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 (°)	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
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.		
	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)

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	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, 80-90% 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

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)
	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 %	WENT. SCALE ϕ	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 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)

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

DEPTH (ft)	RECOVERY %	PENT. SCALE (qt)	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, 95% 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 %	WENT. 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, 87% silica, 3% olivine.	Second occurrence of groundwater at 87 ft-bgs.	
								As above		90
90	NA	NA	NA	2	NA					
	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, 87% silica, 3% olivine, with stringer of medium grained sand 10 cm thick at 88 ft-bgs, orange (Fe stained) and loose.		
	NA	NA	DB-2 @ 100	NA	NA					
100										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, 80-80% 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 %	PENT. SCALE (ft)	SAMPLE NO.	PID (ppm)	UNCND. STRNGTH (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		
60										60

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.		
85										85
	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

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 φ	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-1

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)
	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 (ϕ)	SAMPLE NO.	PID (ppm)	UNCND. 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
								This work was performed under my supervision and I concur with the findings. Anthony C. Ward, CA R.G. #4782		
240										240

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 (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, 80% silica, 7% olivine, slightly more fines towards 185 ft with 2-5% clay.		
								Gradational contact.		
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 85-80% silica and 10% olivine.		185
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
	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										190
195										195
	NA	3-3.5	NA	< 1	NA			As above		
								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										200

GERAGHTY & MILLER, INC.

BORING LOG

(continuation)

_CT 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)
	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

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 (°)	SAMPLE NO.	PID (ppm)	UNCND. STRNGTH (tons/ft²)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION OF MATERIAL		DEPTH (ft)
						SP				
145	80	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 @ 148	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
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 %	WCNT. SCALE (ft)	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 @ 90	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 CAO 217.020.002 BORING NO. DB-1

DEPTH (ft)	RECOVERY %	PENT. SCALE (ϕ)	SAMPLE NO.	PID (ppm)	UNCOND. 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)

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				
	100	2.5	NA	NA	NA			SAND, very fine grained, light yellowish brown (10YR, 6/4), loose, slightly moist, (95% 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)	UNCOND. 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, 6/6), slightly moist to moist, minor (<1%) silt blebs 1-2 cm diameter (oblong horizontally).		
85										85
	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

PROJECT International Light Metals
TION 19200 S. Western, Torrance, CA
METHOD 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: 0.0 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, 95% 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 %	PENT. SCALE (ϕ)	SAMPLE NO.	PID (ppm)	UNCND. 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
	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										30
								SAND, very fine grained, pale brown (10YR, 7/4), loose, slightly moist, subangular, horizontal bedding 1-10 mm thick.		
	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										35
								As above		
	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										40

GERAGHTY & MILLER, INC.

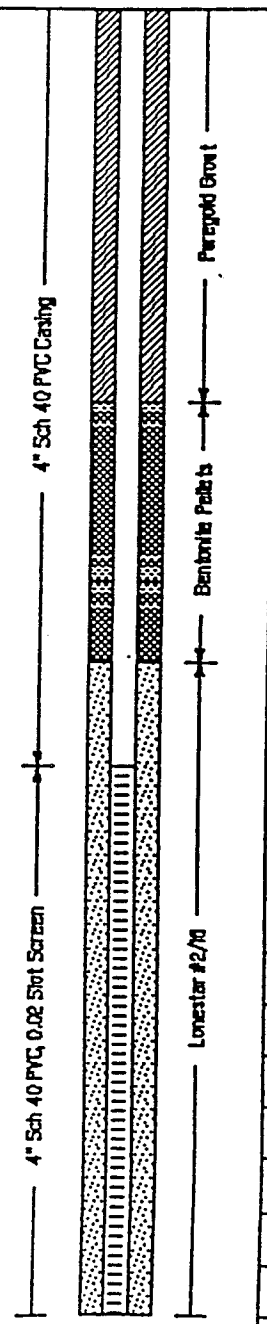
WELL LOG

(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		
				52.1	11 14 23			SAND, trace Silt, light olive brown (2.5Y, 5/4), moist.
55	100		P-25 @ 55					
				4.2	12 16 22			SAND, trace Silt, light olive brown (2.5Y, 5/4), moist.
80	100		P-25 @ 60					
				100	14 19 24			SAND, trace Silt, light olive brown (2.5Y, 5/4), moist.
85	100		P-25 @ 65					
			P-25 @ 70	83	13 20 35			SAND, trace Silt, light olive brown (2.5Y, 5/4), very moist.
70	100							
								Water encountered at 72.5 ft-bgs.
				230	13 20 33			SAND, trace Silt, light olive brown (2.5Y, 5/4), water saturated.
75	100		P-25 @ 75					

WELL DIAGRAM



DEPTH (ft): 55, 80, 85, 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)		
					10					
				755	15	ML		Clayey SILT, olive brown (2.5Y, 4/3), moderate plasticity, slightly moist to moist.		
80	100		P-25 @ 80		18			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.

