
						SP		
				5.4	18, 26, 31			SAND, very fine grained, little Clay, olive yellow (2.5Y, 6/6), loose, slightly moist, clay is in small blebs.
35	100		P-17 @ 35					
				6.3	22, 29, 34			SAND, very fine grained, light yellowish brown (2.5Y, 6/4), loose, slightly moist, iron staining in mottled pattern.
40	100		P-17 @ 40					
				10.3	23, 28, 40			SAND, very fine grained, light yellowish brown (2.5Y, 6/4), loose, slightly moist, iron staining in mottled pattern, silty clay in bottom of shoe.
45	100		P-17 @ 45					
						SM		
				8.6	24, 31, 38			Silty SAND, very fine grained, light olive brown (2.5, 5/4), loose, slightly moist.
50	100		P-17 @ 50					

WELL DIAGRAM



DEPTH (ft): 30, 35, 40, 45, 50

GERAGHTY & MILLER, INC.

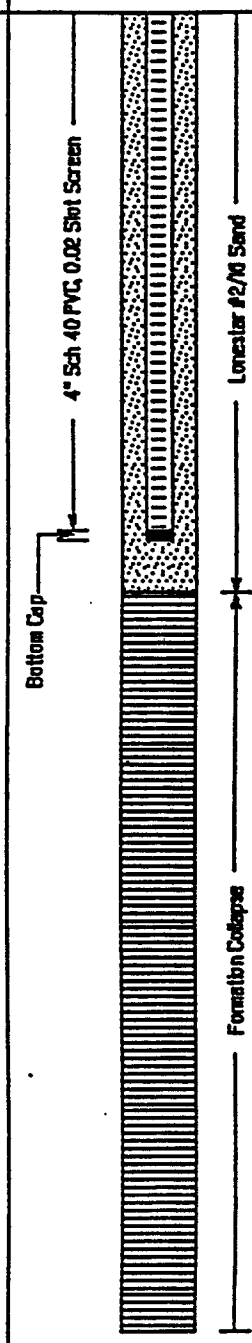
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-17

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
	100		P-17 @ 80	187	25, 30, 38			SAND, very fine grained, light olive brown (2.5Y, 5/4), loose, water saturated, few clay blebs approximately 0.5 cm or less in diameter.
80								
	100		P-17 @ 85	155	28, 33, 38			SAND, very fine grained, trace Clay, light olive brown, slightly dense, water saturated.
85								
	100		P-17 @ 90	132	14, 18, 23			SAND, very fine grained, trace Clay, light olive brown, slightly dense, water saturated.
90								
	100		P-17 @ 95	264	20, 26, 32			SAND, medium grained, trace Clay, light yellowish brown (2.5Y, 6/4), loose, water saturated.
95								
	100		P-17 @ 100	137	24, 28, 32			SAND, medium grained, trace Clay, light yellowish brown (10YR, 6/4), loose, water saturated.
100								

WELL DIAGRAM



DEPTH (ft): 80, 85, 90, 95, 100

GERAGHTY & MILLER, INC.

WELL LOG

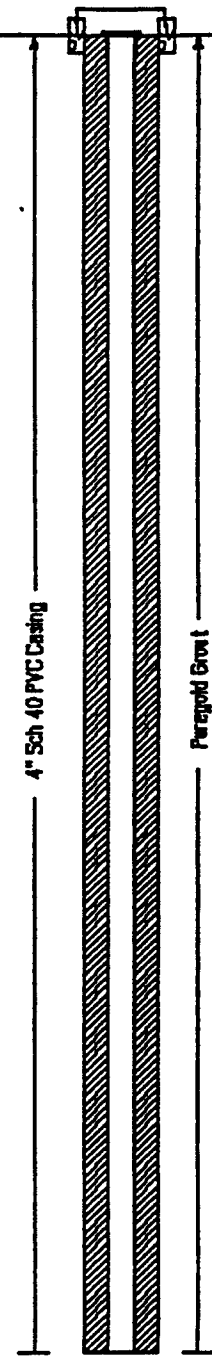
PROJECT International Light Metals
LOCATION 19200 S. Western, Torrance, CA
METHOD Hollow Stem Auger
LING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.020.002
LOGGED BY B. Bechtel
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER C. Winegarner

BORING P-18
DATE STARTED 12/5/95
DATE COMPLETED 12/5/95
BORING DEPTH 100 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Concrete (8")
						CL		
					4			Silty CLAY, dark grayish brown (10YR, 4/2), moderate plasticity, moderately stiff, slightly moist.
				3.0	6			
	100		P-18 @ 5		8			
						ML		
					6			SILT, trace Clay, light olive brown (2.5Y, 5/6), non plastic, slightly moist.
				2.7	8			
10	100		P-18 @ 10		8			
					9			SILT, trace Clay, light olive brown (2.5Y, 5/6), non plastic, dry.
				2.8	17			
15	100		P-18 @ 15		23			

WELL DIAGRAM



DEPTH (ft): 5, 10, 15

GERAGHTY & MILLER, INC.

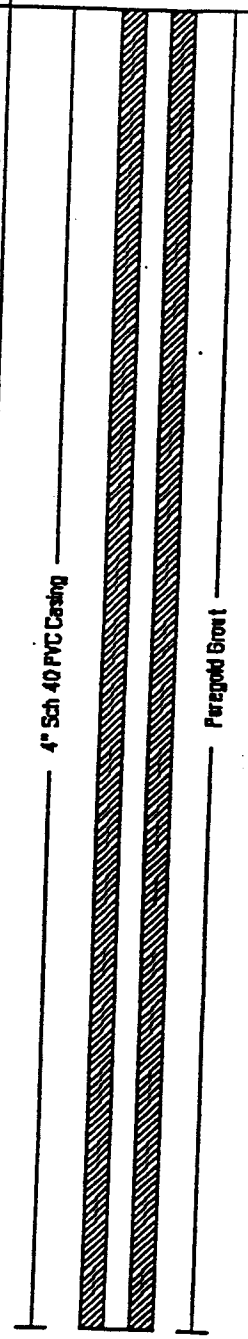
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-18

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						ML		
						CL		
				3.2	11, 17, 28			Silty CLAY, yellowish brown (2.5Y, 6/4), stiff, iron staining in small nodules.
20	100		P-18 @ 20					
						ML		
				3.8	13, 32, 21			Clayey SILT, some very fine grained Sand, light olive brown (2.5Y, 5/4), non plastic, slightly moist, heavy iron staining.
25	100		P-18 @ 25					
				3.5	19, 23, 30			Sandy SILT, very fine grained Sand, olive yellow (2.5Y, 6/6), non plastic, slightly moist, heavy iron stairing.
30	100		P-18 @ 30					

WELL DIAGRAM



DEPTH (ft): 20, 25, 30

GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-18

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						ML				
						SP				
					20			SAND, very fine grained, olive yellow (2.5Y, 6/6), loose, slightly moist.		
				2.5	23					
	100		P-18 @ 35		28					35
					22			SAND, very fine grained, olive yellow (2.5Y, 6/6), loose, slightly moist.		
				2.5	30					
40	100		P-18 @ 40		37					40
					30			SAND, very fine grained, light yellowish brown (2.5Y, 6/4), loose, slightly moist.		
				2.5	38					
45	100		P-18 @ 45		46					45

4" Sch 40 PVC Casing

Pureguid Grout

GERAGHTY & MILLER, INC.

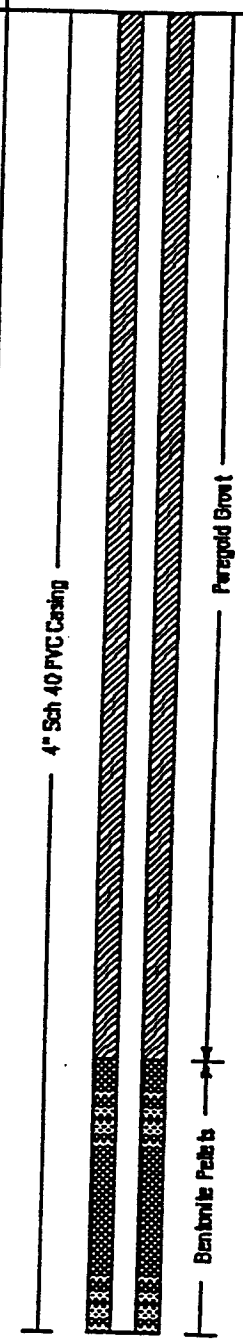
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-18

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
				2.3	28			SAND, very fine grained, light yellowish brown (2.5Y, 6/4), loose, slightly moist.
					33			
	100		P-18 @ 50		38			
50								
				2.4	20			SAND, very fine grained, light yellowish brown (2.5Y, 6/4), loose, slightly moist.
					28			
	100		P-18 @ 55		36			
55								
				2.2	28			SAND, very fine grained, olive yellow (2.5Y, 6/6), loose, slightly moister, little iron staining in streaks.
					40			
	100		P-18 @ 60		46			
60								

WELL DIAGRAM



DEPTH (ft): 50, 55, 60

GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAD 217.020.002 BORING NO. P-18

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						SP				
				2.0	30			SAND, very fine grained, olive yellow (2.5Y, 6/6), loose, slightly moister.		
					37					
	100		P-18 @ 65		42					65
				2.8	28			SAND, very fine grained, light yellowish brown (2.5Y, 6/4), loose, moist.		
			P-18 @ 70		36					
	100				38					
70										70
				7.1	16			SAND, very fine grained, light yellowish brown (2.5Y, 6/4), loose, water saturated, water encountered at 74 ft-bgs.		
					20					
	100		P-18 @ 75		28					
75										75

WELL DIAGRAM: 4" Sch 40 PVC Casing; 4" Sch 40 PVC, 0.02 Slot Screen; Bentonite Pellets; Lonestar #2/16

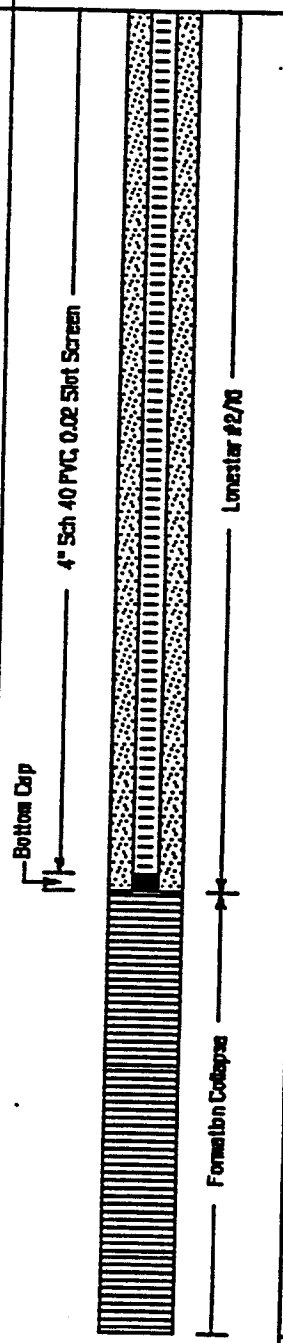
GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-18

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
				0.2	20			SAND, very fine grained, olive yellow (2.5Y, 6/6), loose, water saturated.
					26			
80	100		P-18 @ 80		30			
				4.0	22			SAND, very fine grained, trace Clay, light yellowish brown (2.5Y, 6/4), loose to dense, water saturated, some iron stained spots.
					30			
85	100		P-18 @ 85		36			
				4.3	18			SAND, medium grained, some Clay, light olive brown (2.5Y, 5/4), loose, water saturated.
					23			
90	100		P-18 @ 90		28			



DEPTH (ft): 80, 85, 90

GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-18

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						SP				
					NA			SAND, medium grained, some Clay, light olive brown (2.5Y, 5/4), loose, water saturated.		
				3.2	NA					
	100		P-18 @ 85		NA				Formation Collapse	95
								Heaving SANDS, no sample taken at 100 ft-bgs.		
100								End of Boring @ 100 ft. Set 4-inch groundwater monitoring well at 85 ft.		100
								This work was performed under my supervision and I concur with the findings. Anthony C. Ward. Anthony C. Ward, CA R.G. #4782		
105										105

GERAGHTY & MILLER, INC.

WELL LOG

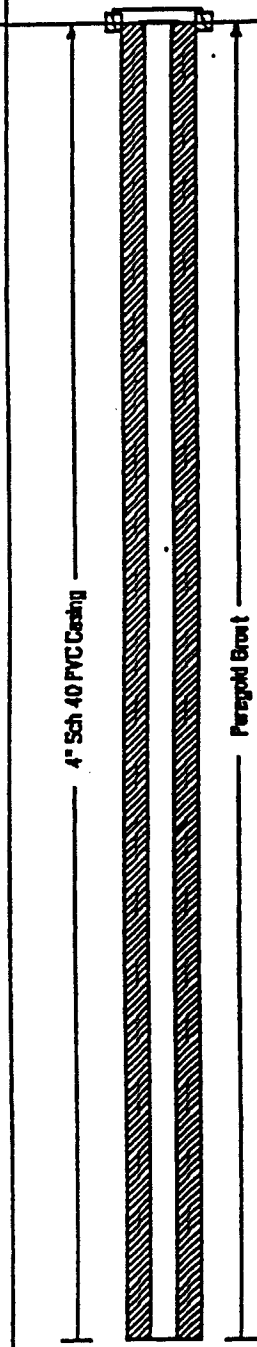
PROJECT International Light Metals
LOCATION 19200 S. Western, Torrance, CA
DRILL METHOD Hollow Stem Auger
SAMPLING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.020.002
LOGGED BY B. Bechtel
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER C. Winegarner

BORING P-19
DATE STARTED 12/4/95
DATE COMPLETED 12/4/95
BORING DEPTH 100 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						ML		Asphalt (3")
5	100		P-19 @ 5	0.8	6, 6, 8			SILT, with Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), stiff, slightly moist.
10	100		P-19 @ 10	1.1	7, 9, 12			SILT, light olive brown (2.5Y, 5/4), slightly plastic, slightly moist.
15	100		P-19 @ 15	0.8	11, 12, 15			SILT, light olive brown (2.5Y, 5/4), slightly plastic, slightly moist.
20	100		P-19 @ 20	0.5	9, 13, 14			SILT, light olive brown (2.5Y, 5/4), slightly plastic, slightly moist.
25	100		P-19 @ 25	0.7	10, 13, 17			SILT, trace very fine grained Sand, light olive brown (2.5Y, 5/6), moderately loose, slightly moist, micaceous.
						SM		
30	100		P-19 @ 30	0.7	11, 11, 16	SP		Silty SAND, very fine grained, light olive brown (2.5Y, 5/4), loose, slightly moist, iron staining. Shoe contains very fine grained SAND, light yellowish brown (2.5Y, 6/4).

WELL DIAGRAM



DEPTH (ft): 5, 10, 15, 20, 25, 30

GERAGHTY & MILLER, INC.

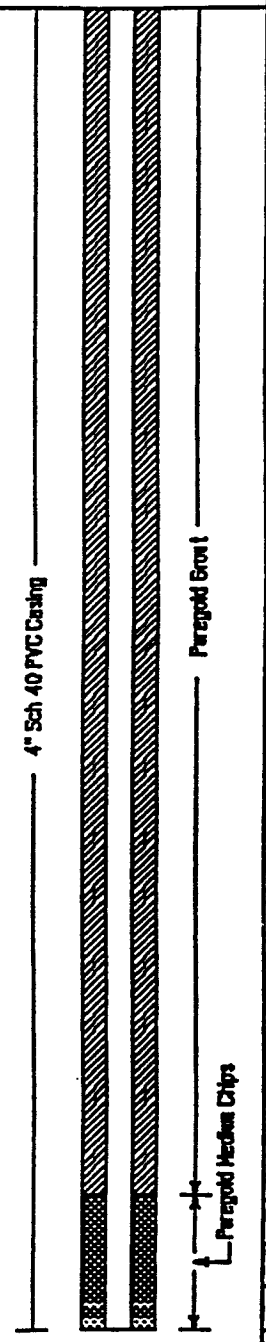
WELL LOG

(continuation)

...ECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-19

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
35	100		P-19 @ 35	0.7	13 18 23			SAND, very fine grained, light yellowish brown (2.5Y, 6/4), loose, slightly moist.
	100		P-19 @ 40	1.0	12 18 20			SAND, very fine grained, light yellowish brown (2.5Y, 6/4), loose, moist.
45	100		P-19 @ 45	0.8	13 15 21			SAND, very fine grained, light yellowish brown (2.5Y, 6/4), loose, moist.
50	100		P-19 @ 50	0.8	14 23 29			SAND, very fine grained, yellow (2.5Y, 7/6), loose, slightly moist.
55	100		P-19 @ 55	1.0	22 25 29			SAND, very fine grained, yellow (2.5Y, 7/6), loose, slightly moist.
60	100		P-19 @ 60	1.2	17 23 28			SAND, very fine grained, olive yellow (2.5Y, 6/6), loose, slightly moist.

WELL DIAGRAM



DEPTH (ft): 35, 40, 45, 50, 55, 60

GERAGHTY & MILLER, INC.

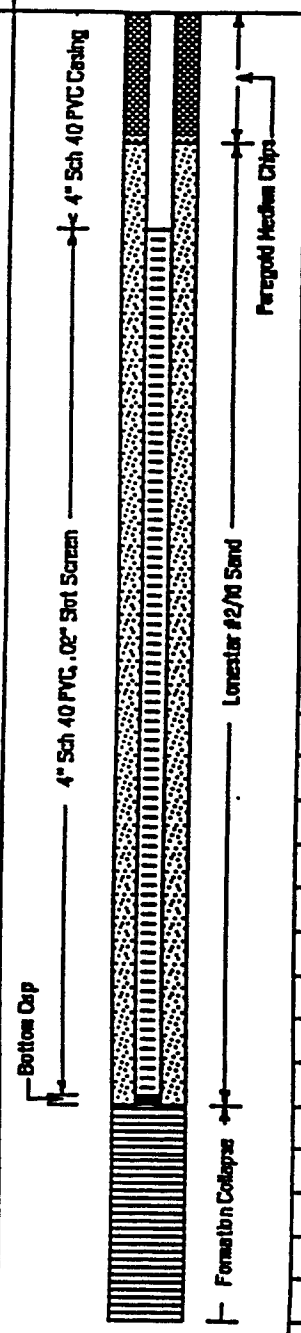
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-19

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
85	100		P-19 @ 65	1.2	20 33 40			SAND, very fine grained, light yellowish brown (2.5Y, 6/4), loose, slightly moist.
	100		P-19 @ 70	1.4	30 37 23			SAND, very fine grained, light yellowish brown (2.5Y, 6/4), loose, moist.
								Water encountered at 72 ft-bgs.
75	100		P-19 @ 75	52.0	32 40 42			SAND, very fine grained, light yellowish brown (2.5Y, 6/4), loose, water saturated.
80	100		P-19 @ 80	45.4	25 35 38			SAND, very fine grained, light yellowish brown (2.5Y, 6/4), loose, water saturated.
85	100		P-19 @ 85	17.0	27 36 41			SAND, very fine grained, light yellowish brown (2.5Y, 6/4), loose, water saturated.
						SC		
90	100		P-19 @ 90	88.8	39 42 48			Clayey SAND, medium grained, light olive brown (2.5Y, 5/6), loose, water saturated.

WELL DIAGRAM



DEPTH (ft): 85, 70, 75, 80, 85, 90

GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-18

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						SC				
						SP				
				48.6	28			SAND, medium grained, trace Clay, olive yellow (2.5Y, 6/6), loose, water saturated.	Formation Collapse	
95	100		P-18 @ 95		30 / 49					95
								No sample taken at 100 ft-bgs.		
								End of Boring @ 100 ft. Set 4 in. groundwater monitoring well at 85 ft.		100
105										105
110										110
115								This work was performed under my supervision and I concur with the findings.		115
120								Anthony C. Ward, CA R.G. #4782		120

GERAGHTY & MILLER, INC.

WELL LOG

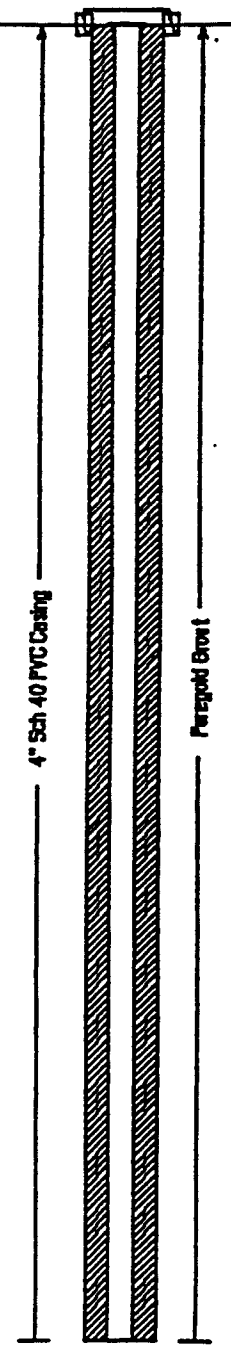
PROJECT International Light Metals
LOCATION 19200 S. Western, Torrance, CA
DRILLING METHOD Hollow Stem Auger
SAMPLING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.020.002
LOGGED BY B. Bechtel/M. Shiplone
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER C. Winegarner

BORING P-20
DATE STARTED 11/21/95
DATE COMPLETED 11/22/95
BORING DEPTH 80 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
5	100		P-20 @ 5	0.0	5, 7, 12	CL		CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
10	100		P-20 @ 10	0.0	6, 8, 10	ML		SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non to low plasticity, moist.
15	100		P-20 @ 15	0.0	7, 13, 14			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non to low plasticity, moist.
20	100		P-20 @ 20	0.0	11, 12, 15			SILT, trace Clay, increasing in very fine grained Sand, dark yellowish brown (10YR, 4/4), non to low plasticity, moist.
25	100		P-20 @ 25	0.0	10, 12, 17	SP		SAND, very fine grained, little Silt, brownish yellow (10YR, 6/6), moist.

WELL DIAGRAM



GERAGHTY & MILLER, INC.

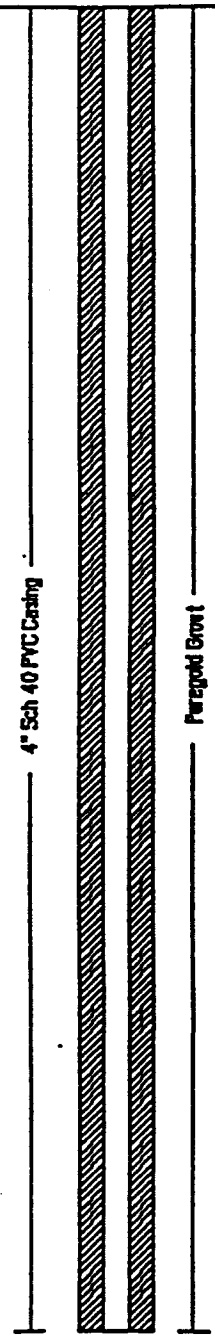
WELL LOG

(continuation)

ST International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-20

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
30	100		P-20 @ 30	0.0	11, 16, 23	SP		SAND, very fine grained, little Silt, brownish yellow (10YR, 6/6), moist.
35	100		P-20 @ 35	0.0	14, 18, 25	SP		SAND, very fine grained, little Silt, brownish yellow (10YR, 6/6), moist, shell fragments.
40	100		P-20 @ 40	2.0	11, 13, 23	SP/SM		SAND, some Silt, light olive brown (2.5Y, 5/3).
45	100		P-20 @ 45	2.1	8, 16, 20	SP		SAND, less Silt, light olive brown (2.5Y, 5/3).
50	100		P-20 @ 50	5.2	16, 20, 23			SAND, less Silt, light olive brown (2.5Y, 5/3).

WELL DIAGRAM



GERAGHTY & MILLER, INC.

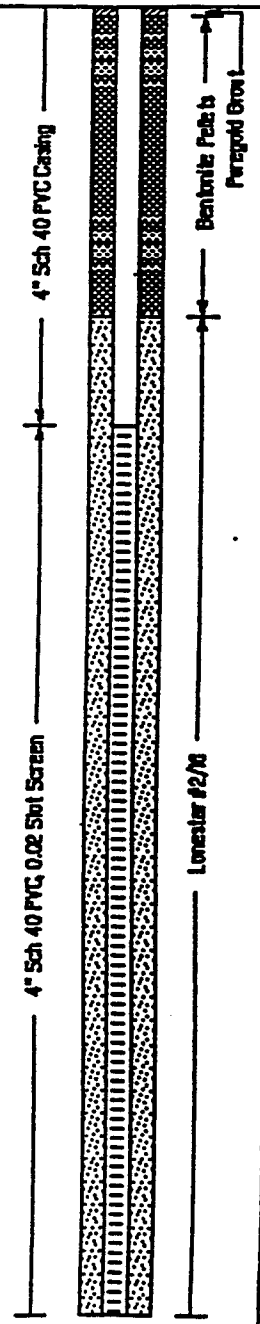
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-20

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
				0.0	18 / 26 / 32			SAND, less Silt, brown (7.5YR, 4/4), moist.
55	100		P-20 @ 55					
				2.1	38 / 50/6			SAND, less Silt, light olive brown (2.5Y, 5/4), moist.
60	100		P-20 @ 60					
				1.5	20 / 22 / 37			SAND, less Silt, brownish yellow (10YR, 6/6), moist.
65	100		P-20 @ 65					
								Water encountered at 68 ft-bgs.
				12	17 / 23 / 28			SAND, less Silt, brownish yellow (10YR, 6/6), water saturated.
70	100		P-20 @ 70					
						SM		
				58.3	18 / 24 / 33			Silty SAND, very fine grained, light olive brown (2.5Y, 5/4), moist, micaceous.
75	100		P-20 @ 75					

WELL DIAGRAM



DEPTH (ft): 55, 60, 65, 70, 75

GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-20

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						SM				
						CL		Silty CLAY, light olive brown (2.5Y, 5/4), micaceous.		
					8			Silty CLAY, light olive brown (2.5Y, 5/4), micaceous.		
				48.6	13					
80	100		P-20 @ 80		16			End of Boring @ 80.0 ft. Set 4-inch groundwater monitoring well at 78 ft.	4" Sch 40 PVC, 0.02 Slot Screen, Bottom Cap; Lonestar #2/10	80
85										85
90										90
95										95
100										100

This work was performed under my supervision and I concur with the findings.

Anthony C. Ward

Anthony C. Ward, CA R.G. #4782

GERAGHTY & MILLER, INC.

WELL LOG

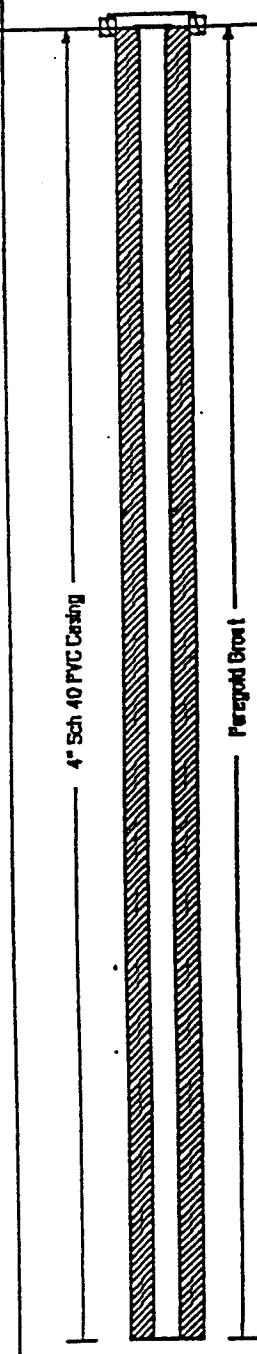
PROJECT International Light Metals
LOCATION 19200 S. Western, Torrance, CA
DRILL METHOD Hollow Stem Auger
SAMPLING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.020.002
LOGGED BY M. Shipione
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER C. Winegarner

BORING P-21
DATE STARTED 11/30/95
DATE COMPLETED 11/30/95
BORING DEPTH 100 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Concrete (12")
								Base Rock (6")
						CL		CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
5	100		P-21 @ 5	6.2	5, 7, 10			
						ML		SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non to low plasticity, moist.
	100		P-21 @ 10	5.3	6, 7, 8			
15	100		P-21 @ 15	4.2	8, 8, 12			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non to low plasticity, moist.
20	100		P-21 @ 20	4.8	9, 11, 14			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non to low plasticity, moist.
						SP		SAND, very fine grained, trace Silt, brownish yellow (10YR, 6/6), moist.
25	100		P-21 @ 25	6.7	11, 16, 19			
30	100		P-21 @ 30	5.1	14, 20, 26			SAND, very fine grained, trace Silt, brownish yellow (10YR, 6/6), moist.

WELL DIAGRAM



DEPTH (ft): 5, 10, 15, 20, 25, 30

GERAGHTY & MILLER, INC.

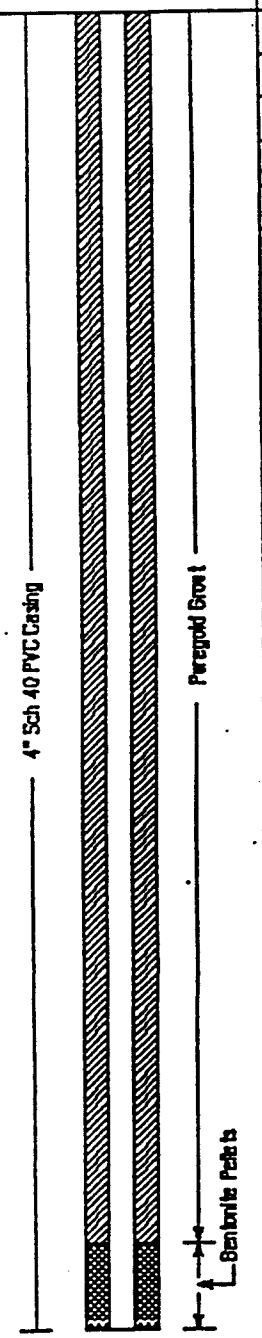
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-21

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
35	100		P-21 @ 35	5.6	20, 27, 31	SP		SAND, very fine grained, trace Silt, brownish yellow (10YR, 6/6), moist.
40	100		P-21 @ 40D, P-21 @ 40	7.8	17, 24, 30	ML		SILT, little very fine grained Sand, light olive brown (2.5Y, 5/3), non plastic, moist.
45	100, 100		P-21 @ 45	6.6	11, 24, 33	SP		SAND, very fine grained, trace Silt, yellowish brown (10YR, 5/6), moist.
50	100		P-21 @ 50	7.8	17, 29, 30			SAND, very fine grained, trace Silt, yellowish brown (10YR, 5/6), moist.
55	100		P-21 @ 55	8.7	20, 28, 30			SAND, very fine grained, trace Silt, yellowish brown (10YR, 5/6), moist.
60	100		P-21 @ 60	7.5	20, 35, 45			SAND, very fine grained, trace Silt, yellowish brown (10YR, 5/6), very moist.

WELL DIAGRAM



DEPTH (ft): 35, 40, 45, 50, 55, 60

GERAGHTY & MILLER, INC.

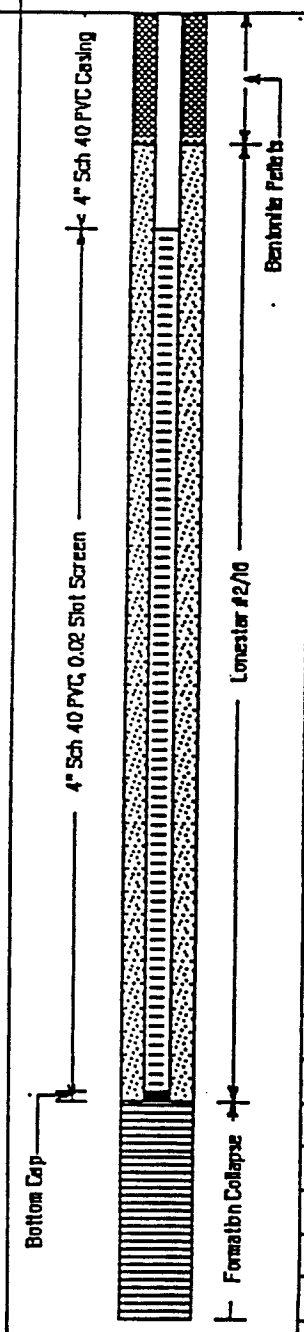
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-21

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
85	100		P-21 @ 65	10.4	43, 50/0	SP		SAND, very fine grained, trace Silt, yellowish brown (10YR, 5/6), very moist.
70	100		P-21 @ 70	13.2	36, 40, 47			SAND, very fine grained, trace Silt, yellowish brown (10YR, 5/6), very moist to wet.
75	100		P-21 @ 75	130	30, 50/0			Water encountered at 73.5 ft-bgs. SAND, very fine grained, trace Silt, yellowish brown (10YR, 5/6), water saturated.
80	100		P-21 @ 80	135	20, 27, 29			SAND, very fine grained, trace Silt, yellowish brown (10YR, 5/6), water saturated.
85	100		P-21 @ 85	19	21, 29, 37			SAND, very fine to medium grained, trace Silt, yellowish brown (10YR, 5/6), water saturated.
90	100		P-21 @ 90	263	22, 31, 38			SAND, fine to medium grained, dark yellowish brown (10YR, 4/6), water saturated.

WELL DIAGRAM



DEPTH (ft): 85, 70, 75, 80, 85, 90

GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-21

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						SP		SAND, fine to medium grained, dark yellowish brown (10YR, 4/6), water saturated.	Formation Collapse	
				129	13 17 23					
95	100		P-21 @ 95							95
								End of Boring @ 100 ft. Set 4-inch groundwater monitoring well at 85 ft.		100
105										105
110										110
115								This work was performed under my supervision and I concur with the findings. Anthony C. Ward. Anthony C. Ward, CA R.G. #4782		115
120										120

GERAGHTY & MILLER, INC.

WELL LOG

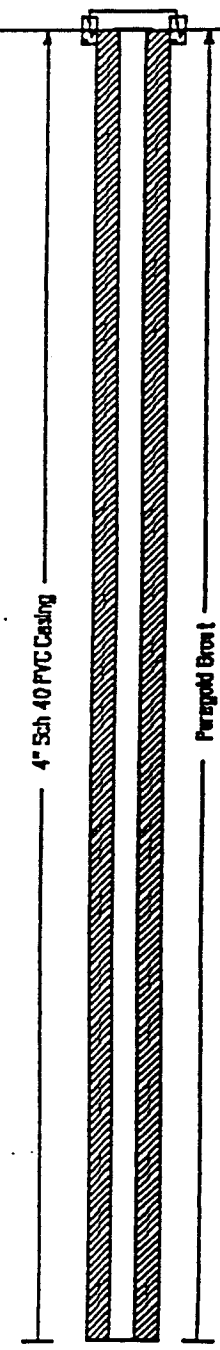
PROJECT International Light Metals
LOCATION 19200 S. Western, Torrance, CA
DRILL METHOD Hollow Stem Auger
SAMPLING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.020.002
LOGGED BY M. Shipione
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER T. Garver

BORING P-22
DATE STARTED 11/27/95
DATE COMPLETED 11/29/95
BORING DEPTH 108 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						CL		Asphalt (3")
				0.0	7, 12, 18			CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
5	100		P-22 @ 5					
						ML		
				0.0	12, 24, 38			SILT, trace Clay, trace, very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, slightly moist to moist.
10	100		P-22 @ 10					
				0.0	8, 12, 17			SILT, trace Clay, trace, very fine grained Sand, dark yellowish brown (10YR, 4/4), non plastic, slightly moist to moist.
15	100		P-22 @ 15					
						SM		
				0.0	12, 16, 25			Silty SAND, very fine grained, some Silt, browish yellow (10YR, 6/8), non plastic, slightly moist.
20	100		P-22 @ 20					

WELL DIAGRAM



GERAGHTY & MILLER, INC.

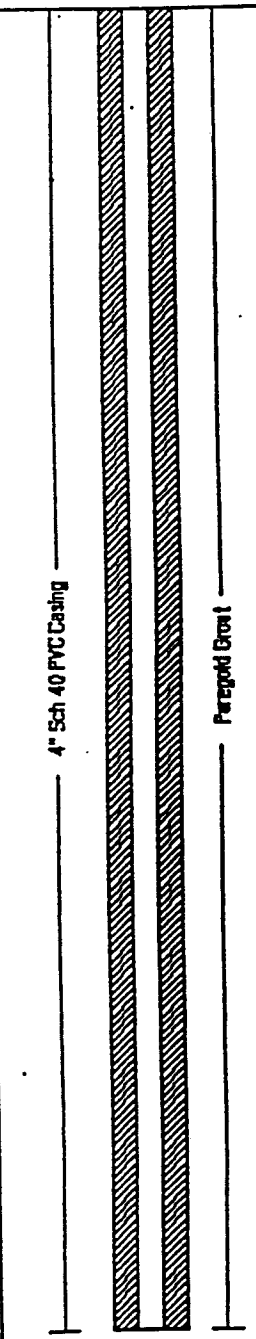
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-22

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SM		
				0.0	7, 11, 16			Silty SAND, very fine grained, some Silt, browish yellow (10YR, 6/8), non plastic, slightly moist.
25	100		P-22 @ 25					
						SM SP		
				0.0	8, 12, 17			SAND, very fine grained, some Silt, brownish yellow (10YR, 6/8), slightly moist to moist.
30	100		P-22 @ 30					
						SP		
				10.8	12, 20, 28			SAND, very fine grained, less Silt, brownish yellow (10YR, 6/8), slightly moist to moist.
35	100		P-22 @ 35					
				0.0	14, 21, 27			SAND, very fine grained, brownish yellow (10YR, 6/8), slightly moist to moist.
40	100		P-22 @ 40					

WELL DIAGRAM



DEPTH (ft): 25, 30, 35, 40

GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-22

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						SP				
				0.0	10 18 22			SAND, very fine grained, brownish yellow (10YR, 6/6), slightly moist to moist.		
45	100		P-22 @ 45							45
				8.5	10 15 23			SAND, very fine grained, brownish yellow (10YR, 6/6), slightly moist to moist.	4" Sch 40 PVC Casing Paragold Grout	
50	100		P-22 @ 50							50
				16.5	11 14 20			SAND, very fine to fine grained, yellowish brown (10YR, 5/6), moist.		
55	100		P-22 @ 55							55
				16.4	12 22 30			SAND, very fine to fine grained, yellowish brown (10YR, 5/6), moist.		
60	100		P-22 @ 60							60

GERAGHTY & MILLER, INC.

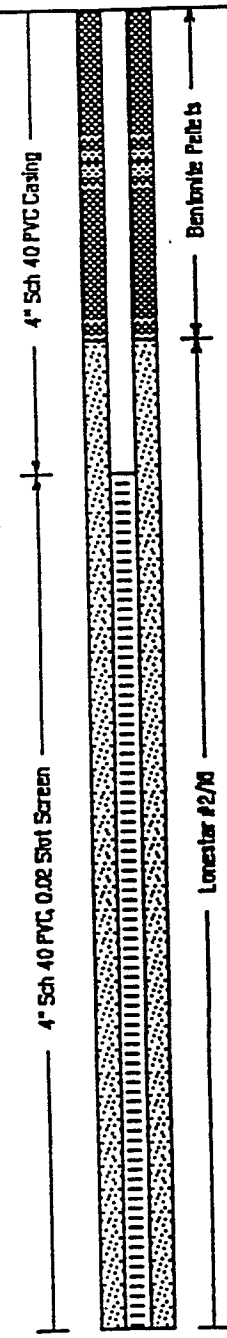
WELL LOG

(continuation)

PROJECT: International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-22

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
	100		P-22 @ 65	7.8	16 28 40			SAND, very fine to fine grained, yellowish brown (10YR, 5/6), very moist.
85								
	100		P-22 @ 70	2.5	18 23 41			SAND, very fine to fine grained, yellowish brown (10YR, 5/6), wet to water saturated.
70								
	100		P-22 @ 75	54.8	11 32 45			SAND, very fine to fine grained, yellowish brown (10YR, 5/6), wet to water saturated.
75								Water encountered at 75.5 ft-bgs.
	100		P-22 @ 80	31.6	13 30 47			SAND, very fine to fine grained, yellowish brown (10YR, 5/6), water saturated.
80								

WELL DIAGRAM



DEPTH (ft): 85, 70, 75, 80

GERAGHTY & MILLER, INC.