WELL LOG

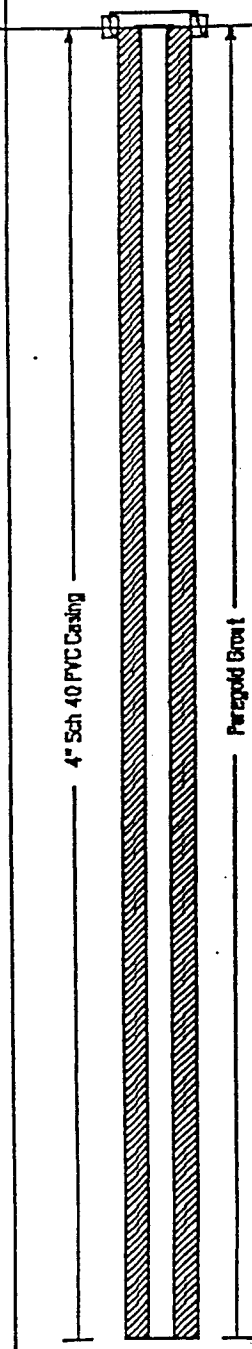
PROJECT International Light Metals
LOCATION 19200 S. Western, Torrance, CA
DRILL METHOD Hollow Stem Auger
SAMPLING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

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

BORING P-25
DATE STARTED 11/27/95
DATE COMPLETED 11/27/95
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.
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



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-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)
30	100		P-25 @ 30	4.3	11, 14, 16	SP		SAND, trace Silt, yellowish brown (10YR, 5/6), non plastic, slightly moist.	4" Sch 40 PVC Casing; Pureguard Grout	30
35	100		P-25 @ 35	38.1	15, 19, 26	ML		SILT, trace very fine grained Sand, yellowish brown (10YR, 5/4), non plastic, moist.		35
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.		40
45	100		P-25 @ 45	38.8	11, 21, 29	SP		SAND, trace Silt, yellowish brown (10YR, 5/6), slightly moist to moist.		45
50	100		P-25 @ 50	3.8	16, 23, 28			SAND, trace Silt, yellowish brown (10YR, 5/6), moist.		50

GERAGHTY & MILLER, INC.

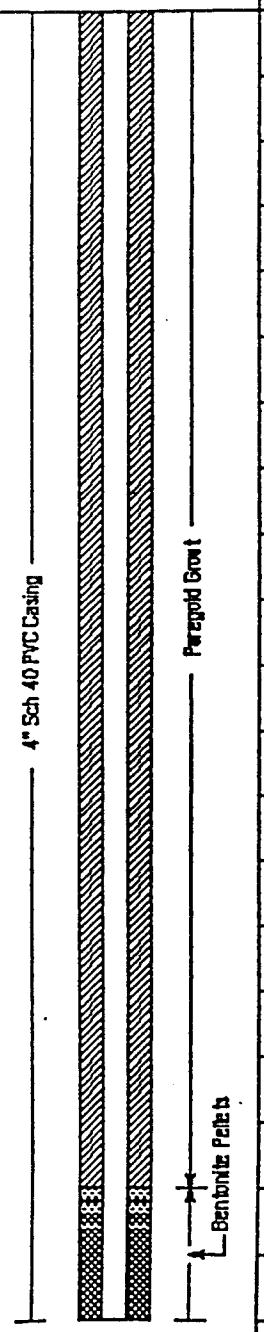
WELL LOG

(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
						ML		
				105	13 15 23			SILT, little Clay, olive (5Y, 5/3), low plasticity, slightly moist.
45	100		P-24 @ 45					
				249	10 12 17			SILT, little Clay, olive (5Y, 5/3), low plasticity, slightly moist.
50	100		P-24 @ 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					
				0.0	25 37 43			SAND, very fine grained, trace Silt, yellowish brown (10YR, 5/6), moist.
60	100		P-24 @ 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-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)
						SP				
				0.0	18			SAND, very fine grained, trace Silt, yellowish brown (10YR, 5/6), moist.		
					28					
85	100		P-24 @ 65		30					85
				168	18			SAND, very fine grained, trace Silt, yellowish brown (10YR, 5/6), very moist to wet.		
			P-24 @ 70		20					
70	100				33					70
								Water encounterd at 73 ft-bgs.		
					8			Top 0.5 ft: SAND, very fine grained, trace Silt, yellowish brown (10YR, 5/6), water saturated.		
				225	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					75
								End of Boring @ 75 ft. Set 4-inch groundwater moritoring 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										80

WELL DIAGRAM: 4" Sch 40 PVC Casing; Bentonite Pellets; 4" Sch 40 PVC, 0.02 Slot Screen; Lonestar #2/12; Bottom Cap

GERAGHTY & MILLER, INC.

WELL LOG

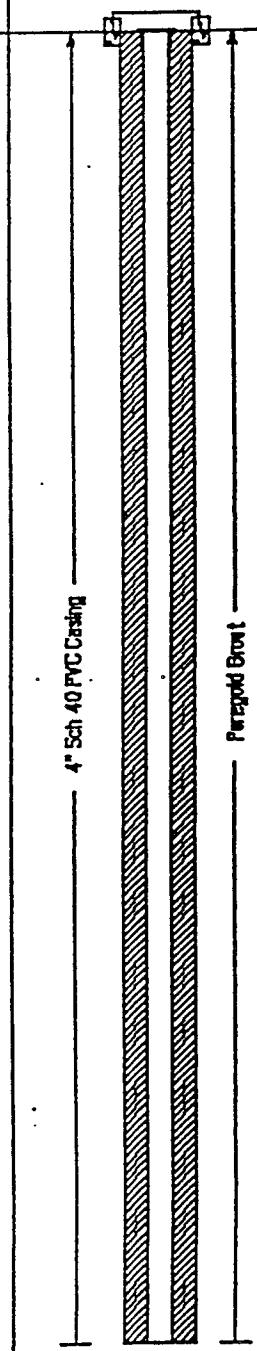
PROJECT: International Light Metals
LOCATION: 19200 S. Western, Torrance, CA
DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: CMSS
BOREHOLE DIAMETER: 10 Inches O.D.

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, 7, 11			CLAY, little Silt, dark olive gray (5Y, 3/2), high plasticity, stiff, moist.
5	100		P-24 @ 5					
						ML		
				0.0	8, 10, 16			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non to low plasticity, moist.
10	NA		P-24 @ 10					
				0.0	8, 8, 15			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non to low plasticity, moist.
15	100		P-24 @ 15					
				0.0	14, 15, 23			SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non to low plasticity, moist.
	100		P-24 @ 200					
20	100		P-24 @ 20					

WELL DIAGRAM



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

GERAGHTY & MILLER, INC.

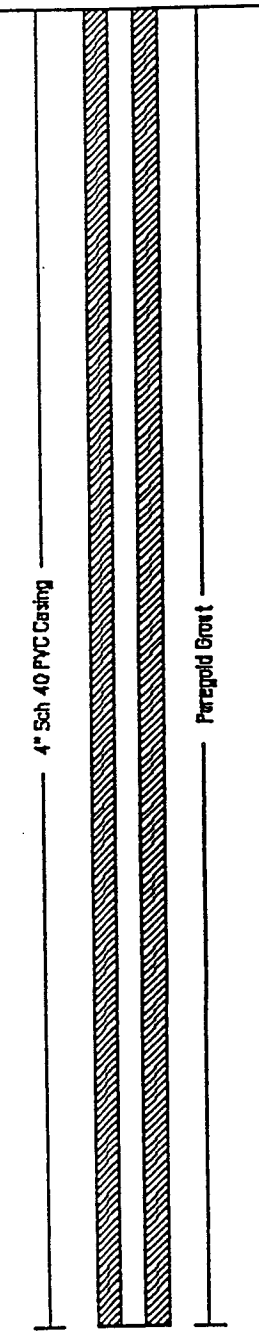
WELL LOG

(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			SILT, trace Clay, increasing very fine grained Sand, dark yellowish brown (10YR, 4/4), non to low plasticity, moist.
					16			
25	100		P-24 @ 25		20			
						SP		
				0.0	14			SAND, very fine grained, yellowish brown (10YR, 5/8), slightly moist to moist.
					16			
30	100		P-24 @ 30		24			
						ML		
				33.1	8			SILT, little very fine grained Sand, yellowish brown (10YR, 5/8), non plastic, moist.
					16			
35	100		P-24 @ 35		28			
				34.2	16			SILT, increasing in very fine grained Sand, yellowish brown (10YR, 5/8), non plastic, moist.
					28			
40	100		P-24 @ 40		34			

WELL DIAGRAM



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

GERAGHTY & MILLER, INC.