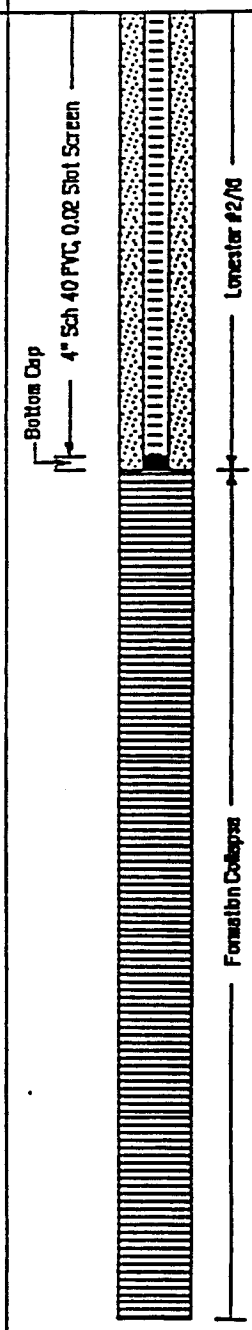
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-22

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
	100		P-22 @ 85	8.2	18 50/6			SAND, very fine to fine grained, yellowish brown (10YR, 5/6), water saturated.
85								
	NA		P-22 @ 88	NA	15 21 36			SAND, very fine to fine grained, yellowish brown (10YR, 5/6), water saturated, some interbeds (0.5 inch) of silty sand and silt.
	NA		P-22 @ 90	NA	11 18 28			SAND, very fine to fine grained, yellowish brown (10YR, 5/6), water saturated.
90								
	NA		P-22 @ 93	NA	14 22 30			SAND, very fine to fine grained, yellowish brown (10YR, 5/6), water saturated.
	NA		P-22 @ 95	0.0	13 21 30			SAND, fine to medium grained, yellowish brown (10YR, 5/6), water saturated.
95								
	NA		P-22 @ 98	NA	8 16 24			SAND, fine to medium grained, dark red (2.5YR, 4/6), water saturated.
	NA		P-22 @ 100	NA	10 16 25			SAND, fine to medium grained, dark red (2.5YR, 4/6), water saturated.
100								

WELL DIAGRAM



DEPTH (ft): 85, 90, 95, 100

GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-22

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						SP		SAND, fine to medium grained, dark red (2.5YR, 4/6), water saturated.	Formation Collapse	
				NA	13					
					17					
	NA		P-22 @ 102		22					
								SAND, fine to medium grained, dark red (2.5YR, 4/6), water saturated.		
				NA	11					
					18					
105	NA		P-22 @ 105		28					105
						ML CL		Clayey SILT, olive (5Y, 5/4), high plasticity, stiff, slightly moist.		
					8					
				0.0	12					
	NA		P-22 @ 108		16					
								End of Boring @ 108 ft. Set 4-inch groundwater monitoring well at 87 ft.		
110										110
115										115
								This work was performed under my supervision and I concur with the findings. Anthony C. Ward. Anthony C. Ward, CA R.G. #4782		
120										120

GERAGHTY & MILLER, INC.

WELL LOG

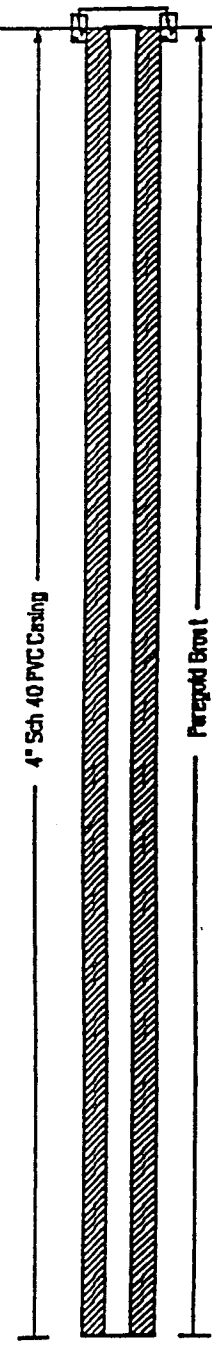
OJECT International Light Metals
CATION 19200 S. Western, Torrance, CA
RILL METHOD Hollow Stem Auger
SAMPLING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

PROJECT NO. CAO 217.020.002
LOGGED BY M. Shipione
DRILL CO. Gregg Drilling and Testing, Inc.
RIG TYPE B-61
DRILLER C. Winegarrer

BORING P-23
DATE STARTED 11/17/95
DATE COMPLETED 11/17/95
BORING DEPTH 75.3 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Concrete (8")
								Sand (6")
						CL		
					6			CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
				0.0	8			
5	100		P-23 @ 5		8			
						ML		
					7			SILT, trace Clay, trace very fine grained Sand, yellowish brown (10YR, 5/6), non to low plasticity, moist.
				0.0	11			
10	100		P-23 @ 10		14			
					10			SILT, trace Clay, trace very fine grained Sand, yellowish brown (10YR, 5/6), non to low plasticity, moist.
				0.3	11			
15	100		P-23 @ 15		10			
						SM		
					12			SILT, trace Clay, increasing in very fine grained Sand, yellowish brown (10YR, 5/6), non to low plasticity, moist.
				0.0	14			
20	100		P-23 @ 20		18			

WELL DIAGRAM



DEPTH (ft): 5, 10, 15, 20

GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-23

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						ML SM				
						SP		SAND, little Silt, yellowish brown (10YR, 5/4), slightly moist to moist.		
				0.0	15					
					22					
	100		P-23 @ 25		25					25
						ML		SILT, trace very fine grained Sand, olive (5Y, 5/3), non plastic, slightly moist.	4" Sch 40 PVC Casing	
					11					
	100		P-23 @ 30D	2.4	13					
	100		P-23 @ 30		17					30
						SM		Silty SAND, very fine grained, some Silt, yellowish brown (10YR, 5/6), slightly moist to moist.		
					20					
				3.8	27					
	100		P-23 @ 35		30					35
						ML		SILT, little Clay, light olive brown (2.5Y, 5/4), moderate plasticity, moist.	Pneupold Bowl	
					8					
				4.2	16					
	100		P-23 @ 40		21					40

GERAGHTY & MILLER, INC.

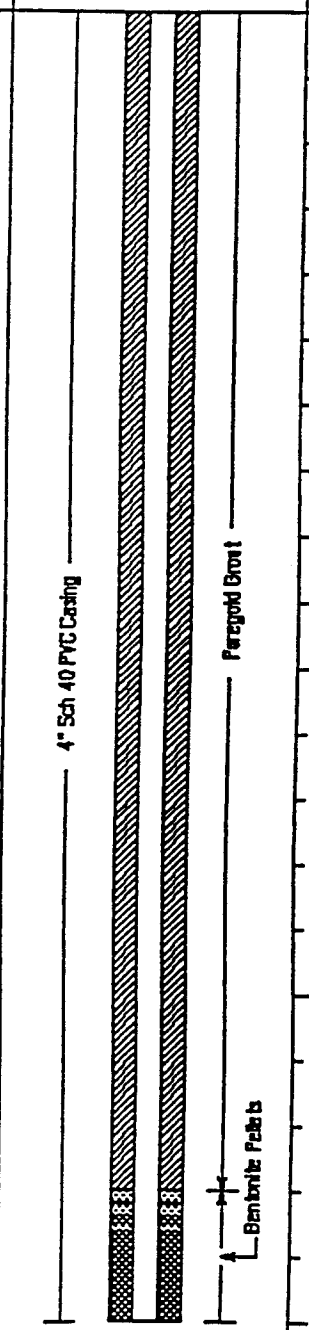
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-23

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						ML		
						SP		
				0.0	38 50/6			SAND, very fine grained, light gray (2.5Y, 7/1), slightly moist to moist.
45	100		P-23 @ 45					
				0.0	27 36 42			SAND, very fine grained, light gray (2.5Y, 7/1), slightly moist to moist.
50	100		P-23 @ 50					
				0.0	32 65			SAND, very fine grained, light gray (2.5Y, 7/1), slightly moist to moist.
55	100		P-23 @ 55					
				1.1	28 30 41			SAND, very fine grained, yellowish brown (10YR, 5/8), moist.
80	100		P-23 @ 60					

WELL DIAGRAM



DEPTH (ft): 45, 50, 55, 80

GERAGHTY & MILLER, INC.

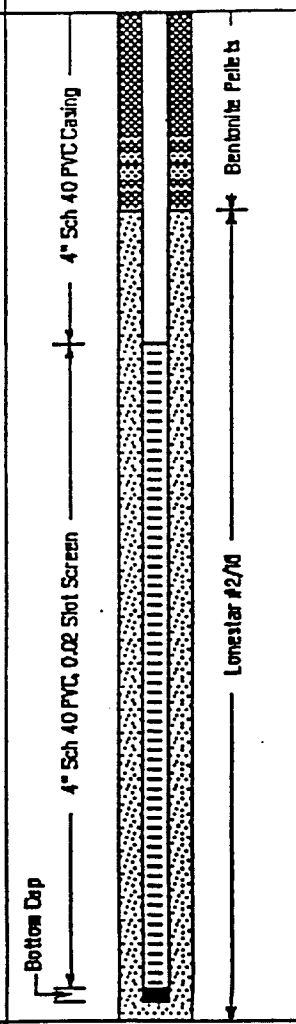
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-23

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
				0.0	21			SAND, very fine grained, yellowish brown (10YR, 5/8), moist.
					32			
85	100		P-23 @ 65		40			
				0.1	17			SAND, very fine grained, yellowish brown (10YR, 5/8), wet.
					22			
70	100		P-23 @ 70		30			
								Water encountered at 72 ft-bgs.
				8.5	15			SAND, very fine grained, yellowish brown (10YR, 5/3), water saturated. (top 0.5 ft of sample)
					16	ML		SILT, trace Clay, olive (5Y, 5/3), low plasticity, moist. (bottom 1 ft of sample).
75	100		P-23 @ 75		17			
								End of Boring @ 75.3 ft. Set 4-inch groundwater monitoring well at 75 ft.
								This work was performed under my supervision and I concur with the findings.
								Anthony C. Ward, CA R.G. #4782
80								

WELL DIAGRAM



DEPTH (ft): 85, 70, 75, 80

GERAGHTY & MILLER, INC.

WELL LOG

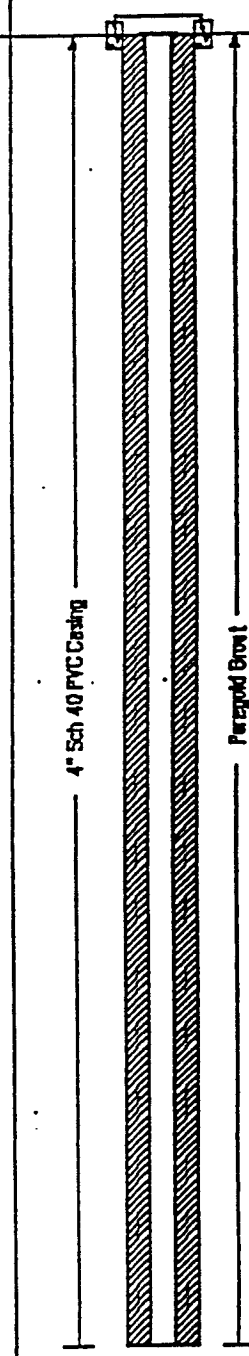
PROJECT: International Light Metals
LOCATION: 19200 S. Western, Torrance, CA
DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: CMSS
BOREHOLE DIAMETER: 10 inches O.D.

PROJECT NO.: CAO 217.020.002
LOGGED BY: M. Shiplone
DRILL CO.: Gregg Drilling and Testing, Inc.
RIG TYPE: B-61
DRILLER: C. Winegarner

BORING: P-24
DATE STARTED: 11/16/95
DATE COMPLETED: 11/20/95
BORING DEPTH: 75 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Concrete (8")
						CL		CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
				0.0	4			CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
					7			
5	100		P-24 @ 5		11			
						ML		
				0.0	8			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non to low plasticity, moist.
					10			
10	NA		P-24 @ 10		10			
				0.0	8			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non to low plasticity, moist.
					8			
15	100		P-24 @ 15		15			
				0.0	14			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non to low plasticity, moist.
	100		P-24 @ 200		15			
20	100		P-24 @ 20		23			

WELL DIAGRAM



DEPTH (ft): 5, 10, 15, 20

GERAGHTY & MILLER, INC.

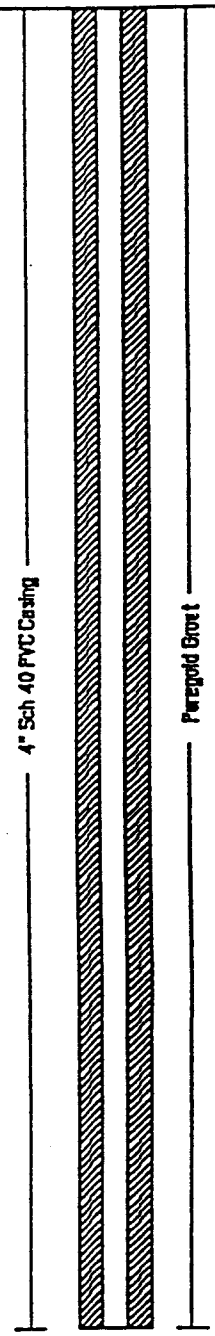
WELL LOG

(continuation)

PROJECT NO CAO 217.020.002 BORING NO. P-24

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						ML		
						ML SM		
				0.0	11 16 20			SILT, trace Clay, increasing very fine grained Sand, dark yellowish brown (10YR, 4/4), non to low plasticity, moist.
25	100		P-24 @ 25					
						SP		
				0.0	14 16 24			SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist.
30	100		P-24 @ 30					
						ML		
				33.1	8 16 28			SILT, little very fine grained Sand, yellowish brown (10YR, 5/8), non plastic, moist.
35	100		P-24 @ 35					
				34.2	16 28 34			SILT, increasing in very fine grained Sand, yellowish brown (10YR, 5/8), non plastic, moist.
40	100		P-24 @ 40					

WELL DIAGRAM



DEPTH (ft): 25, 30, 35, 40

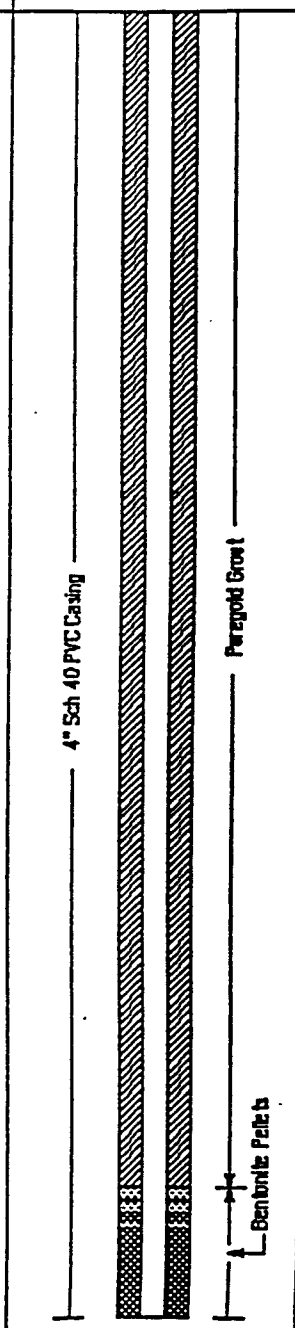
GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-24

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						ML				
				105	13 15 23			SILT, little Clay, olive (5Y, 5/3), low plasticity, slightly moist.		
45	100		P-24 @ 45							45
				249	10 12 17			SILT, little Clay, olive (5Y, 5/3), low plasticity, slightly moist.		
50	100		P-24 @ 50							50
						SP				
				60.8	12 20 27			SAND, very fine grained, trace Silt, light olive brown (2.5Y, 5/3), moist.		
55	100		P-24 @ 55							55
				0.0	25 37 43			SAND, very fine grained, trace Silt, yellowish brown (10YR, 5/6), moist.		
60	100		P-24 @ 60							60



GERAGHTY & MILLER, INC.

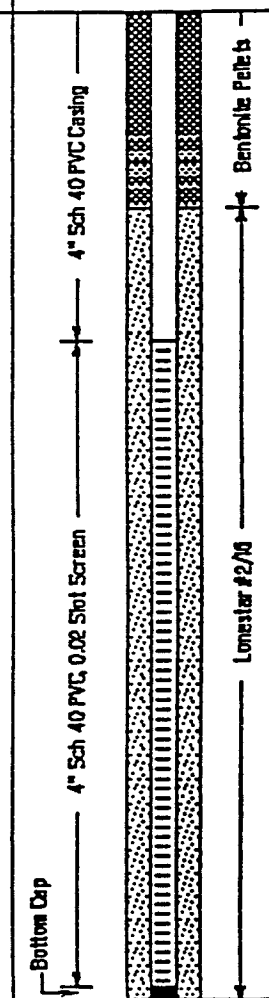
WELL LOG

(continuation)

CT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-24

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
				0.0	18			SAND, very fine grained, trace Silt, yellowish brown (10YR, 5/8), moist.
					28			
85	100		P-24 @ 65		30			
				168	18			SAND, very fine grained, trace Silt, yellowish brown (10YR, 5/8), very moist to wet.
			P-24 @ 70		26			
70	100				33			
								Water encounterd at 73 ft-bgs.
								Top 0.5 ft: SAND, very fine grained, trace Silt, yellowish brown (10YR, 5/8), water saturated.
				225	8			
					15	SP ML		SILT, trace Clay, very fine grained Sand, olive brown (2.5Y, 4/4), non plastic, moist.
75	100		P-24 @ 75		17			
								End of Boring @ 75 ft. Set 4-inch groundwater monitoring well at 75 ft.
								This work was performed under my supervision and I concur with the findings.
								Anthony C. Ward
								Anthony C. Ward, CA R.G. #4782
80								

WELL DIAGRAM



DEPTH (ft): 85, 70, 75, 80

GERAGHTY & MILLER, INC.

WELL LOG

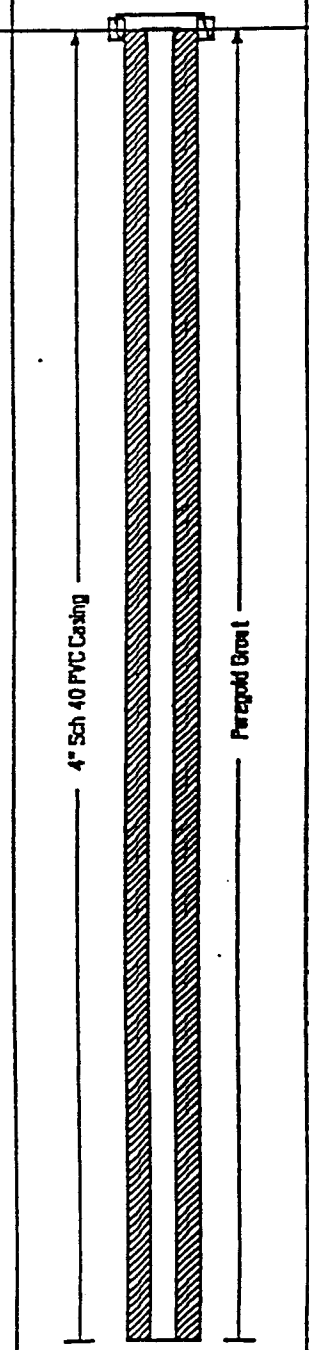
PROJECT: International Light Metals
LOCATION: 19200 S. Western, Torrance, CA
DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: CNSS
BOREHOLE DIAMETER: 10 inches O.D.

PROJECT NO.: CAO 217.020.002
LOGGED BY: M. Shiplone
DRILL CO.: Gregg Drilling and Testing, Inc.
RIG TYPE: B-61
DRILLER: T. Garver

BORING: P-25
DATE STARTED: 11/27/95
DATE COMPLETED: 11/27/95
BORING DEPTH: 60 ft.

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
								Concrete (8")
						CL		CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
5	100		P-25 @ 5	1.6	6, 7, 7			
						ML		SILT, trace Clay, dark yellowish brown (10YR, 4/4), non plastic, moist.
10	100		P-25 @ 10	2.4	8, 14, 17			
								SILT, trace Clay, dark yellowish brown (10YR, 4/4), non plastic, moist.
15	100		P-25 @ 15	4.2	7, 10, 12			
								SILT, trace Clay, dark yellowish brown (10YR, 4/4), non plastic, moist.
20	100		P-25 @ 20	3.7	11, 15, 18			
						SP		SAND, trace Silt, yellowish brown (10YR, 5/6), non plastic, slightly moist.
25	100		P-25 @ 25	7.3	12, 16, 22			

WELL DIAGRAM



GERAGHTY & MILLER, INC.

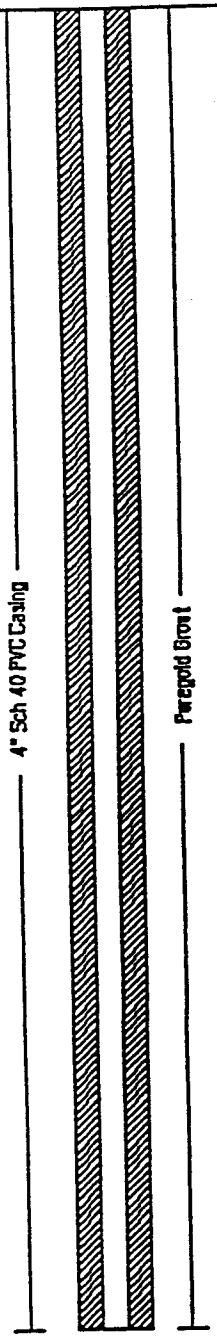
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-25

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
30	100		P-25 @ 30	4.3	11, 14, 16	SP		SAND, trace Silt, yellowish brown (10YR, 5/6), non plastic, slightly moist.
35	100		P-25 @ 35	38.1	15, 18, 26	ML		SILT, trace very fine grained Sand, yellowish brown (10YR, 5/4), non plastic, moist.
40	100		P-25 @ 40	48.3	17, 26, 35	ML SM		SILT, increasing in very fine grained Sand, yellowish brown (10YR, 5/4), non plastic, moist.
45	100		P-25 @ 45	38.8	11, 21, 28	SP		SAND, trace Silt, yellowish brown (10YR, 5/6), slightly moist to moist.
50	100		P-25 @ 50	3.8	16, 23, 28			SAND, trace Silt, yellowish brown (10YR, 5/6), moist.

WELL DIAGRAM



DEPTH (ft): 30, 35, 40, 45, 50

GERAGHTY & MILLER, INC.

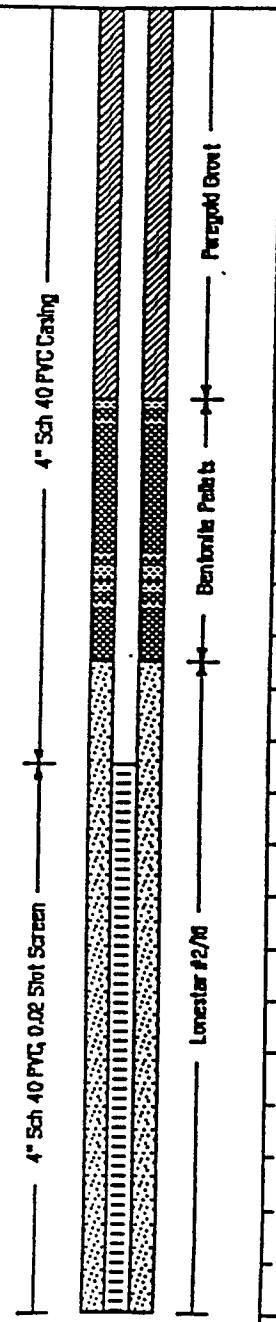
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-25

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL
						SP		
	100		P-25 @ 55	52.1	11, 14, 23			SAND, trace Silt, light olive brown (2.5Y, 5/4), moist.
55								
	100		P-25 @ 60	42	12, 16, 22			SAND, trace Silt, light olive brown (2.5Y, 5/4), moist.
60								
	100		P-25 @ 65	106	14, 18, 24			SAND, trace Silt, light olive brown (2.5Y, 5/4), moist.
65								
	100		P-25 @ 70	83	13, 26, 35			SAND, trace Silt, light olive brown (2.5Y, 5/4), very moist.
70								
								Water encountered at 72.5 ft-bgs.
	100		P-25 @ 75	236	13, 26, 33			SAND, trace Silt, light olive brown (2.5Y, 5/4), water saturated.
75								

WELL DIAGRAM



DEPTH (ft): 55, 60, 65, 70, 75

GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

CT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-25

DEPTH (ft)	RECOVERY %	SAMP. INTERVAL	SAMPLE NO.	PID (ppm)	BLOWS/6 in.	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	WELL DIAGRAM	DEPTH (ft)
						SP		SAND, trace Silt, light olive brown (10YR, 5/6), water saturated. (top 0.5 ft of sample)		
				755	10 / 15 / 18	ML		Clayey SILT, olive brown (2.5Y, 4/3), moderate plasticity, slightly moist to moist.		
80	100		P-25 @ 80					End of Boring @ 80.0 ft. Set 4-inch groundwater monitoring well at 78.5 ft.	4" Sch 40 PVC, 0.02 Slot Screen; Bottom Cap; Lonestar #2/10	80
85										85
90										90
95										95
100										100

This work was performed under my supervision and I concur with the findings.

Anthony C. Ward

Anthony C. Ward, CA R.G. #4782

GERAGHTY & MILLER, INC.

BORING LOG

PROJECT International Light Metals
TION 19200 S. Western, Torrance, CA
ETHOD Rotosonic
ING METHOD Core Barrel
BOREHOLE DIAMETER 8, 6, and 5 inches O.D.

PROJECT NO. CAO 217.020.002
LOGGED BY D. Willis
DRILL CO. Lang
RIG TYPE Rotosonic
DRILLER D. Casey

BORING DB-1
DATE STARTED 11/20/95
DATE COMPLETED 11/28/95
BORING DEPTH 225 ft.

DEPTH (ft)	RECOVERY %	WENT. SCALE (φ)	SAMPLE NO.	PID (ppm)	UNCND. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
	100	NA	NA	< 1	1	CL		Very Sandy CLAY, with Silt, yellowish brown (10YR, 5/8), loose, soft, slightly moist, unconsolidated.	HNU BACKGROUND: 0.6 ppm SAMPLE TYPE: Bag COMMENTS: * Grain size is recorded in Wentworth Scale in third column. (see attached grain size scale). * Unconfined strength is recorded in the sixth column.	
5	100	NA	NA	< 1	NA	SC		Clayey SAND, very fine grained, with Silt, yellowish brown (10YR, 5/8), loose, soft, slightly moist.		5
10								Clayey SAND, very fine grained, with Silt, yellowish brown (10YR, 5/8), loose, soft, slightly moist. Gradational contact.		10
	100	2.5	NA	< 1	NA	SP		SAND, very fine grained, with Silt, light yellowish brown (10YR, 6/6), loose, slightly moist, grains are subangular.		
15								As Above		15
	100	2.5-3	NA	< 1	NA			SAND, very fine grained, minor Silt, yellowish brown (10YR, 6/8), loose, slightly moist, angular to subangular, 85% silica, 5% dark grains, homogeneous, no obvious bedding.		
								As above		
	NA	2.5-3	NA	< 1	NA					
20										20

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-1

DEPTH (ft)	RECOVERY %	WENT. SCALE (ft)	SAMPLE NO.	PID (ppm)	UNCNO. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
						SP				
25	100	3	NA	< 1	NA			SAND, very fine grained, with Silt, light yellowish brown (10YR, 6/4), loose, slightly moist, subangular, thinly bedded (horizontal 1-2 mm) with (1-2%) clay/silt blebs, 5-10 mm diameter.		25
30	100	2.5	NA	< 1	NA			SAND, very fine grained, pale brown (10YR, 7/4), loose, slightly moist, subangular, horizontal bedding 1-10 mm thick.		30
								SAND, very fine grained, pale brown (10YR, 7/4), loose, slightly moist, subangular, horizontal bedding 1-10 mm thick.		
35	100	2.5	NA	<1	NA			SAND, very fine grained, light yellowish brown (10YR, 6/4), loose, slightly moist, subangular, 85% silica, 5% olivine, no obvious bedding, < 1% gravel sized quartz grains.		35
								As above		
40	NA	2.5	NA	< 1	NA			SAND, very fine grained, light yellowish brown (10YR, 6/4), loose, slightly moist, subangular, 85% silica, 5% olivine, < 1% gravel sized quartz grains, with minor (1%) silt blebs 5-10 mm diameter.		40

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-1

DEPTH (ft)	RECOVERY %	KENT. SCALE (ppm)	SAMPLE NO.	PID (ppm)	UNCND. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
						SP				
	100	2.5	NA	NA	NA			SAND, very fine grained, light yellowish brown (10YR, 6/4), loose, slightly moist, (85% silica, 5% dark grains, subangular with 1% silt blebs oriented horizontally.		
45	100	2.5	NA	NA	NA			As above		45
	NA	2.5	NA	NA	NA			As Above		
50	NA	2.5	DB-1 @ 50	NA	NA			As above		50
	100	1.5-3	NA	NA	NA			SAND, very fine grained, brownish yellow (10YR, 6/6), loose, slightly moist, angular, no obvious bedding.		
55	100	1.5-3	NA	NA	NA			As above		55
	[illegible]	2-3	NA	< 1	NA			SAND, very fine grained, yellowish brown (10YR, 5/8), loose, slightly moist, angular to subangular.		
60										60

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-1

DEPTH (ft)	RECOVERY %	PENT. SCALE (ft)	SAMPLE NO.	PID (ppm)	UNCND. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
						SP		As above		
	NA	3	NA	< 1	NA	SM		Silty SAND, very fine grained, light brownish gray (10YR, 6/2), semi-loose, slightly moist, subangular.		
	NA	2-2.5	NA	NA	NA	SP		SAND, very fine grained, yellowish brown (10YR, 5/8), loose, slightly moist, angular to subangular, no obvious bedding.		
	NA	2-2.5	NA	< 1	NA			SAND, very fine grained, brownish yellow (10YR, 6/8), slightly moist to moist, minor (<1%) silt blebs 1-2 cm diameter (oblong horizontally).		
65										65
	NA	2.5	NA	< 1	NA			SAND, very fine grained, yellowish brown (10YR, 5/4), moist to wet, minor silt laminae (1-5 mm thick, olive green), abundant iron stained sand lenses (orange), horizontal bedding.		
70										70
	NA	2.5	NA	< 1	NA			SAND, very fine grained, yellowish brown (10YR, 5/4), moist to wet, minor silt laminae (olive to black, 1-5 mm thick) contorted but horizontal, abundant Fe stained sand lenses.		
	100	2.5-3	NA	< 1	NA			SAND, very fine grained, yellowish brown (10YR, 5/4), loose, water saturated.	First occurence of groundwater.	
75										75
	NA	NA	NA	< 1	2.5	CL		Sandy Silty CLAY, olive (5Y, 4/4), plastic, very stiff, slightly moist, occasional (2-3%) Fe stained silt/sand laminae 1-3 mm thick.		
	100	NA	NA	NA	2.7	ML		Clayey SILT, minor interlayered very fine grained Sand, olive (5Y, 4/4), very stiff, slightly moist, semi-consolidated, horizontal bedding.		
80										80

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-1

DEPTH (ft)	RECOVERY %	MENT. SCALE (ppm)	SAMPLE NO.	PID (ppm)	UNCND. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
						ML				
	100	NA	NA	< 1	1	CL		CLAY, minor Silt, dark gray (2.5Y, 4/1), semi-plastic, soft, slightly moist.		
85	100	NA	NA	NA	4.2			Very Sandy CLAY, some fine grained Sand (20-30%), olive (5Y, 4/3), semi-stiff, slightly moist, some Fe staining, thinly bedded (1-5 mm thick).	Set 8-inch drill pipe as temporary casing.	85
	NA	0.5-1.5	NA	NA	NA	SC		Clayey SAND, fine to medium grained, dark yellowish brown (10YR, 3/6), soft, wet, > 80% silica.		
	100	0.5-3	NA	< 1	NA	SW		SAND, very fine to medium grained, with Clay, dark yellowish brown (10YR, 4/4), loose, very wet, well graded, massive.		
90								As above		90
	100	0.5-2.5	NA	< 1	NA			SAND, very fine to medium grained, with Clay, dark yellowish brown (10YR, 4/4), loose, water saturated.	Second occurence of groundwater.	
								As Above		
	100	0.5-2.5	NA	< 1	NA			SAND, fine to medium grained, with minor Clay, yellowish brown (10YR, 4/4), loose, very wet, with orange Fe staining mottling, > 80% silica.		
95	NA	0.5-2.5	DB-1 @ 96	NA	NA					95
	100	1-2.5	DB-1 @ 97	NA	NA	SC		Very Clayey SAND, very fine to medium grained, olive (5Y, 4/3), loose, wet, > 80% silica, 10% clay.		
100										100

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAD 217.020.002 BORING NO. DB-1

DEPTH (ft)	RECOVERY %	MENT. SCALE (ft)	SAMPLE NO.	PID (ppm)	UNCNFD. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
						SC		Very Clayey SAND, very fine to medium grained, olive (5Y, 4/3), loose, water saturated, > 80% silica, 10% clay.		
	100	3.5	NA	< 1	4.0					
	100	NA	NA	NA	2.0	CL		Clayey SAND, very fine grained, with Silt, olive (5Y, 4/3), semi-stiff, massive.	Set 8-inch drill pipe as temporary casing.	
								CLAY, very dark grayish brown (2.5YR, 3/2), medium stiff, massive, slightly moist.		
								As above		
105	100	1-2	NA	NA	NA	SC		Clayey SAND, fine to medium grained, dark gray (2.5Y, 4/1), loose, moist to wet, > 80% silica, massive.		105
	80	1-2	NA	< 1	NA			Clayey SAND, fine to medium grained, light olive brown (2.5Y, 5/4), loose, moist to wet, > 80% silica, massive.		
110	NA	0.5-1.5	NA	< 1	NA	SP		SAND, fine to medium grained, light olive brown (2.5Y, 5/4), loose, wet, 85% silica, 3% olivine, 2% feldspars/magnetite, massive.		110
115	NA	0.5-1.5	NA	< 1	NA			As Above		115
120										120

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

CT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-1

DEPTH (ft)	RECOVERY %	WENT. SCALE ↑	SAMPLE NO.	PID (ppm)	UNCND STRENGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
	NA	0.5-1	NA	NA	NA	SP		SAND, fine to medium grained, light olive brown (2.5Y, 5/4), very loose, wet, well sorted, 95% silica, 3-5% olivine, 1% feldspars.		
	NA	NA	NA	NA	4.0	CL		Silty CLAY, olive brown (2.5Y, 4/4), stiff, slightly moist.	Advanced 8-inch drill pipe as temporary casing.	
125										125
	100	3.5	NA	< 1	0.5			Sandy CLAY, very fine grained Sand, dark gray (5Y, 4/1), plastic, moist, gradational contact to underlying clayey sand.		
	NA	3-3.5	NA	NA	NA	SC		Clayey SAND, very fine grained, dark olive gray (5Y, 3/2), loose, moist to wet.		
	NA	NA	NA	NA	3.0	CL		Silty CLAY, with minor fine grained Sand, olive (5Y, 4/4) grades to gray (2.5Y, 5/1) at base, medium stiff, massive, slightly moist, gradational contact to clayey sand below.		
130										130
	NA	2-2.5	NA	NA	3.0	SC		Clayey SAND, very fine grained, gray (2.5Y, 4/1), loose, moist, 15% clay, sand is > 95% silica.		
	NA	NA	NA	NA	2.7	CL		Sandy CLAY, very fine grained Sand, with Silt, dark gray (5Y, 4/1), medium stiff, some fine contorted olive silt interlaminae.		
	NA	0.5-2	NA	< 1	NA	SP		SAND, fine to medium grained, very loose, massive, very wet, 97% silica, 1% olivine, 2% feldspars.		
135										135
								As above		
140										140

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-1

DEPTH (ft)	RECOVERY %	PENT. SCALE (ft)	SAMPLE NO.	PID (ppm)	UNCND. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
						SP				
145	60	1.5-2.5	NA	< 1	NA			SAND, very fine to fine grained, olive gray (5Y, 5/2), loose, water saturated, 80% silica, 5-10% olivine.	Third occurence of groundwater.	145
	NA	1.5-2.5	DB-1 @ 143	NA	NA					
150										150
	100	1-2	DB-1 @ 152	NA	NA	SW		SAND, very fine to medium grained, olive gray (5Y, 5/2), very loose, water saturated, 80% silica, 7% olivine, 1-2% feldspars.		
155								As above		155
160										160

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

F. _T International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-1

DEPTH (ft)	RECOVERY %	MENT. SCALE (ϕ)	SAMPLE NO.	PID (ppm)	UNCND. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
						SW		SAND, very fine to medium grained, olive gray (5Y, 5/2), loose, water saturated, 60% silica, 7% olivine, slightly more fines towards 185 ft with 2-5% clay.		
								Gradational contact.		185
185	100	1.5-3	NA	NA	NA	SP		SAND, very fine to fine grained, with minor Clay (5%), olive gray (5Y, 4/2), loose, water saturated, sand is 65-80% silica and 10% olivine.		
170										170
175	80	2-3	NA	< 1	NA			SAND, very fine grained, with minor Clay, dark gray (5Y, 4/1), very loose, water saturated, 80% silica and 20% olivine, massive.		175
180										180

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-1

DEPTH (ft)	RECOVERY %	WENT. SCALE (°)	SAMPLE NO.	PID (ppm)	UNCND. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
						SP				
185	100	2-3	NA	NA	NA			As above		185
190	100	3-3.5	NA	NA	NA	SC		Clayey SAND, very fine grained, dark grayish brown (2.5Y, 4/2), medium dense, water saturated, sand is 50-70% silica and 30-40% olivine and 10% feldspars/magnetite, 10% clay fraction, massive. Very minor (0.1%) bivalve fragments 1 mm thick in size, fragment abundance increases to 0.5% and fragment size increases to 1-10 mm at 187 ft, clay increases to 15% at 197 ft.		190
195	NA	3-3.5	NA	< 1	NA			As above		195
200								Clayey SAND, very fine grained, gray (2.5Y, 5/1), loose, 50% sand, 5% clay, 45% bivalve and fossil fragments, fragments are not cemented or replaced and are 1-10 mm in size.		200

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-1

DEPTH (ft)	RECOVERY %	MENT. SCALE ϕ	SAMPLE NO.	PID (ppm)	UNCND STRENGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
	100	NA	NA	NA	NA	SC		Clayey SAND, very fine grained, gray (2.5Y, 5/1), loose, very wet to saturated, fossils consist of bivalvia, gastropoda, turritelid, crinoidea.		
	100	NA	NA	NA	NA	SW		SAND, very fine to medium grained, with minor clay, gray (5Y, 5/1), very loose, very wet to water saturated, sand is 80-90% silica, 8-9% olivine, 1% feldspars/magnetite. more clay towards base.		
205										205
								Gradational Contact		
	100	NA	NA	NA	2.0	CL		Very Sandy Silty CLAY, very fine grained Sand, dark olive gray (5Y, 3/2), plastic, soft, very moist to wet, 1-2 mm thick horizontal laminae, 10-20% sand, sand interbeds 1-3 cm thick towards base.		
210										210
	NA	1.5-2.5	NA	NA	NA	SP		SAND, very fine grained, very dark gray (5Y, 3/1), loose, very wet, sand is 80% silica and 10-15% olivine and 0.5% fossil fragments 1-2 mm thick.		
215										215
220						CL				220

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-1

DEPTH (ft)	RECOVERY %	WENT. SCALE (°)	SAMPLE NO.	PID (ppm)	UNCOND. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
	NA	NA	NA	NA	3.75	CL		Silty CLAY, dark gray (2.5Y, 4/2), medium stiff, slightly moist, minor sand/clay interlaminations throughout 1-5mm thick, bedding always horizontal.		
225								End of Boring @ 225 ft. Borehole backfilled with Puregold grout.		225
230										230
235										235
240								This work was performed under my supervision and I concur with the findings. Anthony C. Ward, CA R.G. #4782		240

GERAGHTY & MILLER, INC.

BORING LOG

PROJECT International Light Metals
LOCATION 19200 S. Western, Torrance, CA
DRILL METHOD Rotosonic
SAMPLING METHOD Core Barrel
BOREHOLE DIAMETER 8 and 6 inches O.D.

PROJECT NO. CAO 217.020.002
LOGGED BY D. Willis
DRILL CO. Lang
RIG TYPE Rotosonic
DRILLER D. Casey

BORING DB-2
DATE STARTED 11/29/95
DATE COMPLETED 12/1/95
BORING DEPTH 228 ft.