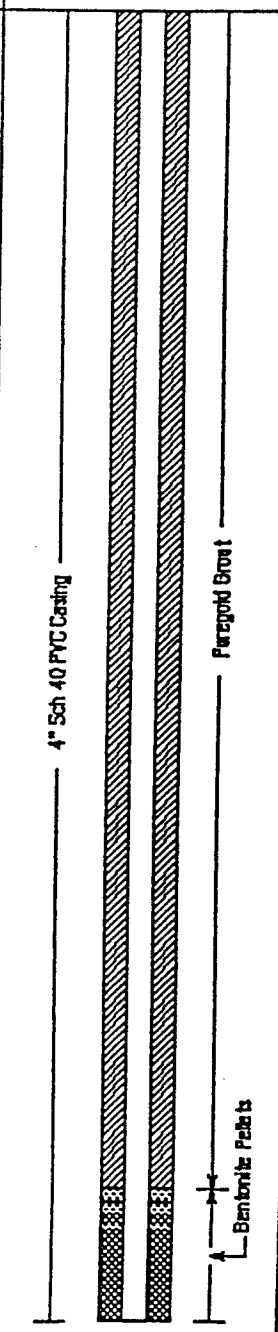
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-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.
60	100		P-23 @ 60					

WELL DIAGRAM



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

GERAGHTY & MILLER, INC.

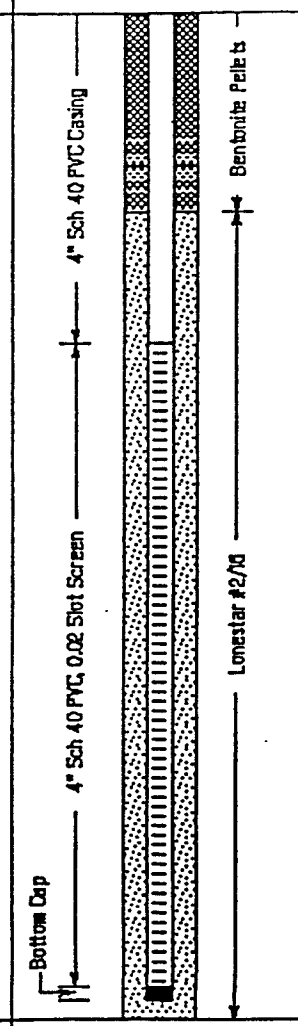
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-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 32 40			SAND, very fine grained, yellowish brown (10YR, 5/8), moist.
85	100		P-23 @ 65					
				6.1	17 22 30			SAND, very fine grained, yellowish brown (10YR, 5/8), wet.
70	100		P-23 @ 70					
								Water encountered at 72 ft-bgs.
				8.5	15 16 17	ML		SAND, very fine grained, yellowish brown (10YR, 5/3), water saturated. (top 0.5 ft of sample) SILT, trace Clay, olive (5Y, 5/3), low plasticity, moist. (bottom 1 ft of sample).
75	100		P-23 @ 75					
								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 Anthony C. Ward, CA R.G. #4782
80								

WELL DIAGRAM



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

GERAGHTY & MILLER, INC.

WELL LOG

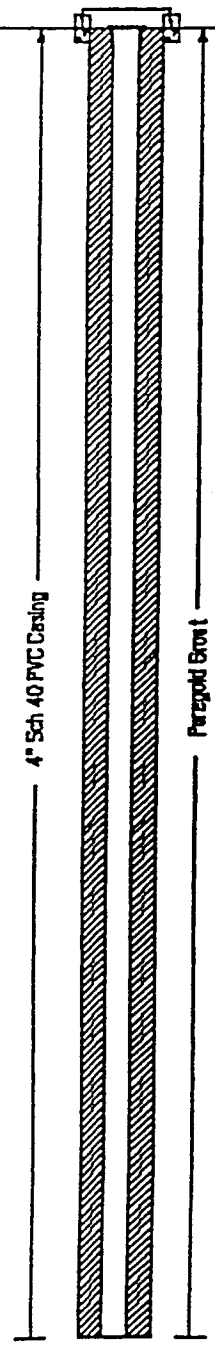
PROJECT: International Light Metals
LOCATION: 19200 S. Western, Torrance, CA
DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: CMSS
BOREHOLE DIAMETER: 10 inches O.D.

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-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 (8")
						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, 5/8), 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, 5/8), non to low plasticity, moist.
				0.3	11			
15	100		P-23 @ 15		16			
						ML/SM		
					12			SILT, trace Clay, increasing in very fine grained Sand, yellowish brown (10YR, 5/8), non to low plasticity, moist.
				0.0	14			
20	100		P-23 @ 20		18			

WELL DIAGRAM



GERAGHTY & MILLER, INC.