DEPTH (ft)	RECOVERY %	WENT. SCALE *	SAMPLE NO.	PID (ppm)	UNCND STRENGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
	100	3.5	NA	2.0	NA	CL		Silty CLAY, dark olive gray (5Y, 3/1), very stiff, massive, slightly moist, consolidated.	HNU BACKGROUND: 0.3 – 1.8 ppm SAMPLE TYPE: Ring COMMENTS: * Grain Size is recorded in Wentworth Scale in the third column (see attached grain size scale). * Unconfined Strength is recorded in the sixth column.	
5										5
	100	NA	NA	2.0	NA	ML		Clayey SILT, very minor fine grained Sand (towards base), olive (5Y, 4/3), loose, crumbly, slightly moist.		
10								Clayey SILT, 10% very fine grained Sand, olive (5Y, 4/3), loose, crumbly, slightly moist.		10
	NA	4	NA	NA	NA			Clayey SILT, olive (5Y, 4/3), semi-stiff, crumbly, massive, slightly moist.		
15	100	NA	NA	NA	0.75			Clayey SILT, with very minor very fine grained Sand (10%), olive (5Y, 4/4), <1% fine grained sand randomly distributed, slightly more clay towards base, 70% silt, 20% clay, 10% sand.		15
20										20

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

T International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-2

DEPTH (ft)	RECOVERY %	WENT. SCALE (°)	SAMPLE NO.	PID (ppm)	UNCND. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
	100	NA	NA	NA	NA	ML		As above		
25	80	NA	NA	NA	NA			As above, slightly sandier (20% sand).		25
	10	2-3	NA	NA	NA	SP		SAND, very fine grained, light olive brown (2.5Y, 5/6), loose, slightly moist, very poorly graded, 80% silica, 5% olivine.		
30	100	2-3	NA	NA	< 1			As above		30
35	100	2-3	NA	NA	NA			As above		35
	100	2-3	NA	NA	NA			SAND, very fine grained, light olive brown (2.5Y, 5/6), loose, slightly moist, minor clay laminae and blebs (1%) up to 1 cm thick, horizontal.		
	100	2-3	NA	NA	NA			As above		
40										40

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-2

DEPTH (ft)	RECOVERY %	PENT. SCALE (ft)	SAMPLE NO.	PID (ppm)	UNCONF. STRENGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
						SP				
	100	2-3	NA	< 1	NA			As above, with clay interlaminai and blebs, slightly more prevalent (2%) and slightly thicker (up t 2 cm).		
45	100	2-3	NA	NA	< 1			As above		45
				< 1				As above, with silty sand interbeds (10 cm thick), horizontal bedding.		
50	100	2.5	DB-2 @ 50	< 1	NA			SAND, very fine grained, olive yellow (5Y, 5/6), loose, slightly moist, very poorly graded, very minor (1%) silt/clay interlaminae near base.		50
55	100	1-2	NA	NA	NA			SAND, very fine to fine grained, yellowish brown (10YR, 5/6), loose, bivalves throughout, 10% fragments (1-30 mm thick), calcareous.		55
								As above, but olive (5Y, 5/4), partially cemented.		
								SAND, very fine to fine grained, yellowish brown (10YR, 5/6), loose, bivalves throughout, 10% fragments (1-30 mm thick), calcareous.		
	100	1-2	NA	< 1	NA			As Above		
80										80

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-2

DEPTH (ft)	RECOVERY %	PENT. SCALE (ϕ)	SAMPLE NO.	PID (ppm)	UNCND. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
						SP		SAND, fine grained, olive (5Y, 5/6), very loose, slightly moist, with very minor (1%) silt/clay blebs, 5-20 mm thick by 20-30 mm long, horizontal.		
	100	1.5-2.5	NA	NA	NA					
	NA	NA	NA	< 1	NA			As above, except moist to very moist at 66 ft-bgs.		
65										65
	NA	NA	NA	< 1	NA			As above, except very moist at 67 ft to wet at 71 ft-bgs.		
70										70
	100	1-2.5	NA	NA	NA			SAND, very fine to medium grained, olive (5Y, 4/3), loose, very wet, with silt interlaminae 1-2 cm thick near top.		
75	NA	NA	NA	1.5	NA			As above, except water saturated.	First occurrence of groundwater.	75
	100	2-2.5	NA	NA	NA	SC		Clayey SAND, very fine to fine grained, olive (5Y, 4/3), soft, wet to water saturated, 70% sand, 30% clay.		
80										80

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAD 217.020.002 BORING NO. DB-2

DEPTH (ft)	RECOVERY %	MENT. SCALE ϕ	SAMPLE NO.	PID (ppm)	UNCND STRENGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
						SC				
	100	1.5-3	NA	2	NA	SP		SAND, very fine to fine grained (predominantly very fine grained), olive (5Y, 4/3), loose, moist to wet. minor (<1%) thin (<1mm) clay interlaminae (horizontal).		
								As above		85
85	100	1.5-3	NA	NA	NA					
	100	2-2.5	NA	NA	NA	SC		Clayey SAND, very fine to fine grained, olive (5Y, 4/3), soft, moist, 30% clay, 70% sand.		
	100	1-2	NA	NA	NA	SP		SAND, fine to medium grained, olive yellow (5Y, 5/8), loose, water saturated, 97% silica, 3% olivine.	Second occurrence of groundwater at 87 ft-bgs.	
90	NA	NA	NA	2	NA			As above		90
	100	1-2	NA	NA	NA			As above		
95										95
	100	0.5-1	NA	NA	NA			SAND, fine to medium grained, olive yellow (5Y, 5/8), loose, water saturated, 97% silica, 3% olivine, with stringer of medium grained sand 10 cm thick at 99 ft-bgs, orange (Fe stained) and loose.		
100	NA	NA	DB-2 @ 100	NA	NA					100

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-2

DEPTH (ft)	RECOVERY %	WENT. SCALE (ϕ)	SAMPLE NO.	PID (ppm)	UNCND. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL	DEPTH (ft)
	100	NA	DB-2 @ 101	NA	NA	SP			
	100	2.5-3	NA	< 1	> 5	SC		Clayey SAND, very fine grained, olive (5Y, 4/3), very stiff, massive, slightly moist.	
	NA	1-2	NA	NA	NA	SP		SAND, fine to medium grained, olive (5Y, 4/4), loose, water saturated.	
						SC		Clayey SAND, very fine grained, olive (5Y, 4/3), very stiff, massive, slightly moist.	
	100	1-2	NA	NA	NA	SP		SAND, fine to medium grained, olive (5Y, 4/3), loose, water saturated.	
105	100	NA	NA	< 1	NA			As Above	105
110	100	NA	NA	< 1	NA			As Above	110
115	100	2.5-3	NA	< 1	NA	SC		Clayey SAND, very fine grained, dark olive gray (5Y, 3/2), loose, slightly moist to moist, 80-90% sand, 10% clay present in stringers 1-3 cm thick, 70% olivine, 30% silica.	115
120	100	NA	NA	NA	3.0	CL		Very Silty Sandy CLAY, very fine grained Sand, dark olive gray (5Y, 3/2), stiff, slightly moist, 50% clay, 30% silt, 20% sand, very thinly bedded to laminated.	120

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-2

DEPTH (ft)	RECOVERY %	WENT. SCALE ϕ	SAMPLE NO.	PID (ppm)	UNCND STRENGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
						CL				
	100	NA	NA	< 1	NA			As above, except slightly sandier towards base, gradational contact.	Set 8-inch drill pipe as temporary casing.	
125	NA	2.5-3	NA	NA	1.0	SC		Clayey SAND, very fine grained, dark olive gray (5Y, 3/2), plastic, soft, massive, slightly moist, 70% sand, 30% clay, 70% olivine, 30% silica, gradational contact.		125
	100	2.5	NA	NA	NA	SP		SAND, very fine grained, olive gray (5Y, 4/2), loose, slightly moist, very poorly graded, 60% olivine, 40% silica.		
130	100	3-3.5	NA	< 1	NA	SP ML		SILT, SAND, very fine grained, interbeds, sand is olive (5Y, 4/2), silt is dark gray, interbeds and interlaminae are 2-10 mm thick horizontal, slightly contorted.		130
	100	3-3.5	NA	< 1	NA			As above		
	100	0.5-1.5	NA	NA	NA	SP		SAND, fine to medium grained, olive (5Y, 5/3), loose, wet, 80% silica, 7% olivine, 3% feldspars, gradational contact.		
135	100	1-2.5	NA	NA	NA	SC		Clayey SAND, fine grained, dark olive gray (5Y, 3/2), semi loose, wet.		135
	100	NA	NA	< 1	3.0	CL		Silty CLAY, dark olive gray (5Y, 3/2), plastic, soft, massive, moist, malleable, sandy towards base.		
140						SP				140

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

P. ..T International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-2

DEPTH (ft)	RECOVERY %	MENT. SCALE (°)	SAMPLE NO.	PID (ppm)	UNCND. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
	100	1.5-2.5	NA	NA	NA	SP		SAND, fine to very fine grained, olive (5Y, 4/3), loose, massive, wet, slightly clayey at top, 80% silica, 20% olivine.		
145	100	0-2	NA	< 1	NA	SW		SAND, fine to medium grained, olive gray (5Y, 4/2), very loose, water saturated, 65% silica, 5% olivine.	Third occurrence of groundwater at 145 ft-bgs.	145
	NA	NA	DB-2 @ 143	NA	NA					
150								As above		150
	NA	NA	DB-2 @ 152	NA	NA					
155	100	NA	NA	< 1	NA			As above		155
180										180

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-2

DEPTH (ft)	RECOVERY %	MENT. SCALE (ϕ)	SAMPLE NO.	PID (ppm)	UNCND. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
	NA	1-3	NA	< 1	NA	SW		SAND, very fine to medium grained, predominately fine grained, olive gray (5Y, 3/2), very loose, water saturated, 85% silica, 5% olivine.		
185	100	0-2	NA	< 1	NA			SAND, very fine to medium grained, olive gray (5Y, 4/2), very loose, water saturated, 85% silica, 3% olivine, 2% limonite/magnetite.		185
170								As Above		170
175	NA	NA	NA	< 1	NA			As Above		175
180	100	2-2.5	NA	NA	NA	SP / SW		SAND, very fine grained, dark olive gray (5Y, 3/2), loose, massive, wet, 65% silica, 35% olivine.		180

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

.CT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-2

DEPTH (ft)	RECOVERY %	HEAT. SCALE ppm	SAMPLE NO.	PID (ppm)	UNCND STRENGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
	100	0.5-2.0	NA	NA	NA	SW		SAND, very fine to fine grained, olive gray (5Y, 4/2), loose, wet to water saturated.		
	100	2-2.5	NA	NA	NA	SP		SAND, very fine grained, dark olive gray (5Y, 3/2), loose, wet.		
185	100	2-2.5	NA	1.2	NA			As above		185
190		2-2.5	NA	NA	NA			As above, except water saturated.		190
195	100	2.5-3	NA	1.5	NA			SAND, very fine grained, dark olive gray (5Y, 3/2), medium dense, wet, 60% silica, 40% olivine.		195
200						SC				200

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-2

DEPTH (ft)	RECOVERY %	WENT. SCALE (ft)	SAMPLE NO.	PID (ppm)	UNCND. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
	100	3-3.5	NA	< 2	NA	SC		Very Clayey SAND, very fine grained, dark olive gray (5Y, 3/1), soft, moist, very minor (0.1%) bivalve fragments 1-10 mm long scattered throughout, 55% sand, 40% clay, 5% silt.		
205								As above, gradational contact.		205
	100	1.5-3	NA	NA	NA	SP		SAND, very fine to fine grained, dark olive gray (5Y, 3/2), medium dense, 50-80% silica, 40-50% olivine, minor bivalve fragments 1-5 mm throughout (0.1%).		
	100	0.5-3	NA	NA	NA	SW		SAND, very fine to medium grained, olive gray (5Y, 5/2), loose, highly fossilerous, 15% fossi fragments 1-10 mm in size (bivalve, turritelid, and gastropods).		
210	NA	NA	NA	< 2	2.5	CL		Sandy, Silty CLAY, dark olive gray (5Y, 3/2), massive plastic at base, moist, 50% clay, 30% sand, 20% silt, very fine grained sand interbeds top 5-15 mm thick, horizontal bedding.		210
	100	2-3	NA	NA	NA	SP		SAND, very fine to fine grained, olive gray (5Y, 3/2), loose, moist, minor clay blebs 1-2 cm thick.		
215	NA	NA	NA	< 2	NA			As above		215
	100	NA	NA	NA	3	CL		Sandy CLAY, dark olive gray (5Y, 3/2), medium stiff, slightly moist, minor very fine grained sand interbeds 1-2 cm thick near top, bedding horizontal, minor silt interlaminae near top.		
220						SC				220

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

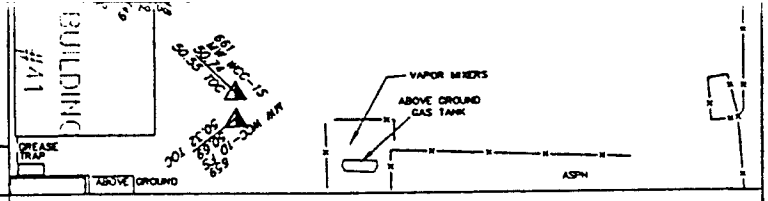
P. ; International Light Metals PROJECT NO CAO 217.020.002 BORING NO. DB-2

DEPTH (ft)	RECOVERY %	HEAT. SCALE (ppm)	SAMPLE NO.	PID (ppm)	UNCND. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
	100	3	NA	< 2	NA	SC		Clayey SAND, very fine grained, dark olive gray (5Y, 3/2), medium dense, massive, moist to very moist, 70% sand, 30% clay, 60-80% green grains, 10-20% silica.		
						CL		Gradational contact, clay with 10% very fine grained sand.		
225										225
	100	NA	NA	< 2	2.5			CLAY, plastic, soft, massive, slightly moist to moist.		
								End of Boring @ 228 ft. Borehole backfilled with Puregold grout.		
230										230
235										235
								This work was performed under my supervision and I concur with the findings. Anthony C. Ward. Anthony C. Ward, CA R.G. #4782		
240										240

WELL INFORMATION FOR THE SITE AND FORMER ILM SITE

Borehole/Well Completion Logs for WCC and DAC Wells

INTEGRATED
Environmental Services, Inc.



Project Name: McDonnell Douglas C-6 Facility

Location: Los Angeles, CA

Site Id: WCC-01S	Elevation: 50.74'
Datum: Mean Sea Level	Total Depth: 91.00'
X Coordinate: 12738.89	Y Coordinate: 13194.03
Date Started: 03/25/87	Date Completed: 03/25/87
Consulting Firm: WOODWARD-CLYDE	
Contractor: DATUM EXPLORATION	
Logged By: S. DONALDSON	Certified By: B. JACOBS

Annular Fill:
type: Cement fm: 0.00' to: 2.50'
type: Grout fm: 2.50' to: 72.00'
type: Bentonite Pellets fm: 72.00' to: 74.00'

Screens:
type: Slotted size: 0.020in dia: 2.00in fm: 77.00' to: 87.00'

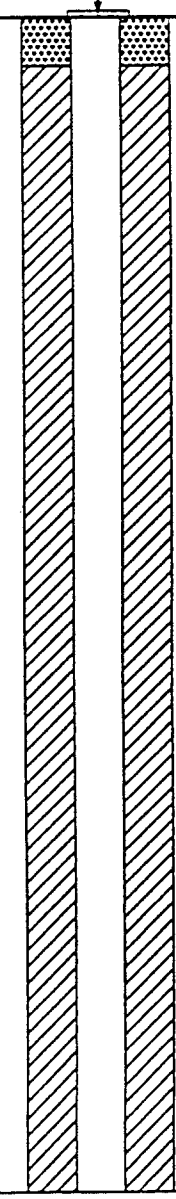
Blank Casing:
type: PVC dia: 2.00in fm: 0.0' to: 77.00'

Conductor Casing:
type: dia: 0.00in fm: 0.00' to: 0.00'

Drilling Method: HOLLOW-STEM AUGER

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Material Description
				1-2 ppm	AS	Asphalt.
					SP	Damp reddish-brown, SILTY SAND (SP) with clay and gravel. Becomes black.
						Becomes reddish-brown, no gravel.
10						Becomes medium brown.
					SC SP	CLAYEY SAND (SC).
20						
					ML	Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand.
30						Becomes hard with more clay
					VA ML	Lense of volcanic (?) angular gravel.
40						Becomes moist and hard.
	59		1		CL	Very hard, moist, dark brown, SILTY CLAY (CL).
50						Lenses of very hard, carbonate cemented concretions.
	26		2	1 ppm		
						Increasing silt.

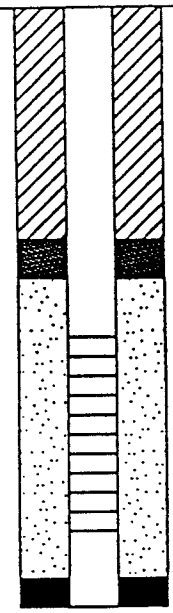
Well Construction
MP. EL. 50.70



Project Name: McDonnell Douglas C-6 Facility

Site Id: WCC-01S

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction
	57		3	7.5 ppm	SP		Medium dense, dry, tan, fine SAND (SP)	
					CL			
					SP		Dense, dry, whitish-tan, fine SAND (SP).	
70	50 5"		4	2.5 ppm			Becomes damp and very dense.	
					ML		Very stiff, damp, dark brown SILT (ML).	
				7.8 ppm			Becomes wet. Water encountered at 74.5 feet.	
	50 5"		5					
					SP		Very dense, wet, brown, fine SAND (SP).	
	12		6					
80								
90					CL		Stiff, moist, dark brown, SILTY CLAY (CL). Bottom of boring at 91 feet.	
100								
110								
120								
130								
140								



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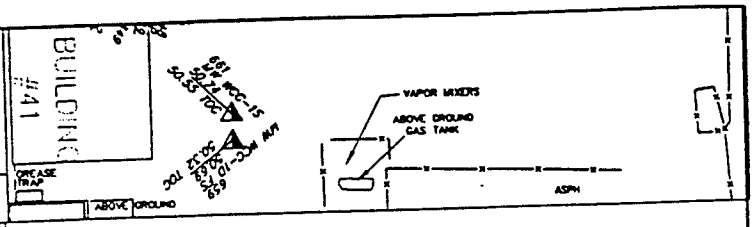
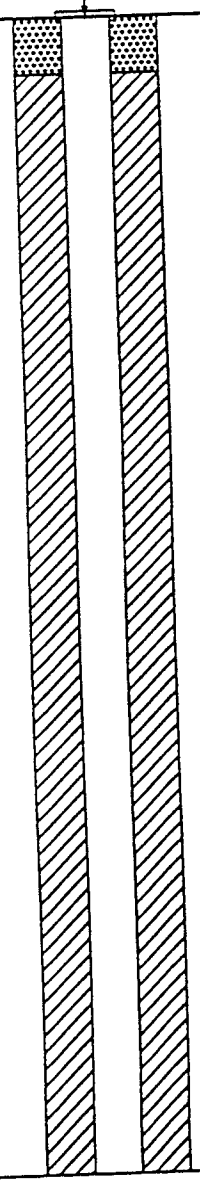
Environmental Services, Inc.



Project Name: McDonnell Douglas C-6 Facility		
Location: Los Angeles, CA		Annular Fill: type: Cement fm: 0.00' to: 3.00'; type: Grout fm: 3.00' to: 109.00'; type: Bentonite Pellets fm: 109.00' to: 114.00'
Site Id: WCC-01D	Elevation: 50.69'	
Datum: Mean Sea Level	Total Depth: 140.00'	Screens: type: Slotted size: 0.010in dia: 4.00in fm: 120.00' to: 140.00'
X Coordinate: 12739.11	Y Coordinate: 13181.09	
Date Started: 06/28/89	Date Completed: 06/30/89	Blank Casing: type: PVC dia: 4.00in fm: 0.0' to: 120.00'
Consulting Firm: WOODWARD-CLYDE		Conductor Casing: type: dia: 0.00in fm: 0.00' to: 0.00'
Contractor: BEYLIK DRILLING		
Logged By: H. REYES	Certified By: M. RAZMDJOO	Drilling Method: HOLLOW-STEM AUGER

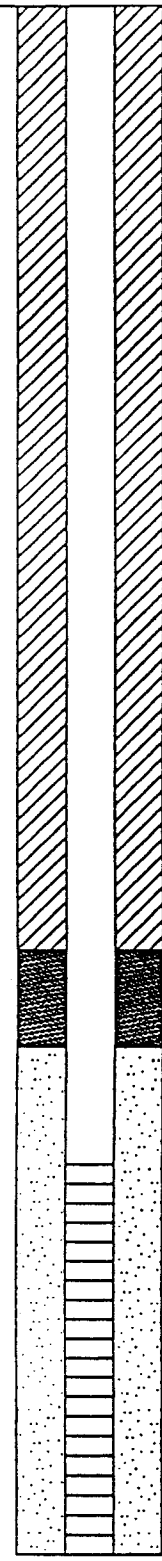
Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction MP. EL. 50.45
					AS		6-inch Asphalt concrete over 6-inch base material.	
					SC		Dark yellowish-brown, CLAYEY SAND (SC) fine grained, with small diameter gravel.	
					CL		Dark yellowish-brown, SILTY CLAY (CL), with fine grained sand.	
10								
20								
30							Dark yellowish-brown, SILTY CLAY (CL), micaceous.	
					SM		Dark yellowish-brown, SILTY SAND (SM), fine grained.	
40								
					CL		Dark yellowish-brown, SILTY CLAY (CL).	
					SM		Dark yellowish-brown, SILTY SAND (SM), fine grained.	
50								
					SP/SM		Olive brown, medium grained SAND (SP-SM) with small diam. gravel and shell fragments	



Project Name: McDonnell Douglas C-6 Facility | Site Id: WCC-01D

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction
					CL		Dark yellowish-brown, SILTY SANDS (SM), fine grained.	
					SP/SM		Yellowish-brown, fine grained SAND (SP-SM) with small diam. gravel and shell fragments.	
70							Becomes olive brown. Olive brown, fine grained SAND (SP-SM) with shell fragments.	
80							Becomes medium grained.	
90							Abundant shell fragments.	
100					CL		Bluish-gray and light yellowish-brown, SILTY CLAY (CL).	
110					SP/SM		Olive brown, fine to medium grained SAND (SP-SM).	
120		1			ML		Hard , olive, SILT (ML), micaceous (SILTSTONE).	
					SP		Olive brown, medium grained SAND (SP).	
					ML		Moist, olive SILT (ML), micaceous.	
		2			SM		Olive, SILTY SAND (SM), fine grained.	
					SP		Dark yellowish-brown, medium grained SAND (SP).	
130		3						
		4			CL		Dark yellowish-brown and bluish-gray SILTY CLAY (SP).	
140							Bottom of boring at 140 feet.	

Initial drilling and sampling was completed on 28 June 1989. Boring was enlarged and well was constructed on 29 and 30 June 1989.



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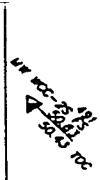
Environmental Services, Inc.



G 34

Project Name: McDonnell Douglas C-6 Facility

Location: Los Angeles, CA

Site Id: WCC-02S	Elevation: 50.83'
Datum: Mean Sea Level	Total Depth: 90.50'
X Coordinate: 12234.27	Y Coordinate: 13451.60
Date Started: 10/28/87	Date Completed: 10/28/87
Consulting Firm: WOODWARD-CLYDE	
Contractor: A&R DRILLING, INC.	
Logged By: H. REYES	Certified By: B. JACOBS

Annular Fill:
type: Cement fm: 0.00' to: 6.00'
type: Grout fm: 6.00' to: 56.00'
type: Bentonite Pellets fm: 56.00' to: 63.00'

Screens:
type: Slotted size: 0.010in dia: 4.00in fm: 70.00' to: 90.00'

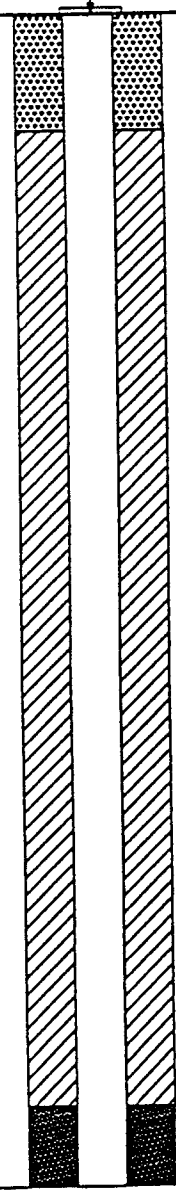
Blank Casing:
type: PVC dia: 4.00in fm: 0.0' to: 70.00'

Conductor Casing:
type: dia: 0.00in fm: 0.00' to: 0.00'

Drilling Method: HOLLOW-STEM AUGER

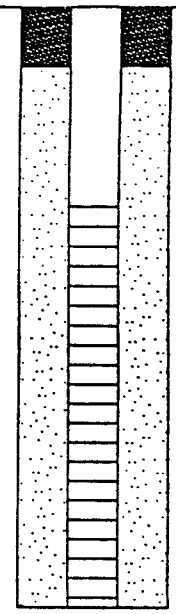
Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description
				5 ppm	AS		Asphalt.
					CL		Medium stiff, very moist, dark yellowish brown, SANDY CLAY (CL). Becomes very dark grayish brown.
10							Color change to yellowish brown. Becomes stiffer, less moisture, SANDY CLAY (CL).
20							Continued SANDY CLAY (CL). Less stiff, more moist.
							Grades to SILTY CLAY (CL).
30							
40							Stiff, moist, olive brown, SILTY CLAY (CL).
					SM		Dense, moist, olive brown, fine grained SILTY SAND (SM) with shells.
	34		1	5 ppm			
50							
	60		2	5 ppm	SP/SM		Very dense, damp, strong brown, fine grained SAND to SILTY SAND (SM), iron oxide staining.

Well Construction
MP. EL. 50.59



Project Name: McDonnell Douglas C-6 Facility | Site Id: WCC-02S

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction
					SM		Becomes SILTY SAND (SM).	
	42		3	6 ppm			Dense, moist, olive, fine grained SILTY SAND (SM), some iron oxide stains.	
70								
							Becomes wet. Water encountered at 73 feet.	
	68		4	6 ppm			Very dense, wet, olive brown, fine grained SILTY SAND (SM).	
80								
	50 /3"		5	5 ppm			Very dense, wet, olive, fine grained to very fine grained SILTY SAND (SM), micaceous, with some clay interbedding and iron oxide staining.	
90							Bottom of boring at 90.5 feet.	
							*NOTE: 48 gallons of city water used to offset hydrostatic head of flowing sands during well installation	
100								
110								
120								
130								
140								



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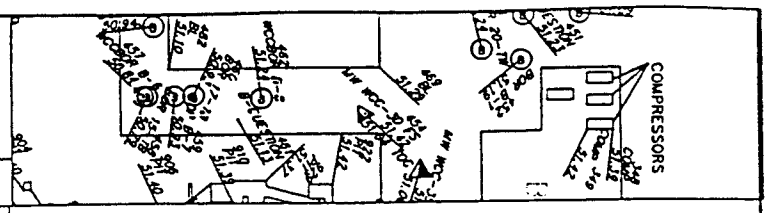
Environmental Services, Inc.



oject Name: McDonnell Douglas C-6 Facility

ocation: Los Angeles, CA

Site Id: WCC-03D	Elevation: 51.42'
Datum: Mean Sea Level	Total Depth: 140.00'
X Coordinate: 12583.61	Y Coordinate: 13265.87
Date Started: 06/23/89	Date Completed: 06/27/89
Consulting Firm: WOODWARD-CLYDE	
Contractor: BEYLIK DRILLING	
Logged By: H. REYES	Certified By: M. RAZMDJOO

Annular Fill:
type: Cement fm: 0.00' to: 5.00'
type: Grout fm: 5.00' to: 106.00'
type: Bentonite Pellets fm: 106.00' to: 115.00'

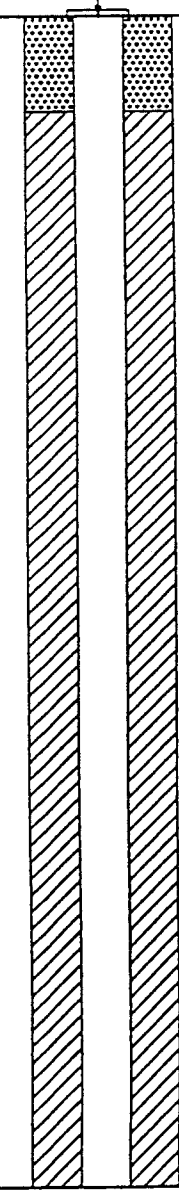
Screens:
type: Slotted size: 0.010in dia: 4.00in fm: 120.00' to: 140.00'

Blank Casing:
type: PVC dia: 4.00in fm: 0.0' to: 120.00'

Conductor Casing:
type: dia: 0.00in fm: 0.00' to: 0.00'

Drilling Method: HOLLOW-STEM AUGER

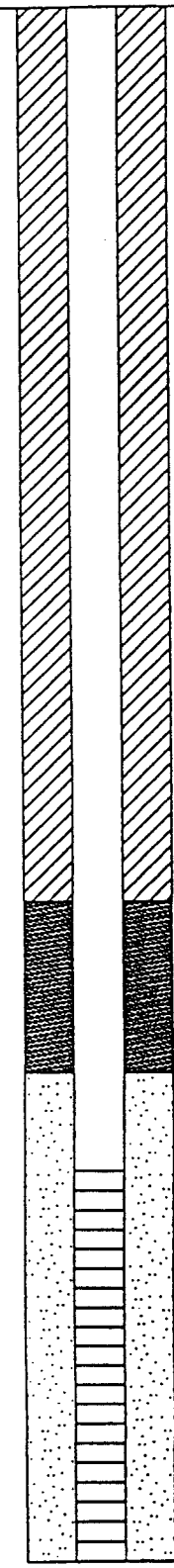
Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction
					AS/CO		6-inch asphalt and concrete cover.	MP. EL. 51.18
							6-inch base material.	
					SM		Dark yellowish-brown, fine grained SILTY SAND (SM).	
10							Dark yellowish-brown, fine grained SILTY SAND (SM) with some clay.	
20							Becomes olive brown, fine to medium grained SILTY SAND (SM).	
30							Becomes clayey with some calcareous nodules.	
							Olive brown, fine to medium grained SILTY SAND (SM) with trace of clay, some calcareous nodules.	
40					CL		Olive brown SILTY CLAY (CL), with coarse grained sand.	
50					SM		Olive brown, fine grained SAND (SM) with some coarse grained sand and abundant shell fragments.	



Project Name: McDonnell Douglas C-6 Facility | Site Id: WCC-03D

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description
70							More coarse grained sand.
					SP		Olive brown, medium grained SAND (SP).
							Olive brown, fine to medium grained SAND (SM) with abundant shell fragments.
80							Lense of dark yellowish-brown, coarse grained SAND (SP), slight chemical odor - drilling mud foamed up.
90							Lens of dark yellowish-brown coarse grained SAND (SP).
100							Grayish brown, fine to medium grained SAND (SM) with abundant shell fragments.
110					CL		Dark yellowish-brown, SILTY CLAY (CL).
					SM		Olive brown, fine grained SILTY SAND (SM).
120					ML		Olive brown SANDY SILT (ML), micaceous.
					SM		Olive brown, fine to medium grained SILTY SAND (SM).
					CH		Olive brown CLAY (CH).
					SP		Olive brown, medium grained SAND (SP).
130							Hard reddish-brown SANDSTONE.
							Hard, light yellowish-brown to bluish-gray, SILTY CLAYSTONE.
140							Bottom of boring at 140 feet.
							Initial drilling and sampling was completed on 23 and 26 June 1989. Boring was enlarged and well was constructed on 27 June 1989.

Well Construction



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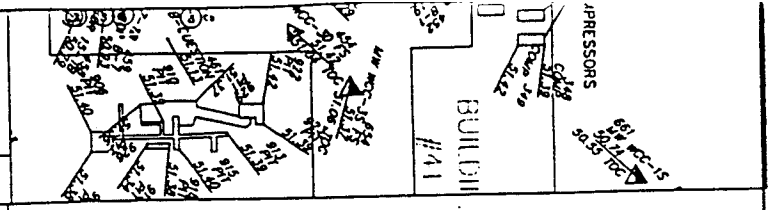
Environmental Services, Inc.



Project Name: McDonnell Douglas C-6 Facility

Location: los Angeles, CA

Site Id: WCC-03S	Elevation: 51.37'
Datum: Mean Sea Level	Total Depth: 92.00'
X Coordinate: 12608.51	Y Coordinate: 13238.90
Date Started: 10/26/87	Date Completed: 10/26/87
Consulting Firm: WOODWARD-CLYDE	
Contractor: A&R DRILLING, INC.	
Logged By: H. REYES	Certified By: B. JACOBS

Annular Fill:
type: Cement fm: 0.00' to: 6.00'
type: Grout fm: 6.00' to: 58.50'
type: Bentonite Pellets fm: 58.50' to: 64.00'

Screens:
type: Slotted size: 0.010india: 4.00in fm: 69.00' to: 89.00'

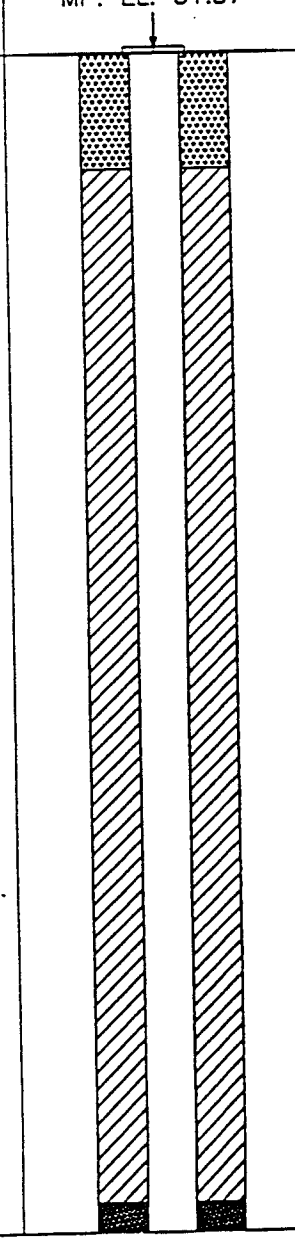
Blank Casing:
type: PVC dia: 4.00in fm: 0.0' to: 69.00'

Conductor Casing:
type: dia: 0.00in fm: 0.00' to: 0.00'

Drilling Method: HOLLOW-STEM AUGER

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description
				4-6 ppm	AS		Asphalt.
					SM		Damp, very dark grayish-brown, fine grained SILTY SAND (SM) with small gravel.
					CL		Soft, very moist, dark gray yellowish-brown, stiff.
							Becomes less moist, dark yellowish-brown, stiff.
10							Continued SILTY CLAY (CL). Becomes more stiff, no detectable odor.
					SC/CL		Dense, moist, yellowish-brown, CLAYEY SAND to SANDY CLAY (SC-CL). -No odor-
20					CL		Grades to SILTY CLAY (CL). Stiff, moist, dark yellowsh-brown SILTY CLAY
							-No odor-
30					VA		Lense of volcanic ash.
					CL		Stiff, moist, olive brown SILTY CLAY (CL).
40							
					ML		Lens of stiff, moist, olive SANDY SILT (ML), micaceous with decomposed peices of roots. -Earthy odor-
	25		1	25 ppm	CL		Stiff, moist, olive brown SILTY CLAY (CL) continued.
50					SM		Clay becomes more stiff, interbedded with lenses of dense, moist, yellowish-brown, medium grained SILTY SAND (SM) with shells, partially cemented and crystalized calcite. -Moderate chemical odor-
	30		2	570 ppm			

Well Construction



Project Name: McDonnell Douglas C-6 Facility | Site Id: WCC-03S

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction
	46		3	440 ppm	SM/SP		Dense, moist, yellowish-brown to olive-gray, very fine grained SILTY SAND to SAND (SM_SP), micaceous. -Moderate to strong chemical odor-	
70	35		4	1000+ ppm	ML		Very stiff, very moist, olive brown, SANDY SILT (ML), micaceous with iron oxide stains. -Strong chemical odor-	
	59		5	1000+ ppm	SP/SM		Becomes wet. Water encountered. Very dense, wet, olive brown, fine grained SAND (SP) to SILTY SAND (SM). -Strong chemical odor-	
80			6	1000+ ppm			Becomes medium grained.	
							Very dense, saturated, olive-brown, fine to medium grained SAND (SP-SM) with some silt. -Moderate to strong chemical odor-	
90							Bottom of boring at 92.0 feet.	
							*NOTE: Used 59 gallons of city water to offset hydrostatic head of flowing sands during well installation	
100								
110								
120								
130								
140								

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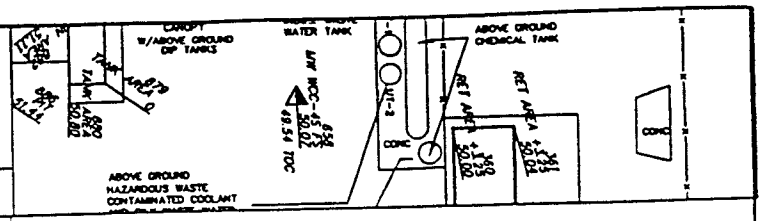


ject Name: McDonnell Douglas C-6 Facility

Location: Los Angeles, CA		Annular Fill: type: Cement fm: 0.00' to: 6.00'; type: Grout fm: 6.00' to: 59.50'; type: Bentonite Pellets fm: 59.50' to: 65.00'
Site Id: WCC-04S	Elevation: 50.07'	
Datum: Mean Sea Level	Total Depth: 91.50'	Screens: type: Slotted size: 0.010in dia: 4.00in fm: 70.00' to: 90.00'
X Coordinate: 12741.35	Y Coordinate: 13075.30	
Date Started: 10/27/87	Date Completed: 10/27/87	Blank Casing: type: PVC dia: 4.00in fm: 0.0' to: 70.00'
Consulting Firm: WOODWARD-CLYDE		Conductor Casing: type: dia: 0.00in fm: 0.00' to: 0.00'
Contractor: A&R DRILLING, INC.		
Logged By: H. REYES	Certified By: B. JACOBS	Drilling Method: HOLLOW-STEM AUGER

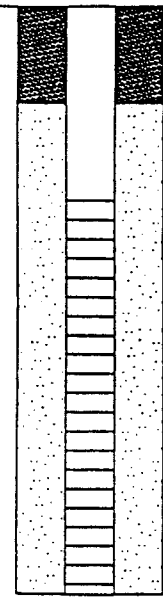
Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction (MP. EL. 49.69)
				4-6 ppm	AS		Asphalt.	
					CL		Moist, grayish-brown, SILTY CLAY with some SAND (CL).	
							Moist, dark yellowish-brown SILTY CLAY (CL). - No odor -	
10								
20								
30								
					VA		Lense of dark greenish-black volcanic angular gravel.	
					CL		Moist, dark yellowish-brown SILTY CLAY (CL).	
40								
	18		1	8 ppm			Very stiff, organic roots and plant detritus with organic iron oxide staining. - No odor -	
50								
	23		2	8 ppm			- No odor -	

Project Name: McDonnell Douglas C-6 Facility | Site Id: WCC-04S

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description
							Occasional fossiliferous gravel.
	43		3	5 ppm	SM		- No odor - Hard light oliv brown, fine SANDY SILT to SILT to fine SILTY SAND (SM).
70							
	42		4	7 ppm	CL		Becomes wet. Water encountered at 75 feet. Hard, damp, light olive brown SILTY CLAY (CL) with iron oxide staining.
					SP		Very dense, light olive brown, fine grained SAND (SP) with little silt.
80	45		5	8 ppm	SP		2-inch layer of CLAY (CL). - No odor -
							Very dense, wet, light olive brown, fine grained SAND(SP) with little silt.
90			6	8 ppm	CL/ML		Moist, light olive brown, SILTY CLAY (ML-CL). - No odor - Bottom of boring at 91.5 feet.
100							
110							
120							
130							
140							

*NOTE: 45 gallons of city water used to offset hydrostatic head at flowing sands during well installation.

Well Construction



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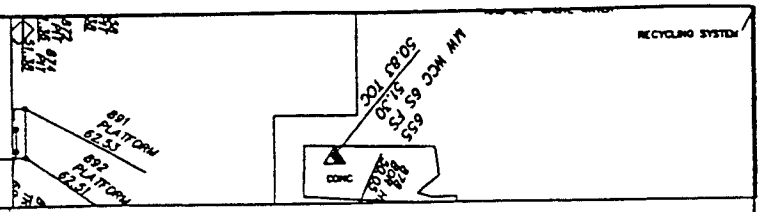
Environmental Services, Inc.