WELL LOG

(continuation)

.CT 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				
				0.0	15			SAND, little Silt, yellowish brown (10YR, 5/4), slightly moist to moist.		
					22					
25	100		P-23 @ 25		25					25
						ML				
					11			SILT, trace very fine grained Sand, olive (5Y, 5/3), non plastic, slightly moist.		
	100		P-23 @ 30D	2.4	13					
30	100		P-23 @ 30		17					30
						SM				
					20			Silty SAND, very fine grained, some Silt, yellowish brown (10YR, 5/6), slightly moist to moist.		
				3.8	27					
35	100		P-23 @ 35		30					35
						ML				
					8			SILT, little Clay, light olive brown (2.5Y, 5/4), moderate plasticity, moist.		
				4.2	16					
40	100		P-23 @ 40		21					40

4" Sch 40 PVC Casing

Pea gravel Grout

GERAGHTY & MILLER, INC.

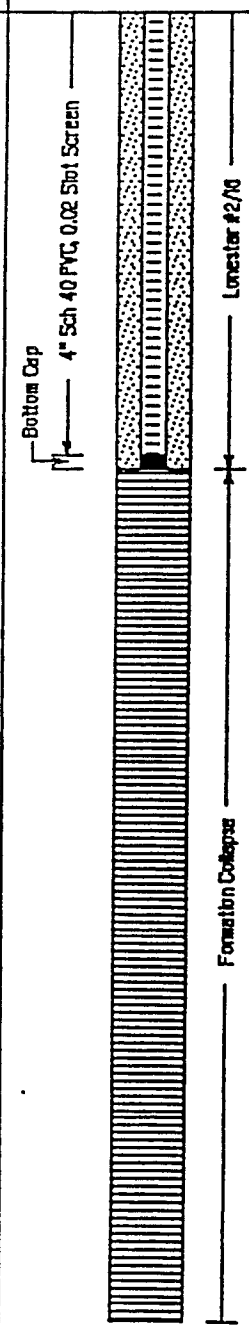
WELL LOG

(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, 5/8), water saturated.
85								
	NA		P-22 @ 88	NA	15 21 36			SAND, very fine to fine grained, yellowish brown (10YR, 5/8), 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, 5/8), water saturated.
90								
	NA		P-22 @ 93	NA	14 22 30			SAND, very fine to fine grained, yellowish brown (10YR, 5/8), water saturated.
	NA		P-22 @ 95	0.0	13 21 30			SAND, fine to medium grained, yellowish brown (10YR, 5/8), water saturated.
95								
	NA		P-22 @ 98	NA	8 16 24			SAND, fine to medium grained, dark red (2.5YR, 4/8), water saturated.
	NA		P-22 @ 100	NA	10 16 25			SAND, fine to medium grained, dark red (2.5YR, 4/8), 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.		
				NA	13					
					17					
	NA		P-22 @ 102		22					
								SAND, fine to medium grained, dark red (2.5YR, 4/6), water saturated.	Formation Collapse	
				NA	11					
					18					
105	NA		P-22 @ 105		28					105
						ML CL		Clayey SILT, olive (5Y, 5/4), high plasticity, stiff, slightly moist.		
				0.0	8					
					12					
	NA		P-22 @ 108		18					
								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

(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 Pneupold 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.

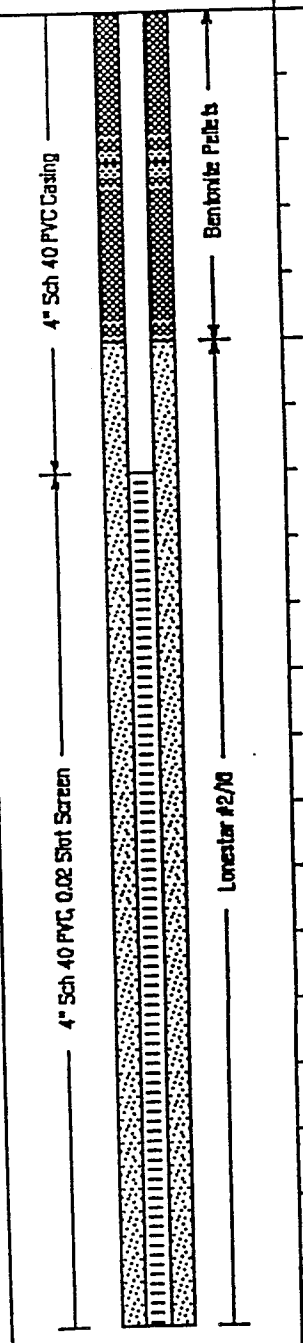
WELL LOG

(continuation)

CT 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



GERAGHTY & MILLER, INC.