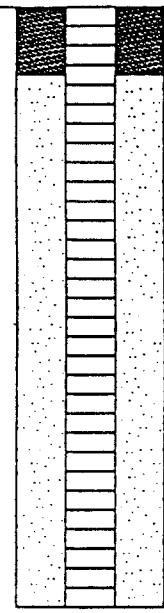


Project Name: McDonnell Douglas C-6 Facility				
Location: Los Angeles, CA		Annular Fill:		
Site Id: WCC-05S	Elevation: 48.74'	type: Cement	fm: 0.00'	to: 5.00'
		type: Grout	fm: 5.00'	to: 51.00'
Datum: Mean Sea Level	Total Depth: 91.00'	type: Bentonite Pellets	fm: 51.00'	to: 63.50'
X Coordinate: 12963.89	Y Coordinate: 12998.69	Screens: type: Slotted size: 0.010in dia: 4.00in	fm: 61.00'	to: 91.00'
Date Started: 11/24/87	Date Completed: 11/24/87	Blank Casing: type: PVC dia: 4.00in	fm: 0.0'	to: 61.00'
Consulting Firm: WOODWARD-CLYDE		Conductor Casing: type: dia: 0.00in	fm: 0.00'	to: 0.00'
Contractor: A&R DRILLING, INC.				
Logged By: B. JACOBS	Certified By: H. REYES	Drilling Method: HOLLOW-STEM AUGER		

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction
				3-4 ppm	CL/ML		Moist, dark olive brown, CLAYEY SILT (CL-ML) with little sand.	MP. EL. 48.52
10					CL		Moist, moderate brown SILTY CLAY (CL) with some sand..	
							Becomes more silty.	
20							Becomes dark yellowish-brown.	
30								
40							Moist, dark yellowish-brown SILTY CLAY (CL) with some organic roots and iron oxide staining.	
	34		1	3 ppm	SP		- No odor - Dense, moist, dusky yellow to light olive brown fine grained SAND (SP) with little silt.	
50								
	37		2	5 ppm			Interbeds of silty sands and clay. - No odor -	

Project Name: McDonnell Douglas C-6 Facility | Site Id: WCC-05S

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction
	70		3	4 ppm			Becomes very dense.- No odor -	
70								
					SM/ML		Becomes wet. Water encountered at 73 feet.	
	35		4	3 ppm			Dense, wet, moderate olive brown, fine grained SILTY SAND (SW-ML). -No odor-	
80								
							No sample collected	
90							Bottom of boring at 91.5 feet.	
							*NOTE: 55 gallons of city water used to aid well installation.	
100								
110								
120								
130								
140								



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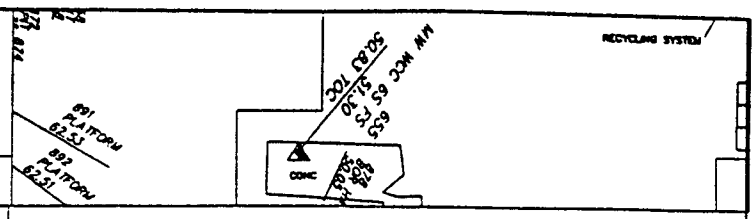

Project Name: McDonnell Douglas C-6 Facility

Location: Los Angeles, CA		Annular Fill: type: Grout fm: 0.00' to: 51.00'; type: Bentonite Pellets fm: 51.00' to: 54.00'; type: Sand Filter fm: 54.00' to: 90.00'
Site Id: WCC-06S	Elevation: 51.30'	
Datum: Mean Sea Level	Total Depth: 91.00'	
X Coordinate: 12580.23	Y Coordinate: 12953.10	Screens: type: Slotted size: 0.010in dia: 4.00in fm: 60.00' to: 90.00'
Date Started: 09/22/89	Date Completed: 09/22/89	Blank Casing: type: PVC dia: 4.00in fm: 0.0' to: 60.00'
Consulting Firm: WOODWARD-CLYDE		
Contractor: GREGG DRILLING		Conductor Casing: type: dia: 0.00in fm: 0.00' to: 0.00'
Logged By: H. REYES	Certified By: M. RAZMDJOO	Drilling Method: HOLLOW-STEM AUGER

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction (MP. EL. 50.95)
				16 ppm	AS		4-inch asphalt/ concrete over 6-inch base material.	
					CL		Moist, dark olive brown, SANDY CLAY (CL).	
							Becomes dark brown.	
	49		1	16 ppm			Becomes hard, dark yellowish-brown.	
10							Becomes SILTY CLAY (CL).	
					MH			
	33		2	16 ppm			Becomes more silty.	
20							Becomes dark yellowish-brown.	
	40		3	16 ppm				
					CL			
30					SP			
					CL			
	49		4	19 ppm	ML			
							Moist, dark yellowish-brown SILTY CLAY (CL) with some organic roots and iron oxide staining.	
40								
					SM			
	63		5	16 ppm			- No odor -	
	47		6				Dense, moist, dusky yellow to light olive brown fine grained SAND (SP) with little silt.	
50								
					ML			
				18 ppm			Interbeds of silty sands and clay. - No odor -	

Project Name: McDonnell Douglas C-6 Facility | Site Id: WCC-06S

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction
					SM			
	89		7	19 ppm			Becomes very dense.- No odor -	
70								
					SP/SM		Becomes wet. Water encountered at 73 feet.	
	99 67		8	1000+ ppm	SM		Dense, wet, moderate olive brown, fine grained SILTY SAND (SM-ML). -No odor-	
80	99 86		9	720 ppm				
	99 71		10	25 ppm				
							No sample collected	
90	91		11	46 ppm			Bottom of boring at 91.5 feet. *NOTE: 55 gallons of city water used to aid well installation.	
100								
110								
120								
130								
140								

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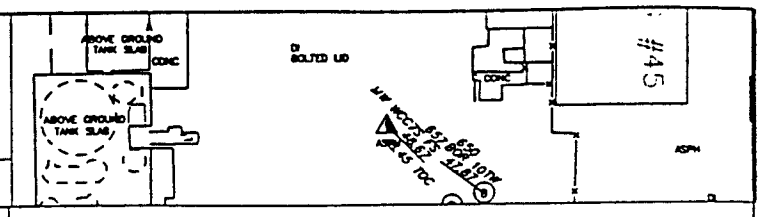


Project Name: McDonnell Douglas C-6 Facility

Location: Los Angeles, CA

Site Id: WCC-07S	Elevation: 48.67'
Datum: Mean Sea Level	Total Depth: 90.50'
X Coordinate: 12730.37	Y Coordinate: 12868.64
Date Started: 06/08/89	Date Completed: 06/08/89
Consulting Firm: WOODWARD-CLYDE	
Contractor: A&R DRILLING, INC.	
Logged By: P. GLOESMAN	Certified By: M. RAZMDJOO

Annular Fill:
type: Grout fm: 0.00' to: 49.00'
type: Bentonite Pellets fm: 49.00' to: 54.00'
type: Sand Filter fm: 54.00' to: 90.50'

Screens:
type: Slotted size: 0.010in dia: 4.00in fm: 60.00' to: 90.00'

Blank Casing:
type: PVC dia: 4.00in fm: 0.0' to: 60.00'

Conductor Casing:
type: dia: 0.00in fm: 0.00' to: 0.00'

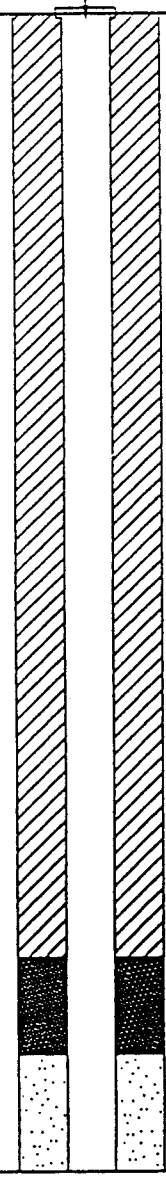
Drilling Method: HOLLOW-STEM AUGER

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Material Description
				10 ppm	AS/CO	6-inch asphalt/ concrete over 8-inch base material.
	31		1	1 ppm	AS	Hard, moist, black, SANDY CLAY (CL).
	45		2	1 ppm	CL	Becomes dark yellowish-brown.
10	36		3	1 ppm	SM	Medium dense, moist, olive brown, fine grained SILTY SAND (SM).
	14		4	3 ppm		Becomes dark yellowish-brown, with trace of clay, some decomposed roots.
20	25		5	2 ppm	CL	Hard, moist, dark olive brown, fine grained SANDY CLAY (CL) with root holes.
	31		6	2 ppm	SM	Dense, moist, olive brown, fine grained SILTY SAND (SM).
30	41		7	2 ppm		With root holes and small nodules of calcium carbonate (HCL Reaction).
	32		8	2 ppm		Dense, moist, olive brown, fine grained SILTY SAND (SM) with root holes and CaCo nodules.
40	25		9	3 ppm	SP	Medium dense, moist, dark brown to olive brown, medium grained SAND (SP).
	44		10	2 ppm	SP/SM	Dense, moist, olive brown, fine grained SILTY SAND to SILTY SAND (SP-SM).
50	19		11	3 ppm	CL	Zone of hard, damp, light brown, calcareous material (sand and shell fragments). Very stiff, moist, olive CLAY (CL) mixed with shell fragments and calcareous nodules (appears to be gouge zone).
	35		12	2 ppm	SM	Dense, moist, olive fine grained SILTY SAND (SM).
					CL	Dense, moist, olive SANDY CLAY (CL) with some iron oxide staining.
	38		13	1 ppm	SM/SP	Dense, moist, olive brown fine grained SILTY SAND to SAND (SM-SP).

Graphic Log

Well Construction

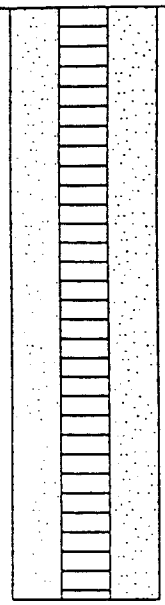
MP. EL. 48.29



Project Name: McDonnell Douglas C-6 Facility | Site Id: WCC-07S

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction
					SP		Dense, very moist, olive gray, fine grained SAND (SP).	
	43		14	1 ppm				
70	44		15	3 ppm	SM		Dense, very moist, olive, fine grained SILTY SAND (SM), micaceous.	
							Becomes saturated.	
	44		16	9 ppm			Dense, saturated, olive, fine grained SILTY SAND (SM), micaceous.	
							Sand becomes fine to medium grained.	
80	35		17	13 ppm				
							Becomes very dense, medium grained with few coarse grains, less silt, few shell fragments .	
	69		18	7 ppm				
							Becomes dense, medium to coarse grained, more silt, no shell fragments.	
90	37		19	0 ppm			Bottom of boring at 90.5 feet.	
100								
110								
120								
130								
140								

*NOTE: Upon completion of drilling and sampling added approximately 60 gallons of tap water to prevent heaving sand coming inside the augers.



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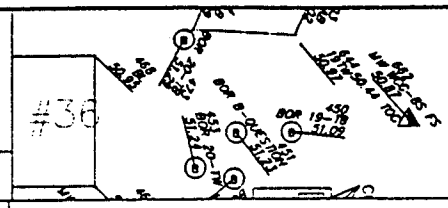


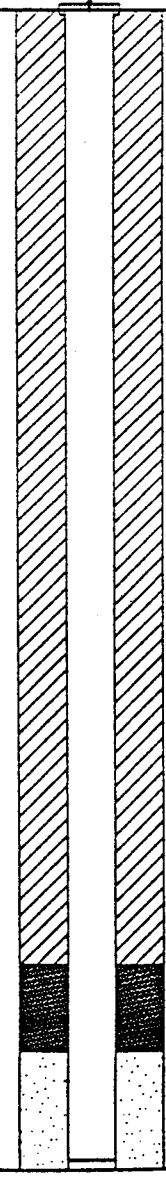
Project Name: McDonnell Douglas C-6 Facility

Location: Los Angeles, CA	Annular Fill: type: Grout fm: 0.00' to: 49.50'; type: Bentonite Pellets fm: 49.50' to: 54.00'; type: Sand Filter fm: 54.00' to: 90.00'
Site Id: WCC-08S / Elevation: 50.87'	
Datum: Mean Sea Level / Total Depth: 90.00'	Screens: type: Slotted size: 0.010in dia: 4.00in fm: 59.50' to: 89.50'
X Coordinate: 12737.32 / Y Coordinate: 13318.91	
Date Started: 06/12/89 / Date Completed: 06/12/89	Blank Casing: type PVC dia: 10.00in fm: 0.0' to: 59.50'
Consulting Firm: WOODWARD-CLYDE	
Contractor: A&R DRILLING, INC.	Conductor Casing: type: dia: 0.00in fm: 0.00' to: 0.00'
Logged By: P. GLOESMAN / Certified By: M. RAZMOUOO	Drilling Method: HOLLOW-STEM AUGER

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Material Description
				11 ppm	AS	8-inch asphalt/ concrete.
	12		1	0 ppm	SC CL	Base material, medium dense, moist, yellowish-brown CLAYEY SAND (SC), decomposed granite.
	55		2	13 ppm	CL/SC	Stiff, very moist, very dark gray, SANDY CLAY (CL). Hard, moist, dark yellowish brown, SANDY CLAY to fine grained CLAYEY SAND(CL-SC).
0	82		3	30 ppm	CL	Hard, moist, olive brown, SILTY CLAY (CL).
	20		4	41 ppm	SM	Medium dense, moist, olive brown, fine grained SILTY SAND (SM).
20	26		5	46 ppm	CL	Very stiff to hard, moist, olive brown, SILTY CLAY (CL), with CaCo veinlets.
	33		6	24 ppm	SM/ML	Dense, moist, olive brown, fine grained SILTY SAND (SM-ML) with some iron oxide staining hair like root holes.
30	32		7	21 ppm	CL	Hard, moist, dark olive brown, fine grained SANDY CLAY (CL) with caliche veinlets.
	31		8	43 ppm	SP/SM	Dense, moist, olive brown, fine grained SAND to SILTY SAND (SM-ML).
40	24		9	43 ppm	SM	Becomes more silty grades to (SM). Dense, moist, olive brown, fine grained SILTY SAND (SM). Medium dense, moist, dark brown to olive brown, medium grained SAND (SP).
	31		10	46 ppm	ML	Stiff to very stiff, moist, olive brown, SANDY SILT (ML).
50	13		11	48 ppm	SM	Dense, moist, olive brown, fine grained SILTY SAND (SM) with abundant calcareous nodules.
	43		12	72 ppm	CL	
	26		13	70 ppm	SC	Medium dense, moist to very moist , olive gray and yellowish-brown, mottled, grained CLAYEY SAND (SC).
					SM	Dense, moist, olive brown, fine grained SILTY SAND (SM), with abundant shell fragments which are cemented together forming coquina.
					ML	Very stiff to hard, moist, olive, SANDY SILT (ML), micaceous, with iron oxide staining.

Well Construction

MP. EL. 50.56



Project Name: McDonnell Douglas C-6 Facility | Site Id: WCC-08S

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction
					ML		Very stiff to hard, moist, olive, SANDY SILT (ML), micaceous, with iron oxide staining.	
					SM		Very dense, moist, light olive brown, fine grained SILTY SAND (SM), micaceous.	
	83		14	100 ppm				
70	71		15	100 ppm			Becomes very moist to saturated.	
	38		16	100 ppm	ML		Hard, saturated, olive, SANDY SILT (ML), micaceous.	
80	21		17	32 ppm	SM/SP		Medium dense, saturated, light gray, fine to medium grained SILTY SAND (SM-SP).	
			18				(Unable to collect sample due to existence of 8 feet of heaving sand inside the auger. Added 5 gallons of water to prevent heaving sand coming into augers.	
90							Bottom of boring at 90 feet.	
100								
110								
120								
130								
140								

*NOTE: 1. Boring was initially drilled with an 8-inch outside diameter and samples were taken. Upon completion of sampling, boring was enlarged with 10-inch outside diameter and well was installed.

2. Added 40 gallons of water prior to installation of well casing.

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WELDING #66

Project Name: McDonnell Douglas C-6 Facility

Location: Los Angeles, CA	
Site Id: WCC-09S	Elevation: 46.32'
Datum: Mean Sea Level	Total Depth: 91.50'
X Coordinate: 12926.87	Y Coordinate: 12827.94
Date Started: 09/20/89	Date Completed: 09/21/89
Drilling Firm: [illegible]	
Operator: [illegible] DRILLING	
Logged By: M. PEEE	Certified By: M. FAZMOOOC

Annular Fill:
type: Grout fm: 0.00' to: 53.00'
type: Bentonite Pellets fm: 53.00' to: 55.00'
type: Sand Filter fm: 55.00' to: 91.50'

Screen:
type: Slotted size: 0.010in dia: 4.00in fm: 60.00' to: 90.00'

Blank Casing:
type: PVC dia: 4.00in fm: [illegible] to: [illegible]

Conductor Casing:
type: dia: 0.00in fm: [illegible] to: [illegible]

Drilling Method: HOLLOW-STEM AUGER

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction
				6 ppm	AS/CO		4-inch asphalt/ concrete over 6-inch base material.	MP. EL. 47.01
					AS			
					CL		Very stiff to hard, moist, dark, yellowish-brown SILTY CLAY (CL) with fine grained sand.	
	45		1	6 ppm				
0	31		2	0 ppm				
					MH		Stiff, moist, dark yellowish-brown, CLAYEY SILT (MH), micaceous.	
	15		3	7 ppm				
							Becomes very stiff to hard.	
20	34		4	7 ppm				
					CL		Very stiff to hard, moist, dark brown to olive brown, SILTY CLAY (CL).	
	43		5	6.6 ppm				
					SM		Very dense, moist, olive brown, fine grained SILTY SAND (SM), with some clay veinlets.	
30	80		6	6.9 ppm				
					MH		Very stiff to hard, moist, dark olive brown, CLAYEY SILT (MH).	
	9 38		7	6 ppm				
40	48		8	6.8 ppm				
					CL		Hard, moist, dark olive brown, SILTY CLAY (CL) with stringers of black mineral pyrouote.	
	65		9	6.5 ppm				
							Contains abundant shell fragments.	
					SM		Very dense, damp, light yellowish-brown to olive brown, fine to medium grained SILTY SAND (SM).	
50	89		10	8.7 ppm				
	36		11	6.7 ppm	CL		Very stiff to hard, moist to very moist, olive, SILTY CLAY (CL) with iron oxide staining.	
					SP		Lense of dense, damp, yellowish-brown, fine grained SAND (SP).	

Project Name: McDonnell Douglas C-6 Facility | Site Id: WCC-09S

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction
	91		12	6.5 ppm	CL		Very stiff to hard, moist to very moist, olive, SILTY CLAY (CL) with iron oxide staining.	
					SM		Very dense, very moist, dark brown, fine grained SILTY SAND (SM), micaceous.	
	89		13	6 ppm				
70	83		14	6 ppm	ML		Hard, saturated, olive, SANDY SILT (ML), micaceous.	
					SP/SM		Medium dense, saturated, olive brown, medium grained SAND (SP-SM), micaceous.	
	26		15	6 ppm			Medium dense to very dense, saturated, olive brown, fine to medium grained SAND (SP-SM), micaceous.	
80	99		16	6.5 ppm				
	90		17	6.2 ppm				
					ML		Hard, saturated, olive SANDY SILT (ML).	
90	75		18	5.5 ppm			Bottom of boring at 91.5 feet.	
100								
110								
120								
130								
140								

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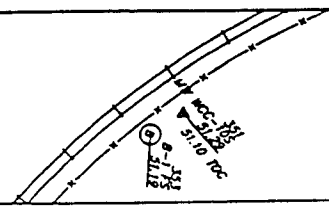


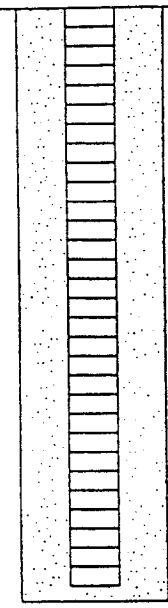
Project Name: McDonnell Douglas C-6 Facility

Location: Los Angeles, CA		Annular Fill: type: Grout fm: 0.00' to: 49.00'; type: Bentonite Pellets fm: 49.00' to: 54.00'; type: Sand Filter fm: 54.00' to: 90.80'
Site Id: WCC-10S	Elevation: 51.29'	
Datum: Mean Sea Level	Total Depth: 90.80'	Screens: type: Slotted size: 0.010in dia: 4.00in fm: 60.00' to: 90.00'
X Coordinate: 11338.90	Y Coordinate: 14038.95	
Date Started: 06/07/89	Date Completed: 06/07/89	Blank Casing: type: PVC dia: 4.00in fm: 0.0' to: 60.00'
Consulting Firm: WOODWARD-CLYDE		Conductor Casing:
Contractor: A&R DRILLING, INC.		type: dia: 0.00in fm: 0.00' to: 0.00'
Logged By: F. REYES	Certified By: B. JACOBS	Drilling Method: HOLLOW-STEM AUGER

Depth (ft)	Blow Count	Recovery	Sample No	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction (MP. EL. 51.12)
				6 ppm	AS/CO		3 1/2 -inch asphalt/ concrete over 9-inch base material.	
					CL		Soft, very moist to saturated, black, SANDY CLAY (CL)	
	24		1	1 ppm			Becomes very stiff, moist, dark yellowish brown.	
					SM		Medium dense, moist, olive brown, fine grained SILTY SAND (SM), with trace of clay.	
10	13		2	1 ppm				
							No clay.	
	25		3	2 ppm				
							Becomes very stiff to hard.	
20	21		4	0 ppm	CL		Very stiff to hard, moist, dark yellowish-brown, SANDY CLAY (CL).	
	61		5	0 ppm			Contains large nodules of calcium carbonate (HCL Reaction).	
					SM		Dense, moist, olive brown, fine grained SILTY SAND (SM).	
30	36		6	1 ppm				
					SP/SM		Dense, moist, olive brown, fine grained SAND to SILTY SAND (SP-SM).	
	32		7	2 ppm				
					SP		Dense to very dense, damp, pale brown, fine grained SAND (SP).	
40	46		8	1 ppm				
	55		9	2 ppm				
50	43		10	2 ppm			Becomes olive brown.	
	32		11	1 ppm	SW		Dense, moist, olive brown, medium grained GRAVELLY SAND (SW), gravel 1/4" - 1/2" diameter.	
					SC		Very dense, moist, dark olive, fine grained CLAYEY SAND (SC).	
	90		12	1 ppm	SM		Very dense, moist, olive, fine grained SILTY SAND (SM).	

Project Name: McDonnell Douglas C-6 Facility | Site Id: WCC-10S

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction
	74		13	3 ppm				
70	51		14	ppm			Becomes wet, olive brown.	
	99 26		15	10 ppm				
80	99 5		16	6 ppm			Becomes olive, micaceous.	
	42		17	6 ppm			Becomes medium grained with shell fragments. (Added 25 gallons water to prevent surging sand coming inside the augers.)	
90	3 /3"		18	6 ppm			Bottom of boring at 90.8 feet.	
							NOTE: Added 40 gallons of water prior to installation of well casing.	
100								
110								
120								
130								
140								



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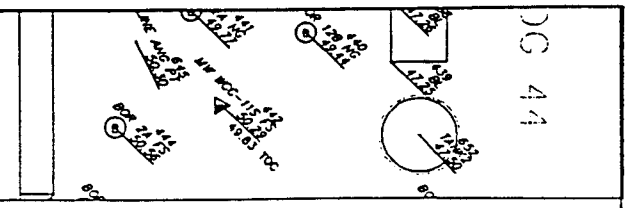


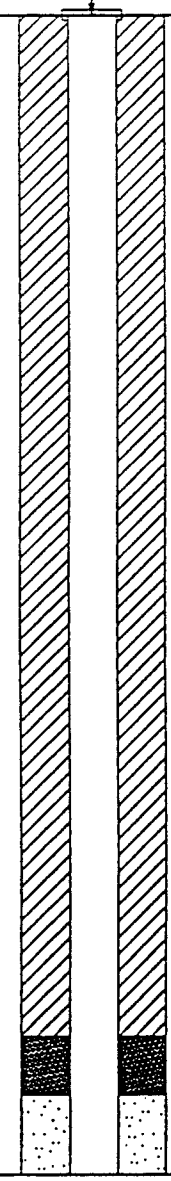
ject Name: McDonnell Douglas C-6 Facility

Location: Los Angeles, CA		Annular Fill: type: Grout fm: 0.00' to: 53.00' type: Bentonite Pellets fm: 53.00' to: 56.00' type: Sand Filter fm: 56.00' to: 91.00'
Site Id: WCC-11S	Elevation: 50.29'	
Datum: Mean Sea Level	Total Depth: 91.00'	
X Coordinate: 12744.01	Y Coordinate: 13870.68	Screens: type: Slotted size: 0.010in dia: 4.00in fm: 60.00' to: 90.00'
Date Started: 09/12/90	Date Completed: 09/13/90	Blank Casing: type: PVC dia: 4.00in fm: 0.0' to: 60.00'
Consulting Firm: WOODWARD-CLYDE		
Contractor: A&R DRILLING, INC.		Conductor Casing: type: dia: 0.00in fm: 0.00' to: 0.00'
Logged By: H. REYES	Certified By: M. RAZMDJOO	Drilling Method: HOLLOW-STEM AUGER

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Material Description
					SM/FL	Damp, yellowish-brown, fine grained SILTY SAND (SM).
					ML/FL	Moist, olive brown, SANDY SILT (ML).
	4		1	44 ppm	CL/FL	Soft, wet, black, SANDY CLAY (CL).
					CL	Very stiff, moist, yellowish-brown, SILTY CLAY (CL).
10	27		2	50 ppm		
					ML	Medium dense, moist, dark olive brown, SANDY SILT (ML), micaceous.
	10		3	34 ppm		
20	8		4	42 ppm		Becomes loose, more SANDY.
						Becomes medium dense, more micaceous.
	12		5	33 ppm		
30	13		6	39 ppm		
						Medium dense, moist, dark olive brown, SANDY SILT (ML), micaceous.
	28		7	32 ppm		
40	15		8	50 ppm		With some CLAY.
					SP	Medium dense, moist, dark yellowish-brown, fine to medium grained SAND (SP).
	21		9	50 ppm		
					SM	Dense, very moist, olive brown, fine grained SILTY SAND (SM).
50	36		10	61 ppm		
					GP	Lense of dense, moist, gray GRAVEL (GP), rounded, 1 inch size.
	26		11	62 ppm	MH	Very stiff, very moist, olive, CLAYEY SILT (MH), micaceous, with iron oxide staining.
					SM	Dense, moist, olive brown, fine grained SILTY SAND (SM).

Well Construction

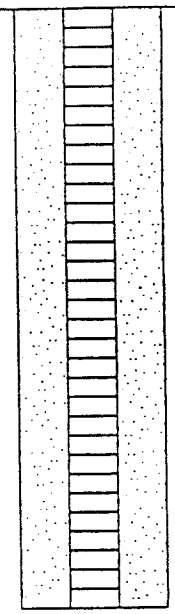
MP. EL. 50.11



Project Name: McDonnell Douglas C-6 Facility

Site Id: WCC-11S

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction
	33		12	43 ppm	SP		Becomes less SILTY, grading to SAND (SP).	
							Becomes more SILTY, micaceous.	
	50		13	52 ppm				
					SP/SM		Becomes wet, dark, olive gray, fine grained SAND with SILT (SP-SM), very micaceous.	
70	44		14	56 ppm			Dense, wet, dark olive gray, fine grained SAND with SILT (SP-SM), very micaceous.	
	46		15	46 ppm	ML		Dense, wet, olive SANDY SILT (ML), thinly bedded.	
					SP/SM		Very dense, wet, olive brown, fine to medium grained SAND with SILT (SP-SM).	
80	57		16	43 ppm				
90							Bottom of boring at 91 feet.	
100								
110								
120								
130								
140								



INTEGRATED
Environmental Services, Inc.

BUILDING #40

Project Name: McDonnell Douglas C-6 Facility

Location: Los Angeles, CA

Site Id: WCC-12S	Elevation: 47.31'
Datum: Mean Sea Level	Total Depth: 91.50'
X Coordinate: 12749.25	Y Coordinate: 12715.20
Date Started: 09/17/90	Date Completed: 09/17/90
Consulting Firm: WOODWARD-CLYDE	
Contractor: A&R DRILLING, INC.	
Logged By: H. REYES	Certified By: M. RAZMDJOO

Annular Fill:
type: Grout fm: 0.00' to: 52.50'
type: Bentonite Pellets fm: 52.50' to: 55.00'
type: Sand Filter fm: 55.00' to: 91.50'

Screens:
type: Slotted size: 0.010in dia: 4.00in fm: 60.00' to: 90.00'

Blank Casing:
type: PVC dia: 4.00in fm: 0.0' to: 60.00'

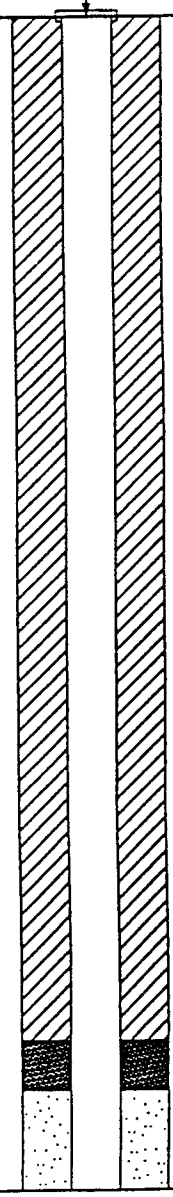
Conductor Casing:
type: dia: 0.00in fm: 0.00' to: 0.00'

Drilling Method: HOLLOW-STEM AUGER

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Material Description
					AS	6 inches asphalt/concrete.
					CL/FL	Moist, dark yellowish-brown, SANDY CLAY with GRAVEL (CL-GP).
					SM	Medium dense, moist, dark yellowish-brown, fine grained SILTY SAND (SM).
	24		1	22 ppm		
						With trace CLAY.
10	15		2	28 ppm		
					ML/SM	Medium dense, moist, olive brown, SANDY SILT to SILTY SAND (ML-SM).
	18		3	34 ppm		
20	25		4	34 ppm		Becomes moist to very moist.
					CL	Very stiff, moist, olive brown SANDY CLAY (CL).
	23		5	30 ppm		
					SP/SM	Dense, moist, olive brown, fine grained SAND with SILT (SP-SM).
30	34		6	36 ppm		
					ML	Medium dense, moist, olive brown, SANDY SILT (ML), with trace CLAY.
	24		7	38 ppm		
					SP	Dense, moist, yellowish-brown, medium grained SAND (SP).
40	35		8	37 ppm		
					SM	Medium dense, moist, yellowish brown, fine grained SILTY SAND (SM), with abundant shells.
	27		9	38 ppm		
					MH/CL	Very stiff, very moist, mottled (olive and yellowish-brown), CLAYEY SILT to SILTY CLAY (MH-CL), with iron oxide veinlets..
50	24		10	44 ppm		
					SM	Medium dense, moist to very moist, olive, fine grained SILTY SAND (SM).
	24		11	44 ppm		

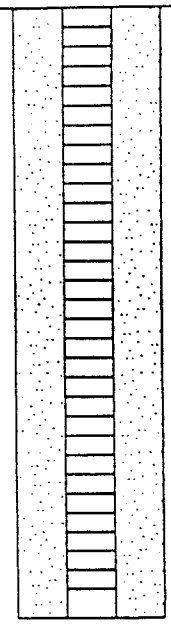
Well Construction

MP. EL. 47.18



Project Name: McDonnell Douglas C-6 Facility | Site Id: WCC-12S

Depth (ft)	Blow Count	Recovery	Sample No.	Organic Vapor	USCS Code	Graphic Log	Material Description	Well Construction
	42		12	42 ppm	ML		Dense, moist, olive brown, SANDY SILT (ML), with some iron oxide veinlets.	
	45		13	46 ppm	SM		Dense, wet, olive, fine grained SILTY SAND (SM).	
70	34		14	48 ppm				
	64		15	90 ppm	SP		Very dense, wet, dark yellowish-brown, medium grained SAND (SP).	
80	63		16	64 ppm	SM		Very dense, wet, olive, fine grained SILTY SAND (SM).	
	54		17	66 ppm	SP/SM		Very dense, wet, olive gray, medium grained SAND with SILT (SM-SP).	
90	35		18	58 ppm	SC		Dense, wet olive brown, fine grained CLAYEY SAND (SC), with abundant shell fragments.	
							Bottom of boring at 91.5 feet.	
100								
110								
120								
130								
140								



BORING LOCATION	See Location Map	ELEVATION AND DATUM	52.43 Feet above MSL
DRILLING AGENCY	Gregg Drilling, Inc.	DRILLER C. Swenson	DATE STARTED 9-25-89 / DATE FINISHED 9-25-89
DRILLING EQUIPMENT	Mobile B-57 With 11-Inch O.D., H.S.A.	COMPLETION DEPTH (ft) 90.0	ROCK DEPTH (ft) –
TYPE OF WELL CASING	PVC Sch. 40	SCREEN PERFORATION 0.010 Inch	DIAMETER OF BORING (in.) 11 / DIAMETER OF WELL (IN.) 4
TYPE/SIZE OF SAND PACK	Monterey #0/30	TYPE/THICKNESS OF SEAL(S) (1/8") Bentonite Pellets, 3 Feet/Volclay Grout 47 Feet/ Concrete Plug 5 Feet	
No. OF SAMPLES	DIST. – / UNDIST. 10	CORE –	LOGGED BY H. Reyes / CHECKED BY P. Gloesman
WATER DEPTH (ft)	FIRST 73.7 / COMPL. –	24 HRS. 71.05	

DEPTH (feet)	DESCRIPTION	LITHOLOGIC LOG	WELL COMPLETION LOG	SAMPLES No.	Type	Blow Count	O.V.A. (ppm) Head-Space	Back-Ground	Drilling Rate (Time)	REMARKS
									1020	
	3 inch AC, 3 inch of base sandy gravel. Very moist, black, CLAY (CH).									
5	Hard, moist, very dark brown, SILTY CLAY (CL), with fine grained sand.			1	X	35	8.8	8.4	1030	
10	Becomes very stiff, moist, olive brown SILTY CLAY (CL).									
15	Very stiff, very moist, olive brown, CLAYEY SILT (MH).			2	X	25	8.6	7.8	1037	
20										
25	Dense, moist, olive brown, SILTY fine grained SAND (SM), some shell fragments.			3	X	39	84	7.8	1046	
30	Becomes very dense, yellowish brown with more shells.									
				4		146	8.0	7.8	1057	
35										

Project: DOUGLAS AIRCRAFT CO.
Project No.: 8941863J

LOG OF BORING DAC-P1

Fig. 1

WOODWARD-CLYDE CONSULTANTS

DEPTH (feet)	DESCRIPTION	LITHOLOGIC LOG	WELL COMPLETION LOG	SAMPLES No.	Type	Blow Count	O.V.A. (ppm) Head-Space	Back-Ground	Drilling Rate (Time)	REMARKS
	Very dense, yellowish brown, SILTY fine grained SAND (SM), with shell fragments.			4		146	8.0	7.8	1057	
40										
45				5		60	11.0	6.5	1107	
	Very stiff, moist, olive, SANDY SILT (ML), with iron oxide staining.									
50	Very dense, moist, light olive to light olive gray, SILTY fine grained SAND (SM).									
55				6		92	7.5	6.2	1121	
60										
65				7		100	8.5	7.7	1134	
70										
75	Very dense, saturated, olive brown, SILTY fine grained SAND (SM).			8		100	68	7.5	1240	

Project: DOUGLAS AIRCRAFT CO.
Project No.: 8941863J

CONT. LOG OF BORING DAC-P1

Fig. 2

WOODWARD-CLYDE CONSULTANTS

DEPTH (ft)	DESCRIPTION	LITHOLOGIC LOG	WELL COMPLETION LOG	SAMPLES No.	Type	Blow Count	O.V.A. (ppm) Head-Space	O.V.A. (ppm) Back-Ground	Drilling Rate (Time)	REMARKS
	Very dense, yellowish brown, SILTY fine grained SAND (SM), with shell fragments.			4		146	8.0	7.8	1057	
40										
45	Very stiff, moist, olive, SANDY SILT (ML), with iron oxide staining.			5		60	11.0	6.5	1107	
50	Very dense, moist, light olive to light olive gray, SILTY fine grained SAND (SM).									
55				6		92	7.5	6.2	1121	
60										
65				7		100	8.5	7.7	1134	
70										
75	Very dense, saturated, olive brown, SILTY fine grained SAND (SM).			8		100	68	7.5	1240	

Project: DOUGLAS AIRCRAFT CO.
Project No.: 8941863J

CONT. LOG OF BORING DAC-P1

Fig. 2

WOODWARD-CLYDE CONSULTANTS

DEPTH (feet)	DESCRIPTION	LITHOLOGIC LOG	WELL COMPLETION LOG	SAMPLES No.	Type	Blow Count	O.V.A. (ppm) Head-Space	Back-Ground	Drilling Rate (Time)	REMARKS
	Very dense, saturated, olive brown, SILTY fine grained SAND (SM).									
80										
	Very stiff, saturated, olive to olive gray, SANDY CLAY (CL), to CLAYEY SAND (SC).									
85				9	X	36	8.5	7.5	1255	
90	Very stiff, saturated, dark gray, SANDY SILT (ML)			10	X	51	8.5	7.5	1327	
	Bottom of Boring at 91.5 Feet.									
95										
100										
105										
110										
115										

Project: DOUGLAS AIRCRAFT CO.
Project No.: 8941863J

CONT. LOG OF BORING DAC-P1

Fig. 3

WOODWARD-CLYDE CONSULTANTS

WELL INFORMATION FOR THE SITE AND FORMER ILM SITE

Borehole/Well Completion Logs for BL and TMW Wells

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Building 1		Boring/Well Name: TMW-1	
DRILLING COMPANY: West Hazmat	DRILLER: Ruben Lares	Project Name: Boeing C-6	
DRILLING METHOD (S): CME 75, Hollow Stem Auger (LAR)	DRILL BIT (S) SIZE: 8"	Project Number: 984006.00	
BLANK CASING: 2" PVC Schedule 40	FROM +1 TO 61 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 86 ft.
PERFORATED CASING: 2" PVC Schedule 40, 0.010" slot	FROM 61 TO 81 FT	DATE STARTED: 6/28/98	DATE COMPLETED: 6/28/98
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 59 TO 86 FT	DEPTH TO WATER: 66.0 ft.	
SEAL: Enviroplug Medium Bentonite Chips	FROM 56 TO 59 FT	LOGGED BY: M. Balderman	
GROUT: No Grout (Temporary Well)	FROM TO FT	SAMPLING METHODS: 2" Split Barrel Sampler, 140 lb. Hammer	WELL COMPLETION: ☐ SURFACE HOUSING NONE ☐ STAND PIPE ____ FT

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
										Concrete, 8"
			9 12 15							
			14 14 21	0.2				CL	7.5YR 3/3	Fine Sandy CLAY: dark brown, damp, medium stiff to stiff, mottled with CaCO3
			12 17 18	0.8	5			CL	7.5YR 3/3	hard nodules of carbonate up to 1/4", damp, medium stiff
			18 37 40	0.9	10			CL	7.5YR 4/4	Silty CLAY: brown, trace of fine sand, damp, stiff
					15					
			9 30 32	1.0	20			SM	7.5YR 4/4	Fine Silty SAND: brown, 60% sand, trace of fine mica, damp, dense
					25	No Grout				
			8 30 33	1.4	30					
					35					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-1
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					35					
			11 38 40		40			SM	7.5YR 5/3	Fine Silty SAND: brown, 80% sand, trace of fine mica, damp, dense
					45	No Grout				
			8 40 45	2.0	50	Blank Casing		SM	7.5YR 4/2	brown, 65% sand, minor clay, very dense
					55					
					60	Bentonite Seal Sand Filter Screened Casing				
			22 43 50 21 37 50	3.9 5.1	65	Depth to Water		SM/ SP &CL	7.5YR 4/2	interbedded with fine sand, moist water at 66 feet interbedded with fine sandy clay
					70					
					75					
					80	Bottom of Screen				

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-1
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					80					Fine Silty SAND (continued)
						Bottom of Screen				
					85	Bottom of Well				
										Boring Terminated at 86 feet.
					90					
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Building 1		Boring/Well Name: TMW-2	
DRILLING COMPANY: West Hazmat	DRILLER: Tracy	Project Name: Boeing C-6	
DRILLING METHOD (S): CME 75, Hollow Stem Auger	DRILL BIT (S) SIZE: 8"	Project Number: 984006.00	
BLANK CASING: 2" PVC Schedule 40	FROM +1 TO 62 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 87 ft.
PERFORATED CASING: 2" PVC Schedule 40, 0.010" slot	FROM 62 TO 82 FT	DATE STARTED: 6/28/98	DATE COMPLETED: 6/28/98
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 57 TO 87 FT	DEPTH TO WATER: 67.0 ft.	
SEAL: Enviroplug Medium Bentonite Chips	FROM 51 TO 57 FT	LOGGED BY: J. Knight	
GROUT: No Grout (Temporary Well)	FROM TO FT	SAMPLING METHODS: 2" Split Barrel Sampler, 140 lb. Hammer	WELL COMPLETION: ☐ SURFACE HOUSING NONE ☐ STAND PIPE ____ FT

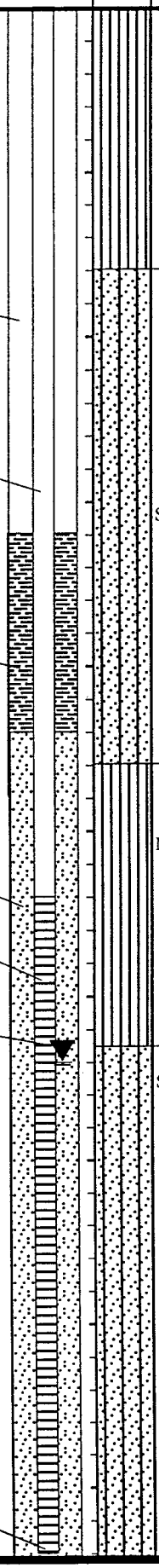
SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
										Concrete, 6"
								CL	2.5Y 4/4	Silty CLAY: olive brown, slightly moist, stiff
					5			ML	10YR 4/6	Clayey SILT: dark yellowish brown, slightly moist, stiff
			17 26 31	100	10				2.5Y 4/4	olive brown, hard
					15					
			10 13 30	104	20				2.5Y 5/4	decreasing clay, very stiff
					25	No Grout				
			12 21 31	190	30					
					35					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-2
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					35					Clayey SILT (continued)
			5 15 17	183	40					some fine sand, and some thin sand lenses, very stiff change noted by driller at 43'
					45	No Grout				
			17 25 32	354	50	Blank Casing		SM	2.5Y 5/6	Silty SAND: light olive brown, fine, slightly moist, dense
					55	Bentonite Seal				change noted by driller at 58'
			18 50 50 50 50		60	Sand Filter		ML	2.5Y 5/6	Sandy SILT: light olive brown, fine, moist, hard increasing sand
			20 23 30	2025	65	Screened Casing Depth to Water				very moist, hard, some clayey lenses
			50					SM	2.5Y 4/3	water at 67' Silty SAND: olive brown, fine, wet, with lenses of clayey silt
					70					
					75					
					80	Bottom of Screen				



Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-2
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					80					Silty CLAY (continued)
						Bottom of Screen				
					85					
						Bottom of Well				
										Boring Terminated at 87 feet.
					90					
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Building 2, Patio 11 West		Boring/Well Name: TMW-3	
DRILLING COMPANY: West Hazmat	DRILLER: Ruben Lares	Project Name: Boeing C-6	
DRILLING METHOD (S): CME 75, Hollow Stem Auger (LAR)	DRILL BIT (S) SIZE: 8"	Project Number: 984006.00	
BLANK CASING: 2" PVC Schedule 40	FROM +0.5 TO 62.5 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 87 ft.
PERFORATED CASING: 2" PVC Schedule 40, 0.010" slot	FROM 62.5 TO 82.5 FT	DATE STARTED: 7/21/98	DATE COMPLETED: 7/21/98
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 60 TO 85.6 FT	DEPTH TO WATER: 67 ft.	
SEAL: Enviroplug Medium Bentonite Chips	FROM 60 TO 58 FT	LOGGED BY: M. Balderman	
GROUT: No Grout (Temporary Well)	FROM TO FT	SAMPLING METHODS: 2" Split Barrel Sampler, 140 lb. Hammer	WELL COMPLETION: ☐ SURFACE HOUSING NONE; ☐ STAND PIPE ____ FT

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
										Concrete, 8"
								CL	2.5YR 3/1	Silty CLAY: dark reddish gray, minor fine sand, damp, medium stiff
			6 8 10							
			6 9 20	10.8						
			20 22 28	9.7	5				7.5YR 4/3	brown, stiff, mottled with light tan CaCO3
			5 9 20	13.9	10			ML	2.5Y 3/3	Fine Sandy SILT: dark olive brown, 40% sand, minor clay, damp, very stiff
					15					
			25 35 40	6.2	20			CL	2.5Y 4/3	Fine Sandy CLAY: olive brown, 30% sand, damp, stiff
					25	No Grout				
			12 22 45	10.4	30			SM	10YR 6/4	Fine Silty SAND: light yellowish brown, 70% sand, trace of fine mica, damp, dense
					35					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-3
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					35					Fine Silty SAND (continued)
			12 24 30	17.5	40			SM	10YR 6/2	light brownish gray, 75% sand, damp, dense
					45	No Grout				
			24 21 30	6.3	50	Blank Casing		SM	10YR 5/4	yellowish brown, 70% sand, trace of fine mica, damp, dense
					55					
					60	Bentonite Seal Sand Filter Screened Casing				
			12 28 50 14 25 50	7.2	65	Depth to Water		CL	5GY 6/1	Silty CLAY: greenish gray, minor fine sand, moist, very stiff water at 67'
					70					sandy
					75					
					80					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-3
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					80	Bottom of Screen				Silty CLAY (continued)
					85	Bottom of Well				
					90					Boring Terminated at 87 feet.
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Building 2, Patio 11 East		Boring/Well Name: TMW-4	
DRILLING COMPANY: West Hazmat	DRILLER: Ruben Lares	Project Name: Boeing C-6	
DRILLING METHOD (S): CME 75, Hollow Stem Auger (LAR)	DRILL BIT (S) SIZE: 8"	Project Number: 984006.00	
BLANK CASING: 2" PVC Schedule 40	FROM +1 TO 61 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 86 ft.
PERFORATED CASING: 2" PVC Schedule 40, 0.010" slot	FROM 60 TO 80 FT	DATE STARTED: 6/30/98	DATE COMPLETED: 6/30/98
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 58 TO 86 FT	DEPTH TO WATER: 66.0 ft.	
SEAL: Enviroplug Medium Bentonite Chips	FROM 55.5 TO 58 FT	LOGGED BY: M. Balderman/ J. Knight	
GROUT: No Grout (Temporary Well)	FROM TO FT	SAMPLING METHODS: 2" Split Barrel Sampler, 140 lb. Hammer	WELL COMPLETION: ☐ SURFACE HOUSING NONE ☐ STAND PIPE ____ FT

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
										Concrete, 4"
■			20 30 30	1.1				CL	7.5YR 4/4	Silty CLAY: brown, minor fine sand, damp, stiff
■	■	■	30 50	0.6	5			CL	2.5Y 4/4	Fine Sandy CLAY: olive brown, 30% fine sand, dry, hard
■	■	■	17 20 30	0.7	10			CL	10YR 5/4	Fine Sandy CLAY: yellowish brown, 35% fine sand, damp, stiff
					15					
■	■	■		0.9	20			ML	10YR 5/4	Clayey SILT: yellowish brown, minor fine sand, damp, stiff
					25	No Grout				
■	■	■	18 32 50	0.9	30			ML	10YR 5/3	Fine Sandy SILT with Clay: brown, 35% fine sand, damp, stiff
					35					

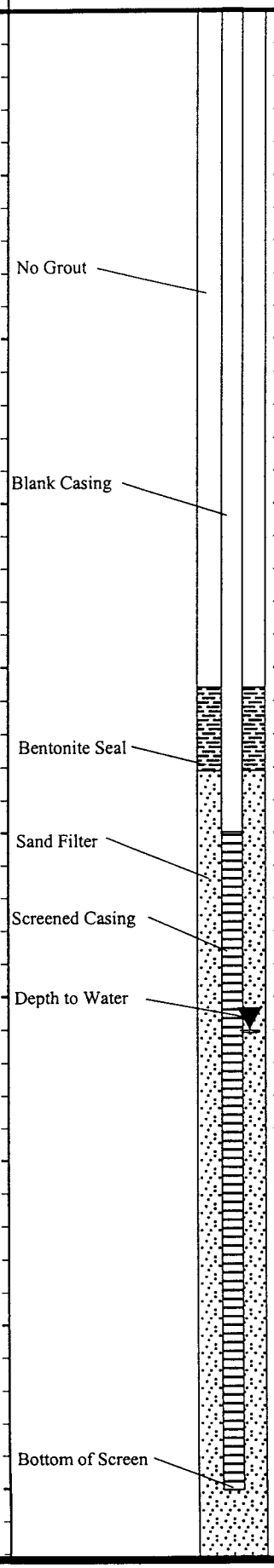
Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-4
Project Name Boeing C-6
Project Number 984006.00

Depth (feet)	Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Graphic Log	USCS Log	Munsell Color	Description
35									Fine Sandy SILT with Clay (continued)
40				22 50	1.0		SM	10YR 4/3	Fine Silty SAND: brown, 70% fine sand, trace of fine mica, damp, dense
50				20 50	0		ML	2.5Y 4/4	Fine Sandy SILT with Clay: olive brown, micaceous, moist, hard
65				18 45 50	17.1		SM	2.5Y 4/3	Silty SAND: olive brown, fine, wet, very dense, with lenses of clayey silt water at 66'

WELL CONSTRUCTION



Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-4
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					80					Silty SAND (continued)
					85	Bottom of Well				
										Boring Terminated at 86 feet.
					90					
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Building 2, Patio 31 West		Boring/Well Name: TMW-5	
DRILLING COMPANY: West Hazmat	DRILLER: Ruben Lares	Project Name: Boeing C-6	
DRILLING METHOD (S): CME 75, Hollow Stem Auger (LAR)	DRILL BIT (S) SIZE: 8"	Project Number: 984006.00	
BLANK CASING: 2" PVC Schedule 40	FROM +1 TO 61.3 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 86 ft.
PERFORATED CASING: 2" PVC Schedule 40, 0.010" slot	FROM 61.3 TO 81.3 FT	DATE STARTED: 7/2/98	DATE COMPLETED: 7/2/98
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 58.9 TO 86 FT	DEPTH TO WATER: 65.0 ft.	
SEAL: Enviroplug Medium Bentonite Chips	FROM 56.2 TO 58.9 FT	LOGGED BY: M. Balderman	
GROUT: No Grout (Temporary Well)	FROM TO FT	SAMPLING METHODS: 2" Split Barrel Sampler, 140 lb. Hammer	WELL COMPLETION: ☐ SURFACE HOUSING NONE ☐ STAND PIPE ____ FT

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
										Concrete, 6"
■	■	■	7 10 14	3.2				CL	5YR 4/2	Silty CLAY: dark reddish gray, minor fine sand, damp, medium stiff
■	■		25 50	7.9	5			CL	7.5YR 4/3	Fine Sandy CLAY: brown, 30% fine sand, damp, hard
■	■	■	12 17 20	22.2	10			SC/ CL	7.5YR 5/2	Fine Sandy CLAY/ Clayey SAND: brown, 50% fine sand, damp dense
					15					
■	■	■	20 50	28.0	20			CL	7.5YR 5/2	Fine Sandy CLAY: brown, 35% fine sand, damp, hard
					25	No Grout				
■	■	■	20 25 45	90	30			SP	5GY 6/1 10YR 5/6	Fine SAND with minor Silt: mottled gray and yellowish brown, trace of fine mica, damp, dense
					35					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-5
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					35					Fine SAND with Minor Silt (continued)
			23 50	112	40				10YR 7/6	yellow
					45	No Grout				
			20 50	160	50	Blank Casing		SC	7.5YR 5/4	Fine Clayey SAND: brown, increasing clay
								CL	2.5Y 5/3	Silty CLAY: light olive brown, minor fine sand, damp, hard
					55	Bentonite Seal				
					60	Sand Filter				
						Screened Casing				
						Depth to Water				
			20 50 5 20 38	250	65			SM	2.5Y 5/3	Fine Silty SAND:light olive brown, 80% sand, trace of fine mica, wet, dense water at 65'
					70					
					75					
					80	Bottom of Screen				

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-5
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					80	Bottom of Screen				Fine Silty SAND (continued)
					85	Bottom of Well				
										Boring Terminated at 86 feet.
					90					
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Building 2, Patio 31 East		Boring/Well Name: TMW-6	
DRILLING COMPANY: West Hazmat	DRILLER: Ruben Lares	Project Name: Boeing C-6	
DRILLING METHOD (S): CME 75, Hollow Stem Auger (LAR)	DRILL BIT (S) SIZE: 8"	Project Number: 984006.00	
BLANK CASING: 2" PVC Schedule 40	FROM +1 TO 61.2 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 86 ft.
PERFORATED CASING: 2" PVC Schedule 40, 0.010" slot	FROM 61.2 TO 81.2 FT	DATE STARTED: 7/1/98	DATE COMPLETED: 7/1/98
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 59.1 TO 86 FT	DEPTH TO WATER: 65.5 ft.	
SEAL: Enviroplug Medium Bentonite Chips	FROM 56.5 TO 59.1 FT	LOGGED BY: M. Balderman	
GROUT: No Grout (Temporary Well)	FROM TO FT	SAMPLING METHODS: 2" Split Barrel Sampler, 140 lb. Hammer	WELL COMPLETION: ☐ SURFACE HOUSING NONE ☐ STAND PIPE ____ FT

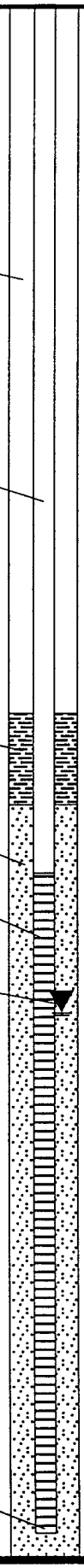
SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
										Concrete, 6"
■	■	■	3 4 8	280				CL	7.5YR 3/2	Fine Sandy CLAY: dark brown, 30% fine sand, wet, medium stiff
■	■	■	7 22 24	2900	5			SC	7.5YR 4/4	Fine Clayey SAND: brown, 60% fine sand, moist, dense
■	■	■	11 24 30	0	10			ML	10YR 5/3	Clayey SILT: brown, 20% fine sand, moist, stiff
					15					
■	■	■	12 15 17	0	20			SC	10YR 4/4	Fine Clayey SAND: dark yellowish brown, 55% sand, damp, dense
					25	No Grout				
■	■	■	31 33 50	4.3	30			SC SM	7.5YR 5/3	Fine Clayey/Silty SAND: brown, 70% sand, trace of fine mica, damp, dense
					35					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-6
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Description
					35					Fine Clayey/Silty SAND (continued)
			11 14 22	2.9	40			SM	10YR 5/6	Fine Silty SAND: yellowish brown, 75% fine sand, trace of fine mica, damp, dense
					45	No Grout				
			23 50	1.4	50	Blank Casing		SM	10YR 5/4	yellowish brown
					55					
					60	Bentonite Seal; Sand Filter; Screened Casing				
			22 50 25 50	0	65	Depth to Water		ML	2.5Y 5/2	Clayey SILT: grayish brown, 30% fine sand, moist, hard, grading to gray sand at 65'
								SM	5Y 4/2	Fine Silty SAND: olive gray, 85% sand, trace of fine mica, wet, dense water at 65.5'
					70					
					75					
					80	Bottom of Screen				



Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-6
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					80					Fine Silty SAND (continued)
						Bottom of Screen				
					85	Bottom of Well				
										Boring Terminated at 86 feet.
					90					
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Outside the Southeast Corner of Building 1		Boring/Well Name: TMW-7	
DRILLING COMPANY: West Hazmat	DRILLER: Ruben Lares	Project Name: Boeing C-6	
DRILLING METHOD (S): CME 75, Hollow Stem Auger (LAR)	DRILL BIT (S) SIZE: 8"	Project Number: 984006.00	
BLANK CASING: 2" PVC Schedule 40	FROM +1 TO 64 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 89.5 ft.
PERFORATED CASING: 2" PVC Schedule 40, 0.010" slot	FROM 64 TO 84 FT	DATE STARTED: 6/29/98	DATE COMPLETED: 6/29/98
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 62 TO 89.5 FT	DEPTH TO WATER: 66 ft.	
SEAL: Enviroplug Medium Bentonite Chips	FROM 56 TO 62 FT	LOGGED BY: M. Balderman	
GROUT: No Grout (Temporary Well)	FROM TO FT	SAMPLING METHODS: 2" Split Barrel Sampler, 140 lb. Hammer	WELL COMPLETION: ☐ SURFACE HOUSING NONE ☐ STAND PIPE ____ FT

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
										Asphalt, 3"
■	■	■	5 5 6	2.3				CL	7.5YR 4/2	Silty CLAY: brown, minor fine sand, damp, soft
■	■	■	12 50	0.7	5			ML	7.5YR 4/4	Clayey SILT: brown, 20% fine sand, damp, stiff
■	■	■	12 30 42	0.4	10			CL	2.5Y 5/3	Silty CLAY: light olive brown, minor fine sand and carbonate, damp, stiff
					15					
■	■	■	13 10 15	0.5	20			ML	2.5Y 4/3	Clayey SILT: olive brown, minor fine sand, trace of fine mica and carbonate, damp, medium stiff
					25	No Grout				
■	■	■	14 12 20	1.3	30			ML	2.5Y 5/4	Clayey SILT: light olive brown, minor fine sand, carbonate nodules to 3/8", damp, stiff
					35					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-7
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Description
					35					Clayey SILT (continued)
			12 18 31	1.7	40					
					45	No Grout				
			20 50	1.4	50			SM	10YR 6/4	Silty SAND: light yellowish brown, 70% fine sand, damp, dense
						Blank Casing				
					55					
						Bentonite Seal				
					60					
			12 17 19 11 17 21		65	Depth to Water		SM	2.5Y 4/2	Silty SAND: dark grayish brown, 75% fine sand, trace of fine mica, wet dense, with a clayey silt lense from 65 to 65.5'
						Sand Filter		SM ML	2.5Y 4/3	Fine Sandy SILT/Silty SAND: olive brown, laminated with clayey silt, wet, dense Water at 66'
						Screened Casing				
					70					
					75					
					80					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-7
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					80					Fine Sandy SILT/ Silty SAND (continued)
						Bottom of Screen				
					85					
						Bottom of Well				
					90					Boring Terminated at 89.5 feet.
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Outside and East of Building 1		Boring/Well Name: TMW-8	
DRILLING COMPANY: West Hazmat	DRILLER: Ruben Lares	Project Name: Boeing C-6	
DRILLING METHOD (S): CME 75, Hollow Stem Auger	DRILL BIT (S) SIZE: 8"	Project Number: 984006.00	
BLANK CASING: 2" PVC Schedule 40	FROM +1 TO 61 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 86 ft.
PERFORATED CASING: 2" PVC Schedule 40, 0.010" slot	FROM 61 TO 81 FT	DATE STARTED: 6/29/98	DATE COMPLETED: 6/29/98
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 59 TO 85.5 FT	DEPTH TO WATER: 66.4 ft.	
SEAL: Enviroplug Medium Bentonite Chips	FROM 55.8 TO 59 FT	LOGGED BY: M. Balderman	
GROUT: No Grout (Temporary Well)	FROM TO FT	SAMPLING METHODS: 2" Split Barrel Sampler, 140 lb. Hammer	WELL COMPLETION: ☐ SURFACE HOUSING NONE; ☐ STAND PIPE ____ FT

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
										Asphalt, 3"
■	■	■	6 30 32					CL	7.5YR 4/3	Silty CLAY with minor Fine Sand: brown, local fine to coarse sand partings, damp, stiff
■			8 18 40		5					
■	■	■	27 50		10			CL	7.5YR 4/4	brown, hard
					15					
■	■	■	8 20 23		20			ML	2.5Y 4/3	Clayey SILT: olive brown, 20% fine sand, damp, stiff
					25	No Grout				
■	■	■	7 14 30		30					scattered carbonate nodules to 1/4"
					35					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-8
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					35					Sandy SILT (continued)
			12 20 30		40			ML	2.5Y 5/3	Fine Sandy SILT: light olive brown, minor clay, 30% fine sand, damp, dense
					45	No Grout				
			13 22 33		50	Blank Casing		SM	2.5Y 5/4	Fine Silty SAND: light olive brown, 70% sand, trace of fine mica, damp, dense
					55	Bentonite Seal				
					60	Sand Filter Screened Casing				
			15 34 45 18 23 50		65	Depth to Water			2.5Y 4/4	olive brown, moist to wet water at 66' interbedded clayey silt from 66.5 to 67.5, then silty sand as above
					70					
					75					
					80	Bottom of Screen				

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-8
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					80					Fine Silty SAND (continued)
						Bottom of Screen				
					85	Bottom of Well				
										Boring Terminated at 85.5 feet.
					90					
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Building 1		Boring/Well Name: TMW-9	
DRILLING COMPANY: West Hazmat	DRILLER: Ruben Lares	Project Name: Boeing C-6	
DRILLING METHOD (S): CME 75, Hollow Stem Auger	DRILL BIT (S) SIZE: 8"	Project Number: 984006.00	
BLANK CASING: 2" PVC Schedule 40	FROM +1 TO 61 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 86 ft.
PERFORATED CASING: 2" PVC Schedule 40, 0.010" slot	FROM 61 TO 81 FT	DATE STARTED: 6/30/98	DATE COMPLETED: 6/30/98
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 59 TO 86 FT	DEPTH TO WATER: 66 ft.	
SEAL: Enviroplug Medium Bentonite Chips	FROM 56.5 TO 59 FT	LOGGED BY: J. Knight	
GROUT: No Grout (Temporary Well)	FROM TO FT	SAMPLING METHODS: 2" Split Barrel Sampler, 140 lb. Hammer	WELL COMPLETION: ☐ SURFACE HOUSING NONE ☐ STAND PIPE ____ FT

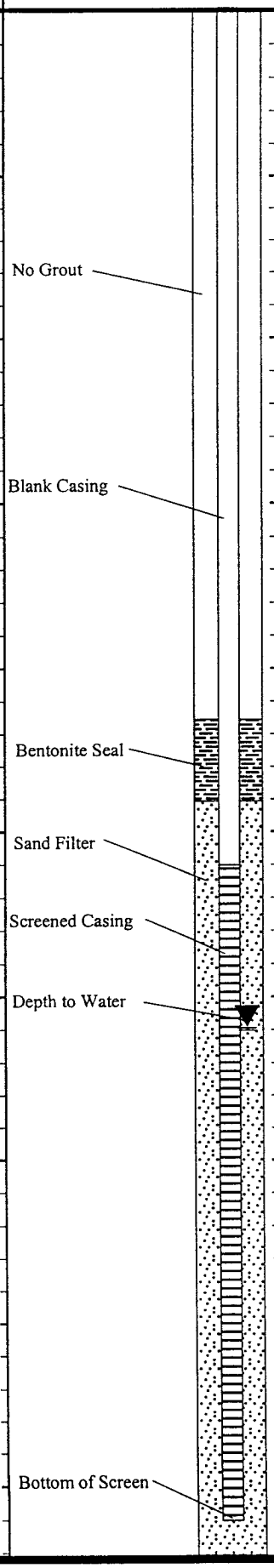
SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
										Concrete, 8"
■	■	■	12 14 21	52.0				ML	10YR 4/6	Clayey SILT: dark yellowish brown, trace of fine sand, slightly moist, very stiff
■	■	■	12 22 40	86.0	5			CL	10YR 3/6	Silty CLAY: dark yellowish brown, some fine sandy lenses, slightly moist, hard
■	■	■	27 30 30	85.7	10				10YR 5/4	yellowish brown, dry, hard
					15					
■	■	■	12 17 23	48.2	20			ML	2.5Y 5/4	Clayey SILT: light olive brown, trace of fine sand, dry, very stiff
					25	No Grout				
■	■	■	21 28 50	51.4	30			ML	2.5Y 5/6	Sandy SILT: light olive brown, fine sand, sligtly moist, hard
					35					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-9
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Description
					35					Sandy SILT (continued)
			20 25 30	74.1	40			SM	2.5Y 5/6	Silty Fine SAND: light olive brown, slightly moist, dense
			23 50	114	50					increasing silt content, very dense
			12 32 50 42 30 32	159	65			SM	2.5Y 4/3	SAND with Silt: olive brown, fine, very moist, very dense, with silt lenses water at 66'



Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-9
Project Name Boeing C-6
Project Number 984006.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
					80					SAND with Silt (continued)
						Bottom of Screen				
					85	Bottom of Well				
										Boring Terminated at 86 feet.
					90					
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: East of Building 66		Boring/Well Name: TMW-10	
DRILLING COMPANY: West Hazmat	DRILLER: Scott Campbell	Project Name: Boeing C-6 Facility	
DRILLING METHOD (S): CME 75, Hollow Stem Auger	DRILL BIT (S) SIZE: 8"	Project Number: 994001.00	
BLANK CASING: 2" diam. PVC Schedule 40	FROM 0 TO 60.5 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 85 feet
PERFORATED CASING: 2" diam. PVC Schedule 40, 0.010" slot	FROM 60.5 TO 80.5 FT	DATE STARTED: 1/28/99	DATE COMPLETED: 1/28/99
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 57.6 TO 85 FT	DEPTH TO WATER: 65 feet	
SEAL: Medium Bentonite Chips	FROM 54.7 TO 57.6 FT	LOGGED BY: M. Balderman	
GROUT: Neat Portland Cement	FROM 0 TO 54.7 FT	SAMPLING METHODS: 2" x 18" California Split-Spoon and CME dry core	WELL COMPLETION: ☒ SURFACE HOUSING ☐ STAND PIPE ____ FT

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
			8, 16, 20	4.2				ML	5YR 3/4	Asphalt at surface 6" gravel/asphalt base Clayey SILT with Minor Fine Sand and Sand Interbeds: dark reddish brown, damp, hard
core										
			18, 50	1.7	5			SM	5YR 3/4	Fine Silty SAND: dark reddish brown, 60% fine sand, damp, very dense
core										
			15, 35, 38	6.8	10			CL	5YR 5/4	Silty CLAY with a Trace of Fine Sand: reddish brown, damp, hard
								SM	5YR 5/4	Fine Silty SAND: reddish brown, 60% sand, damp, dense
core					15					
			18, 20, 22	3.4	20					
core					25					
								CL	2.5YR 4/3	Silty CLAY: reddish brown, 15% fine sand, damp, hard
			15, 30, 43	5.7	30			SM	5YR 5/4	Fine Silty SAND: reddish brown, 60% sand, damp, very dense
								SM	2.5YR 5/3	Silty SAND: reddish brown, 75% fine sand, trace of fine mica, damp, very dense
core					35			ML	2.5YR 5/3	Fine Sandy SILT with Minor Clay: reddish brown, damp, stiff

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-10
Project Name Boeing C-6 Facility
Project Number 994001.00

Depth (feet)	Samples: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Graphic Log	USCS Log	Munsell Color	Description
							ML		Fine Sandy SILT with Minor Clay, continued
	core						CL	2.5YR 5/3	Silty CLAY: reddish brown, minor fine sand, scattered fine calcite
							ML	2.5YR 5/3	grades to Clayey SILT
40				15 22 25	10.5		SM	2.5YR 5/3	Fine Silty SAND: reddish brown, 60% sand, damp, dense
							CL	2.5YR 4/2	Silty CLAY: weak red, trace of fine sand, damp, hard
45	core						SM	10YR 6/1 10YR 5/2	Fine Silty SAND: mottled gray and grayish brown, 60% sand, damp, dense
								10YR 5/6	yellowish brown
									abundant calcite cement from 49.0 to 49.4 feet
50				20 12 10	16.9		CL	10YR 4/4 2.5Y 6/2	Silty CLAY: mottled dark yellowish brown and light brownish gray, damp, very stiff 30% fine sand from 53.0 to 54.4 feet.
									Top of Seal 54.7 feet
55							SM	10YR 6/2	Fine Silty SAND: light brownish gray, 75% sand, trace of fine mica, damp, medium dense
							CL	10YR 6/2	Fine Sandy CLAY: light brownish gray, 20% sand, very stiff, damp
	core						SM	10YR 6/2	Fine Silty SAND: light brownish gray, 75% sand, trace of fine mica, damp, medium dense
									Top of Filter 57.6 feet
60									Top of Screen 60.5 feet
							ML	10YR 5/3	Fine Sandy SILT: brown, 35% sand, damp to moist, very stiff
				20 32 50	6.8		CL	10YR 6/4	Silty CLAY and Sandy CLAY: light yellowish brown, interbedded, damp, hard
65				16 23 30			ML	10YR 4/4	Fine Silty SAND and Sandy SILT: dark yellowish brown, 50% fine sand, trace of fine mica, very moist, very dense wet at 65 feet
									Depth to first water 65 feet
70	core						SM		increase fine sand to 70%, finely laminated from 69 to 70 feet, thin interbeds of fine sandy silt from 70.0 to 70.6 feet and from 71.8 to 72.5 feet
75							SM	10YR 6/4 10YR 6/2	Fine to Medium Silty SAND: laminated light yellowish brown and light brownish gray, 80% sand, abundant mica, wet, very dense
80							ML	2.5Y 4/2	Fine Sandy SILT: dark grayish brown, 30% sand, laminated with silty sand, wet, hard
									Bottom of Screen 80.5 feet

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-10

Project Name Boeing C-6 Facility

Project Number 994001.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
						Bottom of Screen 80.5 feet		ML	2.5Y 4/2	FineSandy SILT, continued
								ML	2.5Y 4/2	Fine Sandy SILT and Silty SAND: dark grayish brown, 50% fine sand, abundant fine mica, wet, very dense
core								ML	10YR 4/4	Clayey SILT: dark yellowish brown, laminated
								SM	7.5YR 4/2	Fine Silty SAND: brown, 60% sand, trace of fine mica, wet, very dense
								SP	5YR 5/1	SAND: gray, fine to medium, minor silt, wet, very dense
					85					
										Boring terminated at 85 feet.
					90					
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Northeast of Building 66		Boring/Well Name: TMW-11	
DRILLING COMPANY: West Hazmat	DRILLER: Scott Campbell	Project Name: Boeing C-6 Facility	
DRILLING METHOD (S): CME 75, Hollow Stem Auger	DRILL BIT (S) SIZE: 8"	Project Number: 994001.00	
BLANK CASING: 2" diam. PVC Schedule 40	FROM 0 TO 58 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 83 feet
PERFORATED CASING: 2" diam. PVC Schedule 40, 0.010" slot	FROM 58 TO 78 FT	DATE STARTED: 2/1/99	DATE COMPLETED: 2/1/99
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 54.5 TO 83 FT	DEPTH TO WATER: 63 feet	
SEAL: Medium Bentonite Chips	FROM 53 TO 54.5 FT	LOGGED BY: T. Doyle	
GROUT: Neat Portland Cement	FROM 0 TO 53 FT	SAMPLING METHODS: 2" x 18" California Split-Spoon	WELL COMPLETION: ☒ SURFACE HOUSING ☐ STAND PIPE ____ FT

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
										Asphalt at surface
										6" gravel/asphalt base
			8 12 10	0.9				CL	7.5YR 3/2	Silty Sandy CLAY: dark brown, 30% fine sand, damp, very stiff
			12 14 17	2.4	5				7.5YR 5/4	brown
			7 13 15	2.8	10					
					15					
			9 12 14	5.2	20			ML	2.5Y 5/3	Fine Sandy SILT: light olive brown, 35% fine sand, trace of fine mica, damp to moist, very stiff
					25					
			11 15 23	4.8	30					scattered hard caliche nodules up to 1/4"
					35					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-11
Project Name Boeing C-6 Facility
Project Number 994001.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
								ML		Fine Sandy SILT, continued
			14 22 25	5.5	40			SM	2.5Y 6/4	Fine Silty SAND: light yellowish brown, 65% sand, trace of fine mica, damp, dense
					45					
			17 17 20	2.6	50					
						Top of Seal 53 feet		SC	2.5Y 6/2	Fine to Coarse Clayey SAND: light brownish gray, 75% sand, trace of fine mica, cemented with calcite, dense
						Top of Filter 54.5 feet				
					55					
						Top of Screen 58 feet				
					60					
			16 20 24 15 22 27	5.8		Depth to first water 63 feet		SM	2.5Y 4/3 7.5YR 5/6	Fine Silty SAND: olive brown, 60% sand, trace of fine mica, with thin interbeds of laminated, strong brown, fine sandy silt, dense water encountered at 63 feet
					65					
					70					
					75					
						Bottom of Screen 78 feet				
					80					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-11
Project Name Boeing C-6 Facility
Project Number 994001.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
								SM		Fine Silty SAND, continued
					85					Boring terminated at 83 feet.
					90					
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: South of Building 2		Boring/Well Name: TMW-12	
DRILLING COMPANY: West Hazmat	DRILLER: Scott Campbell	Project Name: Boeing C-6 Facility	
DRILLING METHOD (S): CME 75, Hollow Stem Auger	DRILL BIT (S) SIZE: 8"	Project Number: 994001.00	
BLANK CASING: 2" diam. PVC Schedule 40	FROM 0 TO 62 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 88 feet
PERFORATED CASING: 2" diam. PVC Schedule 40, 0.010" slot	FROM 62 TO 82 FT	DATE STARTED: 1/27/99	DATE COMPLETED: 1/27/99
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 59.3 TO 88 FT	DEPTH TO WATER: 67.5 feet	
SEAL: Medium Bentonite Chips	FROM 56.7 TO 59.3 FT	LOGGED BY: M. Balderman	
GROUT: Neat Portland Cement	FROM 0 TO 56.7 FT	SAMPLING METHODS: 2" x 18" California Split-Spoon and CME dry core	WELL COMPLETION: ☒ SURFACE HOUSING ☐ STAND PIPE _____ FT

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
			8, 12, 22					ML	2.5YR 3/1	Asphalt at surface 6" gravel/asphalt base Clayey SILT with Minor Fine Sand: dark reddish gray, wet, hard
			5, 4, 5	3.5						
			15, 18, 22	146	5					
core								ML	7.5YR 4/4	Fine Sandy SILT: brown, 30% fine sand, minor clay, damp, hard
			23, 50		10					
core					15					
								ML	10YR 5/2	Fine Sandy SILT with Clayey Silt Interbeds: grayish brown, 20-50% fine sand, damp, hard, with calcite stringers at 18-19 feet
			15, 18, 19	1.2	20			ML	7.5YR 4/4	Fine Sandy SILT: brown, 35% fine sand, damp, hard
core					25			ML	7.5YR 4/4	Grades to Clayey SILT: brown, with calcite stringers at 24-25 feet increased calcite at 28 feet
			10, 20, 25	1.2	30					
core					35			SM	7.5YR 4/4	Fine Silty SAND: brown, 70% fine sand, damp, dense, with calcite veins at 33 feet

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-12
Project Name Boeing C-6 Facility
Project Number 994001.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Description
								SM	7.5YR 5/6	Fine Silty SAND: strong brown, 80% sand, trace of fine mica, damp, dense
core								SP	10YR 6/3	Fine SAND with Minor Silt: pale brown, damp, dense
									2.5Y 5/6	light olive brown
			20 25 28	4.9	40					grades to fine to coarse
								CL	2.5YR 6/2	Fine Sandy CLAY: pale red, 20% fine sand, damp, hard, mottled with red brown
								ML	2.5YR 6/2	Fine Sandy and Clayey SILT: pale red, 40% sand, damp, hard
core					45					interbeds of fine silty sand from 46.3 to 46.5 feet
			22 29 30	0.2	50			SM	10YR 6/6	Fine Silty SAND: brownish yellow, 80% sand, trace of fine mica, damp, very dense
								CL	7.5YR 4/4	Silty CLAY: brown, trace of fine sand, damp, hard
								SM	2.5YR 5/4	Fine Silty SAND: reddish brown, 75% sand, trace of fine mica, damp, very dense
core					55					interbeds of silty clay 55.3 to 55.7 feet
						Top of Seal 56.7 feet		ML	2.5Y 4/4	Fine Sandy SILT: olive brown, 25% fine sand, damp, hard
						Top of Filter 59.3 feet				
			22 28 30	1.9	60					40% fine sand, trace of fine mica
						Top of Screen 62 feet			2.5Y 5/4	light olive brown, moist, hard
			10 20 40	1.7						
core					65			SP	2.5Y 5/1	Fine to Medium SAND with Minor Silt: gray, trace of fine mica, moist, very dense
						Depth to water 67.5 feet				water at 67.5 feet
			10 40 50/3	3.5						
					70			ML	5Y 4/3	Clayey SILT with Minor Fine Sand: olive, wet, hard
								SM	2.5Y 4/2	Fine to Coarse Silty SAND: dark grayish brown, 70% sand, trace of fine mica, wet, very dense
								ML	2.5Y 4/2	Fine Sandy SILT: dark grayish brown, 30% fine sand, wet, hard
								SM	2.5Y 5/1	Fine to Medium Silty SAND: gray, 70% sand, trace of fine mica, wet, very dense
core					75					
								ML	2.5Y 5/4	Fine Sandy SILT: light olive brown, 30% fine sand, trace of fine mica, wet, very dense
								SM	2.5Y 5/4 2.5Y 5/1	Fine Silty SAND: light olive brown and gray, 70% sand, abundant mica, wet, very dense
					80					
						Bottom of Screen 82 feet				

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-12

Project Name Boeing C-6 Facility

Project Number 994001.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
								SM		Fine Silty SAND, continued
								ML	2.5YR 4/4	Fine Sandy SILT: reddish brown, 30% fine sand, trace of fine mica, wet, hard
						Bottom of Screen 82 feet		SM	2.5YR 4/4	Fine Silty SAND: reddish brown, 60% fine sand, trace of fine mica, wet, very dense
core										finely laminated from 84 to 85 feet
					85					
									2.5Y 5/1	gray, abundant fine shell fragments
					90					Boring terminated at 88 feet.
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: South of Building 2		Boring/Well Name: TMW-13	
DRILLING COMPANY: West Hazmat	DRILLER: Scott Campbell	Project Name: Boeing C-6 Facility	
DRILLING METHOD (S): CME 75, Hollow Stem Auger	DRILL BIT (S) SIZE: 8"	Project Number: 994001.00	
BLANK CASING: 2" diam. PVC Schedule 40	FROM 0 TO 60 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 85 feet
PERFORATED CASING: 2" diam. PVC Schedule 40, 0.010" slot	FROM 60 TO 80 FT	DATE STARTED: 2/2/99	DATE COMPLETED: 2/2/99
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 58 TO 85 FT	DEPTH TO WATER: 66 feet	
SEAL: Medium Bentonite Chips	FROM 55 TO 58 FT	LOGGED BY: T. Doyle	
GROUT: Neat Portland Cement	FROM 0 TO 55 FT	SAMPLING METHODS: 2" x 18" California Split-Spoon	WELL COMPLETION: ☒ SURFACE HOUSING ☐ STAND PIPE ____ FT

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
										Asphalt, 8" Gravel Base, 12"
			10 9 6	33				CL	5YR 3/2	Silty Sandy CLAY: dark brown, 20% silt, 20% sand, 60% clay, damp to wet, medium dense, high plasticity
			7 11 13	35	5					
			7 8 10	49.1	10			ML	2.5Y 6/3	Silty Sandy CLAY: light yellowish brown, 35% silt, 25% sand, 40% clay, damp, medium dense, low plasticity
					15					
			12 14 17	61.2	20			SM	2.5Y 6/3	Clayey Silty SAND: light yellowish brown, 15% clay, 25% silt, 60% fine sand, damp, medium dense
					25					
			10 15 17	20.2	30			SM	2.5Y 6/3 2.5Y 7/1	Silty SAND: mottled olive yellow and light gray, 30% silt, 70% sand, damp, dense
					35					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-13
Project Name Boeing C-6 Facility
Project Number 994001.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
								SM		Silty SAND, continued
			12 32 38		40			SM	2.5Y 6/3	Silty SAND: light yellowish brown, 30% silt, 70% fine sand, damp, very dense
					45					
			14 23 27		50			SM	5Y 5/2	Silty SAND: olive gray, 40% silt, 60% sand, some rust staining, damp, dense
					55	Top of Seal 55 feet				
						Top of Filter 58 feet				
					60	Top of Screen 60 feet				
			18 22 29	89.2	65	Depth to water 66 feet		SM	2.5Y 6/1	Silty SAND: gray, 20% silt, 80% fine sand, moist, very dense water encountered at 66 feet
					70					
					75					
					80	Bottom of Screen 80 feet				

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-13
Project Name Boeing C-6 Facility
Project Number 994001.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
								SM		Silty SAND, continued
					85					
										Boring terminated at 85 feet.
					90					
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Southwest of Building 3		Boring/Well Name: TMW-14	
DRILLING COMPANY: West Hazmat	DRILLER: Scott Campbell	Project Name: Boeing C-6 Facility	
DRILLING METHOD (S): CME 75, Hollow Stem Auger	DRILL BIT (S) SIZE: 8"	Project Number: 994001.00	
BLANK CASING: 2" diam. PVC Schedule 40	FROM +1 TO 65 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 90 feet
PERFORATED CASING: 2" diam. PVC Schedule 40, 0.010" slot	FROM 65 TO 85 FT	DATE STARTED: 2/3/99	DATE COMPLETED: 2/3/99
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 63 TO 90 FT	DEPTH TO WATER: 72.5 feet	
SEAL: Medium Bentonite Chips	FROM 60 TO 63 FT	LOGGED BY: T. Doyle	
GROUT: Neat Portland Cement	FROM 0 TO 60 FT	SAMPLING METHODS: 2" x 18" California Split-Spoon and CME dry core	WELL COMPLETION: ☐ SURFACE HOUSING ☒ STAND PIPE 2.5 FT

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
					5					Backfill Material to 10 feet
			8 10 16	6.7	10			CL	2.5YR 3/1	Silty Sandy CLAY: dark olive brown, 20% silt, 40% fine sand, 40% clay, damp, medium dense, slight plasticity
core										
			8 9 13	29.5	15					
core										
			10 24 17	19.7	20					
core					25			SM	2.5Y 6/4	Silty SAND: light yellowish brown, 30% silt, 70% fine sand, damp, dense
			10 18 16	20.1	30					
core					35					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-14
Project Name Boeing C-6 Facility
Project Number 994001.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
								SM		Silty SAND, continued
core										
			12 18 22	9.5	40					decreasing silt, mottled with rust stains
core					45					shells from 47 to 49.5 feet
			15 19 30	17.4	50			~~SM~~ ML	5Y 4/1	Silty SAND: dark gray, 40% silt, 5% clay, ~~70~~ 55% fine sand, damp, dense,
core					55					
			17 23 25	17.4	60	Top of Seal 60 feet		SM	10YR 5/2	Silty SAND: grayish brown, 25% silt, 75% fine sand, damp, dense
						Top of Filter 63 feet				
core					65	Top of Screen 65 feet				rust staining, thin clay stringers, moist
					70					
			7 19 20	14.6		Depth to first water 72.5 feet		~~SM~~ ML	2.5YR 3/3	Clayey Silty SAND: dark reddish brown, 10% clay, 30% silt, 60% fine sand water encountered at 72.5 feet shells from 74 to 75 feet
core					75			SM		Silty SAND: 30% silt, 70% fine sand, wet
					80					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-14
Project Name Boeing C-6 Facility
Project Number 994001.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
core								SM		Silty SAND, continued
					85	Bottom of Screen 85 feet			2.5YR 6/4	light yellowish brown
					90					Boring terminated at 90 feet.
					95					
					100					
					105					
					110					
					115					
					120					
					125					