WELL LOG

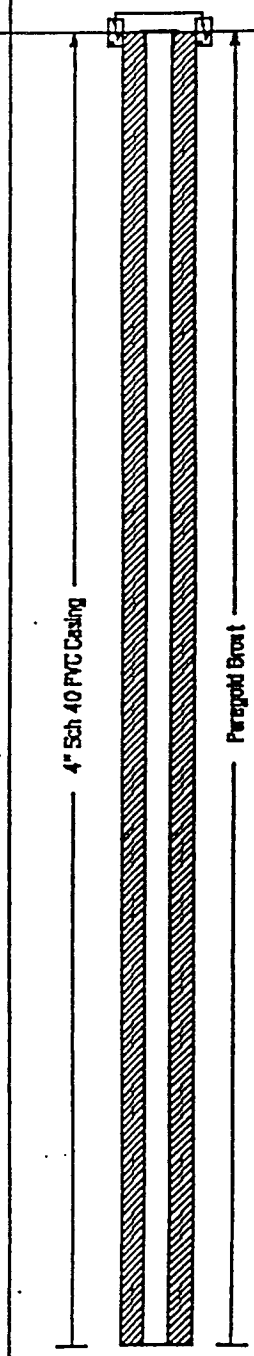
PROJECT: International Light Metals
LOCATION: 19200 S. Western, Torrance, CA
DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: CMSS
BOREHOLE DIAMETER: 10 inches O.D.

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					
				0.0	12, 24, 38	ML		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					
				0.0	12, 16, 25	SM		Silty SAND, very fine grained, some Silt, browish yellow (10YR, 6/8), non plastic, slightly moist.
20	100		P-22 @ 20					

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-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)
						SM				
				0.0	7, 11, 16			Silty SAND, very fine grained, some Silt, brownish yellow (10YR, 6/8), non plastic, slightly moist.		
25	100		P-22 @ 25							25
						SM/SP				
				0.0	8, 12, 17			SAND, very fine grained, some Silt, brownish yellow (10YR, 6/6), slightly moist to moist.	4" Sch 40 PVC Casing; Pureguard Grout	
30	100		P-22 @ 30							30
						SP				
				10.8	12, 20, 28			SAND, very fine grained, less Silt, brownish yellow (10YR, 6/6), slightly moist to moist.		
35	100		P-22 @ 35							35
				0.0	14, 21, 27			SAND, very fine grained, brownish yellow (10YR, 6/6), slightly moist to moist.		
40	100		P-22 @ 40							40

GERAGHTY & MILLER, INC.

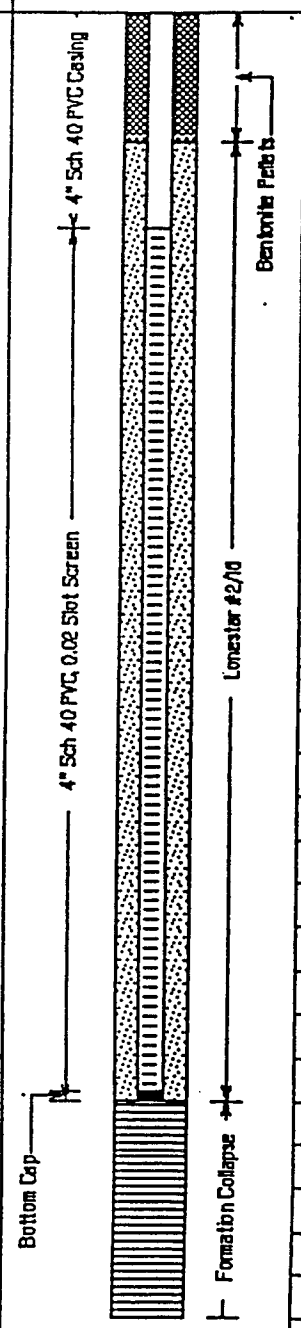
WELL LOG

(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
						SP		
85	100		P-21 @ 65	10.4	43, 50/0			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, 28, 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	
				128	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

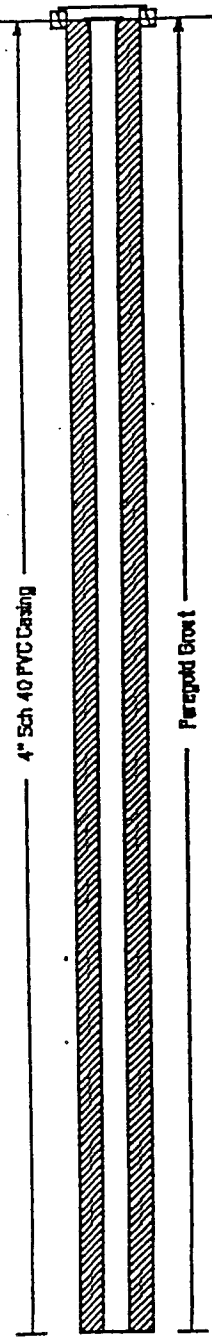
PROJECT: International Light Metals
LOCATION: 19200 S. Western, Torrance, CA
DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: CMSS
BOREHOLE DIAMETER: 10 inches O.D.

PROJECT NO.: CAO 217.020.002
LOGGED BY: M. Shipione
DRILL CO.: Gregg Drilling and Testing, Inc.
RIG TYPE: B-61
DRILLER: 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 (8")
						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.
10	100		P-21 @ 10	5.3	6, 7, 8			
								SILT, trace Clay, trace very fine grained Sand, dark yellowish brown (10YR, 4/4), non to low plasticity, moist.
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			
						SP		SAND, very fine grained, trace Silt, brownish yellow (10YR, 6/6), moist.
25	100		P-21 @ 25	6.7	11, 16, 19			
								SAND, very fine grained, trace Silt, brownish yellow (10YR, 6/6), moist.
30	100		P-21 @ 30	5.1	14, 20, 20			

WELL DIAGRAM



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

GERAGHTY & MILLER, INC.

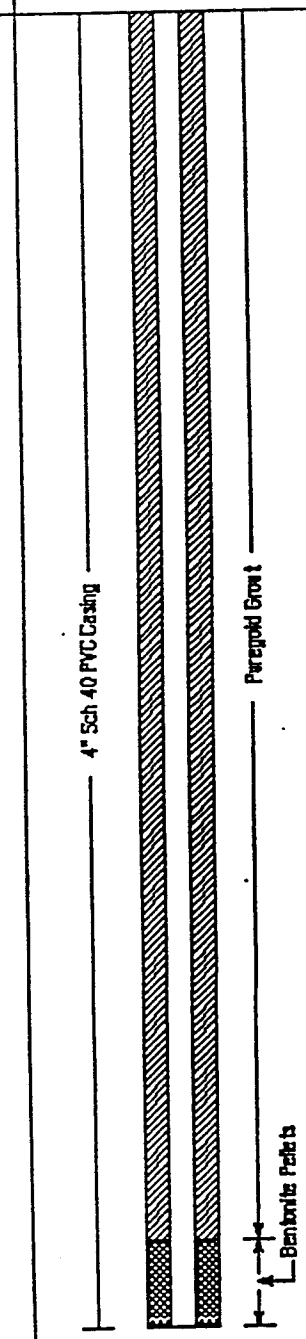
WELL LOG

(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 @ 40.0, 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, 36			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.

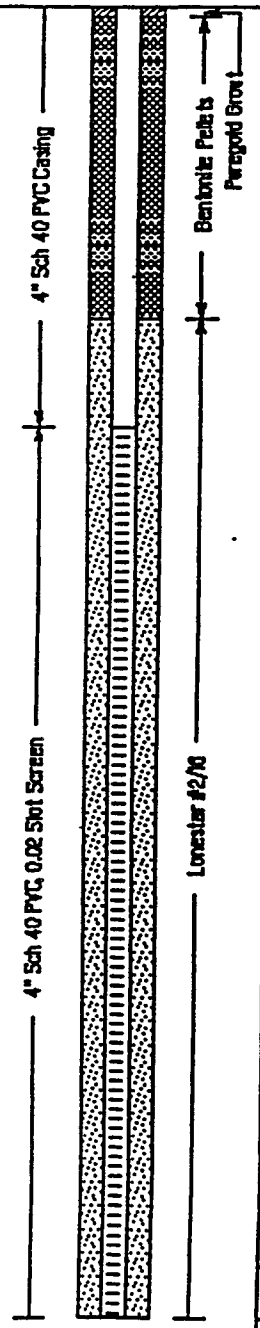
WELL LOG

(continuation)

PROJECT International Light Metals PROJECT NO CAO 217.020.002 BORING NO. P-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.
			P-20 @ 70	12	17 / 23 / 28			SAND, less Silt, brownish yellow (10YR, 6/6), water saturated.
70	100							
						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.		
				48.0	13					
80	100		P-20 @ 80		10			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