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: West of Building 3		Boring/Well Name: TMW-15	
DRILLING COMPANY: West Hazmat	DRILLER: Scott Campbell	Project Name: Boeing C-6 Facility	
DRILLING METHOD (S): CME 75, Hollow Stem Auger	DRILL BIT (S) SIZE: 8"	Project Number: 994001.00	
BLANK CASING: 2" diam. PVC Schedule 40	FROM 0 TO 62 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 92 feet
PERFORATED CASING: 2" diam. PVC Schedule 40, 0.010" slot	FROM 62 TO 87 FT	DATE STARTED: 2/4/99	DATE COMPLETED: 2/4/99
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 60 TO 92 FT	DEPTH TO WATER: 72 feet	
SEAL: Medium Bentonite Chips	FROM 57 TO 60 FT	LOGGED BY: T. Doyle	
GROUT: Neat Portland Cement	FROM 0 TO 57 FT	SAMPLING METHODS: 2" x 18" California Split-Spoon	WELL COMPLETION: ☐ SURFACE HOUSING ☒ STAND PIPE 2.5 FT

Depth (feet)	Blows per 6"	Head Space Reading (mg/L)	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
					Backfill Material to 5 feet
5	8 12 7	8.2	CL	10YR 2/2	Silty Sandy CLAY: very dark brown, 20% silt, 30% sand, 50% clay, slight plasticity, damp, medium dense
10	7 8 11	16.3	SC	2.5Y 4/4	Silty Clayey SAND: olive brown, 20% silt, 30% clay, 50% fine sand, damp, medium dense
15					
20	12 17 20	13.9			trace of gravel
25	16 20 24	13.1	SM	7.5YR 5/3	Clayey Silty SAND: brown, 10% clay, 30% silt, 60% fine sand, damp, dense, trace of gravel
30					
35	18 21 22	13.2	SM	10YR 6/4	Silty SAND: light yellowish brown, damp, dense

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-15
Project Name Boeing C-6 Facility
Project Number 994001.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
			18 21 22	13.2				SM	2.5Y 6/4	Silty SAND: light yellowish brown, 40% silt, 60% fine sand, damp, dense
					40					
			18 18 20	14.5	45					
					50					
			16 20 24	12.8	55				2.5Y 4/4	olive brown
						Top of Seal 67 feet				
					60	Top of Filter 60 feet				
						Top of Screen 62 feet				
					65					
								CL	5Y 5/2	Silty Sandy CLAY: olive green, 30% silt, 30% fine sand, 40% clay, damp, hard, slight plasticity
			12 20 29	13.2	70	Depth to water 72 feet		SM	2.5Y 4/4	Silty SAND: olive brown, 30% silt, 70% fine sand, minor clay, moist, dense, some rust staining shell bed at 71.5 feet water encountered at 72 feet
					75					
					80					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-15
Project Name Boeing C-6 Facility
Project Number 994001.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	
								SM		Silty SAND, continued
					85					
						Bottom of Screen 87 feet				
					90					
					95					Boring terminated at 92 feet.
					100					
					105					
					110					
					115					
					120					
					125					

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Northeast of Building 20		Boring/Well Name: TMW-16	
DRILLING COMPANY: West Hazmat	DRILLER: Scott Campbell	Project Name: Boeing C-6 Facility	
DRILLING METHOD (S): CME 75, Hollow Stem Auger	DRILL BIT (S) SIZE: 8"	Project Number: 994001.00	
BLANK CASING: 2" diam. PVC Schedule 40	FROM 0 TO 56.5 FT	ELEVATION: Not Surveyed	TOTAL DEPTH: 82.5 feet
PERFORATED CASING: 2" diam. PVC Schedule 40, 0.010" slot	FROM 56.5 TO 76.5 FT	DATE STARTED: 1/29/99	DATE COMPLETED: 1/29/99
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 54.5 TO 82.5 FT	DEPTH TO WATER: 65 feet	
SEAL: Medium Bentonite Chips	FROM 51.7 TO 54.5 FT	LOGGED BY: M. Balderman	
GROUT: Neat Portland Cement	FROM 0 TO 51.7 FT	SAMPLING METHODS: 2" x 18" California Split-Spoon and CME dry core	WELL COMPLETION: ☒ SURFACE HOUSING ☐ STAND PIPE ____ FT

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
										Asphalt at surface 8" gravel/asphalt base
								ML	2.5YR 5/2	Clayey SILT with Minor Fine Sand: weak red, damp, medium stiff
			7 10 14 12		5					
			10 11 14 18					ML	7.5YR 5/3	Clayey SILT with Minor Fine Sand: brown, damp, very stiff
			11 15 17	8.2	10					
										increasing sand below 12 feet 1-inch thickness of disseminated calcite at 13.5 feet
core					15			SM	7.5YR 5/3	Fine Silty SAND: brown, 60% sand, damp, dense
			10 14 20	12.4	20					
core								CL	7.5YR 5/2	Silty CLAY with Minor Fine Sand: brown, irregular calcite stringers, damp, hard
			12 15 30	11.5	25					
core								ML	2.5Y 5/4	Sandy SILT: light olive brown, 40% fine sand, damp, hard clayey silt interbed from 27.7 to 28 feet calcite stringers at 29.5 feet
			14 17 20	17.2	30					
core								SM	2.5Y 6/4	Fine Silty SAND: light yellowish brown, 80% sand, damp, dense
					35					

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-16
Project Name Boeing C-6 Facility
Project Number 994001.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Description
								SM		Fine Silty SAND, continued
core										hard caliche nodules from 36.5 to 37 feet
									2.5Y 6/2	light brownish gray
			20 25 27	8.9	40					
core					45					hard calcite nodules at 47.3 feet abundant calcite cement to 50 feet
			10 14 25	13.9	50			CL	2.5Y 6/2	Silty CLAY: light brownish gray, trace of fine sand, damp to moist, hard
						Top of Seal 51.7 feet				
								CL		Sandy CLAY: 30% fine sand
						Top of Filter 54.5 feet		SM	2.5Y 7/1	Fine Silty SAND: light gray, 80% sand
core					55			ML	2.5Y 6/2	Clayey SILT: light brownish gray, trace of fine sand, damp, hard
						Top of Screen 56.5 feet		ML	2.5Y 5/2	Fine Sandy SILT: grayish brown, 40% sand, trace of fine mica, moist, hard
								SM		grades to Silty SAND
			11 16 23	22.7	60	Depth to first water 61 feet		ML		grades to Sandy SILT
								SM ML	2.5Y 5/4	water encountered at 61 feet Fine Silty SAND and Sandy SILT: light olive brown, trace of fine mica, wet, dense
core					65			ML	2.5Y 5/3	Fine Sandy SILT: light olive brown, 30% fine sand clayey, moist, hard
								SM	2.5Y 5/4	Fine Silty SAND: light olive brown, 50% sand
					70			CL	7.5YR 5/6 7.5YR 6/1	Silty CLAY: mottled strong brown and gray, trace of fine sand, wet, hard
								ML	2.5Y 5/4	Fine Sandy SILT: light olive brown, 35% sand, wet, hard
core					75	Bottom of Screen 76.5 feet		SM	2.5Y 5/2	Fine Silty SAND: grayish brown, 65% sand, trace of fine mica, wet, dense
					80					Boring terminated at 82.5 feet.

Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Former Building 14 Area		Boring/Well Name: TMW-17	
DRILLING COMPANY: West Hazmat	DRILLER: Steve	Project Name: Boeing C-6 Facility	
DRILLING METHOD (S): CME 75, Hollow Stem Auger	DRILL BIT (S) SIZE: 8"	Project Number: 994001.00	
BLANK CASING: 2" diam. PVC Schedule 40	FROM 0 TO 62 FT	ELEVATION: 55.54 feet MSL	TOTAL DEPTH: 87 feet
PERFORATED CASING: 2" diam. PVC Schedule 40, 0.010" slot	FROM 62 TO 82 FT	DATE STARTED: 5/10/99	DATE COMPLETED: 5/10/99
SIZE AND TYPE OF FILTER PACK: Lonestar 2/12 Sand	FROM 59 TO 87 FT	DEPTH TO WATER: 67 feet	
SEAL: Medium Bentonite Chips	FROM 56 TO 59 FT	LOGGED BY: M. Balderman	
GROUT: Neat Portland Cement	FROM 0 TO 56 FT	SAMPLING METHODS: 2" x 18" California Split-Spoon and CME dry core	WELL COMPLETION: ☐ SURFACE HOUSING ☒ STAND PIPE 3 FT

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	SOIL DESCRIPTION AND DRILLING REMARKS
			23 25 30	0				CL	10YR 3/3	Silty CLAY: very dark brown, trace of sand, slightly moist, hard, low plasticity
									10YR 4/4	dark yellow brown
			13 17 22	2.2	5					trace of fine gravel
								ML	10YR 4/4	grades to Clayey SILT: very dark brown, slightly moist, hard
			14 18 21	2.2	10			ML	2.5Y 5/4	grades to SILT with Clay: light olive brown, slightly moist, hard, no plasticity, no gravel
										calcareous nodules from 12 to 13 feet
									10YR 5/6	yellowish brown
core					15					
										increasing clay content, moist, low plasticity
			11 16 18	10	20			ML	10YR 4/4	grades to Clayey SILT: dark yellowish brown, trace of fine sand, moist, hard, low plasticity
										small calcareous nodules from 23 to 23.5 feet
									10YR 5/4	decreasing clay, yellowish brown, increasing fine sand, no plasticity
core					25					
								ML	2.5Y 6/4	grades to Sandy SILT: light yellowish brown, fine sand, moist, stiff
								SM	2.5Y 6/4	grades to Silty SAND: light yellowish brown, fine, medium dense
			10 13 16	1.5	30				10YR 6/6	brownish yellow, decreasing silt, with a 3-inch layer of shells
										shells
										no shells below 33 feet
core					35			SP	10YR 6/3	grades to SAND with Silt: pale brown, fine, slightly moist, medium dense

Well Construction Log

Kennedy/Jenks Consultants

Boring/Well Name TMW-17
Project Name Boeing C-6 Facility
Project Number 994001.00

SAMPLES: Driven	Recovered	Collected	Blows per 6"	Head Space Reading (mg/L)	Depth (feet)	WELL CONSTRUCTION	Graphic Log	USCS Log	Munsell Color	Description
core								SP		SAND with Silt (continued)
			17 25 31	3	40					decreasing silt, dense
										dense shelly layer from 42.5 to 44.5 feet, densely packed, imbricated shells and scales in sandy matrix
core					45			ML	10YR 4/4	Clayey SILT: dark yellowish brown, moist, hard, with two inclusions of shelly laminae approximately 0.5 inches thick
										small carbon stringers in places
									10YR 7/2	2-inch layer of light gray silt with sand
								ML	10YR 5/4	Sandy SILT: yellowish brown, fine, moist, dense
			13 22 27	1.5	50				2.5Y 6/3	light yellowish brown
										grades to Clayey SILT: finely laminated, hard, low plasticity
									10YR 6/2	grades to Sandy SILT: light brownish gray
										grades to Clayey SILT
core					55	Top of Seal 56 feet				
									10YR 6/6	brownish yellow
						Top of Filter 59 feet		SP	10YR 7/1	SAND with some Silt: light gray, fine, dense, slightly moist
			12 18 23	2.8	60					
						Top of Screen 62 feet				
core					65					
				1.4		Depth to first water 67 feet			10YR 6/6	brownish yellow, moist
			8 11 13		70					
									7.5YR 5/3	brown, wet, medium dense
					75					
					80					
						Bottom of Screen 82 feet				Boring terminated at 87 feet.

ARCADIS
GERAGHTY & MILLER

LOG OF BORING BL-1

ILM
BRC Property

CA000280.0002.00002

Date Completed	: February 2, 1999	Driller	: Tony Garver
Logged By	: Mike Flaugher	Diameter	: 8" O.D. augers
Checked By	: Mike Flaugher		
Drilling Company	: Gregg Drilling		
Drill Rig	: Mobile B-61		

Well: BL-1
Elev.: NA

Depth in Feet	Recovery %	Sample Interval	Sample No.	PID (ppm)	Blow Count	USCS	GRAPHIC	DESCRIPTION
0						GM		GRAVEL with SAND, dark reddish brown (5YR 3/3), moist, gravel is fine to coarse, well rounded, poorly graded, sand is fine to coarse grained, poorly graded, subangular to subrounded, trace silt, FILL.
5								
						CL		CLAY with SAND, yellowish brown (10YR 5/4), moist, hard, no dilatency, medium toughness, fine grained sand, poorly graded, clay is lean.
10	100		BL-1-10	0	13 20 21			
	85		BL-1-11.5	0	11 20 22			
15								
20	100		BL-1-21 BL-1-23.7	0	8 14 17	SM		SILTY SAND, yellowish brown (10YR 5/4), medium dense, moist, fine grained, poorly graded, subangular to subrounded, 50% quartz, 30% feldspar, 17% weathered biotite, 3% lithics, trace clay.
25								
30	100		BL-1-31	0	8 28 32			Same as above, decrease in silt content.
35								
40	90		BL-1-41	0	14 28 30			Same as above, dense, increase in weathered biotite content, decrease in feldspar content.
45								

2" Sch. 40 PVC Casing

Bentonite Grout

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05-10-15

ARCADIS
GERAGHTY & MILLER

LOG OF BORING BL-1

ILM
BRC Property

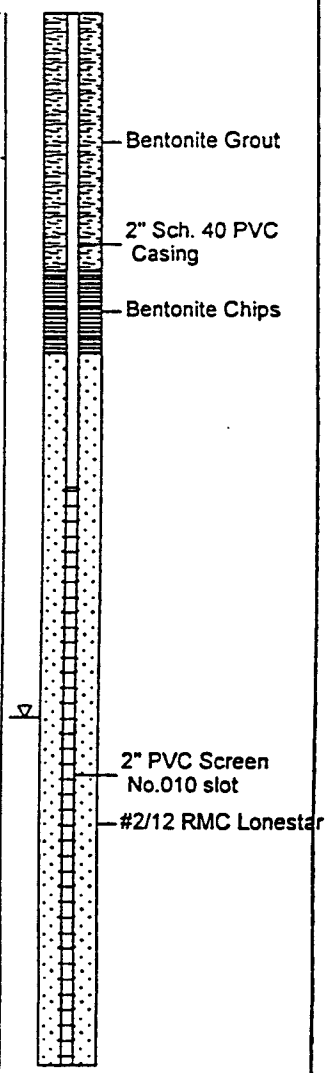
CA000280.0002.00002

Date Completed	: February 2, 1999	Driller	: Tony Garver
Logged By	: Mike Flaugher	Diameter	: 8" O.D. augers
Checked By	: Mike Flaugher		
Drilling Company	: Gregg Drilling		
Drill Rig	: Mobile B-61		

Depth in Feet	Recovery %	Sample Interval	Sample No.	PID (ppm)	Blow Count	USCS	GRAPHIC	DESCRIPTION
45						SM		
50	100	☒	BL-1-51	0	19 28 32	SP-SM		SAND with SILT, light yellowish brown (10YR 6/4), medium dense to dense, dry to moist, sand is fine grained, poorly graded, subangular to subrounded, 65% quartz, 30% feldspar, 5% weathered biotite and lithics, shell fragments, trace clay clumps.
55								
60	100	☒	BL-1-61	0	17 23 30			Same as above, color changes to reddish yellow (5YR 6/6), increase in shell fragments (60% shell fragments, 5% feldspar, 5% weathered biotite, 30% quartz), shells are yellowish brown (10YR 5/6) pulverized, jagged edges, medium dense, no clay.
65								
70	50	☒	BL-1-71	0	22 25 30 34			At 69.5', first encountered groundwater. Same as above, trace clay clumps, very dense.
75								
80	60	☒	BL-1-81	N/A	11 16 21	SC		CLAYEY SAND, yellowish brown (10YR 5/4), medium dense, moist, fine to medium grained, poorly graded, rounded to angular, 30% coarse shell fragments (max. 1"), 30% lithics, 40% quartz, oxidized.
85								
90								

Total depth of boring: 81.5 feet.

Well: BL-1
Elev.: NA



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ARCADIS
GERAGHTY & MILLER

LOG OF BORING BL-2

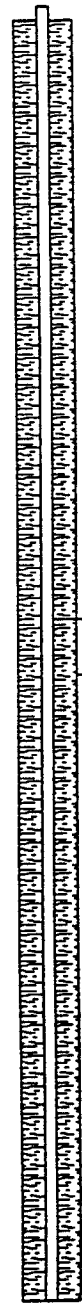
ILM
BRC Property

CA000280.0002.00002

Date Completed	: February 3, 1999	Driller	: Tony Garver
Logged By	: Mike Flaugher	Diameter	: 8" O.D. augers
Checked By	: Mike Flaugher		
Drilling Company	: Gregg Drilling		
Drill Rig	: Mobile B-61		

Well: BL-2
Elev.: NA

Depth in Feet	Recovery %	Sample Interval	Sample No.	PID (ppm)	Blow Count	USCS	GRAPHIC	DESCRIPTION
0–6						GM		SILTY GRAVEL with SAND, very dark grayish brown (10YR 3/2), dry to moist, fine to coarse gravel, angular to rounded, sand is fine to medium grained, poorly graded, subangular to subrounded, FILL.
8–10	100	☒	BL-2-9	2	9 17 22	CL		CLAY, brown (10YR 4/3), hard, moist, no dilatency, medium toughness, lean, trace medium sand.
12–26	80	☒	BL-2-11.5	0	9 14 16	ML		SANDY SILT, brown (10YR 5/3), firm to hard, moist, slow dilatency, non plastic, trace mica, sand is fine grained, poorly graded, subangular to subrounded.
22	100	☒	BL-2-21.5	0	8 11 14			
28						SM		SILTY SAND with CLAY, brown (10YR 4/3), moist, fine grained, poorly graded, subangular to subrounded, trace mica.
32–38	100	☒	BL-2-31.5	0	9 16 23	SP		SAND, yellowish brown (10YR 5/4), medium dense, moist, fine grained, poorly graded, well sorted, 70% quartz, 10% feldspar, 15% weathered biotite, 5% lithics, trace silt.
42–46	80	☒	BL-2-41.5	2	16 26 29 33	SP-SM		SAND with SILT, light yellowish brown (10YR 6/4), medium dense to dense, dry to moist, fine grained, poorly graded, subangular to subrounded, 50% quartz, 10% feldspar, 10% weathered biotite, 30% shell fragments, shells are yellowish brown (10YR 5/6), slightly pulverized, with jagged edges, trace clay clumps.



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ARCADIS
GERAGHTY & MILLER

LOG OF BORING BL-2

ILM
BRC Property

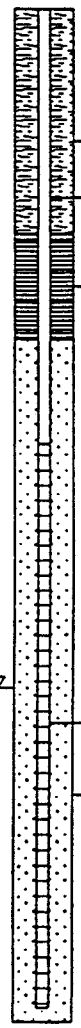
CA000280.0002.00002

Date Completed	: February 3, 1999	Driller	: Tony Garver
Logged By	: Mike Flaugher	Diameter	: 8" O.D. augers
Checked By	: Mike Flaugher		
Drilling Company	: Gregg Drilling		
Drill Rig	: Mobile B-61		

Well: BL-2
Elev.: NA

Depth in Feet	Recovery %	Sample Interval	Sample No.	PID (ppm)	Blow Count	USCS	GRAPHIC	DESCRIPTION
46								
48						SP-SM		
50								
52	90		BL-2-51.5	5	13 20 29	SM		SILTY SAND, brown (10YR 4/3), medium dense, dry to moist, fine grained, poorly graded, subangular to subrounded, 60% quartz, 30% feldspar, 10% weathered biotite, no shell fragments, slightly oxidized.
54								
56								
58								
60								
62	100		BL-2-61.5	2	14 18 26			Same as above, becomes 90% quartz, 5% feldspar, 5% weathered biotite, trace clay clumps.
64								
66								
68								
70	100			0	21 28 29 35			At 70.25', first encountered groundwater. Same as above, color changes to dark yellowish brown (10YR 4/4), well sorted, 65% quartz, 5% feldspar, 28% lithics, 2% weathered biotite, trace clay clumps.
72								
74								
76								
78								
80	100			NA	11 17 19			At 80.5', increase in silt content, becomes 60% quartz, 10% feldspar, 30% weathered biotite, trace clay, oxidized.
82								
84								
86								
88								
90								
92								

Total depth of boring: 82 feet.



ARCADIS
GERAGHTY & MILLER

LOG OF BORING BL-3

ILM
BRC Property

CA000280.0002.00002

Date Completed	: February 8, 1999	Driller	: Craig Winegarner
Logged By	: Mike Flaugher	Diameter	: 8" O.D. augers
Checked By	: Mike Flaugher		
Drilling Company	: Gregg Drilling		
Drill Rig	: Mobile B-61		

Well: BL-3
Elev.: NA

Depth in Feet	Recovery %	Sample Interval	Sample No.	PID (ppm)	Blow Count	USCS	GRAPHIC	DESCRIPTION
0–6	100					GM		SILTY GRAVEL with SAND, very dark grayish brown (10YR 3/2), dry to moist, fine to coarse gravel, angular to rounded, sand is fine to medium grained, poorly graded, subangular to subrounded, FILL.
8–10	100		BL-3-10.5 BL-3-8.7	0	9 23 26	CL		CLAY, brown (10YR 4/3), dry to moist, no dilatency, hard, medium toughness, lean, trace fine sand, mottled gray, slightly calcareous, trace tiny hollow vertical tubes, dense.
12–14	100		BL-3-13	0	16 18 22	SC		CLAYEY SAND, brown (10YR 4/3), medium dense, dry to moist, fine grained, poorly graded, subangular to subrounded.
22–24	100		BL-3-23	0	13 16 19	ML		SANDY SILT, brown (10YR 4/3), hard, dry to moist, fine grained, poorly graded, subangular to subrounded, some black specks, trace clay clumps. At 23' color changed to dark yellowish brown (10YR 4/4).
32–34	100		BL-3-33	0	21 23 32	SP-SM		SAND with SILT, yellowish brown (10YR 5/4), medium dense to dense, dry to moist, fine grained, poorly graded, well sorted, subangular to subrounded, 60% quartz, 20% feldspar, 20% weathered biotite. At 41.5', same as above, 60% shell fragments, 5% weathered biotite, 5% lithics, 30% quartz, trace red (2.5YR 4/8) silty sand globules, few black (10YR 2/1) 1/2" pebbles.
42–44	100		BL-3-43	0	17 24 30	ML		SILT with SAND, dark yellowish brown (10YR 4/4), hard, moist, fine grained, poorly graded, subangular to subrounded, nonplastic, rapid dilatency, slightly oxidized.

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46

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ARCADIS
GERAGHTY & MILLER

LOG OF BORING BL-3

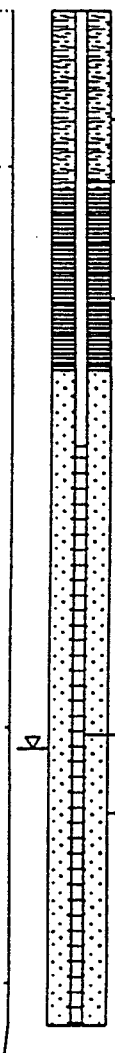
ILM
BRC Property

CA000280.0002.00002

Date Completed	: February 8, 1999	Driller	: Craig Winegamer
Logged By	: Mike Flaugher	Diameter	: 8" O.D. augers
Checked By	: Mike Flaugher		
Drilling Company	: Gregg Drilling		
Drill Rig	: Mobile B-61		

Well: BL-3
Elev.: NA

Depth in Feet	Recovery %	Sample Interval	Sample No.	PID (ppm)	Blow Count	USCS	GRAPHIC	DESCRIPTION
46, 48, 50						ML		
52, 54	100	☒	BL-3-53	0	27 36 40	SP-SM		SAND with SILT, dark yellowish brown (10YR 4/4), dense, moist, fine grained, poorly graded, angular to subrounded, 40% weathered biotite, 50% quartz, 8% feldspar, 2% lithics.
56, 58, 60, 62, 64, 66, 68, 70	100	☒	BL-3-63	NA	20 23 23 30			At 61.5', same as above, decrease in silt content. At 62.5', same as above, increase in mica content, increase in silt content, medium dense.
72, 74, 76, 78	100	☐			47 70 93	SP		SAND, dark yellowish brown (10YR 4/6), very dense, moist to wet, fine grained, poorly graded, subangular to subrounded, 75% quartz, 10% feldspar, 5% weathered biotite, 10% lithics, slightly oxidized. At 72.25', first encountered groundwater.
80, 82	100	☐		NA	58 70 89	SM		SILTY SAND, dark grayish brown (10YR 4/2), very dense, wet, medium grained, poorly graded, subangular to subrounded, trace clay clumps, 70% quartz, 20% feldspar, 10% weathered biotite.
84, 86, 88, 90, 92								



Total depth of boring: 82 feet.

ARCADIS
GERAGHTY&MILLER

LOG OF BORING BL-4

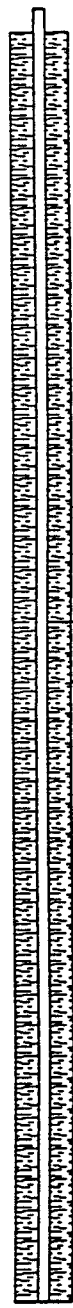
ILM
BRC Property

CA000280.0002.00002

Date Completed	: February 16, 1999	Driller	: Craig Winegarner
Logged By	: Mike Flaugher	Diameter	: 8" O.D. augers
Checked By	: Mike Flaugher		
Drilling Company	: Gregg Drilling		
Drill Rig	: Mobile B-61		

Well: BL-4
Elev.: NA

Depth in Feet	Recovery %	Sample Interval	Sample No.	PID (ppm)	Blow Count	USCS	GRAPHIC	DESCRIPTION
0						SM		SILTY SAND with GRAVEL, very dark grayish brown (10YR 3/2), moist, sand is fine to medium grained subangular to subrounded, gravel is fine to coarse, angular to rounded, FILL.
3	80			N/A		GP		GRAVEL with SAND, very dark grayish brown (10YR 3/2), moist, fine to coarse gravel, angular, volcanic detrital, sand is fine grained, poorly graded, subangular to subrounded, road base, FILL.
					11 14	CL		
	80	☒	BL-4-4.5	2	17	SC		CLAY, very dark grayish brown (10YR 3/2), firm to hard, moist, no dilatency, medium toughness, slightly mottled gray.
6					16 28			CLAYEY SAND, dark yellowish brown (10YR 4/4), medium dense, dry to moist, fine grained, poorly graded, subangular to subrounded, tiny vertical hollow tubes, gypsum strings.
	100	☒	BL-4-7	0	50			
9						SM		SILTY SAND with CLAY, brown (10YR 4/3), dense to very dense, moist, fine grained, poorly graded, subangular to subrounded, micaceous, trace clay clumps.
12								
15					18 19			At 16', same as above, trace fine gravel.
	100	☒	BL-4-17	0	26			
18								
21								
24								
					20 23	SP-SM		
27								



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05-10-19

ARCADIS
GERAGHTY & MILLER

LOG OF BORING BL-4

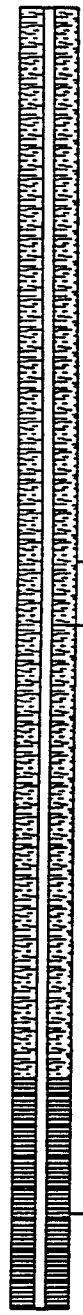
ILM
BRC Property

CA000280.0002.00002

Date Completed	: February 16, 1999	Driller	: Craig Winegarner
Logged By	: Mike Flaugher	Diameter	: 8" O.D. augers
Checked By	: Mike Flaugher		
Drilling Company	: Gregg Drilling		
Drill Rig	: Mobile B-61		

Well: BL-4
Elev.: NA

Depth in Feet	Recovery %	Sample Interval	Sample No.	PID (ppm)	Blow Count	USCS	GRAPHIC	DESCRIPTION
27	100	☒	BL-4-27	0	30			SAND with SILT, yellowish brown (10YR 5/4), medium dense, moist, fine grained, well sorted, poorly graded, subangular to subrounded, 80% quartz, 5% feldspar, 15% weathered biotite and lithics.
30								
33								
36					28 43	SP-SM		At 36', same as above, increase in weathered biotite content to 25%.
	100	☒	BL-4-37	0	50			At 37.5', few shell fragments.
39								
42								
45								
					16	SM		SILTY SAND, light olive brown (2.5Y 5/6), medium dense, moist, fine grained, poorly graded, subangular to subrounded, well sorted, 60% quartz, 20% feldspar, 20% weathered biotite and lithics, trace clay clumps.
	100	☒	BL-4-47	0	24 32	SP		SAND, light brownish gray (2.5Y 6/2), medium dense, moist, fine grained, well sorted, poorly graded, subangular to subrounded, 90% quartz, 10% weathered biotite.
48								
51						SM		SILTY SAND, light olive brown (2.5Y 5/6), medium dense, moist, fine grained, poorly graded, subangular to subrounded, well sorted, 60% quartz, 20% feldspar, 20% weathered biotite and lithics, trace clay clumps.
54								



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ARCADIS
GERAGHTY & MILLER

LOG OF BORING BL-4

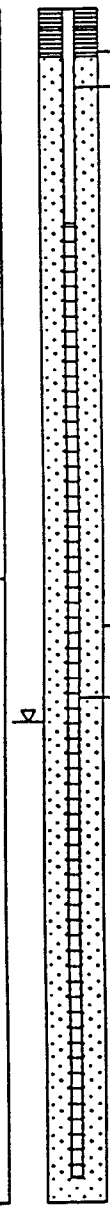
ILM
BRC Property

CA000280.0002.00002

Date Completed	: February 16, 1999	Driller	: Craig Winegamer
Logged By	: Mike Flaugher	Diameter	: 8" O.D. augers
Checked By	: Mike Flaugher		
Drilling Company	: Gregg Drilling		
Drill Rig	: Mobile B-61		

Well: BL-4
Elev.: NA

Depth in Feet	Recovery %	Sample Interval	Sample No.	PID (ppm)	Blow Count	USCS	GRAPHIC	DESCRIPTION
54								
57	100	☒	BL-4-57	0	14 20 27	SM		At 56', same as above, color change to yellowish brown (10YR 5/4), 60% quartz, 30% feldspar, 10% lithics, (no mica), oxidation in layers.
60								
63								
66	100	☒	BL-4-67	0	37 60 63	SP		SAND, yellowish brown (10YR 5/4), very dense, moist to wet, fine grained, poorly graded, well sorted, subangular to subrounded, 70% quartz, 20% feldspar, 10% weathered biotite.
69								At 69', first encountered groundwater.
72								
75								
78	100			N/A	43 56 80			
81								



Total depth of boring: 79 feet.

ARCADIS
GERAGHTY & MILLER

LOG OF BORING BL-5

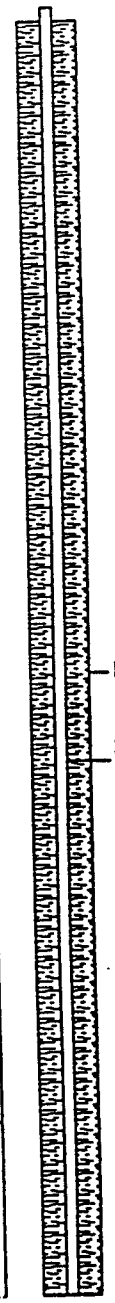
ILM
BRC Property

CA000280.0002.00002

Date Completed	: February 4, 1999	Driller	: Tony Garver
Logged By	: Mike Flaugher	Diameter	: 8" O.D. augers
Checked By	: Mike Flaugher		
Drilling Company	: Gregg Drilling		
Drill Rig	: Mobile B-61		

Well: BL-5
Elev.: NA

Depth in Feet	Recovery %	Sample Interval	Sample No.	PID (ppm)	Blow Count	USCS	GRAPHIC	DESCRIPTION
0						GP		GRAVEL with SAND, dark reddish brown (5YR 3/2), moist, gravel is fine to coarse, angular to rounded, poorly graded, sand is fine to medium grained, poorly graded, subangular to subrounded, trace silt, FILL.
5	100		BL-5-8	1	9 11 12	SM		SILTY SAND, brown (10YR 4/3), medium dense, moist, fine grained, poorly graded, subangular to subrounded, trace mica.
10	80		BL-5-10	0	9 12 16			
15								
20	100		BL-5-20	0	8 9 14			Same as above, increase in mica content.
25								
30	100		BL-5-30	0	12 17 21			Same as above, decrease in silt content, becomes quartz rich.
35								
40	100		BL-5-40	0	8 14 21	SP-SM		SAND with SILT, light yellowish brown (10YR 6/4), medium dense, moist to dry, fine grained, poorly graded, well sorted, subangular to subrounded, trace shell fragments, 60% quartz, 20% feldspar, 20% weathered biotite.
45								



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ARCADIS
GERAGHTY & MILLER

LOG OF BORING BL-5

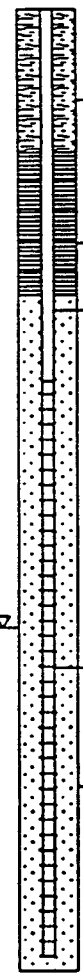
ILM
BRC Property

CA000280.0002.00002

Date Completed	: February 4, 1999	Driller	: Tony Garver
Logged By	: Mike Flaugher	Diameter	: 8" O.D. augers
Checked By	: Mike Flaugher		
Drilling Company	: Gregg Drilling		
Drill Rig	: Mobile B-61		

Well: BL-5
Elev.: NA

Depth in Feet	Recovery %	Sample Interval	Sample No.	PID (ppm)	Blow Count	USCS	GRAPHIC	DESCRIPTION
45						SP-SM		
50	100	☒	BL-5-50	0	17 31 26	SM		SILTY SAND, yellowish brown (10YR 5/4), medium dense, dry to moist, fine grained, poorly graded, well sorted, subangular to subrounded, 60% quartz, 20% feldspar, 20% weathered biotite, trace clay clumps.
55								
60	100	☒	BL-5-60	0	9 14 18	SP-SM		SAND with SILT, yellowish brown (10YR 5/4), medium dense, dry to moist, fine grained, poorly graded, subangular to subrounded, 70% shell fragments, 5% feldspar, 5% weathered biotite, 20% quartz, shells are pulverized with jagged edges, no clay found, 1" shell fragments.
65								At 66.6', first encountered groundwater.
70	100	☒	BL-5-70		8 10 19	SP		SAND, yellowish brown (10YR 5/4), medium dense, wet, fine grained, poorly graded, subangular to subrounded, 70% quartz, 10% feldspar, 10% lithics, 10% weathered biotite, well sorted, trace silt.
75	100	☐			15 32 40	SM		SILTY SAND, brown (10YR 4/3), dense, moist, fine grained, poorly graded, subangular to subrounded, well sorted, 70% quartz, 10% feldspar, 10% lithics, 10% weathered biotite.
80								
85								
90								



Total depth of boring: 78.5 feet.

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05-10-19

ARCADIS
GERAGHTY & MILLER

LOG OF BORING BL-6

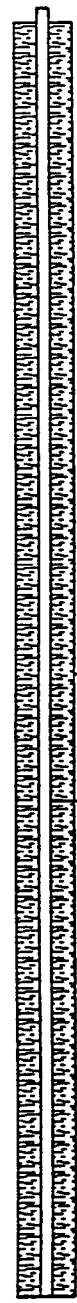
ILM
BRC Property

CA000280.0002.00002

Date Completed	: February 4, 1999	Driller	: Tony Garver
Logged By	: Mike Flaugher	Diameter	: 8" O.D. augers
Checked By	: Mike Flaugher		
Drilling Company	: Gregg Drilling		
Drill Rig	: Mobile B-61		

Well: BL-6
Elev.: NA

Depth in Feet	Recovery %	Sample Interval	Sample No.	PID (ppm)	Blow Count	USCS	GRAPHIC	DESCRIPTION
0–6						GM		SILTY GRAVEL with SAND, dark grayish brown (10YR 4/2), dry to moist, gravel is fine to coarse sized, angular to subrounded, sand is fine to medium grained, poorly graded, subangular to subrounded, FILL.
6–8	100	☒	BL-6-8.5	0	7 9 10	CL		CLAY, brown (10YR 4/3), firm, moist, lean, no dilatency, medium toughness, trace mica.
8–30	100	☒	BL-6-11	1	7 8 12	ML		SANDY SILT, yellowish brown (10YR 5/4), soft to firm, moist, slow dilatency, non plastic, sand is fine grained, poorly graded, subangular to subrounded.
20	100	☒	BL-6-21	1	9 12 14			
30–40	100	☒	BL-6-31 BL-6-33.7	1	9 12 18	SM		SILTY SAND, yellowish brown (10YR 5/6), medium dense, dry to moist, sand is fine grained, poorly graded, well sorted, subangular to subrounded, 60% quartz, 30% feldspar, 10% weathered biotite.
40–44	100	☒	BL-6-41	0	15 28 33	SP		SAND, yellowish brown (10YR 5/4), medium dense to dense, dry to moist, fine grained, poorly graded, well sorted, 65% quartz, 20% feldspar, 15% weathered biotite, trace silt.



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05-10-15

ARCADIS
GERAGHTY&MILLER

LOG OF BORING BL-6

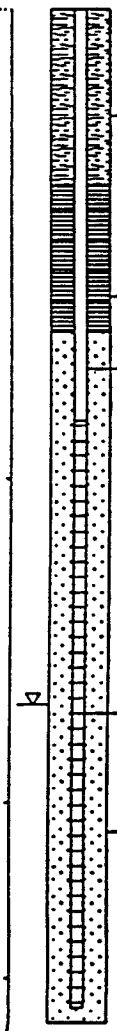
ILM
BRC Property

CA000280.0002.00002

Date Completed	: February 4, 1999	Driller	: Tony Garver
Logged By	: Mike Flaugher	Diameter	: 8" O.D. augers
Checked By	: Mike Flaugher		
Drilling Company	: Gregg Drilling		
Drill Rig	: Mobile B-61		

Depth in Feet	Recovery %	Sample Interval	Sample No.	PID (ppm)	Blow Count	USCS	GRAPHIC	DESCRIPTION
44, 46, 48, 50, 52, 54, 56	100	☒	BL-6-51	0	14 18 29	SP		Same as above, 60% shell fragments, yellowish brown in color (10YR 5/6), pulverized, with jagged edges, 35% quartz, 5% lithics, trace silt.
58, 60, 62, 64, 66, 68	100	☒	BL-6-61	1	13 19 24	SM		SILTY SAND, brown (10YR 4/3), medium dense, moist, fine grained, poorly graded, subangular to subrounded, 60% quartz, 30% feldspar, 10% weathered biotite, oxidized in layers, trace clay clumps, no shell fragments. At 67.7', first encountered groundwater.
70	100	☐		N/A	13 19 27			Same as above, becomes wet.
72, 74, 76						SC		CLAYEY SAND, grayish brown (10YR 5/2), medium dense, moist, fine grained, poorly graded, subangular to subrounded, no shells.
78	100	☐		N/A	19 30 35	SM		SILTY SAND, yellowish brown (10YR 5/4), dense, moist to wet, fine grained, poorly graded, subangular to subrounded, well sorted, 80% quartz, 10% feldspar, 8% lithics, 2% weathered biotite, oxidized in layers.
80, 82, 84, 86, 88								Total depth of boring: 78.5 feet.