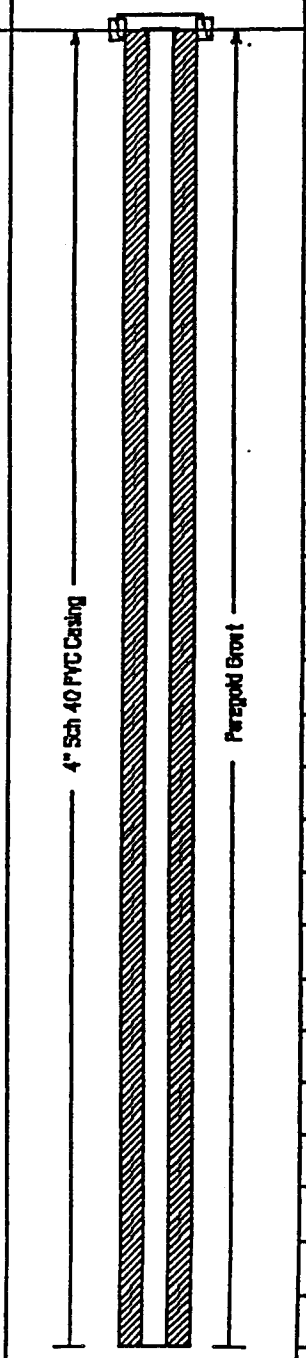
PROJECT International Light Metals
LOCATION 19200 S. Western, Torrence, CA
. METHOD Hollow Stem Auger
LING METHOD CMSS
BOREHOLE DIAMETER 10 inches O.D.

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	8, 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)

CT 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)
						SP				
				0.0	11 18 23			SAND, very fine grained, little Silt, brownish yellow (10YR, 6/6), moist.		
30	100		P-20 @ 30							30
				0.0	14 19 25			SAND, very fine grained, little Silt, brownish yellow (10YR, 6/6), moist, shell fragments.		
35	100		P-20 @ 35							35
						SP SM				
				2.0	11 13 23			SAND, some Silt, light olive brown (2.5Y, 5/3).	4" Sch 40 PVC Casing Peregold Grout	
40	100		P-20 @ 40							40
						SP				
				2.1	8 16 20			SAND, less Silt, light olive brown (2.5Y, 5/3).		
45	100		P-20 @ 45							45
				5.2	16 20 23			SAND, less Silt, light olive brown (2.5Y, 5/3).		
50	100		P-20 @ 50							50

GERAGHTY & MILLER, INC.

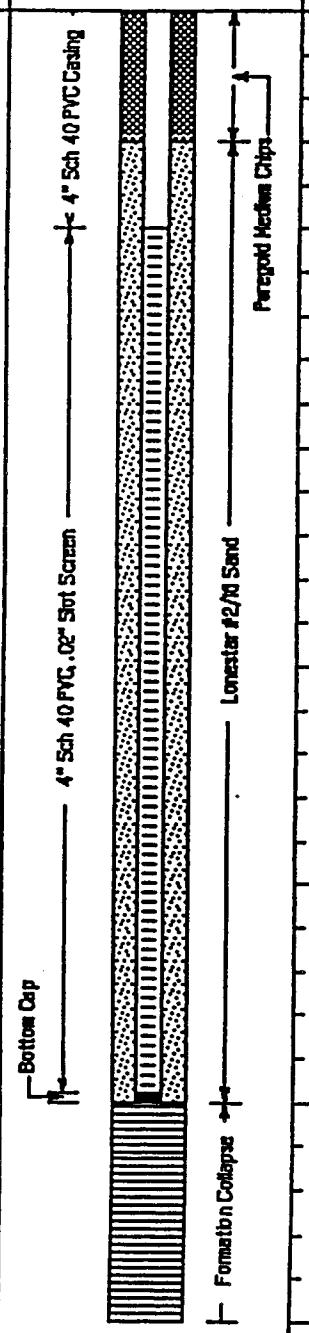
WELL LOG

(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
65	100		P-19 @ 65	1.2	26, 33, 40	SP		SAND, very fine grained, light yellowish brown (2.5Y, 6/4), loose, slightly moist.
70	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.
90	100		P-19 @ 90	88.8	38, 42, 48	SC		Clayey SAND, medium grained, light olive brown (2.5Y, 5/6), loose, water saturated.

WELL DIAGRAM



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	WELL DIAGRAM	DEPTH (ft)
						SC				
						SP				
				48.0	28			SAND, medium grained, trace Clay, olive yellow (2.5Y, 6/6), loose, water saturated.	Formation Collapse	
95	100		P-19 @ 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
								Anthony C. Ward, CA R.G. #4782		
120										120