Well: BL-6
Elev.: NA



ARCADIS
GERAGHTY & MILLER

LOG OF BORING BL-7

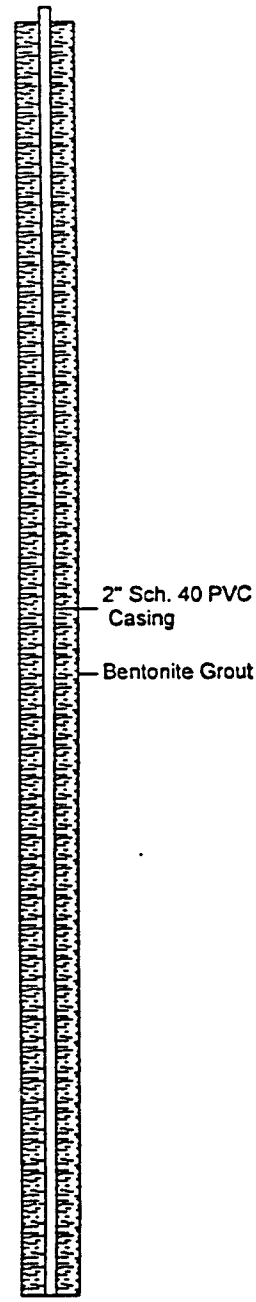
ILM
BRC Property

CA000280.0002.00002

Date Completed	: February 8, 1999	Driller	: Craig Winegamer
Logged By	: Mike Flaugher	Diameter	: 8" O.D. augers
Checked By	: Mike Flaugher		
Drilling Company	: Gregg Drilling		
Drill Rig	: Mobile B-61		

Well: BL-7
Elev.: NA

Depth in Feet	Recovery %	Sample Interval	Sample No.	PID (ppm)	Blow Count	USCS	GRAPHIC	DESCRIPTION
0						GM		SILTY GRAVEL with SAND, very dark grayish brown (10YR 3/2), dry to moist, fine to coarse gravel, angular to rounded, sand is fine grained, trace medium and coarse grains, poorly graded, subangular to subrounded, FILL.
2								
4								
6								
8								
	100					SM		SILTY SAND with GRAVEL, FILL.
10	75			0	9 14 16	ML		SANDY SILT, brown (10YR 4/3), medium dense, moist, fine grained, poorly graded, subangular to subrounded, small vertical hollow tubes.
12	100		BL-7-12	0	7 10 14			At 11.5' color changes to yellowish brown (10YR 5/4), trace clay clumps.
14	95		BL-7-14.5	4	8 8 14			
16								
18								
20								
22								
24	100		BL-7-24.5	5	11 16 22	SP-SM		SAND with SILT, dark yellowish brown (10YR 4/6), medium dense, moist, fine grained, poorly graded, subangular to subrounded, trace clay clumps, 75% quartz, 10% feldspar, 15% mica (weathered biotite).
26								
28								
30								
32								
34	100		BL-7-34.5	5	24 29 32	SP		SAND, light yellowish brown (10YR 6/4), dense, dry to moist, fine grained, poorly graded, well sorted, subangular to subrounded, trace silt, trace clay clumps, 55% quartz, 20% feldspar, 20% weathered biotite, 5% lithics and red chert, oxidized intermittently.
36								
38								At 43', same as above, color change to brown (10YR 5/3), shell fragments (65% shell fragments, 5% weathered biotite, 25% quartz, 5% lithics).
40								
42								



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ARCADIS
GERAGHTY & MILLER

LOG OF BORING BL-7

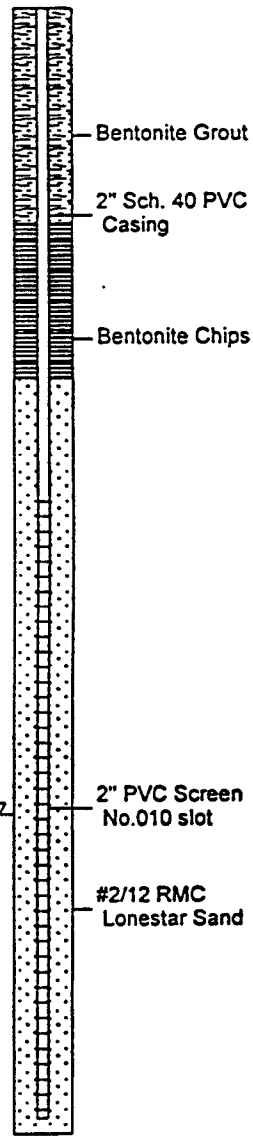
ILM
BRC Property

CA000280.0002.00002

Date Completed	: February 8, 1999	Driller	: Craig Winegamer
Logged By	: Mike Flaugher	Diameter	: 8" O.D. augers
Checked By	: Mike Flaugher		
Drilling Company	: Gregg Drilling		
Drill Rig	: Mobile B-61		

Well: BL-7
Elev.: NA

Depth in Feet	Recovery %	Sample Interval	Sample No.	PID (ppm)	Blow Count	USCS	GRAPHIC	DESCRIPTION
42								
44	100	☒	BL-7-44.5	5	16 20 26	SP		
						ML		SILT with SAND, yellowish brown (10YR 5/6), hard, moist to dry, slow dilatency, non plastic, micaceous, sand is fine grained, poorly graded, subangular to subrounded.
46								
48						CH		CLAY, dark grayish brown (10YR 4/2), hard, moist, fat, medium toughness, no dilatency.
50								
52								
54	100	☒	BL-7-54.5	15	19 30 32	SP-SM		SAND with SILT, dark yellowish brown (10YR 4/4), dense, moist, fine grained, poorly graded, subangular to subrounded, 40% weathered biotite, 50% quartz, 8% feldspar, 2% lithics.
56								
58								
60								
62								
64	90	☒	BL-7-64.5	10	41 60 75	SP		SAND, yellowish brown (10YR 5/4), very dense, fine grained, moist to wet, poorly graded, well sorted, subangular to subrounded, 75% quartz, 10% feldspar, 5% weathered biotite, 10% lithics, oxidized slightly.
66								
68								At 68.2', first encountered groundwater.
70								
72	100	☐		10	48 69 130			At 73', same as above, trace medium quartz grains, wet.
74								
76								
78	100	☐			63 75 90	SM		SILTY SAND, yellowish brown (10YR 5/4), very dense, wet, fine grained, poorly graded, well sorted, subangular to subrounded, trace clay clumps, slight oxidation, 75% quartz, 10% feldspar, 5% weathered biotite, 10% lithics.
80								
82								
84								



Total depth of boring: 78.5 feet.

ARCADIS
GERAGHTY & MILLER

LOG OF BORING BL-8

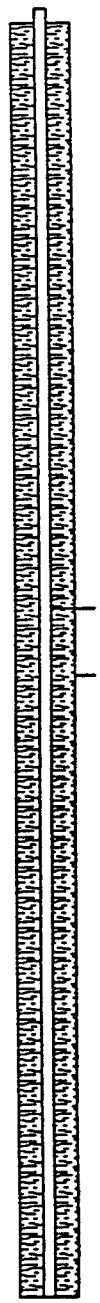
ILM
BRC Property

CA000280.0002.00002

Date Completed	: February 16, 1999	Driller	: Craig Winegamer
Logged By	: Mike Flaugher	Diameter	: 8" O.D. augers
Checked By	: Mike Flaugher		
Drilling Company	: Gregg Drilling		
Drill Rig	: Mobile B-61		

Well: BL-8
Elev.: NA

Depth in Feet	Recovery %	Sample Interval	Sample No.	PID (ppm)	Blow Count	USCS	GRAPHIC	DESCRIPTION
0						GM		SILTY GRAVEL with SAND, very dark grayish brown (10YR 3/2), dry to moist, fine to coarse gravel, angular, poorly graded, sand is fine to medium grained, poorly graded, subangular to subrounded, FILL.
2								
4								
6								
8						CL		CLAY, very dark grayish brown (10YR 3/2), firm, moist, no dilatency, medium toughness, mottled gray, clay is lean.
10	100		BL-8-9.5	0	7 9 11	SC		CLAYEY SAND, brown (10YR 4/3), medium dense, moist to dry, fine grained, poorly graded, subangular to subrounded, trace gypsum strings.
12	100		BL-8-12	0	12 12 14	SM		SILTY SAND, brown (10YR 4/3), medium dense, dry to moist, fine grained, poorly graded, subangular to subrounded, trace mica, trace clay clumps.
14								
16								
18								
20								
22	100		BL-8-22	0	20 27 32			
24								
26								
28								
30								
32	100		BL-8-32	0	16 22 25 25	SP-SM		SAND with SILT, olive (5Y 5/4), medium dense, moist, fine grained, poorly graded, well sorted, subangular to subrounded, 70% quartz, 15% feldspar, 15% weathered biotite and lithics, oxidation present.
34								
36								
38								
40								At 41', color changes to yellowish brown (10YR 5/4), 50% quartz, 10% weathered biotite, 5% feldspar, 35% shell fragments. Fragments are pulverized with jagged edges, dense.
42	100		BL-8-42	0	25 55 36			
44								



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05-10-19

ARCADIS
GERAGHTY & MILLER

LOG OF BORING BL-8

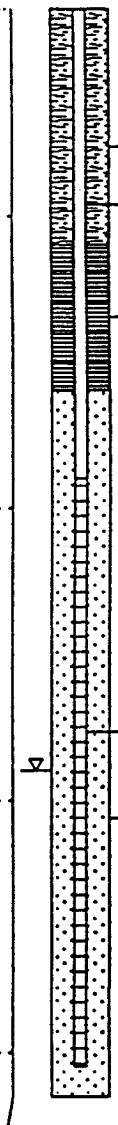
ILM
BRC Property

CA000280.0002.00002

Date Completed	: February 16, 1999	Driller	: Craig Winegarner
Logged By	: Mike Flaugher	Diameter	: 8" O.D. augers
Checked By	: Mike Flaugher		
Drilling Company	: Gregg Drilling		
Drill Rig	: Mobile B-61		

Well: BL-8
Elev.: NA

Depth in Feet	Recovery %	Sample Interval	Sample No.	PID (ppm)	Blow Count	USCS	GRAPHIC	DESCRIPTION
44, 46, 48, 50						SP-SM		
52, 54, 56	100	☒	BL-8-52	0	32 45 61	SM		SILTY SAND, dark grayish brown (10YR 4/2), dense to very dense, moist, fine grained, poorly graded, subangular to subrounded, 80% quartz, 5% feldspar, 15% weathered biotite, trace clay clumps, oxidized in lenses, becoming more oxidized throughout downward.
58, 60, 62	100	☒	BL-8-62	0	14 14 15	SC		CLAYEY SAND, reddish brown (5YR 4/3), medium dense, moist, fine grained, poorly graded, subangular to subrounded, oxidized.
64, 66, 68, 70								At 70', first encountered groundwater.
72, 74, 76	100	☐		N/A	22 30 38	SP		SAND, yellowish brown (10YR 5/4), very dense, wet to saturated, fine grained, poorly graded, well sorted, subangular to subrounded, 70% quartz, 20% feldspar, 10% weathered biotite.
78, 80, 82	100	☐		N/A	25 80 62	SP-SM		SAND with SILT, yellowish brown (10YR 5/4), wet to saturated, fine grained, poorly graded, subangular to subrounded, well sorted, 70% quartz, 20% feldspar, 10% weathered biotite.
84, 86, 88								



Total depth of boring: 81 feet.

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05-10-19.

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FOR REVIEW PURPOSES ONLY

Mill
5/23

REPORT FOR FURTHER SITE INVESTIGATION AT THE TRICO INDUSTRIES FACILITY, 19706 NORMANDIE AVENUE TORRANCE, CALIFORNIA

Prepared for:

TRICO
15707 South Main Street
Gardena, California 90247
(213) 516-5000

Prepared by:

SCS Engineers
3711 Long Beach Boulevard
Ninth Floor
Long Beach, California 90807
(213) 426-9544

April 1988

File No. 18746

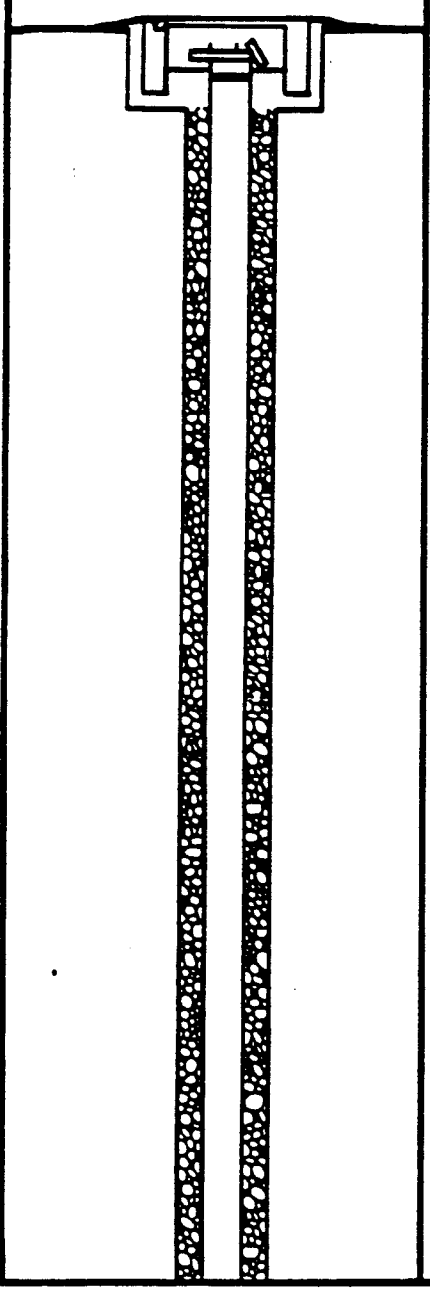
BORING LOG

SCS ENGINEERS
4014 Long Beach Blvd
Long Beach,
California 90807-2687
(213) 426-9544
FAX (213) 427-0805

SITE INFORMATION:

Project: Trico Industries
Location: Torrance
Job No.: 18746.00
Geologist/Engineer: Greg Helland
Driller: Drilline Drilling

Hole/Well No.:MW-2
Diameter: 11"
Total Depth: 83.5"
Date Started: 3-29-88
Date Completed: 3-29-88

DEPTH (ft)	WELL CONSTRUCTION DETAIL	SAMPLE NO.	BLOW COUNTS/ FOOT	USCS SYMBOL	DESCRIPTION
0					
1					2" of asphalt
2					
3					
4					
5		3656	20	CL	5' brown silty clay, moist, very stiff, no odor. HNU 0 ppm.
6					
7					
8					
9					
10		3657	18	CL	10' light brown sandy silty clay, very fine grains, moist, very stiff, no odor, HNU 0 ppm, slight grey discoloration in upper part of sample.
11					
12					
13					
14					
15					
16					
17					
18					
19					20' light brown sandy silty clay, very fin grains, moist, hard, no odor.
20		3658	35	CL	

HOLE/WELL NO. PAGE OF

BORING LOG (cont'd)

DEPTH (ft)	WELL CONSTRUCTION DETAIL	SAMPLE NO.	BLOW COUNTS/ FOOT	USCS SYMBOL	DESCRIPTION
25					
30		3659	35	CL	30' light brown sandy silty clay, very fine grains, moist, hard, no odor.
35					
40		3660	40	CL	40' reddish brown sandy silty clay, very fine grains, soils getting sandier with depth, moist, hard, no odor.
45					

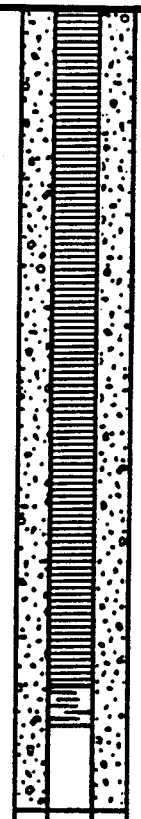
HOLE/WELL NO. PAGE OF

BORING LOG (cont'd)

DEPTH (ft)	WELL CONSTRUCTION DETAIL	SAMPLE NO.	BLOW COUNTS/ FOOT	USCS SYMBOL	DESCRIPTION
50		3661	42	CL	50' dark brown to reddish brwon slightly silty clay, no sand present in tip of sample, sandier at top of sample, moist, hard, no odor.
55					
60		3662	45	SC	60' light brown slightly clayer sand, very fine grained, moist, dense, possibly a slight sweet odor.
65					
70		3663	50	SM	70' dark brown silty sand, very fine grained, wet, dense, pyrite flakes present, no odor.

HOLE/WELL NO. PAGE OF

BORING LOG (cont'd)

DEPTH (ft)	WELL CONSTRUCTION DETAIL	SAMPLE NO.	BLOW COUNTS/ FOOT	USCS SYMBOL	DESCRIPTION
75					
80					
85					bottom of hole at 85' Well const. matl's. Casing: 0-63' 4" Sch. 40 PVC blank casing 63-83' 4" Sch. 40 PVC factory slotted casing slot size 0.020" Annular space: 0-59' bentonite grout 59-61' bentonite seal 61-83 #3 Monterey sand
90					
95					

HOLE/WELL NO. PAGE OF

18746

PRELIMINARY DRAFT REPORT FOR ADDITIONAL SITE INVESTIGATION AT THE TRICO INDUSTRIES FACILITY, 19706 NORMANDIE AVENUE TORRANCE, CALIFORNIA

Prepared for:

Haines, Russ, McMurry and de Recat
10920 Wilshire Boulevard - Suite 1000
Los Angeles, California 90024

Prepared by:

SCS Engineers
3711 Long Beach Boulevard
Ninth Floor
Long Beach, California 90807
(213) 426-9544

November 1987

File No. 18746

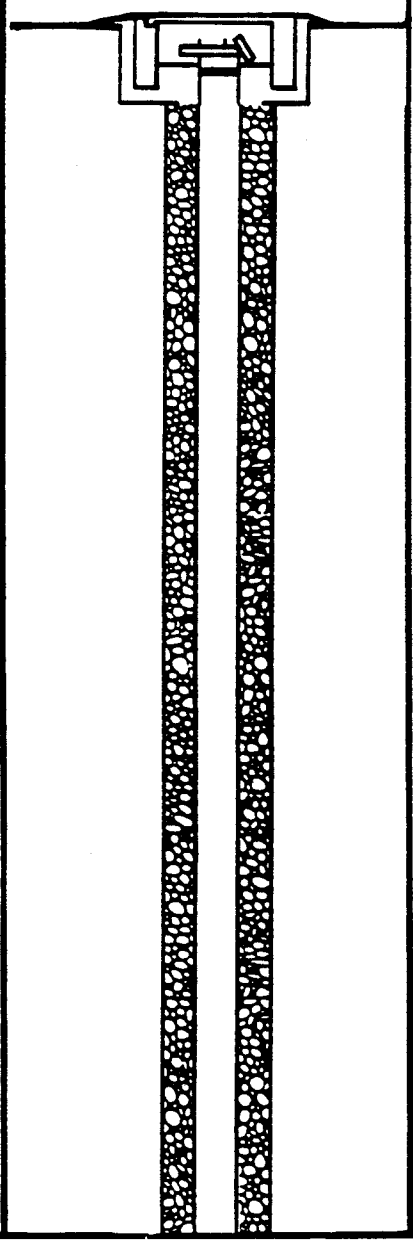
BORING LOG

SCS ENGINEERS
4014 Long Beach Blvd
Long Beach
California 90807-2687
(213) 426-9544
FAX (213) 427-0805

SITE INFORMATION:

Project: Trico Industries
Location: Torrance
Job No.: 18746.00
Geologist/Engineer: Greg Helland/Tom Morgan
Driller: H-F Drilling

Hole/Well No.:MW-1
Diameter: 10.5"
Total Depth: 85'
Date Started: 7-28-87
Date Completed: 7-28-87

DEPTH (ft)	COMPLETION DETAIL	SAMPLE NO.	BLOW COUNTS/FOOT	USCS SYMBOL	DESCRIPTION
0					2" of asphalt 2.5" of concrete
1					
2				Cl	black silty clay
3					
4				Cl	brown to light brown silty clay
5					
6					
7					
8					
9					
10		0404	23	CL	light brown silty clay, fine grains, moist, very stiff, no odor.
11					
12					
13					
14					
15					
16					
17					
18					light greenish grey, organic stained, fine silty clay, moist, very stiff, organics odor.
19		0415	35	CL	
20					

BORING LOG (cont'd)

DEPTH (ft)	WELL CONSTRUCTION DETAIL	SAMPLE NO.	BLOW COUNTS/ FOOT	USCS SYMBOL	DESCRIPTION
					greenish black stained clayey silt.
					light brown clayey silt
25					
					grey green clayey silt
30		0417	40	ML to SM	light greenish grey clayey to sandy silt with organic odor, very stiff, drier than above.
35		0418	30	ML	light greenish grey silt with organic odor, stiff, wet.
40		0419	60	SW	dark greenish grey silty sand with organic odor, very stiff, moist, shell fragments present.
					less dark staining, siltier, shell frags. abundant.
45		0420	50	ML-SW	greenish grey silty mudstone, slight odor, very stiff, moist. darker grey green @48'

BORING LOG (cont'd)

DEPTH (ft)	WELL CONSTRUCTION DETAIL	SAMPLE NO.	BLOW COUNTS/ FOOT	USCS SYMBOL	DESCRIPTION
50		0421	40	CL	mottled greenish yellowish grey clay, moist, very stiff, iron staining following burrowing.
					Cl% increases, but with some silt, more plastic with depth
55		0422	60	CH-MH SM	light yellow greenish grey mottled (burrowed) silty clay with sandy infillings, no odor.
					greenish grey silty clay brought up by auger
60		0423	80	SM	light olive grey silty sand with small laminae of silty clay, slightly moist, no odor.
65		0424	40	SM-ML	dark olive greenish grey silty sand with small clayey silt stringers, moist, very strong organic odor, very stiff.
					clay content increasing very moist and plastic
70		0425	40	Cl	light olive yellowish green silty clay, very moist and plastic, no odor.

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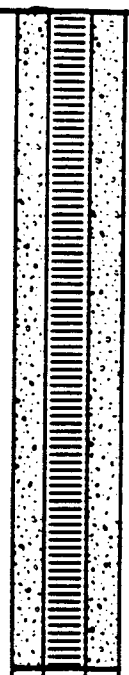
BORING LOG (cont'd)

DEPTH (ft)	WELL CONSTRUCTION DETAIL	SAMPLE NO.	BLOW COUNTS/ FOOT	USCS SYMBOL	DESCRIPTION
75		0426	20	SM	medium olive green silty sand, wet, no odor, some silty clay stringers.
80					
85					bottom of hole at 85' Well const. matl's. Casing: 0-65' 4" Sch. 40 PVC blank casing 65-85' 4" Sch. 5 SST 304 Stainless Steel perforated casing slot size 0.020" Annular space: 0-54' bentonite grout 54-56' bentonite seal 56-85' #3 Monterey sand
90					
95					

DEL AMO STUDY AREA

Well Location Map

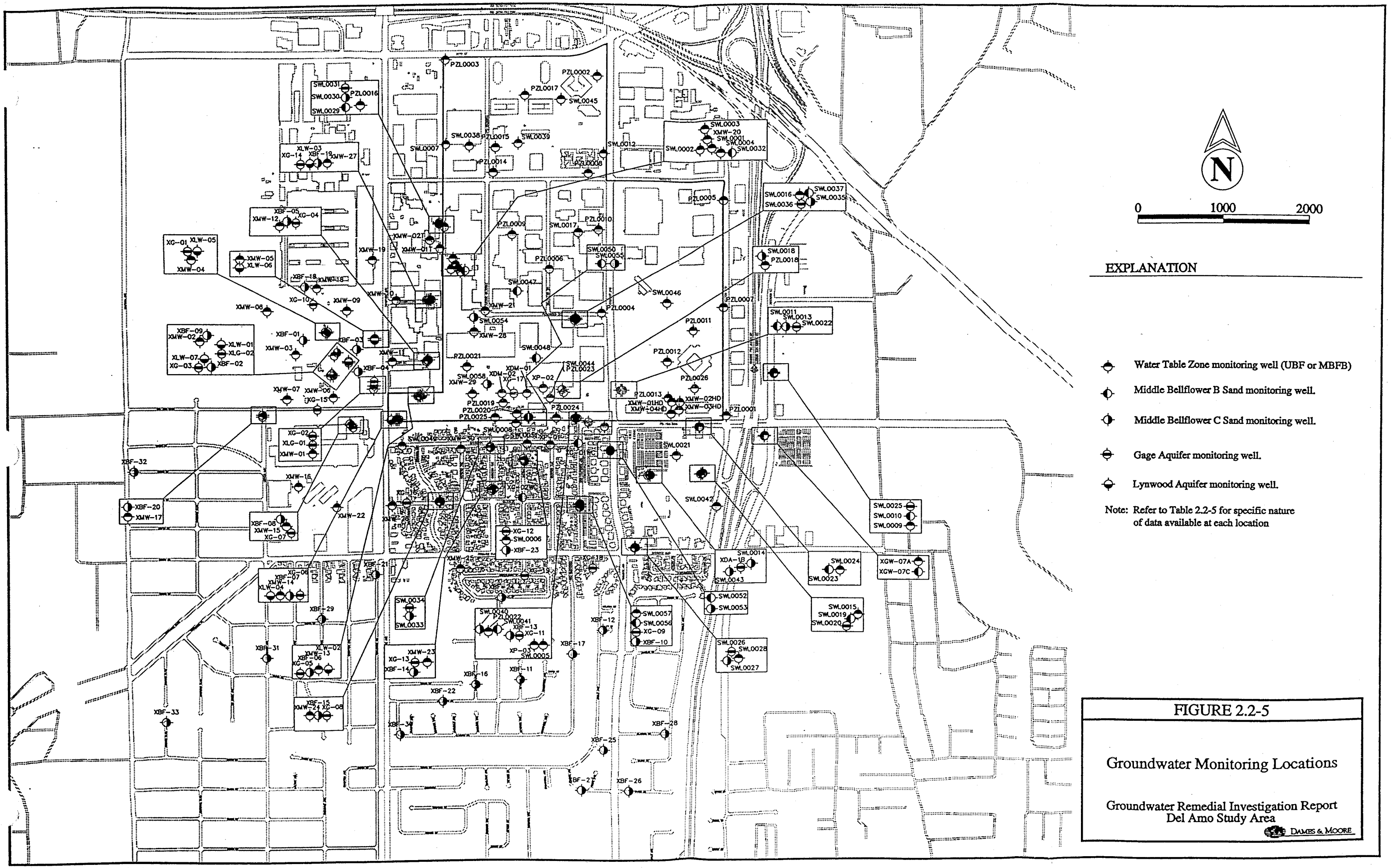


FIGURE 2.2-5

Groundwater Monitoring Locations

Groundwater Remedial Investigation Report
Del Amo Study Area

DAMES & MOORE

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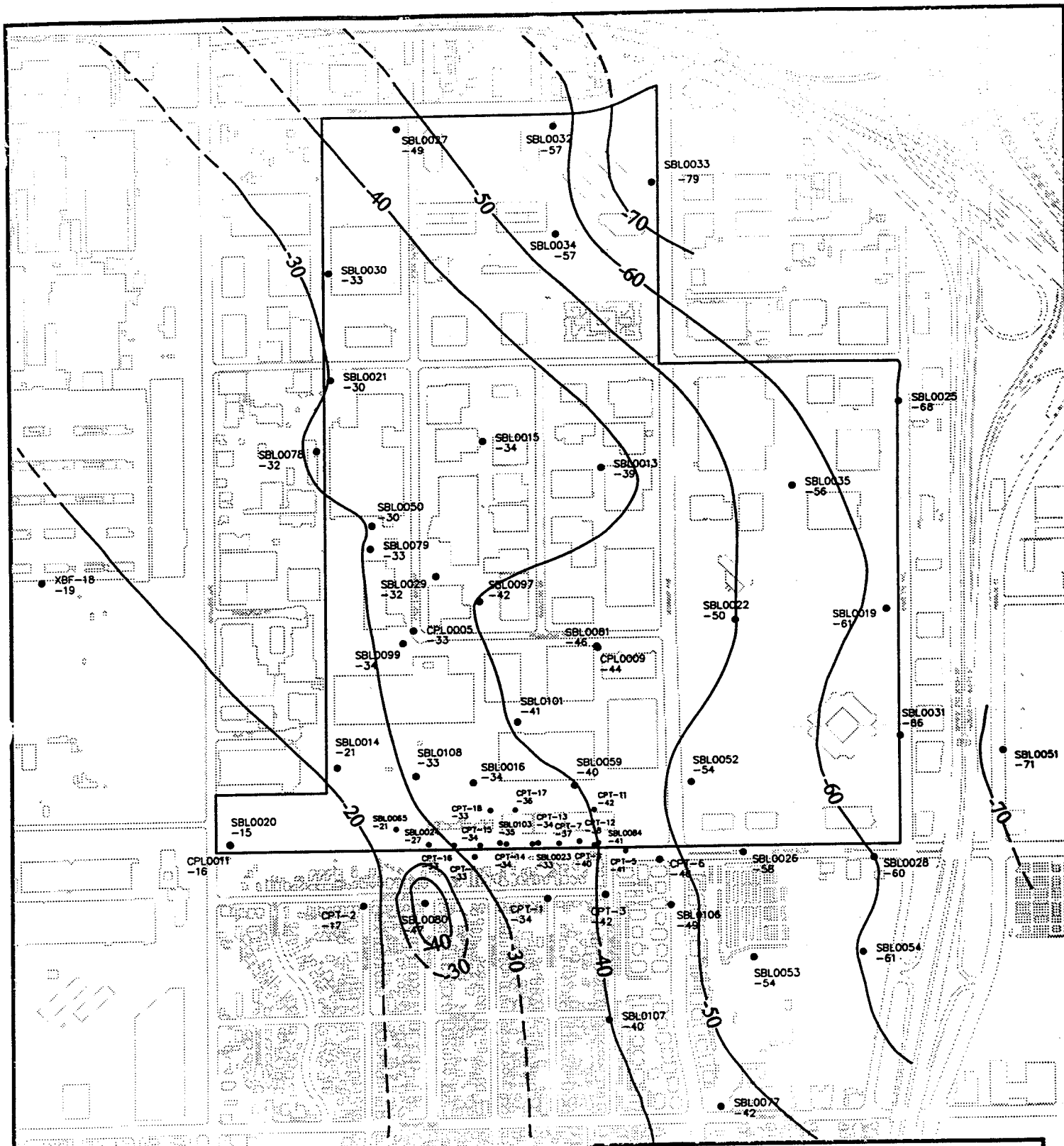
DEL AMO STUDY AREA

Structural Contour and Isopach Maps for Hydrostratigraphic Units



EXPLANATION

CPT-6 ● -46 — Control point indicating elevation of base of hydrostratigraphic unit

-20 — Elevation contour, dashed where inferred (feet MSL).

FIGURE 3.2-3

Contour Map Base of Upper Bellflower Aquitard

Groundwater Remedial Investigation
Del Amo Study Area

DAMES & MOORE

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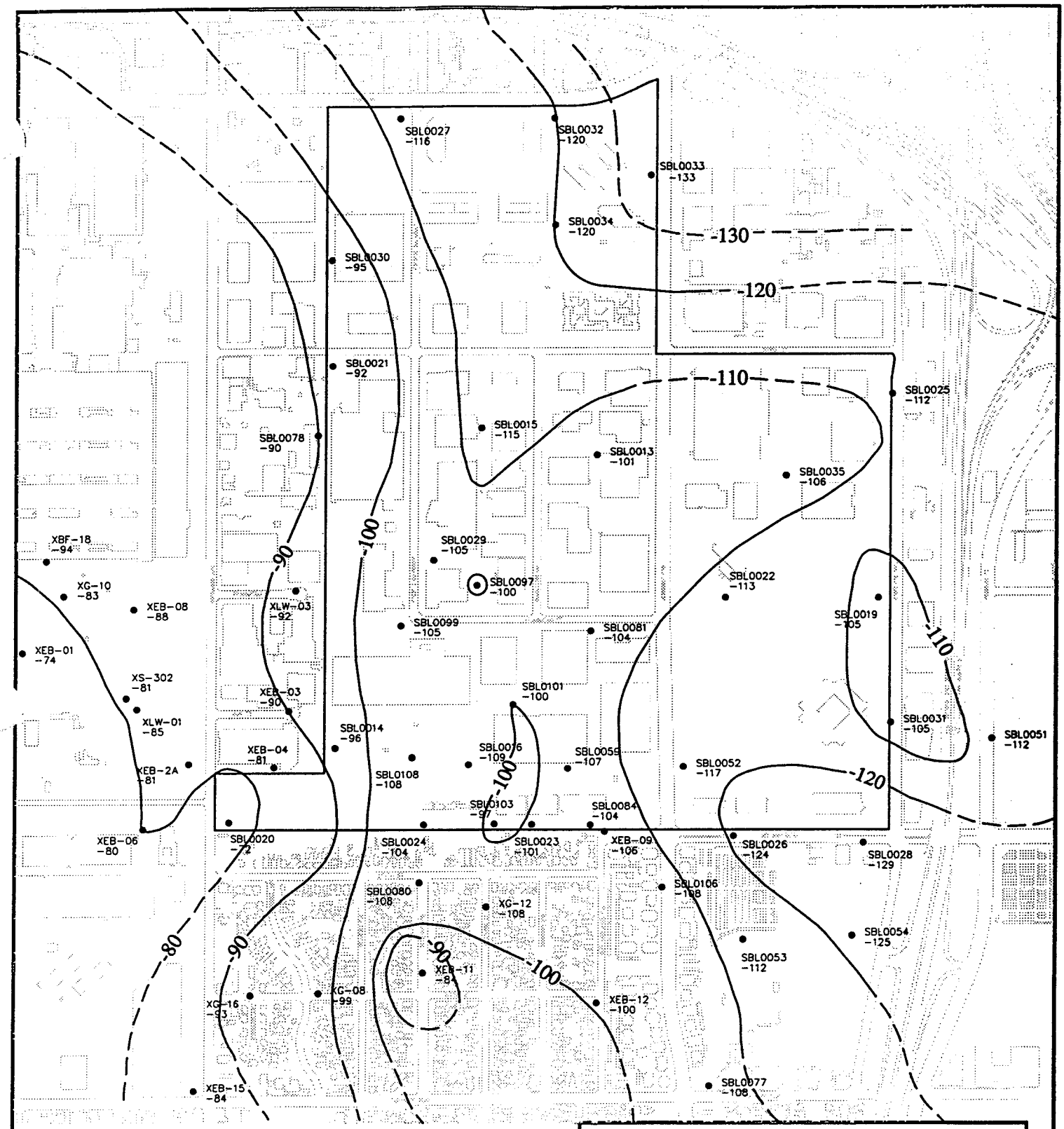

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N

EXPLANATION

CPT-6 ● -46 — Control point indicating elevation of base of hydrostratigraphic unit

-20 — Elevation contour, dashed where inferred (feet MSL).

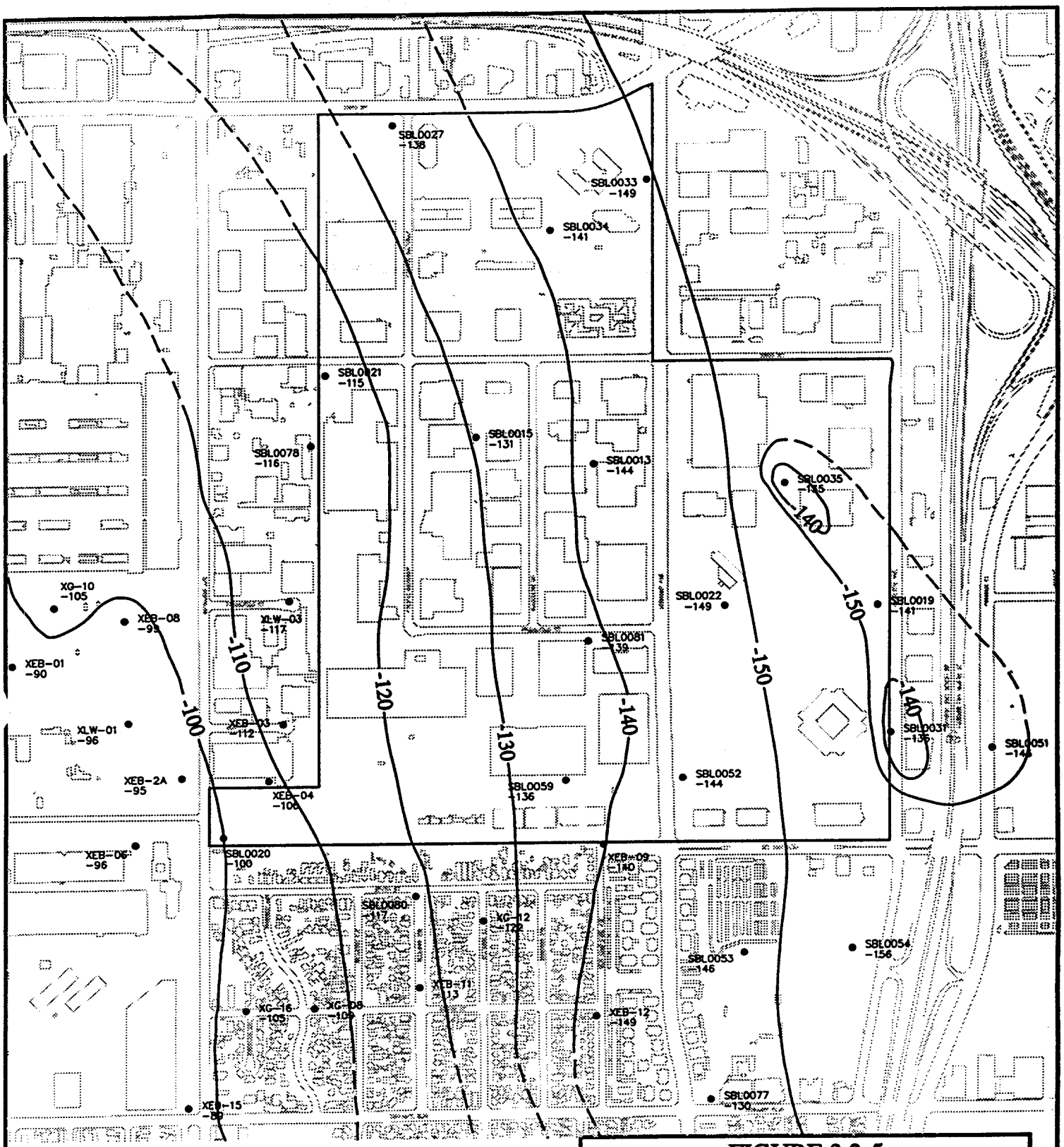
FIGURE 3.2-4

Contour Map
Base of
Middle Bellflower Aquitard

Groundwater Remedial Investigation
Del Amo Study Area

DAMES & MOORE

D:\DJD\RI\SEC3\6zuf3204, 06/16/97 at 09:50



EXPLANATION

CPT-6 ● -46 — Control point indicating elevation of base of hydrostratigraphic unit

-20 — Elevation contour, dashed where inferred (feet MSL).

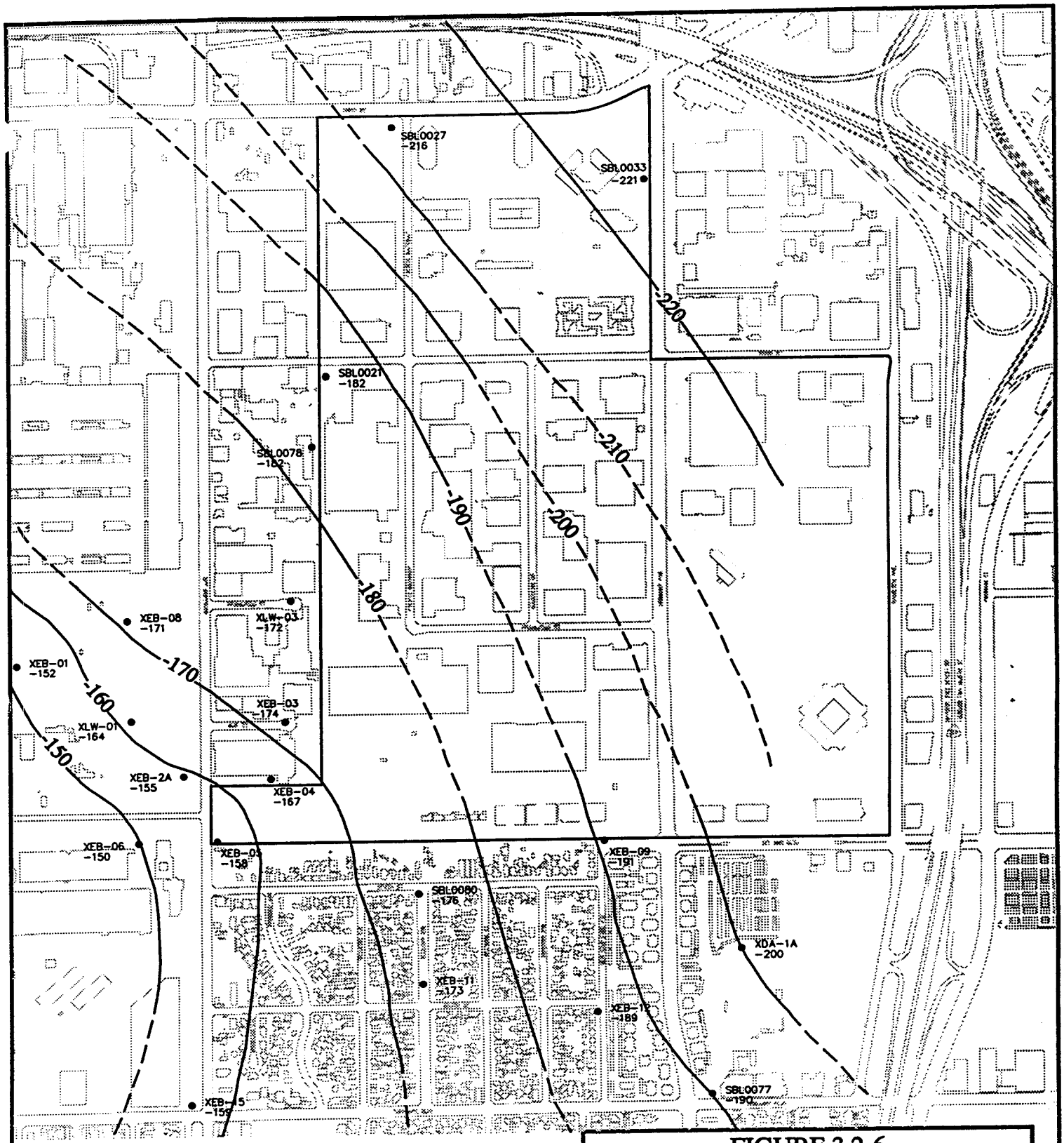
FIGURE 3.2-5

Contour Map Base of Lower Bellflower Aquitard

Groundwater Remedial Investigation
Del Amo Study Area

DAMES & MOORE

D:\djd\ri\SEC3\6ZUF3205, 05/21/97 at 11:23



0 800 1600

N

EXPLANATION

CPT-6 • -46 — Control point indicating elevation of base of hydrostratigraphic unit

-20 — Elevation contour, dashed where inferred (feet MSL).

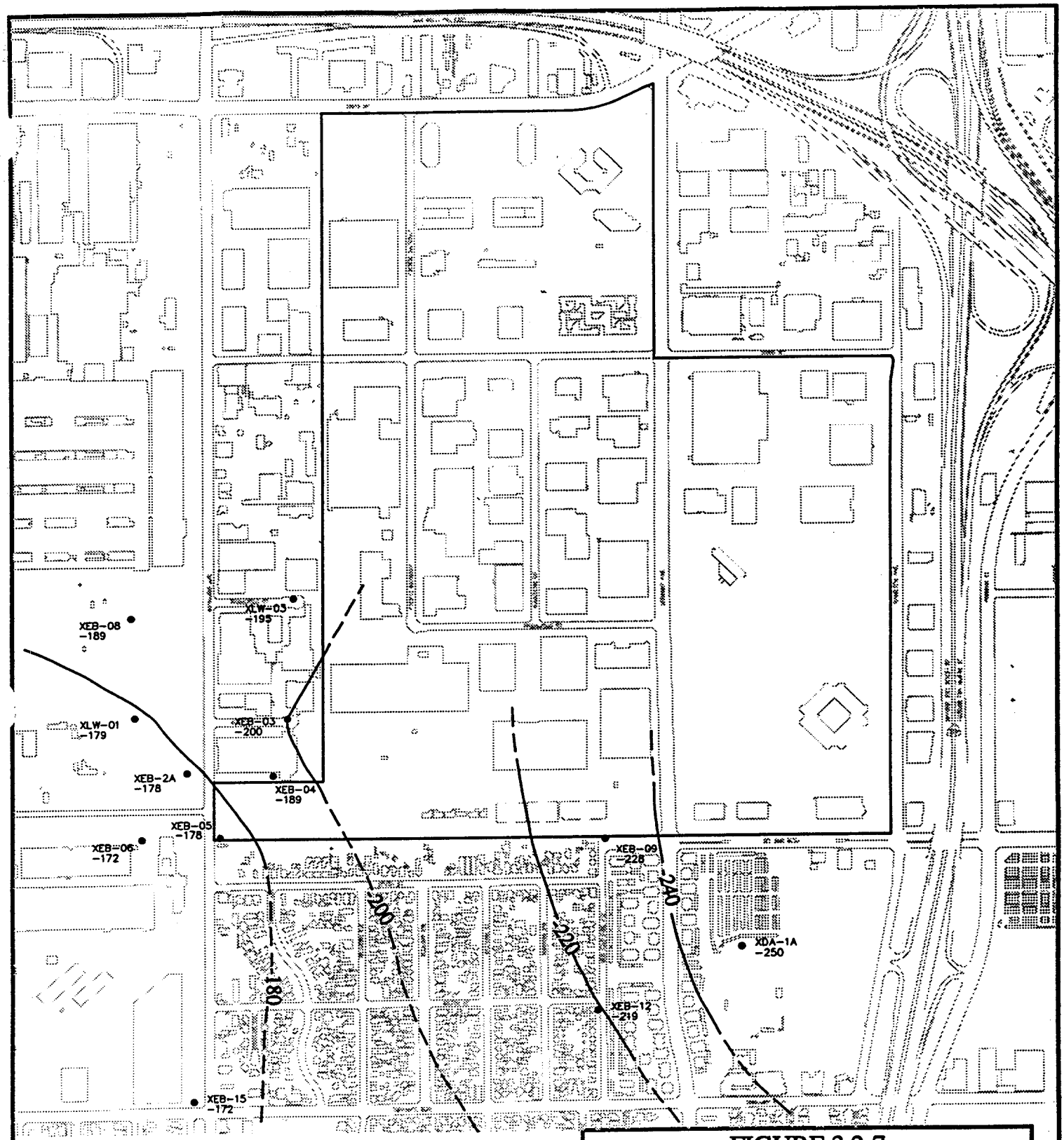
FIGURE 3.2-6

Contour Map Base of Gage Aquifer

Groundwater Remedial Investigation
Del Amo Study Area

DAMES & MOORE

D:\djd\ri\SEC3\6ZUF3206, 05/21/97 at 11:19



0 800 1600

N

EXPLANATION

CPT-6
-46
Control point indicating elevation of base of hydrostratigraphic unit

-20
Elevation contour, dashed where inferred (feet MSL).

FIGURE 3.2-7

Contour Map Base of Gage-Lynwood Aquitard

Groundwater Remedial Investigation
Del Amo Study Area

DAMES & MOORE

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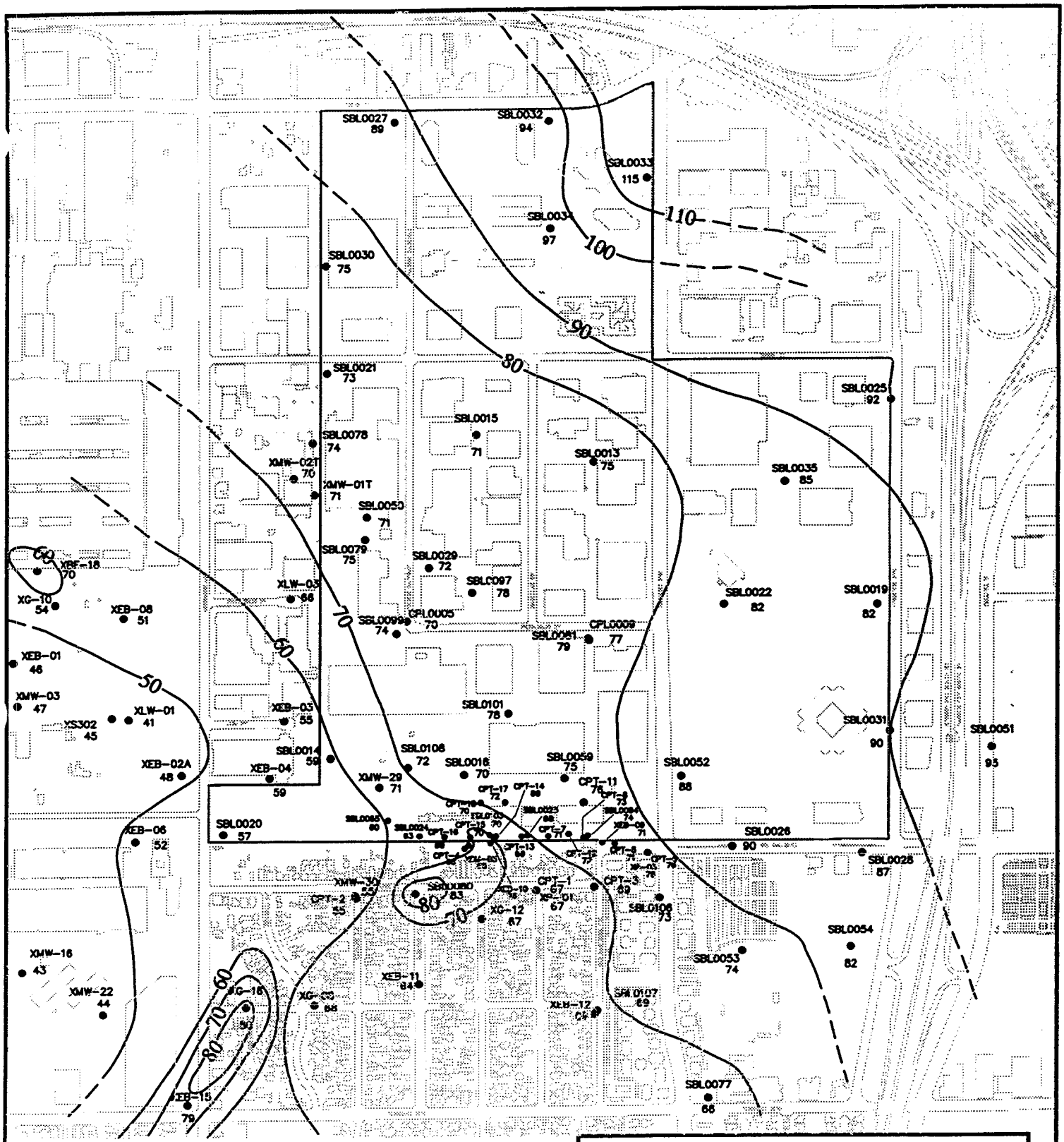


0 800 1600

N

EXPLANATION

XEB-15 ● 79 — Control point indicating thickness of hydrostratigraphic unit (usually measured from base of current unit to base of unit above)

20 — Isopach contour, dashed where inferred (feet).

FIGURE 3.2-8

Isopach Map
Upper Bellflower Aquitard

Groundwater Remedial Investigation
Del Amo Study Area

DAMES & MOORE

D:\djd\ri\SEC3\iso-ubf, 02/12/98 at 14:25

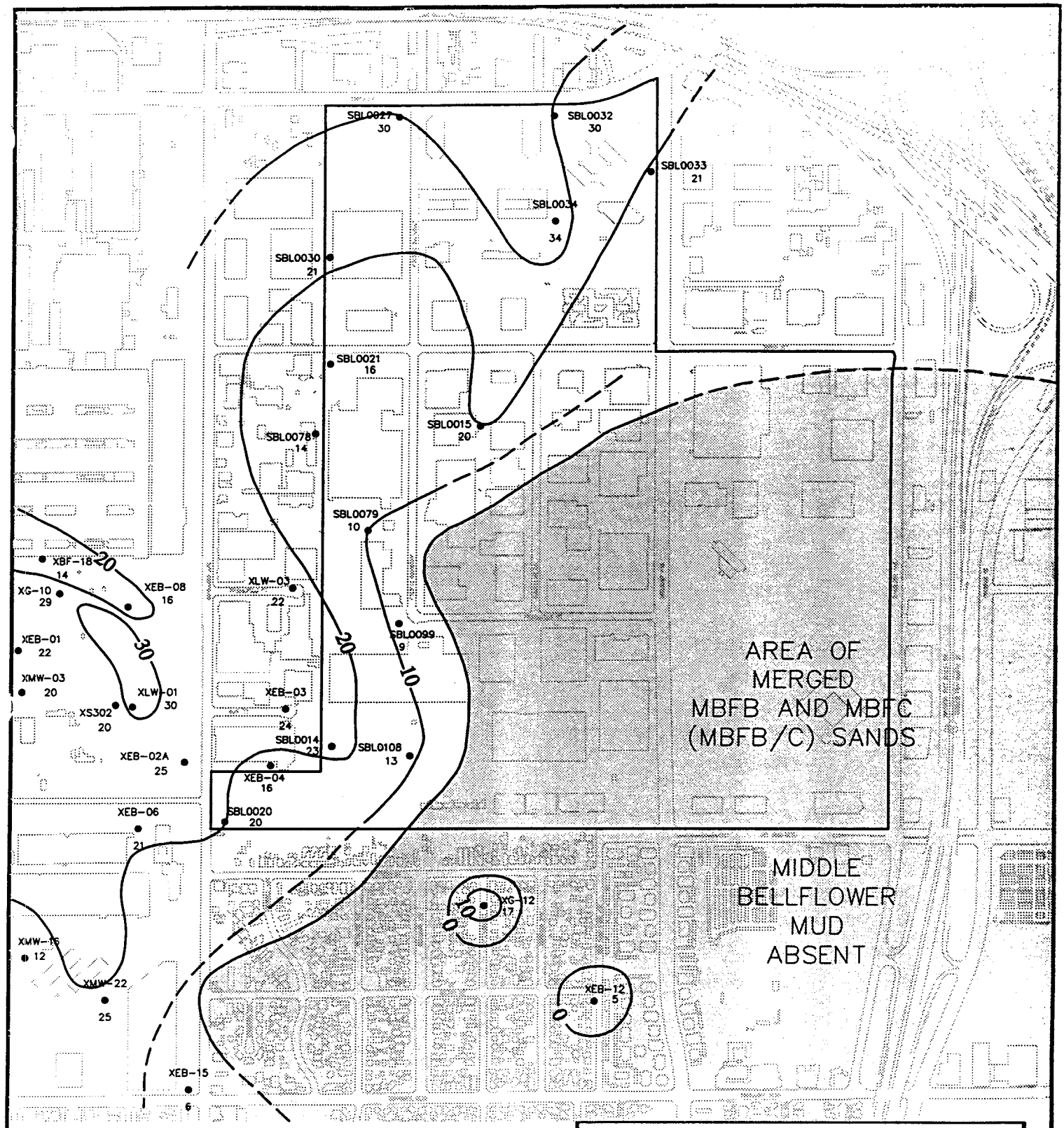


FIGURE 3.2-9

Isopach Map
Middle Bellflower B Sand

Groundwater Remedial Investigation
Del Amo Study Area

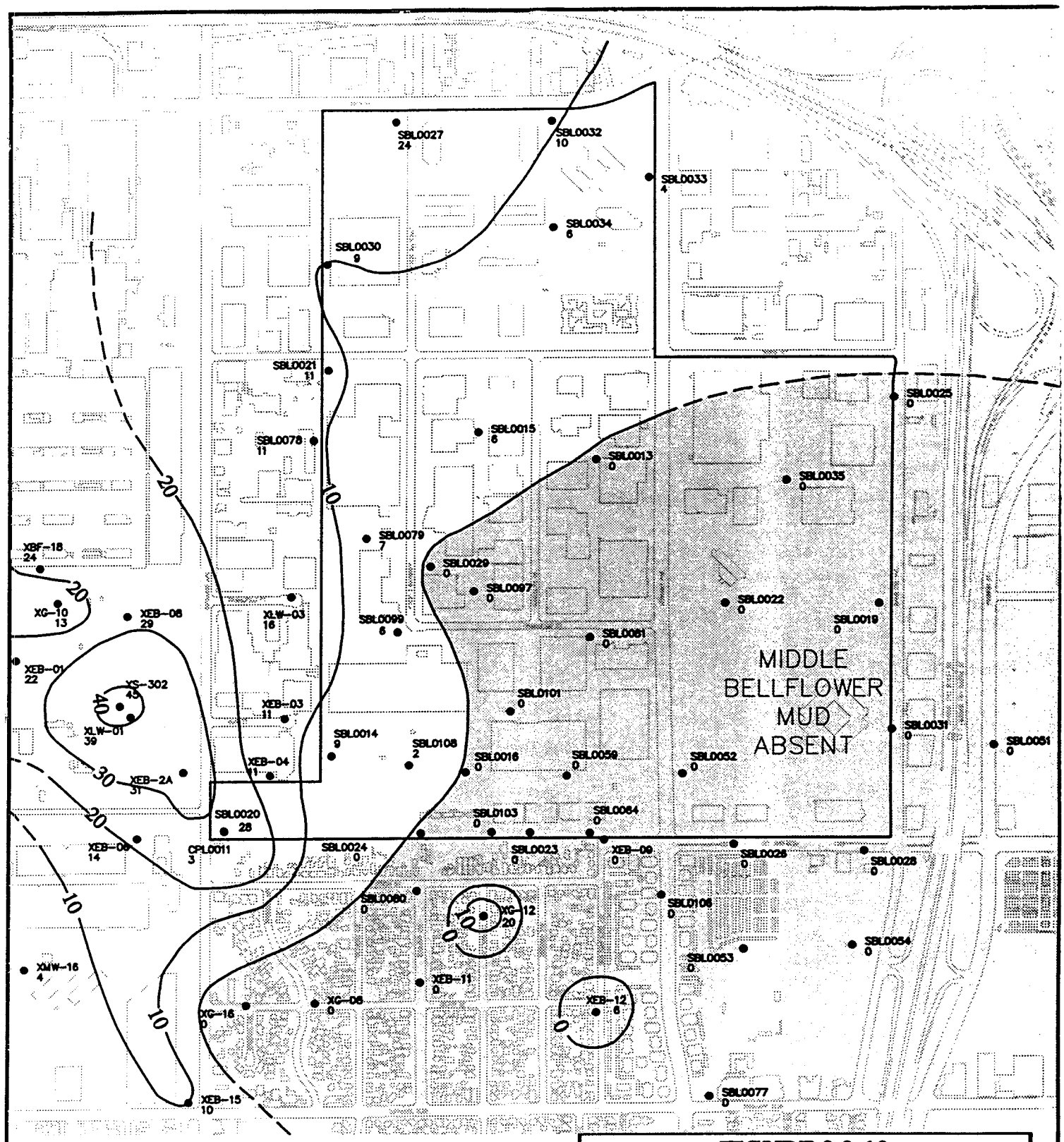
DAMES & MOORE

EXPLANATION

XEB-15 ● 10 — Control point indicating thickness of hydrostratigraphic unit in feet

20 — Thickness contour, MBF Mud Dashed where inferred

D:\DJD\RI\SEC3\iso-bm1, 04/14/98 at 13:40



EXPLANATION

XEB-15 ● 10 — Control point indicating thickness of hydrostratigraphic unit in feet

20 — Thickness contour, MBF Mud Dashed where inferred

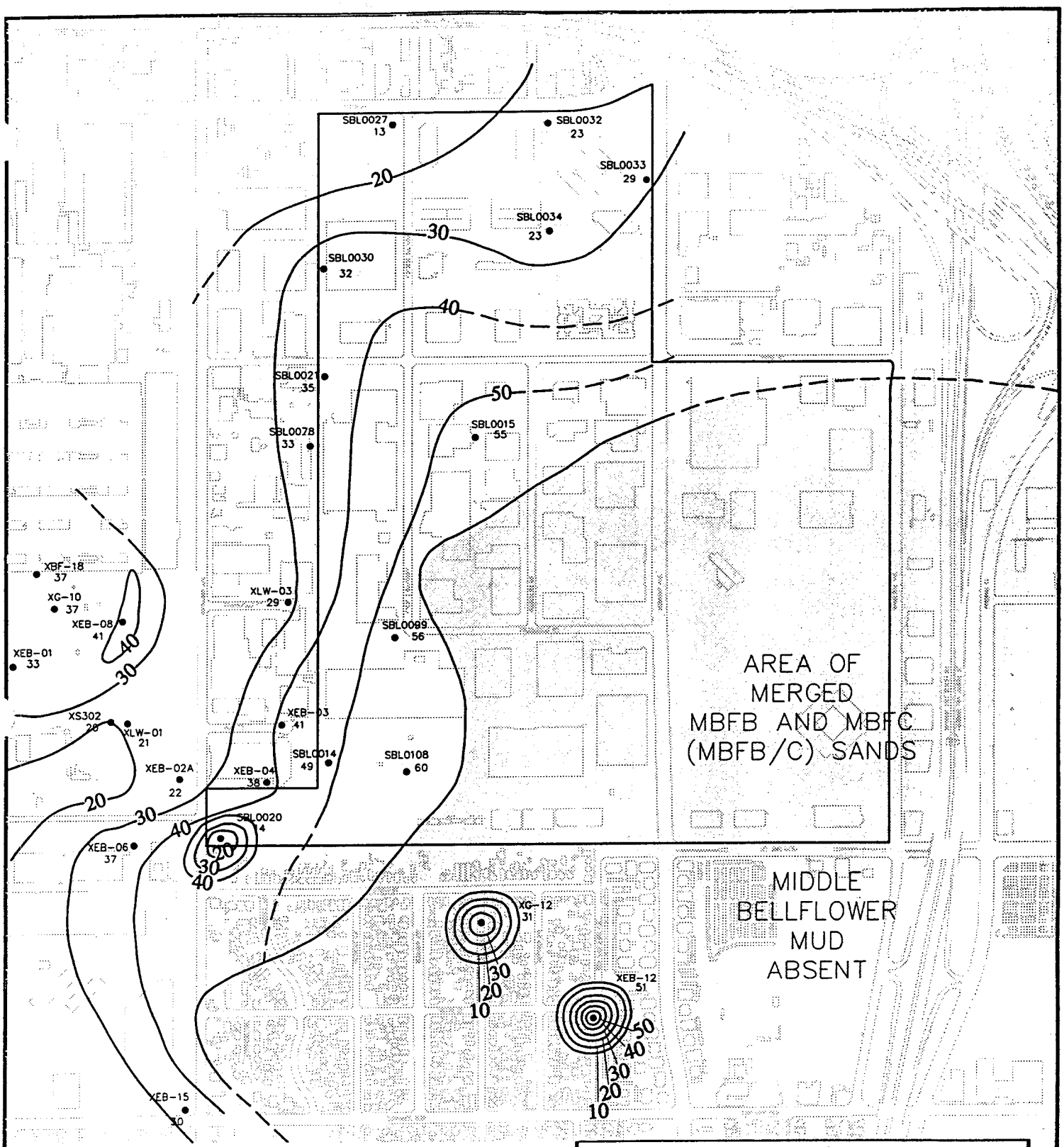
FIGURE 3.2-10

Isopach Map Middle Bellflower Mud

Groundwater Remedial Investigation
Del Amo Study Area

DAMES & MOORE

D:\DJD\RI\SEC3\iso-mbfm, 03/18/98 at 08:59



EXPLANATION

XEB-15 ● 10 — Control point indicating thickness of hydrostratigraphic unit in feet

20 — Thickness contour, MBF Mud Dashed where inferred

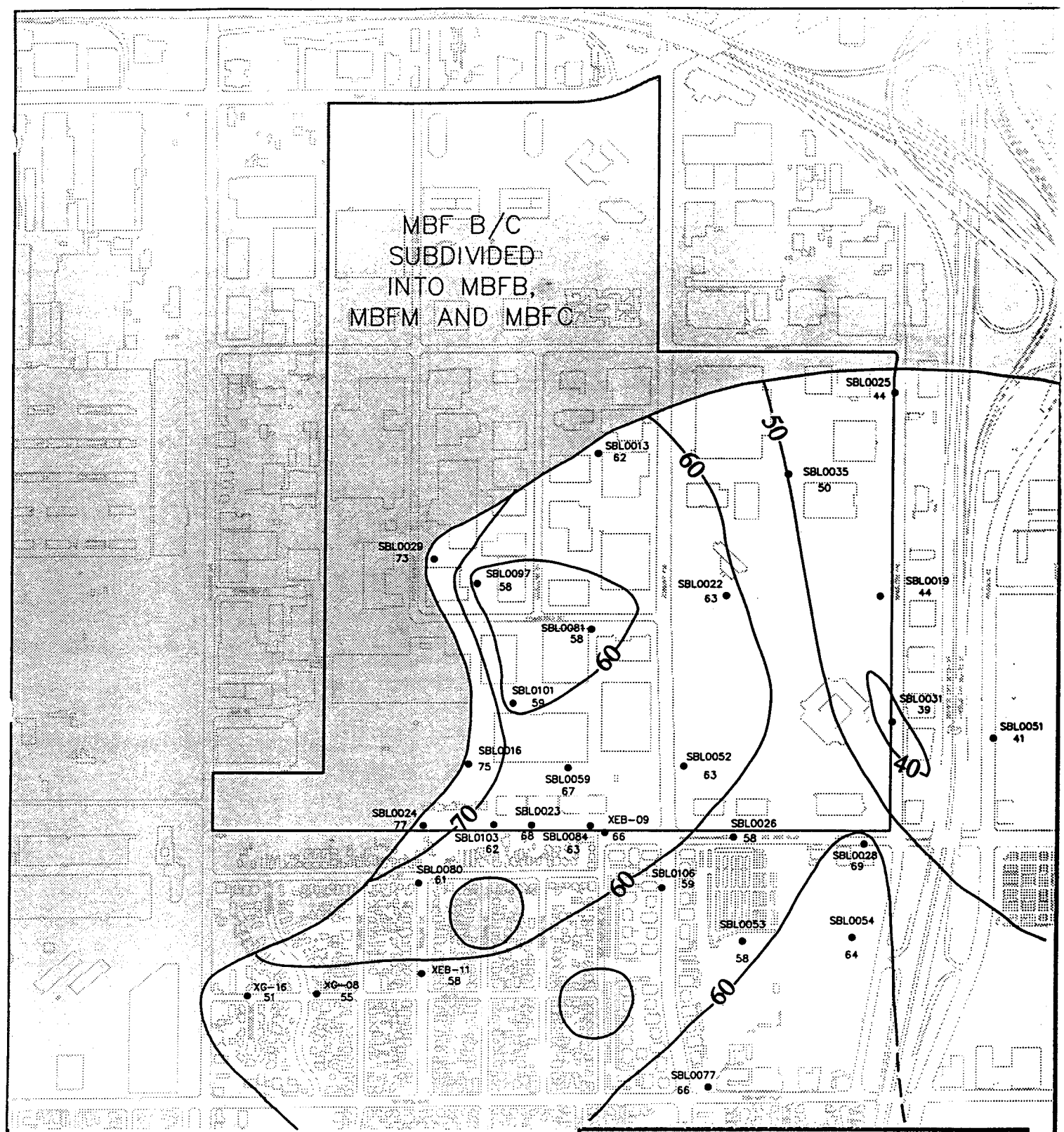
FIGURE 3.2-11

Isopach Map
Middle Bellflower C Sand

Groundwater Remedial Investigation
Del Amo Study Area

DAMES & MOORE

D:\DJD\RI\SEC3\iso-cm1, 06/16/97 at 16:41



EXPLANATION

XEB-15
30

Control point indicating thickness of hydrostratigraphic unit (usually measured from base of current unit to base of unit above)

20

Isopach contour, dashed where inferred (feet).

Area where MBF B/C is subdivided into MBFB, MBFM and MBFC

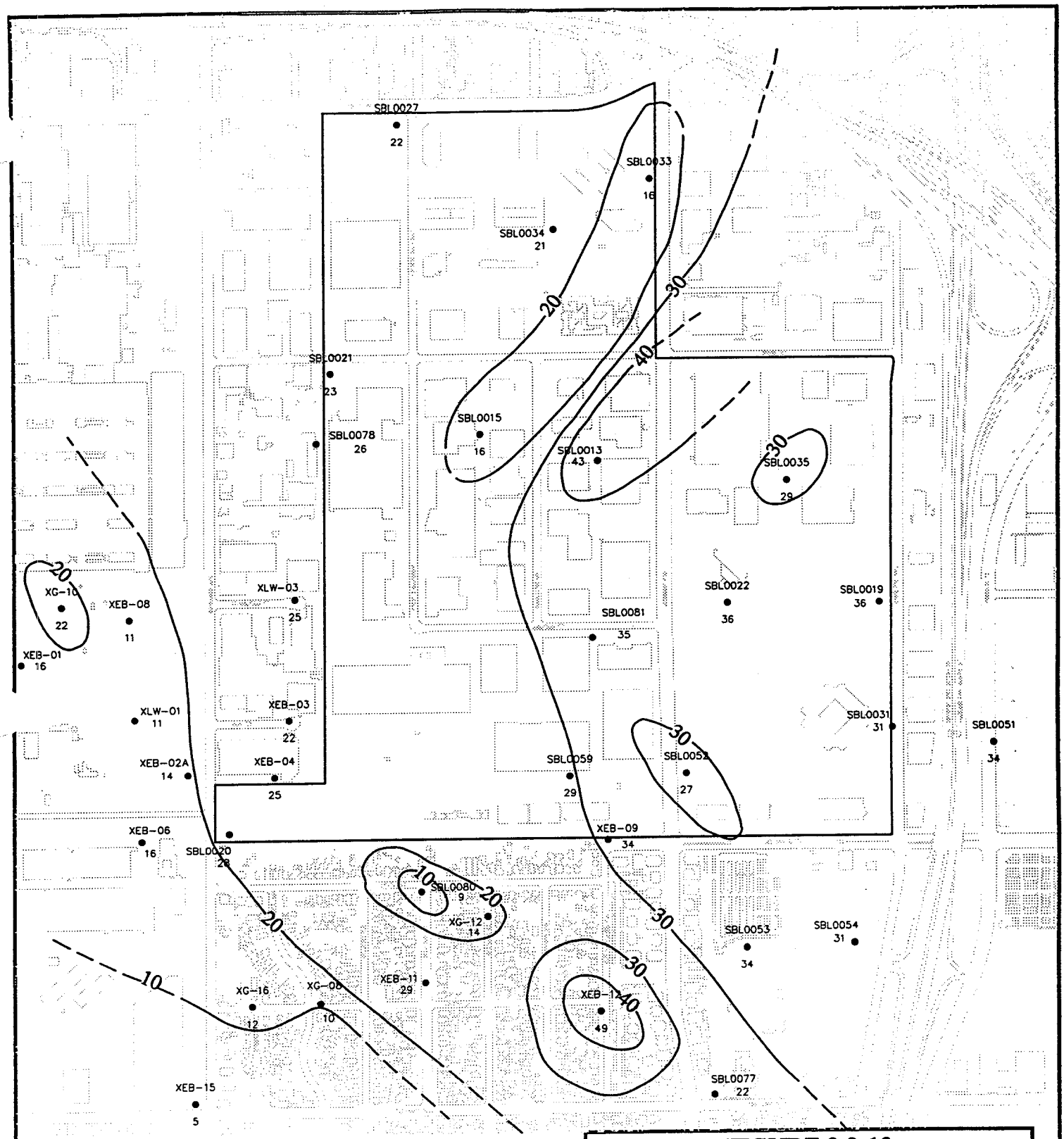
FIGURE 3.2-12

Isopach Map
Middle Bellflower B/C Sand

Groundwater Remedial Investigation
Del Amo Study Area

DAMES & MOORE

D:\DJD\RI\SEC3\iso-bc. 04/14/98 at 14:00



EXPLANATION

XEB-15 ● 5 — Control point indicating thickness of hydrostratigraphic unit (usually measured from base of current unit to base of unit above)

20 — Isopach contour, dashed where inferred (feet).

FIGURE 3.2-13

Isopach Map
Lower Bellflower Aquitard

Groundwater Remedial Investigation
Del Amo Study Area

DAMES & MOORE

D:\DJD\RI\SEC3\iso-lbf, 06/13/97 at 16:36

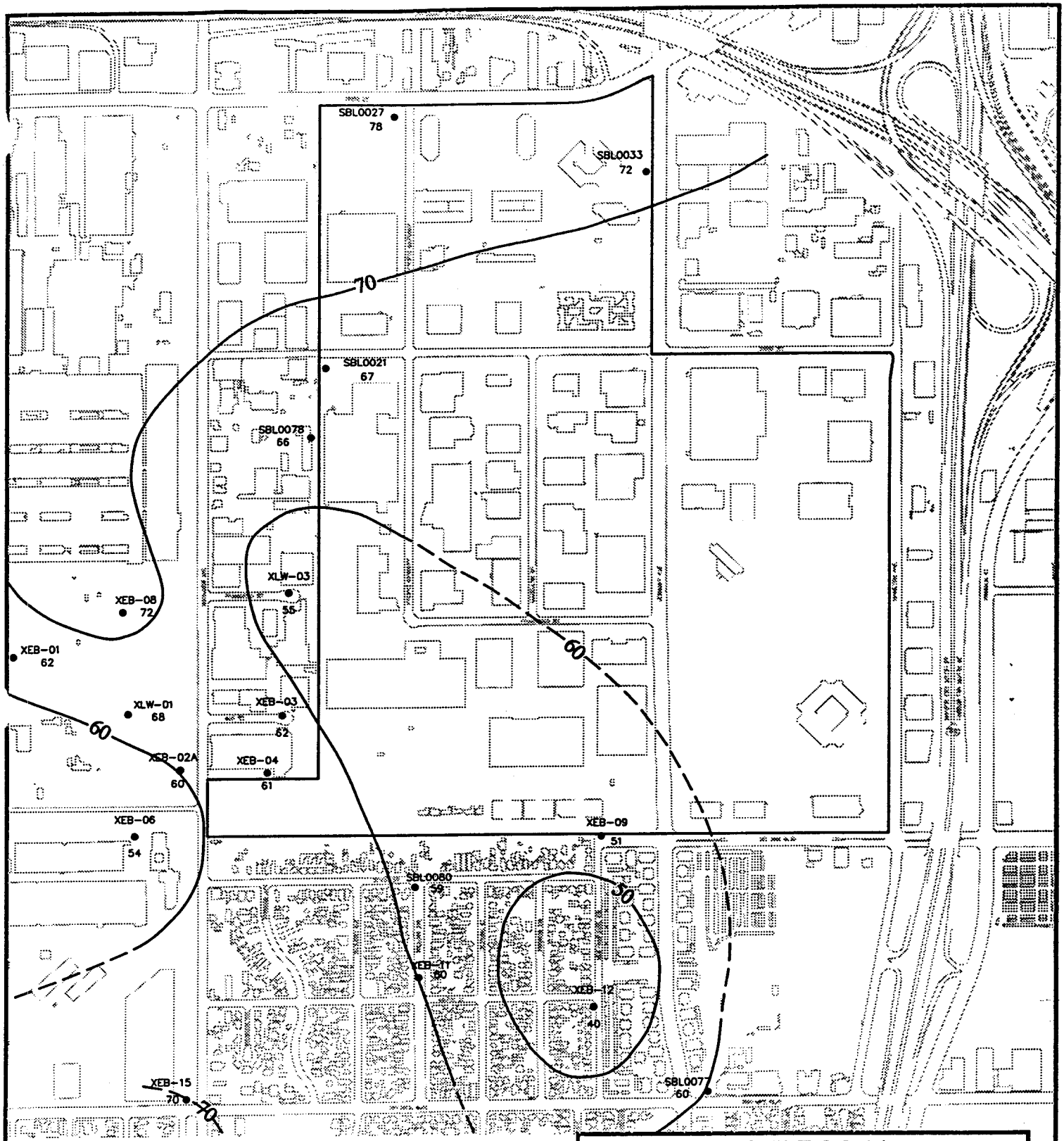


FIGURE 3.2-14

Isopach Map
Gage Aquifer

Groundwater Remedial Investigation
Del Amo Study Area

DAMES & MOORE

EXPLANATION

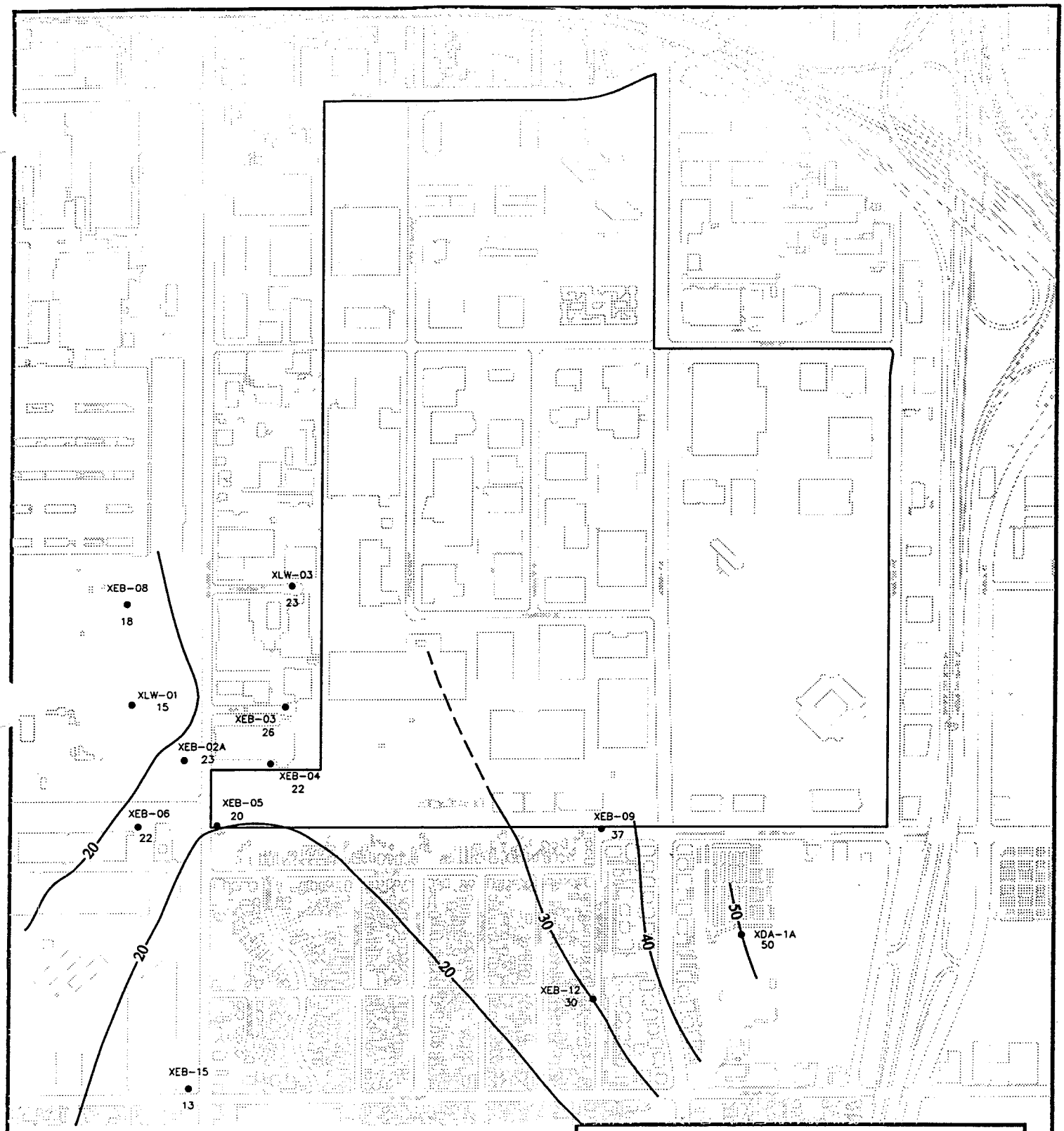
XEB-15
30

Control point indicating thickness of hydrostratigraphic unit (usually measured from base of current unit to base of unit above)

20

Isopach contour, dashed where inferred (feet).

D:\djd\RI\SEC3\iso-gage, 05/22/97 at 08:44



0 800 1600

N

EXPLANATION

XEB-15 ● 13 — Control point indicating thickness of hydrostratigraphic unit (usually measured from base of current unit to base of unit above)

20 — Isopach contour, dashed where inferred (feet).

FIGURE 3.2-15

Isopach Map
Gage-Lynwood Aquitard

Groundwater Remedial Investigation
Del Amo Study Area

DAMES & MOORE

D:\DJD\RI\SEC3\iso-gla, 06/16/97 at 11:16

DEL AMO STUDY AREA

Comparison of Stratigraphic Nomenclature

696/045D

PUBLISHED REGIONAL HYDROSTRATIGRAPHY①		REGIONAL GW MODEL LAYER NUMBER	MONTROSE HYDRO-STRATI-GRAPHY②	DEL AMO STUDY AREA HYDROSTRATIGRAPHY③		AVERAGE THICKNESS (ft)	BASE ELEV. RANGE (ft/msl)
UPPER PLEISTOCENE LAKEWOOD FORMATION	BELLFLOWER AQUITARD	1	UPPER BELLFLOWER AQUITARD	UPPER BELLFLOWER AQUITARD		74	-15 to -71
		2		MIDDLE BELLFLOWER	B-SAND	15	-35 to -91
		3			MUD	7	-36 to -103
		4	BELLFLOWER SAND		C-SAND	43	-70 to -129
		5					
		6	LOWER BELLFLOWER AQUITARD	LOWER BELLFLOWER AQUITARD		27	-100 to -156
		7					
		8					
	GAGE AQUIFER	9	GAGE AQUIFER	GAGE AQUIFER		66	-186 to -216
LOWER PLEISTOCENE SAN PEDRO FORMATION	GAGE/ LYNWOOD AQUITARD	10	GAGE/ LYNWOOD AQUITARD	GAGE/LYNWOOD AQUITARD		20②	-170 to -230②
		11					
		12					
	LYNWOOD AQUIFER	13	LYNWOOD AQUIFER	NOT REACHED		36④	-240④
	UNNAMED AQUITARD	NOT APPLICABLE	LYNWOOD-SILVERADO AQUITARD	NOT REACHED		208④	-440④
	SILVERADO AQUIFER	NOT APPLICABLE	NOT REACHED	NOT REACHED		>240④	BASE NOT REACHED

EXPLANATION

① California Department of Water Resources Bulletin 104, 1961. Planned Utilization of the Groundwater Basins of the Coastal Plain of Los Angeles County. Appendix A – Groundwater Geology, June 1961.

Poland, J.F., A.A. Garrett and A. Sinnott, 1959. Geology, Hydrology and Chemical Character of Ground Waters in the Torrance – Santa Monica Area, California. U.S. Geological Survey Water Supply Paper 1461.

② Hargis + Associates 1992. Final Draft Remedial Investigation, Montrose Site, Torrance, CA. Volumes I through IV, October 29.

③ Current study.

④ Drillers Log, LACDPW Well No 795.

FIGURE 3.4-1

Comparison of Stratigraphic Nomenclature

Groundwater Remedial Investigation Report
Del Amo Study Area